



**AXLES STEEL BEAMS VEHICLE FRAMES  
SHOPPING CARTS EXHAUST SYSTEMS  
TRANSFORMERS DOOR LATCHES TANKS  
BOILERS EXHAUST HOODS SCAFFOLDS**

**KUKA ARC WELDING**

WORKING IDEAS





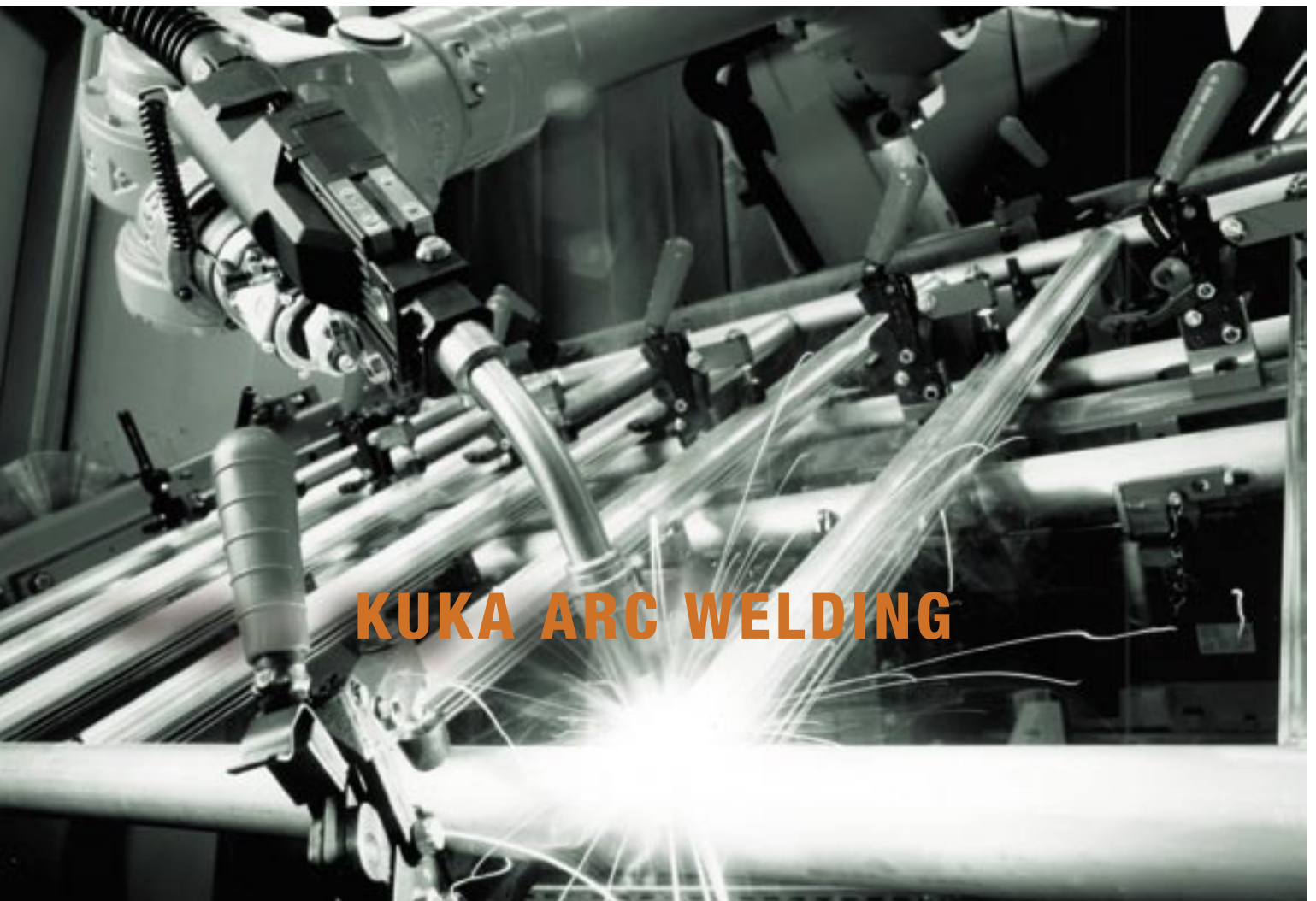
**MECHANICAL ENGINEERING  
AUTOMOTIVE  
CONTAINER CONSTRUCTION  
SHIPBUILDING  
CONSTRUCTION INDUSTRY  
COMMERCIAL VEHICLES  
AIRCRAFT MANUFACTURING**

With our new ARC series of robots, KUKA can now offer you a cost-effective alternative in the highly competitive arc welding market. Whether you are a manufacturer wishing to realize cost-saving by finding an automated solution, a components supplier who needs to integrate new manufacturing processes, or a system partner seeking custom-tailored arc welding components – with KUKA you are sure to come out ahead.

