WELDING SYSTEMS

Weld Package Semi Automatic mobile

Hand welding with robotic quality

Solutions for mobile operation

The Semi Automatic mobile Weld Package: Weld process controller • DCT power source • Wire feeder • Wire guidance • Control cable • Torch • Consumables

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SKS Weld Package: System design

1. Weld process controller + Software
2. DCT power source
3. Wire feeder
4. Bracket / Wire spool holder
5. Trolley
6. Wire guidance
7. Control cable
8. Hand welding torch
9. System configuration

Hand welding with robotic quality.

This brochure contains information about the SKS Weld Package, as well as consumables and spare parts. Depending on the welding task, various features of the welding machine components are available.

- Industrial proven robot arc welding technology for hand welding
- Latest process control technology
- Standardized components

The SKS Semi Automatic mobile Weld Package is designed
for the following welding processes, materials and power range:

Processes:	MIG/MAG (GMAW), Pulse, MIG Brazing
Wire materials:	High-alloy steels, low-alloy steels, aluminum and copper alloys, nickel-based materials
Wire diameter:	0.8-1.6 mm
Max. power:	420 A - 60 % duty cycle/40 °C, air-cooled

1a Weld process controller

Weld process controller Q1

Weld process controller Q1

The Q1 calculates the optimal parameters for each welding process. Only basic data such as material, wire type, wire feed speed and type of gas must be entered.

- Processes/features: MIG/MAG (GMAW), I Pulse, U Pulse
- Jobs: 14
- LCD: Display of measurement values
- Ports: USB/SPW Bus with adapter cable

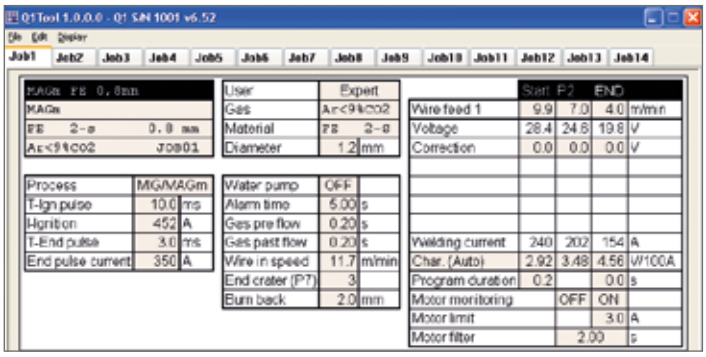
Overview weld process controller

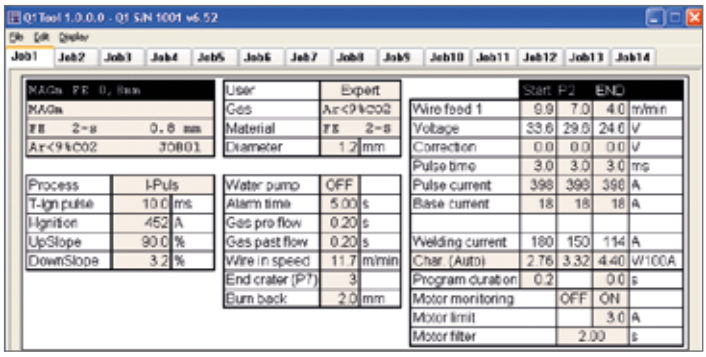
DESCRIPTION	PART-NO.
Q1	**77-7250-00**
Q1 SPW bus cable	**77-7250-20**
Q1 USB cable	**77-7250-10**

1b Software

Q1 Tool software

The additional free software tool allows reading and saving of weld data from/into the Q1 weld controller. With the USB adapter cable the Q1 can be directly connected to the computer. The power is supplied via USB.
All parameters are clearly and intuitive displayed intuitive for best usability. Individual jobs as well as the complete content of the Q1 can be saved on the computer and restored into the Q1.





