SKS
WELDING SYSTEMS

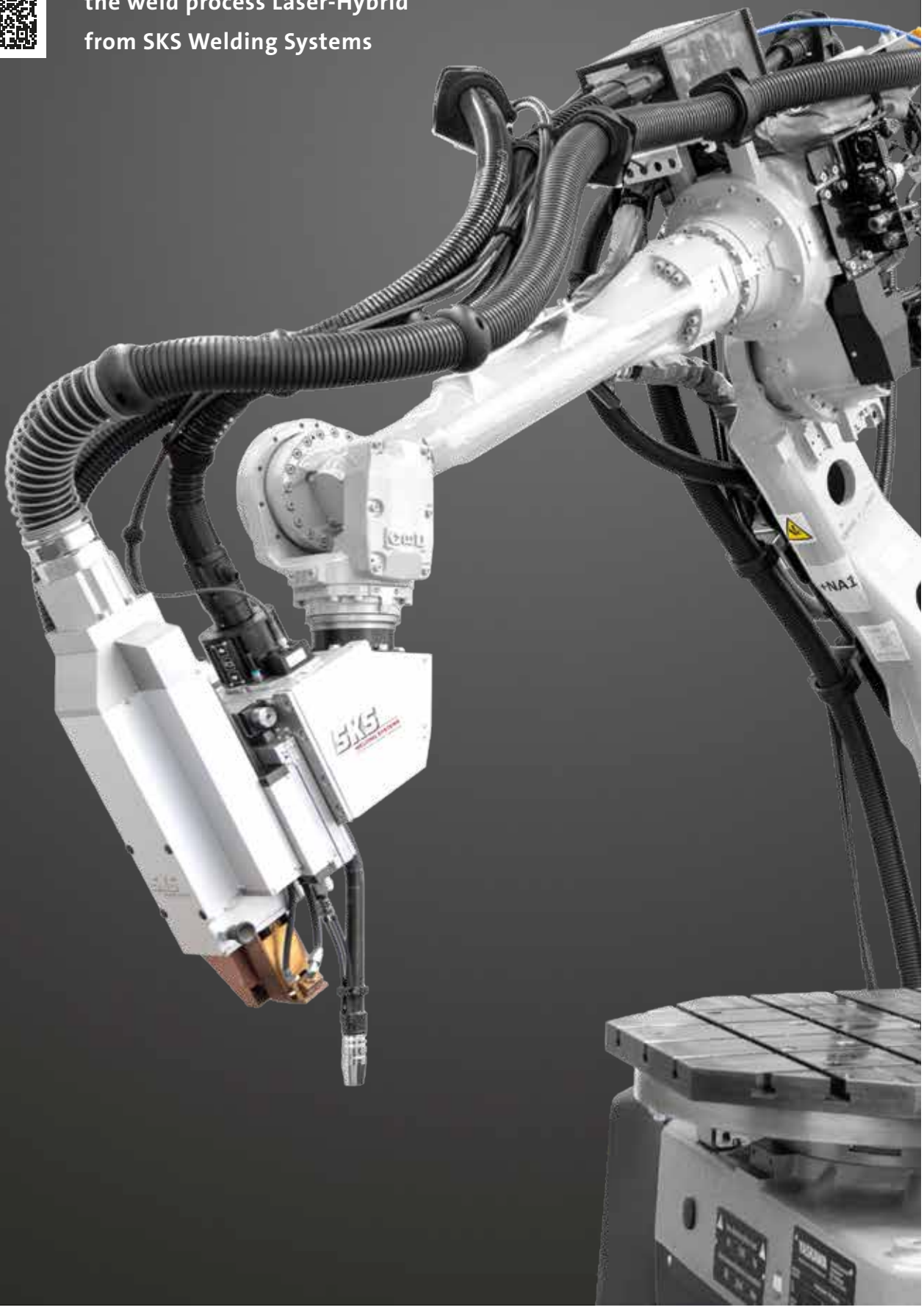
More than 35 years

Design. Technology. Performance.

Table of contents

LASER-HYBRID

Watch video: New possibilities – the weld process Laser-Hybrid from SKS Welding Systems



Made for welding

For more than 35 years, SKS Welding Systems has been known as a reliable system partner for robotic arc welding. Our innovative power combined with a forward vision and customer-oriented development work have allowed us to establish an excellent reputation throughout the industry. As leading innovators, we develop welding machines, torch systems and welding processes, for excellent welding results that expand the possibilities of automated robot welding.

The main value is the combination of a modularly designed welding machine made of high-performance components with a functional torch series for single wire and dual wire welding. Our systems are complemented by flexible and license free software solutions for the documentation of welding data – from a stand-alone operation to network-integrated solutions. All of our welding machines and torch systems are compatible with all common welding robots. What makes our products unique are their excellent weld results, high reliability, long service life, low operating costs and – a real sustainability asset – the modular design of the whole welding system.

SKS corporate development and history of innovation

DP»»BASIC
DP»»FAST

2022 New functions DP-Basic and DP-Fast. Development of SKS Laser-Hybrid Weld Package.

2014-23 SKS extends worldwide Customer Centers in Türkiye, the US, Mexico, China, Spain, South Africa, India, France and Canada.

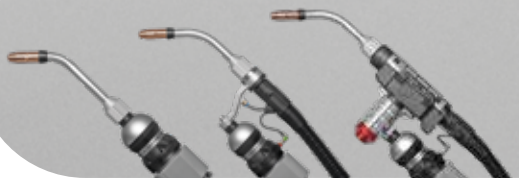
2017 SKS extends its headquarters in Kaiserslautern (incl. the doubling of the production capacities).

2015 Market launch Frontpull 8 technology for robots with outer cable dress.

MICRO»»MIG

2009 Market launch microMIG welding process. Start Customer Centers strategy: foundation of SKS Czech Republic

2010 Market launch of the Q84 weld process controller. SAM: Hand welding with robotic quality.



Industry 4.0 ready

2008 Development and market launch of the SKS welding torch series.

2007 The SKS welding machine becomes Industry 4.0 ready.

2006 Robots and welding machines united: SKS presents Synchroweld.

1989 Foundation of SKS Schweiß- und Schneidsysteme GmbH.

1993 Market launch of the first fully digital welding system for reproducible welding parameters.

2023/24 Market launch eReam 2.0. Software update for SKS weld process controllers with MQTT and OPC UA for enabling it for Industry 4.0.

2025 Development of the LSQ COMPACT Series: LSQ power source, weld process controller and fieldbus interface combined in a single device

2014 eReam: First fully electrically driven torch cleaning system. Introduction of the Frontpull 8i Lite torch system.

2013 Introduction of the Water Joint torch system: Now, endless rotation also works with water.

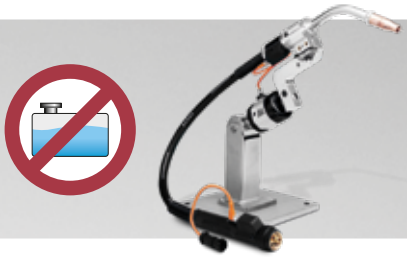
MICRO »» MIG-CC

2011 New weld process with the Frontpull 7 torch system: microMIG-cc.

2012 An investment for the future: The new head office in Kaiserslautern. Foundation SKS Customer Center in Hungary.

2003 The perfect match for process arm robots with a hollow wrist: Power Joint welding torch and PF5 wire feeder.

2001 Power source with second-generation digital technology enters the market.



1996 Introduction of our dual-wire torch for high welding speeds and deposition rates.

1999 A revolution: Change from water-cooled to air-cooled welding torches in the European market.

100% FLEXI BILITY

Perfect for welding of aluminum and copper alloys, high-alloy steels, low-alloy steels and nickel-based materials.

