



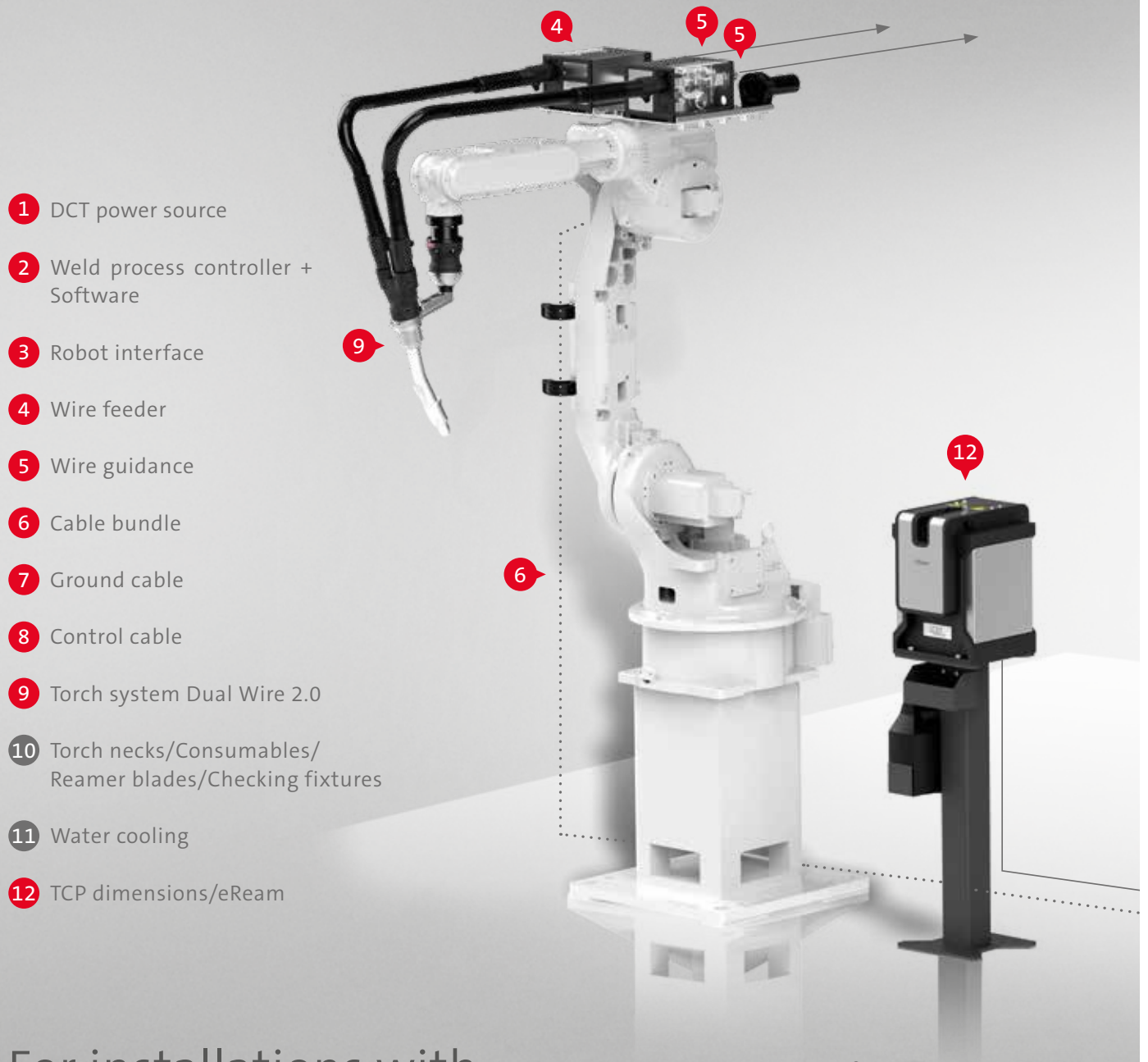
WELD PACKAGE DUAL WIRE 2.0

For high welding speed and high deposition rate

Solutions for: ABB • FANUC • KUKA • YASKAWA/MOTOMAN

Dual Wire 2.0 Weld Package: DCT power source • Weld process controller •
Robot interface • Wire feeder • Wire Guidance • Cable bundle • Control cable •
Torch system • Torch necks • Consumables

