SKS
WELDING SYSTEMS

WELD PACKAGE
LASER HYBRID

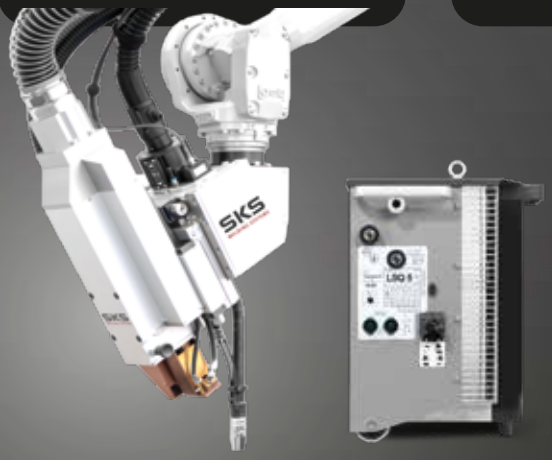
Merges GMAW welding and Laser into one innovative welding process.

CONTENT

Power Source • Weld Process Controller • Software/IT • Robot Interface • Wire Feeder • Wire Guidance • Cable Bundle • Control Cable • Torch System • Torch Neck • Consumables

WELDING PROCESSES

Laser-Hybrid
Laser
GMAW

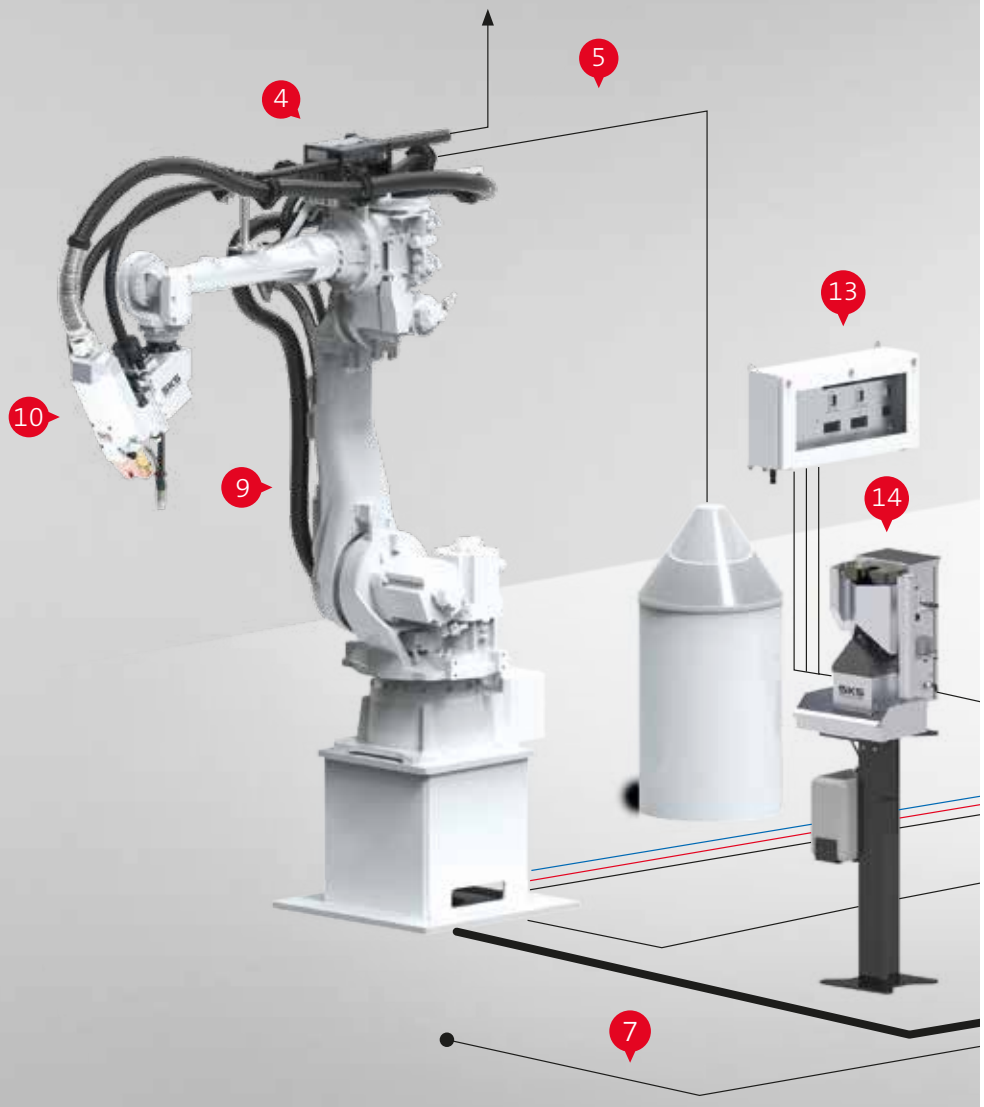


STEEL

SKS Weld Package: System design

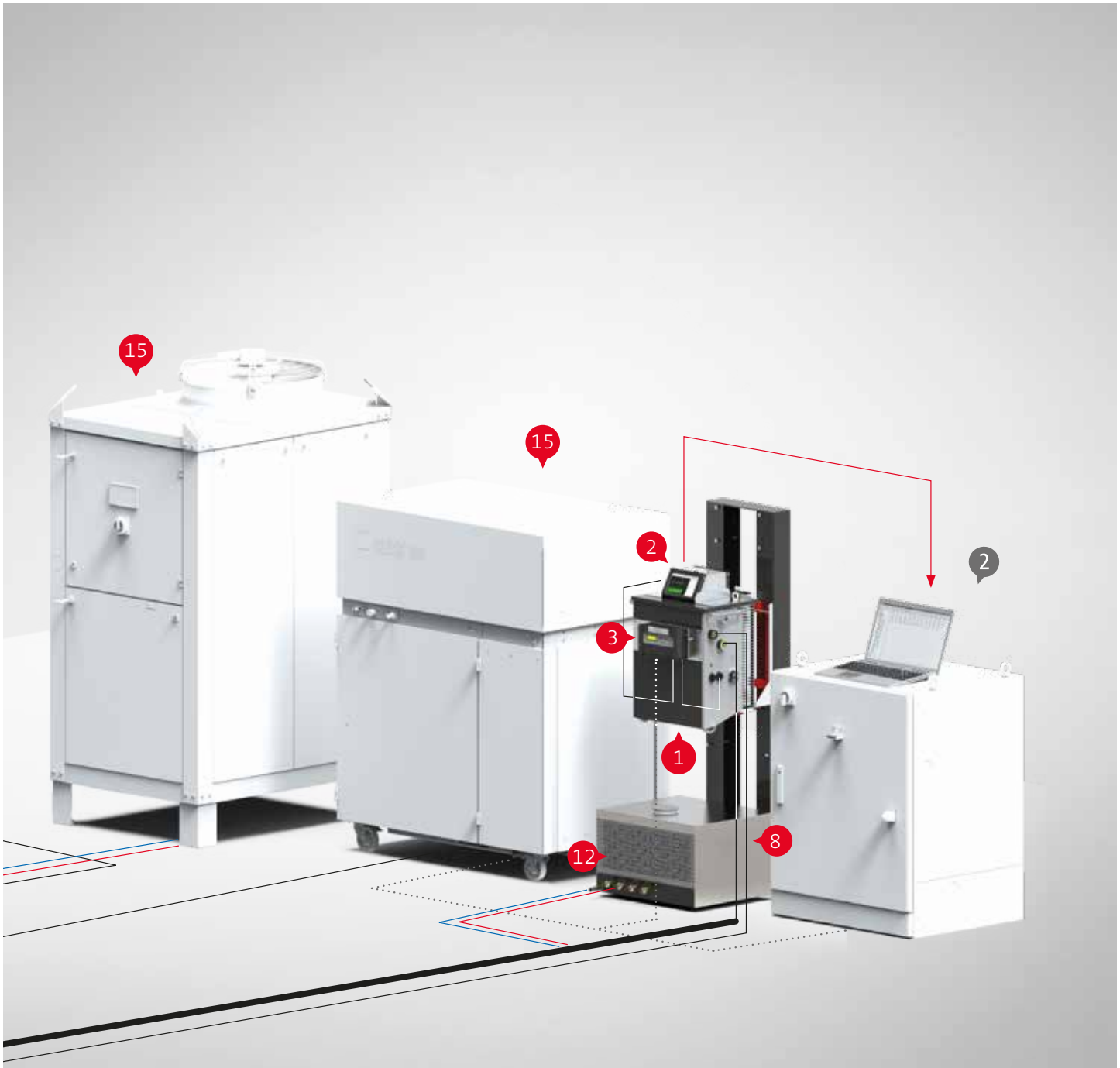
The Laser-Hybrid Weld Package contains:

1. Power Source
2. Weld Process Controller and Software/IT
3. Robot Interface
4. Frontpull Module
5. Wire Guidance
6. Connection Kits
7. Ground Cable
8. Control Cable
9. Cable Bundle
10. Torch System Laser-Hybrid
11. Torch Neck & Consumables
12. Water-Cooling Frontpull 8
13. Media Box
14. Torch Cleaning Station
15. Trumpf Components



For installations with outer cable dress.

This brochure contains information about the SKS Laser-Hybrid Weld Package, the torch system Laser-Hybrid, 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 Laser-Hybrid Weld Package can be used with all common industrial robots.



Laser-Hybrid – water-cooled for steel applications

Processes:	KF-pulse, Pulse, GMAW
Wire Materials:	High-alloy steels, low-alloy steels
Compatibility:	for all common industrial robots
Weight:	26 kg (Recommended Payload min. 50 kg)
Max. Power Torch System:	420 A – 60 % duty cycle/40 °C, water-cooled
Max. Power Laser System:	up to 8 kW
Wire Diameter:	0.8-1.6 mm
TCP Accuracy:	± 0.2 (400 mm)

1 Power source

LSQ5 power source

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 worldwide usage, voltages can be configured without opening the power source.