CrNi

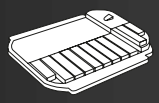
St

Al

CuSi

BUSINESS SEGMENTS

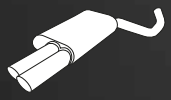
AUTOMOTIVE



Battery Tray Systems

Chassis

Seats



Exhaust Systems

Car Bodies

GENERAL INDUSTRY

Energy

Transportation

Industrial Equipment

Office and Home

SPECIAL APPLICATIONS

Additive Manufacturing

The complexity of the tasks in the automotive industry has constantly increased over the last few years – under growing cost and efficiency pressures. In this changing market environment, we saw a tremendous potential SKS' proven technology and solutions.

The decision to intensify our research and development efforts and lead our own products to market maturity proved to be the right decision.

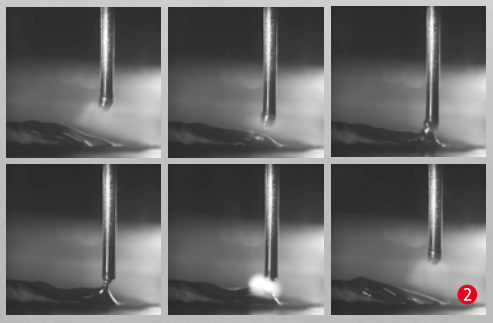
The demand for SKS products and the positive feedback from our customers has motivated us to continue along this path in the future.

SKS processes and functions

The future is spatter-free

Heat-reduced welding with defined penetration: With the mechanically supported droplet detachment technique – patented by our long-standing technology partner – SKS Welding Systems respond to the demands of the market. In perfect interaction with the innovative Frontpull Weld Package, robust welding components enable the new microMIG process. This process provides a spatter-free material transfer at a defined heat input. The result is a process that, on the one hand, can be set to a considerably reduced heat input and, on the other hand, reliably ensures the required penetration.

The microMIG process is implemented without the use of expensive additional equipment as the Frontpull Weld Package uses standard components. This makes the microMIG process not only available for new welding machines, but also for existing systems by simply retrofitting the required Frontpull equipment.



1 **Welding aluminum**
microMIG welding process with measuring curve

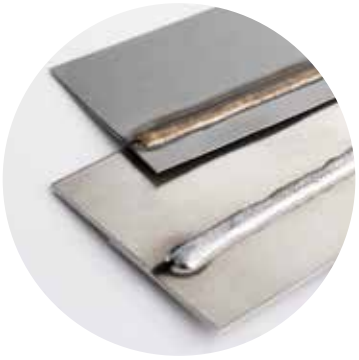
2 **High-speed recordings:**
microMIG-cc welding process – patented process for mechanically supported droplet detachment

SKS processes: automated control and monitoring functions

The welding process is a complex physical process with many external factors, difficult for users and customers to manage. SKS simplifies welding with fully automated control mechanisms and appropriate monitoring functions. With our know-how, we facilitate your joining task and still offer the flexibility needed by our customers.

MICRO »» MIG

The microMIG and microMIG-cc weld processes provide for a spatter-free material transfer with a defined heat input. On the one hand, the processes are adjustable to reduce heat and on the other hand, microMIG and microMIG-cc reliably meet the penetration requirements.



SYNCHROWELD

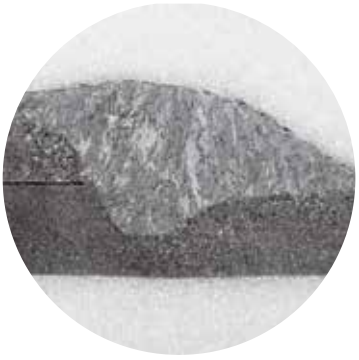
With Synchroweld we connect the actual speed of the mechanical system, consisting of the robot and associated peripherals, with the welding system – easily integrated into the process. With control of the heat input per unit length, we have an accurate monitoring function available.

$$E^* = \frac{U \times I}{V}$$

* Heat input per unit length

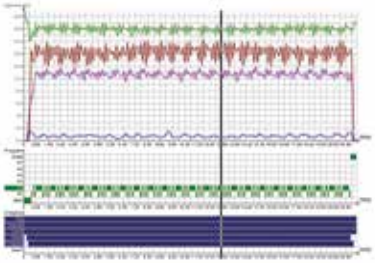
KF-PULSE

Compared to conventional pulse processes, the KF-pulse stands out by a relatively short and stable arc. This pulse process perfectly fits between short- and spray arc. The KF-pulse is especially suited for joining stainless steel and aluminum applications as well as high-strength hot-formed steels.



DP »» FAST

The DP-Fast function stimulates an additional vibration of the weld pool which creates a much better outgassing of the evaporated zinc gas. The controlled changeover of the power ranges allow a better heat control and enables better gap bridging and a very nice seam appearance.



Welding applications

Battery tray systems

WELDING ALUMINUM

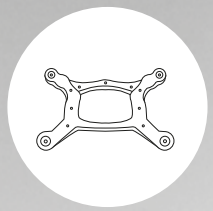
Battery tray systems are a relatively new field of application in automotive engineering, which is growing very rapidly due to the worldwide promotion of e-mobility. SKS recognized this trend early on and developed solutions for the required joining tasks in cooperation with automobile manufacturers already in the prototype phase

The entire assembly of a battery carrier system is subject to high tightness requirements to reliably prevent the ingress or escape of media. In this context, the absolutely reliable reproducibility of welded joints is of prime importance to the manufacturers. Today, the battery carriers of the first mass-produced electric vehicles on the road are welded with SKS welding systems.

Welded materials:
aluminum • galvanized steel

Applied welding processes:
microMIG • microMIG-cc

1 Crash frame (lap weld), aluminum, microMIG
2 Battery tray (corner weld), aluminum, microMIG



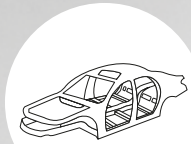
Chassis

With its Power Joint torch system and the KF-pulse process, SKS has been setting the benchmark for welding automotive chassis parts for years.
The manufacturers of these highly dynamically loaded vehicle components are mainly concerned with the largest possible and stable process window and maximum availability of the welding system. SKS meets these requirements with the required know-how and precision.

