

# Catalogue 2020

## Welding accessories



Plasma cutting

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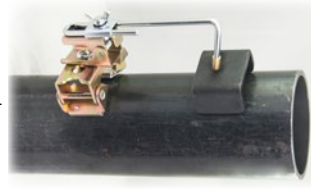
Oxy-fuel equipment

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Welding accessories

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Welding torches and accessories

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Work safety and fume extraction

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Surface treatment

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## Catalogue notes

As a valuable reference work, this catalogue presents a cross-section of the supply range of our associated dealers. Additional ranges, specialised offers and the corresponding price lists can be acquired from your local dealership. This catalogue is copyright protected. Reprinting, including extracts, requires the publisher's approval. We accept no liability for printing errors, incorrect product descriptions and illustrations. We reserve the right to make technical changes to the catalogue articles and to modify the range. The warranty rights are regulated by the conditions agreed by the respective contractual partners. The data published in this catalogue corresponds to the information available at the time of going to print (September 2019).



### ■ Advice + service

Have you got any questions which are not answered in this price list? Our global EWM branches and sales partners are happy to help and advise you at any time. You will find your local partner online at [www.ewm-group.com](http://www.ewm-group.com). Alternatively, please contact the EWM works team at any time on +49 2680 181-0 or [info@ewm-group.com](mailto:info@ewm-group.com).



### ■ Financing

Do you only require a machine temporarily or you would like to finance it? We will naturally be happy to provide you with an attractive leasing or rental quotation. Contact us or your dealer.



### ■ Returns

If you do need to return a product for some reason, please discuss this with the seller in advance. Your return can only be accepted and processed to your satisfaction as quickly as possible in accordance with our return conditions if previously agreed upon and if the goods are in their original packaging. Custom-made products cannot be exchanged.



### ■ T&Cs + technical data

All products are supplied in accordance with the Terms and Conditions of the applicable EWM sales company. The information in our documents is non-binding. We retain the right to make changes on the grounds of technical developments or errors.

## Contacting EWM

### ■ Internet

[www.ewm-group.com](http://www.ewm-group.com)

### ■ E-Mail

[info@ewm-group.com](mailto:info@ewm-group.com)

You can reach us by telephone from Mondays to Fridays between 7.30 a.m. and 5.00 p.m.: +49 (0)2680 181-0

An overview of our German branches can be found at the following link:

<https://www.ewm-group.com/en/contact/branches.html>



## Plasma cutting technology

- Cutting equipment
- Cutting torches
- Accessories

1



## Oxyfuel/propane technology

- Heating, brazing and cutting systems
- Pressure regulators
- Solders
- Gas hoses and accessories
- Safety systems, couplings, gas supply facilities

2



## Welding accessories

- Welding cables, electrode holders and accessories
- Electrode dryers
- Measuring and marking tools
- Tools and auxiliaries
- Induction heating/straightening
- Pipe working and backing equipment
- Gouging torch components

3



## Welding torches and accessories

- MIG/MAG welding torches
- TIG welding torches
- Consumables
- Tungsten electrode grinders

4



## Work safety and fume extraction

- Welding helmets
- Work and protective clothing
- Breathing, ear and eye protection
- Fume extraction
- Welding safety blankets and curtains

5



## Surface treatment

- Abrasives
- Chemical-technical products
- Electrolytic cleaning
- Electrical equipment
- Weld cleaner

6



# EN 1090 WPQR Package

**Now free download in PDF format!**

Save time and money on qualification of welding processes: The ewm EN 1090 WPQR package provides you with WPQR certificates and welding procedure specifications for almost 90% of all standard welding positions and joints, usable with many ewm welding machines<sup>1</sup> and easily extended.

With welding consumables tested for suitability, the same WPQR certificates can even be used for welding machines by any manufacturer using the appropriate corresponding welding consumable.

You will now receive the EN 1090 WPQR package as a free PDF download whenever you purchase a new welding machine from the alpha Q, Phoenix, Taurus Synergic S or Picomig machine series!



## This is how it works:

1. You acquire a new ewm welding machine from the alpha Q, Phoenix, Taurus Synergic S or Picomig machine series.
  2. Register it with the machine serial number at [www.ewm-group.com/en/registration](http://www.ewm-group.com/en/registration)
- Registration ensures that you are informed about all updates, add-ons and changes!
3. Once registration is successfully completed, you can then simply download the EN 1090 WPQR package. The download link is sent to you together with your certificate.

Alternatively, you can also purchase the EN 1090 WPQR package:

- **EN 1090 WPQR package folder**  
A folder in paper format at cost price.  
The package can also be downloaded in PDF format.



Type	Description	Item no.	PG	Price
EN 1090 WPQR package folder	EN 1090 WPQR package in a folder	090-008803-00000	D1	305,00 €
EN 1090 WPQR package download	EN 1090 WPQR-package German as a download	KOS-V00055-00000	N1	169,00 €
EN 1090 WPQR package download	EN 1090 WPQR-package English as a download	KOS-V00067-00000	N1	169,00 €

If no new welding machine is purchased, the EN 1090 WPQR package costs 305,00 € in a folder / 169,00 € as a download! If a new welding machine from the alpha Q, Phoenix, Taurus Synergic S or Picomig series is purchased downloading the package is free and the package folder costs 129.00 €.

Would you like to know what is included in the package?  
If so, just ask for the free demo version at  
[www.ewm-en1090.com](http://www.ewm-en1090.com)

<sup>1</sup>This qualification may also be used retrospectively for all previously purchased inverter machines mentioned above (manufactured in 2010 or later).

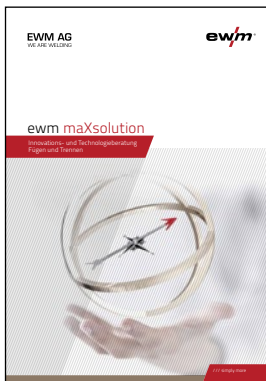
# EWM AG – the complete range

## Optimisation of the entire welding process chain

But beyond the innovative products and the practical accessories, EWM sees itself as a partner for solutions relating to the entire welding process – regardless of whether they are dealing with the needs of small workshops and craftsmen, medium-sized companies or large industrial groups. EWM uses its welding-related technological consultation and services to support its customers in the optimisation of their entire welding process chain and thus makes a contribution to increasing their competitiveness.

**In addition to our main product group catalogues, we also hold information material on all our products and services, e.g.:**

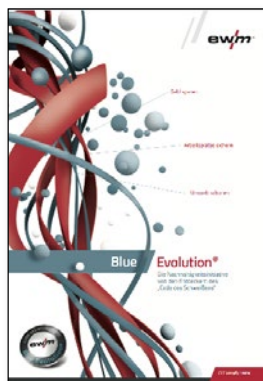
**maXsolution – innovation and technology consulting**



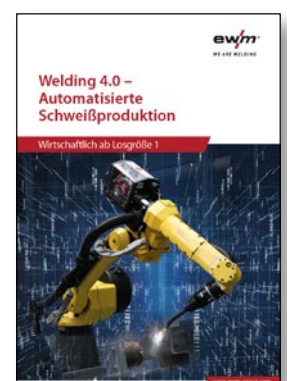
**EWM EN 1090 WPQR package Save time and money**



**Environmental management and sustainability with Blue Evolution**



**Welding 4.0 – automated welding production**



**Degauss – demagnetisation of pipes and metal sheets**



**ewm Xnet – quality management software**



**EWM welding dictionary – simply know more**



**EWM welding technology – everything from a single source**



**Request information material now or get in touch with us, we will be happy to advise you!**

Tel. +49 02680 181-0  
[info@ewm-group.com](mailto:info@ewm-group.com)  
[www.ewm-group.com/kontakt](http://www.ewm-group.com/kontakt)

**PDF file download**  
[www.ewm-group.com/sl/prospekte](http://www.ewm-group.com/sl/prospekte)





## Allow us to introduce: Titan XQ puls Welding 4.0 – the future of welding

### Conquer the new dimension - welcome to the world of welding 4.0 by EWM.

The future of professional welding is networked, digital and paperless. These are the challenges of "Industry 4.0" and every company must face these sooner or later. The EWM group delivers welding companies the ideal

solution with the new Titan XQ puls multiprocess MIG/MAG welding machine and the Welding 4.0 welding management system ewm Xnet 2.0 first-class future-proofability, for even more efficient, qualitative-certifiable welding.

All innovative welding procedures and characteristics are included in the purchase price of the welding machine.

- Welding consistently at the highest levels of quality and efficiency, as all innovative welding processes from EWM are available as standard



Display WPS and welding data via mobile device view tells you everything

- Easy parameter control directly in the welder's workplace thanks to availability of all current welding data



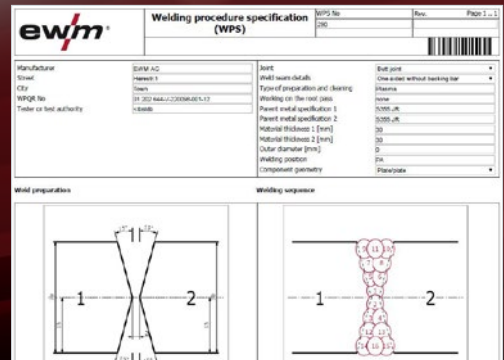
Welding 4.0 – ewm Xnet 2.0 welding management system



# Titan XQ

### Create paperless WPS – assign WPS to component parts and welders

- Efficiently create WPS and conveniently assign from the office according to quality assurance



### Component management for efficient manufacturing – step-by-step perfection

- Minimised risk of welding defects thanks to convenient and component-based allocation of WPS for each individual run/seam



### PM welding torch with graphic display – information directly on the workpiece

- Conveniently save time reading and acknowledging the current welding task according to the welding sequence plan via welding torch on the workpiece





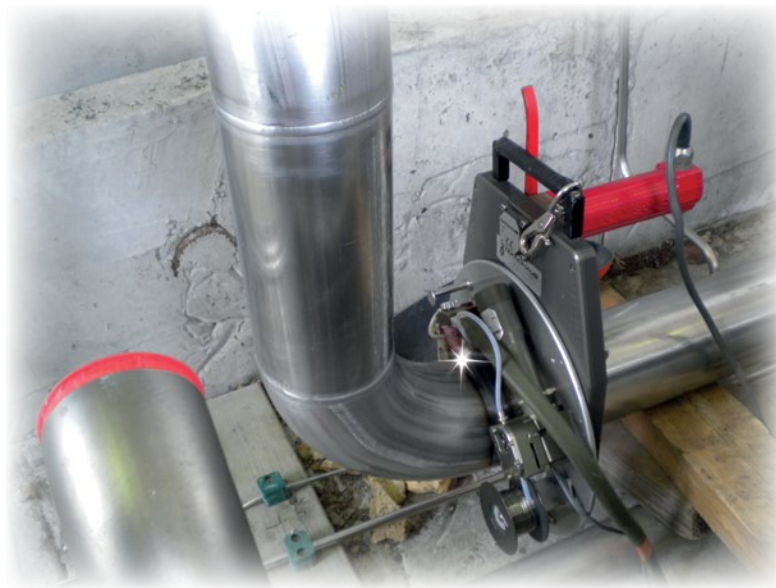
# The whole world of orbital welding

TIG orbital welding is deployed in many industrial fields with great success and has become an established production method. In general, the TIG (Tungsten Inert Gas) method is used in orbital welding. Here, the welding torch is guided around the pipes during welding by a mechanical apparatus. The designation orbital welding indicates the circular path along which the welding tool moves.

The highest quality is required when joining pipes. Here, orbital welding offers the best opportunity for meeting these demands.

## Advantages of orbital welding

- / Considerable increase in productivity compared to manual welding
- / Uniform high welding quality standard
- / Deployment conditions (deployment even in poor environmental conditions)
- / Traceability/quality monitoring



## Applications

Because of its ability to achieve uniform weld qualities, orbital welding is deployed in numerous branches of industry.

- / Aerospace industry
- / Food and beverage industry
- / Pharmaceutical industry and biotechnology
- / Semiconductor industry
- / Chemicals industry
- / Fossil- or nuclear fuel-fired power stations



## The components of an orbital welding system

All orbital welding systems comprise the same base units regardless of the planned application:

- / A programmable welding power source with remote control (external or integral to the welding head); portable for on-site or mobile with trolley for use in pre-production
- / A welding head
- / A wire feed mechanism if required by the application



The parameters can be freely programmed in all systems as a function of the weld geometry, the parent and filler materials. The modular concept of the individual components means that an appropriate orbital welding system can be configured for each specific application.

### Orbital welding heads for pipe-to-pipe welding

- 1 Closed orbital welding heads without wire
- 2 Open U-shaped orbital welding heads with wire
- 3 Orbital welding carriage for confined spaces

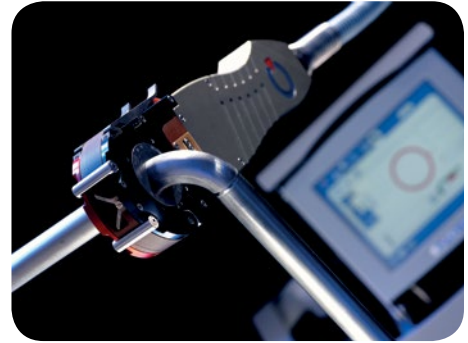
### Orbital welding head for pipe-pipe plate welding

- 4 Open orbital welding heads for Pipe-pipe plate welding with and without filler wire
- 5 Polyvalent orbital welding power sources Compatible with Polysoude welding heads with or without filler wire

# Orbital welding heads for pipe-to-pipe welding

## Closed orbital welding heads

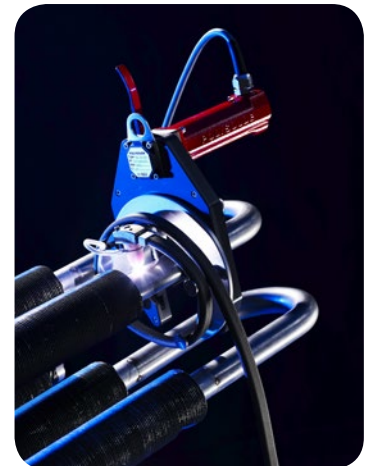
Closed orbital welding heads are used to join pipes without filler wire. Pipe diameters from 1.6 mm to 168 mm are covered by the various welding head types. In addition to corrosion-resistant steels, oxidation-sensitive materials such as titanium, zirconium and their alloys in particular can be welded with excellent results. One or two pairs of exchangeable clamping inserts (TCI tube clamping inserts) are used to clamp the heads depending on the application.



Closed Polysoude MW type orbital welding heads

## Open U-shaped orbital welding heads

Open orbital welding heads are suitable for welding with or without filler wire. The workable pipe diameter range lies between 8 mm and 275 mm. Open U-shaped orbital welding heads are equipped with a welding torch with gas lens. The welder can observe the arc during welding and control the process. The asymmetric design of the welding heads allows welding very close to partition walls or pipe elbows. The welding torch can be positioned manually or using motorised carriages (arc height control and weaving).



Open Polysoude MU type orbital welding heads

## Orbital welding carriages

Orbital welding carriages are installed on gear rims which can be mounted on pipes from 114 mm diameter. The wall thicknesses of these pipes are large enough to mean that multi-layered welding is required. The welding carriages must be robust enough to support the necessary additional appliances: a heavy duty drive motor, a heavy duty welding torch, an AVC and weaving carriage, and a wire feed unit with 5 kg of wire spools. In addition, video equipment can be mounted to monitor and document welding. The orbital welding cars are equipped with either a TIG welding torch with gas lens or a narrow gap welding lance to suit the application.



Orbital welding carriages, type Polysoude Polycar

# Orbital welding heads for pipe- pipe plate welding

## Closed orbital welding heads for pipe-pipe plate welding without filler wire

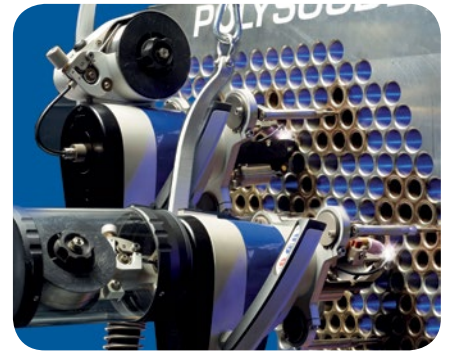
Closed orbital welding heads are designed for TIG (GTAW) pipe-pipe plate welding without filler wire. The welding heads can be used for welding flush or slightly protruding pipes with inside diameters of 9.5 mm to 33.7 mm. Welding is performed in a closed chamber filled with inert gas. A mechanically expandable clamping and centring pin is inserted in the pipe to be welded to clamp the heads.



Pipe-pipe plate welding head  
Polysoude TS 34

## Open orbital welding heads for pipe-pipe plate welding with or without filler wire

Using open orbital welding heads, the entire spectrum of possible pipe dimensions from internal diameters beginning at 10 mm up to maximum outside diameters of 60 mm can be covered. A TIG welding torch is passed around the pipe ends which are protruding, flush or retracted into the pipe plate. The open orbital welding heads are equipped with a welding torch with gas lens. When welding oxygen-sensitive parent metals, increased protection can be achieved by the use of a shielding gas dome. The welding heads can be equipped with an integral wire feed mechanism. The welding head is automatically held in position by a pneumatic clamping system allowing a welder to work on several heads simultaneously.



Pipe-pipe plate welding heads  
Polysoude TS 8/75

## P4 – P6 Polyvalent orbital welding power sources

/ Automatic welding program compilation and intelligent user guidance combined with the most recent, reliable, industrial electronics

/ Real-time data acquisition

/ High-performance inverter power source by EWM with integral water cooling of welding heads and welding torch.

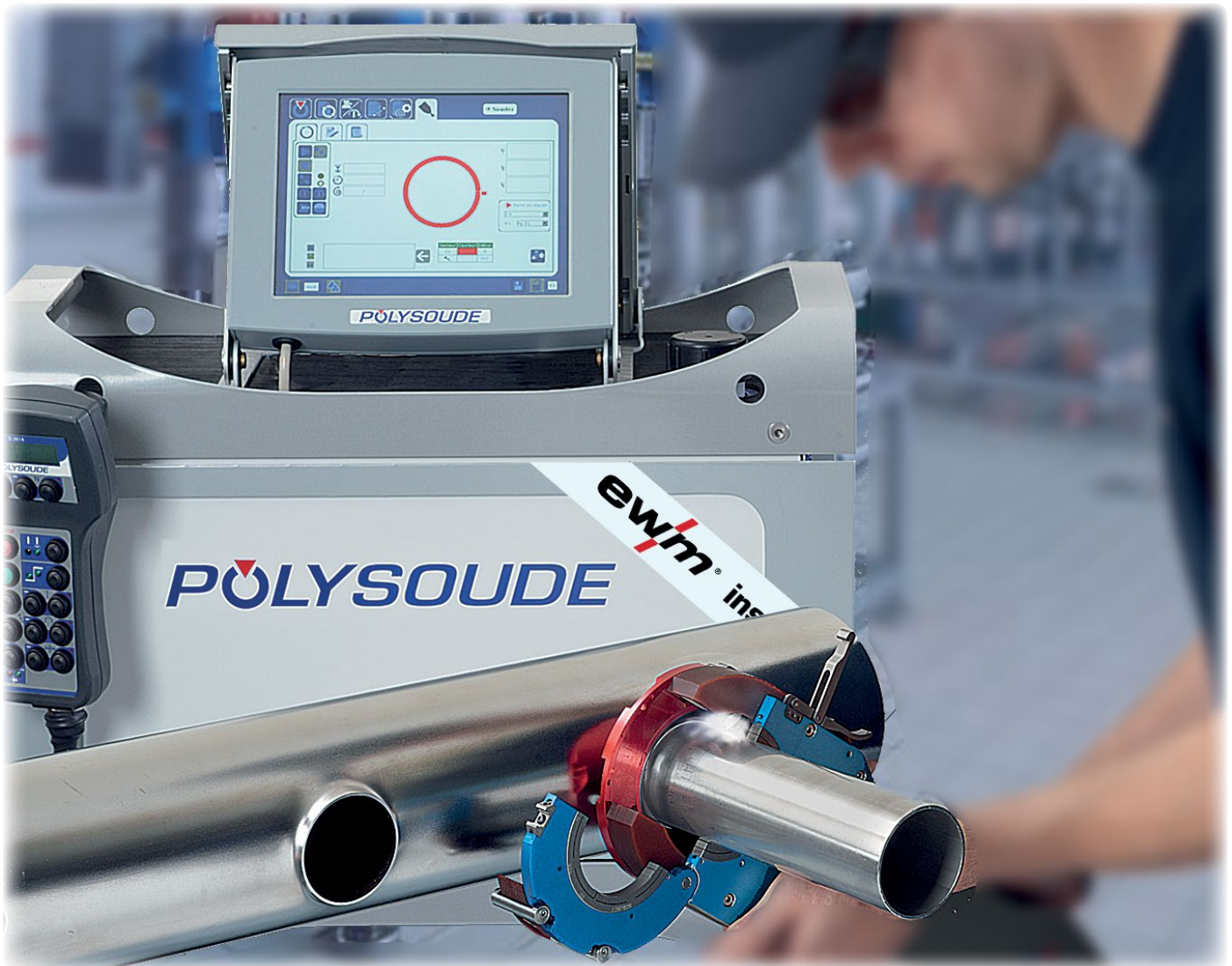


P4-P6 Polysoude orbital welding system



## EWM inside at Polysoude

An orbital system consists of a welding machine with control unit and suitable welding head. Every Polysoude welding machine is also equipped with an EWM inverter power source. Just contact us – we will be happy to configure an orbital system specially to meet your requirements!



Just contact us!



+49 (0)2680 181-0



[info@EWM-group.com](mailto:info@EWM-group.com)

**Plasma cutting technology****Page**

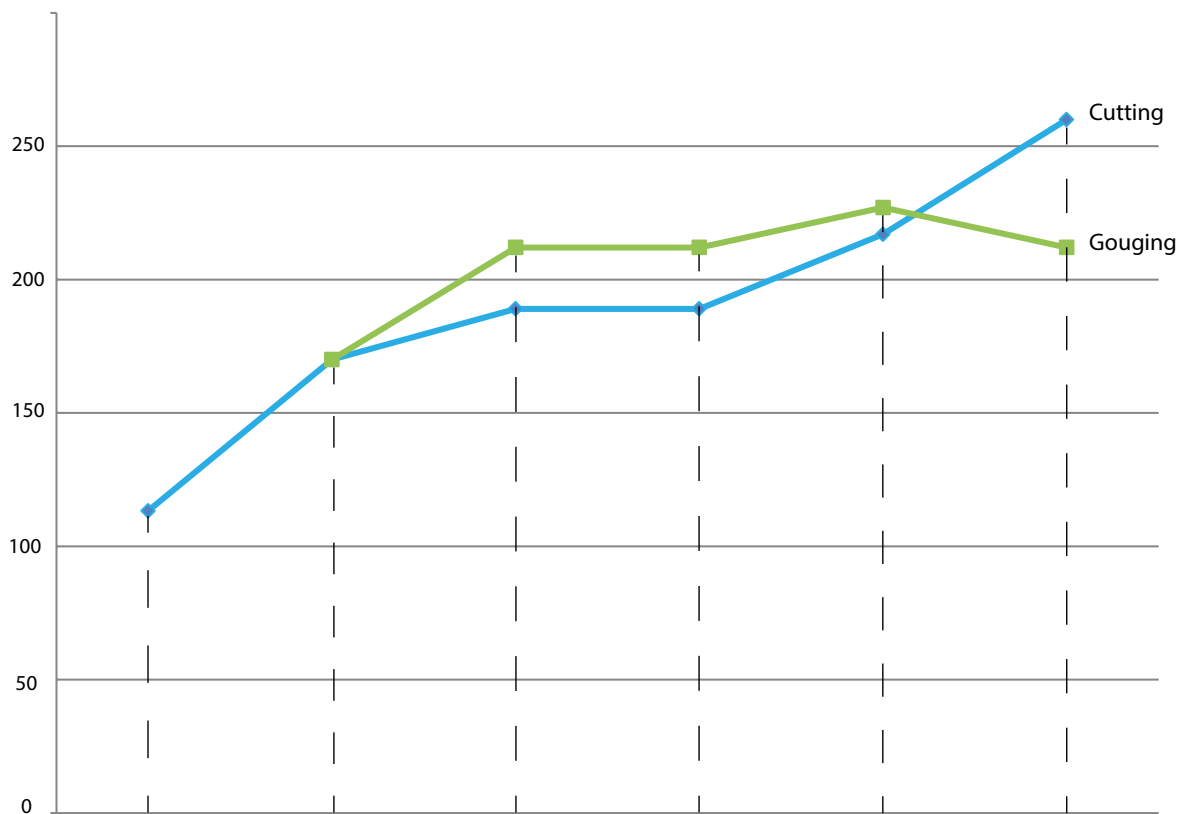
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## Recommended input flow rate/pressure



Please note that an adequate gas supply must be guaranteed to properly operate the plasma cutting machines. You will find recommended power data in the following table:



	Powermax 30	Powermax 45	Powermax 65	Powermax 85	Powermax 105	Powermax 125
						
Cutting	113.3 l/min at 5.5 bar	170 l/min at 5.5 bar	189 l/min at 5.9 bar	189 l/min at 5.9 bar	217 l/min at 5.9 bar	260 l/min at 5.9 bar
Gouging		170 l/min at 4.1 bar	212 l/min at 4.8 bar	212 l/min at 4.8 bar	227 l/min at 4.8 bar	212 l/min at 4.1 bar
Mains connection*	Safety plug	CEE 16, CEE 32 possible	CEE 16, CEE 32 possible	CEE 32	CEE 32	CEE 64



We can supply you with suitable compressors and the necessary compressed air accessories. We are happy to advise you on the correct choice of compressor. Simply contact us at +49 (0)2680 181-0 or [info@ewm-sales.com](mailto:info@ewm-sales.com).

\* Supplied ex-works without mains plug with the exception of Powermax 30



## Defective welding or plasma cutting machine?

Repairs and servicing of:

### Welding machines



### Welding torches



### Cutting machines and torches



- / Repair of welding machines and plasma cutting machines (all makes)
- / Detailed logging of fault
- / External and internal machine cleaning
- / Detailed cost estimate with list of all identified defects
- / Concluding visual inspection of all electrical conductors and add-ons
- / Concluding visual inspection of mechanical parts and add-ons
- / Inspection and testing compliant with IEC/EN 60974-4 if electrical parts were repaired
- / Compilation of a test log and attachment of a test badge
- / Machine calibration/validation

We will be happy to provide you with one of our lease machines during the repair period.

You can find a list of sales partners in your area on the Internet at [www.ewm-group.com](http://www.ewm-group.com)!  
In addition, the EWM factory team is available at any time.



[info@ewm-group.com](mailto:info@ewm-group.com)



+49 (0)2680 181-0



## Plasma cutting machines and accessories – cut with confidence®

# Hypertherm®



### The principle of plasma technology

Plasma and its intense heat (up to 22,000 °C) occur when a gas is ionised by electrical energy. Hypertherm employs the plasma method to melt metal and blow it away using compressed air or nitrogen. Edges with good cut quality are produced, which can generally be immediately welded. The majority of Powermax machines are available with a manual or machine cutting torch and can therefore be used either manually or mechanically.

### Highlights

#### Productivity



Greater performance in less time thanks to the higher cutting speeds, the excellent cut quality and practically no finishing work.

#### Operating comfort and reliability



Easy to use thanks to easy portability, simple controls and a stable arc. In addition, the clever design provides industry-leading reliability.

#### Versatility



Powermax machines are suitable for numerous applications. Regardless of whether in the workshop or on site, cutting or gouging aluminium, alloyed or unalloyed steel or numerous other tasks.

#### Low overheads



Thanks to its great productivity and the long service life of the wear parts, operating costs for cutting and gouging are reduced.





Duramax™ welding torches



Accessories/Duramax™ wear parts

The torch wear parts form the decisive interface to increasing quality, cutting speed and wear part service life.

/ **FineCut® wear parts**

Substantially improve cut quality on thin sheets by producing a narrower cut joint and generating practically no heat-affected zone.

/ **HyAccess™ wear parts**

The extended HyAccess wear parts deliver additional reach when cutting or gouging in poorly accessible or tight areas.



Accessories/Duramax™ welding torches

/ **Manual cutting torch**

The standard and 15° manual cutting torches of the Duramax™ and Duramax Hyamp series are suitable for the majority of manual cutting and gouging tasks.

In addition, the patent-protected, fibre-reinforced torch grip is 5 times more impact-resistant and 20% more heat-resistant in order to withstand even the most extreme conditions when cutting metals.



/ **Machine cutting torches**

The height at which the torch can be moved up and down on a gear rack, for example on a cutting machine, is adjustable.

The long Duramax™ and Duramax Hyamp 180° machine cutting torches can therefore be used together with portable equipment for automated cutting, for example with rail cutters and with CNC controlled cutting tables.

The mini machine cutting torches are eminently suited for lighter tables and for pipe cutting.

/ **Robot cutting torch**

Thanks to the low weight, the compact size and an integral positioning aid, the Duramax™ and Duramax Hyamp robot cutting torches allow easy integration and operation with lightweight robotic arms.





## Powermax product line – cuts anything, without compromise



Industrial, high-performance products for all cutting and gouging demands

Whether in a workshop, a factory, at home or in the field – Powermax equipment cuts and gouges all electrically conductive metal types and shapes. With a cutting rate\* of 16 mm at 30 A and up to 57 mm at 125 A, Powermax equipment helps you meet orders faster, easier, more reliably and more cost-effectively.



Powermax30® AIR

Powermax30® XP

Powermax45®

Powermax65®

	Powermax30® AIR	Powermax30® XP	Powermax45®	Powermax65®
Hand-controlled cutting rate*	Recommended 8 mm Cutting 16 mm	Recommended 10 mm Cutting 16 mm	Recommended 12 mm Cutting 25 mm	Recommended 20 mm Cutting 32 mm
Mechanised hole piercing capacity <sup>1</sup>	Not applicable	Not applicable	12 mm	16 mm
Input voltage at 50/60 Hz	CE 120–240 V	CE 120–240 V, 1 PH	CE 230 V, 1 PH CE 400 V, 3 PH	CE 400 V, 3 PH
Duty cycle at full load <sup>2</sup>	CE 35%, 240 V, 1 PH	CE 35%, 240 V, 1 PH	CE 50%, 230 V, 1 PH	CE 50% 380/400 V, 3 PH
Gas	Installed compressor	Air or nitrogen	Air or nitrogen	Air or nitrogen
Motor generator demands for complete length increase of the arc at full output power	5.5 kW	5.5 kW	8 kW	15 kW
Welding torch series	Air T30	Duramax™ LT	T45v	Duramax™
Wear parts sets	Air T30	Duramax LT	T45v/T45m	Duramax
		HyAccess	HyAccess	Duramax Hyamp HyAccess
Cutting power	16 mm	16 mm	25 mm	32 mm

\*Cutting rate data is always with reference to unalloyed steel

<sup>1</sup>With automatic torch height control

<sup>2</sup>Further duty cycles for different voltages are given in the tables with the product specifications

CE types are for use in countries requiring CE or GOST markings

## Benefits of Powermax

- / Cutting speeds are up to 1 1/2 times greater than for oxyacetylene cutting
- / Substantially cheaper compared to oxyacetylene cutting thanks to the use of compressed air instead of gas
- / FastConnect technology allows very easy changing between manual and machine cutting torches
- / For three-dimensional robots, rail cutting systems, X-Y cutting tables as well as pipe and bevel cutting machines
- / 100% ignition reliability thanks to pilot arc



### Powermax85®

### Powermax105®

### Powermax125®

Recommended 25 mm  
Cutting 38 mm

Recommended 32 mm  
Cutting 44 mm

Recommended 38 mm  
Cutting 57 mm

20 mm

22 mm

25 mm

CE 400 V, 3 PH

CE 230–400 V, 3 PH  
CE 400 V, 3 PH

CE 400 V, 3 PH

CE 60% 380/400 V, 3 PH

CE 80%, 400 V, 3 PH

CE 100%, 400 V, 3 PH

Air or nitrogen

Air or nitrogen

Air or nitrogen

20 kW

30 kW

40 kW

Duramax™

Duramax™

Duramax Hyamp

Duramax

Duramax

Duramax Hyamp

Duramax Hyamp

Duramax Hyamp

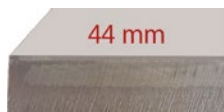
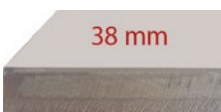
HyAccess

HyAccess

38 mm

44 mm

55 mm



**Hypertherm®**




**Plasma cutting machine with integrated air compressor ● Powermax30 AIR**



- Portable plasma cutting machine with integrated compressor
- Efficient work thanks to high cutting speeds
- Less finishing work thanks to high cutting quality
- Delivery ex works without mains plug – a suitable mains plug can be found in the Accessories section
- You will find individual consumables in the accessories for the AIR T30 cutting torch

<b>Current setting range</b>	15 A - 30 A
<b>Duty cycle 40 °C</b>	30 A / 35 %30 A
<b>External dimensions, compl.</b>	420 mm x 195 mm x 333 mm
<b>Recommended cutting thickness/cutting speed</b>	8 mm - 500 mm/min
	10 mm - 250 mm/min
<b>Separating cut</b>	16 mm - 125 mm/min
<b>Weight</b>	13.5 kg

<b>Delivery includes:</b>		<b>Item no.</b>
● Power source including Air T30 cutting torch (4.5 m)	m	394-002262-00000
● Workpiece lead (4.5 m)		
● Operating instructions and safety manual		
● 1 nozzle and 1 electrode		
● Carrying straps		

**Replacement parts set, manual cutting ● Essential kit Powermax 30Air**



- Replacement parts set for Powermax 30Air

<b>Scope of supply:</b>	<b>Item no.</b>
● 7x electrodes	394-002868-00000
● 7x nozzles	
● 1x swirl ring	
● 1x deflector	
● 1x back cap	




## Plasma cutting machine, portable, manual cutting, 4 m torch • POWERMAX 30 XP 120-240V 4,5M

- Plasma cutting machine for manual plasma cutting
- Smart Sense: Automatic air pressure setting
- FastConnect cutting torch connection
- Very easy to change the torch thanks to Easy Torch Removal
- Powercool: Very effective cooling for higher system reliability and service life
- You will find replacement parts for cutting as well as HyAccess and FineCut replacement parts in the Accessories section for the Duramax LT cutting welding torch
- Delivery ex works without mains plug – a suitable mains plug can be found in the Accessories section



<b>Mains voltage (tolerances)</b>	1 x 240 V
<b>Current setting range</b>	15 A - 30 A
<b>Duty cycle 40 °C</b>	23 A / 60 % 23 A 18 A / 100 % 18 A
<b>External dimensions, compl.</b>	365 mm x 168 mm x 305 mm
<b>Recommended cutting thickness/cutting speed</b>	10 mm - 500 mm/min 12 mm - 250 mm/min
<b>Separating cut</b>	16 mm - 125 mm/min
<b>Weight</b>	9.5 kg

Scope of supply:		Item no.
	m	
● Power source including Duramax-LT manual welding torch (4.5 m)	4.5	394-001375-00000
● Workpiece lead (4.5 m)		
● Consumables set including 1 standard gas nozzle, 1 electrode, 1 FineCut nozzle and 1 FineCut deflector		
● Carrying straps		
● Operating instructions and safety manual		

## Replacement parts set, manual cutting • Essential Kit Powermax 30XP

- Replacement parts set for Powermax 30XP

Delivery includes:	PU Units	Item no.
● 1x swirl ring	1	394-002869-00000
● 7x electrodes		
● 4x standard nozzles		
● 3x FineCut nozzles		
● 1x back cap		
● 1x standard protective shield		
● 1x FineCut deflector		



## Replacement parts set, HyAccess • HyAccess Powermax 30 XP

- **HyAccess-Replacement parts** - additional reach when cutting or gouging in poorly accessible or tight areas

Scope of supply:	PU Units	Item no.
● 2x electrodes	1	394-002037-00000
● 1x standard nozzle		
● 1 gouging nozzle		
● 1x back cap		
● 1x swirl ring		




## Plasma cutting technology ● Manual cutting

### Plasma cutting machine, manual cutting, in a box set ● POWERMAX 30 XP 120-240V 4,5M



- Plasma cutting machine for manual plasma cutting
- Smart Sense: Automatic air pressure setting
- FastConnect cutting torch connection
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- Powercool: Very effective cooling for higher system reliability and service life
- You will find replacement parts for cutting as well as HyAccess and FineCut replacement parts in the Accessories section for the Duramax LT cutting welding torch
- Delivery ex works without mains plug – a suitable mains plug can be found in the Accessories section

<b>Mains voltage (tolerances)</b>	1 x 240 V
<b>Current setting range</b>	15 A - 30 A
<b>Duty cycle 40 °C</b>	23 A / 60 %23 A
	18 A / 100 %18 A
<b>External dimensions, compl.</b>	365 mm x 168 mm x 305 mm
<b>Recommended cutting thickness/cutting speed</b>	10 mm - 500 mm/min
	12 mm - 250 mm/min
<b>Separating cut</b>	16 mm - 125 mm/min
<b>Weight</b>	9.5 kg

Scope of supply:	 m	Item no.
<ul style="list-style-type: none"> <li>● Power source including Duramax-LT manual welding torch (4.5 m)</li> <li>● Workpiece lead (4.5 m)</li> <li>● Consumables set including 1 standard gas nozzle, 1 electrode, 1 FineCut nozzle and 1 FineCut deflector</li> <li>● Carrying straps</li> <li>● Operating instructions and safety manual</li> <li>● Set of personal protective equipment</li> <li>● Plastic carrying case</li> </ul>	4.5	394-001376-00000

### Replacement parts set, manual cutting ● Essential Kit Powermax 30XP



- Replacement parts set for Powermax 30XP

Delivery includes:	PU Units	Item no.
<ul style="list-style-type: none"> <li>● 1x swirl ring</li> <li>● 7x electrodes</li> <li>● 4x standard nozzles</li> <li>● 3x FineCut nozzles</li> <li>● 1x back cap</li> <li>● 1x standard protective shield</li> <li>● 1x FineCut deflector</li> </ul>	1	394-002869-00000

### Replacement parts set, HyAccess ● HyAccess Powermax 30 XP



- **HyAccess-Replacement parts** - additional reach when cutting or gouging in poorly accessible or tight areas


Scope of supply:	PU Units	Item no.
<ul style="list-style-type: none"> <li>● 2x electrodes</li> <li>● 1x standard nozzle</li> <li>● 1 gouging nozzle</li> <li>● 1x back cap</li> <li>● 1x swirl ring</li> </ul>	1	394-002037-00000

**Plasma cutting machine for manual cutting and gouging • Powermax 45 XP**

- Plasma cutting machine for manual plasma cutting, gouging and marking
- Smart Sense: Automatic air pressure setting
- The SpringStart™ technology guarantees consistent starting
- FastConnect cutting torch connection
- Consumables are replaced quickly thanks to the welding torch deactivation switch
- You will find replacement parts for cutting, gouging and marking, HyAccess and FineCut replacement parts in the accessories for the Duramax Lock cutting welding torch
- Delivery ex works without mains plug; a suitable mains plug can be found in the Accessories section



<b>Mains voltage (tolerances)</b>	3 x 400 V
<b>Current setting range</b>	10 A - 45 A
<b>Duty cycle 40 °C</b>	45 A / 50 %45 A
	41 A / 60 %41 A
	32 A / 100 %32 A
<b>External dimensions, compl.</b>	442 mm x 173 mm x 357 mm
<b>Recommended cutting thickness/cutting speed</b>	16 mm - 500 mm/min
	22 mm - 250 mm/min
<b>Separating cut</b>	29 mm - 125 mm/min
<b>Piercing</b>	12 mm
<b>Gouging capacity</b>	3.4 kg/h
<b>Weight</b>	15 kg

<b>Scope of delivery:</b>		<b>Item no.</b>
	<b>m</b>	
● Power source, including Duramax Lock manual cutting torch	6.1	394-003563-00000
● Workpiece lead (4.5 m)	15.2	394-003564-00000
● Consumables set including 1 standard gas nozzle, 1 electrode, 1 FineCut nozzle and 1 FineCut deflector		
● Carrying straps		
● Operating instructions and safety manual		

**Replacement parts set, manual cutting • HyAccess Powermax 45XP/65/85/105**

- **HyAccess-Replacement parts** - additional reach when cutting or gouging in poorly accessible or tight areas

<b>Scope of supply:</b>	<b>PU</b>	<b>Item no.</b>
	<b>Units</b>	
● 2x electrodes	1	394-002608-00000
● 1x standard nozzle		
● 1 gouging nozzle		
● 1x back cap		
● 1x swirl ring		



**Replacement parts set, manual cutting • Essential Kit Powermax 45 XP**

- Replacement parts set for Powermax 45 XP

<b>Scope of delivery:</b>	<b>PU</b>	<b>Item no.</b>
	<b>Units</b>	
● 3 x protective shields for cutting with surface contact	1	394-003578-00000
● 1 x torch cap		
● 7 x nozzles		
● 7 x electrodes		
● 1 x swirl ring		



**Replacement parts set, manual and mechanised cutting • FlushCut Set**

- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes

<b>Scope of delivery:</b>	<b>Item no.</b>
● 1 x mounting cap	394-005282-00000
● 1 x mounting ring	
● 1 x cutting nozzle	
● 1 x electrodes	
● 1 x swirl ring	






# Plasma cutting technology • Manual cutting

## Plasma cutting machine for manual cutting and gouging • Powermax 65



- Plasma cutting machine for manual plasma cutting and gouging
- Very easy to operate with LCD screen
- Smart Sense: Automatic air pressure setting
- FastConnect cutting torch connection
- Very easy to change the torch thanks to Easy Torch Removal
- Powercool: Very effective cooling for higher system reliability and service life
- You will find replacement parts for cutting and gouging, HyAccess, FineCut and FlushCut replacement parts in the accessories for the Duramax cutting welding torch
- Delivery ex works without mains plug; a suitable mains plug can be found in the Accessories section

<b>Mains voltage (tolerances)</b>	3 x 400 V
<b>Current setting range</b>	25 A - 65 A
<b>Duty cycle 40 °C</b>	65 A / 50 %65 A 45 A / 100 %45 A
<b>External dimensions, compl.</b>	500 mm x 234 mm x 455 mm
<b>Recommended cutting thickness/cutting speed</b>	19 mm - 500 mm/min 25 mm - 250 mm/min
<b>Separating cut</b>	32 mm - 125 mm/min
<b>Piercing</b>	16 mm
<b>Gouging capacity</b>	4.8 kg/h
<b>Weight</b>	26 kg

Scope of supply:		Item no.
	<b>m</b>	
• Power source including Duramax manual welding torch 75°	7.6	094-017492-00000
• Workpiece lead (4.5 m)	15.2	394-001143-00000
• Starter replacement parts set		
• Operating instructions and DVD		

## Replacement parts set, manual cutting • Essential Kit Powermax 65



- Replacement parts set for Powermax 65

Scope of supply:	PU	Item no.
	<b>Units</b>	
• 7x electrodes	1	394-002871-00000
• 7x nozzles (65 A)		
• 2x shields (65-85 A)		
• 1x swirl ring		
• 1x back cap		
• 1x lubricant		
• 5x o-rings		

## Replacement parts set, manual cutting • HyAccess Powermax 45XP/65/85/105



- **HyAccess-Replacement parts** - additional reach when cutting or gouging in poorly accessible or tight areas

Scope of supply:	PU	Item no.
	<b>Units</b>	
• 2x electrodes	1	394-002608-00000
• 1x standard nozzle		
• 1 gouging nozzle		
• 1x back cap		
• 1x swirl ring		

## Replacement parts set, manual and mechanised cutting • FlushCut Starter-Kit



- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes


Scope of delivery:	PU	Item no.
	<b>Units</b>	
• 1 x mounting cap	1	394-004060-00000
• 1 x mounting ring		
• 1 x cutting nozzle		
• 1 x electrodes		
• 1 x swirl ring		

**Plasma cutting machine for manual cutting and gouging • Powermax 85**

- Plasma cutting machine for manual plasma cutting and gouging
- Very easy to operate with LCD screen
- Smart Sense: Automatic air pressure setting
- FastConnect cutting torch connection
- Very easy to change the torch thanks to Easy Torch Removal
- Powercool: Very effective cooling for higher system reliability and service life
- You will find replacement parts for cutting and gouging, HyAccess, FineCut and FlushCut replacement parts in the accessories for the Duramax cutting welding torch
- Delivery ex works without mains plug; a suitable mains plug can be found in the Accessories section



<b>Mains voltage (tolerances)</b>	3 x 400 V
<b>Current setting range</b>	20 A - 85 A
<b>Duty cycle 40 °C</b>	85 A / 60 %85 A 66 A / 100 %66 A
<b>External dimensions, compl.</b>	500 mm x 234 mm x 455 mm
<b>Recommended cutting thickness/cutting speed</b>	25 mm - 500 mm/min 32 mm - 250 mm/min 38 mm - 125 mm/min
<b>Piercing</b>	19 mm
<b>Gouging capacity</b>	8.8 kg/h
<b>Weight</b>	28 kg

<b>Scope of supply:</b>		<b>Item no.</b>
	<b>m</b>	
● Power source including Duramax manual welding torch 75°	7.6	090-008714-00000
● Workpiece lead (4.5 m)	15.2	394-000086-00000
● Starter replacement parts set		
● Operating instructions and DVD		

**Replacement parts set, manual cutting • Essential Kit Powermax 85**

- Replacement parts set for Powermax 85

<b>Scope of supply:</b>	<b>PU Units</b>	<b>Item no.</b>
● 7x electrodes	1	394-002873-00000
● 7x nozzles (85 A)		
● 2x shields (65–85 A)		
● 1x swirl ring		
● 1x back cap		
● 1x lubricant		
● 5x o-rings		



**Replacement parts set, manual cutting • HyAccess Powermax 45XP/65/85/105**

- **HyAccess-Replacement parts** - additional reach when cutting or gouging in poorly accessible or tight areas

<b>Scope of supply:</b>	<b>PU Units</b>	<b>Item no.</b>
● 2x electrodes	1	394-002608-00000
● 1x standard nozzle		
● 1 gouging nozzle		
● 1x back cap		
● 1x swirl ring		



**Replacement parts set, manual and mechanised cutting • FlushCut Starter-Kit**

- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes


<b>Scope of delivery:</b>	<b>PU Units</b>	<b>Item no.</b>
● 1 x mounting cap	1	394-004060-00000
● 1 x mounting ring		
● 1 x cutting nozzle		
● 1 x electrodes		
● 1 x swirl ring		



Plasma cutting machine for manual cutting and gouging ● Powermax 105



- Plasma cutting machine for manual plasma cutting and gouging
- Very easy to operate with LCD screen
- Smart Sense: Automatic air pressure setting
- FastConnect cutting torch connection
- Very easy to change the torch thanks to Easy Torch Removal
- Powercool: Very effective cooling for higher system reliability and service life
- You will find replacement parts for cutting and gouging, HyAccess, FineCut and FlushCut replacement parts in the accessories for the Duramax cutting welding torch
- Delivery ex works without mains plug; a suitable mains plug can be found in the Accessories section

<b>Mains voltage (tolerances)</b>	3 x 400 V
<b>Current setting range</b>	30 A - 105 A
<b>Duty cycle 40 °C</b>	105 A / 80 %105 A 94 A / 100 %94 A
<b>External dimensions, compl.</b>	592 mm x 274 mm x 508 mm
<b>Recommended cutting thickness/cutting speed</b>	32 mm - 500 mm/min 38 mm - 250 mm/min
<b>Separating cut</b>	50 mm - 125 mm/min
<b>Piercing</b>	22 mm
<b>Gouging capacity</b>	9.8 kg/h
<b>Weight</b>	45 kg
<b>Scope of supply:</b>	 <b>Item no.</b>
	<b>m</b>
● Power source including Duramax manual welding torch 75°	7.6 398-000012-00000
● Workpiece lead (4.5 m)	15.2 394-001144-00000
● Starter replacement parts set	
● Operating instructions and DVD	

Replacement parts set, manual cutting ● Essential Kit Powermax 105



- Replacement parts set for Powermax 105

<b>Scope of supply:</b>	<b>PU</b>	<b>Item no.</b>
	<b>Units</b>	
● 7x electrodes	1	394-002875-00000
● 7x nozzles (105 A)		
● 2x shields (105 A)		
● 1x swirl ring		
● 1x back cap		
● 1x lubricant		
● 5x o-rings		

Replacement parts set, manual cutting ● HyAccess Powermax 45XP/65/85/105



- **HyAccess-Replacement parts** - additional reach when cutting or gouging in poorly accessible or tight areas

<b>Scope of supply:</b>	<b>PU</b>	<b>Item no.</b>
	<b>Units</b>	
● 2x electrodes	1	394-002608-00000
● 1x standard nozzle		
● 1 gouging nozzle		
● 1x back cap		
● 1x swirl ring		

Replacement parts set, manual and mechanised cutting ● FlushCut Starter-Kit



- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes

<b>Scope of delivery:</b>	<b>PU</b>	<b>Item no.</b>
	<b>Units</b>	
● 1 x mounting cap	1	394-004060-00000
● 1 x mounting ring		
● 1 x cutting nozzle		
● 1 x electrodes		
● 1 x swirl ring		




## Plasma cutting machine for manual cutting and gouging • Powermax 125

- Plasma cutting machine for manual plasma cutting and gouging
- Very easy to operate with LCD screen
- Smart Sense: Automatic air pressure setting
- FastConnect cutting torch connection
- Very easy to change the torch thanks to Easy Torch Removal
- Powercool: Very effective cooling for higher system reliability and service life
- You will find replacement parts for cutting and gouging, and FineCut replacement parts in the accessories for the Duramax Hyamp cutting welding torch
- Delivery ex works without mains plug; a suitable mains plug can be found in the Accessories section



<b>Mains voltage (tolerances)</b>	400 V
<b>Current setting range</b>	30 A - 125 A
<b>Duty cycle 40 °C</b>	125 A / 100 %125 A
<b>External dimensions, compl.</b>	592 mm x 274 mm x 508 mm
<b>Recommended cutting thickness/cutting speed</b>	38 mm - 457 mm/min
	44 mm - 250 mm/min
<b>Separating cut</b>	57 mm - 125 mm/min
<b>Piercing</b>	25 mm
<b>Gouging capacity</b>	12.52 kg/h
<b>Weight</b>	48.9 kg

Scope of supply:		Item no.	
		m	
● Power source including Duramax Hyamp manual cutting torch 85°	7.6	394-001243-00000	
● Workpiece lead (4.5 m)	15.2	394-001244-00000	
● Starter replacement parts set			
● Operating instructions and DVD			

## Replacement parts set, manual cutting • Essential Kit Powermax 125

- Replacement parts set for Powermax 125

Scope of supply:	PU Units	Item no.
● 6x electrodes	1	394-002877-00000
● 6x nozzles (125 A)		
● 2x protective shields		
● 1x swirl ring		
● 1x back cap		
● 1x lubricant		
● 5x o-rings		



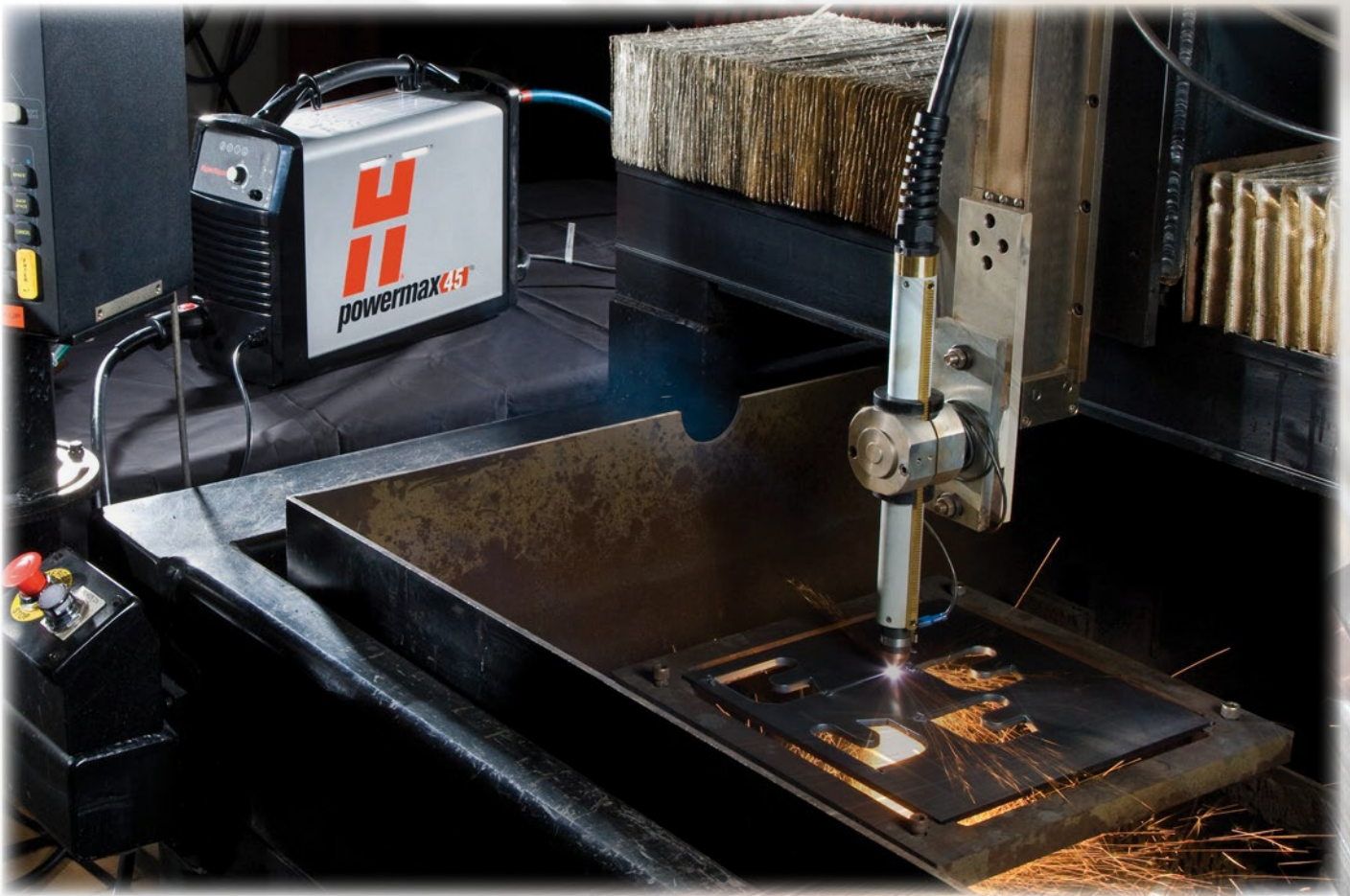
## Replacement parts set, manual and mechanised cutting • FlushCut Kit

- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes

Scope of supply:	PU Units	Item no.
● 1 x mounting cap	1	394-003719-00000
● 1 x mounting ring		
● 1 x cutting nozzle		
● 1 x electrodes		
● 1 x swirl ring		



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Plasma cutting machine for mechanised cutting and gouging ● Powermax 45 XP



- Cutting machine for mechanised plasma cutting
- Smart Sense: Optimal cutting performance due to automatic adjustment of the gas pressure to the cutting mode and length of the torch hose package
- The SpringStart™ technology guarantees consistent starting
- FastConnect cutting torch connection
- Consumables are replaced quickly thanks to the welding torch deactivation switch
- You will find replacement parts for cutting, gouging and marking, and FineCut replacement parts in the accessories for the Duramax Lock cutting welding torch
- Delivery ex works without mains plug; a suitable mains plug can be found in the Accessories section

<b>Mains voltage (tolerances)</b>	1 x 400 V
<b>Current setting range</b>	10 A - 45 A
<b>Duty cycle 40 °C</b>	45 A / 50 %45 A
	41 A / 60 %41 A
	32 A / 100 %32 A
<b>External dimensions, compl.</b>	442 mm x 173 mm x 357 mm
<b>Recommended cutting thickness/cutting speed</b>	16 mm - 500 mm/min
	22 mm - 250 mm/min
<b>Separating cut</b>	29 mm - 125 mm/min
<b>Piercing</b>	12 mm
<b>Gouging capacity</b>	3.4 kg/h
<b>Weight</b>	15 kg

<b>Scope of delivery:</b>		<b>Item no.</b>
	<b>m</b>	
● Power source, including Duramax Lock machine cutting torch	7.6	394-003565-00000
● 4.5 m workpiece lead	10.7	394-003566-00000
● Starter consumables set	15.2	394-003567-00000
● Remote control		



**Replacement parts set, manual and mechanised cutting • FlushCut Set**

- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes

Scope of supply:	Item no.
● 1 x mounting cap	394-005282-00000
● 1 x mounting ring	
● 1 x cutting nozzle	
● 1 x electrodes	
● 1 x swirl ring	



**Replacement parts set, mechanised cutting • Essential Kit Powermax 45XP**

- Replacement parts set for Powermax 45XP

Scope of supply:	PU Units	Item no.
● 4x electrodes	1	394-002872-00000
● 3x unshielded electrode		
● 7x cutting nozzle		
● 2x deflector		
● 1x unshielded deflector		
● 1x swirl ring		
● 1x back cap		






Plasma cutting machine for mechanised cutting and gouging ● Powermax 65



- Cutting machine for mechanised plasma cutting
- Very easy to operate with LCD screen
- Smart Sense: Optimal cutting performance due to automatic adjustment of the gas pressure to the cutting mode and length of the torch hose package
- FastConnect cutting torch connection
- Very easy to change the torch thanks to Easy Torch Removal
- Powercool: Very effective cooling for higher system reliability and service life
- You will find replacement parts for cutting and gouging, FineCut and FlushCut replacement parts in the accessories for the Duramax cutting welding torch
- Delivery ex works without mains plug; a suitable mains plug can be found in the Accessories section

<b>Mains voltage (tolerances)</b>	3 x 400 V
<b>Current setting range</b>	25 A - 65 A
<b>Duty cycle 40 °C</b>	65 A / 50 %65 A 45 A / 100 %45 A
<b>External dimensions, compl.</b>	500 mm x 234 mm x 455 mm
<b>Recommended cutting thickness/cutting speed</b>	19 mm - 500 mm/min 25 mm - 250 mm/min
<b>Separating cut</b>	32 mm - 125 mm/min
<b>Piercing</b>	16 mm
<b>Gouging capacity</b>	4.8 kg/h
<b>Weight</b>	26 kg

<b>Delivery includes:</b>		<b>Item no.</b>
	<b>m</b>	
● Power source including Duramax machine cutting torch	7.6	394-000093-00000
● 4.5 m workpiece lead	15.2	394-000459-00000
● Starter consumables set		
● Remote control		

Replacement parts set, mechanised cutting ● Essential Kit Powermax 65



- Replacement parts set for Powermax 65

<b>Scope of supply:</b>	<b>PU</b>	<b>Item no.</b>
	<b>Units</b>	
● 4x electrodes	1	394-002872-00000
● 3x CopperPlus electrodes		
● 7x nozzles		
● 2x shields for cutting		
● 1x deflector		
● 1x swirl ring		
● 1x back cap		
● 1x lubricant		
● 5x o-rings		

Replacement parts set, manual and mechanised cutting ● FlushCut Starter-Kit



- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes


<b>Scope of delivery:</b>	<b>PU</b>	<b>Item no.</b>
	<b>Units</b>	
● 1 x mounting cap	1	394-004060-00000
● 1 x mounting ring		
● 1 x cutting nozzle		
● 1 x electrodes		
● 1 x swirl ring		

## Plasma cutting machine for mechanised cutting and gouging • Powermax 85

- Cutting machine for mechanised plasma cutting
- Very easy to operate with LCD screen
- Smart Sense: Optimal cutting performance due to automatic adjustment of the gas pressure to the cutting mode and length of the torch hose package
- FastConnect cutting torch connection
- Very easy to change the torch thanks to Easy Torch Removal
- Powercool: Very effective cooling for higher system reliability and service life
- You will find replacement parts for cutting and gouging, FineCut and FlushCut replacement parts in the accessories for the Duramax cutting welding torch
- Delivery ex works without mains plug; a suitable mains plug can be found in the Accessories section



<b>Mains voltage (tolerances)</b>	3 x 400 V
<b>Current setting range</b>	20 A - 85 A
<b>Duty cycle 40 °C</b>	85 A / 60 %85 A 66 A / 100 %66 A
<b>External dimensions, compl.</b>	500 mm x 234 mm x 455 mm
<b>Recommended cutting thickness/cutting speed</b>	25 mm - 500 mm/min
	32 mm - 250 mm/min
<b>Separating cut</b>	38 mm - 125 mm/min
<b>Piercing</b>	19 mm
<b>Gouging capacity</b>	8.8 kg/h
<b>Weight</b>	28 kg

Delivery includes:		Item no.
	m	
● Power source including Duramax machine cutting torch	7.6	094-018470-00000
● 4.5 m workpiece lead	15.2	394-000090-00000
● Starter consumables set		
● Remote control		

## Replacement parts set, mechanised cutting • Essential Kit Powermax 85

- Replacement parts set for Powermax 85

Scope of supply:	PU Units	Item no.
● 4x electrodes	1	394-002874-00000
● 3x CopperPlus electrodes		
● 7x nozzles		
● 2x shields for cutting		
● 1x deflector		
● 1x swirl ring		
● 1x back cap		
● 1x lubricant		
● 5x o-rings		



## Replacement parts set, manual and mechanised cutting • FlushCut Starter-Kit

- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes

Scope of delivery:	PU Units	Item no.
● 1 x mounting cap	1	394-004060-00000
● 1 x mounting ring		
● 1 x cutting nozzle		
● 1 x electrodes		
● 1 x swirl ring		




Plasma cutting machine for mechanised cutting and gouging ● Powermax 105



- Cutting machine for mechanised plasma cutting
- Very easy to operate with LCD screen
- Smart Sense: Optimal cutting performance due to automatic adjustment of the gas pressure to the cutting mode and length of the torch hose package
- FastConnect cutting torch connection
- Very easy to change the torch thanks to Easy Torch Removal
- Powercool: Very effective cooling for higher system reliability and service life
- You will find replacement parts for cutting and gouging, FineCut and FlushCut replacement parts in the accessories for the Duramax cutting welding torch
- Delivery ex works without mains plug; a suitable mains plug can be found in the Accessories section

<b>Mains voltage (tolerances)</b>	3 x 400 V
<b>Current setting range</b>	30 A - 105 A
<b>Duty cycle 40 °C</b>	105 A / 80 %105 A 94 A / 100 %94 A
<b>External dimensions, compl.</b>	592 mm x 274 mm x 508 mm
<b>Recommended cutting thickness/cutting speed</b>	32 mm - 500 mm/min 38 mm - 250 mm/min 50 mm - 125 mm/min
<b>Piercing</b>	22 mm
<b>Gouging capacity</b>	9.8 kg/h
<b>Weight</b>	45 kg

<b>Delivery includes:</b>		<b>Item no.</b>
	<b>m</b>	
● Power source including Duramax machine cutting torch	7.6	094-018353-00000
● 4.5 m workpiece lead	15.2	394-000091-00000
● Starter consumables set		
● Remote control		

Replacement parts set, mechanised cutting ● Essential Kit Powermax 105



- Replacement parts set for Powermax 105

<b>Delivery includes:</b>	<b>PU</b>	<b>Item no.</b>
	<b>Units</b>	
● 1x shield	1	394-002876-00000
● 1x deflector		
● 1x 105A shield		
● 1x back cap		
● 7x 85–105A nozzles		
● 4x electrodes		
● 3x CopperPlus electrodes		
● 1x swirl ring		
● 1x lubricant		
● 5x o-rings		

Replacement parts set, manual and mechanised cutting ● FlushCut Starter-Kit



- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes

<b>Scope of delivery:</b>	<b>PU</b>	<b>Item no.</b>
	<b>Units</b>	
● 1 x mounting cap	1	394-004060-00000
● 1 x mounting ring		
● 1 x cutting nozzle		
● 1 x electrodes		
● 1 x swirl ring		



## Plasma cutting machine, cutting and gouging, mechanised • Powermax 125

- Cutting machine for mechanised plasma cutting
- Very easy to operate with LCD screen
- Smart Sense: Optimal cutting performance due to automatic adjustment of the gas pressure to the cutting mode and length of the torch hose package
- FastConnect cutting torch connection
- Very easy to change the torch thanks to Easy Torch Removal
- Powercool: Very effective cooling for higher system reliability and service life
- You will find replacement parts for cutting and gouging, and FineCut replacement parts in the accessories for the Duramax Hyamp cutting welding torch
- Delivery ex works without mains plug; a suitable mains plug can be found in the Accessories section



<b>Mains voltage (tolerances)</b>	3 x 400 V
<b>Current setting range</b>	30 A - 125 A
<b>Duty cycle 40 °C</b>	125 A / 100 % 125 A
<b>External dimensions, compl.</b>	592 mm x 274 mm x 508 mm
<b>Recommended cutting thickness/cutting speed</b>	38 mm - 457 mm/min
	44 mm - 250 mm/min
<b>Separating cut</b>	57 mm - 125 mm/min
<b>Piercing</b>	25 mm
<b>Gouging capacity</b>	12.52 kg/h
<b>Weight</b>	48.9 kg

Delivery includes:	Item no.	
	m	
● Power source including Duramax Hyamp machine cutting torch	7.6	394-001390-00000
● 4.5 m workpiece lead	15.2	394-001391-00000
● Starter consumables set		
● Remote control		

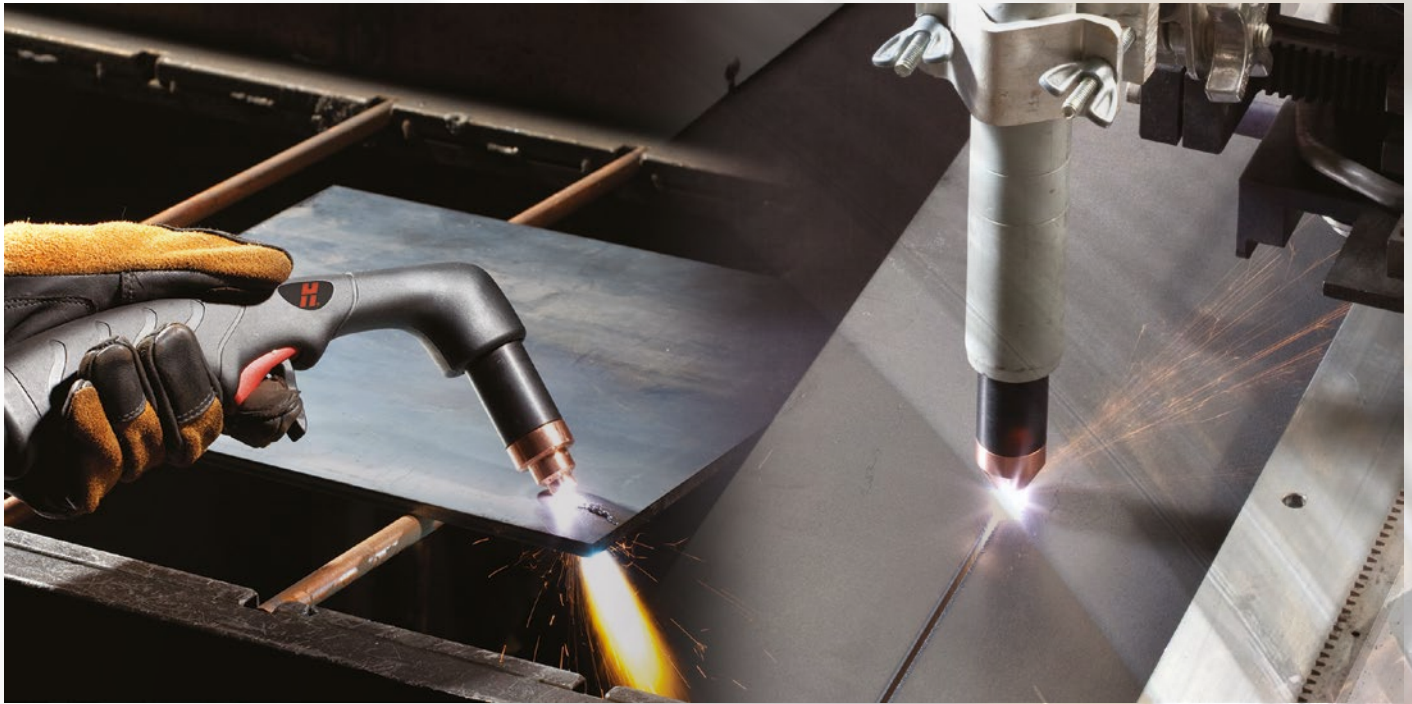
## Replacement parts set, mechanised cutting • Essential Kit Powermax 125

- Replacement parts set for Powermax 125

Delivery includes:	PU Units	Item no.
● 2x 45–65A deflectors	1	394-002878-00000
● 2x 65–125A deflectors		
● 1x back cap		
● 1x 65A nozzle		
● 1x 105A nozzle		
● 1x 125A nozzle		
● 6x electrodes		
● 1x swirl ring		
● 1x lubricant		
● 5x o-rings		



1




Plasma cutting torch, manual ● AIR T30

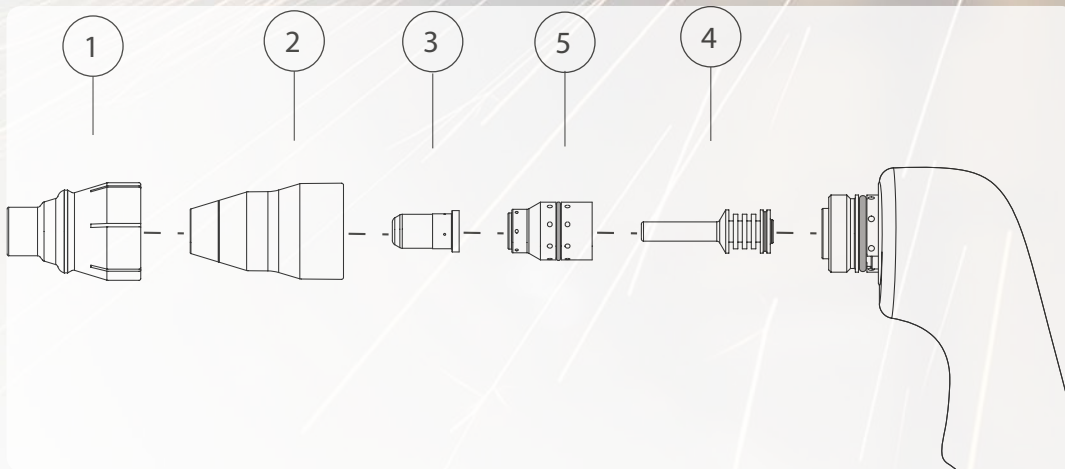


- Plasma cutting torch for manual cutting
- High impact and temperature resistance
- Conical back cap and deflector for optimised arc visibility
- Ergonomic design with 75° torch head
- Suitable for Powermax30 AIR

<b>Current setting range</b>	15 A - 30 A
<b>Bend angle</b>	75°

	Item no.
m	
4.6	394-002383-0000

■ Consumables



Item	Designation	Max. welding current	PU	Item no.
		A	Units	
1	Protective cap, manual cutting	30	1	394-002351-00000
2	Retaining cap, manual cutting	30	1	394-002352-00000
3	Cutting nozzle, manual cutting	30	5	394-002353-00000
4	Electrode, manual cutting	30	5	394-002355-00000
5	Swirl ring, manual cutting	30	1	394-002354-00000

## Plasma cutting torch, manual • Duramax LT

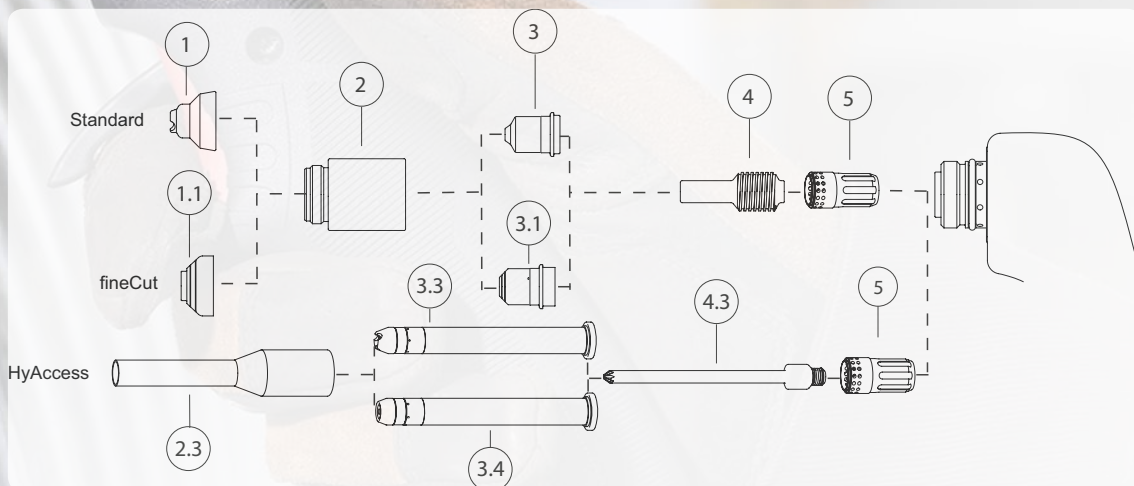
- Suitable for Powermax 45 XP
- Cutting torch for manual cutting, 15A/100%
- Torch with 75° point for excellent visibility and arc control, as well as optimal accessibility to areas that are difficult to reach
- High impact and temperature resistance
- Lower costs due to the replacement parts having twice the service life in comparison to the Powermax30
- Extremely high cutting velocity – 223% faster on cutting unalloyed steels with a material thickness of 3 mm in comparison with oxyacetylene cutting
- **HyAccess-Replacement parts** - additional reach when cutting or gouging in poorly accessible or tight areas
- **FineCut:** Particularly suitable for cutting thin metal sheets



<b>Current setting range</b>	15 A - 30 A
<b>Bend angle</b>	75 °

 Item no.
<b>m</b>
4.6 394-001429-00000

### Consumables



Item	Designation	Max. welding current	PU Units	Item no.
		A		
1	Protective cap, manual cutting	30	1	394-001377-00000
1.1	Protective cap, FineCut	30	1	394-001378-00000
2	Retaining cap, manual cutting	30	1	394-001379-00000
2.3	HyAcces retaining cap	45	1	394-002620-00000
3	Cutting nozzle, manual cutting	30	5	394-002378-00000
3.1	Cutting nozzle, FineCut	30	5	394-002386-00000
3.3	HyAccess cutting nozzle	45	1	394-002621-00000
3.4	HyAccess gouging nozzle	45	1	394-002622-00000
4	Electrode, manual cutting	30	5	394-001386-00000
4.3	HyAccess electrode, manual and mechanised cutting and gouging	45	1	394-002623-00000
5	Swirl ring, manual cutting, FineCut	30	1	394-001380-00000



# Plasma cutting technology ● Manual cutting torch

## Plasma cutting torch, manual, cutting and gouging ● Duramax® Lock




- Plasma cutting torch for manual cutting, gouging and marking, 32A/100%
- Suitable for Powermax 45 XP
- High impact and temperature resistance
- **Marking, scribing and precise gouging** at low amperage
- **HyAccess-Replacement parts** - additional reach when cutting or gouging in poorly accessible or tight areas
- **FineCut:** Particularly suitable for cutting thin metal sheets
- Consumables are replaced quickly thanks to the welding torch deactivation switch

**Current setting range**

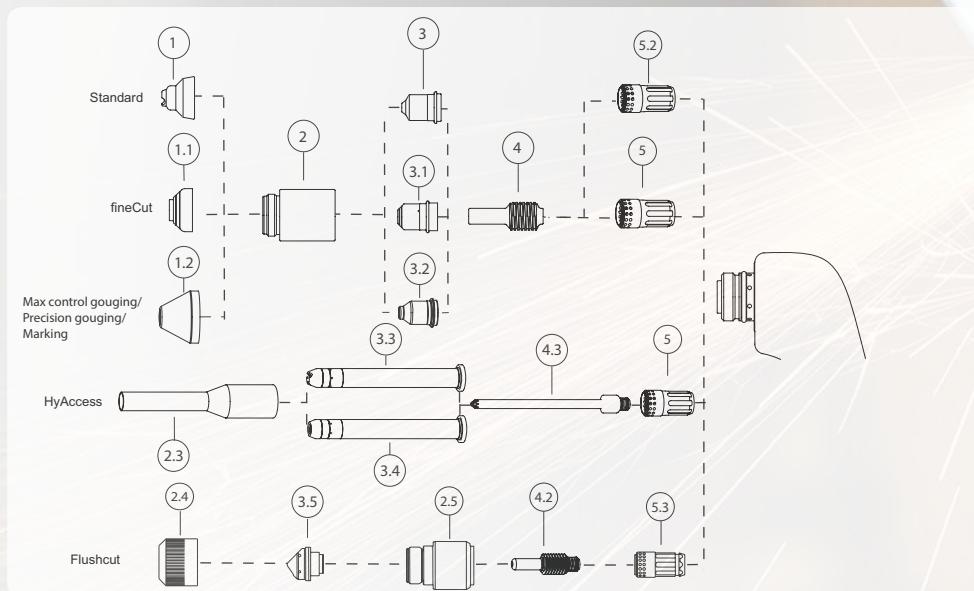
15 A - 45 A

**Bend angle**

75 °

	Item no.
m	
6.1	394-003568-00000
15.2	394-003569-00000

## ■ Consumables






Item	Designation	Max. welding current		PU	Item no.
		A	Units		
1	Protective cap, manual cutting	85	1	1	094-017033-00000
1.1	Protective cap, FineCut	45	1	1	094-018244-00000
1.2	Protective cap for gouging with maximum control	105	1	1	394-003575-00000
1.2	Protective cap for marking	25	1	1	394-003577-00000
1.2	Protective cap for gouging with maximum control	125	1	1	394-003331-00000
1.2	Protective cap for precision gouging	25	1	1	394-003576-00000
2	Retaining cap, manual and mechanised cutting, gouging, FineCut	105	1	1	094-017032-00000
2.3	HyAcces retaining cap	65	1	1	394-002624-00000
2.5	Flushcut back cap	105	1	1	394-003525-00000
3	Cutting nozzle, manual and mechanised cutting	45	5	5	094-018240-00000
3.1	Cutting nozzle, FineCut	45	5	5	094-018241-00000
3.2	Nozzle for gouging with maximum control	45	1	1	394-003573-00000
3.2	Nozzle for precision gouging and marking	45	1	1	394-003574-00000
3.3	HyAccess cutting nozzle	65	1	1	394-002625-00000
3.4	HyAccess gouging nozzle	65	1	1	394-002626-00000
4	Electrode, manual and mechanised cutting, gouging, FineCut (45 A)	105	5	5	094-017030-00000
4.3	HyAccess electrode, manual cutting and gouging	65	1	1	394-002627-00000
5	Swirl ring, manual and mechanised cutting, gouging, FineCut (mechanised)	85	1	1	094-017031-00000
5.2	Swirl ring, FineCut	45	1	1	094-018243-00000

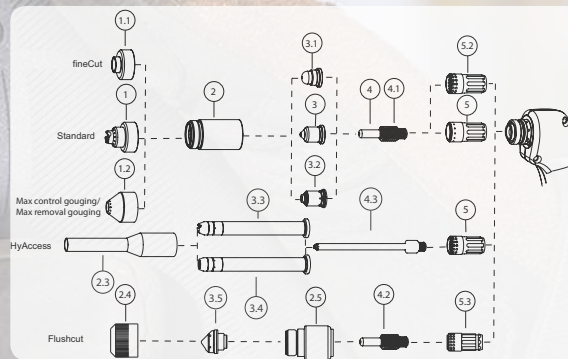
## Plasma cutting torch, manual, cutting and gouging • Duramax H

- Compatible to Powermax 105 / 85/ 65/ 45XP
- Cutting torch for manual cutting and gouging, 94 A/100%
- Torch neck 15° or 75° – of versatile usage and equipped for every task
- Reduced accumulation of dross and smooth cutting with surface contact thanks to patented shield
- **Gouging with max. removal:** Developed for aggressive removal of metal, the production of deep gouging torch profiles and extreme metal wash applications.
- **Gouging with max.control:** Developed for precise removal of metal, the production of shallow gouging torch profiles and gentle metal wash applications.
- **HyAccess-Replacement parts** - additional reach when cutting or gouging in poorly accessible or tight areas
- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes
- **FineCut:** Particularly suitable for cutting thin metal sheets



Current setting range	Bend angle		PU	Item no.
			m Units	
30 A - 105 A	15°		7.6	394-000482-00000
			15.2	394-000480-00000
			22.8	394-000481-00000
	75°		7.6	394-000479-00000
			15.2	394-000483-00000
			22.8	394-000484-00000

### Consumables




Item	Designation	Max. welding current	PU	Item no.
		A		
1	Protective cap, manual cutting	85	1 Units	094-017033-00000
1	Protective cap, manual cutting	105	1 Units	094-017821-00000
1.1	Protective cap, FineCut	45	1 Units	094-018244-00000
1.2	Protective cap for gouging with maximum removal	105	1 Units	094-017201-00000
1.2	Protective cap for gouging with maximum control	105	1 Units	394-003575-00000
2	Retaining cap, manual and mechanised cutting, gouging, FineCut	105	1 Units	094-017032-00000
2.3	HyAcces retaining cap	65	1 Units	394-002624-00000
2.4	Flushcut mounting ring	105	1 Units	394-003528-00000
2.5	Flushcut back cap	105	1 Units	394-003525-00000
3	Cutting nozzle, manual and mechanised cutting	45	5 Units	094-018240-00000
3	Cutting nozzle, manual and mechanised cutting	65	5 Units	094-017632-00000
3	Cutting nozzle, manual and mechanised cutting	85	5 Units	094-017029-00000
3	Cutting nozzle, manual and mechanised cutting	105	5 Units	094-017819-00000
3.1	Cutting nozzle, FineCut	45	5 Units	094-018241-00000
3.2	Nozzle for gouging, manual and mechanised	65	5 Units	094-017200-00000
3.3	HyAccess cutting nozzle	65	1 Units	394-002625-00000
3.4	HyAccess gouging nozzle	65	1 Units	394-002626-00000
3.5	FlushCut cutting nozzle	45	1 Units	394-005283-00000
4	Electrode, manual and mechanised cutting, gouging, FineCut (45 A)	105	5 Units	094-017030-00000
4.1	CopperPlus electrode with especially long service life	105	5 Units	394-002445-00000
4.2	Flushcut electrode	45	5 Units	394-005284-00000
4.3	HyAccess electrode, manual cutting and gouging	65	1 Units	394-002627-00000
5	Swirl ring, manual and mechanised cutting, gouging, FineCut (mechanised)	85	1 Units	094-017031-00000
5	Swirl ring, manual and mechanised cutting, gouging, FineCut (mechanised)	105	1 Units	394-000642-00000
5.2	Swirl ring, FineCut	45	1 Units	094-018243-00000
5.3	FlushCut swirl ring	105	1 Units	394-003526-00000
5.3	FlushCut swirl ring	45	1 Units	394-005285-00000

# Plasma cutting technology ● Manual cutting torch

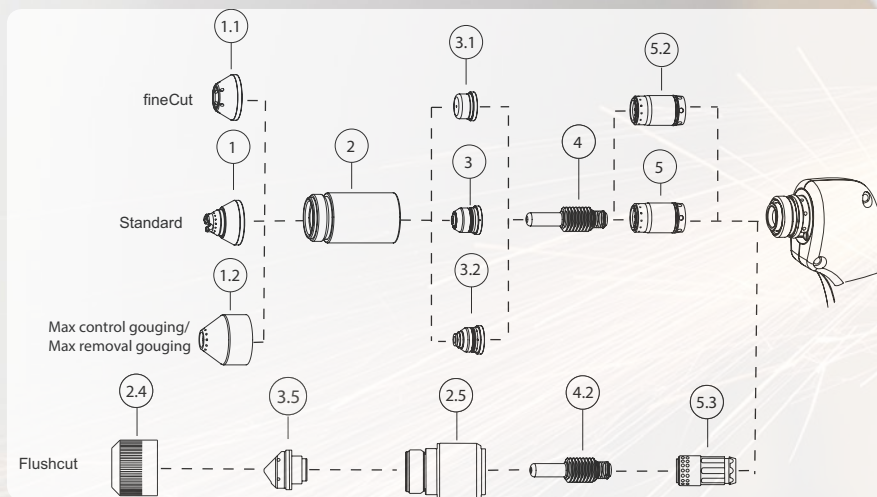
## Plasma cutting torch, manual, cutting and gouging ● Duramax Hyamp H



- Plasma cutting torch for manual cutting and gouging, 125 A/100%
- Torch neck in long or short version – of versatile usage and equipped for every task
- Compatible with Powermax 125/105/85/65
- **Gouging with max. removal:** Developed for aggressive removal of metal, the production of deep gouging torch profiles and extreme metal wash applications.
- **Gouging with max.control:** Developed for precise removal of metal, the production of shallow gouging torch profiles and gentle metal wash applications.
- **FineCut:** Particularly suitable for cutting thin metal sheets

Bend angle		Item no.
	m	
15 °	7.6	394-001394-00000
	15.2	394-001395-00000
85 °	7.6	394-001392-00000
	15.2	394-001393-00000

### ■ Consumables




Item	Designation	Max. welding current	Item no.
		A	
1	Protective cap, manual cutting	125	394-001406-00000
1	Protective cap, manual cutting	65	394-001405-00000
1.1	Protective cap, FineCut	45	394-001409-00000
1.2	Protective cap for gouging with maximum removal	125	394-001410-00000
1.2	Protective cap for gouging with maximum control	125	394-003331-00000
2	Retaining cap, manual and mechanised cutting, gouging, FineCut	125	394-001411-00000
2.4	Flushcut mounting ring	125	394-003717-00000
2.5	Flushcut back cap	125	394-003714-00000
3	Cutting nozzle, manual and mechanised cutting	45	394-001400-00000
3	Cutting nozzle, manual and mechanised cutting	65	394-001401-00000
3	Cutting nozzle, manual and mechanised cutting	125	394-001402-00000
3.1	Cutting nozzle, FineCut	45	394-001403-00000
3.2	Nozzle for gouging	125	394-001404-00000
3.5	FlushCut cutting nozzle	125	394-003716-00000
4	Electrode, manual and mechanised cutting, FineCut and gouging	125	394-001414-00000
4	Flushcut electrode	125	394-003718-00000
5	Swirl ring, manual and mechanised cutting, gouging	125	394-001689-00000
5.2	Swirl ring, FineCut	45	394-001413-00000
5.3	FlushCut swirl ring	125	394-003715-00000



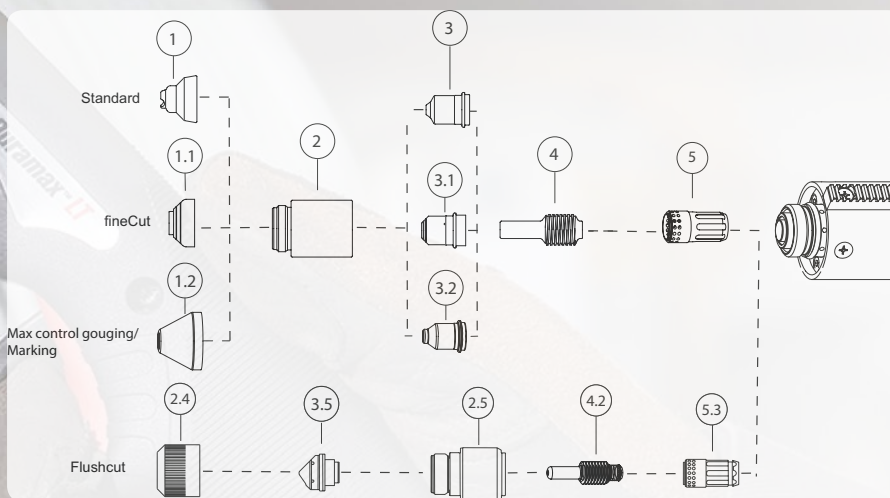
## Plasma cutting torch for mechanised cutting, gouging and marking • Duramax® Lock

- Plasma cutting torch for mechanised cutting, gouging and marking, 32 A/100%
- Suitable for Powermax 45 XP
- High impact and temperature resistance
- **Marking, scribing and precise gouging** at low amperage
- **FineCut:** Particularly suitable for cutting thin metal sheets
- Consumables are replaced quickly thanks to the welding torch deactivation switch



	PU	Item no.	PG	Price
m	Units			Per unit
7.6		394-003570-00000	HW7	stk
10.7	1	394-003571-00000	HW7	stk
15.2		394-003572-00000	HW7	stk

### Consumables




Item	Designation	Max. welding current	PU	Item no.
		A		
1	Protective cap, mechanised cutting	85	1 Units	398-000258-00000
1.1	Protective cap, FineCut ohmic	45	1 Units	394-000673-00000
1.2	Protective cap for gouging with maximum control	105	1 Units	394-003575-00000
1.2	Protective cap for marking	25	1 Units	394-003577-00000
2	Retaining cap, manual and mechanised cutting, gouging, FineCut	105	1 Units	094-017032-00000
2.1	Retaining cap, mechanised cutting, FineCut, Ohmic shielding	105	1 Units	394-000674-00000
2.4	Flushcut mounting ring	105	1 Units	394-003528-00000
2.5	Flushcut back cap	105	1 Units	394-003525-00000
3	Cutting nozzle, manual and mechanised cutting	45	5 Units	094-018240-00000
3.2	Nozzle for gouging with maximum control	45	1 Units	394-003573-00000
3.2	Nozzle for precision gouging and marking	45	1 Units	394-003574-00000
3.5	FlushCut cutting nozzle	45	1 Units	394-005283-00000
4	Electrode, manual and mechanised cutting, gouging, FineCut (45 A)	105	5 Units	094-017030-00000
4.2	Flushcut electrode	45	5 Units	394-005284-00000
5	Swirl ring, manual and mechanised cutting, gouging, FineCut (mechanised)	85	1 Units	094-017031-00000
5.3	FlushCut swirl ring	45	1 Units	394-005285-00000

# Plasma cutting technology ● Machine cutting torch

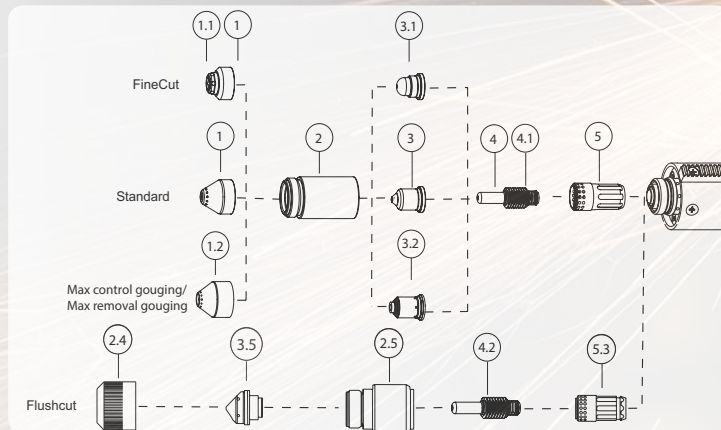
## Plasma cutting torch, mechanised, cutting and gouging ● Duramax M



- Plasma cutting torch for mechanised cutting and gouging, 94A/100%
- Torch neck in long or short version – of versatile usage and equipped for every task
- Compatible with Powermax 105/85/65 (45 XP only with short torch neck)
- **Gouging with max. removal:** Developed for aggressive removal of metal, the production of deep gouging torch profiles and extreme metal wash applications.
- **Gouging with max.control:** Developed for precise removal of metal, the production of shallow gouging torch profiles and gentle metal wash applications.
- **FlushCut:** Horizontal separation of protruding parts, easy removal of provisional fastenings, such as lifting eyes
- **FineCut:** Particularly suitable for cutting thin metal sheets

	Version	Item no.
m		
7.6	long torch neck Ø 35 mm; 39.6 cm with toothed rack	394-000486-00000
15.2		394-000488-00000
22.8		394-000489-00000
7.6	short torch neck: shaft Ø 35 mm; 16.8 cm without toothed rack	394-000491-00000
15.2		394-000492-00000
22.8		394-000493-00000

## ■ Consumables




Item	Designation	Max. welding current		PU	Item no.
			A		
1	Protective cap, mechanised cutting		85	1 Units	398-000258-00000
1	Protective cap, mechanised cutting		105	1 Units	394-000672-00000
1	Protective cap, mechanised cutting deflector FineCut 45A		105	1 Units	394-001033-00000
1.1	Protective cap, FineCut ohmic		45	1 Units	394-000673-00000
1.2	Protective cap for gouging with maximum removal		105	1 Units	094-017201-00000
1.2	Protective cap for gouging with maximum control		105	1 Units	394-003575-00000
2	Retaining cap, manual and mechanised cutting, gouging, FineCut		105	1 Units	094-017032-00000
2.1	Retaining cap, mechanised cutting, FineCut, Ohmic shielding		105	1 Units	394-000674-00000
2.4	Flushcut mounting ring		105	1 Units	394-003528-00000
2.5	Flushcut back cap		105	1 Units	394-003525-00000
3	Cutting nozzle, manual and mechanised cutting		45	5 Units	094-018240-00000
3	Cutting nozzle, manual and mechanised cutting		65	5 Units	094-017632-00000
3	Cutting nozzle, manual and mechanised cutting		85	5 Units	094-017029-00000
3	Cutting nozzle, manual and mechanised cutting		105	5 Units	094-017819-00000
3.1	Cutting nozzle, FineCut		45	5 Units	094-018241-00000
3.2	Nozzle for gouging, manual and mechanised		65	5 Units	094-017200-00000
3.2	Nozzle for gouging		105	5 Units	094-017820-00000
3.2	Nozzle for gouging with maximum control		45	1 Units	394-003573-00000
3.5	FlushCut cutting nozzle		105	1 Units	394-003527-00000
3.5	FlushCut cutting nozzle		45	1 Units	394-005283-00000
4	Electrode, manual and mechanised cutting, gouging, FineCut (45 A)		105	5 Units	094-017030-00000
4.1	CopperPlus electrode with especially long service life		105	5 Units	394-002445-00000
4.2	Flushcut electrode		45	5 Units	394-005284-00000
5	Swirl ring, manual and mechanised cutting, gouging, FineCut (mechanised)		85	1 Units	094-017031-00000
5	Swirl ring, manual and mechanised cutting, gouging, FineCut (mechanised)		105	1 Units	394-000642-00000
5.3	FlushCut swirl ring		105	1 Units	394-003526-00000
5.3	FlushCut swirl ring		45	1 Units	394-005285-00000

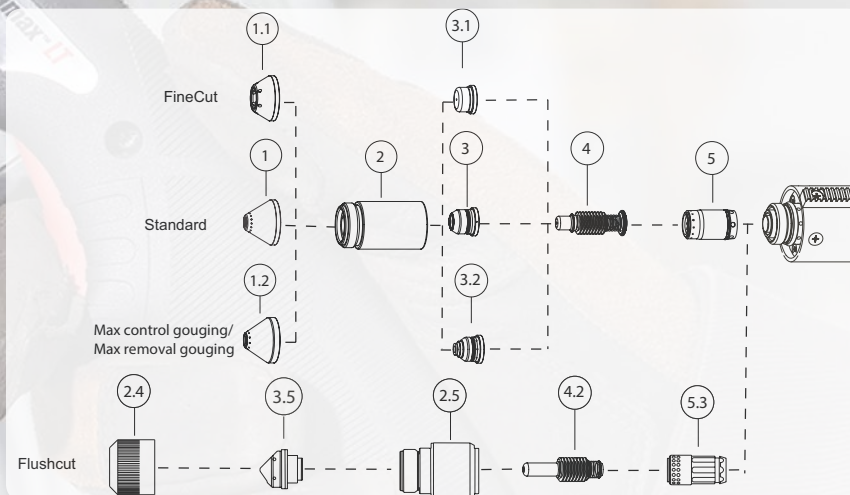
## Plasma cutting torch, mechanised, cutting and gouging • Duramax M Hyamp

- Plasma cutting torch for mechanised cutting and gouging, 125 A/100%
- Torch neck in long or short version – of versatile usage and equipped for every task
- Compatible with Powermax 125/105/85/65
- **Gouging with max. removal:** Developed for aggressive removal of metal, the production of deep gouging torch profiles and extreme metal wash applications.
- **Gouging with max.control:** Developed for precise removal of metal, the production of shallow gouging torch profiles and gentle metal wash applications.
- **FineCut:** Particularly suitable for cutting thin metal sheets



	Version	Item no.
<b>m</b>		
7.6	Long torch neck: shaft Ø 44 mm;	394-001396-00000
15.2	40.6 cm	394-001397-00000
7.6	short torch neck: shaft Ø 44 mm;	394-001398-00000
15.2	18.3 cm	394-001399-00000

### Consumables



Item	Designation	Max. welding current	PU	Item no.
		A		
1	Protective cap, mechanised cutting	125	1	394-001408-00000
1	Protective cap, mechanised cutting	65	1	394-001407-00000
1.1	Protective cap, FineCut	45	1	394-001409-00000
1.2	Protective cap for gouging with maximum removal	125	1	394-001410-00000
1.2	Protective cap for gouging with maximum control	125	1	394-003331-00000
2	Retaining cap, manual and mechanised cutting, gouging, FineCut	125	1	394-001411-00000
2	Retaining cap, mechanised cutting, FineCut, ohmic	125	1	394-001412-00000
2.4	Flushcut mounting ring	125	1	394-003717-00000
2.5	Flushcut back cap	125	1	394-003714-00000
3	Cutting nozzle, manual and mechanised cutting	45	5	394-001400-00000
3	Cutting nozzle, manual and mechanised cutting	65	5	394-001401-00000
3	Cutting nozzle, manual and mechanised cutting	125	5	394-001402-00000
3.1	Cutting nozzle, FineCut	45	5	394-001403-00000
3.2	Nozzle for gouging	125	5	394-001404-00000
3.5	FlushCut cutting nozzle	125	1	394-003716-00000
4	Electrode, manual and mechanised cutting, FineCut and gouging	125	5	394-001414-00000
4	Flushcut electrode	125	1	394-003718-00000
5	Swirl ring, manual and mechanised cutting, gouging	125	1	394-001689-00000
5.3	FlushCut swirl ring	125	1	394-003715-00000



1




Plasma cutting torch, manual, extra-long torch neck, cutting and gouging ● Duramax Hyamp 0.6 m



- Plasma cutting torch with 0.6 m long torch neck for manual cutting and gouging, 125 A/100%
- **Gouging with max. removal:** Developed for aggressive removal of metal, the production of deep gouging torch profiles and extreme metal wash applications.
- **Gouging with max.control:** Developed for precise removal of metal, the production of shallow gouging torch profiles and gentle metal wash applications.
- **FineCut:** Particularly suitable for cutting thin metal sheets
- Compatible with Powermax 125/105/85/65/45XP

Torch neck length 0.6 m


Bend angle		Item no.
	m	
45°	7.6	394-002715-00000
	15.2	394-002717-00000
90°	7.6	394-002716-00000
	15.2	394-002718-00000

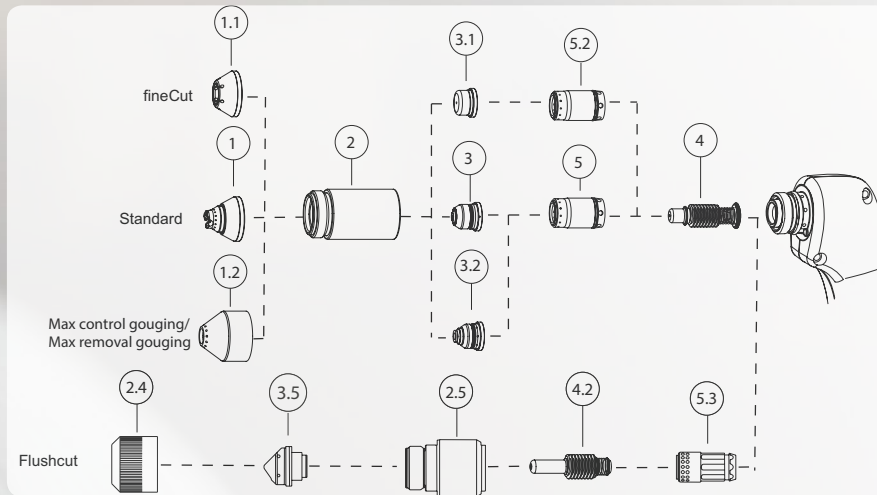
Plasma cutting torch, manual, extra-long torch neck, cutting and gouging ● Duramax Hyamp 1.2 m



- Plasma cutting torch with 1.2 m long torch neck for manual cutting and gouging, 125 A/100%
- **Gouging with max. removal:** Developed for aggressive removal of metal, the production of deep gouging torch profiles and extreme metal wash applications.
- **Gouging with max.control:** Developed for precise removal of metal, the production of shallow gouging torch profiles and gentle metal wash applications.
- **FineCut:** Particularly suitable for cutting thin metal sheets
- Compatible with Powermax 125/105/85/65/45XP

Torch neck length 1.2 m

Bend angle		Item no.
	m	
45°	7.6	394-001650-00000
	15.2	394-002713-00000
90°	7.6	394-002712-00000
	15.2	394-002714-00000



Item	Designation	Max. welding current	
		A	Item no.
1	Protective cap, manual cutting	125	394-001406-00000
1	Protective cap, manual cutting	65	394-001405-00000
1.1	Protective cap, FineCut	45	394-001409-00000
1.2	Protective cap for gouging with maximum removal	125	394-001410-00000
2	Retaining cap, manual and mechanised cutting, gouging, FineCut	125	394-001411-00000
2.4	Flushcut mounting ring	125	394-003717-00000
2.5	Flushcut back cap	125	394-003714-00000
3	Cutting nozzle, manual and mechanised cutting	45	394-001400-00000
3	Cutting nozzle, manual and mechanised cutting	65	394-001401-00000
3	Cutting nozzle, manual and mechanised cutting	125	394-001402-00000
3.1	Cutting nozzle, FineCut	45	394-001403-00000
3.2	Nozzle for gouging	125	394-001404-00000
3.5	FlushCut cutting nozzle	125	394-003716-00000
4	Electrode, manual and mechanised cutting, FineCut and gouging	125	394-001414-00000
4	Flushcut electrode	125	394-003718-00000
5	Swirl ring, manual and mechanised cutting, gouging	125	394-001689-00000
5.2	Swirl ring, FineCut	45	394-001413-00000
5.3	FlushCut swirl ring	125	394-003715-00000



Mains plug



PU Units	Load capacity A	Item no.
1	16.0	094-000712-00000
	32	094-000207-00000
	63	094-003410-00000

Leather protective hose for torch hose packages



- Leather protective hose for torch hose packages
- Additional protection of the torch hose package against damage and wear

Colour	Black
--------	-------

	PU	Item no.
m	Units	
7.6	1	394-002726-00000

Face mask



- Eye and face protection in various shade levels
- Ideal for plasma cutting and gouging

PU Units	Shade level	Item no.
1	6.0	398-000256-00000
	8.0	094-016231-00000

Wheel kit, pre-assembled



- Wheel kit, pre-assembled
- Effortless transport in case of frequently changing cutting locations

PU Units	Version	Item no.
1	Suitable for Powermax 65/85	398-000273-00000
	Suitable for Powermax 105/125	398-000013-00000



**Circle cutting device**

- Cutting and spacing guide
- Fast and simple configuration for exact circles
- Basic set: arm 38 cm, wheels and rotating joint
- Deluxe set: arm 28 cm, wheels, rotating joint, assembly element and plastic box
- Hyamp deluxe set: arm 28 cm, wheels, rotating joint, assembly element and plastic box



PU Units	Version	Item no.
	Basisset, passend zu 30-105 PMAX	398-000254-00000
1	Deluxeset, passend zu 30-105 PMAX	094-016230-00000
	Deluxe Hyamp-Set, passend zu 125 PMAX	394-001975-00000

**Angle cutting guide ● Angle Cutting Guide Magnetic**

- Goniometer with magnetic foot
- Fixes straight or right-angled edges to make cutting precise angles easier

PU Units	Item no.
1	394-002729-00000



**Heat shield for gouging**

- Hand heat shield for gouging

PU Units	Version	Item no.
	Suitable for T45v and T60/80/100 welding torches	398-000356-00000
1	Suitable for Duramax welding torches	394-002760-00000
	Suitable for Duramax-Hyamp welding torches	394-002761-00000



**Air filter**

- Air filter installation set
- Additional protection against moisture

Version	Filter

PU Units	Item no.
1	394-000077-00000



**Air filter, protective casing**



- Protective casing for air filter
- For the protection of the filter against damage due to knocks

PU Units	Version	Item no.
	Protective casing for Powermax 65/85	394-000676-00000
	Protective casing for Powermax 105/125	394-007136-00000
1	Protective casing including filter for Powermax 65/85	394-000677-00000
	Protective casing including filter for Powermax 105/125	398-000598-00000

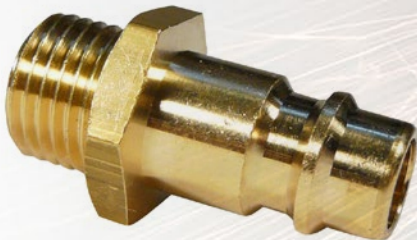
**Quick connect coupling with internal thread**



- Universal one-hand quick connect coupling in one-sided sealing version
- No soiling of the internal parts due to closed sealing sleeve
- On usage of steel nipples can also be used on compressed air tools

Nominal width mm	Width across flats mm	PU Units	Item no.
7.2	17.0	1	393-000100-00000

**Quick connect coupling with external thread**



- Universal one-hand quick connect coupling in one-sided sealing version
- No soiling of the internal parts due to closed sealing sleeve
- On usage of steel nipples can also be used on compressed air tools

Nominal width mm	PU Units	Item no.
7.2	1	398-001196-00000



# CustomerStory



Hüffermann  
Transportsysteme GmbH

## Up to 10% more trailers per workstation annually

### Hüffermann switch all welding production over to EWM products

As part of the ewm maXsolution holistic consultation solution, specialists at EWM closely examined the entire production process of Hüffermann Transportsysteme GmbH – discovering enormous potential for savings. After optimising a welding workstation in line with recommendations from

EWM, this market leader in systems for transport and recycling vehicles manufactured up to 10% more trailers in just one year at just one workstation – a considerable increase in output – while at the same time reducing working time by up to 15 per cent. Based on these results, Hüffermann will be switching over all 68 of their welding production workspaces to EWM products by the end of the year.