Overview of power sources	Part-No.
DCT power source LSQ5 Direct-Control-Technology	**77-1185-00**
DCT power source LSQ5-CCC Direct-Control-Technology	**77-1185-60**

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.

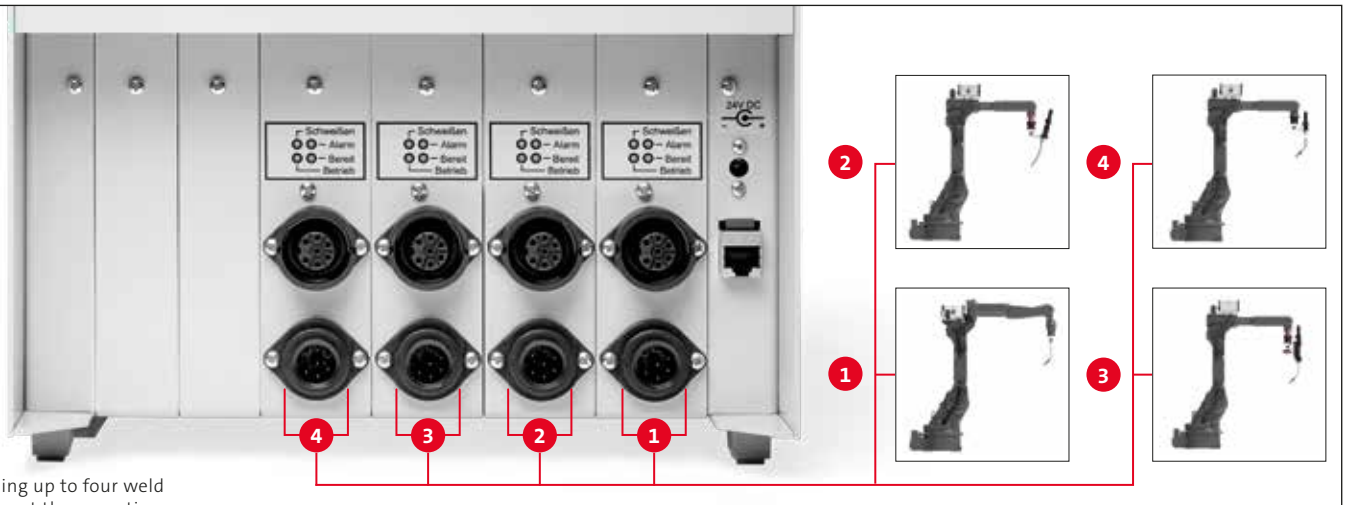
Specifications	LSQ5 (-CCC)
Performance	420A - 60% duty cycle/40 °C (400 A)
Processes	GMAW, Pulse, MIG-Brazing
Weight	49 kg
Primary voltage	3 x 400 (480) V
Wall mounting	Yes (optional)
Conformities	CE, CSA, UL (CCC)
Dimensions	450 x 400 x 540 mm

Overview of power source accessories	Part-No.
Wall mount for power sources LSQ4/5 series	**77-1180-01**
Universal mount for power sources LSQ5 / LSQ3	**93-61-2**

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.



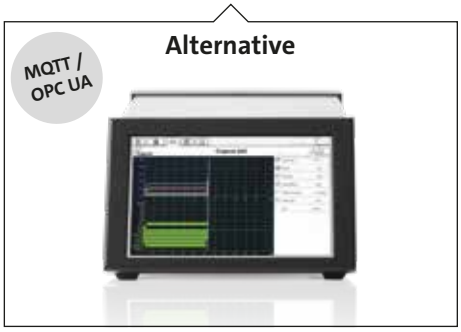
Controlling up to four weld machines at the same time

2 Weld process controller

Q84r weld process controller

Q84s weld process controller

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



Q80 weld process controller – front view


Q80 weld process controller – back view

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
- Supports MQTT / OPC UA

Overview of weld process controllers	Part-No.(Q84s)	Part-No. (Q84r)
Q84s/r weld process controller with one weld card	**77-7410-001**	**77-7310-001**
Q84s/r weld process controller with two weld cards	**77-7420-001**	**77-7320-001**
Q84s/r weld process controller with three weld cards	**77-7430-001**	**77-7330-001**
Q84s/r weld process controller with four weld cards	**77-7440-001**	**77-7340-001**

Overview of Q84r/s mounting kits	Part-No.
Bracket for Q84r for mounting onto power source LSQ3/5	**77-7240-01**
Mounting brackets for Q80/Q84s for mounting onto power source LSQ3/5	**77-7240-06**
Bracket for Q84r for wall mounting	**77-7240-02**
Bracket for Q84r mounting in the robot cabinet	**77-7240-05**

Overview of Q84r/s accessories	Part-No.
Connection cable for Q84r/s 5m with open end (optional)	**77-3305-00**
Plug for external power supply of Q84r/s	**77-7240-96**
USB adapter for SD/microSD cards	**91-8-1**

Overview of Q84r/s replacement parts	Part-No.
Touchpen for Q80 / Q84r/s weld process controller (spare part)	**77-7240-03**
SDHC card 8GB for Q84r/Q84s/Q80 weld process controllers	**91-8-6**

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
- Supports MQTT / OPC UA

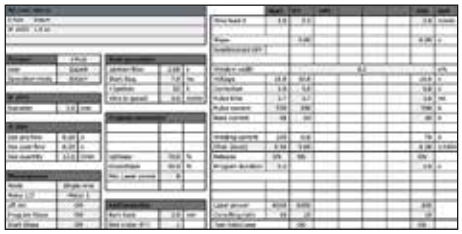
Overview weld process controller	Part-No.
Q80 weld process controller	**77-7260-001**

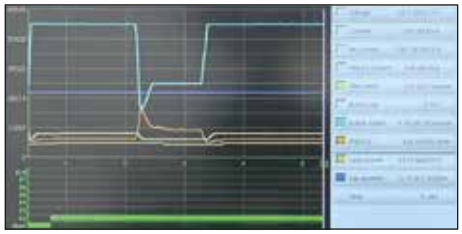
Overview Q80 mounting kits	Part-No.
Bracket for mounting onto power source LSQ5	**77-7240-06**

Overview Q80 accessories	Part-No.
USB adapter for SD-/microSD card	**91-8-1**

Overview of Q80 replacement parts	Part-No.
Touchpen for Q80 / Q84r/s weld process controller (replacement part)	**77-7240-03**
SDHC card 8GB for Q84r/Q84s/Q80 weld process controllers	**91-8-6**

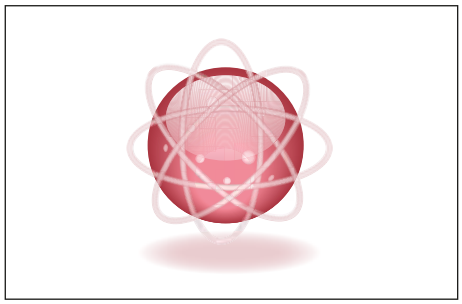
2 Software/IT





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.

Software Integration:
Central management of all parameters and processes

- **Parameter settings of the laser** completely integrated in the SKS software
- **Documentation** of all measures and the robot TCP speed

- All settings on a single screen
- All measurements on a single screen
- All SKS welding processes and functions available
- Ready to use Industry 4.0 protocols (MQTT + OPC UA) and data traceability!

Q8 TOOL

Perfect integration.

Interfacing all industrial robot types.

By the use of Fieldbus Interface FB5 the system can be perfectly integrated into existing Fieldbus environments. For analog and digital environments the universal interface UNI5 is available on request.

Standard application

Fieldbus systems exchange signals via serial communication. The Fieldbus master, usually the robot controller or overall system controller, bundles and processes the signals of the connected Fieldbus, including the welding machine. Standard Fieldbus systems are e.g., Interbus-S, Profibus DP or DeviceNet.

The Fieldbus interface FB5 translates the Fieldbus signals for the welding machine using a standardized protocol. It makes no difference which type of Fieldbus system is used. The signals are always at the same place on the Fieldbus. This makes the preparation of the robot or system controller much easier.

3 Robot interface

FB5 Fieldbus Interface: mounting onto the power source

FB5 Fieldbus Interface: mounting onto the cabinet

Fieldbus application

Various Fieldbus types are supported (e.g. Profibus DP, DeviceNet). The Fieldbus 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 Fieldbus types are available on request.

Overview of FB5 interfaces	Part-No.
Fieldbus interface FB5 Interbus-S (copper line)	**77-3-1**
Fieldbus interface FB5 Profibus DP	**77-3-2**
Fieldbus interface FB5 DeviceNet	**77-3-3**
Fieldbus interface FB5 EtherCAT	**77-3-4**
Fieldbus interface FB5 Profinet IRT (copper line)	**77-3-5**
Fieldbus interface FB5 Profinet IRT (LWL 2 Port)	**77-3-6**
Fieldbus interface FB5 Interbus-S (LWL FSMA)	**77-3-7**
Fieldbus interface FB5 Ethernet/IP	**77-3-8**

Cabinet mounting	Part-No.
Mounting kit for cabinet	**77-1182-02**
Cabinet cable 2m FB5 with device plug and cable socket	**77-3102-02**

Power source mounting	Part-No.
Bracket for FB5/Q6pw for mounting onto LSQ3/5	**77-1182-03**

Optional power supply (24V)	Part-No.
Connection cable 2.0 m (with open end)	**77-1182-04**

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 and laser power within defined limits. 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 can be found in our Synchroweld brochure.

Frontpull 8 Module

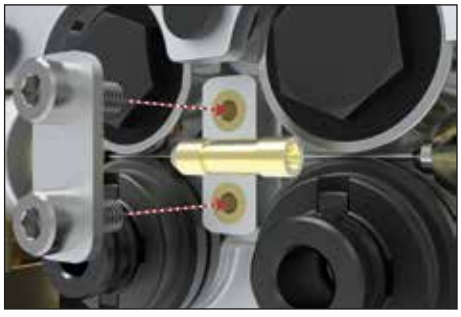
Modular standard.