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 |

2 Weld process controller

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

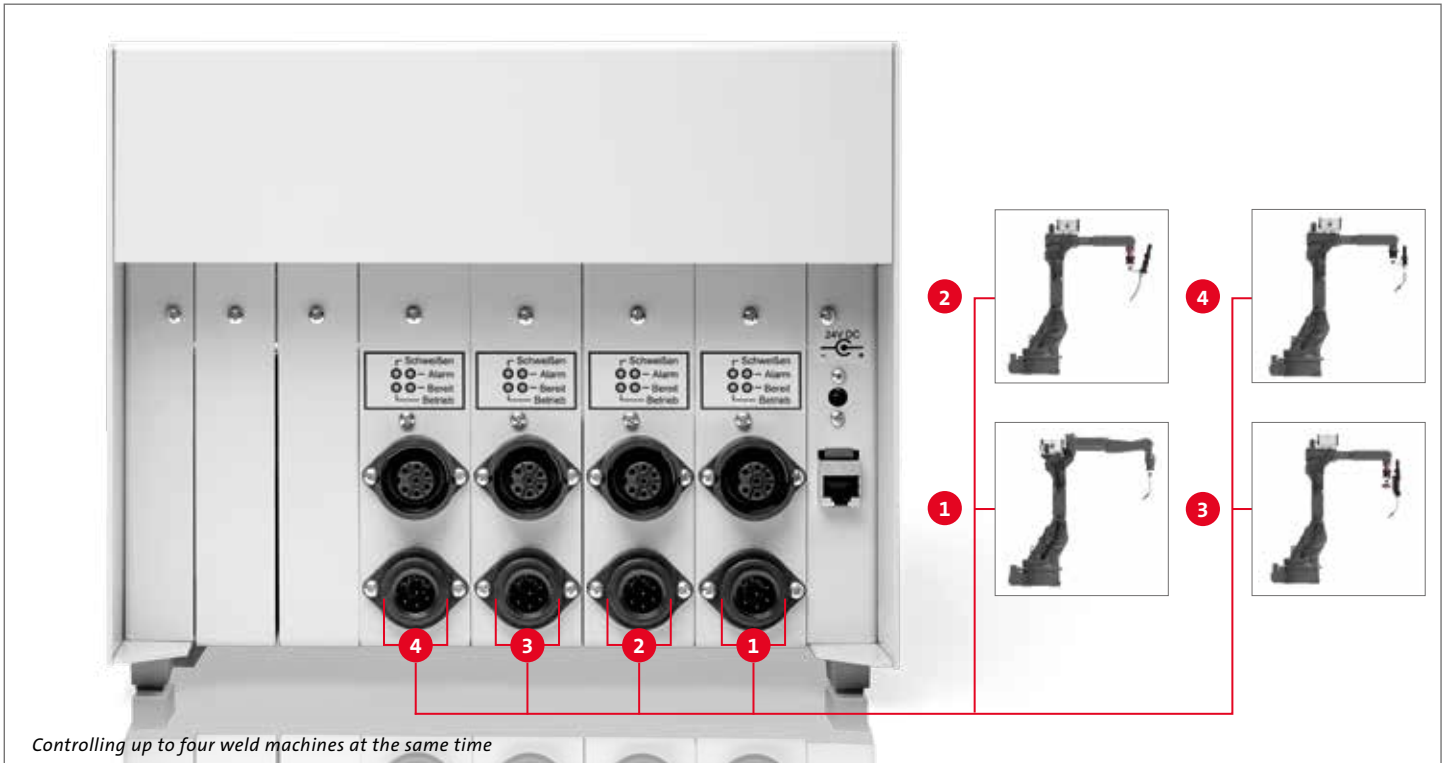


Weld process controller Q84s



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

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 |

Please note:

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

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 |

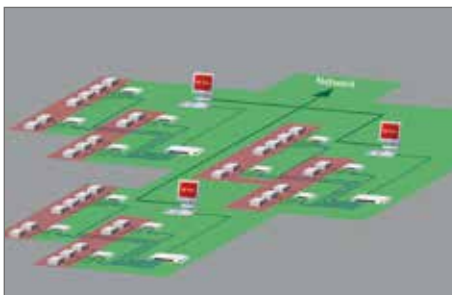
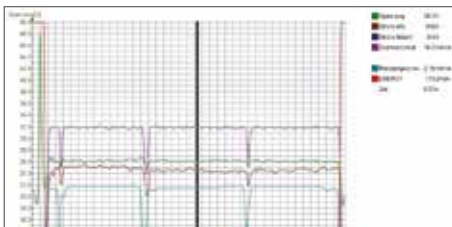
Overview Q80 mounting kits

| 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.

3 Robot interface

Perfect integration.

Interfacing all industrial robot types.



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



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



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.

4 Wire feeder

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 |

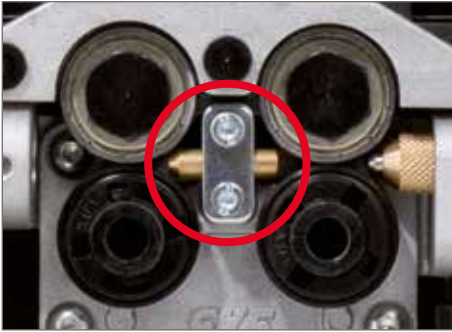
Shielding Gas Saver

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- ϕ 0.8 - 1.6 mm for steel wire | 12-2-1-15 |
| Wire- ϕ 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. | DESCRIPTION | PART-NO. |
|-------------------------------|-----------|-------------------------------|------------|
| Wire- ϕ 0.9 mm, V-groove | 12-2-3-09 | Wire- ϕ 1.6 mm, V-groove | 12-2-3-16 |
| Wire- ϕ 1.0 mm, V-groove | 12-2-3-10 | Wire- ϕ 1.2 mm, U-groove | 12-2-3-112 |
| Wire- ϕ 1.2 mm, V-groove | 12-2-3-12 | Wire- ϕ 1.6 mm, U-groove | 12-2-3-116 |
| Wire- ϕ 1.4 mm, V-groove | 12-2-3-14 | | |

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 |

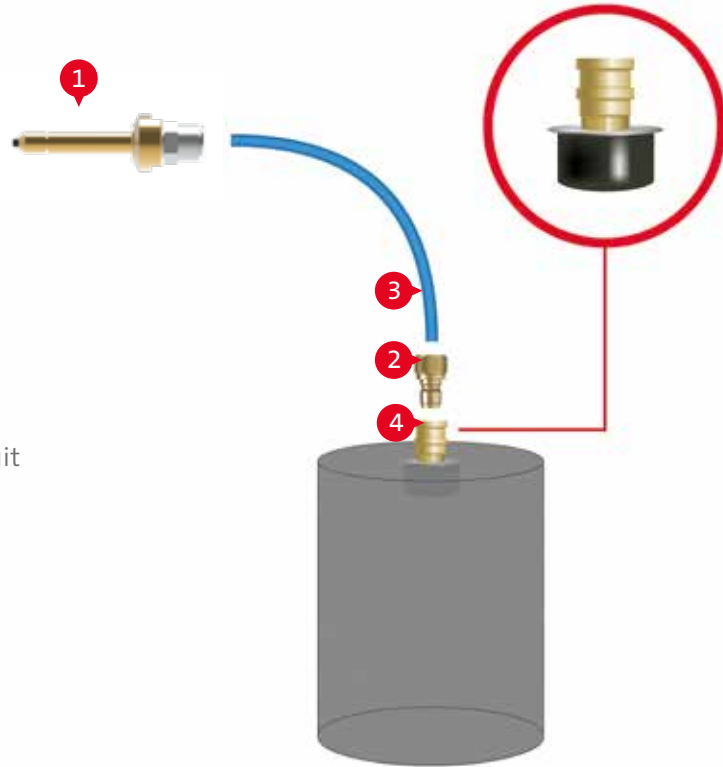
Please note:

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:

Further 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 |

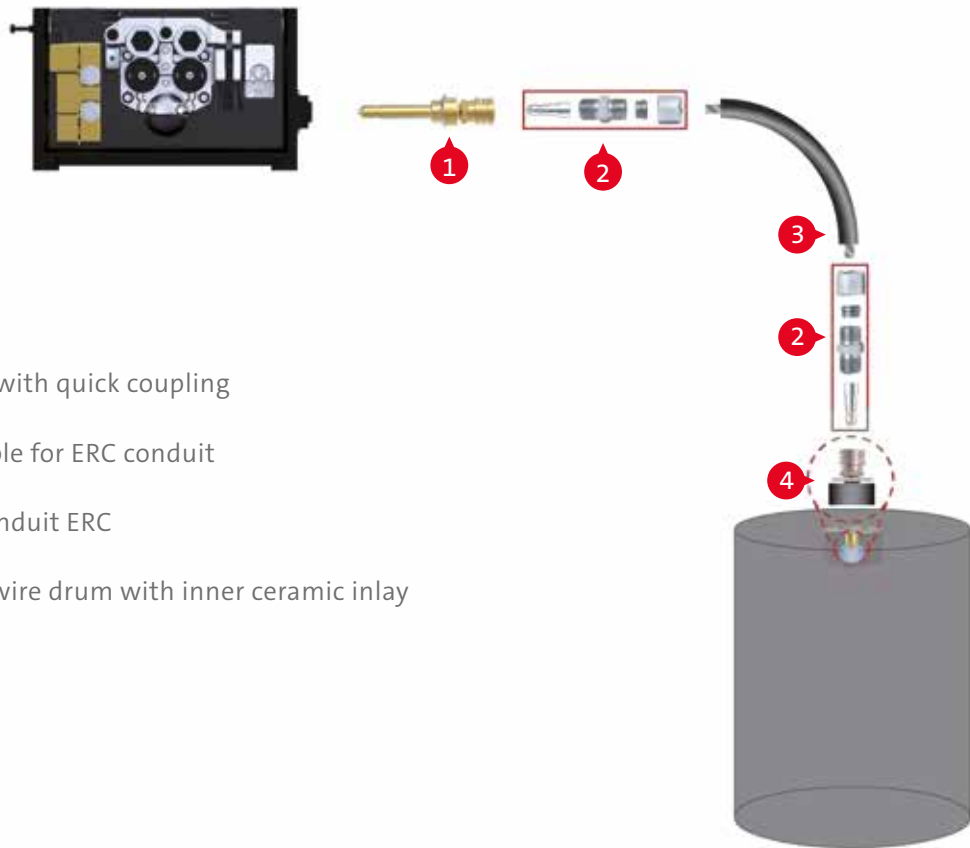
Connection for wire drum

| 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.

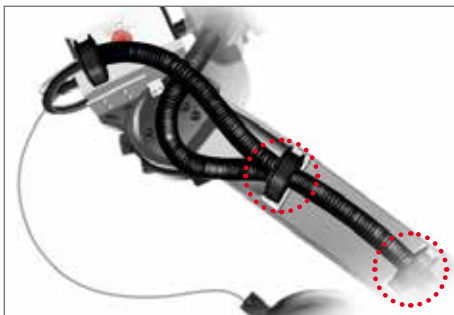
Overview of cable bundles

| 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 |

Please note:

Clamping sets for further robot types are available on request.

