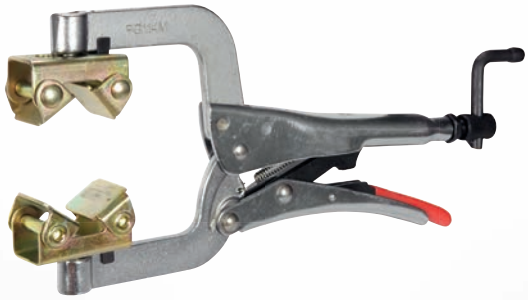
schweißkraft
Schweißtechnik

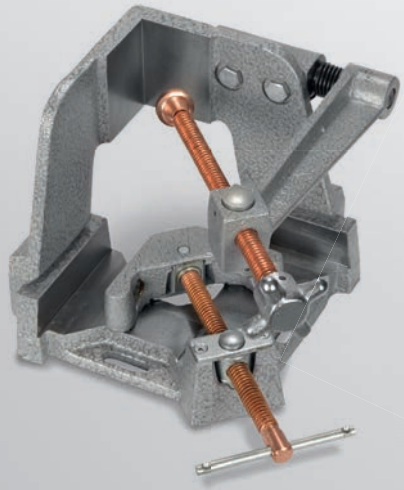
SCREW CLAMPS/WELDING MAGNETS















USZ model range - 4-in-1 all-steel screw clamp with toggle handle

- quenched and tempered single-piece sliding and fixed brackets for resilient and elastic clamping
- Single-piece fixed bracket and pressure plate, quenched and tempered, torsion-stiff
- For clamping, pipe clamping, spreading and clamping around edges
- Scope of supply includes V clamping set for pipes and additional block for clamping around edges
- Easy-action surface-coated spindle with trapezoid thread avoids tilting
- Best in class force transfer during clamping due to rounded edges on the locking handle
- Fast conversion of the sliding bracket for spreading applications by inverting the clamping rail and the additional block
- For use with wood and steel

Clamping



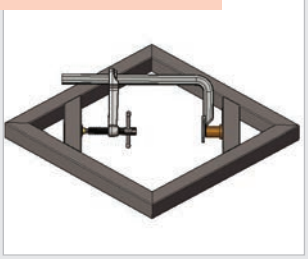
- *Standard application, efficient and easy to perform*

Pipe clamping



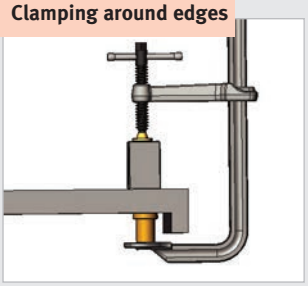
- *No problem with the self-adjusting V clamping set*

Spreading



- *fast retooling with just a few actions*

Clamping around edges



- *Clamping around edges with bolt-on additional block*



Incl. exchangeable V clamping set and additional block for clamping round bends and spreading

Accessories



Magnetic V clamping attachment *Art no. 1790006*



USZ 216 *USZ 318* *USZ 419*

HZ model range - lever clamp with latching mechanism for efficient and low-vibration clamping

- Single-piece fixed bracket and pressure plate, quenched and tempered, torsion-stiff
- with 38 mm wide movable pressure plate
- Functional latching mechanism for vibration-proof clamping
- Really useful in cramped working conditions
- Fast, two-step conversion of the sliding bracket for spreading applications by inverting the clamping rail and the additional block
- Five times quicker than legacy clamps thanks to single-finger quick clamping and release lever
- For use with wood and steel



HZ 178



HZ 178 - Fig. shows the scope of delivery *HZ 254 - Fig. shows the scope of delivery*

Accessories



V clamping attachment
Art no. 1790005



Magnetic V clamping attachment
Art no. 1790006



Additional block clamping around edges and spreading
Art. no. 1790007

Model	max. clamping force	Span	Throat	Fixed bracket cross-section	Thread	Weight	Art. no.	
USZ 216	550 kg	216 mm	121 mm	24 x 12 mm	M10	1.9 kg	1790001	
USZ 318	1 100 kg	318 mm	140 mm	30 x 14 mm	M10	3.5 kg	1790002	
USZ 419	1 100 kg	419 mm	140 mm	30 x 14 mm	M10	4.0 kg	1790003	
HZ 178	460 kg	178 mm	121 mm	22 x 11 mm	M10	1.2 kg	1790010	
HZ 254	460 kg	254 mm	121 mm	22 x 11 mm	M10	1.3 kg	1790011	

MSZ series - magnetic screw clamp with quick-clamping spring and magnetic V clamping attachment

- for steel workpieces
- with spring-loaded sliding bracket for single-handed work
- the clamp holds the workpiece magnetically after positioning
- from quenched and tempered nickel-chrome-plated steel for a long service life
- a V clamping attachment is included in scope of supply
- with threaded hole, extensible through optional V clamping set or bolt



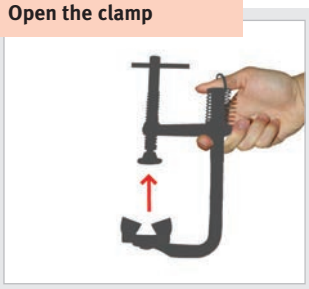
MSZ 90 - Fig. shows scope of supply



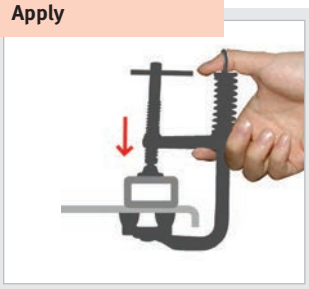
MSZ 140 - Fig. shows scope of supply

Easy single-handed operation in three steps:

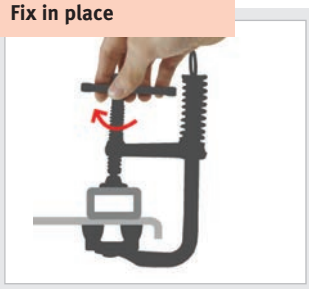
Open the clamp



Apply



Fix in place



Accessories

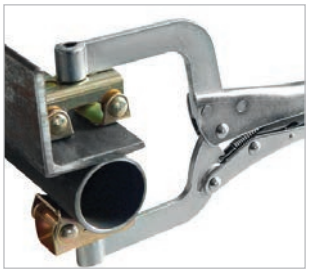


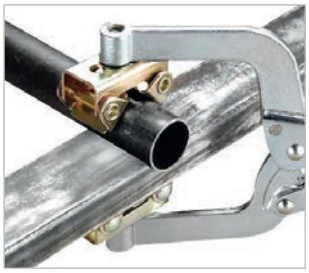
Additional block for clamping around edges
Suitable for MSZ 140
Art no. 1790022

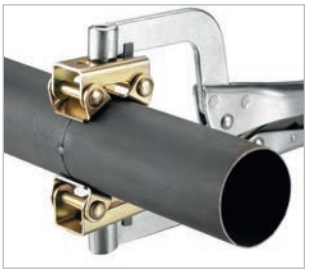
· *Suitable for RGZ 280*
Art. no. 1790007

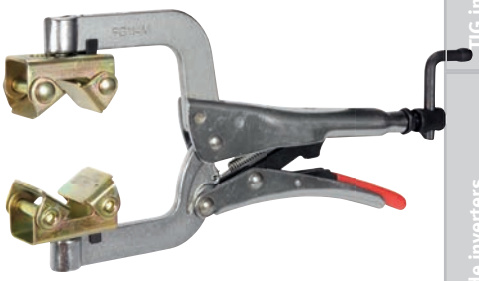
RGZ 280 – Pipe grip specially for holding round workpieces

- With two self-adjusting V clamping attachments, thus also suitable for clamping flat material onto pipes
- single-handed use









RGZ 280 - Fig. shows scope of supply, optionally available additional block for clamping around edges, see accessories above

WGZ 76 – Angle grippers - a helping hand for working with rectangular workpieces

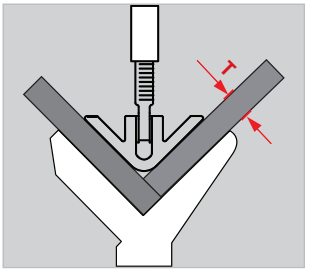
- For holding, aligning and clamping workpieces of different thicknesses at an angle of 90°
- single-handed use
- Usable for wood and steel, as well as synthetic materials



For clamping right angled joints



Also suitable for working with wood and synthetic materials



for workpieces up to 1 1/4 inch (32 mm) thickness (D)



WGZ 76 - Fig. shows scope of supply

Model	max. clamping force	Span	Throat	Transverse cut	Thread	Weight	Art. no.	
MSZ 90	140 kg	90 mm	64 mm	13 x 6 mm	M6	0.4 kg	1790020	
MSZ 140	230 kg	140 mm	89 mm	16 x 8 mm	M8	0.5 kg	1790021	

Model	Clamping width min./max.	Length	Thread	Weight	Art. no.	
RGZ 280	40 - 64 mm	280 mm	M10	1.3 kg	1790090	

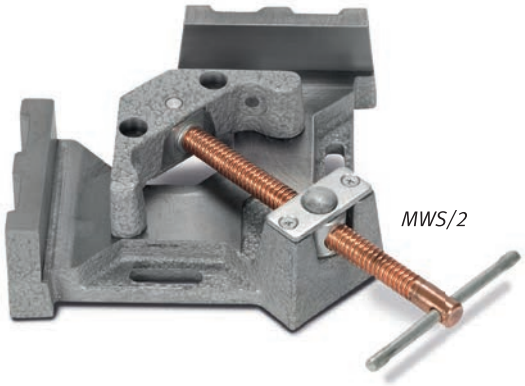
Model	max. clamping force	Span	Throat	Length		Weight	Art. no.	
WGZ 76	75 kg	32 mm	76 mm	216 mm	-	0.6 kg	1790080	

MWS model range – metal angle clamp, 2-axis or 3-axis design

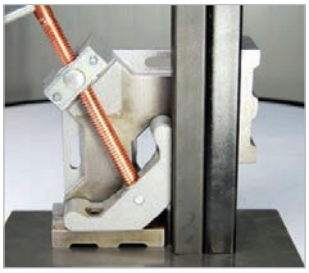
- For use in metalworking, welding and workshops
- Stable jaws and base body made of grey cast
- For holding, aligning and clamping workpieces of different thicknesses at an exact angle of 90°
- Automatic adjustment of the pressure jaw to the different workpiece thickness due to articulated-bearing spindle nut
- With pushbutton for quick clamping of the workpiece (except MWS-2 56)
- Weld spatter will not stick on the copper-plated trapezoid spindle with T handle
- Easy to mount on welding or machine tables thanks to slots at side