The Frontpull module uses the proven industrial strength housing of the PF6 wire feeder. The installation is easy because the wire feeder brackets also fit the Frontpull module.

Frontpull 8 Module with integrated gas flow sensor

The motor control board is included in the module. The wire feeder mechanics are located in the torch. This separation protects the electronics from the noise of the welding process. The PF6 proven power pin block connection technology is also used in the Frontpull module to reach the most possible standardization.
The Frontpull module 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.

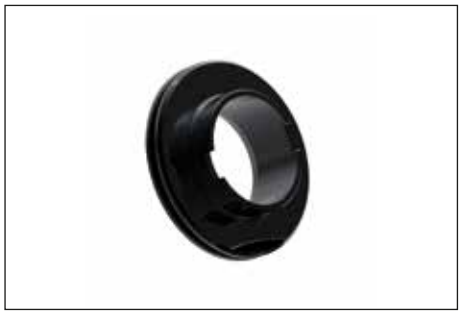
Overview Frontpull 8 Module	Part-No.
FPM8 Frontpull 8 Module with integrated gas flow sensor	**10-15-300**
Shielding Gas Saver ECO GS40 ¼", adjustable	**93-62-5**



Center guide

The center guide ensures a defined routing of the welding wire within the four roll drive.

Overview center guide	Part-No.
Center guide for PF5/6 wire feeder, wire-ø 0.8 - 1.6 mm for steel wire	**12-2-1-15**



Please note:

Two drive rolls per system are needed.

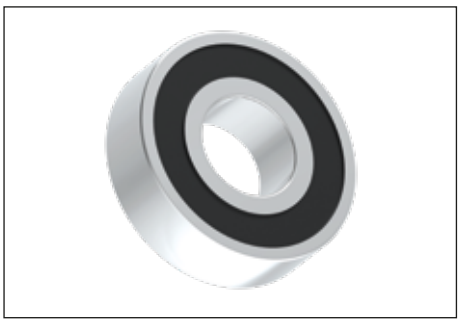
Please note:

Drive rolls for wires in inch sizes available on request.

Drive roll

Our drive rolls are available in several groove shapes for different welding filler materials. (V-groove for steel and knurled U-groove for filler wire applications).

Overview of drive rolls	Part-No.
Wire-ø 0.8 mm, V-groove	**12-2-4-08**
Wire-ø 0.9 mm, V-groove	**12-2-4-09**
Wire-ø 1.0 mm, V-groove	**12-2-4-10**
Wire-ø 1.2 mm, V-groove	**12-2-4-12**
Wire-ø 1.4 mm, V-groove	**12-2-4-14**
Wire-ø 1.6 mm, V-groove	**12-2-4-16**
Wire-ø 1.0 mm, U-groove	**12-2-4-310**
Wire-ø 1.2 mm, U-groove	**12-2-4-312**
Wire-ø 1.6 mm, U-groove	**12-2-4-316**



Please note:

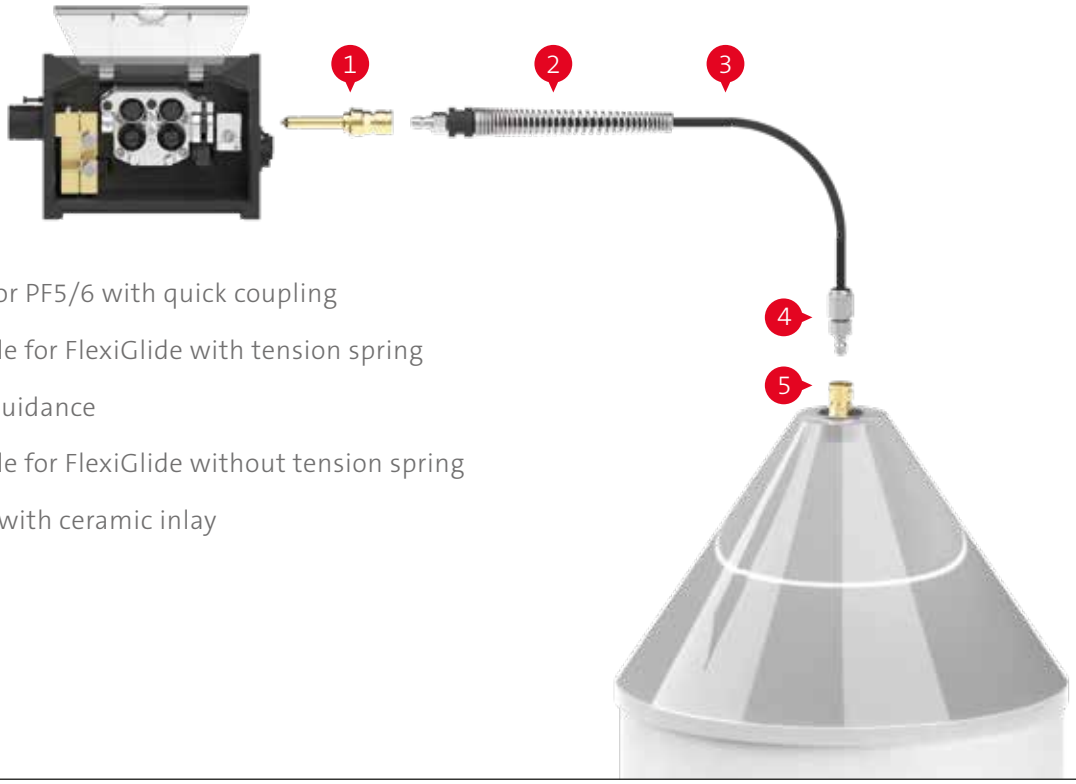
Two pressure rolls and two locating bolts are needed per system.

Pressure roll

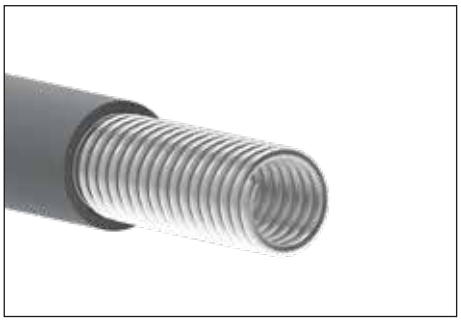
The pressure roll ensures a defined pressure of the welding wire into the specific groove shape of the drive roll.

Overview of pressure rolls	Part-No.
Pressure roll, DIN 625 T1 for PF5/6 wire feeder series	**12-2-3-0**
Locating bolt for pressure roll	**12-13-5**

5 FlexiGlide wire guidance



1. Wire inlet body for PF5/6 with quick coupling
2. Connection Nipple for FlexiGlide with tension spring
3. FlexiGlide Wire Guidance
4. Connection Nipple for FlexiGlide without tension spring
5. Drum connector with ceramic inlay



FlexiGlide Wire Guidance

Please note:

Furhter information can be found in our brochures "FlexiGlide" (PIN-0168) and "Wire guidance" (DOC-0193).

SKS Wire guidance FlexiGlide with a high limit of elasticity and very low friction. The constructive design, a coil made from chrome/nickel spring steel with a plastic coating, creates robustness, resulting in a high lifetime.

Benefits with FlexiGlide:

- Optimized for use in robotic applications
- High lifetime
- Very low friction
- Flame retardant and abrasion resistent

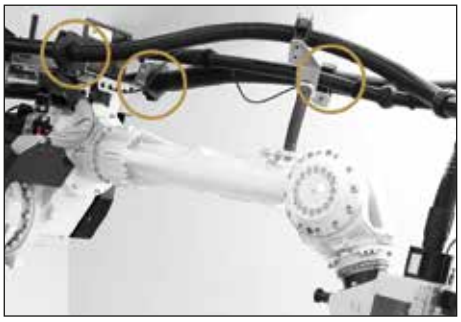
FlexiGlide wire guidance

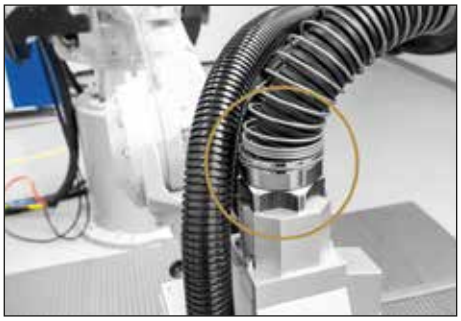
Overview of FlexiGlide wire guidance	Part-No.
Wire Inlet Body for PF5/6 with Quick-Connector	**10-2-0-61**
Connection Nipple insulated for FlexiGlide with tension spring	**44-3-11**
FlexiGlide wire guidance, Type B, per meter	**44-3-1**
Connection Nipple for FlexiGlide without tension spring	**44-3-4**
Drum Connector with ceramic inlet	**44-40-1**

Option

Overview of train-relief on wire guidance	Part-No.
Strain-relief for wire guidance on wire feeder bracket	**14-10-6**
Through-Wall Mount for wire guidance FlexiGlide incl. suspension	**44-3-8**
Wall Duct for FlexiGlide wire guidance	**44-3-9**

6 Connection kits





Connection Kits

SKS connection kits contain all robot-specific mounting parts for installing the Laser-Hybrid system. These include brackets, clamping pieces as well as springs to support cable movement. The components are adapted to the specific robot so that the bending radii are maintained. The cable lengths are also adapted to the respective robots for optimum cable routing. Other assembly parts such as brackets and cable holders are also supplied in a robot-optimized version.

Overview of connection kits for robots	Part-No.
For ABB applications	
on request	**on request**
For FANUC applications	
on request	**on request**

For KUKA applications	
on request	**on request**
For YASKAWA applications	
GP50	**in preparation**
GP180	**in preparation**

7 Ground cable

Please note:

Further lengths and diameters available on request

Ground cable with 70 mm² connector and cable plug

The use of highly pure copper reduces the electric resitance supporting the welding process. Manufactured as of DIN VDE 0285-525-2-81 / DIN EN 50525-2-81.

