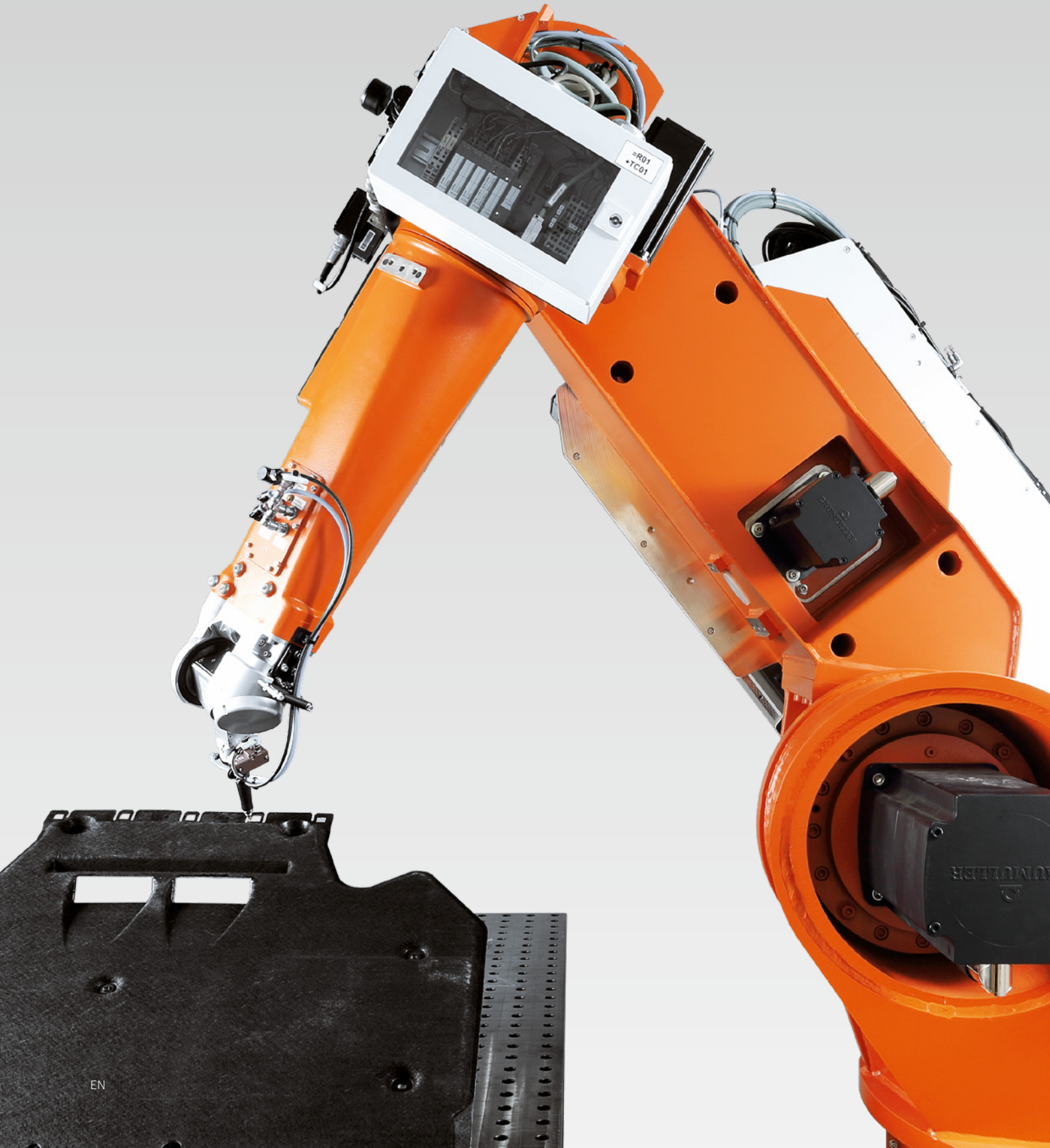
KUKA

Technology_CO_2 laser robot



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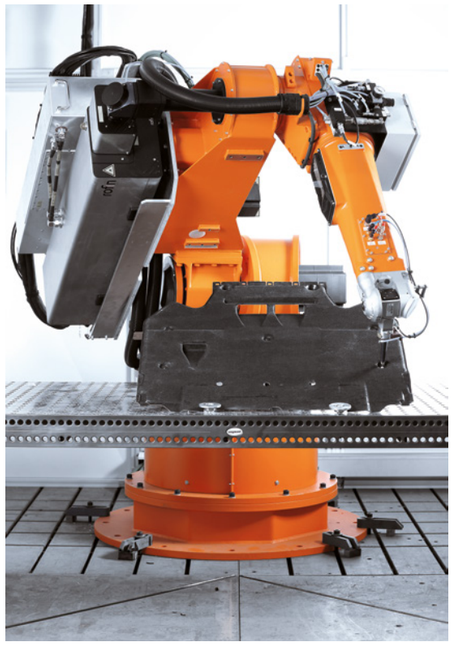
3D cutting and perforating

Cost-effectiveness and quality are the decisive factors in modern production. Laser machining is an innovative variant in this context. The speed of the process and the low heat input contribute to high productivity and reduced finishing requirements compared with conventional processes. The CO_2 laser is the optimal tool in this area – especially for processing plastics.

Extremely fine, virtually radius-free contours, burr-free edges with no need for finishing, and consistently high cutting quality without tool wear are just some of the advantages. Combination with a KUKA robot as a powerful and precise guiding machining for 3D processing opens up new possibilities. The key factors are the innovative technology of the integrated beam guidance system for CO_2 laser systems and the expertise in the implementation of turnkey automation cells.