2 Power source

Power source LSQ5

ALTERNATIVE

Power source LSQ3

Power source LSQ5 with Direct Control Technology DCT

The LSQ5 ensures the optimum arc energy. It uniquely adjusts to different weld processes. Unlike conventional power sources with inverter technology, the LSQ5 with Direct Control Technology controls its switching transistors without any fixed clock frequency according to the needs of the weld process. Without any delay, the energy needed for the process is provided instantly. The flexible fine tuning is done by a central processor.
The CPU continuously analyzes the weld process and current/voltage values on the basis of data obtained and optimally drives the switching transistors of the power section. This results in an extremely high efficiency and a low temperature development.
For world-wide usage, voltages can be configured without opening the power source.

LSQ3 power source with Direct Control Technology (DCT)

The LSQ3 offers enough power reserves for special weld tasks like chassis and exhaust parts and other thin sheet metal applications.
LSQ3: 340 A at 60 % duty cycle/40 °C, 3 x 400 V
LSQ3A: 340 A at 60 % duty cycle/40 °C, 3 x 480 V

Overview power sources

DESCRIPTION	PART-NO.
LSQ5	**77-1185-00**
LSQ3	**77-1184-00**
LSQ3A	**77-1184-10**
LSQ5-CCC	**77-1185-60**
LSQ3-CCC	**77-1184-40**

The main benefits are:

- DCT provides a speed regulation up to ten times higher compared to conventional inverter technology. This leads to excellent control behavior and shorter response times.
- The weld properties are substantially improved. Software replaces hardware: Fewer components also increase the reliability in continuous operation.

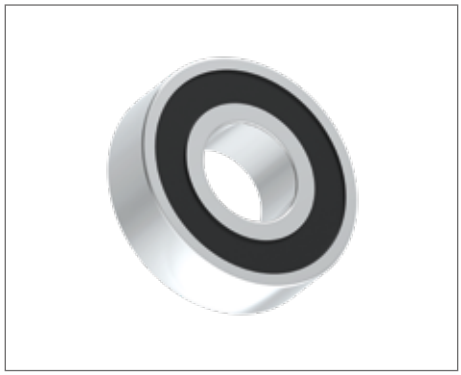
Specifications:

DESCRIPTION	LSQ5(-CCC)	LSQ3(-CCC)	LSQ3A
Performance	420 A - 60 % ED/40 °C (400 A)	340 A - 60 % ED/40 °C	340 A - 60 % ED/40 °C
Processes	MIG/MAG (GMAW)		
Weight	49 kg	37 kg	37 kg
Primary voltage	3 x 400 (480) V	3 x 400 V	3 x 480 V
Wall mounting	Yes (optional)	Yes (integrated)	Yes (integrated)
Conformities	CE, CSA, UL (CCC)	CE (CCC)	CE
Dimensions	450 x 400 x 540 mm	450 x 330 x 540 mm	450 x 330 x 540 mm

Strong, lightweight and precise.

The PF5 wire feeder.

Smaller and with less weight accompanied by improved efficiency over conventional wire feeders.



Please note:

Two pressure rolls and two locating bolts are needed per system.

Power Feeder PF5

Modern motor, gear and control technology provide a strong performance and highest possible precision. The robust plastic housing is electrically insulated.
The industrial proven Power Feeder PF5 is available with an additional monitoring functionality: an integrated gas-flow sensor. The weld process controller displays the gas flow values, and can also be triggered to an alarm, in case of a non-defined gas flow rate.

Overview PF5

DESCRIPTION	PART-NO.
PF5 L HE (Euro Connector)	10-2-26
PF5 L HP (SKS Power Pin Connector)	10-2-25

Technical data

Weight	3.8 kg
Motor	70W
Wire feeding speed	2.5 - 25 m/min
Roll diameter	0.8 - 1.6 mm

Shielding Gas Saver

The benefit of the shielding gas saver is its pre-regulated working pressure of 1.2 bar / 17 psi (common 4.5 bar / 65 psi). Therefore the ram pressure is reduced, i.e. there are key benefits of the shielding gas saver at ignition of the welding torch and an improved gas saving. The shielding gas saver ensures a constant gas flow during the welding task.