“Originally, we just wanted to reduce overtime. Again and again, we found overtime necessary in order to meet our delivery deadlines. Today, we have not only reduced overtime to nearly zero, but also achieved an increase in output of up to 10 per cent,” said Torsten Völker, head of production for “towed units” at Hüffermann, whilst looking at the numbers. Not only this, but many ongoing costs could also be reduced using a variety of measures.

**“Originally, we just wanted to reduce overtime.”**

Hüffermann aren't doing all that much differently to before: they have the same products, the same designs and the same employees. As part of the ewm maXsolution holistic consultation solution, specialists at EWM considered the entire process chain and closely examined every detail of the production process – from gas and wire feeding to the welding process to the contact tip. They optimised every single factor, which had enormous effects on the bottom line: incredible time savings and amortisation of the investment within a year.

#### **Welding untreated black steel with ease using forceArc puls**

Just about every trailer from Hüffermann is a unique, customised item, but the one constant which is seen throughout the company is the weld seam. It's always the same material which they process in steel construction: untreated black steel with a plate thickness of 5 to 12 mm. In the past, these plates were processed with transition and spray arcs. Time and again, though, welders experienced a lack of fusion caused by included scale and weld

**“The seam is exactly as it should be.”**

spatter. Today, all seams are welded with a forceArc puls pulsed arc, a heat-reduced, directionally stable and powerful arc with deep penetration. EWM carried out comprehensive consultation on the characteristics and functionality of the pulsed arc and individual instruction of the welders in this process. Since then, it has become the only process still used

by the company, both for manual and automated welding. “The arc penetrates nicely, fuses the sidewalls in an optimal way and pushes scale ahead of itself. The seam is exactly as it should be,” said Völker with a smile.

Thanks to the high stability of the forceArc puls process alone, it was already possible to reduce welding time without changing any other conditions. As the process creates virtually spatter-free seams, subsequent grinding work has also been reduced considerably – and this also reduces the overall working time required.

#### **Top-notch service**

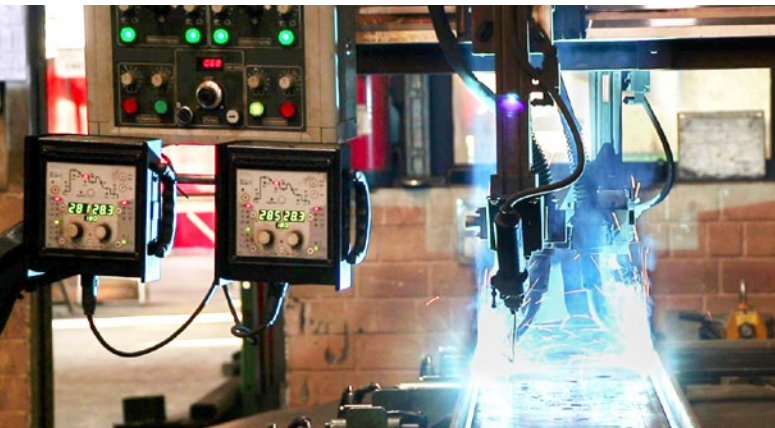
Letting deeds, rather than words, speak for themselves is one of Völker's maxims. That's why the first welding system was a loan machine with which the welders were able to try out the new process on their own components first.

**“Letting deeds, rather than words, speak for themselves.”**

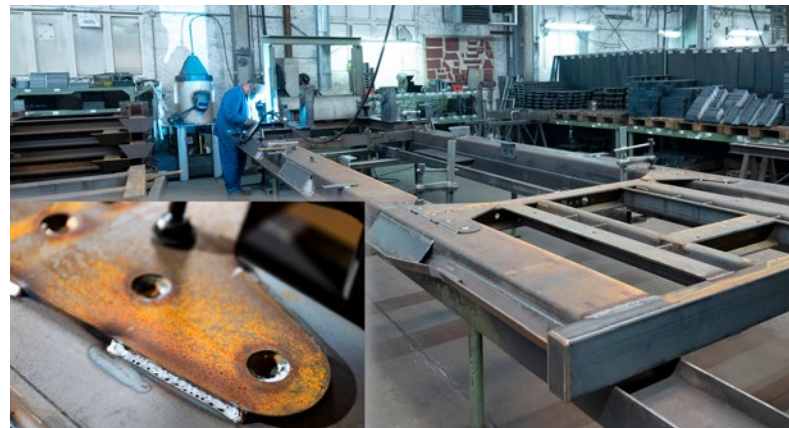
This system was comprised of a Phoenix 355 Progress puls welding machine with the drive 4X HP wire feeder and the MT551W PC2 function welding torch.

Excellent welding results aside, the main factor which impressed Völker was EWM's service – not only had the service technicians maintained EWM machines, they also repaired machines from the competition. Hüffermann were even able to make use of the free collection and delivery service here. Within eight hours, a spare machine was delivered and the defective machine was loaded up, repaired and then returned to Hüffermann.





Automated production of the base support with two EWM AMT welding torches in parallel. Thanks to forceArc puls, distortion is reduced, welding speed is increased and process reliability is raised.



The innovative forceArc puls welding process is used in every area of steel construction for welding untreated black steel. Process reliability is high, and the virtually spatter-free seam is perfect.

### Long-lasting welding torch consumables minimise replacement times

The most impressive feature of welding torches from EWM is the long service life of the consumables, especially the contact tip. In the past, this part had to be replaced three times a day. Nowadays, every EWM nozzle lasts around a week. With a replacement time of only five minutes, the time saved just by using the EWM consumable amounts to 15 minutes a day, which is equivalent to five hours a month. At some workstations, the nozzles even last five to six weeks.

## The most impressive feature of welding torches from EWM is the long service life of the consumables

As the welding process is very stable and the arc is so well backed by the laminar gas flow, the entire welding process is virtually spatter-free – this also makes replacement of the gas nozzle obsolete. It simply doesn't get soiled.

The fact that the welding torches use the same consumables for both manual welding and automated welding makes order management and warehousing especially easy.

The welding torch is equipped with an integrated remote control. This enables welders to switch back and forth between the various programs directly at the welding torch, eliminating the need to go back to the power source. "Not having to go back and forth makes things enormously easier for welders," said Völker in

regard to this advantage. The time which used to be spent going back and forth can now be spent welding, which increases productivity accordingly.

The X-technology function torch requires no additional control cable with plugs. This makes the torch hose package lighter and increases service life.

## This makes welders' work much easier

### Easy wire feeding from above

Thanks to the introduction of an articulated arm, welders' work has been made especially easier. The wire feeder is located at a height of 3.5 m on a swivelling mount above the welding area. The welding torch and hose package also come from there. This not only makes welders' work much easier, as they don't always have to lift the hose package, but it makes their work much more comfortable, as there are no longer things lying around on the floor – like the intermediate hose package and wire feeder. Thanks to the easy-to-move joint, the welding torch is always right where it should be.

The hose package is 6.5 metres long, which makes the working radius especially large. This great length has been made possible by increasing the wire diameter from 1.0 to 1.2 mm.

An enormous economic benefit has resulted from switching filler material from a spool to a drum connection. Whereas in the past a 15 kg spool would have to be changed every other day at the latest, the 250 kg of filler materials from a drum last around six weeks. A wire change takes about the same amount of time for both a spool and a drum: around 15 minutes each. The amount of time saved is just as great. "Changing something once is such a big improvement over changing it 17 times," according to Völker. Expressed in numbers, the 16 additional wire changes equate to five hours of welding time over six weeks.

The swivelling articulated arm with wire feeder and supply line to the welding torch are located above the workstation. The 6.5-metre-long welding torch hose package facilitates working within a large area.



1

### Reducing gas consumption by a third

Like the welding process and wire feeding, shielding gas and its transport to the arc are also part of the process chain and hold potential for savings. Hüffermann mix the gas themselves and distribute it to the various welding stations using a ring circuit system spanning five halls. All in all, a leak test, the installation of new gas tapping points and the use of optional electronic gas flow control have reduced gas consumption by one third. Regulated and optimised gas supply has also improved welding results, as the amount of gas which reaches the welder is just the amount they need.

## Today, every welder has their processes well under control

### Involving employees right from the start

When you're introducing new welding processes, acquiring new equipment and introducing new inverter and control technology in an area characterised by step switch controlled trans-

former welding machines, the welders need to be involved in the process. This worked out wonderfully at Hüffermann. "The switch-over for welders happened successively, step by step," recalled Völker. Through individual training, the process was introduced and explained to each welder according to their needs. Time and again, EWM went to the customer's facility of their own accord without any special request to engage with each employee and answer individual questions. Today, every welder has their processes well under control and is happy to work with the EWM system and the welding torch. Less finishing work thanks to the elimination of spatter and considerably reduced welding fume emissions as a result of the forceArc puls process are other positive side effects of the switch.

### Working time down, output up

Reducing working time by up to 15 per cent while at the same time increasing output by up to 10 per cent and reducing gas consumption by a third without a drop in quality – these were the arguments which convinced Hüffermann to switch over all their welding production to EWM products. By implementing the large number of individual measures recommended by EWM, the company were able to find a solution which satisfied both the worker and the growing demands of the market. Thanks to the time saved by putting the overall concept into practice, it was possible not only to maintain performance, but to increase it. To Völker, this was the decisive factor, because "you can buy everything except time!"



Employees were involved in an ideal way during the welding production switch-over. Jeffrey Kube, EWM sales representative for Wittstock/Rathenow, Christoph Baller, standard part department head, welding coordinator and welding expert, Torsten Völker, head of production for "towed units" and Toralf Pekrul, site manager for Wittstock/Rathenow










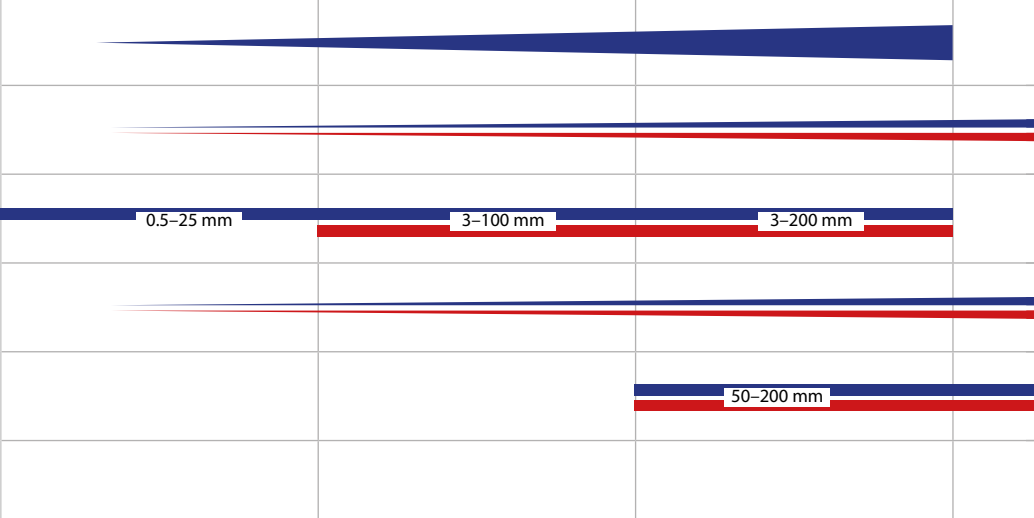

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**HÜFFERMANN**  
 Transportsysteme GmbH



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Pressure regulators		The oxyfuel equipment programme			
CONSTANT		MINITHERM	STARLET	STAR	
With pressure and/or volume display 		 	 	 	
U13 F	WELDING HEATING CUTTING FLAME STRAIGHTENING FLAME CLEANING GOUGING				
For large oxygen volumes 					

■ Acetylene     
 ■ Propane, natural gas, Mapp, Grieson     
 Increasing material thickness

Flame cutting nozzles

For manual cutting torches

For acetylene combustion gas

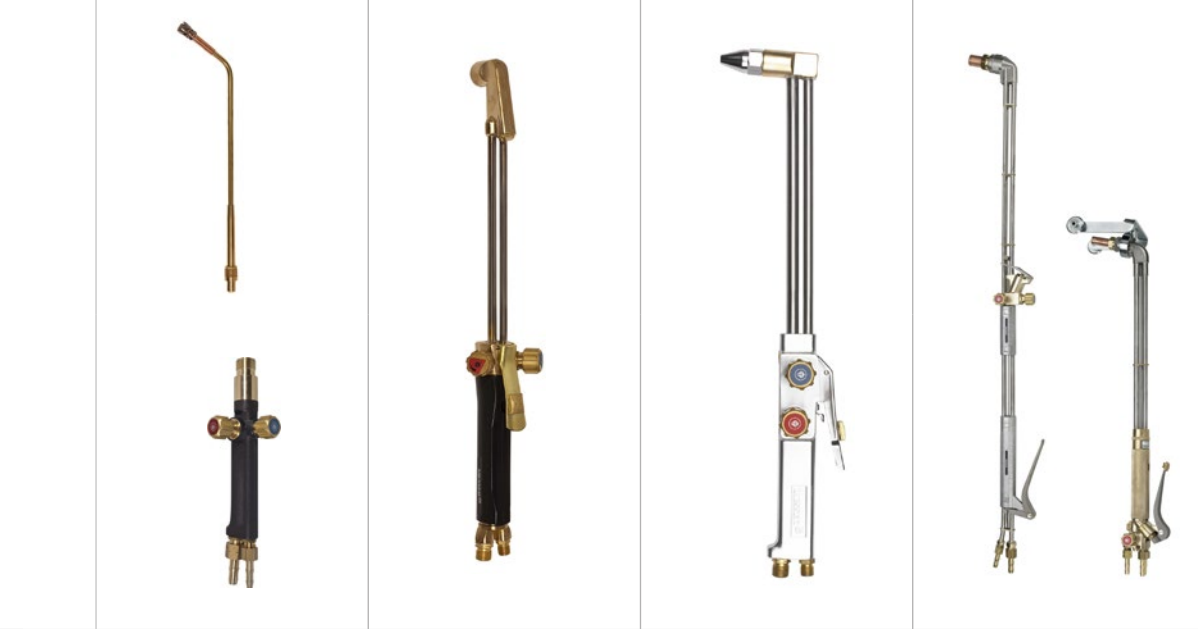
For other combustion gases

					
Ring/slot nozzle A-RS	Block nozzle A-B	Block nozzle A-B	Gas-mixing nozzle A-G, A-GN	PL-RC	GRICUT 8281

\*Machine cutting torches and nozzles are also available.

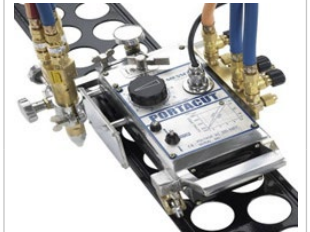
Gas cutting machines

SUPERTHERM      STARCUT      ESSEN      Smelting technology



QUICKY/PORTACUT

Suitable for all torch cutting types

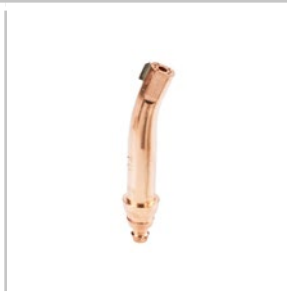


		3-500 mm	3-500 mm
			50-700 mm
200-250 mm			
		7-12 mm	

Gouging nozzles      Heating nozzles/welding nozzles



FD-A



FAG



Heating nozzles



Welding nozzles



Do your oxy-fuel machines need to be repaired or do they require maintenance? Then don't hesitate to get in touch. We'll be happy to advise you. KOS-S00035-00000



## Ring slot nozzles

2



- Nozzles are screwed in
- Ring slot nozzles boast excellent precision and a great cutting result
- Ideal for use with machine cutting torches
- If the result becomes too inaccurate for machine cutting due to wear, the nozzle can be used for manual operation.
- A heating nozzle covers various cutting ranges of the cutting nozzle.

## Block nozzle

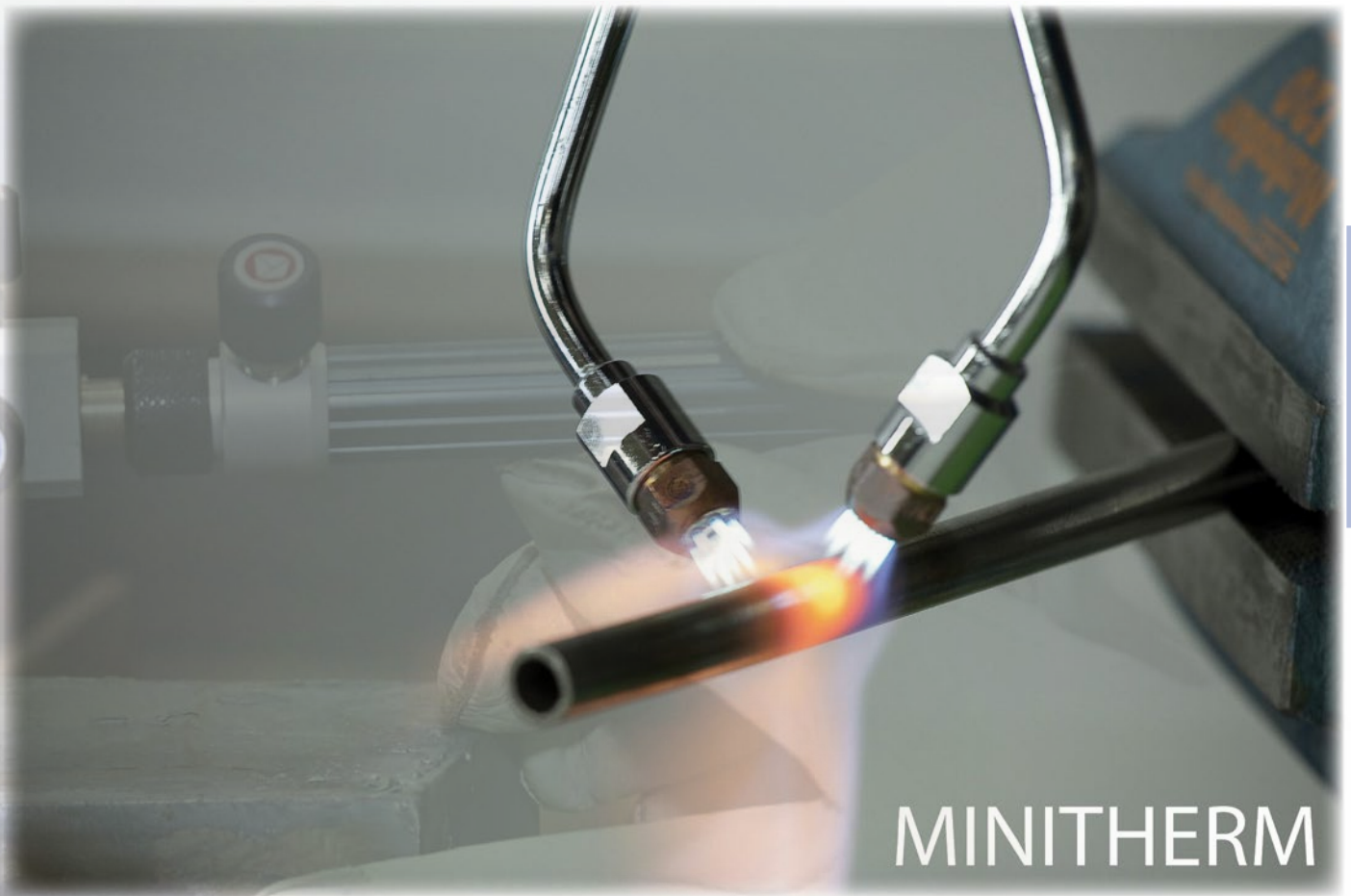


- Block nozzles have two steps and are fixed onto the torch head using a pressure screw
- Block nozzles generally act as a robust cutting nozzle
- Compared to the narrow slits seen with the ring slot nozzle, the bores are less pervious to dirt and slag

## Gas-mixing nozzles



- Gas-mixing nozzles have three steps and are also fixed onto the torch head using a pressure screw
- Because the gases are mixed in the nozzle itself, they are safe to use and easy to maintain
- A welding torch with an injector is not necessary



MINITHERM

**Complete set for welding, brazing and heating • MINITHERM**

- 1 handle Minitherm
- 5 MINITHERM welding, brazing and heating attachments, size 00 to 3
- Including integrated oxygen and fuel gas hoses 3m
- Powerful complete set for welding, brazing and heating

Gas type	Item no.
Acetylene	396-000065-00000
Propane, methane, MAPP gas, ethylene	396-000066-00000



**Handle with hose connection • MINITHERM**

- Small handles with high throughput capacity, for welding, brazing and heating
- Particularly suitable for delicate and sensitive applications in continuous operation, in extreme positional welding and poorly accessible locations

<b>Length</b>	120 mm
<b>Weight</b>	ca.90 g
<b>Hose connection</b>	3,2 mm

	Length m	PU Units	Item no.
Handle with hose connection	–		396-000067-00000
Handle with oxygen and combustion gas hoses	3.0	1	396-000068-00000



Cutting attachment • MINITHERM 2207



- Cutting attachment for hand flame cutting

Gas type	Item no.
Acetylene	396-001051-00000
Propane, methane, MAPP gas	396-001052-00000

Cutting nozzle • A-BF



- Block nozzles for STARLET/MINITHERM cutting attachment

Gas type	Block nozzles
	Acetylene
Cutting range mm	Item no.
0.5 - 3	096-000620-00000
3 - 10	096-000405-00000
10 - 25	096-000406-00000

Attachment for welding, brazing and heating • MINITHERM Z



- Welding attachment for welding, brazing and heating
- Central flame outlet
- Replaceable nozzles

PU Units	Gas type	Size	Welding area mm	Item no.
1	Acetylene	00	0.3	396-000069-00000
		0	0.2 - 0.5	396-000070-00000
		1.0	0.5 - 1	396-000071-00000
		2.0	1 - 2	396-000072-00000
		3.0	2 - 4	396-000073-00000
	Propane, methane, MAPP gas, ethylene	00	0.3	396-000074-00000
		0	0.2 - 0.5	396-000075-00000
		1.0	0.5 - 1	396-000076-00000
		2.0	1 - 2	396-000077-00000
		3.0	2 - 4	396-000078-00000

Fork torch for heating and brazing • MINITHERM FT Z



- Fork torch for heating and brazing
- Central flame outlet

<b>Length</b>	210 mm
<b>Weight</b>	ca.90 g
<b>Nozzle distance</b>	30 mm

Gas type	Size	Weight g	Item no.
Acetylene, hydrogen	Z0	90	396-000093-00000
	Z1		396-000094-00000
	Z2		396-000095-00000
	Z3		396-000096-00000
Propane, methane, MAPP gas, ethylene	Z0	396-000097-00000	
	Z1	396-000098-00000	
	Z2	396-000099-00000	
	Z3	396-000100-00000	



### Attachment for brazing, heating and melting • MINITHERM FK

- Attachment for brazing, heating and melting
- Flat-shaped flame outlet
- Size FK1: 5 bores
- Size FK2: 7 bores
- Replaceable nozzles

<b>Length</b>	180 mm
<b>Weight</b>	ca.67 g

PU Units	Gas type	Size	Item no.
1	Acetylene, hydrogen	FK1	396-000089-00000
		FK2	396-000090-00000
	Propane, methane, MAPP gas, ethylene	FK1	396-000091-00000
		FK2	396-000092-00000



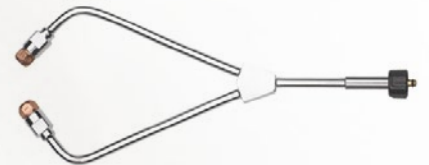
2

### Fork torch for heating and brazing • MINITHERM FT FK

- Fork torch for heating and brazing
- Flat-shaped flame outlet

<b>Length</b>	210 mm
<b>Weight</b>	ca.130 g
<b>Nozzle distance</b>	30 mm

PU Units	Gas type	Size	Item no.
1	Acetylene, hydrogen	FK1	396-000101-00000
		FK2	396-000102-00000
	Propane, methane, MAPP gas, ethylene	FK1	396-000103-00000
		FK2	396-000104-00000



### Heating nozzle • MINITHERM FK

- Replaceable heating nozzles for brazing, heating and melting attachments as well as fork torch of type FK

PU Units	Gas type	Size	Item no.
1	Acetylene, hydrogen	FK1	396-000105-00000
		FK2	396-000106-00000
	Propane, methane, MAPP gas, ethylene	FK1	396-000107-00000
		FK2	396-000108-00000



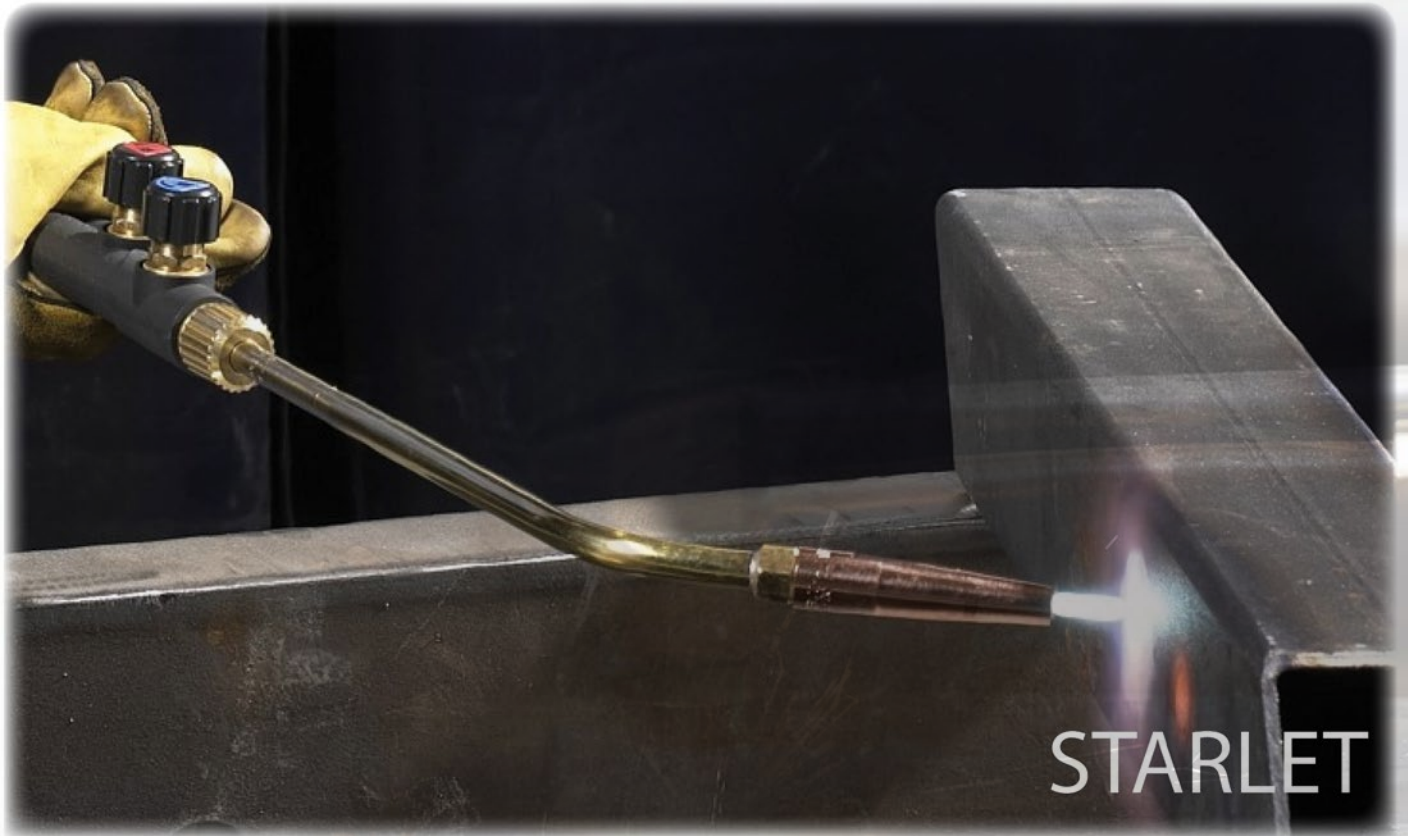
### Gas saver

- Gas saver with pilot flame and safety system
- Automatic interruption of gas supply by hanging the welding torch in the fork
- Automatic clearance of full gas supply when removing the welding torch from the fork

Gas type	Item no.
Acetylene	396-000982-00000
Propane, methane, MAPP gas	396-001168-00000



2



**Complete fittings for acetylene combustion gas • STARLET A**



- Professional fittings for acetylene
- Comprises the following:
- 1 handle type 1302, 1 spring lever cutting attachment 8702 type A/PMYE
- 3 gas-mixing cutting nozzles type ANME
- 7 welding attachments type 321-A with hammered cutting nozzles
- Cutting torch carriage, torch key, gas igniter, welding safety glasses, nozzle cleaning set, hose nipples with crown nut, operating instructions

<b>Gas type</b>	Acetylene
<b>Welding area</b>	0.2 mm - 14 mm
<b>Cutting range</b>	3 mm - 75 mm

PU	Item no.
<b>Units</b>	
1	396-000678-00000

**Complete fittings for propane, methane, MAPP gas and ethylene combustion gases • STARLET PMYE**



- Professional fittings for propane, methane, MAPP gas, ethylene
- Comprises the following:
- 1 handle type 1302, 1 spring lever cutting attachment type 8702 A/PMYE
- 3 gas-mixing cutting nozzles type ANME
- 6 brazing and heating attachments type Z-PMY with hammered brazing and heating nozzles, size 1 to 6
- Cutting torch carriage, torch key, gas igniter, welding safety glasses, nozzle cleaning set, hose nipples with crown nut, operating instructions

<b>Gas type</b>	Propane, methane, MAPP gas, ethylene
<b>Cutting range</b>	3 mm - 75 mm

PU	Item no.
<b>Units</b>	
1	396-000676-00000

## Complete fittings for acetylene combustion gas • STARLET WS 1302

- Basic fittings for acetylene
- Comprises the following:
  - 1 handle type 1302, 1 spring lever cutting attachment type 8702-A
  - 3 gas-mixing cutting nozzles type ANME
  - 3 welding attachments type 321-A
  - Hose nipples with crown nuts, operating instructions

<b>Gas type</b>	Acetylene
<b>Thread, combustion gas</b>	G3/8" LH
<b>Thread, oxygen</b>	G 1/4"
<b>Welding area</b>	1 mm - 6 mm
<b>Cutting range</b>	3 mm - 75 mm

PU	Item no.
Units	
1	396-000734-00000



## Complete fittings for acetylene combustion gas, with slot nozzles • STARLET KS

- Complete fittings for acetylene combustion gas, with slot nozzles
- Comprises the following:
  - 1 handle type 2211, 1 spring lever cutting attachment type 1711-A for acetylene
  - 3 torch cutting nozzles and 1 heating nozzle type A-RS
  - 4 welding attachments type 111-A
  - Torch cart, compass rod, torch key, set of nozzle cleaners
  - Including hose nipples, union nuts and operating instructions

<b>Gas type</b>	Acetylene
<b>Thread, combustion gas</b>	G3/8" LH
<b>Thread, oxygen</b>	G 1/4"
<b>Welding area</b>	1 mm - 9 mm
<b>Cutting range</b>	3 mm - 40 mm

PU	Item no.
Units	
1	096-000120-00000



## Complete fittings for acetylene combustion gas, with block nozzles • STARLET N

- Professional fittings with acetylene combustion gas, with block nozzles
- Comprises the following:
  - 1 handle type 2211, 1 spring lever cutting attachment type 2711-A for acetylene
  - 2 block nozzles type ABK
  - 4 welding attachments type 111-A
  - Torch carriage, torch key, set of nozzle cleaners
  - Operating instructions including hose nipples and crown nuts

<b>Gas type</b>	Acetylene
<b>Thread, combustion gas</b>	G3/8" LH
<b>Thread, oxygen</b>	G 1/4"
<b>Welding area</b>	1 mm - 9 mm
<b>Cutting range</b>	3 mm - 25 mm

PU	Item no.
Units	
1	396-000159-00000





Complete fittings for acetylene combustion gas, with slot nozzles ● STARLET WS



- Comprises the following:
- 1 handle type 2211, 1 spring lever cutting attachment type 1711-A for acetylene
- 3 torch cutting nozzles and 1 heating nozzle type A-RS
- 3 welding attachments type 111-A
- Including hose nipples, union nuts and operating instructions

<b>Gas type</b>	Acetylene
<b>Thread, combustion gas</b>	G3/8" LH
<b>Thread, oxygen</b>	G 1/4"
<b>Welding area</b>	1 mm - 6 mm
<b>Cutting range</b>	3 mm - 40 mm

PU	Item no.
Units	
1	096-000118-00000

Powerful complete set for welding, brazing and heating ● STARLET PROFIKIT A ME



- Professional fittings for acetylene combustion gas
- Comprises the following:
- 1 STARLET 2221 handle
- 3 ANME type gas-mixing cutting nozzles for cutting ranges 3.0–75.0 mm
- One CONSTANT 2000 pressure regulator each for oxygen (10 bar) and acetylene (1.5 bar)
- One DGN flashback arrestor each for oxygen (G1/4") and acetylene (G3/8" LH)
- 7 type 321-A welding attachments for welding ranges 0.2–14.0 mm
- 4.5 m twin hose 6/6 mm
- Starlet F-A 6 multi-flame heating attachment
- STARLET 8702 cutting attachment
- Gas igniter, 10 spare flints, welding safety glasses, adjustable spanner, nozzle cleaner set, operating instructions

<b>Gas type</b>	Acetylene
-----------------	-----------

PU	Item no.
Units	
1	396-001163-00000

## Handle with replaceable inlet connections and attachment connections, valve arrangement: V-shaped • STARLET

- The ergonomic design allows easy handling, fatigue-free work and great operating comfort
- Large cross-sections allow use in conjunction with high-performance heating attachments and guarantee high flashback safety
- High impact strength and long service life thanks to robust aluminium design
- Handles with lateral or v-configuration **monoblock valves** are used in all welding, brazing and heating jobs
- Handles with **Conax valves** are of extremely slender design. Thanks to the valves integrated in the handle, they can be employed in areas where access is tight



<b>Thread, combustion gas</b>	G3/8" LH
<b>Thread, oxygen</b>	G 1/4"
<b>Length</b>	210 mm
<b>Weight</b>	400 g

PU Units	Version	Item no.
1	STARLET 1302 Monoblock valves, V configuration	096-000902-00000
	STARLET 2221 Monoblock valves, lateral configuration	396-000727-00000
	STARLET 3201 Conax valves	396-000161-00000
	STARLET 6201 With pilot flame, lever and Conax valves	396-000162-00000
	STARLET 7201 With open/close control, lever and Conax valves	396-000163-00000

## Welding attachment for standard applications, replaceable welding nozzle • STARLET 111-A

- Welding attachment for standard applications
- Nozzles can be exchanged

**Gas type** Acetylene

	PU Units	Size	Welding area mm	Item no.
Application complete	1	0	0.2 - 0.5	396-000164-00000
		1.0	0.5 - 1	096-000076-00000
		2.0	1 - 2	096-000077-00000
		3.0	2 - 4	096-000078-00000
		3,5	3 - 5	096-000102-00000
		4.0	4 - 6	096-000079-00000
Replacement nozzle	1	5.0	6 - 9	096-000080-00000
		6.0	9 - 14	096-000222-00000
		0	0.2 - 0.5	396-000165-00000
		1.0	0.5 - 1	096-000070-00000
		2.0	1 - 2	096-000071-00000
		3.0	2 - 4	096-000072-00000
Replacement nozzle	1	3,5	3 - 5	096-000117-00000
		4.0	4 - 6	096-000073-00000
		5.0	6 - 9	096-000074-00000
		6.0	9 - 14	096-000075-00000



**Welding insert for high thermal loads, replaceable nozzles • STARLET 211-A**



- Welding attachments for high thermal loads
- Nozzles can be exchanged

Gas type Acetylene

	PU Units	Size	Welding area mm	Item no.
Application complete	1	1.0	0.5 - 1	396-000166-00000
		2.0	1 - 2	396-000167-00000
		3.0	2 - 4	396-000168-00000
		3,5	3 - 5	396-000169-00000
		4.0	4 - 6	396-000170-00000
		5.0	6 - 9	396-000171-00000
Replacement nozzle	1	6.0	9 - 14	396-000172-00000
		1.0	0.5 - 1	096-000010-00000
		2.0	1 - 2	096-000011-00000
		3.0	2 - 4	096-000012-00000
		3,5	3 - 5	396-000173-00000
		4.0	4 - 6	096-000013-00000
		5.0	6 - 9	096-000014-00000
		6.0	9 - 14	096-000015-00000

**Mixer tube with hammered welding nozzle • STARLET 321-A**



- Mixer tube attachments with hammered welding nozzle, mixer tube replaceable

Gas type Acetylene

	PU Units	Size	Welding area mm	Item no.
Application complete	1	0	0.5 - 0.5	394-000444-00000
		1.0	0.5 - 1	394-000417-00000
		2.0	1 - 2	394-000418-00000
		3.0	2 - 4	394-000419-00000
		4.0	4 - 6	394-000420-00000
		5.0	6 - 9	394-000421-00000
Replacement nozzle	1	6.0	9 - 14	394-000429-00000
		0	0.2 - 0.5	394-000445-00000
		1.0	0.5 - 1	394-000411-00000
		2.0	1 - 2	394-000412-00000
		3.0	2 - 4	394-000413-00000
		4.0	4 - 6	394-000414-00000
		5.0	6 - 9	394-000415-00000
		6.0	9 - 14	394-000416-00000



## Flexible pipe welding attachment with brazed on welding nozzle for welding, brazing and heating • STARLET 411-A

- Pipe welding attachment for welding, soldering and heating at difficult to access points
- Flexible, mixer tube with soldered on welding nozzle which can be exchanged

### Gas type

Acetylene

	PU Units	Size	Welding area mm	Item no.
Application complete	1	2.0	1 - 2	096-000089-00000
		3.0	2 - 4	096-000090-00000
		3,5	3 - 5	096-000105-00000
		4.0	4 - 6	096-000091-00000
		5.0	6 - 9	096-000092-00000
Replacement nozzle		2.0	1 - 2	096-000094-00000
		3.0	2 - 4	096-000095-00000
		4.0	4 - 6	096-000096-00000
		5.0	6 - 9	096-000097-00000



## Attachment for spot brazing and heating • STARLET Z-A

- Attachments for spot soldering and heating with acetylene
- Flame outlet central
- Nozzles replaceable

### Gas type

Acetylene

	Length mm	PU Units	Gas type	Size	Welding area mm	Item no.
Application complete	355	1	Acetylene	7.0	20 - 30	096-000986-00000
	380			8.0	14 - 20	096-000987-00000
Application complete, mixer tube made of stainless steel	430	1	Acetylene	7.0	20 - 30	396-000700-00000
	580			8.0	20 - 30	396-000701-00000
Replacement nozzle	-			7.0	14 - 20	096-000635-00000
				8.0	20 - 30	096-000381-00000



## Attachment for surface heating and brazing • STARLET F-A

- Attachments for flat soldering and heating with acetylene
- Flame outlet with flat shape
- Nozzles replaceable

### Gas type

Acetylene

	Length mm	PU Units	Gas type	Size	Item no.
Application complete	200	1	Acetylene	3.0	096-000982-00000
	275			4.0	096-000983-00000
	335			6.0	096-000984-00000
	380			8.0	096-000985-00000
Replacement nozzle	-			3.0	096-000968-00000
				4.0	096-000969-00000
				6.0	096-000970-00000
				8.0	096-000971-00000



Attachment for surface heating and brazing • STARLET FB-A



- Mixer tube attachments made of stainless steel for brazing and surface heating using acetylene
- Particularly low noise
- Flame outlet with flat shape
- Replaceable nozzles

Gas type		Acetylene			
	Length mm	PU Units	Gas type	Size	Item no.
Application complete	430	1	Acetylene	5.0	396-000704-00000
				6.0	396-000705-00000
	580			7.0	396-000706-00000
				8.0	396-000707-00000
Replacement nozzle	-	1	Acetylene	9.0	396-000708-00000
				5.0	096-000584-00000
				6.0	096-000557-00000
				7.0	096-000561-00000
				8.0	096-000490-00000
				9.0	096-000488-00000

Fork torch with central flame outlet • STARLET Z-A



- Fork torch for heating and brazing
- Central flame outlet
- Replaceable nozzles
- Flexible nozzle distance from 30 to 60 mm

Gas type		Acetylene		
Length		250 mm		
Nozzle distance		30 mm - 60 mm		
	PU Units	Size	Item no.	
Application complete	1	Z2	396-000191-00000	
		Z3	396-000192-00000	
		Z4	396-000193-00000	
		Z5	396-000194-00000	

Fork torch for surface heating and brazing using acetylene • STARLET F-A



- Fork torch for heating and brazing using acetylene
- Flat-shaped flame outlet
- Replaceable nozzles
- Flexible nozzle distance from 30 to 60 mm

Gas type		Acetylene			
Length		250 mm			
Nozzle distance		30 mm - 60 mm			
	Length mm	Nozzle distance mm	PU Units	Size	Item no.
Application complete	250	30 - 60	1	F1	396-000175-00000
				F2	396-000176-00000
				F3	396-000177-00000
				F4	396-000178-00000
				F5	396-000179-00000
Replacement nozzle	-	-	1	FK1	396-000183-00000
				FK2	396-000184-00000
				FK3	396-000185-00000

### Attachment for spot brazing and heating • STARLET Z-PMY

- Mixer tube attachments for brazing and spot heating with propane, methane, MAPP gas
- Flame outlet central
- With hammered nozzle

#### Gas type

Propane, methane, MAPP gas

	Length mm	PU Units	Size	Item no.
Application complete	157	1	1.0	396-000670-00000
	176		2.0	396-000671-00000
	191		3.0	396-000672-00000
	207		4.0	396-000673-00000
	245		5.0	396-000674-00000
	266		6.0	396-000675-00000
Replacement nozzle	-	1	1.0	396-000664-00000
	-		2.0	396-000665-00000
	-		3.0	396-000666-00000
	-		4.0	396-000667-00000
	-		5.0	396-000668-00000
	-		6.0	396-000669-00000



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### Attachment for spot brazing and heating • STARLET Z-PMYE

- Attachments for spot brazing and heating using propane, methane, mixed gas, ethylene
- Flame outlet central
- Nozzles replaceable

#### Gas type

Propane, methane, MAPP gas, ethylene

	Length mm	PU Units	Size	Item no.
Application complete	145	1	1.0	096-000992-00000
	175		2.0	096-000993-00000
	205		3.0	096-000994-00000
	235		4.0	096-000995-00000
	265		6.0	096-000996-00000
	315		8.0	096-000997-00000
Replacement nozzle	-	1	1.0	096-000976-00000
	-		2.0	096-000977-00000
	-		3.0	096-000978-00000
	-		4.0	096-000979-00000
	-		6.0	096-000980-00000
	-		8.0	096-000981-00000





**Brazing and heating attachments with stabilised flame ● STARLET Z-PMYE**



- Mixer tube attachments made of stainless steel for brazing and spot heating with propane, methane, MAPP gas, ethylene
- Stabilised, central flame outlet
- Replaceable nozzles

	Length mm	PU Units	Gas type	Size	Item no.
Application complete	430	1	Propane, methane, MAPP gas, ethylene	6.0	396-000686-00000
				8.0	396-000687-00000
	580			10.0	396-000688-00000
Replacement nozzle	-			6.0	396-000253-00000
				8.0	096-000631-00000
				10.0	096-000632-00000

**Attachment for surface heating and brazing ● STARLET F-PME**



- Attachments for flat soldering and heating with propane, methane, ethylene
- Flame outlet with flat shape
- Nozzles replaceable

	Length mm	PU Units	Gas type	Size	Item no.
Application complete	275	1	Propane, methane, ethylene	4.0	096-000988-00000
	335			6.0	096-000989-00000
	285			8.0	096-000990-00000
	310			10.0	096-000991-00000
Replacement nozzle	-	4.0	096-000972-00000		
		6.0	096-000973-00000		
		8.0	096-000974-00000		
		10.0	096-000975-00000		

**Attachment for surface heating and brazing ● STARLET F-PMYE**



- Mixer tube attachment made of stainless steel for brazing and spot heating with propane, methane, MAPP gas, ethylene
- Flat-shaped flame outlet
- Replaceable nozzles

	Length mm	PU Units	Gas type	Size	Item no.
Application complete	430	1	Propane, methane, MAPP gas, ethylene	8.0	396-000691-00000
	580			10.0	396-000692-00000
				12.0	396-000693-00000
Replacement nozzle	-			8.0	396-000246-00000
				10.0	396-000247-00000
				12.0	396-000248-00000

**Attachment for surface heating and brazing ● STARLET HF-PM**



- Mixer tube attachment made of stainless steel for brazing and surface heating using propane, methane
- Flat-shaped flame outlet
- Replaceable nozzles

	Length mm	PU Units	Gas type	Size	Item no.
Application complete	430	1	Propane, methane, MAPP gas, ethylene	12.0	396-000696-00000
	580			13.0	396-000697-00000
Replacement nozzle	-			HF12	396-000233-00000
				HF13	396-000234-00000

## Connection adapter for brazing and heating nozzles • STARLET CA

- Connecting adapter for Z-A, FB-A, F-A, Z-PMYE and F-PMYE brazing and heating nozzles
- For stainless steel mixer tubes only

Mixer tube thread 1/2" x 25 Gg.

PU Units	Nozzle thread	Mixer tube thread	Item no.
1	M 12 x 1,5	1/2" x 25 Gg.	396-000679-00000
	M 14 x 1,5		396-000680-00000
	M 18 x 1,5		396-000681-00000



## Fork torch with central flame outlet • STARLET Z-PM

- Fork torch for heating and brazing
- Central flame outlet
- Replaceable nozzles
- Flexible nozzle distance from 30 to 60 mm

Gas type Propane, methane  
 Length 250 mm  
 Nozzle distance 30 mm - 60 mm

PU Units	Size	Item no.
1	Z1	396-000195-00000
	Z2	396-000196-00000
	Z3	396-000197-00000



## Cutting attachments for acetylene hand flame cutting

Gas type Acetylene

	PU Units	Version	Item no.
Ring/slot nozzles	1	STARLET 1211 Hand wheel	096-000224-00000
		STARLET 1711 Spring steel	096-000123-00000
Block nozzles	1	STARLET 2711	096-000409-00000



## Gas saver • STARLET/STAR

- Gas saver with pilot flame and safety system

Gas type Acetylene

Item no.  
396-000959-00000



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**Complete fittings for acetylene combustion gas, with slot nozzles • STAR A**



- Comprises the following:
- 5 torch cutting nozzles and 1 heating nozzle type A-RS
- 1 handle type 2020, 1 spring lever cutting attachment type 1730-A for acetylene
- 6 welding attachments type 210-A
- Torch cart, compass rod, torch key, set of nozzle cleaners
- Including hose nipples, union nuts and operating instructions

<b>Gas type</b>	Acetylene
<b>Thread, combustion gas</b>	G3/8" LH
<b>Thread, oxygen</b>	G 1/4"
<b>Welding area</b>	0.5 mm - 14 mm
<b>Cutting range</b>	3 mm - 100 mm

PU	Item no.
<b>Units</b>	
1	096-000098-00000

**Complete fittings for acetylene combustion gas, with block nozzles • STAR B**



- Comprises the following:
- 5 block nozzles type A-B
- 1 handle type 2020, 1 spring lever cutting attachment type 2730-A for acetylene
- 6 welding attachments type 210-A
- Torch cart, compass rod, torch key, set of nozzle cleaners
- Including hose nipples, union nuts and operating instructions

<b>Gas type</b>	Acetylene
<b>Thread, combustion gas</b>	G3/8" LH
<b>Thread, oxygen</b>	G 1/4"
<b>Welding area</b>	0.5 mm - 14 mm
<b>Cutting range</b>	3 mm - 100 mm

PU	Item no.
<b>Units</b>	
1	096-000512-00000



## Assembly fittings for acetylene combustible gas, with ring nozzles • STAR M

- Comprises the following:
  - 6 torch cutting nozzles and 2 heating nozzles type A-RS
  - 1 handle type 2020, 1 spring lever cutting attachment type 1730-A for acetylene
  - 8 welding attachments type 210-A
  - 2 CONSTANT 2000 gas cylinder pressure regulators for oxygen and acetylene
  - Hose leads for oxygen and combustible gas, 10 m each including hose clamps
  - Torch cart, torch key, nozzle cleaning set, gas igniter, welding safety glasses
  - Including hose nipples, union nuts and operating instructions



<b>Gas type</b>	Acetylene
<b>Thread, combustion gas</b>	G3/8" LH
<b>Thread, oxygen</b>	G 1/4"
<b>Welding area</b>	0.5 mm - 30 mm
<b>Cutting range</b>	3 mm - 200 mm

PU	Item no.
Units	
1	096-000566-00000

## Handle • STAR

- Thanks to their ergonomic design the robust handles allow easy handling, fatigue-free work and great operating comfort
- Self-tensioning radial seals on the attachments allow fast and reliable sealing; simply tighten the crown nut by hand
- Handles with lateral or v-configuration **monoblock valves** are used in all welding, brazing and heating jobs



<b>Thread, combustion gas</b>	G3/8" LH
<b>Thread, oxygen</b>	G 1/4"
<b>Length</b>	230 mm
<b>Weight</b>	550 g

	PU		Version	Item no.
	Units			
-	1	STAR 2020	Monoblock valves, lateral configuration	096-001064-00000
Aluminium handle		STAR 1000	Monoblock valves, 90° configuration	096-001307-00000

**Welding attachment • STAR 210-A**



- Attachments for welding, soldering and heating
- With hammered welding nozzle holes

Gas type Acetylene

	PU Units	Size	Welding area mm	Item no.
Application complete	1	1.0	0.5 - 1	096-000081-00000
		2.0	1 - 2	096-000082-00000
		3.0	2 - 4	096-000083-00000
		4.0	4 - 6	096-000084-00000
		5.0	6 - 9	096-000085-00000
		6.0	9 - 14	096-000086-00000
		7.0	14 - 20	096-000087-00000
		8.0	20 - 30	096-000088-00000
Replacement nozzle	1	1.0	0.5 - 1	096-000010-00000
		2.0	1 - 2	096-000011-00000
		3.0	2 - 4	096-000012-00000
		4.0	4 - 6	096-000013-00000
		5.0	6 - 9	096-000014-00000
		6.0	9 - 14	096-000015-00000
		7.0	14 - 20	096-000635-00000
		8.0	20 - 30	096-000381-00000

**Welding attachment • STAR 410-A**



- Pipe welding attachment for welding, soldering and heating at difficult to access points
- Flexible, mixer tube with soldered on welding nozzle which can be exchanged

Gas type Acetylene

	PU Units	Size	Welding area mm	Item no.
Application complete	1	2.0	1 - 2	096-000282-00000
		3.0	2 - 4	096-000283-00000
		4.0	4 - 6	096-000093-00000
		5.0	6 - 9	096-000284-00000
Replacement nozzle	1	2.0	-	096-000209-00000
		3.0	-	096-000210-00000
		4.0	-	096-000211-00000
		5.0	-	096-000233-00000

**Brazing and heating attachment • STAR Z-A**



- Attachments for spot brazing and heating using acetylene
- Flame outlet central
- Replaceable nozzles

Gas type Acetylene

	Length mm	PU Units	Gas type	Size	Item no.
Application complete	695	1	Acetylene	9.0	396-000221-00000
				10.0	396-000222-00000
Replacement nozzle	-	1	Acetylene	9.0	396-000223-00000
				10.0	396-000224-00000

### Brazing and heating attachment • STAR F-A

- Attachments for flat soldering and heating with acetylene
- Flame outlet with flat shape
- Nozzles replaceable

Gas type

Acetylene

	Length mm	PU Units	Size	Item no.
Application complete	415	1	8.0	396-000218-00000
	685		9.0	396-000219-00000
Replacement nozzle	-		8.0	096-000971-00000
			9.0	396-000220-00000



### Brazing and heating attachment • STAR FB-A

- Attachments for flat soldering and heating with acetylene
- Flame outlet with flat shape
- Nozzles replaceable
- Noise level up to size 8 below 85 dB(A)

Gas type

Acetylene

	Length mm	PU Units	Size	Item no.
Application complete	310	1	5.0	096-000621-00000
	340		6.0	096-000622-00000
	390		7.0	096-000060-00000
	410		8.0	096-000061-00000
	675		9.0	096-000062-00000
			10.0	096-000496-00000
Replacement nozzle	-		5.0	096-000584-00000
			6.0	096-000557-00000
			7.0	096-000561-00000
			8.0	096-000490-00000
		9.0	096-000488-00000	
		10.0	096-000489-00000	



### Brazing and heating attachment • STAR Z-PM

- Attachments for spot brazing and heating using propane, methane
- Flame outlet central
- Nozzles replaceable

Gas type

Propane, methane

	Length mm	PU Units	Size	Item no.
Application complete	430	1	8.0	396-000237-00000
			10.0	396-000238-00000
			12.0	396-000239-00000
Replacement nozzle	-		8.0	396-000240-00000
			10.0	396-000241-00000
			12.0	396-000242-00000





Heating attachment • STAR F-PMY



- Attachments for flat soldering and heating with propane, methane, ethylene
- Flame outlet with flat shape
- Nozzles replaceable

	Length mm	PU Units	Gas type	Size	Item no.
Application complete	420	1	Propane, methane, MAPP gas	8.0	096-000065-00000
				10.0	096-000066-00000
				12.0	096-000067-00000
Replacement nozzle	-		Propane, methane, MAPP gas, ethylene	8.0	396-000246-00000
				10.0	396-000247-00000
				12.0	396-000248-00000

Heating attachment • STAR HF-PMYF



- Heating attachment for propane, methane, MAPP gas, ethylene

Gas type		Propane, methane, MAPP gas, ethylene			
	Length mm	PU Units	Size	Item no.	
Application complete	420	1	HF12	396-000229-00000	
	510		HF13	396-000230-00000	
	720		HF14	396-000231-00000	
	830		HF15	396-000232-00000	
Replacement nozzle	-		HF12	396-000233-00000	
			HF13	396-000234-00000	
			HF14	396-000235-00000	
			HF15	396-000236-00000	

Attachment for flame straightening • STAR FD



- Attachment for flame straightening

Gas type		Acetylene				
	Length mm	PU Units	Size	Welding area mm	Version	Item no.
Application complete	505	1	2 - 4 mm	-	For 3/2" flames	396-000255-00000
	550		4 - 6 mm		For 5/3" flames	396-000258-00000
Replacement nozzle	-		3.0	2 - 4	-	096-000012-00000
			4.0	4 - 6		096-000013-00000

Welding and heating attachment • KONSTANTHERM



- Special attachments for welding and heating using acetylene under high thermal load
- Flame outlet central
- Protective sleeve replaceable

Gas type		Acetylene				
	Length mm	PU Units	Size	Welding area mm	Item no.	
Application complete	375	1	6.0	9 - 14	396-000225-00000	
	445		8.0	20 - 30	396-000226-00000	
Protective sleeve	-		6.0	9 - 14	396-000227-00000	
			8.0	20 - 30	396-000228-00000	

## Attachment for flame cleaning • STAR T-A

- Attachment for flame cleaning

Length mm	Torch head width mm	PU Units	Gas type	Item no.
505	50	1	Acetylene	396-000259-00000
525	100			396-000260-00000
535	150			396-000261-00000
505	50		Propane, methane	396-000262-00000
525	100			396-000263-00000
535	150			396-000264-00000



## Cutting attachments for acetylene hand flame cutting

<b>Gas type</b>	Acetylene
<b>Cutting range</b>	3 mm - 100 mm

	PU Units		Version	Item no.
Ring/slot nozzles	1	STAR 1730	Spring steel	096-000121-00000
		STAR 1230	Hand wheel	096-000124-00000
Block nozzles	1	STAR 2730	Spring steel	096-000221-00000
		STAR 2230	Hand wheel	096-000223-00000



## Gas saver • STARLET/STAR

- Gas saver with pilot flame and safety system

Gas type	Item no.
Acetylene	396-000959-00000
Propane, methane, MAPP gas	396-001169-00000



Oxyacetylene/propane technology ● Heating, brazing and cutting systems ● 22 mm shaft – SUPERTHERM high-performance torch



2

SUPERTHERM

Handle



- Handle for SUPERTHERM torch system
- High flashback safety, ergonomic design, easy to regulate
- Corrosion-resistant in relation to sea water and other aggressive substances

<b>Thread, combustion gas</b>	G 1/2" LH
<b>Thread, oxygen</b>	G 3/8"
<b>Weight</b>	915 g

PU Units	Item no.
1	396-000275-00000

Heating attachment ● SUPERTHERM F-A



- Heating attachment for surface heating using acetylene
- Replaceable nozzles

<b>Gas type</b>	Acetylene
<b>Length</b>	650 mm

	Length mm	PU Units	Gas type	Size	Item no.
Application complete	650	1	Acetylene	9.0	396-000276-00000
				11.0	396-000277-00000
Replacement nozzle	-			9.0	396-000220-00000
				11.0	396-000278-00000



### Heating attachment • SUPERTHERM Z-A

- Attachment for spot heating using acetylene
- Replaceable nozzles

<b>Gas type</b>	Acetylene
<b>Length</b>	670 mm

	Length mm	PU Units	Gas type	Size	Item no.
Application complete	670	1	Acetylene	9.0	396-000279-00000
				10.0	396-000280-00000
Replacement nozzle	-			9.0	396-000223-00000
				10.0	396-000224-00000



### Heating attachment • SUPERTHERM F-PMY

- Attachments for surface heating using propane, methane and MAPP gas

<b>Gas type</b>	Application complete Propane, methane, MAPP gas
<b>Length</b>	680 mm

PU Units	Size	Item no.
1	12.0	396-000283-00000
	14.0	396-000286-00000
	16.0	396-000289-00000



### Attachment for flame cleaning • SUPERTHERM T-A

- Attachment for flame cleaning

Length mm	Wide side panels mm	PU Units	Gas type	Item no.	PG	Price Per unit
1300	200	1	Acetylene	396-000300-00000	HW3	stk
	250			396-000301-00000	HW3	stk
650	200		Propane, methane	396-000302-00000	HW3	stk
	250			396-000303-00000	HW3	stk



2



Manual cutting torch, ring/slot nozzles



● Cutting oxygen regulation via spring lever					
					Ring/slot nozzles
<b>Cutting range</b>					300 mm
Length mm	PU Units		Gas type	Angle °	Item no.
530	1	Starcut 1622	Acetylene	95	096-001008-00000
			Propane, methane, MAPP gas, ethylene		096-001151-00000
540		Starcut 3622	Acetylene	180	396-000308-00000

Manual cutting torch, ring/slot nozzles



● Cutting oxygen regulation via hand wheel					
					Ring/slot nozzles
<b>Cutting range</b>					300 mm
<b>Angle</b>					95 °
<b>Length</b>					530 mm
PU Units			Gas type		Item no.
1		STARCUT 1222 A	Acetylene		096-001009-00000
		STARCUT 1222 PMYE	Propane, methane, MAPP gas, ethylene		096-001067-00000

Manual cutting torch, block nozzles



● Cutting oxygen regulation via spring lever					
					Block nozzles
<b>Cutting range</b>					300 mm
<b>Angle</b>					95 °
<b>Length</b>					530 mm
PU Units			Gas type		Item no.
1		STARCUT 2622	Acetylene		396-000306-00000
		STARCUT 2622 PMYF	Propane, methane, MAPP gas, ethylene		396-000307-00000

### Manual cutting torch, block nozzles

- Cutting oxygen regulation via hand wheel

	STARCUT 2222
	Block nozzles
<b>Cutting range</b>	300 mm
<b>Angle</b>	95°
<b>Length</b>	530 mm

PU Units	Gas type	Item no.
1	Acetylene	396-000304-00000
	Propane, methane, MAPP gas, ethylene	396-000305-00000



### Manual cutting torch, gas-mixing nozzles

- Cutting oxygen regulation via spring lever

	Cutting nozzles, gas-mixing
<b>Cutting range</b>	500 mm

Length mm	PU Units		Angle °	Item no.
530	1	STARCUT 8622	95	096-001088-00000
800				396-000313-00000
1000			096-001103-00000	
			135	096-001104-00000
540		STARCUT 9622	180	396-000314-00000



### Manual cutting torch, gas-mixing nozzles

- Cutting oxygen regulation via hand wheel

	STARCUT 8222
	Cutting nozzles, gas-mixing
<b>Cutting range</b>	500 mm

Length mm	PU Units	Angle °	Item no.
530	1	95	396-000309-00000
1000		135	396-000310-00000
1500		396-000311-00000	
1000		180	396-000312-00000





2



ESSEN

Manual cutting torch, ring/slot nozzles



- Cutting oxygen regulation via spring lever

	Ring/slot nozzles
<b>Cutting range</b>	300 mm
<b>Angle</b>	95 °
<b>Length</b>	530 mm

PU	Gas type	Item no.
1	Acetylene	396-000315-00000
	Propane, methane, MAPP gas, ethylene	396-000316-00000

Manual cutting torch, block nozzles

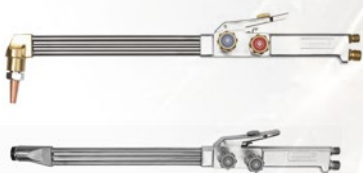


- Cutting oxygen regulation via spring lever

	Block nozzles
<b>Cutting range</b>	300 mm
<b>Angle</b>	95 °
<b>Length</b>	530 mm

PU	Gas type	Item no.
1	Acetylene	396-000317-00000
	Propane, methane, MAPP gas, ethylene	396-000318-00000

Manual cutting torch, gas-mixing nozzles



- Cutting oxygen regulation via spring lever

	Cutting nozzles, gas-mixing
<b>Cutting range</b>	500 mm
<b>Angle</b>	95 °

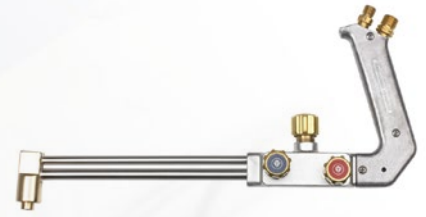
Length mm	PU Units	Item no.
530	1	396-000319-00000
800		396-000320-00000

### Special manual cutting torch, ring/slot nozzles

- Cutting oxygen regulation via hand wheel

	Ring/slot nozzles
<b>Cutting range</b>	300 mm
<b>Angle</b>	95 °
<b>Length</b>	450 mm

PU Units	Gas type	Item no.
1	Acetylene	396-000321-00000
	Propane, methane, MAPP gas, ethylene	396-000322-00000

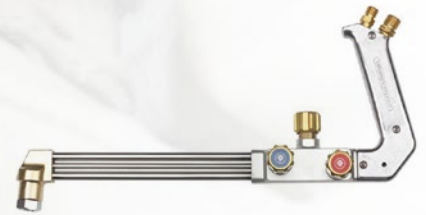


### Special manual cutting torch, gas-mixing nozzles

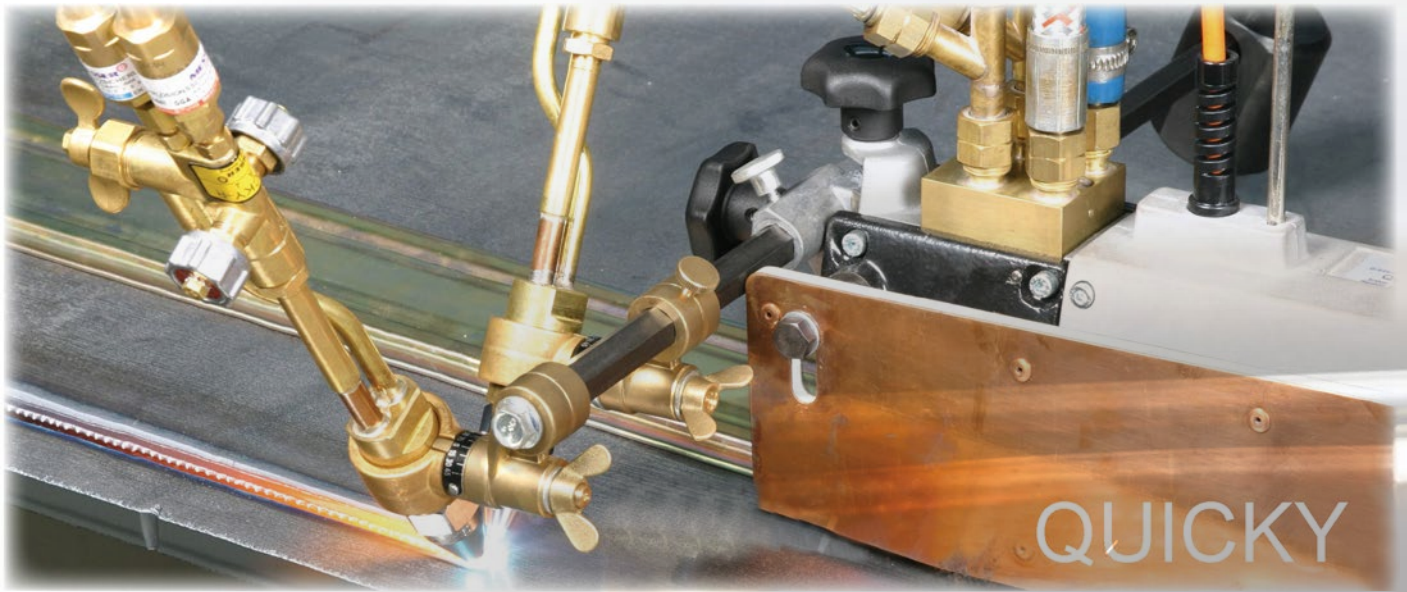
- Cutting oxygen regulation via hand wheel

	Gas-mixing nozzle
<b>Cutting range</b>	500 mm
<b>Angle</b>	95 °
<b>Length</b>	450 mm

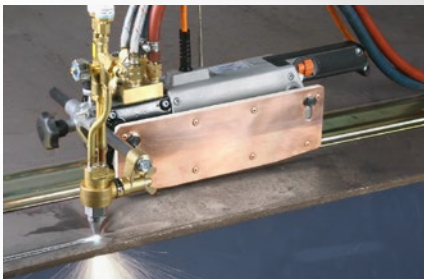
PU Units	Gas type	Item no.
1	Acetylene or propane, methane, MAPP gas, ethylene	396-000323-00000







**Portable cutting machine ● QUICKY**



- One of the most popular cutting machines in the world with an unbeatable reputation for reliability and quality
- Flexibility
- Straight cuts with: guide rail (optional), guide rollers for angular sections (optional) or device for separating I sections (optional)
- Circle cutting device
- Profile cuts easily performed by hand
- Strip cutting up to 500 mm with second torch (optional)
- Capacity
- Up to 100 mm cutting thickness as standard

<b>Cutting range</b>	3 mm - 100 mm		
<b>Circle diameter</b>	60 mm - 1500 mm		
<b>Feed speed</b>	100 mm/min - 1000 mm/min		
	<b>PU Units</b>	<b>Gas type</b>	<b>Item no.</b>
	1	Acetylene	096-000484-00000
		Propane	096-000483-00000

**Replacement cutting torch for QUICKY**



- Round-head machine cutting torch with two hoses
- With adjusting valves, safety features and connecting hoses

<b>Cutting range</b>	100 mm			
	<b>PU Units</b>	<b>Gas type</b>	<b>Cutting range mm</b>	<b>Item no.</b>
Ring/slot nozzles	1	Acetylene	3 - 100	096-001144-00000
		Propane		396-000326-00000
Gas-mixing nozzle		Acetylene/propane, gas-mixing		396-000327-00000

**Guide rail ● QUICKY**

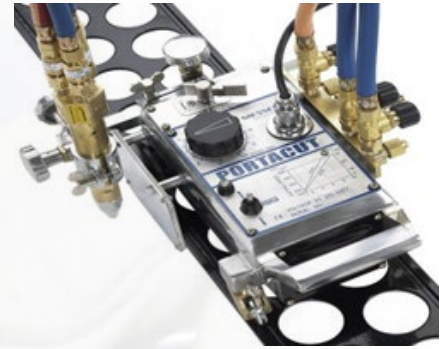


<b>Length</b>	1 m		
	<b>PU Units</b>	<b>Item no.</b>	
	1	096-001142-00000	



**Flame cutting machine ● PORTACUT**

- Flame cutting machine for straight, curved, circular, inclined and Y-flame cuts
- Function switch for machine movement forward, backward and machine stop
- Freewheeling gearbox clutch for quick positioning of the machine
- Continuous, mechanical velocity adjustment using hand wheel
- Gas diffuser with two outlets each for heating oxygen, cutting oxygen and combustion gas for the direct installation of a second cutting torch
- Power consumption: approx. 10 W
- Connection voltage: 50/60 Hz



<b>Gas type</b>	Acetylene
<b>Length</b>	80 mm
	3 mm
	160 mm
<b>Weight</b>	9.5 kg
<b>Feed speed</b>	50 mm/min - 800 mm/min
<b>Cutting speed</b>	60 mm/min - 800 mm/min
<b>Rotational speed</b>	1500 U/min
<b>Wheel distance</b>	160 mm
<b>Connection voltage</b>	Connection voltage , 230 V

PU	Version	Item no.
Units		
1	1 cutting torch	394-000547-00000
	2 cutting torches	394-000541-00000

**Machine cutting torch for ring/slot nozzles, three hoses, gear rack driven ● MSZ 832**

- Machine cutting torch for ring slot nozzles
- With toothed rack



	Ring/slot nozzles
<b>Cutting range</b>	300 mm
<b>Clamping Ø</b>	32 mm
<b>Shaft length</b>	110 mm

PU	Gas type	Item no.
Units		
1	Acetylene	396-001282-00000
	Propane, methane, MAPP gas, ethylene	396-001283-00000

**Rail ● PORTACUT RAIL**

Length	PU	Item no.
mm	Units	
1200	1	394-000549-00000
1800		394-000551-00000



**Compass rod unit for circular cuts ● PORTACUT ROD**

- Compass rod unit for circular cuts

<b>Circle diameter</b>	30 mm - 2400 mm
------------------------	-----------------

PU	Item no.
Units	
1	394-000550-00000



## Overview of manual cutting nozzle applications

2

Cutting nozzles for oxyfuel combustion gas	A-RS				A-BF /A-BK	A-B		NK block	NK 8310-A
<b>Torch system</b>									
MINITHERM 2207-A					●				
STARLET 1711-A/1211-A	●								
STARLET 2711-A					●			●	
STARLET 8702-A/PMYE									
STARLET 8711-A/PMYE									
STAR 1730-A/1230-A	●								
STAR 2730-A/2230-A							●	●	
STAR 8730-A/PMY/9230-A/PMY									●
STARCUT 1622-A/1222-A/3622-A	●								
STARCUT 2622-A/2222-A							●	●	
STARCUT 8622-A/PMYE/9622-A/PMYE									●
STARCUT 8222-A/PMYE/9222-A/PMYE									●
ESSEN 1625-A/1216-A/2625-A	●						●		
ESSEN 8625-A/PMY/8216-A/PMY									●

Cutting nozzles for propane/methane/MAPP/ethylene combustion gases	PL-RC	LP-N	PB-K/PMY	PNME	GRICUT					
					1230	1233	1280	2280	8281 PM	8281 PMYE
<b>Torch system</b>										
MINITHERM 2207-PMY			●							
STARLET 1711-PMY/1230-PMY	●	●			●					
STARLET 8702-A/PMYE				●						●
STARLET 8711-A/PMYE				●						●
STAR 1730-PMY/1230-PMY	●	●			●	●				
STAR 1730-F	●				●		●			
STAR 8730-A/PMY/9230-A/PMY				●						●
STARCUT 1622-PMYE/1222-PMYE	●	●			●	●	●			
STARCUT 2622-PMYE/2222-PMYE								●		
STARCUT 8622-A/PMYE/9222-A/PMYE				●					●	●
STARCUT 8222-A/PMYE/9222-A/PMYE				●					●	●
ESSEN 1625-PMY/1216-PMY	●	●			●	●	●			
ESSEN 8625-A/PMY/8216-A/PMY				●					●	●

## Overview of gouging nozzle applications

Gouging nozzles	Acetylene				Propane/methane/MAPP/ethylene		
	FD-A	Block A	FAG	AGNM	FD-PM	Block PM	Block Y-F
<b>Torch type:</b>							
STARCUT 1622-A/3622-A	●						
STARCUT 1622-PMYE					●		
STARCUT 2628-A/7628-A		●					
STARCUT 2622-PMYE						●	●
STARCUT 8622-A/PMYE/9622-A/PMYE			●	●			
ESSEN 8625-A/PMYE			●	●			
ESSEN 9625-A/PMYE			●	●			

2





2



Ring/slot nozzles ● A-RS



- Ring/slot nozzles for cutting attachments and manual cutting torches
- Also suitable for Quicky, MS and MSZ machine cutting torches

Gas type		Ring/slot nozzles Acetylene	
	PU Units	Cutting range mm	Item no.
Ring/slot nozzles	1	2 - 8	396-000357-00000
		3 - 10	096-000037-00000
		10 - 25	096-000038-00000
		25 - 40	096-000039-00000
		40 - 60	096-000040-00000
		60 - 100	096-000041-00000
		100 - 200	096-000477-00000
Heating nozzle		2 - 100	096-000042-00000
		100 - 300	096-000522-00000

Cutting nozzle ● A-BF



- Block nozzles for STARLET/MINITHERM cutting attachment

Gas type		Block nozzles Acetylene	
	PU Units	Cutting range mm	Item no.
1	1	0.5 - 3	096-000620-00000
		3 - 10	096-000405-00000
		10 - 25	096-000406-00000

## Cutting nozzle • A-B

- Block nozzle for cutting attachments and manual cutting torches

Block nozzles		
Acetylene oxygen		
PU	Cutting range	
Units	mm	
1	3 - 10	096-000021-00000
	10 - 25	096-000022-00000
	25 - 40	096-000020-00000
	40 - 60	096-000023-00000
	60 - 100	096-000024-00000
	100 - 200	096-000513-00000
	200 - 300	396-000359-00000



## Cutting nozzle • VADURA 8317 A-GN

- Gas mixing cutting nozzles for cutting attachments and manual cutting torches

Gas-mixing nozzle		
PU	Cutting range	
Units	mm	
1	3 - 10	096-000137-00000
	10 - 25	096-000138-00000
	25 - 40	096-000139-00000
	40 - 60	096-000140-00000
	60 - 100	096-000141-00000
	100 - 200	096-000542-00000
	200 - 300	096-000543-00000
	300 - 500	396-000366-00000



## Block nozzle for flame cutting rivet heads, screws and bar profiles • NK-BLOCK

- Special nozzle for flame cutting rivet heads, screws and bar profiles

Block nozzles	
Acetylene	
10 mm - 25 mm	
PU	Item no.
Units	
1	396-000367-00000



## Gas-mixing nozzle for flame cutting rivets, screws and bar profiles • NK 8310-A

- Special nozzle for flame cutting rivet heads, screws and bar profiles

Acetylene	
40 mm	
PU	Item no.
Units	
1	396-000368-00000



Ring/slot standard cutting nozzle ● PL-RC



- Ring nozzles for cutting attachments and manual cutting torches
- Cutting nozzles can also be used for QUICKY, MS and MSZ machine torches

		Ring/slot nozzles		
Gas type		Propane, methane, MAPP gas, ethylene		
	PU Units	Cutting range mm	Version	Item no.
Ring/slot nozzles	1	3 - 10		096-000043-00000
		10 - 25		096-000044-00000
		25 - 40		096-000045-00000
		40 - 60		096-000046-00000
		60 - 100	-	096-000047-00000
		100 - 200		396-000370-00000
Heating nozzle		3 - 100		096-000048-00000
		100 - 300		396-000373-00000
Ring/slot nozzles		60 - 200	Developed specially for scrap cutting	396-000374-00000
Heating nozzle		10 - 200		396-000372-00000

Cutting nozzle for low combustion gas pressures ● LP-N



- Cutting nozzle for low combustion gas pressures

		Ring/slot nozzles		
Gas type		Propane, methane, MAPP gas		
	PU Units	Cutting range mm	Version	Item no.
Ring/slot nozzles	1	3 - 10		396-000375-00000
		10 - 25		396-000376-00000
		25 - 40		396-000377-00000
		40 - 60		396-000378-00000
		60 - 100		396-000379-00000
		100 - 200		396-000380-00000
Heating nozzle		200 - 300		396-000381-00000
		3 - 100		396-000382-00000
		100 - 300		396-000383-00000

High performance cutting nozzle ● GRICUT 1230-PMYE



- High-performance nozzles for cutting torches
- Also suitable for QUICKY, MS and MSZ machine cutting torches

		Ring/slot nozzles		
Gas type		Propane, methane, MAPP gas, ethylene		
	PU Units	Cutting range mm	Version	Item no.
Ring/slot nozzles	1	3 - 10		396-000384-00000
		7 - 15		396-000385-00000
		15 - 25		396-000386-00000
		25 - 40		396-000387-00000
		40 - 60		396-000388-00000
Heating nozzle		60 - 100		396-000389-00000
		3 - 100		396-000390-00000



### High performance cutting nozzle • GRICUT 1280-PMYE

- Quick-cutting nozzles for cutting torches
- Also suitable for MS/MSZ machine cutting torches

Gas type		Ring/slot nozzles		
Gas type		Propane, methane, MAPP gas, ethylene		
	PU Units	Cutting range mm	Item no.	
Ring/slot nozzles	1	100 - 200	096-001015-00000	
		200 - 250	096-001016-00000	
		250 - 300	396-000393-00000	
Heating nozzle		100 - 300	396-000394-00000	



### Cutting nozzle for scrap cutting • GRICUT 1233-PMYE

- Special scrap-cutting nozzles for cutting torches

Gas type		Propane, methane, MAPP gas, ethylene		
	PU Units	Cutting range mm	Item no.	
Ring/slot nozzles	1	10 - 60	396-000395-00000	
		60 - 100	396-000396-00000	
Heating nozzle		10 - 200	396-000397-00000	



### Block nozzle for flame cutting • GRICUT 2280-PMY

- Block nozzle for cutting attachments and manual cutting torches

Gas type		Block nozzles		
Gas type		Propane, methane, MAPP gas		
	PU Units	Cutting range mm	Item no.	
Block nozzles	1	3 - 7	396-000398-00000	
		7 - 15	396-000399-00000	
		15 - 25	396-000400-00000	
		25 - 40	396-000401-00000	
		40 - 60	396-000402-00000	
		60 - 100	396-000403-00000	
		100 - 200	396-000404-00000	
		200 - 250	396-000405-00000	
Heating nozzle		250 - 300	396-000406-00000	
		3 - 100	396-000407-00000	
		100 - 300	396-000407-00300	



### Gas-mixing nozzle • PNME

- Gas mixing cutting nozzles for cutting attachments and manual cutting torches

Gas type		Gas-mixing nozzle		
	PU Units	Cutting range mm	Item no.	
Gas-mixing nozzle	1	3 - 6	396-000408-00000	
		6 - 20	396-000409-00000	
		20 - 75	396-000410-00000	
		75 - 125	396-000411-00000	
		125 - 175	396-000412-00000	
		175 - 225	396-000413-00000	
		225 - 300	396-000414-00000	



Oxyacetylene/propane technology ● Heating, brazing and cutting systems ● Cutting nozzles ●  
 Propane, methane, MAPP gas, ethylene

**Cutting nozzle, gas-mixing ● GRICUT 8281-PMYE**



- Gas mixing cutting nozzles for cutting attachments and manual cutting torches
- Also suitable for QUICKY, MSID and MSIDZ machine cutting torches

	PU Units	Gas type	Cutting range mm	Item no.
Gas-mixing nozzle	1	-	3 - 10	096-000142-00000
			10 - 25	096-000143-00000
			25 - 40	096-000144-00000
			40 - 60	096-000145-00000
			60 - 100	096-000146-00000
			100 - 200	096-000582-00000
Heating nozzle		Propane, methane	3 - 100	096-000136-00000
			100 - 300	096-000585-00000
		MAPP gas, ethylene	3 - 100	396-000416-00000
			100 - 300	396-000417-00000

**Cutting nozzle, gas-mixing ● GRICUT 8281-PM**



- Gas-mixing cutting nozzle with mixer for cutting torches
- Also suitable for QUICKY, MSID and MSIDZ machine cutting torches

**Cutting range** 200 mm - 500 mm

	PU Units	Gas type	Item no.
Gas-mixing nozzle	1	-	396-000418-00000
Heating nozzle		Propane, methane	396-000419-00000

Oxyacetylene/propane technology ● Heating, brazing and cutting systems ● Cutting nozzles ● Propane, methane, MAPP gas, ethylene

**Ring/slot nozzle for gouging ● FD-A**

- Gouging nozzle for acetylene

<b>Gas type</b>	Acetylene
<b>Version</b>	Suitable for STARCUT 1622-A/3622-A

	PU Units	Size	Item no.
Ring/slot nozzles	1	1.0	096-001095-00000
		2.0	096-001092-00000
		3.0	396-000524-00000
Heating nozzle		0 / 1	096-001094-00000
		2 / 3	096-001093-00000



**Block nozzle for gouging ● BLOCK-A**

- Gouging nozzle for acetylene
- Block-PM type for propane, methane combustion gases on request

<b>Gas type</b>	Acetylene
<b>Version</b>	Suitable for STARCUT 2628-A/7628-A

	PU Units	Size	Item no.
straight	1	1.0	396-000525-00000
		2.0	396-000526-00000
		3.0	396-000527-00000
Curved		1.0	396-000528-00000
		2.0	396-000529-00000
		3.0	396-000530-00000



**Gas mixing block nozzle for gouging ● FAG**

- Gouging nozzle for acetylene

<b>Version</b>	Suitable for STARCUT 8622/9622-A/PMYE and ESSEN 8625-A/PMYE
----------------	---

	PU Units	Size	Item no.
straight	1	1.0	096-001091-00000
		2.0	096-001089-00000
		3.0	096-001090-00000
Curved		1.0	096-000509-00000
		2.0	096-000529-00000
		3.0	096-000531-00000



**Gas mixing block nozzle for gouging, non-injector type ● AGNM**

- Gouging nozzle for acetylene

<b>Version</b>	Suitable for STARCUT 8622/9622-A/PMYE and ESSEN 8625-A/PMYE
----------------	---

	PU Units	Size	Item no.
straight	1	1.0	396-000531-00000
		2.0	396-000532-00000
		3.0	396-000533-00000
Curved		1.0	396-000534-00000
		2.0	396-000535-00000
		3.0	396-000536-00000







Your cutting needs – achieved.

2



**IK-12 NEXT • Portable oxy-fuel cutting machine**



- Set to plasma cutting or welding with a toggle switch
- Move without taking from the rails by releasing the mechanical coupling
- New heat-protection mechanism
- Creep button – immediately sets speed to slow
- Digital display: shows numerical data about the speed and other settings

Weight kg	Max. load weight kg	Item no.
8.5	50	396-006927-00000

**Welding torch set**

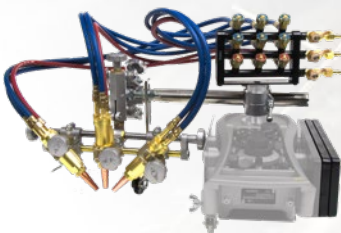


Figure: 396-001555-00000

- Also compatible with the predecessor machine "IK-12 MAX 3"

Name	Version	Cutting range/ torch mm	Item no.
S-100	1x oxy-fuel cutting torch without automatic height adjustment	150	396-001250-00000
SP-100	1x oxy-fuel cutting torch with automatic height adjustment		096-001251-00000
S-200	2x oxy-fuel cutting torches without automatic height adjustment	100	396-001552-00000
SP-200	2x oxy-fuel cutting torches with automatic height adjustment		396-001553-00000
SP-300	3x oxy-fuel cutting torches with automatic height adjustment		396-001554-00000
SP-400	3x oxy-fuel cutting torches with automatic height adjustment		396-001555-00000
-	Mounting kit, welding	-	396-006930-00000
-	Mounting kit, plasma cutting	-	396-006928-00000

### WU-3R • Weaving unit incl. mounting kit for IK-12 NEXT

- WU-3R weaving unit incl. mounting kit for IK-12 NEXT
- Quick mounting
- Custom settings of speed and position with a digital display

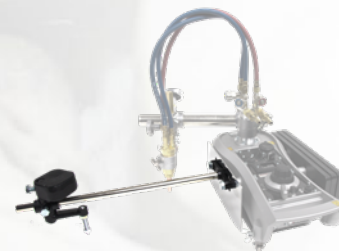
**Item no.**  
398-007156-00000



### KSE • Circle cutting device for IK-12 NEXT

- Circle cutting device for IK-12 NEXT
- Cutting diameter: 400 mm–2400 mm

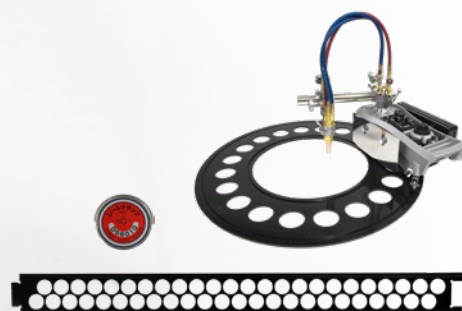
**Item no.**  
396-006931-00000



### IK-12 standard guide rail

- Straight rail, extendable
- Robust rail

Version	Inside ø mm	Outside ø mm	Item no.
Straight guide rail 1800 mm	-	-	096-001252-00000
Round guide rail	40-360	770-1150	396-001559-00000
Magnet for fastening/mounting	-	-	396-001292-00000



### Wel Handy Multi NEXT flame cutting machine • Wel Handy Multi Next

- Durable drive with maximum torque
- Vertical mechanism makes releasing the magnet easy
- Torch clamp with adjustable diameter
- Transport vehicle fitted with powerful motor
- 4-wheel drive
- A transformer is required to use Wel Handy Multi Next

Version	Item no.
Wel Handy Multi Next	398-007158-00000
Transformer 230 V/24 V	394-004071-00000





## Solders and fluxes

### What is brazing?

Brazing is a thermal joining process for connecting similar and dissimilar metals. The principal difference between brazing and welding lies in the fact that the connected parent metals are not melted. Only the added solder is melted, the melting temperature of which is always lower than that of the parent metal.

The added solder is melted on the parent metals, depending on the application, with or without using flux. The liquid solder is drawn into the solder gap between the workpieces to be connected (capillary effect). The capillary effect is at its greatest when the soldering gap is between 0.05 and 0.2 mm. Once the alloy has cooled, a permanent material bond has been made.

### Brazing methods

The following methods are differentiated based on the melting temperature (liquidus temperature) of the solder used:

- / Soldering, below 450 °C
- / Brazing, above 450 °C
- / High-temperature brazing, above 900 °C





## Fluxes

Fluxes promote the success of a brazing joint by protecting the materials against oxidation. The flux absorbs oxides forming during heating and thus improves the flow properties of the solder.

### HIGHLIGHT

#### Eco Smart®

Eco Smart® green is a unique flux, using colour change technology to indicate to you when to braze. The boric-acid-free and environmentally friendly Eco Smart® formula initially displays a green colour, which turns clear when the flux begins to act.

### Product features

- / Without boric acid and borax salts – an environmentally friendly alternative to traditional fluxes
- / Homogeneous mixture, available as paste or powder
- / Breaks up stable oxide layers and protects against further oxidation
- / Long service life for longer brazing times or longer heating
- / Quick reaction time thanks to recognition of working temperature by means of change in flux colour (only for Eco Smart® green)
- / Quick and easy cleaning away of flux residues

### Brazing fluxes

Designation	Description	Temperature range °C	Applications
Eco Smart® green	Paste/powder with colour change technology	427–871	Environmentally friendly flux for brazing steel, stainless steel, *Monel®, nickel, copper, brass, bronze and other ferrous and non-ferrous metals and alloys. Use with copper, silver and other hard solders.
Eco Smart® High Heat	Paste/powder, high-temperature flux	371–982	Environmentally friendly flux for steel, stainless steel, *Monel®, nickel, copper, brass, bronze and other ferrous and non-ferrous metals and alloys. Use with copper, silver and other hard solders.

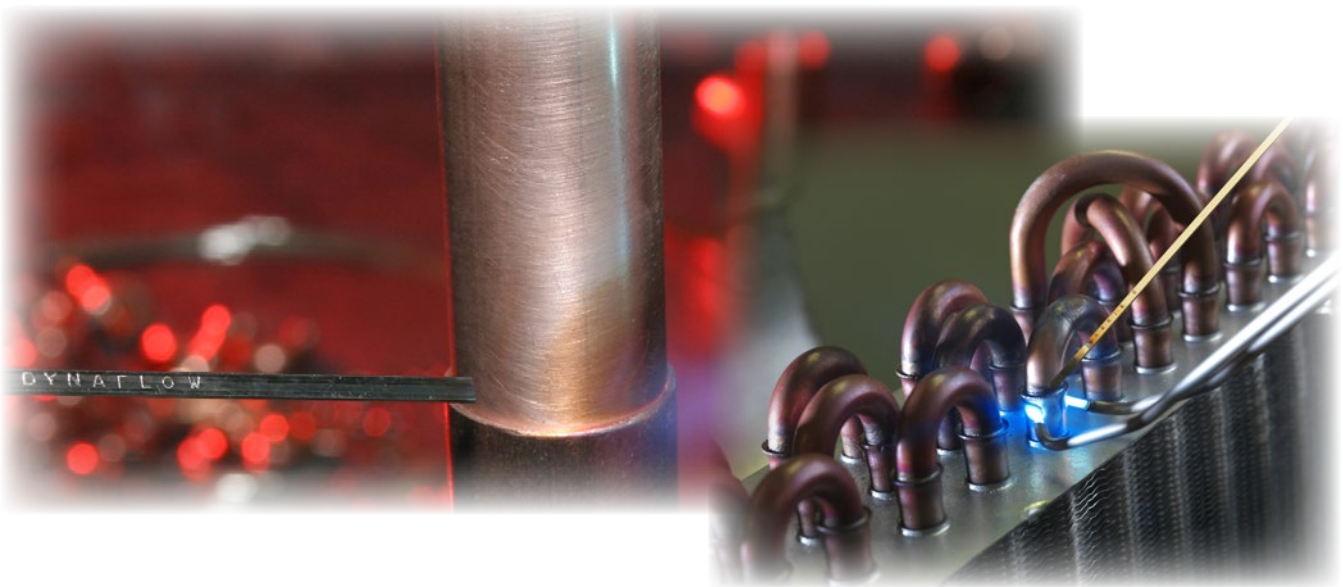


\*Monel® is a registered trademark of Special Metals Wiggins Limited, Hereford



## Copper-phosphorous solders

Copper-phosphorous solders are used to join copper to copper and copper to brass. The phosphorous constituent in these alloys produces a flux effect on copper. When brazing brass or copper with brass, Harris recommends the Eco Smart® green flux. Harris offers solders with exactly defined melting ranges for the stringent demands of industry, especially in series production and in automated soldering processes. Control methods are used in the production process to precisely determine the phosphorous content. Harris guarantees a liquidus temperature deviation of +/- 3.3 °C. Standards, in contrast, deviate by up to +/- 50 °C and can lead to disturbances in the soldering process, including soldering faults, as a result of these temperature fluctuations.



### HIGHLIGHTS

#### **Blockade®**

Harris Blockade® is the company's copper alloy based on phosphorous, tin and silicon, with good flow properties, and was developed as a cost-effective alternative to argentiferous copper-phosphorous alloys. Blockade® is self-flowing on copper, and its low melting temperature makes it a superb selection for brazing brass. Blockade® is capillary-active and forms a uniform concave fillet (curved inwards) at the brazing point with a smooth surface. Blockade® makes the brazing process more reliable.

#### **Dynaflow®**

Harris Dynaflow® is a low melting point brazing filler for very high demands on the brazing joint and good flow properties, comparable to the properties of HARRIS 15 (L-Ag15P). It was specially developed for refrigeration and air conditioning applications and is a cost-effective alternative to the high-silver solders. It can be used for temperatures down to -70 °C; the maximum operating temperature at the brazing point is 150 °C. Dynaflow® is also used in installation engineering and the electrical engineering industry.



## Silver brazing fillers

The tin-silver brazing fillers and AgCuZn silver brazing fillers are recommended for Fe and non-Fe alloys as well as for stainless steel. They are highly elastic, and their corrosion resistance makes them suitable for all applications involving strong chemicals. The addition of tin (Sn) to the alloy can effectively reduce the brazing temperature and is used as a replacement for zinc (Zn) and cadmium (Cd).

Harris also produces high-silver alloys as flux-covered rods. The flux cover does away with the need for additional powder or paste. The thickness of the flux cover may vary depending on the customer's individual wishes and the respective application.



## Aluminium fillers

Aluminium fillers are employed for brazing suitable aluminium alloys. They melt beneath the melting point of the metal being connected. Aluminium fillers are widely used in the production and servicing of air-conditioning units in vehicles, coolers and vaporisers in refrigerators as well as in small aluminium components. The highlight of the HARRIS aluminium brazing filler programme is Alcor®. It is already flux-filled and has excellent flow and wetting properties with high strength at a low working temperature.





Brazing filler flux • HARRIS Eco Smart®



- Unique silver solder flux, using colour change technology to indicate when to braze
- The boric acid-free and environmentally-friendly formula initially displays a green colour, which turns clear when the flux becomes active
- Boric acid- and borax-free
- Homogeneous mixture, available as paste or powder
- Breaks up stable oxide layers and protects against further oxidation
- Large activation range
- Easy removal of flux residues
- **Applications**
- For flame, induction and furnace brazing of steel, stainless steel, Monel®, nickel, copper, brass and bronze
- Extremely fluid, even penetrates tight brazing gaps and thus promotes optimal wetting
- No recrystallisation (lumpy hardening)
- Can be diluted in water

<b>Standards</b>	FH10
<b>DIN EN1045</b>	
<b>Temperature range</b>	427 °C - 871 °C
<b>Colour</b>	Green

Properties	Weight g	Item no.
Flux	250	398-003110-00250
	500	398-003110-00500
Paste		398-003112-00500

Brazing filler flux • HARRIS Eco Smart® High Heat



- Unique silver solder flux without boric acid and borax salts
- Suitable for high temperatures
- Boric acid- and borax-free
- Homogeneous mixture, available as paste or powder
- Breaks up stable oxide layers and protects against further oxidation
- Large activation range
- Easy removal of flux residues
- Extremely long service life
- **Applications**
- For flame, induction and furnace brazing of steel, stainless steel, Monel®, nickel, copper, brass, bronze and cemented carbides
- The high-temperature flux is particularly suitable for use on large workpieces with long heating times and for brazing at higher temperatures
- Thanks to its excellent capillary action, Eco Smart® High-Heat also penetrates tight brazing gaps and thus promotes optimal wetting
- The flux can be diluted in water
- Flux residues can be easily removed

<b>Standards</b>	FH12
<b>DIN EN1045</b>	
<b>Temperature range</b>	371 °C - 982 °C
<b>Colour</b>	Black

Properties	Weight g	Item no.
Flux	250	398-003111-00250
	500	398-003111-00500
Paste		398-003113-00500

► \*Monel® is a registered trademark of Special Metals Wiggin Limited, Hereford

## Brass brazing filler

- Brass brazing filler for brazing copper, nickel and steel as well as for welding brass and bronze



<b>Standards</b>	B-Cu60Zn(Si)(Mn)
<b>ISO 3677</b>	
<b>DIN EN ISO 17672</b>	Cu 670
<b>DIN 8513 (old standard)</b>	L-CuZn40
<b>Length</b>	1000 mm
<b>Working temperature</b>	900 °C
<b>Density</b>	8.4 g/cm <sup>3</sup>
<b>Version</b>	Rods, solid
<b>Contents</b>	5 kg

Ø	PU	Item no.
mm	Kg	
2.0	5	4000872801
3.0		4000872802

## „Solid“ soldering wire

- Soldering wire without flux filling (contains lead)
- **Applications:** Tin plating and precision brazing of all Fe and non-Fe metals including in the electrical engineering industry
- Available in various thicknesses for automatic feeding in selective and dip brazing equipment
- Also highly suitable for brazing galvanised steel sheets and alloyed zinc and for use in radiator applications



<b>Standards</b>	S-Pb50Sn50
<b>DIN EN 29453</b>	
<b>DIN EN 61190</b>	SN50Pb50
<b>Ø</b>	3 mm
<b>Tensile strength, Rm</b>	28 N/mm <sup>2</sup>
<b>Weight</b>	250 g
<b>Melting range</b>	183 °C - 215 °C
<b>Density</b>	8.9 g/cm <sup>3</sup>
<b>Packing drum</b>	Spool

PU	Item no.
Spool	
1	4000872711

## Tin solder bars • FELDER S-Pb60Sn40

- Solders bars for flame brazing in metalworking trades
- **Application:** Roofer's tin for copper and zinc gutters

<b>Standards</b>	FELDER S-Pb60Sn40
<b>DIN EN 29453</b>	
<b>DIN EN 61190</b>	Sn40Pb60
<b>Specific weight</b>	9.53 g
<b>Length</b>	400 mm
<b>Dimensions</b>	10 mm x 10 mm x 10 mm
<b>Melting range</b>	183 °C - 238 °C
<b>Working temperature</b>	240 °C - 350 °C
<b>Version</b>	Triangle bar
<b>Weight per bar</b>	ca.250 g



For commercial users only

PU	Item no.
Rod	
1	4000872728

Tin solder bars • FELDER S-Sn60Pb40Sb



For commercial users only



- Solder bars for bit, flame and dip brazing in metalworking trades
- **Application:** Roofer's tin, for general applications in metalworking trades

<b>Standards</b>	S-Sn60Pb40
<b>DIN EN 29453</b>	
<b>DIN EN 61190</b>	Sn60Pb40
<b>Specific weight</b>	8.5 g/cm <sup>3</sup>
<b>Length</b>	400 mm
<b>Dimensions</b>	10 mm x 10 mm x 10 mm
<b>Melting range</b>	183 °C - 190 °C
<b>Working temperature</b>	220 °C - 350 °C
<b>Version</b>	Triangle bar
<b>Weight per bar</b>	ca.250 g

PU	Item no.
<b>Rod</b>	
1	4000872729

Solder bars, lead-free • FELDER-Iso-Tin® Sn99Cu1



- Lead-free solder, among other things for dip and wave brazing machines
- **Application:** Lead-free brazing for electronics, high-temperature applications such as in the automotive industry (good temperature change resistance at high temperatures)
- Permanently temperature-resistant to at least 120 °C

<b>Standards</b>	S-Sn99Cu1
<b>DIN EN 29453</b>	
<b>DIN EN 61190</b>	Sn99Cu.7
<b>Specific weight</b>	7.3 g/cm <sup>3</sup>
<b>Length</b>	400 mm
<b>Dimensions</b>	10 mm x 10 mm x 10 mm
<b>Melting point (eutectic)</b>	227 °C
<b>Version</b>	Triangle bar
<b>Weight per bar</b>	ca.250 g

PU	Item no.
<b>Rod</b>	
1	4000872734



## Fitting solder • FELDER Cu-Rotin®3

- Soldering copper pipes in drinking water and central heating installations (up to 110 °C)
- Preferably used in conjunction with Cu-Rofix®3-Spezial fitting solder paste
- Solders compliant with EN 29453 must be used to solder water pipes
- Awarded the Gütegemeinschaft Kupferrohr e.V. RAL quality mark compliant with DVGW standard GW 2



<b>Standards</b>	S-SN97Cu3
<b>DIN EN 29453</b>	DVGW Gütegemeinschaft Kupferrohr e.V. RAL quality mark
<b>Ø</b>	2.7 mm
<b>Weight</b>	250 g
<b>Melting range</b>	227 °C - 310 °C
<b>Density</b>	7.3 g/cm <sup>3</sup>
<b>Colour</b>	Grey
<b>Packing drum</b>	Spool



PU	Item no.
<b>Spool</b>	
1	4000872720

## Fitting paste • FELDER Cu-Rofix® 3-Spezial

- Solder paste for soldering copper pipes in drinking water and central heating installations compliant with DVGW standard GW 7
- Awarded the Gütegemeinschaft Kupferrohr e.V. RAL quality mark
- The flux residues are soluble in cold water and can be easily removed by flushing
- **Benefits for you:**
- The solder powder constituent does not settle, meaning that the paste does not need mixing
- The excellent gap filling contributes to shear strength optimisation
- The overheating limit is high in line with the large temperature range
- Melting of the solder component indicates that the working temperature has been achieved
- Optimal processing even days after application thanks to the long service life
- The flux residues are 100% soluble in cold water and can be easily removed by flushing

<b>Standards</b>	S-SN97Cu3
<b>DIN EN 29453</b>	
<b>DIN EN 29454-1</b>	3.1.1.C (F-SW 21) DVGW Gütegemeinschaft Kupferrohr e.V. RAL quality mark
<b>Metal constituent</b>	At least 60%
<b>Melting range</b>	230 °C - 250 °C
<b>Contents</b>	250 g
<b>Packing drum</b>	Can with paint brush quivers



PU	Item no.
<b>Units</b>	
1	4000872723

Soldering flux • FELDER Cu-Roplus®



- Flux paste for soldering copper pipes in drinking water and central heating installations compliant with DVGW standard GW 7
- Awarded the Gütegemeinschaft Kupferrohr e.V. RAL quality mark
- The flux residues are soluble in cold water and can be easily removed by flushing

<b>Standards</b> DIN EN 29454-1	3.1.1.C (F-SW 21)
	DVGW
	Gütegemeinschaft Kupferrohr e.V. RAL quality mark
<b>Contents</b>	100 g
<b>Packing drum</b>	Can with paint brush quivers

Item no.
4000872745

FELDER-Lötfett



Image related



- Flux for general soldering work on copper and copper alloys

<b>Standards</b> DIN EN 29454-1	3.1.1.C (F-SW 21)
<b>Contents</b>	100 g
<b>Packing drum</b>	Can

PU	Item no.
<b>Pack</b>	
1	4000872741

Soldering fluid



- Flux for general soldering work on all metallic surfaces with the exception of aluminium and stainless steel

<b>Standards</b> DIN EN 29454-1	3.1.1.A (F-SW 12)
<b>Bottle contents</b>	50 ml
<b>Packing drum</b>	Bottle with brush inserts

PU	Item no.
<b>Units</b>	
1	4000872752

### Soldering fluid brush

- Soldering fluid brush with natural bristles
- In conical-flat tin sleeve



**Dimensions (width x length)** 12 mm x 120 mm

PU	Item no.
Units	
1	4000872757

### Sal ammoniac block

- Sal ammoniac block for cleaning soldering tips

**Dimensions (length x width x height)** 64 mm x 45 mm x 40 mm

PU	Item no.
Units	
1	4000872748



### Electric igniter • LightPro Spark

- Ideal for oxyacetylene soldering and welding torches
- Compact design
- Robust, heat-resistant plastic casing
- Improved operating reliability
- Battery operated (2 AA batteries, not included in delivery)

PU	Item no.
Units	
1	396-001327-00000



## General overview of hazard symbols



### Health hazard

For carcinogens or substances and mixtures that sensitise the respiratory system



### Exclamation mark

For substances and mixtures that irritate the skin, eyes and respiratory system



### Corrosive

For substances and mixtures that have a corrosive effect on metals as well as cause skin corrosion and/or **severe eye damage**



Turbo soldering set 2000°C – 15-piece brazing/soldering set in plastic case ● Turbo soldering set 2000



- **Delivery includes:**
- 1x ergonomic safety grip with fixed pilot flame – M 14 x 1/G 3/8" L
- 1x torch bend with conical safety seal
- 1x DVGW-approved fluid gas regulator, 4 bar, 8 kg/h
- 1x DVGW-approved hose lead 2 m
- 1x turbo torch Ø 28 mm
- 1x spot torch Ø 14 mm
- 1x soldering torch Ø 22 mm
- 1x soldering iron 250 g
- Forged copper with holder
- 1x soldering iron attachment
- 2x copper soldering tips
- 1x safety fuse
- 1x 50 mm paint burning attachment
- 1x torch support
- 1x open jaw spanner
- 1x plastic case
- Soldering/brazing set
- **Areas of application:**
- Brazing steel pipes, sheet metals, shapes and copper pipes (up to max. Ø 28 mm)
- Soldering steel pipes, sheet metals, shapes and copper pipes (up to max. Ø 54 mm)
- Suitable for capillary gap soldering in sanitary and central heating installations
- **Gas type: Propane**

<b>Weight</b>	3126 g
<b>Flame temperature</b>	2000 °C
<b>Dimensions (length x width x height)</b>	385 mm x 305 mm x 80 mm
<b>Hose lead</b>	2 m

PU	Item no.
<b>Units</b>	
1	4000872070

Brazing/soldering set ● Lomat Piezo 3



- Brazing/soldering set
- **Scope of supply:**
- 1x ergonomic grip with piezo igniter
- 1x spot torch, 5 mm
- 1x spot torch, 7 mm
- 1x turbo torch, 17 mm
- 1x HP hose, 2.0 m, G 3/8 LH, DN 4
- 1x regulator, 2.0 bar, fixed, with hose failure safety device, for 5 + 11 kg cylinders
- 1x open-ended spanner, 12, 13, 17, 19 mm AF
- 1x sheet steel case

<b>Weight</b>	4.73 kg
<b>Dimensions (length x width x height)</b>	373 mm x 316 mm x 101 mm

PU	Item no.
<b>Units</b>	
1	4000872194

## Portable brazing and soldering set • Lomat Piezo-6

- Portable brazing and soldering set
- **Scope of supply:**
- 1x ergonomic grip with piezo igniter
- 1x turbo torch, 17 mm
- 1x HP hose, 2.0 m, G 3/8 LH, DN 4
- Regulator, 2.0 bar, fixed, with hose failure safety device, for 5 + 11 kg cylinders

<b>Weight</b>	1.33 kg
<b>Dimensions (length x width x height)</b>	289 mm x 240 mm x 73 mm

**Item no.**  
4000872196



## Spot torch • Lomat Piezo

- Spot torch
- Suitable for Lomat piezo grip
- Plug-in connection
- Torch attachment can be rotated through 360° in grip
- Including holder
- Gas pressure 2.0 bar max.