**KUKA has it all**

Arc welding with KUKA has a bright future stemming from a long past. The new KR 6 ARC is the first in a series of newly-developed arc welding products which will enable you to conquer the market. KUKA arc welding robots are also available in 16 and 30 kg payloads.

- You will be impressed by KUKA's welding expertise and the high quality of KUKA arc welding products, training courses and service
- With KUKA, you receive custom-tailored "plug & play" arc welding solutions, including expert consultation



### **Attractive for both new and experienced welders**

Not only is the automotive industry undergoing radical changes, general industry, components suppliers and system suppliers are as well. No matter whether you are a newcomer to robotics with small batch sizes looking to expand your capabilities, or are a system supplier who needs to accommodate new customer requirements – arc welding with KUKA robots is advantageous for both new customers and experienced KUKA users.



# ALUMINUM STEEL CHROME-NICKEL

Whether container construction, the construction industry, or the automotive industry – arc welding is a technology with almost unlimited potential. It can be used to join metals such as steel, aluminum or chrome-nickel reliably and durably.

## **KUKA gives you the advantages of arc welding and robot technology**

KUKA's arc welding robots guarantee you reproducible welding results and products with the highest quality and precision, but that's not all: thanks to its speed and extremely high reliability, the ARC series also increases the cost-effectiveness and availability of your system.

## **Good to know: KUKA expertise**

As a leader in the metalworking industry for decades, KUKA possesses a unique wealth of experience in the use of industrial robots in arc welding applications. Our expertise gives you a number of decisive advantages:

- Market-specific solutions for the automotive industry, automotive components suppliers and general industry
- Maximum flexibility with regard to the system concept through the use of stand-alone, master/slave and cooperating RoboTeam solutions
- First-class system partners, who ensure optimal integration of the KUKA robots into the arc welding technology

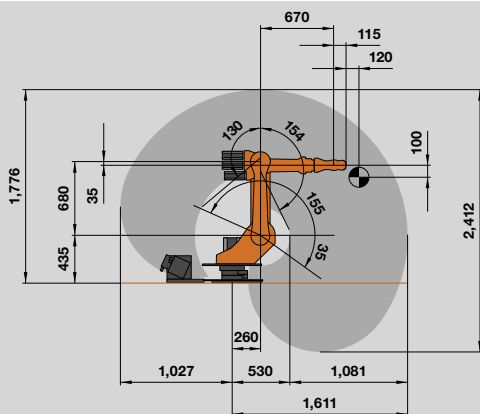
**ANYTHING IS POSSIBLE**



# WELDING WITH PROFESSIONAL-GRADE EQUIPMENT

KUKA offers you professional equipment which makes arc welding simpler, faster and more productive than before. The core of this solution is the ARC robot, which has been specially designed for use in arc welding applications. The robot can be installed on the floor, the ceiling or the wall, making it extremely flexible to integrate into your system. All of the axes can be calibrated using the electronic measuring tool (EMT), facilitating quick and precise commissioning.

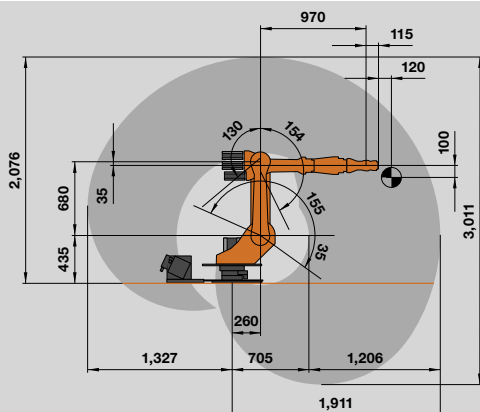
## KR 6 ARC



All dimensions in mm

The KR 6 ARC has a tremendous reach (without including the end effector) of 1,611 mm. The KR 16 L6 ARC with an optional arm extension, increases its reach is 1,911 mm. This means that you have optimal accessibility even with large components, and your system layout remains flexible.

The additional “Safe Robot” option (axis range monitoring using failsafe software) eliminates the need for a mechanical axis range monitoring system.



