

Welding and coating systems

Overview



384
Welding units and accessories



398
Welding fillers

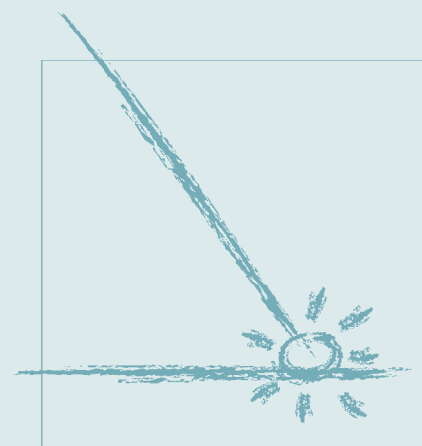


420
Tungsten carbide coating unit



Welding and coating systems Overview

Welding units and accessories	384
JOKE® multiSpot 2 repair welding station	384
JOKE® easyWIG TIG welding unit	397
Welding fillers	398
JOKE® Fill laser welding fillers	398
JOKE® Fill TIG welding fillers	410
Mold Welder / Mold Welder II welding fillers	418
Tungsten carbide coating unit	420
tungsten carbide coating unit tucadur® 2020	420



05 Welding and coating systems

Repair welding with JOKE® multiSpot 2

► Durable repair welding and shortest repair times on moulds and tools are a must in today's modern production environments. The lack of replacement tools and increasingly shorter production times demand the fastest, yet nevertheless impeccable repairs – under the same roof!

Conventional TIG welding has too many disadvantages here, such as fusion penetration, distortion and structural transformation and therefore usually does not allow a final repair job on-site and usually render additional laser welding necessary. This costs time and above all money.

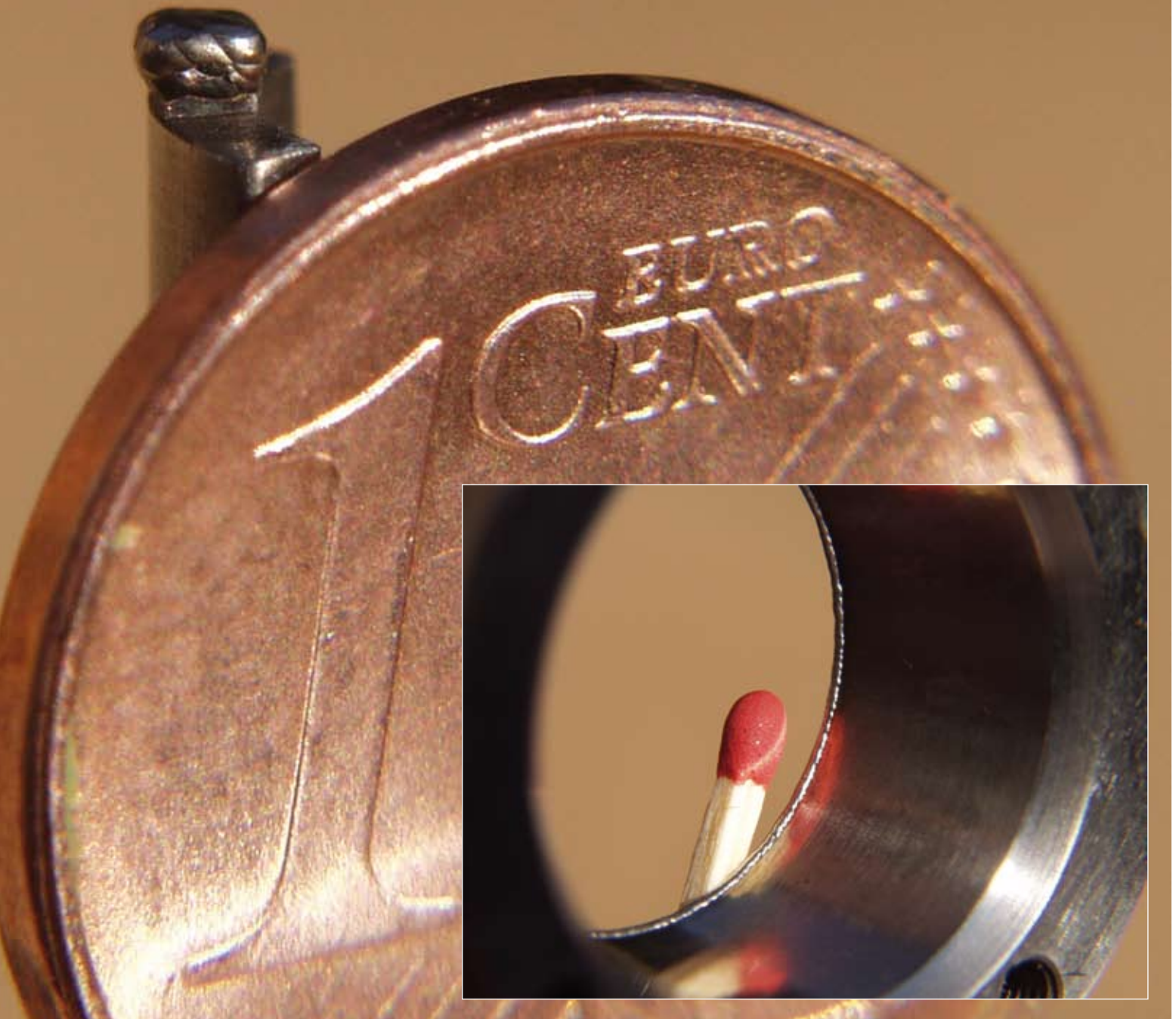
The JOKE® multiSpot technology provides you with the chance to repair your tools safely and cost-efficiently on-site. You therefore not only gain an important piece of freedom from external service providers, but also achieve results with this system, which are largely consistent with laser welding quality. The cross table and hand welding torch allow you to tackle smallest applications as well as large shapes without a problem. Thanks to the JOKE® multiSpot technology external labour, waiting and down-time is reduced to a minimum. We invite you to discover the versatile features of this system on the following pages.

**Welcome to the multiSpot 2 system -
exclusively by JOKE®**





Repair welding with JOKE® multiSpot 2



5

Welding station JOKE® multiSpot 2 Applications

NEW!



▶ **Capability of the multiSpot technology**

Easy, quick and safe. Filler wires from 0.2 mm diameter can be processed. The multiSpot impulse technology is revolutionary and ensures the best possible results are achieved by even, smooth junctures. The single current pulses for smallest and finest welding jobs are triggered with control. Single impulse control for the smallest and finest welding. Controlled triggering of individual impulse. Interval switching with adjustable pauses and welding times ensures precise application and joints.



Steel 1.2367, pore-free surfaces and edge welding



Steel 1.2343, build-up welding



Build-up welding free from cavities



Steel 1.2367, build-up welding



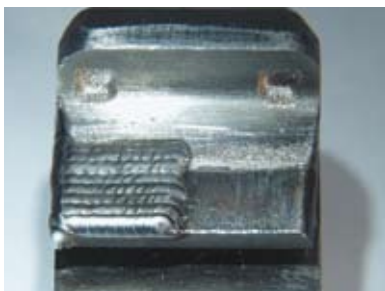
Steel 1.2767, edge welding



Aluminium-bronze



Steel 1.2764, fine edge, wide surface



Steel 1.2764, surface application



Steel 1.4021, pipe + flange gastight welding



Steel 1.2343, surfacing + fillet weld



Steel



Copper



Steel 1.2767, spot welding

5



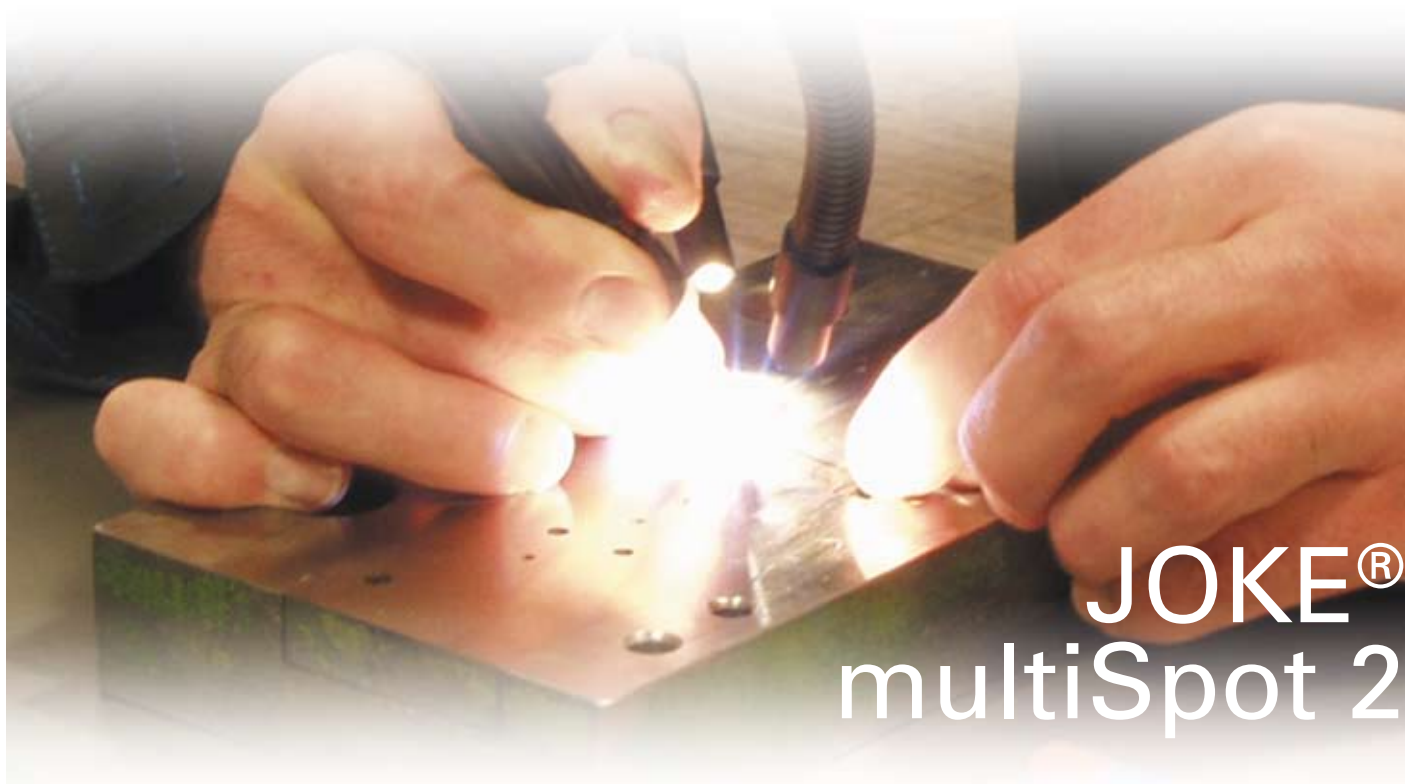
NEW!

Welding station JOKE® multiSpot 2 Applications

Cost-effective on-site repairs

Finest weld points and junctures

Laser-like results



Special pulsed electric arc

Easy, quick and safe

Welding fillers from 0.2 to 2.4 mm pulsed

Six welding modes in one compact unit

Accessories for flexible application

Repair welding System overview

NEW!



Welding units



JOKE® multiSpot 2
The reference for pulsed welding for the safe repair of moulds and tools.



JOKE® easyWIG
High-performance TIG welding unit for complex component geometries.

Welding station JOKE® multiSpot 2
(Order No. 0 084 500)

JOKE® easyWIG welding unit
(Order No. 0 084 650)

Accessories



Earthing cable
(Order No. 0 008 352)



Foot pulse switch
(Order No. 0 008 325)



Foot pedal controller
(Order No. 0 008 324)



Gas pressure regulator
(Order No. 0 008 319)



Spare parts set
(Order No. 0 008 323)

Workplace



Cross table
(Order No. 0 084 510)



Magnet holder with flexible arm
(Order No. 0 084 511)



Welding torch holder
(Order No. 0 008 313)



Transport trolley
(Order No. 0 008 330)

Glare protection / optics



Automatic welding helmet
(Order No. 0 008 312)



Pocket magnifier 2.5 dioptres
(Order No. 0 008 315)

Pocket magnifier 3.0 dioptres
(Order No. 0 008 314)



Glare protection shield
(Order No. 0 008 328)



Stereomicroscope
(Order No. 0 008 329)

Flexible bolt
(Order No. 0 008 329-3)

5



NEW!