MWS-2 model range

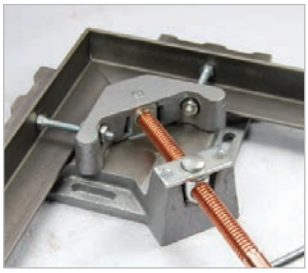
- For workpieces with two axes
- Open design makes it possible to clamp T joints and allows free access to the workpiece for welding and assembly work



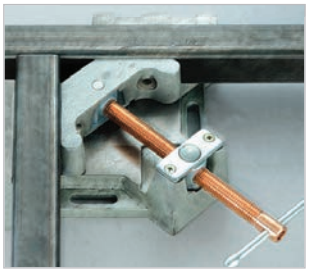
MWS/2



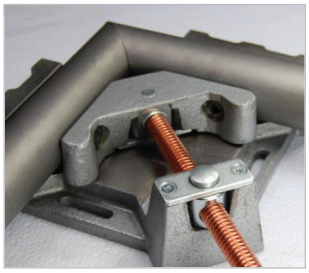
Milled sides for standing up the metal angle clamp



With attachment for improved clamping of sections



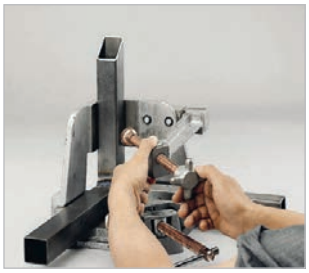
Open design makes it possible to clamp T joints



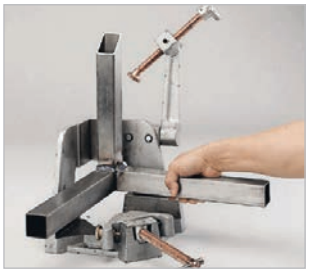
Also suitable for clamping round material

MWS-3 model range

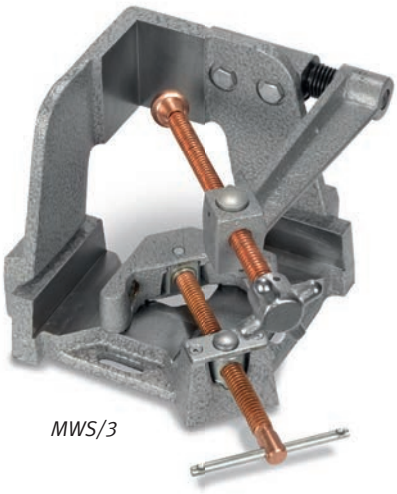
- for workpieces with three axes
- Fast removal of the workpiece simply by moving out the third clamping arm



With quick clamping mechanism for fast and convenient setup (except MWS-2 56)



The third clamping arm can be simply rotated out



MWS/3

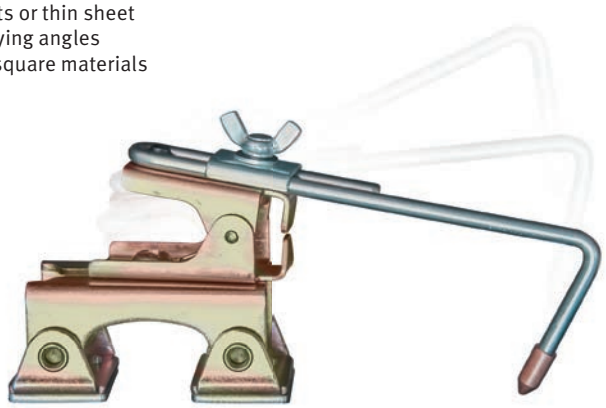
Model	Span	Jaws length/height	T clearance	Mounting slot		Weight	Art. no.	
				Length	Width			
MWS-2 56	56 mm	90 x 33 mm	47 mm	35.5 mm	11 mm	4.0 kg	1790099	
MWS-2 95	95 mm	122 x 35 mm	62 mm	40 mm	11 mm	5.0 kg	1790100	
MWS-2 121	121 mm	135 x 64 mm	100 mm	51 mm	11 mm	10.6 kg	1790101	
MWS-3 95	95 mm	122 x 35 mm	62 mm	–	–	11.1 kg	1790102	
MWS-3 121	121 mm	100 x 64 mm	100 mm	–	–	19.6 kg	1790103	

MHS 203 – material holding stop

- For holding, positioning and machining steel workpieces
- Holding rod with brass tip 360°, length adjustable
- Perfectly suited for nuts, bolts or thin sheet metal for tack welding at varying angles
- For use with round, flat and square materials in low-load applications







Model	Holding force	Dimensions	Weight	Art. no.
MHS 203	15 kg	178 x 102 x 102 mm	0.55 kg	1790077

(1) Holding force spec. based on application with 10 mm steel plate

BHW 100 – TIG torch holder

- Put down the welding torch wherever you need it right now
- Adjustable cable holder
- The fully enclosed magnetic baseplate facilitates cleaning of metal residues



Model	Dimensions	Weight	Art. no.
BHW 100	Ø 89 x 160 mm	0.85 kg	1790078

* Holding force spec. based on application with 10 mm steel plate

UGZ Series – Universal grip pliers

- Crank for fast opening, closing and adjustment
- With quick release lever
- Toothed jaws for additional grip

UGZ 40

- With hammer head and longitudinal slot in upper jaw
- Hard-soldered components with excellent durability

UGZ 75

Large jaw reach (64 mm)

- V-shaped notch in upper jaw for clamping small parts











UGZ 40



UGZ 75

Model	Throat	Opening range	Tool length	Weight	Art. no.
UGZ 40	–	40 mm	300 mm	0.6 kg	1790091
UGZ 75	64 mm	6 ~ 75 mm	250 mm	0.7 kg	1790092

Welding angle magnets

SWM-2 30 – Switchable welding angle magnets for fixing sheet metal, round and square workpieces or pipes

- With high magnetic holding force for professional applications
- Magnet can be switched on and off with toggle switch
- Easy to wipe down in switched-off state









For holding metal workpieces at 45° or 90° angles

Model	Holding force (1)	Bracket	Dimensions	Weight	Art. no.
SWM-2 30	30 kg	45° /90°	110 x 95 x 25 mm	0.5 kg	1790029

(1) Holding force spec. based on application with 9.5 mm steel plate

VSWM 15 – Adjustable welding angle magnet - for continuously variable angle adjustment between 30° and 270°

- With high magnetic holding force for professional applications
- Ideal for round and square tube, angled and flat material
- The desired angle can be easily set between 30° and 270° via hexagon hole
- Fastening holes to connect two magnets









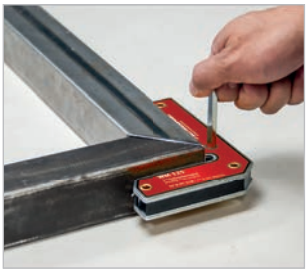
Add Allen key to scope of delivery

Model	Holding force (1)	Bracket	Dimensions	Weight	Art. no.
VSWM 15	15 kg	30° - 270° continuously variable	156 x 156 x 20 mm	0.9 kg	1790051

(1) Holding force spec. based on application with 10 mm steel plate

WM 125 – Two inside and outside angle magnets for 90° and 270° angles

- With high magnetic holding force for professional applications
- Ideal for round and square tube, angled and flat material
- Fastening holes to connect two magnets



Hexagon hole for releasing the magnetic bracket
Allen key not included in scope of delivery

Scope of supply WM 125:
1 angle magnet up to 9 kg holding force
1 angle magnet up to 15 kg holding force



Model	Holding force (1)	Bracket	Dimensions	Weight	Art. no.
WM 125	9 kg 15 kg	90° / 270°	75.5 x 52 x 14 mm 125 x 85 x 18 mm	0.5 kg	1790042

(1) Holding force spec. based on application with 10 mm steel plate

SWM-2 and SWM series – switchable weld angle magnets for fixing sheet metal, round and square workpieces or pipes

- With strong magnetic holding for professional applications
- Magnet can be switched on and off with toggle switch
- Easy to brush off in switched-off state
- Ideal for round and square tube, angled and flat material



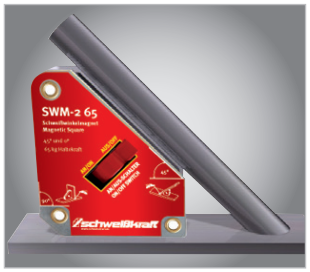
SWM-2 35



SWM-2 65

SWM-2 model range





For holding metal workpieces at 45° or 90° angles

SWM model range

- For holding metal workpieces at 90° angle
- Pole piece with prism, thus suitable for flat and round material



Professional design for exacting quality requirements



Two independently acting on/off switches



SWM 35



SWM 70

VSWM series – Adjustable welding angle magnet for continuously variable angle adjustment between 30° and 275°

- With strong magnetic holding for professional applications
- Pole piece with prism, thus suitable for flat and round material
- The desired angle can be easily set between 30° and 275° and easily held with a practical lever



· *Angle can be easily read off on scale*

WM 90 – angle magnet

- For creating exterior 90° angles for' obstacle free interior welding
- Exterior magnetic edges can be used for 60° material angle





Scope of supply WM 90:
· 2 angle magnets each

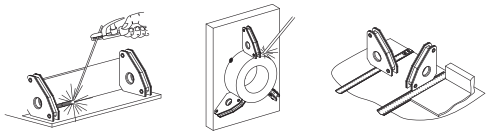
Model	Holding force(1)	Bracket	Dimensions	Weight	Art. no.
SWM-2 35	40 kg	45° /90°	111 x 95 x 29 mm	0.7 kg	1790030
SWM-2 65	75 kg	45° /90°	152 x 130 x 35 mm	1.4 kg	1790031
SWM 35	55 kg	90°	152 x 152 x 38 mm	1.2 kg	1790040
SWM 70	120 kg	90°	197 x 197 x 48 mm	2.7 kg	1790041
VSWM 41	50 kg	30° - 275° continuously variable	197 x 197 x 95 mm	2.4 kg	1790050
WM 90	14 kg	60°/90°	83 x 95 x 16 mm	0.2 kg	1790071

(1) Holding force spec. based on application with 10 mm steel plate

Welding angle magnets

MSWM / SSWM permanent welding angle magnet – for holding angles 30°, 45°, 60° and 90°

- For precise angular holding of round and flat iron workpieces
- Practical helper for welding and assembly work