Gas outlet Ø	PU	Performance	Gas consumption (2 bar)	Item no.
mm	Units		g/h	
5.0	1	1,55 kW/h	120	4000872182
7.0		2,86 kW/h	320	4000872183



## Turbo torch • Lomat Piezo

- Turbo torch
- Suitable for Lomat piezo grip
- Plug-in connection
- Torch attachment can be rotated through 360° in grip
- Including holder
- Gas pressure 2.0 bar max.

Gas outlet Ø	Length	PU	Performance	Item no.
mm	mm	Units		
15.0	195		2,32 kW/h	4000872184
17.0	200	1	4,12 kW/h	4000872185
22	210		6,57kW/h	4000872186



## Torch grip • Lomat Piezo

- Grip with piezo ignition
- Multi-functional, ergonomic grip
- Lockable lever valve
- Combined main shut-off and regulating valve
- Rotatable hose connection
- Plug-in/lock action as torch connection
- Torch attachment can be rotated through 360°
- Integrated holder in the respective torch attachment

<b>Performance</b>	12 kg/h
<b>Hose connection</b>	G3/8"LH
<b>Max. gas pressure</b>	4 bar

**Item no.**  
4000872180



Bit torch • Lomat Piezo



- Bit torch
- Suitable for Lomat piezo grip
- Plug-in/lock connection
- Torch attachment can be rotated in steps (60°) through 360° in grip
- For screwable copper pieces
- Holder
- Gas pressure 1.0 to 2.0 bar

<b>Gas outlet Ø</b>	13 mm
<b>Performance</b>	0,51 kW/h
<b>Gas consumption (1.5 bar)</b>	40 g/h

PU	Item no.
Units	
1	4000872190

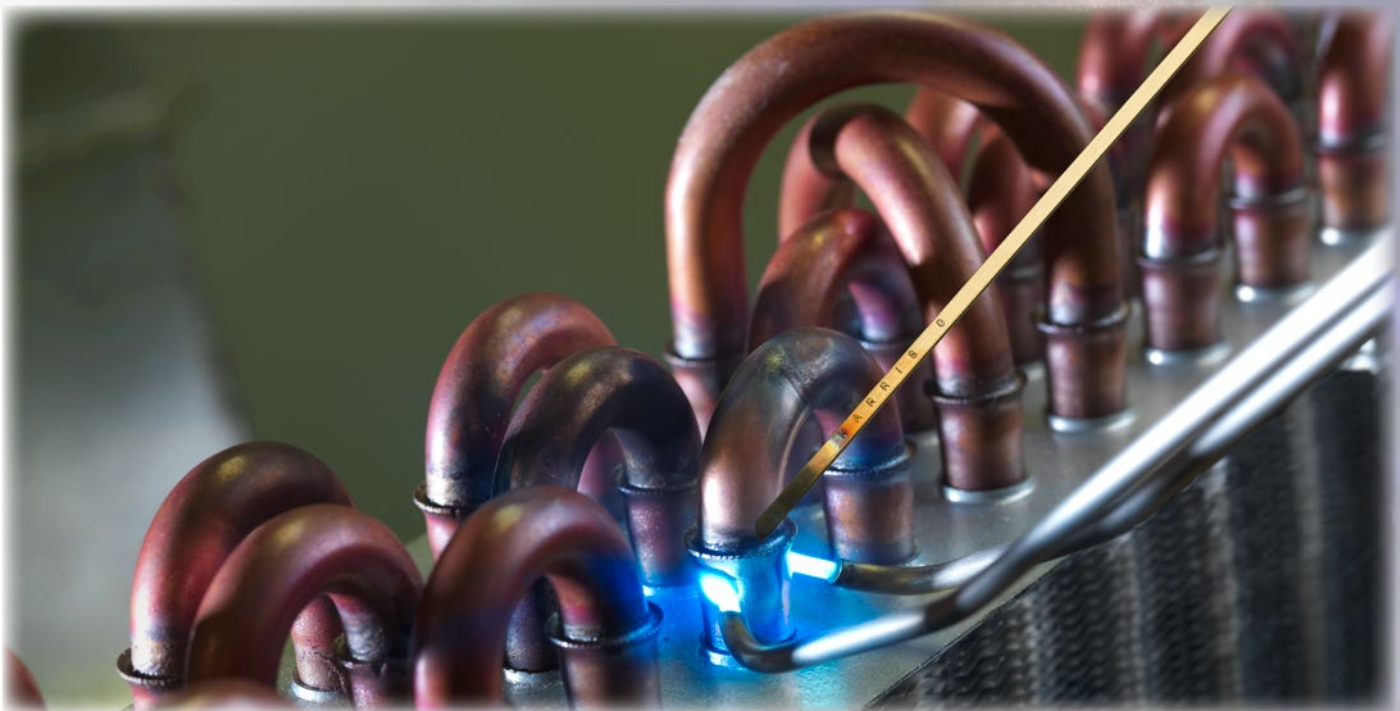
Propane high-performance torch • SET PRO 88



- High-performance torch including 5-m propane gas hose and 4-bar pressure controller
- Ideal for laying bituminous roofing and sealing membranes and drying large surfaces
- Grip and neck tube are securely soldered together (non-detachable)
- Stainless steel torch head
- Extremely manageable propane grip with main cut-off valve
- The optimum working pressure is 4 bar

<b>Length</b>	850 mm
<b>Weight</b>	3.3 kg
<b>Torch head Ø</b>	60 mm
<b>Performance</b>	114 kW
<b>Propane hose connection</b>	R 3/8" x R 3/8"
<b>Gas consumption (4 bar)</b>	8250 g/h

PU	Item no.
Units	
1	1000872024





# Technical specifications for pressure regulators

## Flow rate table for pressure regulators compliant with EN ISO 2503

Oxygen <sup>1)</sup> primary pressure PV [bar]	Flow rate Q [m <sup>3</sup> /h] <sup>2)</sup> for secondary pressure PH [bar]					Acetylene primary pressure PV [bar]	Flow rate Q [m <sup>3</sup> /h] <sup>2)</sup> for secondary pressure PH [bar]		
	1	2.5	4	10	20		0.5	1	1.2
40	15	30	40	50	60	18	5	6	8
20	15	20	25	30		10	4.5	5.5	6.5
10	15	15	15			4	3	4	5
5	10	10	10			2	1.5	2	3

<sup>1)</sup> This flow rate is multiplied by the following factors for different gas types:

<sup>2)</sup> in the standard state

Argon	0.90	Nitrogen	1.05
Compressed air	1.05	Methane	1.40
Carbon dioxide	0.85	Hydrogen	4.00

## Device classification for pressure regulators compliant with EN ISO 2503

Gas type	Device class	Highest primary pressure P1 [bar]	Highest secondary pressure P2 [bar]	Rated gas flow rate Q1 [m <sup>3</sup> /h]
Oxygen and other compressed gases up to 300 bar	0	0 to 300	2	1.5
	1		4	5
	2		6	15
	3		10	30
	4		12.5	40
	5		20	50
Dissolved acetylene	1	25	0.8	1
	2		< 1.5	5
MPS (Mapp)	0	25	1.5	1
	1		4	5
LPG	1	25	1.5	1
	2		4	5
CO <sub>2</sub>	0	200	2	4
	1		4	2

Designation conforming to DIN EN ISO 2503	Designation conforming to DIN EN 13918
<p>3 - O - 200</p> <ul style="list-style-type: none"> <li>3 → Maximum inlet pressure</li> <li>O → Gas type</li> <li>200 → Equipment class or maximum P<sub>2</sub></li> </ul>	<p>Z - M - 1 - 10 - 200 - Ar</p> <ul style="list-style-type: none"> <li>Z → Gas type</li> <li>M → Maximum inlet pressure</li> <li>1 → Flow accuracy (%)</li> <li>10 → Nominal gas flow l/min</li> <li>200 → Indicator</li> <li>Ar → M = Manometer; S = Flowmeter</li> <li>Z=Double stage; V=Balanced main valve</li> </ul>



We are happy to advise you on the correct choice of pressure regulator for your welding task.

Just contact us!



+49 (0)2680 181-0



info@ewm-group.com



Additional pressure regulators can be found in our online shop at [www.ewm-sales.com](http://www.ewm-sales.com)



**Pressure regulator up to 200 bar primary pressure with pressure gauge**



- Pressure regulator with pressure gauge in various designs
- Application:
  - Reduces a primary pressure from 200 bar max. to a constant secondary pressure
  - Suitable for reducing the respective bottle pressure of compressed gasses and gases dissolved under pressure as well as liquid gases
- Version:
  - Pressure regulator compliant with the latest DIN/EN/ISO 2503 standard
  - Good operational safety thanks to integrated central filter

**Standards** DIN EN ISO 2503

PU Units	Gas type	Hose connection	Cylinder connection	Bottle pressure bar	Working pressure bar	Item no.
1	Oxygen	G 1/4"	G 3/4"	200	10.0	096-000148-00000
	Acetylene	G3/8"LH	Bracket		1.5	096-000147-00000
					10.0	096-000556-00000
	Nitrogen	G 1/4"	W 24,32 x 1/14"		20.0	096-000172-00000
	Propane	G3/8" LH	W 21,8 x 1/14"LH		50	096-000547-00000
					2.5	096-000568-00000
	Argon/CO2/mixed gas	G 1/4"	W 21,8 x 1/14"	10.0	396-000034-00000	
				20.0	396-000035-00000	
				50	396-000036-00000	

**Pressure regulator up to 200 bar primary pressure with flow rate indicator**



- Pressure regulator with flow rate indicator in various designs
- Application:
  - Reduces a primary pressure from 200 bar max. to a constant secondary pressure
  - Suitable for reducing the respective bottle pressure of compressed gasses and gases dissolved under pressure as well as liquid gases
- Version:
  - Pressure regulator compliant with the latest DIN/EN/ISO 2503 standard
  - Good operational safety thanks to integrated central filter

**Gas type** Argon / CO2  
**Hose connection** G 1/4"  
**Cylinder connection** W21,80 x 1/14"  
**Bottle pressure** 200 bar  
**Standards** DIN EN ISO 2503

Components	PU Units	Gas flow l/min	Item no.
Manometer display	1	16.0	096-000150-00000
		32	396-000038-00000
Float type meter	1	16.0	396-000039-00000
		30	094-018346-00000

## Pressure regulator up to 300 bar primary pressure with pressure gauge

- Pressure regulator with pressure gauge in various designs
- Application:
  - Reduces a primary pressure from 300 bar max. to a constant secondary pressure
- Version:
  - Pressure regulator compliant with the latest DIN/EN/ISO 2503 standard



<b>Standards</b>	DIN EN ISO 2503
------------------	-----------------

PU Units	Gas type	Hose connection	Cylinder connection	Bottle pressure bar	Working pressure bar	Item no.
1	Oxygen	G 1/4"	W 30 x 2 - Ø 17.3 / 18.3	300	10.0	396-000109-00000
					20.0	396-000110-00000
	Nitrogen/argon/CO2/mixed gas		10.0		396-000132-00000	
			20.0		396-000133-00000	
				50	396-000134-00000	

► Additional pressure regulators can be found in our online shop at [www.ewm-sales.com](http://www.ewm-sales.com)

## Pressure regulator up to 300 bar primary pressure with flow rate indicator

- Pressure regulator with flow rate indicator in various designs
- Application:
  - Reduces a primary pressure from 300 bar max. to a constant secondary pressure
- Version:
  - Pressure regulator compliant with the latest DIN/EN/ISO 2503 standard



Components	PU Units	Gas type	Hose connection	Cylinder connection	Max. flow rate l/min	Item no.
Manometer display	1	Argon / CO2	G 1/4"	W 30 x 2 - Ø 15,9 / 20,1	16.0	396-000139-00000
					32	096-000558-00000
Float type meter		16.0	396-000141-00000			
		32	396-000142-00000			
Manometer display		Backing gas	G3/8" LH	W 30 x 2 LH - Ø 15,2 / 20,2	50	396-000127-00000



**Manometer protective caps**



- Manometer protective caps
- With explosion opening

**Inside Ø** 63 mm

Colour	PU Units	Item no.
Grey	25	098-000602-00000
Red		098-000600-00000
Blue		098-000601-00000
Yellow		098-002169-00000

**Safety bar, pressure regulator**



- Safety bar for pressure regulator left stop position, suitable for manufacturers Messer, Griesheim, Hercules, Rothenberger, Fuge, Feha, Everwand + Fell, GCE Rhöna, Kayser

Colour	PU Units	Item no.
Blue	1	098-001504-00000
Yellow		098-001505-00000
Grey		098-001508-00000

**Manometer for pressure regulator**



**Thread** G 1/4"

	Gas type	Max. flow rate l/min	Scale up to bar	Scale up to l/min	Item no.
Pressure gauge	Oxygen	-	16.0	-	096-000608-00000
			315	-	096-000008-00000
	Acetylene	-	400	-	396-001546-00000
			2.5	-	096-000005-00000
Flow indication	Argon / CO <sub>2</sub>	16.0	-	25	096-000967-00000
		32	-	50	096-000615-00000
	Hydrogen	50	-	70	096-000616-00000

**Replacement seals**



Gas type	Version	Item no.
O <sub>2</sub> /Ar/Co <sub>2</sub>	O-ring for 300 bar/NEVOC connection	396-001146-00001
O <sub>2</sub> /Ar/Co <sub>2</sub> /propane	Pressure regulator seal for cylinder connection	096-000164-00000
-	Manometer seal, aluminium	096-000019-00000
Propane	Sealing ring for cylinder connection	398-000694-00000

► Additional pressure regulators can be found in our online shop at [www.ewm-sales.com](http://www.ewm-sales.com)

## Elga Optimator® – an opportunity to lower welding costs!



As a welding expert, you are absolutely in the picture about the cost of a kilogram of welding rod. But do you also know exactly how expensive shielding gas is per running welded metre? This costs at least as much as the rod.

If you invest in optimators, you not only get a unique controller but also lower shielding gas consumption by up to 50%. An investment that pays for itself in less than six months. The rest is your net profit!

### Your benefits

#### Considerably faster thanks to two-stage control

Compared to traditional pressure regulators, the two-stage control delivers a drastic reduction in the gas surges that occur in the first moment of welding.

This means that during the welding process start-up you save up to 50% shielding gas.

#### Various models for all applications

In order to cover as high a number of different applications as possible, the optimator is provided as both a cylinder version and as a tapping point.

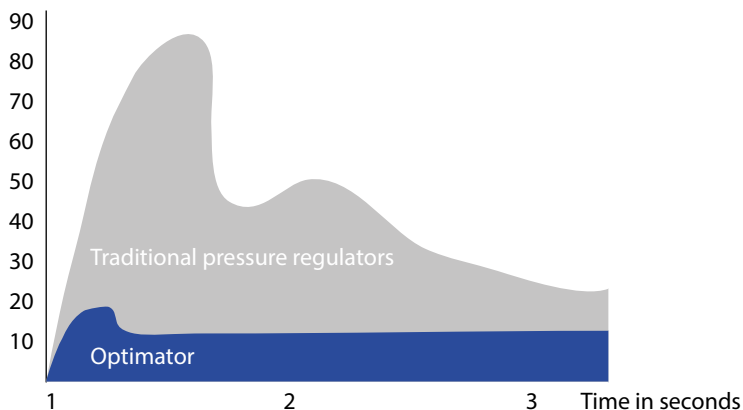
The optimator is also available in a lockable version for an exact flow of gas. A considerable advantage when it comes to maintaining continuously high welding quality

#### Quality that saves cash!

A continuous starting flow, which is only a quarter of the gas flow of a traditional pressure regulator, is delivered right from the beginning.

The danger of pore formation when welding is also reduced, because less turbulence is generated thanks to the constant gas flow

Gas consumption l/min





Additional pressure regulators can be found in our online shop at [www.ewm-sales.com](http://www.ewm-sales.com)



**Pressure regulator with flow meter • Optimator**



- Two stage, high precision pressure regulator with float type meter for flow measurement
- Lockable version well suited for ensuring uniformly high welding quality, e.g. for ISO:9001 certification
- Second stage guarantees a constant volume discharge over the whole pressure process

**Standards** ISO 2503

Gas type	Cylinder thread	Hose connection	Bottle pressure bar	Gas flow l/min	Version	Item no.
Argon / Mix	W 21,8 x 1/14"	G 1/4"	200	20.0	Two-stage	094-011839-00000
				34		096-000220-00000
	W 30 x 2		20.0	Two-stage/lockable	094-011842-00000	
			34		094-011843-00000	
	W 21,8 x 1/14"		20.0	Two-stage/lockable	094-011844-00000	
			34		094-011845-00000	

**Pressure regulator, 2 flow meters • Optimator 2**



- Two-stage pressure regulator with a float type meter for flow measurement and a special flow meter
- Additional gas extraction, e.g. for backing gas
- Lockable version well suited for ensuring uniformly high welding quality, e.g. for ISO:9001 certification
- Second stage guarantees a constant volume discharge over the whole pressure process

**Standards** ISO 2503

Gas type	Cylinder thread	Hose connection	Bottle pressure bar	Gas flow l/min	Gas flow 2 l/min	Version	Item no.
Argon / Mix	W 21,8 x 1/14"	G 1/4"	200	20.0	34	Two-stage	094-011811-00000
				34			094-011833-00000
	W 30 x 2		20.0	Two-stage/lockable		094-011835-00000	
			34			094-011836-00000	
	W 21,8 x 1/14"		20.0	Two-stage/lockable		094-011837-00000	
			34			Double removal	094-011838-00000

► Additional pressure regulators can be found in our online shop at [www.ewm-sales.com](http://www.ewm-sales.com)



### Pressure regulator with flow meter • Tigex

- Pressure regulator with single flow meter
- Very precise gas flow control
- Equipped with rubber-protected manometer and pre-adjusted, fitted safety valve
- Is provided with 5.0 and 6.3 mm hose nipple

**Standards** ISO 2503



Gas type	Cylinder thread	Hose connection	Bottle pressure bar	Gas flow l/min	Version	Item no.
Argon / Mix	W 21,8 x 1/14"	G 1/4"	200	20.0	Float type meter	094-001980-00000
	W 30 x 2			34	One-stage	094-011846-00000
	W 30 x 2	300	20.0	One-stage	094-011847-00000	

### Pressure regulator with 2 x flow meters • Tigex 2

- Pressure regulator with double flow meter
- Very precise gas flow control
- Equipped with rubber-protected manometer and pre-adjusted, fitted safety valve
- Is provided with 5.0 and 6.3 mm hose nipple

**Standards** ISO 2503



Gas type	Cylinder thread	Hose connection	Bottle pressure bar	Gas flow l/min	Gas flow 2 l/min	Version	Item no.
Argon / Mix	W 21,8 x 1/14"	G 1/4"	200	20.0	20.0	One-stage	094-011849-00000
				34	34		094-011850-00000
Argon/H2 (backing gas)	W 21,8 x 1/14"LH	G3/8" LH	200	20.0	20.0	Double removal	094-011852-00000
				34	34		094-011853-00000
Argon / Mix	W 30 x 2	G 1/4"	300	20.0	20.0		094-011851-00000

### Pressure regulator • Maxex

- Robust, high-quality pressure regulator with hand wheel
- Equipped with rubber-protected manometer and pre-adjusted safety valve
- Is provided with 6.3 and 8.0 mm hose nipple

**Bottle pressure** 200 bar

**Working pressure** 10 bar

**Standards** ISO 2503

**Version** Manometer display  
One-stage

Gas type	Cylinder thread	Hose connection	Item no.
Argon / Mix	W 21,8 x 1/14"	G 1/4"	096-000000-00000
H2	W 21,8 x 1/14"LH	G3/8" LH	096-000001-00000



Tapping point, flow meter • Optimator



- Lockable version well suited for ensuring uniformly high welding quality, e.g. for ISO:9001 certification
- Second stage guarantees a constant volume discharge over the whole pressure process

<b>Gas type</b>	Argon / Mix
<b>Input</b>	G 3/8"
<b>Output</b>	G 1/4"
<b>Standards</b>	ISO 2503

Gas flow l/min	Version	Item no.
20.0	Two-stage	094-009931-00000
34		094-011862-00000
20.0	Two-stage/lockable	094-011867-00000

Wall rail • Assembly material for tapping points



Standards		ISO 2503		
Components	Length mm	Gas type	Hose connection	Item no.
Wall rail	200	-	-	094-011857-00000
Cut-off valve	-	Oxygen/shielding gas	G3/8"	094-011858-00000
		Combustion gas/backing gas	G3/8" LH	094-011859-00000
Angle piece	-	-	G 3/8"	094-011860-00000
T-piece	-	-	G 3/8"	094-011861-00000



Additional pressure regulators can be found in our online shop at [www.ewm-sales.com](http://www.ewm-sales.com)



**Pressure regulator with manometer • DM 842 Ar/CO2 230bar D**

- Pressure regulator with manometer
- Manufactured in accordance with ISO 2503
- Maximum primary pressure of 230 bar
- Single-stage
- Infinite and highly accurate adjustment
- Safety manometer with pressure meter or flow meter (bar/psi or litres per minute)
- With cut-off valve



<b>Gas type</b>	Argon/CO2/mixed gas
<b>Hose connection</b>	G 1/4"RH
<b>Cylinder connection</b>	W21,8x1/14" RH
<b>Bottle pressure</b>	230 bar
<b>Standards</b>	ISO 2503

Gas flow l	Item no.
15.0	394-002910-00015
30	394-002910-00030

**Pressure regulator with manometer • DM 801 Ar/CO2 230bar UK**

- Pressure regulator with manometer
- Manufactured in accordance with ISO 2503
- Maximum primary pressure of 230 bar
- Single-stage
- Infinite and highly accurate adjustment
- Safety manometer with pressure meter or flow meter (bar/psi or litres per minute)



<b>Gas type</b>	Argon/CO2/mixed gas
<b>Hose connection</b>	G3/8" RH
<b>Cylinder connection</b>	G5/8" RH
<b>Bottle pressure</b>	230 bar
<b>Standards</b>	ISO 2503

Gas flow l	Item no.
15.0	394-002911-00015
30	394-002911-00030

**Shielding gas saver • Modell 603**

- Gas saver for reducing shielding gas consumption
- Prevents excess pressure at the start of welding
- Constant flow and pressure during welding
- Once set, the gas saver ensures exact flow and prevents the escape of excess gas
- **Application:**
- Shielding gas savers are installed between an existing pressure regulator and the gas hose

<b>Gas type</b>	Argon / CO2
<b>Inlet pressure</b>	15 bar
<b>Output pressure</b>	0.6 bar - 0.9 bar



Input	Output	Item no.
G1/4" RH	G1/4" RH	096-001263-00000
G3/8" RH	G3/8" RH	096-001343-00000



**Steel gas cylinder cart for a shielding gas cylinder • Model F 1**



- Cylinder cart for a shielding gas cylinder
- Steel pipe construction using 1" pipe
- Stand plate
- Chain guard
- Red PVC grip
- Solid rubber tyres

<b>No. of shielding gas cylinders</b>	1 St.
<b>Tyres</b>	Solid rubber

Weight	Shielding gas cylinder Ø	Tyre Ø	Dimensions (height x width x depth)	Content of shielding gas cylinder(s)	Item no.
kg	mm	mm	mm	l	
10.0	140	200 - 50	1050 x 480 x 500	10.0	098-004695-00000
12.0	210		1050 x 480 x 550	20.0	098-003453-00000
	210 - 230			40 - 50	098-005200-00000

**Steel gas cylinder cart for two shielding gas cylinders • Model F 7**



- Highly manoeuvrable cart for 2 small steel cylinders
- Steel pipe construction using 1" pipe
- Stand plate
- Chain guard
- Red PVC grip
- Solid rubber tyres

<b>Dimensions (height x width x depth)</b>	1050 mm x 530 mm x 500 mm
<b>Tyre Ø</b>	200 mm - 50 mm
<b>No. of shielding gas cylinders</b>	2 St.
<b>Weight</b>	13 kg
<b>Tyres</b>	Solid rubber

Content of shielding gas cylinder(s)	Item no.
l	
10.0	098-004570-00000
20.0	098-001548-00000

**Steel gas cylinder cart for two shielding gas cylinders • Model F 5**



- Robust steel gas cylinder cart for two shielding gas cylinders
- Robust, welded steel pipe construction using 1" pipe
- 2-component synthetic resin, electrostatically applied
- Available with toolbox on request
- **Standard configuration:**
- Welded hand protection bar using 8 mm round bar
- Hose holder on the struts
- Securing chain of short, straight chain links, size: 5 mm
- Solid rubber tyres

<b>Dimensions (height x width x depth)</b>	1350 mm x 770 mm x 780 mm
<b>Tyre Ø</b>	400 mm - 80 mm
<b>No. of shielding gas cylinders</b>	2 St.
<b>Content of shielding gas cylinder(s)</b>	50 l
<b>Tyres</b>	Solid rubber

Characteristics	Weight	Item no.
	kg	
Standard	31	098-004155-00000
including toolbox	34	098-004157-00000

### Cylinder holder for wall

- Cylinder holder for wall , galvanised
- Securing chain
- With hole for securing to wall



<b>No. of shielding gas cylinders</b>			1 St.
Shielding gas cylinder Ø	Content of shielding gas cylinder(s)	Item no.	
mm	l		
140	10.0	098-002710-00000	
210	40	098-002716-00000	
229	50	098-004754-00000	

### Cylinder holder for wall for two shielding gas cylinders

- Cylinder holder for wall , galvanised
- Securing chain
- With hole for securing to wall



<b>No. of shielding gas cylinders</b>			2 St.
Shielding gas cylinder Ø	PU	Content of shielding gas cylinder(s)	Item no.
mm	Units	l	
140	1	10.0	098-004932-00000
229		50	398-000656-00000

### Cylinder holder for wall for three shielding gas cylinders

- Cylinder holder for wall , galvanised
- Securing chain
- With hole for securing to wall



<b>No. of shielding gas cylinders</b>			3 St.
Shielding gas cylinder Ø	PU	Content of shielding gas cylinder(s)	Item no.
mm	Units	l	
140	1	10.0	098-004933-00000
229		50	098-005150-00000

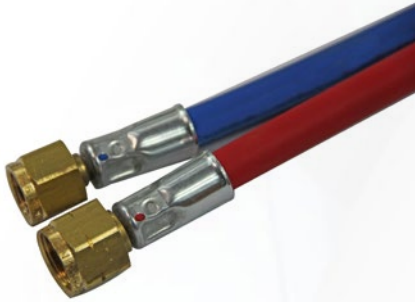
### Shielding gas cylinder carrier • GasGrab

- Carrying handle with a 230 mm diameter
- Suitable for 50 l shielding gas cylinders
- Other sizes from 140 mm to 320 mm available upon request

**Item no.**  
398-007518-00230



Twin oxyacetylene hoses, Ø 16 mm

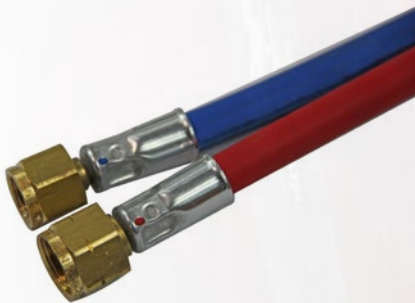


- Twin oxy-fuel hoses with textile insert for combustion gas/oxygen
- Preassembled with bushes and press-fitted using 3/8" L and 1/4" crown nuts

<b>Gas type</b>	Acetylene oxygen
<b>Thread, combustion gas</b>	G 3/8" L
<b>Thread, oxygen</b>	G 1/4"
<b>Colour</b>	Red/blue
<b>Ø inside, oxygen</b>	6 mm
<b>Ø outside, oxygen</b>	16 mm
<b>Ø inside, combustible gas</b>	9 mm
<b>Ø outside, combustible gas</b>	16 mm
<b>Standards</b>	EN 1256 / ISO 3821

Length m	Item no.
5.0	098-004125-00000
10.0	098-004126-00000
15.0	098-004127-00000
20.0	098-004128-00000

Twin oxyacetylene hoses, Ø 13 mm

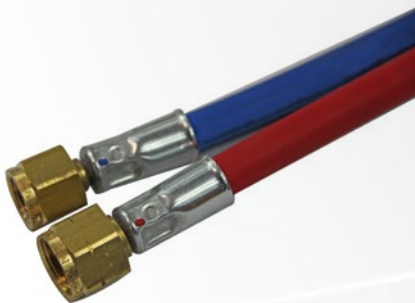


- Twin oxy-fuel hoses with textile insert for combustion gas/oxygen
- Preassembled with bushes and press-fitted using 3/8" L and 1/4" crown nuts

<b>Gas type</b>	Acetylene oxygen
<b>Thread, combustion gas</b>	G 3/8" L
<b>Thread, oxygen</b>	G 1/4"
<b>Colour</b>	Red/blue
<b>Ø inside, oxygen</b>	6 mm
<b>Ø outside, oxygen</b>	13 mm
<b>Ø inside, combustible gas</b>	6 mm
<b>Ø outside, combustible gas</b>	13 mm
<b>Standards</b>	EN 1256 / ISO 3821

Length m	Item no.
5.0	098-004129-00000
10.0	098-004130-00000
15.0	098-004131-00000
20.0	098-004132-00000

Twin oxyacetylene hoses, Ø 11 mm



- Twin oxy-fuel hoses with textile insert for combustion gas/oxygen
- Preassembled with bushes and press-fitted using 3/8" L and 1/4" crown nuts

<b>Gas type</b>	Acetylene oxygen
<b>Thread, combustion gas</b>	G 3/8" L
<b>Thread, oxygen</b>	G 1/4"
<b>Colour</b>	Red/blue
<b>Ø inside, oxygen</b>	4 mm
<b>Ø outside, oxygen</b>	11 mm
<b>Ø inside, combustible gas</b>	4 mm
<b>Ø outside, combustible gas</b>	11 mm
<b>Standards</b>	EN 1256 / ISO 3821

Length m	Item no.
5.0	098-001390-00000
10.0	098-004133-00000
15.0	098-004134-00000
20.0	098-004135-00000



## Hose sets Ø 16 mm

- Twin oxyacetylene hoses with textile insert for combustion gas/oxygen with plastic
- Preassembled with bushes and press-fitted using 3/8"L and 1/4" crown nuts

<b>Gas type</b>	Acetylene oxygen
<b>Thread, combustion gas</b>	G 3/8"L
<b>Thread, oxygen</b>	G 1/4"
<b>Colour</b>	Red/blue
<b>Ø inside, oxygen</b>	9 mm
<b>Ø outside, oxygen</b>	16 mm
<b>Ø inside, combustible gas</b>	6 mm
<b>Ø outside, combustible gas</b>	16 mm
<b>Standards</b>	EN 1256 / ISO 3821

Length m	Item no.
5.0	098-001355-00000
10.0	098-001356-00000
15.0	098-001357-00000
20.0	098-001358-00000
30	098-003994-00000



## Hose sets Ø 13 mm

- Twin oxyacetylene hoses with textile insert for combustion gas/oxygen with plastic
- Preassembled with bushes and press-fitted using 3/8"L and 1/4" crown nuts

<b>Gas type</b>	Acetylene oxygen
<b>Thread, combustion gas</b>	G 3/8"L
<b>Thread, oxygen</b>	G 1/4"
<b>Colour</b>	Red/blue
<b>Ø inside, oxygen</b>	6 mm
<b>Ø outside, oxygen</b>	13 mm
<b>Ø inside, combustible gas</b>	6 mm
<b>Ø outside, combustible gas</b>	13 mm
<b>Standards</b>	EN 1256 / ISO 3821

Length m	Item no.
5.0	098-004136-00000
10.0	098-004137-00000
15.0	098-004138-00000
20.0	098-004139-00000



## Hose sets Ø 11 mm

- Twin oxyacetylene hoses with textile insert for combustion gas/oxygen with plastic
- Preassembled with bushes and press-fitted using 3/8"L and 1/4" crown nuts

<b>Gas type</b>	Acetylene oxygen
<b>Thread, combustion gas</b>	G 3/8"L
<b>Thread, oxygen</b>	G 1/4"
<b>Colour</b>	Red/blue
<b>Ø inside, oxygen</b>	4 mm
<b>Ø outside, oxygen</b>	11 mm
<b>Ø inside, combustible gas</b>	4 mm
<b>Ø outside, combustible gas</b>	11 mm
<b>Standards</b>	EN 1256 / ISO 3821

Length m	Item no.
5.0	098-001340-00000
10.0	098-001341-00000
15.0	098-001342-00000
20.0	098-001343-00000



## Oxyacetylene/propane technology • Gas hoses and accessories

### Twin oxyacetylene hoses, by the metre



- Twin oxy-fuel hoses with textile insert for combustion gas/oxygen
- Available to order in intervals of 5 m
- **Please note that material sold by the metre cannot be exchanged!**

<b>Colour</b>	Red/blue				
<b>Packing drum</b>	50 m				
<b>Standards</b>	EN 559 / ISO 3821				
Packing drum	Ø inside, oxygen mm	Ø outside, oxygen mm	Ø inside, comb- bustible gas mm	Ø outside, comb- bustible gas mm	Item no.
50 m	4.0	11.0	4.0	11.0	398-001482-00000
40 m	6.3	13.0	6.3	13.0	398-001481-00000
50 m		16.0	9.3	16.0	398-001480-00000

### Gas hoses • Individual hoses, by the metre



- **Please note that material sold by the metre cannot be exchanged!**

<b>Packing drum</b>	50 m				
Colour	Inside Ø mm	Outside Ø mm	Gas type	Standards	Item no.
Red	3.2	6.8	Combustion gases	EN 559 / ISO 3821	398-000439-00000
	4.0	11.0			098-000503-00000
	6.0	13.0			098-004119-00000
	9.0	16.0			098-004120-00000
Blue	3.2	6.8	Oxygen	EN 559 / ISO 3821	398-000438-00000
	4.0	11.0			098-000508-00000
	6.0	16.0			098-004121-00000
Orange	6.3	13.0	Propane	EN 16436-1	098-004123-00000
	9.0	16.0			098-004124-00000
Black	6.0	13.0	Argon	EN 559 / DIN EN ISO 1256/3821	098-004209-00000

### Gas hose



#### Shielding gas hose

- Equipped with plastic nuts on both sides for tool-free assembly

<b>Gas type</b>	Argon/H <sub>2</sub> /CO <sub>2</sub> (backing gas)
<b>Standards</b>	DIN EN ISO 3821 / DIN EN 1256
<b>Hose connection</b>	2 x G1/4"
<b>Working pressure</b>	6 bar

Length m	Item no.
2.0	094-000010-00001
3.0	094-000010-00003
5.0	094-000010-00005
10.0	094-000010-00011

## Double-layered fabric PVC hose, by the metre

- Please note that material sold by the metre cannot be exchanged!

Colour	Red
Inside Ø	5 mm
Outside Ø	8 mm

Item no.
393-000255-00000



## Compressed air hose, clear, by the metre

- Fabric-reinforced PVC hose, ageing- and abrasion-resistant
- Please note that material sold by the metre cannot be exchanged!

Material type	100% polyester, high tensile
Colour	Crystal clear
Inside Ø	6 mm
Outside Ø	12 mm
Temperature range approx.	-20 °C - 65 °C
Operating pressure	20 bar

Item no.
098-003576-00000





Hose sleeve, Ø 11 mm • Hose sleeves (DIN 1256)



- EN 1256
- With lunette
- Length 28mm

**Length** 28 mm

Inside Ø mm	Bore Ø mm	Version	Item no.
12.0	6.0	Fits hose Ø 11 mm	396-006373-00000
13.0	8.0	Fits hose Ø 13 mm	396-006374-00000
16.0	8.5	Fits hose Ø 16 mm	396-006375-00000
18.0	12.0		396-006376-00000

Hose nipple • Hose nipples (DIN 1256)



- DIN 1256
- Hose nipple for self installation

Item no.
396-006913-00000
396-006915-00000
396-006914-00000
396-006916-00000
396-006917-00000

Crown nut • Crown nut (DIN 1256)



- DIN 1256
- Crown nut for self installation

Item no.
396-006910-00000
396-006911-00000
396-006912-00000

Aluminium wall hose holder



- For universal use with hoses and cables
- Gentle to hoses thanks to rounded surface
- Can be attached to walls, machines or shelves

Length mm	Dimensions mm	Item no.
188	188 x 70 x 147	098-004211-00000
266	266 x 108 x 201	098-004212-00000
348	348 x 144 x 257	098-004213-00000

## Hose sleeves

- Hose sleeves for self assembly

Inside Ø mm	Length mm	Version	Item no.
11.5	17.0	Fits hose Ø 11 mm	393-000236-00000
15.0	20.0	Fits hose Ø 13 mm	393-000234-00000
18.0	21	Fits hose Ø 16 mm	396-000753-00000
19.0	26		396-001085-00000



## Hose nipples

- Hose nipples for self assembly

Material type

Brass

Standards

DIN 8542 EN 560

Outside Ø mm	Connection	Item no.
3.2	G 1/4"	398-000433-00000
4.0		094-011495-00000
6.0		094-000999-00000
3.2	G 3/8"	398-000434-00000
4.0		098-000512-00000
6.0		098-003574-00000
8.0		396-000769-00000
9.0		094-002731-00000



## Crown nuts

Material type

Brass

Standards

DIN 8542

Bore Ø mm	Version	Internal thread	Width across flats	Item no.
7.2	-	G 1/8" R	SW 12	394-000896-00000
9.5	Suitable for bush 094-000999-00000	G 1/4" R	SW 17	094-000044-00000
10.2	Suitable for bush 094-001717-00000			094-000998-00000
9.5	Suitable for bush 094-000999-00000	G 1/4" L	SW 17	094-001722-00000
10.2	Suitable for bush 094-001717-00000			094-001723-00000
12.5	-	G 3/8" L	SW 19	098-003573-00000



## Double hose clamp

- Hose clips in various diameters for connecting oxyacetylene hoses.

Material type	Outside Ø mm	Item no.
Plastic	11.0	098-001424-00000
	13.0	098-001423-00000
	16.0	098-000603-00000
Aluminium	11.0	098-001433-00000
	13.0	098-001432-00000
	16.0	098-001425-00000



Double hose nipple



Material type

Brass

Outside Ø mm	Length mm	Item no.
4.0	63	098-004154-00000
6.0		098-000516-00000
8.0	72	094-011889-00000
9.0		098-003956-00000

Double branch valve with nuts and 6 mm bushes



Gas type	Thread	Item no.
Argon / CO2	G1/4" R	098-001515-00000
Acetylen / Propane	G 3/8" L	098-001516-00000

Double nipple



- Double nipple for connecting hoses

Material type

Brass

Thread	Width across flats	Item no.
G 1/4" RH x G 1/4" RH	SW 17	094-000989-00000
G1/4"LH x G1/4"LH		094-022254-00000
G 3/8" RH x G 3/8" RH	SW 19	098-004150-00000
G 3/8" LH x G 3/8" LH		094-013791-00000

Gas igniter • PIEZO



- Igniter tool for reliable ignition of welding and flame cutting attachments

Length

175 mm

Item no.

096-001065-00000

Pistol gas igniter



- Igniter tool for reliable ignition of welding and flame cutting attachments
- Nickel-plated

Version

Suitable flints: 2.6 x 5 mm (098-004675-00000)

Item no.

098-001324-00000



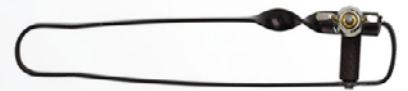
## Gas igniter with roller file

- Igniter tool for reliable ignition of welding and flame cutting attachments

**Version** Suitable flints: 3 x 20 mm (098-001330-00000)

**Item no.**

098-001326-00000



## Hood gas igniter

- Igniter tool for reliable ignition of welding and flame cutting attachments

**Version** Suitable flints: 3.4 x 12 mm (098-004676-00000)

**Item no.**

098-002023-00000



## Replacement flints

- Flints for gas igniters

Length mm	Dimensions (width x length) mm	PU Units	Version	Item no.
2.6	2.6 x 5	100	Suitable for pistol gas igniter	098-004675-00000
3.0	3 x 20	50	Suitable for gas igniter with roller file	098-001330-00000
3.4	3.4 x 12	10	Suitable for hood gas igniter	098-004676-00000



## Nozzle cleaning needles

- Knurled cleaning needles for cleaning the outlet ducts of welding and cutting nozzles

**Version** 13 needles, 1 file, aluminium casing

**Length** 75 mm

**Item no.**

096-000888-00000



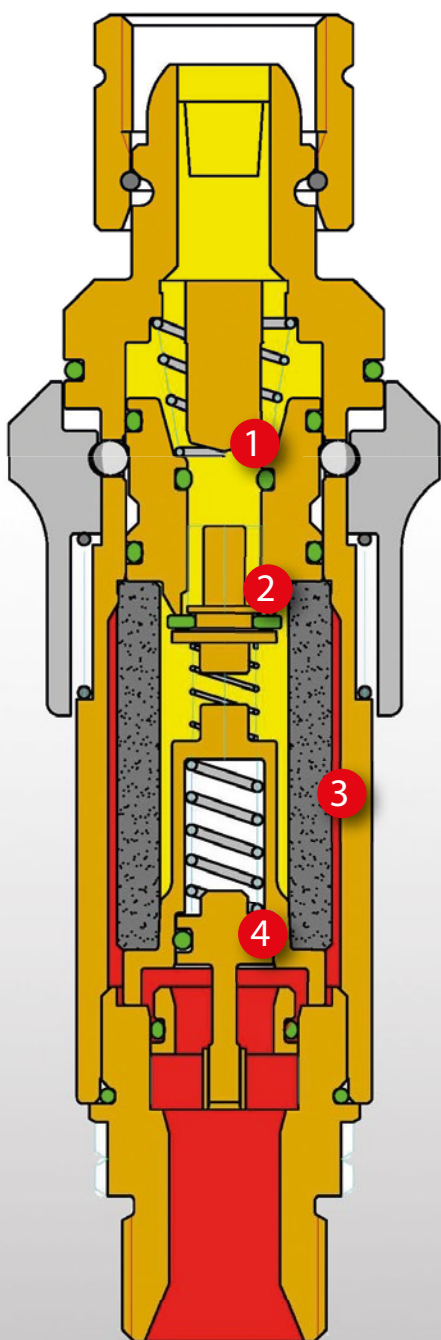


# IBEDA safety systems

...function reliably

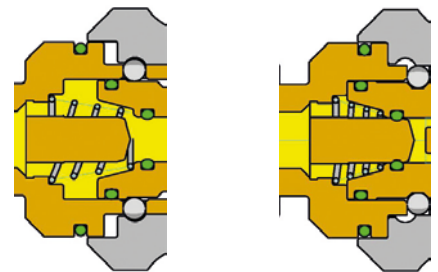
## IBEDA safety systems reliably prevent:

- / Further gas flow following pressure shocks
- / The flow of gas against the planned direction of flow
- / Flashback
- / Further gas feed following burnback



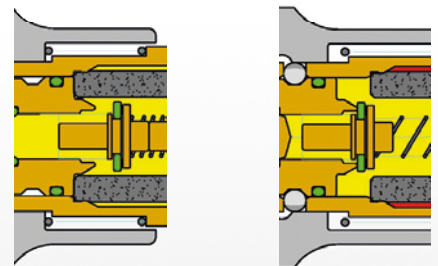
### 1 Pressure-controlled cut-off valve (PV)

- / The pressure-controlled cut-off valve interrupts further gas feed following pressure shocks.
- / The gas feed can be manually reactivated.



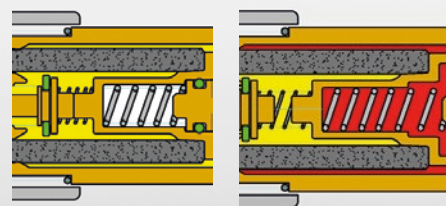
### 2 Gas non-return valve (NV)

- / The gas non-return valve safely prevents mixture formation.
- / The gas non-return valve only allows gas to flow in one direction.



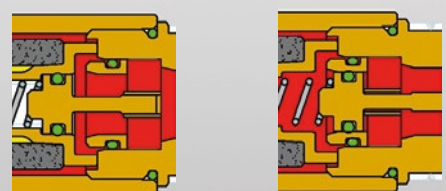
### 3 Flame arrester (FA)

- / The flame arrester prevents flashback.
- / The flame arrester cools the impinging flame front to below ignition temperature.



### 4 Thermal cut-off valve (TV)

- / The thermal cut-off valve triggers before achieving a predefined temperature and interrupts further gas flow.
- / The thermal cut-off valve prevents inadmissible heating of the safety system.



# Gas supply with ewm

...the Ibeda range of products and services



Model	SR	DGN	DEMAX5N	DG91N	DS2000	GT	GG	DG91UA
<b>Approvals</b>								
EN 730-1	x	x	x	x	x	x	x	x
BAM	x	x	x	x	x	x	x	x
UL	x	x	x	x	x	x	x	x
SABS	x	x	x	x	x	x	x	x
GOST		x						
<b>(EN730-1)</b>								
NV (gas non-return valve)	x	x	x	x	x	x	x	x
FA (flame arrestor)	x	x	x	x	x	x	x	x
TV (thermal cut-off valve)		x	x	x	x			
PV (pressure-controlled cut-off valve)					x			
DF (dirt filter)		x	x	x	x	x	x	x
<b>Technical data</b>								
Diameter (mm)	19.5	22	65	32	46	19.5	19.5	32
Length (mm)	60	84	111	107	123	69	56	128
Brass fitting weight (g)	91	153	1269	375	491	73	82	437
Brass	x	x	x	x	x	x	x	x
Stainless steel		x	x	x				
<b>Operating pressure (bar)</b>								
Acetylene	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Propane/butane	4.0	5.0	5.0	5.0	5.0	4.0	4.0	5.0
Natural gas	4.0	5.0	5.0	5.0	5.0	4.0	4.0	5.0
Hydrogen	4.0	3.5	3.0	4.0	4.0	4.0	4.0	4.0
Oxygen	15 (25)	15 (25)	15 (25)	15 (25)	15	15 (20)	15 (25)	15 (25)
Compressed air	25	25	25	25	15	20	25	25
<b>Type of use</b>								
Welding 0.5–14 mm	■	■	●	■	■	●	●	●
Welding 0.5–30 mm		■	●	■	■	●	●	●
Heating 0.5–14 mm	■	■	●	■	■	●	●	●
Heating 0.5–30 mm		■	●	■	■	●	●	●
Heating 30–50 mm		■	●	■	■			●
Heating 50–100 mm			●	■	■			●
Heating > 100 mm			●					●
Flame cutting 60 mm	■	■	●	■	■	●	●	●
Flame cutting 3–200 mm		■	●	■	■	●	●	●
Flame cutting 50–700 mm			●	■	■			●
Flame cutting > 700 mm			●					●
Flame cleaning 50–200 mm		■	●	■	■			●
Flame cleaning 200–500 mm			●	■	■			●
Flame cleaning 5-flame			●	■	■			●
Brazing consumption 4000 l/h		■	●	■	■			●
Brazing consumption 12000 l/h			●	■	■			●
Brazing consumption > 12000 l/h			●					●
Flame spraying			●	■	■			●
<b>Conversion factors</b>								
Air	1.00	1.0 bar = 0.1 Mpa		<b>Coupling air outlets</b>				
Acetylene	1.20	1.0 bar = 100 kPa		Primary pressure in Mpa (bar)		Couplings DKT/DKD/DKG in Nm <sup>3</sup> /h		
Butane	0.86	1.0 bar = 14.28 psi		0.03 (0.3)		8.5 Nm <sup>3</sup> /h		
Natural gas	1.25			0.06 (0.6)		13.0 Nm <sup>3</sup> /h		
Methane	1.40	1.0 m <sup>3</sup> = 1.31 cu. yd		0.09 (0.9)		16.3 Nm <sup>3</sup> /h		
Propane	0.90	1.0 m <sup>3</sup> = 35.32 cu. ft		0.12 (1.2)		19.0 Nm <sup>3</sup> /h		
Oxygen	0.95			0.15 (1.5)		21.5 Nm <sup>3</sup> /h		
Hydrogen	2.50/3.80*			0.25 (2.5)		30.0 Nm <sup>3</sup> /h		
Ethylene	1.02			1.0 (10.0)		105.0 Nm <sup>3</sup> /h		
				2.0 (20.0)		160.0 Nm <sup>3</sup> /h		
<b>Miscellaneous data</b>								
Flame arrestor porosity:	3 µm for standard applications							
Gas non-return valve opening pressure:	40 + 20 mbar							
Thermal burnback guard melting temperature:	130 + 20 °C							
Pressure-controlled cut-off valve trigger pressure:	< 1200 mbar							

■ Use on pressure regulators and tapping points ● Use on working equipment and for hose installation

\*\* Conversion factor 2.5 when flowing via a flame arrestor. When flowing from an orifice, the factor is 3.8.

(Source: BAM research report 220, D. Lietze)



## Pressure regulator safety system application options

Single cylinder unit with SR



IBEDA double tapping point with DGN



IBEDA double tapping point with DG91N and DEMAX5N



### IBEDA safety systems compliant with DIN EN ISO 5175-1 reliably prevent:

The backflow of gas opposite to the planned direction of flow thanks to the integrated gas non-return valve NV

Flashback thanks to the flame arrestor FA

Further gas feed following burnback thanks to the thermal burnback guard TV (not model SR)

Further gas extraction after pressure shocks thanks to the pressure-controlled cut-off valve PV (only model DS2000)

Other versions available on request.

#### Safety device ● SR



- SR, the new IBEDA product in the safety system series
- Particularly suitable for individual cylinder systems with small tapping capacity
- Excellent price-performance ratio

<b>Welding range to</b>	14 mm
<b>Cutting range to</b>	60 mm
<b>Heating to</b>	14 mm
<b>Safety elements</b>	Gas non-return valve, Flame arrestor
<b>Standards</b>	EN 730 / ISO 5175

PU Units	Gas type	Input	Output	Item no.
1	Oxygen	G1/4" RH-F	G1/4" RH-M	393-000470-00000
		G3/8" RH-F	G3/8" RH-M	393-000471-00000
	Combustion gases	G3/8" LH-F	G3/8" LH-M	393-000472-00000

#### Safety device ● DGN



- The safety standard in industry and the trades
- Use on tapping points as well as individual cylinders
- Covers the majority of applications

<b>Welding range to</b>	30 mm
<b>Cutting range to</b>	200 mm
<b>Heating to</b>	50 mm
<b>Safety elements</b>	Gas non-return valve, Flame arrestor, Temperature-sensitive cut-off valve
<b>Standards</b>	EN 730 / ISO 5175

PU Units	Gas type	Input	Output	Item no.
1	Oxygen	G1/4" RH-F	G1/4" RH-M	393-000449-00000
		G3/8" RH-F	G3/8" RH-M	393-000473-00000
	Combustion gases	G3/8" LH-F	G3/8" LH-M	393-000450-00000

### Safety device • DG91N

- Safety system for high gas extraction rates
- Used anywhere where large quantities of gas at low pressure drops are required for faultless operation
- The high flow rate guarantees long service life and the highest degree of safety and functionality

<b>Welding range to</b>	30 mm
<b>Cutting range to</b>	700 mm
<b>Heating to</b>	100 mm
<b>Safety elements</b>	Gas non-return valve, Flame arrestor, Temperature-sensitive cut-off valve
<b>Standards</b>	EN 730 / ISO 5175

PU Units	Gas type	Input	Output	Item no.
1	Oxygen	G1/4" RH-F	G1/4" RH-M	393-000447-00000
		G3/8" RH-F	G3/8" RH-M	393-000283-00000
		G1/2" RH-F	G1/2" RH-M	393-000446-00000
1	Combustion gases	G3/8" LH-F	G3/8" LH-M	393-000448-00000
		G1/2" LH-F	G1/2" LH-M	393-000359-00000



2

### Safety device • DS2000

- Safety system for high gas extraction rates with pressure-controlled cut-off valve
- Used anywhere where large quantities of gas at low pressure drops are required for faultless operation
- The high flow rate guarantees long service life and the highest degree of safety and functionality

<b>Welding range to</b>	30 mm
<b>Cutting range to</b>	700 mm
<b>Heating to</b>	100 mm
<b>Safety elements</b>	Gas non-return valve, Flame arrestor, Temperature-sensitive cut-off valve, Pressure-controlled cut-off valve
<b>Standards</b>	EN 730 / ISO 5175

PU Units	Gas type	Input	Output	Item no.
1	Oxygen	G1/4" RH-F	G1/4" RH-M	393-000474-00000
		G3/8" RH-F	G3/8" RH-M	393-000475-00000
1	Combustion gases	G3/8" LH-F	G3/8" LH-M	393-000476-00000



### Safety device • DEMAX5N

- Five parallel DGN type safety systems
- Suitable for applications in which high extraction rates from pipe networks are demanded

<b>Welding range to</b>	30 mm
<b>Cutting range &gt;</b>	700 mm
<b>Heating &gt;</b>	100 mm
<b>Safety elements</b>	Gas non-return valve, Flame arrestor, Temperature-sensitive cut-off valve
<b>Standards</b>	EN 730 / ISO 5175

PU Units	Gas type	Input	Output	Item no.
1	Oxygen	G3/8" RH-F	G3/8" RH-M	393-000477-00000
		G1" RH-F	G1" RH-F	393-000479-00000
1	Combustion gases	G3/8" LH-F	G3/8" LH-M	393-000478-00000
		G1" RH-F	G1" RH-F	393-000480-00000



## Working equipment safety system application options

Cutting attachment with GG



Cutting attachment with GT



Warming torch with DG91UA



### IBEDA safety systems compliant with DIN EN ISO 5175-1 reliably prevent:

The backflow of gas opposite to the planned direction of flow thanks to the integrated gas non-return valve NV

Flashback thanks to the flame arrestor FA (not GG for cutting oxygen)

Other versions available on request

#### Safety device ● GG



- Compact design safety system
- Can be used in flame cutting machines and grips
- Highly suitable for installations in cramped spaces
- Safety system for cutting oxygen (393-000481-00000), gas non-return valve only, no flame arrestor

<b>Welding range to</b>	30 mm
<b>Cutting range to</b>	200 mm
<b>Heating to</b>	30 mm
<b>Safety elements</b>	Gas non-return valve, Flame arrestor
<b>Standards</b>	EN 730 / ISO 5175

PU	Gas type	Input	Output	Item no.
1	Oxygen	G1/4" RH-M	G1/4" RH-F	393-000460-00000
		G3/8" RH-M	G3/8" RH-F	393-000462-00000
	Combustion gases	G3/8" LH-M	G3/8" LH-F	393-000461-00000
	Cutting oxygen	G3/8" RH-M	G3/8" RH-F	393-000481-00000



## Safety device • GT

- Safety system in coupler form
- Thanks to the compact and light design, the GT offers a high degree of safety and comfort for the user
- The coupler form guarantees a non-slip and airtight connection and optimal kinking protection

<b>Welding range to</b>	30 mm
<b>Cutting range to</b>	200 mm
<b>Heating to</b>	30 mm
<b>Safety elements</b>	Gas non-return valve, Flame arrestor
<b>Standards</b>	EN 730 / ISO 5175

PU Units	Gas type	Input	Output	Item no.
1	Oxygen	Bush, 6,3 mm	G1/4" RH-F	393-000326-00000
			G3/8" RH-F	393-000328-00000
	Combustion gases	Bush, 9 mm	G3/8" LH-F	393-000331-00000



2

## Safety device • DG91UA

- Safety system for applications with high flow rates
- Uncomplicated installation even where space is limited thanks to asymmetrical connections

<b>Welding range to</b>	30 mm
<b>Cutting range to</b>	700 mm
<b>Heating &gt;</b>	100 mm
<b>Safety elements</b>	Gas non-return valve, Flame arrestor
<b>Standards</b>	EN 730 / ISO 5175

PU Units	Gas type	Input	Output	Item no.
1	Oxygen	G1/4" RH-M	G1/4" RH-F	393-000482-00000
		G3/8" RH-M	G3/8" RH-F	393-000483-00000
	Combustion gases	G3/8" LH-M	G3/8" LH-F	393-000484-00000
		G1/2" LH-M	G1/2" LH-F	393-000485-00000



ewm

solidArc forasArc  
Lichtschlauch



## Coupling and pin application options

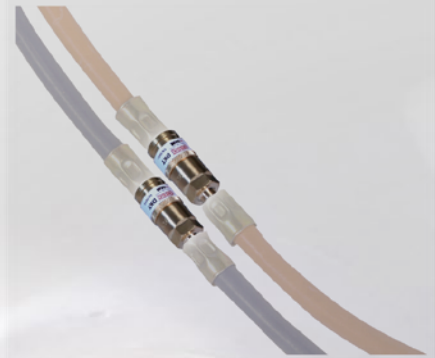
IBEDA tapping points with DKD and D2 pin



Grip with IBEDA cap collar couplings, DKT and D1 pin



Extension of hoses with DKT and D2 pin



**IBEDA hose couplings are a globally compatible coupling system compliant with EN561/ISO7289 and come with:**

- A push system for simple coupling. Unintentional decoupling is almost impossible.
- An automatic gas cut-off valve which interrupts gas flow upon decoupling.
- Stainless-steel coupling pins for long life. Coding prevents connection/gas confusion.

### Hose coupling • DKT



- Hose coupling for fitting to end devices or into hoses
- Coding prevents gas connection confusion
- Push system for simple coupling; unintentional decoupling is almost impossible
- Automatic gas lock stops gas flow on decoupling
- Optimised gas guidance ensures low pressure loss
- Hose nipples compliant with the latest EN 1256 and EN 560 draft standards for greater safety in the hose connection

**Safety elements**  
**Standards**

Gas cut-off valve  
EN 561 / ISO 7289

PU Units	Gas type	Input	Output	Item no.
1	Oxygen	Bush, 6.3 mm	Coupling	393-000458-00000
	Combustion gases	Bush, 9 mm		393-000459-00000
	Inert gas	Bush, 6.3 mm		393-000486-00000

### Hose coupling • DKD



- Hose coupling for fitting to tapping points and pressure regulators
- Coding prevents gas connection confusion
- Push system for simple coupling; unintentional decoupling is almost impossible
- Automatic gas lock stops gas flow on decoupling
- Optimised gas guidance ensures low pressure loss

**Safety elements**  
**Standards**

Gas cut-off valve  
EN 561 / ISO 7289

PU Units	Gas type	Input	Output	Item no.
1	Oxygen	G1/4" RH-F	Coupling	393-000453-00000
		G3/8" RH-F		393-000294-00000
	Combustion gases	G3/8" LH-F		393-000454-00000
		Inert gas		G1/4" RH-F

## Hose coupling • DKG

- Hose coupling for fitting to end devices or into hoses
- Coding prevents gas connection confusion
- Push system for simple coupling; unintentional decoupling is almost impossible
- Automatic gas lock stops gas flow on decoupling
- Optimised gas guidance ensures low pressure loss



2

### Safety elements

Gas cut-off valve

### Standards

EN 561 / ISO 7289

PU Units	Gas type	Input	Output	Item no.
1	Oxygen	G1/4" RH-M	Coupling	393-000455-00000
		G3/8" RH-M		393-000457-00000
	Combustion gases	G3/8" LH-M		393-000456-00000
	Inert gas	G1/4" RH-M		393-000488-00000

## Coupling pin • D1

- Coupling pin for fitting to end devices
- Coding prevents gas connection confusion
- Stainless steel coupling pins for long life

### Standards

EN 561 / ISO 7289

PU Units	Gas type	Connection	Item no.
1	Oxygen	G1/4" RH	393-000296-00000
		G3/8" RH	393-000297-00000
	Combustion gases	G3/8" LH	393-000295-00000
	Inert gas	G1/4" RH	393-000489-00000
G3/8" RH		393-000490-00000	



## Coupling pin • D2

- Coupling pin for fitting to tapping points or in hoses
- Coding prevents gas connection confusion
- Stainless steel coupling pins for long life
- Hose nipples compliant with the latest EN 1256 and EN 560 draft standards for greater safety in the hose connection

### Standards

EN 561 / ISO 7289

PU Units	Gas type	Connection	Item no.
1	Oxygen	6,3 mm	393-000299-00000
	Combustion gases	9 mm	393-000298-00000
	Inert gas	6,3 mm	393-000402-00000



## Coupling pin • D4

- Coupling pin for fitting to tapping points or in hoses
- Coding prevents gas connection confusion
- Stainless steel coupling pins for long life

### Standards

EN 561 / ISO 7289

PU Units	Gas type	Connection	Item no.
1	Oxygen	G1/4" RH	393-000301-00000
		G3/8" RH	393-000302-00000
	Combustion gases	G3/8" LH	393-000300-00000
	Inert gas	G1/4" RH	393-000491-00000







# Testing equipment

For annual testing of safety systems (EN 730-1 AND ISO 5175)

2



MODEL  
PVGD

## Testing apparatus model PVGD

### Highlights

- / Only oil-free compressed air or nitrogen is necessary for the test
- / For testing flow rate and gas return without reclamping the specimen, by reversing the flow direction using the adjusting wheel
- / Compact design promotes on-site use
- / Integral clamping device allows testing of all common models
- / The quick adjuster promotes testing of devices with different lengths
- / Adapter for special models and safety devices with asymmetrical connections optionally available

Watch the Testing equipment video now.  
At [www.ibeda.de/videos](http://www.ibeda.de/videos)

PVGD testing apparatus	396-000848-00000
Flashback arrester test	KOS-V00022-00000

**Safety systems (flashback arresters)** must be inspected at given intervals but at least annually, for leaks and gas return, compliant with (TRBS 1201, Table 2 – empirical testing intervals for periodic testing) or (DGUV-R 500 Section 2.26 Item 3.27) by a trained and authorised person compliant with state-specific regulations. The test is performed using suitable testing equipment, for example IBEDA PVGD.

The following are tested:

- / Gas non-return valve function
- / Pressure-controlled cut-off valve function
- / Flow rate

### Testing device in factory use

Preparations for the annual on-site tests are easy to perform. A horizontal surface measuring 50 x 50 cm, an oil-free compressed air connection and some distilled water (5 cl) are sufficient to set up the testing device. The device is supplied with all necessary connecting adapters, which are easy to swap. Once the device has been adjusted, testing can begin.

- / Additional adapter for special models
- / Also test devices with asymmetrical connections
- / Flow rate comparison guarantees sufficient gas supply



We will gladly carry out tests on your safety systems. Just contact us.

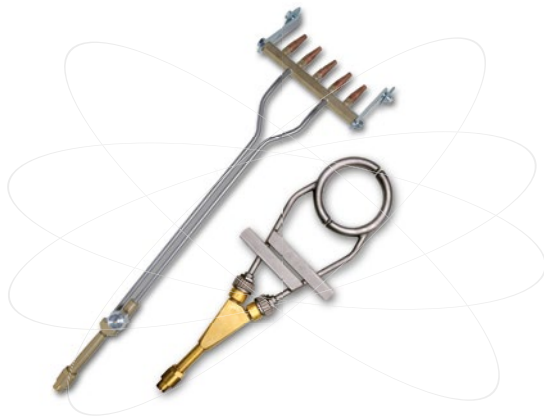


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[info@ewm-group.com](mailto:info@ewm-group.com)

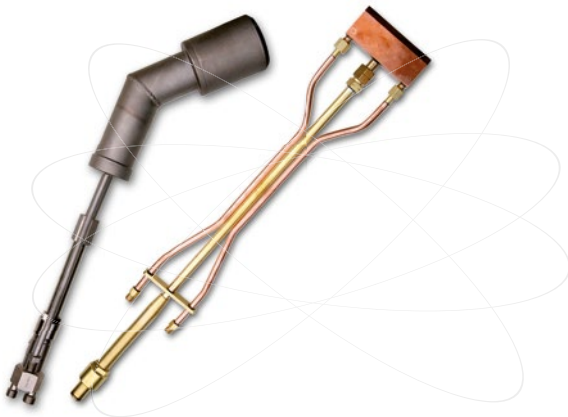
IBEDA supplies hand- and machine-controlled welding torches including all necessary accessories.



## Hand-controlled welding torches

The torch heads and the performance of hand-controlled welding torches are specially adapted to the particular application. They are equipped with standard handles or shafts and in special cases, where exposed to extreme heat, provided with additional water cooling.

2

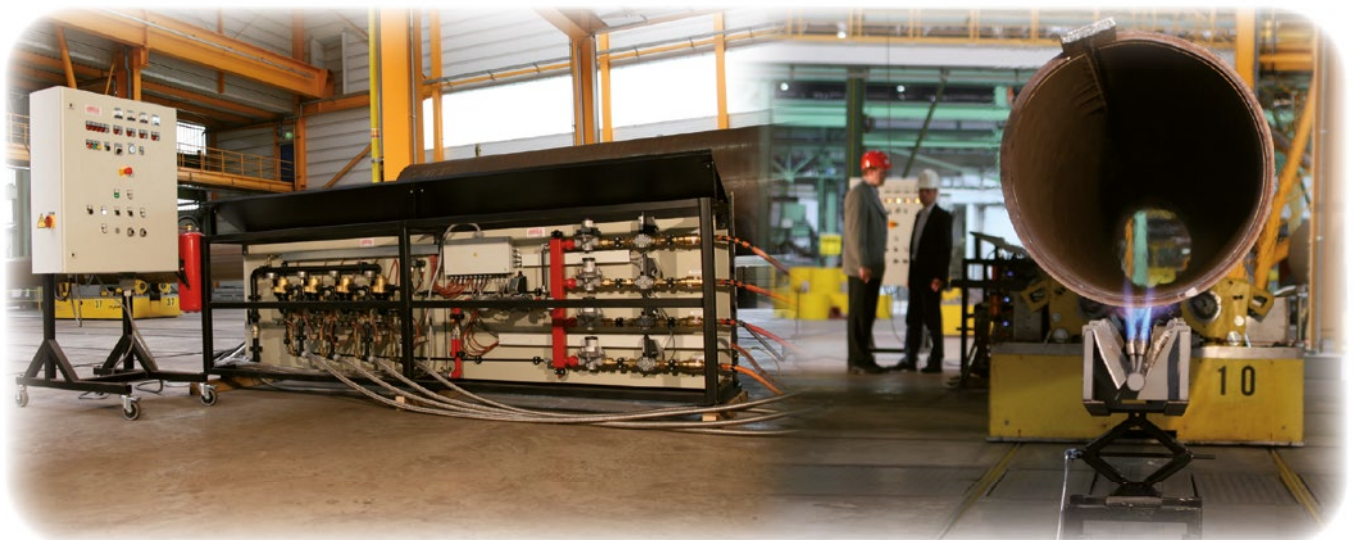


## Machine-controlled welding torches

Machine-controlled welding torches are used in places where the heating processes are either partially or completely automated. Here, too, the welding torch performance, format and machine-compatible design and construction are specially adapted to the respective heating task. Machine-controlled welding torches are generally operated without direct supervision. Here, special attention must be paid to monitoring and safety.

## Automatic ignition and flame monitoring

Automatic ignition and flame monitoring systems for welding torches are supplied with ignition electrodes for direct ignition or with pilot burners for indirect ignition. The flame is monitored by a monitoring electrode or UV sensor. Water cooling, temperature control systems and other control extensions are optionally available.



\* We look forward to your heating task enquiry.



# Centralised gas supply

...for all points of use

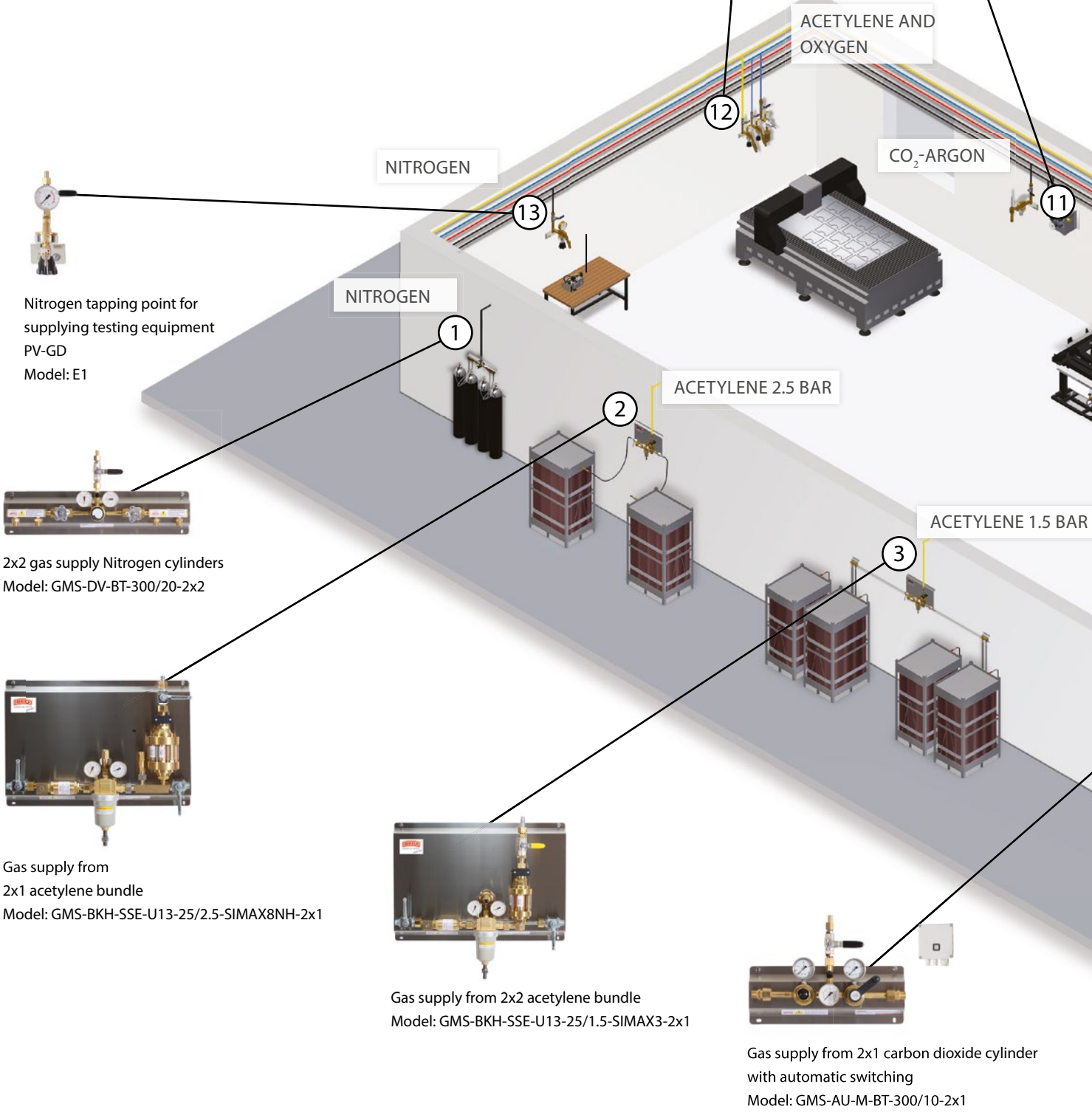
IBEDA guarantees high availability for supplying technical gases from gas cylinders or gas bundles to the point of use at all times.

In addition, we supply all components necessary for a transportable or fixed gas supply, such as high-pressure non-return valves, high-pressure piping, gas regulating units, tapping points, gas mixers, safety devices and accessories. All safety-relevant components are BAM-tested and certified.

Because the mobile gas supply solutions are covered by the same modular system, the supply system can be extended at any time.

Tapping points for supplying flame cutting machines  
Model: E1 and E10

Tapping points for supplying welding machines  
Model: E1





Tapping points for supplying heating torches  
Model: E10



Tapping points for supplying flame spraying cabins  
Model: E1-AL



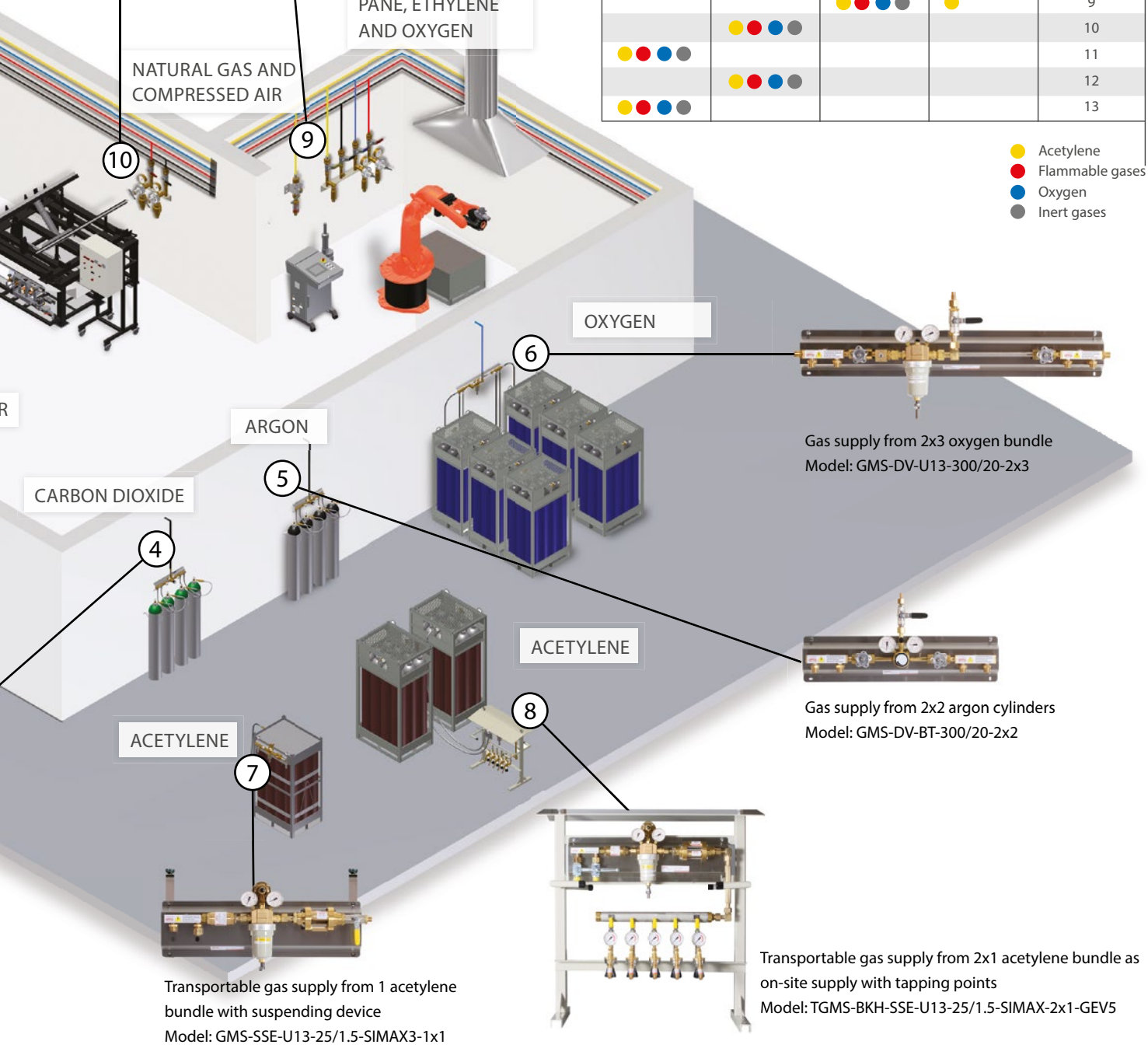
ACETYLENE, HYDROGEN, PROPANE, ETHYLENE AND OXYGEN

NATURAL GAS AND COMPRESSED AIR

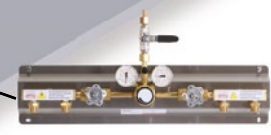
GAS SUPPLY					Figure
Stationary				Portable	
Manual	Automated Mechanical	Automated Pneumatic	Automated Electric		
● ● ● ●	● ● ● ●	● ● ●	● ● ● ●		1
●					2
●	●		●		3
● ● ● ●	● ● ● ●	● ● ●	● ● ● ●		4
● ● ● ●	● ● ● ●	● ● ●	● ● ● ●		5
● ● ● ●	● ● ● ●	● ● ●	● ● ● ●		6
				●	7
				● ● ● ●	8

Tapping points					Figure
E1	E10	E1-AL	E1-HD		
		● ● ● ●	●		9
	● ● ● ●				10
● ● ● ●					11
	● ● ● ●				12
● ● ● ●	● ● ● ●				13

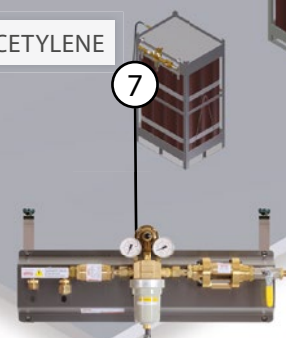
- Acetylene
- Flammable gases
- Oxygen
- Inert gases



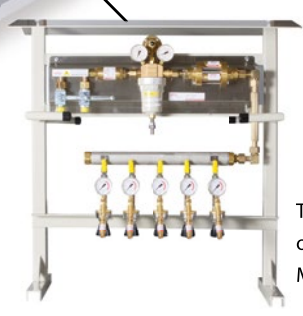
Gas supply from 2x3 oxygen bundle  
Model: GMS-DV-U13-300/20-2x3



Gas supply from 2x2 argon cylinders  
Model: GMS-DV-BT-300/20-2x2



Transportable gas supply from 1 acetylene bundle with suspending device  
Model: GMS-SSE-U13-25/1.5-SIMAX3-1x1



Transportable gas supply from 2x1 acetylene bundle as on-site supply with tapping points  
Model: TGMS-BKH-SSE-U13-25/1.5-SIMAX-2x1-GEV5

**Stationary gas supply system, acetylene, 1.5 bar**



- Gas supply systems for acetylene with capacities up to 150 m<sup>3</sup>/h
- Modular system – installation on stainless steel plates
- The systematic modular design of the individual assemblies guarantees the customer a gas supply optimally dimensioned to meet demands without the use of customised components
- All safety-relevant components are BAM-tested and certified

<b>Gas type</b>	Acetylene		
<b>Standards</b>	DIN EN 14114 / TRAC 204, 206, 208		
	<b>Gas flow m<sup>3</sup>/h</b>	<b>Version</b>	<b>Item no.</b>
	5.0	1x1 cylinder/bundle One-sided	393-000492-00000
		2x1 cylinder/bundle Double-sided	393-000493-00000
		1x2 cylinders/bundles One-sided	393-000494-00000
	24	2x1 bundle Double-sided	393-000495-00000

**Stationary gas supply system, automatic switching to acetylene**



- Gas supply systems for acetylene with automatic switchover
- Available as mechanical (priority circuit) and electrical models
- The mechanical switchover is performed by manifold pressure regulators with switchable pressure levels. The switching signal of the contact manometer is transmitted to a monitoring unit with optical and acoustic signals

<b>Gas type</b>	Acetylene		
<b>Gas flow</b>	5 m <sup>3</sup> /h		
<b>Version</b>	2x1 cylinder/bundle Double-sided		
<b>Standards</b>	DIN EN 14114 / TRAC 204, 206, 208		
			<b>Item no.</b>
			393-000496-00000

**Portable gas supply system, acetylene**



- Portable gas supply systems
- Made-to-measure supply concepts for mobile use
- All necessary safety systems comply with EN 14114 and represent fixed components of the gas supply
- The suspending device serves secure attachment to the bundle rack

<b>Gas type</b>	Acetylene		
<b>Gas flow</b>	24 m <sup>3</sup> /h		
<b>Version</b>	2x1 cylinder/bundle Double-sided		
<b>Standards</b>	DIN EN 14114		

Gas type	Gas flow m <sup>3</sup> /h	Version	Item no.
Acetylene	24	2x1 cylinder/bundle Double-sided	393-000497-00000

## Stationary gas supply system, oxygen and highly compressed gases

- Modular system – installation on stainless steel plates
- The systematic modular design of the individual assemblies guarantees the customer a gas supply optimally dimensioned to meet demands without the use of customised components
- All safety-relevant components are BAM-tested and certified

Gas type	Gas flow m <sup>3</sup> /h	Version	Item no.
Oxygen	60	1x1 cylinder/bundle One-sided	393-000499-00000
Inert gas			393-000500-00000
Combustion gases			393-000501-00000
Oxygen		2x1 cylinder/bundle Double-sided	393-000502-00000
Inert gas			393-000503-00000
Combustion gases			393-000504-00000
Oxygen	15.0	1x2 cylinders/ bundles One-sided	393-000505-00000
Inert gas			393-000506-00000
Combustion gases			393-000507-00000
Propane		2x1 cylinder Double-sided	393-000508-00000
Oxygen			393-000509-00000
Inert gas			393-000510-00000
Combustion gases	320	2x1 bundle Double-sided	393-000511-00000
Oxygen			393-000512-00000
Inert gas		1x2 bundles One-sided	393-000513-00000
Combustion gases			393-000514-00000



Abbildung entspricht Ausführung 2x2 Flaschen/Bündel zweiseitig

2

## Stationary gas supply system, oxygen and highly compressed gases, automatic mechanical switching

- Gas supply systems for oxygen and highly compressed gases with mechanical switching (priority circuit)
- The mechanical switching is performed by manifold pressure regulators with switchable pressure levels. The switching signal of the contact manometer is transmitted to a monitoring unit with optical and acoustic signals

Gas flow

60 m<sup>3</sup>/h

Gas type	Version	Item no.
Oxygen	2x1 cylinder/bundle	393-000515-00000
Inert gas	Double-sided	393-000516-00000
Oxygen	2x1 cylinder/bundle	393-000517-00000
Inert gas	Double-sided	393-000518-00000
Combustion gases	Can be used in EX applications	393-000519-00000



393-000516-00000

## Cylinder/bundle collector lines

- Cylinder and bundle collector lines serve to simultaneously connect and extract up to 6 cylinders or 4 bundles
- Depending on the application, the collector lines are installed one- or two-sided

Connection thread

M24X1,5

Version	Item no.
One-sided 2 cylinders	393-000520-00000
One-sided 3 cylinders	393-000521-00000
Two-sided 2 cylinders	393-000522-00000
Two-sided 3 cylinders	393-000523-00000
One-sided 2 bundles	393-000524-00000
Two-sided 2 bundles	393-000525-00000





Cylinder/bundle connecting hose (200 bar)



- Cylinder/bundle connecting hose for oxygen and technical gases with approved high-pressure non-return valves compliant with EN 15615 for operating pressures up to 200 bar

<b>Standards</b>	EN 15615
<b>Operating pressure</b>	200 bar

Length mm	Gas type	Input	Output	Item no.
1000	Combustion gases	W21,8x1/14" LH	M24x1,5" RH	393-000534-00000
1800				393-000535-00000
1000	Inert gas	W21,8x1/14" RH		393-000536-00000
1800				393-000537-00000
1000	Oxygen	G 3/4"RH		393-000538-00000
1800				393-000539-00000
1000	Nitrogen	W24,32x1/14" RH		393-000540-00000
1800				393-000541-00000

Cylinder/bundle connecting hose (300 bar)



- Cylinder/bundle connecting hose for oxygen and technical gases with approved high-pressure non-return valves and integral vent valves compliant with EN 15615 for operating pressures up to 300 bar

<b>Standards</b>	EN 15615
<b>Operating pressure</b>	300 bar

Length mm	Gas type	Input	Output	Item no.
1000	Inert gas	W30x2" RH	M24x1,5" RH	393-000526-00000
1800				393-000527-00000
1000	Combustion gases	W30x2" LH		393-000528-00000
1800				393-000529-00000
1000	Oxygen	W30x2" RH		393-000530-00000
1800				393-000531-00000

Cylinder/bundle connecting hose (acetylene)



- Cylinder/bundle connecting hose for acetylene with type-approved high-pressure hose and approved high-pressure non-return valves compliant with EN 15615 for operating pressures up to 25 bar

<b>Gas type</b>	Acetylene
<b>Standards</b>	EN 15615
<b>Operating pressure</b>	25 bar

Length mm	Input	Output	Item no.
1000	Bracket	M24x1,5" RH	393-000532-00000
1800	M28x1,5" RH		393-000533-00000

• **GVW 200**

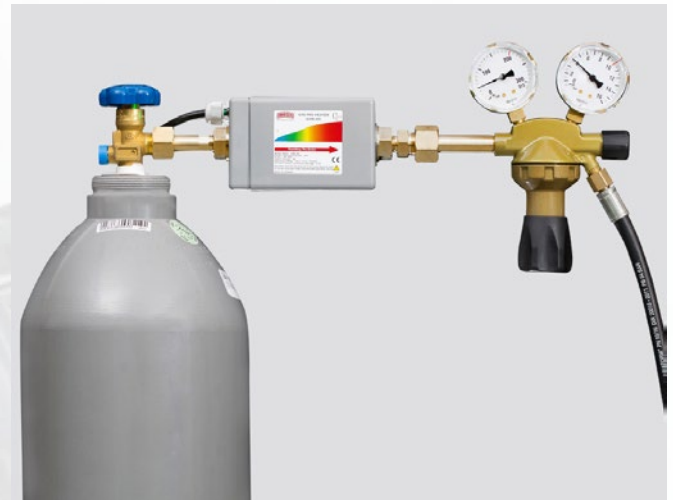
- The gas preheater serves as antifreeze protection for installation in gas supply systems and on individual cylinders for highly compressed, non-flammable gases
- Safe to use in continuous operation thanks to twice built-in temperature monitoring
- Overheating is avoided
- Voltage/output: 230 V/50 Hz/250 W
- Connection: Shock-proof plug with 2-m connection cable
- Connections for different gas types
- Light-emitting diode (green) for "Heating on"
- Switch: Temperature switch 50 +/- 3 °C
- Temperature limiter with manual resetting 70 +/- 5 °C
- Weight: 2,300 g



Gas type	Input	Output	Operating pressure bar	Item no.
Oxygen	W30x2" RH	W30x2" RH	300	393-000626-00000
	G 3/4"RH	G 3/4"RH	200	393-000624-00000
Inert gas	W30x2" RH	W30x2" RH	300	393-000627-00000
	W21,8x1/14"RH	W21,8x1/14"RH	200	393-000625-00000
Nitrogen	W24,32x1/14" RH	W24,32x1/14" RH	200	393-000628-00000

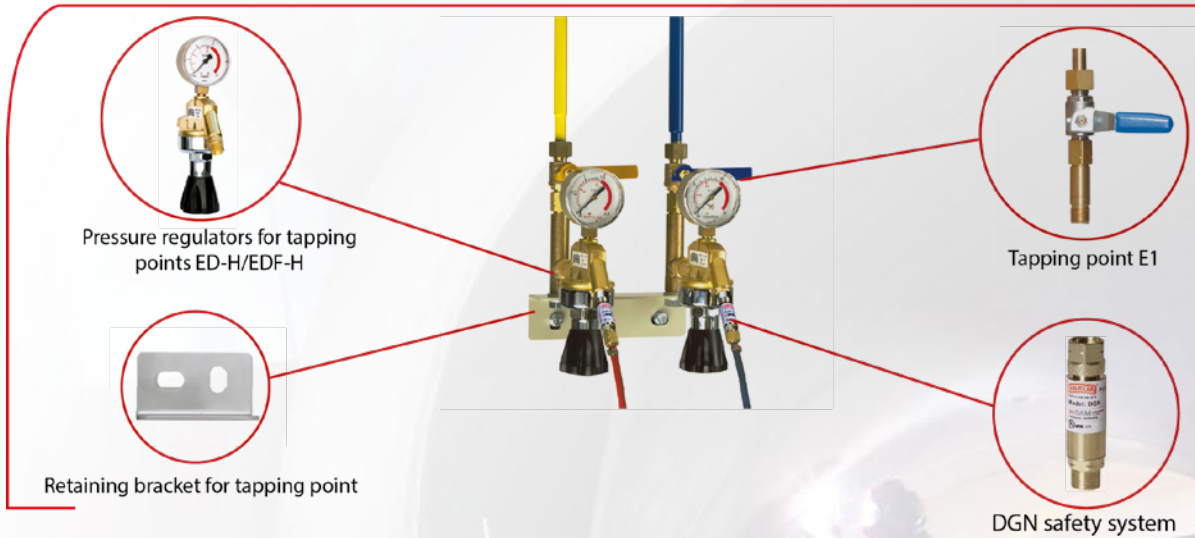


CO<sub>2</sub> application  
without gas preheater with  
frozen-over pressure controller



CO<sub>2</sub> application  
with IBEDA gas preheater GVW 250

## Components – tapping points



IBEDA supplies tapping points at the end of the gas supply for the specific gas type, working pressure and flow

Operating pressures for acetylene up to 2.5 bar and for oxygen or technical gases up to 60 bar

Flow rates up to 200 m<sup>3</sup>/h are standard

Individual solutions available

### Tapping point • E1



Gas type	Output	Item no.
Acetylene	G3/8" LH	096-001146-00000
Oxygen	G 3/8"RH	096-001145-00000
Combustion gases	G3/8" LH	393-000546-00000
Inert gas	G 3/8"RH	393-000547-00000

### Retaining bracket for tapping point



- Retaining bracket for fast installation at the tapping point

Version	Item no.
For one tapping point	393-000548-00000
For two tapping points	393-000549-00000
For three tapping points	393-000550-00000
For four tapping points	393-000551-00000



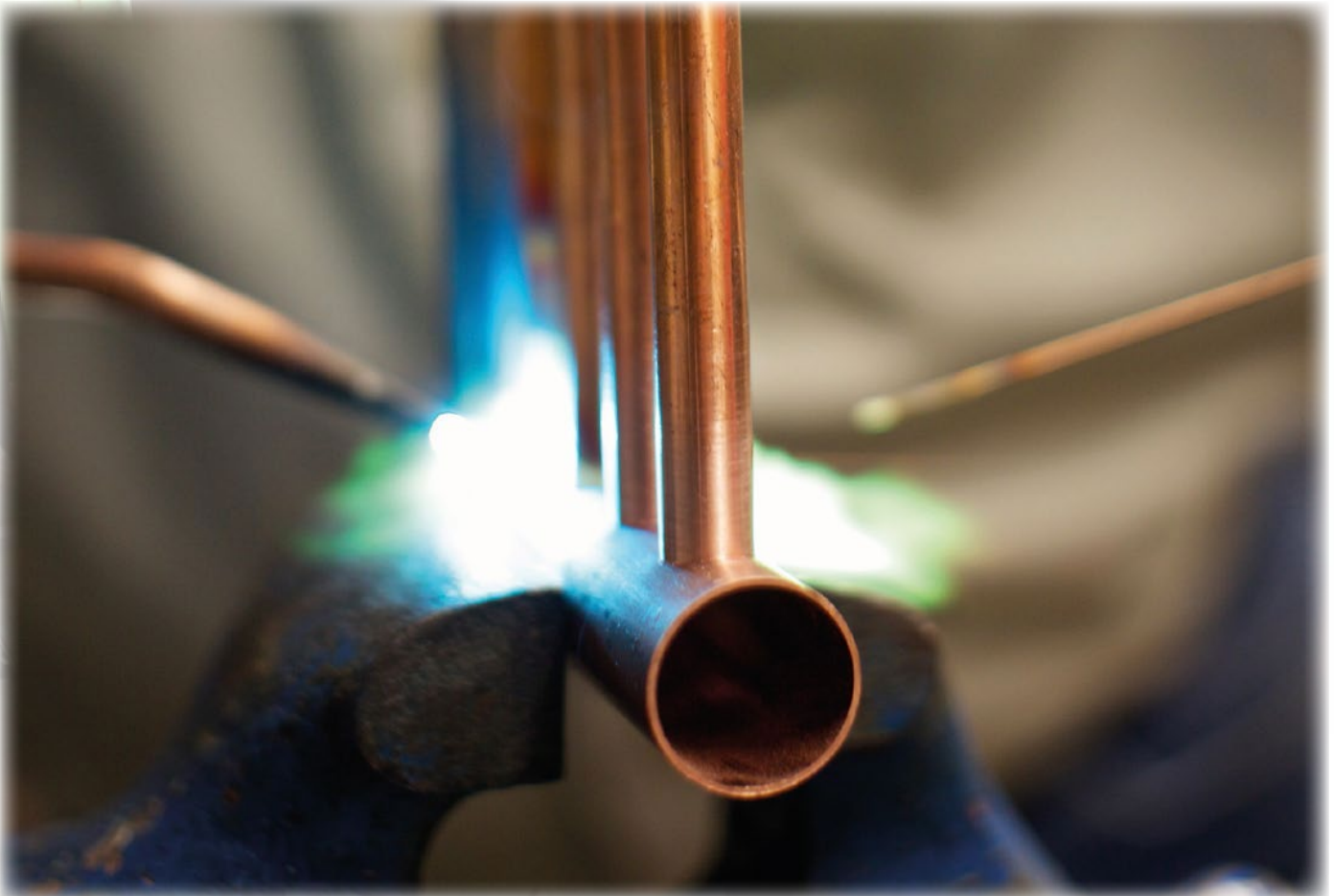
## Tapping point pressure regulators • ED-H / EDF-H

- IBEDA tapping point pressure regulators comprise a robust brass casing with manometers compliant with EN 562
- The regulators are not susceptible to operating problems and have a high flow capacity

### Standards

EN 562

Gas type	Gas flow	Version	Input	Output	Working pressure bar	Item no.
Acetylene	9 m <sup>3</sup> /h	Manometer display	G3/8" LH	G3/8" LH	1.5	393-000552-00000
Oxygen	60 m <sup>3</sup> /h		G 3/8"RH	G 1/4"RH	10.0	393-000553-00000
Combustion gases	5 m <sup>3</sup> /h		G3/8" LH	G3/8" LH	4.0	393-000554-00000
	30 m <sup>3</sup> /h				10.0	393-000555-00000
Inert gas, non-combustible			G 3/8"RH	G 1/4"RH		393-000556-00000
Shielding gas	30 l/min	Flow meter			-	393-000557-00000
	14 l/min					393-000558-00000
						393-000559-00000





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Electrode holder with cable

- Fully assembled electrode holder with cable

Length 4 m



Plug Ø mm	PU Units	Duty cycle	Cross-section mm <sup>2</sup>	Item no.
9.0		170 A, 60 %	16.0	094-005313-00000
		230 A, 60 %	25	092-000017-00000
13.0	1	170 A, 60 %	16.0	094-005800-00000
		290 A, 60 %	35	092-000052-00000
		350 A, 60 %	50	092-000004-00000
		450 A, 60 %	70	092-000011-00000
		550 A, 60 %	95	092-000010-00000

Electrode holder, standard



- Electrode holder with duroplast grip
- Insulating shells made of fabric clippings

Characteristics Cable lug connection

PU Units	Max. welding current A	Cross-section mm <sup>2</sup>	Item no.
1	300	25	098-000710-00000
	400	50	098-000714-00000
	600	70	098-000716-00000

Electrode holders ● PRAKTIKA



- Electrode holder with duroplast grip
- Insulating shells made of fabric clippings
- Round connector

PU	Max. welding current A	Cross-section mm <sup>2</sup>	Version	PE	Item no.
1 Units	200	25	Electrode holders	Per unit	098-003546-00000
	300	50			098-003547-00000
	400	70			098-003548-00000
	600	95			098-003549-00000
1 Pair	300	-	Insulating shells	per pa	098-004113-00000
	400				098-004114-00000
	600				098-004115-00000

## Electrode holders • Optimus

- High-quality electrode holder with closed insulated head
- Suitable for overhead welding
- Optimal cooling thanks to cooling ribs in handle
- Very good insulation
- Electrodes can be inserted in various ways



### Characteristics

Robust, durable design

PU Units	Max. welding current A	Cross-section mm <sup>2</sup>	Version	Item no.
1	300	70	Electrode holders	098-000723-00000
	400	95		098-000724-00000
	500			098-000725-00000
	600		398-001272-00000	
	300		Insulated heads	098-000746-00000
600		098-000742-00000		



### Welding current plug



- Welding current plug in various versions
- 70–95 mm<sup>2</sup> plug (094-009841-E0000) with double clamp

<b>Material type</b>	Rubber/brass
<b>Standards</b>	VDE 0281
<b>Approvals</b>	CE

Welding current A	Mandrel Ø mm	PU Units	Cross-section mm <sup>2</sup>	Item no.
200	9.0	1	10 - 25	094-000064-00001
250	13.0		16 - 25	098-001628-00000
300			35 - 50	094-009932-E0000
400			50 - 70	094-009839-E0000
500			70 - 95	094-009841-E0000

### Welding current socket



- Welding current sockets in various versions

<b>Material type</b>	Rubber/brass
<b>Standards</b>	VDE 0281
<b>Approvals</b>	CE

Welding current A	For plug Ø mm	PU Units	Cross-section mm <sup>2</sup>	Item no.
200	9.0	1	10 - 25	094-021317-E0000
300	13.0		35 - 50	094-009933-E0000
400			50 - 70	094-009840-E0000
500			70 - 95	094-009842-E0000

### Socket



- Sockets in various versions

<b>Material type</b>	Rubber/brass
<b>Standards</b>	VDE 0281
<b>Approvals</b>	CE

Welding current A	Plug Ø mm	PU Units	Cross-section mm <sup>2</sup>	Item no.
200	9.0	1	10 - 25	094-000062-E0000
300	13.0		35 - 50	074-000232-E0000
400			50 - 95	074-000517-E0000

### Welding current socket adapter



- Welding current socket adapter, 9/13 mm (16 mm<sup>2</sup>/35 mm<sup>2</sup>)
- For the connection of welding current leads with 13-mm plug to machines with 9-mm socket

<b>Plug Ø</b>	9 mm
---------------	------

PU Units	Item no.
1	094-001780-00000



### Cable branch • Socket and plug

- Cable branch, male and female

<b>Cross-section</b>	70 mm <sup>2</sup> - 95 mm <sup>2</sup>
<b>Welding current</b>	500 A
<b>Plug Ø</b>	13 mm

PU	Version	Item no.
1	Plug	098-004169-00000
	Socket	094-012476-00000



### Welding cable, by the metre

- Welding cable, by the metre
- Please note that material sold by the metre cannot be exchanged!

