SKS
WELDING SYSTEMS

WELD PACKAGE DUAL WIRE 2.0

The Weld Package for your Welding Tasks from the Power Source to the Contact Tip

WATER-COOLED

CONTENT

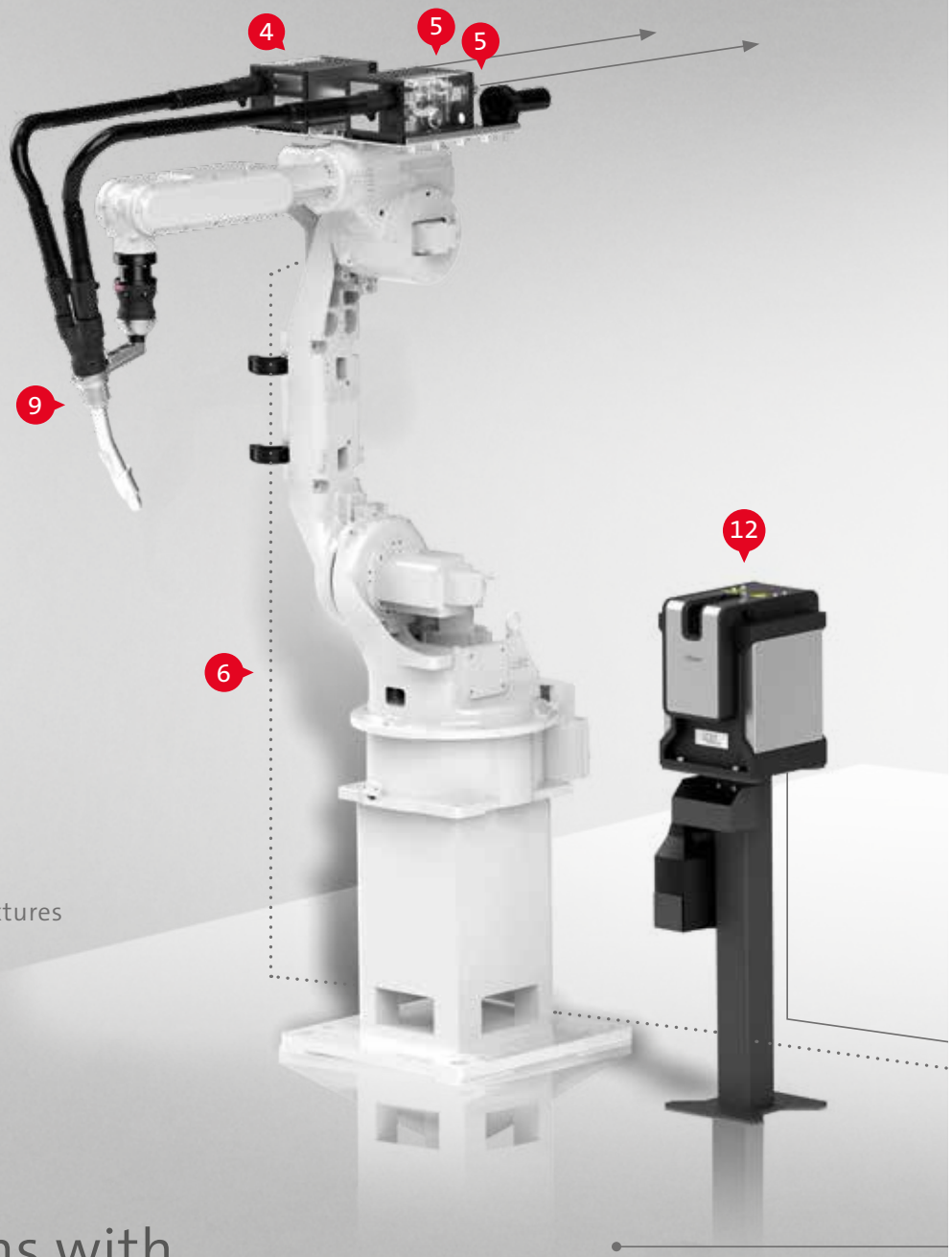
Power Source • Weld Process Controller • Software • Interface • Wire Feeder Unit • Wire Guidance • Cable Bundle • Control Cable • Torch System • Torch Necks • Consumables

WELDING PROCESSES

GMAW
Pulse
MIG-Brazing
microMIG
microMIG-cc

STEEL

SKS Weld Package: System design



1. DCT power source
2. Weld process controller + Software
3. Robot interface
4. Wire feeder
5. Wire guidance
6. Cable bundle
7. Ground cable
8. Control cable
9. Torch system Dual Wire 2.0
10. Torch necks/Consumables/ Reamer blades/Checking fixtures
11. Water cooling
12. TCP dimensions/eReam

For installations with outer cable dress.

This brochure contains information about the SKS Weld Package, the torch system **Dual Wire 2.0**, as well as consumables and spare parts. There are various features of the welding machine components and torch systems available depending on the robot system and the welding task.

The **Dual Wire 2.0 Weld Package** can be used with common industrial robots, such as **ABB, FANUC, KUKA** and **YASKAWA/MOTOMAN**.

The complete SKS Dual Wire 2.0 Weld Package is designed for the following welding processes, materials and power range:

Processes:	MIG/MAG (GMAW), Pulse
Wire materials:	High-alloy steels, low-alloy steels, aluminum and copper alloys, nickel-based materials
Wire diameter:	2 x 0.8 - 1.6 mm
Max. power:	840 A - 60 % duty cycle/40 °C, water-cooled

1 Power source

Power source LSQ5

Interconnect cable and connection pieces

OPTION

Accessories: Wall mount for LSQ5

Space-saving design that makes for easy cleaning/ maintenance.

LSQ5 power source 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.
The power source can be configured with only two buttons and four LED indicators. For world-wide usage, voltages can be configured without opening the power source.

Overview of power sources

DESCRIPTION	PART-NO.
LSQ5 (single)	**77-1185-00**
Interconnect cable	**77-1180-03**
Connection pieces for stacked power sources	**77-1180-02**
LSQ5-CCC (single)	**77-1185-60**

Please note:

For a single system two power sources are necessary.

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	2 x LSQ5(-CCC)
Performance	840 A - 60 % duty cycle/40 °C (800 A)
Processes	MIG/MAG (GMAW), Pulse
Weight	98 kg
Primary voltage	3 x 400 (480) V
Wall mounting	Yes (optional)
Conformities	CE, CSA, UL (CCC)
Dimensions	450 x 400 x 1080mm

Wall mount

DESCRIPTION	PART-NO.
Wall mount for LSQ5	**77-1180-01**

Innovative Control Concepts with Touch Screen.

With the new Q84r and the compact Q84s up to four weld machines can be controlled centrally.