MSWM 10
- *Specially designed for small workpieces*
- *Two welding magnets included in scope of delivery*



SSWM 20
- *40 kg holding force despite small size*
- *Very useful for typical applications*
- *One welding magnet included in scope of delivery*

Model	Holding force (1)	Bracket	Dimensions	Weight	Art. no.	
MSWM 10	10 kg	30°/60°/45° /90°	59 x 51 x 16 mm	0.3 kg	1790060	
SSWM 20	40 kg	30°/60°/45° /90°	140 x 111 x 19 mm	0.5 kg	1790070	

(1) Holding force spec. based on application with 10 mm steel plate

MM mass magnet – compact with up to 50 kg holding force

- V attachment for safe holding on round and flat material surfaces
- Easy operation with on/off switch, also with gloves
- Metal swarf drops off directly after switching off the magnet
- Cable rotation through max. 360° possible



Model	Distance	Duty cycle	Holding force	Dimensions	Weight	Art. no.
MM 300	300 A	60 %	34 kg	50 x 50 x 64 mm	0.4 kg	1790072
MM 500	500 A	60 %	50 kg	50 x 70 x 64 mm	1.1 kg	1790073

MHA magnetic holding stops
For positioning smaller workpieces in tack welding

- For use on metal profiles, such as round materials, flat steel or square tubes
- MHA 111 made of die cast alum. for precise work
- Adjustable holding stops vertically or horizontally position and fix the workpiece









MHA 100 -
Fig. shows the scope of delivery



MHA 111 -
Fig. shows the scope of delivery

Model	Holding force (1)	Dimensions	Weight	Art. no.	
MHA 100	8.0 kg	100 x 76 x 32 mm	0.2 kg	1790074	
MHA 111	8.0 kg	111 x 73 x 38 mm	0.25 kg	1790075	

MVS-SET magnetic V clamping attachments – For holding, positioning and machining steel workpieces

- For use with round, flat and square materials in low-load applications
- Four magnets per clamping attachment

Scope of delivery:
- Two clamping attachments, L x W: 55 x 39 mm, holding force 8 kg
- Two clamping attachments, L x W: 50 x 26 mm, holding force 6 kg

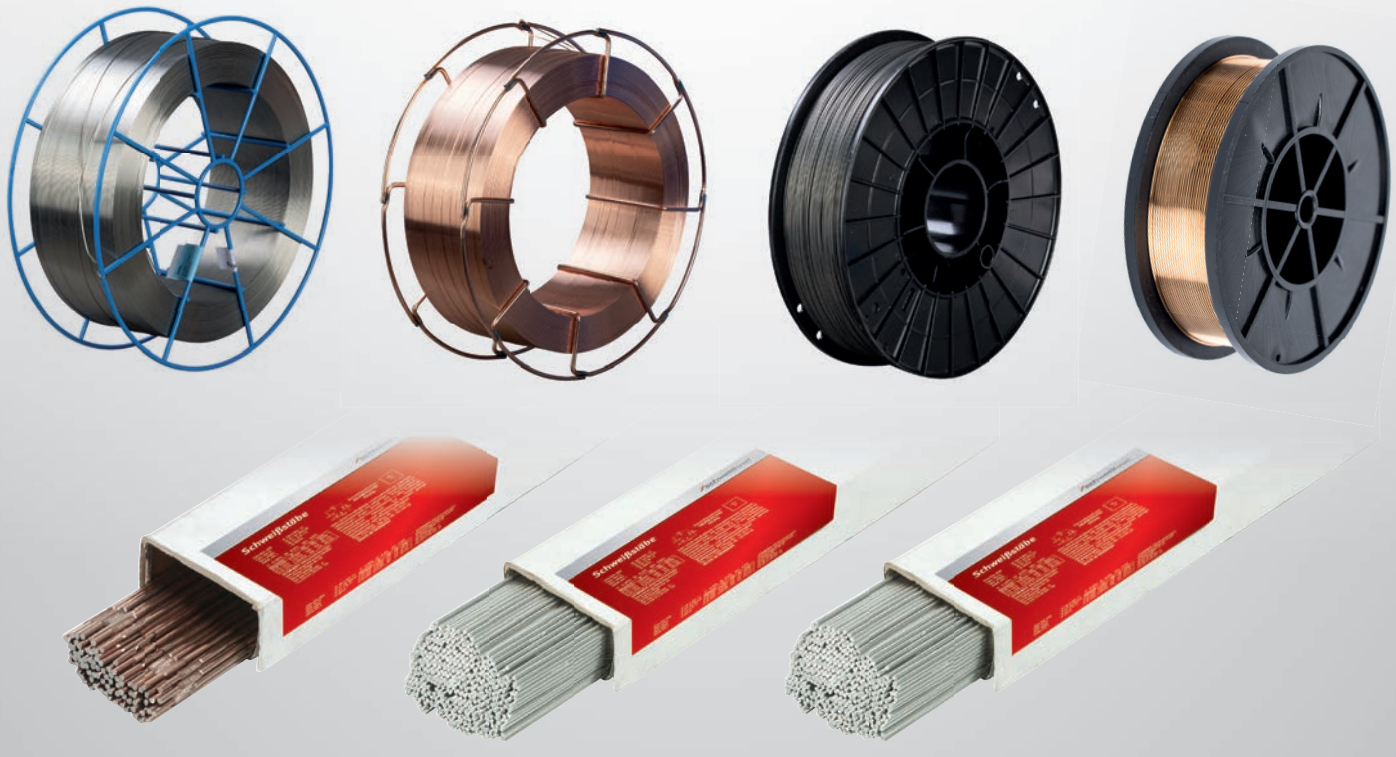


Model	Art. no.	
MVS set	1790076	

(1) Holding force spec. based on application with 10 mm steel plate

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Schweißtechnik

FILLER WIRES & FILLER METALS



Low alloy filler wires - chemical composition							
(guide values % of welded material)							
Material no.:	**Designation**	**C**	**Si**	**Mn**	**Cr**	**Ni**	**Cu**
1,615	G II	0.15	0.2	0.9	-	-	-

Medium alloy filler wires - chemical composition							
(guide values % of welded material)							
Material no.:	**Designation**	**C**	**Si**	**Mn**	**Cr**	**Ni**	**Cu**
1,615	G III	0.09	0.1	1.1	0.4	-	-

High alloy filler wires - chemical composition											
(guide values % of welded material)											
Material no.:	**AWS/AISI**	**DIN**	**C max.**	**Si**	**Mn**	**Ni**	**Cr**	**Mo**	**Nb min.**	**S max.**	**P max.**
1.4316	308L-Si	X 2 CrNi 19 9	0.025	0.8	1.7	10	20	-	-	0.015	0.02
1.4551	347-Si	X 5 CrNiNb 19 9	0.07	0.7	1.7	10	19.5	-	12 x C	0.015	0.02
1.4430	316L-Si	X 2 CrNiMo 19 12	0.025	0.8	1.7	12	18	2.7	-	0.015	0.02
1.4576	318	X 5 CrNiMoNb 19 12	0.05	0.7	1.4	11.5	18.5	2.6	12 x C	0.015	0.02
1.4370	307-Si	X 10 CrNiMn 1 8 8 6	0.10	0.7	6.5	9	19	-	-	0.015	0.02
1.4842	310	X 12 CrNi 25 20	0.12	0.5	1.7	20.5	25	-	-	0.015	0.02

High alloy filler wires - mechanical properties					
Not heat-treated, at 20 °C, MIG welding with Argon +2 % oxygen, TIG and plasma welding with Argon as shield gas (guide values)					
Material no.:	**Yield stress**	**Tensile strength**	**Elongation**	**Notched bar impact work**	**Hardness**
1.4316	450 N/mm²	550 N/mm²	40 %	70 J	200 HB
1.4551	320 N/mm²	580 N/mm²	30 %	65 J	220 HB
1.4430	330 N/mm²	540 N/mm²	35 %	80 J	210 HB
1.4576	350 N/mm²	590 N/mm²	30 %	50 J	220 HB
1.4842	300 N/mm²	550 N/mm²	30 %	65 J	

Hardfacing - chemical composition										
(guide values % of welded material)										
Material no.:	**DIN**	**C max.**	**Si**	**Mn**	**Cr**	**Ni**	**Mo**	**Nb min.**	**S max.**	**P max.**
1.4718	MSG 6-60	0.5	3.0	0.4	9.2	-	-	-	-	-

Aluminium filler wires - chemical composition								
(guide values % of welded material)								
Material no.:	**DIN**	**Mn**	**Mg**	**Cr max.**	**Ti max.**	**Si**	**Al**	**Others**
3.3536	AlMg 3	0.4	3.0	0.3	0.25	-	Remainder	as per DIN 1732
3.3556	AlMg 5	0.3	5.0	0.3	0.25	-	Remainder	as per DIN 1732
3.3548	AlMg 4.5 Mn	0.8	5.0	0.25	0.25	-	Remainder	as per DIN 1732
3.2245	AlSi 5	-	-	-	-	5.0	Remainder	as per DIN 1732

Aluminium filler wires - mechanical properties			
Material no.:	**Yield stress**	**Tensile strength**	**Elongation**
3.3536	175-205 N/mm²	80-100 N/mm²	15-20 %
3.3556	100-135 N/mm²	220-260 N/mm²	15-25 %
3.3548	110-150 N/mm²	275-335 N/mm²	15-20 %
3.2245	min. 50 N/mm²	120-150 N/mm²	10-18 %

Aluminium filler wires - applications					
Material no.:	**Ampere/wire Ø**				
	0.8 mm	1.0 mm	1.2 mm	1.6 mm	2.4 mm
3.2245	75 - 150	95 - 210	110 - 240	150 - 350	220 - 500
3.3536	80 - 150	100 - 210	120 - 240	175 - 360	220 - 500
3.3556	80 - 150	100 - 210	120 - 240	175 - 360	220 - 500
3.3548	80 - 150	100 - 210	120 - 240	175 - 360	220 - 500

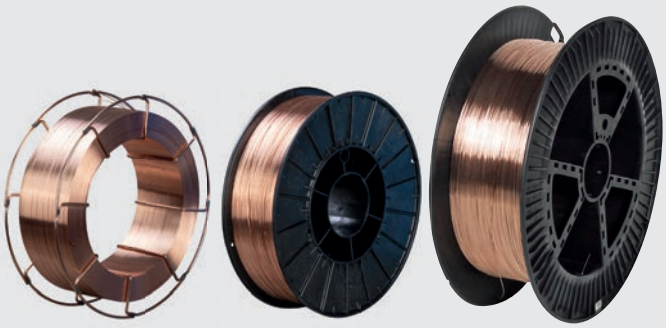
Tungsten electrodes

Composition				
Abbreviation	**Oxide additive**		**impurities**	**Tungsten**
	% m/m	Type	% m/m	% m/m
W	-	-	‹ _ 0.20	99.8
WT 20	0.35 to 0.55	ThO2	‹ _ 0.20	Remainder
WC 20	1.80 to 2.20	CeO2	‹ _ 0.20	Remainder

