



Repair welding

Ultrafine, precise, powerful – the joke welding portfolio provides innovative solutions with tried and trusted quality for the widest range of applications.

- Laser welding
- Laser marking
- Impulse welding
- Tungsten carbide coating
- Accessories
- Welding fillers



joke's Repair Welding Technology

Since Wilhelm Joisten and Robert Kettenbaum produced the first **joke welding machine** in their garage workshop in 1946, a lot has changed in welding technology. joke Technology has played a major role in this, especially when it comes to demanding **repair welding** in mould and tool making.

Users worldwide benefit from so many years of know-how. With **ENESKA laser technology** and the heat-reduced **ENESKAimpulse** process, highly efficient best results are achieved in a short time. At joke, welding and laser technology also includes **laser marking** of workpieces with ENESKAmarker and tungsten carbide **hard metal coating** with ENESKArecoat. For brilliant results and effective work, suitable **workplace equipment** is just as essential as the use of the optimum consumables, such as the joke **welding consumables**. With joke **welding training** courses, we pass on our expert knowledge to welding professionals and beginners in intensive practical seminars. On site in your company or in our own „Jokeneum“ in Bergisch Gladbach near Cologne.

Now browse through the joke welding programme on the following pages. And if that's not enough, just give us a call or send us an e-mail. Our „Welding and Laser Technology Team“ is looking forward to meeting you!



Fabian Bickenbach
Head of Welding Team and Product Manager



If you need us, joke or our business partners will come to you on request: The **joke welding mobiles** are much more than show cars! Full of technology you can touch.

Every day we are on the road all over Germany and in neighbouring countries. It is often not enough to look at a brochure to get information, then the proof of the pudding is in the eating. Also on site at your own tool moulds. joke welding mobiles have everything on board!!

**Would you like a personal demonstration
at your own company location?**

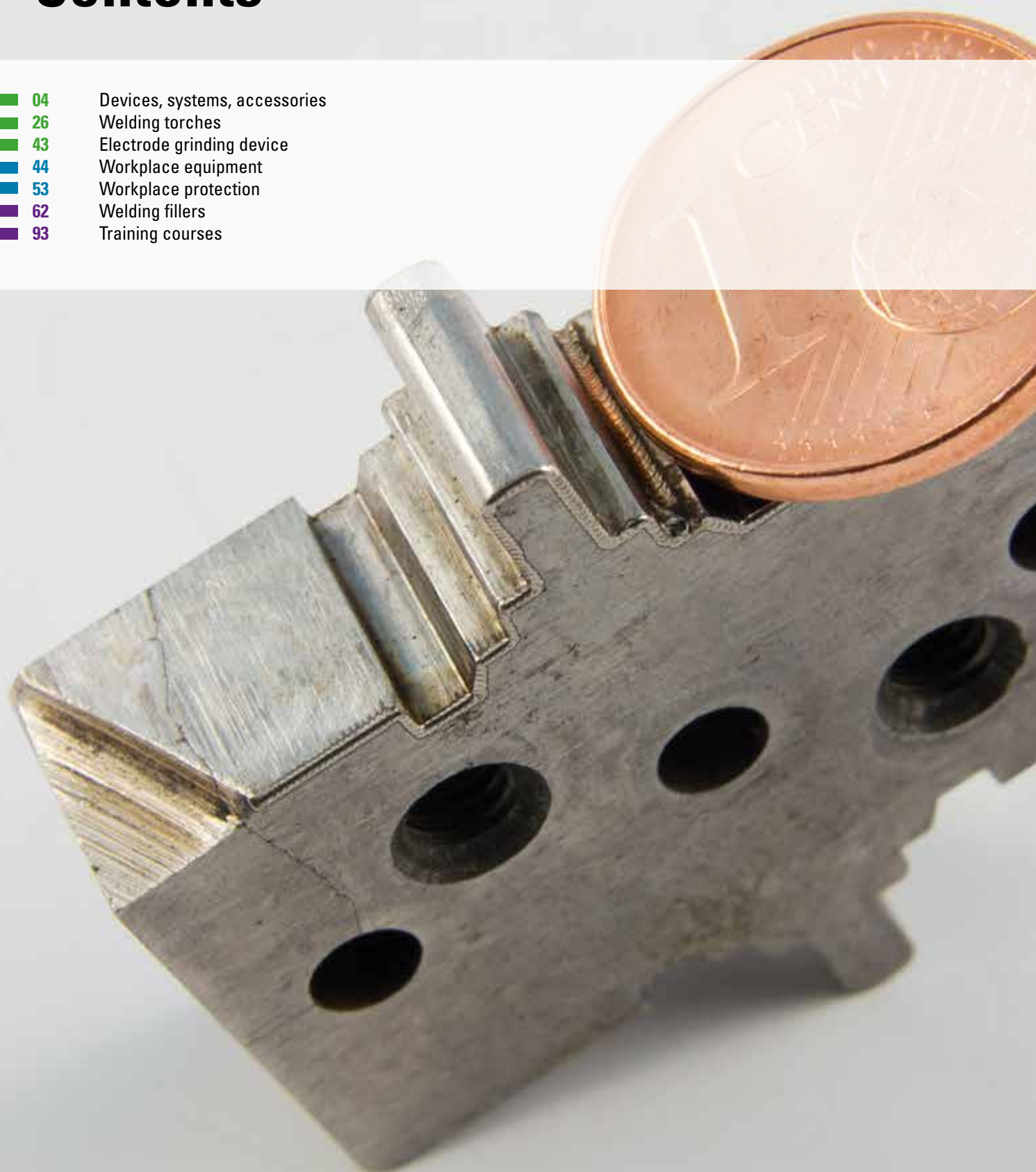
Perhaps with your own workpieces?

Our sales team will be happy to
arrange the best appointment with you.
+49 2204 839-0 | sales@joke.de



Contents

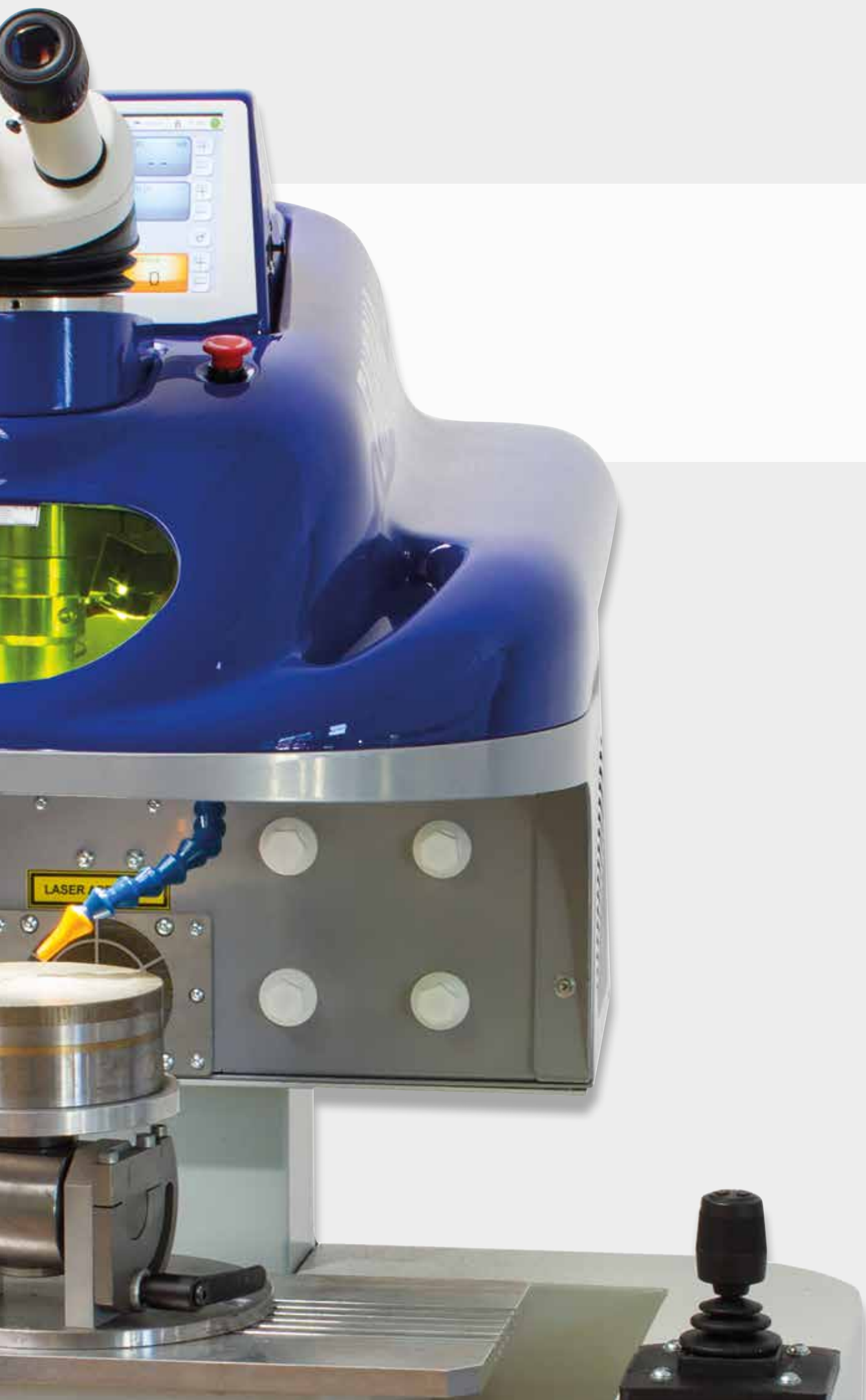
04	Devices, systems, accessories
26	Welding torches
43	Electrode grinding device
44	Workplace equipment
53	Workplace protection
62	Welding fillers
93	Training courses



Devices, systems, accessories

06	Laser welding
14	Laser marking
18	Impulse welding
22	Tungsten carbide coating





Laser welding systems

ENESKAlaser 750 and 1000

The ENESKAlasers 750 / 1000

are compact precision devices for professionals. Thanks to the particularly well-balanced, universal equipment and rich power reserves of the high-tech lasers, they are an excellent prerequisite for the best results in repair and joining processes.

Closed laser or open system?

You have the choice! Both systems have the same performance characteristics, and they are also almost identical in terms of dimensions and weight. Both variants are equipped with highly effective protective devices against damage to the user's health. But this is precisely where the differences lie: open laser systems offer a high degree of flexibility in handling workpieces, but also place demands on the workplace environment and safety personnel. There are considerably fewer requirements for closed systems, since their housing shields the laser beam to a maximum. A specially enclosed room or protective walls are not required for such workstations.

Compact and mobile or as a comfortable precision workstation with a 3-axis table?

The entire operation of the laser system is carried out via a convenient touchscreen interface. The closed lasers are ideally suited for smaller workpieces, e.g. in the jewellery trade, precision mechanics or medical technology. Open ENESKAlasers allow convenient processing of even medium-sized objects and can be turned into a precision workstation with the optional 3-axis welding table (order no. 4 910 501) to a precision workstation, including sensitive joystick control and automatic turning device. Or also in use with a strong, switchable joke magnetic clamping ball.



Laser welding systems

ENESKAlaser 750 and 1000

Setting of all parameters by optimised software

Laser power, pulse length, repetition rate and beam diameter are conveniently and logically set on the clear colour display via touch operation. And that's not all - the various processing parameters can be stored in up to 100 memory locations with the sophisticated software and recalled at any time. Keep control at all times: the welding process can be monitored either via the integrated high-resolution optical Leica eyepieces, the touch screen or via an external monitor.

Pulse energy 80 or 140 joules

A question of predominant use: With 750 watts and a pulse energy of 80 joules, the ENESKAlaser 750 is suitable for most tasks such as repairs of stressed moulds and parts made of stainless steels or aluminium up to 5mm material thickness. - If you need even greater power reserves, the ENESKAlaser 1000 offers plenty of power, 100 W output and 140 J pulse energy!

Highlights

- 7" colour touchscreen
- Leica stereo microscope with 10 x magnification
- 3-stage LED cold light illumination of the working area
- integrated camera with 4x zoom
- Wi-Fi connectivity
- USB and HDMI connection
- optional additional cooling can be connected



	ENESKAlaser 750 (open system)	ENESKAlaser 1000 (open system)	ENESKAlaser 750 (closed system)	ENESKAlaser 1000 (closed system)
Frequency	0.5 – 30 Hz	0.5 – 30 Hz	0.5 – 30 Hz	0.5 – 30 Hz
Gas post-flow time	0 – 10 s	0 – 10 s	0 – 10 s	0 – 10 s
Pulse time	0.1 – 20 ms	0.1 – 20 ms	0.1 – 20 ms	0.1 – 20 ms
Cooling	water-cooled	water-cooled	water-cooled	water-cooled
Max. pulse energy	80 J	140 J	80 J	140 J
Pulse frequency	0.5 – 30 Hz	0.5 – 30 Hz	0.5 – 30 Hz	0.5 – 30 Hz
Beam diameter	0.2 – 2 mm	0.2 – 2 mm	0.2 – 2 mm	0.2 – 2 mm
Power	75 W	100 W	75 W	100 W
Noise level	< 70 dB(A)	< 70 dB(A)	< 70 dB(A)	< 70 dB(A)
Dimensions	50 x 50 x 80 cm	50 x 50 x 80 cm	50 x 50 x 80 cm	50 x 50 x 80 cm
Power consumption	1700 W	1700 W	1700 W	1700 W
Supply voltage	230 V, 50/60 Hz	230 V, 50/60 Hz	230 V, 50/60 Hz	230 V, 50/60 Hz
Weight [kg]	55 kg	55 kg	55 kg	55 kg
Order No.	4 910 750	4 910 800	4 910 760	4 910 770

Laser welding system

ENESKAlaser

Accessories / spare parts

		Order No.	Price from 1 piece
3-axis welding table with joystick, motorized			
	<p>X-Y-Z travel unit for precise positioning of the workpieces and for receiving the open laser devices ENESKAlaser 750/1000. The 3-axis table is equipped with 3 sturdy castors and is therefore mobile. Furthermore, the open ENESKAlaser together with the 3-axis table forms an optimum technical unit.</p>	4 910 501	
	<p>Technical data:</p> <p>(Aluminium) worktop dimensions: 400 x 210 mm</p> <p>Travels of the individual axes</p> <p>X (right/left): 145 mm</p> <p>Y (forwards/reverse): 95 mm</p> <p>Z (up/down): 230 mm</p>		
Lift table, automatically height-adjustable work table for ENESKAlaser models 750/1000 (closed system)			
	<p>In combination with the ENESKAlaser, the Plexiglas table is height-adjustable from 700 mm to 880 mm.</p>	4 910 763	
Lift table, manual workpiece height adjustment			
	<p>Dimensions lifting plate: 100 x 100 mm</p> <p>Height adjustable from approx. 50 – 150 mm</p> <p>Stainless steel plate</p> <p>approx. 550 g</p>	4 910 761	
	<p>Dimensions lifting plate: 200 x 200 mm</p> <p>Height adjustable from approx. 85 – 280 mm</p> <p>Stainless steel plate</p> <p>approx. 1.8 kg</p>	4 910 762	
Automatic turning device with through-chuck			
	<p>The turntable is controlled by the joystick on the welding table. It has a stepless speed control as well as clockwise and anti-clockwise rotation. This makes it much easier to weld round seams. The three-jaw chuck has a diameter of 70 mm. Round parts can be clamped through the centre hole.</p>	4 910 503	
Gas pressure reducer (200 bar) with flowmeter			
	<p>Cylinder pressure reducer with flowmeter for controlling the precise flow volume in l/min, with inlet pressure compensation for constant outlet pressure in case of decreasing inlet pressure. The float-type flowmeter is permanently set to a fixed pressure; regulation is performed via the shut-off valve.</p>	4 800 250	

Laser welding system

ENESKAlaser

⚙️ Accessories / spare parts

	Order No.	Price from 1 piece
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Water cooling unit, external for models 750/1000



This unit serves to increase cooling capacity during continuous operation in order to avoid failure due to overheating.

4 910 818

Flash lamp

Ø 8 mm

4 910 801-1

Focus tube

75 mm

4 910 811

155 mm

4 910 812

Eyepiece 25x magnification suitable for all ENESKAlaser models (1 pair)



4 910 817

Leica Ergo Wedge 5° – 25°



The ergonomic wedge allows the binocular to be swivelled steplessly down to 25°. This provides optimum support for the ergonomic sitting position of the operator on the ENESKA laser.

4 910 808



Leica Ergo Wedge
5° – 25° adjustable



1 day instruction in your own factory

Course fee, flat-rate for training time: 09:00 to 15:00
Location: customer's workshop

4 900 034

Subject matter:

1. Theoretical introduction to the process
2. Practical instruction in using the device
3. Areas of application
4. Practical exercises with appropriate workpieces
5. Final meeting and discussion

Customer to provide:

- Sample workpieces of the material to be handled for the exercises
- Inert gas argon 4.6 or 4.8



Laser welding system

ENESKAlaser 1500 mobile

Large repairs on large moulds?

Weld successfully and precisely with the ENESKAlaser 1500 mobile.

Even on difficult geometries and large workpieces.

Ideal for workshops. Simple and functional. The mobile system unit allows use directly on site (if the workpiece does not come to the welding station, the welding station just goes there ;-)



Effective due to maximum mobility and ideal operating ergonomics

The extension arm pivotable through 180° makes alignment with the workpiece very easy and flexible. The high quality 10 x stereo microscope with integrated safety filters and a very rapid, eye-friendly LCD shutter provides a perfect view and safety for the operator. The welding head is equipped with motorised beam diameter adjustment, dimmable LED workpiece lighting and a flexibly adjustable gas supply. A generously dimensioned colour touchscreen for configuring all the necessary laser parameters simplifies operation and control.



Laser welding system ENESKAlaser 1500 mobile

Repair moulds/workpieces with ease

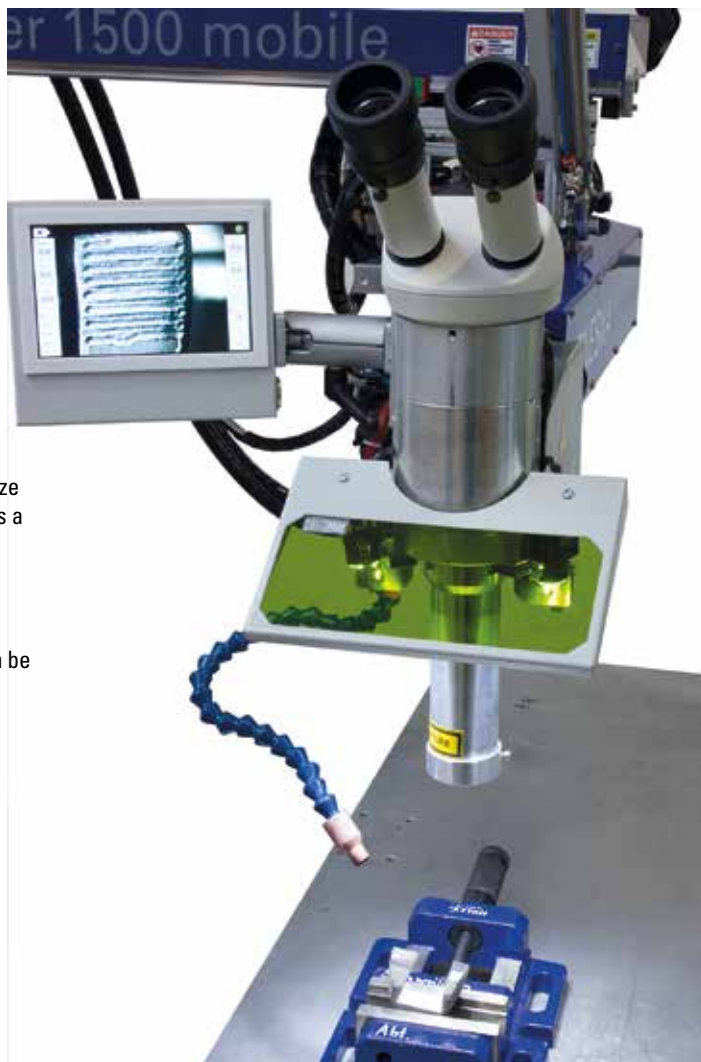
The laser welding system is suitable for repairing medium- and large-size moulds/workpieces. Ideal for mold shops. Simple and functional. Allows a wide range of repairs to be carried out directly on site.