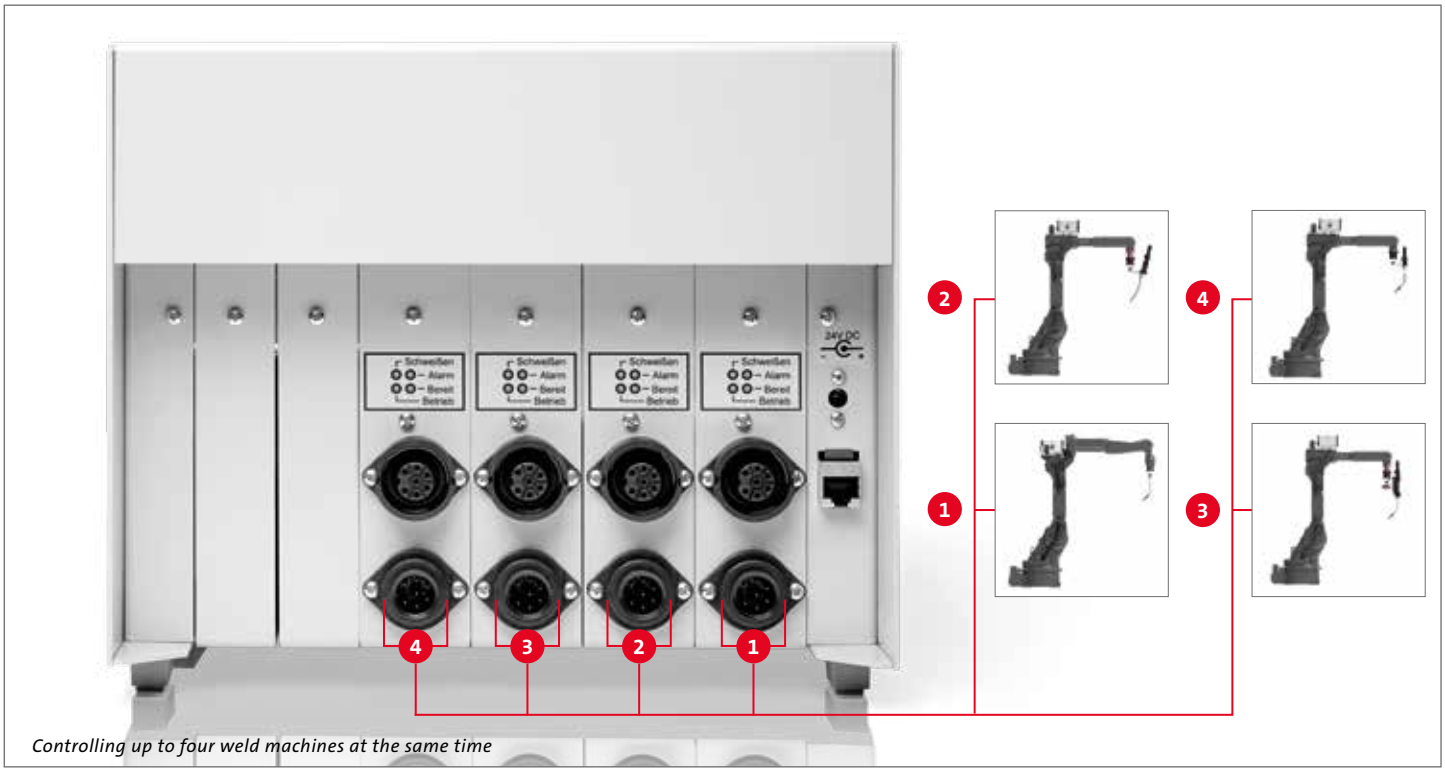
The new Q84r and Q84s are equipped with a touch screen, an innovative usability concept and an advanced visualization technology for much easier operating. The user interfaces have the look and feel of the Q8Tool4 software. Individual weld process controllers are in card slots in the Q84r/s. This new weld process controller concept can host up to four weld process controller cards. Each card independently controls a weld machine. As an alternative to the Q84r/s weld process controllers, the Q80 has been developed to control a single weld machine.

Weld process controller Q84r

Weld process controller Q84s

Weld process controller Q80

2 Weld process controller



Controlling up to four weld machines at the same time

Weld process controller Q84r

Weld process controller Q84s

Please note:

The Q84r/s can be equipped with up to four weld process controller cards.

Weld process controller Q84r/s

The universal weld process controllers Q84r and Q84s calculate 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. The Q84r is equipped with a 10" touch screen, the space-saving Q84s with a 7" touch screen. For wall mounting the display of the Q84s can be rotated by an angle of 180°.

- Processes/features: MIG/MAG (GMAW), I-Pulse, U-Pulse, KF-Pulse, Synchroweld, RWDE, NWDE
- Programs: 992 (x4)
- General functions: Display and saving of readings, alarms
- Monitoring functions: Weld current monitoring, auto compensation, arc and ignition monitoring, motor current, gas and water monitoring
- Easy to network via Ethernet: Traceability
- Ports: RJ45-Ethernet, SPW-Bus, SD card slot
- Remote Control/Administration: Q8Tool, VNC client

Overview weld process controller

DESCRIPTION	PART-NO. (Q84s)	PART-NO. (Q84r)
Q84r/s with one weld card	77-7410-00	77-7310-00
Q84r/s with two weld cards	77-7420-00	77-7320-00
Q84r/s with three weld cards	77-7430-00	77-7330-00
Q84r/s with four weld cards	77-7440-00	77-7340-00

Overview Q84r/s mounting kits

DESCRIPTION	PART-NO.
Bracket for Q84r for mounting onto power source LSQ5	77-7240-01
Bracket for Q84s for mounting onto power source LSQ5	77-7240-06
Bracket for Q84r for wall mounting	77-7240-02
Bracket for Q84r mounting in the robot cabinet	77-7240-05

Overview Q84r/s replacement parts and accessories

DESCRIPTION	PART-NO.
Touchpen for Q80 / Q84r/s weld process controller (replacement part)	77-7240-03
Connection cable for Q84r/s 5m with open end for external power supply (option)	77-3305-00
Plug for external power supply of Q84r/s (replacement part)	77-7240-96
SD card for Q80 / Q84r/s weld process controller (replacement part)	91-8-6
USB adapter for SD cards for Q80 / Q84r/s weld process controller	91-8-1

2 Weld process controller

ALTERNATIVE

Weld process controller Q80 front view

Weld process controller Q80 back view

Weld process controller Q80

The Q80 is the alternative to the Q84r/s. It has the same functionality/features as a single weld card of the Q84r/s - optimized for a single weld machine. With the universal Q80 all parameters and values needed for the weld task can be optimally calculated.

- Processes/features/general functions see Q84r/s
- Easy to network via Ethernet: up to traceability
- Ports: RJ45-Ethernet, SPW-Bus, SD card slot
- Wall mounting capability
- Remote Control / Administration: Q8Tool

Overview weld process controller

DESCRIPTION	PART-NO.
Q80	77-7260-00

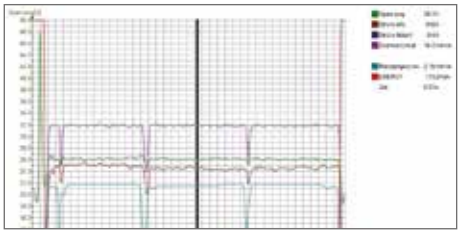
Overview Q80 mounting kits

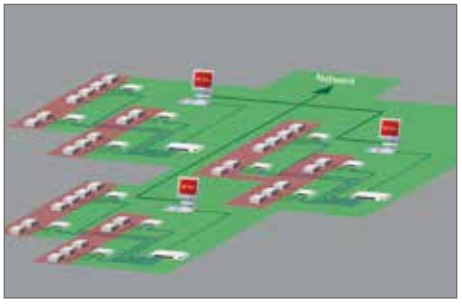
DESCRIPTION	PART-NO.
Bracket for mounting onto power source LSQ5	77-7240-06

Overview Q80 replacement parts and accessories

DESCRIPTION	PART-NO.
Touchpen for Q80 / Q84r/s weld process controller (replacement part)	77-7240-03
SD card for Q80 / Q84r/s weld process controller (replacement part)	91-8-6
USB adapter for SD cards for Q80 / Q84r/s weld process controller	91-8-1

2a Software/IT





Q8Tool software

The Q8Tool software provides accurate and comprehensive process monitoring. The user can store weld parameters for documentation on a PC and/or administrate them. It offers basic functions such as reading, modifying and documenting of weld parameters. Additionally, new weld parameters can be created and transferred to the universal weld process controllers. The weld data is portable and the installation of further control units on new equipment is easy. Also, the software allows reading and exporting of measurements and alarms. Graphical and numerical recording of measures helps defining and optimizing parameters for new parts. Users have a powerful tool for analyzing and documenting their weld results.