Identifier		
Abbreviation	**Colour code as per RAL**	
	Colour tone	Colour no.
W	green	6018
WT 20	red	3000
WC 20	grey	7011

Wire Ø	Amperes
1.6 mm	24-65 A
2.4 mm	60-120 A
3.2 mm	120-180 A
4.0 mm	150-225 A

MAG steel filler wires low alloy



SG 2 material no. 1.5125 DIN 8559/DIN EN 440
- for the following base materials:
  tubular steels St 35, St 45, St 52, St 55;
  fine sheet St 12, St 13, St 14
  Shipbuilding steels A, B, C, D, E
  pressure vessel plate H 1, H 2, H 3; cast steel GS-38, GS-45, GS-52
  Construction steels St 34, St 37, St 42, St 46, St 52, St 55, St 60
  fine grained construction steels St E 26, St E 29, St E 32, St E 36, St E 39, St E4
- Low alloy wire electrode for joining and deposit welding
- Shield gas: CO_2 and mixed gases

Basket spool K 300 longitudinally wound 15.0 kg	Art. no.
0.8 mm	1116008
1.0 mm	1116010
1.2 mm	1116012
D 300 spool, normally wound 15.0 kg	
0.8 mm	1110008
D 200 mandrel spool, normally wound 5.0 kg	
0.8 mm	1115008
1.0 mm	1115010

***larger quantities on request.**



SG 3 material no. 1.5130 DIN 8559/DIN EN 440
- for the following base materials:
  tubular steels St 35, St 45, St 52, St 55;
  fine sheet St 12, St 13, St 14
  Shipbuilding steels A, B, C, D, E
  pressure vessel plate H 1, H 2, H 3; cast steel GS-38, GS-45, GS-52
  Construction steels St 34, St 37, St 42, St 46, St 52, St 55, St 60
  fine grained construction steels St E 26, St E 29, St E 32, St E 36, St E 39, St E 43
- Low alloy wire electrode for joining and deposit welding
- Shield gas: CO_2 and mixed gases

Basket spool K 300 longitudinally wound 15.0 kg	Art. no.
0.8 mm	1117008
1.0 mm	1117010
1.2 mm	1117012

Gasless flux core wire low allo… for welding without gas DIN EN 758

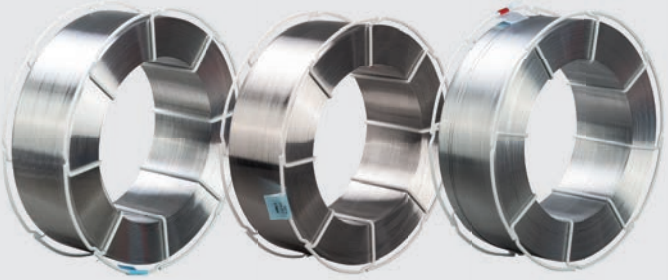


Low alloy/rutile for the following base materials:
With MT-FD: St 33, St37-2 to St52-3, St37.4-St52.4, St35.8, St45.8, St37 to St52, HI, HII, 17 Mn 4

Basket spool D 200 normally wound 4.5 kg	Art. no.
MT-FD 0.9 mm	1132000
Basket spool K 300 longitudinally wound 15.0 kg	
MT-CS 1.2 mm	1132001

With MT-CS: s185, S235JR, S355Jo, P295GH, P235GH, P265GH, S355GT

MIG aluminium filler wires



Al Mg 3 material no. 3.3536 DIN 1732
- for the following base materials: Al Mg 3, Al Mn 1, Al Mg 1, 8
- Welding rolled and cast aluminium-magnesium alloys
- Shield gas: pure argon or argon/helium mix

K 300 mandrel spool 7.0 kg	Art. no.
1.0 mm	1123008
1.2 mm	1123010

Al Mg 5 material no. 3.3556 DIN 1732
- for the following base materials: Al Mg 5, Al Mg 3, Al Mg Si 1, Al Mg 1
- Welding rolled and cast aluminium-magnesium alloys
- Shield gas: pure argon or argon/helium mix

D 300 spool 7.0 kg	Art. no.
1.0 mm	1125010
1.2 mm	1125012

Al Si 5 material no. 3.2245 DIN 1732
- for the following base materials: Al Mg Si 1, Al Zn 4.5 MG 1, Al Cu MG 1
- Shield gas: pure argon or argon/helium mix

D 300 spool 7.0 kg	Art. no.
1.0 mm	1126010
1.2 mm	1126012

Al Mg 4.5 Mn material no. 3.3548 DIN 1732
- for the following base materials: Al Mg 4.5 Mn, Al Mg 3, Al Mg 5
- Welding rolled and cast aluminium-magnesium alloys
- Shield gas: pure argon or argon/helium mix

D 300 spool 7.0 kg	Art. no.
1.0 mm	1124010
1.2 mm	1124012
D 200 spool 2.0 kg	
1.0 mm	1124210

MIG filler wires for MSG soldering



Filler wire CuSi 3
For copper, low alloy copper and copper zinc alloys. For deposit welding on non alloy or low alloy steels and cast iron.

Small spool D200, 5 kg	
Ø 0.8 mm	1131620
Ø 1.0 mm	1131619
Basket spool K300, 15 kg	
Ø 0.8 mm	1131625
Ø 1.0 mm	1131624



Filler wire CuAl 8
For manganese and nickel copper aluminium alloys. For highly-stressed corrosion resistant deposit welding on non alloy or low alloy steels and cast iron.

Small spool D200, 5 kg	
Ø 0.8 mm	1131630
Ø 1.0 mm	1131629
Basket spool K300, 15 kg	
Ø 0.8 mm	1131635
Ø 1.0 mm	1131634

! Other dimensions, alloys, spool types, and larger volumes on request.

MAG stainless steel filler wires



1.4316 DIN 8556: SG X 2 Cr Ni 19 9
- for the following base materials:
  1.4301, 1.4306, 1.4308, 1.4311, 1.4303, 1.4310, 1.4319, 1.4541, 1.4550, 1.4552
- Joint and depositing welding of stainless and acid-resistant Cr and Cr-Ni steels.
- Not for use in a medium with high sulphur content.
- For operating temperatures from -196 °C to 350 °C.
- Shield gas: Argon S 1 - S 3, mixed gases

D 300 spool 15.0 kg	Art. no.
0.8 mm	1130208
1.0 mm	1130210
1.2 mm	1130212
D 200 spool 5.0 kg	
0.8 mm	1130238
1.0 mm	1130231

1.4551 DIN 8556: SG X 5 Cr Ni Nb 19 9
- for the following base materials:
  1.4301, 1.4306, 1.4308, 1.4310, 1.4312, 1.4319, 1.4541, 1.4550
- TIG or MIG/MAG welding of stainless, austenitic steels
- Not for use in a medium with high sulphur content.
- For operating temperatures up to 400 °C, scaling resistant up to +800 °C
- Shield gas: Argon, mixed gases, e.g., M11, M23

D 300 spool 15.0 kg	Art. no.
1.0 mm	1131610
1.2 mm	1131612

Hardfacing shield gas filler wires



MSG material 6-60 no. 1.4718 DIN 8555
- Materials and applications:
  Deposit welding on machine parts exposed to wear made of constructional or cast steel. The welding material has good viscous strength and is wear-resistant. For bulldozer parts, conveyor screws, roller crushers, percussion hammers, rollers and running surfaces.
- Vickers hardness: 650 - 775 HV
- Rockwell hardness: 56 - 62 HR
- Shield gas: Argon S 1 - S 3, mixed gases

D 300 spool 15.0 kg	Art. no.
1.0 mm	1130110
1.2 mm	1130112
1.6 mm	1130116

Other filler wires for deposit welding, dimensions, alloys, spool types, and larger volumes on request.

MAG stainless steel filler wires



1.4430 DIN 8556: SG X 2 Cr Ni Mo 19 12
- for the following base materials:
  1.4401, 1.4404, 1.4408, 1.4429, 1.4435, 1.4436, 1.4541, 1.4550, 1.4552, 1.4571, 1.4573, 1.4580, 1.4581, 1.4583, 1.6901, 1.6902, 1.6903, 1.6905
- Welding stainless, cryogenic and austenitic steels. For operating temperatures up to 400 °C
- Shield gas: Argon S 1 - S 3, mixed gases

D 300 spool 15.0 kg	Art. no.
0.8 mm	1130508
1.0 mm	1130510
1.2 mm	1130512

1.4576 DIN 8556: SG X 5 Cr Ni Mo Nb 19 12
- for the following base materials:
  1.3401,1.4408, 1.4435, 1.4435, 1.4436, 1.4573, 1.4580, 1.4581, 1.4583
- Different types of steels (black&white joints); steels with a high carbon content, and hard-to-weld steels, e.g., manganese high-carbon steel, buffer layers for hardfacing, viscous nickel steels
- For operating temperatures from -120 °C (viscous) to 300 °C

D 300 spool 15.0 kg	Art. no.
0.8 mm	1130308
1.0 mm	1130310
1.2 mm	1130312

1.4370 DIN 8556: SG X 10 Cr Ni Mn 18 8
- for the following base materials:
  1.4301, 1.4306, 1.4308, 1.4312, 1.4401, 1.4404, 1.4408, 1.441 0, 1.4435, 1.4436, 1.4541, 1.4550, 1.4571, 1.4573, 1.4580, 1.4583 with H 1 to H 2
- Welding of stainless and acid-resistant Cr and Cr-Ni-Mn steels. For stricter requirements in terms of crack safety and viscosity. Cold hardening. Joint welding on different types of steels (black&white joints). Temperatures up to 850 °C.
- Shield gas: Argon S 1 - S 3, mixed gases

D 300 spool 15.0 kg	Art. no.
0.8 mm	1130408
1.0 mm	1130410
1.2 mm	1130412

1.4842 DIN 8556: SG X 12 Cr Ni 25 20
- for the following base materials:
  1.4832, 1.4837, 1.4841, 1.4845, 1.4840
- Welding heat-resistant austenitic steels. The steel can be used in air up to 1 100 °C. Scaling resistant up to 1100 °C
- Shield gas: Argon S 1 - S 3, mixed gases