TOP equipment as standard:

- Colour display with touchscreen function
- 100 program memory locations with names – Welding parameters can be stored in the internal memory
- Leica 10 x stereo microscope
- Integrated camera
- Powerful, integrated cooling system
- Joystick-controlled
- Extension arm length 1,200 mm
- Manual axis adjustment
- Dual-laser resonator – 15° pivotable and 30° rotatable resonator head
- LED lighting with white cold light
- HDMI port

Traverse paths:

x-axis 410 mm
y-axis 500 mm
z-axis 600 mm






		Price from
		Order No. 1 piece
ENESKAlaser 1500 mobile		
	Technical data	4 910 880
	Laser source/ wavelength:	Nd: YAG 1064 nm x 2
	Output:	150 W
	Max. pulse power:	15 kW
	Max. pulse energy:	200 J
	Puls time:	0.1 – 20 ms
	Pulse frequency:	0.5 – 30 Hz
	Beam diameter:	0.6 – 2 mm
	Joystick-controlled:	yes
	External controlled:	colour display
	Input:	230 V AC, 50/60 Hz, single
	Ampere:	20 A
	Max. dimension generator	(W x D x H): 50 x 50 x 80 cm
	Max. length of jib:	1,200 mm
	Weight:	260 kg
	Argon gas:	yes

Laser welding system

ENESKAlaser 1500 mobile








⚙️ Accessories / spare parts

		Load bearing capacity of work area	Dimensions	Order No.	Price from 1 piece
Platform trolley					
	Technical data:	300 kg	855 x 500 mm	4 910 881	
	Colour:	blue (RAL 5002)			
	Tyre material:	polyurethane (PU)			
	Design:	platform trolley			
	Drive type:	manual			
	Lifting:	manual hydraulic			
	Number of increments up to max. height:	32			
	Weight:	82 kg			
	Lifting height:	900 mm			
	Technical data:	1,500 kg	1,220 x 610 mm	4 910 882	
	Colour:	blue (RAL 5002)			
	Tyre material:	polyurethane (PU)			
	Design:	platform trolley			
	Drive type:	manual			
	Lifting:	manual hydraulic			
	Weight:	135 kg			
	Lifting height:	1,000 mm			
	Length:	1,379 mm			
	Technical data:	500 kg	1,600 x 800 mm	4 910 885	
	Colour:	blue (RAL 5002)			
	Tyre material:	polyurethane (PU)			
	Design:	platform trolley			
	Drive type:	manual			
	Lifting:	manual hydraulic			
	Number of increments up to max. height:	5			
	Weight:	136 kg			
	Lifting height:	900 mm			
	Length:	1,670 mm			
	min. platform height:	310 mm			
	Height:	970 mm			
	Wheel diameter:	127 mm			

Laser welding system

ENESKAlaser 1500 mobile

⚙️ Accessories / spare parts

	Load bearing capacity of work area	Dimensions	Order No.	Price from 1 piece
Automatic turning device with through-chuck				
	The turntable is controlled by the joystick on the welding table. It has a stepless speed control as well as clockwise and anti-clockwise rotation. This makes it much easier to weld round seams. The three-jaw chuck has a diameter of 70 mm. Round parts can be clamped through the centre hole.		4 910 503	
Gas pressure reducer (200 bar) with flowmeter				
	Cylinder pressure reducer with flowmeter for controlling the precise flow volume in l/min, with inlet pressure compensation for constant outlet pressure in case of decreasing inlet pressure. The float-type flowmeter is permanently set to a fixed pressure; regulation is performed via the shut-of valve.		4 800 250	
Flash lamp				
	Ø 8 mm		4 910 801-1	
Focus tube				
	75 mm		4 910 811	
	155 mm		4 910 812	
Eyepiece 25x magnification suitable for all ENESKAlaser models (1 pair)				
			4 910 817	
Leica Ergo Wedge 5° – 25°				
	The ergonomic wedge allows the binocular to be swivelled steplessly down to 25°. This provides optimum support for the ergonomic sitting position of the operator on the ENESKA laser.		4 910 808	



Laser marking system

ENESKAmarker 300

Long-lasting, flexible, robust

Laser markings generated with an ENESKAmarker 300 guarantee optimally durable component identifications. The markings are created quickly without the application of force or contact. This makes it easy to mark thin-walled, ground and finished components. The sealable, screened working area of the ENESKAmarker 300 ensures safe operation.

The graphic user interface makes the operator software very easy for users to handle. Furthermore, electrical height adjustment on the front of the ENESKAmarker makes it easy to adjust the laser head to bring a wide range of workpieces into the correct focus. In combination with the laser pre-view function, the projection process enables every type of marking to be created on a component. That ensures reliable production and eliminates a reject rate. For example, the markings may be QR codes or images. The following text and image files are compatible with the software.

Text files: *.ai; *.plt; *.dxf; *.dst; *.svg; *.nc; *.g; *.gbr

Image files: *.bmp; *.jpg; *.jpeg; *.gif; *.tga; *.png; *.tif; *.tiff

The marking device can be used on many different materials, such as metal and some plastics.



Highlights

- 4-stage, LED cold-lighting of the working area
- Laser-focusing device
- Laser projection preview
- Integrated extraction connector
- Versatile worktop with T-groove milling
- Automatic Z axis adjustment

ENESKAmarker is also available in a **special version with camera and automatic door**.



Laser marking system

ENESKAmarker 300

	Order No.	Price from 1 piece
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ENESKAmarker 300



Technical data

Power:	30 watts
Wavelength:	1064 nm
Input power:	230 V, 50/60 Hz
Absorbed power:	350 watts
Dimensions of working area (L x W x H):	250 x 250 x 350 mm
Weight:	100 kg
Marking area:	110 x 110 mm
Max. pulse energy:	up to 1 mJ
Max. frequency:	60 kHz
Cooling system:	air-cooled
Pulse duration:	100 ns at 20 kHz
Laser class:	4

4 920 800

ENESKAmarker 300 with camera and automatic door



Special version with camera and automatic door.
Technical data as described above.

4 920 805



	Order No.	Price from 1 piece
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1 day instruction at your location

Mandatory with delivery of ENESKAmarker!

4 900 035



Course fee, flat-rate for
training time: 09:00 to 15:00

Date: by agreement with Ms. Wacker +49 2204 83932

Location: customer's workshop

Subject matter:

1. Theoretical introduction to the process
2. Practical instruction in using the device
3. Areas of application
4. Practical exercises with appropriate workpieces
5. Final meeting and discussion







Customer to provide:

- Sample workpieces of the material to be handled
- Laptop

Laser marking system

ENESKAmarker 300 - Accessories

Accessories / spare parts

		Order No.	Price from 1 piece
Automatic turning device with through-chuck			
	The turntable is controlled by the joystick on the welding table. It has a stepless speed control as well as clockwise and anti-clockwise rotation. This makes it much easier to weld round seams. The three-jaw chuck has a diameter of 70 mm. Round parts can be clamped through the centre hole.	4 910 503	
Rotary device with magnetic plate			
	Optional for the ENESKAmarker 300 marking laser. The rotating device is provided with a magnetic plate, so that magnetic workpieces are convenient and tool-free fix and align under the laser source.	4 920 832	
Mobile work table			
	This work table offers, thanks to mounted plastic rollers, the possibility to conveniently and flexibly position your ENESKAmarker 300 exactly where it is needed. Through a laterally arranged holder for your laptop or notebook, they have a compact and functional workplace.	4 920 835	
Clamping device			
	This device is particularly well suited for positioning and clamping small work pieces under the laser. The adjustment slide can be moved in the X and Y axes by a quick, and enable easy alignment.	4 920 836	
Focus lens			
	Increases the marking area to 150 x150 mm	4 920 838	
Laser safety goggles			
	also suitable for spectacle wearers, very light owing to plastic filter, adjustable temples, wide field of vision.	4 910 020-1	
	Note: It is essential to compare before use the details concerning the operating mode, wavelength and shade level of the laser safety goggles with the safety requirements of the laser system.		

Laser marking system

ENESKAmarker 300 - Accessories

⚙️ Accessories / spare parts

		Order No.	Price from 1 piece
Suction unit joke JF			
	With HEPA filter H13, kit incl. hose for gaseous pollutants. Use: dust; metal marking; vapours that become visible during marking.	0 200 230-S2	
	Technical specifications: Free blowing suction power: 250 m³/h Effective suction power: 20 - 200 m³/h max. pressure: 6.000 Pa Motor: Continuous Electrical connection: 120 - 230 V, 50/60 Hz Motor power: 0.65 kW Noise level: approx. 62 dB(A) Weight: approx. 24 kg Dimensions (W x H x D): 300 x 510 x 300 mm Paint colour: RAL 7035 Air inlets: 2 (rear) Arm inlets: 1 (top)		
	With combifilter activated carbon H13, kit includes hose.	0 200 230-S4	
	Application: Marking of plastics; toxic vapours; special materials.		
Technical data as above			

joke



ENESKA Impulse 230

Welding system – precise, compact, versatile.

ENESKAimpulse 230 Welding system

A new generation of repair welding:

With the new ENESKAimpulse 230 welding system, joke combines the accuracy and precision of repair welding with the advantages of state-of-the-art control technology and user-oriented ergonomics.

Intuitive control system:

A neatly structured control unit with a bright colour display and a central rotary pushbutton make it easy to select the appropriate functions. Quick selection buttons let you retrieve your own or built-in favourite settings even faster at the touch of a button. It couldn't be quicker or more effective!

Wizards and presets:

Everything is backed by the experience and competence gained through decades of user support. joke welding technicians are on site every day and are on hand with advice and assistance in practical everyday work. We know how to deal with difficult issues, but we also know the most effective methods for quick, good welding results inside out. Every task needs the right device settings - the ENESKAimpulse guides the user through the whole welding process and automatically selects the best settings for the respective selected welding tasks.

- **The ENESKAimpulse 230 has a powerful output of max. 230 A**
- **Versatile and mobile use - robust yet light: only 7.3 kg**
- Compatible with joke MultiSpot3 accessories
- Hand torch connections compatible with Multispot and Easyspot.
- This means that all gas-cooled hand torches from the joke range can be used.



ENESKAimpulse 230

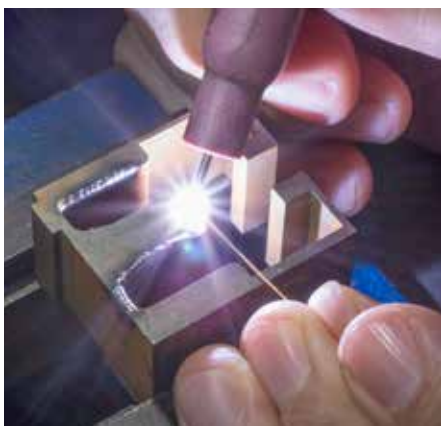
Welding system

We provide users our extensive experience with **parameters and device settings** in the ENESKAimpulse 230 control unit.

The relevant settings can be called up from an extensive data library **on metal types, steel grades, material thicknesses and seam executions** with the aid of assistance functions or by direct selection. Useful information about inert gas and tungsten electrodes included.

For repetitive standard jobs, you can then simply create your **own favourite settings** and retrieve them at any time at the touch of a button on "Job 1" to "Job 4".

This enables even welding novices to quickly achieve very precise, repeatable results. Professionals as well achieve perfect welds in no time at all.




Further information about welding accessories, welding fillers and consumables can be found from page 62 and onwards and in our shop: www.joke-technology.com.



matching hose assemblies and torches from page 28 onwards

ENESKAimpulse 230

Welding system

		Price from
		Order No. 1 piece
ENESKAimpulse 230		
	Technical data	4 906 230
	Dimensions: (L x W x H):	80 x 160 x 320 mm
	Weight:	7.3 kg
	Insulation class:	F
	Degree of protection:	IP 23 S
	Cooling:	force-ventilated
	Mains connection:	230V - 50/60 Hz
	Welding current:	3-230 A
	Adjustable Power factor:	cos ϕ = 0.99

⚙️ Accessories / spare parts

		Price from
		Order No. 1 piece
ENESKAimpulse 230 foot switch		
		4 906 231
Earthing cable with crocodile clip		
	Earth cable is absolutely necessary for first-time use of the magnetic clamping ball joke Magic-Ball with earth connection and must be ordered separately.	4 902 125
Earthing cable with magnetic pole clamps		
	Earth cable is absolutely necessary for first-time use of the magnetic clamping ball joke Magic-Ball with earth connection and must be ordered separately.	4 902 124
Gas pressure reducer (200 bar) with flowmeter		
	Cylinder pressure reducer with flowmeter for controlling the precise flow volume in l/min, with inlet pressure compensation for constant outlet pressure in case of decreasing inlet pressure. The float-type flowmeter is permanently set to a fixed pressure; regulation is performed via the shut-of valve.	4 800 250
Double extraction valve		
		4 800 260
1 day instruction in your own factory		
	Course fee, training time: 09:00 to 15:00	4 900 034
	Date: by agreement with Ms. Wacker +49 2204 839-32	
	Location: customer's workshop	
	Subject matter:	
	1. Theoretical introduction to the process	
	2. Practical instruction in using the device	
	3. Areas of application	
	4. Practical exercises with appropriate workpieces	

ENESKArecoat 85

Next generation of carbide coating devices!

ENESKArecoat 85 is used to coat severely stressed surfaces quickly and easily. A carbide coating is applied by burning a tungsten carbide electrode at 2800 degrees Celsius, which achieves a maximum surface hardness of 82 HR 30 N.

This process is especially suitable for tools, devices and surfaces that have to be especially tough, hard and wear-resistant – such as punching and bending tools.



100%
made in Germany



Tungsten carbide coating unit ENESKArecoat 85

Methods

Nowadays, very high demands are made on the toughness, hardness and surface wear resistance of tools, equipment and machines. The following options came to light in seeking a tough material with a more wear-resistant coating:

1. Galvanic coating with hard layers,
2. Plasma gun spraying method,
3. Electroerosive tungsten carbide coating.

The adhesive strength of the coatings in methods 1 and 2 is unsatisfactory in the case of heavy stresses since the coatings are likely to scale off. With the third method, however, it is possible to apply tungsten carbide in a very wear-resistant surface on the heavily stressed points of a workpiece.

Properties of the tungsten carbide coat

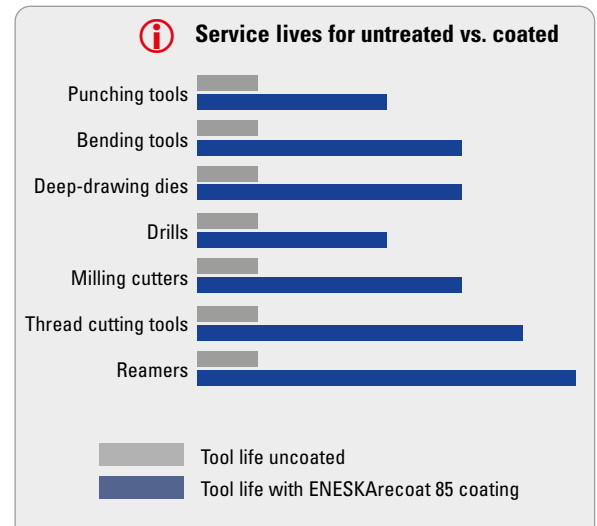
The layer applied combines joins perfectly with the steel and adheres in such a way that it withstands almost any mechanical stress. Blows, bending, stretching or compressive strains are incapable of detaching the coating. This can only be done by grinding or special sand blasting; it can, however, be relapped with diamond or silicon carbide. The steel beneath is not softened by the coating but increases in hardness in the upper zone. In the case of certain steel alloys the tungsten carbide layer even penetrates into the base material. The coating produces a hardness of up to 82 HR 30N, without the workpiece undergoing any change or distortion since the depositing process is practically cold. The coating possesses a high degree of heat resistance. The surface is uniform and shows no directional texture. With good saturation, it achieves a mean roughness of 2-9 µm.

Examples of applications

- Hardness coating of tools or wear parts to extend service life.
- Post hardening of additively manufactured parts
- Coating of smooth surfaces in order to achieve greater adhesion through the structure of the layer
- Coating of sliding surfaces in order to avoid cold weldings as a result of the structure of the layer

Materials and their pretreatment

Any soft, heat-treated and hardened unalloyed or alloyed steel is suitable as material for coating with tungsten carbide. The surface must be clean and metallically pure.



14 advantages at a glance

- High working voltage giving maximum achievable layer thickness
- Fast application with higher vibration frequency of 120 Hertz
- A new type of ignition spark control improves the surface finish
- No burning out of electrodes (reduced tool costs)
- Electrodes up to 25 percent larger widen the range of fields of work
- Reduction in vibrations on the outside of the handpiece
- Maximum achievable coating hardness of 82 HR 30 N
- Ergonomic, user-friendly handpiece with integrated operating button
- LEDs for optimal, glare-free illumination of the workplace and contact monitoring
- Function control with animated LED line on the control unit and on the handpiece
- Software: Call of preset parameters and storage of individual parameters
- Calibration function for balancing of the optimal ignition timing
- Well-proven ENESKA user interface with language support (D, E, F)
- Assistant function

Tungsten carbide coating unit

ENESKArecoat 85

ENESKArecoat 85 hard metal coating unit, set


Control unit:

Max. achievable coating hardness: 82 HR 30N
 Working voltage: 36-54 V
 Vibration frequency: variable up to 120 Hz
 Supply voltage: 115/230 DCV, 50/60 Hz
 Dimensions (W x D x H): 135 x 476 x 321mm
 Weight: 10 kg

Application gun:

Vibration frequency: variable up to 120 Hz
 Working lamp: 4 LEDs, 5000 K
 Weight: 0.84 kg
 Cable length: 1.80 m

Scope of delivery:

- 0700301 Carbide coating unit, control unit
- 0700302 Application handpiece, complete with cable package
- 0700351 Earth cable 10mm², 2.0 m, plus magnetic pole clamp
- 0700060 Set of clamping elements for carbide electrodes, incl. spare screws and screwdriver (12 pieces)
- 0700034 Set of carbide electrodes (24 pieces)

Price from
Order No. 1 set

0 700 300

⚙️ Accessories / spare parts

ENESKArecoat 85 foot switch



Foot control / foot switch
 for on/off function of the coating process.
 Optionally connectable to the ENESKArecoat 85 control unit
 (Alternative to control via application gun).

0 700 360

ENESKArecoat 85 application gun



The application gun has a button to start the working process.
 In addition, there is a status LED on the application handpiece, which indicates the optimum distance to the workpiece, This helps the user to optimise the coating process.

0 700 302

Vibration frequency: variable up to 120 Hz
 Working field lamp with 4 LEDs, 5000K
 Push button switch: On / Off
 Status LED for contact monitoring
 Dimensions (W x D x H): 160 x 40 x 190 mm
 Weight: 0.84 kg including cable package
 Cable length: 1.8 m

ENESKArecoat 85 Clamping element for carbide electrodes



for round carbide electrodes up to max. Ø 1.4 mm

0 700 061

for round carbide electrodes up to max. Ø 2.3 mm

0 700 062







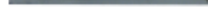



for triangular carbide electrodes up to max. 2.2 mm

0 700 063


for square carbide electrodes up to max. 2.2 mm

0 700 064

Tungsten carbide coating unit ENESKArecoat 85

			Price from	
Shape	Dimensions	Order No.	1 piece	10 pieces
Tungsten carbide electrodes for ENESKArecoat 85 and tucadur				
 square	1.1 x 50 mm	0 700 039		
 square	1.6 x 50 mm	0 700 040		
 square	2.1 x 50 mm	0 700 041		
 triangular	1.95 x 50 mm	0 700 042-0		
 round	Ø 1.0 x 50 mm	0 700 036		
 round	Ø 1.3 x 50 mm	0 700 046		
 round	Ø 1.8 x 50 mm	0 700 047		
 round	Ø 2.3 x 50 mm	0 700 048		

↓ matching set

	Order No.	Price from	
		1 set	10 set
Set of tungsten carbide electrodes for ENESKArecoat 85 and tucadur (24 pieces)			
	consisting of:	0 700 034	
	<ul style="list-style-type: none">• 3 pieces each 1.0 mm round (Order No. 0 700 036)• 3 pieces each 1.3 mm round (Order No. 0 700 046)• 3 pieces each 1.8 mm round (Order No. 0 700 047)• 3 pieces each 2.3 mm round (Order No. 0 700 048)• 3 pieces each 1.1 mm square (Order No. 0 700 039)• 3 pieces each 1.6 mm square (Order No. 0 700 040)• 3 pieces each 2.1 mm square (Order No. 0 700 041)• 3 pieces each 1.95 mm triangular (Order No. 0 700 042-0)		