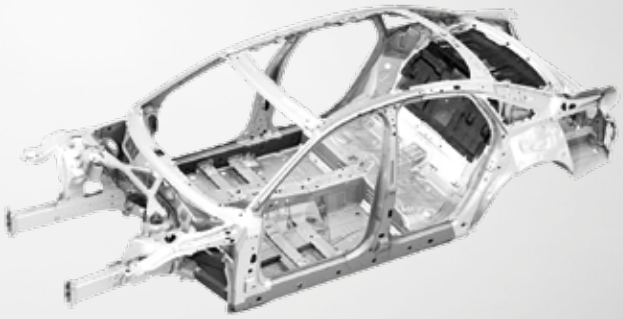
Welded materials:
aluminum • steel • galvanized steel

Applied welding processes:
Dual Wire 2.0 • I-pulse • I-pulse + DP-Basic • I-pulse + DP-Fast • KF-pulse • microMIG

1. Torsion axle crossbar (fillet weld), steel, KF-pulse
2. Axle frame bushing (fillet weld), aluminum, I-pulse + DP-Basic



Car bodies

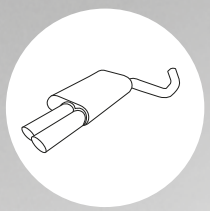


Many different joining methods are used in car body construction. In addition to the well-tried spot welding, the share of arc welding and brazing joints is steadily increasing.
Due to the size of the components, industrial robots with long ranges are used in interlinked transfer systems. These require a very flexible system design and maximum availability of the individual systems, as a failure or stop would interrupt the entire production.
The many different base materials and surface coatings, the sometimes large positional tolerances and the resulting air gaps (between the sheets) make the joining tasks even more difficult. SKS has been successfully meeting these challenges for years.

Welded materials:
aluminum • steel

Applied welding processes:
KF-pulse • microMIG

1. Frame side rail (fillet weld), steel, microMIG-cc
2. Bumper support (fillet weld), steel, KF-pulse + DP-Basic

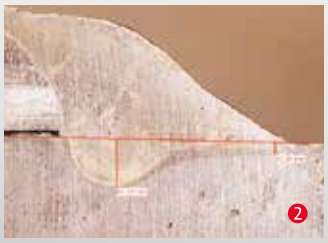


Exhaust systems

SKS' standards are used worldwide by manufacturers of exhaust systems. For more than 35 years, SKS has been meeting the increasing demands on quality, productivity and efficiency with space-saving torch systems with optimized accessibility and welding processes technologically adapted to the respective application. Products such as the Wire Select torch system or the ferrite sensor additionally support the user in his daily tasks.

Welded material:
high-alloy steel

Applied welding processes:
KF-pulse • microMIG • microMIG-cc



1. Turbocharger (lap weld, three-sheet joint), high-alloy steel, microMIG
2. Micrograph: Turbocharger (lap weld, three-sheet joint), high-alloy steel, microMIG

Seats

Since the company was founded over 35 years ago, SKS has been involved in the welding of car seat parts. Together with global seat manufacturers and suppliers, we constantly developed future-oriented solutions to meet the increasing lightweight construction requirements of the vehicle manufacturers.
For example, SKS has developed special processes for root welds to save the costs of weld preparation and to significantly increase process reliability.

Welded material:
steel

Applied welding processes:
I-pulse • KF-pulse • microMIG • GMAW

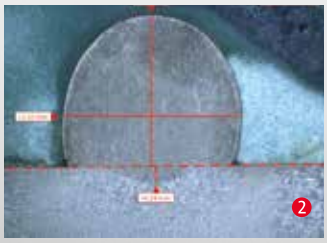
1. Seat rail (butt weld), steel, microMIG
2. Seat bottom (root weld), steel, GMAW

Additive manufacturing

In additive manufacturing, three-dimensional workpieces are produced by building up layers, similar to a 3D printing process, or existing components are supplemented or modified by adding further layers. Production is usually made using the CAD data of the respective components, without special molds or tools. The high flexibility allows the fast and individual production of prototypes and small quantities. Several processes are available in metal processing, among which the so-called Wire Arc Additive Manufacturing (WAAM) stands out as a very flexible and inexpensive option.

Welded materials:
aluminum • steel • high-alloy steel

Applied welding process:
microMIG-cc



1. Sample workpiece while welding, steel, microMIG-cc
2. Micrograph: cup, steel, microMIG-cc

General industry

The use of welded constructions has become established and accepted in many ways, for example to reduce the costs for material and machining. Many things in everyday life today are based on metal constructions with at least one welded seam. In addition to the numerous applications in the automotive sector, the SKS welding system is therefore also used very successfully for a wide range of welding tasks in other branches of industry. The very broad spectrum ranges from wind turbines to construction machinery, switch cabinets, office furniture, shop and warehouse equipment to hospital beds and shopping trolleys. Each of these very different industrial products contains very specific details and requires individual solutions. The high flexibility and maximum precision of SKS welding equipment support users in their daily work from batch size one to mass production.