D 300 spool 15 kg	Art. no.
0.8 mm	1130708
1.0 mm	1130710
1.2 mm	1130712

Welding sticks TIG



TIG welding sticks low alloy 1000 mm

WSG 2 material no. 1.5125 DIN 8559

- for the following base materials: St 35 - St 55, St 35.4 - St 55.4, St 33 - St 52.3, St 38.8 -St 45.8, grade A- E, A 32 - A 36, Pressure vessel plate H 1 - H 3, StE 255 - StE 380, 17 Mn 4, 19 Mn 6, GS 38 - GS 52
- Welding non alloy and low alloy steels, melts evenly and smoothly, well suited for out-of-position welding.
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.6 mm	5 kg	1450016
2.0 mm	5 kg	1450020
2.4 mm	5 kg	1450024
3.0 mm	5 kg	1450032

TIG welding sticks medium alloy 1000 mm

SG Mo material no. 1.5424 DIN 8575

- for following base materials: St 37-3, St 44-3, St 52-3, H 1 - H 4.17 Mn 4.19 Mn 5.19 Mn 6, StE 36 - StE 47, St 45.8, ASt 35 - ASt 45
- Mo alloyed welding sticks for shield gas welding of heat-resistant steels and higher strength fine grain constructional steels. Suitable for operating temperatures up to 550 °C. The smooth and manageable melting behaviour of the welding stick is useful in out-of-position welding.
- Shield gas: Pure argon

Designation	PQ	Art. no.
2.0 mm	5 kg	1457020
2.4 mm	5 kg	1457024
3.0 mm	5 kg	1457032

High alloy TIG welding sticks

1.4316 DIN 8556: SG X 2 Cr Ni 19 9

- for following base materials: 1.4301, 1.4306, 1.4308, 1.4311, 1.4312, 1.4450, 1.4541, 1.4543, 1.4550, 1.4552, 1.4878, 1.4961, 1.6901, 1.6902, 1.6903, 1.6905
- Joint and depositing welding of stainless and acid-resistant Cr and Cr-Ni steels. Not for use in a medium with high sulphur content. For operating temperatures from -196 °C to 350 °C.
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.0 mm	5 kg	1451010
1.6 mm	5 kg	1451016
2.0 mm	5 kg	1451020
2.4 mm	5 kg	1451024
3.2 mm	5 kg	1451032

1.4551 DIN 8556: SG X 5 Cr Ni 19 9

- for the following base materials: 1.4301, 1.4306, 1.4308, 1.4310, 1.4312, 1.4319, 1.4541, 1.4550, 1.4840
- TIG or MIG/MAG welding of stainless, austenitic steels
- Not for use in a medium with high sulphur content.
- For operating temperatures up to 400 °C, scaling resistant up to +800 °C
- Shield gas: Argon, mixed gases, e.g., M11, M23

Designation	PQ	Art. no.
1.0 mm	5 kg	1455010
1.6 mm	5 kg	1455016
2.0 mm	5 kg	1455020
2.4 mm	5 kg	1455024
3.2 mm	5 kg	1455032

Other dimensions, alloys, spool types, and larger volumes on request.

Delivered in packaging unit quantities (1 or 3 packs)



TIG Aluminium welding sticks 1000 mm

Al Mg 3 material no. 3.3536 DIN 1732

- For the following base materials: für Al Mg 3, Al Mg 1, Al Mg 2, Al Mg Mn, AlMg Si 0.5, G-Al Mg 3
- Welding rolled and cast aluminium-magnesium alloys
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.6 mm	5 kg	1450316
2.0 mm	5 kg	1450320
2.4 mm	5 kg	1450324
3.2 mm	5 kg	1450332
4.0 mm	5 kg	1450340

Al Mg 5 material no. 3.3556 DIN 1732

- for the following base materials: Al Mg 5, Al Mg 3, Al Mg Mn, Al Mg 3 Si, G-Al Mg 3, G-Al Mg 5
- Welding rolled and cast aluminium-magnesium alloys
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.6 mm	5 kg	1450416
2.0 mm	5 kg	1450420
2.4 mm	5 kg	1450424
3.2 mm	5 kg	1450432
4.0 mm	5 kg	1450440

Al Mg 4.5 Mn material no. 3.3548 DIN 1732

- For the following base materials: Al Mg 4.5 Mn, Al Mg 3, Al Mg 5, AlMgSi 0.5, Al Mg Si 1, Al Zn Mg 1
- Welding rolled and cast aluminium-magnesium alloys
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.6 mm	5 kg	1450516
2.0 mm	5 kg	1450520
2.4 mm	5 kg	1450524
3.2 mm	5 kg	1450532
4.0 mm	5 kg	1450540

Al Si 5 material no. 3.2245 DIN 1732

- for the following base materials: Al Si 5, Al Mg Si 1, Al Cu Mg alloys, Al Zn Mg alloys
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.6 mm	5 kg	1450616
2.0 mm	5 kg	1450620
2.4 mm	5 kg	1450624
3.2 mm	5 kg	1450632
4.0 mm	5 kg	1450640

Al 99.5 material no. 3.0259 DIN 1732

- for the following base materials: l 99.5, Al 99, E-Al 99.5
- Welding pure aluminium and aluman
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.6 mm	5 kg	1450716
2.0 mm	5 kg	1450720
2.4 mm	5 kg	1450724
3.2 mm	5 kg	1450732
4.0 mm	5 kg	1450740

TIG welding sticks for hardfacing

W 600 material no. 1.4718 DIN 8555

- Materials and applications:
  Deposit welding on machine parts exposed to wear made of constructional or cast steel. The welding material has good viscous strength and is wear-resistant. For bulldozer parts, conveyor screws, roller crushers, percussion hammers, rollers and running surfaces.
  Vickers hardness: 650 - 775 HV. **Rockwell hardness:** 56 - 62 HR
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.6 mm	5 kg	1456016
2.0 mm	5 kg	1456020
2.4 mm	5 kg	1456024



Gas welding sticks low alloy

G II material no. 1.0349 DIN 8554

- for the following base materials:
  St 34 - St 360-2, St 42, H 1, H 2, St 35, St 45, St 35.4, St 45.4
- Joint welding in equipment, pressure vessel, pipe, vehicle and machine making.
- Welding gases: Oxygen-acetylene

Designation	PQ	Art. no.
2.0 mm	5 kg	1450120
2.5 mm	5 kg	1450125
3.0 mm	5 kg	1450130

Gas welding sticks medium alloy

G III material no. 1.6215 DIN 8554

- for the following base materials:
  St 34 - St 360-2, St 52-3, H 1, H 2, H 3,17 Mn 4, St 35.4 St 45.4, St 35.8, St 45.8, GS 40 - GS 45
- Joint welding in equipment, pressure vessel, pipe, vehicle and machine making.
- Welding gases: Oxygen-acetylene

Designation	PQ	Art. no.
2.0 mm	5 kg	1450220
2.5 mm	5 kg	1450225
3.0 mm	5 kg	1450230



Aluminium adhesive tape 50 m

- Heat resistant with PE foil cover, DIN4102 part 1 A2. Construction class non-flammable, if adhesion bonded to metal substrate. DIN4102 part 1 class B Construction class flame resistant if adhesion bonded to at least one flame resistant Aluminium laminated mineral fibre product.

Designation	PQ	Art. no.
Width 25 mm	5 kg	1251025
Width 38 mm	5 kg	1251038
Width 50 mm	5 kg	1251050

1.4370 DIN 8556: SG X 15 Cr Ni Mn 18 8

- for the following base materials:
  1.4301, 1.4306, 1.4308, 1.4312, 1.4401, 1.4404, 1.4408, 1.4410, 1.4435, 1.4436, 1.4541, 1.4550, 1.4571, 1.4573, 1.4580, 1.4583, with H 1 to H 2
- Welding of stainless and acid-resistant Cr and Cr Ni Mn steels. For strict requirements in terms of crack safety and viscosity. Work hardening. Temperatures up to 850 °C.
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.0 mm	5 kg	1453010
1.6 mm	5 kg	1453016
2.0 mm	5 kg	1453020
2.4 mm	5 kg	1453024
3.2 mm	5 kg	1453032

1.4430 DIN 8556: SG X 2 Cr Ni Mo 19 12

- for the following base materials:
  1.4301, 1.4306, 1.4308, 1.4312, 1.4401, 1.4404, 1.4408, 1.4410, 1.4417, 1.4429, 1.4435, 1.4436, 1.4541, 1.4550, 1.4571, 1.4573, 1.4580, 1.4581, 1.4583, 1.6901, 1.6902, 1.6903, 1.6905
- Welding stainless, cryogenic and austenitic steels. For operating temperatures up to 400 °C
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.0 mm	5 kg	1452010
1.6 mm	5 kg	1452016
2.0 mm	5 kg	1452020
2.4 mm	5 kg	1452024
3.2 mm	5 kg	1452032

1.4576 DIN 8556: SG X 2 Cr Ni Mo 19 12

- for the following base materials:
  1.4301, 1.4306, 1.4401, 1.4408, 1.441 0, 1.4429, 1.4435, 1.4436, 1.4437, 1.4523, 1.4541, 1.4543, 1.4550, 1.4552, 1.4571, 1.4573, 1.4580, 1.4581, 1.4583
- Due to the niobium additive, this steel is high strength and highly resistant against inter-crystalline corrosion.
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.0 mm	5 kg	1454010
1.6 mm	5 kg	1454016
2.0 mm	5 kg	1454020
2.4 mm	5 kg	1454024
3.2 mm	5 kg	1454032

1.4842 DIN 8556: SG X 12 Cr Ni 25 20

- for following base materials:
  1.4762, 1.4832, 1.4837, 1.4841, 1.4845, 14848, 1.4849, 1.4543, 1.4550, 1.4552, 1.4878, 1.4961, 1.6901, 1.6902, 1.6903, 1.6905
- Welding heat-resistant austenitic steels. The steel can be used in air up to approx. 1 100 °C. Scaling resistant up to 1 100 °C
- Shield gas: Pure argon

Designation	PQ	Art. no.
1.0 mm	5 kg	1454510
1.6 mm	5 kg	1454516
2.0 mm	5 kg	1454520
2.4 mm	5 kg	1454524
3.2 mm	5 kg	1454532

Stick electrodes for welding stainless and corrosion-resistant steels, cast irons, and for deposit welding

Our **electrodes are "**Made in Germany". They are characterised by high quality, excellent welding properties, and good scaling detachability.