All dimensions in mm

	KR 6 ARC	KR 16 L6 ARC
Arm length	670 mm	970 mm
Payload	6 kg	6 kg
Reach <sup>1)</sup>	1,611 mm	1,911 mm
Repeatability	± 0.1 mm	± 0.1 mm
Volume of working envelope <sup>2)</sup>	9.3 m <sup>3</sup>	15.2 m <sup>3</sup>

<sup>1)</sup> Basic reach without end-effector!

<sup>2)</sup> Relative to intersection of axes 4/5



**Faster welding with KUKA master/slave technology**

Synchronization and geometrically coupled, two KR 6 KUKA robots with SKS welding equipment and a rotating turnover positioner carry out welding on an instrument panel support.

# PIECE BY PIECE OR TURNKEY SOLUTIONS... THE CHOICE IS YOURS.

Every solution is unique and not everyone needs the same pieces. That's why KUKA offers you flexible function packages where you can combine components: Do you just need a robot? An external axis? Or positioners and welding equipment? Thanks to KUKA's unique componentry, it is all available to you.



## Sample Components of the KUKA arc welding function package

- |   |  |
|---|--|
| ① KR 6 ARC robot  | ⑦ Fronius dress package                            |
| ② KR C2 robot controller  | ⑧ Fronius Robacta 5000 torch                       |
| ③ KUKA Control Panel KCP  | ⑨ Binzel collision box                             |
| ④ Fronius TPS 4000 power source, Fronius cooling system (water) | ⑩ Fronius TC1000 torch cleaner                     |
| ⑤ Fronius dress package   | ⑪ TCP calibration device Tracc TCP and wire cutter |
| ⑥ Fronius wire feeder   | ⑫ Fronius wire supply                              |



Select individual components to suit your application. The basic KUKA function package consists of a robot, control cabinet\* and software –additional products, such as positioners, axis packages or application software are optional, and can be combined as desired.

\* Completely wired with up to six external axes (with top-mounted cabinet for positioners with two or more axes)

### Configuration variant 1

robot + controller + system software

Robot



Controller



Software



A welding package can be added as an option to all three configuration variants.



### Configuration variant 2

robot + controller + system software + AWP (arc welding package, including: axis servos in failsafe technology, motor (optionally with gear unit mounted), motor and resolver cables

Robot



Controller



Software



Arc Welding Package



### Configuration variant 3

robot + controller + system software plus positioning table (e.g. modular axis unit, turnover positioner, two-axis positioner, rotating turnover positioner, vertical)

Robot



Controller



Software



Positioning table from KUKA Service Solutions (KSS)





# FLEXIBLE FAST INDIVIDUAL

KUKA technology packages are software solutions for commissioning, configuration and operator control of applications. Whether automatic setup, technology-specific operator control elements (status keys), fully integrated configuration interfaces (plug-ins), or predefined command macros – KUKA software solutions are unbeatable for their easy programming, intuitive operator control and fast commissioning.