Overview of ground cables	Part-No.
Ground cable 70 mm² 6 m with DIX plug and cable lug	**228078106**
Ground cable 70 mm² 10 m with DIX plug and cable lug	**228078100**

Option

Overview of ground cables	Part-No.
Ground cable 95 mm² 6 m with DIX plug and cable lug	**228080106**
Ground cable 95 mm² 10 m with DIX plug and cable lug	**228080110**

8 Control cable

Please note:

For the Frontpull 8 system three control cables are needed. One control cable is already included in the cable bundle.

Please note:

Further lengths available on request.

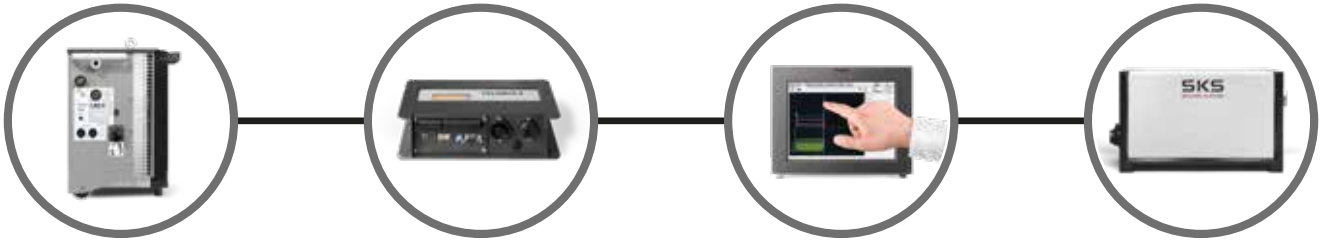
Control cable: L700/SPW-Bus

One cable to connect power source, weld process controller, interface and frontpull module. By use of one cable stock and installation is simplified. The power is supplied via this cable. An external supply is not neccesary.

Overview of control cables	Part-No.
Control cable 0.5m L700/SPW-Bus	**541031050**
Control cable 1m L700/SPW-Bus	**541031001**
Control cable 2m L700/SPW-Bus	**541031002**
Control cable 3m L700/SPW-Bus	**541031003**
Control cable 5m L700/SPW-Bus	**541031005**
Control cable 7m L700/SPW-Bus	**541031007**
Control cable 10m L700/SPW-Bus	**541031000**
Control cable 12m L700/SPW-Bus	**541031012**
Control cable 15m L700/SPW-Bus	**541031015**

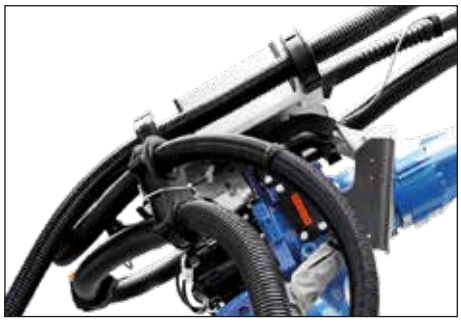
Plug & Play: Control cable L700

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 Frontpull module) 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 | Frontpull Module

9 Cable bundles



Please note:

Further lengths available on request.

Please note:

For use of the air blast function the air blast valve (Part-No. 93-50) is required.

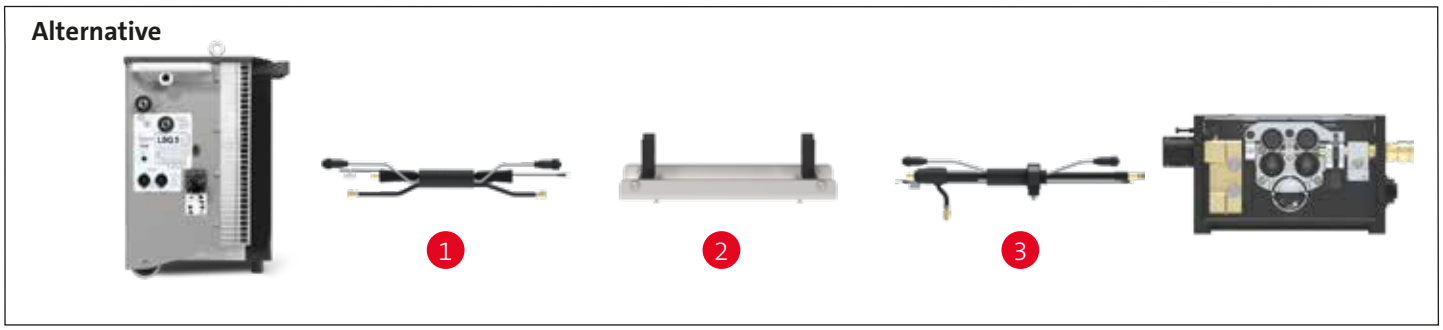
Cable bundle: power source to Frontpull Module

The cable bundle contains all system-relevant connection cables for connecting the power source and wire feeding unit. This includes a coaxial power cable with a 72 mm² cross-section and internal gas routing, a control cable L700, a corrugated tube and cable holders. The design is water-cooled.

Overview of cable bundles	Part-No.	Part-No. (with air-blast function)
Cable bundle 72mm² 5m -W- LSQ-PF5/6	**20-80-5**	**20-81-5**
Cable bundle 72mm² 7m -W- LSQ-PF5/6	**20-80-7**	**20-81-7**
Cable bundle 72mm² 10m -W- LSQ-PF5/6	**20-80-10**	**20-81-10**
Air-Blast Valve	--	**93-50**

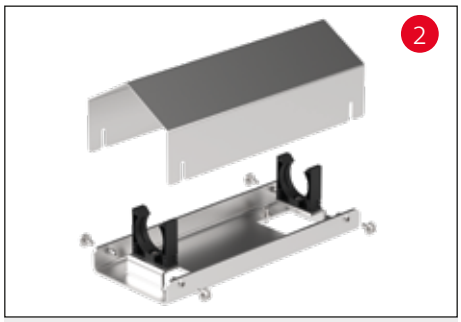
9 Dividable cable bundles

Alternative



Cable bundle 70mm² -W- LSQ – separation

Length	Part-No.	Part-No. (with air-blast function)
5 m	**20-18-5**	**20-28-5**
7 m	**20-18-7**	**20-28-7**
10 m	**20-18-10**	**20-28-10**



Cable bundle/Connection bracket (PF5/6) -W-

	Part-No.
Connection bracket	**20-17-0-3**

Cable bundle 72 mm² -W- separation – PF5/6

Length	Part-No.	Part-No. (with air-blast function)
3 m	**20-17-3**	**20-24-3**
5 m	**20-17-5**	**20-24-5**
7 m	**20-17-7**	**20-24-7**

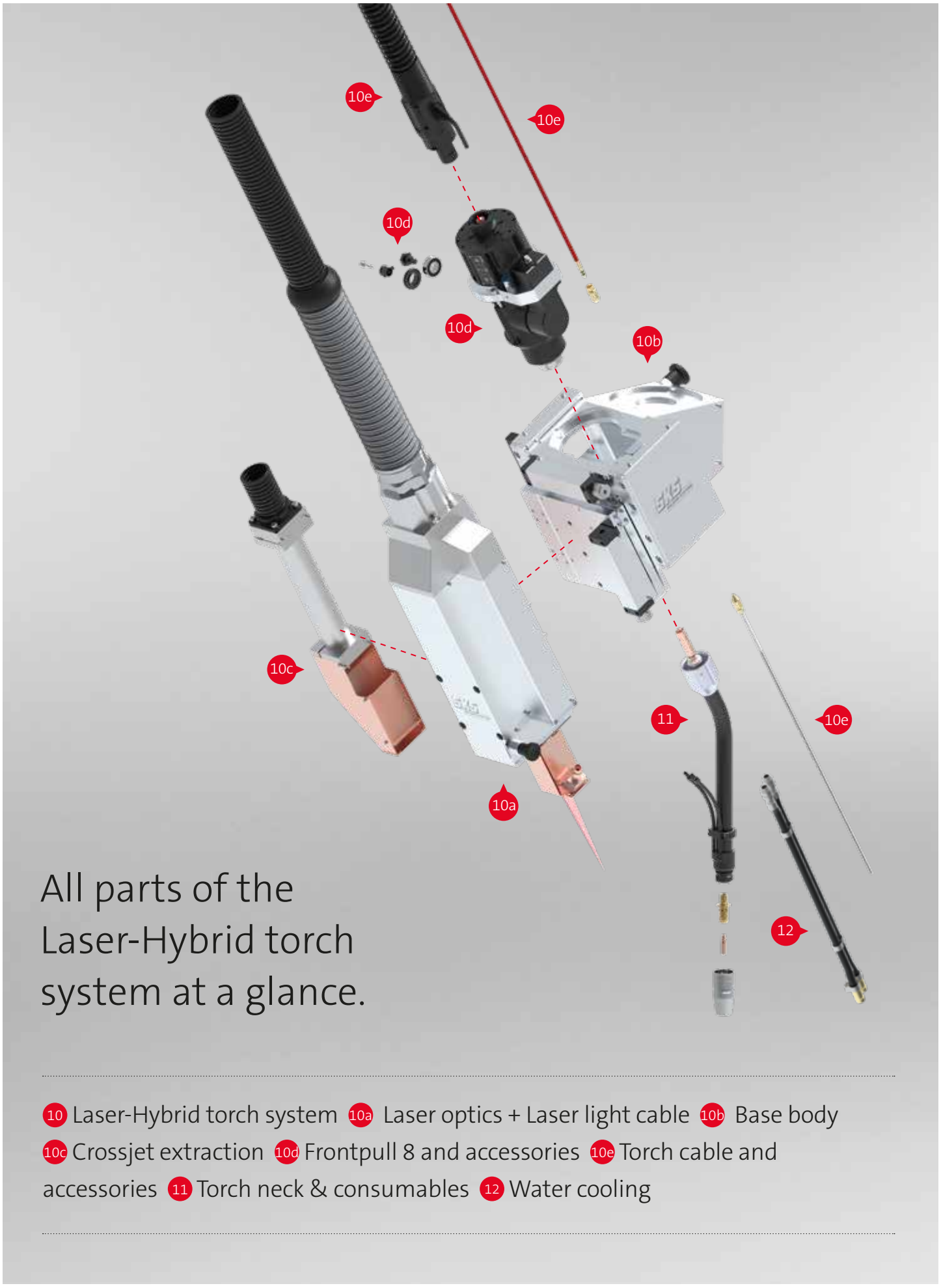
Please note:

Further lengths available on request.