1. Certifications

ABS	American Bureau of Shipping
OBC	Bureau Veritas
Man.	Germanischer Lloyd
lr	Lloyd's Register of Shipping
NV	Det Norske Veritas
RRS	Russian Register of Shipping
PRS	Polski Rejestr Statków
DB	Deutsche Bahn AG
Ü	Certificate of conformity
TÜV	Technischer Überwachungsverein
UDT	Urz d Dozoru Technicznego

2. Welding positions

PA	(w) horizontal (butt welds, fillet weld in flat position)
PB	(h) horizontal (fillet welds)
PC	(q) transverse (horizontal welding on a vertical wall)
PU	(ü) overhead
PF	(s) rising (bottom up)
PG	(f) descending (top down)

3. Current type

=+	Direct current, electrode on plus pole
=-	Direct current, electrode on minus pole
~	Alternating current

Schweißkraft R(C)3

Factory designation	E 51 32 R(C)3, E38 0 RC 11, E 6013 as per DIN 1913/8529 /EN 499/AWS A5,1
Current type/welding position	=- ~/PA, PB, PC, PE, PF, PG



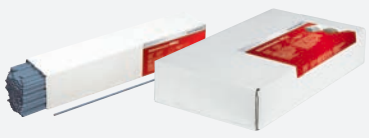
Application, properties, certifications

Easy to handle universal electrode medium thickness, rutile cellulose sheathed, for versatile use in machine, steel, ship and pipeline constructions. Excellent weldability in all positions, including vertical-down welding. Good weld surface appearance, self-loosening weld slag, low spatter loss, good re-ignition capability.

Dimensions Ø x L	PU/outer packaging pack x unit	Weight	Art. no.
2.0 x 250 mm	1 x 170	1.6 kg	1161020
2.5 x 350 mm	1 x 250	4.8 kg	1161025
3.2 x 350 mm	1 x 166	5.0 kg	1161032
2.0 x 250 mm	20 units	0.19 kg	1161020SB
2.5 x 350 mm	17 units	0.33 kg	1161025SB
3.2 x 350 mm	7 units	0.22 kg	1161032SB

Schweißkraft RR6

Factory designation	E 42 0 RC 11, E 51 32 RR(C) 6, E 6013 as per DIN EN ISO 2560-A, DIN 1913, AWS A 5.1
Current type/welding position	=- ~/PA, PB, PC, PE, PF



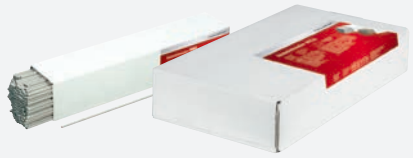
Application, properties, certifications

For joint and repair welds on non alloy construction steels.
Excellent gap bridging capability, easy to ignite and re-ignite, low spatter loss. Creates smooth, fine-grained weld surfaces.
Also on base materials with incipient corrosion and primer.

Dimensions Ø x L	PU/outer packaging pack x unit	Weight	Art. no.
2.0 x 250 mm	1 x 175	1.6 kg	1165020
2.5 x 350 mm	1 x 252	4.8 kg	1165025
3.2 x 350 mm	1 x 147	4.8 kg	1165032
4.0 x 350 mm	3 x 103	4.8 kg	1165040

Schweißkraft RR6

Factory designation	E 51 32 RR6, E38 0 RR12, E 6013 as per DIN 1913/8529/EN 499/AWS A5.1
Current type/welding position	=+ ~/PA, PB, PC, PE, PF



Application, properties, certifications

Electrode (thick, rutile sheathed) for versatile use in industry and trades. For joint welding in vehicle, container, pressure vessel, pipeline, ship, steel and machine building with non and low alloy steels. Excellent ignition properties, soft arc, little spatter, finely structured and smooth weld appearance, flat concave fillet welds, weld slag typically self-loosening.

Dimensions Ø x L	PU/outer packaging pack x unit	Weight	Art. no.
2.0 x 250 mm	1 x 172	1.7 kg	1162020
2.5 x 350 mm	1 x 206	4.6 kg	1162025
3.2 x 350 mm	1 x 128	4.6 kg	1162032
4.0 x 350 mm	1 x 85	4.6 kg	1162040

Schweißkraft RR(B)7

Factory designation	E 43 33 RR(B)7, E38 2 RB 12, 5E 6013 as per DIN 1913/DIN EN 499/AWS A5,1
Current type/welding position	=+ ~/PA, PB, PC, PE, PF



Application, properties, certifications

Universal electrode dick, rutile-base jacket, very useful for root and out-of-position welding in pipeline, container, pressure vessel and ship building. Fine-grained, well-formed, X-ray proof welds with notch-free transition to the base material. Slag easy to remove, even from the root.

Dimensions Ø x L	PU/outer packaging pack x unit	Weight	Art. no.
2.5 x 350 mm	3 x 242 (1)	4.8 kg	1163025
3.2 x 350 mm	3 x 144	5.0 kg	1163032

Schweißkraft B(R)10

Factory designation	E 51 54 B(R)10, E42 3 B 12 H 10, E 7016 as per DIN 1913/8529/EN 499/AWS A5.1
Current type/welding position	=+ ~/PA, PB, PC, PE, PF



Application, properties, certifications

Universal electrode (thick, alkaline jacket with non-alkaline components) features high mechanical grade values for industry and trades for welding non and low alloy steels. Worthy of note: good weldability in out-of-position and AC current welding.

Dimensions Ø x L	PU/outer packaging pack x unit	Weight	Art. no.
2.5 x 350 mm	3 x 205 (1)	4.3 kg	1164025
3.2 x 350 mm	3 x 126 (1)	4.3 kg	1164032

(1) 3 packs in outer packaging per order

Stick electrodes for welding stainless and corrosion-resistant steels

Schweißkraft 4316 AC

Factory designation	E 19 9 LR 23, E 308 L-16 as per DIN 8556/AWS A5.4
Current type/welding position	=+ ~/PA, PB, PC, PE, PF



Application, properties, certifications
Rutile sheathed electrode for welding joints in low-carbon, non stabilised and stabilised, austenitic, chemical resistant CrNi steels at operating temperatures up to 350 °C, for corrosion resistant Cr and heat resistant Cr and CrNi steels, for viscous austenitic steels and for plating with similar properties to alloys.
Material no.: 1.4300, 1.4301, 1.4306, 1.4308, 1.4311, 1.4312, 1.4541, 1.4543, 1.4550, 1.4552, 1.4878, 1.6905.

Dimensions Ø x L	PU/Plastic/ Cardboard box Pack x unit	Weight	Art. no.
2.5 x 300 mm	1 x 234	4.2 kg	1166025
3.2 x 350 mm	1 x 124	4.5 kg	1166032
2.5 x 300 mm	1 x 67	1.2 kg	1166026
3.2 x 350 mm	1 x 36	1.3 kg	1166033

Schweißkraft 4430 AC

Factory designation	E 19 12 3 LR 23, E 316 L-16 as per DIN 8556/AWS A5.4
Current type/welding position	=+ ~/PA, PB, PC, PE, PF



Application, properties, certifications
Rutile-sheathed electrode for joint welding of low-carbon, non stabilised and stabilised, austenitic, chemical resistant CrNiMo steels at operating temperatures up to 400 °C, for corrosion resistant Cr and CrMo steels, for plating with similar properties to alloys and austenite-ferrite joints.
Material no.: 1.4401, 1.4404, 1.4408, 1.4429, 1.4435, 1.4436, 1.4437, 1.4571, 1.4580, 1.4583

Dimensions Ø x L	PU/Plastic/ Cardboard box Pck. x unit	Weight	Art. no.
2.5 x 300 mm	1 x 233	4.2 kg	1166125
3.2 x 350 mm	1 x 136	4.9 kg	1166132
2.5 x 300 mm	1 x 68	1.2 kg	1166126
3.2 x 350 mm	1 x 39	1.4 kg	1166133

Stick electrodes for welding steels

Schweißkraft 4370 AC

Factory designation	E 18 8 Mn R26, approx. E 307-16 as per DIN 8556/AWS A5.4
Current type/welding position	=+ ~/PA, PB, PC, PE, PF
Ø in mm	2.5 - 5.0



Application, properties, certifications
Rutile sheathed electrode for welding joints between non and low alloy steels and high alloy and cast steel grades, for austenite-ferrite joints at operating temperatures up to 300 °C, for welding high carbon and hard-to-weld steels as well as austenitic hard manganese steels, for welding buffer layers and for wear-free depositing in case of work-hardening, impact, compression and rolling load. The welded material is fully austenitic, corrosion resistant, scaling resistant up to 850 °C, and work-hardening capable up to a hardness of approx. 350 HB.

Dimensions Ø x L	PU/Plastic/ Cardboard box Pck. x unit	Weight	Art. no.
3.2 x 350 mm	1 x 132	4.8 kg	1167032
4.0 x 350 mm	1 x 92	5.0 kg	1167040
3.2 x 350 mm	1 x 39	1.4 kg	1167033
4.0 x 350 mm	1 x 24	1.3 kg	1167041

Schweißkraft 4337 AC

Factory designation	E 29 9 R23, E 312-16 as per DIN 8556/AWS A5.4
Current type/welding position	=+ ~/PA, PB, PC, PE, PF
Ø in mm	2.0 - 5.0



Application, properties, certifications
Rutile-sheathed electrode for joint and deposit welding on identical and similar steels and cast steel grades, for joint welding of higher strength non and low alloy construction steels, reinforcement steels and tool steels, on hard manganese steel and joint welding between different steel grades and with high alloy, stainless steels. The electrode is also suitable for crack-resistant and viscous intermediate layers in hardfacing, and for wear-resistant, cold and hot working deposits. The austenitic-ferritic welded material is stainless, corrosion resistant and suitable for operating temperatures up to 300 °C. The increased delta ferrite component in the welded material assures protection against hot cracking in black&white joints.

Dimensions Ø x L	PU/Plastic/ Cardboard box Pck. x unit	Weight	Art. no.
2.5 x 300 mm	1 x 224	4.0 kg	1167125
3.2 x 350 mm	1 x 136	4.8 kg	1167132
2.5 x 300 mm	1 x 62	1.1 kg	1167126
3.2 x 350 mm	1 x 37	1.3 kg	1167133

Stick electrodes for welding cast iron

Schweißkraft NI	
Factory designation	E NI BG 11, E NI-C1 as per DIN 8573/AWS A5.15
Current type/welding position	=- =+ ~/PA, PB, PC, PS



Application, properties, certifications
Alkaline-graphite sheathed nickel electrode for mechanical welding of grey, tempered and cast steel and for welding of fatigued cast parts. For removing inclusions and processing errors. The NI has excellent welding properties even at low amperage settings. Its flow is smooth and intensive, with low spatter loss, and easy slag removal. The weld stays soft for filing and can be machined including the transition zones to the base material.