ALTERNATIVE

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

Dividable cable bundles

ALTERNATIVE

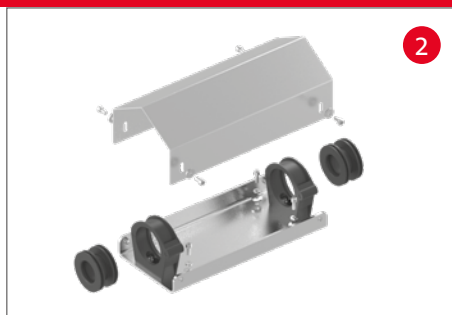


PARTS OF THE DIVIDABLE CABLE BUNDLE



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

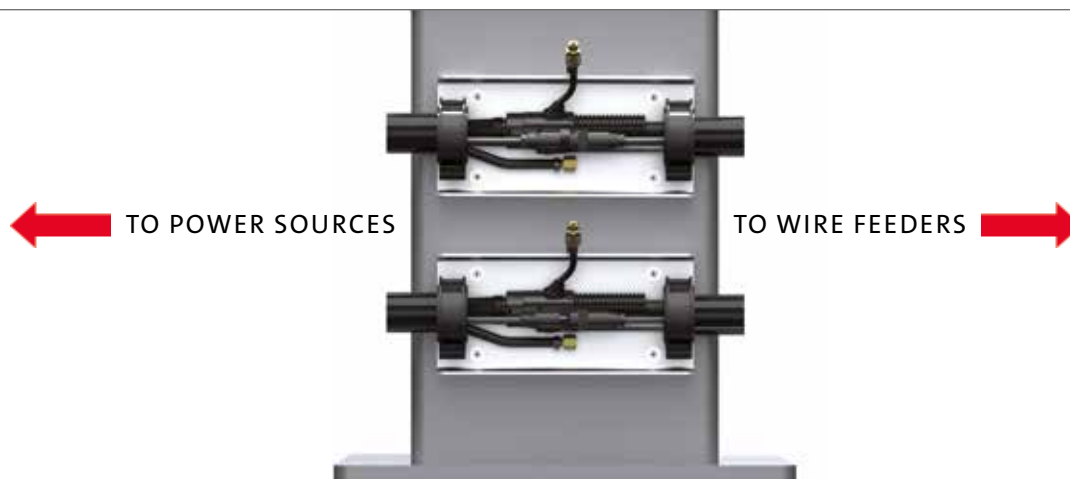
| LENGTH | PART-NO. |
|--------|----------|
| 3 m | 20-17-3 |
| 5 m | 20-17-5 |
| 7 m | 20-17-7 |

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

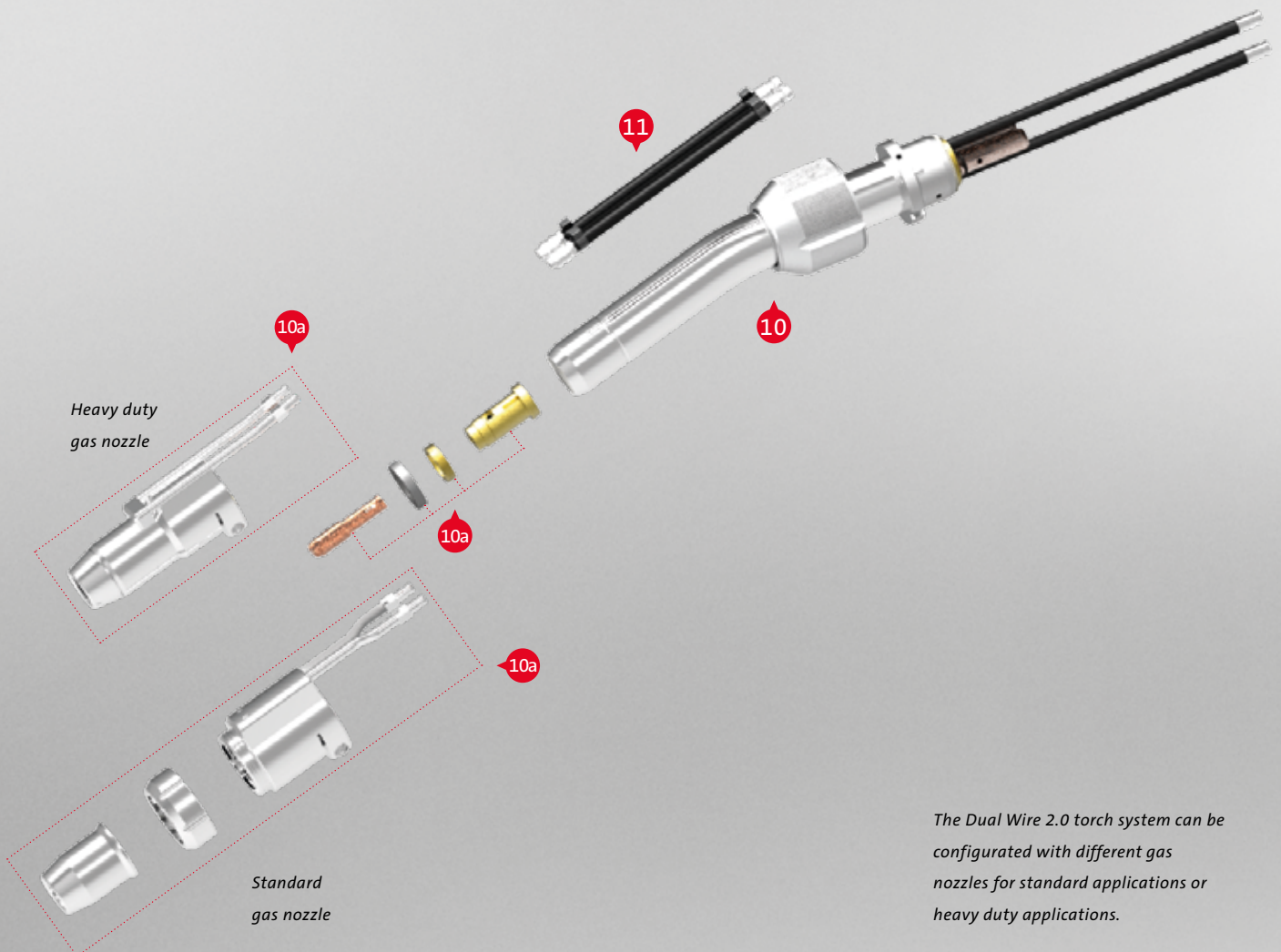
Wire materials: High-alloy steels, low-alloy steels, aluminum and copper alloys, nickel-based materials