Repair welding System overview

Welding torches



Hand welding torch, large, with tipper, flex. welding torch head and 4 m tubing pack
(Order No. 0 008 363)

Accessories:
Glass lens for tungsten electrodes Ø 2.4 mm
short ceramic nozzle type "G"

optional:
long ceramic nozzle type "H"



Hand welding torch, small, with tipper, flex. welding torch head and 4 m tubing pack
(Order No. 0 008 364)

Accessories: Collet housing for tungsten electrodes Ø 1.6 mm
Collet Ø 1.6 mm small ceramic nozzle type "D" long welding torch cover

optional:
Glass lens Ø 1.6 mm
Glass lens Ø 1.0 mm
Collet housing Ø 1.0 mm

Ceramic nozzle type "A" for glass lens
Ceramic nozzle type "B" for collet housing

Ceramic nozzle type "D" for collet housing

Ceramic nozzle type "E" for collet housing

Ceramic nozzle type "F" for collet housing



Hand welding torch, small, without tipper, flex. welding torch head and 4 m tubing pack
(Order No. 0 008 360)

Accessories:
Collet housing for tungsten electrodes Ø 1.6 mm
Collet Ø 1.6 mm small ceramic nozzle type "D" long welding torch cover

optional:
Glass lens Ø 1.6 mm
Glass lens Ø 1.0 mm
Collet housing Ø 1.0 mm

Ceramic nozzle type "A" for glass lens
Ceramic nozzle type "B" for collet housing

Ceramic nozzle type "D" for collet housing

Ceramic nozzle type "E" for collet housing

Ceramic nozzle type "F" for collet housing



Machine welding torches includes 3 m tubing pack
(Order No. 0 008 361)

Accessories:
Glass lens Ø 1.6 mm
Collet with extension Ø 1.6 mm

Ceramic nozzle type "A"

optional:
Glass lens Ø 1.0 mm
collet with extension Ø 1.0 mm
Collet housing Ø 1.0 + 1.6 mm

Ceramic nozzle type "B" for collet housing

Ceramic nozzle type "D" for collet housing

Ceramic nozzle type "E" for collet housing

Ceramic nozzle type "F" for collet housing

Welding fillers



JOKE® Fill for laser welding
Spools 50, 150, 500 g
Rods 300 mm available
in 0.2 – 0.6 mm diameters



JOKE® Fill for TIG welding
Rods 500 mm available
in 0.8 – 1.6 mm diameters

Welding station JOKE® multiSpot 2

NEW!



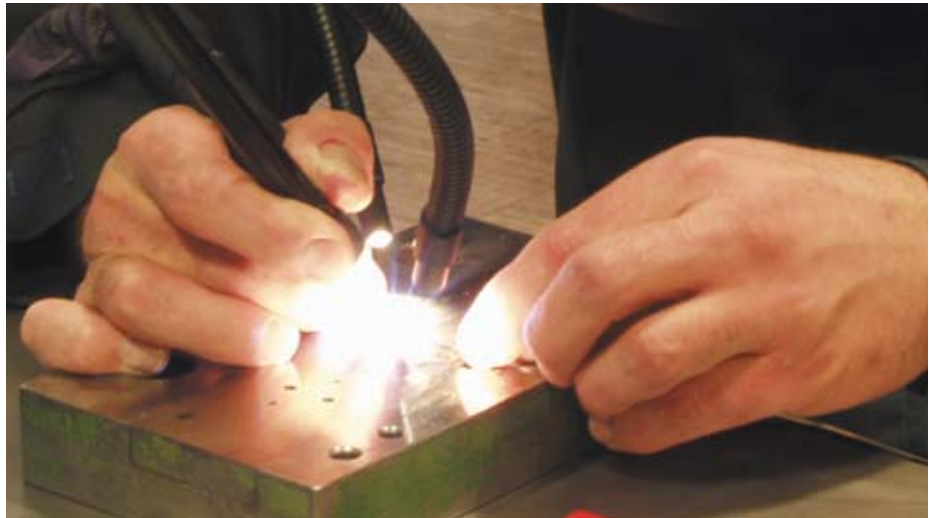
► The JOKE® multiSpot 2 technology

The JOKE® multiSpot technology has revolutionised repair and modification welding for tool and mould making. Easy, quick and safe – the ideal system for efficient on-site tool repair. Specially developed for pulsed welding applications. Such fine and precise welding has so far only been possible with a laser.

The special electrical arc formation allows point-exact welding. No other system puts finer points and seams on surfaces, edges, grooves, engravings etc. And this with filler wires from 0.2 mm. Weld penetration and shrinking or distortion of the base material are minimised to a point where they become technically meaningless.

JOKE® multispot technology ensures best possible junctures and high-strength diffusion welds are guaranteed.

The two welding modi “TIG DC Puls” and “TIG AC” round off the diverse range of applications for this system.



One system – six welding processes

1. **multiSpot single pulse** for the finest and point-precise welding results
2. **multiSpot continuous pulse** for finest weld seams
3. **TIG DC** for smaller and medium repair or build-up jobs
4. **TIG DC pulse** with continuous electric arc. Lower heat generation than TIG DC
5. **TIG AC** for welding on aluminium
6. **Electrode** for rough welding jobs (i.e. in construction)

► The system is complete

A machine welding torch and different hand welding torches give you the choice: Freehand welding or the exact positioning and point-precise welding of a component with the aid of a cross table. The foot pulse switch generates the welding impulses, whilst the foot pedal controller for the welding torch allows the delicate control of the necessary welding energy for TIG, TIG pulse and AC welding. The transport trolley makes your welding station mobile and flexible. Apart from the trolley also offers space for the gas bottle, the cross table and other accessories. The automatic welding helmet with optional pocket magnifier ensures best visibility at work. The spare part and accessory set delivers everything it promises.




NEW!

Welding station JOKE® multiSpot 2

► Overview of the control elements

1. Ammeter
2. Control lights
3. Overheat indicator
4. Pulse length
5. Target value I_1
6. Target value I_2
7. Down slope time
8. Postsurge gas-flow time
9. Pulse-pause time
10. Selector switch TIG 2/4 pulse, electrode
11. Frequency selector AC welding current
12. Balance AC welding current
13. Selector switch DC/AC or S-Test
14. LED status indicator for safety control
15. Programme selector
 - TIG
 - TIG continuous pulse
 - multiSpot single pulse
 - multiSpot continuous pulse
16. Foot pulse switch/ pedal controller connector
17. Foot pulse switch connector
18. Gas connector
19. Welding torch/ tubing pack connector
20. Earthing cable connector



► Technical data

JOKE® multiSpot 2

in accordance with IEC 974.1/EN 60974.1/CE declaration of conformity

Dimensions (L x W x H)	480 x 260 x 380 mm
Weight	26.2 kg
Insulation class	H
Type of protection	IP 23
Cooling type	Forced-air cooled

Input data

Mains voltage U_1	230 Volt (single phase), 50/60 Hz
Mains fuse I_1	16 A, slow-blow
Efficiency factor $\cos \phi$	0.9 at 150 A extraction
Primary constant power S_1	max. 5.0 kVA

Output data

No-load voltage U_0	85 Volt TIG/TIG/electrode
Operating voltage U_2	19.1 – 16.5 V / TIG max. 18 V / Electrode max. 26 V
Welding current ignition I_2	from 3 A
Welding current range I_2	3 – 210 A
Power-on time at 200 A	50 % at +40° C
Power-on time at 130 A	100% at +40° C
Pulse time	20 – 300 ms
Break time	20 – 1000 ms

Welding station JOKE® multiSpot 2

NEW!



Complete set JOKE® multiSpot 2	Order No.	Price €
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The set contains:

- Cross table
- Hand welding torch, large, with 4 m tubing pack
- Machine welding torch with 3 m tubing pack
- Earthing cable, 3 m with crocodile clip
- Argon pressure relief valve with flow meter
- Foot pulse switch
- Foot pedal controller
- Accessory and spare parts set

0 084 500

The complete set for a perfect start:



Hand welding torch, large, with 4 m tubing pack (Order No. 0 008 363)



Cross table (Order No. 0 084 510)



Machine welding torch with 3 m tubing pack (Order No. 0 008 361)



Foot pulse switch (Order No. 0 008 325)



Foot pedal controller (Order No. 0 008 324)



3 m earthing cable with crocodile clip (Order No. 0 008 352)



Pressure relief valve with flow meter (Order No. 0 008 319)



multiSpot accessory/spare part set (Order No. 0 008 323)


NEW!

Welding station JOKE® multiSpot 2

Accessories JOKE® multiSpot 2



Hand welding torch, small
(Order No. 0 008 360)



Flexarm system

Find more information on the new, individually extendable flexible arm system especially for welding workplaces on **page 396**.



Transport trolley
(Order No. 0 008 330)



Hand welding torch, large, with 4 m tubing pack and tipper

with flexible burner head, capacity: DC 240 A / AC 200 A

Order No. 0 008 363

Hand welding torch, small

with flexible burner head, capacity: DC 110 A / AC 95 A

0 008 360

Machine welding torch with 3 m tubing pack

Capacity: DC 110 A / AC 95 A

0 008 361

Earthing cable with crocodile clip

0 008 352

Pressure relief valve with. flow meter

0 008 319

Foot pulse switch

for generating welding impulses

0 008 325

Foot pedal controller for JOKE® multiSpot 2

for the exact control of the required output for TIG-DC and AC welding

0 008 324

Cross table

Its x-y-z axis and freely movable torch holder ensures the exact positioning of the machine welding torch over the component

0 084 510

Leather gloves, size 9

0 008 350

Leather gloves, size 10

0 008 351

Welding torch holder, magnetic

for the secure storage of your welding torch

0 008 313

Transport trolley

offers space for the unit, gas bottle, cross table and accessories

0 008 330

Automatic welding helmet

with variable protection level (5-9 / 9-13) and adjustable sensitivity

0 008 312

Pocket magnifier 2.5 dioptries

0 008 315

Pocket magnifier 3.0 dioptries

0 008 314

Fibreglass pen

0 008 317

Replacement lead for fibreglass pen

0 008 318

Welding filler holder for Ø 0.2 – 1.0 mm

0 008 316

Welding station JOKE® multiSpot 2

Spares and consumables

NEW!



Spares and consumables / special accessories		Order No.	Price €
 <p>Ceramic nozzles</p>	Tungsten electrode Ø 2.4 mm, blue	0 008 321	
	Tungsten electrode Ø 1.6 mm, blue	0 008 320	
	Tungsten electrode Ø 1.0 mm, blue	0 008 322	
	Ceramic nozzle type "H" for hand welding torches, large Ø 10 x 76 mm	0 008 365-5	
	Ceramic nozzle type "G" for hand welding torches, large Ø 11 x 42 mm	0 008 365-4	
	Ceramic nozzle type "D" for machine and hand welding torches, small Ø 7 x 30 mm	0 008 360-1	
	Ceramic nozzle type "E" for machine and hand welding torches, small Ø 6.5 x 48 mm	0 008 365-2	
	Ceramic nozzle type "F" for collet housing Ø 5 x 48 mm	0 008 365-3	
 <p>Glass lens with collet</p>	Ceramic nozzle type "A" for glass lens Ø 8 x 35 mm	0 008 360-8	
	Ceramic nozzle type "B" for collet housing Ø 8 x 30 mm	0 008 365-1	
 <p>Insulator</p>	Insulator for hand welding torch, large	0 008 363-1	
	Collet Ø 2.4 mm for hand welding torches, large	0 008 361-8	
	Glass lens Ø 2.4 mm for hand welding torches, large	0 008 363-2	
	Collet Ø 1.6 mm with extension hose for machine welding torches	0 008 361-4	
 <p>Glass lenses, collets with extension and electrodes (combination for use with machine welding torches)</p>	Collet Ø 1.0 mm with extension hose for machine welding torches	0 008 360-6	
	Collet Ø 1.6 mm for hand welding torches, light and machine welding torches	0 008 360-2	
	Collet Ø 1.0 mm for hand welding torches, light and machine welding torches	0 008 361-5	
	Collet housing Ø 1.6 mm for machine and hand welding torches, light	0 008 361-7	
	Collet housing Ø 1.0 mm for machine and hand welding torches, light	0 008 360-7	
	Glass lens Ø 1.6 mm for machine and hand welding torches, light	0 008 360-3	
 <p>Welding torch cover long and short</p>	Glass lens Ø 1.0 mm for machine and hand welding torches, light	0 008 359	
	Welding torch cover, long, for light hand welding torch	0 008 360-9	
	Welding torch cover, short, for light hand welding torch	0 008 360-5	



The flexible arm for welding units

On the next page, you will discover the new, individually adjustable flexarm system, which has been especially designed for welding workplaces. Talk to **Bernd Dörnen** about the possibilities this flexible accessory system offers and learn more about repair welding with the JOKE® multiSpot:

Tel. +49 (0) 22 04 / 8 39-0
b.doernen@joke.de



Collet housing



Welding torch cover long and short


NEW!

Welding station JOKE® multiSpot 2 Spares and consumables

Spares and consumables set for multiSpot2	Order No.	Price €
<p>This set contains the following spares and consumables:</p> <ul style="list-style-type: none"> • Tungsten electrode Ø 2.4 mm (Order No. 0 008 321) • Tungsten electrode Ø 1.6 mm (Order No. 0 008 320) • Ceramic nozzle type "H" for hand welding torches, large (Order No. 0 008 365-5) • Ceramic nozzle type "G" for hand welding torches, large (Order No. 0 008 365-4) • Ceramic nozzle type "D" for machine and hand welding torches (Order No. 0 008 360-1) • Ceramic nozzle type "E" for machine and hand welding torches (Order No. 0 008 365-2) • Insulator for hand welding torches, large (Order No. 0 008 363-1) • Collet Ø 2.4 mm for hand welding torches, large (Order No. 0 008 361-8) • Collet Ø 1.6 mm for hand welding torches, large (Order No. 0 008 361-4) • Collet housing Ø 1.6 mm (Order No. 0 008 361-7) • Glass lens Ø 2.4 mm (Order No. 0 008 363-2) • Glass lens Ø 1.6 mm (Order No. 0 008 360-3) 	0 008 323	


5

Flexarm system for welding workplaces

NEW!