Welded materials:
steel • high-alloy steel

Applied welding processes:
KF-pulse • microMIG • microMIG-cc • GMAW

1. Agitator blade (fillet weld), steel, MAG-Slb
2. Industrial dishwasher (fillet weld), high-alloy steel, microMIG

Research & Development

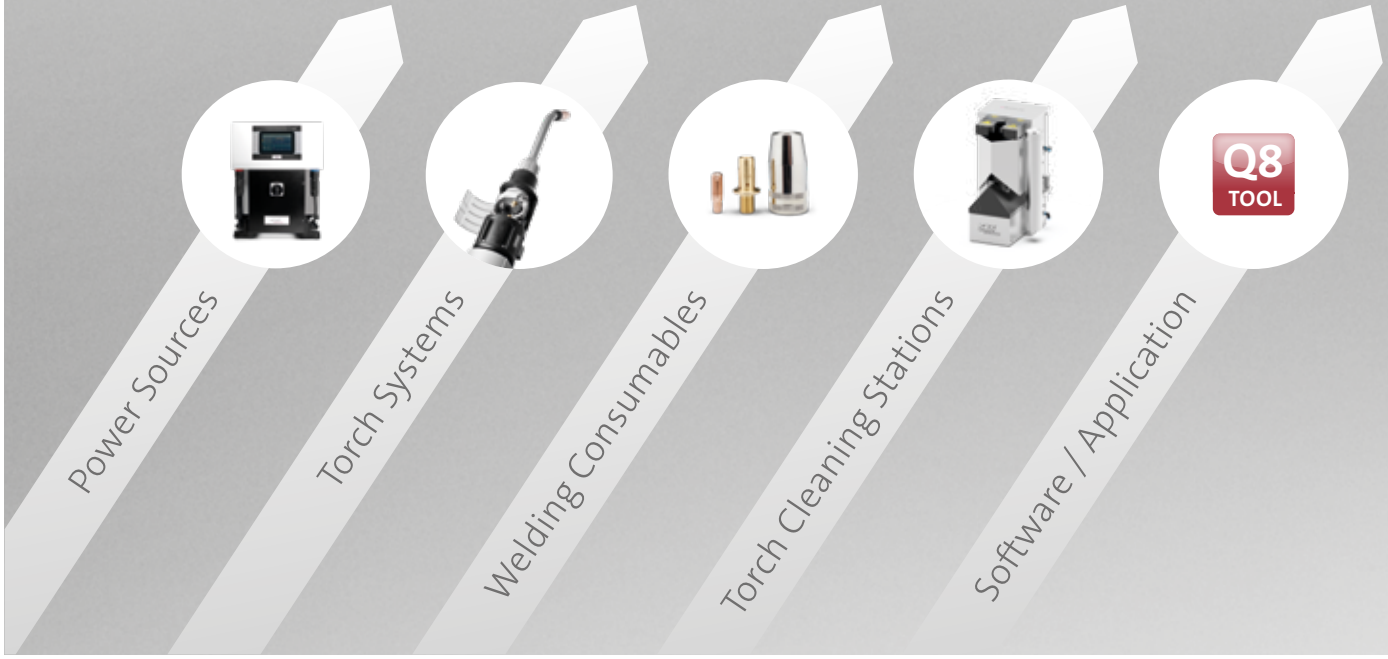
Wanting more – achieving the best

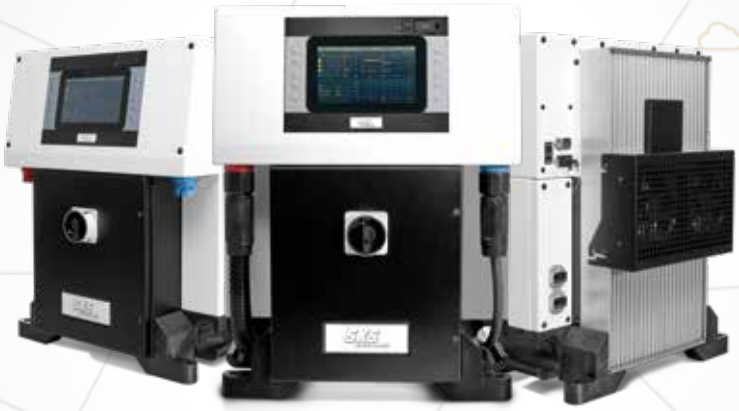
Our research and development work is based on two different impulses: The current requirements of the market for higher reliability and productivity combined with a reduction in costs – and our own ambition as developers to extend the technological possibilities of automated arc welding.
SKS understands its development work as a continuous optimization of systems and processes that considers both current challenges and future demand.
The foundation of this work is the intensive exchange with our customers, partners, renowned robot manufacturers and research institutes.

Based on this process, SKS develops high-quality products with added value that make welding processes more economical and keep their application, installation and maintenance efforts low and simple.

Because really new technology is technology that creates advantages.

Our development focus





Thomas Klein, CTO SKS

”With our product developments, we see ourselves as innovator in the industry. The pursuit of the perfect technological solution is deeply rooted in our company – and an essential part of the SKS corporate culture. We always choose to go the extra mile to offer the best and most sustainable welding solutions in the market. This is the driving force behind all we do.“

HOME-MADE


PRECISION

SKS: Big attention to small parts

Quality
made in Germany.

The details of excellence

SKS genuine parts have a maximum degree of precision. Particularly in the case of wear parts, the precision of each individual component is of utmost importance. Otherwise, every change of a wear part may have a negative effect on the maintenance of the required tolerances – and in the case of several components, this effect may even multiply.

SKS genuine parts feature real reference quality.

SKS Genuine Parts

Welding precision is evident in the details

A critical criterion for precision in automated welding is the TCP accuracy of the whole torch system. The absolute accuracy of SKS torch components as collision protection, torch holder, and torch neck has been proven in industrial use for years. The accuracy requirement is especially valid for wear parts. Their task is to provide for a constant arc directly on the process, which can only be achieved with tight tolerances. Therefore, our wear parts are produced using selected materials in a complex production process with state-of-the-art production equipment. Only then can we be sure to provide our customers the quality of the welding process that is able to increase the profitability of their production process.

The measure of all things

TCP

± 0.2 mm

When designing new products, we attach great importance to the creation of excellent product features, a long service life and also on the achievement of systemic solutions that perfectly integrate with our welding machine.
A good example of this can be seen in the SKS line of welding torch products. The torch necks of our single-wire torches are all equipped with a mechanical bayonet quick-change system and can be changed within seconds – no tool required. The reproducible TCPs of only ± 0.2 mm are always adhered to.
The benefit of the mechanical changing system is found in the automatic lock of the sleeve nut with bayonet connection. This element ensures that human mistakes that might occur when changing the torch neck are virtually eliminated – no subsequent adjustment or alignment of the torch neck is required.

1 - 2 Bayonet quick-change system

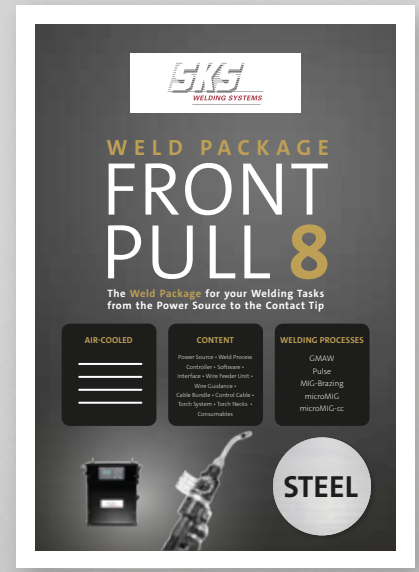
Our Weld Packages

Standardized solutions for individual applications

The technological requirements to perfectly fulfill today's welding tasks are quite complex, the product offer on the market is diverse and confusing. So, how can users find the right solutions?

The answer is simple: with SKS Weld Package solutions. They support you in selecting and combining the welding technology required for any task.

SKS Weld Packages are preconfigured turnkey solutions consisting of torch systems, all components of the welding machine, wear parts and spare parts – and the robot-specific equipment needed for your application. Depending on the type of robot and the task, various features of the welding machine and the torch system are available. Each weld package can be individually assembled – from the cost-optimized entry-level system up to the fully networked plant with traceability function.



Overview Weld Packages

Frontpull series
- Frontpull 8i Weld Package
- Frontpull 8i Lite Weld Package
- Frontpull 8 Weld Package
- Frontpull 8i water-cooled Weld Package
- Frontpull 8i Lite water-cooled Weld Package

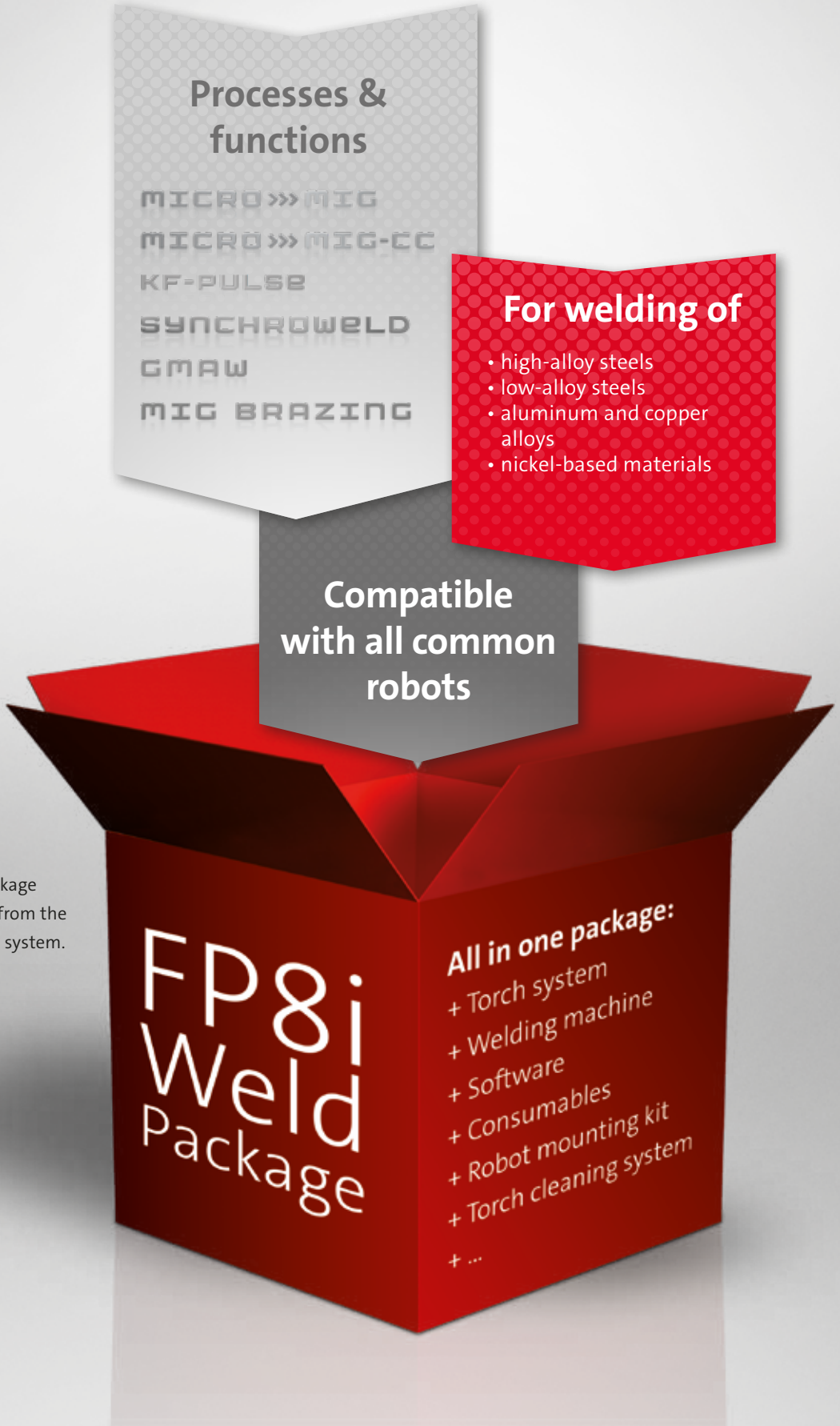
Power Joint series
- Power Joint Weld Package
- Power Joint Lite S Weld Package
- Water Joint Weld Package
- Water Joint Lite S Weld Package