Network

The weld process controller units can easily be networked via Ethernet ports: Time savings through centralized administration of all controllers within the corporate network. There is a central backup of all welding parameters, management of user rights and access, process monitoring up to traceability. The Q8Tool software is provided free of charge with the weld process controller. No additional hardware or software is required.

Perfect integration.

Interfacing all industrial robot types.

A

B

With the universal interface solution, weld process controllers can be connected with all industrial robot types. Users basically have two options for connecting robots with weld process controllers: The connection can be realized with the interface UNI 5 or by integrating into a given field bus environment with a field bus solution.

Standard application

Robot controllers or overall system controllers (e.g. PLC) use digital or analog signals to communicate with the weld process controller. The interface UNI 5 translates these signals for the welding machine. With just one interface, a variety of digital encodings and analog levels can be processed. The interface UNI 5 comes with a preconfigured connection kit for easy installation.

Field bus application

Field bus systems exchange signals via serial communication. The field bus master, usually the robot controller or overall system controller, bundles and processes the signals of the connected field bus, including the welding machine. Standard field bus systems are e.g., Interbus-S, Profibus DP or DeviceNet. The field bus interface FB5 translates the field bus signals for the welding machine using a standardized protocol. It makes no difference which type of field bus system is used. The signals are always at the same place on the field bus. This makes the preparation of the robot or system controller much easier.

3 Robot interface

A

Robot interface UNI 5

The interface connects the welding equipment with all industrial robot types. With its high degree of standardization, the UNI 5 is the perfect choice for connecting the weld process controller (e.g. Q80) with an industrial robot. The UNI 5 comes preprogrammed and configured for different robot types. Configuration to a particular robot type is handled easily by programming the interface with two buttons for the given robot type.

Overview of robot interfaces

DESCRIPTION	PART-NO.
For robot type-ABB	
UNI 5A for IRC5	77-8011-08
For robot type-FANUC	
UNI 5A for RJ3iC	77-8001-84
For robot type-KUKA	
UNI 5A for KR C2	77-8011-08
For robot type-YASKAWA/MOTOMAN	
UNI 5C (Synchroweld over RS232) for NX 100 / DX 100 / DX 200	77-8013-00

ALTERNATIVE

B

Field bus application

Various field bus types are supported (e.g. Profibus DP, DeviceNet). The field bus interface has drilled bore holes for flexible mounting within the weld cell. Two additional mounting kits provide easy installation at the power source or into the cabinet. Additionally, external power can be connected to the interface. More details on solutions for the specific field bus types are available on request.

Overview FB5 interfaces

DESCRIPTION	PART-NO.
Interbus-S (copper line)	77-3-1
Profibus DP	77-3-2
DeviceNet	77-3-3
EtherCAT	77-3-4
Profinet IRT (copper line)	77-3-5
Profinet IRT (LWL 2 ports)	77-3-6
Interbus-S (LWL FSMA)	77-3-7
Ethernet/IP	77-3-8

Cabinet mounting

DESCRIPTION	PART-NO.
Mounting kit for cabinet	77-1182-02
Control cable with bracket	77-3102-02

Power source mounting

DESCRIPTION	PART-NO.
Mounting kit for power source	77-1182-03

Optional power supply (24V)

DESCRIPTION	PART-NO.
Connection cable 2.0 m (with open end)	77-1182-04

OPTION

SYNCHROWELD

Synchroweld unites the weld system and robot by a communication protocol (RWDE). This technology allows the weld system to get the actual robot speed and automatically adjusts the weld parameters accordingly. The result is a constant energy per unit length. At the same time, the programming effort can be significantly reduced.

Please note:

Further information on Synchroweld with ABB, Fanuc, KUKA, Yaskawa/Motoman can be found in our Synchroweld brochure.

Strong, lightweight and precise.

The PF5 wire feeder.

Smaller and with less weight accompanied by improved efficiency over conventional wire feeders the PF5 goes along with the steady development of arc welding robots.

ALTERNATIVE

PF5 L/R with integrated gas flow sensor

Power Feeder PF5

Modern motor, gear and control technology provide a strong performance and highest possible precision. The robust plastic housing is electrically insulated. As a "lightweight" the PF5 is the perfect choice for the new generation of robots with inner cable dress.
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	**10-2-8**
PF5 R	**10-2-4**
PF5 L with integrated gas flow sensor	**10-2-108**
PF5 R with integrated gas flow sensor	**10-2-104**

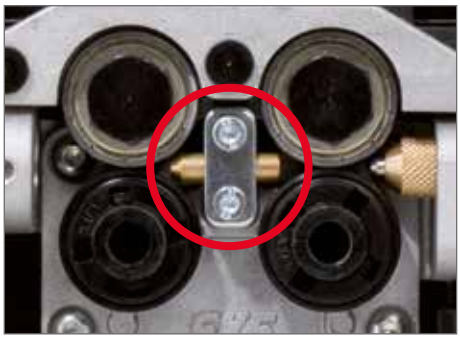
Technical data	
Weight	3,8 kg
Motor	70W
Wire feeding speed	2,5 - 25 m/min
Roll diameter	0.8 - 1.6 mm

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**

4 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

Drive roll for wire feeder

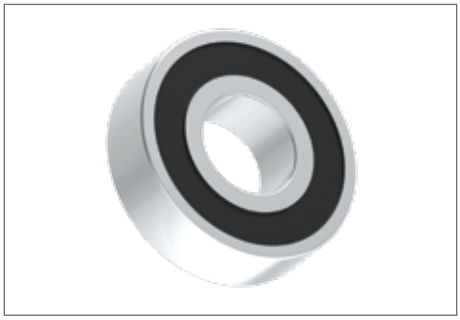
For wire diameters 0.9 - 1.6 mm and groove-types (V-groove for steel and U-groove for aluminum wires)

Overview of four roller drive rolls

DESCRIPTION	PART-NO.
Wire-ø 0.9 mm, V-groove	12-2-3-09
Wire-ø 1.0 mm, V-groove	12-2-3-10
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

Please note:

Four drive rolls are needed per system.



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

Please note:

Four pressure rolls and four locating bolts are needed per system.