Shielding Gas Saver

DESCRIPTION	PART-NO.
Shielding Gas Saver	93-62-5

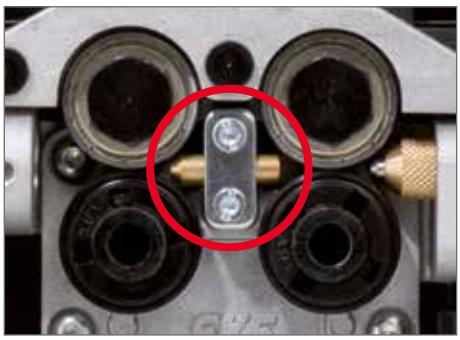
Pressure roll

Pressure roll for wire feeder.

Pressure roll

DESCRIPTION	PART-NO.
Pressure roll	12-2-3-0
Locating bolt for pressure roll	12-13-5
Pressure roll for aluminum wire, U-groove 1.2 mm	12-2-5-112
Pressure roll for aluminum wire, U-groove 1.6 mm	12-2-5-116
Locating bolt for pressure roll U-groove	12-2-1-23
Knurled screw for pressure roll U-groove	12-2-1-24

3 Wire feeder



Center guides

Available in two versions: For steel or aluminum wires

Overview of center guides

DESCRIPTION	PART-NO.
Wire-ø 0.8 - 1.6 mm for steel wire	12-2-1-15
Wire-ø 1.2 - 1.6 mm for aluminum	12-2-1-19

Please note:

Two drive rolls are necessary.

Drive roll for wire feeder

For wire diameters 0.8-1.6 mm (V-groove for steel and U-groove for aluminum)

Overview of drive rolls

DESCRIPTION	PART-NO.
Wire-ø 0.8 mm, V-groove	12-2-3-08
Wire-ø 0.9 mm, V-groove	12-2-3-09
Wire-ø 1.2 mm, V-groove	12-2-3-12
Wire-ø 1.4 mm, V-groove	12-2-3-14
Wire-ø 1.6 mm, V-groove	12-2-3-16
Wire-ø 1.2 mm, U-groove	12-2-3-112
Wire-ø 1.6 mm, U-groove	12-2-3-116

4 Bracket

Bracket and wire spool holder

Wire feeder bracket for wire feeder PF5 with holes and screws for installation.
Wire spool holder optionally available.

Bracket / Wire spool holder

DESCRIPTION	PART-NO.
Bracket for trolley SAM	14-10-5
Wire spool holder for trolley SAM	15-10-3
Spool holder for 15/18 kg wire spool	542024400

5 Trolley

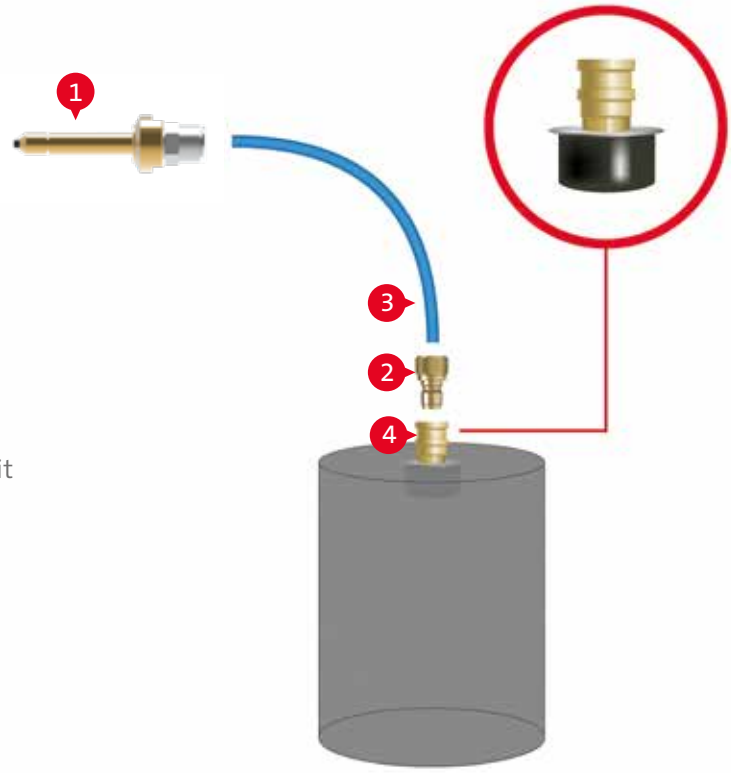
Trolley SAM

Trolley for LSQ Power Source (incl. holder for Q1 weld controller and connection for ground cable).