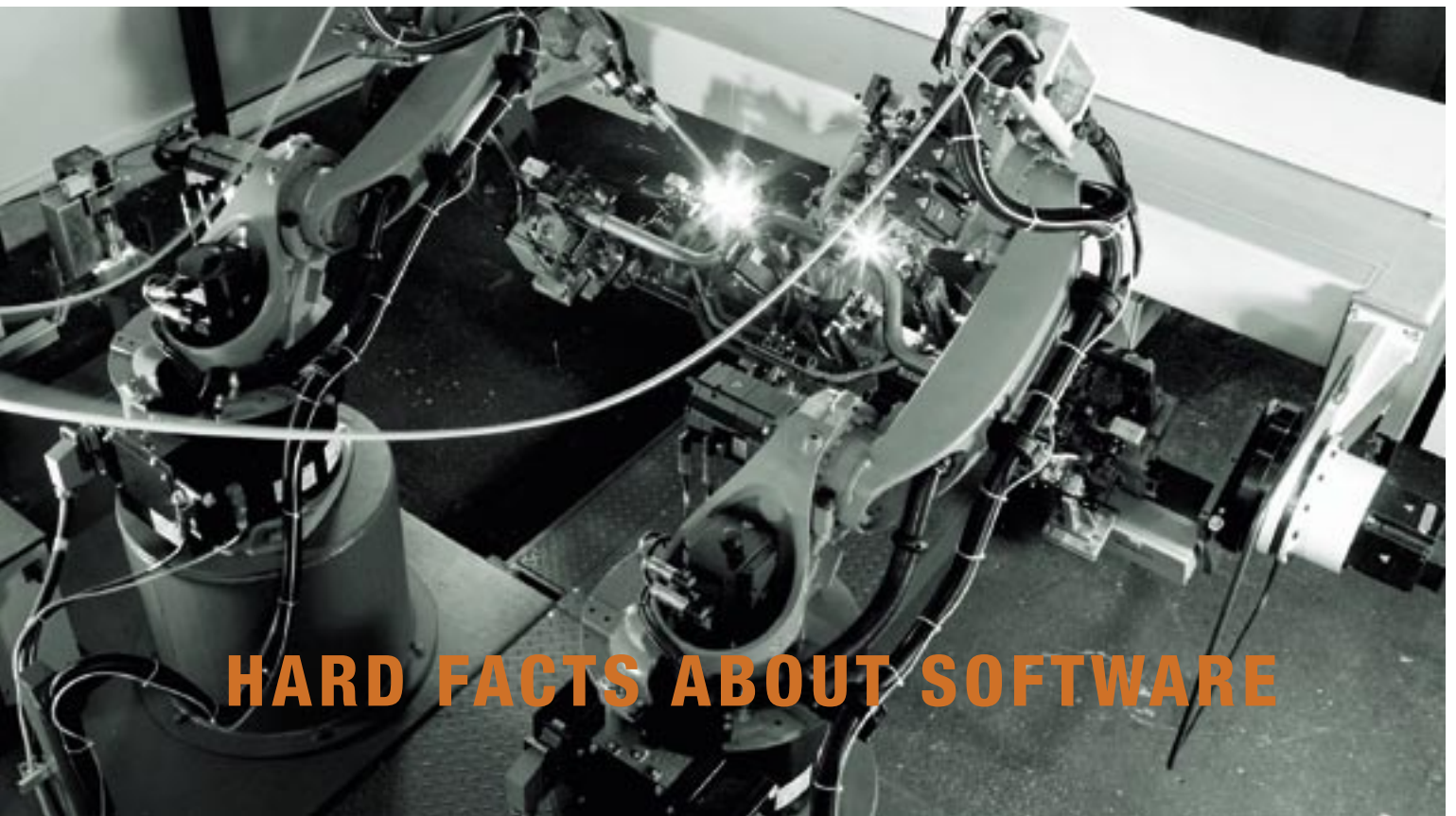
Central configuration of all robots, end-effectors including geometric relationships, and acquisition of load, tool and frame data.



Programming of the complete motion sequence with the aid of mask-based command macros (inline forms).

## KUKA ArcTech software – the advantages at a glance

- Quick and easy integration into the system environment
- Quick commissioning with the software option KUKA Touch-Sense
- Quick programming
- Wide range of weave patterns, which can also be programmed individually
- Various test modes
- Support for master-slave functionality
- Easy mirroring of programs for master/slave applications
- Reliable process through support for through-the-arc sensors