► Flexarm system

This flexarm system is the ideal extension that will facilitate welding at your workplace and optimise the final results at the same time.

You have the choice between a **flexarm for machine welding torches** at the cross table and flexarms with magnet base for additional accessories: a flexible shield, for examples, ensures safety at work, even without a helmet. The optional **stereomicroscope** allows you to produce even finer weld seams..

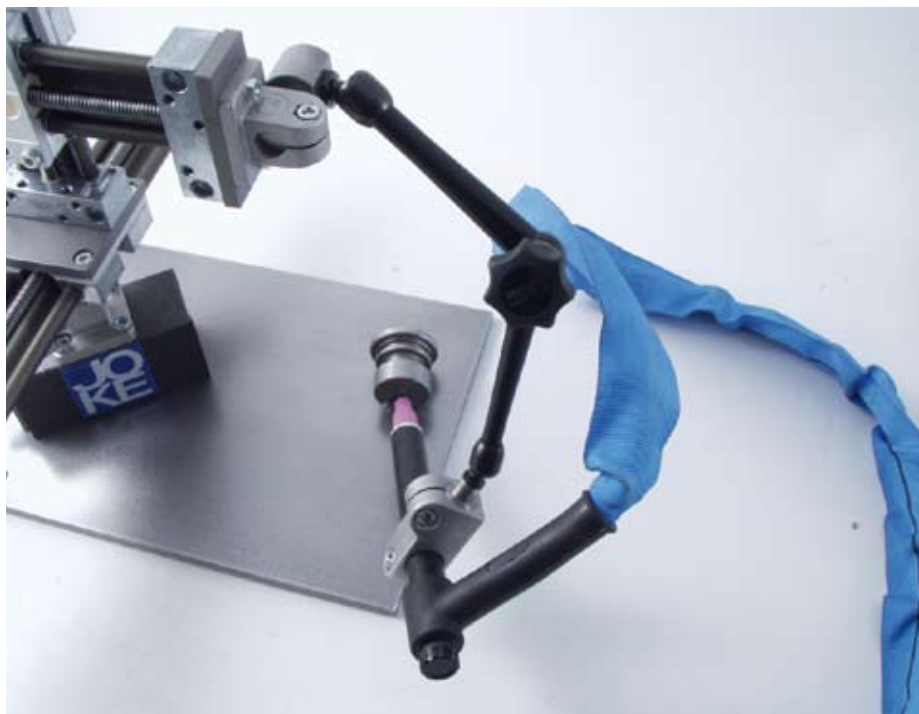
Other accessories that are a must for every professional welder's workplace:

Fibre light P 100 W with dual swan-necked light guide

Order No. 0 200 700

Price € 456.00 Euro

(further information on page 480)



Components flexarm system



Magnetic arm with flexarm for welding torch

For variable use of the upper part of the cross table in larger moulds. Consists of magnetic base with holder for the upper part of the cross table and flexarm with retention pins for the cross table and welding torch holder.

Order No.

Price €

0 084 511

Stereomicroscope with filter cassette 4/9-13

Brings you visually closer to the welding point. Even more variable application with the optional flexible bolt.

0 008 329

Flexible bolt for stereomicroscope



0 008 329-3

Glare protection shield

For a safe workplace even without a helmet. The magnetic base ensures that this shield can be easily placed in the desired position. Two settings for sensitivity and delay.

0 008 328




NEW!

Welding unit JOKE® easyWIG

▶ Welding unit JOKE® easyWIG

High-performance TIG unit with finest spark behaviour. The extremely stable electric arc facilitates welding even on complex component geometries.

The compact measurements and the extremely low weight make this unit very handy and suitable for mobile applications. The optional foot controller further enhances its functionality.

▶ Technical Data

JOKE® easyWIG

Mains voltage	230 V, 50/60 Hz
Phases	1
Mains fuse	16 A slow-blow
Type of protection	IP 23
Insulation class	H
Dimensions (H x L x W)	340 x 365 x 165 mm
Weight	12.7 kg
Mark of conformity	EN 6097.4, IEC 974.1, S / CE identification
No-load voltage	85 V
Max. output current	165 A
Power consumption	
Primary constant power (ED 60/40 % TIG/electrode)	4.4 kVA / 6 kVA
Temperature range	0 – 40 °C
Upslope/Downslope	0 - 20 sec. (on final value)
Postsurge gas-flow time	0 - 25 sec.
Presurge gas-flow time	0.5 sec.

Electrode welding

Welding current range	5 - 140 A
for 10min/40 °C 40 % c.d.f.	140 A (25 V)

TIG DC welding

HF ignition	yes
Welding current range	5 - 165 A
for 10min/40 °C 60 % c.d.f.	165 A (16.4 V)
for 10min/40 °C 10 % c.d.f.	120 A (14.0 V)



Complete set JOKE® easyWIG

The set contains:

- JOKE® easyWIG welding unit
- Earthing cable with crocodile clip
- Hand welding torch, small, with tipper and flexible torch head

Order No.	Price €
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0 084 650	
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Optionale accessories JOKE® easyWIG

Order No.	Price €
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Hand welding torch, small

with flexible burner head,
capacity: DC 110 A / AC 95 A



0 008 360	
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Foot volume controller for JOKE® easyWIG

0 084 611	
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Laser welding fillers

JOKE® Fill

NEW!



Welding filler JOKE® Fill 100 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Martensitic Cr-Mn filler with corrosion-resistant characteristics. Polishable, erodible, nitrable, etchible and hardenable. Temperable up to 2 layers. Ideal for structurally synchronous build-up layers on plastics, blow and injection moulds and compression moulds.</p> <p>First layer: ca. 48-56 HRC, depending on composition</p> <p>Base composition %: C 0.35 • Al 0.05 • Cr 5.90 • Mn 0.60 • Mo 1.30 • Si 0.80 • V 0.70 • Su 0.40 • Fe remainder</p> <p>Suitable for material Nos.: 1.2343 • 1.2344 • 1.2082 • 1.2083 • 1.2367 • 1.2606 and similar</p>	Spool 50 g	Ø 0.1 mm	50 g	0 084 011	
		Ø 0.2 mm	50 g	0 084 012	
		Ø 0.3 mm	50 g	0 084 013	
		Ø 0.4 mm	50 g	0 084 014	
		Ø 0.5 mm	50 g	0 084 015	
		Ø 0.6 mm	50 g	0 084 016	
	Spool 150 g	Ø 0.1 mm	150 g	0 084 011-2	
		Ø 0.2 mm	150 g	0 084 012-2	
		Ø 0.3 mm	150 g	0 084 013-2	
		Ø 0.4 mm	150 g	0 084 014-2	
		Ø 0.5 mm	150 g	0 084 015-2	
		Ø 0.6 mm	150 g	0 084 016-2	
	Spool 500 g	Ø 0.1 mm	500 g	0 084 011-4	
		Ø 0.2 mm	500 g	0 084 012-4	
		Ø 0.3 mm	500 g	0 084 013-4	
		Ø 0.4 mm	500 g	0 084 014-4	
		Ø 0.5 mm	500 g	0 084 015-4	
		Ø 0.6 mm	500 g	0 084 016-4	
Rod 300 mm	Ø 0.3 mm	150 g	0 084 013-7		
	Ø 0.4 mm	150 g	0 084 014-7		
	Ø 0.5 mm	150 g	0 084 015-7		
	Ø 0.6 mm	150 g	0 084 016-7		

Welding filler JOKE® Fill 105 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Cr-Ni-Mo-Mn filler with reduced carbon content. Additional stabilising elements to reduce hard carbide rims. Polishable, erodible, nitrable, etchible and heat treatable. Temperable up to 2 layers. For plastic and injection moulds, colour synchronous on 2-5 % nickelous tool steels. The weld metal can withstand temperature changes.</p> <p>First layer: ca. 360-420 HB</p> <p>Base composition %: C 0.25 • Cr 1.45 • Mn 0.50 • Mo 0.40 • Ni 3.60 • Si 0.30 • V 0.20 • Su 2.20 • Fe remainder</p> <p>Suitable for material Nos.: 1.2713 • 1.2714 • 1.2740 1.2743 • 1.2744 • 1.2747 1.2764 • 1.2766 • 1.2767 and similar</p>	Spool 50 g	Ø 0.1 mm	50 g	0 084 031	
		Ø 0.2 mm	50 g	0 084 032	
		Ø 0.3 mm	50 g	0 084 033	
		Ø 0.4 mm	50 g	0 084 034	
		Ø 0.5 mm	50 g	0 084 035	
		Ø 0.6 mm	50 g	0 084 036	
	Spool 150 g	Ø 0.1 mm	150 g	0 084 031-2	
		Ø 0.2 mm	150 g	0 084 032-2	
		Ø 0.3 mm	150 g	0 084 033-2	
		Ø 0.4 mm	150 g	0 084 034-2	
		Ø 0.5 mm	150 g	0 084 035-2	
		Ø 0.6 mm	150 g	0 084 036-2	
	Spool 500 g	Ø 0.1 mm	500 g	0 084 031-4	

continued on page 399


NEW!

Laser welding fillers

JOKE® Fill

Welding filler JOKE® Fill 105 - Laser	Design	Dimensions	Weight	Order No.	Price €
... continued from page 398	Spool 500 g	Ø 0.2 mm	500 g	0 084 032-4	
		Ø 0.3 mm	500 g	0 084 033-4	
		Ø 0.4 mm	500 g	0 084 034-4	
		Ø 0.5 mm	500 g	0 084 035-4	
		Ø 0.6 mm	500 g	0 084 036-4	
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 033-7	
		Ø 0.4 mm	150 g	0 084 034-7	
		Ø 0.5 mm	150 g	0 084 035-7	
		Ø 0.6 mm	150 g	0 084 036-7	

Welding filler JOKE® Fill 110 - Laser	Design	Dimensions	Weight	Order No.	Price €
Cr-Mo-Mn filler with reduced carbon and silicon content. Additional stabilising elements to reduce hard carbide rims. Polishable, erodible, nitrable, etchible and heat treatable. The weld metal is synchronous to structure and treatment of parent material. First layer ca. 360-400 HB Base composition %: C 0.25 • Al 0.03 • Cr 1.55 • Mn 1.40 • Mo 0.25 • V 0.40 • Su 0.45 • Fe remainder Suitable for material No. 1.2311 • 1.2312 • 1.2162 • 1.2738 and similar	Spool 50 g	Ø 0.1 mm	50 g	0 084 051	
		Ø 0.2 mm	50 g	0 084 052-1	
		Ø 0.3 mm	50 g	0 084 053	
		Ø 0.4 mm	50 g	0 084 054	
		Ø 0.5 mm	50 g	0 084 055	
	Spool 150 g	Ø 0.6 mm	50 g	0 084 056	
		Ø 0.1 mm	150 g	0 084 051-2	
		Ø 0.2 mm	150 g	0 084 052-2	
		Ø 0.3 mm	150 g	0 084 053-2	
		Ø 0.4 mm	150 g	0 084 054-2	
Ø 0.5 mm		150 g	0 084 055-2		
Spool 500 g	Ø 0.6 mm	150 g	0 084 056-2		
	Ø 0.1 mm	500 g	0 084 051-4		
	Ø 0.2 mm	500 g	0 084 052-4		
	Ø 0.3 mm	500 g	0 084 053-4		
	Ø 0.4 mm	500 g	0 084 054-4		
	Ø 0.5 mm	500 g	0 084 055-4		
Rod 300 mm	Ø 0.6 mm	500 g	0 084 056-4		
	Ø 0.3 mm	150 g	0 084 053-7		
	Ø 0.4 mm	150 g	0 084 054-7		
	Ø 0.5 mm	150 g	0 084 055-7		
		Ø 0.6 mm	150 g	0 084 056-7	



Laser welding fillers

JOKE® Fill

NEW!