Power Clutch series
- Power Clutch Weld Package
- Power Clutch water-cooled Weld Package
- SPM Weld Package

For special welding tasks
- Dual Wire 2.0 Weld Package
- Wire Select 2.0 Weld Package
- Semi Automatic mobile Weld Package
- Semi Automatic stationary Weld Package

SKS Weld Package

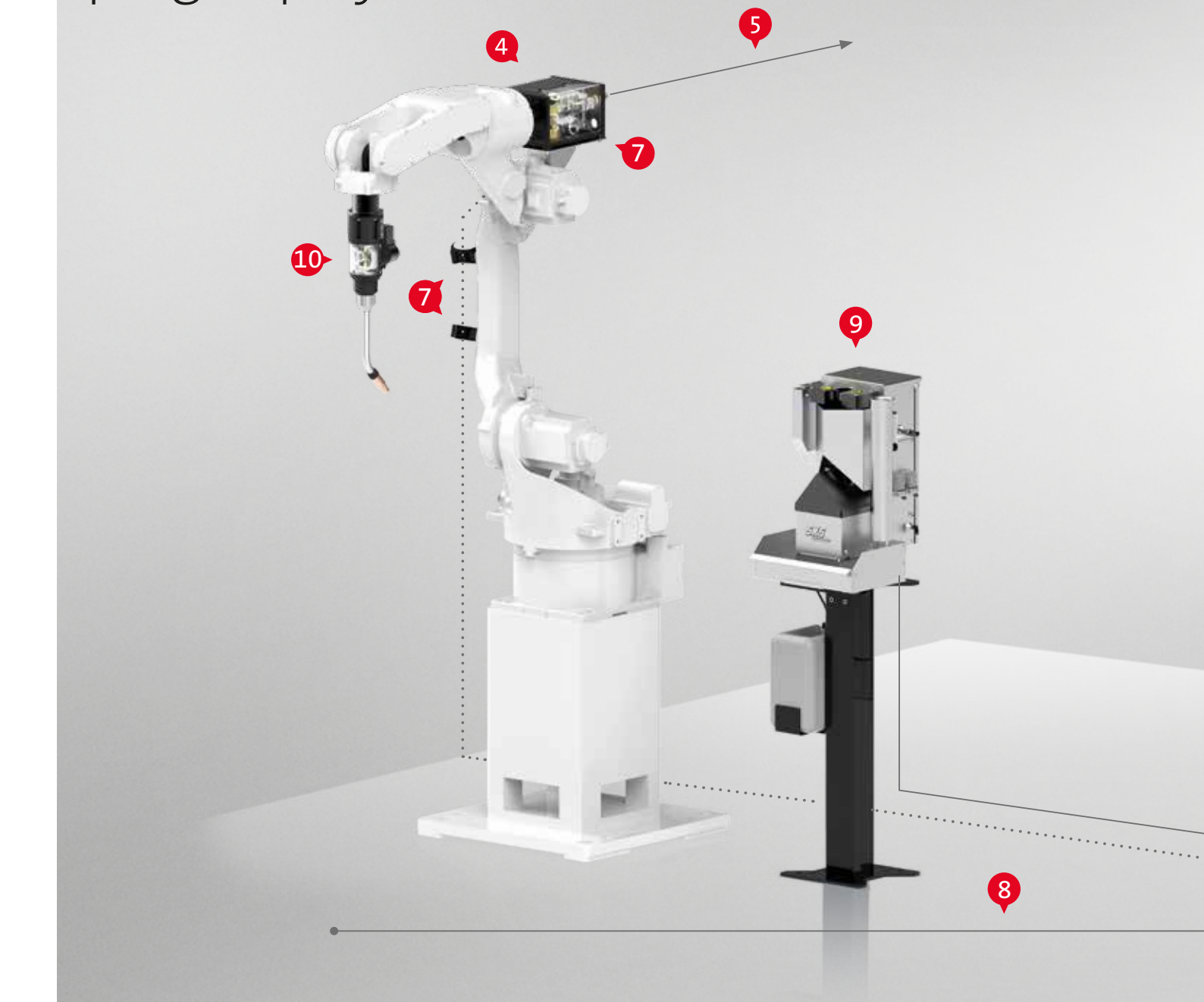
Content



Each Weld Package gets its name from the included torch system.

Our Weld Packages

Consistently modular. Consistently plug & play.



The functional design of the welding machine follows a consistent plug & play strategy: The main components including the power source, weld process controller, interface unit and wire feeder which can be flexibly combined depending on the welding task and requirement. When upgrading a system with next-generation components or an extended range of services, the internal bus system allows for an easy exchange.