Cable bundle with separation between power source and Frontpull Module

The moving parts of the cable bundle (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.

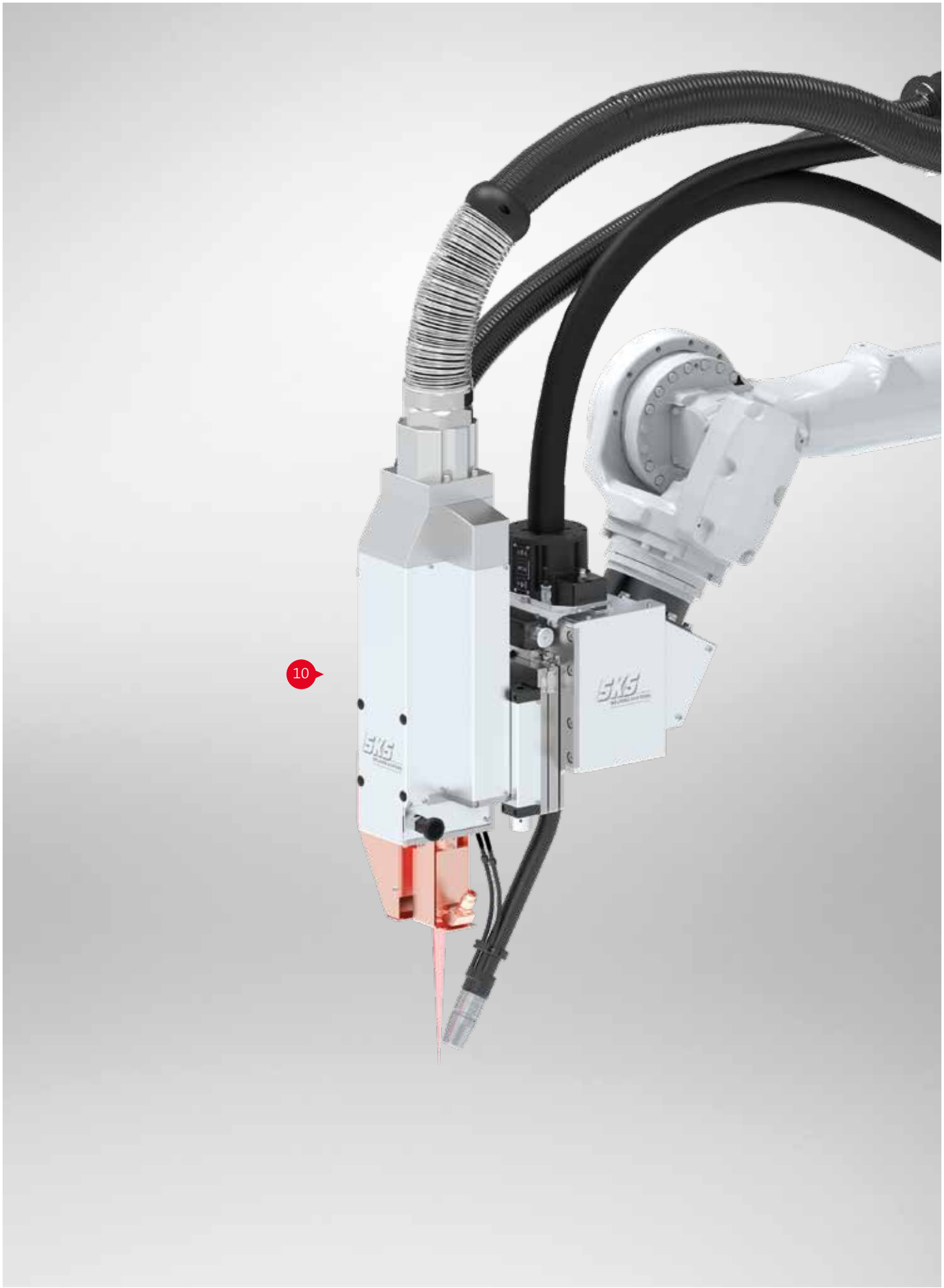
10 Laser-Hybrid torch system: Parts overview



All parts of the Laser-Hybrid torch system at a glance.

10 Laser-Hybrid torch system 10a Laser optics + Laser light cable 10b Base body 10c Crossjet extraction 10d Frontpull 8 and accessories 10e Torch cable and accessories 11 Torch neck & consumables 12 Water cooling

10 Laser-Hybrid torch system: Parts overview



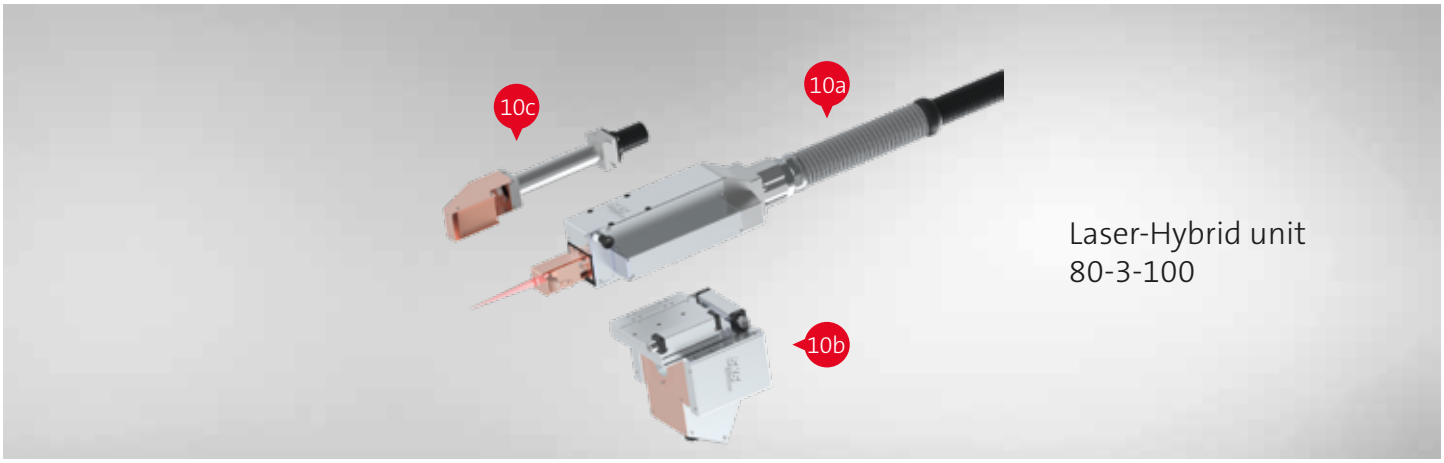
Laser-Hybrid:
Easy maintenance with low costs

The new modular SKS Laser-Hybrid torch system merges GMAW torch and Laser Optics as independent components. This eliminates the need of replacing the entire torch in case of malfunctions. Laser-Hybrid torch utilizes standard SKS GMAW torch components which saves costs on special spare parts and reduces downtime. Also, no additional adjustments are required after any exchange because of high precision and quality system parts.

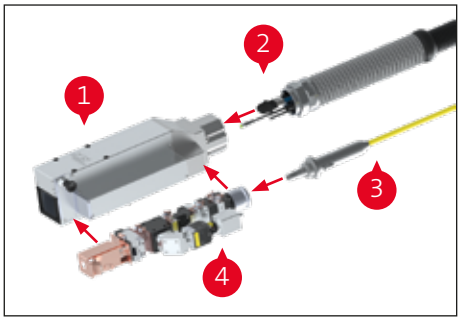
Laser-Hybrid – water-cooled for steel applications

Processes:	KF-pulse, Pulse, GMAW
Wire Materials:	High-alloy steels, low-alloy steels
Compatibility:	for all common industrial robots
Weight:	26 kg (Recommended Payload min. 50 kg)
Max. Power Torch System:	420 A – 60 % duty cycle/40 °C, water-cooled
Max. Power Laser System:	up to 8 kW
Wire Diameter:	0.8-1.6 mm
TCP Accuracy:	± 0.2 (400 mm)

10 Laser-Hybrid torch system



10a Torch system: Laser optics with laser light cable



Parts overview assembly group 80-3-30-1-20

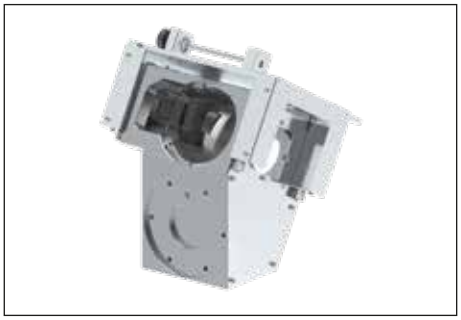
Please note:

For further information on laser optics and laser light cable, see point 15.

The pre-assembled unit is supplied as a complete assembly to ensure easier handling. The unit includes a protective glass contamination monitor, a camera for monitoring as well as a crossjet integrated into the laser optics assembly group.