<b>Material type</b>	H 01 N2 neoprene
<b>Approvals</b>	CE

Welding current A	PU m	Cross-section mm <sup>2</sup>	Item no.
200	1	25	024-000196-00000
250		35	024-000109-00000
300		50	024-000110-00000
400		70	024-000111-00000
500		95	024-000112-00000



### Welding cable, extra flexible

- Super flexible welding cable, 3.0 m
- Exceptionally suited for positional welding
- Cable remains flexible even at low ambient temperatures
- Other lengths available on request

<b>Material type</b>	Silicone-insulated
<b>Length</b>	3 m
<b>Approvals</b>	CE

Welding current A	PU Units	Cross-section mm <sup>2</sup>	Item no.
200	1	25	098-003359-00000
250		35	098-003360-00000
300		50	098-002500-00000



Welding extension cable

● Extension cables in various versions



<b>Material type</b>	H 01 N2 neoprene
<b>Standards</b>	VDE 0281
<b>Approvals</b>	CE

Welding current A	Plug Ø mm	Length m	PU Units	Cross-section mm <sup>2</sup>	Item no.
150	9.0	5.0	1	16.0	092-019410-00005
200	13.0			25	092-019411-00005
250				35	092-002888-00005
300				50	092-019412-00005
400				70	092-019413-00005
500		95	092-019414-00005		
150	9.0	10.0	1	16.0	092-019410-00010
200	13.0			25	092-019411-00010
250				35	092-002888-00010
300				50	092-019412-00010
400				70	092-019413-00010
500		95	092-019414-00010		

3

### Workpiece lead with clamp • WK 4M/K

<b>Length</b>		4 m			
Plug Ø mm	PU Units	Duty cycle	Cross-section mm <sup>2</sup>	Characteristics	Item no.
9.0	1	170 A, 60 %	16.0	Clamp	094-005314-00000
		230 A, 60 %	25		092-000016-00000
13.0	1	170 A, 60 %	16.0	–	094-005801-00000
		290 A, 60 %	35	Clamp	092-000008-00000
		350 A, 60 %	50		092-000003-00000



### Workpiece lead with clamp • WK 4M/Z

<b>Length</b>		4 m			
<b>Plug Ø</b>		13 mm			
<b>Characteristics</b>		Clamp with wing nut			
PU Units	Duty cycle	Cross-section mm <sup>2</sup>	Item no.		
1	450 A, 60 %	70	092-000013-00000		
	550 A, 60 %	95	092-000171-00000		



### Workpiece lead with original FIX clamp • WK 4 M/K FIX

<b>Length</b>		4 m			
<b>Characteristics</b>		Original FIX® Ground clamp			
Plug Ø mm	PU Units	Duty cycle	Cross-section mm <sup>2</sup>	Item no.	
9.0	1	230 A, 60 %	25	398-000593-00000	
		290 A, 60 %	35	398-000594-00000	
13.0	1	350 A, 60 %	50	398-000597-00000	
		450 A, 60 %	70	398-000596-00000	
		550 A, 60 %	95	398-000595-00000	



### Ground clamp

- Ground clamp
- Cable connection M8

<b>Material type</b>	Steel, galvanised
<b>Characteristics</b>	Copper-braided connector
<b>Approvals</b>	CE

Welding current A	PU Units	Item no.
200	1	098-003569-00000
400		098-004184-00000
600		098-004185-00000





Original FIX® Ground clamp



- Original FIX® ground clamp
- Extra strong springs
- Mobile copper jaws
- Braided copper strap
- Cable connection M10

<b>Material type</b>	Steel, galvanised
<b>Characteristics</b>	Robust, durable design
<b>Approvals</b>	CE

Welding current A	PU Units	Item no.
170	1	094-020144-00000
200		098-001279-00000
400		098-001280-00000
600		098-001281-00000

Nevada ground clamp



- Original "Nevada" ground clamp
- Mobile copper jaws
- Braided copper strap

<b>Approvals</b>	CE
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Welding current A	Item no.
200	098-004375-00000
300	098-004376-00000
400	098-004589-00000
500	098-004377-00000

Earth clamp with wing screw



- Earth clamps with wing screw, made of malleable cast iron, galvanised rail

<b>Material type</b>	Steel, galvanised
<b>Characteristics</b>	Wing screw
<b>Span</b>	150 mm
<b>Approvals</b>	CE

Welding current A	PU Units	Version	Item no.
300	1	Reach 60 mm	098-003396-00000
400		Reach 80 mm	098-001264-00000
600		Reach 60 mm	098-004148-00000

Cast brass earth clamp



- Earth clamps made of cast brass

<b>Welding current</b>	600 A
<b>Span</b>	50 mm
<b>Approvals</b>	CE

PU Units	Version	Cross-section mm <sup>2</sup>	Item no.
1	Brass/steel	50 - 70	098-003847-00000
	Brass/brass	70 - 95	098-004112-00000

### Magnetic pole clamp, round

- Magnetic pole clamp, round design
- Cable attachment via clip

Approvals CE

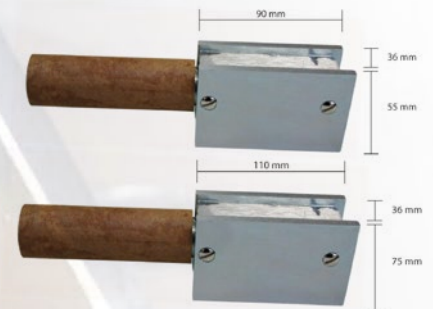
Welding current A	Ø mm	PU Units	Item no.
250	55	1	098-004188-00000
500	70		098-004189-00000



### Magnetic pole clamp with double clamp connection

Approvals CE

Welding current A	PU Units	Version	Item no.
400	1	-	098-004186-00000
600		Very high adhesive force	098-004187-00000



### Power couplings • NKK

- Robust, rotatable earth connections for loads up to 2000 Ampere
- Optimal earth connection to workpiece
- Prevents sparking, gluing and abrasion
- Protects the cable during assembly
- 398-002697-00000: delivery includes manual grease gun with P 34 special grease
- **Fields of application:** container, pipe and equipment construction

Welding current A	Version	Item no.
400	NKK 400	398-002693-00000
600	NKK 600	398-002694-00000
800	NKK 800	398-002695-00000
1200	NKK 1200	398-002696-00000
2000	NKK 2000	398-002697-00000



### Clamping head • K2

- Robust cast brass clamping head with sturdy M 16 thumb screw
- Universal earth connection for rotating workpieces
- Can be connected radially or axially to direction of rotation – or anywhere between these positions
- For NKK 800 or NKK 1200 power couplings
- **Fields of application:** Container, steel and ship construction

Welding current 1200 A  
Span 43 mm

PU Units	Item no.
1	398-002698-00000



Pole clamp • PZ



- Pole clamp with insulated spindle and nut to prevent annealing or charring
- 398-002699-00000, brass
- Connection capability using clamping sleeve or cable lug
- 398-002700-00000 and 398-002701-00000 in robust solid steel design with press-fit copper insert
- **Fields of application:** Container, steel and ship construction

Welding current A	Span mm	PU Units	Version	Item no.
600	50	1	Suitable for NKK 400, NKK 600	398-002699-00000
2000	60 100		Suitable for NKK 800, NKK 1200, NKK 2000	398-002700-00000 398-002701-00000

3

Clamp power coupling • KS 600



- Rotatable earth connection with clamping device for loads up to 600 A
- For clamping in pipes from 44 mm Ø clear width and container shell rings with 30 mm wall thickness max. of any diameter
- Cable protecting grip connection with bend protection, clamped connection and thumb screw M 16
- Long service life thanks to relubrication option
- Delivery includes manual grease gun with P 34 special grease
- **Fields of application:** container, pipe and equipment construction

<b>Cross-section</b>	70 mm <sup>2</sup> - 95 mm <sup>2</sup>
<b>Welding current</b>	600 A
<b>Span</b>	30 mm

PU	Item no.
Units	
1	398-002702-00000

Special grease • P 34



- Special grease for lubricating rotatable welding current transmission devices

<b>Contents</b>	500 g
-----------------	-------

Item no.
398-002703-00000



**Cable end sleeves**

- Cable end sleeves in various versions

<b>Material type</b>	Copper			
<b>Approvals</b>	CE			
<b>Welding current</b>	<b>PU</b>	<b>Cross-section</b>	<b>Item no.</b>	
<b>A</b>	<b>Units</b>	<b>mm<sup>2</sup></b>		
200	100	10 - 25	098-001668-00000	
300		35 - 50	098-001674-00000	
		50 - 70	098-001682-00000	
400		70 - 95	098-001687-00000	
500		95 - 120	098-001692-00000	



**Tube crimp cable lug**

- Crimp cable lugs

<b>Material type</b>	Copper, tin-plated			
<b>Approvals</b>	CE			
<b>Welding current</b>	<b>Bore Ø</b>	<b>PU</b>	<b>Cross-section</b>	<b>Item no.</b>
<b>A</b>	<b>mm</b>	<b>Units</b>	<b>mm<sup>2</sup></b>	
150	8.5	1	16.0	024-007392-00000
200			25	024-007396-00000
250			35	024-007412-00000
300	10.5		50	024-007401-00000
400	13.0	70	024-007405-00000	
500		95	024-007408-00000	



3

**Bolt cable lug**

- Bolt cable lugs with 4 screws

<b>Material type</b>	Copper			
<b>Characteristics</b>	Reliable power transmission			
<b>Approvals</b>	CE			
<b>Welding current</b>	<b>Bore Ø</b>	<b>PU</b>	<b>Cross-section</b>	<b>Item no.</b>
<b>A</b>	<b>mm</b>	<b>Units</b>	<b>mm<sup>2</sup></b>	
200	8.5	10	16 - 25	398-000231-00000
250			25 - 35	098-002427-00000
400	10.5	5	50 - 70	098-002428-00000
500			70 - 95	098-002644-00000



**Notch pliers**

- With installed, rotatable profile disk
- For the attachment of tubular/crimp cable lugs

<b>Approvals</b>		CE			
<b>Length</b>	<b>PU</b>	<b>Material thickness</b>	<b>Weight</b>	<b>Pressing range</b>	<b>Item no.</b>
<b>mm</b>	<b>Units</b>	<b>mm<sup>2</sup></b>	<b>kg</b>	<b>mm<sup>2</sup></b>	
600	1	50	2.3	6 - 50	098-003582-00000
970		120	3.1	50 - 120	098-003583-00000



**Manual pliers for Al and Cu cables**

<b>Length</b>	<b>PU</b>	<b>Version</b>	<b>Weight</b>	<b>Cutting diameter max.</b>	<b>Item no.</b>
<b>mm</b>	<b>Units</b>		<b>kg</b>	<b>mm</b>	
280	1	-	0.6	14.0	098-004208-00000
600		Replaceable cutting heads	1.8	26	098-004207-00000



## Welding accessories ● Electrode dryers

### Packaging sleeve for TIG rods



- Square (35 x 35 mm) plastic packaging sleeve
- Twist-lock locking technology
- Grid length adjustment from 730 mm to 1010 mm
- Resealable and reusable

Item no.
398-005917-00000

### Portable electrode dryer ● SET-1/230



- Portable electrode dryer, ideal for construction sites
- Temperature approx. 100 °C at 20 °C room temperature
- Capacity: 1 package stick electrodes
- Double-walled casing
- Including electrode carrying basket
- Interior completely stainless steel
- Well insulated
- Connection cable with shock-proof plug at 230 V

<b>Temperature</b>	100 °C
<b>Weight</b>	ca.6 kg
<b>Dimensions (height x width x depth)</b>	555 mm x 140 mm x 140 mm

PU	Item no.
<b>Units</b>	
1	398-002657-00000

### Portable electrode dryer ● SET-1/230TR



- Portable electrode dryer with thermostatic control, ideal for construction sites
- Infinitely variable temperature from 30–150 °C
- Capacity: 1 package stick electrodes
- Double-walled casing
- Including electrode carrying basket
- Interior completely stainless steel
- Well insulated
- Connection cable with shock-proof plug at 230 V

<b>Temperature</b>	30 °C - 150 °C
<b>Weight</b>	ca.8 kg
<b>Dimensions (height x width x depth)</b>	585 mm x 150 mm x 180 mm

PU	Item no.
<b>Units</b>	
1	398-002658-00000

### Electrode dryer, heavy duty design • SET-2/230

- Portable electrode dryer, ideal for construction sites
- Capacity: 2 packages stick electrodes
- Infinitely variable temperature up to 300 °C
- Double-walled casing and cover
- Well insulated
- Thermostat with control light
- Interior completely stainless steel
- Connection cable with shock-proof plug at 230 V

<b>Temperature</b>	300 °C
<b>Weight</b>	ca.14 kg
<b>Dimensions (height x width x depth)</b>	690 mm x 270 mm x 230 mm

PU	Item no.
Units	
1	398-002659-00000



### Electrode dryer, heavy duty design • SET-4/230

- Portable electrode dryer, ideal for construction sites
- Capacity: 4 packages stick electrodes
- Infinitely variable temperature up to 300 °C
- Double-walled casing and cover
- Well insulated
- Thermostat with control light
- Interior completely stainless steel
- Connection cable with shock-proof plug at 230 V

<b>Temperature</b>	300 °C
<b>Weight</b>	ca.18 kg
<b>Dimensions (height x width x depth)</b>	690 mm x 310 mm x 270 mm

PU	Item no.
Units	
1	398-002660-00000



### Electrode dryer, heavy duty design • SET-10/230

- Portable electrode dryer, ideal for construction sites
- Capacity: 10 packages stick electrodes
- Infinitely variable temperature up to 300 °C
- Double-walled casing and cover
- Well insulated
- Thermostat with control light
- Interior completely stainless steel
- Connection cable with shock-proof plug at 230 V

<b>Temperature</b>	300 °C
<b>Weight</b>	ca.18 kg
<b>Dimensions (height x width x depth)</b>	690 mm x 410 mm x 370 mm

PU	Item no.
Units	
1	398-002661-00000





## Welding accessories ● Electrode dryers

### Stationary electrode dryer ● SET-50/4



- Stationary electrode dryer
- Temperature adjustable up to 400 °C
- Capacity: approx. 50 packages stick electrodes
- Four shelves with five separate electrode compartments each allow tidy storage of several electrode types
- Casing and door double-walled
- Well insulated
- Thermostat with control light
- Interior completely stainless steel
- Connection cable with shock-proof plug at 230 V

<b>Temperature</b>	400 °C
<b>Weight</b>	ca.146 kg
<b>Dimensions (height x width x depth)</b>	1080 mm x 740 mm x 810 mm

PU	Item no.
<b>Units</b>	
1	398-002662-00000

### Electrode carrying basket



- Electrode carrying basket for easy electrode removal

PU	Version	Item no.
1	Suitable for set 1/220	398-002663-00000
	Suitable for set 2/220	398-002664-00000
	Suitable for set 4/220	398-002665-00000
	Suitable for set 10/220	398-002666-00000

### Electrode quiver



- For approximately 30 electrodes up to 2.5 mm Ø
- Unheated
- With snap hook for attaching to a belt

PU	Item no.
<b>Units</b>	
1	398-002667-00000

### Electrode storage cabinet • SEL

- Electrode storage cabinet for storing dried electrodes
- Storage capacity: 650 kg welding electrodes maximum
- Robust steel panel construction cabinet casing
- 7 stationary shelves
- Double door, lockable with safety lock
- Paintwork: pebble grey paint RAL 7032
- Temperature inside the cabinet using electrical heating: approx. 30 °C



**Dimensions (height x width x depth)**

1950 mm x 950 mm x 500 mm

PU	Item no.
Units	
1	398-002668-00000



Whether metal production, shipbuilding, motor vehicle assembly, welding, metalworking, structural engineering or the timber industry – with the leading market experts **LA-CO Industries Inc.** you will find the right marker for your industry.



SL.100    SL.250    PRO-LINE® HP    Quik Stik®/Mini    B® Paintstik®    Stylmark®

Aluminium	x		x			x	
Asphalt						x	
Structural and sawn timber				x	x		
Concrete							
Concrete and stone	x			x	x	x	
Non-ferrous metals	x					x	
Stainless steel	x	x					
Iron	x		x	x	x	x	
Tiles	x						
Glass	x			x	x		
Rubber							
Rubber and tyres	x		x	x	x	x	
Wood							
Ceramic	x			x			
Plastic	x		x	x	x	x	
Alloys and superalloys	x	x					
Alloying metals		x					
Masonry						x	
Cardboard	x						
Boards	x					x	
Pipes and tubes	x		x	x	x	x	
Rusty metal						x	
Steel	x		x	x	x	x	
Cloths, fabrics (textiles)	x						





HT.1000

ST.2100

Red-Riter

FM.400

FM.120

FM.213

	x		x	x		
						x
						x
				x		
x						
	x		x			
x			x			x
				x		x
				x		x
				x		x
		x				
	x					
	x					
x						
x		x	x	x	x	x
			x			

\*The products shown here represent only a selection of the full Markal product range.

Using the Find Marker button, you can quickly and easily find and buy from us the perfect marker for your tasks with only a few clicks.



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## Welding accessories ● Measuring and marking tools

### Clutch pencil ● Markal Trades-Marker Dry Set



- Deep loch markers in stronger metal version with extra long tip (45mm)

#### Set consists:

- Casing
- Retaining clip
- Integrated refill sharpener
- Per 2 color refill in yellow and red
- 2 graphite refill

#### Item no.

398-009612-00000



- 398-009615-00000 - Refill yellow
- 398-009613-00000 - Refill graphite
- 398-009614-00000 - Refill redw

### Paint marker ● SL.100



- Paint marker with xylene-free paint
- Xylene-free paint reduces user health risks
- Extremely long service life thanks to robust and abrasion-resistant round tip
- Unnecessary waiting times are reduced by using fast drying, abrasion-resistant, permanent paint for immediate further processing

#### Temperature range approx.

-20 °C - 50 °C

#### Temperature resistance of marking

100 °C

#### Marking width

3 mm

Colour	PU Units	Item no.
Blue	12	398-001503-00000
Yellow		398-001501-00000
Green		398-001504-00000
Black		398-001505-00000
White		398-001500-00000
Red		398-001502-00000

### Liquid paint marker for stainless steel • SL.250

- Paint marker for stainless steel and other alloy metals where corrosion resistance is important
- Xylene-free paint reduces user health risks
- Extremely long service life thanks to robust and abrasion-resistant round tip
- Unnecessary waiting times are reduced by using fast drying, abrasion-resistant, permanent paint for immediate further processing



<b>Temperature range approx.</b>	-20 °C - 50 °C
<b>Temperature resistance of marking</b>	100 °C
<b>Marking width</b>	3 mm

Colour	PU Units	Item no.
Blue	12	398-001509-00000
Yellow		398-001507-00000
Green		398-001510-00000
Red		398-001508-00000
Black		398-001511-00000
White		398-001506-00000

### Paint marker for oily and greasy surfaces • PRO-LINE® HP

- The high-quality paint penetrates oils and greases, dries quickly and leaves behind strong, permanent markings, which are abrasion-resistant, weather-resistant and non-fading
- Robust metal casing and tip mean less breakage and longer marker service life
- Easy to store in a pocket thanks to the ergonomic clip cap



<b>Temperature range approx.</b>	-46 °C - 66 °C
<b>Marking width</b>	3 mm

Colour	PU Units	Item no.
White	12	398-002401-00000
Yellow		398-002402-00000
Red		398-002403-00000
Black		398-002404-00000

### Gel marker, fast drying with twist-off cap • Quik Stik®

- Gel marker for markings on practically any surface, whether wet, smooth, rough or hot
- 20% more paint than in other markers, higher cost-effectiveness per marking
- Fast drying, intense markings in 5 to 7 minutes
- Weather- and UV-resistant paint for permanent markings



<b>Temperature range approx.</b>	-18 °C - 200 °C
<b>Marking width</b>	6 mm

Colour	PU Units	Item no.
Blue	12	398-001545-00000
Yellow		398-001542-00000
Green		398-001577-00000
Red		398-001543-00000
Black		398-001544-00000
White		398-001541-00000



## Welding accessories ● Measuring and marking tools

### Gel marker, fast drying with twist-off cap ● Quik Stik® Mini



- Gel marker, ideal for finer line markings on smooth or rough surfaces
- Low health risks thanks to the xylene- and ethylene glycol monobutyl ether-free formula
- Compact design, particularly suitable for comfortable transport in a pocket or a tool belt
- Fast drying, intense markings in 5 to 7 minutes
- Weather- and UV-resistant paint for permanent markings

<b>Temperature range approx.</b>	-18 °C - 200 °C
<b>Marking width</b>	6 mm

Colour	PU Units	Item no.
White	12	398-001546-00000
Yellow		398-001547-00000
Red		398-001548-00000
Black		398-001549-00000

### Solid paint marker ● B® Paintstik®



- Solid paint marker for high-quality markings on rough, rusty or soiled surfaces
- Real paint ensures permanent, clearly visible markings
- The solid paint marker makes replacement tips and sharpening or priming dispensable and thus increases productivity
- Weather- and UV-resistant paint for permanent markings

<b>Temperature range approx.</b>	-46 °C - 66 °C
<b>Marking width</b>	17 mm

Colour	PU Units	Item no.
Red	12	398-001540-00000
White		398-002405-00000
Yellow		098-004161-00000

### Tube marker ● Stylmark®



- Metal ball tube marker with indelible ink
- Marks smooth and raw surfaces with abrasion-resistant paint
- Extremely durable round steel tip
- Strong, bright colours are weather-, water- and UV-resistant
- Excellent bond on oily and wet surfaces
- High-quality paint formula for non-drip overhead working and for working on vertical surfaces

<b>Temperature</b>	-20 °C - 70 °C
<b>Temperature resistance of marking</b>	200 °C
<b>Marking width</b>	2 mm

Colour	PU Units	Item no.
Blue	12	398-001515-00000
Yellow		398-001513-00000
Green		398-001516-00000
Red		398-001514-00000
Black		398-001517-00000
White		398-001512-00000

### Tube marker • HT. 1000

- Metal ball tube marker with high-temperature paint, ideal for welds, blooms, cast, forged and other hardening components
- Permanent, abrasion-resistant paint for permanent markings
- The robust round steel tip marks on rough or smooth surfaces
- High-quality paint formula for non-drip overhead working and for working on vertical surfaces



<b>Temperature range approx.</b>	-20 °C - 70 °C
<b>Temperature resistance of marking</b>	1000 °C
<b>Marking width</b>	3 mm

Colour	PU Units	Item no.
Yellow	12	398-001531-00000
White		398-001530-00000

### Tube marker for stainless steel • ST.2100

- Metal ball tube marker for stainless steel and other alloy metals where corrosion resistance is important
- The low-sulphur and -chloride paints are weather-, water- and UV-resistant
- High-quality paint formula for non-drip overhead working and for working on vertical surfaces

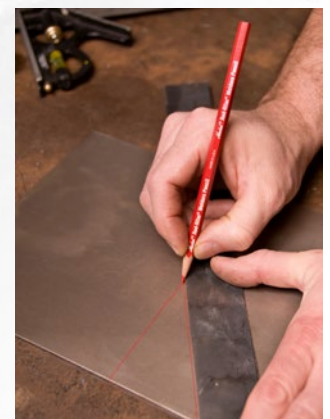


<b>Temperature range approx.</b>	-20 °C - 70 °C
<b>Temperature resistance of marking</b>	200 °C
<b>Marking width</b>	3 mm

Colour	PU Units	Item no.
Blue		398-001535-00000
Yellow		398-001533-00000
Green	12	398-001536-00000
Red		398-001534-00000
Black		398-001537-00000
White		398-001532-00000

### Welder's pencil • Red-Riter®

- Welder's pencil with reflecting lead
- The reflecting lead is bright during milling or welding and is thus more easily visible
- Markings are resistant to the welding torch flame, are abrasion-resistant, do not burn and remain on the surface
- The permanent markings leave neither scratches nor abrasion marks on metal surfaces
- The lead can be resharpened with any traditional pencil sharpener



<b>Colour</b>	Red
<b>PU Units</b>	12
<b>Item no.</b>	398-001550-00000



## Welding accessories ● Measuring and marking tools

### Soapstone crayon ● FM.400



- Soapstone crayon for writing on hot metals
- The markings are visible through the face mask while welding and thus allow easy recognition and working
- High heat resistance
- The markings do not soil the welding location and do not damage the metal surface
- Temporary markings can be easily removed

**Colour** White

PU Units	Item no.
50	098-000605-00000

### Marking chalk ● FM.120



- Wax-based marking chalk
- The markings are weather-resistant, non-fading and remain visible for a long time

Colour	PU Units	Item no.
Blue		398-001555-00000
Yellow		398-001553-00000
Green	12	398-001556-00000
Red		398-001554-00000
White		398-001552-00000

### Temperature indicating pen ● Tempilstik®



- Temperature indicating pens with calibrated melting point
- Exact, fast method for identifying surface temperatures
- Pen melts immediately at the given temperature and allows simple and immediate visible control
- No calibration, 100% reliability
- NIST-conforming accuracy, +/-1%
- Printed part number, temperature and batch code over the entire pen ensure better controllability
- **Surfaces:** steel, iron, aluminium, stainless steel, glass, plastics and ceramics
- *Other temperature ranges available on request*



PU Units	Temperature °C	Item no.
1	65	098-003373-00000
	76	098-003374-00000
	100	098-003375-00000
	120	098-003376-00000
	150	098-003563-00000
	177	098-003991-00000
	204	398-001557-00000
	225	398-000265-00000
	290	098-003378-00000
	300	098-003379-00000
	316	098-002127-00000
	371	398-001579-00000
	600	098-003382-00000
	677	398-001558-00000



### Weldable anti-corrosion coating • Bloxide®

- Versatile primer suitable for welding with unique, aluminium-based formula – cleaning and removal prior to welding are no longer necessary
- Improved corrosion resistance for longer storage
- Aluminium-based formula allows welding without prior removal
- Less downtime and finishing work due to impurities
- High thermal resistance up to 427 °C (800 °F)
- For spraying, painting or dipping components
- **Surfaces:** steel, iron, aluminium, stainless steel

<b>Temperature resistance</b>	427 °C
-------------------------------	--------

PU	Contents	Item no.
<b>Units</b>		
1	3.97 l	398-001573-00000
	350 ml	398-001574-00000

**Tempil®**



3

### High-temperature coating • Pyromark®

- High-temperature paint with silicon-based coatings for long-term protection against oxidation and corrosion
- Improves heat transfer in infrared heating systems thanks to the high radiation capacity
- Solar absorption capacity of 0.95 ideally suitable as coating for solar generators
- **Surfaces:** iron, steel, pipes, ceramics, brick/stone

<b>Colour</b>	Matt black
<b>Contents</b>	3.79 l

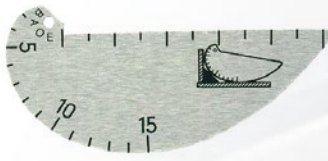
PU	Temperature resistance	Item no.
<b>Units</b>	°C	
1	538	398-001575-00000
	1093	398-001576-00000

**Tempil®**



## Welding accessories ● Measuring and marking tools

### Aluminium welding seam gauge



- Welding seam gauge for measuring flat and edge welds
- Scales and application instructions printed on both sides

**Version** Aluminium sheet

PU	Item no.
Units	
1	098-001267-00000

### Stainless steel welding seam gauge



- Welding seam gauge with magnifier, for high reading accuracy
- Simple and quick control of the weld seam dimensions, reading precision +/- 0.1 mm

**Version** Precision +/-0.1 mm

PU	Item no.
Units	
1	098-001273-00000

### Welding seam gauge, fan-shaped

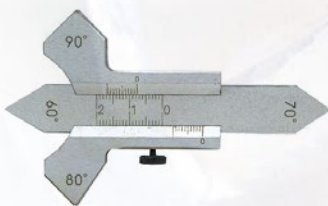


- 12-sheet welding seam gauge
- 12 sheets for measuring the weld seam on right angled welded corners

**Version** Fan-shaped

PU	Item no.
Units	
1	098-001292-00000

### Welding seam gauge, precision model



- Precision model for measuring flat welds and welds in corners

**Version** With nonius

PU	Item no.
Units	
1	098-001293-00000

### Digital welding seam gauge



- Callibration on request and about extra charge
- Digital welding seam gauge
- Precision version for measuring of flat and corner weld seams
- Angles: 60°, 70°, 80° and 90° for inspecting the single-V butt weld on flat welds
- Measuring accuracy +/- 0.01 mm (millimetre/inch scale)

**Version** Precision +/-0.01 mm  
Digital display

PU	Item no.
Units	
1	098-003619-00000

### Vernier calliper

- Calibration on request and about extra charge
- Pocket vernier calliper with stainless steel locking screw
- For internal, external and depth measurements
- Scale and vernier matt chromium plated
- 1/20 vernier scale



<b>Standards</b>	DIN 862
<b>Measurement range</b>	150 mm
<b>Jaw length</b>	40 mm

PU	Item no.
Units	
1	4000851011

### Digital vernier calliper

- Calibration on request and about extra charge
- Digital vernier callipers with stainless steel locking screw
- For internal, external and depth measurements
- Easily readable numbers, height: 8 mm
- The capacitive measuring system is protected against dirt and damage on the measuring bar
- Beam, jaws and tips are hardened
- Scale 0.01 mm/0.0005 inch
- mm/inch selectable

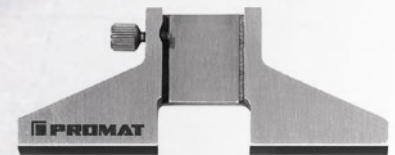


<b>Standards</b>	DIN 862
<b>Measurement range</b>	150 mm
<b>Jaw length</b>	40 mm

PU	Item no.
Units	
1	4000851070

### Measuring bridge • Measuring bridge length 75 mm

- Bridge length 75 mm
- Made from hardened steel
- Suitable for all PROMAT pocket vernier callipers



Item no.
4000851027

### Precision set square

- Calibration on request and about extra charge
- Steel set square with stop plate
- Machined all round
- Suitable for inspection and control tasks

<b>Standards</b>	DIN 875/01
------------------	------------

Leg length mm	PU Units	Item no.
100 x 70	1	4000858436
200 x 130		4000858438





Precision knife-edge square



- Kalibrierung auf Anfrage und gegen Aufpreis
- Special steel knife-edge square in flat design
- With precision measuring knife-edges, finely ground and lapped
- Suitable for control and measuring rooms

<b>Standards</b>	DIN 875/00
<b>Leg length</b>	100 mm x 70 mm

PU	Item no.
<b>Units</b>	
1	4000858387

Scriber



- Hexagonal scriber with brazed cemented carbide tip and clip

<b>Length</b>	150 mm
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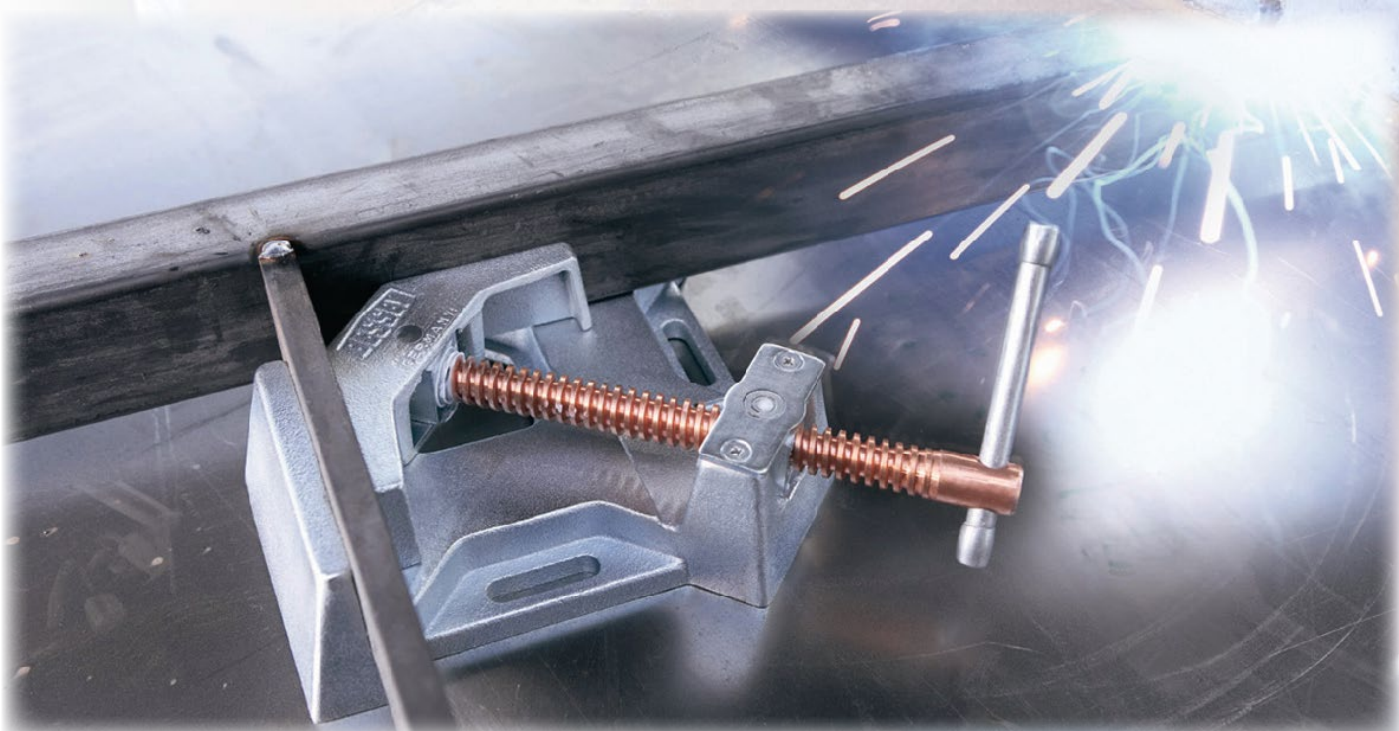
PU	Item no.
<b>Units</b>	
1	4000858999

Angle clamp



- Metal angle clamp with robust jaws, high-quality cast body
- Copper-plated spindle prevents adhesion of weld spatter
- Exact 90° angle
- Universal clamping tool for securing right-angled components
- Easily attached to welding and machine tables thanks to slot welds on side

Span min/max mm	Opening max. mm	PU Units	Weight kg	Item no.
2 x 90	60	1	ca.3.6	4000831563
2 x 120	100		ca.7.8	4000831564

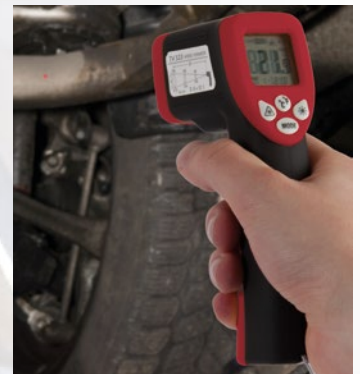


### Infrared thermometer • TESTBOY TV 323

- Infrared thermometer, LCD display with backlighting
- Uncomplicated handling
- Large temperature range
- Casing of impact- and breakage-resistant ABS plastic
- Highly suitable for daily use in trade and industry
- Scope of supply: incl. batteries
- **Advantages:**
- Data hold function
- Auto power off
- Min/max value display
- With selectable laser pointer

<b>Dimensions</b>	152 mm x 94 mm x 38 mm
<b>Colour</b>	Red/black
<b>Weight</b>	127 g
<b>Operating temperature</b>	50 °C
<b>Measurement range</b>	-50 °C - 550 °C
<b>Measurement accuracy deviation</b>	2 °C
<b>Response time within</b>	1 s
<b>Switches off automatically after approx.</b>	10 s

<b>Item no.</b>
398-002729-00000



3

### Infrared thermometer with adjustable emission value • TESTBOY TV 325

- Infrared thermometer with adjustable emission value
- LCD display with backlighting
- Suitable for use in trade/industry, vehicle workshops, central heating systems, refrigeration and air conditioning systems and electrical trade
- Casing of impact- and breakage-resistant ABS plastic
- Delivery including batteries, ever-ready case and K-type sensor
- **Benefits for you:**
- Min/max value memory/alarm function
- Adjustable emission level
- Mean value determination
- Connection for commercial K-type sensors

<b>Dimensions</b>	146 mm x 133 mm x 49 mm
<b>Colour</b>	Red/grey
<b>Weight</b>	222 g
<b>Operating temperature</b>	50 °C
<b>Measurement range</b>	-60 °C - 500 °C
<b>Measuring range with K-type sensor</b>	-64 °C - 1400 °C
<b>Response time within</b>	0.5 s
<b>Switches off automatically after approx.</b>	10 s

<b>Item no.</b>
398-002728-00000





## Welding accessories

### Surface-mounted sensor



- Surface sensor for Testboy TV 325

<b>Measurement range</b>	-50 °C - 400 °C
<b>Tolerance +/-</b>	2,2 °C

Version	Item no.
straight	398-002819-00000
Curved	398-002818-00000

### Infrared thermometer with 30:1 measuring optics • TESTBOY TV 327



- Infrared thermometer with 30:1 measuring optics and additional connection for K-type sensor
- Highly suited for measurements from larger distances thanks to the 30:1 measuring optics
- Colour LCD display
- Casing of impact- and breakage-resistant ABS plastic
- Delivery including operating instructions, ever-ready case, K-type sensor
- **Advantages:**
- Measured data memory
- Large infrared measuring range
- Connection for commercial K-type sensors
- Min/max value memory/alarm function
- Adjustable emission level
- Mean value determination

<b>Dimensions</b>	125 mm x 176 mm x 47 mm
<b>Weight</b>	275 g
<b>Operating temperature</b>	50 °C
<b>Measurement range</b>	-50 °C - 760 °C
<b>Measuring range with K-type sensor</b>	-50 °C - 1400 °C
<b>Response time within</b>	0.5 s
<b>Switches off automatically after approx.</b>	30 s

Item no.
398-002727-00000

### Set: magnetic field meter, including Hall effect sensor • H1-4 SET



- Magnetic field meter for measuring magnetic direct and alternating fields
- Three possible measuring ranges: 20 mT, 200 mT and 2000 mT
- Hand-held unit for operation with mains, battery or power-pack
- LCD digital display
- Measuring accuracy:  $\pm 2\%$  of measured value  $\pm 1$  digit using internal calibration voltage, better than  $\pm 1\%$  of measured value  $\pm 1$  digit using calibrated comparison magnet
- Resolution: 0.01 mT
- Output:  $\pm 199.9$  mV analogue output corresponding to 1,999 digits, connection for analogue display, X-Y plotter and A-D converter
- Operating time: about 100 hours with dry-cell battery, about 50 hours with power-pack charge (power pack not included)

PU	Item no.
1	092-002937-00000



## VideoFlex video inspection camera • Video inspection camera videoFI

- Professional video inspection system with replaceable camera unit
- For checking difficult-to-access points using small camera head
- REC function image and video
- 180° image rotation
- Waterproof camera head and cable
- Bright object illumination with 4 high-performance lights
- Reduction of extraneous light thanks to high-contrast LCD
- TV out connection



PU	Item no.
1	4000857990

## Interior control unit, full set

- For inspecting difficult-to-access points in the pipe or component
- **Set consists of:**
- Battery grip with sliding switch incl. batteries
- Lamp holder
- Straight extension, approx. 300 mm long
- Flexible sensor, approx. 200 mm long
- Flexible sensor, approx. 300 mm long
- Mirror with ball joint and collet  $\varnothing$  16 mm
- Mirror with ball joint and collet  $\varnothing$  22 mm
- Mirror with ball joint and collet  $\varnothing$  30 mm
- Mirror with ball joint and collet  $\varnothing$  50 mm
- Stainless-steel finger lamp
- $\varnothing$  30 mm mirror with ball joint and clip
- Carry case with foam inserts



Dimensions (length x width x height) cm	PU	Item no.
28 x 37 x 13	1	398-005759-00000

Aluminium adhesive tape • Gerband 712



- **Substrate:**
- Aluminium foil, annealed; 0.05 mm thick
- **Adhesive:**
- Polyacrylate adhesive
- Highly cross-linked
- High bonding strength
- High shear strength (> 24 h at 0.5 kg/625 mm<sup>2</sup>/70 °C)
- Non-flammable
- Excellent ageing resistance; the strength of the bond increases with time
- **Separating layer:**
- PE foil
- **Applications:**
- Bonding under high temperature loads and shear forces
- Insulation against heat and cold
- For wrapping pipes, heating and fresh air ducts
- For sealing containers and pipes when welding under shielding gas (backing)

<b>Standards</b>	DIN 4102 Part 1 Class A2 / DIN 4102 Part 1 Class B1
<b>Temperature resistance</b>	-40 °C - 140 °C
<b>Short-term load to approx.</b>	180 °C
<b>Material</b>	Aluminium foil, polyacrylate adhesive, PE foil
<b>Elongation at tear</b>	≥5 %

Dimensions (width x length)	Item no.
25 mm x 50 m	098-002562-00000
30 mm x 50 m	098-004385-00000
38 mm x 50 m	398-000047-00000
50 mm x 50 m	098-000366-00000
75 mm x 50 m	398-001960-00000
100 mm x 50 m	398-001961-00000

Special pliers • Welper pliers



- Internationally patented model
- Stable design
- Can be used flexibly with 7 different functions

Length cm	Item no.
18	398-001725-00000
21	398-001725-00002

### CO2special-purpose pliers • Original FIX®

- Shielding gas nozzle cleaning and assembly pliers
- Rapid and true-to-size cutting of the welding wire
- Time-saving cleaning of the shielding gas nozzle
- Removal of the shielding gas nozzle
- Releasing and tightening of the contact tip



<b>Material type</b>	Special steel
<b>Characteristics</b>	Cleans nozzles, cuts wire, integrated torch key
<b>Approvals</b>	CE

Gas nozzle diameter mm	PU Units	Item no.
12 - 15	1	098-000406-00000
15 - 18		098-001284-00000

### MIG/MAG torch holder • Original FIX®

- Handy Support Original FIX®
- Gentle contact points
- Powder-coated aluminium
- Complete with magnetic foot

PU Units	Item no.
1	098-004206-00000



### TIG torch holder • Original FIX®

- Handy Support Original FIX®
- Optimal protection thanks to rubber lip
- Galvanised steel
- Complete with magnetic foot

PU Units	Item no.
1	098-003552-00000



### Gas nozzle cleaner

- Nozzle cleaner for MIG/MAG welding torches
- Deposits inside the nozzle are removed by rotating the nozzle cleaner

PU Units	Item no.
1	098-000407-00000





Chipping hammer



- All-steel chipping hammer
- Tip and cutting edge ground and tempered
- Forged to DIN 5133
- Green painted

<b>Material type</b>	All-steel
<b>Standards</b>	DIN 5133

Ø mm	PU Units	Version	Weight g	Item no.
20.0	1	Round tube	400	098-004191-00000
28		Oval tube	450	098-001556-00000

Chipping hammer with wooden handle



- Chipping hammer with ash wooden handle and steel wedge
- Sharpened and hardened

<b>Material type</b>	Wooden handle
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PU Units	Weight g	Item no.
1	460	098-001552-00000
	230	098-001551-00000

Steel wire brush



<b>Material type</b>	Steel wire
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PU Units	Version	Item no.
1	2-rowed	098-001243-00000
	3-rowed	098-001242-00000
	4-rowed	098-001245-00000
	5-rowed	098-001246-00000
	6-rowed	098-001247-00000

Stainless steel wire brush



<b>Material type</b>	Stainless-steel wire
----------------------	----------------------

PU Units	Version	Item no.
1	2-rowed	098-001250-00000
	3-rowed	098-001251-00000
	4-rowed	098-001252-00000
	5-rowed	098-001253-00000

### Fillet weld brush

<b>Version</b>	3-rowed, fillet weld		
<b>Material type</b>	<b>PU Units</b>	<b>Item no.</b>	
Steel wire	1	098-001248-00000	
Stainless-steel wire		098-001249-00000	

**LESSMANN**<sup>®</sup>  
THE GERMAN BRUSH COMPANY



### Brass wire brush

<b>Material type</b>	Brass wire		
<b>PU Units</b>	<b>Version</b>	<b>Item no.</b>	
1	2-rowed	098-001254-00000	
	3-rowed	098-001255-00000	
	4-rowed	098-001256-00000	
	5-rowed	098-001257-00000	

**LESSMANN**<sup>®</sup>  
THE GERMAN BRUSH COMPANY



### Hand brush

<b>Material type</b>	Steel wire		
<b>Version</b>	4-rowed		
<b>Dimensions (width x length)</b>	35 mm x 320 mm		
<b>Bristle dimensions (width x length)</b>	60 mm x 150 mm		
<b>PU Units</b>	<b>Item no.</b>		
1	398-002477-00000		

**LESSMANN**<sup>®</sup>  
THE GERMAN BRUSH COMPANY



### Brake calliper brush

<b>Material type</b>	Steel wire		
<b>Version</b>	2x 13 rows		
<b>Dimensions (width x length)</b>	12 mm x 225 mm		
<b>Bristle dimensions (width x length)</b>	22 mm x 90 mm		
<b>PU Sp.</b>	<b>Item no.</b>		
10	398-000895-00000		

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THE GERMAN BRUSH COMPANY



## Welding accessories ● Tools and auxiliaries

### Round braided wire brush, single row, stainless steel wire

**LESSMANN**<sup>®</sup>  
THE GERMAN BRUSH COMPANY



<b>Material type</b>	Stainless-steel wire
<b>Toolholder</b>	22,2 mm
<b>Number of braids</b>	20 St.
<b>Revolutions</b>	12500 U/min

Outside Ø mm	Brush head Ø mm	Braid length mm	PU Units	Item no.
115	14.0	24	1	098-004662-00000
125		29		398-000233-00000

### Round braided wire brush, single row, steel wire

**LESSMANN**<sup>®</sup>  
THE GERMAN BRUSH COMPANY



<b>Material type</b>	Steel wire
<b>Toolholder</b>	22,2 mm
<b>Number of braids</b>	20 St.
<b>Revolutions</b>	12500 U/min

Outside Ø mm	Brush head Ø mm	Braid length mm	PU ro	Item no.
115	14.0	24	1	398-004851-00000
125		29		398-004852-00000

### Magnetic welding mirror

<b>Version</b>	Chrome-plated
----------------	---------------



PU Units	Material thickness mm	Item no.
10	1.0	098-000410-00000
	1.5	098-001569-00000

### Hand welding mirror

<b>Version</b>	Chrome-plated Standard
----------------	---------------------------



PU Units	Material thickness mm	Item no.
10	1.0	098-001564-00000
	1.5	098-001566-00000



### Hand welding mirror, flexible

- Hand welding mirror

Version

Chrome-plated  
Flexible

Material thickness mm	Item no.
1.0	098-001565-00000
1.5	098-001567-00000



### Replacement welding mirror

Material thickness

1 mm

Item no.	PG	Price Per unit
098-000411-00000	HW8	stk



### Magnetic pick-up tool • Universal

Ø

12 mm

Item no.

098-001577-00000



### Panel clamp

- Panel clamps, galvanised

Version

As welding aid  
With riveted fibre plates

Length

155 mm

Item no.

098-003570-00000



## Welding accessories ● Tools and auxiliaries

### Cleaning felts, set



- Cleaning felts for shielding gas welding wire (steel wire)
- Set consists of 4 felts and 1 retaining clamp

PU	Item no.
Units	
1	394-000784-00000

### Cleaning felts



- Cleaning felts for shielding gas welding wire (steel wire)

PU	Item no.
Units	
25	394-000780-00000

### Retaining clamps



- Retaining clamps for cleaning felts

PU	Item no.
Units	
12	098-003410-00000





## Welding accessories ● Ceramic backing bars

Ceramic backing bar on aluminium tape, length 600 mm

One-sided welding on ceramic is of major economic advantage for the user

Increased welding power and better quality welded joints

### Features:

Root welding in a spray arc – high quality of the root pass

No grinding, no gouging, deep penetration, less lack of fusion

### Application:

Depending on the welding task, there are many different ceramic backing bars to choose from

- Cylinder shape in various diameters
- Flat shape with trapezoidal or semi-circular groove

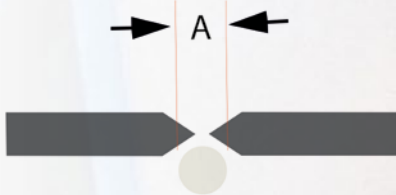
Special shapes

### Backing bar aluminium tape 102 mm x 12.5 m ● „Fiback“ aluminium tape



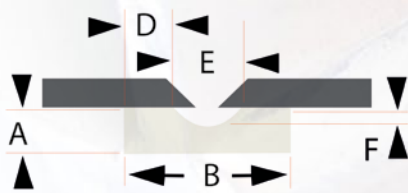
Dimensions (width x length)	Power	Item no.
	<b>A</b>	
64 mm x 25 m	200	398-008278-00000
102 mm x 25 m		398-008279-00000
64 mm x 12,5 m	600	398-008280-00000
102 mm x 12,5 m		398-008281-00000

### Ceramic backing bar, round



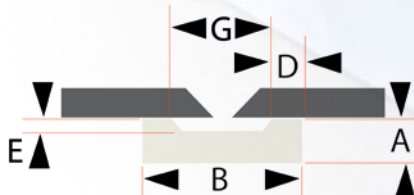
Length mm	A mm	PU m	Item no.
600	6,3	12	398-003200-00000
	9,5		398-000551-00000
	12,7		398-001147-00000
	15,9		398-001316-00000

### Ceramic backing bar, half-round groove



Length mm	A mm	B mm	D mm	E mm	F mm	PU m	Item no.
600	6,3	25,4	9,5	6,3	1,6	12	398-000915-00000
			7,9	9,5	1		398-001148-00000
			7,2	11,1			398-003001-00000
	9,5	31,7	10,3	11,1	1,6	9	398-002501-00000
			7,2	17,5			398-004385-00000

### Ceramic backing bar, trapezoidal groove



Length mm	A mm	B mm	D mm	E mm	G mm	PU m	Item no.
600	6,3	25,4	4,0	1,6	11,1	12	398-004577-00000

## Quick-release pipe clamp

- Quick-release pipe clamp for centring pipes
- Easily install and centrally clamp pipes for welding
- Highly suited for use at construction sites thanks to low weight
- Centre and clamp pipes without length limitation, as well as pipe elbows, flanges, T-pieces, reducers and other mouldings on pipes
- Can be used for all common materials such as structural steel, stainless steel, Duplex, Super Duplex and titanium
- Does not scratch pipes thanks to the stainless steel balls on the clamping screws



Weight kg	Clamping range mm	PU Units	Item no.
1.5	26 - 76	1	398-006000-00000
3.1	51 - 127		398-006001-00000
3.3	102 - 177		398-006002-00000
6.9	127 - 228		398-006003-00000
8.8	254 - 355		398-006004-00000

## Medium-heavy, single chain clamp, complete system

- Single chain clamping system for easily clamping pipe-to-pipe, pipe-to-pipe elbow, pipe-to-T-piece or pipe-to-flange
- Delivery including turnbuckle & end element
- Can be used flexibly thanks to low weight
- The clamping system is suitable for pipes up to 1/2" (12 mm) wall thickness and develops a clamping force of 2500 kg
- Stainless steel levers
- Easy to fit to pipes from 8" by adding or removing levers



Clamping range Inch	PU Units	Number of levers St.	Item no.
8 - 10	1	5.0	398-006010-00000
8 - 12		6.0	398-006011-00000
8 - 16		7.0	398-006012-00000
8 - 20		9.0	398-006013-00000
8 - 24		11.0	398-006014-00000
8 - 28		13.0	398-006015-00000
8 - 32		14.0	398-006016-00000
8 - 36		16.0	398-006017-00000
8 - 40		18.0	398-006018-00000
8 - 44		19.0	398-006019-00000
8 - 48		21	398-006020-00000
8 - 52		23	398-006021-00000
8 - 56		25	398-006022-00000
8 - 60		26	398-006023-00000

## ■ Replacement parts



Item	Designation	PU Units	Item no.
1	Turnbuckle	1	398-006061-00000
2	Single lever	1	398-006062-00000
3	Two-piece end element	1	398-006063-00000
4	Three-piece extension element	1	398-006064-00000

Medium-heavy, double chain clamp, complete system



- Double chain clamping system for easily clamping pipe-to-pipe, pipe-to-pipe elbow, pipe-to-T-piece or pipe-to-flange
- Delivery including turnbuckle & end element
- Can be used flexibly thanks to low weight
- The clamping system is suitable for pipes up to 1/2" (12 mm) wall thickness and develops a clamping force of 2500 kg
- Stainless steel levers
- Easy to fit to pipes from 8" by adding or removing levers

Clamping range Inch	PU Units	Number of levers St.	Item no.
8 - 12	1	6.0	398-006024-00000
8 - 16		7.0	398-006025-00000
8 - 20		9.0	398-006026-00000
8 - 24		11.0	398-006027-00000
8 - 28		13.0	398-006028-00000
8 - 32		14.0	398-006029-00000
8 - 36		16.0	398-006030-00000
8 - 40		18.0	398-006031-00000
8 - 44		19.0	398-006032-00000
8 - 48		21	398-006033-00000
8 - 52		23	398-006034-00000
8 - 56		25	398-006035-00000
8 - 60		26	398-006036-00000

■ Replacement parts



Item	Designation	PU Units	Item no.
1	Turnbuckle	1	398-006065-00000
2	Single lever	1	398-006066-00000
3	Two-piece end element	1	398-006063-00000
4	Three-piece extension element	1	398-006064-00000



### Internal centring device for flanges and pipes • IMC

- Manual internal clamping system, suitable for welding flanges to pipes
- For structural and stainless steel pipes

Weight kg	Inside Ø mm	PU Units	Item no.
1.4	56 - 140	1	398-006075-00000
4.0	85 - 220		398-006076-00000
12.0	120 - 315		398-006077-00000
27	180 - 520		398-006078-00000



### Internal centring device for flanges and pipe elbows • IMF

- Manual internal clamping system, suitable for clamping pipe-to-flange and flange-to-elbow
- Contact points made of stainless steel
- For structural and stainless steel pipes

Weight kg	Inside Ø mm	PU Units	Item no.
1.0	56 - 115	1	398-006080-00000
3.0	85 - 195		398-006081-00000
10.0	120 - 315		398-006082-00000
24	180 - 520		398-006083-00000

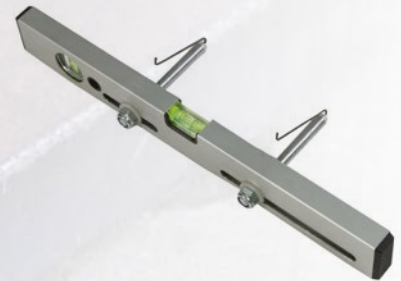


### Flange spirit level • Typ 500

- Flange spirit level for flanges with bolt diameters 16–32 mm
- Prevents incorrect positioning of components without additional aids
- The bolt spacing can be infinitely varied between 60–260 mm thus keeping bolt holes horizontal
- **Fields of application:**
  - Pipe construction
  - Boiler & container construction

<b>Dimensions (length x height x depth)</b>	400 mm x 50 mm x 23 mm
<b>Infinitely variable bolt spacing</b>	60 mm - 260 mm

PU Units	Item no.
1	398-006099-00000



Pipe stand • Fat Jack



- Foldable pipe stand
- Height adjustable from 810 mm to 1,820 mm
- Additional securing for V-head
- Delivery includes V-head

<b>Height</b>	810 mm - 1320 mm
<b>Weight</b>	17.6 kg
<b>Load capacity</b>	2270 kg
<b>Approvals</b>	CE

PU	Item no.
Units	
1	398-006089-00000

Fold-away pipe stand



- Foldable pipe stand
- Delivery including V-head and safety ring to prevent unexpected collapse and hand injuries
- Easy to place and transport
- Replaceable heads
- Different roller sets available

<b>Height</b>	750 mm - 1200 mm
<b>Weight</b>	11 kg
<b>Load capacity</b>	1130 kg
<b>Approvals</b>	CE

PU	Item no.
Units	
1	398-006085-00000

Stainless steel ball roller set



- Roller set for fold-away pipe stand (398-006085-00000)
- Please note that two rollers are always required for each tripod

<b>Pipe Ø</b>	12 mm - 610 mm
<b>Load capacity</b>	425 kg
<b>Weight per roller</b>	1.8 kg

PU	Item no.
Units	
1	398-006086-00000

Steel ball roller set



- Roller set for fold-away pipe stand (398-006085-00000)
- Please note that two rollers are always required for each tripod

<b>Pipe Ø</b>	10 mm - 610 mm
<b>Load capacity</b>	925 kg
<b>Weight per roller</b>	1.3 kg

PU	Item no.
Units	
1	398-006087-00000

## Polyethylene rollers

- Roller set for fold-away pipe stand (398-006085-00000)

Please note that two rollers are always required for each tripod

<b>Pipe Ø</b>	12 mm - 610 mm
<b>Load capacity</b>	925 kg
<b>Weight per roller</b>	1.1 kg

PU	Item no.
Units	
1	398-006088-00000





## exact pipe saws – the unique pipe cutting method



Separating and cutting pipes is normally done using hazardous and imprecise angle grinders. Often, slow and complex manual pipe cutters are also used.

The innovative exact pipe saw solves all problems that may occur when cutting pipes.

### Model overview

#### PipeCut 170 and PipeCut 170E

The light and compact PipeCut 170 has a wide cutting range, yet weighs only 5.7 kg. PipeCut 170 can be used to cut both metal and plastic pipes.

It is very easy to operate, ergonomic and cuts pipes very quickly.

The powerful, lightweight and easy-to-handle PipeCut 170E can be used to cut both metal and plastic pipes. Because of its adjustable speed and uniform torque, it is ideal for cutting stainless steel and cast iron pipes. It offers a powerful solution for the pipe construction industry. Battery-powered version also available.



#### PipeCut 220E

More power and greater strength with the new PipeCut 220E. The pipe saw can be used for cutting both stainless steel and steel pipes as well as for plastic pipes. The machine has an adjustable speed motor and constant torque. Thanks to its robust design, the exact 220E is ideal for use in the workshop, on site and anywhere that numerous different pipes are worked with.



#### PipeCut 280 Pro Series

The new Pro Series 280 pipe saw can cut pipes with an outer diameter of up to 280 mm. The Pro Series 280 pipe saw also features overload protection, an integrated laser for perfect cutting and a visual display allowing the user to ensure the optimal cutting speed, thus protecting the motor and saw blade.





All exact pipe saws are provided with 1x carrying bag, 4x pipe supports, operating instructions, 1x 5 mm and 1x 2 mm Allen keys, fitted saw blade and 1x DVD with operating instructions and practical videos

### PipeCut 360 Pro Series

The new Pro Series 360 pipe saw stands out thanks to its integrated laser which ensures precise cutting as well as its stronger motor featuring overload protection. Saw-blade casing with a suction connection for the EXACT Pro Series 280 & 360 is available as an optional extra.



### Saw blades

#### exact TCT saw blade:

140 x 62 mm (also available in 165 x 62 mm for the 280E and 360 E models)

Saw blade – with cemented carbide – for universal use. Suitable for cutting steel pipes, copper pipes, aluminium pipes and plastic pipes

#### exact CERMET saw blade:

140 x 62 mm (also available in 165 x 62 mm for the 280E and 360 E models) Saw blade – with ceramics – for heavy-duty applications, in particular for cutting stainless steel pipes and pipes of acid-resistant steel

#### exact DIAMOND X saw blade:

140 x 62 mm (also available in 165 x 62 mm for the 280 series & 360 series) Special, long-lasting diamond saw blade for cutting cast iron pipes



## Welding accessories • Pipe processing • Exact pipe sawing

### Pipe saw • exact



- Latest generation pipe saw
- Smooth cut surface, free of burrs
- The weight rests on the pipe being cut, so work can be safely carried out even in cramped spaces and on the floor
- Fast and easy saw blade replacement

Weight kg	Saw blade Ø mm	Sawing range mm	PU Units	Max. steel material thickness mm	Max. plastic material thickness mm	Type	Item no.
5.7	140	15 - 170	1	6.0	14.0	Typ 170	398-006090-00000
8.9		15 - 220		8.0		Typ 170E	398-006091-00000
14.5		40 - 280		20.0		Typ 220E	398-006092-00000
17.5	165	75 - 360				Typ 280 Pro Series	398-007181-00000
						Exact Typ 360 Pro Series	398-007182-00000

### Saw blade



- Saw blades and cutting discs for exact pipe sawing
- **TCT saw blades** – „The saw-anything blades“
- Saw blades with metal particles for universal use
- **Cermet saw blades** – „The stainless steel specialist“
- Saw blades with ceramic particles for heavy-duty applications
- **Diamond cutting discs** – The specialist for SML, cast, ductile pipes and stoneware
- Durable diamond saw blade for cutting abrasive pipes

Material	Saw blade Ø mm	Bore Ø mm	Cut width mm	PU Units	Version	Type	Teeth St.	Item no.
Cast iron pipes, ductile pipes	140	62	2.7	1	for 280 Pro Series, 360 Pro Series	Diamond X		398-007504-00000
Steel, copper, PVC			1.8		For 170, 170E, 220E	TCT 140	46	398-006095-00000
Steel, stainless steel, copper, PVC			1.8		220E	Cermet 140		398-006097-00000
Steel, copper, PVC	165		2.7		For 280 E, 360 E	TCT 165	52	398-006096-00000
Steel, stainless steel, copper, PVC			2.7		For 280 E, 360 E	Cermet 165		398-006131-00000
Cast iron pipes, ductile pipes			2.7		For 280 E, 360 E	Diamond 165		398-006130-00000

### Mobile pipe stand • exact PipeBench



- Mobile pipe stand for pipe support, pipe securing, pipe processing and pipe separation
- Can be transported and erected by a single person
- Equipped with four roller supports as standard
- Ideal for use on construction sites

<b>Pipe Ø</b>	15 mm - 170 mm
<b>Weight</b>	10.2 kg
<b>Load capacity</b>	200 kg

PU Units	Item no.
1	398-006084-00000



# Backing during TIG welding



For backing of stainless steel pipes during TIG welding, the pipe must first be purged or backed in order to ensure the corrosion resistance of the materials. Without backing gas, the root and the heat-affected zone oxidise as a result of the oxygen in the atmosphere. Backing gases are reducing gas mix tures consisting of nitrogen and hydrogen. These gases are divided into different groups as a result of the different densities compared to air. In numerous industries, such as the food industry for example, a perfect weld is an absolute must.

In addition to the freely selectable system components, we also offer completely configured backing systems on request.

## Backing gas set for pipe-to-pipe connections • Backing gas set pipe

- For inspecting difficult-to-access points in the pipe or component
- Set consists of:
- Battery grip with sliding switch incl. batteries
- Lamp holder
- Straight extension, approx. 300 mm long
- Flexible sensor, approx. 200 mm long
- Flexible sensor, approx. 300 mm long
- Mirror with ball joint and collet o 16 mm
- Mirror with ball joint and collet o 22 mm
- Mirror with ball joint and collet o 30 mm
- Mirror with ball joint and collet o 50 mm
- Stainless-steel finger lamp
- ø 30 mm mirror with ball joint and clip
- Carry case with foam inserts



3

Diameter	Item no.
Inch	
3/4-4"	398-010721-00000
3/4-6"	398-010408-00000

## Forming gas set for pipe-to-flange connections • Backing gas set

- Professional video inspection system with replaceable camera unit
- For checking difficult-to-access points using small camera head
- REC function image and video
- 180° image rotation
- Waterproof camera head and cable
- Bright object illumination with 4 high-performance lights
- Reduction of extraneous light thanks to high-contrast LCD
- TV out connection



Diameter	Item no.
Inch	
3/4-4"	094-018912-00000
3/4-6"	398-010409-00000

## Welding accessories ● Pipe processing ● Backing equipment

### Backing gas sealing discs, triple lipped, fully assembled ● Purging gas system



- No tilting in elbows with triple sealing lip elements
- Temperature-resistant up to 340 °C (max. 1 hour)
- UV-proof
- Easy to pull through elbows
- **Set consists of:**
- 2 mounted sealing discs incl. flexible connections and connection hose

Connection	Purging time min.	Gas flow l/min	Ø mm	Inside Ø	Item no.
80-mm spring	3		17	13-16	398-010391-00000
			21	16-20	398-010392-00000
			24	18-23	398-010393-00000
	4		30	23-29	398-010394-00000
			39	29-38	398-010395-00000
			45	36-43	398-010396-00000
120-mm flex	1.5		57	42-53	398-010397-00000
			60	45-58	398-010398-00000
			70	55-67	398-010399-00000
			82	68-80	398-010400-00000
			95	79-92	398-010401-00000
			117	98-114	398-010402-00000
			145	120-136	398-010403-00000
			176	150-168	398-010404-00000
			182	155-170	398-010405-00000
			220	190-205	398-010406-00000
			231	195-215	398-010407-00000

### Protective gas finger incl. sealing disc, fully assembled ● Protective gas finger



- Patented triple sealing lip elements
- Patented gas diffuser
- Temperature-resistant up to 340 °C (max. 1 h)
- UV-proof
- Quick mounting
- Gas hose with plug-in nipple

Ø x length	Purging time min.	Gas flow l/min	Ø mm	Inside Ø	Item no.	
10x12	1.5	3	17	13-16	398-010375-00000	
10x25					398-010376-00000	
10x50					398-010377-00000	
10x12			21	16-20	398-010378-00000	
10x25					398-010379-00000	
10x50					398-010380-00000	
10x12		4	24	18-23	398-010381-00000	
10x25					398-010382-00000	
10x50					398-010383-00000	
10x12			5	30	23-29	398-010384-00000
10x25						398-010385-00000
10x50						398-010386-00000
10x12			6	39	29-38	398-010387-00000
10x25						398-010388-00000
10x50						398-010389-00000
17.5x13		8	45	36-43	398-010390-00000	

### Silicone plug set • Plug set types 1+3

- Made of silicone
- Heat-resistant up to 340 °C
- Plug type 1, solid with bore
- Plug type 3 with internal cone

**Set consists of:**

- 1 pc. type 1 plug, 10–24 mm
- 1 pc. type 1 plug, 15–30 mm
- 1 pc. type 1 plug, 22–34 mm
- 1 pc. type 3 plug, 31–48 mm
- 1 pc. type 3 plug, 48–65 mm
- 1 pc. type 3 plug, 65–81 mm
- 1 pc. gas finger 10x25 mm
- 1 pc. SC connection hose (PVC)



<b>Item no.</b>
398-010374-00000

### Silicone purging plug

- Made of heat-resistant silicone (340°)

Type	Inside Ø mm	Outside Ø mm	Bore Ø mm	Height mm	Item no.
Type 1 solid with bore	10	20	5	19	398-010359-00000
		24		30	398-010360-00000
	15	30		36	398-010361-00000
	18	36		32	398-010363-00000
Type 2 solid without bore	10	19	-	19	398-010364-00000
	9	25		29	398-010365-00000
	15	30		30	398-010366-00000
	18	36		34	398-010367-00000
Type 3 with internal cone and bore	31	48	5	33	398-010368-00000
	22	34		20	398-010369-00000
	31	48		33	398-010370-00000
	48	65		32	398-010371-00000
	65	81		29	398-010372-00000
80	100	37	398-010373-00000		



Type 1



Type 2



Type 3

### Oxygen analyser • Pro-Ox 100

- Oxygen analyser
- Resolution 0.01% (100 ppm)
- Integrated automatic pump
- Automatic calibration
- Data storage, up to 50 records
- USB interface for data transfer and storage
- Audiovisual alarm signal at end of purging period
- Very fast reaction time

**Delivery includes:**

- Pro Ox 100 oxygen analyser with sensor
- Polycarbonate transport case
- 1.5 m hose with quick connect coupling
- Stainless steel sensor (Ø 2 mm)
- Rechargeable 9 V battery with charger
- USB cable
- Screwdriver



<b>Type</b>	Electro-chemical oxygen sensor
<b>Oxygen measuring range</b>	21%
<b>Sample pressure</b>	10 psi
<b>Sample flow</b>	1 l/min
<b>Packing unit</b>	<b>Units</b>
1	398-006100-00000



Magnetic welding squares, not adjustable



Leg length mm	Wide side panels mm	PU Units	Application	Item no.
115 / 105	38	1	Flat materials	398-002780-00000
120 / 110			Round and flat materials	398-002781-00000
145 / 145	45		Flat materials	398-002783-00000
150 / 150			Round and flat materials	398-002784-00000
175 / 175	48		Flat materials	398-002786-00000
230 / 230	60		Flat materials	398-002789-00000
260 / 175	48	Flat materials	398-002788-00000	

Magnetic welding squares, adjustable



Leg length mm	Wide side panels mm	PU Units	Application	Item no.
130 / 130	38	1	Flat materials	398-002790-00000
180 / 180	45			398-002793-00000
130 / 130	38		Round and flat materials	398-002791-00000
180 / 180	45			398-002794-00000

Magnetic welding squares, adjustable and switchable



- Permanent magnet welding squares, can be switched on and off
- Infinitely variable magnetic force
- Fast and simple workpiece alignment
- With prismatic pole shoes

● **Application:**

- The adhesive force of the magnetic arms can be switched on and off separately using a rotating knob. This makes work a lot easier if workpieces need to be brought into the correct position for tack welding. After tack welding, the welding squares are switched off and removed from the workpiece with no effort.

Leg length mm	Wide side panels mm	PU Units	Angle °	Item no.
120 / 110	38	1	fixed , 90	398-002782-00000
150 / 150	45			398-002785-00000
180 / 180				398-002787-00000
135 / 135	38		adjustable , 45 - 270	398-002792-00000
190 / 190	45			398-002795-00000

### Angle magnet

- Switchable



### Magnetic welding help

- Components to be clamped are fixed automatically using a spring
- Precisely accurate holding allows maximum room for tack welding
- The adjustable V-pad base fits to round, square, even or bent surfaces



### Magnetic holder

- Holds light and small metal pieces parallel or vertical to the workpiece
- The adjustable magnetic V-shape can be fitted to different shapes: round, flat or angular metal surfaces
- To hold steel plates easily, remove the MagTab holder to use the adjustable magnetic V-pad

**Item no.**  
398-008251-00000



### 3-axial angle clamps

**Item no.**  
398-008252-00000



## Welding accessories ● Gouging

### Gouging torch ● GT 600 SKK95



- Air arc gouging torch for separating metals
- Suitable for round carbon electrode  $\varnothing$  3–10 mm, flat carbon electrode (width 10/16 mm; thickness 5 mm)
- High-tensile, heat-insulated grip
- Rotatable nozzle
- plug&play connections

<b>Electrode <math>\varnothing</math></b>	3 mm - 10 mm
<b>Welding current</b>	600 A

PU	Item no.	PG	Price
Units			Per unit
1	094-016099-00000	E1	stk

### Carbon electrodes ● Binzel ABIARC



- Carbon electrodes for gouging
- Best electrical conductivity thanks to pure copper coating
- High metal removal capacity
- Very low burnback rate
- Cost savings thanks to extended service life

<b>Material type</b>	Carbon sticks, copper-plated
----------------------	------------------------------

Electrode $\varnothing$	PU	Load capacity	Item no.	PG	Price
mm	Units	A			Per unit
4.0	50	250	097-003239-00000	E4	stk
5.0		300	097-003240-00000	E4	stk
6.5		400	097-003241-00000	E4	stk
8.0		500	097-003242-00000	E4	stk
9.5		600	097-003243-00000	E4	stk
13.0		900	097-003244-00000	E4	stk

- ▶ Further carbon electrode types available on request
- ▶ Further carbon electrode types available on request



## Welding and clamping table systems

With the welding and clamping table systems, you can implement the most complex and delicate applications in a very short time. The flexible modular system consists of a combination of system bores and compatible clamping elements.

You can choose from a range of different dimensions, table feet and materials based on the basic versions. In addition, the surfaces of the welding tables are protected against weld spatters, rust and scratches.

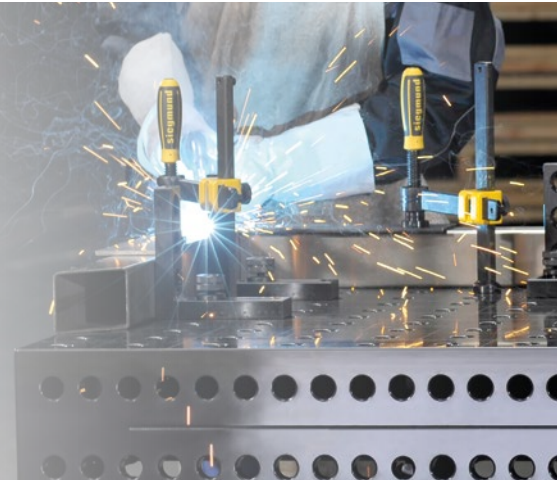
**Select from around 10,000 table variations, and simply contact us!**



+49 2680 181-0



[info@ewm-group.com](mailto:info@ewm-group.com)



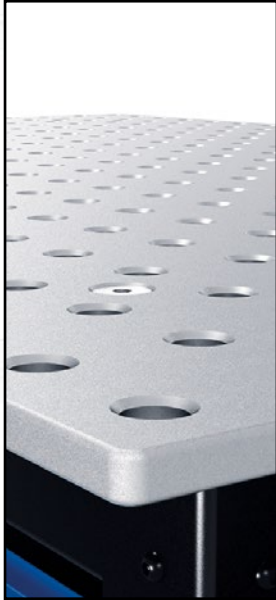
**! NOTE: Sales and deliveries only possible within Germany**



# An all-rounder in every workshop. **siegmund®**



The Siegmund Workstation's intelligent concept means your tools are always within reach at your workstation, allowing you to keep everything in sight and order and leaving plenty of room for accessories.

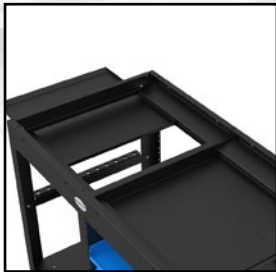


## PERFORATED PLATE (1200 x 800 mm)

### Material

- Tool steel
- Tool steel + plasma nitriding
- Premium Light tool steel
- Premium Light tool steel + plasma nitriding
- High-quality S355J2+N steel
- High-quality S355J2+N steel + plasma nitriding
- stainless steel
- Light stainless steel

Of course all Siegmund accessories are compatible with the Siegmund Workstation.



## PROTECTION AGAINST DIRT

Beneath the table surface are two sheets which protect your tool from weld spatter and dirt. To clean the sheets, you can simply pull them out like drawers.



## FEET

The Siegmund Workstation is made mobile thanks to its combination of pedestals and wheels. The foot plates can be finely adjusted and allow for a precise work surface.

(wheels optional)



## LOAD

The Siegmund Workstation with foot plates can hold a total weight of approximately 1,000 kg. Please be aware that the maximum load is reduced to around 400 kg when using the wheels.



Workstation dimensions (L x B x H):  
1,200 x 800 x 850 mm  
Workstation weight  
without wheels/drawers: approx. 139 kg





### AWARD-WINNING

The Siegmund Workstation was crowned BEST OF in the manufacturing engineering category at the 2018 INDUSTRIEPREIS awards.



### SPACE-SAVER

The Siegmund Workstation has designated storage space for many Siegmund products. There is space for various accessories in the shelves, meaning everything is within easy reach.



### DRAWERS

You also have the option to add drawers to the Workstation at various heights, providing space for all manner of tools. The Workstation can be upgraded at any time.



### PREMIUM VICE

A reliable vice is an essential feature of any workshop. With the Siegmund vice, nothing stands in the way of rough workshop operation.



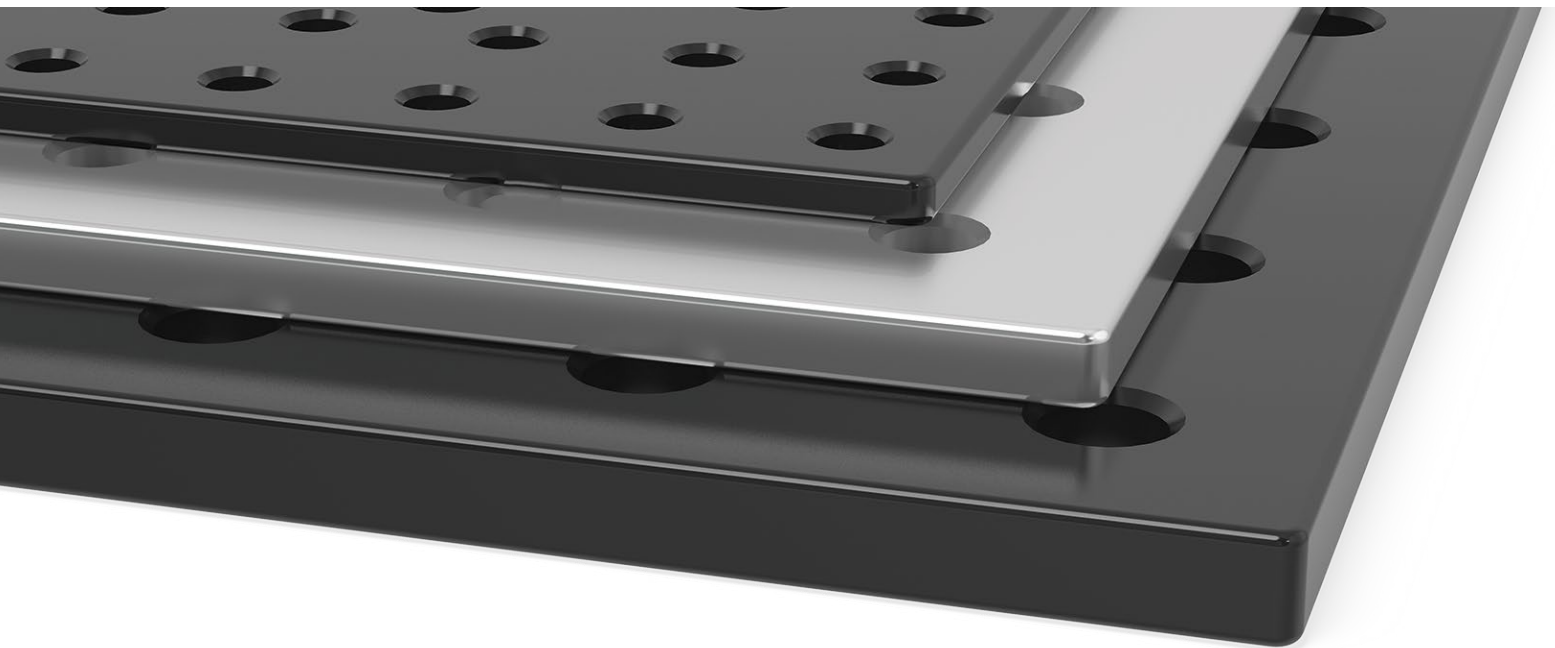
### ASSEMBLY AND CONSTRUCTION

Every Workstation comes with assembly instructions which explain each individual step in the construction of the Workstation.

[www.siegmund.com/workstation-howto](http://www.siegmund.com/workstation-howto)







**System 16**  
The bores have a diameter of 16 mm and are configured at a bore spacing of 50 mm on the table surface

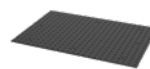
**System 22**  
The bores have a diameter of 22 mm and are configured at a bore spacing of 100 mm on the table surface

**System 28**  
The bores have a diameter of 28 mm and are configured at a bore spacing of 100 mm on the table surface

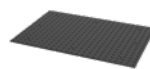
Of course all Siegmund accessories are compatible with the Siegmund Workstation



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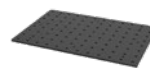
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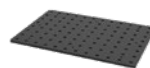
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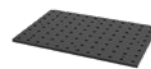
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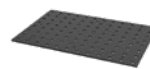
224004.P



284004.P



284004.X7



804004.X7



804004.E

# Configuration

## Drawers, 60 mm

max. load capacity approx.  
50 kg



## Drawers, 120 mm

max. load capacity approx.  
50 kg



## Drawers, 180 mm

max. load capacity approx.  
50 kg



## Drawers, 240 mm

max. load capacity approx.  
50 kg



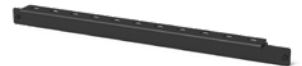
## Standard vice



## Perforated plate

1200 x 800 x 12 mm  
Hardened tool steel with Siegmund X8.7 special alloy,  
bore ø 16 mm, bores  
at spacing of 50 mm from the surface.

## Clamp holder

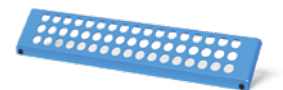


## Shelf

max. load capacity approx.  
10 kg



## Bolt and prism holder



## Tool wall incl. shelves

Large shelves: max.  
load capacity approx. 30 kg



3



The  
ideal basis for any task –  
Siegmund systems at a glance



### SYSTEM 28

If you want to carry out various or large projects, then System 28 is the right choice for you. Its basic feet can each hold a load of approximately 2,000 kg. The accessories include large clamping equipment which can be used to keep even large, heavy superstructures securely in place.



### SYSTEM 22

More and more customers are choosing System 22. It is more stable than System 16 and lighter than System 28.



### SYSTEM 16

For simple superstructures with low weights of up to 1,000 kg per basic foot, we recommend System 16. 50 mm standard bore spacing allows you to easily clamp even small parts.



### COMPATIBLE

The elaborate Siegmund modular system allows every system to be combined with one another using fastening elements.

## SYSTEM 28

FOR HEAVY TASKS

### MATERIALS

**MATERIAL THICKNESS: 24.5–27 MM**

### PROFESSIONAL 750

High-quality S355J2+N steel plasma-nitrated and BAR-coated

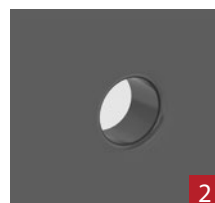
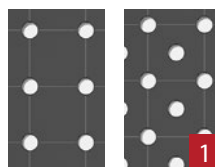
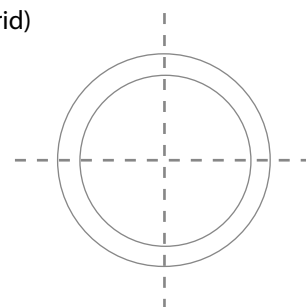
### PROFESSIONAL EXTREME 8.7/8.8

Hardened tool steel X8.7/X8.8, plasma-nitrated and BAR-coated



### BOREØ 28 MM

1. Bore surface in diagonal grid (100 x 100 mm grid)
2. Bores with 3 mm radius
3. Corners and edges with 3 mm/6 mm radius
4. Height side plate 200 mm  
bore spacing side plate 50 mm
5. Includes scaling on the surface
6. Structure reinforced with ribs





## SYSTEM 22

MORE STABLE THAN SYSTEM 16, LESS EXPENSIVE THAN SYSTEM 28

### MATERIALS

**MATERIAL THICKNESS: 17–19 MM**

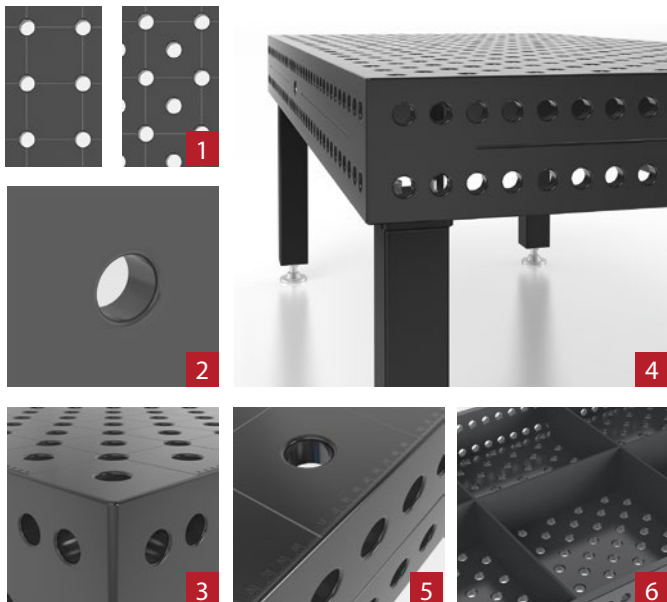
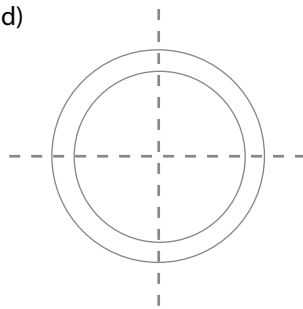
### PROFESSIONAL 750

High-quality S355J2+N steel  
plasma-nitrated and BAR-coated



### BOREØ 22 MM

1. Bore surface in diagonal grid (100 x 100 mm grid)
2. Bores with 2.5 mm radius
3. Corners and edges with 3 mm/6 mm radius
4. Height side plate 150 mm  
bore spacing side plate 50 mm
5. Includes scaling on the surface
6. Structure reinforced with ribs



## SYSTEM 16

FOR DELICATE TASKS

### MATERIALS

**MATERIAL THICKNESS: 11.5–13 MM**

### PROFESSIONAL 750

High-quality S355J2+N steel  
plasma-nitrated and BAR-coated

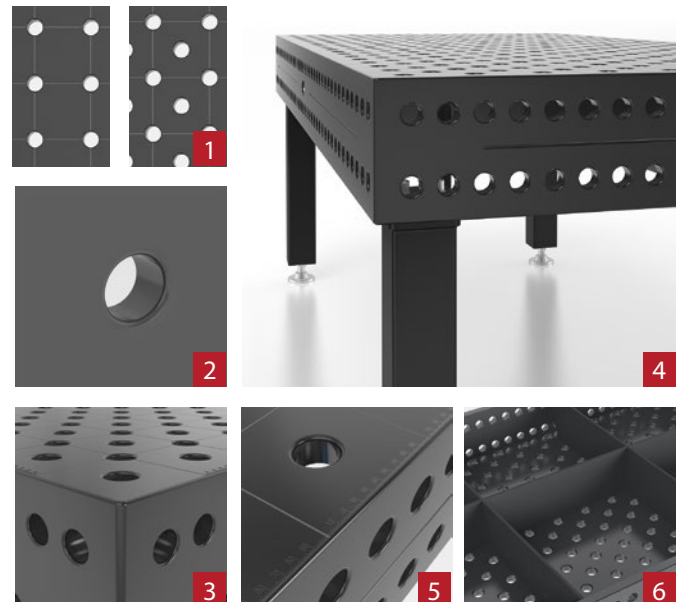
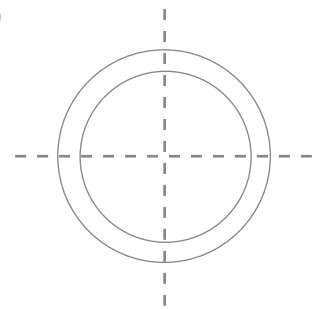


### PROFESSIONAL EXTREME 8.7

Hardened tool steel X8.7  
plasma-nitrated and BAR-coated

### BOREØ 16 MM

1. Bore surface in diagonal grid (50 x 50 mm grid)
2. Bores with 2 mm radius
3. Corners and edges with 3 mm/6 mm radius
4. Height side plate 100 mm  
bore spacing side plate 25 mm
5. Includes scaling on the surface
6. Structure reinforced with ribs



# Useful accessories for your needs

There is a holistic, perfectly designed range of products for every area of application. An elaborate modular system with a wide variety of compatible tensioning system parts allows complex applications and combinations to be carried out within a short period of time.

## SIEGMUND IN USE

Whether it's a small trade business or a renowned industrial company; prototype construction or mass production; with or without robot systems: The Siegmund welding and clamping table systems are used in many industries!



3







**100%**  
**PERFORMANCE.**  
**EVERY DAY.**





# CustomerStory



AST Apparatebau GmbH

## Accumulated expertise in welding technology

### AST reduces TIG welding time by up to 75 per cent with EWM

Agitator vessels are used wherever something needs to be stirred on an industrial scale – in the chemical industry as well as in the pharmaceutical industry or in food technology. AST Apparatebau GmbH from Wilnsdorf in Germany manufactures agitator vessels of this type.

The media in agitator vessels aren't just stirred – they're also heated or cooled depending on the respective contents. In wax production, for example, different media are further processed at different temperatures in agitator vessels. In the pharmaceutical industry, jackets even cool the contents of the agitator vessels all the way down to minus 80 degrees Celsius.

## Agitator vessels: many metres of weld seam

Heating or cooling in agitator vessels is carried out by means of a half-pipe coil. It is usually welded onto the vessel wall in a spiral formation. Half-pipes are pipes cut longitudinally. The top of the vessel is also the bottom of the pipe at the same time. The cooling or heating liquid flows inside this, and there is a direct exchange of heat between the liquid and the vessel. This is the perfect way to harness the heat, which is then supplied or dissipated via the vessel wall directly. The diameter of such an agitator vessel is between 80 centimetres and 2.5 metres, and the length of the weld seams created can range from almost ten metres to several hundred metres in total.

Special design of an agitator vessel. The entire surface of the vessel should be covered with cooling coils.

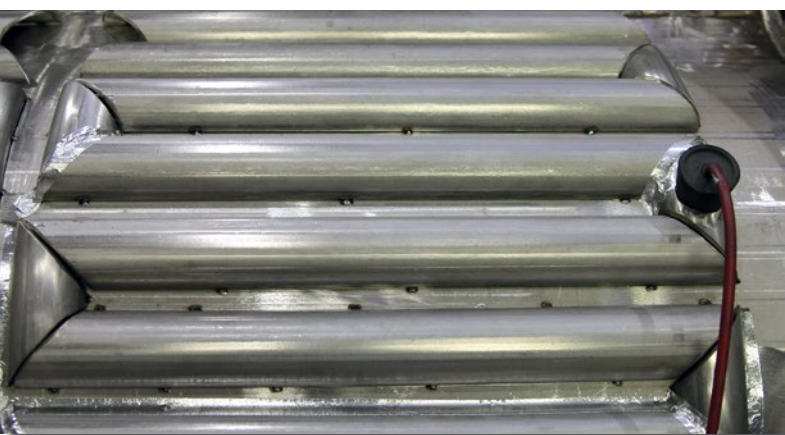
## High-quality weld seams required

The demands on these weld seams are high. The industrial standards of major chemical companies prescribe specific weld preparations for the half-pipes as well as differentiated versions. For example, the half-pipes must have a bevel of between 30 degrees and 45 degrees on the inside and be pointed towards the bottom. Root pass welding is conducted in a protective gas atmosphere for forming. A clearly recognisable golden yellow iridescent root forms from the inside. Following this, an endoscope is used to determine whether the requirements are met. Typical joining processes for seams like this are TIG welding for the root pass and MAG welding for the cover pass. The estimated welding time for one metre of TIG weld seam for the root pass is 20 to 25 minutes.

Welded-on half-pipe. The inside of the half-pipe is bevelled. The root of the TIG weld seam (red) pushes inwards. With the second pass, a MAG seam (yellow), the required throat thickness is achieved.







The half-pipes are first tack welded to fix them in place. Only then is welding performed.

Thanks to cooperation with welding machine manufacturer EWM in Mündersbach, Germany, AST saw a significant increase in productivity. Rudolf Federrath, the responsible member of staff from the Siegen office, provided the welders with the tigSpeed wire feeder from EWM.

## tigSpeed wire feeding system increases productivity during TIG welding

In the case of MIG/MAG welding, wire feed systems come as standard for the respective process. tigSpeed, on the other hand, has been specially designed and constructed for TIG welding, as it enables both cold wire feeding and working with hot wire. The filler wire is preheated for this purpose, whereby the deposition rate is increased by up to 60 per cent compared to manual TIG welding.

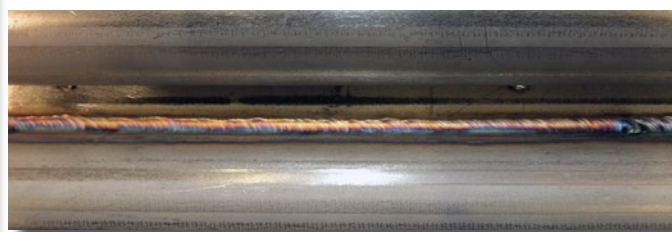
What makes tigSpeed special is the superimposed forward and backward movement during wire feeding. Not only is the wire continuously fed, as with MIG/MAG welding, but an additional movement is superimposed. In this way, the wire feeder mimics the manual welding process in TIG welding, whereby the welder repeatedly pulls the filler wire out of the arc.



Torch head with mechanised feeding of the filler wire increases the deposition rate by up to 60 per cent.

## Welding time reduced by up to 75 per cent

The increase in productivity from using tigSpeed is enormous. The average welding time for 1 metre of weld seam is reduced from 20 to 25 minutes down to 5 to 6 minutes. In the case of continuous weld seams, this means a saving of up to 75 per cent for the root pass in comparison to conventional TIG welding with manual feeding of the filler wire. This is due to the higher deposition rate of the hot wire on the one hand and to the lower handling effort required by tigSpeed on the other. Since the filler wire comes off the roll, there is no need to constantly interrupt the welding process to change the consumable. It's also very easy to work with the welding torch. In addition to standard TIG cold/hot wire torches, EWM also offer a version with a TIG torch integrated into a MAG grip. This is the version chosen by AST, who will benefit from TIG welding which feels like MAG welding and the corresponding advantages in speed which can be gained as a result. Thanks to the forward and backward movement superimposed on continuous wire feeding, however, the welder can control the weld pool in exactly the same way as when welding with manual feeding of the wire – and there's no need to worry about feeding.

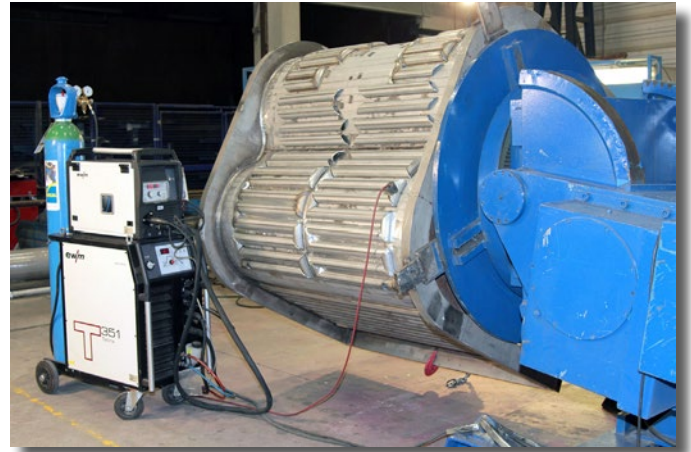


A TIG hot wire weld seam. The seam for the next half-pipe is directly adjacent to the first seam. This gives the highest possible coverage of the vessel surface with cooling coils. The weld seam itself is completely spatter-free.



## tigSpeed in special plant engineering

AST's particular strength is special plant engineering. In the case of special agitators built according to customer specifications, the agitator vessel may deviate from the usual round shape and spiral winding of the half-pipes. One example of this is the agitator vessel, where the vessel is almost completely covered with cooling coils. For this purpose, the half-pipes were mitred and welded together at the corners. The distance between the cooling coils is reduced to a minimum, which results in the greatest possible heat exchange between the medium and the vessel.



The combination of TIG hot wire and tigSpeed reduces welding time for AST by 40 per cent.

## Halving the welding time for the root pass

In this case, the total length of the weld seam adds up to 112 metres. TIG hot wire welding is only used on the long straight lines, while conventional TIG welding with manual feeding of the filler wire is performed at the corners. The total length of the weld seam is thus divided between the two processes at a ratio of 1:1.

Although only half of the weld seam length is welded with hot wire, the

welding time is reduced by up to 40 per cent compared to TIG welding with manual feeding of the filler wire. The higher the percentage that can be welded with tigSpeed and hot wire, the higher the welding speed and the more economical the process.

"What's particularly attractive about TIG welding with tigSpeed is the possibility of further automating the welding task," said Joachim Jung, Technical Manager at AST. At present, however, this step is not an option for AST, as the welder must be able to influence the welding process. For example, the welder has to compensate for any gaps that may occur when the half-pipes are tack welded onto the vessel wall. An automated system can't do this.

"The next step will be to install a nozzle welding system based on TIG hot wire," said Jung, looking to the future. There are a large number of nozzles on every agitator vessel that needs to be welded, and TIG hot wire welding can be used to its full potential here as well.



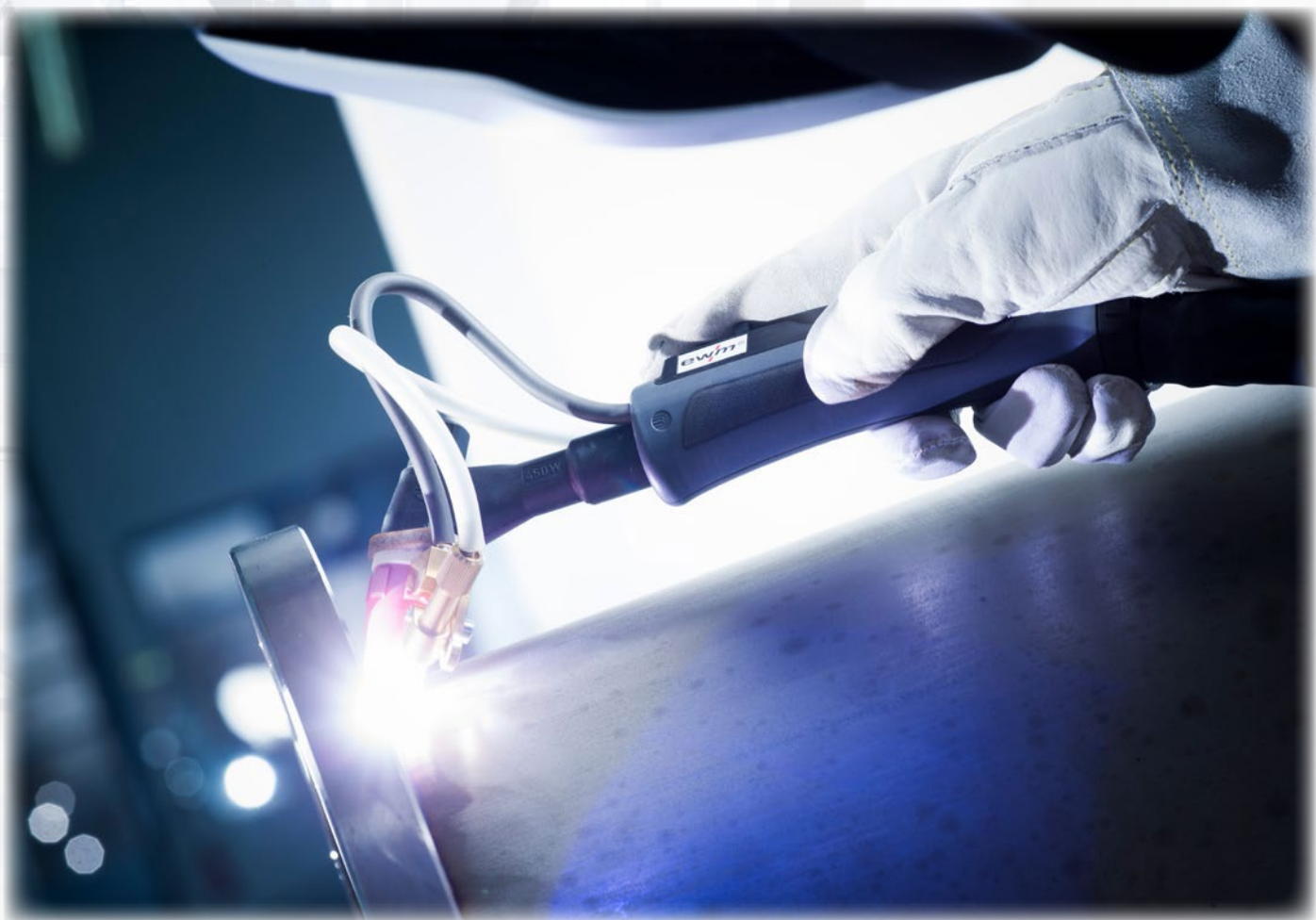
Happy faces:  
Joachim Jung,  
AST Technical Manager;  
Rudolf Federrath,  
EWM Branch Siegen;  
Dietmar Simmert,  
AST Commercial Manager




Kindly supported by  
AST Apparatebau GmbH



Welding torch		Seite
MIG/MAG welding torches gas cooled	UM 15 G	218
	UM 24 G	219
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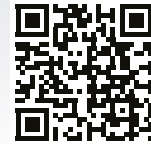




 Additional information can be found in the [Welding torch catalogue](#) and at [www.ewm-sales.com](http://www.ewm-sales.com)

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[www.ewm-group.com/si/prospekte](http://www.ewm-group.com/si/prospekte)



# ewm welding torches

Technology which reduces costs while increasing quality

Gas or water cooled torches are part of our integrated system. Together with other ewm components and innovative ewm welding procedures, they ensure that the full performance capability of power sources is channelled into the welding process.

## Your benefits:

- / Economical work processes thanks to long service lives**  
Minimum overheads for replacement parts, changeover and finishing work: all wear parts are very long-living thanks to the optimal cooling.
- / Work more efficiently thanks to innovative design**  
The ideal ergonomic design cuts costs and improves quality since easier handling reduces errors and finishing work.
- / Reduce costs and conserve resources**  
Less gas consumption thanks to separate gas duct and laminar shielding gas coverage. Extremely wear-resistant thanks to perfect cooling, and an optimum match to welding machines. What's more, easy to repair overall.

## MIG/MAG

### Manual welding torches for the perfect result

Innovating to perfection: you will achieve optimum welding results with our welding torches and ewm's innovative welding procedures:

- / coldArc/coldArc puls
- / forceArc®/forceArc puls®
- / rootArc/rootArc puls
- / pipeSolution
- / Pulse

#### Manual welding torches, gas cooled up to 450 A (CO<sub>2</sub>) and water cooled up to 650 A (CO<sub>2</sub>):

1	<b>MT Series</b> Standard torch*	MT221/301/401G, MT301/451/551W
2	<b>C Series</b> Replaceable neck*	MT221/301CG, MT301/451CW
3	<b>S Series</b> Short neck*	MT451/551WS
4	<b>L Series</b> Long neck*	MT451/551WL
5	<b>Push/pull</b> with replaceable neck (PP)*	PPMT221/301CG PPMT301/451CW
6	<b>F Series</b> Fume extraction torch	MT221G F, MT301/451W F

\* Also available as function torch with control system



## MIG/MAG

Automated welding torches  
for automated processes

For automated production: our automated welding torches can be adjusted to each application on an individual basis. Combined with the ewm welding procedure, you will not only be flexible in your work but also efficient.

Automated welding torch, gas cooled up to 330 A (CO<sub>2</sub>)  
and water cooled up to 650 A (CO<sub>2</sub>):

7	AMT automated welding torches with different torch neck angles 0–45°	AMT301G AMT451/551W
---	--	------------------------

Robot pull welding torch, gas cooled 420 A (CO<sub>2</sub>)

8	frontDrive – Robot pull welding torch	
---	---------------------------------------	--

## TIG; PLASMA

Ideal solutions  
for a variety of uses

Always on the right side: from TIG standard, cold wire and hot wire welding with manual or automated systems through to filigree plasma welding with ewm TIG and plasma torches.

Manual welding torches, gas cooled up to 300 A (DC-)  
and water cooled up to 450 A (AC-):

9	TIG*
10	Plasma
11	spotArc welding torch spot and tack welding
12	tigSpeed welding torch hot wire/cold wire for cold and hot wire welding

\* Also available as function torch with control system

Automated welding torch, gas and water cooled:

13	TIG/plasma welding torch
----	--------------------------



## PM MIG/MAG welding torch



Type	PM 221 G	PM 301 G	PM 401 G
Operating variants	Standard or function torch		
Replaceable torch neck "C"	PM 221 CG	PM 301 CG	-
Cooling	Gas-cooled "G"	Gas-cooled "G"	Gas-cooled "G"
Welding current CO <sub>2</sub>	250 A at 60% DC	330 A at 60% DC	450 A at 35% DC
Welding current M21	220 A at 60% DC	300 A at 60% DC	400 A at 35% DC
Pulse welding current M21	150 A at 60% DC	210 A at 60% DC	260 A at 35% DC
Shielding gas	Argon, mixed gas M21 or CO <sub>2</sub> conforming to DIN EN ISO 14175		
Wire diameter	0.8 to 1.2 mm	0.8 to 1.6 mm	0.8 to 2.0 mm
Gas flow	10 to 20 l/min	10 to 20 l/min	10 to 20 l/min
Hose package length	3 m / 4 m/5 m	3 m / 4 m/5 m	3 m / 4 m/5 m
Connection	Euro torch connector	Euro torch connector	Euro torch connector
Torch data in accordance with	DIN IEC 60974-7	DIN IEC 60974-7	DIN IEC 60974-7

## Professional welding torches from the PM series:



### PM CG/CW

- Replaceable torch necks with various bend angles
- Excellent handling even in hard-to-access areas
- Torch neck can be continuously rotated through 360° and locked in any position



### PM long neck torch

- Longer torch neck for hard-to-access operating points and high duty cycles
- Available in versions PM 451 WL and PM 551 WL



### PM short neck torch

- Shorter torch neck for especially tight operating points
- More practical and lightweight than standard torches
- Ideally suitable for applications within confined spaces
- Available in versions PM 451 WL and PM 551 WL





PM 301 W	PM 451 W/WS/WL	PM 551 W/WS/WL	Type
Standard or function torch			Operating variants
PM 301 CW	PM 451 CW	-	Replaceable torch neck "C"
Water-cooled "W"	Water-cooled "W"	Water-cooled "W"	Cooling
330 A at 100% DC	500 A at 100% DC	650 A at 100% DC	Welding current CO <sub>2</sub>
290 A at 100% DC	450 A at 100% DC	550 A at 100% DC	Welding current M21
250 A at 100% DC	350 A at 100% DC	500 A at 100% DC	Pulse welding current M21
Argon, mixed gas M21 or CO <sub>2</sub> conforming to DIN EN ISO 14175			Shielding gas
0.8 to 1.2 mm	0.8 to 1.6 mm	0.8 to 2 mm	Wire diameter
10 to 25 l/min	10 to 25 l/min	10 to 25 l/min	Gas flow
3 m / 4 m/5 m	3 m / 4 m/5 m	3 m / 4 m/5 m	Hose package length
Euro torch connector	Euro torch connector	Euro torch connector	Connection
DIN IEC 60974-7	DIN IEC 60974-7	DIN IEC 60974-7	Torch data in accordance with

## Four operating variants – guaranteeing a good choice.



### RD3 X control

#### Display and setting of:

- Welding current and wire feed speed
- Voltage correction
- Program and JOB selection
- Welding process switching
- Faults and error messages

#### Xnet support:

- Selection of welding tasks according to welding sequence plan
- Component management



### RD2 X control

#### Display and setting of:

- Welding current and wire feed speed
- Voltage correction
- Program and JOB selection



### 2U/D X control

#### Setting of:


- Welding current and wire feed speed
- Voltage correction
- Program and JOB selection



### Standard torch

#### Option for torch trigger on top also possible



 Additional information can be found in the **Welding torch catalogue** and at [www.ewm-sales.com](http://www.ewm-sales.com)

**Download the PDF**  
[www.ewm-group.com/sl/prospekte](http://www.ewm-group.com/sl/prospekte)



Type	MT221G	MT301G	MT401G
Operating variants	Standard or function torch		
Replaceable torch neck "C"	MT221CG	MT301CG	-
Fume extraction torch "F"	MT221G F	-	-
Automated welding torch "A"	-	AMT 301G	-
Cooling	Gas cooled "G"	Gas cooled "G"	Gas cooled "G"
Welding current CO <sub>2</sub>	250 A at 60% DC	330 A at 60% DC	450 A at 35% DC
Welding current M21	220 A at 60% DC	300 A at 60% DC	400 A at 35% DC
Pulse welding current M21	150 A at 60% DC	210 A at 60% DC	260 A at 35% DC
Shielding gas	Argon, mixed gas M21 or CO <sub>2</sub> conforming to EN ISO 14175		
Wire diameter	0.8 to 1.2 mm	0.8 to 1.6 mm	0.8 to 2.0 mm
Gas flow	10 to 20 l/min	10 to 20 l/min	10 to 20 l/min
Hose package length	3 m/4 m/5 m	1.5 m*/3 m/4 m/5 m	3 m/4 m/5 m
Connection	Euro torch connector	Euro torch connector	Euro torch connector
Torch data in accordance with	IEC 60974-7	IEC 60974-7	IEC 60974-7

The right welding torch for every application.



#### MT CG/CW

- / Replaceable torch necks with various bend angles
- / Excellent handling even in hard-to-access areas
- / Torch neck can be continuously rotated through 360°



#### MT Push/Pull

- / High-quality Maxon motor
- / Self-inching
- / Optional pistol grip
- / Colour-coded wire feed rollers
- / Plug&play with ewm machines
- / Several control variants
- / Remote control function



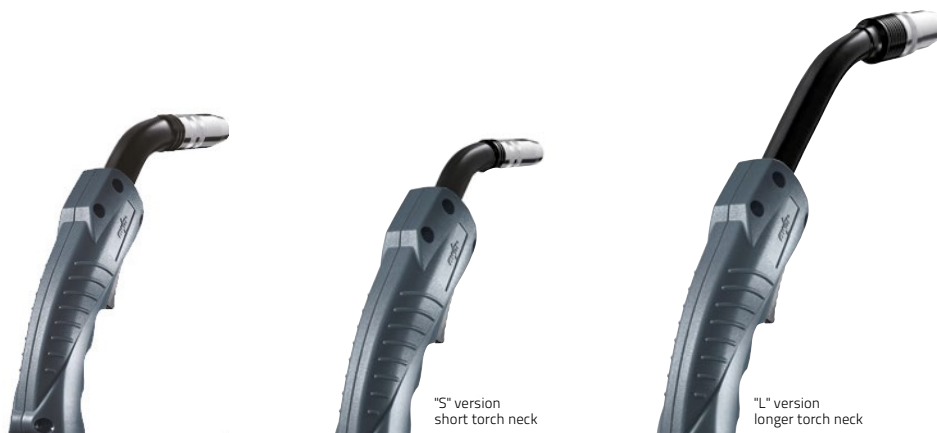
#### MT GF/WF

- / Welding torch with fume extraction
- / Significantly reduces emissions in the ambient air
- / Continuously adjustable extraction nozzle
- / Bypass slider to regulate the extraction rate
- / Suitable for operation with high-vacuum extraction systems
- / Rotating joint on hose package
- / First metre has leather cover as spatter protection



#### AMT

- / Welding torches for automated welding
- / Highly robust with long duty cycle
- / Wear parts identical to standard MT torch



MT301W	MT451W/WS/WL	MT551W/WS/WL	Type
	Standard or function torch		Operating variants
MT301CW	MT451CW	-	Replaceable torch neck "C"
MT301W F	MT451W F	-	Fume extraction torch "F"
-	AMT451W	AMT551W	Automated welding torch "A"
Water cooled "W"	Water cooled "W"	Water cooled "W"	Cooling
330 A at 100% DC	500 A at 100% DC	650 A at 100% DC	Welding current CO <sub>2</sub>
290 A at 100% DC	450 A at 100% DC	550 A at 100% DC	Welding current M21
250 A at 100% DC	350 A at 100% DC	500 A at 100% DC	Pulse welding current M21
Argon, mixed gas M21 or CO <sub>2</sub> conforming to EN ISO 14175			Shielding gas
0.8 to 1.2 mm	0.8 to 1.6 mm	0.8 to 2 mm	Wire diameter
10 to 25 l/min	10 to 25 l/min	10 to 25 l/min	Gas flow
3 m/4 m/5 m	1.5 m*/3 m/4 m/5 m	1.5 m*/3 m/4 m/5 m	Hose package length
Euro torch connector	Euro torch connector	Euro torch connector	Connection
IEC 60974-7	IEC 60974-7	IEC 60974-7	Torch data in accordance with

Function torches in four operating variants – X Series welding torches without additional control cable

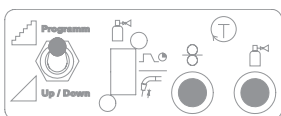
\* AMT torches only



Up/Down

Setting of:

- / Welding current or wire feed speed



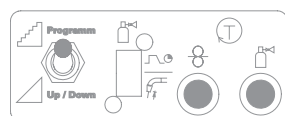
- / Or program<sup>\*2)</sup>



2 Up/Down

Setting of:

- / Welding current or wire feed speed
- / Voltage correction



- / Or program<sup>\*2)</sup>



PC 1

Setting and display of:

- / Welding current or wire feed speed<sup>\*1)</sup>



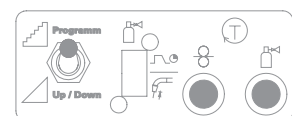
- / Or program<sup>\*2)</sup>



PC 2

Setting and display of:

- / Welding current or wire feed speed
- / Voltage correction<sup>\*1)</sup>



- / Or program and JOB<sup>\*2)</sup>

<sup>\*1)</sup> Display depends on welding machine

<sup>\*2)</sup> Depends on switch setting on the wire feeder



# Product overview for the EWM UM welding torch series



## Robust welding torches for daily use

The gas- and water-cooled welding torches in the UM welding torch series provide optimum work comfort and the best characteristics for daily use.