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.



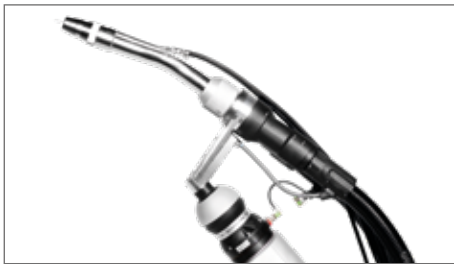
The Dual Wire 2.0 torch system can be configured with different gas nozzles for standard applications or heavy duty applications.

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.

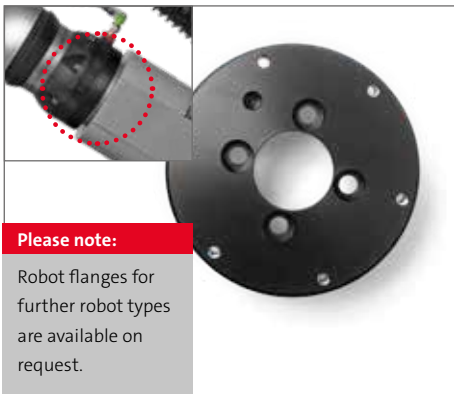
Power Clutch HD

| 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

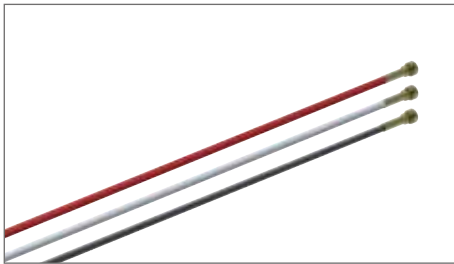
Highly flexible coaxial cable 72 mm² with Power Pin and Power Clutch connector including switch-off cable for the robot

Overview recommended torch cable lengths for robots

| DESCRIPTION | PART-NO. | DESCRIPTION | PART-NO. |
|----------------------------|------------|---------------------------------------|------------|
| For robot type-ABB | | For robot type-FANUC | |
| IRB 2600 (1.0m) | 61-5-10 | M10iA/12 (high inertia mode)(1.2m) | 61-5-12 |
| For robot type-KUKA | | M10iA/12S (high inertia mode) | on request |
| KR12 R1810 | on request | M20iA(1,5m) | 61-5-15 |
| KR16 R1610 | on request | M20iA/12L | on request |
| KR16 R2010 | 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. | LENGTH | PART-NO. |
|--------|----------|--------|----------|
| 0.75 m | 61-5-075 | 1.5 m | 61-5-15 |
| 0.9 m | 61-5-09 | 1.8 m | 61-5-18 |
| 1.0 m | 61-5-10 | 2.0 m | 61-5-20 |
| 1.2 m | 61-5-12 | 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)