Wire feeder brackets

Wire feeder bracket for PF5 with holes and screws for installation

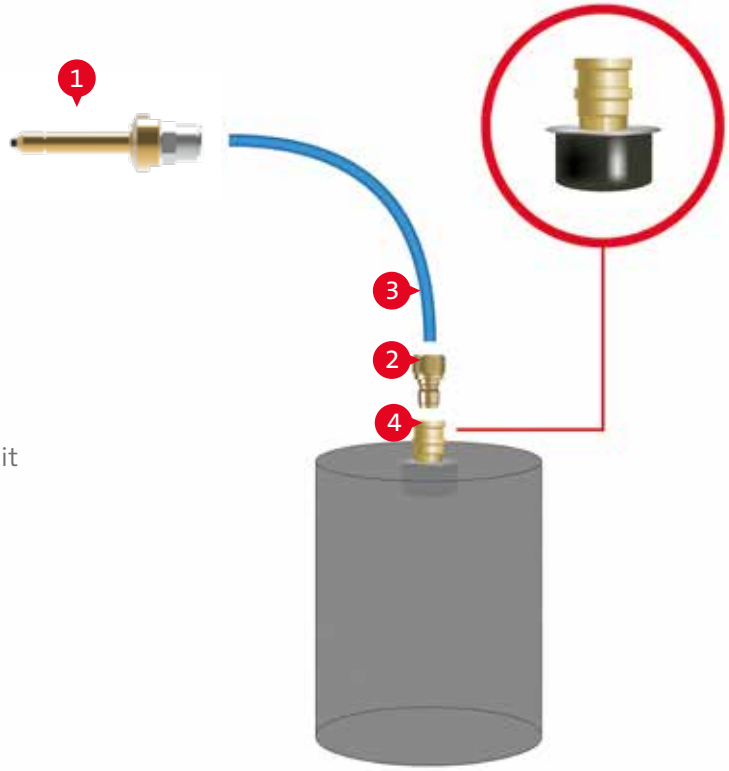
Overview of wire feeder brackets

DESCRIPTION	PART-NO.
For robot type-ABB	
IRB 2600	14-2-8
For robot type-FANUC	
M10iA/12 (high inertia mode)	14-1-17
M10iA/12S (high inertia mode)	On request
M20iA	14-1-17
M20iA/12L	On request
For robot type-KUKA	
KR12 R1810	On request
KR16 R1610	On request
KR16 R2010	On request
For robot type-YASKAWA/MOTOMAN	
HP 20F	14-1-17
MH 24	14-1-27
GP 25	14-1-27

Please note:

Wire feeder brackets for further robot types are available on request.

5 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	44-40-3

Polymer wire conduit

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

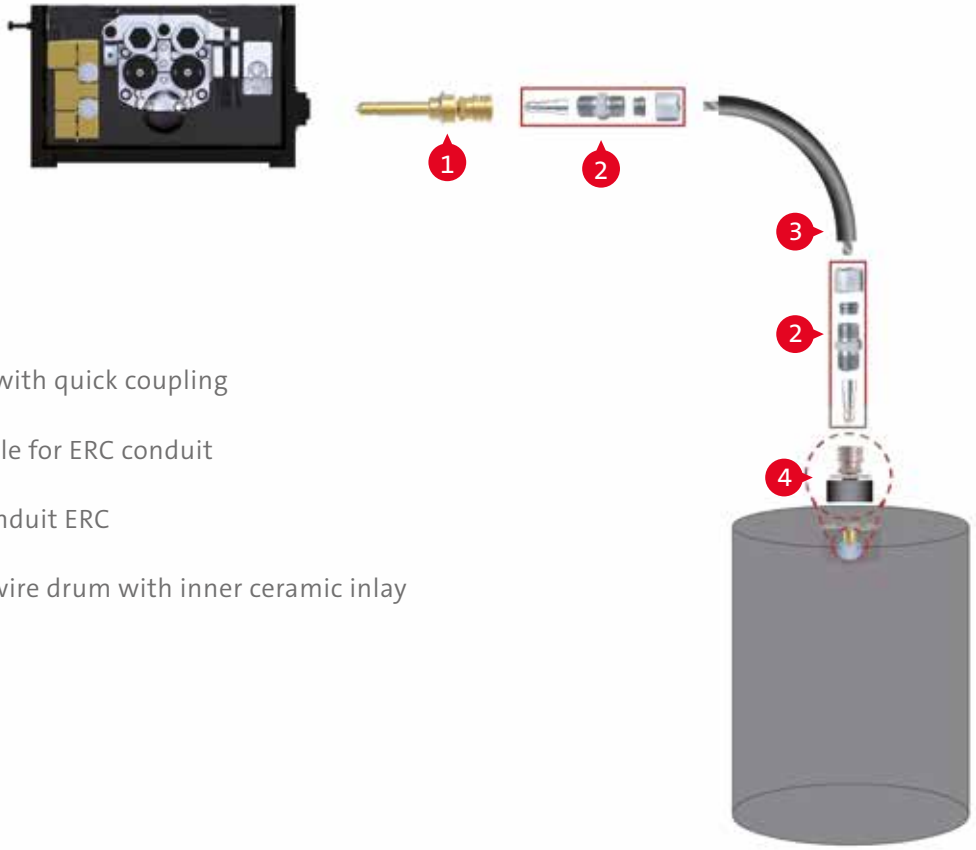
Connection for wire drum

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

OPTION

DESCRIPTION	PART-NO.
Strain-Relief for wire guidance	14-10-6

5 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	PART-NO.
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 for wire guidance	14-10-6
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
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

6 Cable bundles

Cable bundles: Power source to wire feeder PF5

Coaxial power cable 72 mm² with internal gas flow, control cable L700, disconnect cable, corrugated tube and cable holder. Water-cooled version.

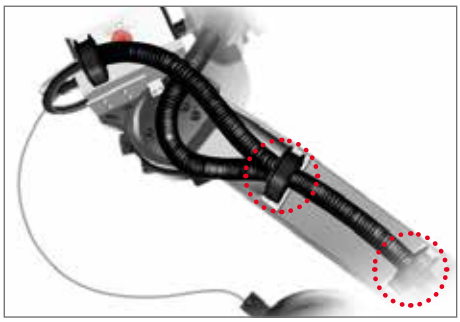
Overview of cable bundles

Length	PART-NO.
5 m	20-8-5
7 m	20-8-7
10 m	20-8-10

Please note:

Two cable bundles are needed for a single system.
Further lengths available on request.

6a Cable bundles: Clamping set



Mounting cable bundle: Clamping set

Provides perfect installation of the cable bundles for all different robot types. Undesired cable movements are prevented. This results in higher lifetime.

Overview of cable bundle clamping sets

DESCRIPTION	PART-NO.
For robot type-ABB	
IRB 2600	91-3-0-51-4
For robot type-KUKA	
M10iA/12 (high inertia mode)	on request
M10iA/12S (high inertia mode)	on request
M20iA	91-3-0-51-8
M20iA/12L	on request

DESCRIPTION	PART-NO.
For robot type-FANUC	
KR12 R1810	on request
KR16 R1610	on request
KR16 R2010	on request
For robot type-YASKAWA/MOTOMAN	
HP 20F	91-3-0-51-3
MH 24	91-3-0-51-14
GP 25	on request

ALTERNATIVE

DESCRIPTION	PART-NO.
Mounting for WF-bracket for external guided cable bundle	14-10-10

Please note:

Clamping sets for further robot types are available on request.