**Impressive overall package: Solid technology – the sophisticated grip design guarantees optimum handling in any position.**

- / Robust, ergonomic grip
- / Safe, precise operation thanks to rubber inserts and a ball joint on the grip
- / Time-tested consumable – standard M6 and M8 threads:
  - / Long service life
  - / Steady, stable arc
- / Euro torch connector



Type	UM 15 G	UM 24 G	UM 25 G
Cooling	Gas cooled "G"	Gas cooled "G"	Gas cooled "G"
Welding current CO <sub>2</sub>	180 A/60%	250 A/60%	230 A/60%
Welding current M21	150 A/60%	220 A/60%	200 A/60%
Shielding gas	Argon, mixed gas M21 or CO <sub>2</sub> conforming to BS EN ISO 14175		
Wire diameter	0.6 to 1.0 mm	0.6 to 1.2 mm	0.6 to 1.2 mm
Hose package length	3 m/4 m/5 m	3 m/4 m/5 m	3 m/4 m/5 m
Connection	Euro torch connector	Euro torch connector	Euro torch connector
Torch data in accordance with	IEC 60974-7		
Item number	3 m	394-600000-00000	394-600001-00000
	4 m	394-600000-00004	394-600001-00004
	5 m	394-600000-00005	394-600001-00005



UM 36 G	UM 240 W	UM 401 W	UM 501 W
Gas cooled "G"	Water cooled "W"	Water cooled "W"	Water cooled "W"
300 A/60%	300 A/100%	400 A/100%	500 A/100%
270 A/60%	270 A/100%	350 A/100%	450 A/100%
<b>Argon, mixed gas M21 or CO<sub>2</sub> conforming to BS EN ISO 14175</b>			
0.8 to 1.4 mm	0.6 to 1.2 mm	0.8 to 1.6 mm	0.8 to 1.6 mm
3 m/4 m/5 m	3 m/4 m/5 m	3 m/4 m/5 m	3 m/4 m/5 m
Euro torch connector	Euro torch connector	Euro torch connector	Euro torch connector
IEC 60974-7	IEC 60974-7	IEC 60974-7	IEC 60974-7
394-600003-00000	394-600010-00000	394-600011-00000	394-600012-00000
394-600003-00004	394-600010-00004	394-600011-00004	394-600012-00004
394-600003-00005	394-600010-00005	394-600011-00005	394-600012-00005



For full information on our welding torches and matching accessories go to [www.ewm-sales.com](http://www.ewm-sales.com)

## Welding torches ● MIG/MAG welding torch, gas cooled

### MIG/MAG welding torch, gas-cooled ● UM 15 G



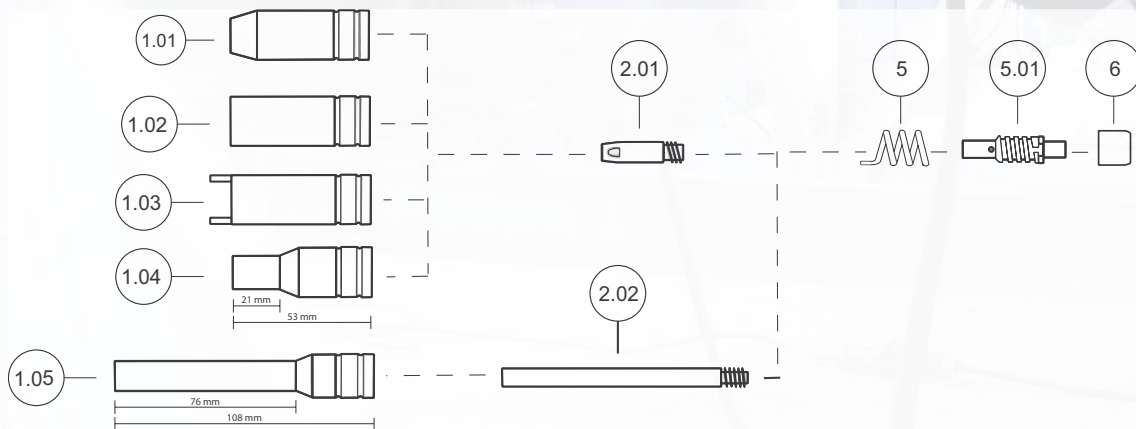
- Practical and light MIG/MAG welding torch for use on construction sites and in workshops
- Ergonomic grip
- Anti-kink spring on the connection
- Type-related standard consumables
- **Equipment as supplied (steel wire):**
- Gas nozzle, conical, Ø 12 mm; 53 mm
- Contact tip M6 x 25 mm; Ø 0.8 mm
- Contact tip holder M6
- **Recommendation:**
- For feeding steel wires, we recommend using a steel liner with a capillary tube
- For feeding CrNi, aluminium, flux-cored and CuSi wires, we recommend a PA combined liner with a guide tube (alternatively you can use a Teflon or carbon Teflon liner)

<b>Duty cycle CO2</b>	180 A / 60 %
<b>Duty cycle M21</b>	150 A / 60 %
<b>Wire Ø</b>	0.6 mm - 1 mm

Hose package length m	Item no.
3.0	394-600000-00000
4.0	394-600000-00004
5.0	394-600000-00005

4

### ■ Consumables



Item	Designation	Nozzle Ø mm	Wire Ø mm	Thread	Length mm	Material	PU Units	Item no.
-	Centring tool for narrow-gap contact tip	-	-	-	-	-	1	394-000469-00000
1.01	Gas nozzle, highly conical	9.5	-	-	53	Copper, nickel-plated	10	394-001212-00000
1.01	Gas nozzle, conical	12	-	-	53	Copper, nickel-plated	10	394-000472-00000
1.02	Gas nozzle, cylindrical	16	-	-	53	Copper, nickel-plated	10	394-000211-00000
1.03	Spot welding nozzle, plug fitting	16	-	-	60	Copper, nickel-plated	10	394-000213-00000
1.04	Narrow-gap gas nozzle with cylinder, plug fitting	10	-	-	53	-	1	394-002526-00000
1.05	Narrow-gap gas nozzle with cylinder, plug fitting	10	-	-	108	-	1	394-000212-00000
2.01	Contact tip	-	0.6	M6	25	E-Cu	20	394-003654-00000
2.01	Contact tip	-	0.8	M6	25	E-Cu	20	394-001087-00000
2.01	Contact tip	-	1	M6	25	E-Cu	20	394-001086-00000
2.02	Narrow-gap contact tip	-	1	M6	83	E-Cu	1	394-000707-00000
5	Nozzle spring	-	-	M6	-	-	10	094-023061-00000
5.01	Contact tip holder	-	-	M6	-	-	10	094-023060-00000
6	Stop nut	-	-	-	15	-	10	094-023552-00000



## MIG/MAG welding torch, gas-cooled • UM 24 G

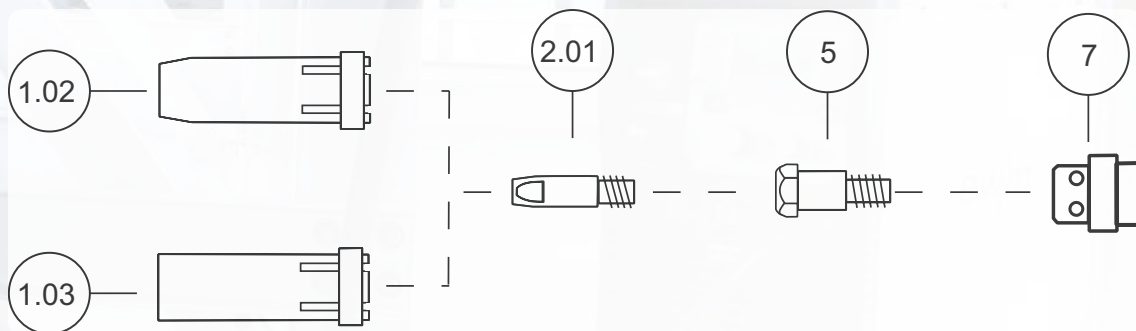
- Gas-cooled standard MIG/MAG welding torch
- Ergonomic grip with ball joint
- Anti-kink spring on both the welding torch and the connection
- Type-related standard consumables
- **Equipment as supplied (steel wire Ø 1.0):**
- Gas nozzle, conical, Ø 12.5 mm; 63.5 mm
- Gas diffuser, 20 mm
- Contact tip M6 x 28 mm; Ø 1.0 mm
- Contact tip holder M6 x 26 mm
- **Recommendation:**
- For feeding steel wires, we recommend using a steel liner with a capillary tube
- For feeding CrNi, aluminium, flux-cored and CuSi wires, we recommend a PA combined liner with a guide tube (alternatively you can use a Teflon or carbon Teflon liner)



<b>Duty cycle CO2</b>	250 A / 60 %
<b>Duty cycle M21</b>	220 A / 60 %
<b>Wire Ø</b>	0.6 mm - 1.2 mm

Hose package length m	Item no.
3.0	394-600001-00000
4.0	394-600001-00004
5.0	394-600001-00005

### Consumables



Item	Designation	Nozzle Ø mm	Wire Ø mm	Thread	Length mm	Material	PU Units	Item no.
1.02	Gas nozzle, conical	12.5	-	-	63.5	Copper, nickel-plated	10	394-000361-00000
1.02	Gas nozzle, highly conical	10	-	-	63.5	Copper, nickel-plated	10	394-001234-00000
1.03	Gas nozzle, cylindrical	17	-	-	63.5	Copper, nickel-plated	10	394-000362-00000
2.01	Contact tip	-	0.8	M6	28	E-Cu	20	394-001191-00000
2.01	Contact tip	-	1	M6	28	E-Cu	20	394-001228-00000
2.01	Contact tip	-	1.2	M6	28	E-Cu	20	394-001229-00000
2.01	Contact tip	-	0.8	M6	28	CuCrZr	20	394-005407-00000
2.01	Contact tip	-	1	M6	28	CuCrZr	20	394-003339-00000
2.01	Contact tip	-	1.2	M6	28	CuCrZr	20	394-005224-00000
2.01	Contact tip, aluminium welding	-	0.8	M6	28	Copper	20	394-016105-00000
2.01	Contact tip, aluminium welding	-	1	M6	28	Copper	20	394-016107-00000
2.01	Contact tip, aluminium welding	-	1.2	M6	28	Copper	20	394-016108-00000
5	Contact tip holder	-	-	M6	26	Brass	10	394-000363-00000
7	Gas diffuser	-	-	-	-	-	10	394-000360-00000

## Welding torches ● MIG/MAG welding torch, gas cooled

### MIG/MAG welding torch, gas-cooled ● UM 25 G



- Gas-cooled standard MIG/MAG welding torch
- Ergonomic grip with ball joint
- Anti-kink spring on both the welding torch and the connection
- Type-related standard consumables
- **Equipment as supplied (steel wire Ø 1.0):**
- Gas nozzle, conical, Ø 15 mm; 57 mm
- Contact tip M6 x 28 mm; Ø 1.0 mm
- Contact tip holder M6 x 35 mm
- **Recommendation:**
- For feeding steel wires, we recommend using a steel liner with a capillary tube
- For feeding CrNi, aluminium, flux-cored and CuSi wires, we recommend a PA combined liner with a guide tube (alternatively you can use a Teflon or carbon Teflon liner)

**Duty cycle CO2**

230 A / 60 %

**Duty cycle M21**

200 A / 60 %

**Wire Ø**

0.6 mm - 1.2 mm

**Hose package length**

**Item no.**

**m**

3.0

394-600002-00000

4.0

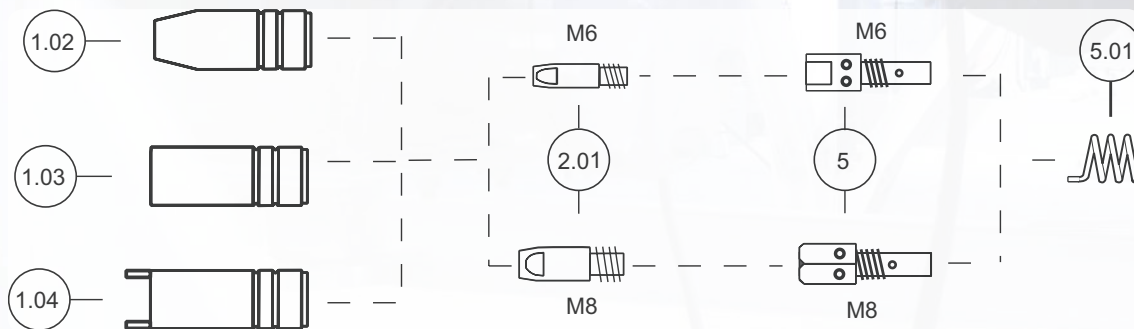
394-600002-00004

5.0

394-600002-00005

4

### Consumables



Item	Designation	Nozzle Ø mm	Wire Ø mm	Thread	Length mm	Material	PU Units	Item no.
1.02	Gas nozzle, highly conical	11.5	-	-	57	Copper, nickel-plated	10	394-001647-00000
1.02	Gas nozzle, conical	15	-	-	57	Copper, nickel-plated	10	394-000369-00000
1.03	Gas nozzle, cylindrical	18.5	-	-	57	Copper, nickel-plated	10	394-000371-00000
1.04	Spot gas nozzle	18	-	-	66	Copper, nickel-plated	10	394-000373-00000
2.01	Contact tip	-	0.8	M6	28	E-Cu	20	394-001191-00000
2.01	Contact tip	-	1	M6	28	E-Cu	20	394-001228-00000
2.01	Contact tip	-	1.2	M6	28	E-Cu	20	394-001229-00000
2.01	Contact tip	-	0.8	M6	28	CuCrZr	20	394-005407-00000
2.01	Contact tip	-	1	M6	28	CuCrZr	20	394-003339-00000
2.01	Contact tip	-	1.2	M6	28	CuCrZr	20	394-005224-00000
2.01	Contact tip	-	0.8	M8	30	E-Cu	20	394-000447-00000
2.01	Contact tip	-	1	M8	30	E-Cu	20	394-000941-00000
2.01	Contact tip	-	1.2	M8	30	E-Cu	20	394-000942-00000
2.01	Contact tip	-	0.8	M8	30	CuCrZr	20	394-014024-00000
2.01	Contact tip	-	1	M8	30	CuCrZr	20	394-000450-00000
2.01	Contact tip	-	1.2	M8	30	CuCrZr	20	394-000452-00000
2.01	Contact tip, aluminium welding	-	0.8	M6	28	Copper	20	394-016105-00000
2.01	Contact tip, aluminium welding	-	1	M6	28	Copper	20	394-016107-00000
2.01	Contact tip, aluminium welding	-	1.2	M6	28	Copper	20	394-016108-00000
2.01	Contact tip, aluminium welding	-	0.8	M8	30	E-Cu	20	394-016115-00000
2.01	Contact tip, aluminium welding	-	1	M8	30	E-Cu	20	394-016117-00000
2.01	Contact tip, aluminium welding	-	1.2	M8	30	E-Cu	20	394-016118-00000
5	Contact tip holder	-	-	M6	35	-	10	394-001823-00000
5	Contact tip holder	-	-	M8	35	-	10	394-000375-00000
5.01	Nozzle spring	-	-	-	-	-	10	394-003656-00000

## MIG/MAG welding torch, gas-cooled • UM 36 G

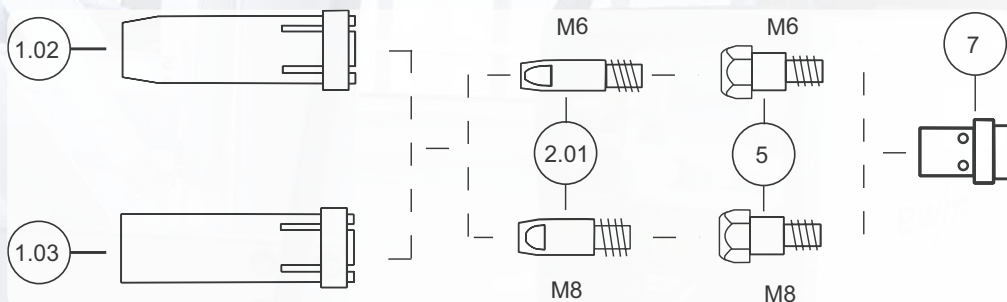
- Gas-cooled standard MIG/MAG welding torch
- Ergonomic grip with ball joint
- Anti-kink spring on both the welding torch and the connection
- Type-related standard consumables
- **Equipment as supplied (steel wire Ø 1.2):**
- Gas nozzle, conical, Ø 16 mm; 84 mm
- Gas diffuser, 32.5 mm
- Contact tip M8 x 30 mm; Ø 1.2 mm
- Contact tip holder M8 x 35 mm
- **Recommendation:**
- For feeding steel wires, we recommend using a steel liner with a capillary tube
- For feeding CrNi, aluminium, flux-cored and CuSi wires, we recommend a PA combined liner with a guide tube (alternatively you can use a Teflon or carbon Teflon liner)



<b>Duty cycle CO2</b>	300 A / 60 %
<b>Duty cycle M21</b>	270 A / 60 %
<b>Wire Ø</b>	0.8 mm - 1.4 mm

Hose package length m	PU Units	Item no.
3.0	1	394-600003-00000
4.0		394-600003-00004
5.0		394-600003-00005

### Consumables



Item	Designation	Nozzle Ø mm	Wire Ø mm	Thread	Length mm	Material	PU Units	Item no.
1.02	Gas nozzle, highly conical	12	-	-	84	Copper, nickel-plated	10	394-001241-00000
1.02	Gas nozzle, conical	16	-	-	84	Copper, nickel-plated	10	394-000431-00000
1.03	Gas nozzle, cylindrical	19	-	-	84	Copper, nickel-plated	10	394-000432-00000
2.01	Contact tip	-	0.8	M6	28	E-Cu	20	394-001191-00000
2.01	Contact tip	-	1	M6	28	E-Cu	20	394-001228-00000
2.01	Contact tip	-	1.2	M6	28	E-Cu	20	394-001229-00000
2.01	Contact tip	-	0.8	M6	28	CuCrZr	20	394-005407-00000
2.01	Contact tip	-	1	M6	28	CuCrZr	20	394-003339-00000
2.01	Contact tip	-	1.2	M6	28	CuCrZr	20	394-005224-00000
2.01	Contact tip	-	0.8	M8	30	E-Cu	20	394-000447-00000
2.01	Contact tip	-	1	M8	30	E-Cu	20	394-000941-00000
2.01	Contact tip	-	1.2	M8	30	E-Cu	20	394-000942-00000
2.01	Contact tip	-	0.8	M8	30	CuCrZr	20	394-014024-00000
2.01	Contact tip	-	1	M8	30	CuCrZr	20	394-000450-00000
2.01	Contact tip	-	1.2	M8	30	CuCrZr	20	394-000452-00000
2.01	Contact tip	-	1.4	M8	30	CuCrZr	20	394-000455-00000
2.01	Contact tip, aluminium welding	-	0.8	M6	28	Copper	20	394-016105-00000
2.01	Contact tip, aluminium welding	-	1	M6	28	Copper	20	394-016107-00000
2.01	Contact tip, aluminium welding	-	1.2	M6	28	Copper	20	394-016108-00000
2.01	Contact tip, aluminium welding	-	0.8	M8	30	E-Cu	20	394-016115-00000
2.01	Contact tip, aluminium welding	-	1	M8	30	E-Cu	20	394-016117-00000
2.01	Contact tip, aluminium welding	-	1.2	M8	30	E-Cu	20	394-016118-00000
5	Contact tip holder	-	-	M6	28	Brass	10	394-000433-00000
5	Contact tip holder	-	-	M8	28	Brass	10	394-000434-00000
7	Gas diffuser	-	-	-	32.5	-	10	394-012572-00000



## Welding torches ● MIG/MAG welding torch, water cooled

### MIG/MAG welding torch, water-cooled ● UM 240 W



- Water-cooled standard MIG/MAG welding torch
- Ergonomic grip with ball joint
- Anti-kink spring on both the welding torch and the connection
- Type-related standard consumables
- **Equipment as supplied (steel wire Ø 1.0):**
- Gas nozzle, conical, Ø 12.5 mm; 63.5 mm
- Gas diffuser, 20 mm
- Contact tip M6 x 28 mm; Ø 1.0 mm
- Contact tip holder M6 x 26 mm
- **Recommendation:**
- For feeding steel wires, we recommend using a steel liner with a capillary tube
- For feeding CrNi, aluminium, flux-cored and CuSi wires, we recommend a PA combined liner with a guide tube (alternatively you can use a Teflon or carbon Teflon liner)

**Duty cycle CO2**

300 A / 100 %

**Duty cycle M21**

270 A / 100 %

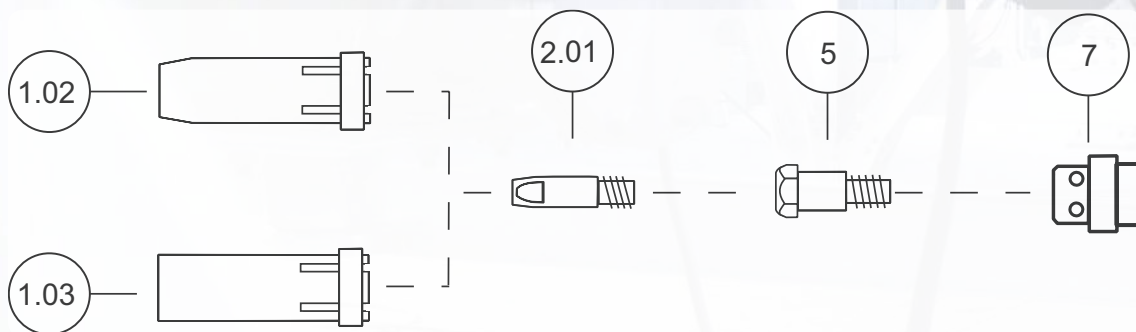
**Wire Ø**

0.6 mm - 1.2 mm

Hose package length m	Item no.
3.0	394-600010-00000
4.0	394-600010-00004
5.0	394-600010-00005

4

### ■ Consumables



Item	Designation	Nozzle Ø mm	Wire Ø mm	Thread	Length mm	Material	PU Units	Item no.
1.02	Gas nozzle, conical	12.5	-	-	63.5	Copper, nickel-plated	10	394-000361-00000
1.02	Gas nozzle, highly conical	10	-	-	63.5	Copper, nickel-plated	10	394-001234-00000
1.03	Gas nozzle, cylindrical	17	-	-	63.5	Copper, nickel-plated	10	394-000362-00000
2.01	Contact tip	-	0.8	M6	28	E-Cu	20	394-001191-00000
2.01	Contact tip	-	1	M6	28	E-Cu	20	394-001228-00000
2.01	Contact tip	-	1.2	M6	28	E-Cu	20	394-001229-00000
2.01	Contact tip	-	0.8	M6	28	CuCrZr	20	394-005407-00000
2.01	Contact tip	-	1	M6	28	CuCrZr	20	394-003339-00000
2.01	Contact tip	-	1.2	M6	28	CuCrZr	20	394-005224-00000
2.01	Contact tip, aluminium welding	-	0.8	M6	28	Copper	20	394-016105-00000
2.01	Contact tip, aluminium welding	-	1	M6	28	Copper	20	394-016107-00000
2.01	Contact tip, aluminium welding	-	1.2	M6	28	Copper	20	394-016108-00000
5	Contact tip holder	-	-	M6	26	Brass	10	394-000363-00000
7	Gas diffuser	-	-	-	-	-	10	394-000360-00000

## MIG/MAG welding torch, water-cooled • UM 401 W

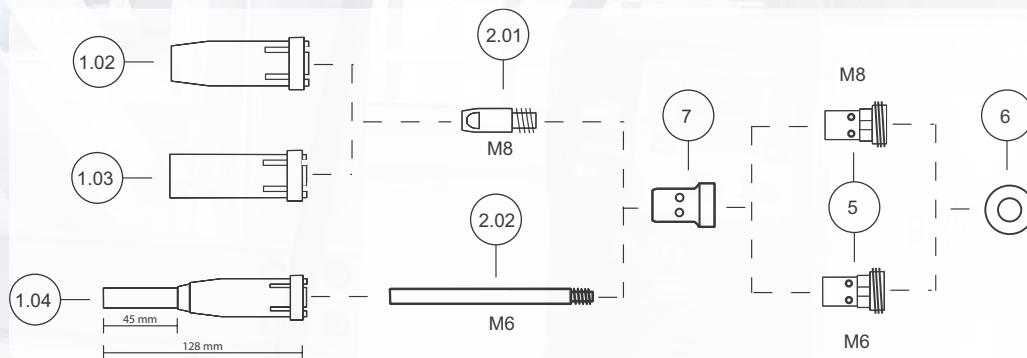
- Water-cooled standard MIG/MAG welding torch
- Ergonomic grip with ball joint
- Anti-kink spring on both the welding torch and the connection
- Type-related standard consumables
- **Equipment as supplied (steel wire Ø 1.2):**
- Gas nozzle, conical, Ø 16 mm; 76 mm
- Gas diffuser, "Longlife", 28 mm
- Contact tip M8 x 30 mm; Ø 1.2 mm
- Contact tip holder M8 x 25 mm
- **Recommendation:**
- For feeding steel wires, we recommend using a steel liner with a capillary tube
- For feeding CrNi, aluminium, flux-cored and CuSi wires, we recommend a PA combined liner with a guide tube (alternatively you can use a Teflon or carbon Teflon liner)



<b>Duty cycle CO2</b>	400 A / 100 %
<b>Duty cycle M21</b>	350 A / 100 %
<b>Wire Ø</b>	0.8 mm - 1.6 mm

Hose package length m	Item no.
3.0	394-600011-00000
4.0	394-600011-00004
5.0	394-600011-00005

## Consumables



Item	Designation	Nozzle Ø mm	Wire Ø mm	Thread	Length mm	Material	PU Units	Item no.
-	Centring tool for narrow-gap contact tip	-	-	-	-	-	1	394-000469-00000
1.02	Gas nozzle, highly conical	14	-	-	76	Copper	10	394-000436-00000
1.02	Gas nozzle, conical	16	-	-	76	Copper	10	394-000435-00000
1.03	Gas nozzle, cylindrical	19	-	-	76	Copper	10	394-000437-00000
1.04	Narrow-gap gas nozzle	11	-	-	128	-	1	394-000711-00000
2.01	Contact tip	-	0.8	M8	30	E-Cu	20	394-000447-00000
2.01	Contact tip	-	1	M8	30	E-Cu	20	394-000941-00000
2.01	Contact tip	-	1.2	M8	30	E-Cu	20	394-000942-00000
2.01	Contact tip	-	1.6	M8	30	E-Cu	20	394-000456-00000
2.01	Contact tip	-	0.8	M8	30	CuCrZr	20	394-014024-00000
2.01	Contact tip	-	1	M8	30	CuCrZr	20	394-000450-00000
2.01	Contact tip	-	1.2	M8	30	CuCrZr	20	394-000452-00000
2.01	Contact tip	-	1.6	M8	30	CuCrZr	20	394-000458-00000
2.01	Contact tip, aluminium welding	-	0.8	M8	30	E-Cu	20	394-016115-00000
2.01	Contact tip, aluminium welding	-	1	M8	30	E-Cu	20	394-016117-00000
2.01	Contact tip, aluminium welding	-	1.2	M8	30	E-Cu	20	394-016118-00000
2.01	Contact tip, aluminium welding	-	1.6	M8	30	E-Cu	20	394-016120-00000
2.02	Narrow-gap contact tip	-	1	M6	83	E-Cu	1	394-000707-00000
2.02	Narrow-gap contact tip	-	1.2	M6	83	E-Cu	1	394-003059-00000
5	Contact tip holder	-	-	M6	25	Brass	1	394-000439-00000
5	Contact tip holder	-	-	M8	25	Brass	10	394-000438-00000
6	Insulating disk	-	-	-	-	-	10	394-000761-00000
7	Gas diffuser	-	-	-	28	-	10	394-000948-00000
7	Gas diffuser, long life	-	-	-	28	-	10	394-011628-00000

# Welding torches ● MIG/MAG welding torch, water cooled

## MIG/MAG welding torch, water-cooled ● UM 501 W



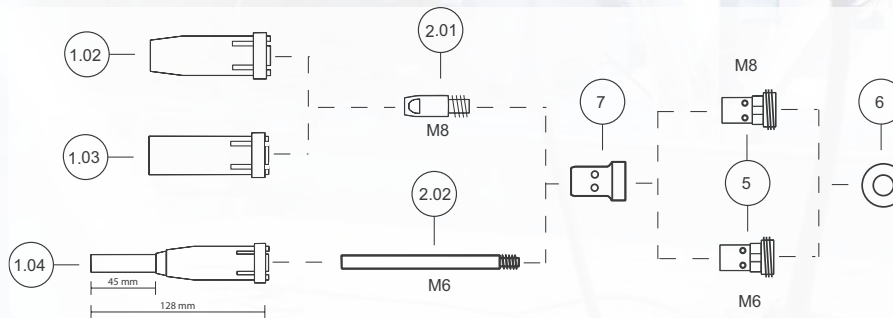
- Water-cooled standard MIG/MAG welding torch
- Ergonomic grip with ball joint
- Anti-kink spring on both the welding torch and the connection
- Type-related standard consumables
- **Equipment as supplied (steel wire Ø 1.2):**
- Gas nozzle, conical, Ø 16 mm; 76 mm
- Gas diffuser, "Longlife", 28 mm
- Contact tip M8 x 30 mm; Ø 1.2 mm
- Contact tip holder M8 x 25 mm
- **Recommendation:**
- For feeding steel wires, we recommend using a steel liner with a capillary tube
- For feeding CrNi, aluminium, flux-cored and CuSi wires, we recommend a PA combined liner with a guide tube (alternatively you can use a Teflon or carbon Teflon liner)

<b>Duty cycle CO2</b>	500 A / 100 %
<b>Duty cycle M21</b>	450 A / 100 %
<b>Wire Ø</b>	0.8 mm - 1.6 mm

Hose package length m	Item no.
3.0	394-600012-00000
4.0	394-600012-00004
5.0	394-600012-00005

4

### ■ Consumables



Item	Designation	Nozzle Ø mm	Wire Ø mm	Thread	Length mm	Material	PU Units	Item no.
-	Centring tool for narrow-gap contact tip	-	-	-	-	-	1	394-000469-00000
1.02	Gas nozzle, highly conical	14	-	-	76	Copper	10	394-000436-00000
1.02	Gas nozzle, conical	16	-	-	76	Copper	10	394-000435-00000
1.03	Gas nozzle, cylindrical	19	-	-	76	Copper	10	394-000437-00000
1.04	Narrow-gap gas nozzle	11	-	-	128	-	1	394-000711-00000
2.01	Contact tip	-	0.8	M8	30	E-Cu	20	394-000447-00000
2.01	Contact tip	-	1	M8	30	E-Cu	20	394-000941-00000
2.01	Contact tip	-	1.2	M8	30	E-Cu	20	394-000942-00000
2.01	Contact tip	-	1.6	M8	30	E-Cu	20	394-000456-00000
2.01	Contact tip	-	0.8	M8	30	CuCrZr	20	394-014024-00000
2.01	Contact tip	-	1	M8	30	CuCrZr	20	394-000450-00000
2.01	Contact tip	-	1.2	M8	30	CuCrZr	20	394-000452-00000
2.01	Contact tip	-	1.6	M8	30	CuCrZr	20	394-000458-00000
2.01	Contact tip, aluminium welding	-	0.8	M8	30	E-Cu	20	394-016115-00000
2.01	Contact tip, aluminium welding	-	1	M8	30	E-Cu	20	394-016117-00000
2.01	Contact tip, aluminium welding	-	1.2	M8	30	E-Cu	20	394-016118-00000
2.01	Contact tip, aluminium welding	-	1.6	M8	30	E-Cu	20	394-016120-00000
2.02	Narrow-gap contact tip	-	1	M6	83	E-Cu	1	394-000707-00000
2.02	Narrow-gap contact tip	-	1.2	M6	83	E-Cu	1	394-003059-00000
5	Contact tip holder	-	-	M6	25	Brass	1	394-000439-00000
5	Contact tip holder	-	-	M8	25	Brass	10	394-000438-00000
6	Insulating disk	-	-	-	-	-	10	394-000761-00000
7	Gas diffuser	-	-	-	28	-	10	394-000948-00000
7	Gas diffuser, long life	-	-	-	28	-	10	394-011628-00000





Gas nozzle • MIG 15



- Nickel-plated, insulated gas nozzle
- Suitable for type 15 welding torches

**Length** 53 mm  
**Material** Copper, nickel-plated

Nozzle Ø mm	Length mm	Version	PU Units	Item no.
9.5	53	Highly conical	10	094-001212-00000
12.0		Conical		094-001085-00000
16.0		Cylindrical		094-001198-00000
	60	Spot gas nozzle	094-001213-00000	

Gas nozzle • MIG 15 Eco



- Nickel-plated, insulated gas nozzle
- Suitable for type 15 welding torches

**Material** Copper, nickel-plated

Nozzle Ø mm	Length mm	PU Units	Version	Item no.
9.5	53	10	Highly conical	394-001212-00000
12.0			Conical	394-000472-00000
16.0			Cylindrical	394-000211-00000
	60	Spot gas nozzle	394-000213-00000	

Gas nozzle • MIG 24/240



- Nickel-plated, insulated gas nozzle
- Suitable for type 24/240 welding torches
- Plug-in with clamping ring

**Length** 63.5 mm  
**Material** Copper, nickel-plated

Nozzle Ø mm	Version	PU Units	Item no.
10.0	Highly conical	10	094-001234-00000
12.5	Conical		094-001190-00000
17.0	Cylindrical		094-001233-00000

### Gas nozzle • MIG 24/240 Eco

- Nickel-plated, insulated gas nozzle
- Suitable for type 24/240 welding torches
- Plug-in with clamping ring

<b>Length</b>	63.5 mm
<b>Material</b>	Copper, nickel-plated

Nozzle Ø mm	PU Units	Version	Item no.
10.0	10	Highly conical	394-001234-00000
12.5		Conical	394-000361-00000
17.0		Cylindrical	394-000362-00000



### Gas nozzle • MIG 25

- Nickel-plated, insulated gas nozzle
- Suitable for type 25 welding torches

<b>Material</b>	Copper, nickel-plated
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Nozzle Ø mm	Length mm	Version	PU Units	Item no.
11.5	-	Highly conical	10	094-001647-00000
15.0		Conical		094-002079-00000
18.0		Cylindrical		094-013288-00000
	67	Spot gas nozzle		094-016374-00000



### Gas nozzle • MIG 25 Eco

- Nickel-plated, insulated gas nozzle
- Suitable for type 25 welding torches

<b>Material</b>	Copper, nickel-plated
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Nozzle Ø mm	Length mm	PU Units	Version	Item no.
11.5	57	10	Highly conical	394-001647-00000
15.0			Conical	394-000369-00000
18.5			Cylindrical	394-000371-00000
18.0	66		Spot gas nozzle	394-000373-00000



### Gas nozzle • MIG 36

- Nickel-plated, insulated gas nozzle
- Suitable for type 36 welding torches
- Plug-in with clamping ring

<b>Length</b>	84 mm
<b>Material</b>	Copper, nickel-plated

Nozzle Ø mm	Version	PU Units	Item no.
12.0	Highly conical	10	094-001241-00000
16.0	Conical		094-001240-00000
19.0	Cylindrical		094-001239-00000





Gas nozzle • MIG 36 Eco



- Nickel-plated, insulated gas nozzle
- Suitable for type 36 welding torches
- Plug-in with clamping ring

<b>Length</b>	84 mm
<b>Material</b>	Copper, nickel-plated

Nozzle Ø mm	PU Units	Version	Item no.
12.0	10	Highly conical	394-001241-00000
16.0		Conical	394-000431-00000
19.0		Cylindrical	394-000432-00000

Gas nozzle • MIG 35/401/501



- Gas nozzle for type 35/401/501 welding torches
- Plug-in with clamping ring
- Copper, bright, with clamping ring

<b>Length</b>	76 mm
<b>Material</b>	Copper

Nozzle Ø mm	Version	PU Units	Item no.
14.0	Highly conical	10	094-001260-00000
16.0	Conical		094-000945-00000
20.0	Cylindrical		094-001259-00000

Gas nozzle • MIG 35/401/501 Eco



- Gas nozzle for type 35/401/501 welding torches
- Plug-in with clamping ring

<b>Length</b>	76 mm
<b>Material</b>	Copper

Nozzle Ø mm	PU Units	Version	Item no.
14.0	10	Highly conical	394-000436-00000
16.0		Conical	394-000435-00000
19.0		Cylindrical	394-000437-00000

Gas nozzle, narrow gap welding • MIG 35/401/501



- Gas nozzle for narrow gap welding
- Suitable for type 35/401/501 welding torches

<b>Length</b>	128 mm
<b>Nozzle Ø</b>	12 mm
<b>Material</b>	Copper, nickel-plated

PU Units	Item no.
10	394-001065-00000

## Gas nozzle, narrow gap welding • MIG 35/401/501 Eco

- Gas nozzle for narrow gap welding
- Suitable for type 35/401/501 welding torches

<b>Length</b>	128 mm
<b>Nozzle Ø</b>	11 mm

PU Units	Item no.	PG	Price Per unit
1	394-000711-00000	HW11	stk



Contact tip ● CT M6 E-Cu



Length	25 mm
Thread, contact tip	M6
Material	E-Cu

Wire Ø mm	PU Units	Item no.
0.6	10	094-001088-00000
0.8		094-001087-00000
1.0		094-001086-00000

Contact tip ● CT M6 E-Cu Eco



Length	25 mm
Thread, contact tip	M6
Material	E-Cu

Wire Ø mm	PU Units	Item no.
0.8	20	394-001087-00000
1.0		394-001086-00000

Contact tip ● CT M6 E-Cu



Length	28 mm
Thread, contact tip	M6
Material	E-Cu

Wire Ø mm	PU Units	Item no.
0.8	10	094-001191-00000
1.0		094-001228-00000
1.2		094-001229-00000

Contact tip ● CT M6 E-Cu Eco



Length	28 mm
Thread, contact tip	M6
Material	E-Cu

Wire Ø mm	PU Units	Item no.
0.8	20	394-001191-00000
1.0		394-001228-00000
1.2		394-001229-00000



Contact tip, aluminium welding • CT M6 E-Cu (Alu)

Length	28 mm
Thread, contact tip	M6
Material	E-Cu



Wire Ø mm	PU Units	Item no.
0.8		094-001230-00000
1.0	10	094-001231-00000
1.2		094-001232-00000

Contact tip, aluminium welding ● CT M6 E-Cu Eco (Alu)



Length	28 mm
Thread, contact tip	M6
Material	Copper

Wire Ø mm	PU Units	Item no.
0.8		394-016105-00000
1.0	20	394-016107-00000
1.2		394-016108-00000

Contact tip ● CT M6 CuCrZr



Length	28 mm
Thread, contact tip	M6
Material	CuCrZr

Wire Ø mm	PU Units	Item no.
0.8		094-005407-00000
1.0	10	094-003339-00000
1.2		094-005224-00000

Contact tip ● CT M6 CuCrZr Eco



Length	28 mm
Thread, contact tip	M6
Material	CuCrZr

Wire Ø mm	PU Units	Item no.
0.8		394-005407-00000
1.0	20	394-003339-00000
1.2		394-005224-00000

CuCrZr contact tip, silver plated ● CT M6 CuCrZr



Length	28 mm
Thread, contact tip	M6
Material	CuCrZr, silver-plated

Wire Ø mm	PU Units	Item no.
0.8		094-010468-00000
1.0	10	094-010470-00000
1.2		094-016488-00000
1.4		094-010471-00000

**Contact tip, nickel-plated • CT M6 E-Cu Eco**

<b>Length</b>	28 mm
<b>Thread, contact tip</b>	M6
<b>Material</b>	Copper, nickel-plated

Wire Ø mm	PU Units	Item no.
0.8	10	394-000407-00000
1.0		394-000408-00000
1.2		394-000409-00000
1.4		394-000702-00000



**Contact tip • CT M8 E-Cu**

<b>Length</b>	30 mm
<b>Thread, contact tip</b>	M8
<b>Material</b>	E-Cu

Wire Ø mm	PU Units	Item no.
0.8	10	094-001252-00000
1.0		094-000941-00000
1.2		094-000942-00000
1.4		094-001253-00000
1.6		094-001254-00000



**Contact tip • CT M8 E-Cu Eco**

<b>Length</b>	30 mm
<b>Thread, contact tip</b>	M8
<b>Material</b>	E-Cu

Wire Ø mm	PU Units	Item no.
0.8	20	394-000447-00000
1.0		394-000941-00000
1.2		394-000942-00000
1.4		394-000453-00000
1.6		394-000456-00000



**Contact tip, aluminium welding • CT M8 E-Cu (Alu)**

<b>Length</b>	30 mm
<b>Thread, contact tip</b>	M8
<b>Material</b>	E-Cu

Wire Ø mm	PU Units	Item no.
0.8	10	094-001257-00000
1.0		094-000943-00000
1.2		094-000944-00000
1.4		094-010165-00000
1.6		094-001258-00000





Contact tip, aluminium welding ● CT M8 E-Cu Eco (Alu)



Length	30 mm
Thread, contact tip	M8
Material	E-Cu

Wire Ø mm	PU Units	Item no.
0.8	20	394-016115-00000
1.0		394-016117-00000
1.2		394-016118-00000
1.6		394-016120-00000

Contact tip ● CT M8 CuCrZr



Length	30 mm
Thread, contact tip	M8
Material	CuCrZr

Wire Ø mm	PU Units	Item no.
0.8	10	094-005409-00000
1.0		094-005225-00000
1.2		094-004207-00000
1.4		094-005411-00000
1.6		094-005412-00000

Contact tip ● CT M8 CuCrZr Eco



Length	30 mm
Thread, contact tip	M8
Material	CuCrZr

Wire Ø mm	PU Units	Item no.
0.8	20	394-014024-00000
1.0		394-000450-00000
1.2		394-000452-00000
1.4		394-000455-00000
1.6		394-000458-00000

CuCrZr contact tip, silver plated ● CT M8 CuCrZr



Length	30 mm
Thread, contact tip	M8
Material	CuCrZr, silver-plated

Wire Ø mm	PU Units	Item no.
0.8	10	094-011269-00000
0.9		094-011270-00000
1.0		094-011271-00000
1.2		094-011272-00000
1.4		094-011273-00000
1.6		094-011274-00000

### Contact tip, nickel-plated • CT M8 E-Cu Eco

<b>Length</b>	30 mm
<b>Thread, contact tip</b>	M8
<b>Material</b>	E-Cu

Wire Ø mm	PU Units	Item no.
0.8		394-000448-00000
1.0		394-000449-00000
1.2	10	394-000451-00000
1.4		394-000454-00000
1.6		394-000457-00000



### Contact tip, especially for narrow gap welding • CT M8 CuCrZr

- Contact tip, especially for narrow gap welding

<b>Length</b>	85 mm
<b>Thread, contact tip</b>	M8
<b>Material</b>	CuCrZr

Wire Ø mm	PU Units	Item no.
1.0	10	394-001066-00000
1.2		394-003363-00000



### Narrow-gap contact tip • CT M6 E-Cu Eco

<b>Length</b>	83 mm
<b>Thread, contact tip</b>	M6
<b>Material</b>	E-Cu

Wire Ø mm	PU Units	Item no.
1.0	1	394-000707-00000
1.2		394-003059-00000



Contact tip holder • MIG 15



- Contact tip holder/gas nozzle holder with outer thread
- With internal thread
- Suitable for type MB 15 AK welding torches

<b>Thread, contact tip</b>	M6
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Material	Version	PU Units	Item no.
Brass	Contact tip holder	10	094-001207-00000
Spring steel	Nozzle spring	20	094-001083-00000

Contact tip holder, complete with retaining spring • MIG 15 Eco



- Contact tip holder/gas nozzle holder with outer thread
- Suitable for type TW-MIG 15 welding torches

<b>Length</b>	30 mm
<b>Thread, contact tip</b>	M6
<b>Version</b>	complete

PU Units	Item no.
10	394-000083-00000

Protective sleeve • MIG 15



- Suitable for type MB 15 AK welding torches

<b>Material</b>	HT plastic
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PU Units	Item no.
10	094-001188-00000

Teflon protective sleeve • MIG 15 Eco



- Suitable for type TW-MIG 15 welding torches

<b>Material</b>	Teflon
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PU Units	Item no.
10	394-000793-00000

4



### Contact tip holder • MIG 25

- Contact tip holder/gas nozzle holder with outer thread
- Suitable for type 25 welding torches

<b>Length</b>	35 mm			
<b>Specification</b>	<b>Material</b>	<b>Thread, contact tip</b>	<b>PU Units</b>	<b>Item no.</b>
Contact tip holder	Brass	M6	10	094-001823-00000
Contact tip holder	Brass	M8	10	394-000575-00000



### Contact tip holder • MIG 25 Eco

- Contact tip holder/gas nozzle holder with outer thread
- Suitable for type 25 welding torches

<b>Length</b>	35 mm		
<b>Version</b>	complete		
<b>PU Units</b>	<b>Thread, contact tip</b>	<b>Item no.</b>	
10	M6	394-001823-00000	
	M8	394-000375-00000	



### Contact tip holder • MIG 24 / 240

- Contact tip holder/gas nozzle holder with outer thread
- Suitable for type 24/240 welding torches

<b>Length</b>	26 mm	
<b>Thread, contact tip</b>	M6	
<b>Material</b>	Brass	
<b>PU Units</b>	<b>Item no.</b>	
10	094-001227-00000	



Contact tip holder ● MIG 24/240 Eco



- Contact tip holder/gas nozzle holder with outer thread
- Suitable for type 24/240 welding torches

<b>Length</b>	26 mm
<b>Thread, contact tip</b>	M6
<b>Material</b>	Brass

PU	Item no.
Units	
10	394-000363-00000

Contact tip holder ● MIG 36



- Contact tip holder/gas nozzle holder with outer thread
- Suitable for type 36 welding torches

<b>Length</b>	28 mm
<b>Material</b>	Brass

Thread, contact tip	PU	Item no.
	Units	
M6	10	094-001237-00000
M8		094-012552-00000

Contact tip holder ● MIG 36 Eco



- Contact tip holder/gas nozzle holder with outer thread
- Suitable for type 36 welding torches

<b>Length</b>	28 mm
<b>Material</b>	Brass

PU	Thread, contact tip	Item no.
Units		
10	M6	394-000433-00000
	M8	394-000434-00000

Contact tip holder ● MIG 35/401/501



- Contact tip holder/gas nozzle holder with outer thread
- Suitable for type 35/401/501 welding torches

<b>Length</b>	25 mm
<b>Material</b>	Brass

Thread, contact tip	PU	Item no.
	Units	
M6	10	094-001656-00000
M8		094-001658-00000

### Contact tip holder • MIG 35/401/501 Eco

- Contact tip holder/gas nozzle holder with outer thread
- Suitable for type 35/401/501 welding torches

<b>Length</b>	25 mm
<b>Material</b>	Brass

PU Units	Thread, contact tip	Item no.
1	M6	394-000439-00000
10	M8	394-000438-00000



### Insulating disk • MIG 35/401/501

- Suitable for type 35/401/501 welding torches

PU Units	Item no.
10	094-013354-00000



### Insulating disk • MIG 35/401/501 Eco

- Suitable for type 35/401/501 welding torches

PU Units	Item no.
10	394-000761-00000





Gas diffuser ● UM 24 G



- Gas diffuser
- Suitable for type 24/240 welding torches

**Length** 20 mm

PU	Item no.
Units	
10	094-009009-00000

Gas diffuser ● MIG 24/240 Eco



- Gas diffuser
- Suitable for type 24/240 welding torches

**Length** 20 mm

PU	Item no.
Units	
10	394-000360-00000

Gas diffuser ● MIG 36



- Gas diffuser
- Suitable for type 36 welding torches

**Length** 32.5 mm

Version	PU	Item no.
	Units	
Standard		094-001236-00000
Long life	10	094-012571-00000
Ceramic		094-012572-00000

4

### Gas diffuser • MIG 36 Eco

- Gas diffuser
- Suitable for type 36 welding torches

<b>Length</b>	32.5 mm
<b>Version</b>	Standard

PU	Item no.
Units	
10	394-012572-00000



### Gas diffuser • MIG 35/401/501

- Gas diffuser
- Suitable for type 35/401/501 welding torches

<b>Length</b>	28 mm
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Version	PU	Item no.
Standard		094-000948-00000
Long life	10	094-011628-00000
Ceramic		094-012649-00000

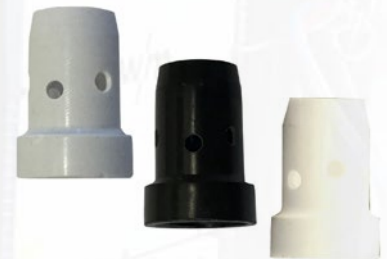


### Gas diffuser • MIG 35/401/501 Eco

- Gas diffuser
- Suitable for type 35/401/501 welding torches

<b>Length</b>	28 mm
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Version	PU	Item no.
Standard	10	394-000948-00000
Long life	10	394-011628-00000



Steel liner, insulated



- Steel liner for feeding steel wire
- Used in gas- and water-cooled welding torches
- Insulation prevents gas losses

Wire Ø	0.8 mm - 1 mm
Inside Ø	1.5 mm
Outside Ø	3.8 mm
Colour code	Blue

Length m	PU Pack	Item no.
3.6		094-013074-00501
4.6	2	094-013075-00501
5.6		094-014221-00501

Steel liner, insulated



- Steel liner for feeding steel wire
- Used in gas- and water-cooled welding torches
- Insulation prevents gas losses

Wire Ø	1.2 mm - 1.6 mm
Inside Ø	2 mm
Outside Ø	4.6 mm
Colour code	Red

Length m	PU Pack	Item no.
3.6		094-007239-00501
4.6	2	094-014223-00501
5.6		094-014224-00501

Steel liner, insulated



- Steel liner for feeding steel wire
- Used in gas- and water-cooled welding torches
- Insulation prevents gas losses

Wire Ø	1.6 mm - 2 mm
Inside Ø	2.4 mm
Outside Ø	4.6 mm
Colour code	Yellow

Length m	PU Pack	Item no.
3.6		094-013662-00502
4.6	2	094-013663-00502
5.6		094-013664-00502

Steel liner, blank • Ø 0,8 mm



Wire Ø	0.8 mm
Inside Ø	1.5 mm
Outside Ø	4 mm

Length m	PU Pack	Item no.
3.0		094-001265-00000
4.0	1	094-001266-00000
5.0		094-001267-00000



### Steel liner, blank • Ø 1,0 - 1,2 mm

Wire Ø	1 mm - 1.2 mm
Inside Ø	2 mm
Outside Ø	4.5 mm



Length m	PU Pack	Item no.
3.0		094-000946-00000
4.0	1	094-001268-00000
5.0		094-001269-00000



### Steel liner, blank • Ø 1,6 mm

Wire Ø	1.6 mm
Inside Ø	2.5 mm
Outside Ø	4.5 mm



Length m	PU Pack	Item no.
3.0		094-001270-00000
4.0	1	094-001271-00000
5.0		094-001272-00000



### Combined liner, PA

- Liner (combined liner) for feeding CrNi, aluminium, flux cored wires and CuSi wires
- Manufactured to length, with collet and O-ring

Wire Ø	0.6 mm - 1 mm
Inside Ø	1.5 mm
Outside Ø	4 mm
Colour code	Grey
Material	PA

Length m	PU Unit	Item no.
3.0		094-013687-00000
4.0	1	094-013687-00004
5.0		094-013687-00005



### Combined liner, PA

- Liner (combined liner) for feeding CrNi, aluminium, flux cored wires and CuSi wires
- Manufactured to length, with collet and O-ring

Wire Ø	1.2 mm - 1.6 mm
Inside Ø	2 mm
Outside Ø	4 mm
Colour code	Grey
Material	PA

Length m	PU Unit	Item no.
3.0		094-013076-00000
3.5		092-018706-00003
4.0	1	094-013077-00000
4.5		092-018706-00004
5.0		094-013565-00000



Combined liner, PA



- Liner (combined liner) for feeding CrNi, aluminium, flux cored wires and CuSi wires
- Manufactured to length, with collet and O-ring

<b>Wire Ø</b>	1.6 mm - 2 mm
<b>Inside Ø</b>	2.3 mm
<b>Outside Ø</b>	4.7 mm
<b>Colour code</b>	Grey
<b>Material</b>	PA

Length m	PU Unit	Item no.
3.0	1	094-013665-00000
4.0		094-013666-00000
5.0		094-013667-00000
6.0		094-021160-00006
8.0		094-021160-00008
10.0		094-021160-00010

Combined liner, Teflon



- Liner (combined liner) for feeding CrNi, aluminium, flux cored wires and CuSi wires
- Manufactured to length, with collet and O-ring

<b>Wire Ø</b>	0.6 mm - 1 mm
<b>Inside Ø</b>	1.5 mm
<b>Outside Ø</b>	4 mm
<b>Colour code</b>	Blue
<b>Material</b>	Teflon

Length m	PU Unit	Item no.
3.0	1	094-013800-00000
4.0		094-013800-00004
5.0		094-013800-00005

Combined liner, Teflon



- Liner (combined liner) for feeding CrNi, aluminium, flux cored wires and CuSi wires
- Manufactured to length, with collet and O-ring

<b>Wire Ø</b>	1.2 mm - 1.6 mm
<b>Inside Ø</b>	2 mm
<b>Outside Ø</b>	4 mm
<b>Colour code</b>	Red
<b>Material</b>	Teflon

Length m	PU Unit	Item no.
3.0	1	094-013801-00000
4.0		094-013801-00004
5.0		094-013801-00005

### Combined liner, Teflon

- Liner (combined liner) for feeding CrNi, aluminium, flux cored wires and CuSi wires
- Manufactured to length, with collet and O-ring



<b>Wire Ø</b>	1.6 mm - 2 mm
<b>Inside Ø</b>	2.7 mm
<b>Outside Ø</b>	4.7 mm
<b>Colour code</b>	Yellow
<b>Material</b>	Teflon

Length m	PU Unit	Item no.
3.0		094-013802-00000
4.0	1	094-013802-00004
5.0		094-013802-00005

### Combined liner, carbon Teflon

- Liner (combined liner) for feeding CrNi, aluminium, flux cored wires and CuSi wires
- Manufactured to length, with collet and O-ring



<b>Wire Ø</b>	0.6 mm - 1 mm
<b>Inside Ø</b>	1.5 mm
<b>Outside Ø</b>	4 mm
<b>Colour code</b>	Black
<b>Material</b>	Carbon Teflon

Length m	PU Unit	Item no.
3.0		094-013871-00000
4.0	1	094-013871-00004
5.0		094-013871-00005

### Combined liner, carbon Teflon

- Liner (combined liner) for feeding CrNi, aluminium, flux cored wires and CuSi wires
- Manufactured to length, with collet and O-ring



<b>Wire Ø</b>	1.2 mm - 1.6 mm
<b>Inside Ø</b>	2 mm
<b>Outside Ø</b>	4 mm
<b>Colour code</b>	Black
<b>Material</b>	Carbon Teflon

Length m	PU Unit	Item no.
3.0		094-013828-00000
4.0	1	094-013828-00004
5.0		094-013828-00005



Combined liner, carbon Teflon



- Liner (combined liner) for feeding CrNi, aluminium, flux cored wires and CuSi wires
- Manufactured to length, with collet and O-ring

<b>Wire Ø</b>	1.6 mm - 2 mm
<b>Inside Ø</b>	2.7 mm
<b>Outside Ø</b>	4.7 mm
<b>Colour code</b>	Black
<b>Material</b>	Carbon Teflon

Length m	PU Unit	Item no.
3.0		094-013829-00000
4.0	1	094-013829-00004
5.0		094-013829-00005

Teflon liner, turquoise



- Liner (combined liner) for feeding CrNi, aluminium, flux cored wires and CuSi wires
- Price per metre, minimum purchase: 1 m, maximum purchase in one piece: 100 m
- **Please note that material sold by the metre cannot be exchanged!**

<b>Wire Ø</b>	1 mm - 1.2 mm
<b>Inside Ø</b>	2.25 mm
<b>Colour code</b>	Turquoise

PU m	Item no.
1	398-000403-00000

O-ring



- O-ring to seal Teflon and PA liners

<b>Ø</b>	3.5 mm - 1.5 mm
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PU Unit	Item no.
1	094-001249-00000

Brass liner



- Brass liner, including jointing sleeve for screwing onto PA or Teflon liners

<b>Length</b>	200 mm
<b>Inside Ø</b>	2.2 mm
<b>Outside Ø</b>	4.4 mm

PU Unit	Item no.
5	094-012279-00000

4

## Collet chuck

- Collet chuck for fixing in Euro torch connector

### Material

Brass

Outside liner Ø mm	PU Unit	Item no.
4.0	20	094-001082-00000
4.7		094-001291-00000



## Hexagonal nut

- Hexagon nut for Euro central connector

### Material

Brass

### Thread

M10 x 1

PU Unit	Item no.
10	094-001080-00000



## Guide tube

- Guide tube for use on a liner when welding or brazing soft or alloyed wire
- Recommendation:**
- Use a steel liner with capillary tube to weld hard, unalloyed wire electrodes (steel)
- Use a liner with guide tube to weld or braze soft or alloy wire electrodes
- For converting wire feeders

Length mm	PU Units	Item no.
45	1	094-019350-00000
66		094-018316-00000
100		094-020064-00000
105		094-006051-00000
115		094-001064-00000



## Capillary tube

- Capillary tube for use on a steel liner when welding steel wire
- Recommendation:**
- Use a steel liner with capillary tube to weld hard, unalloyed wire electrodes (steel)
- Use a liner with guide tube to weld or braze soft or alloy wire electrodes
- For converting wire feeders

Length mm	PU Units	Version	Item no.
48	5	Wire diameter ≤ 1.6 mm	094-014186-00000
69		Wire diameter ≤ 2.0 mm	094-014667-00000
107		Wire diameter ≤ 1.6 mm	094-006634-00000
105		Wire diameter ≤ 2.4 mm	094-021470-00000
118		Wire diameter ≤ 1.6 mm	094-002559-00000
		Wire diameter ≤ 2.0 mm	094-007515-00000



Welding torches • MIG/MAG consumables • Adapters and accessories

Adapter for welding torches with Dinse connector to use Euro torch connector on the machine • ADAP DINSE



PU	Item no.
Unit	
1	094-016765-00000

Adapter for welding torches with Euro torch connector to use Dinse connector on the machine • ADAP DINSE EZA/DZA



PU	Item no.
Unit	
1	394-000134-00000

Adapter for welding torch with Euro torch connector on CLOOS connection (gas/water outside) on the machine • ADAP DINSE



- Adapter for welding torch with Euro torch connector on Cloos connection (gas/water on the outside) on the machine
- Cloos is a registered trademark of Carl Cloos Schweißtechnik GmbH

PU	Item no.
Unit	
1	094-019852-00000

Flow meter • Gastester



- Flow measurement directly on the welding torch

PU	Item no.
Units	
1	094-000074-00000

Torch key



- Torch key for fitting contact tip, contact tip holder and other accessories

PU	Item no.
Units	
1	094-016038-00001



## Hose cutter

- Cutter for the cutting of PA and PTFE liners.

PU Unit	Item no.
1	094-016585-00000



## Sharpener for plastic liners • Liner sharpener

- Sharpener for plastic liners

PU Unit	Item no.
1	094-010427-00000



## MIG/MAG torch holder • Original FIX®

- Handy Support Original FIX®
- Gentle contact points
- Powder-coated aluminium
- Complete with magnetic foot

PU Units	Item no.
1	098-004206-00000



## Gas nozzle cleaner

- Nozzle cleaner for MIG/MAG welding torches
- Deposits inside the nozzle are removed by rotating the nozzle cleaner

PU Units	Item no.
1	098-000407-00000



## Glass and ceramic gas nozzles

The large diameters of the gas nozzles guarantee a significantly better shielding gas coverage than conventional gas nozzles. As a result, they are eminently suitable for use when working on high-alloy steels such as chromium-nickel steels or titanium.

Suitable for all SR-17/18/26 and SR-9/20 TIG welding torches by different manufacturers. We now offer you three glass gas nozzles in different diameters plus a ceramic gas nozzle.

### Highlights

- Greatly improved shielding gas coverage (compared to standard nozzles)
- Optimum shielding gas coverage even for pipe welding thanks to different nozzle sizes and eminently suitable for both small and large pipe diameters
- Allows discolouration to be reduced on the seam since the shielding gas remains above the seam section for longer\*
- The high-grade components ensure great accuracy when the electrode is centred, leading to improved precision during welding



## 4

### Glass gas nozzles

- The glass design guarantees an optimum view while welding
- The optional titanium ring allows to slide gently over the material during welding and provides an additional protection against damage
- Three nozzle types are available
  - **FUPA (nozzle Ø: 19 mm)**: high shielding gas coverage, even when working in confined space  
Maximum load: 180 A, DC
  - **BBW (nozzle Ø: 26.7 mm)**: maximum shielding gas coverage, can only be used in confined spaces to a limited extent, plugged in  
Maximum load: 200 A, DC
  - **BBWSG (nozzle Ø: 26.7 mm)**: maximum shielding gas coverage, can only be used in confined spaces to a limited extent, screwed on  
Maximum load: 200 A, DC



Using the included o-ring the FURICK glass gas nozzles are **plugged in** the welding torch:

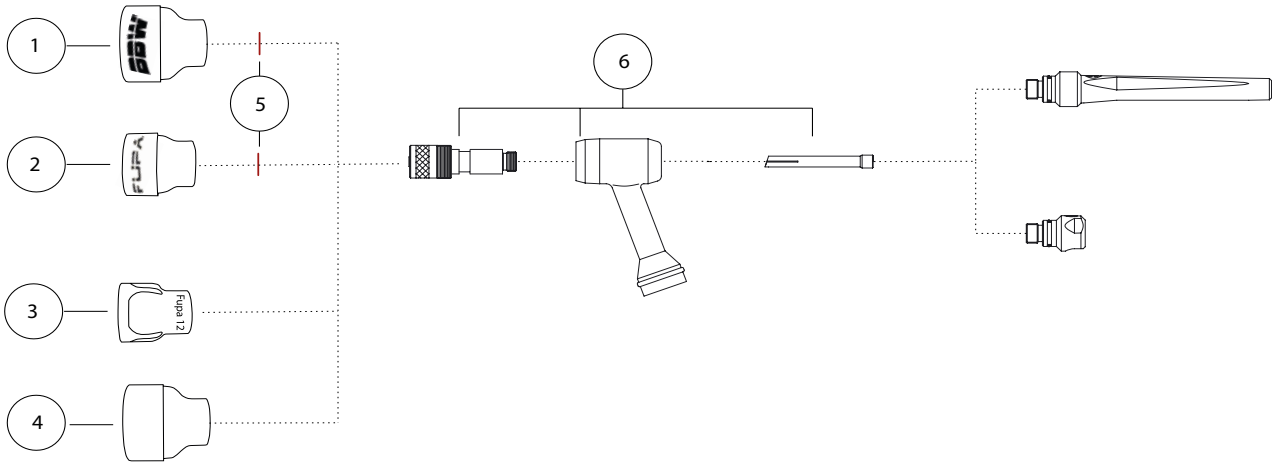


## Note

### FUPA / BBW nozzles for SR 17/18/26 welding torches

The gas nozzles can only be used with an electrode diameter of 2.4 mm.

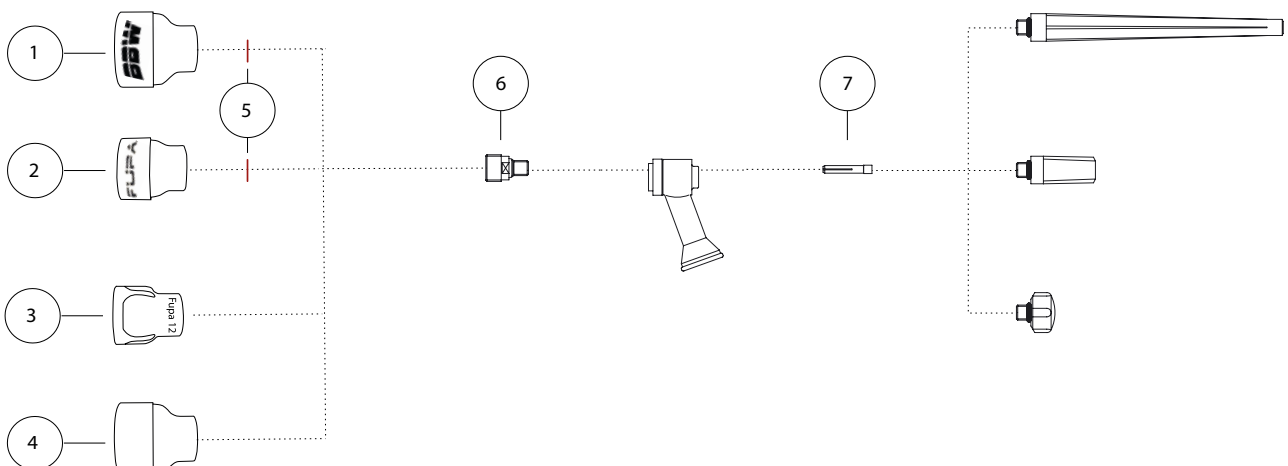
- The gas nozzle holder set (094-023224-00000) must be used for SR 17/18/26 welding torches.



Item	Designation
1	BBW glass gas nozzles
2	FUPA glass gas nozzles
3	FUPA ceramic gas nozzles
4	BBWSG glass gas nozzle
5	O-Ring
6	Gas nozzle holder set consisting of 1 collet, 1 collet body, 1 insulator, 4 o-rings

### FUPA / BBW nozzles for SR 9/20 welding torches

- If SR 9/20 welding torches are used the torch must be equipped with a collet (094-000934-00000) and collet body with gas lens (094-001354-00000).



Item	Designation
1	BBW glass gas nozzles
2	FUPA glass gas nozzles
3	FUPA ceramic gas nozzles
4	BBWSG glass gas nozzle
5	O-Ring
6	Collet body with gas lens
7	Collet body



Glass gas nozzle set consisting of 2 nozzles, 3 o-rings (small) and 1 o-ring (large) ● BBW Cup



- Glass gas nozzle set consisting of 2 nozzles, 3 o-rings (small) and 1 o-ring (large)
- BBW gas nozzles (Ø 26.7 mm) guarantee optimal shielding gas coverage but cannot be fully used in tight spaces
- Guarantees an optimum view while welding
- Maximum load: 200 A, DC
- **Instructions for use:**
- FURICK gas nozzles can only be operated with an electrode diameter of 2.4 mm
- The gas nozzle holder set (094-023224-00000) is required for use on SR 17/18/26 welding torches
- For use on SR 9/20 welding torches, the torch must be fitted with a collet (094-022705-00000 or alternatively 094-000934-00000) and a collet body with gas lens (094-001354-00000)
- Only suitable for use in TIG DC welding. Please contact us about AC applications

Nozzle Ø 26.7 mm

PU	Item no.
Units	
1	094-023226-00000

Glass gas nozzle set consisting of 2 nozzles, 1 titanium guard, 3 o-rings (small) and 1 o-ring (large) ● BBW Cup Cover



- Glass gas nozzle set consisting of 2 nozzles, 3 o-rings (small) and 1 o-ring (large)
- BBW gas nozzles (Ø 26.7 mm) guarantee optimal shielding gas coverage but cannot be fully used in tight spaces
- Guarantees an optimum view while welding
- Maximum load: 200 A, DC
- The titanium ring increases sliding resistance during welding while protecting against damage
- **Instructions for use:**
- FURICK gas nozzles can only be operated with an electrode diameter of 2.4 mm
- The gas nozzle holder set (094-023224-00000) is required for use on SR 17/18/26 welding torches
- For use on SR 9/20 welding torches, the torch must be fitted with a collet (094-022705-00000 or alternatively 094-000934-00000) and a collet body with gas lens (094-001354-00000)
- Only suitable for use in TIG DC welding. Please contact us about AC applications

Nozzle Ø 26.7 mm

PU	Item no.
Units	
1	094-023227-00000

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**Glass gas nozzle set comprising 1 nozzle including filter and sealing ring plus 1 spare sieve and 1 spare sealing ring • BBWSG Cup**

- Glass gas nozzle set comprising 1 nozzle including filter and sealing ring plus 1 spare sieve and 1 spare sealing ring
- BBW gas nozzles (Ø 26.7 mm) guarantee optimal shielding gas coverage but cannot be fully used in tight spaces
- Guarantees an optimum view while welding
- Maximum load: 200 A, DC
- BBWSG glass gas nozzles are screwed onto the torch, thus offering even greater processing stability than standard BBW glass gas nozzles.
- **Instructions for use:**
- FURICK gas nozzles can only be operated with an electrode diameter of 2.4 mm
- The gas nozzle holder set (094-023224-00000) is required for use on SR 17/18/26 welding torches
- For use on SR 9/20 welding torches, the torch must be fitted with a collet (094-022705-00000 or alternatively 094-000934-00000) and a collet body with gas lens (094-001354-00000)
- Only suitable for use in TIG DC welding. Please contact us about AC applications



**Nozzle Ø** 26.7 mm

PU	Item no.
Units	
1	394-009071-00000

**Glass gas nozzle set consisting of 2 nozzles, 1 replacement diffuser and 3 o-rings • FUPA Cup**

- Glass gas nozzle set consisting of 2 nozzles, 1 replacement diffuser and 3 o-rings
- FUPA gas nozzles (Ø nozzle 19 mm) ensure high shielding gas coverage, even when working in tight spaces
- The glass design guarantees an optimum view while welding
- Maximum load of FUPA glass gas nozzles: 180 A, DC
- **Instructions for use:**
- FURICK gas nozzles can only be operated with an electrode diameter of 2.4 mm
- The gas nozzle holder set (094-023224-00000) is required for use on SR 17/18/26 welding torches
- For use on SR 9/20 welding torches, the torch must be fitted with a collet (094-022705-00000 or alternatively 094-000934-00000) and a collet body with gas lens (094-001354-00000)
- Only suitable for use in TIG DC welding. Please contact us about AC applications



**Nozzle Ø** 19 mm

PU	Item no.
Units	
1	094-023229-00000

**Glass gas nozzle set consisting of 2 nozzles, 1 titanium guard, 1 replacement diffuser and 3 o-rings ● FUPA Cup Cover**



- Glass gas nozzle set consisting of 2 nozzles, 1 titanium guard, 1 replacement diffuser and 3 o-rings
- FUPA gas nozzles (Ø nozzle 19 mm) ensure high shielding gas coverage, even when working in tight spaces
- The glass design guarantees an optimum view while welding
- Maximum load of FUPA glass gas nozzles: 180 A, DC
- The titanium ring increases sliding resistance during welding while protecting against damage
- **Instructions for use:**
- FURICK gas nozzles can only be operated with an electrode diameter of 2.4 mm
- The gas nozzle holder set (094-023224-00000) is required for use on SR 17/18/26 welding torches
- For use on SR 9/20 welding torches, the torch must be fitted with a collet (094-022705-00000 or alternatively 094-000934-00000) and a collet body with gas lens (094-001354-00000)
- Only suitable for use in TIG DC welding. Please contact us about AC applications

<b>Nozzle Ø</b>	19 mm
<b>PU</b>	<b>Item no.</b>
<b>Units</b>	
1	094-023223-00000

**Gas nozzle set consisting of 1 ceramic nozzle, 1 glass nozzle, 1 replacement diffuser and o-rings ● FUPA Ceramic / Glass Cup**



- Gas nozzle set consisting of 1 ceramic nozzle, 1 glass nozzle, 1 replacement diffuser and o-rings
- FUPA gas nozzles (Ø nozzle 19 mm) ensure high shielding gas coverage, even when working in tight spaces
- The ceramic version is much more damage-resistant than the FUPA glass gas nozzle
- Maximum load of FUPA ceramic gas nozzles: 200 A, DC
- The glass design guarantees an optimum view while welding
- Maximum load of FUPA glass gas nozzles: 180 A, DC
- **Instructions for use:**
- FURICK gas nozzles can only be operated with an electrode diameter of 2.4 mm
- The gas nozzle holder set (094-023224-00000) is required for use on SR 17/18/26 welding torches
- For use on SR 9/20 welding torches, the torch must be fitted with a collet (094-022705-00000 or alternatively 094-000934-00000) and a collet body with gas lens (094-001354-00000)
- Only suitable for use in TIG DC welding. Please contact us about AC applications

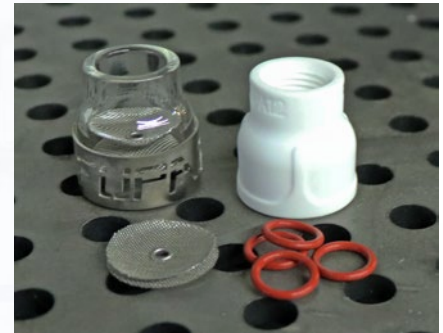
<b>Size</b>	12
<b>PU</b>	<b>Item no.</b>
<b>Units</b>	
1	394-003810-00000

4



**Gas nozzle set consisting of 1 ceramic nozzle, 1 glass gas nozzle with titanium guard, 1 replacement diffuser and o-rings • FUPA Ceramic / Glass Cup Cover**

- Gas nozzle set consisting of 1 ceramic nozzle, 1 glass gas nozzle with titanium guard, 1 replacement diffuser and o-rings
- FUPA gas nozzles (Ø nozzle 19 mm) ensure high shielding gas coverage, even when working in tight spaces
- The ceramic version is much more damage-resistant than the FUPA glass gas nozzle
- Maximum load of FUPA ceramic gas nozzles: 200 A, DC
- The glass design guarantees an optimum view while welding
- Maximum load of FUPA glass gas nozzles: 180 A, DC
- The titanium ring increases sliding resistance during welding while protecting against damage
- **Instructions for use:**
- FURICK gas nozzles can only be operated with an electrode diameter of 2.4 mm
- The gas nozzle holder set (094-023224-00000) is required for use on SR 17/18/26 welding torches
- For use on SR 9/20 welding torches, the torch must be fitted with a collet (094-022705-00000 or alternatively 094-000934-00000) and a collet body with gas lens (094-001354-00000)
- Only suitable for use in TIG DC welding. Please contact us about AC applications



<b>Size</b>	12
<b>Version</b>	FUPA ceramic, glass cover

PU	Item no.
Units	
1	394-003811-00000

**Ceramic nozzle set consisting of 2 ceramic gas nozzles and 1 replacement diffuser • FUPA Ceramic Cup**

- Ceramic nozzle set consisting of 2 ceramic gas nozzles and 1 replacement diffuser
- FUPA gas nozzles (Ø nozzle 19 mm) ensure high shielding gas coverage, even when working in tight spaces
- The ceramic version is much more damage-resistant than the FUPA glass gas nozzle
- Maximum load of FUPA ceramic gas nozzles: 200 A, DC
- **Instructions for use:**
- FURICK gas nozzles can only be operated with an electrode diameter of 2.4 mm
- The gas nozzle holder set (094-023224-00000) is required for use on SR 17/18/26 welding torches
- For use on SR 9/20 welding torches, the torch must be fitted with a collet (094-022705-00000 or alternatively 094-000934-00000) and a collet body with gas lens (094-001354-00000)
- Only suitable for use in TIG DC welding. Please contact us about AC applications



<b>Size</b>	12
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PU	Item no.
Units	
1	394-003812-00000

**Gas nozzle holder set consisting of 1 collet, 1 collet body, 1 insulator, 4 o-rings • Set SR 17/18/26**

<b>Electrode Ø</b>	2.4 mm
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PU	Item no.
Units	
A2	094-023224-00000



Gas nozzle • GN TIG-SR 9/20



- Standard gas nozzle for welding steel and aluminium
- For SR 9 and SR 20 torch types

<b>Length</b>	30 mm		
<b>Version</b>	For SR 9/20 torch types		
Nozzle Ø mm	Size	PU Units	Item no.
6.5	4.0	10	094-001343-00000
8.0	5.0		094-001344-00000
9.5	6.0		094-001345-00000
11.0	7.0		094-000930-00000
12.5	8.0		094-001122-00000
16.0	10.0		094-001346-00000

Gas nozzle • GN TIG-SR 9/20 L



- Extended gas nozzle for hard-to-reach spots
- For SR 9 and SR 20 torch types

<b>Length</b>	48 mm		
<b>Version</b>	For SR 9/20 torch types		
Nozzle Ø mm	Size	PU Units	Item no.
6.5	4.0	10	094-001347-00000
8.0	5.0		094-001348-00000
9.5	6.0		094-001349-00000

Gas nozzle • GN TIG-SR 9/20 XL



- Extended gas nozzle for hard-to-reach spots
- For SR 9 and SR 20 torch types

<b>Version</b>	For SR 9/20 torch types			
Nozzle Ø mm	Length mm	Size	PU Units	Item no.
6.5	63	4.0	10	094-012683-00000
8.0		5.0		094-012684-00000
6.5	89	4.0		094-012685-00000

Gas nozzle for gas lens • GNDIF TIG-SR 9/20



- Gas nozzle fitting the collet body with gas diffusor
- Suitable for all materials
- Excellent welding results with CrNi steels
- For SR 9 and SR 20 torch types

<b>Length</b>	25.5 mm		
<b>Version</b>	For SR 9/20 torch types		
Nozzle Ø mm	Size	PU Units	Item no.
6.5	4.0	10	094-001356-00000
8.0	5.0		094-001357-00000
9.5	6.0		094-001358-00000
11.0	7.0		094-001359-00000
12.5	8.0		094-017595-00000

### Gas nozzle • GN GD TIG-SR 17/18/26

- Standard gas nozzle for welding steel and aluminium
- For SR 17/18/26 torch types



#### Version

For SR 17/18/26 torch types

Nozzle Ø mm	Length mm	Size	PU Units	Item no.
6.5	47	4.0	10	094-001316-00000
8.0		5.0		094-000926-00000
9.5		6.0		094-001317-00000
11.0		7.0		094-000927-00000
12.5		8.0		094-000929-00000
16.0	50	10.0		094-001318-00000
19.5		12.0		094-001319-00000

### Gas nozzle • GN TIG-SR 17/18/26

- Extended gas nozzle for hard-to-reach spots
- For SR 17/18/26 torch types



#### Length

76 mm

#### Version

For SR 17/18/26 torch types

Nozzle Ø mm	Size	PU Units	Item no.
8.0	5.0	10	094-012691-00000
9.5	6.0		094-012692-00000
11.0	7.0		094-012693-00000

### Gas nozzle for gas lens • GNDIF TIG-SR 17/18/26/18SC

- Gas nozzle fitting the collet body with gas diffusor
- Suitable for all materials
- Excellent welding results with CrNi steels
- For SR 17/18/26/18SC torch types



#### Length

42 mm

#### Version

For SR 17/18/26/18SC torch types

Nozzle Ø mm	Size	PU Units	Item no.
6.5	4.0	10	094-001320-00000
8.0	5.0		094-001321-00000
9.5	6.0		094-001322-00000
11.0	7.0		094-001195-00000
12.5	8.0		094-001196-00000
19.5	12.0		094-001323-00000

### Gas nozzle for gas lens • GNDIF TIG-SR 17/18/26/18SC L

- Gas nozzle fitting the collet body with gas diffusor
- Extended gas nozzle for hard-to-reach spots
- For SR 17/18/26/18SC torch types



#### Length

76 mm

#### Version

For SR 17/18/26/18SC torch types

Nozzle Ø mm	Size	PU Units	Item no.
8.0	5.0	10	094-011135-00000
9.5	6.0		094-011136-00000
11.0	7.0		094-012694-00000



Electrode holders ● COL TIG 150/260



- Electrode holder for various tungsten electrode diameters
- For TIG 150/260 torch types

<b>Length</b>	35 mm
<b>Material</b>	Brass
<b>Version</b>	For TIG 150/260 torch types

Electrode Ø mm	PU Units	Item no.
1.0		094-012665-00000
1.6		094-012406-00000
2.0	5	094-012666-00000
2.4		094-011755-00000
3.2		094-012667-00000
1.0		094-012665-90002
1.6		094-012406-90002
2.0	2	094-012666-90002
2.4		094-011755-90002
3.2		094-012667-90002

Gas diffuser ● CDIF TIG 150/260



- Gas diffuser for various tungsten electrode diameters
- For TIG 150/260 torch types

<b>Length</b>	33 mm
<b>Material</b>	Brass
<b>Version</b>	For TIG 150/260 torch types

Electrode Ø mm	PU Units	Item no.
1.0		094-012668-00000
1.6		094-012669-00000
2.0	5	094-012670-00000
2.4		094-011984-00000
3.2		094-012671-00000
1.0		094-012668-90002
1.6		094-012669-90002
2.0	2	094-012670-90002
2.4		094-011984-90002
3.2		094-012671-90002

Gas diffuser, multi-layer ● CDIF TIG 150/260 Multilayer



- "Multilayer" gas diffuser for different tungsten electrode diameters
- Improves gas shielding and provides a laminar gas flow
- For TIG 150/260 torch types

<b>Length</b>	35.5 mm
<b>Version</b>	For TIG 150/260 torch types

Electrode Ø mm	PU Units	Item no.
1.0		094-023030-00000
1.6		394-002357-00000
2.0	5	094-023032-00000
2.4		394-002038-00000
3.2		394-002358-00000

## Electrode holders • COL TIG 200/450W/SC

- Electrode holder for various tungsten electrode diameters
- For TIG 200/450 torch types

<b>Length</b>	56 mm
<b>Material</b>	Brass
<b>Version</b>	For TIG 200/450 torch types

Electrode Ø mm	PU Units	Item no.
1.6	5	094-009634-00000
2.0		094-009635-00000
2.4		094-009636-00000
3.2		094-009637-00000
4.0		094-009638-00000
4.8	094-009639-00000	
1.6	2	094-009634-90002
2.0		094-009635-90002
2.4		094-009636-90002
3.2		094-009637-90002
4.0		094-009638-90002
4.8	094-009639-90002	



## Gas diffuser • CDIF TIG 200/450/SC

- Gas diffuser for various tungsten electrode diameters
- For TIG 200/450 torch types

<b>Material</b>	Brass
<b>Version</b>	For TIG 200/450 torch types

Electrode Ø mm	Length mm	PU Units	Item no.
1.6	48	2	094-009640-00000
2.0			094-009641-00000
2.4			094-009642-00000
3.2			094-009643-00000
4.0			094-009644-00000
4.8	094-009645-00000		
1.6	47	2	094-009640-90002
2.0			094-009641-90002
2.4			094-009642-90002
3.2			094-009643-90002
4.0			094-009644-90002
4.8	094-009645-90002		



Gas diffuser, multi-layer ● 200/450/SC Multilayer



- "Multilayer" gas diffuser for different tungsten electrode diameters
- Improves gas shielding and provides a laminar gas flow
- For TIG 200/450 torch types

<b>Length</b>	51 mm
<b>Material</b>	Brass
<b>Version</b>	For TIG 200/450 torch types

Electrode Ø mm	PU Units	Item no.
1.6		094-023018-00000
2.4	2	094-004969-00000
3.2		094-006255-00000

Gas diffuser, JUMBO ● DIF TIG 150-450/450SC



- Gas diffuser for various tungsten electrode diameters
- For TIG 150-450 torch types
- In case of installation in the welding torches of the 150/260 types, the 094-011758-00000 adapter and the 094-011760-00000 insulator is absolutely required

<b>Material</b>	Brass
<b>Version</b>	For TIG 150/200/260/450 torch types

Electrode Ø mm	PU Units	Item no.
1.6		094-009658-00000
2.4		094-009659-00000
3.2	1	094-009660-00000
4.0		094-009661-00000
4.8		094-009662-00000

Gas diffuser, multi-layer ● DIF TIG 150-450/450SC Multilayer



- "Multilayer" gas diffuser for different tungsten electrode diameters
- Improves gas shielding and provides a laminar gas flow
- For TIG 150-450 torch types
- In case of installation in the welding torches of the 150/260 types, the 094-011758-00000 adapter and the 094-011760-00000 insulator is absolutely required

<b>Version</b>	For TIG 150/200/260/450 torch types
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Electrode Ø mm	PU Units	Item no.
1.6		094-023020-00000
2.4		094-022685-00000
3.2	1	094-023021-00000
4.0		094-023022-00000

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**Collet • COL TIG-SR 9/20**

- Collet for various tungsten electrode diameters
- For SR 9 and SR 20 torch types

<b>Length</b>	25.4 mm
<b>Material</b>	Copper
<b>Version</b>	For SR 9/20 torch types

Electrode Ø mm	PU Units	Item no.
0.5	10	094-001333-00000
1.0		094-001334-00000
1.2		094-001335-00000
1.6		094-001121-00000
2.0		094-001336-00000
2.4		094-000934-00000



**Collet bodies • COLB TIG-SR 9/20**

- Collet body
- For SR 9 and SR 20 torch types

<b>Material</b>	Copper
<b>Version</b>	For SR 9/20 torch types

Electrode Ø mm	PU Units	Item no.
0.5 - 1	10	094-001338-00000
1.2		094-001339-00000
1.6		094-001340-00000
2.0		094-001341-00000
2.4		094-000939-00000
3.2		094-001342-00000



**Collet body with gas lens • COLB DIF TIG-SR 9/20**

- Collet casing with gas lens for various tungsten electrode diameters
- Improves gas shielding and provides a laminar gas flow
- Recommended to avoid discolouration when welding CrNi steels
- For SR 9 and SR 20 torch types

<b>Material</b>	Brass
<b>Version</b>	For SR 9/20 torch types

Electrode Ø mm	PU Units	Item no.
0.5 - 1	10	094-001350-00000
1.2		094-001351-00000
1.6		094-001352-00000
2.0		094-001353-00000
2.4		094-001354-00000
3.2		094-001355-00000



Collet, JUMBO • COL JUMBO TIG-SR 9/20



- Collet for various tungsten electrode diameters
- For use with jumbo gas nozzles
- For SR 9 and SR 20 torch types

<b>Length</b>	40 mm
<b>Material</b>	Brass
<b>Version</b>	For SR 9/20 torch types

Electrode Ø mm	PU Units	Item no.
0.5	10	094-012675-00000
1.0		094-012676-00000
1.6		094-012677-00000
2.4		094-002971-00000
3.2		094-012678-00000

Collet body with gas lens, JUMBO • COLB DIF JUMBO TIG-SR 9/20



- Collet body with extra-large gas lens for various tungsten electrode diameters
- Improves gas shielding and provides a laminar gas flow
- Specially developed for welding titanium alloys
- Impressively low discolouration when welding CrNi steels
- For SR 9 and SR 20 torch types

<b>Material</b>	Brass
<b>Version</b>	For SR 9/20 torch types

Electrode Ø mm	PU Units	Item no.
0.5 - 1	5	094-012679-00000
1.6		094-012680-00000
2.4		094-012681-00000
3.2		094-012682-00000

Collet • COL TIG-SR 17/18/26/18SC



- Copper collet for various tungsten electrode diameters
- For SR 17/18/26/18SC torch types

<b>Length</b>	50 mm
<b>Material</b>	Copper
<b>Version</b>	For SR 17/18/26/18SC torch types

Electrode Ø mm	PU Units	Item no.
0.5	10	094-001308-00000
1.0		094-001309-00000
1.6		094-000931-00000
2.4		094-000932-00000
3.2		094-000935-00000

### Collet bodies • COLB TIG-SR 17/18/26

- Collet body, copper
- For SR 17/18/26 torch types

<b>Material</b>	Copper		
<b>Version</b>	For SR 17/18/26 torch types		
	<b>Electrode Ø mm</b>	<b>PU Units</b>	<b>Item no.</b>
	0.5 - 1.2		094-001314-00000
	1.6		094-000936-00000
	2 - 2.4	10	094-000937-00000
	3.2		094-000940-00000
	4.0		094-001315-00000



### Collet body with gas lens • COLB DIF TIG-SR 17/18/26

- Collet body with gas lens for various tungsten electrode diameters
- Suitable for all materials
- Excellent welding results with CrNi steels
- For SR 17/18/26 torch types

<b>Material</b>	Brass		
<b>Version</b>	For SR 17/18/26 torch types		
	<b>Electrode Ø mm</b>	<b>PU Units</b>	<b>Item no.</b>
	0.5 - 1.2		094-001324-00000
	1.6		094-001325-00000
	2 - 2.4	10	094-001192-00000
	3.2		094-001193-00000
	4.0		094-001326-00000



### Collet body with gas lens, JUMBO • COLB DIF JUMBO TIG-SR 17/18/26

- Collet body with extra-large gas lens for various tungsten electrode diameters
- Improves gas shielding and provides a laminar gas flow
- Specially developed for welding titanium alloys
- Impressively low discolouration when welding CrNi steels
- For SR 17/18/26 torch types

<b>Material</b>	Brass		
<b>Version</b>	For SR 17/18/26 torch types		
	<b>Electrode Ø mm</b>	<b>PU Units</b>	<b>Item no.</b>
	1.6		094-003137-00010
	2.4		094-003137-00000
	3.2	5	094-000000-00000
	4.0		094-011641-00000





Ceramic gas nozzle • Welding torch conversion kit



- Conversion kit facilitating use of the smaller SR 9/20 series gas lens replacement parts on the SR 17/18/26 series
- **Set comprising:**
- 1x ceramic gas nozzle, size 8
- 1x collet body with gas lens
- 1x insulator
- 1x collet

Model	Ø mm	PU Units	Item no.
<b>Welding torch conversion kit TIG</b>	<b>1,6</b>		<b>394-003729-00000</b>
Ceramic gas nozzle size 8	1,6		094-013302-00000
Collet body with gas lens	1,6		394-005178-00000
Collet	1,6		394-005177-00000
Insulator	1,6		394-003985-00000
<b>Welding torch conversion kit TIG</b>	<b>2,4</b>		<b>394-000809-00000</b>
Ceramic gas nozzle size 8	2,4		094-013302-00000
Collet body with gas lens	2,4	1	394-002374-00000
Collet	2,4		394-005179-00000
Insulator	2,4		398-003985-00000
<b>Welding torch conversion kit TIG</b>	<b>3,2</b>		<b>398-003823-00000</b>
Ceramic gas nozzle size 8	3,2		094-013302-00000
Collet body with gas lens	3,2		394-002017-00000
Collet	3,2		394-006125-00000
Insulator	3,2		398-003985-00000

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**Insulator ● INS TIG-SR 9/20**

- Insulators made of heat-resistant Teflon
- For SR 9 and SR 20 torch types

<b>Material</b>	Teflon
<b>Version</b>	For SR 9/20 torch types

Size	PU Units	Item no.
Standard	10	094-001331-00000
XL	5	094-011916-00000



**Back cap, short ● TC TIG-SR 9/20**

- Back caps for TIG welding torches in unbreakable, heat resistant plastic
- For SR 9 and SR 20 torch types

<b>Material</b>	Plastic
<b>Version</b>	For SR 9/20 torch types

Length mm	Size	PU Units	Item no.
16.0	short	10	094-001328-00000
48	medi- um		094-001329-00000
146	long		094-001327-00000



**Insulator ● INS TIG-SR 17/18/26**

- Insulators made of heat-resistant Teflon
- For SR 17/18/26 torch types

<b>Material</b>	Teflon
<b>Version</b>	For SR 17/18/26 torch types

Size	PU Units	Item no.
Standard	10	094-001307-00000
XL		094-001194-00000
XXL	5	094-003138-00000



**Back cap ● TC TIG-SR 17/18/26/18SC**

- Back caps for TIG welding torches in unbreakable, heat resistant plastic
- For SR 17/18/26/18SC torch types

<b>Material</b>	Plastic
<b>Version</b>	For SR 17/18/26/18SC torch types

Length mm	Size	PU Units	Item no.
31	short	10	094-001120-00000
114	long		094-001114-00000



## Welding torches ● TIG consumables

### Back cap ● TC TIG 150/260



- Back caps for TIG welding torches in unbreakable, heat resistant plastic
- For TIG 150/260 torch types

#### Version

For TIG 150/260 torch types

Length mm	Size	PU Units	Item no.
19.5	short	5	094-011752-00000
59	medium		094-011753-00000
139	long	2	094-021855-00000
19.5	short		094-011752-90002
59	medium		094-011753-90002
139	long		094-021855-90002

### Back cap ● TC TIG 200/450/SC



- Back caps for TIG welding torches in unbreakable, heat resistant plastic
- For TIG 200/450 torch types

#### Version

For TIG 200/450 torch types

Length mm	Size	PU Units	Item no.
19.0	short	5	094-010723-00000
120	long		094-010601-00000
19.0	short	2	094-010723-90002
120	long		094-010601-90002



# Colour codes for tungsten electrodes

Identification code	Weight of oxide in %	Oxide	Colour	In product range
WP	-	-	Green	Yes
WT 4	0.35–0.55	Th	Light blue	No
WT 10	0.80–1.20	Th	Yellow	No
WT 20	1.70–2.20	Th	Red	No
WT 30	2.80–3.20	Th	Purple	No
WT 40	3.80–4.20	Th	Orange	No
WZ 3	0.15–0.50	Zr	Brown	No
WZ 8	0.70–0.90	Zr	White	No
WL 10	0.90–1.20	La	Black	On request
WL 15	1.40–1.60	La	Gold	Yes
WL 20	1.80–2.20	La	Dark blue	Yes
WC 20	1.80–2.20	Ce	Grey	Yes
WR 2*	Mixed oxides	Rare earths	Turquoise	Yes
E3®	Mixed oxides	Rare earths	Purple	Yes
Lymox Lux®	Mixed oxides	Rare earths	Pink/grey	Yes

\*WR 2 not yet standardised

Th: Thorium; Zr: Zirconium; La: Lanthanum oxide; Ce: Cerioxide

## WP electrodes

- / Pure tungsten electrodes
- / AC welding of aluminium alloys
- / Not suitable for DC welding

## WZ electrodes

- / Lower risk of contamination of weld thanks to addition of zirconium
- / Tungsten electrodes for AC welding of aluminium alloys
- / Only limited suitability for DC welding

## WC electrodes

- / Very good ignition and reignition characteristics thanks to cerioxide
- / Suitable for DC and AC welding
- / Can be used for unalloyed and high-alloy steels and aluminium, titanium, nickel, copper and magnesium alloys in the lower and mid current range
- / Good substitute for WT electrodes

## E3 electrode

- / Variable non-standardised composition
- / Suitable for DC and AC welding
- / Can be used for unalloyed and high-alloy steels and aluminium, titanium, nickel, copper and magnesium alloys in the lower and mid current range
- / Long service life and very durable
- / Good alternative to WT electrodes

## WT electrodes

- / Slightly radioactive due to addition of thorium
- / Refrain from using due to increased health risks
- / Improved ignition characteristics and better current-carrying capacity compared to WP electrodes

## WL electrodes

- / Increased ignitability thanks to lanthanum oxide
- / Suitable for DC and AC welding
- / Can be used for unalloyed and high-alloy steels; aluminium, titanium, nickel, copper and magnesium alloys; and for microplasma welding
- / Ideal for use in low current range
- / Good substitute for WT electrodes

## WR electrodes

- / Variable non-standardised composition
- / Suitable for DC and AC welding
- / Can be used for unalloyed and high-alloy steels and aluminium, titanium, nickel, copper and magnesium alloys in the lower and mid current range
- / Long service life and very durable

## Thoriated tungsten electrodes

- / **Quote from BGI 746:**  
"Tungsten electrodes containing thorium oxide may only be used for urgent technical reasons, as stated in Section 6.2.3 of BGR 220. When using these, the guidelines of the German Radiation Protection Act must be observed at all times."
- / **Thoriated tungsten electrodes have been removed from our product range.**

**Tungsten electrode, green ● WP (green)**



- Tungsten electrode for aluminium, aluminium alloys, nickel and nickel alloys
- Optimum tungsten balling, lower current load
- Not suitable for direct current welding (DC)

<b>Colour code</b>	Green		
<b>Material</b>	Pure tungsten 99.9%		
<b>Short designation</b>	WP		
Electrode Ø mm	Length mm	PU Units	Item no.
1.0	175	10	094-001593-00000
1.6			094-001008-00000
2.0			094-001594-00000
2.4			094-001009-00000
3.2			094-001010-00000
4.0			094-001011-00000
4.8			094-001595-00000

**Tungsten electrode, grey ● WCe 20 (grey)**



- Can be used for unalloyed and high-alloy steels and aluminium, titanium, nickel, copper and magnesium alloys in the lower and mid current range
- **Good substitute for WT electrodes:** The welder is not exposed to radioactive substances
- Suitable for direct and alternating current
- Tungsten electrode with very good ignition and reignition properties

<b>Colour code</b>	Grey		
<b>Material</b>	< 2% CeO <sub>2</sub>		
<b>Short designation</b>	WCe 20		
<b>Oxide</b>	1.80–2.20% ceria		
Electrode Ø mm	Length mm	PU Units	Item no.
1.0	175	10	094-001380-00000
1.6			094-001004-00000
2.0			094-001381-00000
2.4			094-001005-00000
3.2			094-001006-00000
4.0			094-001007-00000
4.8			094-001382-00000

**Tungsten electrode, turquoise ● WR 2 (turquoise)**



- Can be used for unalloyed and high-alloy steels and aluminium, titanium, nickel, copper and magnesium alloys in the lower and mid current range
- Suitable for direct and alternating current
- Tungsten electrode with long service life and high durability
- Not radioactive

<b>Colour code</b>	Turquoise		
<b>Material</b>	< 2% rare earths		
<b>Short designation</b>	WR 02		
<b>Oxide</b>	Rare earths, mixed oxides		
Electrode Ø mm	Length mm	PU Units	Item no.
1.0	175	10	094-012957-00000
1.6			094-001591-00000
2.0			094-002136-00000
2.4			094-001592-00000
3.2			094-001913-00000
4.0			094-009312-00000
4.8			094-001914-00000

### Tungsten electrode, blue • WLa 20 (blue)

- Tungsten electrode with increased ignitability thanks to lanthanum oxide
- Can be used for unalloyed and high-alloy steels; aluminium, titanium, nickel, copper and magnesium alloys; and for microplasma welding
- Ideal for use in low current range
- **Good substitute for WT electrodes:** The welder is not exposed to radioactive substances
- Suitable for direct and alternating current



<b>Colour code</b>	Blue
<b>Material</b>	< 2% La <sub>2</sub> O <sub>3</sub>
<b>Short designation</b>	WLa 20
<b>Oxide</b>	1.80–2.20% lanthanum oxide

Electrode Ø mm	Length mm	PU Units	Item no.
1.0			094-012958-00000
1.6			094-001915-00000
2.0			094-012960-00000
2.4	175	10	094-001916-00000
3.2			094-001917-00000
4.0			094-012961-00000
4.8			094-001918-00000

### Tungsten electrode, gold • WLa 15 (gold)

- Tungsten electrode with increased ignitability thanks to lanthanum oxide
- Can be used for unalloyed and high-alloy steels; aluminium, titanium, nickel, copper and magnesium alloys; and for microplasma welding
- Ideal for use in low current range
- **Good substitute for WT electrodes:** The welder is not exposed to radioactive substances
- Suitable for direct and alternating current



<b>Colour code</b>	Gold
<b>Material</b>	< 1,5% La <sub>2</sub> O <sub>3</sub>
<b>Short designation</b>	WLa 15
<b>Oxide</b>	1.40–1.60% lanthanum oxide

Electrode Ø mm	Length mm	PU Units	Item no.
1.0			094-009446-00000
1.6			094-009447-00000
2.0			094-012962-00000
2.4	175	10	094-009276-00000
3.2			094-009527-00000
4.0			094-009528-00000
4.8			094-009529-00000



Tungsten electrode, purple ● E3® (purple)



- Tungsten electrodes with high current-carrying capacity and long service life
- Optimum ignition and re-ignition characteristics
- Produces high-quality arcs and little burn-off
- Electrode tip is hardly deformed
- **Good substitute for WT electrodes:** The welder is not exposed to radioactive substances
- Suitable for direct and alternating current

<b>Colour code</b>	Purple			
<b>Material</b>	< 2% rare earths			
<b>Short designation</b>	E3®			
<b>Oxide</b>	Rare earths, mixed oxides			
	<b>Electrode Ø mm</b>	<b>Length mm</b>	<b>PU Units</b>	<b>Item no.</b>
	1.0	175	10	094-019691-00000
	1.6			094-019692-00000
	2.0			094-019693-00000
	2.4			094-019694-00000
	3.2			094-019695-00000
	4.0			094-019696-00000

Tungsten electrode, pink/grey ● Lymox Lux® (pink/grey)



- Tungsten electrodes of very high quality with very good ignition characteristics
- Ideally suited for plasma and mechanised TIG welding due to the very good ignition characteristics in the low current range
- Tungsten electrodes with high current-carrying capacity and long service life
- Produces high-quality arcs and little burn-off
- **Good substitute for WT electrodes:** The welder is not exposed to radioactive substances
- Suitable for direct and alternating current
- Not radioactive

<b>Colour code</b>	pink/grey			
<b>Short designation</b>	Lymox Lux®			
<b>Oxide</b>	Rare earths, mixed oxides			
	<b>Electrode Ø mm</b>	<b>Length mm</b>	<b>PU Units</b>	<b>Item no.</b>
	1.0	175	10	094-021496-00000
	1.6			094-021497-00000
	2.4			094-021498-00000
	3.2			094-021499-00000
	4.0			094-021500-00000
	4.8			094-021501-00000

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## Tungsten electrode, pink • Lymox® (pink)

- Tungsten electrodes of very high quality with very good ignition characteristics
- Ideally suited for plasma and mechanised TIG welding due to the very good ignition characteristics in the low current range
- Tungsten electrodes with high current-carrying capacity and long service life
- Produces high-quality arcs and little burn-off
- **Good substitute for WT electrodes:** The welder is not exposed to radioactive substances
- Suitable for direct and alternating current
- Not radioactive



<b>Colour code</b>	pink		
<b>Short designation</b>	Lymox®		
<b>Oxide</b>	Rare earths, mixed oxides		
Electrode Ø mm	Length mm	PU Units	Item no.
1.0	175	10	094-014912-00000
1.6			094-014913-00000
2.0			094-014914-00000
2.4			094-014915-00000
3.2			094-008412-00000
4.0			094-008413-00000
4.8			094-014916-00000

## Grinding aid • Spannfix

Version	PU Units	Item no.
Size 1 for 85 mm	1	098-000704-00000
Size 2 for 175 mm		098-003872-00000



Portable tungsten electrode grinder ● TGM 40230 Handy



- Portable tungsten electrode grinder
- For use at the welding site
- Simple operation, high efficiency and quality
- Diamond disc grinding surface can be used at three positions
- 99.9% of grinding dust is captured
- **Scope of supply:** Transport case; electrode holder; collet chucks for 1.6 mm, 2.4 mm and 3.2 mm electrodes; Allen keys (4 mm and 8 mm); open-ended spanners (13/17 and 13/14); disposal bag for disposable filters; operating instructions

<b>Electrode Ø</b>	0.8 mm - 4 mm
<b>Version</b>	1 x 230 V / 50 Hz
<b>Diamond disc diameter</b>	40 mm
<b>Rotational speed</b>	8000 U/min - 22000 U/min
<b>Standards</b>	DIN 8575
<b>Weight (without accessories)</b>	2.5 kg
<b>Grinding angle</b>	15 ° - 180 °
<b>Electrode length, max.</b>	175 mm
<b>Approvals</b>	CE

PU	Item no.
Units	
1	098-003412-00500

■ Consumables

Designation	PU	Item no.
	Units	
Diamond disc for EWM tungsten electrode grinder Handy	1	098-003673-00000
Filter insert	1	098-003679-00000

Stationary tungsten electrode grinder ● TGM 40230 Porta



- Stationary tungsten electrode grinder
- Simple operation, high efficiency and quality
- Wet grinding for optimum grinding quality and long service life of the diamond disk
- 100% of grinding dust is captured
- **Scope of supply:** 2 m mains cable; 250 ml grinding liquid; diamond disc; collet chucks (1.6 mm–3.2 mm); electrode holder

<b>Version</b>	1 x 230 V / 50 Hz
<b>Diamond disc diameter</b>	100 mm
<b>Rotational speed</b>	8500 U/min
<b>Standards</b>	EN 61029
<b>Weight</b>	9.3 kg
<b>Grinding angle</b>	7.5 ° - 90 °
<b>Length mains cable</b>	2 m
<b>Grinding liquid capacity</b>	250 ml
<b>Performance</b>	380 W
<b>Grinding speed</b>	44 m/sec
<b>Approvals</b>	CE

PU	Item no.
Units	
1	098-003694-00000

■ Consumables

Designation	PU	Item no.
	Units	
Diamond grinding disk for EWM tungsten electrode grinder Porta	1	098-003673-00000
Grinding concentrate, 250 ml for 5 l grinding liquid	1	098-003679-00000



Designation	Electrode Ø mm	PU Units	Item no.
Collet chuck for EWM tungsten electrode grinders	0.8	1	098-003696-00000
Collet chuck for EWM tungsten electrode grinders	1	1	098-003697-00000
Collet chuck for EWM tungsten electrode grinders	1.2	1	098-003698-00000
Collet chuck for EWM tungsten electrode grinders	1.6	1	098-003674-00000
Collet chuck for EWM tungsten electrode grinders	2	1	098-003675-00000
Collet chuck for EWM tungsten electrode grinders	2.4	1	098-003676-00000
Collet chuck for EWM tungsten electrode grinders	3.2	1	098-003677-00000
Collet chuck for EWM tungsten electrode grinders	4	1	098-003678-00000
Short collet chucks for Porta and Handy	1	1	398-007528-00010
Short collet chucks for Porta and Handy	1.6	1	398-007528-00016
Short collet chucks for Porta and Handy	2	1	398-007528-00020
Short collet chucks for Porta and Handy	2.4	1	398-007528-00024
Short collet chucks for Porta and Handy	3	1	398-007528-00030
Short collet chucks for Porta and Handy	3.2	1	398-007528-00032
Short collet chucks for Porta and Handy	4	1	398-007528-00040

### Automatic grinding module, digital

- AutoGrind Digital is a separate module for grinding tungsten electrodes
- High speed shortens grinding time
- Automatic electrode grinding ensures a precise and uniform result
- The grinder is automatically switched on and off via the AutoGrind control box
- The user can prepare the next electrode during the grinding process
- Fast exchange of electrodes in the welding torch as the electrodes do not need to be adjusted one by one
- Longer time until regrinding



<b>Electrode Ø</b>	4 mm
<b>Version</b>	1 x 230 V, 50 Hz
<b>PU Units</b>	<b>Item no.</b>
1	398-007219-00000

### Consumables

Designation	PU Units	Item no.
Grinding module	1	398-003051-00000
Electrode holders	1	398-007220-00000
Overflow pipe	1	398-007222-00000
Cylinder holder	1	398-007221-00000

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# Personal protective equipment (PPE)

PPE is not just PPE. Different situations have different hazard potentials. In order to prevent accidents, PPEs must therefore meet the requirements of the respective situation. In order to differentiate their protection levels, both the PPE regulations and directive 89/686/EEC specify three PPE categories. They are based on a classification according to the anticipated seriousness of an injury, which can be defended against with an appropriate PPE in case of emergency:

## / Category 1

This category comprises products for **protecting the user against minor risks** (simple design). The manufacturer assumes that the PPE users themselves can assess the effectiveness of the PPE. Category I only includes PPEs for protection against:

- Superficial mechanical injuries (e.g. gardening gloves)
- Contact with slightly aggressive cleaning agents (e.g. gloves protecting against diluted detergent solutions)
- Contact with hot surfaces (temperatures below 50 °C) (work aprons)
- Damage to the eyes by sunlight (sunglasses) or non-extreme weather conditions

## / Category 2

Products that cannot be allocated to either Category I nor Category III belong in Category II. In general, these products should offer **standard protection against mechanical risks**. Examples include safety helmets or shoes or ear protection. According to the EU Commission's regulation proposal, custom-made and individually adapted PPEs also fall into this category.