Several application possibilities



Coating of a machine part



28

Machine torches Series 9



32

Large hand welding torches Series 26



36

Small hand welding torches Series 9



40

Microtorches Series 70

Small hand welding torch

Machine torches



Large hand welding torch

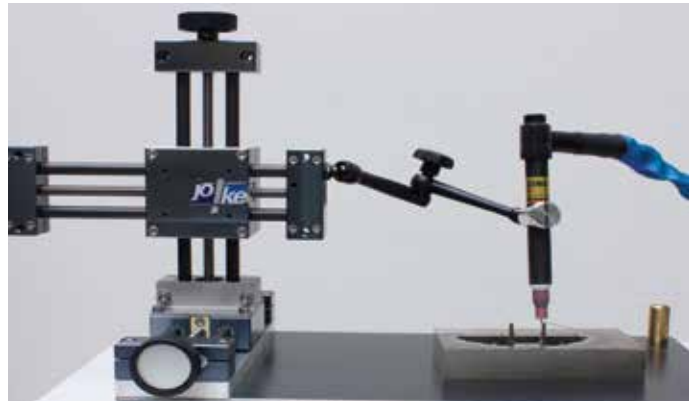


Machine torch

Microtorch

Machine torches series 9

Hose packs



TIG-welding
DC 110 A
AC 95 A

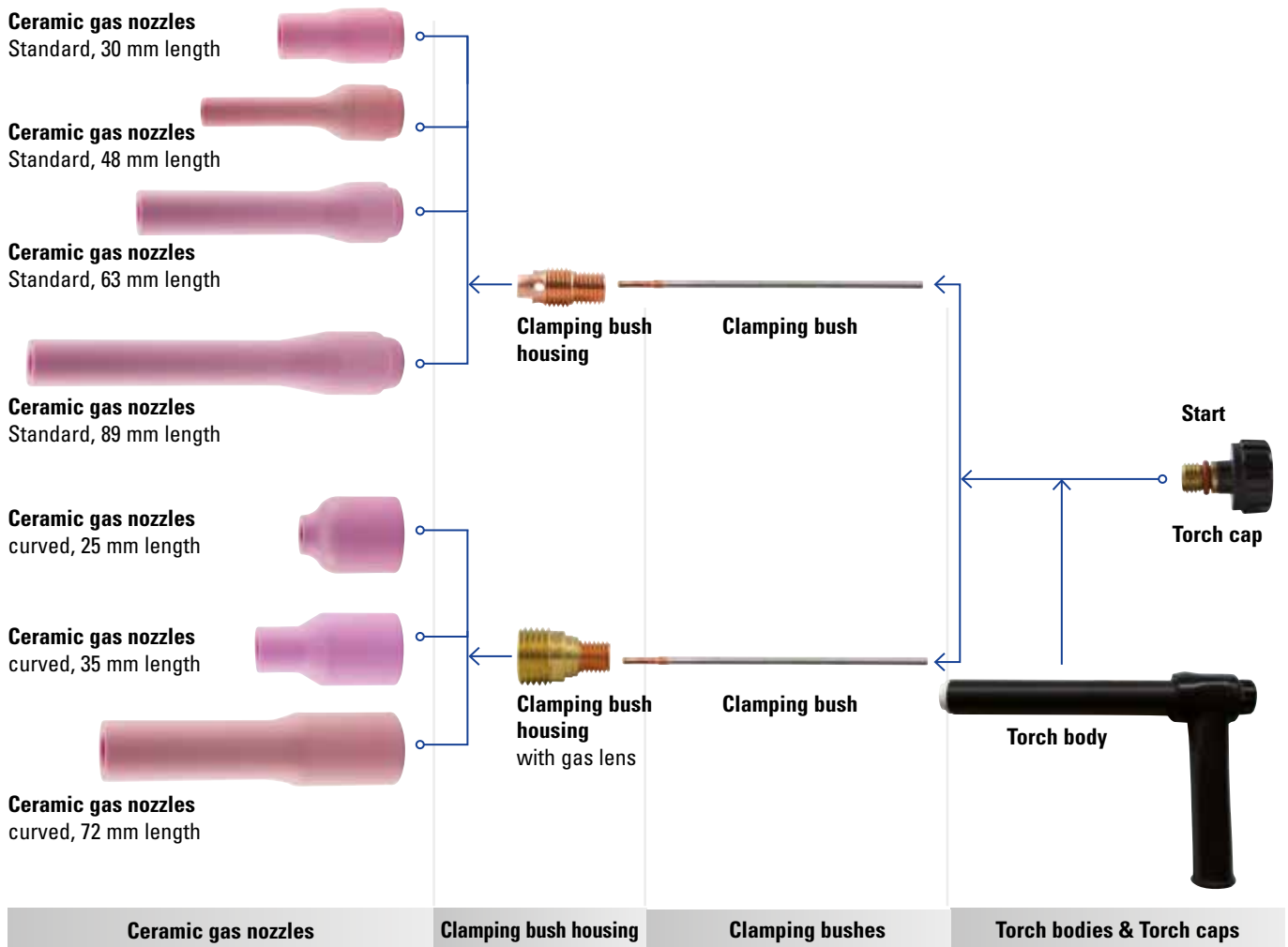


Illustration: Clamping bush original size








Machine torches series 9

Hose packs - Accessories

	Order No.	Price from 1 piece
Series 9 machine torch hose pack		4 516 000








⚙️ Accessories / spare parts

	Design	Interior Ø	Length	Order No.	Price from 1 piece
Torch body					
	rigid, for series MT-9			4 511 200	
Torch cap					
	short	Ø 7.8 mm	22 mm	4 513 600	
Ceramic gas nozzle					
	Standard, size 4	Ø 6.5 mm	30 mm	4 512 004	
	Standard, size 5	Ø 8.0 mm	30 mm	4 512 005	
	Standard, size 6	Ø 9.5 mm	30 mm	4 512 006	
	Standard, size 7	Ø 11.0 mm	30 mm	4 512 007	
	Standard, size 8	Ø 13.5 mm	30 mm	4 512 008	
	Standard, size 10	Ø 16.0 mm	30 mm	4 512 010	
	Standard, size 3	Ø 5.0 mm	48 mm	4 512 103	
	Standard, size 4	Ø 6.5 mm	48 mm	4 512 104	
	Standard, size 5	Ø 8.0 mm	48 mm	4 512 105	
	Standard, size 6	Ø 9.5 mm	48 mm	4 512 106	
	Standard, size 4	Ø 6.5 mm	63 mm	4 512 204	
	Standard, size 5	Ø 8.0 mm	63 mm	4 512 205	
	Standard, size 4	Ø 6.5 mm	89 mm	4 512 304	
	Curved, size 4	Ø 6.5 mm	25 mm	4 511 404	
	Curved, size 5	Ø 9.5 mm	25 mm	4 511 405	
	Curved, size 6	Ø 9.5 mm	25 mm	4 511 406	
	Curved, size 7	Ø 11.0 mm	25 mm	4 511 407	
	Curved, size 8	Ø 13.5 mm	25 mm	4 511 408	


Machine torches series 9

Accessories

Accessories / spare parts

					Price from 1 piece
	Design	Interior Ø	Length	Order No.	
	Curved, long, size 6	Ø 9.5 mm	35 mm	4 511 506	
	Curved XL, size 6	Ø 9.5 mm	72 mm	4 511 706	
Clamping bush housing					
	standard	Ø 1.0 mm	21 mm	4 513 310	
		Ø 1.6 mm	21 mm	4 513 316	
	Gas lens	Ø 1.0 mm	22 mm	4 513 110	
		Ø 1.6 mm	22 mm	4 513 116	
Clamping bushes					
	Standard for type MT-9	Ø 1.0 mm	161 mm	4 513 510	
		Ø 1.6 mm	161 mm	4 513 516	

matching set

	Order No.	Price from 1 set
Spare parts set for series 9 machine torch		
	Set contains: • 1 x torch cap (order no. 4 513 600) • 5 x ceramic gas nozzles (order no. 4 512 004, 4 511 405, 4 511 407, 4 512 103, 4 512 204) • 4 x clamping bushes (order no. 4 513 510, 4 513 516) • 2 x clamping bush housings, gas lens (order no. 4 513 110 + 4 513 116) • 2 x clamping bush housings, standard (order no. 4 513 310, 4 513 316) • 4 x tungsten electrodes (order no. 4 569 010, 4 569 016) • 1 x fibreglass cleaning pen (order no. 4 805 501) • 1x storage box (order no. 0 200 820)	4 519 901



**The perfect supplement
for finishing your weld
seams!**

ENESKAmicro handpieces and motors

**3rd generation | powerful
constant speed | perfectly quiet running
extremely high concentricity**

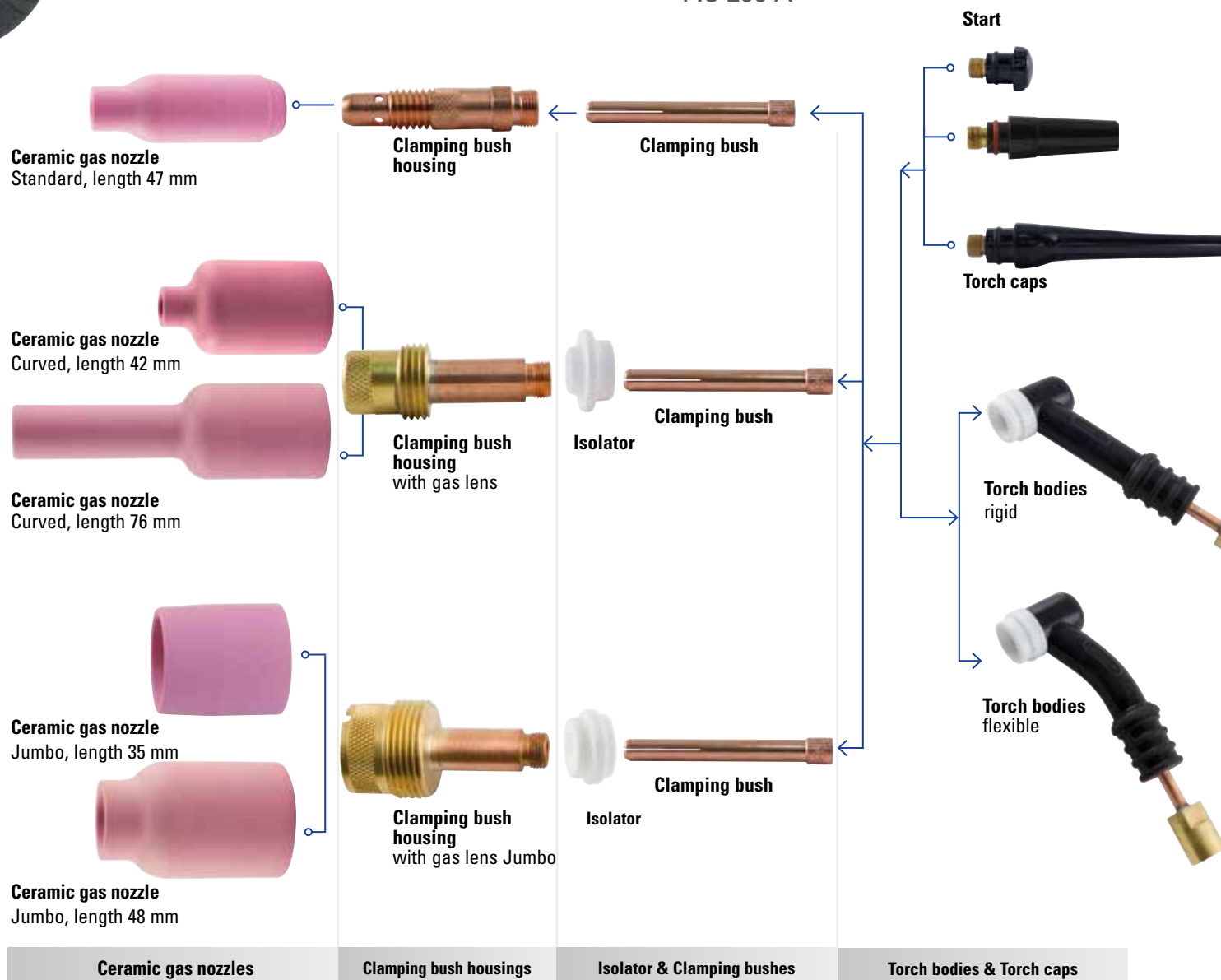


Large hand welding torches series 26

Hose packs




TIG welding
DC 240 A
AC 200 A



Large hand welding torches series 26

Hose packs - Accessories

	Design	Order No.	Price from 1 piece
Series 26 hand torch hose pack			
	rigid, 4 m, with pushbutton	4 525 200	
	flexible, 4 m, without pushbutton	4 525 600	






Accessories / spare parts

	Design	Interior Ø	Length	Order No.	Price from 1 piece
Torch body					
 	flexible, for series 26			4 520 800	
	rigid, for series 26			4 520 900	
Torch cap					
	short	Ø 12 mm	25 mm	4 520 112	
	medium	Ø 12 mm	60 mm	4 520 312	
	long	Ø 12 mm	120 mm	4 520 212	
Ceramic gas nozzle					
    	Standard, size 4	Ø 6.5 mm	47 mm	4 522 204	
	Standard, size 5	Ø 8.0 mm	47 mm	4 522 205	
	Standard, size 6	Ø 9.5 mm	47 mm	4 522 206	
	Standard, size 7	Ø 11 mm	47 mm	4 522 207	
	Standard, size 8	Ø 13 mm	47 mm	4 522 208	
	Curved, size 4	Ø 6.5 mm	42 mm	4 521 404	
	Curved, size 5	Ø 8.0 mm	42 mm	4 521 405	
	Curved, size 6	Ø 9.5 mm	42 mm	4 521 406	
   	Curved, size 7	Ø 11 mm	42 mm	4 521 407	
	Curved, size 8	Ø 12 mm	42 mm	4 521 408	
	Curved, long, size 5	Ø 8.0 mm	76 mm	4 521 505	
	Curved, long, size 6	Ø 9.5 mm	76 mm	4 521 506	
   	Curved, long, size 7	Ø 11 mm	76 mm	4 521 507	
	Jumbo, short, size 15	Ø 24 mm	35 mm	4 511 815	
	Jumbo, size 10	Ø 16 mm	48 mm	4 511 910	
	Jumbo, size 12	Ø 19 mm	48 mm	4 511 912	

Large hand welding torches series 26

Hose packs - Accessories


⚙️ *Accessories / spare parts*

				Price from
Design	Interior Ø	Length	Order No.	1 piece
Clamping bush housings				
	standard	Ø 1.0 mm	47 mm	4 523 310
		Ø 1.6 mm	47 mm	4 523 316
		Ø 2.4 mm	47 mm	4 523 324
		Ø 3.2 mm	47 mm	4 523 332
		Ø 4.0 mm	47 mm	4 523 340
Gas lens				
	standard	Ø 1.0 mm	50 mm	4 523 110
		Ø 1.6 mm	50 mm	4 523 116
		Ø 2.4 mm	50 mm	4 523 124
		Ø 3.2 mm	50 mm	4 523 132
		Ø 4.0 mm	50 mm	4 523 140
	Jumbo	Ø 1.0 mm	50 mm	4 523 210
		Ø 1.6 mm	50 mm	4 523 216
		Ø 2.4 mm	50 mm	4 523 224
		Ø 3.2 mm	50 mm	4 523 232
Clamping bush				
	Standard for type 17-18-26	Ø 1.0 mm	50 mm	4 522 710
		Ø 1.6 mm	50 mm	4 522 716
		Ø 2.4 mm	50 mm	4 522 724
		Ø 3.2 mm	50 mm	4 522 732
		Ø 4.0 mm	50 mm	4 522 740
		Ø 1.6 mm	52 mm	4 522 816
		Ø 2.4 mm	52 mm	4 522 824
		Ø 3.2 mm	52 mm	4 522 832
Isolator				
	for gas lens	Ø 25 mm	13 mm	4 522 400
	for jumbo gas lens	Ø 30 mm	16 mm	4 523 030

Large hand welding torches series 26

Hose packs - Accessories

↓ matching set

		Price from
Order No.		1 set
Spare parts set for series 26 large hand torch		
 <p>The set contains:</p> <ul style="list-style-type: none"> • 1 x torch cap, short (order no. 4 520 112) • 1 x torch cap, long (order no. 4 520 212) • 7 x ceramic gas nozzles, curved (order no. 4 521 404, 4 521 406, 4 521 408, 4 521 505) • 1 x isolator for gas lens (order no. 4 522 400) • 4 x clamping bushes (order no. 4 522 716 + 4 522 724) • 2 x clamping bush housings with gas lens (order no. 4 523 116 + 4 523 124) • 4 x tungsten electrodes, blue (order no. 4 569 016 + 4 569 024) • 1 x storage box (order no. 0 200 820) 		4 529 900

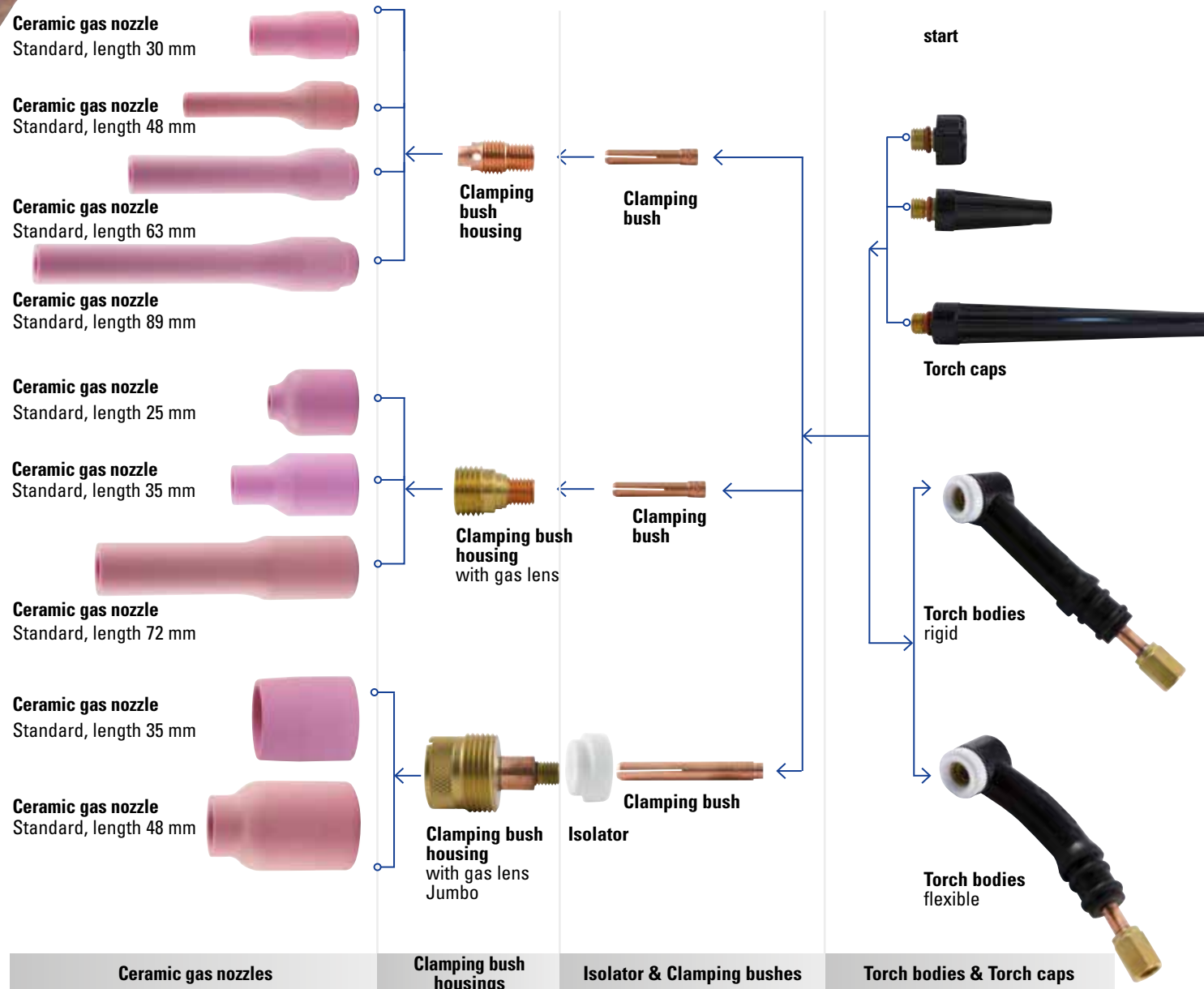


Small hand welding torches Series 9


Hose packs



TIG welding
DC 110 A
AC 95 A

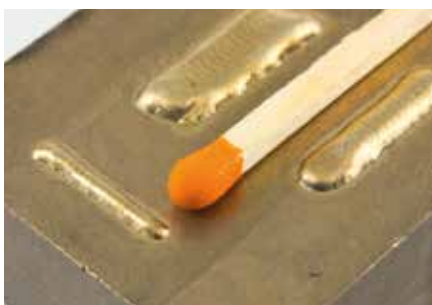


Small hand welding torches Series 9 Hose packs

Design		Order No.	Price from 1 piece
Series 9 hand torch hose pack			
	rigid, 4 m, without pushbutton	4 515 000	
	rigid, 4 m, with pushbutton	4 515 200	
	flexible, 4 m, without pushbutton	4 515 400	
	flexible, 4 m, with pushbutton	4 515 600	



Welding seam build-up - steel material





Welding seam build-up - bronze material



Welding seam build-up - aluminium material

Accessories / spare parts

	Design	Interior Ø	Length	Order No.	Price from 1 piece
Torch body					
	flexible, for series 9			4 511 000	
	rigid, for series 9			4 511 100	
Torch cap					
	short	Ø 8.6 mm	20 mm	4 510 186	
	medium	Ø 8.6 mm	50 mm	4 510 386	
	long	Ø 8.6 mm	145 mm	4 510 286	

Small hand welding torches Series 9

Hose packs







⚙️ *Accessories / spare parts*

	Design	Interior Ø	Length	Order No.	Price from 1 piece
Ceramic gas nozzle					
	Standard, size 4	Ø 6.5 mm	30 mm	4 512 004	
	Standard, size 5	Ø 8.0 mm	30 mm	4 512 005	
	Standard, size 6	Ø 9.5 mm	30 mm	4 512 006	
	Standard, size 7	Ø 11.0 mm	30 mm	4 512 007	
	Standard, size 8	Ø 13.5 mm	30 mm	4 512 008	
	Standard, size 10	Ø 16.0 mm	30 mm	4 512 010	
	Standard, size 3	Ø 5.0 mm	48 mm	4 512 103	
	Standard, size 4	Ø 6.5 mm	48 mm	4 512 104	
	Standard, size 5	Ø 8.0 mm	48 mm	4 512 105	
	Standard, size 6	Ø 9.5 mm	48 mm	4 512 106	
	Standard, size 4	Ø 6.5 mm	63 mm	4 512 204	
	Standard, size 5	Ø 8.0 mm	63 mm	4 512 205	
	Standard, size 4	Ø 6.5 mm	89 mm	4 512 304	
	Curved XL, size 6	Ø 9.5 mm	72 mm	4 511 706	
	Jumbo, short, size 15	Ø 24 mm	35 mm	4 511 815	
	Curved, size 4	Ø 6.5 mm	25 mm	4 511 404	
	Curved, size 5	Ø 9.5 mm	25 mm	4 511 405	
	Curved, size 6	Ø 9.5 mm	25 mm	4 511 406	
	Curved, size 7	Ø 11.0 mm	25 mm	4 511 407	
	Curved, size 8	Ø 13.5 mm	25 mm	4 511 408	
	Curved, long, size 6	Ø 9.5 mm	35 mm	4 511 506	
	Jumbo, size 10	Ø 16 mm	48 mm	4 511 910	
	Jumbo, size 12	Ø 19 mm	48 mm	4 511 912	

Small hand welding torches Series 9

Hose packs

⚙️ Accessories / spare parts

	Design	Interior Ø	Length	Order No.	Price from 1 piece
Isolator, for type 9-20					
	for jumbo gas lens	Ø 30 mm	14 mm	4 512 600	
Clamping bush housing					
	standard	Ø 1.0 mm	21 mm	4 513 310	
		Ø 1.6 mm	21 mm	4 513 316	
		Ø 2.4 mm	21 mm	4 513 324	
		Ø 3.2 mm	21 mm	4 513 332	
	Gas lens	Ø 1.0 mm	22 mm	4 513 110	
		Ø 1.6 mm	22 mm	4 513 116	
		Ø 2.4 mm	22 mm	4 513 124	
		Ø 3.2 mm	22 mm	4 513 132	
	Jumbo gas lens	Ø 1.0 mm	41 mm	4 513 210	
		Ø 1.6 mm	41 mm	4 513 216	
		Ø 2.4 mm	41 mm	4 513 224	
		Ø 3.2 mm	41 mm	4 513 232	
Clamping bush					
	Standard for type 9-20	Ø 1.0 mm	25.4 mm	4 512 710	
		Ø 1.6 mm	25.4 mm	4 512 716	
		Ø 2.4 mm	25.4 mm	4 512 724	
		Ø 3.2 mm	25.4 mm	4 512 732	
	for jumbo gas lens	Ø 1.0 mm	40 mm	4 512 910	
		Ø 1.6 mm	40 mm	4 512 916	
		Ø 2.4 mm	40 mm	4 512 924	
		Ø 3.2 mm	40 mm	4 512 932	

↓ matching set

	Order No.	Price from 1 set
Spare parts set for series 9 small hand torch		



The set contains:


- 1 x torch cap, short (order no. 4 510 186), 1 x torch cap, long (order no. 4 510 286), 1 x torch cap, medium (order no. 4 510 386)
- 2 x ceramic gas nozzles, curved (order no. 4 511 405 + 4 511 407) + 4 x ceramic gas nozzles, standard (order no. 4 512 004, 4 512 103, 4 512 204, 4 512 304)
- 2 x clamping bushes (order no. 4 512 710 + 4 512 716)
- 4 x clamping bush housings, gas lens (order no. 4 513 110, 4 513 116, 4 513 310, 4 513 316)
- 4 x tungsten electrodes (order no. 4 569 010, 4 569 016)
- 1 x fibreglass cleaning pen (order no. 4 805 501)
- 1x storage box (order no. 0 200 820)

4 519 900

Microtorches Series 70

Hose packs








		Price from
		Order No. 1 set
Series 70 microtorch hose pack incl. accessory set		
	rigid hose pack for series 70 microtorch incl. accessories without pushbutton	4 535 000


Microtorches Series 70

Hose packs - Accessories

⚙️ Accessories / spare parts

	Design	Interior Ø	Length	Order No.	Price from 1 piece
PYREX gas nozzle					
		Ø 7.0 mm	15 mm	4 531 404	
Insulating bush					
		Ø 8.2 mm	90 mm	4 532 400	
Clamping bushes					
	for type 70-140	Ø 1.0 mm		4 532 710	
		Ø 1.6 mm		4 532 716	
		Ø 2.4 mm		4 532 724	
Adjustment aid for tungsten electrode					
	for type 70-140			4 533 400	
45° replacement head for type 70-140					
	45°			4 530 445	
90° replacement head for type 70-140					
	90°			4 530 590	
Straight replacement head for type 70-140					
	Straight			4 530 618	


↓ matching set

	Order No.	Price from 1 set
Spare parts set for series 70 microtorches		
	The set contains: • 4 x clamping bushes (order no. 4 532 710 + 4 532 716) • 1 x insulating bush (order no. 4 532 400) • 2 x PYREX gas nozzle (order no. 4 531 404) • 6 x tungsten electrodes (order no. 4 569 010 + 4 569 016)	4 539 900

Tungsten electrodes non-radioactive


Tungsten electrodes, blue

Contains lanthanum special additives for perfect ignition even at the lowest inverter device current intensities. Very good service life and optimum re-ignition in the hot and cold state. Universally usable with direct and alternating current. Non-radioactive!