Welding filler JOKE® Fill 115 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Cr-Ni-Mo-Mn filler, heat and corrosion-proof. The weld metal is temperable, but cold hardening through pressure/impact. Polishable and erodible, but not nitrable and chrome platable. Suitable for base and intermediate layers as well as compounds on most tool steels.</p> <p>Hardness first layer: ca. 320-370 HB, expansion up to 33 % max. – tensile strength ca. 820-880 N/qmm</p> <p>Base composition %: C 0.10 • Cr 30.50 • Mn 1.90 • Mo 0.50 • Ni 10.00 • Si 0.60 • Su 0.40 • Fe remainder</p> <p>Suitable for material Nos.: various</p>	Spool 50 g	Ø 0.3 mm	50 g	0 084 073	
		Ø 0.4 mm	50 g	0 084 074	
		Ø 0.6 mm	50 g	0 084 076	
	Spool 150 g	Ø 0.3 mm	150 g	0 084 073-2	
		Ø 0.4 mm	150 g	0 084 074-2	
		Ø 0.6 mm	150 g	0 084 076-2	
	Spool 500 g	Ø 0.3 mm	500 g	0 084 073-4	
		Ø 0.4 mm	500 g	0 084 074-4	
		Ø 0.6 mm	500 g	0 084 076-4	
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 073-7	
		Ø 0.4 mm	150 g	0 084 074-7	
		Ø 0.6 mm	150 g	0 084 076-7	

Welding filler JOKE® Fill 120 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Nickel-based filler with Cr-Mo-Mn-Fe-Nb and elements to avoid hard carbide transitions. Corrosion-, acid-, heat-proof and extremely cold-resistant. Erodible and polishable. Not nitrable, temperable or chrome platable. For crack-proof, elastic, tough hardened bases and intermediate layers as well as almost all possible compounds of various steels such as GS, GG – GGG 70.</p> <p>Hardness first layer: ca. 220-250 HB, expansion up to 46 % max. – tensile strength ca. 700-760 N/qmm</p> <p>Base composition %: C 0.02 • Cr 19.50 • Fe 1.90 • Mn 2.80 • Si 0.20 • Nb 2.50 • Ni remainder</p> <p>Suitable for material Nos.: various</p>	Spool 50 g	Ø 0.1 mm	50 g	0 084 091	
		Ø 0.2 mm	50 g	0 084 092	
		Ø 0.3 mm	50 g	0 084 093	
		Ø 0.4 mm	50 g	0 084 094	
		Ø 0.5 mm	50 g	0 084 095	
		Ø 0.6 mm	50 g	0 084 096	
	Spool 150 g	Ø 0.1 mm	150 g	0 084 091-2	
		Ø 0.2 mm	150 g	0 084 092-2	
		Ø 0.3 mm	150 g	0 084 093-2	
		Ø 0.4 mm	150 g	0 084 094-2	
		Ø 0.5 mm	150 g	0 084 095-2	
		Ø 0.6 mm	150 g	0 084 096-2	
	Spool 500 g	Ø 0.1 mm	500 g	0 084 091-4	
		Ø 0.2 mm	500 g	0 084 092-4	
		Ø 0.3 mm	500 g	0 084 093-4	
		Ø 0.4 mm	500 g	0 084 094-4	
		Ø 0.5 mm	500 g	0 084 095-4	
		Ø 0.6 mm	500 g	0 084 096-4	
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 093-7	
		Ø 0.4 mm	150 g	0 084 094-7	
		Ø 0.5 mm	150 g	0 084 095-7	
		Ø 0.6 mm	150 g	0 084 096-7	


NEW!

Laser welding fillers

JOKE® Fill

Welding filler JOKE® Fill 125 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Cr-Mo-Mn-Vanadine filler for hot-work steels. Polishable, erodible, nitritable, etchible and heat treatable. Can be hardened to ca. 58 HRC. For plastic, blowing and injection moulds. Readily machinable. Shock-temperature resistant.</p> <p>Hardness first layer: ca. 46-52 HRC.</p> <p>Base composition %: C 0.40 • Al 0.03 • Cr 5.00 • Mn 0.33 • Mo 1.15 • Si 1.10 • V 0.41 • W 0.42 • Fe remainder</p> <p>Suitable for material No. 1.2343 • 1.2344 • 1.2360 • 1.2362 and similar</p>	Spool 50 g	Ø 0.25 mm	50 g	0 084 112	
		Ø 0.3 mm	50 g	0 084 113	
		Ø 0.4 mm	50 g	0 084 114	
		Ø 0.5 mm	50 g	0 084 115	
		Ø 0.6 mm	50 g	0 084 116	
	Spool 150 g	Ø 0.25 mm	150 g	0 084 112-2	
		Ø 0.3 mm	150 g	0 084 113-2	
		Ø 0.4 mm	150 g	0 084 114-2	
		Ø 0.5 mm	150 g	0 084 115-2	
		Ø 0.6 mm	150 g	0 084 116-2	
	Spool 500 g	Ø 0.25 mm	500 g	0 084 112-4	
		Ø 0.3 mm	500 g	0 084 113-4	
		Ø 0.4 mm	500 g	0 084 114-4	
		Ø 0.5 mm	500 g	0 084 115-4	
		Ø 0.6 mm	500 g	0 084 116-4	
Rod 300 mm	Ø 0.3 mm	150 g	0 084 113-7		
	Ø 0.4 mm	150 g	0 084 114-7		
	Ø 0.5 mm	150 g	0 084 115-7		
	Ø 0.6 mm	150 g	0 084 116-7		
Welding filler JOKE® Fill 140 - Laser					
<p>High-alloy Co-Cr-Mo-Mn-W-Fe filler for many heat-treated, case-hardened and heat resistant steels with universal characteristics. Suitable for nitrided steels, edge- and acid-proof. Not chrome platable. Polishable, but only delayed erodible. Structure thermally very resistant.</p> <p>Hardness first layer: ca. 24-36 HRC. Through artificial ageing and pressure/impact, the hardness can be enhanced by up to 35%! Expansion ca. 18-25%.</p> <p>Base composition %: C 0.03 • Cr 19.00 • Fe 2.10 • Mn 3.00 • Si 0.30 • Nb 3.00 • Ni remainder</p> <p>Suitable for material Nos.: Various</p>	Spool 50 g	Ø 0.1 mm	50 g	0 084 131	
		Ø 0.2 mm	50 g	0 084 132	
		Ø 0.3 mm	50 g	0 084 133	
		Ø 0.4 mm	50 g	0 084 134	
		Ø 0.5 mm	50 g	0 084 135	
		Ø 0.6 mm	50 g	0 084 136	
	Spool 150 g	Ø 0.1 mm	150 g	0 084 131-2	
		Ø 0.2 mm	150 g	0 084 132-2	
		Ø 0.3 mm	150 g	0 084 133-2	
		Ø 0.4 mm	150 g	0 084 134-2	
		Ø 0.5 mm	150 g	0 084 135-2	
		Ø 0.6 mm	150 g	0 084 136-2	
	Spool 500 g	Ø 0.1 mm	500 g	0 084 131-4	
		Ø 0.2 mm	500 g	0 084 132-4	
		Ø 0.3 mm	500 g	0 084 133-4	
Ø 0.4 mm		500 g	0 084 134-4		
Ø 0.5 mm		500 g	0 08 4135-4		
Ø 0.6 mm		500 g	0 084 136-4		

continued on page 402

Laser welding fillers

JOKE® Fill

NEW!



Welding filler JOKE® Fill 140 - Laser	Design	Dimensions	Weight	Order No.	Price €
... continued from page 401	Rod 300 mm	Ø 0.3 mm	150 g	0 084 133-7	
		Ø 0.4 mm	150 g	0 084 134-7	
		Ø 0.5 mm	150 g	0 084 135-7	
		Ø 0.6 mm	150 g	0 084 136-7	
Welding filler JOKE® Fill 145 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Cr-Mo-V-W filler with stabilising elements. Dense structure. Air hardening and shock-temperable. Edge- and highly temperature-proof. Conditionally chrome platable; polishable, erodible, nitratable, etchible and heat treatable. Good heat conduction properties. For aluminium and zinc die cast moulds, structures and slide tolls.</p> <p>Hardness first layer: ca. 56-59 HRC. Through multi-layer welding hardenable to ca. 58 HRC.</p> <p>Base composition %: C 0.35 • Al 0.03 • Cr 5.30 • Mn 0.60 • Mo 1.50 • Si 0.70 • V 0.80 • Su 0.40 • Fe remainder</p> <p>Suitable for material Nos. 1.2343 • 1.2344 • 1.2362 • 1.2363 • 1.2367 and similar</p>	Spool 50 g	Ø 0.25 mm	50 g	0 084 152	
		Ø 0.3 mm	50 g	0 084 153	
		Ø 0.4 mm	50 g	0 084 154	
		Ø 0.5 mm	50 g	0 084 155	
		Ø 0.6 mm	50 g	0 084 156	
	Spool 150 g	Ø 0.25 mm	150 g	0 084 152-2	
		Ø 0.3 mm	150 g	0 084 153-2	
		Ø 0.4 mm	150 g	0 084 154-2	
		Ø 0.5 mm	150 g	0 084 155-2	
		Ø 0.6 mm	150 g	0 084 156-2	
	Spool 500 g	Ø 0.25 mm	500 g	0 084 152-4	
		Ø 0.3 mm	500 g	0 084 153-4	
		Ø 0.4 mm	500 g	0 084 154-4	
		Ø 0.5 mm	500 g	0 084 155-4	
		Ø 0.6 mm	500 g	0 084 156-4	
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 153-7	
Ø 0.4 mm		150 g	0 084 154-7		
Ø 0.5 mm		150 g	0 084 155-7		
Ø 0.6 mm		150 g	0 084 156-7		
Welding filler JOKE® Fill 150 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Martensitic Cr filler with stabilising elements. Polishable, erodible, nitratable, etchible and temperable. Not chrome palatable! Corrosion- and wear-proof. For GRP plastic and blow moulds.</p> <p>Hardness first layer: ca. 48-54 HRC, depending on composition Can be hardened to ca. 60 HRC.</p> <p>Base composition %: C 0.20 • Al 12.00 • Cr 0.50 • Mn 1.00 • Ni <1.0 • Si 0.50 • V 0.35 • W 0.50 • Fe remainder</p> <p>Suitable for material Nos. STAVAX • 1.2083 • 1.2316 • 1.4115 • 1.4120 and similar</p>	Spool 50 g	Ø 0.1 mm	50 g	0 084 171	
		Ø 0.2 mm	50 g	0 084 172	
		Ø 0.3 mm	50 g	0 084 173	
		Ø 0.4 mm	50 g	0 084 174	
		Ø 0.5 mm	50 g	0 084 175	
		Ø 0.6 mm	50 g	0 084 176	
	Spool 150 g	Ø 0.1 mm	150 g	0 084 171-2	
		Ø 0.2 mm	150 g	0 084 172-2	
		Ø 0.3 mm	150 g	0 084 173-2	
		Ø 0.4 mm	150 g	0 084 174-2	
		Ø 0.5 mm	150 g	0 084 175-2	
		Ø 0.6 mm	150 g	0 084 176-2	

continued on page 403


NEW!

Laser welding fillers

JOKE® Fill

Welding filler JOKE® Fill 150 - Laser	Design	Dimensions	Weight	Order No.	Price €
... continued from page 402	Spool 500 g	Ø 0.1 mm	500 g	0 084 171-4	
		Ø 0.2 mm	500 g	0 084 172-4	
		Ø 0.3 mm	500 g	0 084 173-4	
		Ø 0.4 mm	500 g	0 084 174-4	
		Ø 0.5 mm	500 g	0 084 175-4	
		Ø 0.6 mm	500 g	0 084 176-4	
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 173-7	
		Ø 0.4 mm	150 g	0 084 174-7	
		Ø 0.5 mm	150 g	0 084 175-7	
		Ø 0.6 mm	150 g	0 084 176-7	

Welding filler JOKE® Fill 155 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Universal Cr-Mn-Al-Ti filler for cold-cutting applications and heat-treated steels. Nitritable, crack- and abrasion-proof. Inductive- and flame-hardenable. Good suitability also for sealing and closing edges of plastic blow moulds.</p> <p>Hardness first layer: ca. 56-60 HRC, depending on composition. Can be hardened to ca. 62 HRC.</p> <p>Base composition %: C 1.20 • Cr 2.00 • Mn 1.80 • Si 0.60 • Fe remainder</p> <p>Suitable for material Nos.: 1.2842 • 1.2762 • 1.2743 • 1.2721 • 1.2710 and similar</p>	Spool 50 g	Ø 0.5 mm	50 g	0 084 195	
		Ø 0.6 mm	50 g	0 084 196	
	Spool 150 g	Ø 0.5 mm	150 g	0 084 195-2	
		Ø 0.6 mm	150 g	0 084 196-2	
	Spool 500 g	Ø 0.5 mm	500 g	0 084 195-4	
		Ø 0.6 mm	500 g	0 084 196-4	
	Rod 300 mm	Ø 0.5 mm	150 g	0 084 195-7	
		Ø 0.6 mm	150 g	0 084 196-7	



Laser welding fillers

JOKE® Fill

NEW!