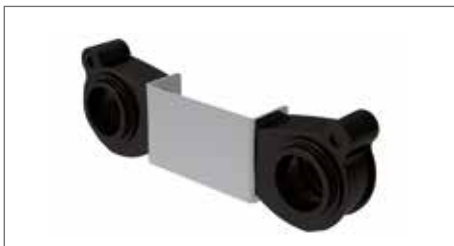
| DESCRIPTION | PART-NO. |
|--------------|---------------|
| Length 2 m | 44-24-0810-20 |
| Length 3.5 m | 44-24-0810-35 |
| Sleeve | 44-30-2 |

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 configured 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



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
- Special design: application specific
- × 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



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 |

Contact tip

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

| Overview of contact tip | |
|-------------------------|-------------------|
| Wire- ϕ | 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 |

Please note:

Two contact tips are required for a single system.

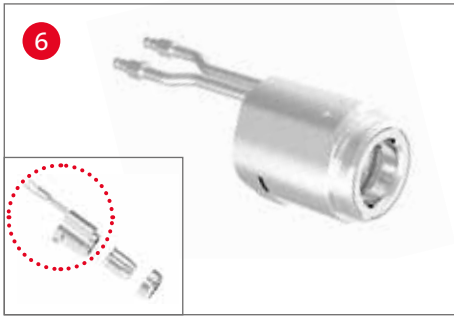
10a Torches: Consumables



Gas diffuser Dual Wire 2.0

Gas diffuser

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



Cooling jacket for consumables

Extra cooling of consumables

Cooling jacket for nozzles

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



Standard gas nozzles

Overview gas nozzles

| DESCRIPTION | PART-NO. |
|-------------------------------------|-------------|
| tapered, flush, \varnothing 18 mm | 54-10-18-TF |
| tapered, long, \varnothing 18 mm | 54-10-18-TR |

Please note:

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



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



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, \varnothing 18 mm | 54-11-18-TR |
| tapered, long, \varnothing 20 mm | 54-11-20-TR |

10b Torches: Checking fixtures



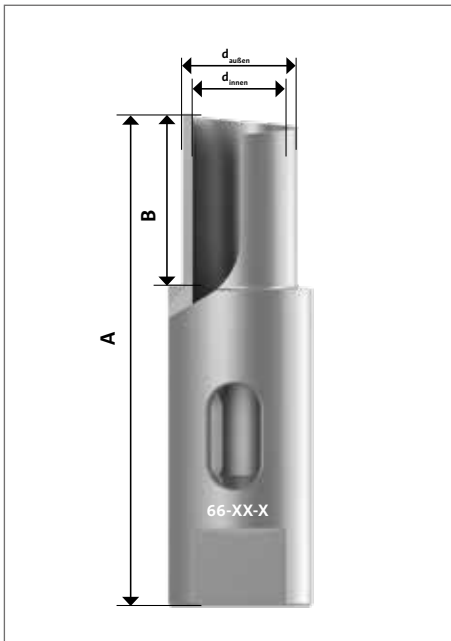
To check TCP of torch necks and the complete torch system.

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

10b Reamer blades

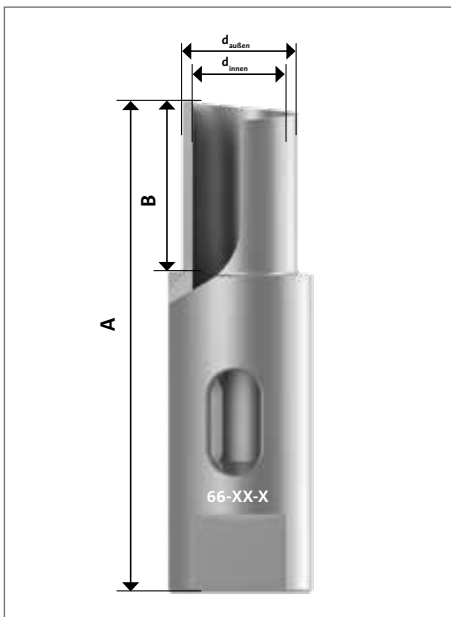


Reamer blade (internal thread UNF 3/8" x 24)

| 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 |



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 |

Please note:

Dimensions in mm.