	Colour	Dimensions	Packing quantity	Order No.	Price from
					1 piece
	blue	Ø 1.0 x 175 mm	10 piece	4 569 010	
		Ø 1.6 x 175 mm	10 piece	4 569 016	
		Ø 2.4 x 175 mm	10 piece	4 569 024	
		Ø 3.2 x 175 mm	10 piece	4 569 032	


Tungsten electrodes, gold

Very economical-to-use electrodes for direct and alternating current when the ignition current is within the medium to high range. Non-radioactive!


	Colour	Dimensions	Packing quantity	Order No.	Price from
					1 piece
	gold	Ø 1.0 x 175 mm	10 piece	4 569 210	
		Ø 1.6 x 175 mm	10 piece	4 569 216	
		Ø 2.4 x 175 mm	10 piece	4 569 224	
		Ø 3.2 x 175 mm	10 piece	4 569 232	

Tungsten electrode, light green

The light green tungsten electrodes consist of pure tungsten and are mainly used for welding using alternating current. Non-radioactive!

	Colour	Dimensions	Packing quantity	Order No.	Price from
					1 piece
	light green	Ø 1.0 x 175 mm	10 piece	4 569 610	
		Ø 1.6 x 175 mm	10 piece	4 569 616	
		Ø 2.4 x 175 mm	10 piece	4 569 624	
		Ø 3.2 x 175 mm	10 piece	4 569 632	

Portable tungsten electrode grinding device for a perfect seam

		Price from
		Order No. 1 piece
Portable tungsten electrode grinding device in a carrying case		
	Technical data:	4 561 100
	Output:	650 W
	Power supply:	230 V
	Speed:	min. 11500 bis 27000 rpm
	Sound pressure:	88.8 dB(A)
	Vibration value:	5 m/s ²
	Diamond disc:	Ø 40 mm
	Filter cartridge:	disposable filter (classe: H12)
	Electrode diameter:	1 – 4 mm
	Grinding angle:	15° – 180° (infinitely adjustable)
Shortest grindable electrode length: 15 mm		
Weight (device): 2.8 kg		
Weight (in case): 4.5 kg		
CE certification		

Tungsten electrode grinding device

It's all a matter of the "right grind"! The portable electrode grinding device from joke provides the optimum solution for giving your tungsten electrodes the right cylindrical grind, neatly and in a few simple moves. A precise grind at the tungsten electrode tip is tremendously important in ensuring a stable electric arc. A sharp-tipped tungsten electrode makes it possible to concentrate the electric arc energy on a small surface with deep penetration – which is how you ultimately achieve clean results!

About the technology: An integrated filter cartridge makes sure that the dusts generated during grinding are absorbed and are not dispersed in the atmosphere. A built-in diamond disc makes for the correct surface of your tungsten electrode tip. Furthermore, through the possibility of using different collets on the handpiece, you can also process all diameters between 1 and 4 mm.



In addition, the grinding device convinces through its light weight, for at 2.8 kg, it is easy to transport and therefore even more versatile. A carrying case rounds off the product.

Scope of supply:

- Diamond disc (already installed)
- Electrode holder
- Collets for electrode diameter 1.6 mm
- Collets for electrode diameter 2.4 mm
- Collets for electrode diameter 3.2 mm
- Allen key, 2 mm
- Allen key, 4 mm
- Chuck key 13/17
- Chuck key 13/14
- Disposable filter (already installed)
- Disposal bag for disposable filter
- Carrying case
- Operating instructions

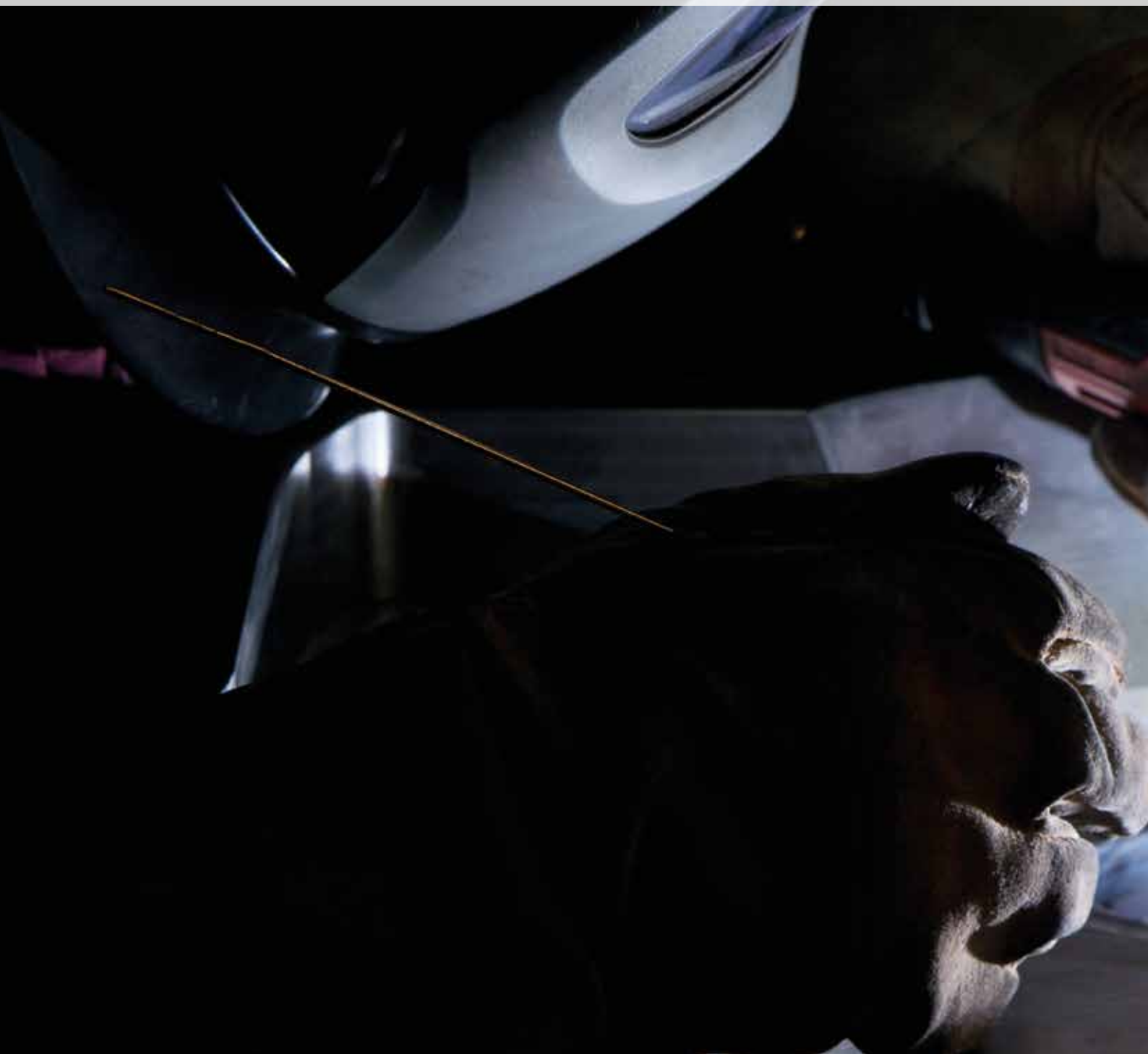
❗ Further accessories available on request!!

Accessories / spare parts

		Price from
		Order No. 1 piece
Stand for sanding machine		
		4 561 500
Diamond grinding wheel		
		4 561 600
Filter cartridge		
		4 561 700
Spare sight glass		
		4 561 800
O-ring for plexiglass cover		
		4 561 801

Workplace & protection equipment

46	Premium cross table
49	Magnetic clamping balls
50	Stereomicroscopes
51	Cold light source LED



52	Inspection lights
53	Suction units
56	Welding helmets
58	Protection for eyes and hands



Workplace equipment / Accessories for the torch

Premium cross table

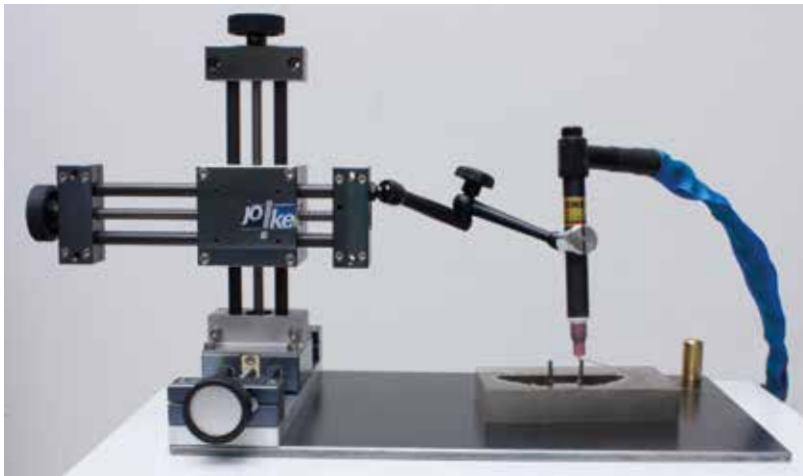
Premium cross table

Modern component geometries – particularly on contours – require precision accuracy when guiding your torch. This is why joke recommends you the Premium cross table, a high-quality addition in order to achieve optimum welding results. The Premium cross table lets you position the machine torch with millimetre accuracy over the workpiece. Flexible and easy handling of the flexible arm ensure rapid alignment. Its fine bearing-mounted spindles guarantee smooth and continuous travel.

The Premium cross table is equipped with a ground point mounted on the base plate for protective earthing. The earth cable with a spring clamp (order no. 4 902 125) can be easily connected here.

	Order No.	Price from 1 piece
--	-----------	-----------------------

Premium cross table with flexible arm and steel plate



The cross table allows positioning of the machine torch with millimetre accuracy over the workpiece by means of x-y-z axes and the freely pivoting torch holder.

4 901 700

⚙️ Accessories / spare parts

Dimensions	Order No.	Price from 1 piece
------------	-----------	-----------------------

Magnetic foot (spare) for cross table



120 x 50 x 60 mm

4 901 603

Workplace equipment / Accessories for the torch

Welding torch holder

	Order No.	Price from 1 piece
--	-----------	-----------------------

Welding torch holder, magnetic



- for the secure storage of your welding torch
- easy to install thanks to magnet

4 802 000

Workplace equipment Flowmeter

Flowmeter

The volumetric quantity of gas at the gas nozzle of the hose pack can be measured using the flowmeter. You can therefore ensure that the preset gas pressure of your inert gas cylinder also arrives at your hand torch.

	Order No.	Price from 1 piece
Flowmeter for all gases up to 25 l/min.		
	4 800 251	



Workplace equipment Transport trolley

	Dimensions	Order No.	Price from 1 piece
Transport trolley, large			



This trolley provides space for the welding device multiSpot 3, gas cylinder, cross table and other additional devices such as water cooling or other accessories.

Completely welded and powder-coated steel frame, robust, very free-running and partly lockable swivel and fixed castors, compartments with non-slip mat, chain for securing cylinders.

Dimensions (L x W x H): 860 x 500 x 1,250 mm
Weight: 35 kg

860 x 500 x 1,250 mm


4 905 001

Standing aid

Standing aid

Even if you prefer to stand whilst working instead of sitting down – you still need the necessary support. Our standing aid relieves you during stand-up jobs resulting in enhanced efficiency with fewer inactivity periods due to injuries caused by poor posture.

- Integral foam padding
- Seat inclination 2–15° forwards
- Circular base with PU rim (anti-slip)
- Seat height adjustment by means of a pneumatic safety spring
- optimal as a supplement for your workplace


		Price from
		Order No. 1 piece
Standing aid		
	Seat height:	630 – 850 mm
	Seat surface (W x D):	390 x 350 mm
	Circular base:	Ø 430 mm
		0 200 419

Positioner joke easy-Work for attachment to table

Positioner joke easy-Work

Compact and very flexible to use: the small rotating and pivoting unit unit joke easy-Work can be attached quickly and securely to almost any table by means of the drillings, such as the large joke Ergo-Work worktable.



The optionally available T-slot clamping plates ensure make fixing the workpieces child's play. These plates are made from aluminium and are optionally available in square or round shape.

		Price from
		Order No. 1 piece
joke easy-Work positioner with magnet Ø 125 mm		
	Rotation range:	manually through 360°
	Pivoting range:	0 – 90° manually
	Dimensions (W x H x D):	200 x 160 x 250 mm
	Weight : approx. 11 kg	
	Clamping system:	Magnet Ø 125 mm
		0 200 872


Magnetic clamping balls joke Magic-Ball

Magnetic clamping balls joke Magic-Ball

Comfortable and ergonomic 3-dimensional work. Ideal for polishing and welding workplaces. The Magic-Ball magnetic clamping balls bring your workpiece into almost any desired position. Depending on the workpiece geometry and weight, pivoting angles of up to 90° can be set. The balls are enclosed in leather-lined, chemically nickel-plated steel rings that hold them absolutely securely in any position – the sliding adhesion effect makes it possible! The powerful magnetic chuck of the Magic-Ball is activated using the key supplied (partial activation is also possible for optimum positioning of the workpiece). The balls available in four sizes are all of “Made in Germany” quality.

	Weight	Size	Dimensions	Clamping force	Pole pitch	Order No.	Price from 1 piece
Magnetic clamping balls joke Magic-Ball							
	ball: 4 kg ring: 1 kg	Ø 80 mm	magnet (Ø): 80 mm ball (Ø x H): 128 x 104 mm	80 N/cm ²	1.5 + 0.5 mm	0 200 323	
	ball: 7 kg ring: 2 kg	Ø 100 mm	magnet (Ø): 100 mm ball (Ø x H): 158 x 129 mm	100 N/cm ²	1.5 + 0.5 mm	0 200 324	
	ball: 11 kg ring: 4 kg	Ø 130 mm	magnet (Ø): 130 mm ball (Ø x H): 188 x 145 mm	100 N/cm ²	1.5 + 0.5 mm	0 200 325	
	ball: 17 kg ring: 5 kg	Ø 160 mm	magnet (Ø): 160 mm ball (Ø x H): 218 x 164 mm	100 N/cm ²	1.5 + 0.5 mm	0 200 326	
Magnetic clamping balls joke Magic-Ball with earth cable especially for the ENESKA impulse 230							
	ball: 4 kg ring: 1 kg	Ø 80 mm	magnet (Ø): 80 mm ball (Ø x H): 128 x 104 mm	80 N/cm ²	1,5 + 0,5 mm	4 901 801	
	ball: 7 kg ring: 2 kg	Ø 100 mm	magnet (Ø): 100 mm ball (Ø x H): 158 x 129 mm	100 N/cm ²	1,5 + 0,5 mm	4 901 802	
	ball: 11 kg ring: 4 kg	Ø 130 mm	magnet (Ø): 130 mm ball (Ø x H): 188 x 145 mm	100 N/cm ²	1,5 + 0,5 mm	4 901 803	
	ball: 17 kg ring: 5 kg	Ø 160 mm	magnet (Ø): 160 mm ball (Ø x H): 218 x 164 mm	100 N/cm ²	1,5 + 0,5 mm	4 901 804	

⚙️ Accessories / spare parts

	Length	Order No.	Price from 1 piece
Earth cable (25 mm²)			
	Earth cable is absolutely necessary for first-time use of the magnetic clamping ball joke Magic-Ball with earth connection and must be ordered separately.	1000 mm	4 902 110
	Earth cable as above	2000 mm	4 902 111



Compact stereo microscope for welding workstations

Compact stereo microscope


This welding microscope leaves nothing to be desired. The extended working distance of approx. 225 mm allows simple use even on workpiece geometries where access is difficult. Precise positioning and welding is possible through 10 x magnification. The first-rate glare-protection cartridge appeals by the following advantages:

- Variable shade level 8–12 (DIN), variable sensitivity adjustment, two-stage opening delay adjustment.
- By removing the glare-protection cartridge, the microscope is also highly suitable for use during polishing or for quality control!


		Price from
		Order No. 1 piece
Compact stereomicroscope with XXL working distance		
Working distance:	approx. 225 mm	4 901 400
Magnification:	10 x	
Filter cassette:	degree of protection 8–12 (DIN)	
Scope of delivery:	stereomicroscope with filter cassette, magnetic foot and flexible arm	





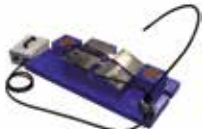
⚙️ Accessories / spare parts

		Price from
		Order No. 1 piece
Replacement filter cassette		
	fits for glare protection shield and welding microscope	4 938 335

Cold light source Power-LED

		Price from
		Order No. 1 piece
Cold light source LED, 30 W Power LED		
	Lamp:	Power-LED 30 W 0 200 745
	Colour temperature:	6,500 K
	Bulb life:	approx. 25,000 h
	Light brightness:	by rotary switch
	Cooling:	by fan
	Connection voltage:	100 – 240 V, 50/60 Hz
	Fuse:	1.25 A, slow-blow
Protection class:		IP 20
Goose-necked light not included		

Accessories / spare parts

		Price from
		Order No. 1 piece
Single goose-necked light guide, 53 cm		
	self-sustaining	0 200 730
Double goose-necked light guide, 53 cm		
	self-sustaining	0 200 720
XXL Flexlight for cold light sources		
	For direct connection to our cold light sources. Delivery includes magnetic base for positioning on the workpiece in addition to two XXL swan necks (800 mm each) and flexible fibreglass supply lead (2,000 mm). Cold light source not included in scope of supply.	0 200 778
	Suitable light source:	0 200 745 and 0 200 710


Inspection lights

1000 lumen torch,
450 lumen inspection lamp,
300 lumen gooseneck lamp



Inspection lights, set

- innovative 3-in-1 work light, interchangeable attachments, rechargeable
- magnetic base for hands-free work
- different light intensities adjustable via on/off button
- Torch and goosenecked lamp with adjustable focus, inspection lamp can be rotated and swivelled through 180° rotatable and pivotable
- goosenecked lamp with 350 mm long flexible neck for use in areas with restricted access.
- Storage battery: 3.7 V 2200 mAh Li-Ion
- Charging time: 7 hours
- Light output: torch/1000 lm, inspection lamp/450 lm, goosenecked lamp/300 lm
- Operating times (high): goosenecked lamp: 11 hours, inspection lamp: 4.2 hours, torch: 3.3 hours

		Price from
		Order No. 1 piece
LED inspection light, rechargeable		
	Content of the set:	0 200 717
	<ul style="list-style-type: none"> • flashlight • inspection lamp • gooseneck lamp • USB cable 	
in sturdy box		

joke suction units...

Laser emissions, dust and fine particles, solvents, adhesive vapour, solder vapour/ welding vapour ...

at least one of these or some other pollutions also occur daily in your working environment. You should do something about them in order to avoid damage to health.

With a suction unit from joke, you create the optimum conditions for "good air" at the workplace – even if you ever "let it fly".

Our JF 10 Compact suction unit can be configured with two different filter modules:

1. Suspended matter filter for dusts/fine particles and all particles that arise in mechanical processing sequences.
2. Activated charcoal filter is used wherever solvents, adhesive vapours, soldering vapour, smoke and similar gaseous pollutions arise. It eliminates or reduces them to a minimum.

Owing to the high density of the filters used, a very high level of separation of the particles and contaminants to be aspirated is achieved. The filters can be combined as individual modules and are easy to replace. Consequently, if replacement is required, you only actually need to change the saturated filter, whereas the remainder can continue to be used.

The turbine cooling (bypass cooling) inside the devices ensures very long services lives of the turbine units, even during constant use. The modular construction allows effective adaptation to individual requirements.