Parts overview assembly group 80-3-30-1-20	Part-No.
1 Housing for laser optics	**80-3-4**
2 Cable bundle incl. strain relief	**80-3-6**
3 Laser light cable 100/400	**80-3-10-4-20**
4 Laser optics incl. camera and protective glas monitoring	**80-3-10-1-2**

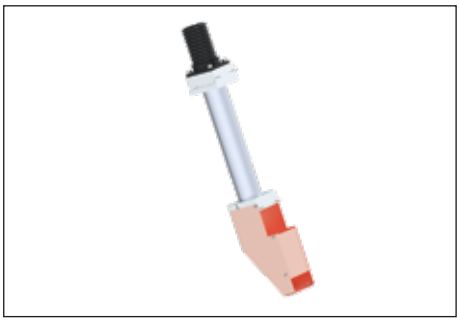
10b Torch system: Base body



The base body contains the XYZ adjustment for defined positioning of the laser optics. With a scale and a defined snap-in with clicks (0,1 mm increments), the adjustment can be easily reproduced on other systems.
Adjustment range: Y- and Z-axis ±10 mm, X-axis +15/-0 mm

Overview base body	Part-No.
Base body (X/Y/Z) for Laser-Hybrid	**80-3-3**

10c Torch system: Crossjet extraction



Crossjet extraction for safe removal of fumes and particles.

Overview crossjet extraction	Part-No.
Crossjet extraction incl. 10 m corrugated tube for self-assembly	**80-3-5**

Torch system: Frontpull 8 and accessories

Frontpull 8 torch system including mounting arm

With a weight of only 2.5 kilograms, the Frontpull 8 torch supports the new generation of robots. The requirement for a fast acceleration and high response speeds are implemented.
A wire feeding support unit has been placed in an external box to save weight at the foremost robot axis. The Frontpull 8 torch provides the most accurate wire feeding closest to the process. The "Lift-Arc" spatter-free ignition routine and a spatter reduced welding process provide an additional quality improvement. With the microMIG/microMIG-cc Technology (MMT) the Frontpull 8 torch provides heat-reduced welding, virtually spatter-free.

Frontpull 8	Part-No.
Frontpull 8 torch system with torch body and mounting arm	**10-23**

Advantages:

- Standard components (power sourcce, weld process controller)
- Standard SKS torches and consumables can be used
- The wire feeder is at the sixth robot axis providing for a highly precise wire feeding
- The Frontpull 8 torch system is based on the proven SKS Power Joint and Power Feeder design
- Supports spatter-free ignition
- High reliability – No synchronization problems

Specifications	
Weight	ca. 2.5 kg
Wire feeding speed	0 - 25 m/min

Integration Frontpull 8 into the Laser-Hybrid system

Drive roll

Our drive rolls are available in several groove shapes for different welding filler materials.
(V-groove for steel and knurled U-groove for filler wire applications).

Overview of drive rolls	Part-No.
Wire-ø 0.8 mm, V-groove	**12-2-4-08**
Wire-ø 0.9 mm, V-groove	**12-2-4-09**
Wire-ø 1.0 mm, V-groove	**12-2-4-10**
Wire-ø 1.2 mm, V-groove	**12-2-4-12**
Wire-ø 1.4 mm, V-groove	**12-2-4-14**
Wire-ø 1.6 mm, V-groove	**12-2-4-16**

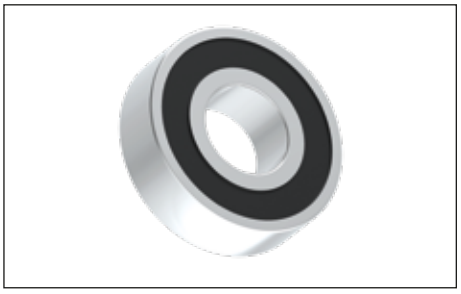
Wire-ø 1.0 mm, U-groove	**12-2-4-310**
Wire-ø 1.2 mm, U-groove	**12-2-4-312**
Wire-ø 1.6 mm, U-groove	**12-2-4-316**

Please note:

Drive rolls for wires in inch sizes available on request.

Please note:

One drive roll per system is needed.



Pressure roll

The pressure roll ensures a defined pressure of the welding wire into the specific groove shape of the drive roll.

Overview pressure roll	Part-No.
Pressure roll, DIN 625 T1 for PF5/6 wire feeder series	**12-2-3-0**
Locating bolt for pressure roll	**12-13-5**

Please note:

One pressure roll and one locating bolt are needed per system.

10e Torch cable and accessories

Torch cable with outer cable dress for Frontpull 8 torch system

High flexible coaxial cable 72 mm² with air blast tube and Power Pin

Overview of torch cables	Part-No.
0.75 m	**61-5-075-1**
0.9 m	**61-5-09-1**
1.0 m	**61-5-10-1**
1.1 m	**61-5-11-1**
1.2 m	**61-5-12-1**
1.5 m	**61-5-15-1**
1.8 m	**61-5-18-1**
2.0 m	**61-5-20-1**
2.4 m	**61-5-24-1**

Control cable for Frontpull 8 torch system

Connection between Frontpull 8 torch and Frontpull module

Overview of control cables	Part-No.
1.2 m	**77-2013-06**
1.5 m	**77-2013-061**
1.7 m	**77-2013-063**
1.8 m	**77-2013-064**
1.9 m	**77-2013-065**
2.0 m	**77-2013-066**
2.3 m	**77-2013-062**
2.6 m	**77-2013-067**
2.8 m	**77-2013-068**
3.2 m	**77-2013-069**

Velcro tape for mounting (10 pcs.)	**571040310**

Please note:

Connection cable length = torch cable length + 0.8 m

Frontpull liner for steel wire

For the following diameters:

Wire-ø 0.8 - 1.6 mm

Overview of liners	Part-No.
Frontpull liner 2.0 m for steel wire 0.8-1.6 mm	**44-22-1216-20**
Frontpull liner 3.5 m for steel wire 0.8-1.6 mm	**44-22-1216-35**
Frontpull liner 5.0 m for steel wire 0.8-1.6 mm	**44-22-1216-50**
Liner retainer	**44-30-3**
Inset for Frontpull wire guidance	**44-30-16**

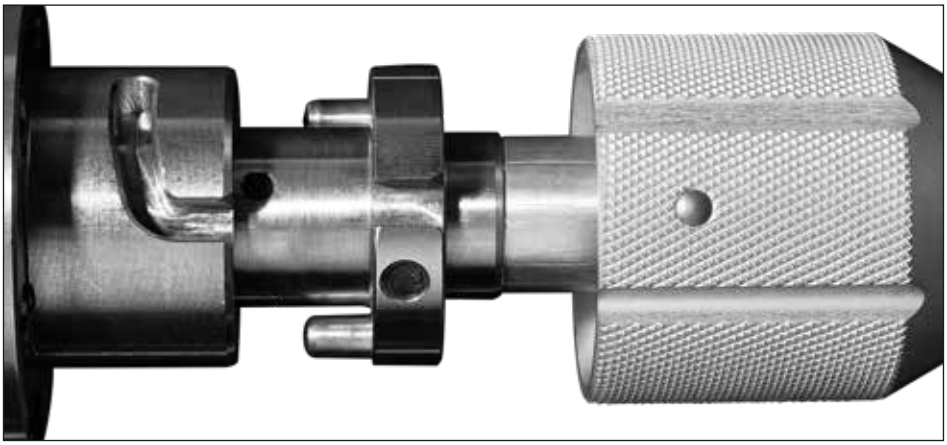
Wire guidance for torch neck

Overview of wire guidances	Part-No.
Frontpull wire guidance (white) for torch neck, Wire-ø 0.8 mm	**58-4-11-500-08**
Frontpull wire guidance (white) for torch neck, Wire-ø 1.0 mm	**58-4-11-500-10**
Frontpull wire guidance (red) for torch neck, Wire-ø 1.2 mm	**58-4-11-500-12**
Frontpull wire guidance (red for torch neck, Wire-ø 1.6 mm	**58-4-11-500-16**

Torch necks for Frontpull 8

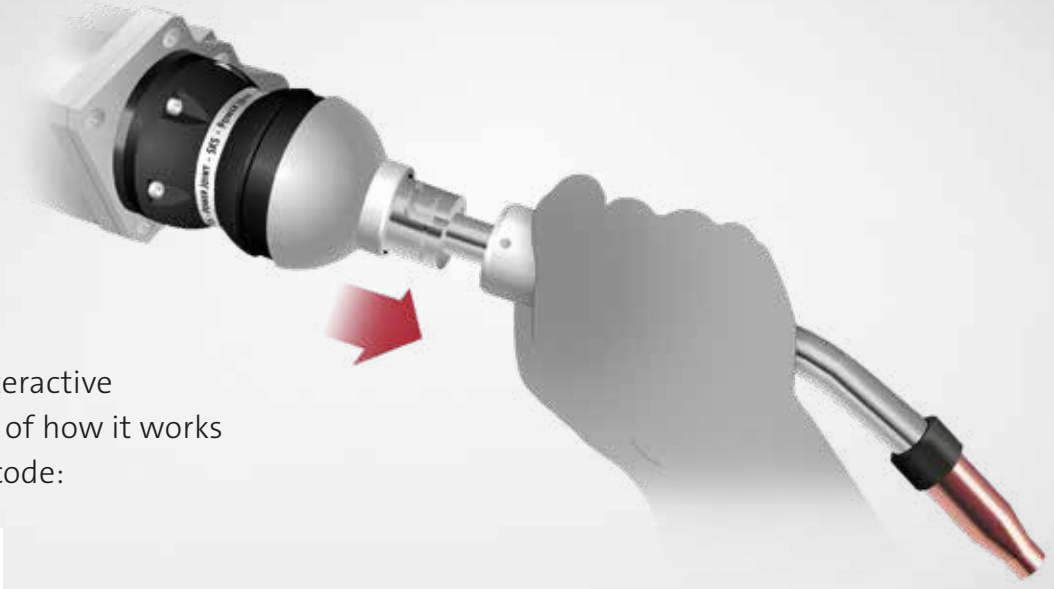
The Laser-Hybrid torch system uses the water-cooled SKS HQX torch neck and standard consumables. The bayonet quick-release system enables the torch neck to be installed quickly. With its high precision, a TCP of ± 0.2 mm (at 400 mm) is guaranteed when it is replaced.