Welding filler JOKE® Fill 160 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Cr-Mo-Mn-W-V filler with extremely wear-proof and tough hardened characteristics. Suitable for hard build-up layers on cold-work steels with more than 5 % chrome content. Crack-proof and fast hardening, good edge stability. Thermally treatable like parent material. The weld metal is nitritable, erodible, chrome platable and heat treatable.</p> <p>Hardness first layer: ca. 58-60 HRC, depending on composition. Can be hardened to ca. 62 HRC.</p> <p>Base composition %: C 0.35 • S <0.002 • Cr 6.40 • P 0.02 • Mo 2.00 • Ti 0.25 • Fe remainder</p> <p>Suitable for material Nos. 1.2358 • 1.2363 • CARMO • CALVAX and similar</p>	Spool 50 g	Ø 0.3 mm	50 g	0 084 213	
		Ø 0.4 mm	50 g	0 084 214	
		Ø 0.5 mm	50 g	0 084 215	
		Ø 0.6 mm	50 g	0 084 216	
	Spool 150 g	Ø 0.3 mm	150 g	0 084 213-2	
		Ø 0.4 mm	150 g	0 084 214-2	
		Ø 0.5 mm	150 g	0 084 215-2	
		Ø 0.6 mm	150 g	0 084 216-2	
	Spool 500 g	Ø 0.3 mm	500 g	0 084 213-4	
		Ø 0.4 mm	500 g	0 084 214-4	
		Ø 0.5 mm	500 g	0 084 215-4	
		Ø 0.6 mm	500 g	0 084 216-4	
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 213-7	
		Ø 0.4 mm	150 g	0 084 214-7	
		Ø 0.5 mm	150 g	0 084 215-7	
		Ø 0.6 mm	150 g	0 084 216-7	

Welding filler JOKE® Fill 165 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Cr-Mn-Si-V welding filler with structure-stabilising elements. Not chrome platable, but nitritable and erodible. The weld metal is very similar to 12 % Cr steels.</p> <p>Hardness first layer: ca. 58-60 HRC, depending on composition. Can be hardened to ca. 62 HRC.</p> <p>Base composition %: C 0.35 • Cr 9.00 • Mn 0.70 • Si 0.70 • V 0.30 Fe remainder</p> <p>Suitable for material No. 1.2379 • 1.2080 • 1.2436 • 1.2601 and similar</p>	Spool 50 g	Ø 0.1 mm	50 g	0 084 231	
		Ø 0.2 mm	50 g	0 084 232	
		Ø 0.3 mm	50 g	0 084 233	
		Ø 0.4 mm	50 g	0 084 234	
	Spool 150 g	Ø 0.6 mm	50 g	0 084 236	
		Ø 0.1 mm	150 g	0 084 231-2	
		Ø 0.2 mm	150 g	0 084 232-2	
		Ø 0.3 mm	150 g	0 084 233-2	
	Spool 500 g	Ø 0.4 mm	150 g	0 084 234-2	
		Ø 0.6 mm	150 g	0 084 236-2	
		Ø 0.2 mm	500 g	0 084 232-4	
		Ø 0.3 mm	500 g	0 084 233-4	
	Rod 300 mm	Ø 0.4 mm	500 g	0 084 234-4	
		Ø 0.6 mm	500 g	0 084 236-4	
		Ø 0.3 mm	150 g	0 084 233-7	
		Ø 0.4 mm	150 g	0 084 234-7	
		Ø 0.6 mm	150 g	0 084 236-7	


NEW!

Laser welding fillers

JOKE® Fill

Welding filler JOKE® Fill 180 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Cr-Mo-Mn-V filler with hardenable characteristics. Very tough with good edge retention. Particularly suitable for quick repairs. Nitrable, erodible and chrome platable. Air- and flame-hardenable.</p> <p>Hardness first layer: ca. 56-59 HRC, depending on composition. Hardenable to ca. 60 HRC.</p> <p>Base composition %: C 1.10 • Cr 5.20 • Mn 0.40 • Mo 6.60 • V 1.60 • W 2.20 • Su 1.10 • Fe rest</p> <p>Suitable for material Nos.: 1.2379 • 1.2080 • 1.2436 • 1.2601 and similar</p>	Spool 50 g	Ø 0.25 mm	50 g	0 084 252	
		Ø 0.3 mm	50 g	0 084 253	
		Ø 0.4 mm	50 g	0 084 254	
		Ø 0.5 mm	50 g	0 084 255	
		Ø 0.6 mm	50 g	0 084 256	
	Spool 150 g	Ø 0.25 mm	150 g	0 084 252-2	
		Ø 0.3 mm	150 g	0 084 253-2	
		Ø 0.4 mm	150 g	0 084 254-2	
		Ø 0.5 mm	150 g	0 084 255-2	
		Ø 0.6 mm	150 g	0 084 256-2	
	Spool 500 g	Ø 0.25 mm	500 g	0 084 252-4	
		Ø 0.3 mm	500 g	0 084 253-4	
		Ø 0.4 mm	500 g	0 084 254-4	
		Ø 0.5 mm	500 g	0 084 255-4	
		Ø 0.6 mm	500 g	0 084 256-4	
Rod 300 mm	Ø 0.3 mm	150 g	0 084 253-7		
	Ø 0.4 mm	150 g	0 084 254-7		
	Ø 0.5 mm	150 g	0 084 255-7		
	Ø 0.6 mm	150 g	0 084 256-7		

Welding filler JOKE® Fill 185 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Ni-Co-Mo filler especially for aluminium and zinc die casting. This martensitic weld metal is crack-proof and tough. Through artificial ageing, hardness of ca. 50-54 HRC can be achieved. Not chrome platable.</p> <p>Hardness first layer: ca. 40-46 HRC, depending on composition.</p> <p>Base composition %: C 0.40 • Al 0.25 • Co 14.50 • Cr 2.00 • Mn 0.20 • Mo 4.70 • Ni 19.30 • Si 0.20 • V 0.40 • Fe remainder</p> <p>Suitable for material Nos.: 1.2343 • 1.2344 and similar</p>	Spool 50 g	Ø 0.3 mm	50 g	0 084 273	
		Ø 0.4 mm	50 g	0 084 274	
	Spool 150 g	Ø 0.3 mm	150 g	0 084 273-2	
		Ø 0.4 mm	150 g	0 084 274-2	
	Spool 500 g	Ø 0.3 mm	500 g	0 084 273-4	
		Ø 0.4 mm	500 g	0 084 274-4	
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 273-7	
		Ø 0.4 mm	150 g	0 084 274-7	

Laser welding fillers

JOKE® Fill

NEW!



Welding filler JOKE® Fill 190 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Suitable for repairs on hot-work steel. Good heat conducting properties. Nitrable.</p> <p>Hardness first layer: 42-48 HRC.</p> <p>Base composition %: C 0.50 • Cr 6.30 • Mn 0.50 • Mo 1.60 • Si 1.00 • V 1.60 • W 0.60 • Su 0.40 • Fe remainder</p> <p>Suitable for material Nos.: 1.2343 • 1.2344 • 1.2362 • 1.2367 • 1.2606</p>	Spool 50 g	Ø 0.3 mm	50 g	0 084 293	
		Ø 0.4 mm	50 g	0 084 294	
		Ø 0.5 mm	50 g	0 084 295	
		Ø 0.6 mm	50 g	0 084 296	
	Spool 150 g	Ø 0.3 mm	150 g	0 084 293-2	
		Ø 0.4 mm	150 g	0 084 294-2	
		Ø 0.5 mm	150 g	0 084 295-2	
		Ø 0.6 mm	150 g	0 084 296-2	
	Spool 500 g	Ø 0.3 mm	500 g	0 084 293-4	
		Ø 0.4 mm	500 g	0 084 294-4	
		Ø 0.5 mm	500 g	0 084 295-4	
		Ø 0.6 mm	500 g	0 084 296-4	
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 293-7	
		Ø 0.4 mm	150 g	0 084 294-7	
		Ø 0.5 mm	150 g	0 084 295-7	
		Ø 0.6 mm	150 g	0 084 296-7	
Welding filler JOKE® Fill 195 - Laser	Design	Dimensions	Weight	Order No.	Price €
<p>Cr-Ni-Mo filler for joint welding of many chrome-nickel steels, even with each other. Corrosion- and acid-proof. Polishable and erodible, but not hardenable, nitritable and chrome platable. Also suitable for buffer layers on hard materials.</p> <p>Hardness first layer: ca. 300-350 HB. Expansion max. ca. 35 %, tensile strength ca. 720-760 N/qmm.</p> <p>Base composition %: C 0.02 • Cr 19.00 • Mn 2.00 • Mo 2.50 • Ni 12.00 • Si 0.80 • Fe remainder</p> <p>Suitable for material Nos.: 1.4301 • 1.4541 • 1.4571 and similar</p>	Spool 50 g	Ø 0.2 mm	50 g	0 084 312	
		Ø 0.3 mm	50 g	0 084 313	
		Ø 0.4 mm	50 g	0 084 314	
		Ø 0.5 mm	50 g	0 084 315	
	Spool 150 g	Ø 0.6 mm	50 g	0 084 316	
		Ø 0.2 mm	150 g	0 084 312-2	
		Ø 0.3 mm	150 g	0 084 313-2	
		Ø 0.4 mm	150 g	0 084 314-2	
	Spool 500 g	Ø 0.5 mm	150 g	0 084 315-2	
		Ø 0.6 mm	150 g	0 084 316-2	
		Ø 0.2 mm	500 g	0 084 312-4	
		Ø 0.3 mm	500 g	0 084 313-4	
	Rod 300 mm	Ø 0.4 mm	500 g	0 084 314-4	
		Ø 0.5 mm	500 g	0 084 315-4	
		Ø 0.6 mm	500 g	0 084 316-4	
		Ø 0.3 mm	150 g	0 084 313-7	
	Ø 0.4 mm	150 g	0 084 314-7		
	Ø 0.5 mm	150 g	0 084 315-7		
	Ø 0.6 mm	150 g	0 084 316-7		


NEW!

Laser welding fillers

JOKE® Fill

Welding filler JOKE® Fill 200 - Laser	Design	Dimensions	Weight	Order No.	Price €	
<p>Cr-Mo-W-Si filler for aluminium and zinc die cast moulds made predominantly from 5 % chrome steel. Also for plastic moulds with edge wear, when hardness and toughness is required. Polishable, not etchible, conditionally chrome platable, temperature change-resistant.</p> <p>Hardness first layer: ca. 52-58 HRC, depending on composition. Can be hardened to ca. 60 HRC. Annealed ca. 230 HB at 770 °C.</p> <p>Base composition %: C 0.45 • Al 7.50 • Mn 0.80 • Mo 1.60 • P <0.035 • S <0.035 • Si 1.40 • V 1.50 • W 2.10</p> <p>Suitable for material Nos.: 1.2343 • 1.2344 • 1.2311 • 1.2312 • 1.2738 • 1.2767 and similar</p>	Spool 50 g	Ø 0.1 mm	50 g	0 084 331		
		Ø 0.2 mm	50 g	0 084 332		
		Ø 0.3 mm	50 g	0 084 333		
		Ø 0.4 mm	50 g	0 084 334		
		Ø 0.5 mm	50 g	0 084 335		
		Ø 0.6 mm	50 g	0 084 336		
	Spool 150 g	Ø 0.1 mm	150 g	0 084 331-2		
		Ø 0.2 mm	150 g	0 084 332-2		
		Ø 0.3 mm	150 g	0 084 333-2		
		Ø 0.4 mm	150 g	0 084 334-2		
		Ø 0.5 mm	150 g	0 084 335-2		
		Ø 0.6 mm	150 g	0 084 336-2		
	Spool 500 g	Ø 0.1 mm	500 g	0 084 331-4		
		Ø 0.2 mm	500 g	0 084 332-4		
		Ø 0.3 mm	500 g	0 084 333-4		
		Ø 0.4 mm	500 g	0 084 334-4		
		Ø 0.5 mm	500 g	0 084 335-4		
		Ø 0.6 mm	500 g	0 084 336-4		
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 333-7		
		Ø 0.4 mm	150 g	0 084 334-7		
		Ø 0.5 mm	150 g	0 084 335-7		
		Ø 0.6 mm	150 g	0 084 336-7		
	Welding filler JOKE® Fill 230 - Laser	Design	Dimensions	Weight	Order No.	Price €
	<p>Cu-Ag-Cr-Fe filler with very good electric and heat conducting characteristics. Intensive cooling from -20° C results in up to 30 % improved hardness! Suitable for compounds of copper/bronze with steel.</p> <p>Hardness first layer: ca. 70-90 HB. Expansion ca. 25-35 %. Tensile strength ca. 290-340 N/qmm.</p> <p>Base composition %: Ag 1.00 • Cr 1.40 • Fe 1.50 • Mn 0.20 • P 0.30 • Cu remainder</p> <p>Suitable for material Nos.: Eroding electrodes • Point electrodes and most copper materials</p>	Spool 50 g	Ø 0.2 mm	50 g	0 084 412	
Ø 0.3 mm			50 g	0 084 413		
Ø 0.4 mm			50 g	0 084 414		
Ø 0.5 mm			50 g	0 084 415		
Spool 150 g		Ø 0.2 mm	150 g	0 084 412-2		
		Ø 0.3 mm	150 g	0 084 413-2		
		Ø 0.4 mm	150 g	0 084 414-2		
		Ø 0.5 mm	150 g	0 084 415-2		
Spool 500 g		Ø 0.2 mm	500 g	0 084 412-4		
		Ø 0.3 mm	500 g	0 084 413-4		
		Ø 0.4 mm	500 g	0 084 414-4		
		Ø 0.5 mm	500 g	0 084 415-4		
Rod 300 mm		Ø 0.3 mm	150 g	0 084 413-7		
		Ø 0.4 mm	150 g	0 084 414-7		
		Ø 0.5 mm	150 g	0 084 415-7		

Laser welding fillers

JOKE® Fill

NEW!