Things to know about contaminants at the workplace and use of suction units

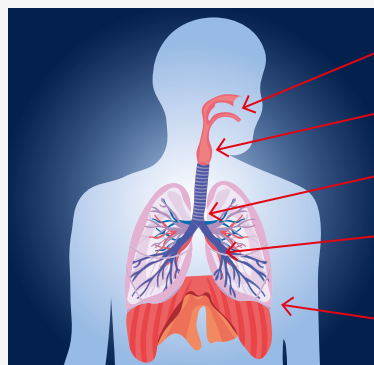
Aerolsols consist of a large number of dust and smoke particles of different diameters. They occur during production processes such as milling, drilling, laser work, cutting, soldering and engraving, etc. The particle size is indicated in micrometres ($\mu\text{m} = 10^{-6}\text{m}$). Contamination of the respiratory tracts depending on the particle size is shown in the diagram opposite.

Maintenance intervals of the filters

With a properly dimensioned unit, the following intervals result for the individual filter types, depending on the contamination:

- Z-line filter: 4 – 8 months
- suspended matter filters: 4 – 8 months
- activated charcoal filters: 6 – 12 months

Without a change of filter, no protection of your health exists!



Nasal mucosa and pharynx $10\ \mu\text{m}$

Larynx $4,7 - 5,8\ \mu\text{m}$

Trachea and main bronchi $3,3 - 4,7\ \mu\text{m}$

Secondary and terminal bronchi $1,1 - 3,3\ \mu\text{m}$



Alveoli $1\ \mu\text{m}$

Designed by Alvaro_cabrera/FreePik


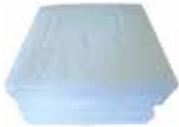




Suction units




joke JF 10 Compact

		Design	Order No.	Price from 1 piece
Suction unit joke JF 10 Compact				
		Suction device with initial filter equipment, infinitely adjustable, operating hour counter, 4 castors for mobile use, not including accessories	with suspended matter filter	0 200 230-3
		Technical data: Suction output, free blowing: 250 m³/h Effective suction output: 20 – 200 m³/h Max. compression: 6,000 Pa Motor: continuous running Connection: 120 – 230 V, 50/60 Hz Motor output: 0.65 kW Sound level: approx. < 62 dB(A) Weight: approx. 24 kg Dimensions (W x H x D): 300 x 510 x 300 mm Colour: RAL 7035 Suction connectors: 2 (rear) Suction connector for arm: 1 (top) Filter (0 200 230-3): Prefilter F5 + suspended particle filter H 13 Filter (0 200 230-ZA1): Prefilter F5 + suspended particle filter H 13 + activated charcoal filter	with activated charcoal filter	0 200 230-ZA1

⚙️ Accessories / spare parts

		Order No.	Price from 1 piece
Suspended matter filter H 13, 250 x 250 x 190 mm		0 200 271	
			
Filter mats F5, 230 x 230 mm (pack: 20 pieces)		0 200 257	
			
Combination filter suspended matter/activated charcoal, 250 x 250 x 190 mm		0 200 240-4	
			
Suction arm for mounting on device		0 200 242-3	
		850 mm long, 3 joints, without throttle valve, anodised aluminium tubes	

Suction units Accessories

		Price from
		Order No. 1 piece
Welding nozzle for suction arm		
	310 mm long, anodised aluminium	0 200 243
Connecting hose NW 44		
	2.5 m, NW 44 connecting sleeves on both sides	0 200 247
Suction shield for suction arm		
	Ø 200 mm	0 200 248
Suction arm for table mounting		
	850 mm long, 3 joints, with throttle valve, anodised aluminium tubes, incl. table bracket and 2.5 m hose	0 200 268




Protection equipment

Optimum protection for your eyes with crystal clear vision


Automatic welding helmet Crystal 2.0, extra bright

The Crystal 2.0 automatic welding helmet, with a light transmission of 32 % in the light state (protection level 2), offers for the first time a practically unclouded and clear view of its working environment. All with a clarity that amounts to an insight into a new dimension.

		Price from
		Order No. 1 piece
Automatic welding helmet Crystal 2.0, extra bright		
	Technical data:	4 800 502-1
	Field of vision:	50 x 100 mm
	Shade levels:	DIN 4/5–9 and DIN 4/9–13
	Weight:	460 g

Automatic welding helmet e684





The welding helmet with an autopilot! Sorry, it still can't do the welding for you, but adjusts the brightness on its own. The adaptive shade level control automatically adjusts the appropriate shade level over the range S L 5 to 13. An integrated arc-extinguishing function ensures that the cartridge opens uninterruptedly from dark to light and vice versa. A further highlight is the grinding mode – if offers enhanced eye protection at the touch of a button.

		Price from
		Order No. 1 piece
Automatic welding helmet e684, extra light		
	Technical data:	4 800 500
	Field of vision:	50 x 100 mm
	Shade levels:	DIN 4/5–9 and DIN 4/9–13
	Weight:	490 g

Protection equipment

Optimum protection for your eyes with crystal clear vision

⚙️ Accessories / spare parts

	Dioptres	Order No.	Price from 1 piece
Magnifier			
	1.0	4 800 310	
	1.5	4 800 315	
	2.0	4 800 320	
	2.5	4 800 325	
Replacement pane inside			
		4 800 351	
Replacement pane outside			
		4 800 352	
Replacement-headband with velcro			
		4 800 353	
Backpack for automatic welding helmet			




High quality backpack for safely storing your welding helmet. The padded inner lining prevents scratches and scuffs. The cushioned straps offer maximum carrying comfort.



4 800 501

Hand protection


- Grained goatskin with cuff (10 cm) made of cowhide leather
- Heat-resistant yet still supple
- Good finger sensitivity
- Reinforced seams made of heatproof Kevlar®
- Elastic band on wrist for optimum fit

	Size	Order No.	Price from 1 pair
TIG gloves			
	8/M	4 881 008	
	9/L	4 881 009	
	10/XL	4 881 010	
	11/XXL	4 881 011	




- Skin-friendly two-component fabric
- High flexibility of the fabric in the grip area allows for maximum fine motor skills
- Certified to EN 12477
- Machine washable, black

	Size	Order No.	Price from 1 pair
Laser protection gloves Bodyguard 2K			
	9/L	4 910 0009	
	10/XL	4 910 0010	

Protective goggles

	Order No.	Price from 1 piece
Laser safety goggles		
 <p>also suitable for spectacle wearers, very light owing to plastic filter, adjustable temples, wide field of vision.</p> <p>Note: It is essential to compare before use the details concerning the operating mode, wavelength and shade level of the laser safety goggles with the safety requirements of the laser system.</p>	4 910 020-1	

Preparation and post-processing Fibreglass pen for removal of annealing colour

	Order No.	Price from 1 piece
Cleaning pen fibreglass		
	4 805 501	
Cleaning pen brass		
	4 805 502	
Cleaning pen steel		
	4 805 503	

Accessories / spare parts

	Order No.	Price from 1 piece
Replacement lead fibreglass		
	4 865 601	
Replacement lead brass		
	4 865 602	
Replacement lead steel		
	4 865 603	

Protection equipment

Glare protection shield


Flexible arm system

This flexible arm system is the ideal supplement to make your welding work even easier and at the same time optimise the achievable results. You can choose between a flexible arm for receiving the machine torch on the cross table and two flexible arms with a magnetic foot for further accessories: If for example you work with the anti-glare panel, even without a welding helmet, this provides your eyes the right protection at all times.

The stereo microscope, also available with a flexible arm, lets you place even finer weld seams and welding spots on the workpiece owing to 10x magnification.

		Price from
		Order No. 1 piece
Glare protection shield with flexible arm and magnetic foot		
	<p>This protection shield allows you to work safely even without a welding helmet! The glare protection cassette works with variable blackness values 8–12 (DIN). Sensitivity and delay can be adjusted in two settings respectively. The power supply is provided by solar cells. Since work is performed without magnification in this case, the working distance can be variably configured.</p>	4 901 200

Accessories / spare parts

		Price from
		Order No. 1 piece
Replacement filter cassette		
	fits for glare protection shield and welding microscope	4 938 335

Protection equipment

Glare protection shield

	Order No.	Price from 1 piece
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Mobile laser protection curtain



- Curtain:
Dimensions (W x H): 4300 x 1800 mm (+25 mm / -10 mm).
Material thickness: approx. 0.8 mm
Weight: approx. 1.0 kg/m²
Colour: black

4 910 819

- Mobile frame:
Centre section: 2100 x 2100 mm + two swivel arms,
each 1100 mm
Colour: grey

Fully assembled with eyelets and metal hooks as well as Velcro and loop tape for laser-safe connection of multiple protection systems

Protection levels in accordance with EN 12254:

- Wavelength 180-315: • D AB8 + IR AB3 + M AB5Y (OD 8+)
- Wavelength 315-1050: • D AB5 (OD 5+) + I AB7 + R AB6 + M AB8 (OD 8+)
- Wavelength 1050-1400: • D AB4 (OD 4+) + I AB7 + R AB6 + M AB8 (OD 8+)
- Wavelength 1400-11000: • DIR AB2 + M AB3Y (OD 3+) PF CE

	Order No.	Price from 1 piece
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Mobile laser protection wall



Suitable for all types of lasers from 180 - 11,000 nm

4 910 820

- Surface element: ALU composite panel 4 mm
- Dimensions: approx. 1000 x 2000 x 600 mm (W x H x D)
- Mobile frame: 4 swivel castors, 2 with wheel stops

Protection classes according to EN 12254:

- Wavelength 180-315: • D AB10 + IR AB5 + M AB6Y (OD 10+)
- Wavelength 315-1050: • DR AB7 + I AB8 + M AB10 (OD 10+)
- Wavelength 1050-1400: • D AB7 + I AB8 + R AB6 + M AB10 (OD 10+)
- Wavelength 1400-11000: • DIR AB4 + M AB4Y (OD 4+) PF CE

	Order No.	Price from 1 piece
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Mobile protection wall



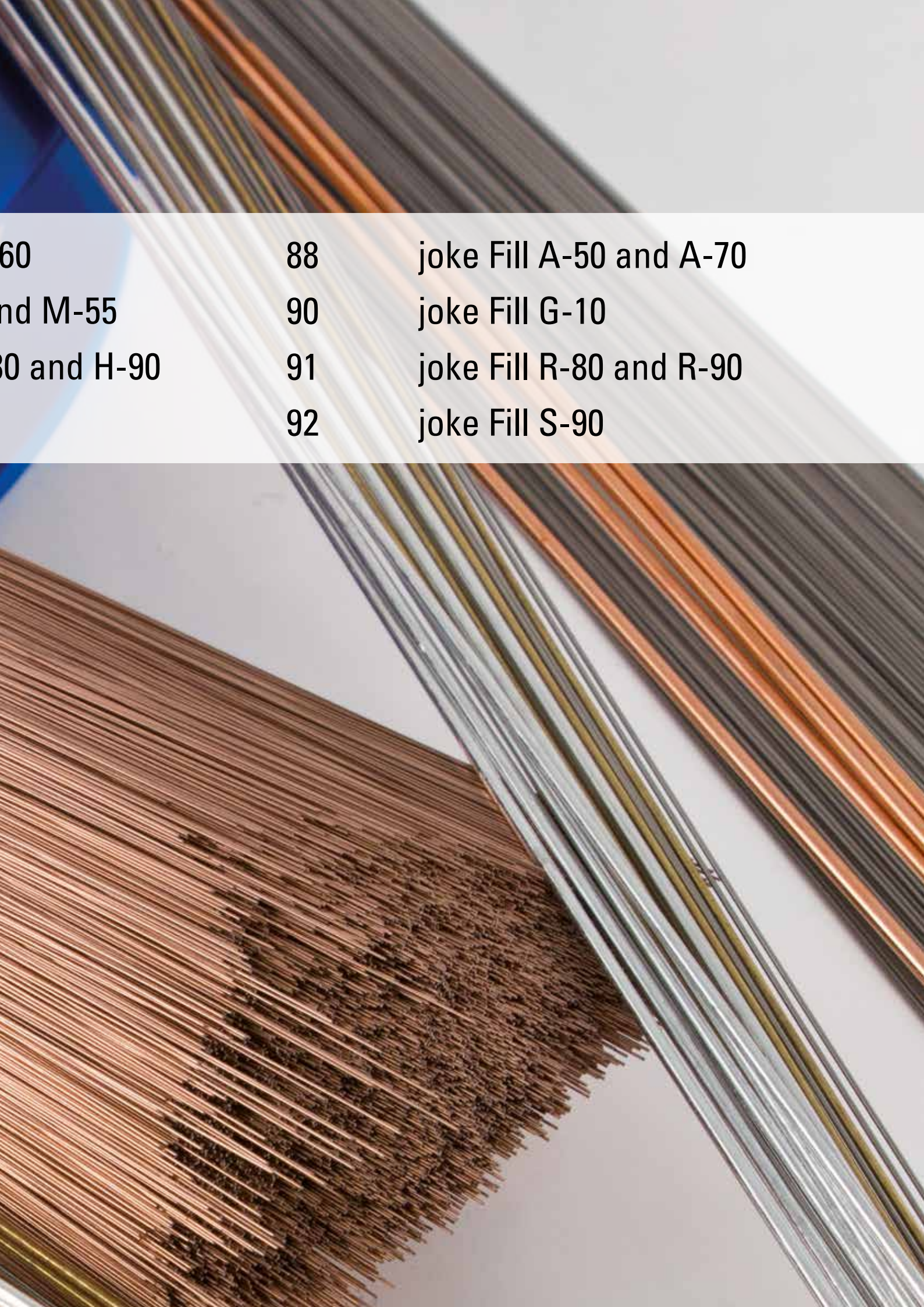
Extremely sturdy square tubing base frame.

4 881 200

Note: According to the Accident Prevention Regulations, workplaces for electric arc welding must be so arranged that uninvolved persons are protected against harmful effects of optical radiation on the skin and eyes.

Welding fillers

66	joke Fill W-05, W-10, W-22, W-25 and W-
71	joke Fill M-30, M-33, M-40, M-45, M-50 and
77	joke Fill H-40, H-50, H-55, H-60, H-65, H-8
83	joke Fill K-16, K-33, K-35, K-40 and K-77



60	88	joke Fill A-50 and A-70
nd M-55	90	joke Fill G-10
0 and H-90	91	joke Fill R-80 and R-90
	92	joke Fill S-90

Welding fillers joke Fill

Overview

Welding fillers joke Fill

- Alloys adapted specifically for repairs and modifications in tool making and mould building
- Likewise matching alloys are available for serial production
- TiG rods in a handy length of 500 mm
- Economical and durable packaging in as little as 50 g upwards
- Effective and fair prices without any concealed surcharges
- Laser wires as straightened rods now also in a length of 500 mm for fewer remnants
- Even more economical than endless wire on large reels in quantities of 50 g and more
- Special grades or other quantities and diameter on request!
- Our wires are constantly being optimised in cooperation with well-known raw material suppliers and users

Welding fillers
in the joke shop



i In addition to the table details on the following pages all welding fillers in rods and Coils are also **available in other packaging such as 100 g and 500 g.**

Suitable for	Application hardness	joke Fill	For materials
Steel	soft	W - 05	1.2311 • 1.2312 • 1.2738 • 1.2162 and similar
Steel	soft	W - 10	1.2311 • 1.2312 • 1.2738 • 1.2162 and similar
Steel	soft	W - 22	1.2343 • 1.2344 • 1.2082 • 1.2083 • 1.2367 • 1.2606 and similar
Steel	soft	W - 25	1.2713 • 1.2714 • 1.2740 • 1.2744 • 1.2764 • 1.2767 and similar
Steel	soft	W - 60	Nickel, nickel-based alloys, GG (grey cast iron), GGG, GGL
Steel	medium	M - 30	1.2343 • 1.2344 • 1.2764 • 1.2767 and similar
Steel	medium	M - 33	1.2343 • 1.2344 • 1.2764 • 1.2767 and similar
Steel	medium	M - 40	1.2343 • 1.2344 • 1.2360 • 1.2362 and similar
Steel	medium	M - 45	1.2343 • 1.2344 • 1.2362 • 1.2363 • 1.2367 and similar
Steel	medium	M - 50	1.2082 • 1.2083 • 1.2316 • 1.4115 • 1.4120 and similar
Steel	medium	M - 55	1.2343 • 1.2344 and all other hot-work steels
Steel	hard	H - 40	1.2343 • 1.2344 and all other hot-work steels
Steel	hard	H - 50	1.2842 • 1.2762 • 1.2743 • 1.2721 • 1.2710 and similar
Steel	hard	H - 55	1.2343 • 1.2344 • 1.2311 • 1.2312 • 1.2738 • 1.2767 and similar
Steel	hard	H - 60	1.2358 • 1.2363 • CARMO • CALMAX and similar
Steel	hard	H - 65	1.2379 • 1.2436 • 1.2080 • 1.2601 • and similar cold-work steels
Steel	hard	H - 80	1.2379 • 1.2436 • 1.2080 • 1.2601 • and similar cold-work steels
Steel	hard	H - 90	1.3243 • 1.3333 • 1.3340 • 1.3344 • 1.3348 and similar HSS and PM steels
Corrosion resistant		K - 16	1.4301 • 1.4401 • 1.4541 • 1.4571 and similar V2A - V4A - alloys
Corrosion resistant		K - 33	joints and intermediate layers on almost all tool steels
Corrosion resistant		K - 35	1.2083 • 1.2085 • 1.2316 • 1.4034 • Mirrax, Corrax, Ramax and similar steels
Corrosion resistant		K - 40	universally for case-hardened, quenched and tempered and hot-work steels, nitrated steels
Corrosion resistant		K - 77	for cracks and primers on all steel types, including mixed joints
Aluminium		A - 50	very universally for the majority of aluminium alloys up to F30
Aluminum		A - 70	for high strength aluminium alloys from F28 onwards, hardened
Multi-alloy bronzes		G - 10	AMPCO® in addition to other aluminium and manganese multi-alloy bronzes, all steels
Copper		R - 80	copper alloys, bronze, steel
Copper		R - 90	copper, copper materials, AMPCOLOY®
Titanium		S - 90	titanium and titanium alloys

Welding fillers joke Fill

Overview

The perfect complement

Welding filler holder

for weld filler metals from Ø 0.2 to 1.0 mm



Order No.	Price
4 806 000	

Welding rod feeding pen

for weld filler metals from Ø 0.2 to 0.6 mm



Order No.	Price
4 806 100	




Characteristics	joke Fill	page
soft, very easily etchable	W - 05	66
similar in colour	W - 10	67
similar in colour, readily workable	W - 22	68
similar in colour, readily workable	W - 25	69
very soft, corrosion-resistant, non-hardening	W - 60	70
very crack-resistant, tough and easily polishable	M - 30	71
good wear resistance, tough and easily polishable	M - 33	72
similar in colour and structurally synchronous	M - 40	73
high wear resistance, similar in structure and colour	M - 45	74
corrosion-resistant and wear-resistant	M - 50	75
readily workable, improvement material	M - 55	76
good wear resistance, nitratable and crack-resistant	H - 40	77
flame hardenable, high wear resistance	H - 50	77
wear-resistant, hard	H - 55	78
hard, heat-resistant	H - 60	79
wear-resistant, hard	H - 65	80
wear-resistant, hard	H - 80	81
hard, heat-resistant, wear-resistant	H - 90	82
tough, corrosion-resistant and acid-resistant	K - 16	83
high strength, tough, corrosion-resistant	K - 33	84
corrosion and seawater-resistant, wear-resistant	K - 35	85
very tough, corrosion-resistant, improvement material	K - 40	86
soft and tough, heat-resistant, resistant to temperature change, rustproof	K - 77	87
very crack-resistant, anodisable to a limited extent	A - 50	88
high strength and crack resistance, polishable	A - 70	89
high thermal conductivity, good sliding characteristic	G - 10	90
high thermal conductivity and wear resistance	R - 80	91
very high thermal conductivity	R - 90	92
	S - 90	92

Welding fillers

joke Fill starter sets

joke Fill starter sets

With so many fillers, making the right choice is sometimes difficult. We have therefore compiled three starter sets for all those who would like to get down to welding immediately. These each contain a selection of different alloys (500 mm rods respectively) for the application in question.

	Packing quantity	Order No.	Price from 1 set
joke Fill starter sets			
	Starter set "Plastic technology", 1,250 g	17 pieces	4 300 001
	Starter set "Cutting and stamping technology", 1,100 g	14 pieces	4 300 002
	Starter set "Cast technology", 1,200 g	14 pieces	4 300 003




i find more information concerning starter sets in our shop:
www.joke-technology.com

Welding filler

joke Fill W-05

Low-alloy welding wire for rapid repair of plastic injection moulds. Optimised characteristics for subsequent processing. Suitable for identical-structure etching and erosion; very easy to polish and coat. The hardness is a very favourable max. 36 HRC for easy manual reworking.