Trolley

DESCRIPTION	PART-NO.
Trolley SAM	24-1
Trolley SAM with bracket for gas bottles for gas bottles up to 20 kg	24-2

6 Wire guidance polymer for aluminum wires



1. Wire inlet body with quick coupling
2. Connection nipple for polymer conduit
3. Polymer conduit
4. Drum connector with ceramic inlay

Please note:

Furhter information can be found in our brochure "Wire guidance" (DOC-0193EN).

With the new SKS polymer guidance, the high efficiency of the whole system extends up to the drum.

Advantages of polymer wire guidance

- Extraordinary good glide properties reduces motor load
- Minimized abrasive wear and reduced dirt in wire feeder and torch system
- Lightweight design and a high inherent stability for easy installation
- Length can be freely chosen by the customer
- Cost optimized exchange: only the polymer conduit must be changed, connectors are reuseable.
- Optimized materials for longer life and reduced downtimes

Wire inlet body, Connection nipple, Polymer conduit and Connection for wire drum

Wire inlet body with quick coupling

DESCRIPTION	PART-NO.
Wire Inlet body with quick lock and polymeric inlet	10-2-0-63
Polymeric inlet (spare part)	10-2-0-63-2
Inset for aluminum wire	10-2-0-57-3

Connection nipple for polymer conduit

DESCRIPTION	PART-NO.
Connection nipple for polymer conduit	44-40-3

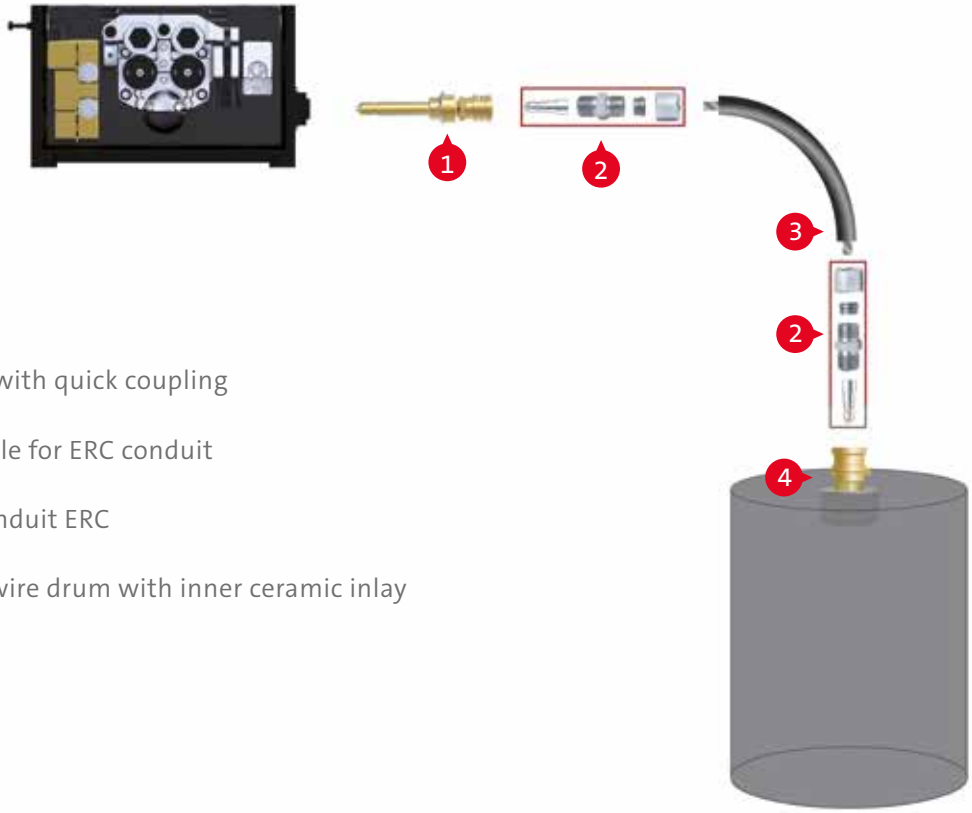
Polymer wire conduit

DESCRIPTION	PART-NO.
Polymer wire conduit, blue, per meter	44-9-1

Connection for wire drum

DESCRIPTION	PART-NO.
Drum connector with ceramic inlay	44-40-1

6 Wire guidance ERC for steel and stainless steel wire materials



1. Wire inlet body with quick coupling
2. Connection nipple for ERC conduit
3. Polymer wire conduit ERC
4. Connection for wire drum with inner ceramic inlay

With the ERC wire guidance for steel/stainless steel, the high efficiency of the whole system extends up to the drum.