Overview torch neck	Part-No.
HQX torch neck	**58-527-7330-533-1**



The SKS bayonet quick change system for torch necks

Torch neck change with the SKS bayonet locking concept

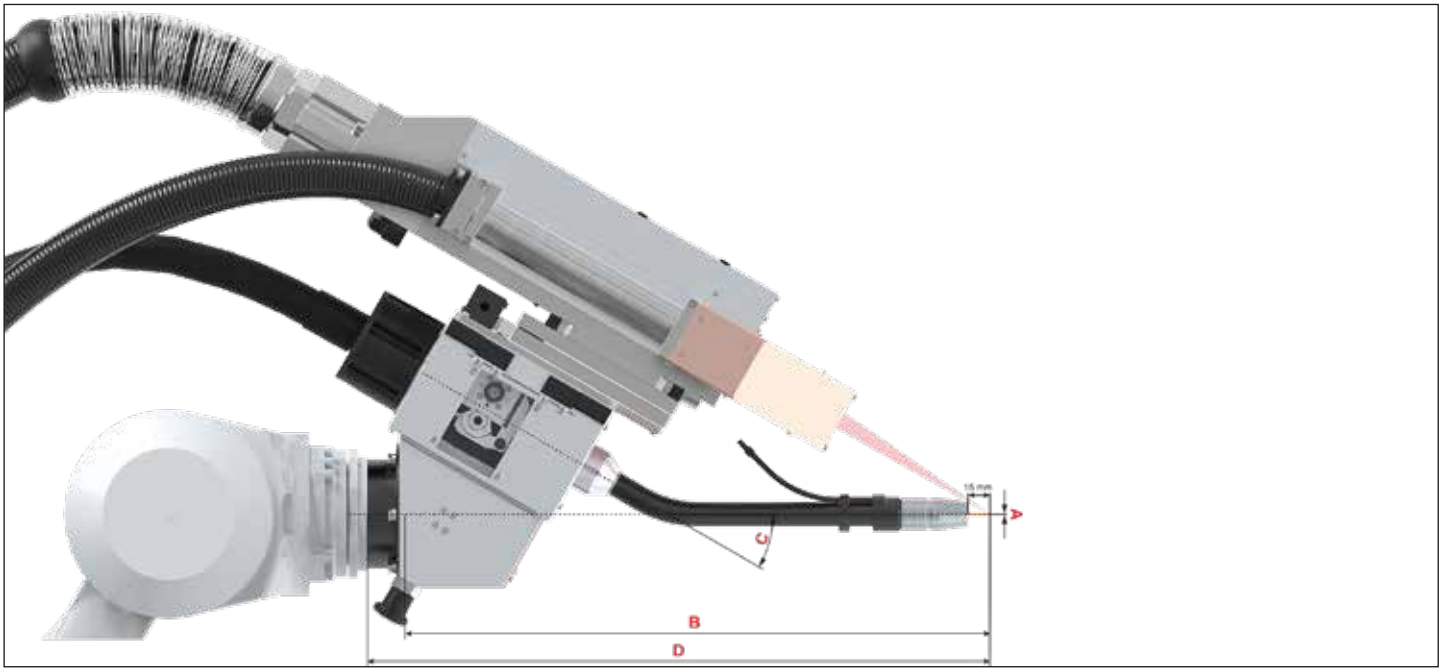


Find an interactive animation of how it works in the QR code:

Please note:

Animation using the example of a standard torch neck in the Power Joint Weld Package.

11 Torch system: TCP dimensions



Overview TCP dimensions

58-527-7330-533-1	A	B	C	D
Part-No.	**(distance in mm)**	**(TCP length in mm)**	**(angle in °)**	**(distance in mm)**
GP50	0	516	30	550
GP180	0	516	30	575

Please note:

Dimensions in mm.

Power Lock Plus: retaining head

Heavy duty retaining head with thread for threaded gas nozzles for simple and safe installation

Overview retaining head	Part-No.
HQX retaining head	**43-20-3**

Power Lock Plus: contact tips

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

Overview of contact tips	Part-No.
Contact tip Power Lock Plus for Wire-Ø 0.8 mm, HD-CuCrZr	**40-6-7-0.8S**
Contact tip Power Lock Plus for Wire-Ø 0.9 mm, HD-CuCrZr	**40-6-7-0.9S**
Contact tip Power Lock Plus for Wire-Ø 1.0 mm, HD-CuCrZr	**40-6-7-1.0S**
Contact tip Power Lock Plus for Wire-Ø 1.2 mm, HD-CuCrZr	**40-6-7-1.2S**
Contact tip Power Lock Plus for Wire-Ø 1.4 mm, HD-CuCrZr	**40-6-7-1.4S**
Contact tip Power Lock Plus for Wire-Ø 1.6 mm, HD-CuCrZr	**40-6-7-1.6S**

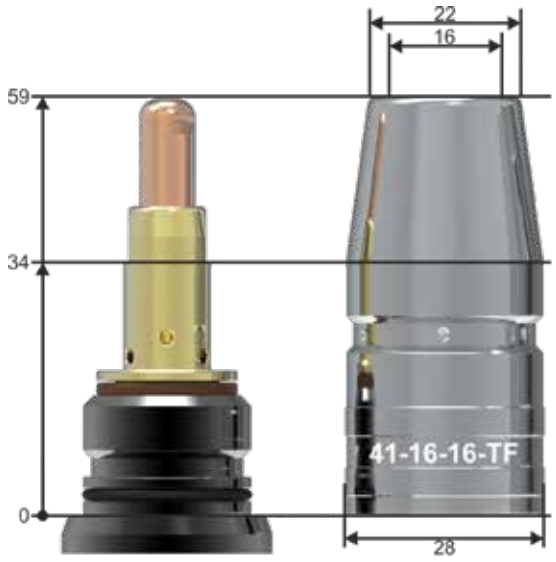
Please note:

Contact tips for wires in inch sizes available on request.

HQX gas nozzle

	Part-No.
16 mm tapered	
flush	**41-16-16-TF**

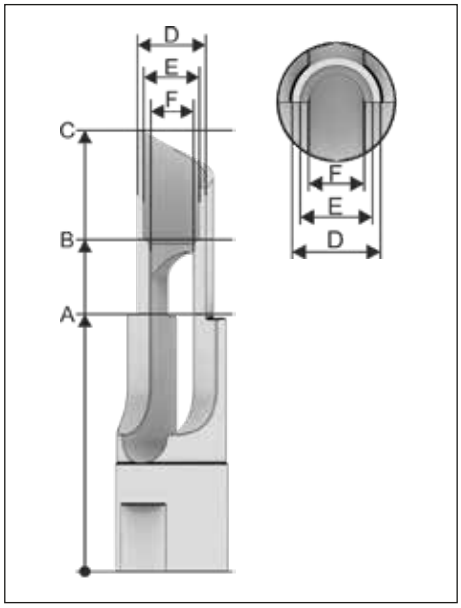
16 mm tapered



Gas nozzle Part-No. 41-16-16-TF
Reamer Blade:
Power Lock Plus
(M10 x 1) eReam 2.0 Part-No. 82-3-2-16-F

Please note:

Dimensions in mm.



Reamer blade (internal thread M10 x 1)

For eReam 2.0 cleaning station

Inner diameter of the gas nozzle	Gas nozzle length	Part-No.
16 mm	flush	**82-3-2-16-F**

Dimensions						Part-No.
A	B	C	D	E	F	
38	53,5	76,5	15,5	12,8	9	**82-3-2-16-F**

Please note:
Dimensions in mm.

Tools and accessories

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

Overview of tools and accessories	Part-No.
Mounting tool SW7 for contact tip (Power Lock Plus)	**51-9002-00**
Stopper-Key for drive rolls (Std & Lite)	**93-100-3-3**
SKS Multitool for single wire torch systems	**47-11**

Programming tips

Programming tips for precise seam programming

Overview of programming tips	Part-No.
Stickout	
15 mm (Power Lock Plus)	**65-12**

Water cooling

The Laser-Hybrid torch system has a cooling circuit for highest efficiency. The circuit is used for the direct cooling of the consumables. So the reflected energy of the welded parts can be dissipated directly from the consumables.

Water cooler eChilly

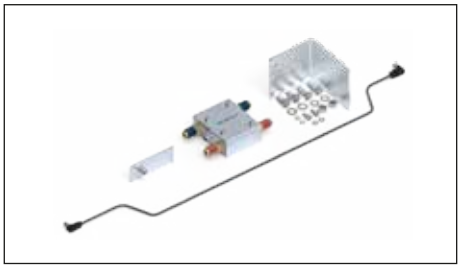
The water cooler eChilly is active cooled and has two separated cooling circuits and provides best possible cooling efficiency next to the process. Up to two torch systems can be cooled independantly at the same time. Tank capacity 6.4 L.

Overview water cooler eChilly	Part-No.
Water cooler eChilly 1-special (active, two circuits)	**541018400**

Water cooling conduit for cooling jacket

Conduit for cooling jacket to dissipate heat from the consumables.

Overview water cooling conduit for cooling jacket	Part-No.
Water Lines Flow & Return conn. Torch to Water Module	**71-8-23**
Velcro® strip set (10 pcs. à 20cm)	**571040310**



Water monitoring

By monitoring the flow speed the heat transport from the frontend is ensured. Exceeding the limit triggers an according alarm.

Overview water monitoring	Part-No.
Water monitoring for Wire Feeder PF5/6-Series	**93-11**
Mounting for water module on Wire Feeder Bracket	**93-11-5**

Water filter

Cooling fluid may be contaminated with small particles, affecting the cooling efficiency. The water filter filters these particles out of the cooling fluid.

Overview water filter	Part-No.
Water filter with inset	**93-11-6**
Inset (replacement part)	**91-60-F1060691350**
Glysantin G40, 1,5l bottle, for mixing 1:2	**D-100-0159**
Water hardness test strip	**91-78-1**

Media box for Laser-Hybrid

The media box is used to safely supply and regulate the individual gases.