Sample below:

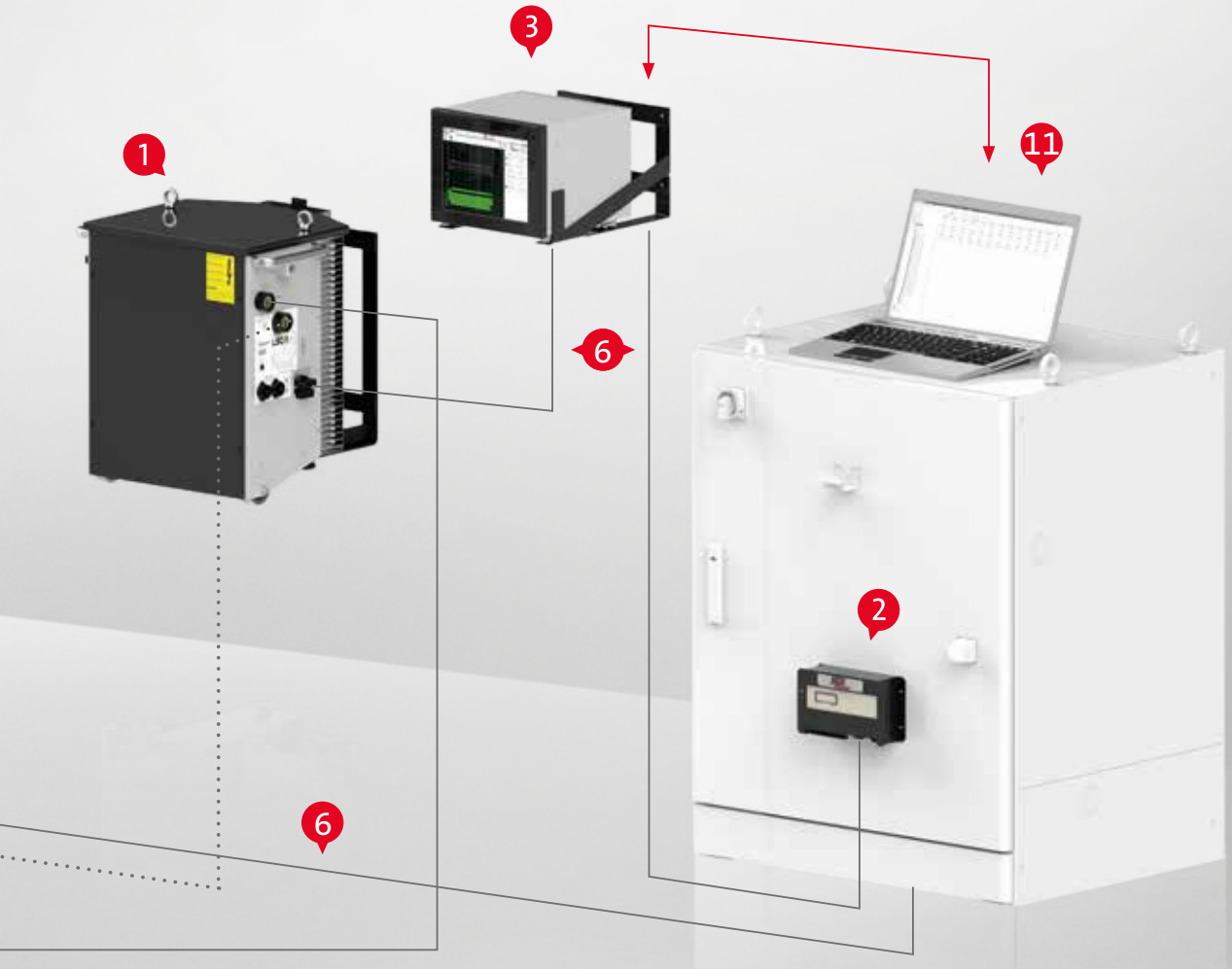
The Frontpull 8i Lite Weld Package

1 - 9 Welding Machine

1 Power source 2 Interface 3 Weld process controller 4 Wire feeder
5 Wire guidance 6 Cable bundles 7 Mounting kit 8 Ground cable 9 Torch Cleaning Stations

10 Torch System

11 Software / IT



New developments such as the Q84r/s weld process controller, which allows for the concurrent control of four modern robotic welding systems can be easily integrated into operating plants. As a result, users are always able to use whatever welding components are required to fulfill their welding task – without integration problems.

Overview SKS torch series

The innovative torch series for your welding tasks

Power Clutch series

Power Clutch

The advantages of the proven Power Joint technology for robots with outer cable dress.

* water-cooled version also available (Power Clutch water-cooled)

Power Joint series

Power Joint

Endless rotation: For hollow wrist robots with inner cable dress.

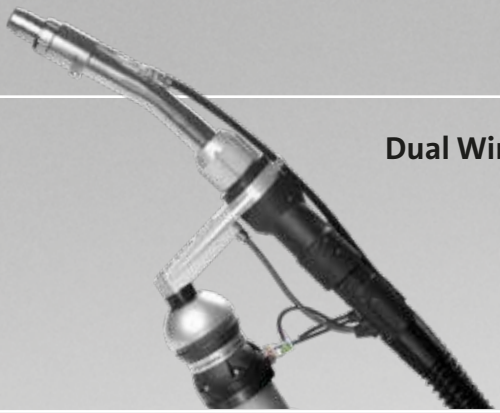
Power Joint Lite S

Less parts, higher operational time, supports collision detection of the robot.

* water-cooled versions also available (Water Joint / Water Joint Lite S)

For special welding tasks

- Dual Wire 2.0
- Wire Select 2.0
- SAM mobile
- SAM stationary
- SPM / SPM Lite



Dual Wire 2.0

Frontpull series

Frontpull 8

Frontpull 8 technology for robots with outer cable dress - compact dimensions and low weight for a wider range of applications.

Frontpull 8i

One for all. With an integrated collision detection and an electric rotating joint for a torsion-free torch cable.

Frontpull 8i Lite

One for all. With the support of robots' internal collision detection and an electric rotating joint for a torsion-free torch cable.

* water-cooled versions also available
(Frontpull 8i water-cooled / Frontpull 8i Lite water-cooled)

With the introduction of the air-cooled robot welding torch in Germany, we offered users considerable optimization potential. Air instead of water – a small revolution – resulting in: No hoses, no leaks, no damage from leaking moisture, no superfluous components.
This success motivated us to create a torch series, in which we transferred the air-cooling principle to the single wire torches of our product line. The results are compelling: from the Power Joint with inner cable dress and a limitless torch rotation (beyond 360° without mechanical stops) up to our latest development Frontpull for heat and spatter-reduced welding. Our torch systems are compatible with all common robots.

Our connection kits are

100%

STANDARDIZED FOR GLOBAL USE

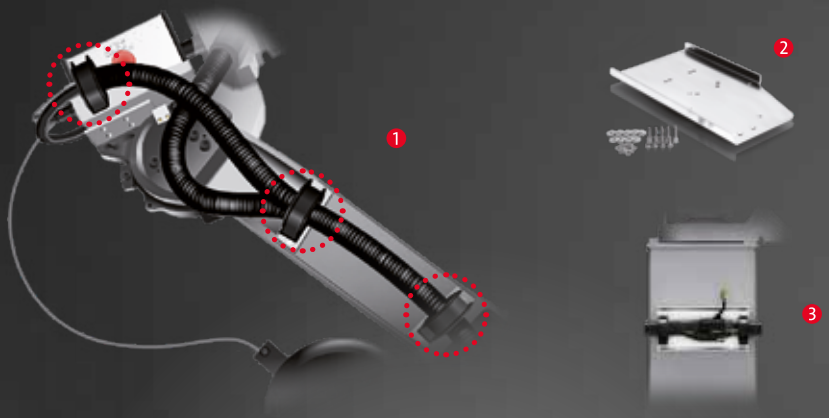
Made for Robots.

SKS leaves nothing to chance when it comes to integrating our Weld Packages with welding robots.