Welding filler JOKE® Fill 240 - Laser	Design	Dimensions	Weight	Order No.	Price €	
<p>Al-Mn-Cu-Fe filler. Multi alloy bronze with very good dry running characteristics on steels with good heat conductivity. Crack-free and non-porous. No hardened joints when applied to steel. Very low shrinkage rate. Also suitable for crack welding on cool channels and plastic moulds.</p> <p>Hardness first layer on steel: ca. 220-280 HB. Hardness first layer on bronze: ca. 200-240 HB. Improved hardness by ca. 30 % through intensive cooling!</p> <p>Base composition %: Al 10 • Fe 3.0 • Mn 3.5 • Ni 3.0 • Cu remainder</p>	Spool 50 g	Ø 0.3 mm	50 g	0 084 433		
		Ø 0.4 mm	50 g	0 084 434		
		Ø 0.5 mm	50 g	0 084 435		
		Ø 0.6 mm	50 g	0 084 436		
	Spool 150 g	Ø 0.3 mm	150 g	0 084 433-2		
		Ø 0.4 mm	150 g	0 084 434-2		
		Ø 0.5 mm	150 g	0 084 435-2		
		Ø 0.6 mm	150 g	0 084 436-2		
	Spool 500 g	Ø 0.3 mm	500 g	0 084 433-4		
		Ø 0.4 mm	500 g	0 084 434-4		
		Ø 0.5 mm	500 g	0 084 435-4		
		Ø 0.6 mm	500 g	0 084 436-4		
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 433-7		
		Ø 0.4 mm	150 g	0 084 434-7		
		Ø 0.5 mm	150 g	0 084 435-7		
		Ø 0.6 mm	150 g	0 084 436-7		
Welding filler JOKE® Fill 242 - Laser	Design	Dimensions	Weight	Order No.	Price €	
<p>Cu-Ni-Si filler with good conductive characteristics. Loy-specific colour characteristics. Intensive cooling from -20° C results in improved hardness by up to 30 %. Suitable for joining copper/bronze with steel.</p> <p>Hardness first layer: ca. 60 - 84 HB. Expansion ca. 23 - 32 %, Tensile strength ca. 200 - 280 N/qmm.</p> <p>Base composition %: Ag 0.40 • Ni 2.10 • Si 0.80 • Cu remainder</p> <p>Suitable for material Nos.: Ampcoloy • Moldmax and other copper materials</p>	Spool 50 g	Ø 0.3 mm	50 g	0 085 013		
		Ø 0.4 mm	50 g	0 085 014		
		Ø 0.5 mm	50 g	0 085 015		
	Spool 150 g	Ø 0.3 mm	150 g	0 085 013-2		
		Ø 0.4 mm	150 g	0 085 014-2		
		Ø 0.5 mm	150 g	0 085 015-2		
	Spool 500 g	Ø 0.3 mm	500 g	0 085 013-4		
		Ø 0.4 mm	500 g	0 085 014-4		
		Ø 0.5 mm	500 g	0 085 015-4		
	Rod 300 mm	Ø 0.3 mm	150 g	0 085 013-7		
		Ø 0.4 mm	150 g	0 085 014-7		
		Ø 0.5 mm	150 g	0 085 015-7		
	Welding filler JOKE® Fill 250 - Laser	Design	Dimensions	Weight	Order No.	Price €
	<p>Al filler with very high suitability for quick repairs on aluminium section steels. Fine-flowing. Perfect, non-porous surface-fusing even for difficult applications.</p> <p>Hardness first layer: ca. 90-130 HB.</p> <p>Base composition %: Ag 0.35 • Cr 0.10 • Cu 0.55 • Fe 0.20 • Mg 2.50 • Mn 0.70 • Si 10.50 • Zn 0.25 • Al remainder</p> <p>Suitable for material Nos.: Aluminium materials up to F30</p>	Spool 50 g	Ø 0.3 mm	50 g	0 084 453	
			Ø 0.4 mm	50 g	0 084 454	
			Ø 0.6 mm	50 g	0 084 456	
Spool 150 g		Ø 0.3 mm	150 g	0 084 453-2		
		Ø 0.4 mm	150 g	0 084 454-2		
		Ø 0.6 mm	150 g	0 084 456-2		
Spool 500 g		Ø 0.3 mm	500 g	0 084 453-4		
		Ø 0.4 mm	500 g	0 084 454-4		
		Ø 0.6 mm	500 g	0 084 456-4		
Rod 300 mm		Ø 0.3 mm	150 g	0 084 453-7		
		Ø 0.4 mm	150 g	0 084 454-7		
		Ø 0.6 mm	150 g	0 084 456-7		


NEW!

Laser welding fillers

JOKE® Fill

Welding filler JOKE® Fill 255 - Laser	Design	Dimensions	Weight	Order No.	Price €
Al filler for use with the most important wrought aluminium alloys in mould making. Anodisable and polishable. Low heating and cooling aging. Zinc-Alu alloys must be fumigated through through multiple overmelting. Hardness first layer: ca. 80-110 HB. Base composition %: Cr <0.25 • Mn 0.80 • Mg 5.00 • Zr 0.10 • Al remainder Suitable for material Nos.: Aluminium materials F28 and above	Spool 50 g	Ø 0.3 mm	50 g	0 084 473	
		Ø 0.4 mm	50 g	0 084 474	
		Ø 0.6 mm	50 g	0 084 476	
	Spool 150 g	Ø 0.3 mm	150 g	0 084 473-2	
		Ø 0.4 mm	150 g	0 084 474-2	
		Ø 0.6 mm	150 g	0 084 476-2	
	Spool 500 g	Ø 0.3 mm	150 g	0 084 473-4	
		Ø 0.4 mm	150 g	0 084 474-4	
		Ø 0.6 mm	150 g	0 084 476-4	
	Rod 300 mm	Ø 0.3 mm	150 g	0 084 473-7	
		Ø 0.4 mm	150 g	0 084 474-7	
		Ø 0.6 mm	150 g	0 084 476-7	

Welding filler JOKE® Fill 260 - Laser	Design	Dimensions	Länge	Order No.	Price €
Titanium welding filler for joint and build-up welding on titanium and titanium alloys. Most frequently used filler for components in general medicine and dentistry, aeronautical and space technology. Largely corresponds to material No. 3.7025. Base composition %: Fe 0.15 • O 0.12 • N 0.03 • H 0.013 • C 0.06 • Single Residual 0.10 • Total Residual 0.40 • Ti remainder	rolled	Ø 0.3 mm	1 m	0 084 485	
		Ø 0.5 mm	1 m	0 084 486	

Suitable for material Nos.: Titanium and titanium alloys



Wieviele Meter sind auf einer Spule?

Durch die unterschiedlichen spezifischen Gewichte der Materialien ergeben sich bei gleichem Gewicht unterschiedliche Gesamtlängen der Spulen. Sie müssen jedoch nicht extra nachmessen - ein Blick in diese Tabelle genügt:

Zusatz-Ø	Stahl	Kupfer	Aluminium	Aluminium-Bronze
0,1 mm	806 m	-	-	-
0,2 mm	200 m	-	-	-
0,25 mm	128 m	-	-	-
0,3 mm	89 m	81 m	278 m	89 m
0,4 mm	50 m	45 m	151 m	51 m
0,5 mm	36 m	29 m	-	-
0,6 mm	22 m	-	69 m	33 m



TIG welding fillers

JOKE® Fill

NEW!



Welding filler JOKE® Fill 100 - TIG	Design	Dimensions	Weight	Order No.	Price €
For structurally synchronous build-up layers on acidic and wear-proof injection moulding steels. Chrome platable and coatable. Etchible, erodible, polishable and heat treatable.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 001	
		Ø 1.0 mm	1.000 g	0 084 002	
		Ø 1.2 mm	1.000 g	0 084 003	
		Ø 1.6 mm	1.000 g	0 084 004	

Base composition %: C 0.35 • Al 0.05 • Cr 5.90 • Mn 0.60 • Mo 1.30 • Si 0.40 • V 0.70 • Su 0.40 • Fe remainder

* plus alloy surcharge

Suitable for material Nos.:

1.2343 • 1.2344 • 1.2082 • 1.2083 • 1.2367 • 1.2606 and similar

Welding filler JOKE® Fill 105 - TIG	Design	Dimensions	Weight	Order No.	Price €
For structurally synchronous build-up layers on steels. Etchible, erodible, structurable and polishable. Chrome platable, coatable and heat treatable. Note thermic normalisation.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 021	
		Ø 1.0 mm	1.000 g	0 084 022	
		Ø 1.2 mm	1.000 g	0 084 023	
		Ø 1.6 mm	1.000 g	0 084 024	

Base composition %: C 0.25 • Cr 1.45 • Mn 0.50 • Mo 0.40 • Ni 3.60 • Si 0.30 • V 0.20 • Su 2.20 • Fe remainder

* plus alloy surcharge

Suitable for material Nos.:

1.2713 • 1.2714 • 1.2740 • 1.2743 • 1.2744 • 1.2747 • 1.2764 • 1.2766 • 1.2767 and similar

Welding filler JOKE® Fill 110 - TIG	Design	Dimensions	Weight	Order No.	Price €
For heat-treated and stainless steels. Etchible, erodible and polishable. Nitrate, chrome platable. Note thermic pre- and post-treatment	Rod 500 mm	Ø 0.8 mm	500 g	0 084 041	
		Ø 1.0 mm	1.000 g	0 084 042	
		Ø 1.2 mm	1.000 g	0 084 043	
		Ø 1.6 mm	1.000 g	0 084 044	

Base composition %: C 0.25 • Al 0.03 • Cr 1.55 • Mn 1.40 • Mo 0.25 • V 0.40 • Su 0.45 • Fe rest

* plus alloy surcharge

Suitable for material Nos.:

1.2311 • 1.2312 • 1.2162 • 1.2738 and similar

Welding filler JOKE® Fill 115 - TIG	Design	Dimensions	Weight	Order No.	Price €
For compounds and intermediate layers on hard cold-work stainless steels. Structure: tough, elastic, rust-free, crack-proof, erodible. Not heat treatable or chrome platable.	Rod 500 mm	Ø 1.0 mm	1.000 g	0 084 062	
		Ø 1.2 mm	1.000 g	0 084 063	
		Ø 1.6 mm	1.000 g	0 084 064	

Base composition %: C 0.10 • Cr 30.50 • Mn 1.90 • Mo 0.50 • Ni 10.00 • Si 0.60 • Su 0.40 • Fe remainder

* plus alloy surcharge

Suitable for material Nos.: various


NEW!

TIG welding fillers

JOKE® Fill

Welding filler JOKE® Fill 120 - TIG	Design	Dimensions	Weight	Order No.	Price €
For compounds and intermediate layers on hot-work and stainless steels. Structure: tough, elastic, corrosion-, acid and crack-proof, erodible. Not heat treatable, nitrable or chrome platable.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 081	
		Ø 1.0 mm	1.000 g	0 084 082	
		Ø 1.2 mm	1.000 g	0 084 083	
		Ø 1.6 mm	1.000 g	0 084 084	

Base composition %: C 0.02 • Cr 19.50 • Fe 1.90 • Mn 2.80 • Si 0.20 • Nb 2.50 • Ni remainder

* plus alloy surcharge

Suitable for material Nos.: various

Welding filler JOKE® Fill 125 - TIG	Design	Dimensions	Weight	Order No.	Price €
Filler for hot-work steels. Heat treatable and annealable similar to parent material. Structurally synchronous or similar to many hot-work steels. Tension-regulating in the Martensite area. Chrome platable. Hardness of weld metal 34 to 42 HRC, depending on composition of parent materials. Hardenable to ca. 58 HRC.	Rod 500 mm	Ø 0.8 mm	500 g	0084101	
		Ø 1.0 mm	1.000 g	0084102	
		Ø 1.2 mm	1.000 g	0084103	
		Ø 1.6 mm	1.000 g	0084104	

Base composition %: C 0.40 • Al 0.03 • Cr 5.00 • Mn 0.33 • Mo 1.15 • Si 1.10 • V 0.41 • W 0.42 • Fe remainder

* plus alloy surcharge

Suitable for material No.