Advantages

- Very good inherent stability due to thick polyethylene insulating jacket
- Good sliding properties
- Reduced wear by using flat wire for monocoil core
- Suitable for steel and stainless steel wires

Wire guidance ERC

DESCRIPTION	TEILE-NR.
Wire inlet body with quick coupling	10-2-0-61
Connection nipple for ERC conduit	44-70-2
Polymer wire conduit ERC / per meter	44-70-1
Drum connector with ceramic inlay	44-40-1

OPTION

DESCRIPTION	PART-NO.
Strain Relief spring for wire guidance	44-70-3

Please note:

Two connection nipples are necessary.

ALTERNATIVE

Wire inlet bodies for additional systems

Beside the wire inlet body for the SKS wire guidance, inlet bodies for additional systems are available.

Overview of wire inlet bodies for additional systems

DESCRIPTION	PART-NO.
M10 with internal thread for ESAB	10-2-0-50
UNF 3/8" x 24 with external thread	10-2-0-51
with 9.6 mm bore hole	10-2-0-52
with 13 mm bore hole	10-2-0-53
with PG9 thread	10-2-0-56
with 1/4" internal thread	10-2-0-60

Aluminum inlets for wire inlet bodies

DESCRIPTION	PART-NO.
for types 50/52/53/54/59/60/61	10-2-0-57-3
for types 51/55/56	10-2-0-58-3

7a Cable bundles

Coaxial power cable

Coaxial power cable 72 mm² with internal gas flow

Overview of cable bundles lengths

LENGTH	PART-NO.
1 m	20-4-1-1
3 m	20-4-1-3
5 m	20-4-1-5
7 m	20-4-1-7
10 m	20-4-1-10

Hinweis:

Further lengths available on request

7b Ground cable

Ground cable with 70 mm² connector and cable plug

Cables with larger diameters are available on request.

Overview ground cable

LENGTH	PART-NO.
3 m	228078103
5 m	228078105
6 m	228078106
10 m	228078100

Hinweis:

Further lengths available on request

Clamp for ground cable

400 A

Clamp for ground cable

DESCRIPTION	Part-NO.
Clamp for ground cable	91-66-001801
Magnetic clamp for ground cable	228078300

7c Control cable

Control cable: L700/SPW-bus

Standard control cable to connect the components:
Weld controller, power source, wire feeder.

Overview of control cables

LENGTH	PART-NO.
0,5 m	541031050
1 m	541031001
2 m	541031002
3 m	541031003
5 m	541031005
7 m	541031007
10 m	541031000

Hinweis:

Further lengths available on request

8 Hand welding torch

Ergonomic design

Benefits of robotic arc welding now available for hand welding:

- Long lasting with high quality parts
- High operational times of consumables
- Air-cooled even with heavy duty applications
- Less repairs
- Standard consumables

The SKS Semi Automatic mobile Weld Package is designed
for the following welding processes, materials and power range:

Processes:	MIG/MAG (GMAW), Pulse, MIG Brazing
Wire materials:	High-alloy steels, low-alloy steels, aluminum and copper alloys, nickel-based materials
Wire diameter:	0.8-1.6 mm
Max. power:	420 A - 60 % duty cycle/40 °C, air-cooled

8a Hand welding torch

Hand welding torch (without consumables)

Hand welding torch (without consumables)	
Description	**PART-NO.**
up to 300 A (Euro Connector), 3 m	**51-300-45-3E**
up to 300 A (Euro Connector), 4 m	**51-300-45-4E**
up to 300 A (Power Pin Connector), 3 m	**51-300-45-3P**
up to 300 A (Power Pin Connector), 4 m	**51-300-45-4P**
up to 300 A (Euro Connector), ZK, 3 m	**51-300-245-3E**
up to 300 A (Euro Connector), ZK, 4 m	**51-300-245-4E**

Please note:

Aluminum liner can only be used up to 3 m in hand welding torches.