Media box for Laser-Hybrid

The purging gas is fed from the connection into the interior of the optics to prevent dirt and dust from entering. The crossjet feeds compressed air gas through a nozzle at a 90° angle to the optics, which protects them from spatter and fumes during the welding process. The crossjet does not affect the melt and shielding gas. It has an additional coaxial nozzle (MVE nozzle) to minimize the metal vapour effect. This reduces soiling of the protective glass, in addition to the effect of the crossjet.
During the laser welding process, particles in the metal vapor can attenuate and deflect the laser light. This can lead to fluctuations in the welding depth and irregular weld seam surfaces. The MVE gas (metal vapor effect) prevents this.

Overview media box for Laser-Hybrid	Part-No.
Media box for Laser-Hybrid	**80-3-20-1**

Specifications

Medium	Parameter
Purging gas	flow rate: 8 l/m
Crossjet	pressure: 3.5 - 8.5 bar

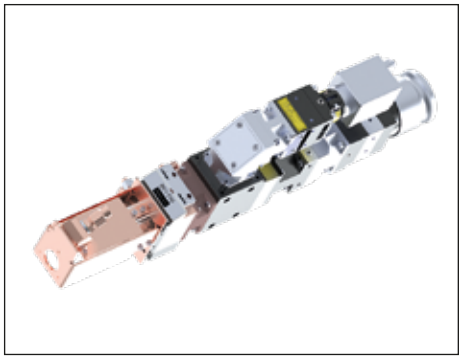
eReam 2.0 for a precise cleaning of the torch frontend

Pure Electric.

For further information please scan this QR code:

Please note:

Further information can be found in our eReam 2.0 brochure (DOC-0205EN).



Laser optics BEO D50-S

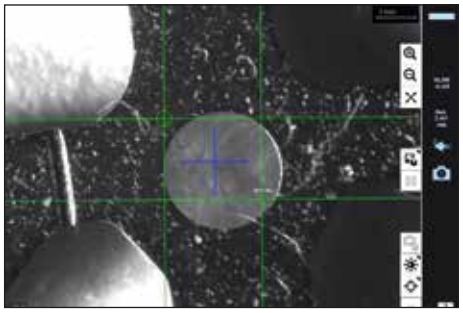
Laser optics BEO D50-S incl. protective glass contamination monitoring and camera surveillance

- Compact laser optics for laser power up to 8 kW
- Robust and reliable: optimized for industrial use and 24/7 operation
- flexible and modular: Optimally adaptable to your application and installation situation

Laser parameters laser optics BEO D50-S	
Wavelength range	930 nm - 1085 nm
Power	up to 8000 W
Numerical aperture	typ. 0.11 / 0.12
Laser light cable type	LLK-D

Optics configuration according to SKS specification	
Part-No. Trumpf	22-50-18-A239
Description Trumpf	BEO D50 0° K100 F300 C CJ-LI SKS
Collimation	35 / **100** / 125 / 150 / 200 mm
Focal length	150 / 200 / 250 / **300** mm

Structural design	
Dimensions (W x H x D)	128 x 407 x 100 mm
Weight	4.1 kg



VisionLine Basic

VisionLine Basic

Digital camera image with crosshair in laser focus for observing the workpiece and teaching. With scanner optics, the effect of chromatic aberration is corrected for all positions in the processing field.

- Integrated algorithm for easy calibration
- Convenient touchscreen operation
- Still image / live image
- Saving images

Protective glass monitoring

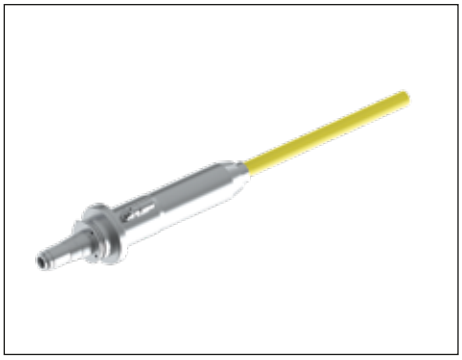
- Increases production reliability by measuring contamination of the protective glass
- Limiting of values adjustable by the customer
- Connected to the laser with warning and error messages via laser software (TruControl)
- Quick replacement of protective glass without any tools

Cartridge module including RFID protective glass

- An integral part of protective glass monitoring
- Allows tracking of the protective glass life cycle
- Helps optimizing of production process
- Prevents wrong insertion of protective glass

Crossjet with metal vapor effect nozzle

- Crossjet for deflection of particles to increase life time of protective glass
- coaxial nozzle to minimze metal vapor effect
- more constant weld depth and higher precision
- efficient welding process, reduced spatters and constant surface quality



Laser Light Cable LLK-D Smart (Brightline)

Laser Light Cable LLK-D Smart (Brightline)

Laser Light Cable LLK-D Smart HLB	
Diameter	100/400 µm
Length	20 m
Type	HLB 2-in-1 (Brightline)

- Innovative laser light cable for various applications (e.g. cutting and welding) with one cable
- Two concentrically arranged light paths in one laser light cable
- Optimized for even the highest laser powers
- Plug & Play without readjustment and without tools for all core diameters ≥ 100µm
- Safety monitoring integrated into the laser safety circuit

Trumpf TruDisk with Brightline

Please note:

Laser-Hybrid from SKS is designed for lasers up to 8000 W.

Trumpf TruDisk with Brightline

Laser parameters Trumpf TruDisk with Brightline	
Laser power	up to 8000 W
Typical power constancy at rated power over 8 hours at constant ambient temperature	± 0,5 %
Continuously adjustable power range	160 W – 8000 W with active power regulation (depends on laser power)
Beam quality at the input coupling in the LLK	4 mm mrad
Numerical aperture on the output coupling after LLK	0.1
Wavelength	1030 nm
Minimum laser light cable diameter	100 µm

Structural design	
Dimensions (W x H x D)	1175 x 1430 x 725 mm
Maximum number of laser light cables	2
Maximum number of laser light cables for extended device size	4

Trumpf Water-Air-Chiller Type RL 25/0

Water-Air-Chiller Type RL 25/0

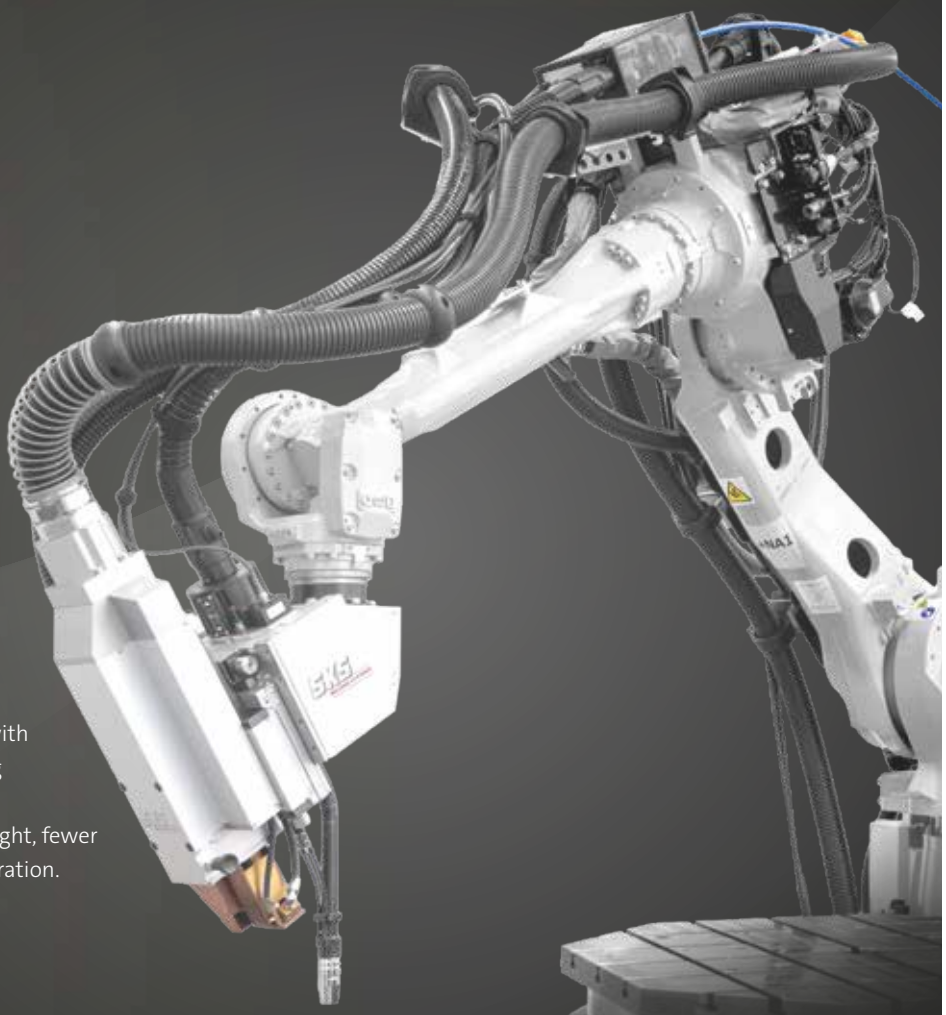
Water-Air-Chiller Type RL 25/0	
Ambient temperature chiller operation	5 – 45 °C
Cooling power	30.5 kW (at 50 Hz operation)
Pump pressure	3 bar
Bi-frequency chiller operation	at 400 V: ± 10 % and 50 Hz at 460 V: ± 10 % and 60 Hz (optional)

SKS EXPERTISE, SUPPORT AND SERVICE

SKS welding experts have a high level of experience in arc welding of different base and filler materials. Years of internal studies have made it possible to investigate and determine the different influences and process parameters in the interaction between GMAW and Laser. This knowledge allows us to provide the best solution for customers and users, even at highly complex tasks.
We focus on solutions!

HIGH EFFICIENCY AND COST SAVING

Our solution provides an optimized usage of resources while maximizing productivity. This ensures your bottom line stays robust with a multitude of cost-saving benefits including reduced wire, gas and energy consumption, streamlined logistics, lighter component weight, fewer weld layers and savings on weld seam preparation.



Scan QR-Code to watch video

SKS

WELDING SYSTEMS

Contact:

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

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