Materials: 1.2311, 1.2312, 1.2738 in addition to similar non-alloy or low-alloy steels



	Design	Weight [g]	Dimensions	Order No.	Price from 1 pack
joke Fill W-05					
	Rods	50 g	Ø 0.2 x 500 mm	4 152 402	
		50 g	Ø 0.3 x 500 mm	4 152 403	
		50 g	Ø 0.4 x 500 mm	4 152 404	
		50 g	Ø 0.5 x 500 mm	4 152 405	
		50 g	Ø 0.6 x 500 mm	4 152 406	
		250 g	Ø 0.2 x 500 mm	4 132 402	
		250 g	Ø 0.3 x 500 mm	4 132 403	
		250 g	Ø 0.4 x 500 mm	4 132 404	
		250 g	Ø 0.5 x 500 mm	4 132 405	
		250 g	Ø 0.6 x 500 mm	4 132 406	
		1000 g	Ø 0.2 x 500 mm	4 112 402	
		1000 g	Ø 0.3 x 500 mm	4 112 403	
		1000 g	Ø 0.4 x 500 mm	4 112 404	
		1000 g	Ø 0.5 x 500 mm	4 112 405	
		1000 g	Ø 0.6 x 500 mm	4 112 406	
		1000 g	Ø 0.8 x 500 mm	4 312 408	
		1000 g	Ø 1.0 x 500 mm	4 312 410	
		1000 g	Ø 1.2 x 500 mm	4 312 412	
		1000 g	Ø 1.6 x 500 mm	4 312 416	

Welding fillers

joke Fill W-10

Cr-Mn alloy for synchronous- structure application and joining of injection and blow moulds made of low-alloy and medium-alloy Cr steels for plastics and rubber. Very good processing and optimum similarity of colour. Thermal and mechanical treatments are identical to the base material. Polishable, erodible, nitratable, etchable, chrome-platable, can be quenched and tempered. Hardness approx. 360 – 400 HB

Materials: 1.2311, 1.2312, 1.2162, 1.2738 and similar

				Price from	
	Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill W-10					
	Rods	50 g	Ø 0.2 x 500 mm	4 152 502	
		50 g	Ø 0.3 x 500 mm	4 152 503	
		50 g	Ø 0.4 x 500 mm	4 152 504	
		50 g	Ø 0.5 x 500 mm	4 152 505	
		50 g	Ø 0.6 x 500 mm	4 152 506	
		250 g	Ø 0.2 x 500 mm	4 132 502	
		250 g	Ø 0.3 x 500 mm	4 132 503	
		250 g	Ø 0.4 x 500 mm	4 132 504	
		250 g	Ø 0.5 x 500 mm	4 132 505	
		250 g	Ø 0.6 x 500 mm	4 132 506	
		1000 g	Ø 0.2 x 500 mm	4 112 502	
		1000 g	Ø 0.3 x 500 mm	4 112 503	
		1000 g	Ø 0.4 x 500 mm	4 112 504	
		1000 g	Ø 0.5 x 500 mm	4 112 505	
		1000 g	Ø 0.6 x 500 mm	4 112 506	
		1000 g	Ø 0.8 x 500 mm	4 312 508	
		1000 g	Ø 1.0 x 500 mm	4 312 510	
		1000 g	Ø 1.2 x 500 mm	4 312 512	
		1000 g	Ø 1.6 x 500 mm	4 312 516	
		1000 g	Ø 2.4 x 500 mm	4 312 524	
	Coil	50 g	Ø 0.2 mm	4 252 502	
		50 g	Ø 0.3 mm	4 252 503	
		50 g	Ø 0.4 mm	4 252 504	
		50 g	Ø 0.5 mm	4 252 505	
		50 g	Ø 0.6 mm	4 252 506	
		250 g	Ø 0.2 mm	4 232 502	
		250 g	Ø 0.3 mm	4 232 503	
		250 g	Ø 0.4 mm	4 232 504	
		250 g	Ø 0.5 mm	4 232 505	
		250 g	Ø 0.6 mm	4 232 506	
		1000 g	Ø 0.2 mm	4 212 502	
		1000 g	Ø 0.3 mm	4 212 503	
		1000 g	Ø 0.4 mm	4 212 504	
		1000 g	Ø 0.5 mm	4 212 505	
		1000 g	Ø 0.6 mm	4 212 506	



i In addition to the table details on the following pages all welding fillers in rods and Coils are also **available in other packagings such as 100 g and 500 g.**

Welding fillers

joke Fill W-22

Cr-Mo-Mn alloy for repairs of injection and blow moulds made of low-alloy and medium-alloy Cr steels in addition to pressing tools for plastics. Good corrosion resistance owing to increased Cr content and reduced carbon. Tough, heat-resistant and readily workable. Very easily weldable using the TIG and LASER methods. Polishable, erodible, nitratable, etchable, chrome-platable, can be quenched and tempered. Hardness between 38 HRC and max. 56 HRC possible depending on the dilution.

Materials: 1.2343, 1.2344, 1.2082, 1.2083, 1.2367 and similar Cr alloy steels



			Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill W-22				
	Rods	50 g	Ø 0.2 x 500 mm	4 152 602
	50 g	Ø 0.3 x 500 mm	4 152 603	
	50 g	Ø 0.4 x 500 mm	4 152 604	
	50 g	Ø 0.5 x 500 mm	4 152 605	
	50 g	Ø 0.6 x 500 mm	4 152 606	
	250 g	Ø 0.2 x 500 mm	4 132 602	
	250 g	Ø 0.3 x 500 mm	4 132 603	
	250 g	Ø 0.4 x 500 mm	4 132 604	
	250 g	Ø 0.5 x 500 mm	4 132 605	
	250 g	Ø 0.6 x 500 mm	4 132 606	
	1000 g	Ø 0.2 x 500 mm	4 112 602	
	1000 g	Ø 0.3 x 500 mm	4 112 603	
	1000 g	Ø 0.4 x 500 mm	4 112 604	
	1000 g	Ø 0.5 x 500 mm	4 112 605	
	1000 g	Ø 0.6 x 500 mm	4 112 606	
	1000 g	Ø 0.8 x 500 mm	4 312 608	
	1000 g	Ø 1.0 x 500 mm	4 312 610	
	1000 g	Ø 1.2 x 500 mm	4 312 612	
	1000 g	Ø 1.6 x 500 mm	4 312 616	
	Coil	50 g	Ø 0.2 mm	4 252 602
	50 g	Ø 0.3 mm	4 252 603	
	50 g	Ø 0.4 mm	4 252 604	
	50 g	Ø 0.5 mm	4 252 605	
	50 g	Ø 0.6 mm	4 252 606	
	250 g	Ø 0.2 mm	4 232 602	
	250 g	Ø 0.3 mm	4 232 603	
	250 g	Ø 0.4 mm	4 232 604	
	250 g	Ø 0.5 mm	4 232 605	
	250 g	Ø 0.6 mm	4 232 606	
	1000 g	Ø 0.2 mm	4 212 602	
	1000 g	Ø 0.3 mm	4 212 603	
	1000 g	Ø 0.4 mm	4 212 604	
	1000 g	Ø 0.5 mm	4 212 605	
	1000 g	Ø 0.6 mm	4 212 606	

Welding fillers

joke Fill W-25

Ni-Mn alloys with additions of Cr and Mo for similar-structure applications and joining of low-alloy steels in plastic mould building. Also readily workable in the transitions in case of cavity repairs. Coordinated in colour with the alloys containing approx. 2 – 5 % nickel. Very tough and resistant to temperature change. Polishable, erodible, nitratable, etchable, chrome-platable, can be quenched and tempered. Hardness approx. 360 – 420 HB depending on the dilution.

Materials: 1.2764, 1.2767, 1.2713, 1.2714 and similar alloys


			Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill W-25				
	Rods	50 g	Ø 0.2 x 500 mm	4 152 702
	50 g	Ø 0.3 x 500 mm	4 152 703	
	50 g	Ø 0.4 x 500 mm	4 152 704	
	50 g	Ø 0.5 x 500 mm	4 152 705	
	50 g	Ø 0.6 x 500 mm	4 152 706	
	250 g	Ø 0.2 x 500 mm	4 132 702	
	250 g	Ø 0.3 x 500 mm	4 132 703	
	250 g	Ø 0.4 x 500 mm	4 132 704	
	250 g	Ø 0.5 x 500 mm	4 132 705	
	250 g	Ø 0.6 x 500 mm	4 132 706	
	1000 g	Ø 0.2 x 500 mm	4 112 702	
	1000 g	Ø 0.3 x 500 mm	4 112 703	
	1000 g	Ø 0.4 x 500 mm	4 112 704	
	1000 g	Ø 0.5 x 500 mm	4 112 705	
	1000 g	Ø 0.6 x 500 mm	4 112 706	
	1000 g	Ø 0.8 x 500 mm	4 312 708	
	1000 g	Ø 1.0 x 500 mm	4 312 710	
	1000 g	Ø 1.2 x 500 mm	4 312 712	
	1000 g	Ø 1.6 x 500 mm	4 312 716	
	Coil	50 g	Ø 0.2 mm	4 252 702
	50 g	Ø 0.3 mm	4 252 703	
	50 g	Ø 0.4 mm	4 252 704	
	50 g	Ø 0.5 mm	4 252 705	
	50 g	Ø 0.6 mm	4 252 706	
	250 g	Ø 0.2 mm	4 232 702	
	250 g	Ø 0.3 mm	4 232 703	
	250 g	Ø 0.4 mm	4 232 704	
	250 g	Ø 0.5 mm	4 232 705	
	250 g	Ø 0.6 mm	4 232 706	
	1000 g	Ø 0.2 mm	4 212 702	
	1000 g	Ø 0.3 mm	4 212 703	
	1000 g	Ø 0.4 mm	4 212 704	
	1000 g	Ø 0.5 mm	4 212 705	
	1000 g	Ø 0.6 mm	4 212 706	

Welding fillers

joke Fill W-60

Nickel wire with special additives for synchronous-structure application and joining of moulds, tools and apparatus made of pure or low-alloy nickel. Colour and thermal conductivity in addition to corrosion resistance are adapted to the commonly available nickel alloys. Also suitable for very elastic and soft application, joining and buffering on crackprone GG (grey cast iron), GGG (spheroidal graphite cast iron), GGL (lamellar graphite cast iron) and similar types.

Materials: nickel, nickel-based alloys, grey cast iron



				Price from
Design	Weight [g]	Dimensions	Order No.	1 pack
joke Fill W-60				
 Rods	50 g	Ø 0.2 x 500 mm	4 152 802	
	50 g	Ø 0.3 x 500 mm	4 152 803	
	50 g	Ø 0.4 x 500 mm	4 152 804	
	50 g	Ø 0.5 x 500 mm	4 152 805	
	50 g	Ø 0.6 x 500 mm	4 152 806	
	250 g	Ø 0.2 x 500 mm	4 132 802	
	250 g	Ø 0.3 x 500 mm	4 132 803	
	250 g	Ø 0.4 x 500 mm	4 132 804	
	250 g	Ø 0.5 x 500 mm	4 132 805	
	250 g	Ø 0.6 x 500 mm	4 132 806	
	1000 g	Ø 0.2 x 500 mm	4 112 802	
	1000 g	Ø 0.3 x 500 mm	4 112 803	
	1000 g	Ø 0.4 x 500 mm	4 112 804	
	1000 g	Ø 0.5 x 500 mm	4 112 805	
	1000 g	Ø 0.6 x 500 mm	4 112 806	
	1000 g	Ø 1.0 x 500 mm	4 312 810	
	1000 g	Ø 1.2 x 500 mm	4 312 812	
	1000 g	Ø 1.6 x 500 mm	4 312 816	

Welding fillers

joke Fill M-30

High-alloy Cr-Mo-Mn filler with very good properties. Extremely tough and highly abrasion-resistant. Suitable for moderately hard repair of plastic moulds, pressing and embossing tools, in addition to die-casting moulds; also for elastic high-strength intermediate layers in case of a harder top layer. Hardness of between 36 HRC and 44 HRC achievable depending on the dilution.

Materials: hot-work steels such as 1.2343, 1.2344, 1.2367 and similar

				Price from	
	Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill M-30					
	Rods	50 g	Ø 0.2 x 500 mm	4 151 602	
		50 g	Ø 0.3 x 500 mm	4 151 603	
		50 g	Ø 0.4 x 500 mm	4 151 604	
		50 g	Ø 0.5 x 500 mm	4 151 605	
		50 g	Ø 0.6 x 500 mm	4 151 606	
		250 g	Ø 0.2 x 500 mm	4 131 602	
		250 g	Ø 0.3 x 500 mm	4 131 603	
		250 g	Ø 0.4 x 500 mm	4 131 604	
		250 g	Ø 0.5 x 500 mm	4 131 605	
		250 g	Ø 0.6 x 500 mm	4 131 606	
		1000 g	Ø 0.2 x 500 mm	4 111 602	
		1000 g	Ø 0.3 x 500 mm	4 111 603	
		1000 g	Ø 0.4 x 500 mm	4 111 604	
		1000 g	Ø 0.5 x 500 mm	4 111 605	
		1000 g	Ø 0.6 x 500 mm	4 111 606	
	Spool	50 g	Ø 0.2 mm	4 251 602	
		50 g	Ø 0.3 mm	4 251 603	
		50 g	Ø 0.4 mm	4 251 604	
		50 g	Ø 0.5 mm	4 251 605	
		50 g	Ø 0.6 mm	4 251 606	
		250 g	Ø 0.2 mm	4 231 602	
		250 g	Ø 0.3 mm	4 231 603	
		250 g	Ø 0.4 mm	4 231 604	
		250 g	Ø 0.5 mm	4 231 605	
		250 g	Ø 0.6 mm	4 231 606	
		1000 g	Ø 0.2 mm	4 211 602	
		1000 g	Ø 0.3 mm	4 211 603	
		1000 g	Ø 0.4 mm	4 211 604	
		1000 g	Ø 0.5 mm	4 211 605	
		1000 g	Ø 0.6 mm	4 211 606	



Welding fillers

joke Fill M-33

Cr-Mo-Mn wire with special additives for the harder and highly wear-resistant repair of hot and cold-work steel, particularly in case of heavily stressed aluminium die-cast moulds and for plastic moulds. Very easy to polish and corrosion-resistant.

Moderate hardness of 40 – 48 HRC achievable with optimum toughness.

Materials: 1.2343, 1.2344, 1.2367 and also for tough application to 12 %-Cr steel



			Price from		
	Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill M-33					
	Rods	50 g	Ø 0.2 x 500 mm	4 151 702	
		50 g	Ø 0.3 x 500 mm	4 151 703	
		50 g	Ø 0.4 x 500 mm	4 151 704	
		50 g	Ø 0.5 x 500 mm	4 151 705	
		50 g	Ø 0.6 x 500 mm	4 151 706	
		250 g	Ø 0.2 x 500 mm	4 131 702	
		250 g	Ø 0.3 x 500 mm	4 131 703	
		250 g	Ø 0.4 x 500 mm	4 131 704	
		250 g	Ø 0.5 x 500 mm	4 131 705	
		250 g	Ø 0.6 x 500 mm	4 131 706	
		1000 g	Ø 0.2 x 500 mm	4 111 702	
		1000 g	Ø 0.3 x 500 mm	4 111 703	
		1000 g	Ø 0.4 x 500 mm	4 111 704	
		1000 g	Ø 0.5 x 500 mm	4 111 705	
		1000 g	Ø 0.6 x 500 mm	4 111 706	
	Coil	50 g	Ø 0.3 mm	4 251 703	
		50 g	Ø 0.4 mm	4 251 704	
		50 g	Ø 0.5 mm	4 251 705	
		50 g	Ø 0.6 mm	4 251 706	
		250 g	Ø 0.2 mm	4 231 702	
		250 g	Ø 0.3 mm	4 231 703	
		250 g	Ø 0.4 mm	4 231 704	
		250 g	Ø 0.5 mm	4 231 705	
		250 g	Ø 0.6 mm	4 231 706	
		1000 g	Ø 0.2 mm	4 211 702	
		1000 g	Ø 0.3 mm	4 211 703	
		1000 g	Ø 0.4 mm	4 211 704	
		1000 g	Ø 0.5 mm	4 211 705	
		1000 g	Ø 0.6 mm	4 211 706	

Welding fillers

joke Fill M-40

Filler for hot-work steels. Hardenable and annealable similarly to the base material. Structurally synchronous or similar to many hot-work steels. Equalises tension in the martensitic range. Chrome-platable, nitratable, etchable and can be quenched and tempered. Hardness of the weld metal approx. 34 to 44 HRC, depending on the blend, in relation to the base materials. Hardenable up to 58 HRC.

Predominately for hot-work steels such as 1.2343 – 1.2344 and similar



				Price from	
	Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill M-40					
	Rods	50 g	Ø 0.2 x 500 mm	4 151 802	
		50 g	Ø 0.3 x 500 mm	4 151 803	
		50 g	Ø 0.4 x 500 mm	4 151 804	
		50 g	Ø 0.5 x 500 mm	4 151 805	
		50 g	Ø 0.6 x 500 mm	4 151 806	
		25 g	Ø 0.2 x 500 mm	4 131 802	
		25 g	Ø 0.3 x 500 mm	4 131 803	
		25 g	Ø 0.4 x 500 mm	4 131 804	
		25 g	Ø 0.5 x 500 mm	4 131 805	
		25 g	Ø 0.6 x 500 mm	4 131 806	
		1000 g	Ø 0.2 x 500 mm	4 111 802	
		1000 g	Ø 0.3 x 500 mm	4 111 803	
		1000 g	Ø 0.4 x 500 mm	4 111 804	
		1000 g	Ø 0.5 x 500 mm	4 111 805	
		1000 g	Ø 0.6 x 500 mm	4 111 806	
		1000 g	Ø 0.8 x 500 mm	4 311 808	
		1000 g	Ø 1.0 x 500 mm	4 311 810	
		1000 g	Ø 1.2 x 500 mm	4 311 812	
		1000 g	Ø 1.6 x 500 mm	4 311 816	
	Coil	50 g	Ø 0.2 mm	4 251 802	
		50 g	Ø 0.3 mm	4 251 803	
		50 g	Ø 0.4 mm	4 251 804	
		50 g	Ø 0.5 mm	4 251 805	
		50 g	Ø 0.6 mm	4 251 806	
		250 g	Ø 0.2 mm	4 231 802	
		250 g	Ø 0.3 mm	4 231 803	
		250 g	Ø 0.4 mm	4 231 804	
		250 g	Ø 0.5 mm	4 231 805	
		250 g	Ø 0.6 mm	4 231 806	
		1000 g	Ø 0.2 mm	4 211 802	
		1000 g	Ø 0.3 mm	4 211 803	
		1000 g	Ø 0.4 mm	4 211 804	
		1000 g	Ø 0.5 mm	4 211 805	
		1000 g	Ø 0.6 mm	4 211 806	

Welding fillers

joke Fill M-45

Cr-Mo-V-W filler with stabilising elements. Dense structure. Aircuring and shock-curable. High edge strength and heat-resistant. Chrome-platable to a limited extent, yet polishable, erodible, nitratable, etchable and can be quenched and tempered. Good thermal conductivity. Particularly for rapid repairs to aluminium, magnesium and zinc die-cast moulds, punches and sliders. Hardness in the 1st layer up to 58 HRC depending on the dilution.

Materials: 1.2343 • 1.2344 • 1.2362 • 1.2363 • 1.2367 and similar



			Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill M-45				
	Rods	50 g	Ø 0.2 x 500 mm	4 151 902
		50 g	Ø 0.3 x 500 mm	4 151 903
		50 g	Ø 0.4 x 500 mm	4 151 904
		50 g	Ø 0.5 x 500 mm	4 151 905
		50 g	Ø 0.6 x 500 mm	4 151 906
		250 g	Ø 0.2 x 500 mm	4 131 902
		250 g	Ø 0.3 x 500 mm	4 131 903
		250 g	Ø 0.4 x 500 mm	4 131 904
		250 g	Ø 0.5 x 500 mm	4 131 905
		250 g	Ø 0.6 x 500 mm	4 131 906
		1000 g	Ø 0.2 x 500 mm	4 111 902
		1000 g	Ø 0.3 x 500 mm	4 111 903
		1000 g	Ø 0.4 x 500 mm	4 111 904
		1000 g	Ø 0.5 x 500 mm	4 111 905
		1000 g	Ø 0.6 x 500 mm	4 111 906
		1000 g	Ø 0.8 x 500 mm	4 311 908
		1000 g	Ø 1.0 x 500 mm	4 311 910
		1000 g	Ø 1.2 x 500 mm	4 311 912
		1000 g	Ø 1.6 x 500 mm	4 311 916
	Coil	50 g	Ø 0.2 mm	4 251 902
		50 g	Ø 0.3 mm	4 251 903
		50 g	Ø 0.4 mm	4 251 904
		50 g	Ø 0.5 mm	4 251 905
		50 g	Ø 0.6 mm	4 251 906
		250 g	Ø 0.2 mm	4 231 902
		250 g	Ø 0.3 mm	4 231 903
		250 g	Ø 0.4 mm	4 231 904
		250 g	Ø 0.5 mm	4 231 905
		250 g	Ø 0.6 mm	4 231 906
		1000 g	Ø 0.2 mm	4 211 902
		1000 g	Ø 0.3 mm	4 211 903
		1000 g	Ø 0.4 mm	4 211 904
		1000 g	Ø 0.5 mm	4 211 905
		1000 g	Ø 0.6 mm	4 211 906

Welding fillers

joke Fill M-50

This chrome material has stabilising additives and is very well suited for corrosion-resistant steels in mould building. Can be quenched and tempered and is likewise rust and wearresistant owing to an increased Cr content. Polishable, erodible and nitratable. Etchable to a limited extent, non-chrome-platable. Particularly suited for moulds and tools when GRP is being processed. Hardness of the weld material: 45 – 50 HRC.

Materials: 1.2082, 1.2083, 1.2316, 1.4115, 1.4120, STAVAX and similar Cr steels



			Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill M-50				
	Rods	50 g	Ø 0.2 x 500 mm	4 152 002
	50 g	Ø 0.3 x 500 mm	4 152 003	
	50 g	Ø 0.4 x 500 mm	4 152 004	
	50 g	Ø 0.5 x 500 mm	4 152 005	
	50 g	Ø 0.6 x 500 mm	4 152 006	
	250 g	Ø 0.2 x 500 mm	4 132 002	
	250 g	Ø 0.3 x 500 mm	4 132 003	
	250 g	Ø 0.4 x 500 mm	4 132 004	
	250 g	Ø 0.5 x 500 mm	4 132 005	
	250 g	Ø 0.6 x 500 mm	4 132 006	
	1000 g	Ø 0.2 x 500 mm	4 112 002	
	1000 g	Ø 0.3 x 500 mm	4 112 003	
	1000 g	Ø 0.4 x 500 mm	4 112 004	
	1000 g	Ø 0.5 x 500 mm	4 112 005	
	1000 g	Ø 0.6 x 500 mm	4 112 006	
	1000 g	Ø 1.0 x 500 mm	4 312 010	
	1000 g	Ø 1.2 x 500 mm	4 312 012	
	Coil	50 g	Ø 0.2 mm	4 252 002
	50 g	Ø 0.3 mm	4 252 003	
	50 g	Ø 0.4 mm	4 252 004	
	50 g	Ø 0.5 mm	4 252 005	
	50 g	Ø 0.6 mm	4 252 006	
	250 g	Ø 0.2 mm	4 232 002	
	250 g	Ø 0.3 mm	4 232 003	
	250 g	Ø 0.4 mm	4 232 004	
	250 g	Ø 0.5 mm	4 232 005	
	250 g	Ø 0.6 mm	4 232 006	
	1000 g	Ø 0.2 mm	4 212 002	
	1000 g	Ø 0.3 mm	4 212 003	
	1000 g	Ø 0.4 mm	4 212 004	
	1000 g	Ø 0.5 mm	4 212 005	
	1000 g	Ø 0.6 mm	4 212 006	

Welding fillers

joke Fill M-55


Ni-Co-Mo special alloy specifically for the aluminium and zinc die-cast field. The martensitic weld material is extremely crack-resistant and tough with minimal preheating. Particularly suitable for highly stressed hot-working tools, highly resistant to temperature change and corrosion-proof. Hardness approx. 30 – 35 HRC; hardnesses of approx. 50 – 54 HRC are achieved through artificial aging in addition to pressure and hammering.