1.2343 • 1.2344 • 1.2360 • 1.2362 and similar

Welding filler JOKE® Fill 140 - TIG	Design	Dimensions	Weight	Order No.	Price €
High-alloy Cr-Co-Mn-Mo-W-Fe welding filler with universal characteristics for use on case-hardened, heat-treated and hot-work steels. Corrosion, acid- and tinder-proof. Good surface-fusing with nitrated steels. Not chrome platable and nitrable.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 121	
		Ø 1.0 mm	1.000 g	0 084 122	
		Ø 1.2 mm	1.000 g	0 084 123	
		Ø 1.6 mm	1.000 g	0 084 124	

Base composition %: C 0.03 • Cr 19.00 • Fe 2.10 • Mn 3.00 • Si 0.30 • Nb 3.00 • Ni remainder

* plus alloy surcharge

Suitable for material Nos.

1.2713 • 1.2343 • 1.2767 and similar

Welding filler JOKE® Fill 145 - TIG	Design	Dimensions	Weight	Order No.	Price €
Air hardening characteristics of 48 – 56 HRC. Etchible, erodible and polishable. Chrome platable and coatable. Note: thermic normalisation.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 141	
		Ø 1.0 mm	1.000 g	0 084 142	
		Ø 1.2 mm	1.000 g	0 084 143	
		Ø 1.6 mm	1.000 g	0 084 144	

Base composition %: C 0.35 • Al 0.03 • Cr 5.30 • Mn 0.60 • Mo 1.50 • Si 0.70 • V 0.80 • W 0.40 • Fe remainder

* plus alloy surcharge

Suitable for material Nos.

1.2343 • 1.2344 • 1.2362 • 1.2363 • 1.2367 and similar

TIG welding fillers

JOKE® Fill

NEW!



Welding filler JOKE® Fill 150 - TIG	Design	Dimensions	Weight	Order No.	Price €
This martensitic chrome material contains stabilising additives and is also suitable for alloy-like steels. Heat treatable, proof- and wear-proof. Polishable, erodible and nitrable. Conditionally etchible, not chrome platable. Hardness of weld metal: 45 - 50 HRC.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 161	
		Ø 1.0 mm	1.000 g	0 084 162	
		Ø 1.2 mm	1.000 g	0 084 163	
		Ø 1.6 mm	1.000 g	0 084 164	

* plus alloy surcharge

Base composition %: C 0.20 • Cr 12.00 • Mn 0.50
• Mo 1.00 • Ni <1.0 • Si 0.50 • V 0.35 • W 0.50 • Fe remainder

Suitable for material Nos.

STAVAX • 1.2083 • 1.2316 • 1.4115 and similar

Welding filler JOKE® Fill 155 - TIG	Design	Dimensions	Weight	Order No.	Price €
Medium-alloy Cr-Mn-Al-Ti filler for nitrided and case-hardened steels as well as low- and medium-alloyed heat-treated steels. The weld metal is highly hardenable and very nitrable. Crack-proof even with multi-layer welding. Highly abrasion-proof. Chrome platable, but not very etchible. Best gliding properties against high-alloy materials. Hardness of weld metal: 50-54 HRC. Through flame hardening up to 64 HRC. Nitrided up to ca. 69 HRC (500 degrees).	Rod 500 mm	Ø 1.0 mm	1.000 g	0 084 182	
		Ø 1.2 mm	1.000 g	0 084 183	
		Ø 1.6 mm	1.000 g	0 084 184	

* plus alloy surcharge

Base composition %: C 1.20 • Cr 2.00 • Mn 1.80 • Si 0.60 • Fe remainder

Suitable for material Nos.:

Nitrided steels • case-hardened steels • heat-treated steels (low- and medium-alloyed)

Welding filler JOKE® Fill 160 - TIG	Design	Dimensions	Weight	Order No.	Price €
Suitable for hard build-up layers on cold-work steels and forming dies with more than 5 % chrome content. Air hardening characteristics to ca. 61 HRC. Thermally treatable like parent material. In the case of more than 3 layers: 1 x base layer with JOKE® Fill 115. Nitrable, erodible, polishable and etchible. Chrome platable and coatable.	Rod 500 mm	Ø 1.0 mm	1.000 g	0 084 202	
		Ø 1.2 mm	1.000 g	0 084 203	
		Ø 1.6 mm	1.000 g	0 084 204	

* plus alloy surcharge

Base composition %: C 0.35 • S <0.002 • Cr 6.40 • P 0.02 • Mo 2.00 • Ti 0.25 • Fe remainder

Suitable for material Nos.

1.2379 • 1.2601 • 1.2436 • 1.2080 • 1.2363 and similar


NEW!

TIG welding fillers

JOKE® Fill

Welding filler JOKE® Fill 165 - TIG	Design	Dimensions	Weight	Order No.	Price €
Welding filler for modifications in soft condition with subsequent hardening and tempering. Highly chipable and coatable.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 221	
		Ø 1.0 mm	1.000 g	0 084 222	
		Ø 1.2 mm	1.000 g	0 084 223	
		Ø 1.6 mm	1.000 g	0 084 224	

Base composition %: C 0.35 • Cr 9.00 • Mn 0.70 • Si 0.70 • V 0.30 Fe remainder

* plus alloy surcharge

Suitable for material No.

1.2379 • 1.2080 • 1.2436 • 1.2601 and similar

Welding filler JOKE® Fill 180 - TIG	Design	Dimensions	Weight	Order No.	Price €
For quick repair of hard cold-work and forming dies. Hardness after air cooling: 58 – 61 HRC. In the case of multiple layers: 1 x base layer with JOKE® Fill 115.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 241	
		Ø 1.0 mm	1.000 g	0 084 242	
		Ø 1.2 mm	1.000 g	0 084 243	
		Ø 1.6 mm	1.000 g	0 084 244	

Base composition %: C 1.10 • Cr 5.20 • Mn 0.40 • Mo 6.90 • V 1.60 • W 2.20 • Su 1.10 • Fe rest

* plus alloy surcharge

Suitable for material Nos.:

1.2379 • 1.2080 • 1.2436 • 1.2601 and similar

Welding filler JOKE® Fill 185 - TIG	Design	Dimensions	Weight	Order No.	Price €
Improves durability for build-up layers on hot-work steels. Compression moulding dies, aluminium die cast moulds, closing edges, hot cutting tools.	Rod 500 mm	Ø 1.2 mm	1.000 g	0 084 263	
		Ø 1.6 mm	1.000 g	0 084 264	

Base composition %: C 0.02 • Al 0.25 • Co 14.50 • Cr 2.00 • Mn 0.20 • Mo 4.70 • Ni 19.30 • Si 0.20 • V 0.40 • Fe remainder

* plus alloy surcharge

Suitable for material Nos.:

1.2343 • 1.2344 • 1.2714 and similar

Welding filler JOKE® Fill 190 - TIG	Design	Dimensions	Weight	Order No.	Price €
Suitable for repairs on hot-work steel. Good heat conductivity. Nitrate. Hardness 42-48 HRC.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 281	
		Ø 1.0 mm	1.000 g	0 084 282	
		Ø 1.2 mm	1.000 g	0 084 283	
		Ø 1.6 mm	1.000 g	0 084 284	

Base composition %: C 0.50 • Cr 6.30 • Mn 0.50 • Mo 1.60 • Si 1.00 • V 1.60 • W 0.60 • Su 0.40 • Fe remainder

* plus alloy surcharge

Suitable for material Nos.:

1.2343 • 1.2344 • 1.2362 • 1.2367 • 1.2606

TIG welding fillers

JOKE® Fill

NEW!



Welding filler JOKE® Fill 195 - TIG	Design	Dimensions	Weight	Order No.	Price €
Cr-Ni-Mo filler for joint welding of many chrome-nickel steels, even with each other. Corrosion- and acid-proof. Polishable and erodible, but not hardenable, nitritable and chrome platable. Also suitable for puffer layers with hard build-ups.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 321	
		Ø 1.0 mm	1.000 g	0 084 322	
		Ø 1.2 mm	1.000 g	0 084 323	
		Ø 1.6 mm	1.000 g	0 084 324	

* plus alloy surcharge

Base composition %: C 0.02 • Cr 19.00 • Mn 2.00 • Mo 2.50 • Ni 12.00 • Si 0.80 • Fe remainder

Suitable for material Nos.:

1.4301 • 1.4306 • 1.4401 • 1.4404 • 1.4541 • 1.4571 and similar

Welding filler JOKE® Fill 200 - TIG	Design	Dimensions	Weight	Order No.	Price €
Cr-Mo-Si-W-Mn-V filler for plastic moulds with edge wear, when hardness and toughness are required. Not etchible, only conditionally chrome platable. The mould metal is temperature change-resistant similar to temperature conducting hot-work steels, but with better durability. Hardness 52-58 HRC, depending on composition and pre-heating of the parent material. Can be hardened to ca. 62 HRC.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 341	
		Ø 1.0 mm	1.000 g	0 084 342	
		Ø 1.2 mm	1.000 g	0 084 343	
		Ø 1.6 mm	1.000 g	0 084 344	

* plus alloy surcharge

Base composition %: C 0.45 • Cr 7.50 • Mn 0.80 • Mo 1.60 • P <0.035 • S <0.035 • Si 1.40 • V 1.50 • W 2.10

Suitable for material Nos.

1.2311 1.2312 1.2343 1.2344 1.2603 1.2738 1.2744 1.2767 1.2842 and similar

Welding filler JOKE® Fill 230 - TIG	Design	Dimensions	Weight	Order No.	Price €
Welding filler with hardening elements for copper and its alloys. Cu – CuBe – CuNiCr. Tough and crack-proof on steel. High electrical conductivity. HB 90. after intensive cooling up to 130 HB	Rod 500 mm	Ø 1.2 mm	1.000 g	0 084 403	
		Ø 2.0 mm	1.000 g	0 084 405	

* plus alloy surcharge

Base composition %: Ag 1.00 • Cr 1.40 • Fe 1.50 • Mn 0.20 • P 0.30 • Cu remainder

Suitable for material Nos.:

Eroding electrodes • point electrodes and most copper materials


NEW!

TIG welding fillers

JOKE® Fill

Welding filler JOKE® Fill 240 - TIG	Design	Dimensions	Weight	Order No.	Price €
Super aluminium-bronze welding filler. Tough, crack- and wear-proof. No hardness increase with steel. Suitable for (Ampco) 8 – 12 – 15 – 16 – 18 – 20 ~ 21 ~ M-4 and similar bronzes. Hardness HB 240, through intensive cooling up to 300 HB.	Rod 500 mm	Ø 0.8 mm	500 g	0 084 421	
		Ø 1.0 mm	1.000 g	0 084 422	
		Ø 1.2 mm	1.000 g	0 084 423	
		Ø 1.6 mm	1.000 g	0 084 424	
	* plus alloy surcharge				

Base composition %:

Al 10 • Fe 3.0 • Mn 3.5 • Ni 3.0 • Cu remainder

Welding filler JOKE® Fill 242 - TIG	Design	Dimensions	Weight	Order No.	Price €
Cu-Ni-Si filler with good conductive characteristics. Loy-specific colour characteristics. Intensive cooling from -20° C results in improved hardness by up to 30 %. Suitable for joining copper/bronze with steel.	Rod 500 mm	Ø 1.6 mm	1.000 g	0 085 004	
	* plus alloy surcharge				

Hardness first layer: ca. 60 - 84 HB. Expansion ca. 23 - 32 %, tensile strength ca. 200 - 280 N/qmm.

Base composition %: Ag 0.40 • Ni 2.10 • Si 0.80 • Cu remainder

Suitable for material Nos.:
Ampcoloy • Moldmax and other copper materials

Welding filler JOKE® Fill 250 - TIG	Design	Dimensions	Weight	Order No.	Price €
Special aluminium alloy, Al-Mg-Si, fine-flowing, e.g. for repair of Al-Zn Pb (Zamag) tools. Note thermic treatment for maximal values	Rod 500 mm	Ø 1.0 mm	1.000 g	0 084 442	
		Ø 1.6 mm	1.000 g	0 084 444	
	* plus alloy surcharge				

Base composition %: Ag 0.35 • Cr 0.10 • Cu 0.55 • Fe 0.20 • Mg 2.50 • Mn 0.70 • Si 10.50 • Zn 0.25 • Al remainder

Suitable for material Nos.:
Aluminium materials up to F30

Welding filler JOKE® Fill 255 - TIG	Design	Dimensions	Weight	Order No.	Price €
Al-Mg-Mn-Cu filler. For wrought aluminium alloys from F 28 to F 53. Condition-changing through cold and hot aging. Increased hardness achievable through compression hardening. Particularly suitable for repairs on plastic moulds and tool inserts. The hardness is dependent on the composition to the parent material and can vary between ca. 280 - 420 N/mm depending on the condition.	Rod 500 mm	Ø 1.6 mm	1.000	0 084 464	
	* plus alloy surcharge				

Base composition %: Cr <0.25 • Mn 0.80 • Mg 5.00 • Zr 0.10 • Al remainder

Suitable for material Nos.:
Aluminium materials F28 and above

Hardness comparison table according to DIN 50150



Conversion table for hardness values, extract from 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	-