Liner for torch cable

For the following diameters and filler materials:

EURO Connector	
Steel, bronze (wire-ø 0.8 - 1.0 mm)	
LENGTH	**PART-NO.**
3.5 m	**44-10-0810-35**
4.5 m	**44-10-0810-45**

Steel, bronze (wire-ø 1.2 - 1.6 mm)	
LENGTH	**PART-NO.**
3.5 m	**44-10-1216-35**
4.5 m	**44-10-1216-45**

Aluminum (wire-ø 1.2 - 1.6 mm)	
LENGTH	**PART-NO.**
3.5 m	**44-12-1016-35**

Power Pin connection	
Steel, bronze (wire-ø 0.8 - 1.0 mm)	
LENGTH	**PART-NO.**
5.0 m	**44-20-0810-50**

Steel, bronze (wire-ø 1.2 - 1.6 mm)	
LENGTH	**PART-NO.**
5.0 m	**44-20-1216-50**

Aluminum (wire-ø 1.2 - 1.6 mm)	
LENGTH	**PART-NO.**
per meter	**91-68-47024-25E**
Sleeve	**44-30-7**
Power Pin cap	**61-2-0-2-7**

8b Hand welding torch: Accessories

Insulator

Insulator	
DESCRIPTION	**PART-NO.**
Torch neck Insulator	**58-1-5**
ZK Version	**43-6-4-2**
ZK Version Heavy duty	**43-6-4-3**

Lock: Retaining head

Retaining heads for heavy duty applications with thread for threaded gas nozzles for simple and safe installation

Overview of retaining heads

DESCRIPTION	PART-NO.
High performance retaining head Power Lock standard	43-9-2
High performance retaining head Power Lock with 6 holes (AL-application)	43-9-4
High performance retaining head Power Lock (ZK-Version)	43-8-6
High performance retaining head Power Lock Plus	43-16-2
High performance retaining head Power Lock Plus (ZK-Version)	43-24-1

Power Lock: Contact tips

- Tapered design for high TCP reproducibility
- Improved heat transfer extends lifetime
- Improved power transition: constant arc quality

Overview of contact tips (also for ZK type)

Wire-ø	Steel applications		Stainless steel applications		Aluminum applications	
	Power Lock	Power Lock Plus	Power Lock	Power Lock Plus	Power Lock	Power Lock Plus
0.8 mm	40-4-5-0.8E	40-6-5-0.8E	40-4-7-0.8S	40-6-7-0.8S	———	———
0.9 mm	40-4-5-0.9E	40-6-5-0.9E	40-4-7-0.9S	40-6-7-0.9S	———	———
1.0 mm	40-4-5-1.0E	40-6-5-1.0E	40-4-7-1.0S	40-6-7-1.0S	———	———
1.2 mm	40-4-5-1.2E	40-6-5-1.2E	40-4-7-1.2S	40-6-7-1.2S	40-4-7-1.2AL	40-6-7-1.2AL
1.4 mm	———	———	40-4-7-1.4S	40-6-7-1.4S	———	———
1.6 mm	———	———	40-4-7-1.6S	40-6-7-1.6S	40-4-7-1.6AL	40-6-7-1.6AL

Please note:

An overview of gas nozzles with dimensions can be found on the last page.

Please note:

Further iInformation can be found in our brochure "Consumables" (DOC-0135EN).