Materials: improving for all hot-work steels

				Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack	1 piece
joke Fill M-55					
	Rods	50 g	Ø 0.2 x 500 mm	4 152 102	
		50 g	Ø 0.3 x 500 mm	4 152 103	
		50 g	Ø 0.4 x 500 mm	4 152 104	
		50 g	Ø 0.5 x 500 mm	4 152 105	
		50 g	Ø 0.6 x 500 mm	4 152 106	
		250 g	Ø 0.2 x 500 mm	4 132 102	
		250 g	Ø 0.3 x 500 mm	4 132 103	
		250 g	Ø 0.4 x 500 mm	4 132 104	
		250 g	Ø 0.5 x 500 mm	4 132 105	
		250 g	Ø 0.6 x 500 mm	4 132 106	
		1000 g	Ø 0.2 x 500 mm	4 112 102	
		1000 g	Ø 0.3 x 500 mm	4 112 103	
		1000 g	Ø 0.4 x 500 mm	4 112 104	
		1000 g	Ø 0.5 x 500 mm	4 112 105	
		1000 g	Ø 0.6 x 500 mm	4 112 106	
		1000 g	Ø 1.0 x 500 mm	4 312 110	
		1000 g	Ø 1.2 x 500 mm	4 312 112	
		1000 g	Ø 1.6 x 500 mm	4 312 116	
		1000 g	Ø 2.4 x 500 mm	4 312 124	
	Coil	50 g	Ø 0.2 mm	4 252 102	
		50 g	Ø 0.3 mm	4 252 103	
		50 g	Ø 0.4 mm	4 252 104	
		50 g	Ø 0.5 mm	4 252 105	
		50 g	Ø 0.6 mm	4 252 106	
		250 g	Ø 0.2 mm	4 232 102	
		250 g	Ø 0.3 mm	4 232 103	
		250 g	Ø 0.4 mm	4 232 104	
		250 g	Ø 0.5 mm	4 232 105	
		250 g	Ø 0.6 mm	4 232 106	
		1000 g	Ø 0.2 mm	4 212 102	
		1000 g	Ø 0.3 mm	4 212 103	
		1000 g	Ø 0.4 mm	4 212 104	
		1000 g	Ø 0.5 mm	4 212 105	
		1000 g	Ø 0.6 mm	4 212 106	

Welding fillers joke Fill H-40


Cr-Mo alloy for repair to hot-work steels with good thermal conductivity. The weld material is nitratable and highly crack-resistant and tough owing to a reduced carbon content. Achievable hardnesses 42 – 48 HRC depending on preheating.

				Price from
Design	Weight [g]	Dimensions	Order No.	1 pack
joke Fill H-40				
	Rods	1000 g	Ø 0.8 x 500 mm	4 310 508
		1000 g	Ø 1.0 x 500 mm	4 310 510
		1000 g	Ø 1.2 x 500 mm	4 310 512
		1000 g	Ø 1.6 x 500 mm	4 310 516

Welding fillers joke Fill H-50

Cr-Mn filler for case-hardened and heat treatable steels. The weld material is very hardenable, nitratable and highly abrasionresistant. Also highly crack-resistant in several layers for welding. Optimum sliding properties versus high-alloy materials. Also well suited for facings and pinched dges of plastic injection and blow moulds.

Hardness of the weld material: approx. 50 – 56 HRC; up to approx. 64 HRC after flame hardening.

				Price from
Design	Weight [g]	Dimensions	Order No.	1 pack
joke Fill H-50				
	Rods	50 g	Ø 0.2 x 500 mm	4 150 602
		50 g	Ø 0.3 x 500 mm	4 150 603
		50 g	Ø 0.4 x 500 mm	4 150 604
		50 g	Ø 0.5 x 500 mm	4 150 605
		50 g	Ø 0.6 x 500 mm	4 150 606
		250 g	Ø 0.2 x 500 mm	4 130 602
		250 g	Ø 0.3 x 500 mm	4 130 603
		250 g	Ø 0.4 x 500 mm	4 130 604
		250 g	Ø 0.5 x 500 mm	4 130 605
		250 g	Ø 0.6 x 500 mm	4 130 606
		1000 g	Ø 0.2 x 500 mm	4 110 602
		1000 g	Ø 0.3 x 500 mm	4 110 603
		1000 g	Ø 0.4 x 500 mm	4 110 604
		1000 g	Ø 0.5 x 500 mm	4 110 605
		1000 g	Ø 0.6 x 500 mm	4 110 606
		1000 g	Ø 1.0 x 500 mm	4 310 610
		1000 g	Ø 1.6 x 500 mm	4 310 616

Welding fillers



joke Fill H-55

Cr-Mo-Si-W-Mn-V filler for plastic moulds in case of edge wear, if hardness and toughness are desired. Non-etchable, only chrome-platable to a limited extent. The weld material is highly resistant to temperature change and similar to thermally conductive hot-work steels, yet superior in terms of service life.

Hardness 52 – 58 HRC, depending on blend and preheating of the base material.

Hardenable up to approx. 62 HRC.

Materials: 1.2343, 1.2344, 1.2311, 1.2312, .2738, 1.2767, 1.2764 and similar

			Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill H-55				
	Rods	50 g	Ø 0.2 x 500 mm	4 150 702
	50 g	Ø 0.3 x 500 mm	4 150 703	
	50 g	Ø 0.4 x 500 mm	4 150 704	
	50 g	Ø 0.5 x 500 mm	4 150 705	
	50 g	Ø 0.6 x 500 mm	4 150 706	
	250 g	Ø 0.2 x 500 mm	4 130 702	
	250 g	Ø 0.3 x 500 mm	4 130 703	
	250 g	Ø 0.4 x 500 mm	4 130 704	
	250 g	Ø 0.5 x 500 mm	4 130 705	
	250 g	Ø 0.6 x 500 mm	4 130 706	
	1000 g	Ø 0.2 x 500 mm	4 110 702	
	1000 g	Ø 0.3 x 500 mm	4 110 703	
	1000 g	Ø 0.4 x 500 mm	4 110 704	
	1000 g	Ø 0.5 x 500 mm	4 110 705	
	1000 g	Ø 0.6 x 500 mm	4 110 706	
	1000 g	Ø 0.8 x 500 mm	4 310 708	
	1000 g	Ø 1.0 x 500 mm	4 310 710	
	1000 g	Ø 1.2 x 500 mm	4 310 712	
	1000 g	Ø 1.6 x 500 mm	4 310 716	
	1000 g	Ø 2.4 x 500 mm	4 310 724	
	Coil	50 g	Ø 0.2 mm	4 250 702
	50 g	Ø 0.3 mm	4 250 703	
	50 g	Ø 0.4 mm	4 250 704	
	50 g	Ø 0.5 mm	4 250 705	
	50 g	Ø 0.6 mm	4 250 706	
	250 g	Ø 0.2 mm	4 230 702	
	250 g	Ø 0.3 mm	4 230 703	
	250 g	Ø 0.4 mm	4 230 704	
	250 g	Ø 0.5 mm	4 230 705	
	250 g	Ø 0.6 mm	4 230 706	
	1000 g	Ø 0.2 mm	4 210 702	
	1000 g	Ø 0.3 mm	4 210 703	
	1000 g	Ø 0.4 mm	4 210 704	
	1000 g	Ø 0.5 mm	4 210 705	
	1000 g	Ø 0.6 mm	4 210 706	



Welding fillers

joke Fill H-60

Cr-Mo-Mn-W-V filler with extremely wear-resistant, tensile properties. Suitable for hard applications on cold-work steels with a chrome content exceeding 5%. Crack-free and rapidly hardening, high edge strength. Can be thermally treated like the base material. The weld material is nitratable, erodible, chrome-platable and can be quenched and tempered.

Hardness of approx. 56 – 62 HRC possible depending on the method, blend and layers.

Materials: medium and high-alloy chrome cold-work steels, CARMO, CALMAX

				Price from	
	Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill H-60					
	Rods	50 g	Ø 0.2 x 500 mm	4 150 802	
		50 g	Ø 0.3 x 500 mm	4 150 803	
		50 g	Ø 0.4 x 500 mm	4 150 804	
		50 g	Ø 0.5 x 500 mm	4 150 805	
		50 g	Ø 0.6 x 500 mm	4 150 806	
		250 g	Ø 0.2 x 500 mm	4 130 802	
		250 g	Ø 0.3 x 500 mm	4 130 803	
		250 g	Ø 0.4 x 500 mm	4 130 804	
		250 g	Ø 0.5 x 500 mm	4 130 805	
		250 g	Ø 0.6 x 500 mm	4 130 806	
		1000 g	Ø 0.2 x 500 mm	4 110 802	
		1000 g	Ø 0.3 x 500 mm	4 110 803	
		1000 g	Ø 0.4 x 500 mm	4 110 804	
		1000 g	Ø 0.5 x 500 mm	4 110 805	
		1000 g	Ø 0.6 x 500 mm	4 110 806	
		1000 g	Ø 1.0 x 500 mm	4 310 810	
		1000 g	Ø 1.2 x 500 mm	4 310 812	
			Coil	1000 g	Ø 1.6 x 500 mm
50 g	Ø 0.2 mm			4 250 802	
50 g	Ø 0.3 mm			4 250 803	
50 g	Ø 0.4 mm			4 250 804	
50 g	Ø 0.5 mm			4 250 805	
50 g	Ø 0.6 mm			4 250 806	
250 g	Ø 0.2 mm			4 230 802	
250 g	Ø 0.3 mm			4 230 803	
250 g	Ø 0.4 mm			4 230 804	
250 g	Ø 0.5 mm			4 230 805	
250 g	Ø 0.6 mm			4 230 806	
1000 g	Ø 0.2 mm			4 210 802	
1000 g	Ø 0.3 mm			4 210 803	
1000 g	Ø 0.4 mm			4 210 804	
1000 g	Ø 0.5 mm			4 210 805	
1000 g	Ø 0.6 mm	4 210 806			



Welding fillers

joke Fill H-65

Cr-Mn-Si-V welding filler with structurestabilising elements for the repair and modification of highalloy cold-work steels. Chrome-platable to a limited extent, nitratable and erodible. The weld material is closely similar to the 12 % Cr steels.

Pay attention to appropriate preheating in case of application to hardened tools. Hardenable and annealable up to approx. 62 HRC like the base material.

Materials: 1.2080, 1.2379, 1.2436, 1.2601 and similar cold-work steels.

			Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill H-65				
	Rods	50 g	Ø 0.2 x 500 mm	4 150 902
	50 g	Ø 0.3 x 500 mm	4 150 903	
	50 g	Ø 0.4 x 500 mm	4 150 904	
	50 g	Ø 0.5 x 500 mm	4 150 905	
	50 g	Ø 0.6 x 500 mm	4 150 906	
	250 g	Ø 0.2 x 500 mm	4 130 902	
	250 g	Ø 0.3 x 500 mm	4 130 903	
	250 g	Ø 0.4 x 500 mm	4 130 904	
	250 g	Ø 0.5 x 500 mm	4 130 905	
	250 g	Ø 0.6 x 500 mm	4 130 906	
	1000 g	Ø 0.2 x 500 mm	4 110 902	
	1000 g	Ø 0.3 x 500 mm	4 110 903	
	1000 g	Ø 0.4 x 500 mm	4 110 904	
	1000 g	Ø 0.5 x 500 mm	4 110 905	
	1000 g	Ø 0.6 x 500 mm	4 110 906	
	1000 g	Ø 0.8 x 500 mm	4 310 908	
	1000 g	Ø 1.0 x 500 mm	4 310 910	
	1000 g	Ø 1.2 x 500 mm	4 310 912	
	1000 g	Ø 1.6 x 500 mm	4 310 916	
	Coil	50 g	Ø 0.2 mm	4 250 902
	50 g	Ø 0.3 mm	4 250 903	
	50 g	Ø 0.4 mm	4 250 904	
	50 g	Ø 0.5 mm	4 250 905	
	50 g	Ø 0.6 mm	4 250 906	
	250 g	Ø 0.2 mm	4 230 902	
	250 g	Ø 0.3 mm	4 230 903	
	250 g	Ø 0.4 mm	4 230 904	
	250 g	Ø 0.5 mm	4 230 905	
	250 g	Ø 0.6 mm	4 230 906	
	1000 g	Ø 0.2 mm	4 210 902	
	1000 g	Ø 0.3 mm	4 210 903	
	1000 g	Ø 0.4 mm	4 210 904	
	1000 g	Ø 0.5 mm	4 210 905	
	1000 g	Ø 0.6 mm	4 210 906	



Welding fillers

joke Fill H-80

Cr-Mo-Mn-V filler with rapid hardening properties. Very high toughness and excellent cutting properties. Particularly suited for TIG rapid repair of chipped or worn cut edges. Nitratable, erodible and chromeplatable, hardenable like the base material. Buffer with joke Fill K-33 for multiplelayer welding.

Hardness following cooling in air approx. 58 – 61 HRC depending on preheating.

Materials: 1.2080, 1.2379, 1.2436, 1.2601 and similar cold-work steels.

			Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill H-80				
	Rods	50 g	Ø 0.2 x 500 mm	4 151 002
		50 g	Ø 0.3 x 500 mm	4 151 003
		50 g	Ø 0.4 x 500 mm	4 151 004
		50 g	Ø 0.5 x 500 mm	4 151 005
		50 g	Ø 0.6 x 500 mm	4 151 006
		250 g	Ø 0.2 x 500 mm	4 131 002
		250 g	Ø 0.3 x 500 mm	4 131 003
		250 g	Ø 0.4 x 500 mm	4 131 004
		250 g	Ø 0.5 x 500 mm	4 131 005
		250 g	Ø 0.6 x 500 mm	4 131 006
		1000 g	Ø 0.2 x 500 mm	4 111 002
		1000 g	Ø 0.3 x 500 mm	4 111 003
		1000 g	Ø 0.4 x 500 mm	4 111 004
		1000 g	Ø 0.5 x 500 mm	4 111 005
		1000 g	Ø 0.6 x 500 mm	4 111 006
		1000 g	Ø 0.8 x 500 mm	4 311 008
		1000 g	Ø 1.0 x 500 mm	4 311 010
		1000 g	Ø 1.2 x 500 mm	4 311 012
		1000 g	Ø 1.6 x 500 mm	4 311 016
	Coil	50 g	Ø 0.2 mm	4 251 002
		50 g	Ø 0.3 mm	4 251 003
		50 g	Ø 0.4 mm	4 251 004
		50 g	Ø 0.5 mm	4 251 005
		50 g	Ø 0.6 mm	4 251 006
		250 g	Ø 0.2 mm	4 231 002
		250 g	Ø 0.3 mm	4 231 003
		250 g	Ø 0.4 mm	4 231 004
		250 g	Ø 0.5 mm	4 231 005
		250 g	Ø 0.6 mm	4 231 006
		1000 g	Ø 0.2 mm	4 211 002
		1000 g	Ø 0.3 mm	4 211 003
		1000 g	Ø 0.4 mm	4 211 004
		1000 g	Ø 0.5 mm	4 211 005
		1000 g	Ø 0.6 mm	4 211 006

Welding fillers


joke Fill H-90

Mo-Cr-W-V filler, high-alloy. The hot hardness corresponds to that of a high speed steel (HSS). Pressure, abrasion and impact resistant. Also extremely crack-resistant, even in case of applications of several layers. For hard repair of cutting and punching tools or for increasing service life with simple cold-work steels.

Hardness approx. 57 – 62 HRC, hardened up to 66 HRC.

Observe preheating: high speed steels approx. 400 – 500 °C, Cr tools steels approx. 300 – 400 °C

Materials: 1.3243, 1.3245, 1.3344, 1.3346, 1.3348 and similar



			Price from
Design	Weight [g]	Dimensions	Order No. 1 pack
joke Fill H-90			
 Rods	50 g	Ø 0.2 x 500 mm	4 151 102
	50 g	Ø 0.3 x 500 mm	4 151 103
	50 g	Ø 0.4 x 500 mm	4 151 104
	50 g	Ø 0.5 x 500 mm	4 151 105
	50 g	Ø 0.6 x 500 mm	4 151 106
	250 g	Ø 0.2 x 500 mm	4 131 102
	250 g	Ø 0.3 x 500 mm	4 131 103
	250 g	Ø 0.4 x 500 mm	4 131 104
	250 g	Ø 0.5 x 500 mm	4 131 105
	250 g	Ø 0.6 x 500 mm	4 131 106
	1000 g	Ø 0.2 x 500 mm	4 111 102
	1000 g	Ø 0.3 x 500 mm	4 111 103
	1000 g	Ø 0.4 x 500 mm	4 111 104
	1000 g	Ø 0.5 x 500 mm	4 111 105
	1000 g	Ø 0.6 x 500 mm	4 111 106
	1000 g	Ø 1.0 x 500 mm	4 311 110
	1000 g	Ø 1.2 x 500 mm	4 311 112
	1000 g	Ø 1.6 x 500 mm	4 311 116

Welding fillers

joke Fill K-16

Rust and acid-resistant Cr-Ni-Mo filler for joining and buffering when high corrosionresistance and toughness are required. The ductile weld material is non-hardenable and very readily polishable. No hard carbide layers form at the periphery owing to an extremely reduced carbon content. Cannot be nitrated or quenched and tempered.



Materials: 1.4301, 1.4306, 1.4401, 1.4404, 1.4541, 1.4571 and similar V2A and V4A alloys

				Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack	1 piece
joke Fill K-16					
	Rods	50 g	Ø 0.2 x 500 mm	4 151 202	
		50 g	Ø 0.3 x 500 mm	4 151 203	
		50 g	Ø 0.4 x 500 mm	4 151 204	
		50 g	Ø 0.5 x 500 mm	4 151 205	
		50 g	Ø 0.6 x 500 mm	4 151 206	
		250 g	Ø 0.2 x 500 mm	4 131 202	
		250 g	Ø 0.3 x 500 mm	4 131 203	
		250 g	Ø 0.4 x 500 mm	4 131 204	
		250 g	Ø 0.5 x 500 mm	4 131 205	
		250 g	Ø 0.6 x 500 mm	4 131 206	
		1000 g	Ø 0.2 x 500 mm	4 111 202	
		1000 g	Ø 0.3 x 500 mm	4 111 203	
		1000 g	Ø 0.4 x 500 mm	4 111 204	
		1000 g	Ø 0.5 x 500 mm	4 111 205	
		1000 g	Ø 0.6 x 500 mm	4 111 206	
		1000 g	Ø 0.8 x 500 mm	4 311 208	
		1000 g	Ø 1.0 x 500 mm	4 311 210	
		1000 g	Ø 1.2 x 500 mm	4 311 212	
		1000 g	Ø 1.6 x 500 mm	4 311 216	
		1000 g	Ø 2.4 x 500 mm	4 311 224	
	Coil	50 g	Ø 0.2 mm	4 251 202	
		50 g	Ø 0.3 mm	4 251 203	
		50 g	Ø 0.4 mm	4 251 204	
		50 g	Ø 0.5 mm	4 251 205	
		50 g	Ø 0.6 mm	4 251 206	
		250 g	Ø 0.2 mm	4 231 202	
		250 g	Ø 0.3 mm	4 231 203	
		250 g	Ø 0.4 mm	4 231 204	
		250 g	Ø 0.5 mm	4 231 205	
		250 g	Ø 0.6 mm	4 231 206	
		1000 g	Ø 0.2 mm	4 211 202	
		1000 g	Ø 0.3 mm	4 211 203	
		1000 g	Ø 0.4 mm	4 211 204	
		1000 g	Ø 0.5 mm	4 211 205	
		1000 g	Ø 0.6 mm	4 211 206	

Welding fillers

joke Fill K-33

High-alloy Cr-Ni wire for joining and buffering all low, medium and highalloy cold work steels. For mixed joins when increased strength and toughness are required. The corrosion-resistant weld material increases the hardness by pressure and hammering, very tough, crackresistant and rustproof. Excellent weldability by all methods.
Strength up to approx. 850 N/mm²

				Price from	
	Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill K-33					
	Rods	50 g	Ø 0.2 x 500 mm	4 151 302	
		50 g	Ø 0.3 x 500 mm	4 151 303	
		50 g	Ø 0.4 x 500 mm	4 151 304	
		50 g	Ø 0.5 x 500 mm	4 151 305	
		50 g	Ø 0.6 x 500 mm	4 151 306	
		250 g	Ø 0.2 x 500 mm	4 131 302	
		250 g	Ø 0.3 x 500 mm	4 131 303	
		250 g	Ø 0.4 x 500 mm	4 131 304	
		250 g	Ø 0.5 x 500 mm	4 131 305	
		250 g	Ø 0.6 x 500 mm	4 131 306	
		1000 g	Ø 0.2 x 500 mm	4 111 302	
		1000 g	Ø 0.3 x 500 mm	4 111 303	
		1000 g	Ø 0.4 x 500 mm	4 111 304	
		1000 g	Ø 0.5 x 500 mm	4 111 305	
		1000 g	Ø 0.6 x 500 mm	4 111 306	
		1000 g	Ø 0.8 x 500 mm	4 311 308	
		1000 g	Ø 1.0 x 500 mm	4 311 310	
		1000 g	Ø 1.2 x 500 mm	4 311 312	
		1000 g	Ø 1.6 x 500 mm	4 311 316	
	Coil	50 g	Ø 0.2 mm	4 251 302	
		50 g	Ø 0.3 mm	4 251 303	
		50 g	Ø 0.4 mm	4 251 304	
		50 g	Ø 0.5 mm	4 251 305	
		50 g	Ø 0.6 mm	4 251 306	
		250 g	Ø 0.2 mm	4 231 302	
		250 g	Ø 0.3 mm	4 231 303	
		250 g	Ø 0.4 mm	4 231 304	
		250 g	Ø 0.5 mm	4 231 305	
		250 g	Ø 0.6 mm	4 231 306	
		1000 g	Ø 0.2 mm	4 211 302	
		1000 g	Ø 0.3 mm	4 211 303	
		1000 g	Ø 0.4 mm	4 211 304	
		1000 g	Ø 0.5 mm	4 211 305	
		1000 g	Ø 0.6 mm	4 211 306	

Welding fillers



joke Fill K-35

Corrosion and seawater resistant Cr-Mo alloy, wear-resistant and machinable.