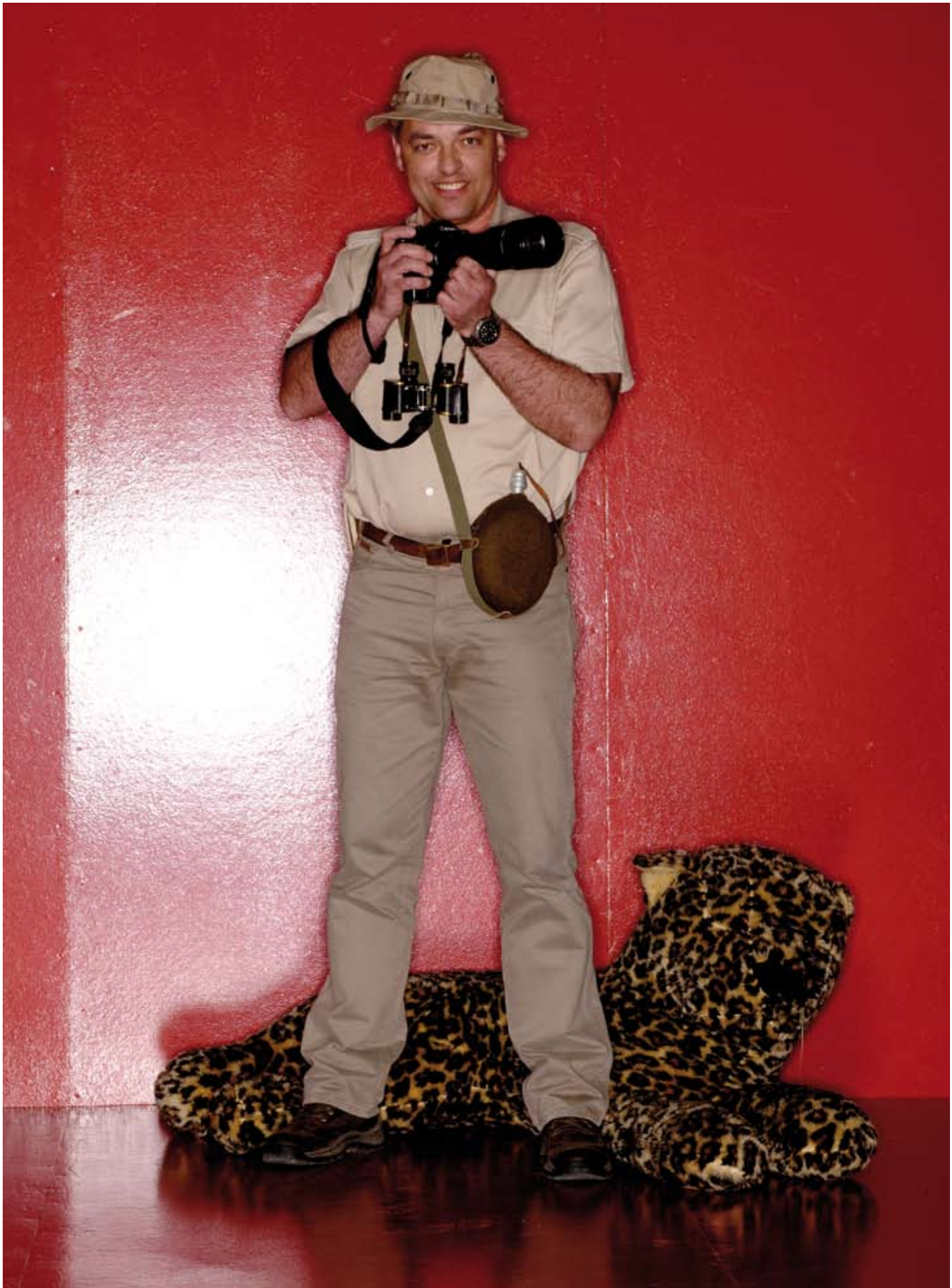


Image: Manfred Esser

Bernd Dörnen




► This fellow combines a passion for nature and hunting with a love of all things steel and practical ("No, I make my own knives..."). But what appears so hard from the outside, has a very sensitive and highly delicate core. His roots and origin give him a very direct and straight-forward manner. Hence, we know that he is the perfect man for the position of **Product Manager** for cleaning systems, blasting pieces and repair welding (multiSpot). No big words, just simply experience and an honest do-it-yourself approach.

Welding fillers for Mold Welder / Mold Welder II and similar resistance build-up welding systems

► Welding fillers for Mold Welder / Mold Welder II

The main factor affecting the quality of welding work is not only sufficient available energy, but also the good quality of filler material. The purity of materials is of utmost importance. The use of the filler materials listed below can guarantee that there will be no corrosion and that subsequent processes can be carried out without difficulty. The filler materials are available in various forms.





Metal powder	Content	Suitable for material No.	Achievable hardness	Type	Order No.	Price €	
	50 g	1.2767	51 HRC		0 008 223		
		1.2343	56 HRC		0 008 224		
		1.2311	52 HRC		0 008 225		
		1.2344	54 HRC		0 008 226		
		1.3222	61 HRC		0 008 227		
		Soft	34 HRC		0 008 228		
		Medium	52 HRC		0 008 229		
		Hard (not magnetic)	59 HRC		0 008 230		
		1.2363	55 HRC		0 008 231		
		Calmax (1.2358)	54 HRC		0 008 232		
		1.2083	51 HRC		0 008 233		
		1.2379	56 HRC		0 008 234		
		40 g	1.2311, 1.2312, 1.2379, 1.2711	40-42 HRC	B-01	0 008 131	
			1.2379	48-50 HRC	B-07	0 008 137	
		1.2344	48-51 HRC	B-09	0 008 139		
		1.3207	55-58 HRC	B-13	0 008 143		
		1.2767	40-42 HRC	B-19	0 008 149		
		1.2083, 1.2316	48-50 HRC	B-21	0 008 151		
							






Welding fillers for Mold Welder / Mold Welder II and similar resistance build-up welding systems

Pastes	Content	Suitable for material No.	Achievable hardness	Type	Order No.	Price €
	40 g	1.2083, 1.2316	48-50 HRC	C-21	0 008 181	
		1.2343	40-42 HRC	C-19	0 008 179	
		1.2363, 1.3207	55-58/54-56 HRC	C-13	0 008 173	
		1.1730, 1.2344	48-51/50-55 HRC	C-09	0 008 169	
		1.2379	48-50 HRC	C-07	0 008 167	
		1.2311, 1.2311, 1.2378, 1.2711	40-42 HRC	C-01	0 008 161	

Wire	Dimensions mm	Suitable for material No.	Length	Order No.	Price €
	Ø 0.2	1.4301	5 m	0 008 123	
	Ø 0.3	1.4301	5 m	0 008 124	
	Ø 0.4	1.4301	5 m	0 008 125	
	Ø 0.5	1.4301	5 m	0 008 126	

Steel strip	Dimensions mm	Length	Suitable for material No.	Type	Content	Order No.	Price €
	0.2 x 5 x 1000	1000	1.2711, 1.2311	A-01	1 piece	0 008 101	
	0.1 x 50 x 50	50	Fe-nickel	A-25	10 pieces	0 008 103	
	0.2 x 5 x 150	150	1.2363	A-24	10 pieces	0 008 104	
	0.2 x 50 x 50	50	Fe-nickel	A-26	10 pieces	0 008 105	
	0.1 x 5	1000	1.2379	A-08	1 piece	0 008 108	
	0.2 x 5	1000	1.2379	A-09	1 piece	0 008 109	
	0.2 x 5	1000	1.2343, 1.2344	A-10	1 piece	0 008 110	
	0.2 x 5	1000	1.2343, 1.2344	A-11	1 piece	0 008 111	
	0.2 x 5	1000	1.1730	A-14	1 piece	0 008 114	
	0.2 x 5	1000	1.2767, 1.2343	A-19	1 piece	0 008 119	
	0.1 x 5	1000	1.2767, 1.2343	A-20	1 piece	0 008 120	
	0.2 x 5	1000	1.2316, 1.2083	A-21	1 piece	0 008 121	
	0.1 x 5	1000	1.2316, 1.2083	A-22	1 piece	0 008 122	





tungsten carbide coating unit

tucadur® 2020

► Methods

Nowadays very high demands are made on the toughness, hardness and surface wear resistance of tools, equipment and machines. Through the normal hardening procedure only toughness or hardness can be definitely achieved; in practice therefore a middle course is selected. In search for a tough material with more wear-resistant coating the following possibilities presented themselves:

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 workpiece.

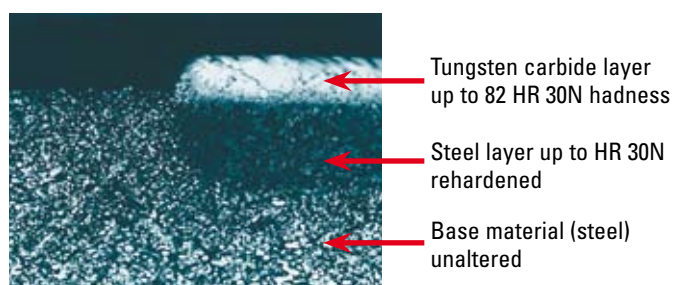
► Properties of the tungsten carbide coat

The layer applied joins perfectly with the steel and adheres in such a way that it withstands almost any mechanical stress. No blows, bending, stretching or compressive strains will partially remove the coat. 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 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.

► 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. Scale and oxide coatings must be removed without fail. Ground, polished or brightly tooled parts must be degreased. If the tungsten carbide coating is applied to an unclean surface no satisfactory adhesive strength can be obtained and the coating becomes irregular and exhibits inclusions. nevertheless be lapped and polished if necessary.

Micro-section magnified 250 times
uncoated coated



► Principle of operation

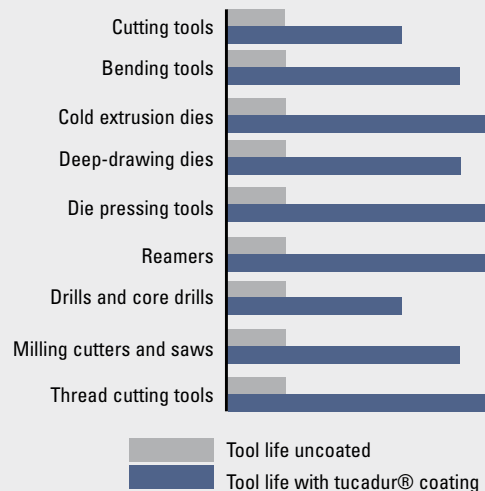
The tucadur tungsten carbide coating functions in accordance with the principle of electro-erosion. A tungsten carbide electrode is attached to the positive pole in a d.c circuit with electric current and voltage regulation to which condensers of varying capacities



are connected. The vibrator (coating gun) causes oscillations in the electrode and this is brought into contact with the workpiece to be treated. The workpiece is connected to the negative pole. By contact of the electrode with the workpiece, an ionised field results, which ensures that oxide-free fusion of the tungsten carbide with the base material occurs. This field is constantly reconstituted with the aid of the vibrator. The surface of the workpiece is exposed to pulse-like electric discharges obtaining a higher hardness of the surface and cutting edge and thus a higher resistance to wear. During the short contact pulses of less than 1/100 s the electrodes overheats in a way that particles of the electrode (e. g. tungsten carbide) are entrained and fuse with the tool surface. With uniform to-and-fro movement of the electrode a compact hard metal layer results. The predetermined layer thickness cannot be exceeded, since no more uptake of material occurs once saturation is reached. The selected layer thickness is so precise that it does not normally need any finishing operation. It can nevertheless be lapped and polished if nec




Comparison of tool life













tungsten carbide coating unit

tucadur® 2020

tungsten carbide coating unit tucadur® 2020		Order No.	Price €
	Control unit		0 700 000
	Max. hardness of coating	82 HR 30N	
	Layer thickness	Adjustable from 2-40 micron	
	Vibrations	adjustable	
	Power supply	230 V, 50 Hz	
	Dimensions (W x T x H)	210 x 320 x 220 mm	
	Weight	11 kg	
	Coating gun		
	Vibration frequency	100 Hz	
	Illumination	built-in	
Accessories: Control unit, coating gun, mains cable, foot switch, contact magnet, 1 set (24 pieces) of tungsten carbide electrodes, fuses, hexagon head screw driver			

Spare parts	Order No.	Price €
Coating gun	0 700 213	
Foot switch	0 700 130	
Contact magnet	0 700 131	
Mains cable	0 700 128	

Tungsten carbide electrodes	Shape	Dimensions mm	Order No.	Price € from 10 pieces	Price € from 1 piece
	Round	Ø 1 x 50	0 700 036		
	Round	Ø 1,3 x 50	0 700 046		
	Round	Ø 1,8 x 50	0 700 047		
	Round	Ø 2,3 x 50	0 700 048		
	Square	Ø 1,1 x 50	0 700 039		
	Square	Ø 1,6 x 50	0 700 040		
	Square	Ø 2,1 x 50	0 700 041		
	Triangular	Ø 2,1 x 50	0 700 042		
<i>Set:</i>			Order No.	Price € from 10 sets	Price € from 1 set
Set of tungsten carbide electrodes (24 pieces)			0 700 034		
3 tungsten carbide electrodes per form and size					