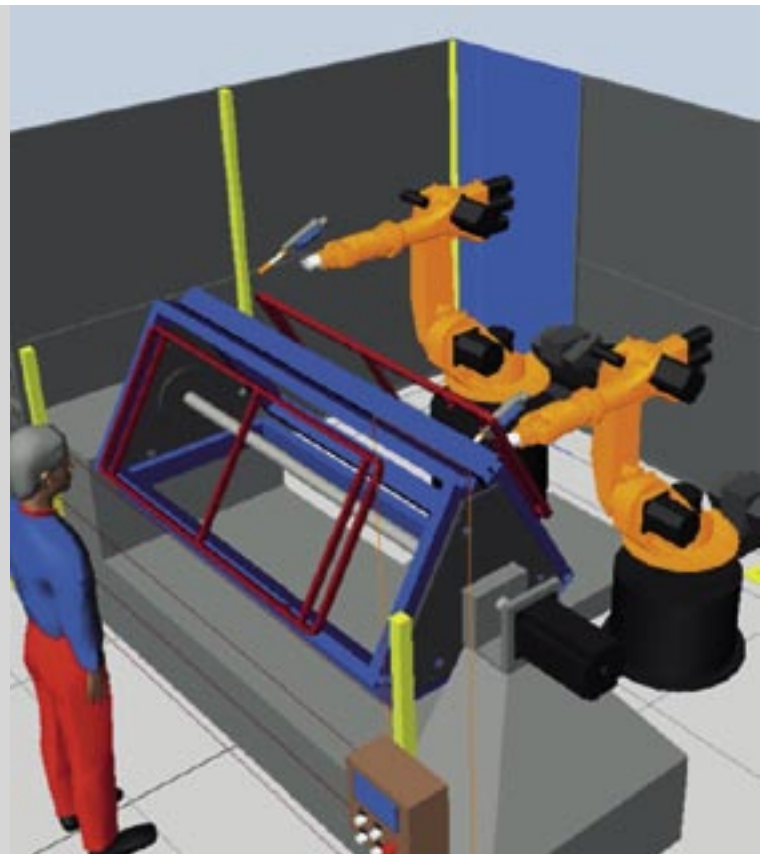


## HARD FACTS ABOUT SOFTWARE

### Individual advantages of the master/slave option

Using the master/slave option, cooperating robots work together “hand in hand”: the master robot welds the work piece located on its external axis (positioner), while the slave robot carries out its own welding operation synchronized and geometrically coupled with the master robot. In addition to handling advantages, such as welding complex constructions, this option offers you numerous advantages including:

- Short commissioning times using simple operator control, configuration and simulation options
- Shorter cycle times through minimized synchronization times
- High process accuracy and comprehensive process diagnosis
- Maximum flexibility in component geometry and elimination of clamping fixtures
- Possibility of automated error treatment
- Option of central configuration with acquisition, assignment, mirroring and correction of data





# PROGRAMMING CONSULTING TRAINING SUPPORT

With its worldwide, modularly structured seminar program and robot cells at your location, KUKA imparts valuable expertise. No matter whether user-specific training courses or practice-oriented training cells – our experience trainers teach you how to control your robot quickly and easily, thus enabling you to take full advantage of its potential.

## **Know-how “ex works” – for arc welding beginners and old pros as well**

Anyone who uses KUKA robots already knows: at KUKA, we not only produce state-of-the-art technology, we also set quality standards in the field of training. In addition to our comprehensive seminar program, in cooperation with a variety of power source partners, KUKA offers you special training courses in the field of arc welding. Training is not only provided for the configuration of the arc welding equipment, but also for the programming application. Moreover, KUKA also offers to increase your arc welding knowledge through the use of a specially-developed training cells.

## Customer Support

In addition to custom-tailored robot systems, spare parts, robot rentals and used robots, KUKA also offers a wide range of services: from planning to commissioning and production – our employees support you during every phase of your project.



### Planning

Customized user interfaces, application software, offline programming, simulation, cycle time analyses, feasibility studies, documentation – even in the planning phase KUKA will provide you with whatever you need to ensure that your system will operate smoothly.



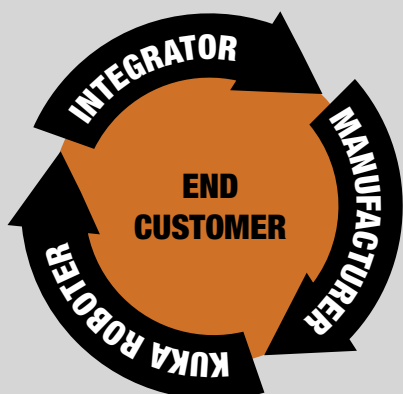
### Commissioning

We optimally integrate custom software modules, sensors, vision systems and robot tools, carry out load analyses while the program is running, and give you advice, support and instruction during the commissioning process – all to help ensure that your system is cost-effective to operate right from the outset.



### Production

Programming, optimization, immediate assistance from KUKA, the availability of your systems is in the best of hands. Let KUKA prove it: with remote diagnosis, a 24/7 hotline, on-site servicing, updates and upgrades, customized maintenance agreements, spare and used parts, and cutting-edge logistics...








### The KUKA partner network

KUKA works together with selected specialists in various industries to implement the optimal solution for you. These system integrators are brought together in the KUKA partner network. Our close cooperation with system partners and innovative end customers is one of the cornerstones of KUKA's success – and a constant challenge to optimize our solutions still further. Thanks to this expertise in creating custom solutions, and a dense network of regional training and service centers, KUKA has earned an outstanding reputation with customers all over the world.

# CONTACT INFO ADDRESSES

No liability accepted for errors or omissions.

KUKA offers a comprehensive range of products, with optimal solutions for every requirement and every industry. What can KUKA do for you?

Low payloads	Medium payloads	High payloads	Very high payloads	Special models
				
from 3 to 16 kg	from 30 to 60 kg	from 100 to 240 kg	from 360 to 570 kg	Shelf-mounted robots Palletizing robots Press-to-press robots Foundry versions

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Spain, Sweden, Switzerland,  
Taiwan, Thailand, UK, USA

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