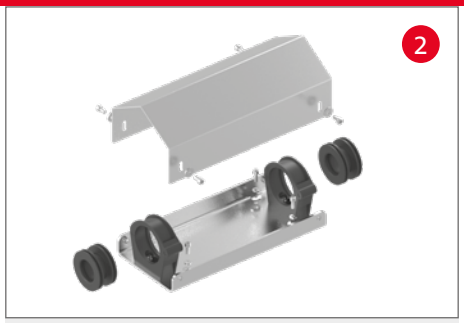
Dividable cable bundles

ALTERNATIVE

PARTS OF THE DIVIDABLE CABLE BUNDLE

Connection from power source to connection bracket

LENGTH	PART-NO.
5 m	20-18-5
7 m	20-18-7
10 m	20-18-10



Connection bracket

DESCRIPTION	PART-NO.
Connection bracket	20-17-0-3

Connection from connection bracket to wire feeder PF5

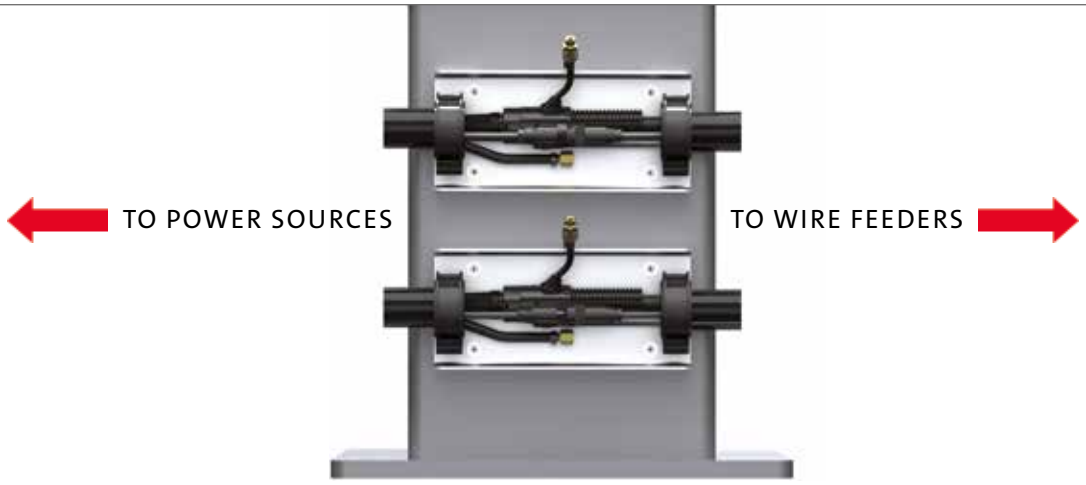
LENGTH	PART-NO.
3 m	20-17-3
5 m	20-17-5
7 m	20-17-7

Please note:

Further lengths available on request.
A single system requires two cable bundles power source/connection bracket, two connection brackets, and two cable bundles connection bracket/wire feeder.

Cable bundle with separation between power source and wire feeder PF5

The moving parts of the cable bundles (next to the robot) are separated from the non-moving parts (power source). In case of maintenance work, only the moving parts have to be changed. The quick and easy replacement concept results in time and cost savings.



7 Ground cable

Please note:

Further lengths available on request

Ground cable with 70 mm² connector and cable plug

Cables with larger diameters are available on request

Overview of ground cables

LENGTH	PART-NO.	Please note:
6 m	228078106	Two ground cables per system necessary.
10 m	228078100	

8 Control cable

Please note:

For the Dual Wire 2.0 system four control cables are required. One control cable is already included per cable bundle.

Please note:

Further lengths available on request

Control cable: L700/SPW-bus

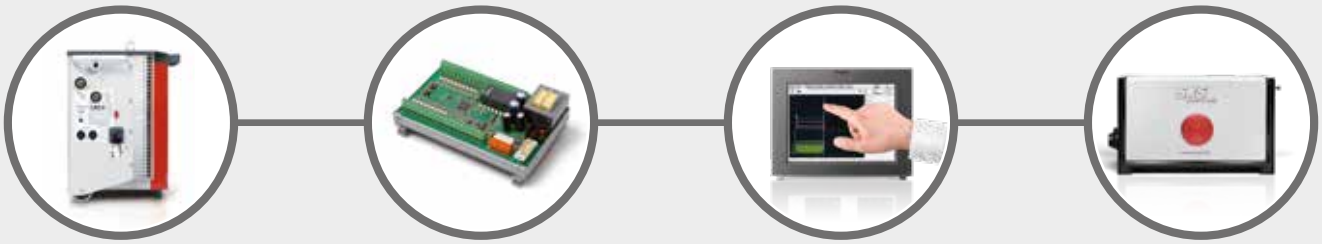
Standard control cable to connect the components:
Weld process controller, power source, robot interface, wire feeder.

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
12 m	541031012
15 m	541031015

PLUG & PLAY: CONTROL CABLE L700

The advantages of a system concept are revealed by its details: One standard control cable (L700) connects all system components (power source, robot interface, weld process controller and wire feeder) within the welding system.
The system is expandable: Other components can be integrated at any time into an existing system. New devices are automatically detected.



POWER SOURCE ROBOT INTERFACE WELD PROCESS CONTROLLER WIRE FEEDER

9 Torch system Dual Wire 2.0

High welding speed and high deposition rate.