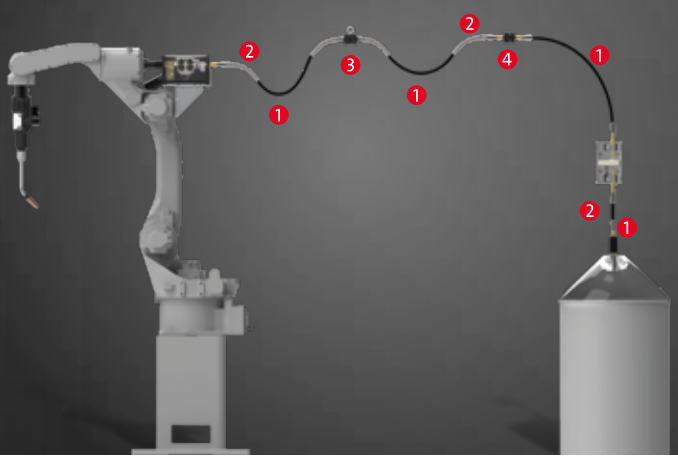
A system is only perfect when the highest possible attention is given to the details. To provide for compatibility with different robots, we invested a great amount of development time working on the required details: For welding robots by all manufacturers, we designed robot-specific solutions for the mounting of our torch systems and welding machine components.

We offer a large range of different flanges for the perfect mounting of our torch systems on the robot. Robust clip sets allow for proper mounting of the connection kits and cables to the robot arms. The part of our connection kits mounted directly to the robot can be disconnected from the motionless parts (connection to the power source) via a connection bracket, allowing for a quick and easy exchange of the robot-mounted part whenever maintenance work is required.

For all commonly used robot types, we offer mounting brackets for installation of the wire feeders on the robots.



1. Cable management: Clip sets for the connection package
2. Brackets for mounting the wire feeders
3. Disconnection point for the connection package with bracket



1. FlexiGlide wire guidance
2. Connection nipple for FlexiGlide with/without tension spring
3. Suspension for FlexiGlide
4. Wall duct for FlexiGlide

SKS Customer Centers

Always close to the customer

SKS Welding Systems operates successfully on the global markets as a system partner to the automotive industry. In line with the strategy of always being close to the customer, SKS has built up subsidiaries with their own Customer Centers in Europe, Asia, Africa, North and Central America over the last 10 years.

All SKS Customer Centers are equipped with the latest high-end welding technology "Made in Germany" and ready-to-use welding robots. In this way, we offer our customers the opportunity to get to know our products on site, to test them and to carry out welding trials with parts and materials that are planned to be welded in series in their production facilities.

The welding tests and near-series prototypes always come with a comprehensive welding test report in the local language. Large warehouses for fast on-site service, technical labs, training facilities and offices for the rapid processing of orders enable the SKS Customer Centers to react independently and quickly to any customer requirements.

The regional management and the highly qualified welding experts of the SKS Customer Centers know the local conditions, the industry, country-specific requirements and production conditions of their customers, who in turn can access our solution-oriented expert knowledge at any time.

This is how we create added value.

SKS Customer Centers worldwide

GERMANY
SKS Welding Systems
www.sks-welding.com

CZECH REPUBLIC
SKS Welding Systems s.r.o.
www.cz.sks-welding.com

HUNGARY
SKS Welding Systems Kft.
www.hu.sks-welding.com

USA
SKS Welding Systems Inc.
www.us.sks-welding.com

TÜRKIYE
SKS Welding Systems
Makina San. Ve Tic. Ltd. Şti.
www.tr.sks-welding.com

MEXICO
SKS Welding Systems,
S. de R.L. de C.V.
www.mx.sks-welding.com

SPAIN
SKS WELDING SYSTEMS S.L.
www.es.sks-welding.com

P.R. CHINA
SKS Welding Systems
(Shanghai) Co., Ltd.
www.cn.sks-welding.com

SOUTH AFRICA
SKS Welding Systems (Pty) Ltd
www.za.sks-welding.com

INDIA
SKS Welding Systems Pvt Ltd
www.in.sks-welding.com

CANADA
SKS Welding Systems Ltd.
www.ca.sks-welding.com

FRANCE
SKS Welding Systems SAS
www.fr.sks-welding.com

Markus Klein, CEO SKS

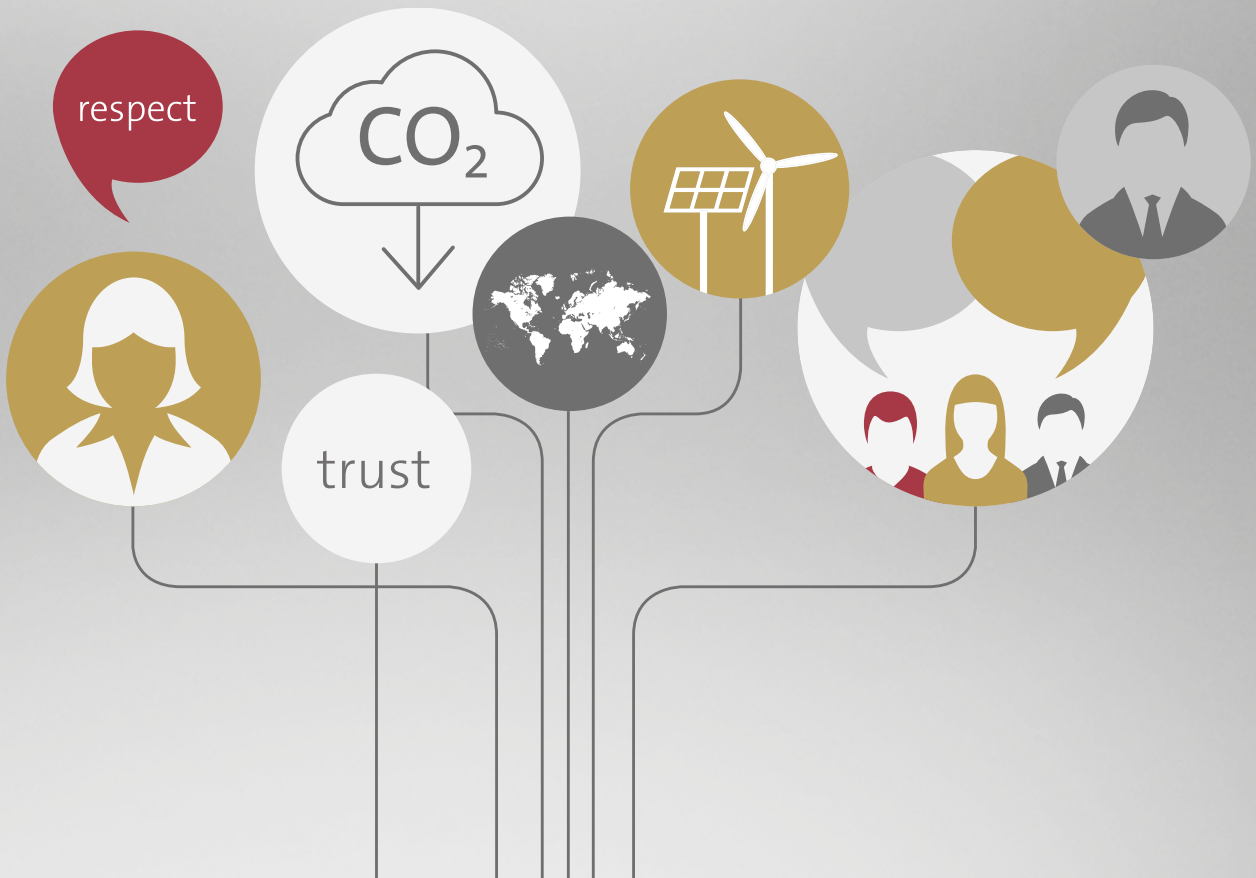
”Our strategy of being close to our customers by establishing companies worldwide has proven to be the right one. We develop the SKS subsidiaries, our Customer Centers, thoroughly, responsibly and at eye level with the local SKS team.“

Our values

In close cooperation with our customers, we support projects from the welding of the first prototypes through customer-specific training to the start of production. For our activities on the global markets, we have committed ourselves to a Code of Conduct with values and standards requiring a future-oriented and fair corporate policy.