Also for heat resistant repairs and changes to forms and tools of plastic, rubber and glass industry, stamping and pressing tools.

Especially suitable for martensitic steels with a chromium content of 13% – 18%, martensitic, ferritic and austenitic. By lowered carbon content very crack resistant, polishes well, color synchronous on similar alloyed alloys. Hardness depending on composition about 40 – 46 HRC.

For materials: 1.2083, 1.2085, 1.2316, 1.4034, M333, M340, Mirrax, Corrax, Ramax and similar steels

				Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack	1 piece
joke Fill K-35					
 Rods	50 g	Ø 0.2 x 500 mm	4 152 902		
	50 g	Ø 0.3 x 500 mm	4 152 903		
	50 g	Ø 0.4 x 500 mm	4 152 904		
	50 g	Ø 0.5 x 500 mm	4 152 905		
	50 g	Ø 0.6 x 500 mm	4 152 906		
	250 g	Ø 0.2 x 500 mm	4 132 902		
	250 g	Ø 0.3 x 500 mm	4 132 903		
	250 g	Ø 0.4 x 500 mm	4 132 904		
	250 g	Ø 0.5 x 500 mm	4 132 905		
	250 g	Ø 0.6 x 500 mm	4 132 906		
	1000 g	Ø 0.2 x 500 mm	4 112 902		
	1000 g	Ø 0.3 x 500 mm	4 112 903		
	1000 g	Ø 0.4 x 500 mm	4 112 904		
	1000 g	Ø 0.5 x 500 mm	4 112 905		
	1000 g	Ø 0.6 x 500 mm	4 112 906		
	1000 g	Ø 1.0 x 500 mm	4 312 910		
	1000 g	Ø 1.6 x 500 mm	4 312 916		
 Coil	50 g	Ø 0.2 mm	4 252 902		
	50 g	Ø 0.3 mm	4 252 903		
	50 g	Ø 0.4 mm	4 252 904		
	50 g	Ø 0.5 mm	4 252 905		
	50 g	Ø 0.6 mm	4 252 906		
	250 g	Ø 0.2 mm	4 232 902		
	250 g	Ø 0.3 mm	4 232 903		
	250 g	Ø 0.4 mm	4 232 904		
	250 g	Ø 0.5 mm	4 232 905		
	250 g	Ø 0.6 mm	4 232 906		
	1000 g	Ø 0.2 mm	4 212 902		
	1000 g	Ø 0.3 mm	4 212 903		
	1000 g	Ø 0.4 mm	4 212 904		
	1000 g	Ø 0.5 mm	4 212 905		
	1000 g	Ø 0.6 mm	4 212 906		



Welding fillers

joke Fill K-40

High-alloy Co-Cr-Mo- Mn-W-Fe filler for many heat treatable, case-hardened and hot-work steels with universal properties. Very tough and resistant to temperature change. Optimum poreless fusion to nitrated steels, high edge strength at high temperatures, acid proof. Non-chromeplatable. Polishable, only delayed erodibility. Structure hardly thermally modifiable.

Hardness approx. 26 – 38 HRC

Materials: 1.4841, 1.2294

				Price from	
	Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill K-40					
	Rods	50 g	Ø 0.2 x 500 mm	4 151 402	
		50 g	Ø 0.3 x 500 mm	4 151 403	
		50 g	Ø 0.4 x 500 mm	4 151 404	
		50 g	Ø 0.5 x 500 mm	4 151 405	
		50 g	Ø 0.6 x 500 mm	4 151 406	
		250 g	Ø 0.2 x 500 mm	4 131 402	
		250 g	Ø 0.3 x 500 mm	4 131 403	
		250 g	Ø 0.4 x 500 mm	4 131 404	
		250 g	Ø 0.5 x 500 mm	4 131 405	
		250 g	Ø 0.6 x 500 mm	4 131 406	
		1000 g	Ø 0.2 x 500 mm	4 111 402	
		1000 g	Ø 0.3 x 500 mm	4 111 403	
		1000 g	Ø 0.4 x 500 mm	4 111 404	
		1000 g	Ø 0.5 x 500 mm	4 111 405	
		1000 g	Ø 0.6 x 500 mm	4 111 406	
		1000 g	Ø 0.8 x 500 mm	4 311 408	
		1000 g	Ø 1.0 x 500 mm	4 311 410	
		1000 g	Ø 1.2 x 500 mm	4 311 412	
		1000 g	Ø 1.6 x 500 mm	4 311 416	
	Coil	50 g	Ø 0.2 mm	4 251 402	
		50 g	Ø 0.3 mm	4 251 403	
		50 g	Ø 0.4 mm	4 251 404	
		50 g	Ø 0.5 mm	4 251 405	
		50 g	Ø 0.6 mm	4 251 406	
		250 g	Ø 0.2 mm	4 231 402	
		250 g	Ø 0.3 mm	4 231 403	
		250 g	Ø 0.4 mm	4 231 404	
		250 g	Ø 0.5 mm	4 231 405	
		250 g	Ø 0.6 mm	4 231 406	
		1000 g	Ø 0.2 mm	4 211 402	
		1000 g	Ø 0.3 mm	4 211 403	
		1000 g	Ø 0.4 mm	4 211 404	
		1000 g	Ø 0.5 mm	4 211 405	
		1000 g	Ø 0.6 mm	4 211 406	



Welding fillers

joke Fill K-77

Particularly versatile nickel-based alloy with special elements to avoid hard carbide areas. The weld material is extremely resistant to rust, acid, heat and cold; non-nitratable, hardenable and chromeplatable, non-etchable!

Particularly suited for very crack-resistant, extremely elastic and corrosion-resistant base and intermediate layers on all types of steel in addition to all mixed joins of different steels, including GG (grey cast iron), GGG (spheroidal graphite cast iron) and GS (cast steel).

Materials: for joining and buffering all grades of steel and cast iron



			Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill K-77				
	Rods	50 g	Ø 0.2 x 500 mm	4 151 502
		50 g	Ø 0.3 x 500 mm	4 151 503
		50 g	Ø 0.4 x 500 mm	4 151 504
		50 g	Ø 0.5 x 500 mm	4 151 505
		50 g	Ø 0.6 x 500 mm	4 151 506
		250 g	Ø 0.2 x 500 mm	4 131 502
		250 g	Ø 0.3 x 500 mm	4 131 503
		250 g	Ø 0.4 x 500 mm	4 131 504
		250 g	Ø 0.5 x 500 mm	4 131 505
		250 g	Ø 0.6 x 500 mm	4 131 506
		1000 g	Ø 0.2 x 500 mm	4 111 502
		1000 g	Ø 0.3 x 500 mm	4 111 503
		1000 g	Ø 0.4 x 500 mm	4 111 504
		1000 g	Ø 0.5 x 500 mm	4 111 505
		1000 g	Ø 0.6 x 500 mm	4 111 506
		1000 g	Ø 0.8 x 500 mm	4 311 508
		1000 g	Ø 1.0 x 500 mm	4 311 510
		1000 g	Ø 1.2 x 500 mm	4 311 512
		1000 g	Ø 1.6 x 500 mm	4 311 516
	Coil	50 g	Ø 0.2 mm	4 251 502
		50 g	Ø 0.3 mm	4 251 503
		50 g	Ø 0.4 mm	4 251 504
		50 g	Ø 0.5 mm	4 251 505
		50 g	Ø 0.6 mm	4 251 506
		250 g	Ø 0.2 mm	4 231 502
		250 g	Ø 0.3 mm	4 231 503
		250 g	Ø 0.4 mm	4 231 504
		250 g	Ø 0.5 mm	4 231 505
		250 g	Ø 0.6 mm	4 231 506
		1000 g	Ø 0.2 mm	4 211 502
		1000 g	Ø 0.3 mm	4 211 503
		1000 g	Ø 0.4 mm	4 211 504
		1000 g	Ø 0.5 mm	4 211 505
		1000 g	Ø 0.6 mm	4 211 506

Welding fillers

joke Fill A-50

Aluminium special alloy with very good connection to all aluminium grades, Si, Pb, Cu or Mg alloy. Clean application and joining to types that are difficult to weld and for improving fusion in case of subsequently application with highstrength alloys. Excellent LASER weldability, anodisable to a limited extent!


Materials: Aluminium case and wrought alloys, ZAMAG

				Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack	1 piece
joke Fill A-50					
	Rods	50 g	Ø 0.4 x 500 mm	4 150 104	
		50 g	Ø 0.5 x 500 mm	4 150 105	
		50 g	Ø 0.6 x 500 mm	4 150 106	
		250 g	Ø 0.4 x 500 mm	4 130 104	
		250 g	Ø 0.5 x 500 mm	4 130 105	
		250 g	Ø 0.6 x 500 mm	4 130 106	
		1000 g	Ø 0.4 x 500 mm	4 110 104	
		1000 g	Ø 0.5 x 500 mm	4 110 105	
		1000 g	Ø 0.6 x 500 mm	4 110 106	
		1000 g	Ø 1.0 x 500 mm	4 310 110	
		1000 g	Ø 1.6 x 500 mm	4 310 116	
		1000 g	Ø 2.4 x 500 mm	4 310 124	
	Coil	50 g	Ø 0.3 mm	4 250 103	
		50 g	Ø 0.4 mm	4 250 104	
		50 g	Ø 0.5 mm	4 250 105	
		50 g	Ø 0.6 mm	4 250 106	
		250 g	Ø 0.3 mm	4 230 103	
		250 g	Ø 0.4 mm	4 230 104	
		250 g	Ø 0.5 mm	4 230 105	
		250 g	Ø 0.6 mm	4 230 106	
		1000 g	Ø 0.3 mm	4 210 103	
		1000 g	Ø 0.4 mm	4 210 104	
		1000 g	Ø 0.5 mm	4 210 105	
		1000 g	Ø 0.6 mm	4 210 106	

Welding fillers joke Fill A-70

Al-Mg-Mn aluminium wire with special additives for crack-resistant application and joining of the common aluminium wrought alloys in mould building; anodisable and polishable, artificially and naturally ageable. Fumigate zincbased alloys by multiple overmelting or buffer with A-50. Also easily weldable in multiple layers. The hardness values depend on the blend in relation to the base material and are approx. 300 – 450 N/mm² depending on condition.

Materials: highstrength aluminium wrought alloys



				Price from
Design	Weight [g]	Dimensions	Order No.	1 pack
joke Fill A-70				
 Rods	50 g	Ø 0.3 x 500 mm	4 150 303	
	50 g	Ø 0.4 x 500 mm	4 150 304	
	50 g	Ø 0.5 x 500 mm	4 150 305	
	50 g	Ø 0.6 x 500 mm	4 150 306	
	250 g	Ø 0.3 x 500 mm	4 130 303	
	250 g	Ø 0.4 x 500 mm	4 130 304	
	250 g	Ø 0.5 x 500 mm	4 130 305	
	250 g	Ø 0.6 x 500 mm	4 130 306	
	1000 g	Ø 1.0 x 500 mm	4 310 310	
	1000 g	Ø 0.3 x 500 mm	4 110 303	
	1000 g	Ø 0.4 x 500 mm	4 110 304	
	1000 g	Ø 0.5 x 500 mm	4 110 305	
	1000 g	Ø 0.6 x 500 mm	4 110 306	
	1000 g	Ø 2.4 x 500 mm	4 310 324	
	1000 g	Ø 1.6 x 500 mm	4 310 316	

Welding fillers

joke Fill G-10

Al-Mn-Cu-Fe composite bronze for application, joining and repair on most AMPCO® bronzes. Similar in colour and structure, very easily weldable, very good sliding properties in case of metal-against-metal friction, e. g. on drawing and bending tools. No hardened transitions when directly applied to steel. Very little shrinkage. Also suitable for crack weldings on the temperature control channels of plastic moulds. Hardness up to approx. 300 HB


Materials: bronze, AMPCO®, steel

			Price from	
Design	Weight [g]	Dimensions	Order No.	1 pack1 piece
joke Fill G-10				
	Rods	50 g	Ø 0.3 x 500 mm	4 150 403
	50 g	Ø 0.4 x 500 mm	4 150 404	
	50 g	Ø 0.5 x 500 mm	4 150 405	
	50 g	Ø 0.6 x 500 mm	4 150 406	
	250 g	Ø 0.3 x 500 mm	4 130 403	
	250 g	Ø 0.4 x 500 mm	4 130 404	
	250 g	Ø 0.5 x 500 mm	4 130 405	
	250 g	Ø 0.6 x 500 mm	4 130 406	
	1000 g	Ø 0.3 x 500 mm	4 110 403	
	1000 g	Ø 0.4 x 500 mm	4 110 404	
	1000 g	Ø 0.5 x 500 mm	4 110 405	
	1000 g	Ø 0.6 x 500 mm	4 110 406	
	1000 g	Ø 1.0 x 500 mm	4 310 410	
	1000 g	Ø 1.2 x 500 mm	4 310 412	
	1000 g	Ø 1.6 x 500 mm	4 310 416	
	1000 g	Ø 2.4 x 500 mm	4 310 424	
	Coil	50 g	Ø 0.2 mm	4 250 402
	50 g	Ø 0.3 mm	4 250 403	
	50 g	Ø 0.4 mm	4 250 404	
	50 g	Ø 0.5 mm	4 250 405	
	50 g	Ø 0.6 mm	4 250 406	
	250 g	Ø 0.2 mm	4 230 402	
	250 g	Ø 0.3 mm	4 230 403	
	250 g	Ø 0.4 mm	4 230 404	
	250 g	Ø 0.5 mm	4 230 405	
	250 g	Ø 0.6 mm	4 230 406	
	1000 g	Ø 0.2 mm	4 210 402	
	1000 g	Ø 0.3 mm	4 210 403	
	1000 g	Ø 0.4 mm	4 210 404	
	1000 g	Ø 0.5 mm	4 210 405	
	1000 g	Ø 0.6 mm	4 210 406	

Welding fillers joke Fill R-80

Beryllium copper wire with special additives for the repair of molds and dies, where a very high conductivity of heat or electricity is required. High hardness and good wear resistance, polishable, nonmagnetic. When welding use fume extractor! Hardness approx 250 – 300 HB. By temperature treatments hardness up to 40 HRC are possible.

Materials: copper alloys, bronze, steel


				Price from
Design	Weight [g]	Dimensions	Order No.	1 pack
joke Fill R-80				
 Rods	50 g	Ø 0.2 x 500 mm	4 153 002	
	50 g	Ø 0.3 x 500 mm	4 153 003	
	50 g	Ø 0.4 x 500 mm	4 153 004	
	50 g	Ø 0.5 x 500 mm	4 153 005	
	50 g	Ø 0.6 x 500 mm	4 153 006	
	250 g	Ø 0.2 x 500 mm	4 133 002	
	250 g	Ø 0.3 x 500 mm	4 133 003	
	250 g	Ø 0.4 x 500 mm	4 133 004	
	250 g	Ø 0.5 x 500 mm	4 133 005	
	250 g	Ø 0.6 x 500 mm	4 133 006	
	1000 g	Ø 0.2 x 500 mm	4 113 002	
	1000 g	Ø 0.3 x 500 mm	4 113 003	
	1000 g	Ø 0.4 x 500 mm	4 113 004	
	1000 g	Ø 0.5 x 500 mm	4 113 005	
	1000 g	Ø 0.6 x 500 mm	4 113 006	
	1000 g	Ø 1.0 x 500 mm	4 313 010	

Welding fillers

joke Fill R-90

Cu-Ag-Cr-Fe filler for beryllium-free application and joining of pure copper and bronze with a very high copper content. Very good electrical and thermal conduction properties, identical in colour. An increase in hardness of up to 30 % is possible by deep freezing at -20 °C and more. Hardness approx. 90 HB, up to 130 HB after deep freezing.


Materials: copper, copper materials, AMPCOLOY®

				Price from
Design	Weight [g]	Dimensions	Order No.	1 pack
joke Fill R-90				
 Rods	50 g	Ø 0.2 x 500 mm	4 152 202	
	50 g	Ø 0.3 x 500 mm	4 152 203	
	50 g	Ø 0.4 x 500 mm	4 152 204	
	50 g	Ø 0.5 x 500 mm	4 152 205	
	50 g	Ø 0.6 x 500 mm	4 152 206	
	250 g	Ø 0.2 x 500 mm	4 132 202	
	250 g	Ø 0.3 x 500 mm	4 132 203	
	250 g	Ø 0.4 x 500 mm	4 132 204	
	250 g	Ø 0.5 x 500 mm	4 132 205	
	250 g	Ø 0.6 x 500 mm	4 132 206	
	1000 g	Ø 0.2 x 500 mm	4 112 202	
	1000 g	Ø 0.3 x 500 mm	4 112 203	
	1000 g	Ø 0.4 x 500 mm	4 112 204	
	1000 g	Ø 0.5 x 500 mm	4 112 205	
	1000 g	Ø 0.6 x 500 mm	4 112 206	
	1000 g	Ø 1.0 x 500 mm	4 312 210	
	1000 g	Ø 1.6 x 500 mm	4 312 216	

Welding fillers

joke Fill S-90

Titanium welding filler for joint and build-up weldings on titanium and titanium alloys. Most frequently used filler for components from the fields of medical and dental engineering in addition to aerospace technology. Its essential components correspond to material no. 3.7025.

				Price from
Design		Dimensions	Order No.	1 piece
joke Fill S-90				
 Coil		Ø 0.3 x 1000 mm	4 252 303	
		Ø 0.5 x 1000 mm	4 252 305	

Conversion table for hardness values according to DIN 50150

Rockwell hardness HRC	Brinell hardness HB	Vickers hardness HV	HV tensile strength N/mm ² or MPa
25	253	266	854
26	254	273	873
27	265	279	897
28	272	286	914
29	274	294	944
30	287	302	970
31	295	310	995
32	302	318	1024
33	311	327	1052
34	320	336	1082
35	329	345	1111
36	337	355	1139
37	346	364	1168
38	354	373	1198
39	363	382	1227
40	373	392	1262
41	382	402	1296
42	392	412	1327
43	402	423	1362
44	413	434	1401
45	424	446	1442
46	436	459	1481
47	448	471	1524
48	460	484	1572
49	474	499	1625
50	488	513	1668
51	502	528	1733
52	518	545	1793
53	532	560	1845
54	548	578	1912
55	566	596	1979
56	585	615	2050
57	603	634	2121
58	-	654	-
59	-	675	-
60	-	698	-



Training programmes “Welding in toolmaking and mould building”

Good reasons why a training course in welding is worthwhile:

- Wear, breakage, material fatigue, design change, human and mechanical failure, etc. etc. are normal – rapid, reliable repairs are called for in this case!
- “Learning-by-doing” is all well and good, but very time consuming and errors still creep in. Let our welding specialists show you the tricks of the trade!
- Modern production is no longer conceivable without repair welding – you should also move with the times!
- Minimise the costs for external welding providers by performing own on-site repairs.
- We train your employees individually for your specific applications here at joke or directly within your company. It is therefore possible to deal very specifically with your requirements and devise solutions to problems in daily practice in small training groups. Feel free to bring sample components along to practice on your workpieces straight away.
- Our recipe for success: the training programmes are geared to the participants’ daily working practice and over one to two days, mainly focus on practice in coordinated exercises in addition to the essential theoretical bases.
- Bridge the gap between TIG and LASER processes by optimum use of joke multiSpot technology.
- You will of course receive from joke all the necessary work utensils during the training in addition to a certificate for your further personal career.

Select your course program...!

3-day training programme "Welding in toolmaking and mould building (at joke in Bergisch Gladbach)" Order no.: 4 900 031

- Theoretical introduction to the multiSpot welding method, TIG and impulse welding
- Practical instruction in use of the devices, with emphases on fine welding of tool steel, aluminium using the TIG, multiSpot and laser methods
- Dates: by arrangement
- Participants: max. 8 participants - The order of registration will decide.
- Price: by arrangement

1-day training programme "Welding with multiSpot" (at joke in Bergisch Gladbach) Order no.: 4 900 033

- Theoretical introduction to the multiSpot welding method
- Practical instruction in using the multiSpot device
- Dates: by arrangement
- Participants: max. 4 participants - The order of registration will decide.
- Price: by arrangement

1-day training programme "TIG welding" (at joke in Bergisch Gladbach) Order no.: 4 900 039

- Theoretical introduction to the TIG welding method, meaning of direct and alternating current, seam preparation, selection and classification of welding fillers, welding of steel, chrome-nickel steel and aluminium
- Dates: by arrangement
- Participants: max. 4 participants - The order of registration will decide.
- Price: by arrangement

1-day training programme "Welding with multiSpot" (at your company) Order no.: 4 900 032

- Theoretical introduction to the multiSpot welding method
- Practical instruction in using the multiSpot device and practical exercises on appropriate workpieces, debriefing and discussion
- Dates: by arrangement
- Participants: 2 - 4 participants
- Price: by arrangement

1-day training programme "TIG welding" (at your company) Order no.: 4 900 038

- Theoretical introduction to the TIG welding method, meaning of direct and alternating current, seam preparation, selection and classification of welding fillers, practical exercises and discussion
- Welding of steel, chrome-nickel steel and aluminium
- Dates: by arrangement
- Participants: 2 - 4 participants
- Price: by arrangement

1-day training programme "Laser welding" (at your company) Order no.: 4 900 040

- Laser welding for repairs in toolmaking and mould building in addition to production welding (only on the joke ENESKAlaser)
- Dates: by arrangement
- Price: by arrangement

Welding and laser technologies - extensive topics and sometimes a source of inquiry.

Do not hesitate to contact your joke welding experts. **We will be pleased to advise you!**



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