Dimensions Ø x L	PU/Plastic/ Cardboard box Pck. x unit	Weight	Art. no.
2.5 x 350 mm	1 x 74	1.5 kg	1168025
3.2 x 350 mm	1 x 43	1.5 kg	1168032

Schweißkraft NIFE	
Factory designation	E NiFe-1 BG 11, E NiFe-C1 as per DIN 8573/AWS A5.15
Current type/welding position	=- =+ ~/PA, PB, PC, PS



Application, properties, certifications
Alkaline-graphite sheathed nickel-iron electrode for mechanical welding of grey cast with lamellar and globular graphite structure. Also suitable for joining cast iron (flake graphite and ductile iron grades) with non alloy steel materials. The alloy on the welded material is mainly made up of the flux core wire, 60 % Ni and 40 % Fe. The welded material is machinable and characterised by good crack protection. It is very similar in colour to the base material and corrodes later than the base materia. The soft welding electrode has good wetting properties.

Dimensions Ø x L	PU/Plastic/ Cardboard box Pck. x unit	Weight	Art. no.
2.5 x 300 mm	1 x 82	1.3 kg	1168125
3.2 x 350 mm	1 x 47	1.5 kg	1168132

Stick electrodes for deposit welding

Schweißkraft 60 factory designation	
	E 6-UM-60 F/approx. E 307-16 as per DIN 8555
Current type/welding position	=+/ w, h, q, s
Ø in mm	2.5 - 5.0



Application, properties, certifications
Alkaline sheathed electrode for viscous, impact-resistant, and low-wear depositing on non and low alloy, high strength materials. Specially designed for depositing on machine parts, bulldozer teeth, impact rails, scrapers, screw conveyors, milling bars, mixer blades, crusher jaws, crusher cones, etc.
The welded material can only be ground; it can be soft-annealed and tempered.

Dimensions Ø x L	PU/Plastic/ Cardboard box Pck. x unit	Weight	Art. no.
3.2 x 450 mm	1 x 133	6.3 kg	1169032
4.0 x 450 mm	1 x 88	6.3 kg	1169040

Various packaging units...



Your benefits:
- All stick electrodes are packed in a practical plastic pack or outer box for moisture protection.
- Many types are available in inexpensive small packs.

1. Certifications

ABS	American Bureau of Shipping
OBC	Bureau Veritas
Man.	Germanischer Lloyd
lr	Lloyd's Register of Shipping
NV	Det Norske Veritas
RRS	Russian Register of Shipping
PRS	Polski Rejestr Statków
DB	Deutsche Bahn AG
Ü	Certificate of conformity
TÜV	Technischer Überwachungsverein
UDT	Urz d Dozoru Technicznego

2. Welding positions

PA	(w) horizontal (butt welds, fillet weld in flat position)
PB	(h) horizontal (fillet welds)
PC	(q) transverse (horizontal welding on a vertical wall)
PU	(ü) overhead
PF	(s) rising (bottom up)
PG	(f) descending (top down)

3. Current type

=+	Direct current, electrode on plus pole
=-	Direct current, electrode on minus pole
~	Alternating current

schweißkraft
Schweißtechnik

OXYFUEL AND PROPANE TECHNOLOGY
GAS CYLINDERS



Technical gases

- Seamless steel cylinders, complete with cylinder valve, with thread as per DIN 477, cap DIN 4667 and fill



Representative image
(different colours for different gases)

Mixed gas (82 % Argon, 18 % CO_2)				
Size	**Table of contents**	**Length**	**Weight**	**Art. no.**
5 l	1.2 m³	520 mm	6 kg	1741005
10 l	2.4 m³	820 mm	18 kg	1741010
20 l	4.7 m³	840 mm	40 kg	1741020
50 l	11.8 m³	1 515 mm	87 kg	1741050
Argon (99.996 Vol. %)				
Size	**Table of contents**	**Length**	**Weight**	**Art. no.**
5 l	1.1 m³	520 mm	6 kg	1741006
10 l	2.1 m³	820 mm	17 kg	1741012
20 l	4.3 m³	840 mm	40 kg	1741021
50 l	10.7 m³	1 515 mm	85 kg	1741055
for V2A + ALU (TIG/alum. soldering/MIG)				
Argon mixed gas (97.5 % Argon, 2.5 % CO_2)				
Size	**Table of contents**	**Length**	**Weight**	**Art. no.**
10 l	2.1 m³	820 mm	17 kg	1744010
20 l	4.3 m³	840 mm	40 kg	1744020
For V2A welding (MAG)				
Oxygen [2] (gas welding)				
Size	**Table of contents**	**Length**	**Weight**	**Art. no.**
10 l	2.1 m³	845 mm	20 kg	1743010
20 l	4.3 m³	810 mm	40 kg	1743020
50 l	10.0 m³	1 620 mm	85 kg	1743050
Acetylene [2] (gas welding)				
Size	**Table of contents**	**Length**	**Weight**	**Art. no.**
10 l	1.6 m³	850 mm	25 kg	1742010
20 l	3.2 m³	840 mm	42 kg	1742020
50 l	6.4 m³	1 620 mm	95 kg	1742050

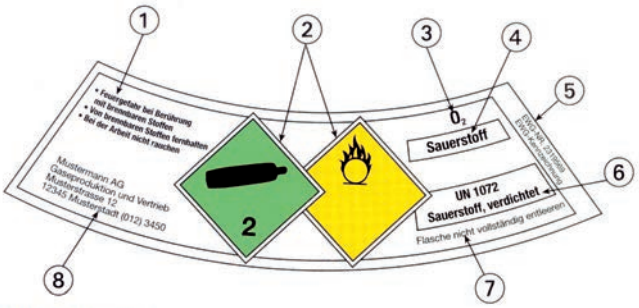
(2) Only available in Germany

Fill [1] Mixed gas (82 % Argon, 18 % CO_2)	
Size	**Art. no.**
5 l	1741105
10 l	1741011
20 l	1741022
50 l	1741025
Fill [1] Argon (99.996 % Argon)	
5 l	1741007
10 l	1741013
20 l	1741023
50 l	1741024
Fill [1] Argon mixed gas (97.5 % Argon, 2.5 % CO_2)	
10 l	1744011
20 l	1744021
50 l	1744022
Fill [1] oxygen	
10 l	1743011
20 l	1743021
50 l	1743051
Fill [1] Acetylene	
10 l	1742011
20 l	1742022
50 l	1742041

[1] Fill: Price assumes return of empty cylinder. Only available in Germany.

Delivery as of 8 fills.

The hazardous materials labels shown meet the transport regulation requirements (GGVS/GGVE); they contain, for technical oxygen for example, the information explained in the following:



Zahlenerklärung:

1. Risiko und Sicherheitssätze
2. Gefahrzettel
3. Zusammensetzung des Gases beziehungsweise des Gasgemisches
4. Produktbezeichnung des Herstellers
5. EWG-Nummer bei Einzelstoffen oder das Wort „Gasgemisch"
6. Vollständige Gasbenennung nach GGVS
7. Herstellerhinweis
8. Name, Anschrift und Telefonnummer des Herstellers



FSSG 20 l (similar to fig.)



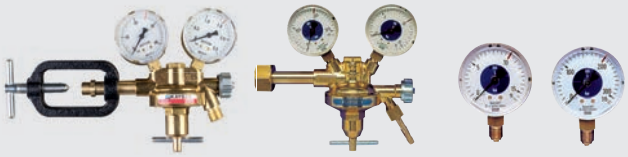
Universal cylinder trolley 10-20 L (Similar to fig.)

Designation	Art. no.	PQ
Universal cylinder trolley		
for 2 x 10-20 l cylinders	1700005	1

Mobile welding and cutting device
- Cylinder trolley for 2 x 10 or 2 x 20 l steel cylinders
- Steel cylinder oxygen and acetylene (10 or 20 l)
- Pressure regulator oxygen - single-stage and acetylene - single-stage
- Hose guard acetylene and oxygen
- combined welding and cutting device in steel case (KE/17) (for welding 0.5 - 9 mm, for cutting 3 - 100 mm)
- Oxygen and acetylene hose 10 m length integrated

FSSG 10 Oxyfuel welding and cutting device, mobile	1700010	1
FSSG 20 Oxyfuel welding and cutting device, mobile	1700020	1

Pressure regulator		
Oxygen	1700030	1
Acetylene	1700040	1



Replacement manometer Ø 63 mm, connection G1/4		
Acetylene 40 bar	1700041	1
Acetylene 2.5 bar	1700042	1
Oxygen 315 bar	1700031	1
Oxygen 16 bar	1700032	1
Argon 315 bar	1700051	1
Argon 30 litres	1700052	1



Flow check valve		
Acetylene	1700045	1
Oxygen	1700035	1



Designation	Art. no.	PQ
Teflon seal CO^2/Argon	1700033	10
For CO^2/ARGON connection (18 x 11.5 x 2 mm)		



Teflon seal oxygen	1700034	10
For oxygen connection (20 x 11 x 2 mm)		



Fibre seals	1700036	10
For oxygen + argon connection		



Aluminium seals (acetylene)	1700046	10



Designation	Art. no.	PQ
Manometer protective cap		
Blue - oxygen	1700037	1
Red - acetylene and other flammable gases	1700047	1
White/grey - other technical gases	1700057	1

- For manometer 63 mm diameter
- Slotted type with safety opening



Manometer hoop guard		
Yellow design for flammable gas	1700048	1
Blue design for oxygen	1700038	1

- Protects the manometer against damage



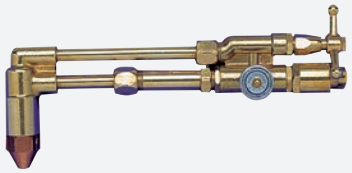
KEK/17 Set	1700117	1

- Combined welding and cutting device
- Shaft diameter 17 mm
- For welding 0.5 - 9 mm
- For cutting 3 - 100 mm
- In steel case