Gas nozzles with thread

Standard gas nozzles

13 mm bottle shaped	PART-NO.
short	41-19-13-BS
flush	41-19-13-BF
long	41-19-13-BR
13 mm tapered	**PART-NO.**
short	41-19-13-TS
flush	41-19-13-TF
long	41-19-13-TR
15 mm bottle shaped	**PART-NO.**
short	41-19-15-BS
flush	41-19-15-BF
long	41-19-15-BR
16 mm tapered	**PART-NO.**
short	41-19-16-TS
flush	41-19-16-TF
long	41-19-16-TR

Heavy Duty gas nozzles

13 mm	PART-NO.
flush, bottle shaped	41-20-13-BF
long, tapered	41-20-13-TR
16 mm tapered	**PART-NO.**
short	41-20-16-TS
flush	41-20-16-TF
long	41-20-16-TR

ZK type

13 mm bottle shaped	PART-NO.
short	41-21-13-BS
flush	41-21-13-BF
15 mm bottle shaped	**PART-NO.**
short	41-21-15-BS
flush	41-21-15-BF
13+15 mm Heavy Duty/tapered	**PART-NO.**
13 mm, flush	41-22-13-TF
15 mm, flush	41-22-15-TF

Power Lock tool for contact tips

For replacement of contact tips: Fast exchange of contact tip without removing the gas nozzle

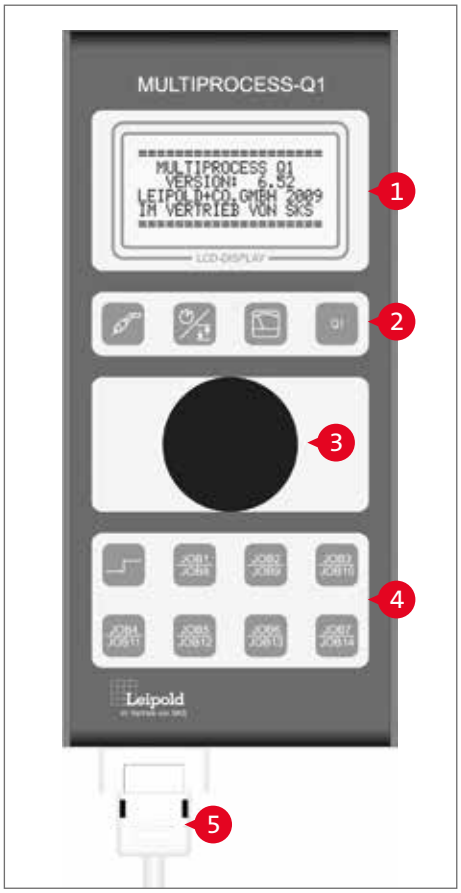
contact tips

DESCRIPTION	PART-NO.
Mounting tool SW6 for contact tip (Power Lock)	51-9001-00
Mounting tool SW7 for contact tip (Power Lock Plus)	51-9002-00

9a System configuration

Fast and easy installation

- Remove base plate from transport trolley (inner 4 screws)
- Screw PF5-H securely in place from underside of console
- Refit base plate to transport trolley
- Connect grey SPW cable between power source and PF5-H 1
- Next connect electrical/gas coaxial cable to positive pole of LSQ 2 and to PF5-H 3
- Connect Q1-SPW cable to PF5-H 4
- Connect ground cable to the negative pole of the LSQ 5 and to work piece



Q1 Benefits

1 Display
Multi-line LCD for a clear display of parameters and values

2 Operating keys
Operating keys for the direct selection of functions

3 Rotary knob
Rotary knob for a comfortable menu and parameter selection

4 Job keys
Job keys for the direct selection of different weld programs

5 SPW/USB Interface
SPW/USB Interface for connecting to the weld system (power source) or to a PC. With an USB adapter cable the Q1 weld parameters and jobs can be saved and restored easily.

Q1 LCD Display (illuminated)