## / Category 3

This risk group comprises the complex personal protective equipment (complex design) for **protection against mortal danger and irreversible damage to health**. This category is subject to PPEs intended to protect against hazards which the user cannot themselves assess. According to article 8, paragraph 4a RL 89/686/EEC, this includes personal protective equipment offering temporary protection against chemical impacts and ionising radiation, breathing devices with filters, breathing devices that isolate completely from the atmosphere or PPEs which protect against falls from height. According to Annex I of the proposed regulations, PPEs exclusively for protection against the following risks fall into Category III:

- Inhalation of hazardous substances
- Aggressive chemicals
- Ionising radiation
- Hot environment, with effects similar to an ambient temperature of 100 °C or more
- Cold environment, with effects similar to an ambient temperature of -50 °C or less
- Fall from height
- Electrical shock and work on components under voltage
- Drowning
- Cutting injuries caused by hand-controlled chainsaws or high-pressure cutting equipment
- Injuries from projectiles or knife wounds
- Harmful noise

## Personal protective equipment for the metalworking industry

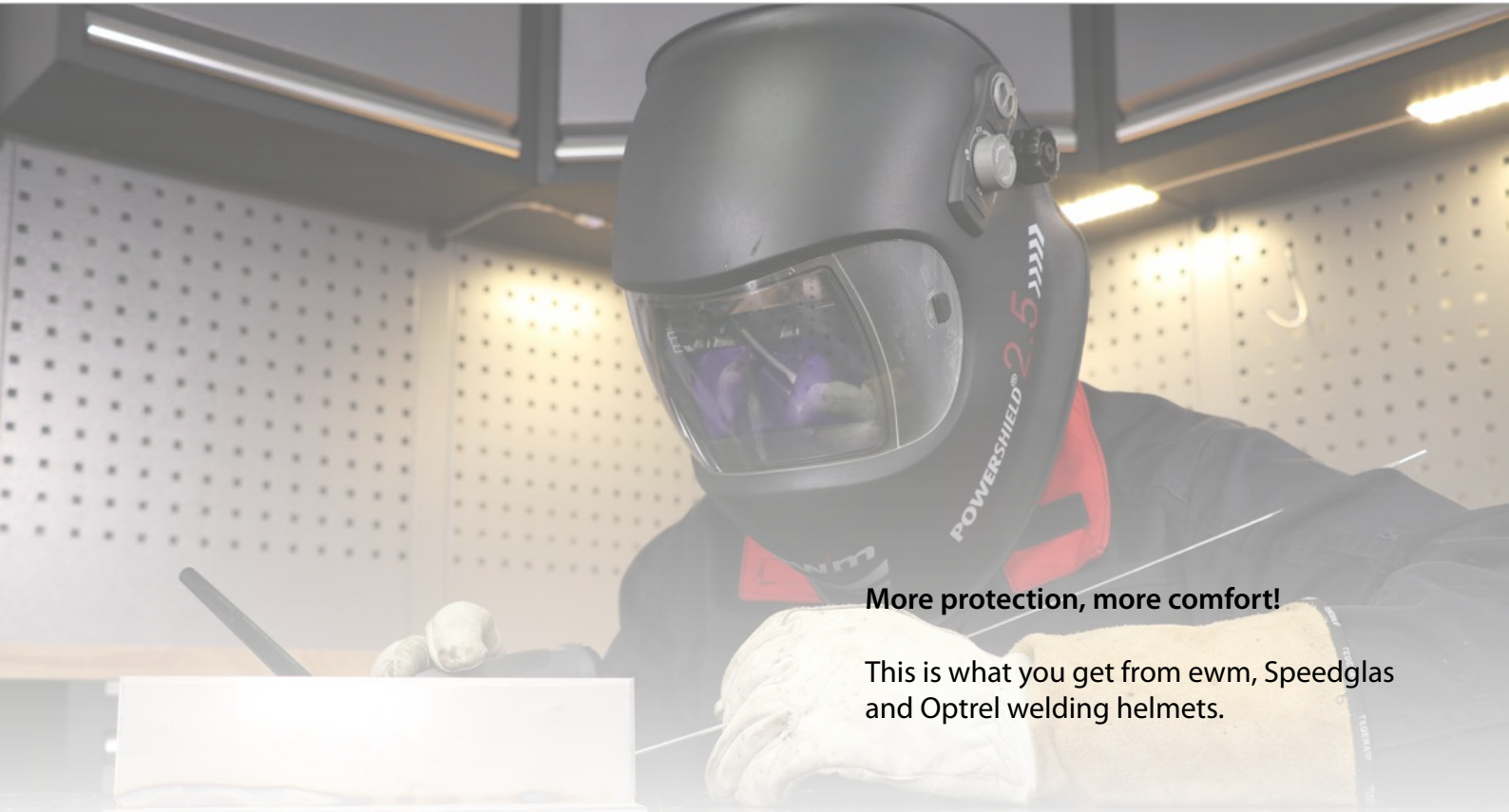
Work in the metalworking industry is associated with a high risk factor, presenting a possible long-term risk to health. To counteract this, wearing personal protective equipment is indispensable in many fields. Here, 3M offers convincing products and solutions, which optimally protect the user and thus make work safer. The use of suitable, comfortable PPE products gives the user a feeling of safety, increases their productivity and simultaneously reduces the risk of extended sick leave.

<b>Step 1</b> Recognise the hazard	Precisely identify the hazards at the respective workplace. Are your employees endangered by respiratory toxins such as gases and fumes, particles, particulates, etc.? Is the high noise level a hazard to health? Are there other hazards against which you and your employees need to be protected?
<b>Step 2</b> Determine risk level	Determine the risk level for the respective workplace compliant with applicable safety standards. Observe the appropriate laws and regulations. It is particularly important to assess the risks separately – for respiratory diseases (here, the new general dust limit applies*), eye or facial injuries, damage to hearing or skin injuries.
<b>Step 3</b> Select the protective equipment	Choose the best possible work safety solution to protect the respiratory tract, the eyes, hearing and skin. Whatever the case, 3M offers you the right combination of breathing protection products to optimally protect you and your employees in the workplace.
<b>Step 4</b> Proper use	Only properly used PPE products offer reliable protection. Users must be trained for this. Here, 3M is happy to offer support with professional training documents and courses run by competent persons. Further details on this can be found at <a href="http://www.3marbeitsschutz.de">www.3marbeitsschutz.de</a> (Service).





## Welding helmets



**More protection, more comfort!**

This is what you get from ewm, Speedglas and Optrel welding helmets.

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### Automatic welding helmets



**Speedglas™ ewm®**

**optrel®**

Automatic welding helmets offer you the best possible protection and simultaneous comfort. Any not only from ewm in the expected premium quality, but also from the Speedglas and Optrel brands.

### ewm helmet with fan breathing protection system



**Speedglas™ ewm®**

**optrel®**

Welding helmets with fan breathing protection protect against hazardous substances in the air. These hazardous substances are filtered out thanks to pre filters and particle filters. The helmet thus delivers clean air in a constant air flow, which drives the heat out of the mask and counteracts sweating. The mask seal ensures that no unfiltered air enters the mask.









### Protective shields



We also offer head and hand shields as an economical alternative to the welding helmets. You will also find the most suitable welding safety glasses for the various requirements in our range.



## EN 169 protection level table

A DIN	 Fe MIG for heavy metals	 Al MIG for light metal alloys	 Co <sub>2</sub> MAG for carbon dioxide	 TIG	 MMA	 Plasma arc cutting	 Microplasma welding	 Arc air gouging
4							< 6 A	
5							6-15 A	
6							15-40 A	
7							40-60 A	
8			< 70 A	10-30 A	< 60 A		60-100 A	
9	70-125 A		70-100 A	30-70 A	60-100 A	100-125 A	100-125 A	
10	125-175 A	125-175 A	100-150 A	70-125 A	100-150 A	125-150 A	125-175 A	< 175 A
11	175-250 A	175-225 A	150-225 A	125-200 A	150-200 A	150-175 A	175-225 A	175-200 A
12	250-350 A	225-300 A	225-400 A	200-300 A	200-300 A	175-250 A	225-350 A	200-250 A
13	350-450 A	300-400 A	400-600 A	300-350 A	300-450 A	250-400 A		250-350 A
14	450-500 A	400-500 A			450-600 A			350-450 A
15								450-600 A

Depending on personal preferences, the next higher or lower protection level may be used. The designation „heavy metals“ refers to steels, alloyed steels, copper and its alloys, etc.



## Welding helmets

### Standards and specifications

Personal eye and face protection products are classified based on the following standards:

- / EN 166 (Requirements)
- / EN 169 (Filters for welding and allied techniques)
- / EN 175 (Protective welder's masks)
- / EN 379 (Automatic welding filters)

In addition, optical tests are performed compliant with EN 166 and EN 379 standards to rule out any non-adherence to light transmission specifications on the part of the automatic welding filter or deviations in the scattered light in the various filter layers. A number of "quality classes" are derived on the basis of these optical tests:

The classes range from 1 to 3, where 1 describes the best quality. In conventional welding safety glass, only the overall optical quality is classified.

However, in automatic welding filters, four different areas are used: Optical class, scattered light class, homogeneity class and, as voluntary data: angular properties.



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Welding helmets	Classification			
	Optical class	Scattered light	Homogeneity	Angle of view dependence
EWM Powershield II GT 9-13	1	1	1	2
EWM Powershield II EWM Powershield II Protect EWM Powershield II activeVent	1	1	1	2
3M 10V	1	2	2	2
Speedglas 100 V	1	2	2	3
Speedglas 9100 Speedglas 9100 Air	1	1	1	2
Speedglas 9100 FX Speedglas 9100XX FX Air	1	1	1	2
Optrel weldCAP	1	1	2	2
Optrel Vegaview 2.5	1	1	1	2
Optrel e684	1	1	1	1

The lower the classification, the better the quality (Class 1 describes the best quality)

## Personal breathing protection for welders

During welding, the welder is not only exposed to ultraviolet radiation, against which protection is required. Fumes and gases are also generated during welding. These welding fumes consist of the finest particles, which enter the lungs via the respiratory tracts, where they can cause long-term damage. Diseases caused in this way are often only detectable after months or even years.

You are excellently protected against these hazards with our offered breathing protection systems. All systems have the highest TH3 protection class compliant with EN 12941 (breathing devices; fan filter unit with helmet or hood).

In addition, these systems provide the highest possible comfort to the welder. Fatigue is reduced thanks to the controllable air flow, which ensures a cooling effect beneath the welding mask.





Automatic welding helmet • Powershield GT 9-13

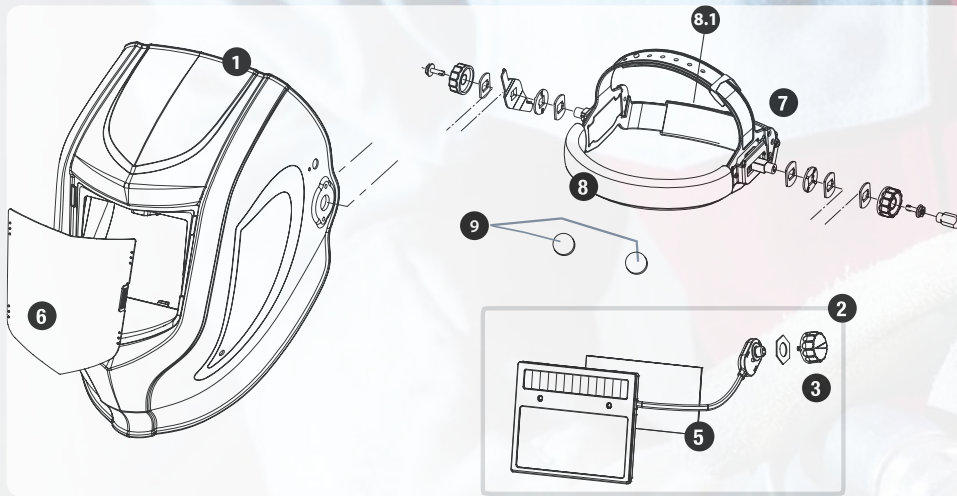


- Automatic welding helmet
- Operating unit outside helmet
- Comfortable headband
- Infinitely variable sensitivity control
- Opening time delay
- True-colour filter
- Replaceable batteries

<b>Standards</b>	EN 379 / EN 175 / EN 166
<b>Classification to EN 379</b>	1/1/1/2
<b>Response time light/dark (23 °C)</b>	0.1 ms
<b>Brightening time dark/light</b>	0.05 s - 1 s
<b>Viewing field</b>	100 mm x 50 mm
<b>Battery life</b>	3000 h
	3000 h
<b>Weight</b>	520 g
<b>Approvals</b>	CE

PU	Item no.
Units	
1	398-003974-00000

■ Consumables



Item	Designation	Material	PU	Item no.
			Units	
1	Helmet	-	1	394-003673-00000
2	Auto-darkening filter for Powershield GT	-	1	094-016786-00000
3	Potentiometer rotary knob for Powershield II and Powershield GT	-	10	094-016783-00000
5	Inside cover lens, clear	Polycarbonate	5	094-013627-00000
6	Cover lenses	Polycarbonate	5	094-016781-00000
7	Adjustable headband incl. sweatband	Plastic	1	094-011330-00000
8	Head sweatband	Cotton	2	094-011331-00001
8.1	Comfort strap	-	2	394-002128-00000
9	Lithium button cell	-	1	094-016620-00002

► 2 button batteries are required per helmet

## Automatic welding helmet • Powershield 2.5 8-12

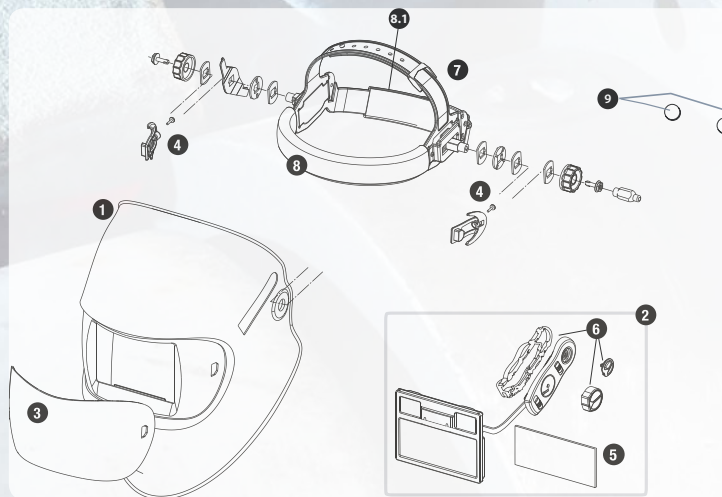
- Fully automatic welding helmet with extra bright view in light state (shade level 2.5)
- Exact compliance of the set shade level thanks to digital auto darkening filter
- Higher safety and relief to the eyes thanks to shade level 2.5 in light state
- Optional: Comfort lining to add to the headband
- With true colour filter for a true colour view
- Never before seen realistic colour perception thanks to new sensor technology
- Adjustable arc recognition angle by means of sensor slider
- Infinitely adjustable shade level control
- Operating unit outside helmet
- Grinding mode



<b>Standards</b>	EN 379 / EN 166 / EN 175
<b>Classification to EN 379</b>	1/1/1/2
<b>Response time light/dark (23 °C)</b>	0.1 ms
<b>Brightening time dark/light</b>	50 ms - 1000 ms
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Viewing field</b>	100 mm x 50 mm
<b>Battery life</b>	3000 h
	3000 h
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Weight</b>	489 g
<b>Approvals</b>	CE

Weight g	Battery life h	PU Units	Item no.
482	3000 - 3000	1	394-006395-00000

## Consumables



Item	Designation	Material	Protection level	PU Units	Item no.
2	Auto darkening filter	-	-	-	394-006400-00000
3	Cover lenses	Polycarbonate	-	2	094-011320-00001
3	Cover lenses	Polycarbonate	-	5	094-011321-00001
4	Set consisting of 2 side clips	-	-	1	094-017676-00000
5	Inside cover lens, clear	Polycarbonate	Clear	5	094-013627-00000
6	Repair set, each consisting of 1x potentiometer button, sensitivity button, satellite back part	-	-	1	094-013835-00000
7	Adjustable headband incl. sweatband	Plastic	-	1	094-011330-00000
8	Head sweatband	Cotton	-	2	094-011331-00001
8.1	Comfort strap	-	-	2	394-002128-00000
9	Lithium button cell	-	-	1	094-016620-00002

► 2 button batteries are required per helmet

Automatic welding helmet prepared for fresh air system • Powershield 2.5 8-12 activeVent

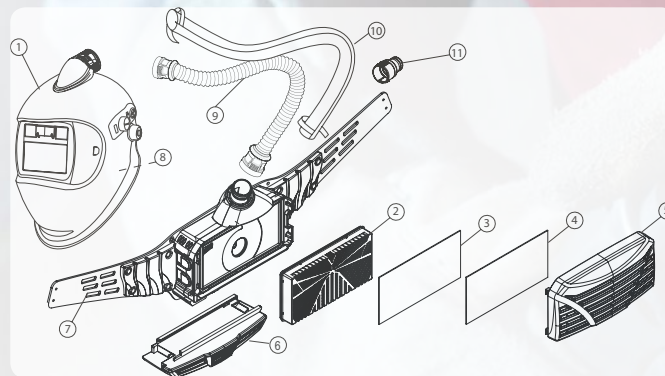


- Suitable replacement parts for the rather welding helmet you will find at Powershield welding helmet 2.5 (394-006395-00000)
- Fully automatic welding helmet including fresh air system with extra bright view in light state (shade level 2.5)
- Exact compliance of the set shade level thanks to digital auto darkening filter
- Higher safety and relief to the eyes thanks to shade level 2.5 in light state
- Optional: Comfort lining to add to the headband
- With true colour filter for a true colour view
- Never before seen realistic colour perception thanks to new sensor technology
- Adjustable arc recognition angle by means of sensor slider
- Infinitely adjustable shade level control
- Operating unit outside helmet
- Grinding mode

<b>Standards</b>	EN 379 / EN 166 / EN 175
<b>Classification to EN 379</b>	1/1/1/2
<b>Response time light/dark (23 °C)</b>	0.1 ms
<b>Brightening time dark/light</b>	50 ms - 1000 ms
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Viewing field</b>	100 mm x 50 mm
<b>Battery life</b>	3000 h
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Weight</b>	690 g
<b>Approvals</b>	CE

PU Units	Version	Item no.
1	equipped for TH3 fan respiratory protection system	394-006398-00000
	including TH3 fan respiratory protection system	394-006397-00000

5 ■ Consumables



Item	Designation	PU Units	Item no.
-	Hose guide	1	394-003149-00000
2	Particle filter	1	394-001101-00000
3	Pre-filter	50	394-001102-00000
4	Spark protection	1	394-001103-00001
5	Filter cover	1	394-001104-00000
6	Li-ion rechargeable battery	1	394-001105-00000
6	Battery with enhanced service life (approx. double service life compared to standard model)	1	394-001106-00000
7	Fan respiratory protection	1	394-001100-00000
8	Helmet shell for fresh air system	1	394-006399-00000
9	Replacement hose	1	394-001108-00001
10	Material protection for air hose	1	394-001109-00000

► 2 button batteries are required per helmet



### Auto darkening filter • PS 2.5

394-006400-00000



### Powershield 2.5 helmet shell • Helmschale Powershield 2.5

Version	
for Powershield 2.5 fresh air helmet	394-006399-00000
für Powershield 2.5	394-006396-00000



### Rucksack for Powershield 2.5 and Powershield GT • Backpack

- The practical rucksack for mobile use with a large number of compartments
- The upholstered back section permits comfortable carrying even on the roughest construction sites
- Backpack for Powershield helmets

**Material**

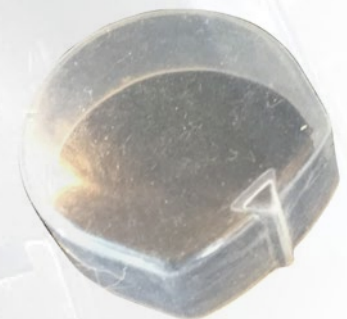
Plastic fabric

PU	Item no.
Units	
1	398-003542-00500



### Silicone protector for rotary knob

PU	Item no.
Units	
10	394-003147-00000



Head and neck protector, leather



● Particularly suitable for overhead welding

**Material** Nappa leather

PU Units	Version	Item no.
	Head and neck protector	094-011393-00000
1	Head and neck protection for welding helmets in combination with fresh air systems	094-015376-00000

Chest protector, leather



**Material** Nappa leather

PU Units	Item no.
1	094-011392-00000





Automatic welding helmet • 3M 10V

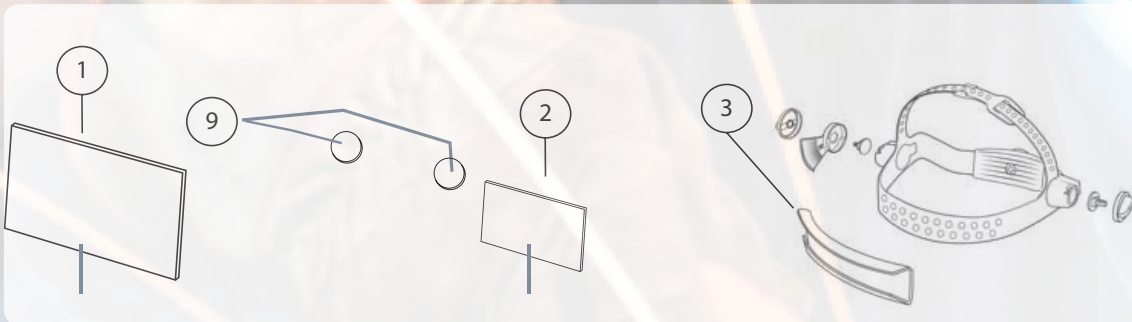


- Cost-effective welding helmet with three switching steps
- Highly suitable for beginners and/or occasional welders
- Robust industrial design
- Low weight, only 390 grams (including automatic welding filter)
- Can be worn with welding safety glasses and/or disposable respirator mask
- Two button cells are required per helmet

<b>Standards</b>	EN 175 / EN 166 / EN 379
<b>Classification to EN 379</b>	1/2/2/2
<b>Light state shade level</b>	3
<b>UV/IR protection</b>	12
<b>Dark state shade level</b>	10-12
<b>Response time light/dark (23 °C)</b>	0.1 ms
<b>Brightening time dark/light</b>	40 ms - 250 ms
<b>Viewing field</b>	93 mm x 44 mm
<b>Battery life</b>	1500 h
	1500 h
<b>Usage</b>	MIG/MAG, MMA
<b>Approvals</b>	CE

PU	Item no.
<b>Units</b>	
1	398-001331-0000

■ Wear parts



Item	Designation	Material	PU	Item no.
			<b>Units</b>	
1	Front cover lens	-	12	398-001330-00000
2	Inside cover lenses	Polycarbonate	5	098-002014-00001
3	Head sweatband	-	10	398-001329-00000
9	Lithium button cell	-	1	094-016620-00002

► 2 button batteries are required per helmet

5

## Automatic welding helmet • Speedglas 100V

- Automatic welding helmet at the best possible price-performance ratio
- Offers protection for all common welding procedures (MIG/MAG, TIG, MMA)
- Provides all important basic Speedglass Hightech automatic welding helmet functions
- Adjustable headband for greatest wearing comfort
- **In addition to 5 darkness levels, also 3 additional sensitivity levels:** level 1 in case other welders are working in the immediate vicinity, level 2 as standard setting for most common welding procedures and level 3 for low amperage welding, TIG welding or welding with a high-frequency inverter
- Two button cells are required per helmet

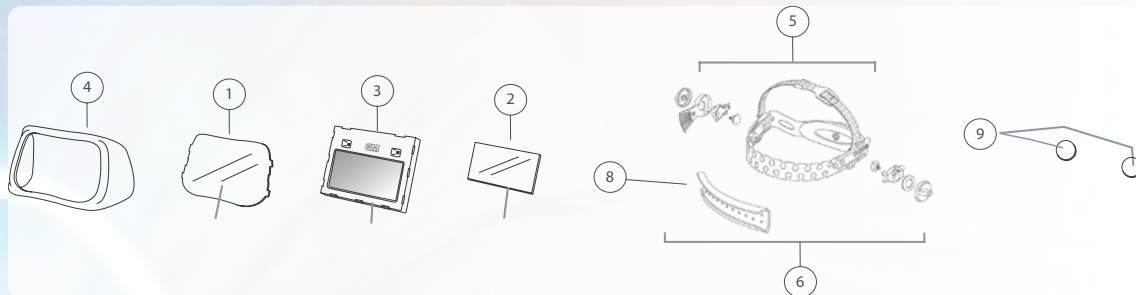
**Speedglas™**



<b>Standards</b>	EN 175 / EN 166 / EN 379
<b>Classification to EN 379</b>	1/2/2/3
<b>Light state shade level</b>	3
<b>UV/IR protection</b>	12
<b>Dark state shade level</b>	8-12
<b>Response time light/dark (23 °C)</b>	0.1 ms
<b>Brightening time dark/light</b>	100 ms - 250 ms
<b>Viewing field</b>	93 mm x 44 mm
<b>Battery life</b>	1500 h
	1500 h
<b>Usage</b>	MIG/MAG, TIG, MMA
<b>Version</b>	2 sensors
<b>Weight</b>	465 g
<b>Colour</b>	Black
<b>Approvals</b>	CE

PU	Item no.
<b>Units</b>	
1	098-004360-00000

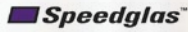
## ■ Wear parts



Item	Designation	Material	PU Units	Item no.
1	Front cover lenses, extra scratch-resistant	-	10	398-001206-00000
1	Front cover lens	-	10	098-004053-00000
1	Front cover lenses, heat-resistant	-	10	098-004362-00000
2	Inside cover lenses	Polycarbonate	5	098-002014-00001
3	Automatic welding filter	-	1	098-004582-00000
4	Front cover	-	1	398-001098-00000
5	Headband assembly set	-	1	398-001475-00000
6	Headband with assembly set	-	1	398-000600-00000
8	Head sweatband	Terrycloth	2	098-004395-00000
9	Lithium button cell	-	1	094-016620-00002

▶ 2 button batteries are required per helmet

Automatic welding helmet with side window • Speedglas 9100

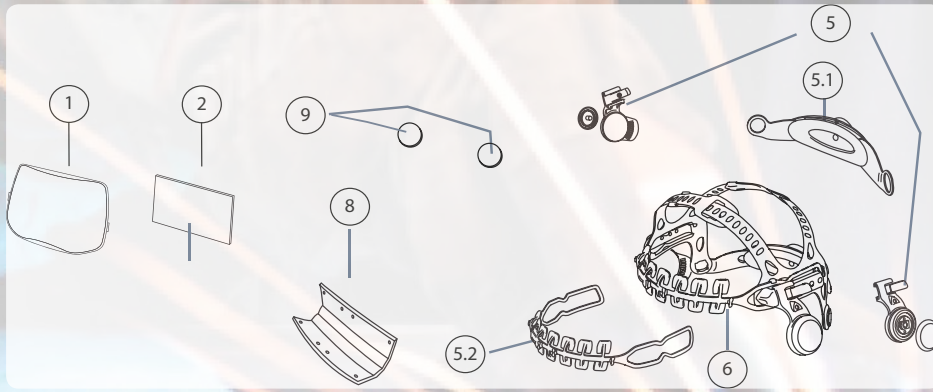


- Automatic welding helmet with patented comfort headband
- Extremely versatile: shade level 3 for grinding work, shade level 5 for oxy-fuel welding, shade level 8 for microplasma welding, shade level 9 to 13 for arc welding
- Permanent protection against ultraviolet (UV) and infrared (IR) radiation at every shade level
- Arc recognition to 1 Ampere TIG in the lower range
- Side windows: unique shade level 5 filters extend field of view
- Patented Speedglas 9100 comfort headband offers the highest wearing comfort
- Exhaust air slots: exhaled air is discharged through lateral flap valves
- Extended ear and side protection
- Two button cells are required per helmet

<b>Standards</b>	EN 379 / EN 175 / EN 166
<b>Classification to EN 379</b>	1/1/1/2
<b>Light state shade level</b>	3
<b>UV/IR protection</b>	13
<b>Dark state shade level</b>	5,8,9-13
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Version</b>	3 sensors Side windows
<b>Approvals</b>	CE

	Viewing field mm	PU Units	Battery life h	Item no.
Speedglas 9100V	93 x 45	1	2800	098-004419-00000
Speedglas 9100X	107 x 54		2500	098-003805-00000
Speedglas 9100XX	107 x 73		2000	098-004346-00000
Speedglas 9100XXi			1800	398-002100-00000

■ Wear parts



Item	Designation	PU Units	Dimensions mm	Item no.
1	Front cover lens	10	-	098-003806-00000
1	Front cover lenses, heat-resistant	10	-	098-004595-00000
1	Front cover lenses, extra scratch-resistant	10	-	098-004715-00000
2	Inside cover lenses for Speedglas 9100V/9100V FX	5	117 x 50	098-004603-00000
2	Inside cover lenses for Speedglas 9100X/9100X FX	5	117 x 61	098-003807-00000
2	Inside cover lenses for Speedglas 9100XX/9100XXi/9100XX FX	5	117 x 77	098-004691-00000
5	Headband assembly set	1	-	098-004365-00000
5.1	Adjustable band/ratchet system for headband	1	-	398-000470-00000
5.2	Headband	1	-	398-000469-00000
6	Headband with assembly set	1	-	098-004475-00000
8	Head sweatband	3	-	098-004425-00000
9	Lithium button cell	1	-	094-016620-00002

► 2 button batteries are required per helmet



## Automatic welding mask with Adflo fan respirator • Speedglas 9100 Air

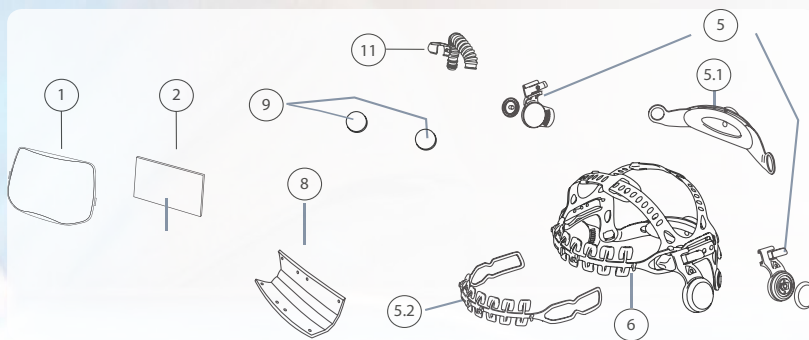
- Automatic welding helmet with patented comfort headband and Adflo fan respirator system
- The Adflo fan respirator system protects your health by permanently feeding fresh air while welding
- Extremely versatile: shade level 3 for grinding work, shade level 5 for oxy-fuel welding, shade level 8 for microplasma welding, shade level 9 to 13 for arc welding
- Permanent protection against ultraviolet (UV) and infrared (IR) radiation at every shade level
- Arc recognition to 1 Ampere TIG in the lower range
- Side windows: unique shade level 5 filters extend field of view
- Patented Speedglas 9100 comfort headband offers the highest wearing comfort
- The face seal is provided by the contour of both the mask and the face
- Two button cells are required per helmet



<b>Standards</b>	EN 379 / EN 175 / EN 166 / EN 12941
<b>Classification to EN 379</b>	1/1/1/2
<b>Classification to EN 12941</b>	TH2
<b>Light state shade level</b>	3
<b>UV/IR protection</b>	13
<b>Dark state shade level</b>	5,8,9-13
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Version</b>	3 sensors Side windows
<b>Approvals</b>	CE

	Viewing field	PU	Battery life	Item no.
	mm	Units	h	
Speedglas 9100X Air	107 x 54	1	2500	398-002113-00000
Speedglas 9100XX Air	107 x 73		2000	398-004845-00000
Speedglas 9100XXi Air			1800	398-002114-00000

### Wear parts



Item	Designation	PU	Dimensions	Item no.
		Units	mm	
1	Front cover lens	10	-	098-003806-00000
1	Front cover lenses, heat-resistant	10	-	098-004595-00000
1	Front cover lenses, extra scratch-resistant	10	-	098-004715-00000
2	Inside cover lenses for Speedglas 9100V/9100V FX	5	117 x 50	098-004603-00000
2	Inside cover lenses for Speedglas 9100X/9100X FX	5	117 x 61	098-003807-00000
2	Inside cover lenses for Speedglas 9100XX/9100XXi/9100XX FX	5	117 x 77	098-004691-00000
5	Headband assembly set	1	-	098-004365-00000
5.1	Adjustable band/ratchet system for headband	1	-	398-000470-00000
5.2	Headband	1	-	398-000469-00000
6	Headband with assembly set	1	-	098-004475-00000
8	Head sweatband	3	-	098-004425-00000
9	Lithium button cell	1	-	094-016620-00002
11	Air duct	1	-	398-000423-00000

► 2 button batteries are required per helmet

Automatic welding mask with side window and head protection • Speedglas 9100 FX

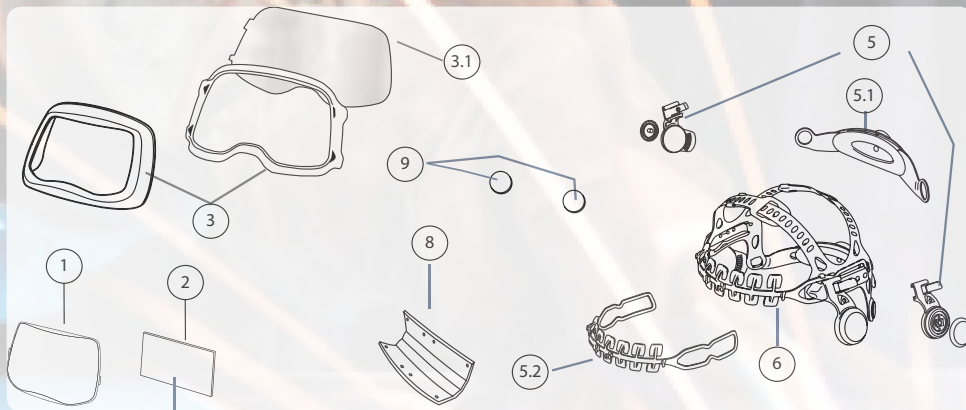


- Automatic welding helmet with patented comfort headband and additional clear protective visor
- The large, 17 x 10 cm, clear protective glass is curved and allows improved side views
- Extremely versatile: shade level 3 for grinding work, shade level 5 for oxy-fuel welding, shade level 8 for microplasma welding, shade level 9 to 13 for arc welding
- Permanent protection against ultraviolet (UV) and infrared (IR) radiation at every shade level
- Arc recognition to 1 Ampere TIG in the lower range
- Side windows: unique shade level 5 filters extend field of view
- Patented Speedglas 9100 comfort headband offers the highest wearing comfort
- Exhalation system (flap profile)
- A spark- and splash-resistant textile head cover is standard equipment with all Speedglas 9100 FX models
- An extended head cover and ear/neck protection are optionally available as accessories
- Two button cells are required per helmet

<b>Standards</b>	EN 379 / EN 175 / EN 166
<b>Classification to EN 379</b>	1/1/1/2
<b>Light state shade level</b>	3
<b>UV/IR protection</b>	13
<b>Dark state shade level</b>	5,8,9-13
<b>Response time light/dark (23 °C)</b>	0.1 ms
<b>Brightening time dark/light</b>	40 ms - 1300 ms
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Approvals</b>	CE

	Viewing field mm	PU Units	Battery life h	Version	Item no.
Speedglas 9100V FX	93 x 45	1	2800	3 sensors	398-002115-00000
Speedglas 9100X FX	107 x 54		2500	Side	398-001019-00000
Speedglas 9100XX FX	107 x 73		2000	windows	398-002116-00000
Speedglas 9100XXi	-		-	-	398-003252-00000

■ Wear parts



Item	Designation	PU Units	Dimensions mm	Item no.
1	Front cover lens	10	-	098-003806-00000
1	Front cover lenses, heat-resistant	10	-	098-004595-00000
1	Front cover lenses, extra scratch-resistant	10	-	098-004715-00000
2	Inside cover lenses for Speedglas 9100V/9100V FX	5	117 x 50	098-004603-00000
2	Inside cover lenses for Speedglas 9100X/9100X FX	5	117 x 61	098-003807-00000
2	Inside cover lenses for Speedglas 9100XX/9100XXi/9100XX FX	5	117 x 77	098-004691-00000
3	Front cover (two-part)	1	-	398-002118-00000
3.1	Front visor, standard	5	-	398-001078-00000
3.1	Front visor, anti-fog	5	-	098-004692-00000
5	Headband assembly set	1	-	098-004365-00000
5.1	Adjustable band/ratchet system for headband	1	-	398-000470-00000
5.2	Headband	1	-	398-000469-00000
6	Headband with assembly set	1	-	098-004475-00000
8	Head sweatband	3	-	098-004425-00000
9	Lithium button cell	1	-	094-016620-00002

► 2 button batteries are required per helmet

## Automatic welding mask with Adflo fan respirator • Speedglas 9100 FX Air

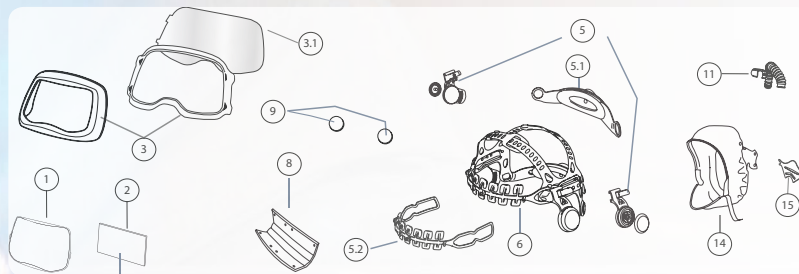
- Automatic welding helmet with patented comfort headband and additional clear protective visor as well as Adflo fan respirator system
- The large, 17 x 10 cm, clear protective glass is curved and allows improved side views
- The Adflo fan respirator system protects your health by permanently feeding fresh air while welding
- Extremely versatile: shade level 3 for grinding work, shade level 5 for oxy-fuel welding, shade level 8 for microplasma welding, shade level 9 to 13 for arc welding
- Permanent protection against ultraviolet (UV) and infrared (IR) radiation at every shade level
- Arc recognition to 1 Ampere TIG in the lower range
- Side windows: unique shade level 5 filters extend field of view
- Patented Speedglas 9100 comfort headband offers the highest wearing comfort
- The face seal is provided by the contour of both the mask and the face
- A spark- and splash-resistant textile head cover is standard equipment with all Speedglas 9100 FX models
- An extended head cover and ear/neck protection are optionally available as accessories
- Two button cells are required per helmet



<b>Standards</b>	EN 379 / EN 175 / EN 166 / EN 12941
<b>Classification to EN 379</b>	1/1/1/2
<b>Classification to EN 12941</b>	TH3
<b>Light state shade level</b>	3
<b>UV/IR protection</b>	13
<b>Dark state shade level</b>	5,8,9-13
<b>Response time light/dark (23 °C)</b>	0.1 ms
<b>Brightening time dark/light</b>	40 ms - 1300 ms
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Version</b>	3 sensors Side windows
<b>Approvals</b>	CE

	Viewing field mm	PU Units	Battery life h	Item no.
Speedglas 9100X FX Air	107 x 54	1	2500	398-002123-00000
Speedglas 9100XX FX Air	107 x 73		2000	398-001479-00000
Speedglas 9100XXi Air			1800	398-002972-00000

## ■ Wear parts



Item	Designation	PU Units	Dimensions mm	Item no.
1	Front cover lens	10	-	098-003806-00000
1	Front cover lenses, heat-resistant	10	-	098-004595-00000
1	Front cover lenses, extra scratch-resistant	10	-	098-004715-00000
2	Inside cover lenses for Speedglas 9100V/9100V FX	5	117 x 50	098-004603-00000
2	Inside cover lenses for Speedglas 9100X/9100X FX	5	117 x 61	098-003807-00000
2	Inside cover lenses for Speedglas 9100XX/9100XXi/9100XX FX	5	117 x 77	098-004691-00000
3	Front cover (two-part)	1	-	398-002118-00000
3.1	Front visor, standard	5	-	398-001078-00000
3.1	Front visor, anti-fog	5	-	098-004692-00000
5	Headband assembly set	1	-	098-004365-00000
5.1	Adjustable band/ratchet system for headband	1	-	398-000470-00000
5.2	Headband	1	-	398-000469-00000
6	Headband with assembly set	1	-	098-004475-00000
8	Head sweatband	3	-	098-004425-00000
9	Lithium button cell	1	-	094-016620-00002
11	Air duct	1	-	398-000858-00000
14	Face cover	1	-	398-000306-00000
15	Air distributor	1	-	398-002124-00000

► 2 button batteries are required per helmet



Fan respiratory protection system • Adflo



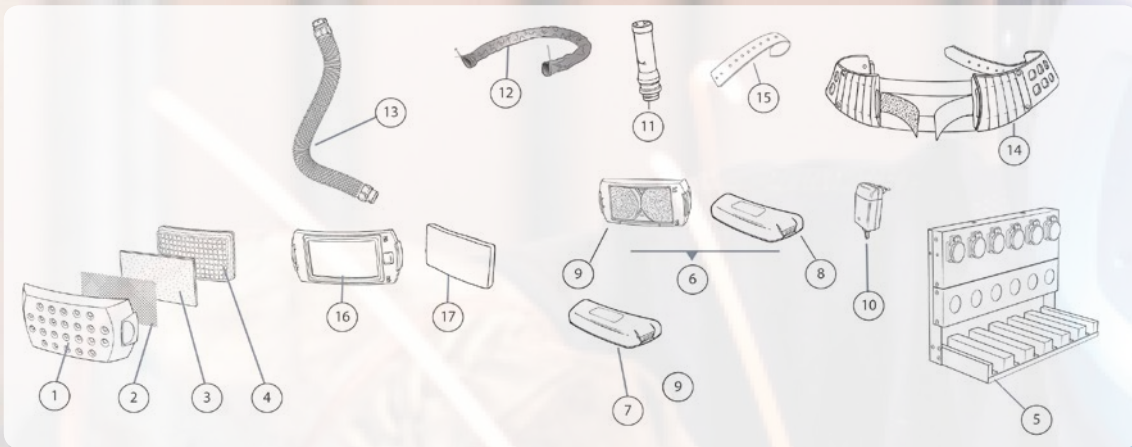
- Adflo filter fan with self-adjusting QRS air hose, air hose adapter, air flow meter, pre-filter, spark arrester, particle filter, rechargeable battery, belt and charger
- Safe and comfortable protective gear even under the most difficult conditions
- Complete mobility thanks to narrow casing and low weight
- Constant inflow of clean air regardless of battery charge or filter particle load
- An adaptable system that saves money: with a modular system using a variety of filters, Adflo effectively protects against both particles and gases

Approvals

CE

PU	Item no.
Units	
1	398-002073-0000

■ Wear parts



Item	Designation	PU	Item no.
		Units	
-	Hose cover, heat-resistant	1	398-000128-00000
1	Filter cover with spark protection	1	398-002148-00000
2	Spark arrester	5	098-003608-00000
3	Pre-filter	5	098-002435-00002
4	THP particle filter	1	098-002434-00000
4	THP particle filter	20	398-001606-00000
5	6x battery charger for Li-ion batteries and NiMh	1	398-002147-00000
6	Gas filter upgrade kit, comprising A1B1E1 filter and high-performance battery	1	398-002155-00000
7	Li-ion high-performance battery	1	398-004846-00000
7	Standard Li-ion battery	1	398-001156-00000
9	Gas filter, type A1B1E1	1	098-005090-00000
9	Gas filter, type A2	1	398-002156-00000
10	Battery charger for Li-ion battery	1	398-001155-00000
11	Air flow meter	1	398-002151-00000
13	Air hose, self-adjusting	1	398-000156-00000
13	Air hose, heavy rubber model	1	398-002152-00000
14	Leather belt	1	094-016986-00000
15	Belt, front section	1	398-002153-00000
16	Odour filter	1	098-002648-00000
17	Odour filter mat	1	398-000614-00000

# Work safety and fume extraction • Welding helmets • Optional Powershield accessory

## Head protection

- Head protection for Speedglas series 9100 FX/9100 FX Air welding helmets

**Standards** Compliant with EN 175

PU	Version	Item no.
1 Units	short	398-001071-00000
	long	398-000281-00000
1 Pair	Velcro strap for head protection	398-002121-00000



## Tecaweld head shield • OMA

**Standards** EN ISO 11611

PU	Item no.
Units	
1	098-003665-00000



EN ISO 11611

## Halsschutz

- Neck protection for Speedglas series 9100/9100 Air and 9100 FX/9100 FX Air welding helmets

**Standards** EN ISO 11611

PU	Item no.
Units	
1	098-004904-00000



EN ISO 11611

## Head protection

- Head protection for Speedglas series 9100/9100 Air welding helmets

**Standards** EN ISO 11611

PU	Item no.
Units	
1	098-004440-00000



EN ISO 11611

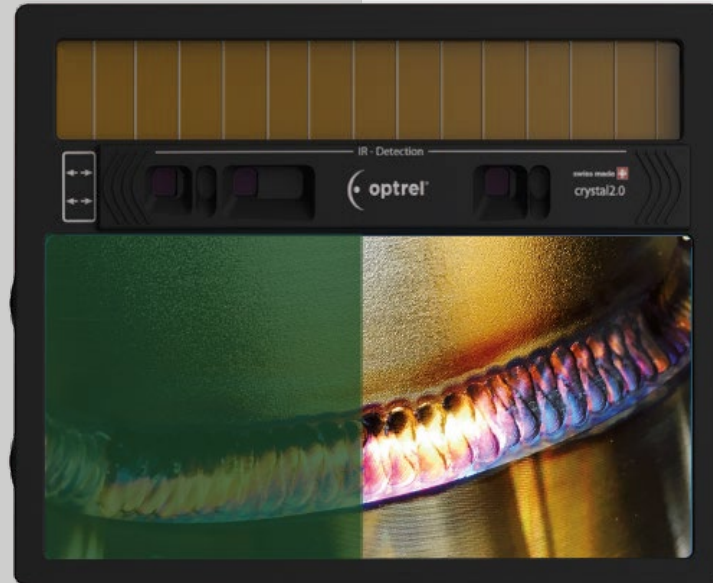
## Bring light into the darkness.

For the first time ever in the history of welding, you, the welder, can observe the joining process as it really takes place. The way the weld pool develops to create the seam. You can see how the welding consumable enters the weld pool and have complete control over your work. CLT offers perfect vision, as if looking through a window. Crystal clear. And thanks to optrel Autopilot, it always provides the right shade level.

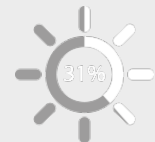
Shade level  
**4.0**  
Industry standard



Transparency



Shade level  
**2.0**  
World record!



Transparency

### PREVIOUSLY

This is how you see the surroundings when performing tasks such as work preparation, weld inspections or grinding.

### optrel crystal 2.0 with light level 2.0:

For absolute all-round comfort during welding and grinding. Perfect in combination with optrel e3000 fan respirator.

### NEW

The **CRYSTAL 2.0** reveals a new vision experience in the light state. The crystal-clear view of the work environment in the light state increases both safety and workplace efficiency. Light transmission in an inactive state is 31 per cent. In addition, colour perception in light states is very similar to the view through a clear window.

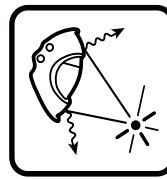






### CRYSTAL LENS TECHNOLOGY WITH LIGHT STATE 2.0

Now you can clearly see what happens before, during and after welding.



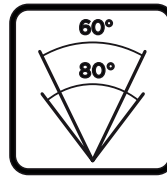
### HEAT-REFLECTING PAINTWORK

Allowing you to keep a cool head at all times.



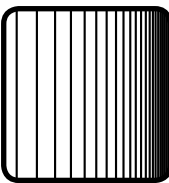
### AUTOPILOT SHADE LEVEL 4 TO 12

The welding helmet automatically adjusts to changes in lighting.



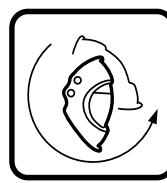
### SENSOR SLIDER

Set the detection angle of the sensor according to your individual needs.



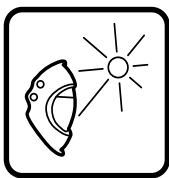
### TWILIGHT FUNCTION

You can always relax, even in rapid changes of lighting.



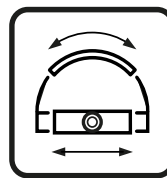
### PATENTED ECCENTRIC

Puts the helmet in the optimal position on your head with a single turn.



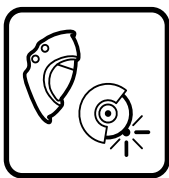
### SENSITIVITY REGULATION

Adjusts the helmet to your surroundings and needs.



### COMFORT HEADBAND

Guarantees optimal weight distribution and protects the user's throat and neck.



### GRINDING MODE

The clearest view ever offered by a welding helmet during grinding.



### 3-YEAR WARRANTY AFTER REGISTRATION

To register, simply visit [register.optrel.com](http://register.optrel.com)



## Highlights

### You will be able to see better:

- / during work preparation
- / during welding
- / during welding inspection
- / during grinding
- / during tacking
- / Crystal-clear vision in light state

Better vision increases safety, comfort and workplace efficiency.

See the difference for yourself.



Automatic welding helmet • optrel weldCAP RC 3/9-12

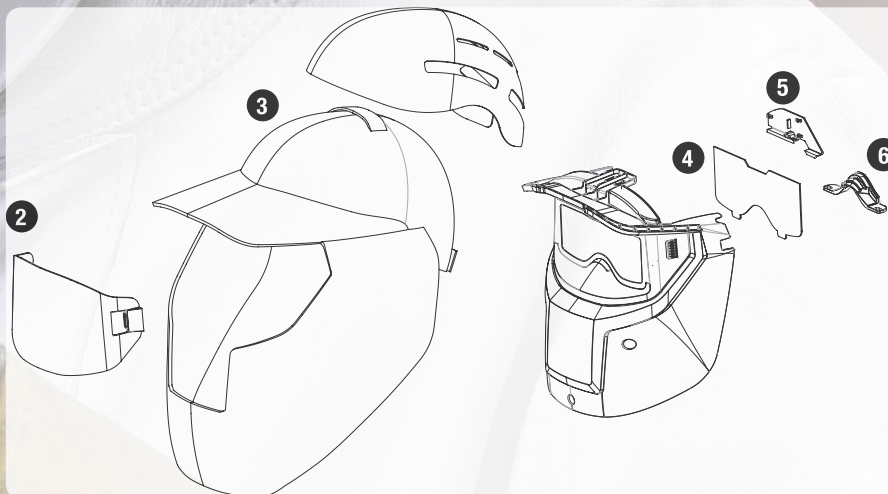
- Automatic welding helmet
- Provides the comfort of a baseball cap with the benefits of a fully-fledged automatic welding helmet
- With immediate effect also including an integrated bump cap for more safety with the same low weight
- 270% larger field of view compared to traditional helmets thanks to the conspicuous nose cut-away, moving the optics closer to the eyes
- Very comfortable to wear thanks to a combination of plastic and flame-retardant textiles
- Grinding mode
- Replaceable batteries
- Replacement textile weldCAP with bump cap: on request



<b>Standards</b>	EN 379 / EN 166 / EN 175
<b>Classification to EN 379</b>	1/1/2/2
<b>Flame-retardant textile compliant with</b>	EN ISO 11611 (Class 1) and EN ISO 11612 (Class A/ B1/C1/E3/F1)
<b>Light state shade level</b>	3
<b>UV/IR protection</b>	at every shade level setting
<b>Dark state shade level</b>	9 - 12
<b>Response time light/dark (23 °C)</b>	0.16 ms
<b>Brightening time dark/light</b>	30 ms
<b>Battery life</b>	1000 h
	1000 h
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Weight</b>	400 g
<b>Approvals</b>	CE

PU Units	Version	Item no.
1	Welding helmet	394-001601-00000
	Welding helmet with integrated bump cap	394-002725-00000

■ Wear parts



Item	Designation	PU	Item no.
2	Cover lenses	5 Pack	394-001603-00000
3	Replacement textile weldCAP standard	1 Units	394-001602-00000
4	Inside cover lenses	5 Pack	394-001604-00000
5	Battery cover, Weldcap	2 Pack	394-001606-00000
6	Nose pad, Weldcap	2 Pack	394-001605-00000



Automatic welding helmet • optrel Vegaview 2.5

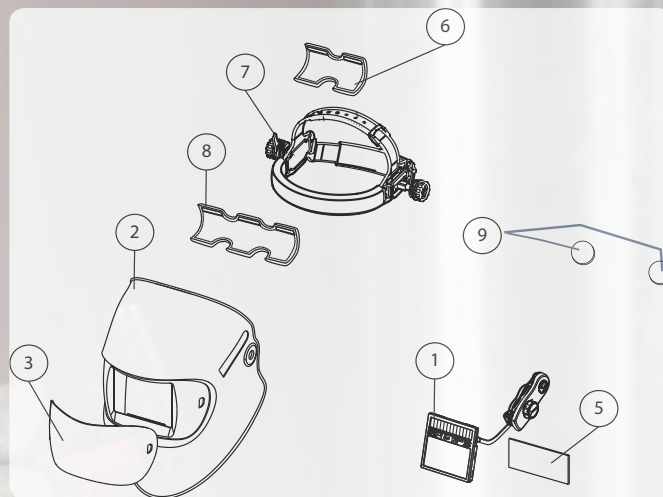


- Fully automatic welding helmet with extra bright view in light state (shade level 2.5)
- With true colour filter for a true colour view
- Never before seen realistic colour perception thanks to new sensor technology
- Adjustable arc recognition angle by means of sensor slider
- Infinitely adjustable shade level control
- Operating unit outside helmet
- Grinding mode
- Two button cells are required per helmet
- Also optionally available with industrial helmet adapter

<b>Standards</b>	EN 379 / EN 166 / EN 175
<b>Classification to EN 379</b>	1/1/1/2
<b>Light state shade level</b>	2.5
<b>UV/IR protection</b>	at every shade level setting
<b>Dark state shade level</b>	8 - 12
<b>Response time light/dark (23 °C)</b>	0.1 ms
<b>Brightening time dark/light</b>	50 ms - 1000 ms
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Viewing field</b>	100 mm x 50 mm
<b>Battery life</b>	3000 h
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Version</b>	Welding helmet
<b>Weight</b>	482 g
<b>Approvals</b>	CE

PU	Item no.
<b>Units</b>	
1	394-003000-00000

■ Wear parts



Item	Designation	Material	PU	Item no.
1	Auto darkening filter	-	1 Units	394-003007-00000
2	Helmet	-	1 Units	394-003005-00000
3	Cover lenses	Polycarbonate	2 Units	094-011320-00001
3	Cover lenses	Polycarbonate	5 Units	094-011321-00001
5	Inside cover lens, clear	Polycarbonate	5 Units	094-013627-00000
6	Comfort strap at the back	-	1 Pair	394-003008-00000
7	Adjustable headband incl. sweatband	Plastic	1 Units	094-011330-00000
8	Head sweatband	Cotton	2 Units	094-011331-00001
9	Lithium button cell	-	1 Units	094-016620-00002

► 2 button batteries are required per helmet

## Automatic welding helmet prepared for fresh air system • optrel Vegaview 2.5

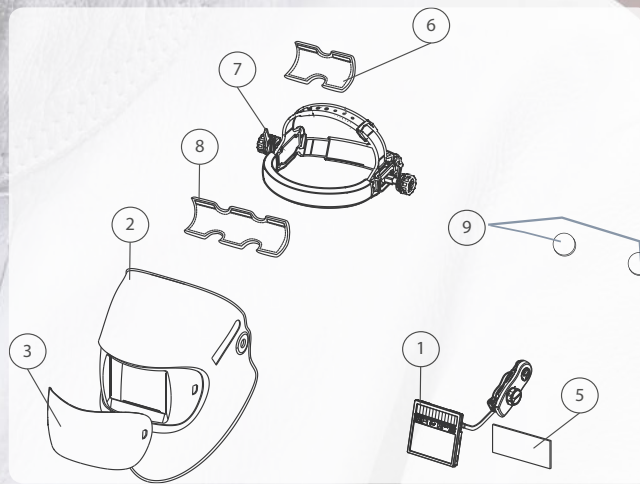
- Fully automatic welding helmet with extra bright view in light state (shade level 2.5), prepared for Optrel e3000 fresh air system
- With true colour filter for a true colour view
- Never before seen realistic colour perception thanks to new sensor technology
- Adjustable arc recognition angle by means of sensor slider
- Infinitely adjustable shade level control
- Operating unit outside helmet
- Grinding mode
- Two button cells are required per helmet
- Also optionally available with industrial helmet adapter



<b>Standards</b>	EN 379 / EN 166 / EN 175
<b>Classification to EN 379</b>	1/1/1/2
<b>Light state shade level</b>	2.5
<b>UV/IR protection</b>	at every shade level setting
<b>Dark state shade level</b>	8 - 12
<b>Response time light/dark (23 °C)</b>	0.1 ms
<b>Brightening time dark/light</b>	50 ms - 1000 ms
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Viewing field</b>	100 mm x 50 mm
<b>Battery life</b>	3000 h
	3000 h
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Version</b>	Welding helmet prepared for fresh air system
<b>Weight</b>	690 g
<b>Approvals</b>	CE

PU	Item no.
Units	
1	394-003001-00000

### Wear parts



Item	Designation	Material	PU	Item no.
1	Auto darkening filter	-	1 Units	394-003007-00000
2	Helmet shell, including connection for fresh air system	-	1 Units	394-003006-00000
3	Cover lenses	Polycarbonate	2 Units	094-011320-00001
3	Cover lenses	Polycarbonate	5 Units	094-011321-00001
5	Inside cover lens, clear	Polycarbonate	5 Units	094-013627-00000
6	Comfort strap at the back	-	1 Pair	394-003008-00000
7	Adjustable headband incl. sweatband	Plastic	1 Units	094-011330-00000
8	Head sweatband	Cotton	2 Units	094-011331-00001
9	Lithium button cell	-	1 Units	094-016620-00002

► 2 button batteries are required per helmet

Automatic welding helmet ● optrel e684



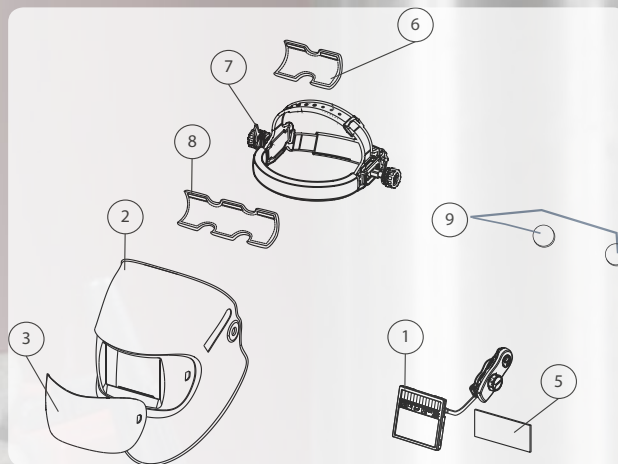
- Fully automatic welding helmet with true colour reproduction
- Adaptive shade level control – automatic adjustment of the optimal shade level
- High definition quality – thanks to Class 1 viewing angle dependence and true colour view, you have a sharp view of the welding process
- Best eye protection – the cartridge transitions smoothly from dark to light
- Compared to unpainted helmets, the heat inside the helmet is reduced by up to 24%
- Operating unit outside helmet
- Overhead welding
- Two button cells are required per helmet
- Also optionally available with industrial helmet adapter

<b>Standards</b>	EN 379 / EN 166 / EN 175
<b>Classification to EN 379</b>	1/1/1/1
<b>Light state shade level</b>	4
<b>UV/IR protection</b>	at every shade level setting
<b>Dark state shade level</b>	5 - 13
<b>Response time light/dark (23 °C)</b>	0.17 ms
<b>Brightening time dark/light</b>	100 ms - 2000 ms
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Viewing field</b>	100 mm x 50 mm
<b>Battery life</b>	3000 h
	3000 h
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Version</b>	Welding helmet
<b>Weight</b>	500 g
<b>Approvals</b>	CE

PU	Item no.
<b>Units</b>	
1	394-003042-0000

5

■ Wear parts



Item	Designation	Material	PU	Item no.
1	Auto darkening filter	-	1 Units	394-003046-0000
2	Helmet	-	1 Sp.	394-003158-0000
3	Cover lenses	Polycarbonate	2 Units	094-011320-0001
3	Cover lenses	Polycarbonate	5 Units	094-011321-0001
5	Inside cover lens, clear	Polycarbonate	5 Units	094-013627-0000
6	Comfort strap at the back	-	1 Pair	394-003008-0000
7	Adjustable headband incl. sweatband	Plastic	1 Units	094-011330-0000
8	Head sweatband	Cotton	2 Units	094-011331-0001
9	Lithium button cell	-	1 Units	094-016620-0002

► 2 button batteries are required per helmet



## Automatic welding helmet prepared for fresh air system • optrel e684

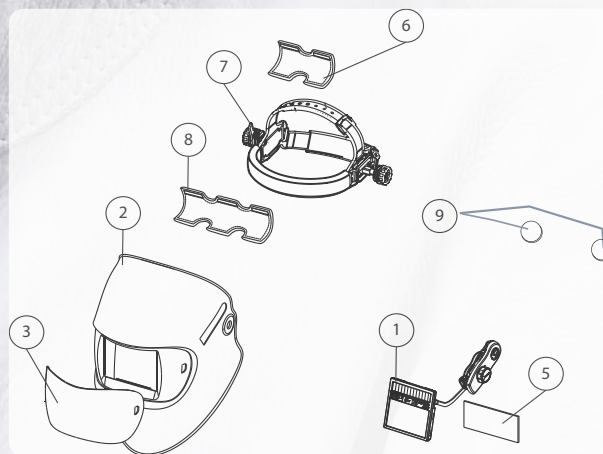
- Fully automatic welding helmet with true colour reproduction, prepared for optrel e3000 fresh air system
- Adaptive shade level control – automatic adjustment of the optimal shade level
- High definition quality – thanks to Class 1 viewing angle dependence and true colour view, you have a sharp view of the welding process
- Best eye protection – the cartridge transitions smoothly from dark to light
- Compared to unpainted helmets, the heat inside the helmet is reduced by up to 24%
- Operating unit outside helmet
- Overhead welding
- Two button cells are required per helmet
- Also optionally available with industrial helmet adapter



<b>Standards</b>	EN 379 / EN 166 / EN 175
<b>Classification to EN 379</b>	1/1/1/1
<b>Light state shade level</b>	4
<b>UV/IR protection</b>	at every shade level setting
<b>Dark state shade level</b>	5 - 13
<b>Response time light/dark (23 °C)</b>	0.17 ms
<b>Brightening time dark/light</b>	100 ms - 2000 ms
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Viewing field</b>	100 mm x 50 mm
<b>Battery life</b>	3000 h
	3000 h
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Version</b>	Welding helmet prepared for fresh air system
<b>Weight</b>	690 g
<b>Approvals</b>	CE

PU	Item no.
Units	
1	394-003044-00000

### ■ Wear parts



Item	Designation	Material	PU	Item no.
1	Auto darkening filter	-	1 Units	394-003046-00000
2	Helmet shell, including connection for fresh air system	-	1 Units	394-003159-00000
3	Cover lenses	Polycarbonate	2 Units	094-011320-00001
3	Cover lenses	Polycarbonate	5 Units	094-011321-00001
5	Inside cover lens, clear	Polycarbonate	5 Units	094-013627-00000
6	Comfort strap at the back	-	1 Pair	394-003008-00000
7	Adjustable headband incl. sweatband	Plastic	1 Units	094-011330-00000
8	Head sweatband	Cotton	2 Units	094-011331-00001
9	Lithium button cell	-	1 Units	094-016620-00002

► 2 button batteries are required per helmet

Automatic welding helmet ● Optrel crystal 2.0

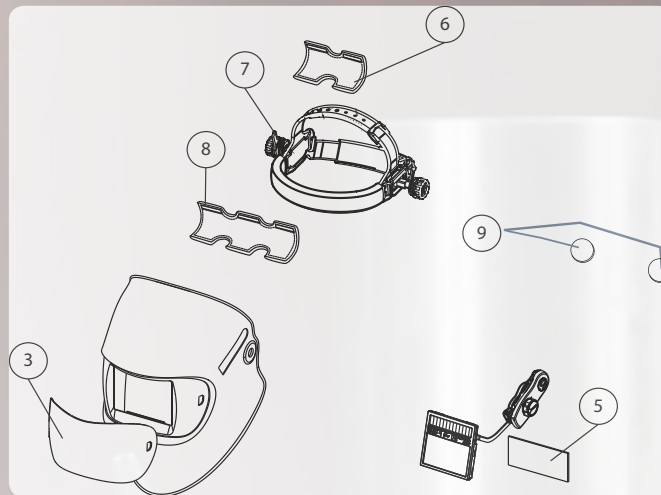


- Fully automatic welding helmet with true colour reproduction
- Grinding mode – the brightest view for Grinding 2.0
- Adaptive shade level control – automatic adjustment of the optimal shade level
- Heat-reflecting paintwork – allowing you to keep a cool head at all times
- Best eye protection – the cartridge transitions smoothly from dark to light
- Operating unit outside helmet
- Sensor slider – set the detection angle of the sensor according to your individual needs
- Patented eccentric – ensures the helmet is in the optimal position on your head
- Overhead welding

<b>Standards</b>	EN 379
<b>Classification to EN 379</b>	1/1/1/2
<b>Brightening time dark/light</b>	100 ms - 2000 ms
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Response time light/dark (55 °C)</b>	0.1 ms - 0.07 ms
<b>Viewing field</b>	100 mm x 50 mm
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Version</b>	Welding helmet
<b>Weight</b>	460 g
<b>Approvals</b>	CE

PU	Item no.
<b>Units</b>	
1	398-009676-00000

■ Wear parts



Item	Designation	Material	PU	Item no.
3	Cover lenses	Polycarbonate	2 Units	094-011320-00001
3	Cover lenses	Polycarbonate	5 Units	094-011321-00001
5	Inside cover lens, clear	Polycarbonate	5 Units	094-013627-00000
6	Comfort strap at the back	-	1 Pair	394-003008-00000
7	Adjustable headband incl. sweatband	Plastic	1 Units	094-011330-00000
8	Head sweatband	Cotton	2 Units	094-011331-00001
9	Lithium button cell	-	1 Units	094-016620-00002

► 2 button batteries are required per helmet

## Automatic welding helmet prepared for fresh air system • Optrel crystal 2.0

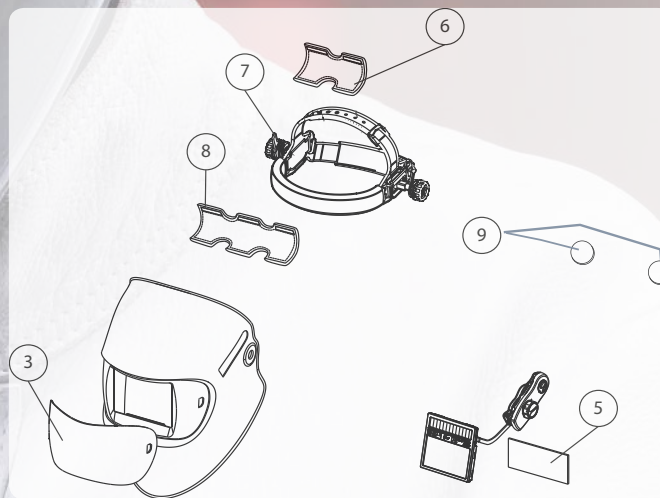
- Fully automatic welding helmet with true colour reproduction
- Grinding mode – the brightest view for Grinding 2.0
- Adaptive shade level control – automatic adjustment of the optimal shade level
- Heat-reflecting paintwork – allowing you to keep a cool head at all times
- Best eye protection – the cartridge transitions smoothly from dark to light
- Operating unit outside helmet
- Sensor slider – set the detection angle of the sensor according to your individual needs
- Patented eccentric – ensures the helmet is in the optimal position on your head
- Overhead welding



<b>Standards</b>	EN 379
<b>Classification to EN 379</b>	1/1/1/2
<b>Brightening time dark/light</b>	100 ms - 2000 ms
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Response time light/dark (55 °C)</b>	0.1 ms - 0.07 ms
<b>Viewing field</b>	100 mm x 50 mm
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Version</b>	Welding helmet
<b>Approvals</b>	CE

PU	Item no.
Units	
1	398-008440-00000

### ■ Wear parts



Item	Designation	Material	PU	Item no.
3	Cover lenses	Polycarbonate	2 Units	094-011320-00001
3	Cover lenses	Polycarbonate	5 Units	094-011321-00001
5	Inside cover lens, clear	Polycarbonate	5 Units	094-013627-00000
6	Comfort strap at the back	-	1 Pair	394-003008-00000
7	Adjustable headband incl. sweatband	Plastic	1 Units	094-011330-00000
8	Head sweatband	Cotton	2 Units	094-011331-00001
9	Lithium button cell	-	1 Units	094-016620-00002

► 2 button batteries are required per helmet



Automatic welding helmet with fresh-air system • Optrel crystal 2.0 vorbereitet RTW



- Fully automatic welding helmet with true colour reproduction
- Grinding mode – the brightest view for Grinding 2.0
- Adaptive shade level control – automatic adjustment of the optimal shade level
- Heat-reflecting paintwork – allowing you to keep a cool head at all times
- Best eye protection – the cartridge transitions smoothly from dark to light
- Operating unit outside helmet
- Sensor slider – set the detection angle of the sensor according to your individual needs
- Patented eccentric – ensures the helmet is in the optimal position on your head
- Overhead welding

<b>Standards</b>	EN 379
<b>Classification to EN 379</b>	1/1/1/2
<b>Brightening time dark/light</b>	100 ms - 2000 ms
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Response time light/dark (55 °C)</b>	0.1 ms - 0.07 ms
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Version</b>	Welding helmet
<b>Approvals</b>	CE

Viewing field mm	PU Units	Battery life h	Item no.
100 x 50	1	10.0	398-008441-00000
-		20.0	398-008442-00000

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## Automatic welding helmet • optrel panoramaxx

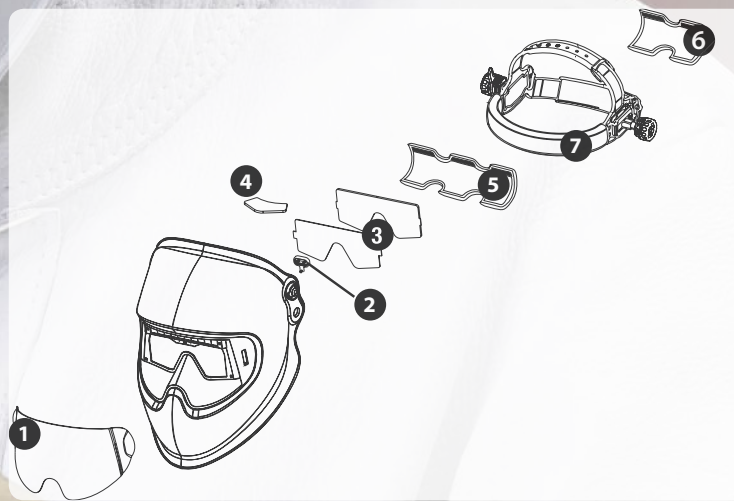
- Fully-automatic welding helmet with extremely wide field of vision thanks to nose cut-out in the auto darkening filter
- Depending on headband adjustment, 2.3 to 6.3 times larger field of view of a 100 x 50 mm industrial standard auto darkening filter
- True colour reproduction thanks to specially developed UV/IR filter
- Auto darkening filter in the shade level range 2.5/5<12M with autopilot
- +/- 2 individual shade level correction
- Sensitivity adjustment and opening delay with/without twilight function
- Perfect on/off regulation of the darkening filter thanks to 5-sensor array
- Easy to charge via USB – no battery change required
- Two button cells are required per helmet



<b>Standards</b>	EN 379 / EN 166 / EN 175
<b>Classification to EN 379</b>	1/1/1/2
<b>Light state shade level</b>	2.5
<b>UV/IR protection</b>	at every shade level setting
<b>Dark state shade level</b>	5 - 12
<b>Response time light/dark (23 °C)</b>	0.09 ms
<b>Brightening time dark/light</b>	0.1 s - 2 s
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Battery life</b>	1000 h
	1000 h
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Weight</b>	550 g
<b>Approvals</b>	CE

PU	Item no.
Units	
1	398-004260-00000

### ■ Wear parts



Item	Designation	Material	PU	Item no.
-	USB cable	-	1 Units	398-004266-00000
1	Front cover lens	-	5 Units	398-004262-00000
2	USB cover	-	2 Units	398-004265-00000
3	Inside cover lenses	-	5 Units	398-004263-00000
4	Nose pad	-	2 Units	398-004264-00000
6	Comfort strap at the back	-	1 Pair	394-003008-00000
7	Adjustable headband incl. sweatband	-	1 Units	398-004267-00000
8	Head sweatband	Cotton	2 Units	094-011331-00001

Automatic welding helmet prepared for fresh air system ● optrel panoramaxx fresh air



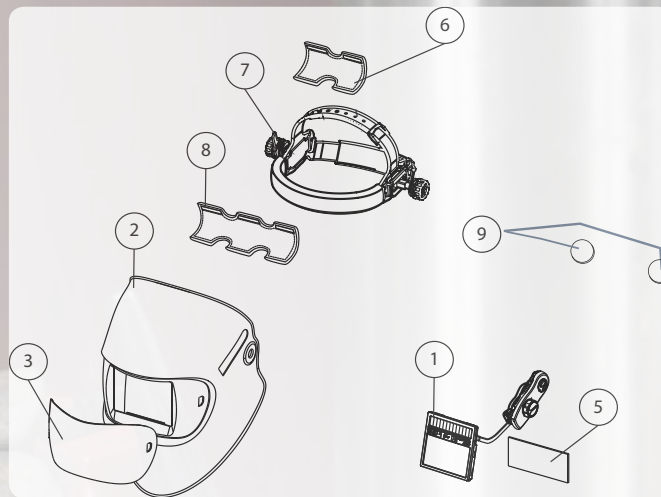
- Fully-automatic welding helmet with extremely wide field of vision thanks to nose cut-out in the auto darkening filter, equipped for fresh air system E3000
- Depending on headband adjustment, 2.3 to 6.3 times larger field of view of a 100 x 50 mm industrial standard auto darkening filter
- True colour reproduction thanks to specially developed UV/IR filter
- Auto darkening filter in the shade level range 2.5/5<12M with autopilot
- +/- 2 individual shade level correction
- Sensitivity adjustment and opening delay with/without twilight function
- Perfect on/off regulation of the darkening filter thanks to 5-sensor array
- Easy to charge via USB – no battery change required
- Two button cells are required per helmet

<b>Standards</b>	EN 379 / EN 166 / EN 175
<b>Classification to EN 379</b>	1/1/1/2
<b>Light state shade level</b>	2.5
<b>UV/IR protection</b>	at every shade level setting
<b>Dark state shade level</b>	5 - 12
<b>Response time light/dark (23 °C)</b>	0.09 ms
<b>Brightening time dark/light</b>	0.1 s - 2 s
<b>Operating temperature</b>	-10 °C - 70 °C
<b>Battery life</b>	1000 h
	1000 h
<b>Usage</b>	MIG/MAG, TIG, MMA, plasma, microplasma
<b>Weight</b>	550 g
<b>Approvals</b>	CE

PU	Item no.
Units	
1	398-004261-00000

5

■ Wear parts



Item	Designation	Material	PU	Item no.
-	USB cable	-	1 Units	398-004266-00000
1	Front cover lens	-	5 Units	398-004262-00000
2	USB cover	-	2 Units	398-004265-00000
3	Inside cover lenses	-	5 Units	398-004263-00000
4	Nose pad	-	2 Units	398-004264-00000
6	Comfort strap at the back	-	1 Pair	394-003008-00000
7	Adjustable headband incl. sweatband	-	1 Units	398-004267-00000
8	Head sweatband	Cotton	2 Units	094-011331-00001



### Automatic welding helmet • panoramaxx RTW

- Automatic welding helmet incl. fresh air and bag
- RTW = Ready To Weld
- Battery life: 10 hours
- 6 times larger field of view than with a standard helmet
- Fully automatic shade level setting
- True colour view
- Two button cells are required per helmet

**Weight** 550 g

Battery life h	Item no.
10.0	394-003795-00000
20.0	394-003796-00000



### Grinding helmet • Optrel clearmaxx

- Face and respiratory protection
- Unlimited and clear view of the workplace
- Ergonomic fit
- Two button cells are required per helmet

**Weight** 330 g

Item no.
398-009313-00000



### Grinding helmet equipped for fresh air system • Optrel clearmaxx with fresh air system

- Face and respiratory protection
- Unlimited and clear view of the workplace
- Ergonomic fit
- Device for e3000 fan respirator
- Two button cells are required per helmet

**Weight** ca.330 g

Item no.
398-009314-00000



5

### Fan respirator green 10h & clearmaxx fresh air helmet black • Optrel clearmaxx with fresh air system

- Face and respiratory protection
- Unlimited and clear view of the workplace
- Ergonomic fit
- Device for e3000 fan respirator
- Filtered and clean air with individually adjustable air supply
- Continuous adjustment up to 20% for additional cooling in the front of the helmet
- Direct air flow above the eyes
- Filters 99.8% of (breathable and respirable) particles
- Two button cells are required per helmet

**Weight** 440 g

Battery life h	Item no.
10.0	398-009311-00000
20.0	398-009312-00000



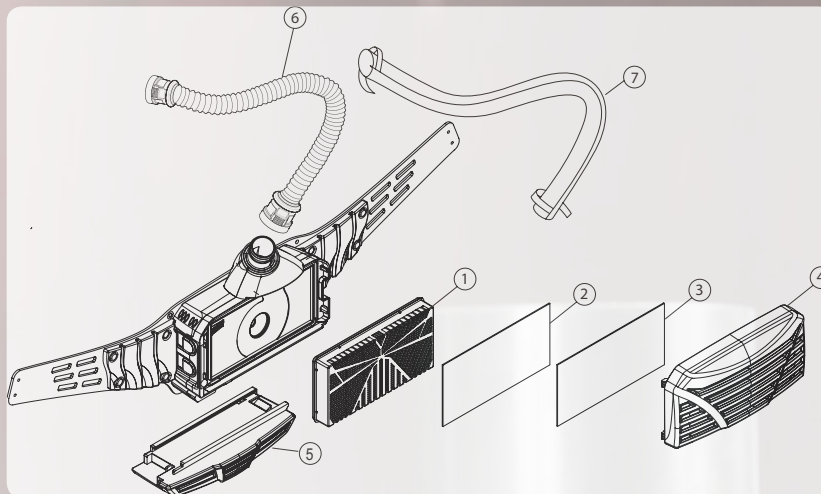
Fan respiratory protection ● optrel e3000



- Fan respirator with integrated air flow sensor and 3-stage controllable air flow
- Most stringent TH3 respiratory protection classification ensures the highest level of safety
- Intelligent sensor management automatically performs an air flow test
- Improved comfort thanks to 3-stage controllable air flow (150–200–250 nl/min)
- Improved concentration and less fatigue thanks to constant air flow lead to better welding quality results
- Long life runs for up to 20 hours and standard up to 10 hours
- Filter system comprises pre-filter and particle filter
- Weight including hose, rechargeable battery and filter

<b>Standards</b>		EN 12941			
<b>Classification to EN 12941</b>		TH3			
<b>Approvals</b>		CE			
Colour	Dimensions (length x width x height) mm	PU	Version	Weight	Item no.
		Units		g	
Green	222 x 213	1	Standard	1700	394-003011-00000
			Long life	1900	394-003012-00000

■ Wear parts



Item	Designation	PU	Item no.
-	Hose guide	1 Units	394-003148-00000
1	Particle filter	1 Units	394-003013-00000
2	Pre-filter	50 Units	394-003014-00000
3	Spark protection grille	1 Pair	394-003015-00000
4	Filter cover, green	1 Units	394-003017-00000
5	Battery, e3000, standard	1 Units	394-003018-00000
5	Battery, e3000, long life	1 Units	394-003019-00000
6	Air hose	1 Units	394-003020-00001
7	Material protection for air hose	1 Units	394-003021-00000

5

**Belt hook • GH FUER WELDCAP**

- Practical belt hook for attaching the welding helmet
- Avoid onerous searching or swapping your welding helmet
- Suitable for all Powershield series helmets as well as all Optrel brand helmets

PU	Item no.
<b>Units</b>	
1	398-001688-00000



**Head and neck protector, leather**

- Particularly suitable for overhead welding

**Material** Nappa leather

PU	Version	Item no.
<b>Units</b>		
1	Head and neck protector	094-011393-00000
	Head and neck protection for welding helmets in combination with fresh air systems	094-015376-00000



**Chest protector, leather**

**Material** Nappa leather

PU	Item no.
<b>Units</b>	
1	094-011392-00000



**Silicone protector for rotary knob**

PU	Item no.
<b>Units</b>	
10	394-003146-00000





**Welding helmet**



- Original Mars helmet of heat-resistant plastic, very light, with hinged lens holder
- Please remember to order suitable lenses of the required shade level separately

<b>Standards</b>	EN 175
<b>Viewing field</b>	90 mm x 110 mm
<b>Material</b>	ABS plastic
<b>Colour</b>	Black

PU	Item no.
Units	
1	098-000158-00000

**Head shield**



- Head shield made of light plastic
- 098-000797-00000 with adjustable headband
- Please remember to order suitable lenses of the required shade level separately

<b>Approvals</b>	CE
<b>Standards</b>	EN 175
<b>Viewing field</b>	90 mm x 110 mm

Material	Colour	PU	Item no.
		Units	
Plastic	Black	1	098-000797-00000

**Head shield**



- Head shield made of light plastic with glass fibre fabric
- Flame-retardant
- Please remember to order suitable lenses of the required shade level separately

<b>Standards</b>	EN 175
<b>Viewing field</b>	90 mm x 110 mm
<b>Version</b>	With glass fibre fabric
<b>Approvals</b>	CE

Colour	PU	Item no.
		Units
Black	1	098-003543-00000
Green		098-004116-00000

**Head shield • Prota Shell**



- Extremely heat resistant head shield made of damp repellent vulcanised fibre
- Fully insulated
- 098-000797-00000 with adjustable headband
- Solid lens holder
- Please remember to order suitable lenses of the required shade level separately

<b>Standards</b>	EN 175
<b>Version</b>	Prota Shell Fully insulated
<b>Colour</b>	Black
<b>Approvals</b>	CE

Viewing field mm	PU	Item no.
		Units
51 x 108	1	098-003565-00000
90 x 110		098-003623-00000

## Welding shield

- Welding shield made of plastic with fully inserted glass fibre fabric
- Curved, pre-fabricated version
- Flame-retardant
- UV resistant, no moisture absorption
- Cold and heat resistant from -20°C to 200°C
- Please remember to order suitable lenses of the required shade level separately



<b>Standards</b>	EN 175
<b>Viewing field</b>	90 mm x 110 mm
<b>Material</b>	Glass-fibre plastic
<b>Colour</b>	Black
<b>Approvals</b>	CE

PU	Characteristics	Item no.
<b>Units</b>		
1	Angled	098-000203-00000
	Angled, clear view	098-000204-00000

## Protective glass overlay

<b>Standards</b>	EN 166 / EN 169
<b>Approvals</b>	CE

Material	Colour	Dimensions mm	PU Units	Version	Item no.
Glass	Colourless	90 x 110	100	Standard	098-000206-00000
		51 x 108			098-000881-00000
		40 x 110	200	For hand shield, clear view (098-000204-00000)	098-000224-00000
	Yellow	90 x 110	100	Splatter-resistant	098-004196-00000
Polycarbonate	Colourless	90 x 110	10	Standard	398-000805-00000



## 1000 hour glass

- CR-39 plastic protective glass overlay
- Prevents metal spatter sticking, resulting in a very long service life compared to traditional polycarbonate plastic lenses
- Also known as '1000 hour glass'

<b>Standards</b>	DIN 0196
<b>Characteristics</b>	Splatter-resistant coating
<b>Material</b>	CR-39 plastic
<b>Colour</b>	Colourless
<b>Approvals</b>	CE

Dimensions mm	PU Units	Item no.
51 x 108	150	098-000882-00000
85 x 110	100	398-001040-00000
90 x 110		398-002168-00000



**Welding safety glass, 90 x 110 mm**



- Welding safety glasses
- Various DIN protection levels

<b>Standards</b>	EN 166 / EN 169
<b>Material</b>	Glass
<b>Dimensions</b>	90 mm x 110 mm
<b>Approvals</b>	CE

PU Units	Shade level	Item no.
10	4.0	098-000896-00000
	5.0	098-000897-00000
	6.0	098-000898-00000
	7.0	098-000899-00000
	8.0	098-000900-00000
	9.0	098-000208-00000
	10.0	098-000209-00000
	11.0	098-000210-00000
	12.0	398-000613-00000
	13.0	098-000905-00000
	14.0	098-000906-00000

**Welding safety glass, 90 x 110 mm, gold mirror coating**



- Welding safety glasses
- Various DIN protection levels
- Gold mirror coating

<b>Standards</b>	EN 166 / EN 169
<b>Characteristics</b>	Mirrored
<b>Material</b>	Glass
<b>Dimensions</b>	90 mm x 110 mm
<b>Approvals</b>	CE

PU Units	Shade level	Item no.
10	9.0	098-000926-00000
	10.0	098-000211-00000
	11.0	098-000212-00000
	12.0	098-000929-00000
	13.0	098-000930-00000
	14.0	098-000931-00000

**Welding safety glass, 51 x 108 mm**



- Welding safety glasses
- Various DIN protection levels

<b>Standards</b>	EN 166 / EN 169
<b>Material</b>	Glass
<b>Dimensions</b>	51 mm x 108 mm
<b>Approvals</b>	CE

PU Units	Shade level	Item no.
10	5.0	098-000912-00000
	6.0	098-000913-00000
	7.0	098-000914-00000
	8.0	398-006738-00000
	9.0	098-000916-00000
	10.0	098-000917-00000
	11.0	098-000918-00000
	12.0	098-000919-00000
	13.0	098-000920-00000
	14.0	098-000921-00000

5



### Welding safety glass, 51 x 108 mm, gold mirror coating

- Welding safety glasses
- Various DIN protection levels
- Gold mirror coating

<b>Standards</b>	EN 166 / EN 169
<b>Viewing field</b>	51 mm x 108 mm
<b>Characteristics</b>	Mirrored
<b>Material</b>	Glass
<b>Approvals</b>	CE



PU Units	Shade level	Item no.
10	9.0	098-000932-00000
	10.0	098-000933-00000
	11.0	098-000934-00000
	12.0	098-000935-00000
	13.0	098-000936-00000
	14.0	098-000937-00000

### Leather hood

- Leather hood with closed head protection for overhead welding with Velcro fastener, without nose cut-out, without lenses
- With welding safety glasses for lens size 50 mm ø, hinged lens holder
- Made of soft black leather
- Please remember to order suitable lenses of the required shade level separately

<b>Standards</b>	EN 166
<b>Lens Ø</b>	50 mm
<b>Material</b>	Shagreen leather
<b>Approvals</b>	CE

PU Units	Version	Item no.
1	Closed	098-000768-00000
	Miniweld replica, open to rear	098-002463-00000



### Leather hood Vulkan Komfort

- Vulkan Komfort leather mask with metal frame and safety glasses
- Please remember to order suitable lenses of the required shade level separately

<b>Lens Ø</b>	50 mm
<b>Material</b>	Shagreen leather
<b>Approvals</b>	CE

PU Units	Version	Item no.
1	With nose cut out Without head protection Without glasses	098-004017-00000
	With nose cut out With head protection Without glasses	098-003755-00000



Screwed ring goggles • LUX



- Screw ring goggles made of nickel-plated sheet iron, with leather padding
- Easier lens replacement thanks to screwed rings
- Also available in shade levels 4 and 6 on request, as well as „colourless, shatterproof“

Shade level	5
Lens Ø	50 mm

PU	Item no.
Units	
1	098-004438-00000

Safety glasses • RIMAG



- Soft plastic welding safety glasses
- Flip-up
- Ideal for spectacle wearers
- Colourless, shatterproof lenses and welding safety glass

Shade level	5
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PU	Item no.
Units	
1	398-000073-00000

Nylon glasses



- Nylon glasses, black
- Central screw for easy lens replacement
- Also available in shade levels 4 and 6 on request

Lens Ø	50 mm
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PU	Shade level	Item no.
Units		
1	5.0	098-004516-00000
	Colourless, shatterproof	098-001046-00000

Protective glass overlay



- Welding safety glasses
- Laminated glass, clear, splinter free

Standards	EN 166 / EN 169
Lens Ø	50 mm
Material	Glass, splinter-proof
Approvals	CE

PU	Item no.
Units	
10	098-003754-00000

## Welding safety glass

- Welding safety glasses
- Various DIN protection levels

<b>Standards</b>	EN 166 / EN 169
<b>Lens Ø</b>	50 mm
<b>Material</b>	Glass
<b>Approvals</b>	CE



PU	Shade level	Item no.
100	2.0	098-000941-00000
	3.0	098-000942-00000
	4.0	098-000943-00000
	5.0	098-000959-00000
	6.0	098-000960-00000
	7.0	098-000946-00000
	8.0	098-000947-00000
	9.0	098-000948-00000
	10.0	098-000949-00000
	11.0	098-000950-00000
	12.0	098-000951-00000
	13.0	098-000952-00000

## Welding safety glass, gold mirror coating

- Welding safety glasses
- Various DIN protection levels
- Gold mirror coating

<b>Standards</b>	EN 166 / EN 169
<b>Lens Ø</b>	50 mm
<b>Characteristics</b>	Mirrored
<b>Material</b>	Glass
<b>Approvals</b>	CE



PU	Shade level	Item no.	PG	Price
100	9.0	098-002068-00000	HW8	stk
	10.0	098-000257-00000	HW8	stk
	11.0	098-000258-00000	HW8	stk
	12.0	098-002069-00000	HW8	stk

## Headband

- Replacement plastic head strap with stepless adjustment
- Suitable for head shields 098-003543-00000, 098-004116-00000 and 398-006818-00000

<b>Version</b>	With ratchet
<b>Material</b>	Plastic

PU	Item no.	PG	Price
1	098-000782-00000	HW8	stk





Sweatband



- Sweatband insert for headband (098-000782-00000)
- Made of sponge rubber, for folding out

PU	Item no.	PG	Price
Units			Per packing unit
20	098-000783-00000	HW8	ve

Suitable for:

Type	Item no.	Page
HB	098-000782-00000	317

Water-resistant UV protection cream ● Herwesan-UV



- Water-resistant UV protection cream, easily dispersed and quickly absorbed
- **In addition to protective organic filters, also contains selected light protection pigments against UV-C radiation, therefore also recommended as welder's protection cream**
- Includes cosmetic oils and Shea butter as care components
- UV-A protection proven compliant with DIN 67502
- High UV-B light protection factor 30
- Slightly perfumed, silicon-free

<b>Standards</b>	DIN 67502
<b>UV/IR protection</b>	30
<b>Colour</b>	White
<b>Contents</b>	100 ml

PU	Item no.	PG	Price
Units			Per unit
1	398-001716-00000	HW9	stk

5





## Breathing, ear and eye protection

# 3M



### 3M Science. Applied to Life.

The 3M portfolio comprises a demand-oriented and relevant breathing mask programme as well as eye and ear protection for a variety of applications. These proper outfits ensure maximum comfort and high wearing acceptance.

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At a glance



#### Breathing protection

The 3M™ breathing masks offer effective protection against harmful substances and particles, are ergonomically designed and fitted with the patented 3M™ Cool Flow™ exhalation valve\*. They offer maximum wearing comfort, low breathing resistance\*\* and comfortable, safe protection.



#### Ear protection

Comfortable fit thanks to optimal adaptation of the preformable earplug to the ear passage. Perfect attenuation thanks to soft and complete closing of the ear passage.



#### Eye protection

The highest protection and maximum comfort in one – for almost any head shape and size. Permanent wearing comfort thanks to especially soft stirrups and temple pressure distribution technology for a secure fit.

\*3M™ Cool Flow™ exhalation valve  
Prevents heat build-up inside the mask and increases productivity

\*\*3M™ Advanced Electret filter medium  
Excellent protection for even the smallest breathing resistances



# 3M™ breathing protection

## CHARACTERISTICS AND STANDARDS

### Breathing protection

All breathing masks are tested and certified compliant with European standard EN 149:2001 + A1:2009 "Breathing protection devices – filtering half masks to protect against particles". The NR particle masks also meet the demands of the dolomite dust test and are D marked. This means that they are proven to be characterised by an increased capacity to accept particulates.

FFP 1	FFP 2	FFP 3
For particulates that are neither toxic nor fibrogenic. Can be used for up to 4 x the respective limit value (MWC*).	For particulates, vapours and smokes hazardous to health or of lower toxicity; filter for solid and liquid particles with moderate retention capacity. Can be used for up to 10 x the respective limit value (MWC*, TGC**).	For toxic particulates, vapours and smokes; filter for solid and liquid aerosols with high retention capacity. Can be used for up to 30 x the respective limit value (MWC*, TGC**).

\* MWC = maximum workplace concentration, MWC values are determined by the *Senatskommission zur Prüfung gesundheitsschädlicher Arbeitsstoffe* (senate commission for the investigation of working substances hazardous to health).

\*\* TGC = technical guide concentration, the concentration of a hazardous substance which can be achieved using state-of-the-art technology. TGC values are issued for carcinogenic substances for which no MWC value can be determined. Health hazards cannot be completely ruled out.

NR = filtering half mask can be used for a maximum of one shift

D = mask identification for masks that have passed the dolomite clogging test

Application/activity		Filter classes
Polishing Cutting Drilling	Concrete dust, masonry/concrete	P2
	Rust, iron smoothing compounds/fillers	P2
	Cement, wood, steel	P2
	Paints/varnishes/corrosion protection coatings	P2
	Quartz rocks	P2
	Anti-fouling paints	P3
	Steel/high-alloy (stainless steel)	P3
Welding	Structural steel, zinc	P2
	Soldering and brazing	P2
	Stainless steel (CrNi)	P3
Working with asbestos		P3
Handling diesel engines	Diesel soot/smoke	P3
Cleaning	Dust (e.g. when sweeping)	P1
Handling biological working substances (e.g. when composting, waste sorting)	Mildew/mould spores (risk group 2)	P2
	Bacteria (risk group 2)	P2
	Viruses/bacteria (risk group 3)	P3

Colour-coded banding for fast recognition of the protection level.



3M™ ear protection  
3M™ OPTIME™ alert system



3M™ E-A-R™ and Peltor™ encompass a broad range of earplugs and ear defenders, developed to provide you with the best possible protection, wearing comfort and maximum user-friendliness. All ear protection products were developed to guarantee both maximum protection and the best comfort. Wearing comfort is particularly important: only if an ear protector is also comfortable, it can provide suitable long-term protection.



**Yellow:** 83 dB–93 dB  
The noise level exceeds the limit value.  
Ear protection must be worn.

Product	SNR
3M™ E-A-R™ ULTRAFIT™ X™ II ear plugs	21 dB



**Red (1 point):** 87 dB–98 dB  
The noise level exceeds the limit value.  
Ear protectors are obligatory. Ideal for high-frequency noise.

Product	SNR
3M™ E-A-R™ CLASSIC™ II ear plugs	28 dB
3M™ E-A-Rcaps™ ear defenders	23 dB
3M™ Peltor™ OPTIME™ I ear muffs	26 dB



**Red (2 points):** 94 dB–105 dB  
The noise level exceeds the limit value. Ear protectors are obligatory. Ideal for mid- to high-frequency noise.

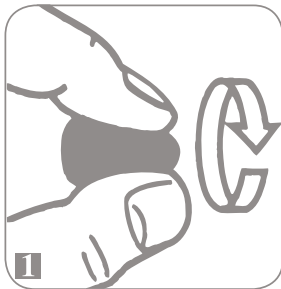
Product	SNR
3M™ E-A-R™ ULTRAFIT™ ear plugs	32 dB
3M™ Peltor™ OPTIME™ II ear muffs	31 dB



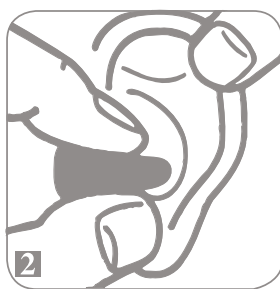
**Red (3 points):** 95 dB–110 dB  
The noise level exceeds the limit value. Ear protectors are obligatory. Ideal for all frequencies.

Product	SNR
3M™ E-A-RSOFT™ Neons ear plugs	36 dB
3M™ Peltor™ OPTIME™ III ear muffs	34 dB

ON CORRECTLY USING THE EARPLUGS



1 Rotate and uniformly press together the earplugs using the thumb and finger.



2 Push the compressed earplug into the ear passage and simultaneously pull the ear out and up with the other hand.



3 Wait – the ear protection plug must expand in order to fit perfectly.

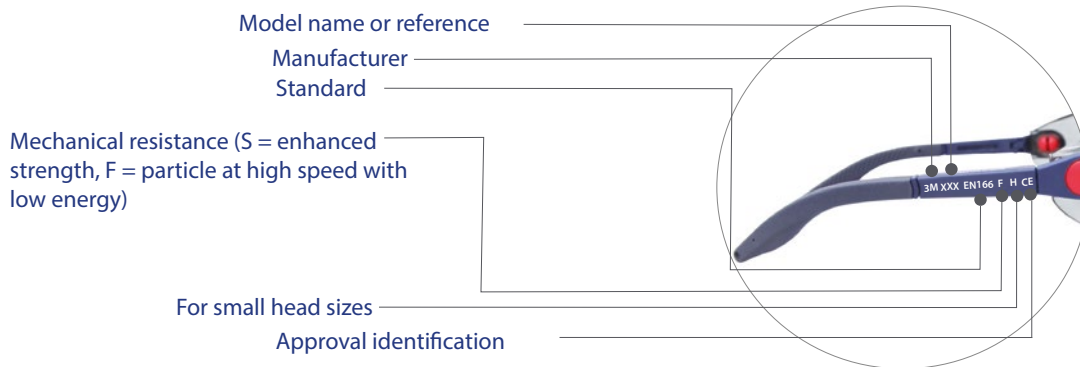


4 Then touch the earplug to examine the fit. Only the end of the plug may be felt.

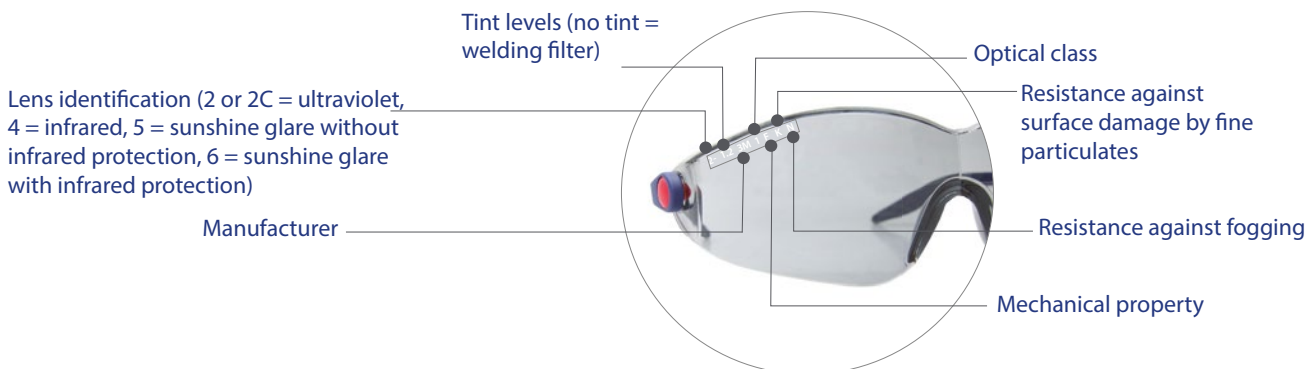
# 3M™ eye protection

## FRAME AND LENS IDENTIFICATION

Modern design and functionality characterise 3M™ safety glasses. Numerous adjustment options and a narrow nose bridge ensure excellent compatibility and a high level of wearing comfort. All 3M™ safety glasses meet the demands of EN 166:2001 and are CE marked.