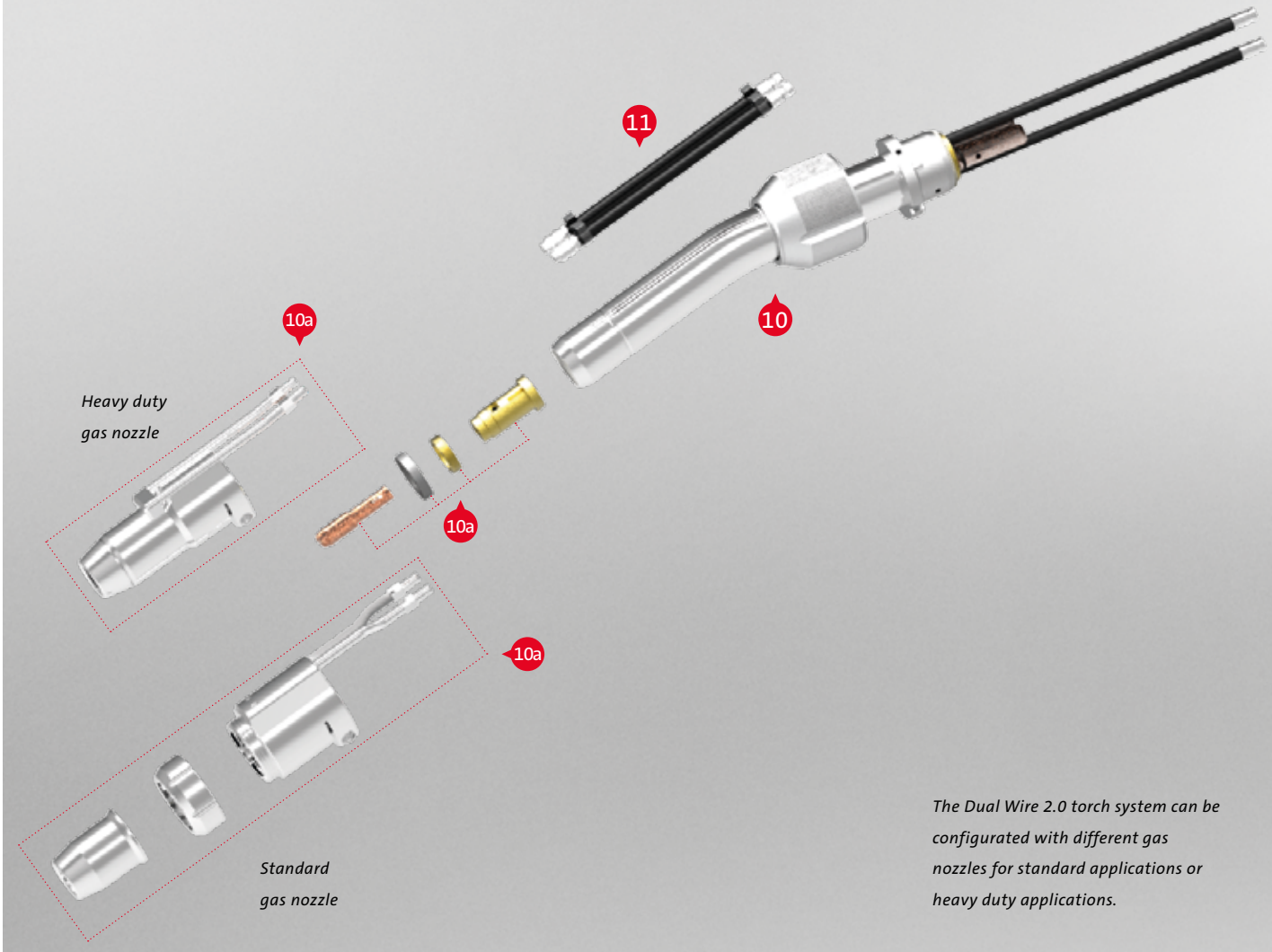
With the torch system **Dual Wire 2.0**, materials thicker than 3 mm can be joined fast and easy. The bajonet quick change system is integrated into the torch, so this new torch system supports a toolless change of the torch neck; this with a guaranteed TCP of ± 0.5 mm. We integrated two separate cooling circuits to increase the operational time of the welder and achieve a better cooling effect with this separation. The heat at the gas nozzle is already reduced and doesn't reach the torch. With its parallel wires and its round gas nozzle, the system is easier to clean and much easier to programm, especially in curves.

The complete SKS Dual Wire 2.0 Weld Package is designed for the following welding processes, materials and power range:

Processes:	MIG/MAG (GMAW), Pulse
Wire materials:	High-alloy steels, low-alloy steels, aluminum and copper alloys, nickel-based materials
Wire diameter:	2 x 0.8 - 1.6 mm
Max. power:	840 A - 60 % duty cycle/40 °C, water-cooled

9 Torch system Dual Wire 2.0: Parts overview

Dual Wire 2.0 torch system parts overview.



The Dual Wire 2.0 torch system can be configurated with different gas nozzles for standard applications or heavy duty applications.

9 Torch system Dual Wire 2.0: Parts overview

9a Collisions detection Power Clutch HD 9b TCP-extension + robot flange

9c Torch cable 9d Torch mounting arm 10 Torch neck 10a Consumables

11 Water cooling

9a Torch system

Collision protection for welding robots with outer cable dress

The SKS collision protection is based on the Power Joint concept, continuing the modular structure of the SKS components. This ensures the same high precision TCP accuracy in the Dual Wire 2.0 as found in SKS Power Joint systems.

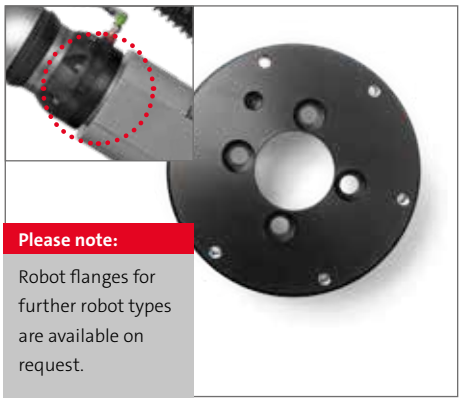
Power Clutch HD

DESCRIPTION	PART-NO.
Power Clutch 2 HD	71-16

Technical details

Collision protection	deflection 10°
Reset accuracy	± 0.5 mm with TCP 400 mm
Weight	1.5 kg

9b Torch system: Installation



Please note:
Robot flanges for further robot types are available on request.

Dual Wire 2.0 robot flange

With the robot flange the Dual Wire 2.0 torch system is mounted simply and safely on the sixth robot axis.

Overview of robot flanges

DESCRIPTION	PART-NO.
For robot type-ABB	
IRB 2600	63-4-5
For robot type-FANUC	
M10iA/12 (high inertia mode)	63-4-8
M10iA/12S (high inertia mode)	On request
M20iA	63-4-8
M20iA/12L	On request

DESCRIPTION	PART-NO.
For robot type-KUKA	
KR12 R1810	63-4-3
KR16 R1610	On request
KR16 R2010	On request
For robot type-YASKAWA/MOTOMAN	
HP 20F	63-4-1
MH 24	63-4-8
GP 25	63-4-8

TCP-extension

The TCP-extension increases the freedom of accessibility and depth of immersion into the weld part/fixture

Overview TCP-extension

DESCRIPTION	PART-NO.
50 mm	93-29

9c Torch system: Torch cable/Accessories

Please note:
Two cable bundles are required for a single system.

Torch cable for Dual Wire 2.0 torch system

Highly flexible coaxial cable 72 mm² with Power Pin and Power Clutch connector including switch-off cable for the robot

Overview recommended torch cable lengths for robots

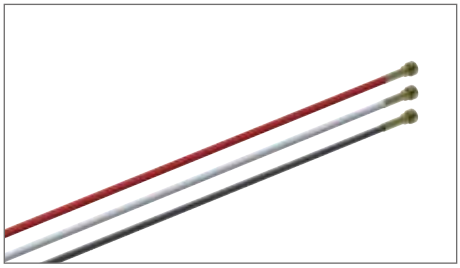
DESCRIPTION	PART-NO.
For robot type-ABB	
IRB 2600 (1.0m)	61-5-10
For robot type-KUKA	
KR12 R1810	on request
KR16 R1610	on request
KR16 R2010	on request

DESCRIPTION	PART-NO.
For robot type-FANUC	
M10iA/12 (high inertia mode)(1.2m)	61-5-12
M10iA/12S (high inertia mode)	on request
M20iA(1,5m)	61-5-15
M20iA/12L	on request
For robot type-YASKAWA/MOTOMAN	
HP 20F (1.2m)	61-5-12
MH 24 (1.2m)	61-5-12
GP 25	on request

Overview torch cable length

LENGTH	PART-NO.
0.75 m	61-5-075
0.9 m	61-5-09
1.0 m	61-5-10
1.2 m	61-5-12

LENGTH	PART-NO.
1.5 m	61-5-15
1.8 m	61-5-18
2.0 m	61-5-20
2.4 m	61-5-24



Please note:
Two liners and two sleeves are required for a single system. Additionally, two power pin caps are required when using aluminum wire.