Handle type KEK/17	1700127	1

- Shaft diameter 17 mm



Cutting insert type KEK/17	1700137	1

- Shaft diameter 17 mm; without tips



Guide carriage for KEK 17/25.5 mm	1700150	1



Round guide bar (protractor)	1700151	1

- For guide carriage KEK 17

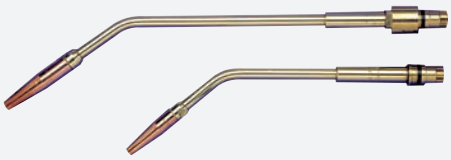
Gas welding



Designation	Art. no.	PQ
Cutting tips		
Cutting tip S0 3-12 mm	1700202	1
Cutting tip S1 12-25 mm	1700203	1
Cutting tip S2 25-50 mm	1700204	1
Cutting tip S3 50-100 mm	1700205	1



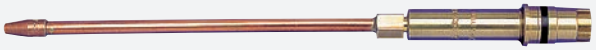
Heating tips for acetylene torch gas		
Size H1 3-100 mm	1700231	1
Size H2 100-300 mm	1700232	1



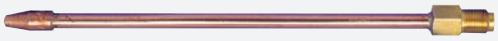
Welding inserts type KEK/17		
Size 1 0.5- 1.0 mm	1700210	1
Size 2 1.0- 2.0 mm	1700211	1
Size 3 2.0- 4.0 mm	1700212	1
Size 4 4.0- 6.0 mm	1700213	1
Size 5 6.0- 9.0 mm	1700214	1
Size 6 9.0-14.0 mm	1700215	1
Shaft diameter 17 mm		



Copper tips		
0.5-1.0 mm	1700220	1
1.0-2.0 mm	1700221	1
2.0-4.0 mm	1700222	1
4.0-6.0 mm	1700223	1
6.0 - 9.0 mm	1700224	1
9.0 - 14.0 mm	1700225	1



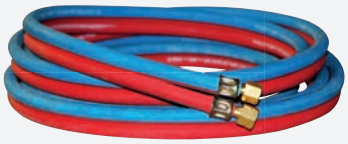
Pipe welding insert type KEK/17		
Size 2 1-2 mm	1700118	1
Size 3 2-4 mm	1700119	1
Size 4 4-6 mm	1700120	1
Size 5 6-9 mm	1700121	1
Cu pipe 6 mm diameter, flexible, with soldered on mouthpiece		



Pipe welding insert front parts type KEK/17		
Size 2 1-2 mm	1700122	1
Size 3 2-4 mm	1700123	1
Size 4 4-6 mm	1700124	1
Size 5 6-9 mm	1700125	1
Cu pipe 6 mm diameter, flexible, with soldered on mouthpiece		



Designation	Art. no.	PQ
Hoses		
40 m Acetylene 9 x 3.5 red	1701701	1
40 m oxygen 6 x 5 blue	1701702	1
40 m twin hose 6 x 9	1701703	1



Gas twin hose crimped		
5 m	1701205	1
10 m	1701210	1
15 m	1701215	1
20 m	1701220	1
▶ **Blue hose:** Inner Ø 6 mm, outer Ø 16 mm; wall thickness 5 mm		
▶ **Red hose:** Inner Ø 9 mm, outer Ø 16 mm; wall thickness 3.5 mm		



Twin hose clamp steel	1701023	20
Galvanized steel		
▶ 16 / 16 mm		



Magnetic welding mirror	1701050	**1**
▶ With magnetic foot and movable guide		



Double diverter valve		
1/4” right-hand, oxygen/argon with 6 mm nozzles	1701037	1
3/8” left-hand, acetylene/propane with 9 mm nozzle	1701040	1
▶ Nuts and nozzles		



Gas igniter gun shape	1701200	1
▶ With flint 2.6 x 5.0 mm		
▶ nickel-plated		
100 replacement flints 3.0 x 20 mm	1701201	1



Gas igniter roller file	1701100	1
▶ With flint 3.0 x 20 mm		
10 replacement flints 3.0 x 20 mm	1701101	1

Soft soldering



Designation	Art. no.	PQ
Complete soldering iron		
Handle: G 3/8“ L	1711501	1
▶ Consisting of: handle, hammer soldering iron 350 g, iron torch, iron holder, wind guard		



Handle		
Hose connection: M10 x 1 LH	1711502	1
Hammer soldering iron, straight		
250 g	1711503	1



Hammer soldering iron, right-angled		
350 g	1711504	1
500 g	1711505	1



Pointed tip soldering iron		
250 g	1711506	1
350 g	1711507	1



Wind guard



Iron torch



Iron holder

Wind guard/iron torch/iron holder		
Wind guard	1711508	1
Iron torch	1711509	1
Iron holder	1711510	1



Soldering iron complete for propane		
G 3/8“ LH	1711500	1
▶ Scope of delivery: Standard handle 3/8“ thread LH, piston torch, piston holder, windscreen, hammer soldering iron 350 g, small propane cylinder, HP hose 1.5 m two-sided 3/8“ thread LH, assembly wrench, small pressure regulator		

Heating and hard soldering



Designation	Art. no.	PQ
Propane handle	1711403	1
With main shut-off valve, torque lever and controllable pilot flame setting		
Operating pressure: 1.5 - 4 bar		
Hose connection: G 3/8“ LH, connection for insert: M 14 x 1		



Propane soft soldering inserts		
Size 3 drill hole 3 mm	1711404	1
Size 5 drill hole 5 mm	1711405	1
Size 7 drill hole 7 mm	1711406	1
Operating pressure: 1.5 - 2.5 bar		



Propane hard soldering inserts		
Size 12 for copper pipes ø 12 mm	1711407	1
Size 14 for copper pipes ø 18 mm	1711408	1
Size 17 for copper pipes ø 22 mm	1711409	1
Size 20 for copper pipes ø 28 mm	1711410	1
Operating pressure: 1.5 - 2.5 bar		



Torch head - stainless steel/aluminium		
ø 30 mm, approx. 600 g/h (1); 15.5 kW/h at 1.5 bar	1711411	1
ø 40 mm, approx. 2,000 g/h (1); 27 kW/h at 1.5 bar	1711412	1
ø 50 mm, approx. 3,000 g/h (1); 47.6 kW/h at 1.5 bar	1711413	1
ø 60 mm, approx. 5,000 g/h (1); 70.8 kW/h at 1.5 bar	1711414	1
ø 80 mm, approx. 6,200 g/h (1); 93.6 kW/h at 1.5 bar	1711415	1
Operating pressure 1.5 - 2.5 bar		
(1) Gas consumption at 1.5 bar		



Connecting pipe steel		
Connecting pipe 75 mm length	1711416	1
Connecting pipe 150 mm length	1711417	1
Connecting pipe 220 mm length	1711418	1
Connecting pipe 350 mm length	1711419	1
Connecting pipe 600 mm length	1711420	1
Connecting pipe 700 mm length	1711421	1
Connecting tube 1 000 mm length	1711422	1
Cap nut M 14 X 1 on one side, other side AG M 20 x 1		



Hard soldering set for propane	1711400	1
▶ Consisting of. Propane handle, low pressure regulator "MINI" with combined connection and manometer, hard soldering inserts: size 12, 14, 17, 20, 1.5 m HP hose, cap nut G 3/8“ LH both sides, torch key, gas igniter, in steel case		



Designation	Art. no.	PQ
Professional heating set for propane	1711401	1

- Consisting of: propane handle, connecting pipe 600 mm, torch head ø 50 mm, depositing device, 5 m HP hose, cap nuts both sides G 3/8“ LH, low pressure regulator "MINI" with combined connection, without manometer, hose failure safety device 12 kg/h

Accessories



Designation	Art. no.	1
Miniature cylinder for propane 425 g	1711520	

- TÜV approved. Seamless drawn steel cylinder with valve and hook
- Connection: G 3/8“ LH
- With base



Filling neck	1711521	1

- For filling the miniature cylinder 425 g from 5 kg and 11 kg cylinders (domestic connection)



Liquid gas low pressure regulator "Mini"	1711522	1

- Without manometer
- Back pressure adjustable: 0 - 6 bar
- Output: 6 kg/h
- Hose connection: G 3/8“ LH
- LH for miniature cylinder



Liquid gas low pressure regulator	1711523	1

- With manometer and combined connection
- Back pressure adjustable: 0 - 6 bar
- Output: 18 kg/h
- Hose connection: G 3/8“ LH



Hose failure safety device - propane	1711524	1

- The hose failure safety device prevents gas escaping in case of damage or loosening of the hose; it shuts off the gas flow as soon as the prescribed operating volume is exceeded by 10 %. For manual re-opening. Not mandatory for miniature cylinders!
- 0.5 - 4.0 bar- 4.8 - 10 kg/h
- Nominal pressure: 0.5 - 4 bar
- Nominal flow rate: 4.8 -10 kg/h
- Intake: G 3/8“ LH IG
- Outlet G 3/8“ LH AG



Designation	Art. no.	PQ
High pressure hoses PB 30		
High pressure hose 6.3 x 5 mm G 3/8“LH x G 3/8“ LH x 5 000 mm	1711525	1
High pressure hose 6.3 x 5 mm G 3/8“LH x G 3/8“ LH x 10 000 mm	1711526	1
High pressure hose 4 x 4 mm G 3/8“LH x G 3/8“ LH x 2 000 mm	1711527	1
High pressure hose 4 x 4 mm G 3/8“LH x G 3/8“ LH x 5 000 mm	1711528	1

Piezo soldering system

Designation	Art. no.
Propane torch system	



Multiple handle with plug-lock connection	1711601	1

- For tool-free torch use
- Combination of automatic ignition and lockable torque lever
- For hard and soft soldering, fine soldering and shrinking, for propane operation based on Bunsen principle
- Ergonomic plastic handle
- Automatic ignition for single-handed use at lever pressure
- Gas regulator with separate regulating and shut-off valve
- Hose connection rotatable G 3/8 LH
- Multi-handle matches hard soldering iron size 17/19 and soft soldering iron size 5/7
- Gas pressure: max. 4 bar
- Flow rate: max. 6 kg/h



Hard soldering iron gas outlet 17 mm/ø Gas consumption kg/h at 2.0 bar: 0.320	1711602	1
Hard soldering iron gas outlet 19 mm/ø Gas consumption kg/h at 2.0 bar: 0.41	1711603	1
Soft soldering iron gas outlet 5 mm/ø Gas consumption kg/h at 2.0 bar: 0.12	1711604	1
Hard soldering iron gas outlet 7 mm/ø Gas consumption kg/h at 2.0 bar: 0.222	1711605	1



Similar to fig.

Hard and soft soldering set with cylinder	1711600	1

- Handle with piezo igniter, turbo torch 17 mm, HP hose 2.0 m, G 3/8 LH, small regulator fixed at 2.0 bar, miniature cylinder 425 g fill, hanging hook