Identification code (Frame – full view goggles/visor only)	Protection against		
3	Liquid droplets	x	
3	Liquid splatters		x
4	Particle size (> 5 µm)	x	
5	Gas and fine particulates (< 5 µm)	x	
8	Short-circuit arcs (minimum thickness 1.4 mm and UV filter)		x
9	Molten metal and hot solids	x	x



Code number	Filter type
2	UV filter
2C or 3	UV filter with good colour recognition
4	IR filter
5	Sun glare filter
6	Sun glare filter with infrared demand

Identification code	Protection against		
8	Stray arcs		
9	Molten metal and hot solids		x
K	Damage from small parts	x	x
N	Lens fogging	x	x
R	Increased IR reflection (> 60%)	x	x

Mechanical strength	Impact energy	Max. speed	Lens material		
A(T)	High energy	190 m/s	Polycarbonate		
B(T)	Moderate energy	120 m/s	Polycarbonate		x
F(T)	Low energy	45 m/s	Polycarbonate/acetate	x	x
S	Increased strength	5.1 m/s	CR39, hardened glass	x	x

Tint level	Tint examples
1.2	Clear or yellow
1.7	Orange, I/O or minimiser
2.5	Bronze or grey
3.1	Dark grey mirrored

Safety glasses Full view goggles Visor



Respirator mask • 3M™ 8812



- Respirator mask with Cool Flow exhalation valve
- Can be used for up to 4x the respective limit value
- Preformed mask body and flexible nosepiece
- Maximum filter performance with simultaneous minimisation of breathing resistances

<b>Standards</b>	EN 149
<b>Approvals</b>	CE
<b>Classification acc. to EN 149 2001</b>	FFP1 NR D

PU	Item no.
<b>Units</b>	
10	398-002845-00000

Respirator mask • 3M™ 9312+ Aura™



- Respirator mask with Cool Flow exhalation valve
- Can be used for up to 4x the respective limit value
- Maximum filter performance with simultaneous minimisation of breathing resistances
- Reduces glass fogging and increases wearing comfort thanks to low exhalation effort
- Mask adjusts to mouth movement when speaking
- Great wearing comfort and ideal fit
- Hygienic individual packaging

<b>Standards</b>	EN 149
<b>Approvals</b>	CE
<b>Classification acc. to EN 149 2001</b>	FFP1 NR D

PU	Item no.
<b>Units</b>	
10	398-003293-00000

Respirator mask • 3M™ 9322+ Aura™



- Respirator mask with Cool Flow exhalation valve
- Can be used for up to 10x the respective limit value
- Reduces glass fogging and increases wearing comfort thanks to low exhalation effort
- Mask adjusts to mouth movement when speaking
- Great wearing comfort and ideal fit
- Hygienic individual packaging

<b>Standards</b>	EN 149
<b>Approvals</b>	CE
<b>Classification acc. to EN 149 2001</b>	FFP2 NR D

PU	Item no.
<b>Units</b>	
10	398-003294-00000

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### Respirator mask • 3M™ 9332+ Aura™

- Respirator mask with Cool Flow exhaling valve
- Can be used for up to 30x the respective limit value
- Reduces glass fogging and increases wearing comfort thanks to low exhaling effort
- Mask adjusts to mouth movement when speaking
- Great wearing comfort and ideal fit
- Hygienic individual packaging



<b>Standards</b>	EN 149
<b>Approvals</b>	CE
<b>Classification acc. to EN 149 2001</b>	FFP3 NR D
<b>PU</b>	<b>Item no.</b>
<b>Units</b>	
10	398-003295-00000

### Particle filter mask with exhalation valve • FFP 1 particle filter mask

- With exhalation valve
- Adjustable nosepiece for a better fit
- Lower exhalation resistance for higher comfort
- Protection level FF P1
- Protects up to 4x the MAK value



<b>Standards</b>	EN 149:2001 + A1:2009
<b>Item no.</b>	398-008334-00000

### Particle filter mask with exhalation valve • Tector particle filter mask P2

- With exhalation valve
- Adjustable nosepiece for a better fit
- Lower exhalation resistance for higher comfort
- Protection level FF P2
- Protects up to 10x the MAK value



<b>Standards</b>	EN 149:2001 + A1:2009
<b>Item no.</b>	398-008335-00000

### Particle filter mask with exhalation valve • Tector particle filter mask P3

- With exhalation valve
- Adjustable nosepiece for a better fit
- Lower exhalation resistance for higher comfort
- Protection level FF P3
- With sealing lip
- With adjustable banding
- Protects up to 30x the MAK value



<b>Standards</b>	EN 149:2001 + A1:2009
<b>Item no.</b>	398-008336-00000

Safety glasses • 3M™ SecureFit™ 200



- Welding safety glasses with polycarbonate lenses
- 99.9% of UV-A and UV-B radiation is absorbed
- Anti-scratch coating (AS) and anti-fog coating (AF)
- Pressure-free wearing comfort thanks to 3M™ temple pressure distribution
- One of the lightest safety glasses on the market

<b>Standards</b>	EN 166:2001	
<b>Approvals</b>	CE	
<b>Weight</b>	ca.18 g	
<b>Colour</b>	Crystal clear	
	<b>PU Units</b>	<b>Item no.</b>
	1	398-003280-00000

Safety glasses • 3M™ 2740 series



- Welding safety glasses with polycarbonate lenses
- Anti-scratch coating (AS) and anti-fog coating (AF)
- 4-stage adjustable lens angle and adjustable temple lengths ensure a high level of wearing comfort

<b>Standards</b>	EN 166:2001	
<b>Approvals</b>	CE	
<b>Weight</b>	ca.30 g	
	<b>PU Units</b>	<b>Colour</b>
	1	Crystal clear
		Grey
		Yellow
		<b>Item no.</b>
		398-003281-00000
		398-003282-00000
		398-003283-00000

Full-view protective goggles • 3M™ Budget



- All round full-view goggles with side protection and polycarbonate lenses
- Protect against fluid spatter, dust and molten metal with anti-fog coating
- Direct ventilation
- Can be worn over corrective spectacles

<b>Standards</b>	EN 166:2001	
<b>Approvals</b>	CE	
<b>Colour</b>	Crystal clear	
	<b>PU Units</b>	<b>Item no.</b>
	1	398-003284-00000

Full-view protective goggles • 3M™ Fahrenheit™



- Full-view goggles specially designed for wearing with corrective spectacles, dust masks or respirator half-masks
- Aerodynamic form with cylindrical lens for 180° distortion-free view
- Polycarbonate lens for work with high impact hazards
- Soft, large, crystal clear PVC frame
- Indirect ventilation in order to prevent fogging or fluid and dust ingress
- The wide nylon rubber strap (25 mm) can be easily adjusted
- Anti-scratch coating (AS) and anti-fog coating (AF)

<b>Standards</b>	EN 166:2001	
<b>Approvals</b>	CE	
<b>Colour</b>	Crystal clear	
	<b>PU Units</b>	<b>Item no.</b>
	1	398-003285-00000



### Earplugs • 3M™ E-A-R™ CLASSIC™ II

- Soft, energy-absorbent polymer foam earplugs
- Slowly resetting material optimally adapts to the majority of ear passages
- Low expansion pressure helps to reduce pressure in the ear passage and thus increases wearing comfort
- Roughened surface prevents slipping and ensures reliable attenuation
- Non-inflammable
- Delivered in resealable packaging
- Moisture-resistant, prevents slipping in ear passage even when sweating heavily

<b>Standards</b>	EN 352-2: 2002
<b>Approvals</b>	CE
<b>Attenuation rating</b>	28 dB(A)
<b>Colour</b>	Yellow

PU	Item no.
Pair	
250	398-003286-00000



### Earplugs • 3M™ E-A-RSoft™

- Polyurethane foam (PU), preformable earplugs, conical form
- Comfortable and hygienic ear protection, always to hand; easy insertion
- Will fit many different people
- Very suitable for long-term wear
- Uniform size
- Minimum pressure development in ear

<b>Approvals</b>	CE
<b>Attenuation rating</b>	36 dB(A)
<b>Colour</b>	Neon yellow

PU	Item no.
Pair	
250	398-002392-00000



### Earplugs • 3M™ E-A-R™ Ultrafit™

- Preformed earplugs with cord and unique, patented design with 3 strips
- Long shaft simplifies insertion
- Flexible and durable material
- Universal size
- High attenuation (SNR 32dB) compared to other preformed earplugs
- Compatible with the 3M™ E-A-Rfit™ validation system
- Easy to clean and reusable
- Delivered in resealable packaging

<b>Standards</b>	EN 352-2: 1993
<b>Approvals</b>	CE
<b>Attenuation rating</b>	32 dB(A)
<b>Colour</b>	blue/yellow

PU	Item no.
Pair	
500	398-003287-00000



Ear protector ● 3M™ E-A-Rcaps™



- Reusable clamp ear protectors
- Various wearing positions possible
- More wear acceptance thanks to round plugs which close the ear passage
- No plug modelling necessary, thus hygienic
- Low noise transmission through the clamp
- Simply hang around the neck when not in use
- Optimal attenuation for numerous applications
- Easy to wash and clean
- Plugs can be easily replaced

<b>Standards</b>	EN 352-2: 1993
<b>Approvals</b>	CE
<b>Attenuation rating</b>	23 dB(A)
<b>Colour</b>	blue/yellow

PU	Item no.
<b>Units</b>	
1	398-003288-00000

Ear protector ● 3M™ E-A-Rband™



- Reusable clamp ear protectors
- Various wearing positions possible
- More wear acceptance thanks to round plugs which close the ear passage
- No plug modelling necessary, thus hygienic
- Low noise transmission through the clamp
- Simply hang around the neck when not in use
- Optimal attenuation for numerous applications
- Easy to wash and clean
- Plugs can be easily replaced

<b>Approvals</b>	CE
<b>Attenuation rating</b>	21 dB(A)
<b>Colour</b>	blue/yellow

PU	Item no.
<b>Units</b>	
1	398-003289-00000

Replacement earplugs



- Replacement plugs for 3M™ E-A-Rcap™ (398-003288-00000) and E-A-Rband™ (398-003289-00000)

<b>Approvals</b>	CE
<b>Attenuation rating</b>	23 dB(A)
<b>Colour</b>	Yellow

PU	Item no.
<b>Pair</b>	
10	398-001038-00000

### Capsule ear protection • 3M™ Peltor™ Optime™ I

- Capsule ear protection for moderate noise pollution
- Wide, padded, spring steel headband with 2-point suspension
- Soft padding, comfortable even for long periods of use
- Foam and fluid-filled sealing rings

<b>Standards</b>	EN 352-1: 1993
<b>Approvals</b>	CE
<b>Attenuation rating</b>	27 dB(A)
<b>Colour</b>	Yellow

PU	Item no.
Units	
1	398-003290-00000



### Capsule ear protection • 3M™ Peltor™ Optime II™

- Capsule ear protection for high noise pollution
- Wide, padded, spring steel headband with 2-point suspension
- Soft padding, comfortable even for long periods of use
- Foam and fluid-filled sealing rings

<b>Standards</b>	EN 352-1: 1993
<b>Approvals</b>	CE
<b>Attenuation rating</b>	31 dB(A)
<b>Colour</b>	Green

PU	Item no.
Units	
1	398-003291-00000



### Capsule ear protection • 3M™ Peltor™ Optime III™

- Capsule ear protection with double shell muffs for extremely high noise pollution
- Wide, padded, spring steel headband with 2-point suspension
- Soft padding, comfortable even for long periods of use
- Foam and fluid-filled sealing rings

<b>Standards</b>	EN 352-1: 1993
<b>Approvals</b>	CE
<b>Attenuation rating</b>	35 dB(A)
<b>Colour</b>	Black/red

PU	Item no.
Units	
1	398-003292-00000







## Work clothing and protective welder's clothing



### Be on the safe side with ewm

Our comprehensive range offers protection for all tasks to do with welding. In addition to conventional work clothing, our portfolio includes specialised protective welder's equipment such as clothing and gloves.

At a glance

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#### Protective welder's clothing

Our modern, heavy-duty and certified collection offers good protection in hazardous environments. The flame-retardant fabric, which protects against arcs and prevents sparks taking hold, is characteristic of this product.



#### Work clothing

From jackets and trousers, and on to winter jackets, we provide everything you need for working both inside and outside.



#### Protective welder's gloves

Our high-quality protective welder's gloves offer excellent protection for the respective application.

## Size table for work clothing measurements



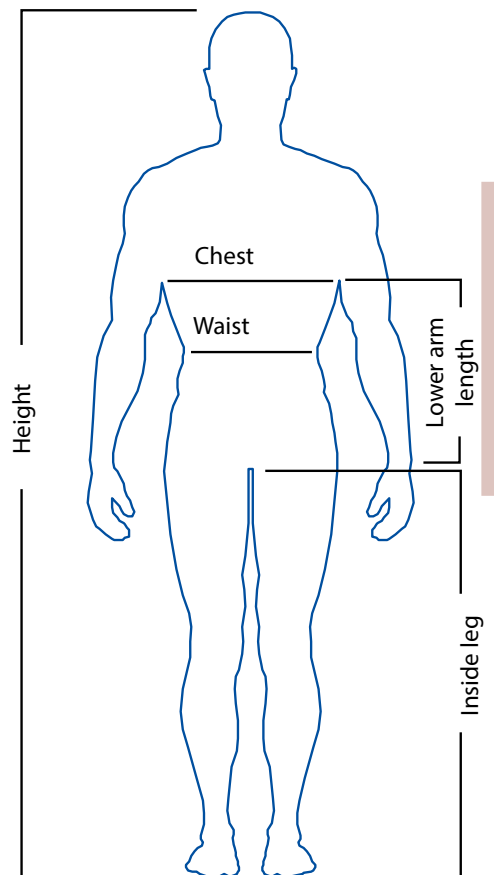
Normal fit	38	40	42	44	46	48	50	52	54	56	58	60	62	64	66	68	70
Height	156	160	164	168	171	174	177	180	182	184	186	188	190	192	194	196	198
Chest	75	80	84	88	92	96	100	104	108	112	116	120	124	128	132	136	140
Waist	64	68	72	76	80	84	88	92	98	102	108	114	120	126	132	138	144
Inside leg	71	72	73	74	76	78	79	80	81	82	83	84	84	85	86	87	88
Lower arm length	40	41	42	43	44	45	46	47	47.5	48	48.5	49	49	49.5	50	50.5	51

Stout fit	51	53	55	57	59	61	63	65	67	69
Height	170	172	174	176	178	179	180	181	182	183
Chest	100	104	108	112	116	120	124	128	132	136
Waist	104	110	114	120	124	130	134	138	142	148
Inside leg	74	75	76	78	79	80	81	82	83	84
Lower arm length	46	47	47.5	48	48.5	49	49	49.5	49.5	50

Slim fit	90	94	98	102	106	110	114	118
Height	177	180	183	186	188	190	192	194
Chest	88	92	96	101	104	108	112	116
Waist	76	80	84	88	92	96	100	104
Inside leg	79	80	81	82	83	84	85	86
Lower arm length	46	47	48	49	49.5	50	50.5	51

Stocky fit	24	25	26	27	28	29	30
Height	168	171	174	176	178	180	182
Chest	96	100	104	108	112	116	120
Waist	88	92	96	100	106	110	114
Inside leg	74	76	77	78	79	80	81
Lower arm length	44	45	45.5	46	46.5	47	47.5

Size definitions	XS	S	M	L	XL	XXL	XXXL	XXXXL
	40/42	44/46	48/50	52/54	56/58	60/62	64/66	68/70



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All dimensions in cm.

Winter bomber jacket, black/zinc • PLANAM Plaline



- Breathable, water- and wind-resistant winter bomber jacket with PU coating
- Reflectors
- Fleece collar, hood in collar
- Breast pocket with flap and Velcro fastener, double breast pocket, mobile phone pocket, two pen pockets, two side hand warmer pockets, two patch side pockets, sleeve pocket, document pocket beneath front flap
- Quilted inner lining
- Concealed front zip
- Knitted waistband
- Elastic wristbands, adjustable with Velcro fastener

Additional sizes available on request

**3M Scotchlite™**  
Reflective Material



<b>Material type</b>	100% polyester
<b>Colour</b>	Black/zinc

Size	Item no.
M	398-002904-10001
L	398-002904-10002
XL	398-002904-10003
XXL	398-002904-10004

Work shirt, black/zinc • PLANAM Square



- Long-sleeve shirt with large chequered pattern
- Two breast pockets with flaps and buttons
- Colour contrasts on cuffs, button panel and collar
- Back length: 85 cm

Additional sizes available on request

<b>Material type</b>	100% cotton , Woven in one piece, approx. 160 g/m <sup>2</sup>
<b>Colour</b>	Black/zinc

Size	Item no.
39/40	398-002905-10039
41/42	398-002905-10041
43/44	398-002905-10043
45/46	398-002905-10045
47/48	398-002905-10047
49/50	398-002905-10049

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STANOWISK  
MONTAŻOWY  
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# Protective welder's clothing



## Standards and specifications



**EN ISO 11611**  
Protective clothing for use in welding and allied processes



**EN ISO 11612**  
Clothing to protect against heat and flame

EN ISO 11611		Protective clothing for use in welding and allied processes	
Impact of weld spatter:	Class 1:	>= 15 droplets	Less hazardous welding work, low radiated heat
	Class 2:	>= 25 droplets	More hazardous welding work, greater radiated heat
Flame propagation:	A1:	Surface flame exposure (test procedure)	
	A2:	Edge flame exposure (test procedure)	
EN ISO 11612		Clothing to protect against heat and flame	
Flame propagation test			
Contact with flames – A:	A1:	Surface flame exposure	
	A2:	Edge flame exposure	
Heat transfer response under flame action			
Convective heat – B:	B1:	4–10 seconds	
	B2:	10–20 seconds	
	B3:	> 20 seconds	
Heat transfer response for radiated heat			
Radiated heat – C:	C1:	7–20 seconds	
	C2:	20–50 seconds	
	C3:	50–95 seconds	
	C4:	> 95 seconds	
Protection performance against molten aluminium			
Liquid aluminium spatter – D:	D1:	100 g–200 g	
	D2:	200 g–350 g	
	D3:	> 350 g	
Protection performance against molten iron			
Liquid iron spatter – E:	E1:	60 g–120 g	
	E2:	120 g–200 g	
	E3:	> 200 g	
Protection performance at a contact temperature of 250 °C			
Contact heat – F:	F1:	5–10 seconds	
	F2:	10–15 seconds	
	F3:	> 15 seconds	



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## Recommendations for selecting protective welder's clothing compliant with EN ISO 11611

Type of protective welder's clothing	Selection criteria	
	Processes	Ambient conditions
Class 1	Manual welding techniques with low weld spatter and metal droplet formation  / Gas welding / TIG welding / MIG welding / Microplasma welding / Brazing / Spot welding / MMA welding (with a rutile coated electrode)	Machine operating  / Oxygen cutting machines / Plasma cutting machines / Resistance welding machines / Machines for thermal spray welding / Bench welding
Class 2	Manual welding techniques with considerable weld spatter and metal droplet formation  / MMA welding (with basic-coated electrode or cellulose-coated electrode) / MAG welding (with CO <sub>2</sub> or mixed gas) / MIG welding (with power current) / Self-shielding flux cored wire arc welding / Plasma cutting / Gouging / Oxygen cutting / Thermal spray welding	Machine operating  / Tight spaces / Overhead welding or cutting, or work in similar forced postures

### Protective welder's clothing measurements – size table

Normal sizes	40	42	44	46	48	50	52	54
Chest	76–80	80–84	84–88	88–92	92–96	96–100	100–104	104–108
Waist	64–68	68–72	72–76	76–80	80–84	84–88	88–92	92–96
Height	148–152	152–158	158–164	164–170	170–176	176–182	182–188	188–194
Normal sizes	56	58	60	62	64	66	68	
Chest	108–112	112–116	116–120	120–124	124–128	128–132	132–136	
Waist	96–100	100–104	104–108	108–112	112–116	112–116	114–120	
Height	188–194	188–194	188–194	188–194	192–198	192–198	194–200	
Long sizes	90	94	98	102	106	110	114	118
Chest	84–88	88–92	92–96	96–100	100–104	104–108	108–112	112–116
Waist	72–76	76–80	80–84	84–88	88–92	92–96	96–100	100–104
Height	176–182	180–186	186–192	186–192	188–194	194–200	194–200	200–206
Short sizes	24	25	26	27	28	29	30	31
Chest	92–96	96–100	100–104	104–108	108–112	112–116	116–120	120–124
Waist	80–84	84–88	88–92	92–96	96–100	100–104	108–112	108–112
Height	164–170	164–170	170–176	170–176	176–182	176–182	182–188	182–188

All dimensions in cm.



Trousers, leather, white



- Supple cow shagreen leather
- Wide-cut
- With reach-through pockets
- Tailored for maximum comfort
- Breathable leather

**Standards**

PPE Category 2  
EN 470-1

**Color**

Natural

Size	Item no.
48	398-006861-00048
50	398-006861-00050
52	398-006861-00052
54	398-006861-00054
56	398-006861-00056
58	398-006861-00058
60	398-006861-00060
62	398-006861-00062

Dungarees, leather, white



- Supple cow shagreen leather with flies
- Adjustable straps
- Tailored for maximum comfort
- Breathable leather

**Standards**

PPE Category 2  
EN 470-1

**Colour**

Natural

Size	Item no.
48	398-006862-00048
50	398-006862-00050
52	398-006862-00052
54	398-006862-00054
56	398-006862-00056
58	398-006862-00058
60	398-006862-00060
62	398-006862-00062

Protective jacket, leather, white



- Supple cow shagreen leather with detachable apron
- Adjustable collar
- Covered snap fastener
- Tailored for maximum comfort
- Open back
- Breathable leather

**Standards**

PPE Category 2  
EN 470-1

**Colour**

Natural

Size	Item no.
48	098-004717-00048
50	098-004717-00050
52	098-004717-00052
54	098-004717-00054
56	098-004717-00056
58	098-004717-00058
60	098-004717-00060
62	098-004717-00062

### Protective jacket, leather, white

- Waist-length jacket made of supple cow shagreen leather
- Covered snap fasteners on collar and cuffs
- Sewn with Kevlar® yarn
- Tailored for maximum comfort
- Practical, sewn-on pockets with flaps
- Breathable leather



<b>Standards</b>	PPE Category 2 EN 470-1	
<b>Colour</b>	Natural	
	<b>Size</b>	<b>Item no.</b>
	48	398-003216-00048
	50	398-003216-00050
	52	398-003216-00052
	54	398-003216-00054
	56	398-003216-00056
	58	398-003216-00058
	60	398-003216-00060
	62	398-003216-00062

### Protective welding clothing • Powershield

- Welding jacket with welder, heat and flame protection
- 100% cotton, flame-resistant
- Concealed zip with hook-and-loop fastener
- Two piped breast pockets with hook-and-loop fastener
- Two piped side pockets with pullover flaps and hook-and-loop fastener
- Cuff can be fastened with hook-and-loop fastener
- approx. 340 g/m<sup>2</sup>
- With stand-up collar



<b>Material type</b>	100% cotton , Woven in one piece, approx. 160 g/m <sup>2</sup>
<b>Color</b>	Black/Red
<b>Approvals</b>	EN ISO 11611:2007
<b>Class</b>	1-A1
<b>Standards</b>	EN ISO 11612:2008 - A1, A2, B1, C1, E1, F1
<b>Material</b>	100% cotton, body tissue ca. 340 g/m <sup>2</sup> with PRO-BAN® flame-retardant equipped

	<b>Size</b>	<b>Item no.</b>
Welding jacket	48	398-001802-00048
	50	398-001802-00050
	52	398-001802-00052
	54	398-001802-00054
	56	398-001802-00056
	58	398-001802-00058
	60	398-001802-00060
	64	398-001802-00064
	68	398-001802-00068
	110 V	398-001802-00110
Welding trouser	44	398-001803-00044
	46	398-001803-00046
	48	398-001803-00048
	50	398-001803-00050
	52	398-001803-00052
	54	398-001803-00054
	56	398-001803-00056
	58	398-001803-00058
	60	398-001803-00060
	62	398-001803-00062
	110 V	398-001803-00110



Hydron blue heat protection shirt ● Proban 240



- Turn-down collar
- Single row button panel
- One breast pocket with flap
- Wristbands adjustable with button
- Unlabelled

<b>Standards</b>	EN ISO 11612 - A1, B1, C1
<b>Material type</b>	100% cotton, 240 g/m <sup>3</sup>
<b>Colour</b>	Hydron blue

Size	Item no.
39/40	398-002910-10039
41/42	398-002910-10041
43/44	398-002910-10043
45/46	398-002910-10045
47/48	398-002910-10047

Complete set ● Proban 340



- **Welding jacket with turn-down collar**
- Single row concealed button panel
- Two side pockets with flaps and press studs, one breast pocket with flap and press stud, two inside pockets
- Sleeve width adjustable with press stud
- Ill seam
- **Welding trousers**
- Two pouch pockets, one folding ruler pocket with flap and press stud, one back pocket with flap and press stud
- Knee reinforcement
- Waistband with seven belt loops

<b>Standards</b>	EN ISO 11612 – A1, A2, B1, C1, E1, F1 EN ISO 11611 – Class 1-A1
<b>Material type</b>	100% cotton, 340 g/m <sup>2</sup>
<b>Colour</b>	Grey



EN ISO 11612



EN ISO 11611

	Size	Item no.
Welding jacket	48	398-002909-00048
	50	398-002909-00050
	52	398-002909-00052
	54	398-002909-00054
	56	398-002909-00056
	58	398-002909-00058
	60	398-002909-00060
Welding trouser	48	398-002908-00048
	50	398-002908-00050
	52	398-002908-00052
	54	398-002908-00054
	56	398-002908-00056
	58	398-002908-00058
	60	398-002908-00060



## Complete set • Proban 460

- **Welding jacket with turn-down collar**
- Single row concealed button panel
- Two side pockets with flaps and press studs, one breast pocket with flap and press stud, one inside pocket
- Sleeve width adjustable with press stud
- II seam
- **Welding trousers**
- Waistband with seven belt loops
- Two pouch pockets, one folding ruler pocket with flap and press stud, one back pocket with flap and press stud

<b>Standards</b>	EN ISO 11612 - A1, B1, C2, E3, F1 EN ISO 11611 - Klasse 2-A1
<b>Material type</b>	100% Moleskin , 460 g/m <sup>2</sup>
<b>Colour</b>	Grey



	Size	Item no.
Welding jacket	48	398-002225-00048
	50	398-002225-00050
	52	398-002225-00052
	54	398-002225-00054
	56	398-002225-00056
	58	398-002225-00058
Welding trouser	60	398-002225-00060
	48	398-002226-00048
	50	398-002226-00050
	52	398-002226-00052
	54	398-002226-00054
	56	398-002226-00056
	58	398-002226-00058
	60	398-002226-00060

**Lava Brown™**



**Apron with bib**



- Material type: Chrome shagreen leather, natural
  - Made in Germany
- Additional sizes available on request

<b>Registration</b>	CE
<b>Standards</b>	EN 470-1
<b>Colour</b>	White

Dimensions (length x width) cm	Item no.
100 x 80	098-004343-00000

**Apron with bib**



- Material type: Chrome shagreen leather, natural
  - Made in Germany
- Additional sizes available on request

<b>Registration</b>	CE
<b>Standards</b>	EN 470-1
<b>Colour</b>	Black

Dimensions (length x width) cm	Item no.
100 x 80	398-006817-00000

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## Safety sleeves made of cow shagreen leather • Welder safety sleeves

- Made in Germany
- Elasticated
- Cow shagreen leather

Additional sizes available on request

<b>Length</b>	50 cm
<b>Standards</b>	CE/ISO 11611

**Item no.**  
098-004421-00001



## Welding jacket • Lava Brown

- All leather seams of extremely heat-resistant 5 ply KEVLAR® yarn
- Double chain stitch
- Very comfortable to carry
- Heat and fire resistant leather
- Rivets and push buttons insulated
- All stress points are riveted or reinforced with two layers of leather
- Durable and supple

Additional sizes available on request

<b>Standards</b>	EN ISO 11611 - Klasse 2-A1
<b>Material type</b>	Cow split leather
<b>Approvals</b>	TÜV tested CE



EN ISO 11611

Length cm	Size cm	PU Units	Size	Item no.
76	100	1	M	098-002291-00000
81	112		L	098-002280-00000
86	124		XL	098-002281-00000
91	136		XXL	098-002286-00000

## Welding apron • Lava Brown

- Welding apron
- All leather seams of extremely heat-resistant 5 ply KEVLAR® yarn
- Double chain stitch
- Heat and fire resistant leather
- Rivets and push buttons insulated
- All stress points are riveted or reinforced with two layers of leather
- Durable and supple
- Adjustable straps

Additional sizes available on request

<b>Standards</b>	EN ISO 11611 - Klasse 2-A1
<b>Material type</b>	Cow split leather
<b>Approvals</b>	TÜV tested CE



EN ISO 11611

Dimensions cm	PU Units	Item no.
91 x 60	1	098-004036-00000
107 x 60		098-004037-00000
107 x 80		098-004037-00001
122 x 60		098-002295-00000
122 x 80		098-002295-00001



**Welding sleeves • Lava Brown**



EN ISO 11611

- Arm and shoulder protection
- Elastic, adjustable collar
- All leather seams of extremely heat-resistant 5 ply KEVLAR® yarn
- Double chain stitch
- Heat and fire resistant leather
- Rivets and push buttons insulated
- All stress points are riveted or reinforced with two layers of leather
- Durable and supple

Additional sizes available on request

<b>Standards</b>	EN ISO 11611 - Klasse 2-A1
<b>Length</b>	58 cm
<b>Material type</b>	Cow split leather
<b>Approvals</b>	TÜV tested CE

PU	Item no.
Pair	
1	098-002279-00000

**Spats • Lava Brown**



EN ISO 11611

- Leg and foot protection with Velcro fastener
- Flexible flexible shin insert for optimum fit
- All leather seams of extremely heat-resistant 5 ply KEVLAR® yarn
- Double chain stitch
- Rivets and push buttons insulated
- Durable and supple
- Heat- and fire-resistant leather

Additional sizes available on request

<b>Standards</b>	EN ISO 11611 - Klasse 2-A1
<b>Material type</b>	Cow split leather
<b>Approvals</b>	TÜV tested CE

Length cm	PU Pair	Item no.
15.0	1	098-002278-00000
36		098-002363-00000

**Head protection • Doo-Rag**



EN ISO 11611

- Sweat-absorbing headband
- Cooling inner lining for high wearer comfort
- Pleasantly soft

<b>Standards</b>	EN ISO 11611 - Klasse 1-A1+A2
<b>Size</b>	One size 46 cm - 68 cm
<b>Material type</b>	Flame-resistant cotton
<b>Approvals</b>	TÜV tested CE

PU Units	Colour	Item no.
1	Blue	098-002527-00000
	Orange	098-003555-00000

## Welding hood

- Welding hood made of flame-retardant fabric with Velcro fastener
- Cooling inner lining for high wearer comfort
- Pleasantly soft
- Further sizes and types available on request



<b>Standards</b>	EN ISO 11611 - Klasse 1-A1+A2
<b>Size</b>	One size
	64 cm
<b>Material type</b>	Flame-resistant cotton
<b>Approvals</b>	TÜV tested
	CE



EN ISO 11611

PU Units	Colour	Item no.
1	Blue	098-003653-00000
	Orange	098-003556-00000

## Sweatband for welding helmet • SWEATSOpad®

- Prevents 'helmet headache' and improves helmet fit
  - Flame-retardant for additional safety
  - Velcro fastener allows attachment to all standard helmet sizes
- Additional sizes available on request



<b>Standards</b>	EN ISO 11611
<b>Length</b>	22 cm
<b>Material type</b>	Air-permeable inner layer, 100% cotton outer layer
<b>Approvals</b>	TÜV tested
	CE



EN ISO 11611

PU Units	Item no.
2	098-002302-00000



Every potential cooling method is either wet, too cold or only has a very brief effect. E.COOLINE also cools using water, but it is dry and much more effective. It also creates a comfortable level of coolness, meaning chilblains and frostbite are avoided. At 16–20 °C, the material is approximately 10 °C cooler than the surface of your skin. This is comfortable for the body, meaning it does not react as it would in when put in contact with ice-cold drinks or ice packs. The body is only relieved of excessive heat, allowing the user to remain focussed and productive. The cardiovascular system is relieved of stress, benefitting both short- and long-term health.

Air conditioning is expensive and highly energy-consuming, so it is not a long-term solution. E.COOLINE cooling functional wear is climate-neutral yet highly effective and can be used any time, at any place. This means E.COOLINE is suitable for both indoor and outdoor use.

3.5 million Germans suffer due to excessive heat at work, which can lead to health issues and accidents, while businesses suffer losses of productivity as a result of high temperatures.

**Powercool SX3 Shirt Vest ● Cooling Vest**



- Less perspiration on hot days
- Ideal for avoid overheating among sufferers of multiple sclerosis and quadriplegics.
- Cools by up to 12 °C in a matter of seconds
- Cooling effects last up to 20 hours
- Breathable material with COOLMAX® fibres
- Optimal air circulation with ZM1 ventilation ducts
- Washable
- Hygienic and antibacterial with DEOXXfresh

<b>Material type</b>	SX3e-mesh
<b>Colour</b>	Blue

Size	Width/chest cm	Pa- cking unit Units	Item no.
M	96–100	1	398-007562-00001
L	100–106		398-007562-00002
XL	106–114		398-007562-00003
2XL	114–120		398-007562-00004



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### Powercool SX3 Vest • Cooling Vest

- Less perspiration in high temperatures
- Cools by up to 12 °C in a matter of seconds
- Cooling effects lasts up to 20 hours
- Mobile and versatile
- Optimal fit thanks to adjustable Velcro fasteners
- Washable
- Hygienic and antibacterial with DEOXXfresh



<b>Material type</b>	SX3e-mesh
<b>Colour</b>	Blue

Size	Width/chest cm	Packing unit Units	Item no.
M	97-103	1	398-006794-00005
L	103-109		398-006794-00000
XL	109-116		398-006794-00001
2XL	116-124		398-006794-00002

### Powercool SX3 Bandana Air

- Less perspiration on hot days
- Reduces exhaustion and improves performances in high temperatures
- Can also be worn under many protective helmets and bump caps
- Flat elastic band for perfect fitting
- Extremely breathable with COOLMAX® fibres
- Cools by up to 12 °C in a matter of seconds
- Cooling effects lasts up to 20 hours
- Washable
- Hygienic and antibacterial with DEOXXfresh



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<b>Material type</b>	SX3e-mesh
<b>Colour</b>	Black

Packing unit Units	Item no.
1	398-007563-00000



### Powercool SX3 BaseCap

- Less perspiration in high temperatures
- Comfortable cooling at work
- Cools by up to 12 °C in a matter of seconds
- Cooling effects lasts up to 20 hours
- Mobile and versatile
- Washable
- Hygienic and antibacterial with DEOXXfresh
- Must be filled with 0.25 L of tap water before use



<b>Material type</b>	SX3e-mesh
<b>Colour</b>	Black

Packing unit Units	Item no.
1	398-007564-00000



## Safety gloves and protective welder's gloves

### Demands on protective welder's gloves

Protective gloves for welders should protect the hands and wrists against the following hazards during welding:

- / Small spatters of molten metal
- / Brief contact with limited flame action
- / Convective heat/contact heat
- / UV radiation from the arc
- / Mechanical loads

Because the type and the extent of hazards to welders are dependent on the welding procedure, protective welder's gloves are subdivided into two designs depending on the demands:

- / **Design A:** Low dexterity (with different higher demands) e.g. all welding procedures with the exception of TIG welding
- / **Design B:** High dexterity (with different lower demands) e.g. TIG welding



### Categories

Safety gloves and protective welder's gloves are divided into three categories:

- |   |  |  |
|---|--|--|
| <p>/ <b>Category 1</b></p> <p><b>Minimal risks</b><br/>Low protection demands</p> | <p>/ <b>Category 2</b></p> <p><b>Moderate risks</b><br/>For example, protection against mechanical hazards</p> | <p>/ <b>Category 3</b></p> <p><b>High risks</b><br/>Protection against irreversible damage and mortal hazards, e.g.: Harm from chemicals, heat, cold, radiation, electricity</p> |
|---|--|--|

### Glove sizes

Protective gloves must all correspond to the general demands of EN 420:2003.

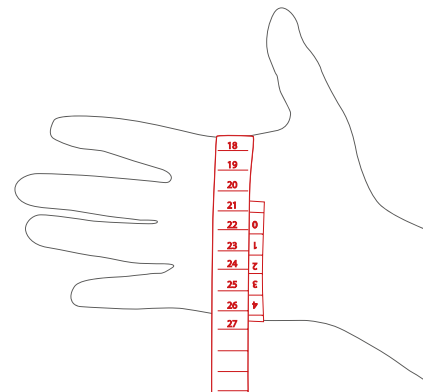
Hase

Glove size	6	7	8	9	10	11
Hand circumference (mm)	152	178	203	228	254	278



Weldas

Glove size	S	M	L	XL	XXL
Hand circumference (mm)	190	216	229	241	267



Please note: The tables only provide guideline values for your glove size. You will need to try them on to be 100% sure of fit.

## Mechanical and thermal demands

on protective welder's gloves compliant with EN 12477

The demands on the performance of protective welder's gloves are specified in EN 12477. Protective welder's gloves must display specific mechanical and thermal resistances. The corresponding tests are performed compliant with EN 388 and EN 407. EN 12477 defines the minimum performance standards to be achieved (see table).

Demands	Inspected to	Minimum performance standard	
		Design A Low dexterity	Design B High dexterity
Abrasion resistance	EN 388	2	1
Tear resistance	EN 388	2	1
Piercing force	EN 388	2	1
Burning response	EN 407 (EN ISO 6941)	3	2
Contact heat resistance	EN 407 (EN 702)	1	1
Convection heat resistance	EN 407 (EN 367)	2	0
Resistance against minor molten metal spatters	EN 407 (EN 348)	3	2
Dexterity	EN 420	1	4

The higher the number, the better the protection!



### ATTENTION!

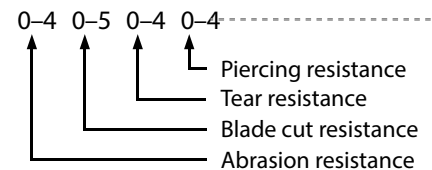
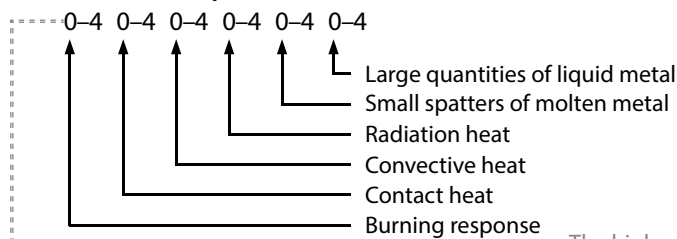
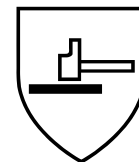
The glove material offers a minimum electrical resistance up to 100 V (direct current) for arc welding. However, protective welder's gloves are not suitable in those cases where protective gloves must be worn as protection against electrical currents compliant with EN 60903.

## Safety glove and protective welder's glove markings

Markings are compliant with EN 407 and EN 388\*. In addition, the following data must be given on each glove:

EN 407 – Gloves protecting against thermal hazards

EN 388 – Gloves protecting against mechanical hazards



The higher the number, the better the protection!

	<b>EN 388</b>	Gloves protecting against mechanical hazards
	<b>EN 407</b>	Gloves protecting against thermal hazards (heat and/or fire)
	<b>EN 420</b>	Protective gloves – General requirements and testing methods
	<b>EN 12477</b>	Protective gloves for welders (given by EN 407 and EN 388)

\*The standards EN 407 and EN 388 must be given on protective welder's gloves, only standard EN 388 is given on safety gloves.





### Note

Chemical protection gloves can be found in the Surface treatment • Chemical-technical products • Etching agents and accessories section

#### Synthetic leather work glove • Tegera 9100

**ejendals**



- Excellent instinctive feeling care
- Particular smooth, solide and more excellent grip
- Very good fitting
- Strengthened forefingers
- Unlined
- Free from chrome

<b>Hazard category</b>	Cat. II – moderate risk
<b>Standards</b>	EN 388:2003 EN 420:2003
<b>Color</b>	black, grey, yellow
<b>Material type</b>	synthetic leather
<b>Approvals</b>	CE

PU Pair	Size	Item no.
1	7	098-004459-00003
	8	098-004459-00004
	9	098-004459-00000
	10	098-004459-00001
	11	098-004459-00002

5

#### Assembly glove • PaduAqua



- Very comfortable assembly glove
- Palms and fingertips with nitrile foam/water-based PU coating
- Seamless
- Available in sizes 7–10

<b>Standards</b>	EN 388 / EN 420
<b>Classification to EN 388</b>	3131
<b>Hazard category</b>	Cat. II – moderate risk
<b>Material type</b>	Knitted nylon fabric
<b>Approvals</b>	CE

PU Pair	Size	Item no.
1	8	398-002750-00008
	9	398-002750-00009
	10	398-002750-00010



DIN EN 388



DIN EN 420

### Cut-resistant assembly glove • Genua Grip Black

- Very comfortable, cut-resistant assembly glove
- Cut protection level 5
- Oil-resistant
- Washable, seamless
- Available in sizes 7–11

<b>Standards</b>	EN 388 / EN 420
<b>Classification to EN 388</b>	4543
<b>Hazard category</b>	Cat. II – moderate risk
<b>Material type</b>	Highly cut-resistant hybrid yarn made of Synomac® fibreglass, Fingertips with sandy finish nitrile coating
<b>Approvals</b>	CE

PU Pair	Size	Item no.
1	8	398-002739-00008
	9	398-002739-00009
	10	398-002739-00010



DIN EN 388



DIN EN 420



### Full leather work glove for inside and outside use • Sande

- Very comfortable universal work glove for inside and outside use
- Reinforced index finger
- Double seams, lined
- Canvas cuff
- Finger manoeuvrability: performance level 5
- Skin-friendly and breathable leather
- pH-neutral on skin
- Available in sizes 8–12

<b>Standards</b>	EN 388 / EN 420
<b>Classification to EN 388</b>	2133
<b>Hazard category</b>	Cat. II – moderate risk
<b>Material type</b>	Cow shagreen leather
<b>Approvals</b>	TÜV-GS contaminant tested CE

PU Pair	Size	Item no.
1	9	398-002776-00009
	10	398-002776-00010
	11	398-002776-00011



DIN EN 388



DIN EN 420



Universal work glove, cow split leather • Oldenburg



- Very comfortable universal work glove for inside and outside use
- Reinforced index finger
- Double seams, lined
- Canvas cuff
- Finger manoeuvrability: performance level 5
- Skin-friendly and breathable leather
- pH-neutral on skin
- High degree of anti-slip protection
- Available in sizes 7–12



DIN EN 388



DIN EN 420



<b>Standards</b>	EN 388 / EN 420
<b>Classification to EN 388</b>	3243
<b>Hazard category</b>	Cat. II – moderate risk
<b>Material type</b>	Cow core split leather
<b>Approvals</b>	TÜV-GS contaminant tested CE

PU Pair	Size	Item no.
1	9	398-002777-00009
	10	398-002777-00010
	11	398-002777-00011

Driving/working gloves • SOFTouch



- Driving/working glove
- Soft touch fingertips with soft, cowhide full leather palm and cow split leather back
- Available in sizes M–XL

<b>Standards</b>	EN 388 / EN 420
<b>Classification to EN 388</b>	2111
<b>Hazard category</b>	Cat. II – moderate risk
<b>Material type</b>	Cow split leather
<b>Approvals</b>	TÜV tested CE

PU Pair	Size	Item no.
1	M	098-002317-00010
	L	098-002317-00000
	XL	098-002317-00020



DIN EN 388



DIN EN 420

5

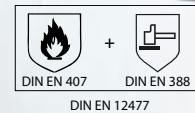


### MIG/MAG welder's glove, shagreen • Oslo

- MIG/MAG welder's glove with split leather cuff
- Breathable leather
- Finger manoeuvrability: performance level 5
- pH-neutral on skin
- Available in sizes 7–12

<b>Standards</b>	EN 12477 models A + B EN 420
<b>Classification acc. to EN 407</b>	413X4X
<b>Classification to EN 388</b>	3142
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	34 cm - 37 cm
<b>Material type</b>	Cow shagreen leather
<b>Approvals</b>	TÜV-GS contaminant tested CE

PU Pair	Size	Item no.
1	9	398-002753-00009
	10	398-002753-00010
	11	398-002753-00011
	12	398-002753-00012



DIN EN 12477

DIN EN 420



### Lined MIG/MAG welder's glove, cow split leather • Mühlheim-I-Super

- Lined MIG/MAG welder's glove
- Finger manoeuvrability: performance level 5
- Breathable leather
- pH-neutral on skin
- Available in sizes 8–12

<b>Standards</b>	DIN EN 12477 Klasse A EN 420
<b>Classification acc. to EN 407</b>	413X4X
<b>Classification to EN 388</b>	3144
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	33 cm - 41 cm
<b>Material type</b>	Cow split leather
<b>Approvals</b>	TÜV-GS contaminant tested CE

PU Pair	Size	Item no.
1	10	398-000411-00010
	11	398-000411-00011
	12	398-000411-00012



DIN EN 12477

DIN EN 420

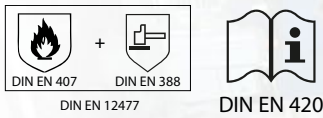


Lined MIG/MAG welder's glove, shagreen/split leather • Mühlheim-II-Super



- Lined MIG/MAG welder's glove
- Finger manoeuvrability: performance level 5
- Breathable leather
- pH-neutral on skin
- Available in sizes 8–12

<b>Standards</b>	EN 12477 models A + B
	EN 420
<b>Classification acc. to EN 407</b>	413X4X
<b>Classification to EN 388</b>	3143
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	33 cm - 40 cm
<b>Material type</b>	Cow shagreen leather/split leather
<b>Approvals</b>	TÜV-GS contaminant tested CE



PU Pair	Size	Item no.
1	10	398-002749-00010
	11	398-002749-00011
	12	398-002749-00012

MIG/MAG welder's gloves • HASE welder's gloves KUBA



- Padded all-over
- Heat-resistant
- Strong leather
- High tear resistance
- Strong grip

<b>Standards</b>	EN 388/EN 407/EN 420
<b>Classification acc. to EN 407</b>	424X4X
<b>Classification acc. to EN 388</b>	3244
<b>Hazard category</b>	Cat. II – Moderate risks
<b>Material type</b>	Cow split leather
<b>Length</b>	35 cm
<b>Length</b>	35 cm



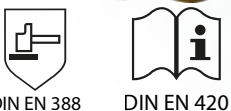
Size	Item no.
10	398-005996-00010

MIG/MAG welder's gloves • HASE welder's gloves KUBA II



- Padded all-over
- Heat-resistant
- Strong leather
- High tear resistance
- Strong grip

<b>Standards</b>	EN 388/EN 420/EN 407
<b>Classification acc. to EN 407</b>	413X4X
<b>Classification acc. to EN 388</b>	3133
<b>Hazard category</b>	Cat. II – Moderate risks
<b>Material type</b>	Cow split leather/cow shagreen leather
<b>Length</b>	35 cm
<b>Größe</b>	10



Size	Item no.
10	398-006314-00010

## Heat-resistant MIG/MAG welder's glove • Fulda-Iso

- Heat-resistant MIG/MAG welder's glove
- Insulation lining
- Finger manoeuvrability: performance level 5
- Breathable leather
- Kevlar® yarn
- pH-neutral on skin
- Available in sizes 8–12

<b>Standards</b>	EN 12477 models A + B EN 420
<b>Classification acc. to EN 407</b>	413X4X
<b>Classification to EN 388</b>	4233
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	33 cm - 39 cm
<b>Material type</b>	Heat-resistant Sebatan split leather
<b>Approvals</b>	TÜV-GS contaminant tested CE

PU Pair	Size	Item no.
1	10	398-002747-00010
	11	398-002747-00011
	12	398-002747-00012



DIN EN 12477

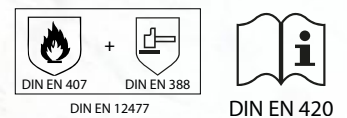


## Lightweight MIG/MAG welder's glove, shagreen/split leather • Granada

- Lightweight MIG/MAG welder's glove with resistant split leather cuff
- Finger manoeuvrability: performance level 5
- Breathable leather
- pH-neutral on skin
- Available in sizes 8–12

<b>Standards</b>	EN 12477 models A + B EN 420
<b>Classification acc. to EN 407</b>	412X4X
<b>Classification to EN 388</b>	2142
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	32 cm - 37 cm
<b>Material type</b>	Cow shagreen leather/split leather
<b>Approvals</b>	TÜV-GS contaminant tested CE

PU Pair	Size	Item no.
1	10	398-002748-00010
	11	398-002748-00011
	12	398-002748-00012



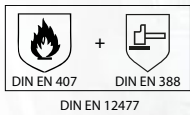
DIN EN 12477





MIG/MAG welder's glove • STEERSOtuff

WELDAS®



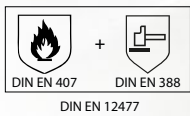
- MIG/MAG welder's glove
- Cowhide full leather and cow split leather palms, rest in cow split leather
- Suitable for contact heat up to 250 °
- The COMFOflex® lined back ensures comfortable padding and heat insulation
- Quadruple KEVLAR® yarn seams
- Oil and weatherproof
- Available in sizes L to XXL

<b>Standards</b>	EN 12477 models A + B
	EN 420
<b>Classification acc. to EN 407</b>	423X4X
<b>Classification to EN 388</b>	4143
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	36 cm
<b>Material type</b>	High-quality cow leather
<b>Approvals</b>	TÜV tested CE

PU Pair	Size	Item no.
1	L	398-002380-00002
	XL	398-002380-00003
	XXL	398-002380-00004

MIG/MAG welder's glove • COMFOflex

WELDAS®



- MIG/MAG welder's glove for welding work where great contact and radiated heat is anticipated
- Especially high heat load thanks to external aluminium-coated sleeve
- Cowhide full leather palms, split leather cuff
- Backs in deer split leather and COMFOflex® lined, with PFR aluminium coating
- Suitable for contact heat up to 350 °
- The COMFOflex® lined back ensures comfortable padding and heat insulation
- Quadruple KEVLAR® yarn seams
- Oil and weatherproof
- Available in sizes L to XL

<b>Standards</b>	EN 12477 models A + B
	EN 420
<b>Classification acc. to EN 407</b>	433X4X
<b>Classification to EN 388</b>	2143
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	36 cm
<b>Material type</b>	Cow split leather/full cowhide leather, PFR aluminium coated back
<b>Approvals</b>	TÜV tested CE

PU Pair	Size	Item no.
1	L	398-001753-00000
	XL	398-001753-00001

## Hand protection, aluminium coated

- High temperature-resistant, aluminised hand protection with leather back
- Cow split leather, sown using KEVLAR®
- Hand protection is worn over the welder's glove, thus providing especially good heat radiation

<b>Standards</b>	EN 532
<b>Material type</b>	Cow split leather
<b>Approvals</b>	TÜV tested CE
<b>Dimensions (width x length)</b>	15 cm x 20 cm

PU Units	Item no.
1	098-002301-00002



## MIG/MAG welder's glove • Core-Weld

- MIG/MAG welder's glove
- Cowhide full leather palms, rest in cow split leather
- Suitable for contact heat up to 250 °
- Wing thumbs for more natural freedom of movement
- Palm made of oil- and water-resistant leather
- Available in sizes L to XL

<b>Standards</b>	EN 12477 models A + B EN 420
<b>Classification acc. to EN 407</b>	423X4X
<b>Classification to EN 388</b>	2122
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	36 cm
<b>Material type</b>	Cow split leather/full cowhide leather
<b>Approvals</b>	TÜV tested CE

PU Pair	Size	Item no.
1	L	098-002271-00000
	XL	098-002270-00000



## MIG/MAG welder's glove • Economy Modell

- MIG/MAG welder's glove – economy model
- Good leather quality and heat insulation
- Cotton lining
- Available in sizes L to XL

<b>Standards</b>	EN 12477 models A + B EN 420
<b>Classification acc. to EN 407</b>	413X4X
<b>Classification to EN 388</b>	3134
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	34 cm
<b>Material type</b>	Cow split leather
<b>Approvals</b>	TÜV tested CE

PU Pair	Size	Item no.
1	L	098-002272-00000
	XL	098-002272-00001



All-purpose welder's glove • SOFTouch

WELDAS®



- Cow split leather welder's glove
- Suitable for MIG/MAG and TIG welding
- Seamless index finger
- Seams in 3x KEVLAR® yarn
- Very comfortable to wear
- Available in sizes M to XXL



<b>Standards</b>	EN 12477 models A + B
	EN 420
<b>Classification acc. to EN 407</b>	412X4X
<b>Classification to EN 388</b>	2142
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	32 cm
<b>Material type</b>	Black smooth cow leather, white goat leather, cuff made of cow split leather
<b>Usage</b>	MIG/MAG and TIG welding
<b>Approvals</b>	TÜV tested CE

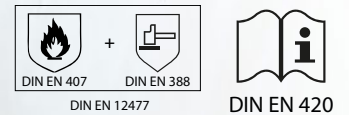
PU Pair	Size	Item no.
1	L	398-001763-00001
	XL	398-001763-00002
	XXL	398-001763-00003

5



### Assembly/welder's glove with cuff and wing thumb • Mexico-Z-Long

- Comfortable assembly/welder's glove for fine welding and brazing work
- With wing thumbs
- Split leather cuff
- Finger manoeuvrability: performance level 5
- Breathable leather
- pH-neutral on skin
- Available in sizes 7–12



DIN EN 12477

DIN EN 420

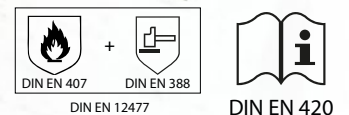


<b>Standards</b>	EN 12477 models A + B
	EN 420
<b>Classification acc. to EN 407</b>	412X4X
<b>Classification to EN 388</b>	2122
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	30 cm - 36 cm
<b>Material type</b>	Goat nappa leather
<b>Usage</b>	TIG welding
<b>Approvals</b>	TÜV-GS contaminant tested CE

PU Pair	Size	Item no.
1	7	398-002751-00007
	8	398-002751-00008
	9	398-002751-00009
	10	398-002751-00010
	11	398-002751-00011

### Assembly/welder's glove with cuff • Mexico-Z-Super

- Comfortable assembly/welder's glove for fine welding and brazing work
- Split leather cuff
- Kevlar® yarn
- Finger manoeuvrability: performance level 5
- Breathable leather
- pH-neutral on skin
- Available in sizes 7–11



DIN EN 12477

DIN EN 420



<b>Standards</b>	EN 12477 models A + B
	EN 420
<b>Classification acc. to EN 407</b>	412X4X
<b>Classification to EN 388</b>	2132
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	30 cm - 36 cm
<b>Material type</b>	Goat nappa leather, Kevlar® yarn
<b>Usage</b>	TIG welding
<b>Approvals</b>	TÜV-GS contaminant tested CE

PU Pair	Size	Item no.
1	9	398-002752-00009
	10	398-002752-00010
	11	398-002752-00011

5-finger safety gloves, Peru ● Safety gloves



- Cuff and elastic band in upper section for perfect fit
- Strong grip
- Heat-resistant
- Excellent touch sensitivity
- Ergonomic fit
- Breathable
- Contaminant-tested
- pH-neutral on skin
- Protection class: Cat II
- Available in sizes 8–12
- Length: 30–33 cm



<b>Material type</b>	Goat nappa leather
<b>Colour</b>	Natural/brown
<b>Classification acc. to EN 407</b>	413X4X
<b>Classification acc. to EN 388:</b>	2121
<b>Registration</b>	TÜV-GS contaminant tested
<b>Standards</b>	EN 12477 types A + B EN 420

Size	Item no.
8	398-003612-00008
9	398-003612-00009
10	398-003612-00010
11	398-003612-00011
12	398-003612-00012

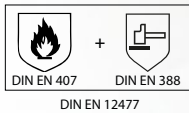
TIG Welder's Gloves ● Weldas SOFTTouch Welder's Gloves



- TIG welder's glove
- Goatskin full leather palm
- Cow split leather back and cuff
- Available in sizes M to XL

<b>Standards</b>	EN 12477 TYPE B TÜV BP 60017622 0003 TÜV 21128415 002
<b>Classification acc. to EN 407</b>	412X4X
<b>Classification to EN 388</b>	2111
<b>Length</b>	35 cm
<b>Usage</b>	TIG welding

Size	Item no.
M	098-004520-00001
L	098-004520-00002
XL	098-004520-00000



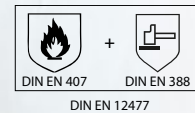
### TIG welder's glove • SOFTouch

- Full pigskin TIG welder's glove
- Seams of 3x DuPont KEVLAR® yarn
- Seamless index finger for better guiding of the welding rod
- Available in sizes M to XXL

<b>Standards</b>	EN 12477 models A + B EN 420
<b>Classification acc. to EN 407</b>	413X4X
<b>Classification to EN 388</b>	3121
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	35 cm
<b>Material type</b>	Full pigskin leather
<b>Usage</b>	TIG welding
<b>Approvals</b>	CE

PU Pair	Size	Item no.
1	L	398-000361-00002
	XL	398-000361-00003
	XXL	398-000361-00004

WELDAS®



DIN EN 12477



DIN EN 420

### TIG welder's glove • SOFTouch

- Full calfskin TIG welder's glove with reinforced thumb
- Seams of 3x DuPont KEVLAR® yarn
- Seamless index finger for better guiding of the welding rod
- Available in sizes S to XXL

<b>Standards</b>	EN 12477 models A + B EN 420
<b>Classification acc. to EN 407</b>	412X4X
<b>Classification to EN 388</b>	2122
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	35 cm
<b>Material type</b>	Full calfskin leather
<b>Usage</b>	TIG welding
<b>Approvals</b>	TÜV tested Electrostatically tested CE

PU Pair	Size	Item no.
1	S	098-002293-00000
	M	098-002275-00000
	L	098-002276-00000
	XL	098-002277-00000
	XXL	098-002294-00000

WELDAS®



DIN EN 12477



DIN EN 420

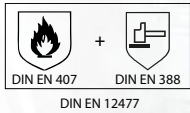


TIG welder's glove • SOFTouch

WELDAS®



- TIG welder's glove
- Full goatskin palms, back and cuff in cow split leather
- Seams of 3x DuPont KEVLAR® yarn
- Seamless index finger for better guiding of the welding rod
- Available in sizes M to XXL



DIN EN 12477

DIN EN 420

<b>Standards</b>	EN 12477 models A + B EN 420
<b>Classification acc. to EN 407</b>	412X4X
<b>Classification to EN 388</b>	2111
<b>Hazard category</b>	Cat. II – moderate risk
<b>Length</b>	35 cm
<b>Material type</b>	Full goatskin leather/cow split leather
<b>Usage</b>	TIG welding
<b>Approvals</b>	TÜV tested Electrostatically tested CE

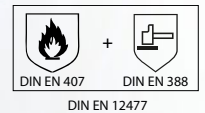
PU Pair	Size	Item no.
1	M	398-002381-00001
	L	398-002381-00002
	XL	398-002381-00003
	XXL	398-002381-00004

### TIG welder's glove • Tegera 126A

<b>Standards</b>	EN 12477 types A + B
<b>Classification acc. to EN 407</b>	412X4X
<b>Classification acc. to EN 388</b>	2111
<b>Hazard category</b>	Cat. II – Moderate risks
<b>Material type</b>	Goat nappa leather
<b>Usage</b>	TIG welding

Size	Packing unit Pair	Item no.
9	1	398-002842-00009
10		398-002842-00010
11		398-002842-00011

**ejendals**



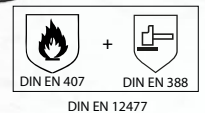
### TIG welder's glove • Tegera 130A

- Heat-protective glove made of goatskin leather

<b>Standards</b>	EN 12477 Type B
<b>Classification acc. to EN 407</b>	412X4X
<b>Classification acc. to EN 388</b>	3111
<b>Hazard category</b>	Cat. II – Moderate risks
<b>Material type</b>	Goatskin leather
<b>Usage</b>	TIG welding

Size	Packing unit Pair	Item no.
9	1	398-008423-00009
10		398-008423-00010
11		398-008423-00011

**ejendals**



Safety loafers ● alu-tec 565 XP



- Width: W10
- XR® metal-free penetration protection
- Waterproof leather
- alu-tec® aluminium cap
- 3D cushioning system
- Safety reflectors
- aktiv-X functional padding
- ESD (leak resistance < 35 megaohms)
- carbon-fibre reinforced toe caps
- MPU® Light sole technology
- suitable for fitting with insoles (DGVV 112-191)

<b>Standards</b>	EN ISO 20345
<b>Classification in line with EN ISO 20345</b>	S3
<b>Width</b>	W10

Size	Item no.
Size 39	398-007550-00039
Size 40	398-007550-00040
Size 41	398-007550-00041
Size 42	398-007550-00042
Size 43	398-007550-00041
Size 44	398-007550-00044
Size 45	398-007550-00045
Size 46	398-007550-00046
Size 47	398-007550-00047
Size 48	398-007550-00048

alu-tec 735 XP



- Width: W10
- XP® metal-free penetration protection
- Waterproof leather
- alu-tec® aluminium cap
- 3D cushioning system
- aktiv-X functional padding
- ESD (leak resistance < 35 megaohms)
- carbon-fibre reinforced toe caps
- Outdoor sole technology
- Lug sole
- suitable for fitting with insoles (DGVV 112-191)

<b>Standards</b>	EN ISO 20345
<b>Classification in line with EN ISO 20345</b>	S3
<b>Width</b>	W10

Size	Item no.
Size 39	398-007551-00039
Size 40	398-007551-00040
Size 41	398-007551-00041
Size 42	398-007551-00042
Size 43	398-007551-00043
Size 44	398-007551-00044
Size 45	398-007551-00045
Size 46	398-007551-00046
Size 47	398-007551-00047
Size 48	398-007551-00048

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## Duo Soft 765 HI1 HRO

- Width: W10
- Penetration protection
- Waterproof leather
- Scuff cap
- 3D cushioning system
- aktiv-X functional padding
- Buckle welder boots
- Heat-resistant outsole
- Thermal-insulating shoe base
- suitable for fitting with insoles (DGUV 112-191)



<b>Standards</b>	EN ISO 2034
<b>Classification in line with EN ISO 20349</b>	S3
<b>Width</b>	W10

Size	Item no.
Size 39	398-008084-00039
Size 40	398-008084-00040
Size 41	398-008084-00041
Size 42	398-008084-00042
Size 43	398-008084-00043
Size 44	398-008084-00044
Size 45	398-008084-00045
Size 46	398-008084-00046
Size 47	398-008084-00047
Size 48	398-008084-00048

# Welding and grinding booths

**CEPRO<sup>®</sup> noise-absorbing walls and flexible curtains reduce noise levels and protect against arc radiation at the workstation.**

With the extensive range of CEPRO<sup>®</sup> products, you can set up a safe workstation for grinding and welding according to your individual needs and preferences.



Just contact us!



+49 2680 181-0



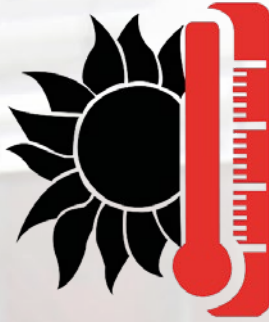
[info@ewm-group.com](mailto:info@ewm-group.com)



## Hazards



Welding light



Heat



Noise

A booth including noise-absorbing walls can reduce noise pollution from things such as grinding and keep the workstation separated from the surrounding work environment. With the addition of welding curtains or strips, you can protect your employees from hazards such as arc radiation, noise and heat at welding workstations as well as reducing the risk of fires.



Benefit from the many years of experience of our partner CEPRO® when planning and setting up safe welding and grinding workstations. We will also find the ideal solution for your project – get in touch.





**Welding blanket, basic • Kronos**



- Welding blanket for light welding and grinding work
- Glass filament fabric with a one-sided, silver-grey, flame-retardant PU coating
- Aluminium pigmentation to increase slippage and cut resistance
- Suitable for vertical applications, for example as grinding or welding curtain

<b>Material type</b>	Fibreglass with PU (polyurethane) coating on one side
<b>Weight per unit area</b>	690 g/m <sup>2</sup>
<b>Material thickness</b>	0.68 mm
<b>Highest temperature</b>	550 °C
<b>Short-term load to approx.</b>	600 °C

Dimensions (width x length) cm	PU Units	Item no.
200 x 100	1	398-000527-00000
200 x 200		398-000526-00000
200 x 300		398-000525-00000
300 x 300		398-005043-00000

**Welding blanket, premium • Olympus**



- Suitable for horizontal and vertical applications
- Produced from high-quality raw materials
- Suitable for heavy welding work and high to very high temperatures
- Silicate fibre with vermiculite coating

<b>Material type</b>	Silicate fibre
<b>Weight per unit area</b>	1220 g/m <sup>2</sup>
<b>Material thickness</b>	1.3 mm
<b>Highest temperature</b>	1000 °C
<b>Short-term load to approx.</b>	1300 °C

Dimensions (width x length) cm	PU Units	Item no.
90 x 100	1	398-000540-00000
90 x 200		398-000539-00000
180 x 200		398-000538-00000
180 x 300		398-000537-00000
270 x 300		398-005045-00000

5

## Welding blanket, premium • Sirius

- Extremely flame-resistant welding blanket
- Glass fabric with special high-temperature coating
- Highly suited to horizontal applications
- Enhanced slippage and cut resistance
- Toxicologically harmless, asbestos-free and mechanically robust

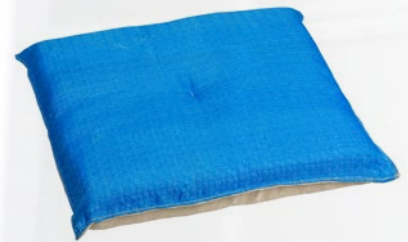


<b>Material type</b>	Fibreglass (textured) with vermiculite coating on both sides
<b>Weight per unit area</b>	1035 g/m <sup>2</sup>
<b>Material thickness</b>	1.4 mm
<b>Highest temperature</b>	700 °C
<b>Short-term load to approx.</b>	1000 °C

Dimensions (width x length) cm	PU Units	Item no.
200 x 100	1	398-000535-00000
200 x 200		398-000534-00000
200 x 300		398-000533-00000
300 x 300		398-005047-00000

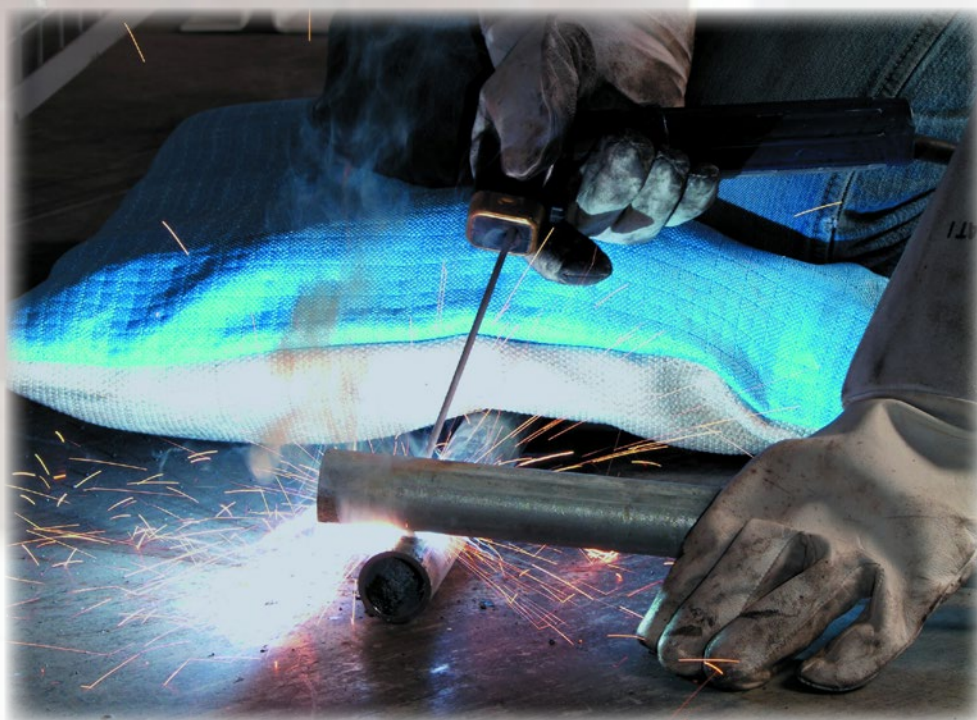
## Welding cushions • Welding cushion

- Reduces cooling speed
- Controllable heat treatment of iron, forged and cast components
- Prevents injuries caused by contact with hot objects
- Produced from high-quality materials
- For a more comfortable work posture



<b>Material type</b>	Filled with glass needle felt
<b>Material thickness</b>	8 cm
<b>Highest temperature</b>	650 °C
<b>Dimensions (width x length)</b>	50 cm x 50 cm

PU Units	Item no.
1	398-000541-00000





Grinding curtain ● Cepro Clear



- All-round, tear-resistant 5 cm seam
- Seven robust plastic suspension eyes on one 140 cm long side
- Press studs on both sides, allowing several curtains to be connected side-by-side
- Including seven free steel hooks (for 33.7 mm Ø pipe)

<b>Material type</b>	PVC
<b>Material thickness</b>	0.4 mm
<b>Colour</b>	Transparent
<b>Lowest operating temperature approx.</b>	5 °C
<b>Maximum heat resistance approx.</b>	80 °C
<b>Approvals</b>	DIN 4102-B2

Dimensions (width x height) cm	PU	Item no.
	Units	
140 x 160	1	398-000497-00000
140 x 180		398-000498-00000
140 x 200		398-000499-00000
140 x 220		398-005000-00000

Welding curtain ● Cepro Green-9



- All-round, tear-resistant 5 cm seam
- Seven robust plastic suspension eyes on one 140 cm long side
- Press studs on both sides, allowing several curtains to be connected side-by-side
- Opaque, but not transparent
- Including seven free steel hooks (for 33.7 mm Ø pipe)

<b>Material type</b>	PVC
<b>Material thickness</b>	0.4 mm
<b>Colour</b>	Green-9
<b>Standards</b>	DIN EN ISO 25980
<b>Lowest operating temperature approx.</b>	5 °C
<b>Maximum heat resistance approx.</b>	80 °C

Dimensions (width x height) cm	PU	Item no.
	Units	
140 x 160	1	398-000503-00000
140 x 180		398-000504-00000
140 x 200		398-000505-00000
140 x 220		398-005012-00000

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## Welding curtain • Cepro Bronze-CE

- All-round, tear-resistant 5 cm seam
- Seven robust plastic suspension eyes on one 140 cm long side
- Press studs on both sides, allowing several curtains to be connected side-by-side
- Including seven free steel hooks (for 33.7 mm Ø pipe)

<b>Material type</b>	PVC
<b>Material thickness</b>	0.4 mm
<b>Colour</b>	Bronze-CE
<b>Standards</b>	DIN EN ISO 25980
<b>Lowest operating temperature approx.</b>	5 °C
<b>Maximum heat resistance approx.</b>	80 °C



Dimensions (width x height) cm	PU	Item no.
	Units	
140 x 160	1	398-005018-00000
140 x 180		398-005019-00000
140 x 200		398-005020-00000
140 x 220		398-005021-00000

## Strips

- Strips, by the metre
- Also available as 50 metre roll
- Available cut to size and holed
- Suspended using plastic pendulum sleeve
- **Please note that material sold by the metre cannot be exchanged!**

<b>Material type</b>	PVC
<b>Wide side panels</b>	300 mm
<b>Standards</b>	DIN EN ISO 25980
<b>Lowest operating temperature approx.</b>	5 °C
<b>Maximum heat resistance approx.</b>	80 °C



Colour	PU	Material thickness mm	Item no.
	m		
Green-9	1	2.0	398-000516-00000
		3.0	398-000517-00000
Bronze-CE		2.0	398-005030-00000
		3.0	398-005031-00000

## Work safety and fume extraction • Welding safety curtains

### One-piece partition with curtain • Omnium



- Robust and elegantly worked partition
- The mobile, all-round welding screen for a variety of working environments
- Round (30 x 2.5 mm) and square section (30 x 40 x 2 mm) tubes with grey RAL-7035 powder coating
- 4 x 50 mm diameter guide castors, 2 with brakes
- Plastic hooks

<b>Floor clearance</b>	30 cm
<b>Height of curtain</b>	160 cm
<b>Standards</b>	DIN EN ISO 25980
<b>Dimensions (width x height)</b>	215 cm x 200 cm

Colour	PU Units	Item no.
Bronze-CE		398-005035-00000
Orange-CE	1	398-000521-00000
Green-9		398-000522-00000

### One-piece partition with strips • Omnium



- Robust and elegantly worked partition
- The mobile, all-round welding screen for a variety of working environments
- Round (30 x 2.5 mm) and square section (30 x 40 x 2 mm) tubes with grey RAL-7035 powder coating
- 4 x 50 mm diameter guide castors, 2 with brakes
- Strip overlap: 5 cm/33%
- Plastic pendulum sleeves

<b>Floor clearance</b>	30 cm
<b>Height of strips</b>	160 cm
<b>Standards</b>	DIN EN ISO 25980
<b>Dimensions (width x height)</b>	215 cm x 200 cm
<b>Approvals</b>	CE

Colour	PU Units	Item no.
Bronze-CE		398-005037-00000
Orange-CE	1	398-005036-00000
Green-9		398-005038-00000

### Three-piece partition with curtain • Omnium



- Robust and elegantly worked partition
- The mobile, all-round welding screen for a variety of working environments
- Round (30 x 2.5 mm) and square section (30 x 40 x 2 mm) tubes with grey RAL-7035 powder coating
- 4 x 50 mm diameter guide castors, 2 with brakes
- 2 swivel arms
- Plastic hooks

<b>Height</b>	200 cm
<b>Height of strips</b>	160 cm
<b>Width per swivel arm</b>	80 cm
<b>Wide centre section</b>	215 cm
<b>Standards</b>	DIN EN ISO 25980

Colour	PU Units	Item no.
Bronze-CE		398-005039-00000
Orange-CE	1	398-000523-00000
Green-9		398-000524-00000

### Three-piece partition with strips • Omnium

- Robust and elegantly worked partition
- The mobile, all-round welding screen for a variety of working environments
- Round (30 x 2.5 mm) and square section (30 x 40 x 2 mm) tubes with grey RAL-7035 powder coating
- 4 x 50 mm diameter guide castors, 2 with brakes
- 2 swivel arms
- Strip overlap: 5 cm/33%
- Plastic pendulum sleeves



<b>Height</b>	200 cm
<b>Height of strips</b>	160 cm
<b>Width per swivel arm</b>	80 cm
<b>Wide centre section</b>	215 cm
<b>Standards</b>	DIN EN ISO 25980
<b>Approvals</b>	CE

Colour	PU Units	Item no.
Bronze-CE		398-005041-00000
Orange-CE	1	398-005040-00000
Green-9		398-001694-00000

### Partition with foil curtain covering • Gazelle

- Ideal partition for applications in small and tight workspaces
- Galvanised round tube frame (Ø 25 mm)
- Low weight (6.5 kg)
- Can be easily repositioned by hand
- Without guide castors



<b>Version</b>	with welding curtain
<b>Floor clearance</b>	30 cm
<b>Height of curtain</b>	170 cm
<b>Weight</b>	6.5 kg
<b>Standards</b>	DIN EN ISO 25980
<b>Dimensions (width x height)</b>	200 cm x 200 cm

Colour	PU Units	Item no.
Bronze-CE		398-005042-00000
Orange-CE	1	398-000519-00000
Green-9		398-000520-00000





When welding outdoors, it is important to be protected against a variety of weather conditions such as rain, wind, sunshine, etc. The use of a welding tent or welding screen has been proven to improve working conditions and in this way to reduce sickness levels.

### Welding tent



- Welding tent, suitable for use in ambient temperatures of -30 °C to +70 °C
- M2 tested
- Flame-retardant
- Front and rear with closable entrances
- Ridge height: 220 cm
- Mud edging: 20 cm
- Frame, Ø 25 mm, galvanised

<b>Material type</b>	PVC
<b>Colour</b>	Matt white
<b>Weight</b>	570 g/m <sup>2</sup>
<b>Dimensions (height x width x depth)</b>	200 cm x 190 cm x 200 cm

PU	Item no.
Units	
1	398-000546-00000

### Welding umbrella



- Water-resistant and flame-retardant sailcloth (350 g/m<sup>2</sup>)
- Roof provided with windbreak
- Provided with brass eyes for additional security
- Pole in two parts, galvanised
- Including carrying bag
- **Medium-duty**
- Tip mechanism, 28 mm Ø pole
- **Heavy-duty**
- Rotating mechanism, 38 mm Ø pole, including base pin

<b>Colour</b>	Green
<b>Height</b>	220 cm
<b>Weight</b>	350 g/m <sup>2</sup>

	Ø	PU	Item no.
	cm	Units	
Medium Duty	220	1	398-000547-00000
Heavy Duty	300		398-000548-00000

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## Fume extraction

### KEMPER®

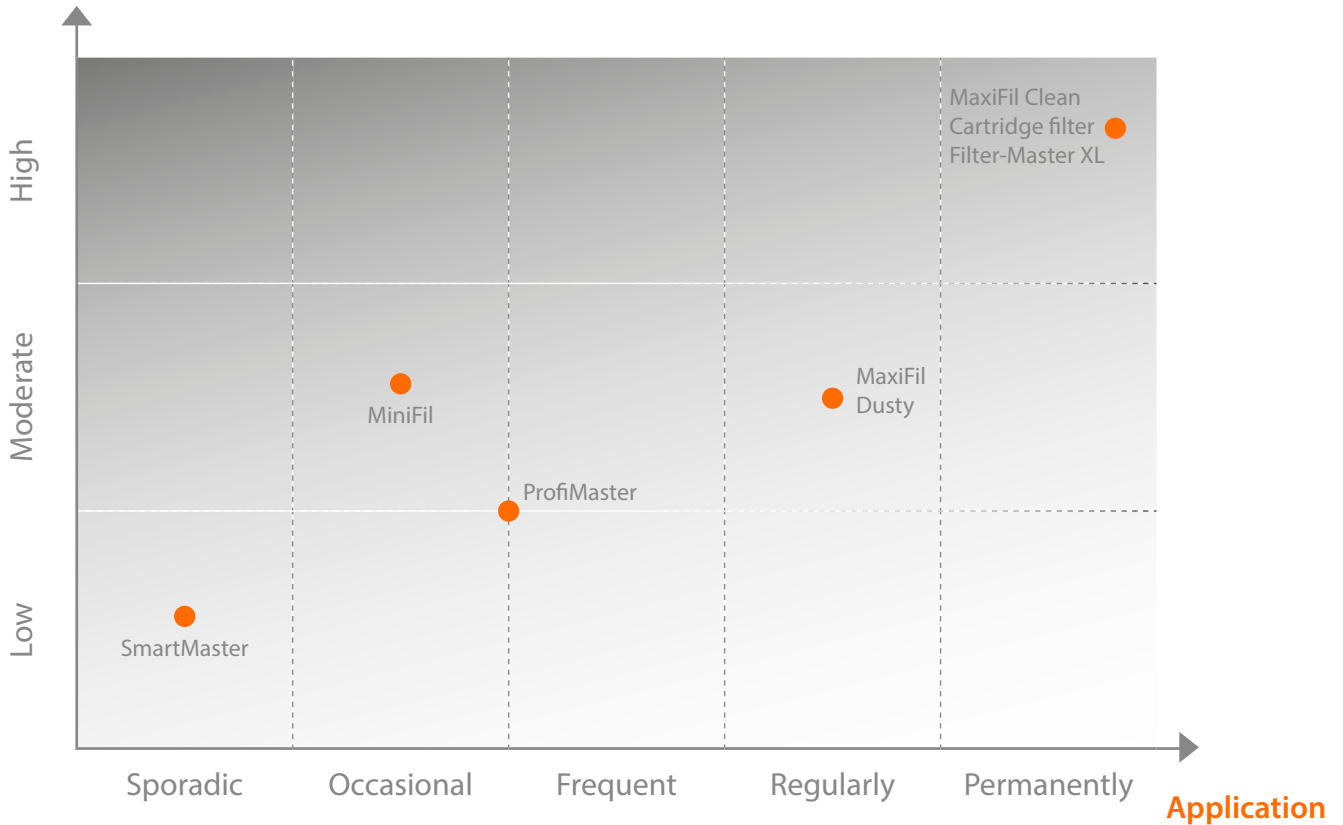
#### Fume blankets, welding fumes and dust? KEMPER.

Kemper offers you not only mobile filter units but also stationary and centralised extraction systems. The superb filter technology is optimally suited to welding and cutting. The KemTex® ePTFE filter medium with laminated membrane coating filters out ultrafine nanoparticles down to 100 nanometres. This means they optimally protect the health of your employees and keep the air in your workshops clean.



#### Applications for mobile filter units

##### Dust emission rate



	SmartMaster	ProfiMaster	MaxiFil	MiniFil	Filter-Master XL	Cartridge filters	MaxiFil Clean	Dusty
High-alloy non-ferrous materials (IFA)	✓	✓	✓	✓*	✓	-	✓	-
TIG welding chromium-nickel-steel	✓	✓	✓	✓*	-	-	-	-

\* IFA-W3 approval available soon



## Selection criteria for mobile filter units according to application

Emission rate	Material	Application			
		Sporadic	Occasional to frequent	Regularly	Permanently
<b>Classes I and II</b> <b>&lt; 1–2 mg/s</b> Submerged arc welding TIG welding Laser welding	Unalloyed Low-alloy	SmartMaster MiniFil	SmartMaster ProfiMaster MiniFil Dusty	ProfiMaster MaxiFil MiniFil Dusty	MaxiFil MiniFil Dusty
	Aluminium	SmartMaster MiniFil	SmartMaster ProfiMaster MiniFil Dusty	ProfiMaster MaxiFil Dusty	MaxiFil MiniFil Dusty
	High-alloy Non-ferrous material	SmartMaster MiniFil*	SmartMaster ProfiMaster MiniFil*	ProfiMaster MaxiFil MiniFil*	MaxiFil MiniFil*
<b>Class III</b> <b>2–25 mg/s</b> Manual arc welding MIG/MAG welding	Unalloyed Low-alloy aluminium	SmartMaster MiniFil*	ProfiMaster MiniFil* Dusty	MaxiFil Filter-Master XL Dusty	MaxiFil Clean Cartridge filter Filter-Master XL
	High-alloy Non-ferrous material	SmartMaster MiniFil*	ProfiMaster MiniFil*	MaxiFil Filter-Master XL	MaxiFil Clean Filter-Master XL
<b>Class IV</b> <b>&gt; 25 mg/s</b> Flux cored wire welding	Unalloyed Low-alloy Aluminium	ProfiMaster MiniFil Dusty	MaxiFil Filter-Master XL	MaxiFil Clean Cartridge filter Filter-Master XL	MaxiFil Clean Filter-Master XL
	High-alloy Non-ferrous material	ProfiMaster MiniFil*	MaxiFil Filter-Master XL	MaxiFil Filter-Master XL	MaxiFil Clean MaxiFil Filter-Master XL

Recommendations are based on European standards and the anticipated filter replacement/cleaning intervals.

\* IFA-W3 approval available soon



### EN ISO 15012-1:2004 – welding fume category W3

Welding fume category W3 means that the equipment must be capable of filtering out 99 percent of the particles discharged when welding steel with a nickel and chromium content of greater than 30 percent.



Welding fume extractor, including extraction arm • ProfiMaster



- Mobile filter unit for low to medium quantities of fumes/dust
- Powerful filter and sturdy construction
- Filter monitoring increases safety
- Convenient filter replacement via access door

<b>Usage</b>	Low to medium quantities of fumes/dust and chrome-nickel steels
<b>Connection voltage</b>	3x 400 V/50 Hz
<b>Engine output</b>	1.1 kW
<b>Extraction capacity</b>	1100 m <sup>3</sup> /h
<b>Separation level &gt;</b>	99.5 %
<b>Noise level</b>	70 dB(A)
<b>Dimensions (width x depth x height)</b>	785 mm x 730 mm x 950 mm
<b>Weight</b>	95 kg
<b>Filtering methods</b>	Disposable filter
<b>Filter class</b>	E12
<b>Filter material</b>	Fibreglass padding
<b>IFA approval</b>	W3 tested

<b>W3</b>	IFA-geprüftes Schweißrauch- Absauggerät	<b>W3</b>
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Length m	PU Units	Version	Item no.
2.0	1	Tube version	398-002000-00002
3.0			398-002000-00003
4.0			398-002000-00004
2.0			398-002000-10002
3.0	1	Pipe version	398-002000-10003
4.0			398-001919-00000

## Welding fume extractor, including 2x extraction arm • ProfiMaster, 2 arms

- Mobile filter unit for low to medium quantities of fumes/dust
- For use at two workstations
- Powerful filter and sturdy construction
- Filter monitoring increases safety
- Convenient filter replacement via access door

<b>Usage</b>	Low to medium quantities of fumes/dust and chrome-nickel steels
<b>Connection voltage</b>	3x 400 V/50 Hz
<b>Engine output</b>	1.1 kW
<b>Extraction capacity</b>	2 x 750 m <sup>3</sup> /h
<b>Separation level &gt;</b>	99.5 %
<b>Noise level</b>	72 dB(A)
<b>Dimensions (width x depth x height)</b>	785 mm x 730 mm x 950 mm
<b>Weight</b>	110 kg
<b>Filtering methods</b>	Disposable filter
<b>Filter class</b>	E12



Length m	PU Units	Version	Item no.
2.0	1	Tube version	398-002000-20002
3.0			398-002000-20003
4.0			398-002000-20004
2.0			398-002000-30002
3.0	Pipe version	398-002000-30003	
4.0		398-002000-30004	

## Pre-filter matting

PU Pack	Item no.
10	098-002870-00000



## Main filter

PU Units	Item no.
1	398-002001-00000



## ■ Accessory

Discription	PU Units	Item no.
Start-stop	1	398-005427-00000
Spare cap without lighting		098-002908-00000
Protective grating for spare cap		098-004021-00000



Mobile filter unit including extraction arm ● MaxiFil



- Mobile filter unit for medium quantities of fumes/dust and chrome-nickel steels
- Contamination-free filter replacement and filter monitoring
- Large capacity and long service life of the filters

<b>Usage</b>	Medium quantities of fumes/dust and chrome-nickel steels
<b>Connection voltage</b>	3x 400 V/50 Hz
<b>Engine output</b>	1.5 kW
<b>Extraction capacity</b>	1100 m <sup>3</sup> /h
<b>Separation level &gt;</b>	99.5 %
<b>Noise level</b>	70 dB(A)
<b>Weight</b>	129 kg
<b>Dimensions</b>	825 mm x 810 mm x 1150 mm
<b>Filtering methods</b>	Disposable filter
<b>Filter class</b>	E12
<b>IFA approval</b>	W3 tested

<b>W3</b>	<b>IFA-geprüftes Schweißrauch-Absauggerät</b>	<b>W3</b>
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Length m	PU Units	Version	Item no.
2.0	1	Tube version	398-002004-00002
3.0			398-002004-00003
4.0			398-002004-00004
2.0		Pipe version	398-002004-10002
3.0	398-002004-10003		
4.0	398-002004-10004		

Replacement filter



PU Units	Item no.
1	398-002005-00000

5



## Welding fume extractor with filter cartridge including extraction arm • MaxiFil Clean

- Mobile filter unit for large quantities of fumes/dust and chrome-nickel steels
- Contamination-free dust extraction
- Automated filter cleaning
- Large capacity and long service life of the filters

<b>Usage</b>	Large quantities of fumes/dust and chrome-nickel steels
<b>Connection voltage</b>	3x 400 V/50 Hz
<b>Engine output</b>	1.5 kW
<b>Extraction capacity</b>	1000 m <sup>3</sup> /h
<b>Separation level &gt;</b>	99.9 %
<b>Noise level</b>	72 dB(A)
<b>Dimensions (width x depth x height)</b>	810 mm x 940 mm x 1350 mm
<b>Weight</b>	185 kg
<b>Filtering methods</b>	Cleaning filter
<b>Filter class</b>	M
<b>IFA approval</b>	W3 tested



Length m	PU Units	Version	Item no.
2.0	1	Tube version	398-002007-00002
3.0			398-002007-00003
4.0			398-002007-00004
2.0			398-002007-10002
3.0	1	Pipe version	398-002007-10003
4.0			398-002007-10004

## MaxiFil Clean filter unit

PU Units	Version	Item no.
1	Replacement filter	398-002020-00000
4	Dust cartridge	398-002008-00000



## ■ Accessory

Discription	PU Units	Item no.
Spare cap with lighting, with connection to the new machine	1	398-002014-00001
Spare cap with lighting, for retrofit		398-002014-00002
Spare cap without lighting		098-002908-00000
Protective grating for spare cap		098-004021-00000
Start-stop		398-002018-00000

Welding fume extractor, including extraction arm ● SmartMaster



- Mobile filter unit, basic version, for occasional use
- For small quantities of fumes and dust
- Filter monitoring increases safety
- Can be flexibly deployed thanks to hose connection



<b>Version</b>	Tube version
<b>Usage</b>	Low to medium quantities of fumes/dust and chrome-nickel steels
<b>Connection voltage</b>	1 x 230 V / 50 Hz
<b>Engine output</b>	1.1 kW
<b>Extraction capacity</b>	950 m <sup>3</sup> /h
<b>Separation level &gt;</b>	99.5 %
<b>Noise level</b>	72 dB(A)
<b>Dimensions (width x depth x height)</b>	705 mm x 655 mm x 900 mm
<b>Weight</b>	71 kg
<b>Filtering methods</b>	Disposable filter
<b>Filter class</b>	E12
<b>Filter material</b>	Fibreglass padding
<b>IFA approval</b>	W3 tested

Length m	PU Units	Item no.
2.0	1	398-001057-00000
3.0		398-001057-00003

Main filter



PU Units	Item no.
1	398-001337-00000

Pre-filter matting



PU Units	Item no.
10	398-001076-00000

Pre-filter cartridge



PU Units	Item no.
1	398-001401-00000



## Welding fume extractor with filter cartridge including extraction arm • Filter-Master XL

- Mobile cartridge filter for long-term use for large quantities of fumes/dust
- Suitable for chromium-nickel steels
- Optimum health protection for employees thanks to KemTex® ePTFE filter cartridge with surface filtration (filtration efficiency > 99.9%)
- Automatic cleaning of the filter cartridge when the limit value is reached

<b>Version</b>	Tube version
<b>Connection voltage</b>	3x 400 V/50 Hz
<b>Engine output</b>	1.5 kW
<b>Extraction capacity</b>	1000 m³/h
<b>Separation level &gt;</b>	99.9 %
<b>Noise level</b>	69 dB(A)
<b>Dimensions (width x depth x height)</b>	655 mm x 655 mm x 1460 mm
<b>Weight</b>	135 kg
<b>Filtering methods</b>	Cleaning filter
<b>Filter class</b>	M
<b>Filter material</b>	ePTFE membrane
<b>IFA approval</b>	W3 tested



Length m	PU Units	Item no.
2.0		398-000574-00000
3.0	1	398-000575-00000
4.0		098-004284-00000

### Filter cartridge

<b>Version</b>	Replacement filter for Filter-Master XL	
	<b>PU Units</b>	<b>Item no.</b>
	1	098-004024-00000



### ■ Accessory

Discription	PU Units	Item no.
Spare cap with lighting 1 arm, with connection to the new machine		398-002015-00001
Spare cap with lighting 1 arm, for retrofit		398-002016-00001
Spare cap without lighting	1	098-004021-00000
Protective grating for spare cap		098-004021-00000
Start-stop 1 arm		398-002019-00001

High-vacuum extraction system ● MiniFil



- High vacuum filter unit
- Prepared for torch extractor connection
- Suitable for medium quantities of fumes/dust and chrome-nickel steel
- Highly suited for changing places of work due to low weight and optional trolley
- Optimal adaptation to welding process thanks to infinitely variable extraction power control
- Integrated start/stop automation
- Contamination-free filter replacement

<b>Connection voltage</b>	1 x 230 V / 50 Hz
<b>Engine output</b>	2 kW
<b>Extraction capacity</b>	150 m <sup>3</sup> /h
<b>Separation level &gt;</b>	99 %
<b>Noise level</b>	74 dB(A)
<b>Dimensions (width x depth x height)</b>	425 mm x 365 mm x 790 mm
<b>Weight</b>	18.5 kg
<b>Filtering methods</b>	Disposable filter
<b>Filter class</b>	H13
<b>Filter material</b>	Polyester fleece
<b>IFA approval</b>	W3 testing applied for

PU	Item no.
<b>Units</b>	
1	398-002002-00000

Replacement filter



PU	Item no.
<b>Units</b>	
1	398-002003-00000

Trolleys ● Trolley MiniFil



PU	Item no.
<b>Units</b>	
1	398-002021-00000

5

## High-vacuum extraction system • Dusty

- High vacuum extraction
- Prepared for connection of two torch extractors
- Optimum health protection for employees thanks to KemTex® ePTFE filter cartridge with surface filtration (filtration efficiency > 99.9%)
- Low to moderate quantities of smoke/dust
- Optimal adaptation to the welding process thanks to infinitely variable extraction power control
- Two extractor nozzles (Ø 45 mm)
- Manual cleaning

<b>Connection voltage</b>	1 x 230 V / 50 Hz
<b>Engine output</b>	1.6 kW
<b>Extraction capacity</b>	340 m <sup>3</sup> /h
<b>Separation level &gt;</b>	99.9 %
<b>Noise level</b>	74 dB(A)
<b>Dimensions (width x depth x height)</b>	300 mm x 300 mm x 690 mm
<b>Weight</b>	21 kg
<b>Filtering methods</b>	Cleaning filter
<b>Filter class</b>	M
<b>Filter material</b>	ePTFE membrane

PU	Item no.
<b>Units</b>	
1	398-003032-00000



## Filter cartridge

PU	Item no.
<b>Units</b>	
1	398-002009-00000



## Extraction hose

- Replacement hoses for KEMPER high-vacuum extraction systems

<b>Extraction hose Ø</b>	45 mm
--------------------------	-------

Length m	PU Units	Item no.
2.5	1	098-003051-00000
5.0		098-003008-00000
10.0		098-003030-00000



## Connection nozzle for torches

- Connection nozzle for fume extraction torches to connect to extraction hose Ø 45 mm

PU Units	Version	Item no.
1	42-44 mm	098-002874-00000
	39-42 mm	398-000585-00000
	30-38 mm	398-000586-00000





## Space ventilation systems

# KEMPER®

### Energy-saving space ventilation systems for production sheds

The collection of harmful substances at their point of origin remains the most effective method of extraction and takes priority in all regulations. Only in this way can welding fumes and other harmful substances be almost completely collected.

Here, KEMPER space ventilation systems help you to optimally protect your employees' health and keep the air in your workshops clean.

### CleanAirTower

#### Energy-saving space ventilation system with layer ventilation for welding fumes in production sheds

The CleanAirTower shed and space ventilation system is used wherever welding fume point extraction cannot be implemented or is insufficient. The Tower effectively protects employees and machines against particulates during welding. The cleaned air remains within the room. The space ventilation system produces minimal turbulence, which is why the contaminated air does not enter uncontaminated areas. The CleanAirTower uses the layer ventilation principle recommended by the trade association for shed ventilation.



5





## POINT EXTRACTION

Compliant with TRGS 528, hazardous substances must be collected at their point of origin or discharge. This prevents distribution within a shed.

Where substances have been proven to be or are suspected of being carcinogenic, point extraction is even obligatory. The systems for these areas must be IFA certified compliant with TRGS 560. Additional personal protective equipment may be necessary. TEKA, the extraction and filtering specialist, supplies an extensive range of extraction systems.

### ENTRY CLASS



**filtoo**  
mobile

IFA seal, GS tested safety, 4-stage filter system, 3-m extraction hose or 3-m extraction arm included



**dustoo**  
mobile

The dustoo is a unit for use on welding guns, including a cleanable filter cartridge.

### INDUSTRIAL CLASS



**CAREMASTER**  
mobile or wall-mounted

We offer an especially large number of accessories for the CAREMASTER series, available with either one or two arms.

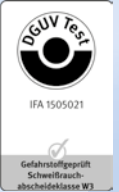
As a mobile system with up to 4 m arm length, wall-mounted even up to 8 m arm length



**HANDYCART**  
mobile

The HANDYCART is suitable for welding fume and dust extraction at frequently changing locations (on site, shipbuilding, small part welding sites, garages) – also available as a torch extraction version.

### PROFESSIONAL CLASS



**STRONGMASTER**  
mobile

The STRONGMASTER is a professional device, also suitable for working with precious metals and aluminium in circulating mode.



**CARTMASTER**  
mobile or wall-mounted

The CARTMASTER series expands the STRONGMASTER series by a completely automatic cleaning facility. It is also available as a wall-mounted version with one or two arms up to 8 m long.



**Moderate and high vacuum systems**  
mobile

STRONGMASTER and CARTMASTER are available as moderate vacuum versions for spot extraction using small diameter hoses.

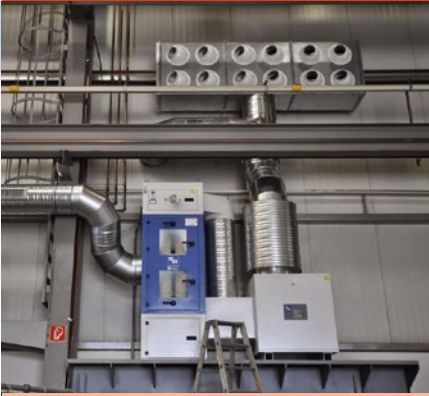


# SPACE VENTILATION SOLUTIONS

There are often situations in which spot extraction is only very difficult or impossible to implement for structural or work process reasons, or in which spot extraction needs to be additionally supported by a space ventilation solution. Optimally, using a space ventilation solution, four to five times the space volume is filtered per hour through one or more space ventilation systems.

A wide variety of system technologies are available to achieve optimal air flow.

## TEKA BlowTec



BlowTec is especially characterised by its modular design and can be flexibly adapted to suit the operating conditions. An especially fast delivery time and fast assembly are guaranteed for the BlowTec. The air is distributed via a plenum using jet nozzles.

## TEKA AIRTECH



With AIRTECH systems, large quantities of air can be moved and reliably filtered for relatively low power consumption. The system does not require piping. As an added feature, the AIRTECH can be equipped with a heating battery, so that the system can simultaneously function as an air filter and a heating system.

## TEKA layer ventilation

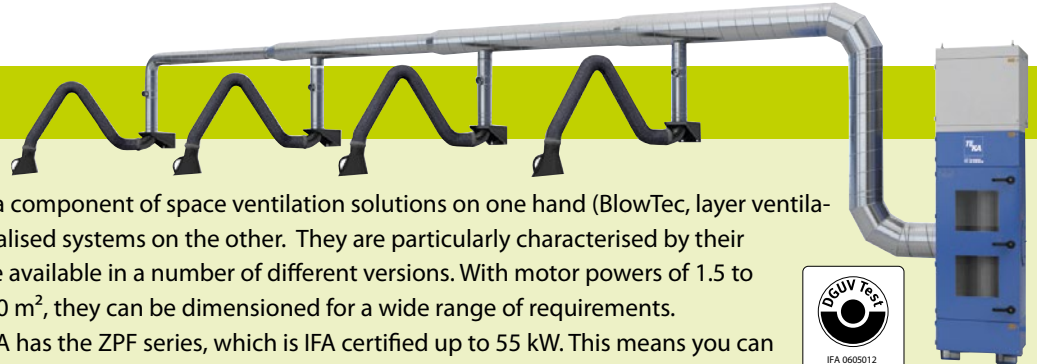


The tried-and-tested and certified Filtercube and ZPF series systems are used for layer ventilation. The raw air is collected from the upper shed zone via piping and fed to the working zone after filtration; the contaminated air is forced upwards.

# CENTRALISED SYSTEMS

Centralised systems can offer spot extraction at several workplaces simultaneously. Here, several extraction arms are connected to a pipe, which feeds the contaminated air to the central system. This is cost-efficient and simplifies servicing in comparison to numerous individual systems.

## TEKA FILTERCUBE



FILTERCUBE series systems are a component of space ventilation solutions on one hand (BlowTec, layer ventilation) and are also used as centralised systems on the other. They are particularly characterised by their compact, robust design and are available in a number of different versions. With motor powers of 1.5 to 11 kW and a filter area up to 100 m<sup>2</sup>, they can be dimensioned for a wide range of requirements. For even greater demands, TEKA has the ZPF series, which is IFA certified up to 55 kW. This means you can operate the systems in circulation mode and thus save heating costs or, in other words, cash.



Just contact us!

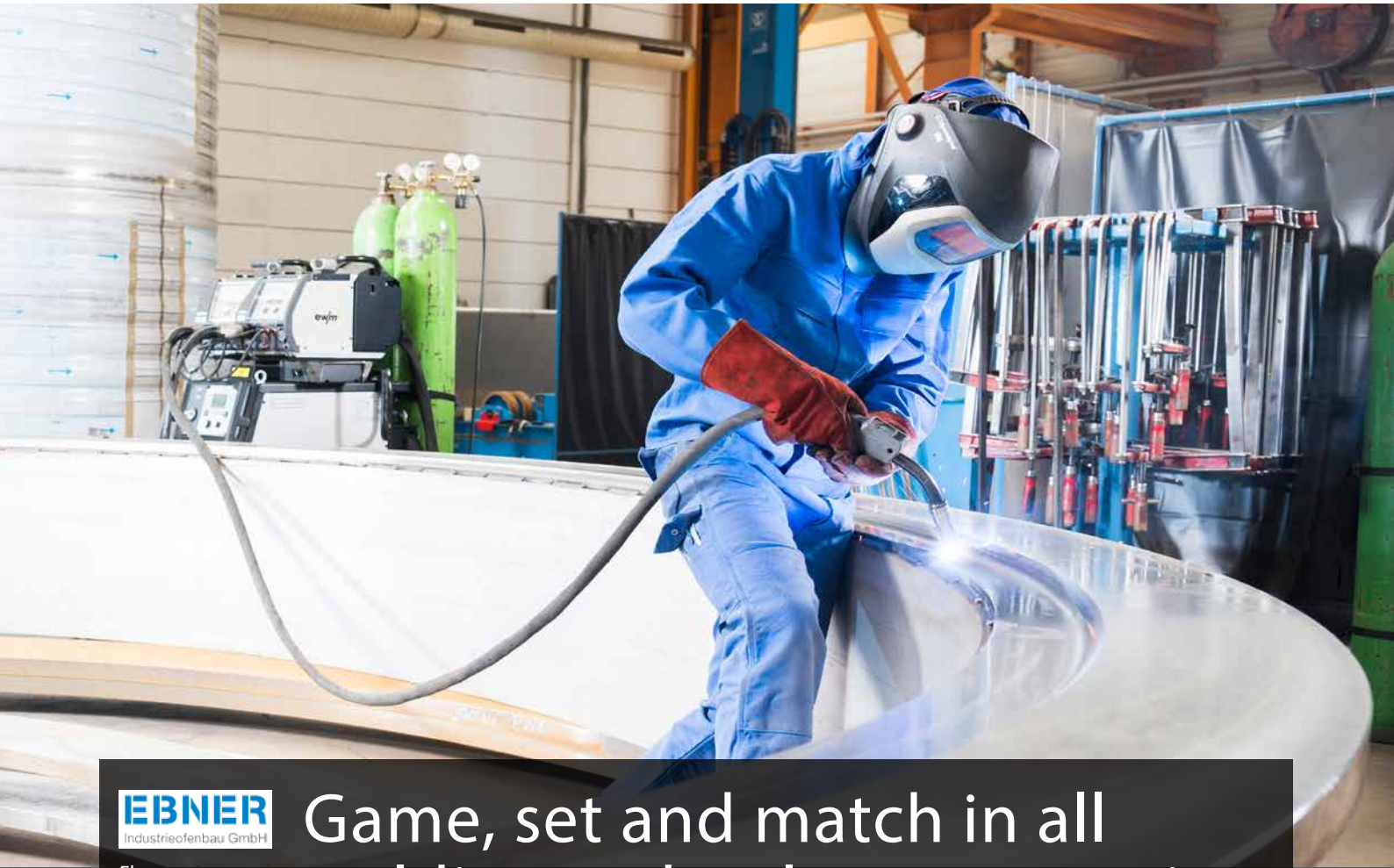


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# CustomerStory



**EBNER**  
Industriefenbau GmbH

Ebner  
Industriefenbau  
GmbH

## Game, set and match in all welding technology categories

### Ebner converts welding production facilities to EWM machines

Mündersbach, Germany 01/08/2017 – EWM came out on top at Ebner. The specialist for heat treatment technologies and industrial furnace

### Modernisation of welding technology

construction based in Leonding near Linz in Austria converted their manual

welding applications to EWM machines after comparing welding machines from four renowned manufacturers. In 2014, Ebner planned to modernise their equipment and purchase new welding machines, both for MIG/MAG and TIG welding. During a test phase, welders, maintenance staff and welding coordinators scrutinised and thoroughly tested products from a total of four welding machine providers. "The most important factor to me was that the welders were satisfied, because they're the ones that work



with the machines”, said Franz Haubner, Head of Mechanical Production, concerning his approach to selecting a current total of 45 welding machines. They tested machines from the alpha Q puls and Phoenix puls series for MIG/MAG welding and machines from the Tetrax series for TIG welding. All machines were delivered complete and ready for work including torches and the appropriate accessories.

The criteria for evaluating the machines included welding machine handling, options for using various welding procedures, manageability of the welding torches and the services provided. EWM won this comparison hands down as the company proved to give the best value for money and the maintenance was rated most highly.

The components that Ebner manufactures for industrial furnaces can be the size of a standard detached house. Franz Haubner says with certainty, “If the component won’t come to the welder, the welder must go to the component”. For this reason, the

### Winners of the welding technology category

machines themselves must be light and easy to push or pull along. However, the proviso that the welders must be able to complete their entire range of welding tasks using only one machine was even more significant. Meeting this demanding requirement was the pièce de résistance for EWM and gave our machines a clear competitive edge: As all innovative welding procedures are saved in our machines, a single device can weld especially thick materials, such as steel rings for load transfer, using forceArc and use coldArc to weld particularly thin CrNi steels, such as those used in nozzle casings.

Welding a double V-butt weld on a steel ring using forceArc







Reduction of the included angle from 60° to 40° uses less weld bead in forceArc® welding. This minimises the duration of welding and saves money.

coldArc and forceArc welding procedures are extremely different in application as are the parameters required for welding using the two procedures. forceArc welds are mainly used on thick structural steel welded using steel wire. CrNi steels, on the other hand, are welded using suitable welding consumables. The composition of the shielding gas used for the two procedures is also different.

## Winners of the integrated welding procedures category

Despite these differing requirements, welders using EWM machines can switch between the procedures at the touch of a button – much easier than when using the other welding machines tested.

The EWM double wire feeder is the reason for this flexibility. The device is equipped with two wire rolls, two welding torches and two gas cylinders. If requirements change, the welder simply switches to the alternative welding torch and the machine takes care of the rest at the touch of a button. This makes changing between completely different applications as easy as pie.

The most immediate tool used by welders is the welding torch. These must sit comfortably in the hand, be light and work without interference. EWM welding torches met and indeed exceeded all these criteria. The interference-free wire feed reduced the number of weld seam errors. In addition, EWM MT torches formed weld seams with minimal spatter.

But the greatest advantage was the reduction of preproduction costs. The service life of contact tips and gas nozzles is increased by up to 50% meaning that the welding procedure must be interrupted

MAG-welded fillet weld in PB position is virtually spatter-free.

## Winners of the welding torch category

much less frequently to change nozzles. This results in significant savings. From steel to CrNi and Ni-based alloys to aluminium – at first this sounds like the processing range of a typical specialist welding shop. But this range is much larger than normal at Ebner. Usually, one characteristic curve is sufficient for CrNi steels. In contrast, Ebner uses more than ten different CrNi welding consumables. Each of these has its own characteristic curve. Each of these characteristic curves was adjusted for Ebner by EWM and saved as a JOB in the EWM machines. In this way, the entire range of applications was covered. Welders can quickly

Virtually spatter-free welding of edge welds, fillet welds and butt welds on a nozzle casing of an annealing furnace. The low-heat coldArc procedure minimises distortion when joining the 2-mm-thick stainless sheet steel.