We see it as our duty to recognize and protect global business, environmental and social standards. Our value system comprises all business processes: from development through production to the marketing of products and services. Our employees worldwide are living up to this corporate culture.

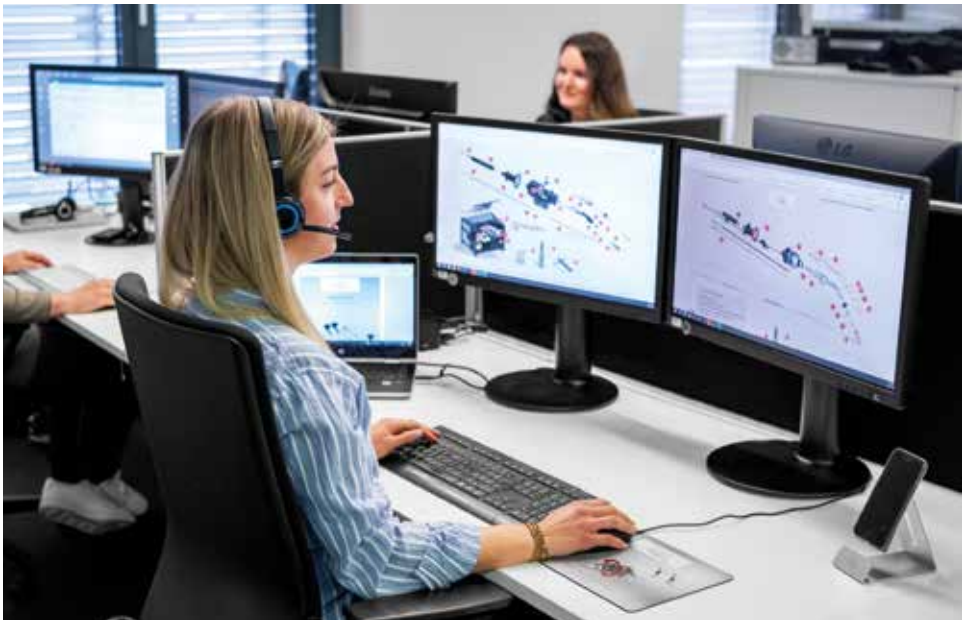
Social responsibility,
respect for the environment
and economic business
practice
in the global environment

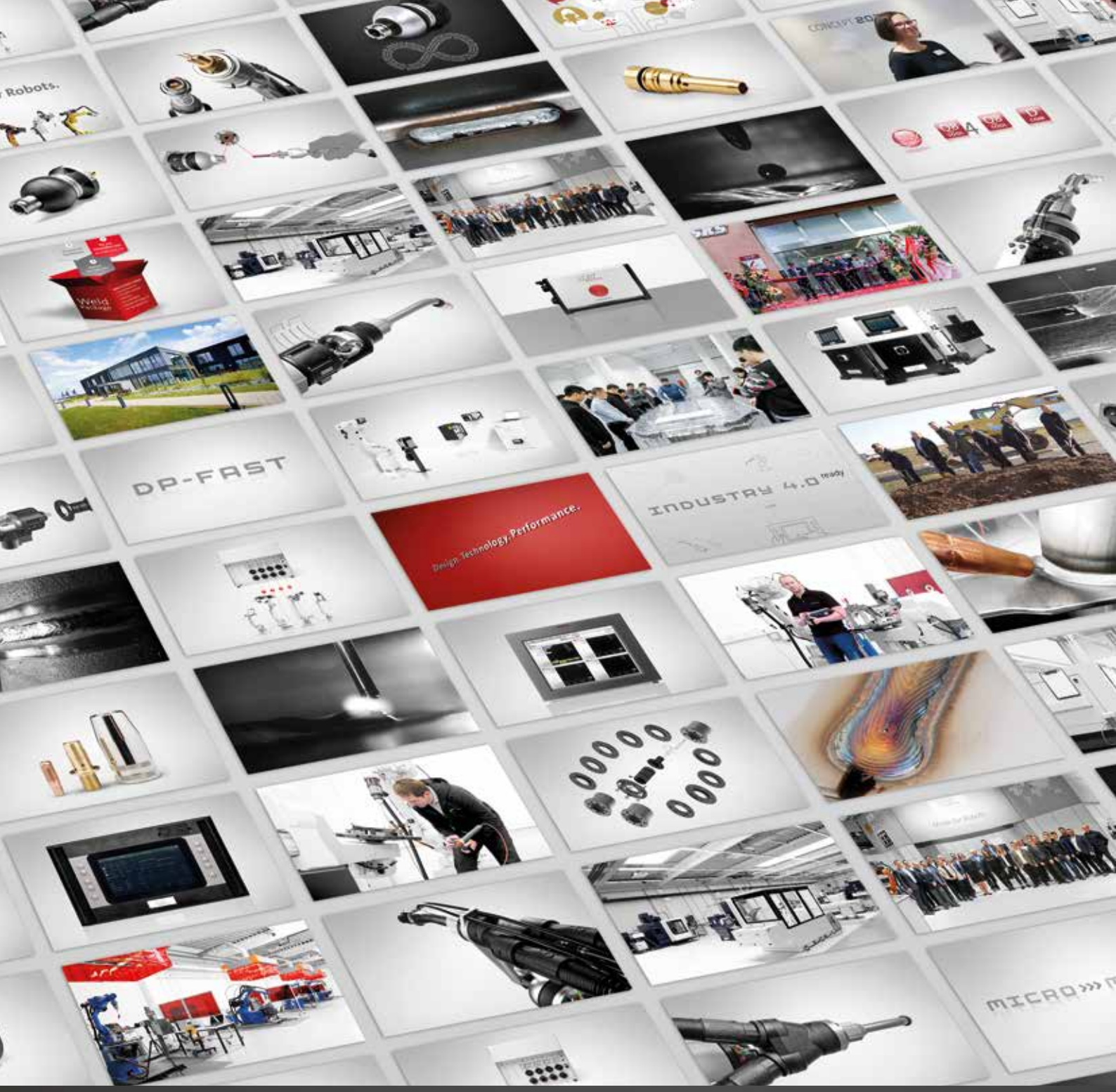



WELD SYSTEMS


Weld Package
Power Joint


Weld Package
Frontpull





SKS CONTACT WORLDWIDE

sales@ca.sks-welding.com
sales@sks-welding.cn
sales@cz.sks-welding.com
sales@fr.sks-welding.com
sales@de.sks-welding.com
sales@hu.sks-welding.com
sales@in.sks-welding.com
sales@mx.sks-welding.com
sales@za.sks-welding.com
sales@es.sks-welding.com
sales@tr.sks-welding.com
sales@us.sks-welding.com

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

www.sks-welding.com
/sksweldingsystems
@sks_welding_systems
/DesignTechnologyPerformance
/sks-welding-systems

DOC-0123EN | SKSde.06JUN25.mk.ms.v1.4.1