Liner for torch system

For the following diameters and filler materials:

Steel, bronze (wire-ø 0.8 - 1.0 mm)

DESCRIPTION	PART-NO.
Length 2 m	44-24-0810-20
Length 3.5 m	44-24-0810-35
Sleeve	44-30-2

Steel, bronze (wire-ø 1.2 - 1.6 mm)

DESCRIPTION	PART-NO.
Length 2 m	44-24-1216-20
Length 3.5 m	44-24-1216-35
Sleeve	44-30-3

Aluminum (wire-ø 1.2 - 1.6 mm)

DESCRIPTION	PART-NO.
per meter	91-68-47025-25E
Sleeve	44-30-7
Power pin cap	61-2-0-2-7

Y-Wire guidance

Wire guidance for defined guidance of both torch cables

Y-Wire guidance

DESCRIPTION	PART-NO.
Y-Wire guidance	91-3-0-90

9d Torch system: Torch mounting arm

Dual Wire 2.0: Torch mounting arm

Precise torch body with mounting arm, air blast connector and proven bayonet quick-changeconnectors for torch cable and torch neck

Torch mounting arm

DESCRIPTION	PART-NO.
Torch mounting arm	54-5-1

10 Torch necks/Accessories

INFO

The torch neck of the Dual Wire 2.0 torch system can be configurated with two different types of gas nozzles:
For standard or heavy duty applications.

ROUND GAS NOZZLE

ALTERNATIVE

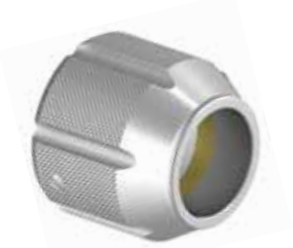
Configuration:
Standard (560 A 60 % ED/40 °C)

Configuration:
Heavy duty (840 A 60 % ED/40 °C)

10 Torch necks/Accessories

1

2



Torch necks for Dual Wire 2.0

SKS torch necks for easy installation with the innovative bayonet lock system for quick replacement. Aside from a toolless change of the torch neck, a TCP ± 0.5 mm is guaranteed. Two separated cooling circuits (torch neck and consumables) provide high cooling efficiency.

Overview torch neck		Application recommendations	
DESCRIPTION / TCP in mm	**PART-NO.**	**Steel/CrNi**	**Al***
Torch neck 15° (complete system 30°) / 550 with retaining head and clamping nut	**54-5-3-15-550-1-1**	√ √	√ √
Clamping cap	**54-5-2-9**		

√ √ Recommended standard torch neck
√ Recommended
o Special design: application specific
x Not recommended

*** Please note:**
For aluminum applications SKS recommends a Frontpull torch system

Further information about cooling with ordering numbers can be found in section 11.

ADVANTAGES OF SKS DUAL WIRE 2.0 SYSTEM

Welding with a single potential enables the use of a round gas nozzle with parallel wires. The advantages:

- Smaller dimensions for better accessibility in different positions (punching, dragging)
- Easier programming
- Use of standard cleaning equipment
- Just a single Weld Process Control is necessary for the whole process. Moreover the entire system is realized with standard components. This makes the operation much easier and reduces investment.

10a Torches: Consumables

3

Retaining head and clamping nut (spare part)

Heavy duty retaining head

Overview retaining head	
DESCRIPTION	**PART-NO.**
Retaining head (spare part)	**54-5-2-12**
Clamping nut for retaining head (spare part)	**54-5-2-13**

4

Please note:
Two contact tips are required for a single system.

Contact tip

- Improved heat transfer extends lifetime
- Improved power transition: constant arc quality

Overview of contact tip

Wire-ø	CuCrZr / PART-NO.
0.9 mm	**54-5-7-09S**
1.0 mm	**54-5-7-10S**
1.2 mm	**54-5-7-12S**
1.4 mm	**54-5-7-14S**
1.6 mm	**54-5-7-16S**

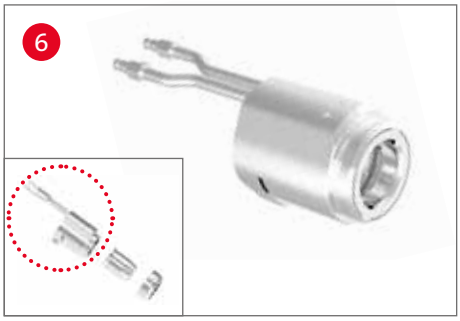
5

Gas diffuser Dual Wire 2.0

Gas diffuser

DESCRIPTION	PART-NO.
Ceramics gas diffuser	54-5-20

6



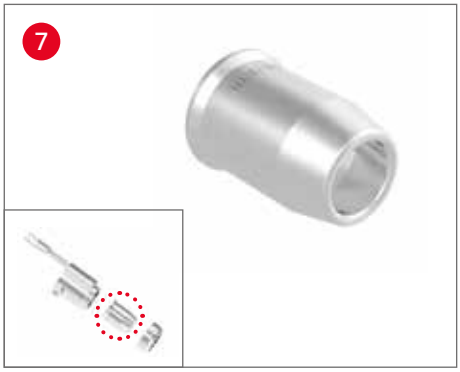
Cooling jacket for consumables

Extra cooling of consumables

Cooling jacket for nozzles

DESCRIPTION	PART-NO.
Cooling jacket for gas nozzles	54-5-70-1

7



Standard gas nozzles

Overview gas nozzles

DESCRIPTION	PART-NO.
tapered, flush, ø 18 mm	54-10-18-TF
tapered, long, ø 18 mm	54-10-18-TR

Please note:
An overview with dimensions can be found on the last page.

8

Lock nut for gas nozzle

For fixation of the gas nozzle at the cooling jacket

Lock nut

DESCRIPTION	PART-NO.
Lock nut	54-5-70-2

ALTERNATIVE

9

Heavy duty gas nozzle with direct cooling

When using the HD gas nozzle the parts 6, 7, 8 aren't needed.

Heavy duty gas nozzle with direct cooling

DESCRIPTION	PART-NO.
tapered, long, ø 18 mm	54-11-18-TR
tapered, long, ø 20 mm	54-11-20-TR

10b Torches: Checking fixtures

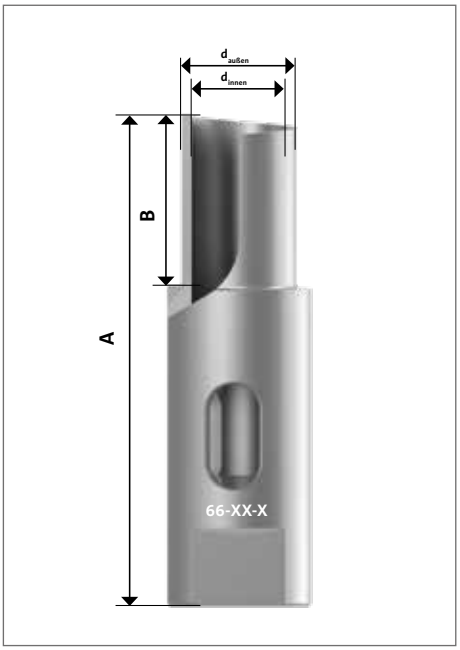
To check TCP of torch necks and the complete torch system.

Checking fixtures are available for all listed torch necks with Dual Wire 2.0 torch system. Please contact us for detailed information.