Tack welding and welding fillet and single-V butt welds on the workbase of a bell furnace system in PA and PF welding positions. Steel/steel and steel/CrNi joints require different welding consumables that are both available from the welding machine at the same time.

find the JOBS and easily select them. Aside from the welders, the opinions of maintenance staff were also of importance during the selection procedure. The maintenance staff focussed particularly on the easy accessibility of all components and the ease with

Service and Sales departments of the EWM Austria branch also contributed to Ebner's final decision. At the end of the day, both the welders and maintenance staff were in complete agreement that EWM should be their new welding machine supplier.

Handing over the machines to Ebner. Currently, the stock of machines amounts to 24 alpha Q 351 Expert 2.0 puls, 4 alpha Q Expert 2.0 puls in the double wire feeder version, 11 Tetrax 230 Comfort, 3 Tetrax 351 AC/DC Synergic, 2 Phoenix 355 puls and 1 Phoenix 1002 as a SAW power source.

### Winner in the service category

which the machines can be serviced. The outstanding and prompt support from the Application Technology,



Satisfied with the new welding machines, Christoph Eidenberger, welder at Ebner, Heinz Stephan, Managing Director of EWM Austria, Franz Haubner, Head of Ebner Mechanical Production, Christian Gruber, Ebner Welding Shop Technical Group Leader.

Kindly supported by

**EBNER**  
Industriefenbau GmbH

Ebner Industriefenbau GmbH







Surface treatment		Page
Abrasives	Cutting discs	400
	Grinding discs	401
	Flap discs	402
	Fiber discs	404
	Grinding fleece	405
	Polishing	406
Electrical appliances		411
Chemical-technical products	Adhesives and sealants, technical sprays	416
	Etching agents and accessories	426
	Welding separating agent	434
	Penetration testing agent	437
Electrolytic cleaning		438



## Quality lines

★ <b>BASIC</b>	★★★ <b>PREMIUM</b>
<ul style="list-style-type: none"> <li>• Great cutting and machining performance</li> <li>• Great service life</li> <li>• Great working results</li> </ul>	<ul style="list-style-type: none"> <li>• Outstanding cutting and machining performance</li> <li>• Above-average service life</li> <li>• Excellent working results</li> <li>• Optimal cost efficiency</li> <li>• The perfect product for any application</li> <li>• Use of highly innovative technology and the best raw materials</li> <li>• Optimum comfort through low vibration and noise emission</li> </ul>

## Cutting disc specifications



Fibre strength: fibreglass fabric (safety, lateral load, working speed)

TYROLIT internal designation

Exterior fabric: with exterior fabric

# A 46 N-B F X A

Binder materials: V = ceramic binding, B = artificial resin binding, E = elastic binding, G = galvanic binding

Hardness indicators: N = soft, T = hard

Grit size description (filter size in inches)	Grit size in mesh
14–36	COARSE
46–60	MEDIUM
80–220	FINE
800–1200	VERY FINE

Abrasives: A = normal corundum, C = silicone carbide, ZA = zirconia alumina, CA = ceramic



Top working speed and maximum permissible speed

Registered trademark

Quality lines

Expiration date

Pictograms on proper usage and safety

Special features (not found on every product)

PREMIUM

LONG LIFE

Form and specifications

Dimensions (diameter x depth x height), metric and inches

EN safety standards

oSa safety regulation

Type number

Suitable materials



## Cutting discs for angle grinders

The innovative and economic benefits are particularly clear when cutting thin sheets and profiles. The PREMIUM\*\*\* products offer especially high power and service life, very clean cut surfaces and low thermal load. This saves time as well as money, as there is little finishing work necessary. The health of the customers is the number-one priority. This is why TYROLIT cutting discs meet the highest safety standards, thus making a major contribution to the improvement of working conditions.



Just contact us!



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Working with the angle grinder is among the most important methods of processing all kinds of metals in the trades and industries. TYROLIT offers the ideal cutting disc for quick manual use with small angle grinders as well as for use with large angle grinders.

## Brushes for angle grinders

In general, brushes are universally applicable and can be used for various tasks, such as deburring as well as cleaning weld seams and surfaces made of nearly any material. TYROLIT's wide range of tool brushes features products with the right shape, wire type and specifications for any task.



## Belts for mini belt grinders, portable belt grinders and contact grinders

Depending on the task, TYROLIT has the right belt to produce optimal results, whether you're looking for long service life, maximum material removal or perfect surface finish. Belts with integrated ceramic grit in particular offer a quick and easy way to grind metal thanks to their high removal rate. Different flexible underlays and additional coatings also allow harder materials such as stainless steel, alloys, mild steel and non-ferrous metals to be processed. Processing of woods, paints and varnishes is also possible.

## Flap discs for angle grinders

Regardless of the application or your preferred shape, here you will always find the right product. Since the health of our customers is always our top priority, we have chosen TYROLIT flap discs. The flap discs come with carriers made of natural fibres which can even be trimmed.



### Greater cost efficiency

Significant increase of service life and cutting performance, which is especially noticeable with the first cut. The disc offers optimal results with lower separation times from the first cut.

### Reduced working times

Lower strain on the workpiece and shorter separation times allow you to get optimal results quickly. Additional finishing work, such as cleaning and deburring, is not necessary.



### Optimal working comfort

The tool operates without kick-back and jamming, with 30% less production of cutting dust. Additional noise and vibration reduction make TYROLIT's super-thin cutting discs a safe and comfortable tool.



## Fibre discs for angle grinders

Fibre discs are always used when coarse grinding or de-rusting or deburring of surfaces is necessary. Here, TYROLIT relies on flexibility and straightforward handling.



## Quality and innovation

Tyrolit values optimum precision not only in terms of the quality of their products but also when it comes to innovation. The continuous further development and improvement of products is a key business aim not just at Tyrolit, but for us too.



## Rolls for manual and orbital sanding

Every kind of surface finishing work requires thorough, clean preparation. This preparation takes place either by hand or using an orbital sander. Wood, paint and varnish tend to be processed by hand. Simple deburring works can also be carried out by hand.

## Spiral belts for straight die grinders

Straight die grinders are used for working in hard-to-reach locations and in situations where precision is required. The TYROLIT spiral belts assist the user in every task. Precise but flexible.





## Drill bits for wet drilling

The TYROLIT product range offers innovative solutions in large projects as well as economic benefits in daily on-site use.

It is especially suited to the works involving reinforced and non-reinforced concrete. They can be used on drill stands or free-handed.



## Tile drilling

Tile drilling involves the use of vacuum-brazed diamond bits for all applications involving ceramic tiles, porcelain stoneware and marble slabs. Optimum drilling comfort, universally applicable. Perfect, crack-free drilling of tiles and plumbing.

### Maximum comfort during drilling

thanks to the optimal wetting of the diamonds with water.

### Precise drilling

without cracks breaking out.



### Universal use

for all ceramic tiles, porcelain stoneware and marble slabs.

## Surface treatment • Abrasives • Cutting discs

### Cutting disc • 41 PREMIUM straight 2 in 1



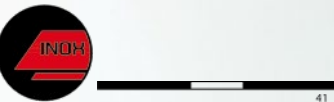
- Surface finishing
- Shelf life: 36 months

#### Applications

Steel/stainless steel

Ø mm	PU	Item no.
125 x 1.0 x 22.23	25	398-009409-12510
230 x 1.9 x 22.23		398-005771-00000

### Cutting disc • 41 BASIC straight



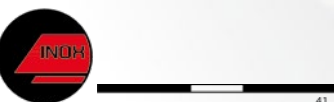
- Surface finishing
- Shelf life: 36 months

#### Applications

Stainless steel

Ø mm	PU	Item no.
125 x 1.0 x 22.23	25	398-000131-00000

### Cutting disc • 41 PREMIUM straight



- Surface finishing
- Shelf life: 36 months

#### Applications

Stainless steel

Ø mm	Pa- cking unit	Item no.
125 x 2.0 x 22.23	25	398-005829-00000
230 x 2.0 x 22.23		398-004928-00000

6



Grinding disc ● 27 BASIC FASTCUT angled 2 in 1

- Surface finishing
- Shelf life: 36 months

**Applications** Steel/stainless steel

Ø mm	PU	Item no.
125 x 6.0 x 22.23	10	398-005836-00000
230 x 6.0 x 22.23		398-005764-00000







## Professional tip

For a uniform result always use fan type lock washers one grit coarser than fibre discs.

### Conical flap disc • BASIC conical flap disc



Ø	125 mm - 22.23 mm
Applications	Stainless steel, Steel

Ø mm	Grit	PU	Item no.
125 x 22,23	40	10	398-005837-00000
	60		398-005519-00000

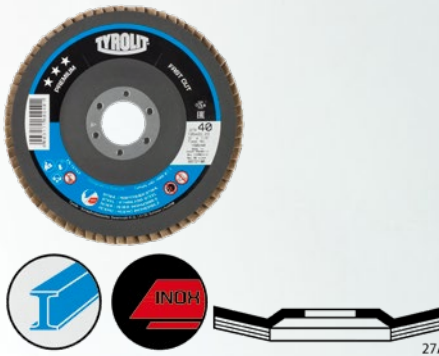
### Conical flap disc • PREMIUM conical flap disc



Ø	125 mm - 22.23 mm
Applications	Steel, Stainless steel

Ø mm	Grit	PU	Item no.
125 x 22,23	40	10	398-005528-00000
230 x 22,23	60		398-005830-00000

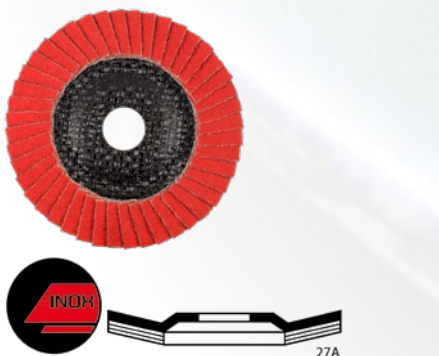
### Conical flap disc • Tyrolit Premium conical flap disc



Ø	125 mm - 22.23 mm
Applications	Steel, Stainless steel

Ø mm	Grit	PU	Item no.
125 x 22,23	40	10	398-009410-12540

### Conical flap disc • Tyrolit Premium conical flap disc



Ø	125 mm - 22.23 mm
Applications	Stainless steel (Inox)

Ø mm	Grit	PU	Item no.
125 x 22,23	40	10	398-009412-12540
	60		398-009412-12560

6

# How to



## Recommended procedure

### Coarse grinding work

Do not use cutting discs for grinding  
Do not work with the flat disc surface, this damages the safety fabric  
Work at a varying angle between 10° and 30°

### Fine grinding work

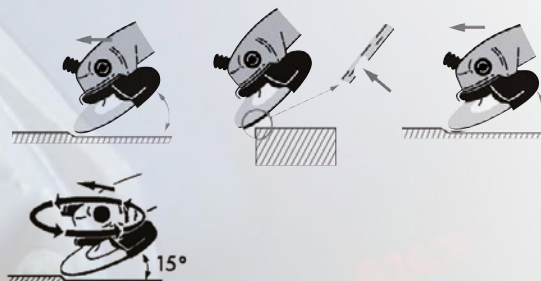
Working angle 15°  
Work with a circular motion

### Metal ring with best before date

V = best before date (production quarter + 3 years)

#### Example:

V04/2016 means manufactured in 2nd quarter 2013 and recommended use by 2nd quarter 2016



V01	V04	V07	V10
1st quarter	2nd quarter	3rd quarter	4th quarter

## Support backing disc for fibre discs

- **Hard backing disc:** heavy-duty grinding, ideally suited to levelling surfaces
- **Medium backing disc:** coarse, intermediate and final grinding. For use on fillers, primers, paint, varnish, wood, plaster, composites and metal

### Toolholder

M14

Ø mm	PU	Item no.
125 x 22,23	5	398-005269-00125

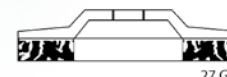


## Coarse cleaning disc • Tyrolit standard coarse cleaning disc

- Coarse cleaning disc
- Porous and with nylon fibres enriched with aggressive abrasives
- Low heat input
- Quiet and fatigue-free polishing

Ø	125 mm - 22.23 mm
Applications	Steel, stainless steel, PVC

Ø mm	PU	Item no.
125 x 22,23	5	398-005521-00000





Fibre disc • Tyrolit Basic Vulkanisierte Fieberscheiben



Ø	125 mm - 22 mm
Applications	Steel, Aluminium, Wood
Ø	

Ø mm	Grit	PU	Item no.
125 x 22	40	25	398-004931-00000

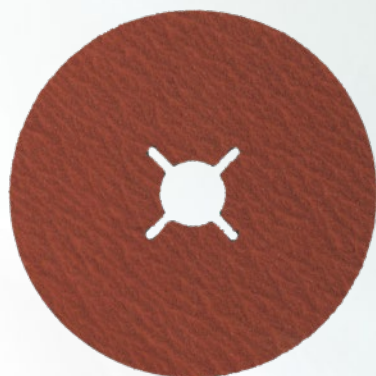
Fibre disc • Tyrolit Premium Vulkanisierte Fieberscheibe



Ø	125 mm - 22 mm
Applications	Steel

Ø mm	Grit	PU	Item no.
125 x 22	40	25	398-005832-00000

Fibre disc • Tyrolit Premium Vulkanisierte Fieberscheibe



Ø	125 mm - 22 mm
Applications	Steel, Stainless steel

Ø mm	Grit	PU	Item no.
125 x 22	40	25	398-005268-12540
		50	398-005833-00000

Whole Tyrolit portfolio available on request



## Surface treatment ● Abrasive fleece

### Abrasive fleece, roll ● Norton Bear-TEX

- Non-woven web roll for grinding
- Flexible
- Long service life
- No clogging
- Adapts to shapes and contours and delivers a uniform finish
- Water- and solvent-resistant



**Dimensions (width x length)** 115 mm x 10 m

PU	Fineness	Colour	Item no.
Units	Ultra-fine	Grey	398-002033-10115
	Fine	Red	398-002033-00115



## Non-woven disc set

Universal use

The TYROLIT PREMIUM \*\*\* SCM discs impress with their extreme cutting ability and long service life. Make the most out of the fast, optimised removal performance to carry out tasks such as reducing roughness depth, removing discolouration, smoothing surfaces and cleaning and removing weld seams.

### Reduce working time with good preparation

Use the TYROLIT SCM programme and save up to 3 work steps. You can simultaneously smoothen and clean and thereby achieve an optimal surface finish using a single product. The finer the disc, the finer the surface will be. In addition, the shape of the disc facilitates its use on different support discs. Thanks to the removable central hole, the disc can be used with all three support discs in the range.



Set item no.	Set contains	Colour/hardness	Packing unit	Item no.
398-008011-00125	Fleece disc, extra coarse	Dark brown/violet	1	398-009000-00000
	Fleece disc, coarse	Brown		398-009001-00000
	Fleece disc, extra medium	Dark red/violet		398-009002-00000
	Fleece disc, medium	Red		398-009003-00000
	Fleece disc, very fine	Blue		398-009004-00000
	Support disc M 14	Medium		398-009005-00000



# Polishing guide

## Threesteps to a mirror finish

With the TYROLIT POLISHING PROGRAMME, you get a perfect high-gloss surface in just a few steps. Preventing disc smearing and clogging ensures an above-average service life. Special strips allow for especially cool grinding, which in turn ensures excellent surface quality. In addition, low heat development, noise pollution and dust formation offer a particularly-high level of occupational safety.

### Step 1

Remove large scratches with the PREMIUM\*\*\* CONDITIONING disc. The multi-dimensional design of the strip reduces lubrication and coating while preventing undesired material discolouration.

### Step 2

Prepare the surface for polishing with the PREMIUM\*\*\* PRE-POLISH disc. This adjusts perfectly to the surface, thus creating the ideal foundations for polishing.

### Step 3

With the PREMIUM\*\*\* POLISH disc, you can create the perfect mirror finish as the final step. Various grinding pastes allow processing of a range of materials.



### Polishing set Ø 125 mm

- Fewer steps to the perfect high-gloss surface
- Prevents lubrication and coating of the panel
- Above-average service life
- Cool grinding thanks to special strips
- Excellent surface quality
- Low heat development, noise pollution and dust formation contribute to a particularly high level of occupational safety
- **Delivery includes::**
- 1x conditioning disc for steel and stainless steel
- 1x pre-polish for steel and stainless steel
- 1x polish for universal use
- 2x polishing paste

#### Item no.

398-007174-00125





# Cutting and grinding agents

## 3M™ Cubitron™ II – ceramic grit put into shape

Sanding belts and grinding discs with ceramic 3M™ Cubitron™ grit have been among the market's top products for years and are characterised by their long service life, cutting power and surface quality.

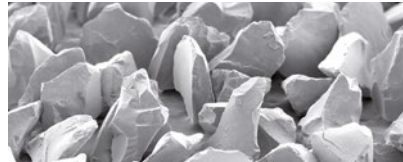
In order to make grinding processes even more efficient, 3M™ has developed the new, advanced grit generation on this basis, 3M™ Cubitron™ II, and given the high-performance ceramic grit a defined geometrical shape.

### 3M™ Cubitron™ and traditional grit compared

The tips of the grit triangles break off during the grinding process and new, sharp chipping tips are created along the predefined chipping edges.

The surface of the material is continuously cleanly processed by the new cutting tips.

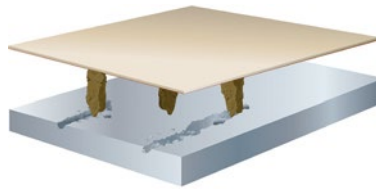
The result is a faster, cooler cut and extended abrasive service life.



Conventional ceramic grit



Constructed 3M™ Cubitron™ II grit

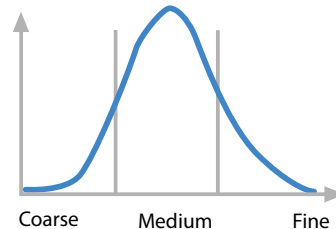


### The + makes the big difference – the grit of a revolutionary product

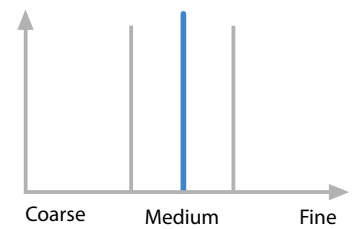
If one studies the grit distribution of conventional abrasive products, one finds a specified percentage of different grit sizes within a defined grit number (e.g. P036).

The 3M™ Cubitron™ grit with its unique design has a defined shape and does not correspond to any of the numerous global grit standards (e.g. FEPA).

For this reason, a plus sign is added to the grit size, which is allocated to known grit series based on empiricism (e.g. 36+).











Conventional grit distribution



Constructed 3M™ Cubitron™ II grinding tool





	Cutting	Solid welds	TIG welds	Chamfering	Surface grinding	Trimming work	Material removal/ cut per unit time*	Edge loads
 3M™ Cubitron™ II cutting discs	●●●	-	-	-	-	-	●●●	-
 3M™ Cubitron™ II grinding discs	-	●●●	-	●●	●	●●●	●●	●●●
 3M™ Cubitron™ II Cut & Grind	●●	●●●	-	●●	●	●●●	●●	●●●
 3M™ Cubitron™ II fibre discs	-	●●●	●●	●●●	●●	●●	●●●	-
 3M™ Cubitron™ II serrated discs	-	●●	●●●	●	●●●	●●	●●	●●
 3M™ Cubitron™ II ROLOC™	-	●	●	-	●	-	●●	●
 3M™ Cubitron™ II Hookit™	-	-	●	-	●●●	-	●●	●
 3M™ Cubitron™ II sanding belts	-	●	●●	●●●	●●●	-	●●●	●●

6

\*Relative to the faster processing time for 3M™ Cubitron™ II products  
 ●●● Very good, ●● Good, ● Possible, - Unsuitable



Pneumatic air tools and motors

**MANNESMANN DEMAG** offers a large selection of precise pneumatic tools, powerful pneumatic motors, grinding spindles, chisel hammers and chisels.

The pneumatic tools have met industry standards for many years. They offer the highest level of reliability and performance.



**MANNESMANN DEMAG** pneumatic tools are the ideal partner for sanding, milling, grinding, filing, engraving and cutting work. The products guarantee:

- / Precise work under strenuous conditions
- / The appropriate safety lever valve (H) compliant with EN 792 for each application
- / Alternatively version with rotary valve (D)
- / Cold-insulated grip
- / Exhaust air to the rear via hose unit with integral sound absorption
- / Absolutely service-friendly
- / Low noise level
- / Robust and powerful





6

The Variacor rotating air inlet joint can be used for all pneumatic tools and rigid hoses.

**Features**

- / Cost-saving thanks to increased service life, because the hose does not kink
- / Increased working comfort thanks to wrist relief, easy and flexible working
- / Improved effectiveness thanks to: lower pressure drop, connected directly to the tool, hose and tool can be ideally positioned



**Just contact us!**  **+49 (0)2680 181-0**  **info@ewm-group.com**





## FEIN, the metalworking specialist

### The FEIN grinding specialists



**Compact angle grinder**

Three configurations, one unbeatable quality level – the right angle grinder for any demand.



**Ergo-Grip angle grinder**



**Straight die grinders**

The specialists for use in metalworking, for grinding, brushing, deburring and polishing.

### Process complete stainless steel surfaces with FEIN



**Sanding polishers**

Extremely powerful, for cool working on stainless steel surfaces.



**Belt file**

Extremely powerful, for corners and edges in VA steel processing.



**Pipe grinder**

Extremely high removal rate on stainless steel pipes and pipe elbows up to Ø 80 mm.



**Fillet weld grinder**

For poorly accessible spots on metal structures.

### GRIT by FEIN – the name for professional belt sanding



**GRIT belt sanding machine – one system, all possibilities**

GRIT by FEIN – stands for expertise and resilience in the belt sanding machine sector. A modular system meets all requirements and the highest demands. GRIT belt sanding machines are characterised by a long service life and achieve high operating hours, whether in continuous operation or shift mode.

Just contact us!



+49 (0)2680 181-0



[info@ewm-group.com](mailto:info@ewm-group.com)

# FLEX. The original.

## Surface treatment made easy with FLEX



### ANGLE GRINDER

with extra flat gear head

- Lightweight design with extra-flat gear head
- Ideal for hard-to-reach spots
- Motor: heavy-duty, high efficiency for high output power



### FINGER GRINDER

- Perfect finishes on steel and stainless-steel surfaces in hard-to-reach spots
- Free view of the tool
- Large stroke for efficient working



### STRAIGHT DIE GRINDERS

with variable, high speed range

- Long collar design for optimal handling and easy access to hard-to-reach locations
- Lightweight design for fatigue-free work



Due to the ever-changing processing methods in the trades and industries, FLEX focusses as much on the development of new tools as it does on model maintenance within the traditional product range.

From angle grinders, to straight die grinders, to finger grinders – here you will find the best solution for your task.

Just contact us!



+49 2680 181-0



[info@ewm-group.com](mailto:info@ewm-group.com)

## Get started with the FLEX sets



### Belt file

as part of a set

On top of a heavy-duty motor with high efficiency providing high output power, the belt file is also equipped with a fast belt-change system to ensure rapid, tool-free changing.

- Motor: heavy-duty, high efficiency for high output power
- Infinitely variable belt speed preselect
- Grinding arm adjustable for belt lengths 520 mm and 533 mm
- Grinding arm working length up to approx. 12 cm
- Belt quick-change system for fast, toolless belt changing
- Grinding head can be swivelled through 140°



### TRINOFLEX pipe belt grinder

with extra flat gear head

Unique tool attachment with quick connect coupling for toolless system attachment replacement for burnishing and pipe belt grinding.

- Tool attachment with quick connect coupling for toolless system attachment replacement
- Completely encased electronic module prevents dust damage
- High-quality spring-mounted grinding arm made of light metal
- Single-pole switch
- Spindle locking



### TRINOXFLEX burnishing machine

with extra flat gear head

For optimally processing a variety of materials for burnishing, structuring, polishing, brushing, smoothing, de-rusting and deburring steel and stainless steel surfaces.

- Speed preselect, constant speed with a tachometer
- Soft-start
- Restart lock after power failure
- Overload protection
- Temperature monitoring
- Quick connect coupling for toolless system attachment replacement



### Fillet weld grinder

as part of a set

Infinitely adjustable speed for optimally processing various materials. The fillet weld grinder's narrow grinding head makes grinding and polishing around corners much easier.

- Motor: heavy-duty, high efficiency for high output power
- VR full wave electronics: with speed preselect and constant speed, soft-start, overload protection
- Quality abrasives: made of compressed non-woven nylon fibre
- Profiling stone: for pre-profiling grinding discs



Fillet weld grinder set • LLK 1503 VR



- Powerful fillet weld grinder set
- Motor: heavy-duty, high efficiency for high output power
- VR full wave electronics: with speed preselect and constant speed, soft-start, overload protection
- Infinitely adjustable speed for optimally processing various materials
- Narrow grinding head: comfortably grind and polish in corners, easy handling
- Quality abrasives: made of compressed non-woven nylon fibre
- Profiling stone: for pre-profiling grinding discs

<b>Weight</b>	3.4 kg
<b>Power consumption</b>	1200 W
<b>Power output</b>	700 W
<b>Cable length</b>	4 m
<b>Idling speed</b>	1500 U/min - 4700 U/min
<b>Max. grinding wheel Ø</b>	152 mm

Scope of supply:	Item no.
● 1x profiling stone	398-004918-00000
● 1x FixTec quick-release clamping nut, M 14	
● 1x compact grinding disc, 3 mm, soft	
● 1x compact grinding disc, 3 mm, hard	
● 1x compact grinding disc, 6 mm, soft	
● 1x compact grinding disc, 6 mm, hard	
● 1x L-BOXX® 238 transport case	
● 1x case insert	

6



# wenn's drauf ankommt

## THE BEVELLING TOOLS FOR WELD PREPARATION – MORE PRODUCTIVE THAN EVER BEFORE.

A new dimension for more productive working, faster workflows and more precise results. Ideal for use in weld preparation for all relevant bevel angles from 0–90°, in processing flat materials and pipes. Here, the KFM 16-15 F can manage bevel heights up to 15 mm at 45°.



**NEW**

Designation	PU	Item No.
Beveling tool		398-005888-00000
Carbide indexable inserts	10	398-006663-00000

**metabo**®

PROFESSIONAL POWER TOOL SOLUTIONS







## Adhesives and sealants/Technical sprays/Liquid agents



### Quick, safe and economical

In almost all branches of industry, adhesives and sealants, technical sprays and liquid agents are used.

### At a glance

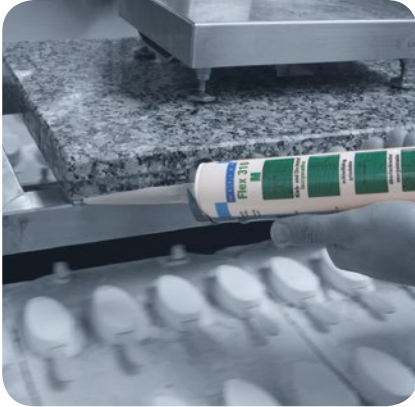
#### Adhesives and sealants

#### Elastic adhesives and sealants

Epoxy systems		WEICONLOCK®				MS polymers
Repair sticks	Epoxy adhesives	Screw and stud bolt locking	Pipe and thread seals	Joint connections	Flange seals	MS polymers

You will find further information on the following pages.





## Technical sprays

Technical sprays and liquid agents serve to care for and protect surfaces, help in cleaning, degreasing, lubricating, releasing and separating and are an indispensable component of daily work.

Technical sprays						Liquid agents
Surface and corrosion protection	Cleaners and degreasers	Protection and care	Rust removers and anti-spatter sprays	Lubricating and multifunction oils	Grease sprays	Surface and corrosion protection
						



## Adhesives and sealants

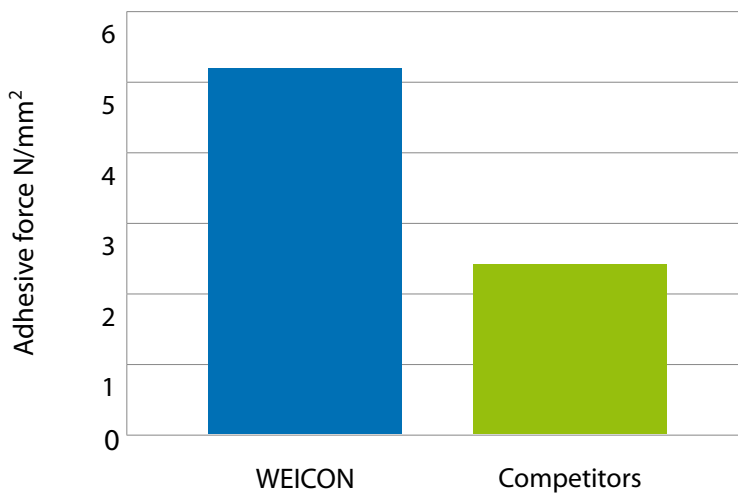
### Repair Sticks/epoxy resin systems

#### Uncomplicated solution for all repair and servicing works

WEICON Repair Sticks are temperature-resistant between -50 °C (-58 °F) and +120 °C (+248 °F) (briefly up to +150 °C/+302 °F)\*. They are resistant against alcohol, ester, saltwater, oils and most alkalis and diluted acids. They contain no solvents and cure practically shrink-free.

The cured material can be mechanically machined (drilling, filing, milling) and painted without pretreatment.

#### Steel repair stick adhesive power



#### Use

- / Clean and dry surfaces are required for trouble-free bonding
- / A gap of up to 15 mm maximum can be bridged per session
- / Pot life is with reference to a material use of 25 g at room temperature
- / Shortening of pot and curing times as a result of higher temperatures (rule of thumb: each +10 °C (+50 °F) increase in room temperature leads to a shortening by half of the pot and curing time)
- / Substantial extension of pot and curing time at temperatures below +16 °C (+61 °F), as of approx. +5 °C (+41 °F) no further reaction
- / Faster curing due to typical reaction heat of epoxy resins when large quantities are applied

	Aluminium	Stainless steel	Copper	Steel	Titanium
Metal (e.g. aluminium, cast iron, copper, stainless steel)	++	++	++	++	++
Hard plastics* (e.g. epoxy resin, hard PVC)	+	+	+	+	+
Composite fibre materials (e.g. GRP, CRP, fibreglass)	+	+	+	+	+
Wood (e.g. oak, beech, spruce, balsa)	+	+	+	+	+
Timber materials (e.g. plywood, MDF)	+	+	+	+	+
Glass/ceramics	+	+	+	+	+
Stone (e.g. marble, granite, brick, concrete)	+	+	+	+	+
Rubber/elastomers	-	-	-	-	-



++ Highly suitable    + Suitable    - Unsuitable

\*With the exception of plastics such as polyethylene, polypropylene, polyacetate, polytetrafluorethylene (PTFE, also known as Teflon) and other halogenated hydrocarbons with naturally adhesive-resistant surfaces. The bonding of various material pairs such as metal/plastic is also possible within the bounds of the type recommendations given here.

## Easy mix adhesives/epoxy resin systems

### Material connections with high tensile and impact strength

WEICON epoxy adhesives are cold-hardening, solvent-free, 2-component systems with extremely high adhesive power and are therefore ideally suited for assembly, repair and fabrication.



#### Use

- / Clean and dry surfaces are the requirement for trouble-free bonding
- / In contrast to welding or brazing, the surfaces of the materials are not altered
- / Additional fixing aids are dispensed with
- / It is applied from practical double nozzles, meaning the resin and the curing agent are portioned in a user-friendly 1:1 mixing ratio by volume
- / Shortening of pot and curing times as a result of higher temperatures (rule of thumb: each +10 °C (+50 °F) increase in room temperature leads to a shortening by half of the pot and curing time)
- / Substantial extension of pot and curing time at temperatures below +16 °C (+61 °F), as of approx. +5 °C (+41 °F) no further reaction
- / Curing is faster when large quantities are applied due to typical reaction heat of epoxy resins (exothermic reaction)

	Epoxy minute adhesive	Fast-metal minute adhesive
Metal (e.g. aluminium, cast iron, brass, stainless steel)	+	++
Hard plastics* (e.g. hard PVC)	+	+
Composite fibre materials (e.g. GRP, CRP, fibreglass)	+	+
Wood (hard and soft)	+	+
Balsa wood	++	+
Timber materials (e.g. plywood, MDF)	+	+
Timber materials (e.g. plywood)	+	+
Glass/ceramics	+	+
Stone (e.g. marble, granite, brick, concrete)	++	+
Rubber/elastomers	-	-



++ Highly suitable      + Suitable      - Unsuitable

\* With the exception of plastics such as polyethylene, polypropylene, polyacetate, polytetrafluorethylene (PTFE, also known as Teflon) and other halogenated hydrocarbons with naturally adhesive-resistant surfaces. The bonding of various material pairs such as metal/plastic is also possible within the bounds of the type recommendations given here.





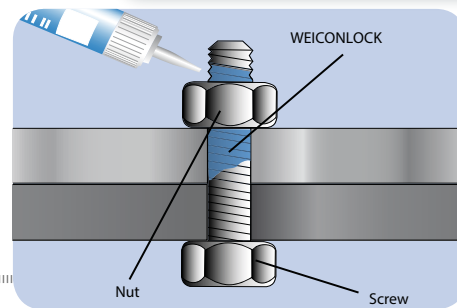
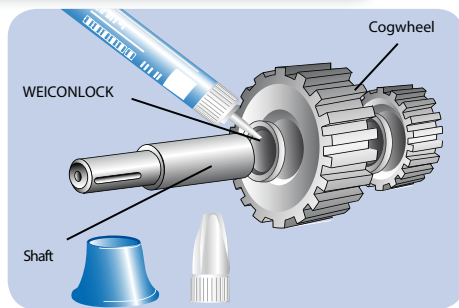
## Anaerobic adhesives and sealants

### Joint connections

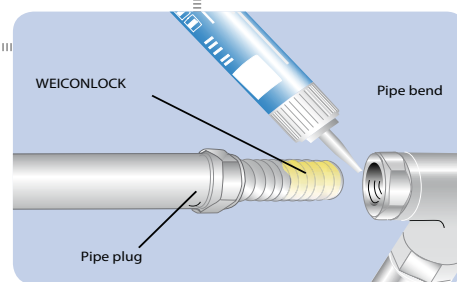
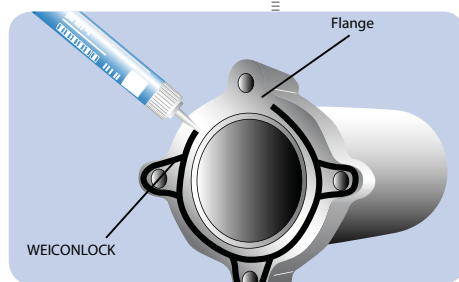
- / Penetrates the surface peak-to-valley depths and completely fills the intermediate space between the joined components
- / Prevents fretting corrosion
- / Combined joining methods possible, e.g. by a combination of shrink fit/press fit bonding, greater forces and torques can be transmitted than for both methods separately
- / Dispense with additional securing elements, e.g. wedges and axial securing

### Screw and stud bolt locking

- / Liquid adhesive completely fills the microscopically small spaces between the threads and produces a material bond
- / No loosening or unscrewing of screws
- / Sealing and corrosion protection



WEICONLOCK®



### Flange seals

- / Liquid, solvent-free
- / Unevenness (peak-to-valley depths) is filled
- / An immediate seal is produced at low pressures up to approximately six bar
- / Can also be deployed under extreme conditions thanks to its high elasticity
- / Completely cured products are resistant against the majority of media used in industry (liquids and gases)

### Pipe and thread seals

- / Prevents the escape of gaseous and liquid substances
- / Resistant against the majority of materials used in industry
- / Sealing up to bursting pressure
- / Prevents leak risks by optimally filling the gap
- / Sealed connections can neither corrode (fretting corrosion) nor seize
- / Different strengths allow dismantling even after years

6

## References/certificates

### Excellent quality, technology and safety



#### RINA – ship classification society

Certificate for the suitability of the WEICON repair sticks and WEICON plastic steel epoxy resin systems for maritime purposes.



#### ISEGA – testing and certifying institute for trade and industry

Clearance for WEICON Flex 310 M® Kristall, Flex 310 PU, Flex 310 M® stainless steel, Flex+bond®, Aqua-Flex, Speed-Flex®, Speed-Flex® Kristall, Contact VA 20 and VA 8312 as adhesives in food technology.



#### NSF – international health and safety organisation

Cleaner and polish C1/A7	Metal fluid
H1 lubricants	Bio fluid, silicone fluid, W 44 T fluid, rust dissolver fluid, H1 spray grease, ASW anti-seize high-tech fitting lubricant, AL-H all-round lubricant
H2 lubricant	AL-F all-round lubricant, Top Lub Fluid, PTFE Fluid
K1/K3 solvent cleaner	Quick cleaner
Drinking water systems and components NSF/ANSI Standard 61	WEICONLOCK types, AN 301-38, AN 301-43, AN 301-48, AN 301-65, AN 301-70, AN 301-72, contact VA 110, repair stick types copper, steel, plastic, stainless steel



#### SLV

WEICON anti-spatter spray is an approved non-stick primer.



#### Germanischer Lloyd

Certified as suitable for use with WEICON plastic steel types A and SF.



#### ISSA – International Shippers & Services Association

The ISSA is an international association of almost 2,000 ship handlers around the world. The various member companies of the ISSA now supply equipment for ships at over 500 locations.



#### TÜV Nord

Test certificates for compliance with quality properties for WEICON zinc spray, WEICON zinc spray special light and WEICON Corro-Schutz. Safety mark approvals stating that WEICON TOOLS stripping tools comply with the requirements of the laws on technical working equipment.



#### TWZ

Test certificates for the WEICONLOCK types AN 302-43 and AN 306-20, stating that the requirements of the KTW recommendations (plastics in drinking water) of the German Federal Health Office are met for the D2 seal.



#### DVGW

Certificates for DIN-DVGW testing marks for the anaerobic sealants WEICONLOCK AN 301-43, AN 301-48, AN 301-65, AN 301-72, AN 302-40, AN 302-43, AN 302-44, AN 302-45, AN 302-70, AN 305-11, AN 305-42, AN 305-72, AN 305-77, AN 305-78, AN 306-20 and the DF 175 thread sealing cords in gas systems. Certificate for a DIN-DVGW testing mark for WEICON leak detection spray as a foaming leak detection agent for gas lines.



#### Gazmer

Suitability certificate of the WEICON thread sealing cords DF 175, WEICONLOCK AN 302-76 and AN 305-77 for use on gas-fired terminal devices and supply pipes.



#### TÜV Rheinland

Strength test of WEICON Solar Flex at solar plants.



#### AGA – Australian Gas Association

Certificates for WEICONLOCK AN 305-10, 305-72, 305-77 for use in gas line connections.



## Note

Pot life refers to the usability duration of reactive materials such as adhesives

### Spray cleaner S

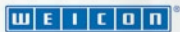


- Cleans, degreases and evaporates completely residue-free
- Special valve allows overhead working
- **Fields of application:**
- Can be used on all metals, glass, ceramics and the majority of plastics
- On machine components prior to priming and painting

<b>Colour</b>	Colourless
<b>Contents</b>	500 ml
<b>Characteristics</b>	Evaporates without residues
<b>Storage stability</b>	24 M
<b>Odour</b>	Orange

PU	Item no.
Units	
12	398-000623-00000

### Lubricating and anti-spatter spray • Silicon-Spray



- Lubricating, separating, protection and maintenance agent for plastics, rubber and metals
- Provides a long-lasting separating film and good surface properties
- Temperature-resistant up to +250 °C (+482°F)
- Prevents the build up of adhesive residues on presses and guides, goods sticking to conveyor belts, chutes and slideways
- Protects electrical contacts against moisture and rubber parts against brittleness, freezing and sticking together
- Maintains rubber, plastic and metal parts
- Keeps sliding roofs and seat channels and safety belt rollers running smoothly

<b>Temperature resistance</b>	-50 °C - 250 °C
<b>Colour</b>	Colourless
<b>Contents</b>	400 ml
<b>Characteristics</b>	Silicon oil based
<b>Storage stability</b>	24 M
<b>Odour</b>	Solvent

PU	Item no.
Units	
12	398-002638-00000

6



## Spray grease, white

- Multi-purpose spray grease for heavy-duty components
- Excellent bond strength and very good ageing and pressure resistance
- Thanks to the addition of especially wear-reducing, corrosion-protecting additives, a temperature stability of -20 to +150 °C (-4 to +302 °F) is achieved in conjunction with a long service life
- Visual inspection possible
- **Areas of application:**
- Long-term lubrication of gear racks and gear wheels, roller and ball bearings, hinges and guides, and all types of joints and couplings

<b>Temperature resistance</b>	-20 °C - 150 °C
<b>Colour</b>	White
<b>Contents</b>	400 ml
<b>Characteristics</b>	Very good bonding and lubricating properties
<b>Storage stability</b>	24 M
<b>Odour</b>	Solvent

PU	Item no.
<b>Units</b>	
12	398-002639-00000

WEICON®



## Stainless steel care spray

- Cleaning, maintenance and protection of matt and polished stainless steel surfaces, indoor and outdoor use
- Anti-static
- Removes and prevents fingerprints
- Cleans even large surfaces smear-free
- Removes greasy films, for example from extractor hoods
- Long-term protective film, water just pearls off
- Prevents renewed soiling

<b>Temperature resistance</b>	-17 °C - 120 °C
<b>Colour</b>	Colourless
<b>Contents</b>	400 ml
<b>Characteristics</b>	Anti-static
<b>Storage stability</b>	24 M
<b>Odour</b>	Practically odourless

PU	Item no.
<b>Units</b>	
12	398-002569-00000

WEICON®



Leak detection spray

**WEICON®**



- Non-flammable, anti-corrosive technical spray, kind to skin
- DIN-DVGW tested
- Fast, reliable identification of leaks (cracks or porous spots) in pressurised lines
- Does not form hazardous compounds with gases such as carbon dioxide (CO<sub>2</sub>), propane, butane, acetylene, oxygen or natural gas
- **Fields of application:**
  - For working with compressed air, natural gas or liquid petroleum gas
  - Leaks on fittings, unions and other connections
  - For increased safety on compressed air brakes and gas pipes

<b>Temperature resistance</b>	50 °C
<b>Colour</b>	Milky
<b>Contents</b>	400 ml
<b>Characteristics</b>	DVGW tested, oxygen and CO <sub>2</sub>
<b>Storage stability</b>	24 M
<b>Odour</b>	Practically odourless

PU	Item no.
Units	
12	398-000383-00000

Corrosion protection • Zinc dust paint

**WEICON®**



- Efficient, cathodic corrosion protection
- Metallic substrates are actively protected against corrosion thanks to the high zinc content in the coating
- Use of spherical (round) metal pigments in high concentration and purity
- Zinc molecules react with the moisture in the air and form zinc oxide molecules, protecting the underlying metal against corrosion if the surface is damaged
- Do not spray with WEICON WSD 400 and WPS 1500. For brushing and/or applying only

<b>Processing temperature</b>	18 °C - 30 °C
<b>Temperature resistance</b>	400 °C
<b>Colour</b>	Zinc grey/matt
<b>Contents</b>	375 ml
<b>Final strength (100% strength) after approx.</b>	48 h
<b>Characteristics</b>	Minimum coat thickness: 50 µm No primer necessary
<b>Dust dry after</b>	30 min
<b>Hardened after</b>	12 h
<b>Paintable after approx.</b>	12 h
<b>Salt spray test (DIN 50021, EN ISO 9227)</b>	400 h

PU	Item no.
Units	
6	398-002645-00000

6

## Copper paste

- Protecting, separating and lubricating agent for heavy-duty components at high temperatures
- High-temperature- and corrosion-resistant
- Highly adhesive, sulphur-, lead- and nickel-free
- Is used as assembly lubrication for screw connections and sliding surfaces of all types (forms an effective lubricating and separating film, protecting the functional surfaces against corrosion and fretting corrosion)
- Can be used for vibration reduction, e.g. on wear bushes on electrical, compressed air and hydraulic hammers and electrical connections

<b>Temperature resistance</b>	-20 °C - 1100 °C
<b>Properties</b>	Thickening agent: aluminium-complex soap/base oil: mineral oil/dry lubricant: copper slip/graphite
<b>Colour</b>	Copper
<b>Contents</b>	30 g
<b>Density</b>	1.1 g/cm <sup>3</sup>
<b>Storage stability</b>	24 M

PU	Item no.
Units	
20	398-002899-00030



## Screw and stud bolt locking • AN 302-43

- DVGW/KTW tested adhesive and sealant
- Suitable for drinking water applications
- Higher viscosity
- Moderate strength
- Can be normally removed

<b>Temperature resistance</b>	-60 °C - 150 °C
<b>Colour</b>	Blue
<b>Contents</b>	50 ml
<b>Gap bridging up to max.</b>	0.25 mm
<b>Characteristics</b>	For threaded connections up to M 36
<b>Handling strength at room temperature</b>	10 min - 20 min
<b>Final strength at room temperature</b>	1 h - 3 h
<b>Initial breaking torque (thread)</b>	17 Nm - 22 Nm
<b>Turning torque (thread)</b>	8 Nm - 12 Nm
<b>Viscosity</b>	2000 mPa·s - 7000 mPa·s
<b>Shear strength (DIN 54452)</b>	9 N/mm <sup>2</sup> - 13 N/mm <sup>2</sup>

PU	Item no.
Units	
12	398-002651-00000

WEICON®



TZW

## Screw and stud bolt locking • AN 302-60

- Thread locker for passive materials (high-alloy steel, aluminium, nickel, zinc, gold, oxide coatings, chromate coatings, anodic coatings, plastics and ceramics)
- Moderately viscous
- High tensile
- Difficult to remove

<b>Temperature resistance</b>	-60 °C - 180 °C
<b>Colour</b>	Green
<b>Contents</b>	50 ml
<b>Gap bridging up to max.</b>	0.15 mm
<b>Characteristics</b>	For threaded connections up to M 20 R 3/4"
<b>Handling strength at room temperature</b>	2 min - 5 min
<b>Final strength at room temperature</b>	2 h - 4 h
<b>Initial breaking torque (thread)</b>	30 Nm - 35 Nm
<b>Turning torque (thread)</b>	55 Nm - 70 Nm
<b>Viscosity</b>	700 mPa·s - 1000 mPa·s
<b>Shear strength (DIN 54452)</b>	25 N/mm <sup>2</sup> - 35 N/mm <sup>2</sup>

PU	Item no.
Units	
12	398-002652-00000

WEICON®





## Notes

- Due to the hazardous substances in the etching agent, these products may only be sold to industry and trade users (proof required)!
- Disposal regulations must be observed; do not discharge into any waterway, sewer or drain.
- Read the package label before use, and observe the instructions!
- Use suitable protective equipment to prevent any contact of the chemicals with the skin, mouth and eyes.

### Transparent pickling paste for stainless steel • InoTec pickling paste



- Pickling paste for removal of discolouration around weld seams and heat-affected zones
- A clean metallic surface is achieved in the application zone
- Weld seams and heat-affected zones must be allowed to cool before treatment
- Flush with water under high pressure (min. 140 bar)

<b>Yield</b>	Approx. 50–80 linear metres weld seam and run-on zone per kg
<b>Application</b>	Use etching brush to apply product to the surface to be treated
<b>Reaction time</b>	30 min - 120 min
<b>Finishing treatment</b>	InoTec passivating agent for immediate formation of the passive layer
<b>Weight</b>	2 kg
<b>Packing drum</b>	PE can
<b>UN number</b>	2922

PU	Item no.
Units	
1	398-000387-00000

### Transparent pickling paste for stainless steel • InoTec RS pickling paste



- Pickling paste for removal of discolouration around weld seams and heat-affected zones
- A clean metallic surface is achieved in the application zone
- Development of nitrous gases reduced by up to 80%
- Weld seams and heat-affected zones must be allowed to cool before treatment
- Flush with water under high pressure (min. 140 bar)

<b>Yield</b>	Approx. 50–80 linear metres weld seam and run-on zone per kg
<b>Application</b>	Use etching brush to apply product to the surface to be treated
<b>Reaction time</b>	30 min - 120 min
<b>Finishing treatment</b>	InoTec passivating agent for immediate formation of the passive layer
<b>Weight</b>	2 kg
<b>Packing drum</b>	PE can
<b>UN number</b>	2922

PU	Item no.
Units	
1	398-000400-00000

## Transparent pickling spray for stainless steel surfaces • InoTec RTS pickling spray gel

- Pickling stainless steel surfaces and weld areas in a single operation
- A clean metallic surface is achieved in the application zone
- Development of nitrous gases reduced by up to 80%
- Weld seams and heat-affected zones must be allowed to cool before treatment
- Surfaces must be free of grease and organic contaminants
- Do not use in direct sunlight, wind and temperatures below +10 °C or temperatures above 25 °C
- Flush with water under high pressure (min. 140 bar)
- Please note: Use of colour indicator (KMNO4 – potassium permanganate) not possible!



<b>Yield</b>	4 - 6 m <sup>2</sup> /kg
<b>Application</b>	Apply to the surfaces to be treated using the IK Multi 1.5 (398-003163-00000) or IK Multi 9 (398-003164-00000) pickling spray pump
<b>Reaction time*</b>	45 min - 150 min
<b>Finishing treatment</b>	InoTec passivating agent for immediate formation of the passive layer
<b>Weight</b>	20 kg
<b>Packing drum</b>	Canister
<b>UN number</b>	2922

PU	Item no.
Units	
1	398-000390-00000

► \*depends on material quality, component temperature and ambient temperature  
The optimum pickling temperature is between 18 °C and 22 °C.

## Neutralisation agent for pickling pastes • InoTec neutralisation paste

- Paste for neutralising acidic pickling pastes on stainless steel following the pickling process
- Flush with water under high pressure (min. 140 bar)

<b>Yield</b>	Approx. 50–80 linear metres weld seam and run-on zone per kg
<b>Application</b>	After pickling process, use etching brush to apply product in the same thickness as the pickling paste
<b>Reaction time</b>	5 min
<b>Finishing treatment</b>	InoTec passivating agent for immediate formation of the passive layer
<b>Weight</b>	2 kg
<b>Packing drum</b>	PE can
<b>UN number</b>	3266

PU	Item no.
Units	
1	398-000401-00000



Passivation solution for pickled stainless steel surfaces • InoTec passivating agent



- Solution for the immediate formation of a protective passive layer after pickling
- Rinse with water

<b>Yield</b>	15 - 20 m <sup>2</sup> /kg
<b>Application</b>	Apply uniformly to the pickled and dried stainless steel surface by spraying, immersing or manual application using a brush or tassel
<b>Reaction time</b>	15 min - 20 min
<b>Weight</b>	10 kg
<b>Packing drum</b>	Canister
<b>UN number</b>	2031

PU	Item no.
<b>Units</b>	
1	398-001478-00000

► \*depends on material quality, component temperature and ambient temperature  
The optimum etching temperature is between 18 °C and 22 °C.

Pickling spray pump • IK Multi 1.5



- Manual spray device, 1.5 l
- Usable capacity 1 l
- 2.5 bar safety valve with pressure relief option
- Wide filler neck
- Protective sleeve for hose valve
- Adjustable cone nozzle and fan as standard
- Translucent container with fill-level indicator
- Easy fitting and removal for tool-free maintenance work
- Seals and materials resistant to the majority of acids and solvents and the most commonly used chemical products in the world of industry, motor vehicles and professional cleaning

<b>Flow volume (3 bar)</b>	0.5 l/min
<b>Total capacity</b>	1.5 l

PU	Item no.
<b>Units</b>	
1	398-003163-00000



## Pickling spray pump • IK Multi 9

- Manual spray device, 8 l, complete with carrying strap and spray lance
- Usable capacity 6 l
- Integrated funnel in container
- Translucent container with fill-level indicator
- Metal opening and closing handle
- Filter in lance
- 3-bar safety valve with pressure relief option
- Use of a variety of nozzle types
- Adjustable cone nozzle
- Seals and materials resistant to the majority of acids and solvents and the most commonly used chemical products in the world of industry, motor vehicles and professional cleaning

<b>Flow volume (3 bar)</b>	0.5 l/min
<b>Total capacity</b>	8 l

PU	Item no.
Units	
1	398-003164-00000



## Etching brush

- Etching brush, bent plastic frame
- Angled, with long wooden handle

Wide side panels mm	PU Units	Item no.
25	1	098-002221-00010
37.5		098-002572-00000
50		098-003975-00000



# Protective gloves for chemicals

## Standards and specifications

Protective gloves for chemicals are classified based on the following standards:



DIN EN 388

### EN 388: Protection against mechanical risks

Test criteria\*:

- / Abrasion resistance (0–4)
- / Blade cut resistance (0–5)
- / Tear resistance (0–4)
- / Puncture resistance (0–4)



EN 374-2

### EN 374: Protection against chemicals and microorganisms



EN 374-3

### EN 374: Simple and general protection against chemical risks

If a glove is waterproof compliant with the EN 374 standard but has not been tested for chemical resistance or the permeation level demanded for the specific protection was not achieved, the glove is marked with the pictogram for "Simple" or "General chemical protection" (glass beaker).



EN 374-3

### EN 374: Specific protection against chemical risks

If a glove is waterproof and achieves at least a permeation level of 2 (> 30 minutes) for at least 3 of the 12 test chemicals listed in Annex A of the EN 374 standard, this glove then carries the "Specific chemical protection" pictogram.

The letter codes for the chemicals for which the minimum permeation level of 2 was achieved are given beneath the pictogram.

For example, the letter combination AKL stands for protection against methanol (A), sodium hydroxide 40% (K) and sulphuric acid 96% (L).



EN 421

### EN 421: Protection against ionising radiation and radioactive contamination



EN 1149

### EN 1149: Protection against static electricity

\* the higher the number, the better the protection

X stands for not tested/not relevant

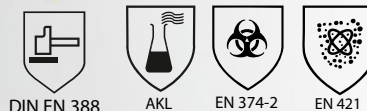


**When wearing protective gloves please always:**

- Inspect the gloves for damage beforehand
- Thoroughly clean and dry your hands before use
- Note that jewellery and long fingernails may damage the protective gloves
- Fold over the glove cuffs when working overhead (hazardous substances do not enter the gloves)
- Thoroughly clean/dry protective gloves prior to removal
- Do not touch the outer surface with the bare hand when removing
- Only reuse protective gloves in perfect condition (inspect for tears/holes, dispose of brittle gloves)

**Chemical protection glove ● Bi-Colour®**

- Unlined, heavy-duty protective glove with textured diamond finish
- Reliably repels a wide variety of chemicals thanks to the latex/neoprene combination
- Double protection thanks to double coating
- Very good resistance to salts and cleaning agents
- Excellent grip, both wet and dry
- Robust and long-lasting
- Reduced skin irritation hazard thanks to high-quality, pure cotton velourisation
- Available in sizes 6.5–7 to 10.5–11
- **Applications:**
- Aircraft construction
- Battery production
- Chemicals industry
- Electronics industry



<b>Standards</b>	EN 388
	EN 374-3 complete protection
	EN 374-2
	EN 421
<b>Classification to EN 388</b>	X120
<b>Classification to EN 374</b>	AKL (A: Methanol, K: Sodium hydroxide 40%, L: Sulfuric acid 96%)
<b>Hazard category</b>	Cat. III – high risk
<b>Length</b>	323 mm
<b>Material thickness</b>	0.68 mm
<b>Material type</b>	Latex-neoprene mix , Velourised cotton inside
<b>Approvals</b>	CE

PU	Size	Item no.
Pair	7,5-8	4000371481
	8,5-9	4000371482
	9,5-10	4000371483



Chemical protection glove • SOLVEX®



DIN EN 388



AKL



EN 374-2

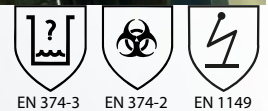
- Protective glove with high-quality nitrile film for the highest safety in handling high risk chemicals
- The newly developed nitrile film provides greater wear and excellent chemical resistance compared to normal nitrile gloves
- Sets new mechanical strength standards thanks to its unique abrasion and penetration strength
- 100% inspection: every individual glove is leak tested and inspected for damage before shipping
- Certified compliant with ISO 9001
- Available in sizes 7 to 11
- **Applications:**
- Refineries – oil and crude oil
- Laboratory analyses
- Printing industry
- Cleaning
- High-risk chemical areas, e.g. chemical processing, caustic chemicals and chemical mixtures handling

<b>Standards</b>	EN 388
	EN 374-3 complete protection
	EN 374-2
<b>Classification to EN 388</b>	4102
<b>Classification to EN 374</b>	AKL (A: Methanol, K: Sodium hydroxide 40%, L: Sulfuric acid 96%)
<b>Hazard category</b>	Cat. III – high risk
<b>Length</b>	380 mm
<b>Material thickness</b>	0.425 mm
<b>Material type</b>	Velourised nitrile
<b>Approvals</b>	CE

PU Pack	Size	Item no.
12	8.0	4000371489
	9.0	4000371490
	10.0	4000371491
	11.0	4000371492

## Disposable nitrile gloves • TOUCHNTUFF®

- Versatile disposable nitrile glove
- Tried and tested protection against hazardous chemical splashes
- Reliable grip, both wet and dry
- Four times greater penetration strength than natural latex gloves and three times greater penetration strength compared to disposable neoprene gloves
- Thanks to its „notified body“, protection against a greater number of chemicals than traditional disposable nitrile gloves
- Easy to put on and take off thanks to the „thin nitrile technology“
- No risk of a type I allergy for the wearer because the glove is free of latex proteins
- Suitable for special-purpose applications
- Tested for anti-static properties (EN 1149-1 and 1149-3) and meets the requirements of the EN 1149-5 standard
- Also available 300 mm long on request
- **Applications:**
- Chemicals processing
- Laboratory analyses
- Pharmaceuticals
- Paint shops
- Printing industry
- Electronics
- Light assembly work
- Light assembly of oily components
- Glass production
- Handling cytostatics
- Handling complex components



EN 374-3 EN 374-2 EN 1149

<b>Standards</b>	EN 374-3 simple protection EN 374-2 EN 1149-5
<b>Hazard category</b>	Cat. III – high risk
<b>Length</b>	240 mm
<b>Material thickness</b>	0.12 mm
<b>Material type</b>	Nitril
<b>Approvals</b>	CE

PU Units	Size	Item no.
100	6,5-7	4000371458
	7,5-8	4000371459
	8,5-9	4000371460
	9,5-10	4000371461

### Note

Further protective and working gloves can be found in the Work safety and fume extraction section

## Surface treatment • Chemical-technical products • Welding sprays

### • Powershield easy



- Neutral odour welding separating agent with temporary corrosion protection and simultaneous cleaning effect
- Best protection of workpieces, welding nozzle and accessories – no adhesion of weld spatter, minimal finishing work
- Non-flammable, free of silicone and solvents
- Trouble-free galvanising and painting after welding
- Economical in use
- Surface-active substances biologically degradable

Packing drum	PU Units	Contents	Item no.
Canister	1	10 l	098-002379-00010
		30 l	098-002379-00000
PET bottle	20	500 ml	098-002378-00000

### Anti-spatter spray • Powershield Ultima



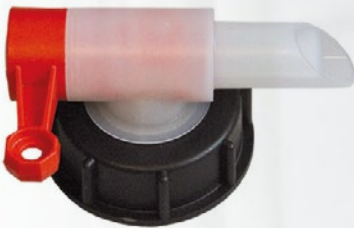
- Welding separating agent, odour neutral, natural ingredients
- No weld spatter burnt onto surfaces – minimal finishing work
- Free of solvents and silicones
- Trouble-free galvanising and painting after welding
- Economical in use with excellent release behaviour

#### Packing drum

#### Canister

PU Units	Contents l	Item no.
1	10.0	098-002440-00000
	30	098-002440-00010

### Drain tap



PU Units	Version	Item no.
1	Suitable for 5 l and 10 l canister	098-003611-00000
	Suitable for 30 l canister	098-003612-00000
	suitable for 200-l drum	398-002379-00000

### Spray bottle



- Scope of delivery includes spray head

PU Units	Contents ml	Version	Item no.	
1	500	PET spray bottle	398-000389-00000	
	600	Aluminium spray bottle	398-000472-00000	
	-		Replacement spray head for PET spray bottle	398-003372-00000
			Replacement spray head for aluminium spray bottle	398-000473-00000



## Task Pro • application system

- Fitting to all following sprays

Version	Item no.
Application system for separation sprays	398-004198-00000



## Ceramic protective coating • LOCTITE SF 7900

- Ceramic protective coating, silicone-free
- Increased productivity, significant reduction in consumables
- No adhesion of weld spatter, minimal finishing work
- Spray coating dries within a few seconds
- Very easy to use
- Dry spatter-repellent film, up to eight hours uninterrupted welding
- Good adhesion and long-lasting protection

<b>Contents</b>	400 ml
<b>Packing drum</b>	Spray can

PU	Item no.
Units	
12	398-000236-00000



## Siliconi Ceramstak Anti-spatter spray

- Protects against spatter adhesion around the gas nozzle
- Lubricant for high temperatures
- Reduces the cleaning time of the welding torch
- Holds for up to 8 hours
- Improves productivity
- Silicone-free

<b>Contents</b>	500 ml
<b>Packing drum</b>	Spray can

PU	Item no.
Units	
1	398-004446-00000



Silicone-free anti-spatter spray • EWM anti-spatter spray



- Protects against spatter adhesion around the gas nozzle
- Extends the life of the gas nozzle
- Reduces replacement part costs
- Silicone-free

<b>Contents</b>	400 ml
<b>Packing drum</b>	Spray can

PU	Item no.
<b>Units</b>	
12	398-000182-00000

Nozzle lubricant • Powershield N-Free



- High purity, light nozzle lubricant, odour neutral
- Highest cleanliness and pleasant working atmosphere
- Extends the service life of welding nozzles
- No weld spatter burnt onto contact tip and gas nozzle, fewer short circuits and fewer problems with shortage of gas
- Free of solvents, silicones and abrasive substances
- Economical in use

<b>Contents</b>	200 g
<b>Packing drum</b>	Tin plate can

PU	Item no.
<b>Units</b>	
12	098-003593-00000

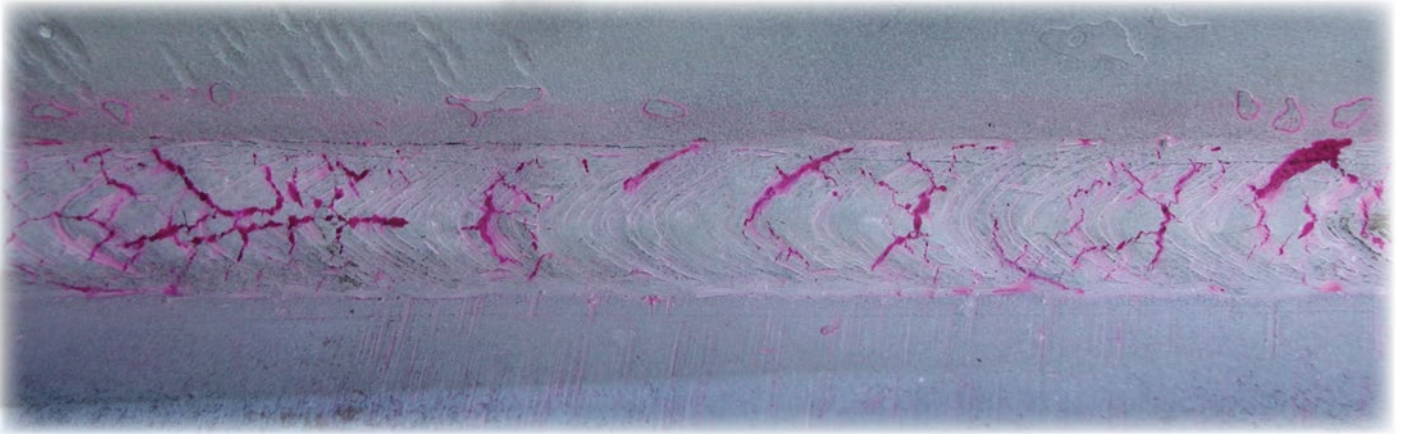
Coolant up to -20 °C (4 °F), 5 l • KF 23E -10



- Coolant for water-cooled welding machines and cooling units

PU	Freezing point	Contents	Item no.
Units	°C	l	
1	-10.0	9.3	094-000530-00000
	-20.0		094-006256-00000
	-10.0	200	094-000530-00001
	-20.0		094-006256-00001

6



**Colour penetration test • DIFFU-THERM®**

- Penetration testing agent for non-destructive testing of workpieces for pores and cracks
- The DIFFU-THERM® red/white system consists of a water-washable, daylight-visible, red penetrating agent, a developer and a cleaner
- Slight soiling in the fault areas, such as oil and grease residues, for example, are coloured and made visible by the penetrating agent
- Can be used at temperatures from -10 °C to 50 °C
- The aerosol cans are equipped with overhead valves and allow spraying in almost any position
- BDR-L is also visible under UV light
- **Operating sequence:**
  - 1) Apply the penetrating agent (penetration duration 5–30 minutes)
  - 2) Intermediate cleaning
  - 3) Spray on the developing agent (developing duration 2–30 minutes)



<b>Fields of application</b>	Weld seams, machine parts, pipework, containers, cast and forge welding, heat exchangers, fittings and nuclear power plant components
<b>Packing drum</b>	Aerosol can
<b>Contents</b>	500 ml
<b>Standards</b>	EN ISO 3452-1 [EN 571-1] DIN 54 152 Part 1

PU	Units		Item no.
1	BDR-L	Diffusion-Red penetrant	098-003692-00000
	BRE	Cleaner	098-003691-00000
	BEA	Developer	098-003693-00000





6

## TW CLEAN L1 BASIC

- Seam-cleaning set from the TW CLEAN series
- Available as a basic or complete set with or without „Caddy“ transport cart
- Cleaning of TIG weld seams
- Cleaning of stainless-steel surfaces
- Polishing with carbon fibre brush for polished stainless steel
- Polishing with graphite anode for high gloss in 3D mirror quality
- Marking of logos, classification numbers, serial numbers
- **Advantages:**
- One-knob operation with display showing working instructions
- Quick connections for rapid replacement of handpiece or leads
- Highly flexible and light workpiece lead for comfortable working
- Workpiece lead extendable up to 12 metres
- Suitable for mobile use on construction sites (transport box supplied)
- No highly aggressive acids (e.g. pickle = hydrofluoric acid)

<b>Mains voltage (tolerance)</b>	1 x 230 V (-5% - + 5%)
<b>Mains fuse (tardy)</b>	1 x 16 A
<b>Length</b>	360 mm
<b>Width</b>	175 mm
<b>Height</b>	290 mm
<b>Weight</b>	15 kg
<b>Isolation class</b>	B

Version	PU Units	Item no.
Basic set without driving carriage	1	294-002680-00000

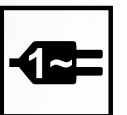


## TW Clean S1

- Cleaning of TIG weld seams
- Cleaning of stainless steel surfaces
- Advantages:
- One-knob operation
- Quick connections for rapid replacement of handpiece or leads
- Highly flexible and light workpiece lead for comfortable working
- Workpiece lead extendable up to 7 metres
- Suitable for mobile use on construction sites (transport box supplied)
- No highly aggressive acids (e.g. pickle = hydrofluoric acid)

<b>Mains voltage (tolerance)</b>	1 x 230 V (-5% - + 5%)
<b>Mains fuse (tardy)</b>	1 x 16 A
<b>Length</b>	225 mm
<b>Width</b>	150 mm
<b>Height</b>	180 mm
<b>Weight</b>	3,5 kg
<b>Isolation class</b>	B

PU Units	Item no.
1	294-002790-00000



TW CLEAN L1 BASIC CADDY



- Seam-cleaning set from the TW CLEAN series
- Available as a basic or complete set with or without „Caddy“ transport cart
- Cleaning of TIG weld seams
- Cleaning of stainless-steel surfaces
- Polishing with carbon fibre brush for polished stainless steel
- Polishing with graphite anode for high gloss in 3D mirror quality
- Marking of logos, classification numbers, serial numbers
- **Advantages:**
- One-knob operation with display showing working instructions
- Quick connections for rapid replacement of handpiece or leads
- Highly flexible and light workpiece lead for comfortable working
- Workpiece lead extendable up to 12 metres
- Suitable for mobile use on construction sites (transport box supplied)
- No highly aggressive acids (e.g. pickle = hydrofluoric acid)
- Cleaning of stainless steel surfaces
- Marking of logos, classification numbers, serial numbers etc.

<b>Mains voltage (tolerance)</b>	1 x 230 V (-5% - + 5%)
<b>Mains fuse (tardy)</b>	1 x 16 A
<b>Length</b>	360 mm
<b>Width</b>	175 mm
<b>Height</b>	290 mm
<b>Weight</b>	15 kg
<b>Isolation class</b>	B

Version	PU	Item no.
	Units	
Basic set with driving carriage	1	294-002700-00000

TW CLEAN L1 CPL



- Seam-cleaning set from the TW CLEAN series
- Available as a basic or complete set with or without „Caddy“ transport cart
- Cleaning of TIG weld seams
- Cleaning of stainless-steel surfaces
- Polishing with carbon fibre brush for polished stainless steel
- Polishing with graphite anode for high gloss in 3D mirror quality
- Marking of logos, classification numbers, serial numbers
- **Advantages:**
- One-knob operation with display showing working instructions
- Quick connections for rapid replacement of handpiece or leads
- Highly flexible and light workpiece lead for comfortable working
- Workpiece lead extendable up to 12 metres
- Suitable for mobile use on construction sites (transport box supplied)
- No highly aggressive acids (e.g. pickle = hydrofluoric acid)

<b>Mains voltage (tolerance)</b>	1 x 230 V (-5% - + 5%)
<b>Mains fuse (tardy)</b>	1 x 16 A
<b>Length</b>	360 mm
<b>Width</b>	175 mm
<b>Height</b>	290 mm
<b>Weight</b>	15 kg
<b>Isolation class</b>	B

Version	PU	Item no.
	Units	
Complete set without driving carriage	1	294-002690-00000



## TW CLEAN L1 CPL CADDY

- Seam-cleaning set from the TW CLEAN series
- Available as a basic or complete set with or without „Caddy“ transport cart
- Cleaning of TIG weld seams
- Cleaning of stainless-steel surfaces
- Polishing with carbon fibre brush for polished stainless steel
- Polishing with graphite anode for high gloss in 3D mirror quality
- Marking of logos, classification numbers, serial numbers
- **Advantages:**
- One-knob operation with display showing working instructions
- Quick connections for rapid replacement of handpiece or leads
- Highly flexible and light workpiece lead for comfortable working
- Workpiece lead extendable up to 12 metres
- Suitable for mobile use on construction sites (transport box supplied)
- No highly aggressive acids (e.g. pickle = hydrofluoric acid)

<b>Mains voltage (tolerance)</b>	1 x 230 V (-5% - + 5%)
<b>Mains fuse (tardy)</b>	1 x 16 A
<b>Length</b>	360 mm
<b>Width</b>	175 mm
<b>Height</b>	290 mm
<b>Weight</b>	15 kg
<b>Isolation class</b>	B

Version	PU Units	Item no.
Complete set with driving carriage	1	294-002710-00000



## Cleaning head system

- Electrolyte feed for all electro-chemical cleaning machines
- Carbon fibre brush technology for the weld seam cleaning process
- Up to 70% time saving
- A carbon fibre brush with a long service life
- Extended working radius up to 16 m possible without interruption thanks to extension cable
- Finish Easy system guarantees quality when signing and marking with long-term templates
- Direct and metred addition of electrolyte during the process – all in one go

### Set consists of:

- 1 x Finish Easy head with SK 25 connection
- 1 x Carbon fibre brush M 10 XL
- 1 x Carbon Fix for electrolyte feed
- 2 x Electrolyte Special 250 ml

Pa- cking unit	Item no.
Units	
1	294-003390-00000



6

## Accessories

Designation	Pa- cking unit	Item no.
Carbon fibre brush for Finish Easy	1 pc.	294-003395-00000
“Carbon-Fix” sliding ferrule for carbon fibre brush	1 pc.	294-003400-00000

M6



- Carbon fibre brush with brass ferrule, M6 thread
- Up to 1,000 metres of weld seam cleaning with a single carbon fibre brush
- Extremely flexible even in hard-to-reach places
- Outstanding acid resistance and high electrical conductivity
- Maximum working comfort and efficiency in combination with „Carbon-Fix“ sliding ferrule system

<b>Length</b>	70 mm
<b>Thread</b>	M6

PU	Item no.
<b>Units</b>	
1	294-002170-00000

M10



- Carbon fibre brush with brass ferrule, M10 thread
- Up to 1,000 metres of weld seam cleaning with a single carbon fibre brush
- Extremely flexible even in hard-to-reach places
- Outstanding acid resistance and high electrical conductivity
- Maximum working comfort and efficiency in combination with „Carbon-Fix“ sliding ferrule system

<b>Length</b>	75 mm
<b>Thread</b>	M10

PU	Item no.
<b>Units</b>	
1	294-002130-00000

CARBON FIX M10



- „Carbon-Fix“ sliding ferrule system for carbon fibre brush
- Bundles and fixes the individual carbon fibres and therefore the arc
- Concentrated brush contact surface thanks to infinitely adjustable sliding ferrule
- Clean and precise working
- Time savings of up to 50%

PU	Item no.
<b>Units</b>	
1	294-002260-00000

## CARBON FIX DUO

- „Carbon-Fix“ sliding ferrule system for carbon fibre brush
- Bundles and fixes the individual carbon fibres and therefore the arc
- Concentrated brush contact surface thanks to infinitely adjustable sliding ferrule
- Clean and precise working
- Time savings of up to 50%
- „Carbon-Fix“ 2-way adapter

Length 75 mm

PU	Item no.
Units	
1	294-002280-00000



## CARBON FIX TRIO

- „Carbon-Fix“ 3-way adapter
- „Carbon-Fix“ sliding ferrule system for carbon fibre brush
- Bundles and fixes the individual carbon fibres and therefore the arc
- Concentrated brush contact surface thanks to infinitely adjustable sliding ferrule
- Clean and precise working
- Time savings of up to 50%

Length 75 mm

PU	Item no.
Units	
1	294-002290-00000



## CARBON FIX STARTER

- „Carbon-Fix“ sliding ferrule system for carbon fibre brush
- Bundles and fixes the individual carbon fibres and therefore the arc
- Concentrated brush contact surface thanks to infinitely adjustable sliding ferrule
- Clean and precise working
- Time savings of up to 50%
- „Carbon-Fix“ starter set consisting of: 1 x „Carbon-Fix“ sliding ferrule, 3 x M10 carbon fibre brushes

PU	Item no.
Units	
1	294-002300-00000





## Surface treatment • Electrolytic cleaning

### CARBON FIX DUO STARTER



- „Carbon-Fix Duo“ starter set consisting of: 1 x „Carbon-Fix Duo“ sliding ferrule, 1 x 2-way adapter, 4 x M10 carbon fibre brushes
- „Carbon-Fix“ sliding ferrule system for carbon fibre brush
- Bundles and fixes the individual carbon fibres and therefore the arc
- Concentrated brush contact surface thanks to infinitely adjustable sliding ferrule
- Clean and precise working
- Time savings of up to 50%

PU	Item no.
Units	
1	294-002310-00000

### CARBON FIX TRIO STARTER



- „Carbon-Fix“ sliding ferrule system for carbon fibre brush
- Bundles and fixes the individual carbon fibres and therefore the arc
- Concentrated brush contact surface thanks to infinitely adjustable sliding ferrule
- Clean and precise working
- Time savings of up to 50%
- „Carbon-Fix Trio“ starter set consisting of: 1 x „Carbon-Fix Trio“ sliding ferrule, 1 x 3-way adapter, 6 x M10 carbon fibre brushes

PU	Item no.
Units	
1	294-002320-00000

### CARBON FIX DUO CPL



- „Carbon-Fix“ sliding ferrule system for carbon fibre brush
- Bundles and fixes the individual carbon fibres and therefore the arc
- Concentrated brush contact surface thanks to infinitely adjustable sliding ferrule
- Clean and precise working
- Time savings of up to 50%
- „Carbon-Fix Duo“ complete set consisting of: 1 x „Carbon-Fix Duo“ sliding ferrule, 1 x 2-way adapter, 1 x SK25 Teflon grip, 4 x M10 carbon fibre brushes

PU	Item no.
Units	
1	294-002330-00000

### CARBON FIX TRIO CPL



- „Carbon-Fix“ sliding ferrule system for carbon fibre brush
- Bundles and fixes the individual carbon fibres and therefore the arc
- Concentrated brush contact surface thanks to infinitely adjustable sliding ferrule
- Clean and precise working
- Time savings of up to 50%
- „Carbon-Fix Trio“ complete set consisting of: 1 x „Carbon-Fix Trio“ sliding ferrule, 1 x 3-way adapter, 1 x SK25 Teflon grip, 6 x M10 carbon fibre brushes

PU	Item no.
Units	
1	294-002340-00000

### ADAPTER 2-fold

- Adapter for holding two carbon fibre brushes
- With solid brass core and heat-resistant Teflon insulation

PU	Item no.
Units	
1	294-002090-00000



### ADAPTER 3-fold

- Adapter for holding three carbon fibre brushes
- With solid brass core and heat-resistant Teflon insulation

PU	Item no.
Units	
1	294-002080-00000



### Angle piece 60°

- Angle piece for SK25/SK25K handle
- Ideal for hard-to-reach and angled places
- Mounting of handles on M10 internal thread
- Mounting of carbon fibre brushes on M10 external thread
- Extendable with additional adapters

PU	Item no.
Units	
1	294-002250-00000



### P-FIX

- For fixing and adjusting felts
- Quick and easy replacement

PU	Item no.
Units	
1	294-002120-00000



## Surface treatment • Electrolytic cleaning

### O-Ring

- O-ring for securing felts on graphite anodes



PU	Item no.
Units	
10	294-002240-00000

### Microfibre cloth

- Microfibre cloth for cleaning after surface treatment



**Weight** 0.035 kg

PU	Item no.
Units	
1	294-002400-00000



## TSK25

- Handle with solid brass core and Teflon insulation (temperature-resistant to 200 °C, short term to 300 °C)

**Length** 16 cm

Length cm	PU Units	Item no.
16.0	1	294-002060-00000
9.5		294-002070-00000



## ● WK10QMM-3M/K

**Length** 3 m

PU Units	Item no.
1	294-002000-00000



## Graphitanode 30°

- Graphite anode 30°
- Ideal for polishing
- With M10 internal thread

PU Units	Item no.
1	294-002100-00000



## Graphitanode 90°

- Graphite anode 90°
- Ideal for labelling
- With M10 internal thread

PU Units	Item no.
1	294-002110-00000



Surface treatment • Electrolytic cleaning

WK4QMM-2M/K



Length	2 m
--------	-----

PU	Item no.
Units	
1	294-002020-00000

HGL10QMM-4M



Length	4 m
Ø	10 mm <sup>2</sup>

PU	Item no.
Units	
1	294-002010-00000

VWK4QMM-4M



Length	4 m
--------	-----

PU	Item no.
Units	
1	294-002030-00000

HGL4QMM-3M



Length	3 m
Ø	4 mm <sup>2</sup>

PU	Item no.
Units	
1	294-002040-00000

VHGL4QMM-4M



Length	4 m
Ø	4 mm <sup>2</sup>

PU	Item no.
Units	
1	294-002050-00000

## TW CLEAN S1 SET LABEL

- TW CLEAN marking set
- Custom marking of components and workpieces
- Long-term templates created to your specifications (e.g. company logo, serial numbers, technical details etc.)
- Templates usually available 5 working days after approval
- Creation of graphics and logos available for a surcharge
- Service life of templates up to 5,000 applications

PU	Item no.
Units	
1	294-002850-00000



## Electrolyte Special

- Clean, polish and passivate
- Especially suitable for polished and brushed surfaces

	Pack- ing unit	Item no.
kg	Units	
1.6	1	294-003240-00000
8		294-003270-00000



## Elektrolyt Overhead

- Paste-enriched electrolyte for cleaning in positional welding
- Ideal for overhead work, railings etc.
- Cleans and passivates

PU	Contents	Weight	Item no.
Units	l	kg	
1	1.0	1.5	294-002920-00000
	5.0	7.5	294-002950-00000



## Polishing electrolyt

- Polishing electrolyte
- Very quick, high-quality polishing results with high lustre

PU	Contents	Weight	Item no.
Units	l	kg	
1	1.0	1.7	294-002970-00000
	5.0	8.1	294-003000-00000





## Surface treatment • Electrolytic cleaning

### Neutralit



- Neutralit to remove electrolyte residues
- Neutralises acids

PU	Contents	Weight	Item no.
Units	l	kg	
1	1.0	1.1	294-003130-00000
	5.0	5.7	294-003160-00000

### Polishing felt



- Polishing felt, brown
- For polishing stainless steel surfaces

PU	Item no.
Units	
10	294-002220-00000

### PUMPSPRAY BOTTLE



- Plastic pump spray bottle
- All-purpose for water, solvents, chemicals

PU	Item no.
Units	
1	294-002460-00000

### TRANSPORTBOX



- Plastic transport box
- Large capacity of up to 30 litres
- Colour: RAL 7001 silver grey

<b>Lenght</b>	400 mm
<b>Width</b>	300 mm
<b>Höhe</b>	335 mm
<b>Weight</b>	2 kg

PU	Item no.
Units	
1	294-002500-00000

## PLASTIC SMALL PARTS BOX SPB

- Plastic small parts box
- Organising, sorting, storing
- Secure stacking with or without lid
- Temperature-resistant between -15 °C and +80 °C
- Made of robust, recyclable plastic material
- Very strong
- Flat, reinforced bottom
- Bracket closures for fixing the lid to the box

Dimensions mm	PU Units	Item no.
120 x 85 x 65		294-002470-00000
220 x 100 x 45	1	294-002480-00000
395 x 255 x 85		294-002490-00000



## WIDE-NECKED CONTAINER

- Wide-necked container
- For portioning electrolytes
- Wide opening for optimum access with carbon fibre brush or graphite anodes

PU Units	Item no.
1	294-002510-00000



## Product overview

	Electrical power	Method/material	Functions	Weight	Cleaning speed (TIG)
 <p><b>ProPlus</b></p>	50 A	MIG and TIG/ aluminium and stainless steel	Cleaning, polish- ing, marking	7.2 kg	1 metre in approx. 20 sec- onds
 <p><b>Plus</b></p>	30 A	TIG/ stainless steel	Cleaning, polish- ing, marking	6.2 kg	1 metre in approx. 30 sec- onds
 <p><b>InoxFURY</b></p>	200 A	MIG and TIG/ stainless steel and aluminium	Cleaning, polish- ing, marking	26 kg	1 metre in approx. 10 sec- onds
 <p><b>InoxPOWER</b></p>	30 A	TIG/ stainless steel	Cleaning, marking	3.7 kg	1 metre in approx. 30 sec- onds
 <p><b>InoxMuscle</b></p>	30 A	TIG/ stainless steel	Cleaning, polish- ing	3,5 kg	1 metre in approx. 30 sec- onds
 <p><b>MK12</b></p>	10 A	-	Marking	0.9 kg	-





## Surface treatment • Electrolytic cleaning

### COUGARTRON PROPLUS STARTER KIT

- Professional weld cleaner, perfect for regular use in large production facilities
- Very lightweight with highest cleaning performance
- For cleaning MIG/MAG and TIG welds
- Easy cleaning of aluminium welds
- Polishing and marking in conjunction with Cougartron ProPlus etching set
- Easy handling thanks to touch operation

<b>Weight</b>	7.2 kg
<b>Height</b>	32 cm
<b>Max. cleaning temperature</b>	300 °C
<b>Approvals</b>	CE

<b>Item no.</b>
394-005000-00001
394-005000-00000



### COUGARTRON PLUS STARTER KIT

- Lightweight weld cleaner for use in smaller production facilities
- For cleaning TIG welds
- Polishing and marking in conjunction with Cougartron ProPlus etching set
- Easy handling thanks to touch operation

<b>Weight</b>	6.2 kg
<b>Height</b>	32 cm
<b>Max. cleaning temperature</b>	300 °C
<b>Approvals</b>	CE

<b>Item no.</b>
394-005001-00000



### COUGATRON InoxFury Starter Kit

- High-performance and fast weld seam cleaning system
- For larger and highly oxidised weld seams
- 4x faster cleaning with 4 cleaning brushes working simultaneously
- For cleaning, polishing and marking

<b>Weight</b>	26 kg
<b>Height</b>	63 cm
<b>Approvals</b>	CE

<b>Item no.</b>
394-008042-00000



### Cougartron InoxPOWER Start Kit

- Compact and portable machine designed for simple work in a production environment
- For cleaning and polishing

<b>Weight</b>	3.7 kg
<b>Height</b>	31 cm
<b>Approvals</b>	CE

<b>Item no.</b>
394-006184-00000



• COUGARTRON InoxMuscle



- Very lightweight weld cleaner, only 3.5 kg
- For cleaning and polishing TIG welds
- Easy handling thanks to touch operation

<b>Weight</b>	3.5 kg
<b>Height</b>	30 cm
<b>Max. cleaning temperature</b>	260 °C
<b>Approvals</b>	CE

<b>Item no.</b>
394-003120-00000

COUGARTRON MK12 STARTER KIT



- Compact and lightweight marking device
- Timer function
- Mark workpieces with your logo or important information
- Suitable for use on stainless steel, structural steel, aluminium, brass and copper

<b>Weight</b>	0.9 kg
<b>Height</b>	6.5 cm
<b>Approvals</b>	CE

<b>PU</b>	<b>Item no.</b>
<b>Units</b>	
1	394-005002-00000

COUGARTRON PROPLUS ETCHING SET



- Marking retrofitting set for Cougartron Plus and ProPlus
- Mark workpieces with your logo or important information
- Suitable for use on stainless steel, structural steel, aluminium, brass and copper

<b>Item no.</b>
394-005003-00000

Labelling foil



- Labelling film for permanently and effectively marking workpieces with your logo or important information
- Film with 10 mm plastic border
- Motifs produced according to templates
- Additional dimensions available on request

Model	PU		Item no.	
	mm	Units		
MSC	54	1	16	094-012461-00001
			32	094-012461-00000
	85		27	094-012462-00000
			54	094-012462-00001
	128		42,5	094-012463-00000
			85	094-012463-00001

### CGT-550 5L

- Weld cleaning and polishing fluid
- Stronger concentrate than CGT 350 for optimal cleaning speed

PU Units	Contents	Item no.
	l	
1	1.0	394-005008-01000
	5.0	394-005008-05000



### CGT-350 5L

- Weld cleaning fluid
- Mild concentrate for excellent cleaning results

PU Units	Contents	Item no.
	l	
1	1.0	394-005009-01000
	5.0	394-005009-05000



### CGT-100 5L

- Neutralisation fluid, which can also be used for surface cleaning and degreasing of stainless steel

PU Units	Contents	Item no.
	l	
1	0.5	394-005010-00500
	5.0	394-005010-05000



### CGT-N1 5L

- Standard neutralisation and flushing fluid

PU Units	Contents	Item no.
	l	
1	0.5	394-005011-00500
	5.0	394-005011-05000



### CGT-S1 0,5L

- For marking your components, e.g. with your logo, using electrolytes specially designed for various metals

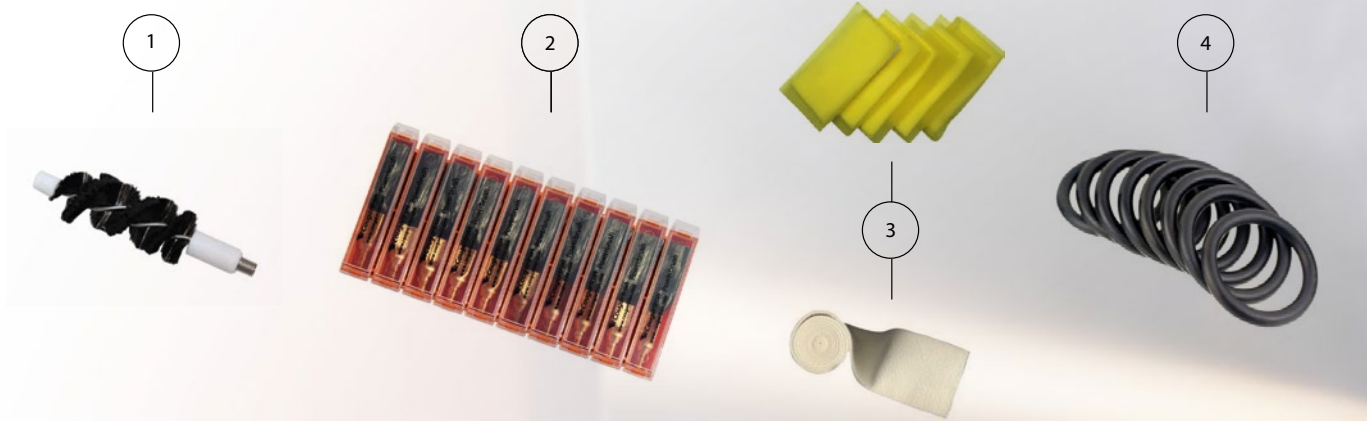
Contents	0.5 l		
	Material type	PU Units	Item no.
	Stainless steel/CrNi	1	394-005012-00500
	Brass		394-005013-00500
	Copper		394-005014-00500
	Structural steel		394-005015-00500
	Aluminium		394-005016-00500





## Surface treatment • Electrolytic cleaning

### Consumables



Pos.	Version	Ø mm	Dimensions	PU Units	Item no.
1	Pipe cleaning brush	18.0	-	1	394-005006-00000
1		25			394-005007-00000
2	Cleaning brush with copper thread	-	-	10	394-005004-00000
2	Cleaning brush with stainless steel thread				394-005005-00000
3	Labelling felt	-	75 mm x 40 mm	12	394-005028-00000
3	Labelling felt, roll	-	1 m x 50 mm	1	394-003116-00000
4	O-ring to save the felt on the marker stamp	-	-	10	394-005029-00000

### Accessories/spare parts



Pos.	PU Units	Version	Colour	Item no.
1	-	Workpiece lead with clamp	Black	394-005023-00000
1.1		Extension cable		394-005022-00000
2	-	Handle with cable	Orange	394-005024-00000
2.1		Extension cable		394-005021-00000
3	1	Brush holder with Teflon sleeve and screw thread	-	394-003119-00000
3		Brush holder with Teflon sleeve		394-005019-00000
4	-	Replacement sleeve for brush holder	-	394-005020-00000
5	-	Spray bottle for neutralisation fluid, 500 ml	-	394-005026-00000
6	-	Acid-resistant container, 500 ml	-	394-005025-00000
7	-	Marking stamp	-	394-003118-00000
8	-	Marking stamp with handle for MK12	-	394-003117-00000
9	-	Adapter for 2 cleaning brushes	-	394-005017-00000
10	1	Teflon sleeve for 2 cleaning brushes	-	394-005018-00000
11	-	Microfibre cloth	-	394-005027-00000

## Professional advice

For protection against corrosion and for reliable current transfer between the brush holder and the brush, we recommend wetting the thread with copper paste



### Copper paste

- Protecting, separating and lubricating agent for heavy-duty components at high temperatures
- High-temperature- and corrosion-resistant
- Highly adhesive, sulphur-, lead- and nickel-free
- Is used as assembly lubrication for screw connections and sliding surfaces of all types (forms an effective lubricating and separating film, protecting the functional surfaces against corrosion and fretting corrosion)
- Can be used for vibration reduction, e.g. on wear bushes on electrical, compressed air and hydraulic hammers and electrical connections

<b>Temperature resistance</b>	-20 °C - 1100 °C
<b>Properties</b>	Thickening agent: aluminium-complex soap/base oil: mineral oil/dry lubricant: copper slip/graphite
<b>Colour</b>	Copper
<b>Contents</b>	30 g
<b>Density</b>	1.1 g/cm <sup>3</sup>
<b>Storage stability</b>	24 M



PU	Item no.	PG	Price
Units			Per unit
20	398-002899-00030	HW7	stk





# CustomerStory



## The system concept makes all the difference



POLLRICH GmbH

### Expert advice for perfect results

Alongside increased productivity and simultaneously reduced costs, POLLRICH GmbH also expected a modern welding technology system to offer a welding management system that could manage and document the relevant data as well as fulfil all the quality

assurance requirements. For POLLRICH, the maXsolution consultancy from EWM came at just the right moment. Considering all factors in welding technology comprehensively allows to optimally coordinate the different components with each other. This approach characterises the system concept – and makes the system supplier stand out.



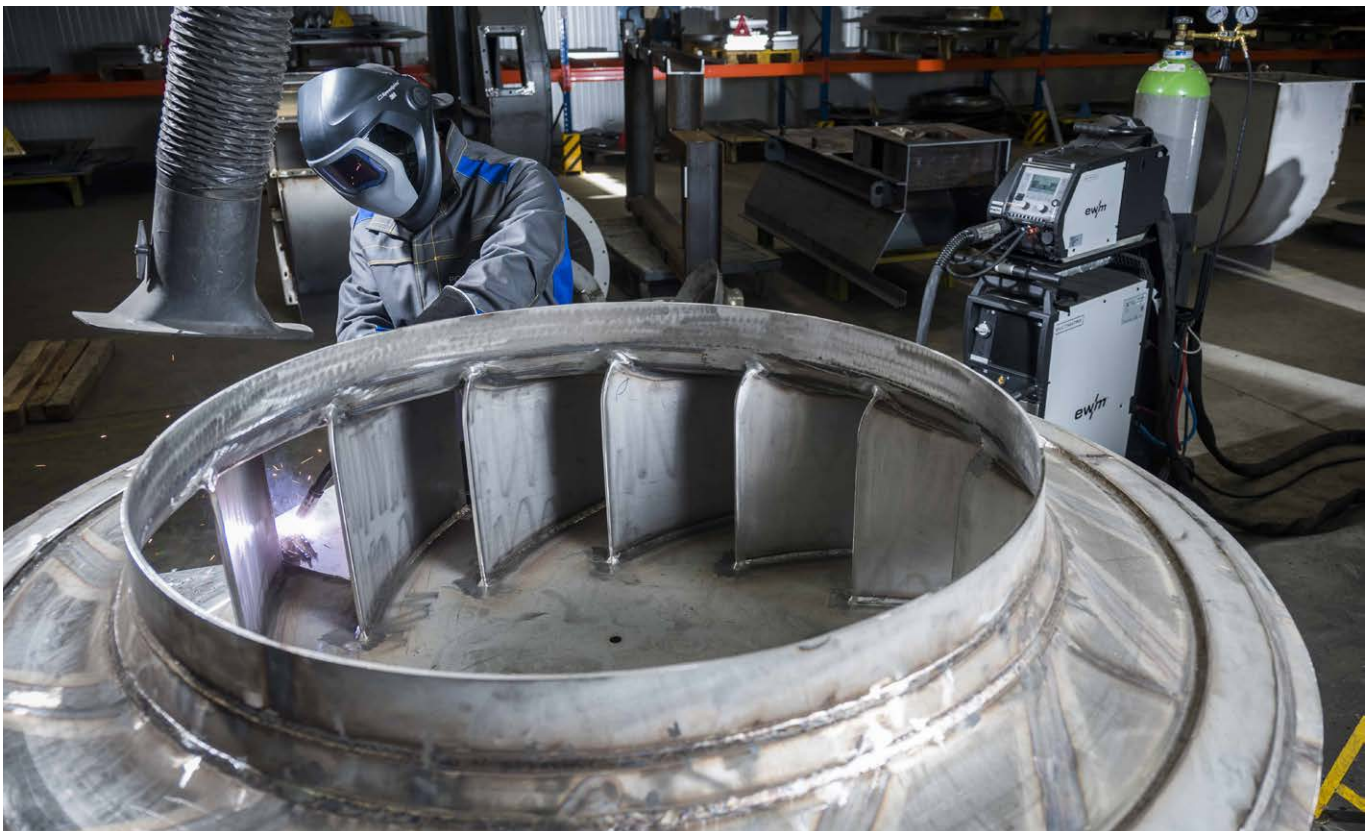
### Enormous dynamic loads

In its production facilities in Mönchengladbach POLLRICH manufactures industrial fans which transport not only air but also dust, shavings, powders and aggressive media. A fan wheel can have a diameter of up to four meters and up to 14 blades. At a rotation of 20 revolutions per second the fans can reach circumferential speeds of up to 860 kilometres per hour. This means that the fans, materials, and weld seams are subject to enormous dynamic stresses. The requirements of the

materials used, welding technology, and documentation for such critical components are correspondingly high. A system

## A system: more than the sum of its individual components

is much more than the putting together of several individual components. It is the optimum coordination of the individual components, of hardware and software. In welding technology the combination



A welded fan wheel with a diameter of 3.5 metres. Including the reinforcement rings there are over 60 metres of weld seams in the component here.

of a power source, wire feeder, and welding torch is part of the system concept. In addition the highly diverse welding procedures can be matched to the specific application, the welding consumables, and the software. Here particular attention is paid to the networking and implementation of data transfer between welding machines and the production process planning in relation to the smart factory as part of Industry 4.0.

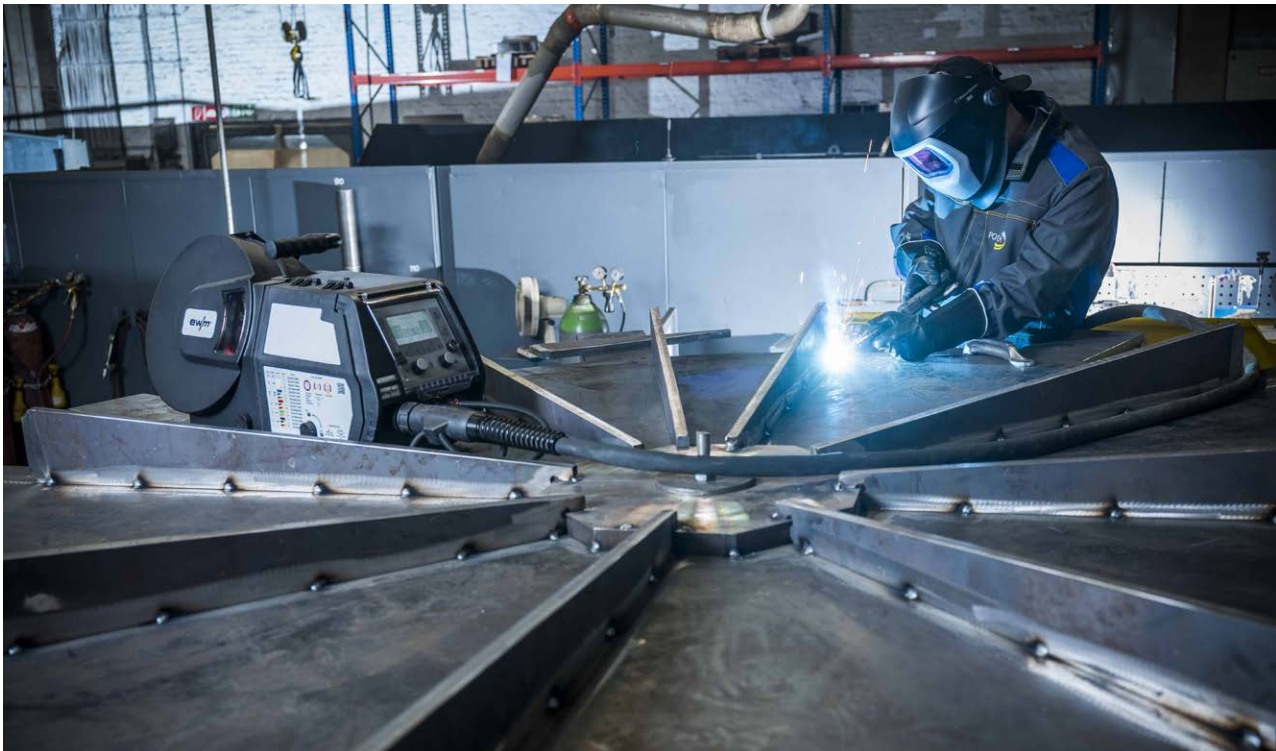
Alongside the fan wheels the housing is also designed and manufactured by POLLRICH, usually using the MAG welding process.



### Everything from a single source – everything from EWM

The welding machine manufacturer EWM from Münderbach in the West-erwald is the only German full-service provider and system supplier in the welding technology sector. It produces its own power sources, wire feeders, and welding torches; the welding consumables are produced as per the EWM quality requirements. The innovative welding processes for highly diverse applications and the Welding 4.0 welding management system ewm Xnet for analysing, monitoring, and managing welding data and welding results are also EWM in-house

developments. As part of the ewm maXsolution consultancy, EWM's experts work together with the customers to put together an optimum package for production from this portfolio. It was precisely this comprehensive approach that convinced POLLRICH in 2018 to switch all of its welding production to EWM – and also to purchase all welding consumables and wear parts from the firm. "In addition to the terrific products, the commitment of the EWM employees played a major role in the purchasing decision", affirmed Thorsten Wirtz, Welding Coordinator and Quality Control Director at POLLRICH, explaining the choice of EWM. "They are available at all times to provide advice and assistance, and can offer comprehensive support for all welding technology issues." From his own experience Wirtz is able to judge the quality of the products and the advice; he himself spent ten years welding the fan wheel's blades, day-in, day-out.



POLLRICH also designs and produces the tools for its own production. Here a faceplate for a pressure device is being reinforced with braces.



## The connectivity of the future

ewm Xnet is a welding management system that supports, monitors, and documents a component's entire production process from work preparation to product costing analysis – completely paperless. ewm Xnet records all the welding data in real time, can manage it, and transmit the consumption data. However, ewm Xnet's capabilities go far beyond the actual welding process. ewm Xnet provides support during component management, the creation of subsequent welding plans, and the allocation of welding procedure specifications. These can also be managed and, if necessary, even individually created. And last but not least, the individual monitoring of the welders' test certificates as well as the allocation of individual access permissions are also features of ewm Xnet. "With ewm Xnet it is possible to manage all aspects of welding technology with just one system", enthuses Wirtz.

### Welding duplex steels with tigSpeed

EWM's tigSpeed is a wire feeder for TIG welding. The required welding filler metal is continuously fed into the weld seam. tigSpeed emulates the manual TIG welding process by retracting the filler metal from the arc again and again. The automatic wire feeding, even of hot wire, makes the welder's life much easier, especially in the case of weld seams that are many metres long, such as in the fan wheels.

Very high quality, spatter-free seams are the result. Mechanical wire feeding produces a weld surface that is even smoother than with manual welding.

### Ergonomic welding torches for fatigue-free work

The majority of the weld seams are welded at POLLRICH using the MIG/MAG process. This applies both to fan wheels themselves and to the casings or to auxiliary structures for production, which are also developed and produced at POLLRICH. Together with the new welding machines from EWM, the matching welding torches have also been purchased. All of the welding torch components have been designed for secure current contacting, excellent shielding gas coverage, and an interference-free wire guide. This reduces the error rates during welding. Furthermore, the consumables have a longer service life and the shielding gas consumption is reduced. "We expect these welding torches to be much more economic for us than the welding torches we had before, both as regards productivity and the consumption costs", says Thorsten Wirtz confidently.



POLLRICH's Quality Controller Thorsten Wirtz (right) is impressed by the EWM products and the support provided by EWM sales representative Sven Gaudian (left).

Kindly supported by





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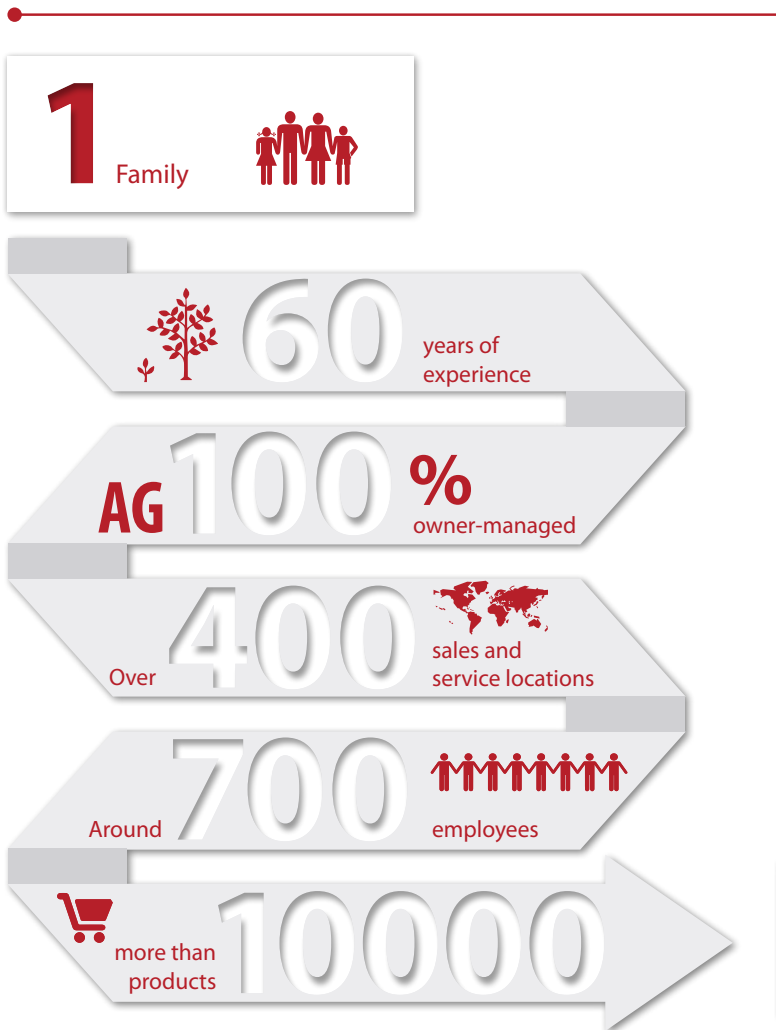
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