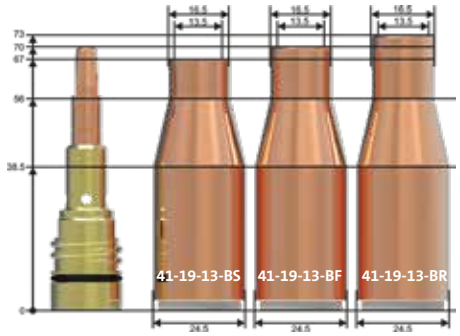
1 Navigation line

2 Cursor

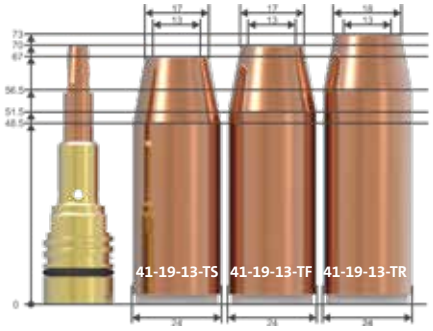
3 Status line

9b Gas nozzles: Overview dimensions

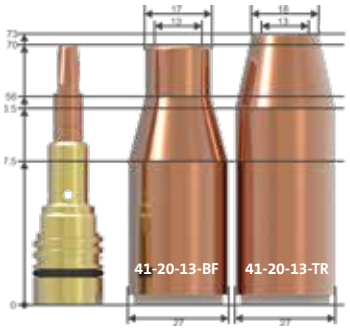
13 mm bottle-shaped	13 mm tapered	13 mm Heavy Duty



Gas nozzle PART-NO.: 41-19-13-BS 41-19-13-BF 41-19-13-BR

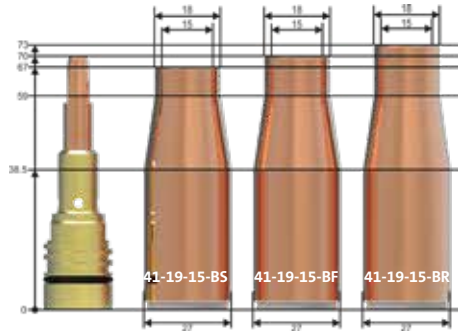


41-19-13-TS 41-19-13-TF 41-19-13-TR

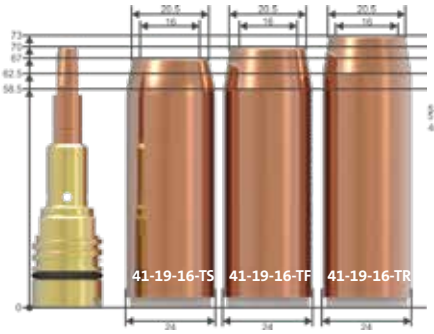


41-20-13-BF 41-20-13-TR

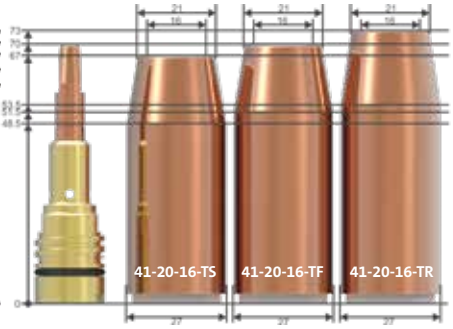
15 mm bottle-shaped	16 mm tapered	16 mm Heavy Duty



Gas nozzle PART-NO.: 41-19-15-BS 41-19-15-BF 41-19-15-BR

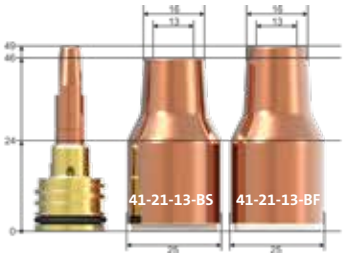


41-19-16-TS 41-19-16-TF 41-19-16-TR

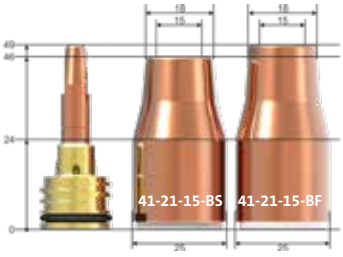


41-20-16-TS 41-20-16-TF 41-20-16-TR

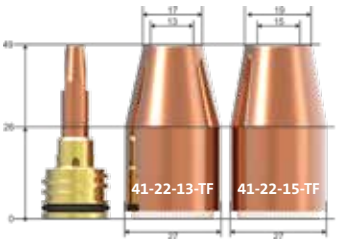
ZK type:		
13 mm bottle-shaped	15 mm bottle-shaped	13+15 mm Heavy Duty/tapered



Gas nozzle PART-NO.: 41-21-13-BS 41-21-13-BF



41-21-15-BS 41-21-15-BF



41-22-13-TF 41-22-15-TF

Dimensions in mm.

Further gas nozzles can be found in our consumables brochure.

WELDING SYSTEMS

www.sks-welding.com

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