10c 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

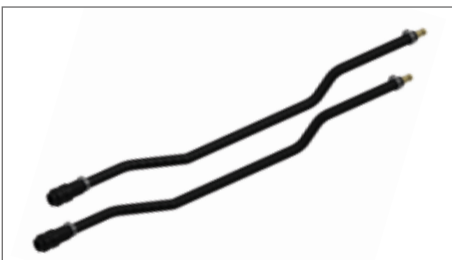
The SKS Dual Wire 2.0 torch system comes with two separate cooling circuits to increase the cooling efficiency. The first circuit cools down the consumables while the second cooling circuit cools down the torch neck. We achieve a better cooling effect with this separation. That because the reflected 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

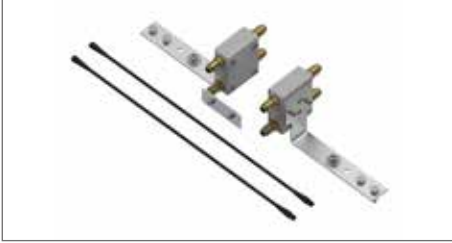


Water cooling conduit for cooling jacket

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 |



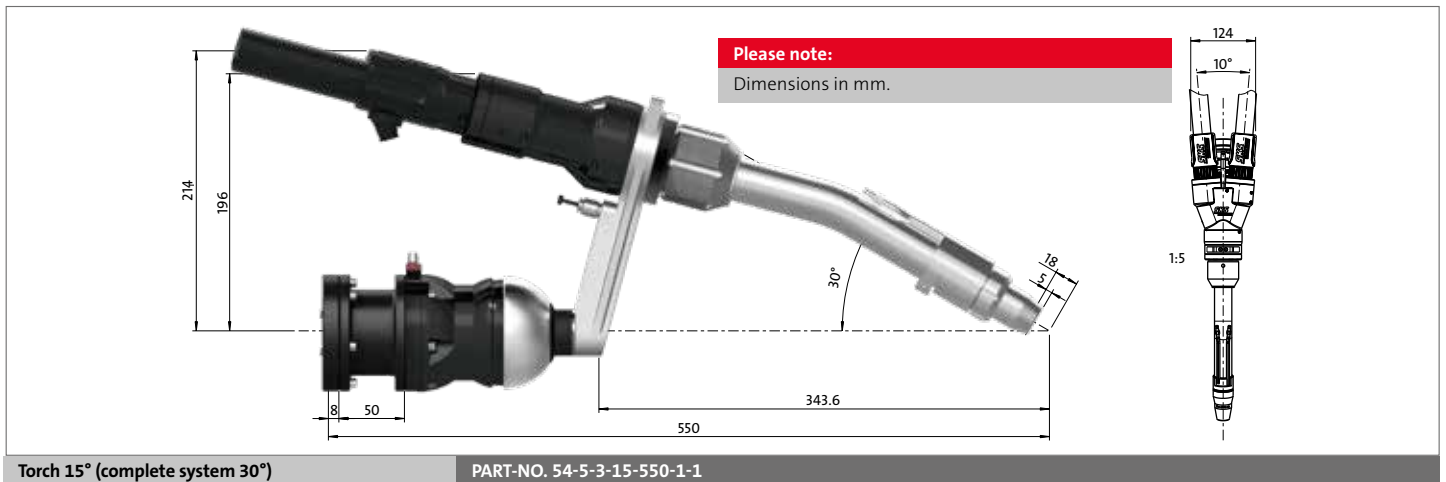
Velcro® strip set

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



eReam

For a precise and regulated
cleaning of the torch
frontend



Pure
Electric.

For further information
please visit
www.eReam.de

Please note:

Further information can be found in our eReam brochure (DOC-0184EN).



www.sks-welding.com

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