Please note:

Further iInformation can be found in our brochure "Checking fixtures" (DOC-0137EN).

10b Reamer blades

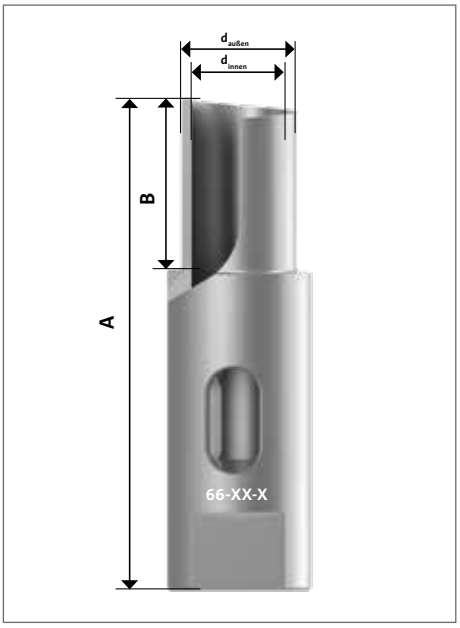


Reamer blade (internal thread UNF 3/8“ x 24)

Reamer blade	flush	long
Inner diameter of the gas nozzle	PART-NO.	PART-NO.
18 mm	66-18-F	66-18-R
20 mm	—	66-20-R

Dimensions

Dimension A	Dimension B	Dimension d_{outer}	Dimension d_{inner}	PART-NO.
75	21	17.5	14.5	66-18-F
75	26	17.5	14.5	66-18-R
75	26	19.5	14.5	66-20-R



Please note:

Dimensions in mm.

Reamer blade (internal thread M10 x 1 – eReam)

Reamer blade	flush	long
Inner diameter of the gas nozzle	PART-NO.	PART-NO.
18 mm	67-18-F	67-18-R
20 mm	—	67-20-R

Dimensions

Dimension A	Dimension B	Dimension d_{outer}	Dimension d_{inner}	PART-NO.
79	21	17.5	14.5	67-18-F
84	26	17.5	14.5	67-18-R
84	26	19.5	14.5	67-20-R

10d Torches: Tools

Socket key for Dual Wire 2.0

For replacement of retaining head

Socket key for retaining head

DESCRIPTION	PART-NO.
Socket key for retaining head	54-5-2-8

Tool for lock nut (at cooling jacket)

Tool for lock nut

DESCRIPTION	PART-NO.
Tool for lock nut	54-5-70-3

Programming tips

Dual Wire programming tips for precise seam programming

Overview of programming tips

Stickout	PART-NO.
18 mm	542053400
20 mm	542053500

11 Water cooling

Water cooling

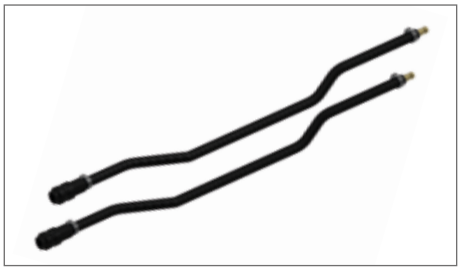
The SKS Dual Wire 2.0 torch system comes with two separate cooling circuits to increase the cooling efficiency. The first circuit cools down the consumables while the second cooling circuit cools down the torch neck. We achieve a better cooling effect with this separation. That because the reflected energy of the welded part can be dissipated easily. The heat at the gas nozzle is already reduced and doesn't reach the torch.
The cooling equipment consists of a water flow / return for the cooling jacket for cooling down the consumables, a water conduit for cooling inside the torch neck and a water cooler with two circuits. Additionally, the system has a water flow control for safe use.

Water cooler eChilly

The water cooler eChilly has two separated cooling circuits and provides best possible cooling efficiency next to the process. Tank capacity 6.4 L.

Water cooler

DESCRIPTION	PART-NO.
Water cooler eChilly	541018400



Water conduit for Dual Wire 2.0 torch neck

The torch neck is cooled down from the inside. With this conduit the cooling unit of the torch neck is connected with the cooling circuit.

Water conduit for cooling unit of the torch neck

DESCRIPTION	PART-NO.
Water conduit for cooling unit of the torch neck	93-11-10

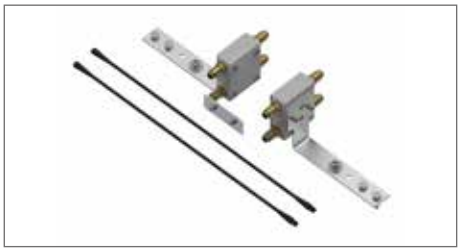
11 Water cooling

Water cooling conduit for cooling jacket

Conduit for cooling jacket to dissipate heat from the consumables.

Water cooling conduit for cooling jacket

DESCRIPTION	PART-NO.
Water cooling conduit for cooling jacket	71-8-16



Water monitoring

For monitoring water flow

Water monitoring

DESCRIPTION	PART-NO.
Water monitoring	93-11-0

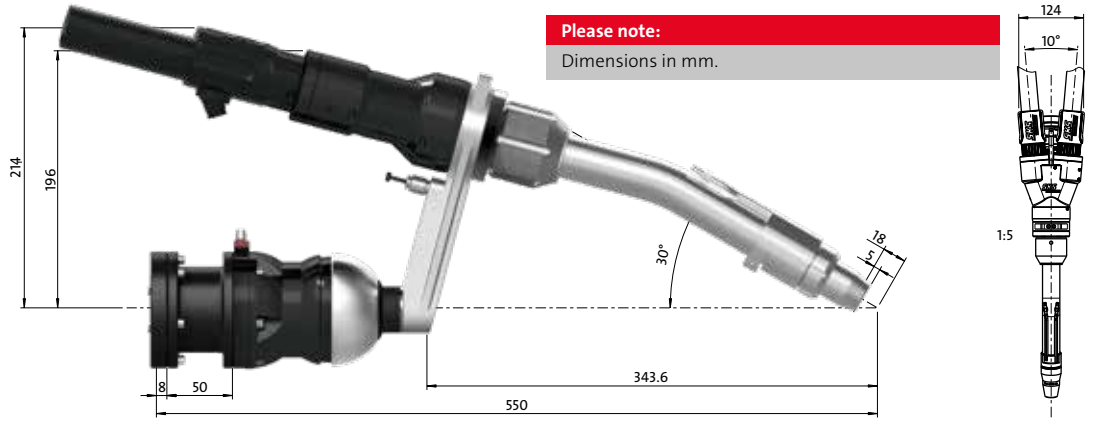
Velcro® strip set

Set with 10 Velcro® strips, width 3 cm, for easy mounting of cables and conduits

Velcro® strip set

DESCRIPTION	PART-NO.
Velcro® strip set	571040320

12 Torches: TCP dimensions



Please note:
Dimensions in mm.

Torch 15° (complete system 30°)	PART-NO. 54-5-3-15-550-1-1

Please note:
Further iInformation can be found in our eReam brochure (DOC-0184EN).

SKS

WELDING SYSTEMS

Kontakt:

sales@de.sks-welding.com

SKS Welding Systems GmbH

Marie-Curie-Str. 14 | 67661 Kaiserslautern | Germany | Phone +49 6301 7986-0

www.sks-welding.com

/sksweldingsystems

/DesignTechnologyPerformance

@sks_welding_systems

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