As one of the leading suppliers of laser robots with integrated beam guidance, KUKA Industries delivers complete machining cells tailored to the individual task. Various processes can be used, from laser cutting to perforation for vacuum lamination and also airbag perforation.



CO_2 laser robot

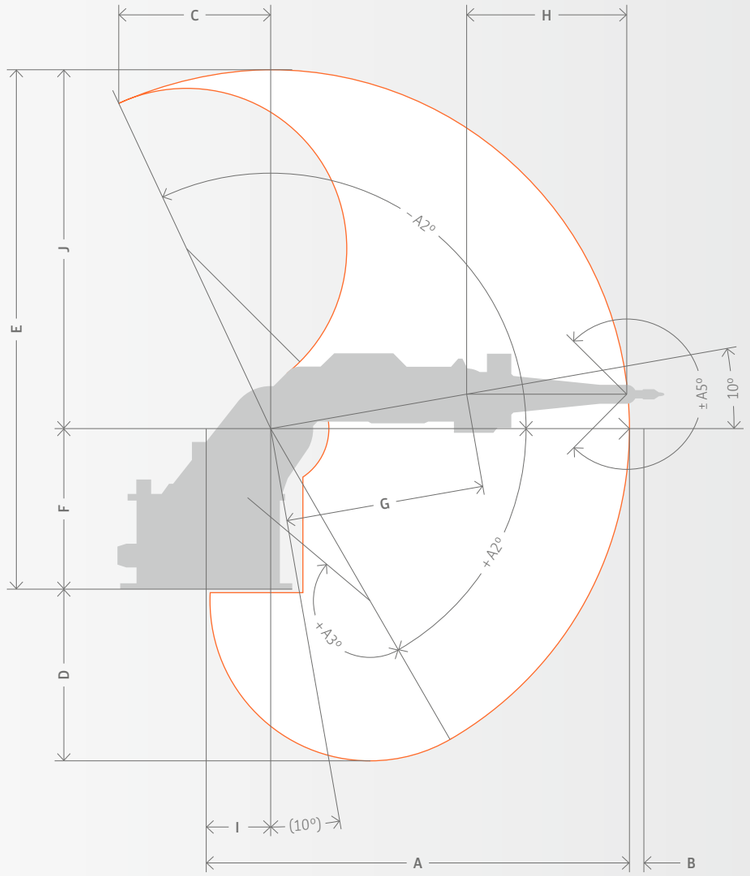
Your advantages at a glance

- Laser robot optimized for 3D cutting and perforating
- Designed for CO_2 laser
- Laser power of up to 1 kW possible through side mounting of the CO_2 laser
- Outstanding dynamics and accuracy thanks to adaptation of the laser with no change in weight
- Fully enclosed beam guidance system integrated into the robot arm
- Dirt and crack monitoring for online control of the lens condition (LCU)
- High flexibility
- Non-contact process
- No tool wear
- Complex geometries possible
- Easy expansion with further derivatives

Areas of application

With the CO_2 laser robot, a wide variety of materials can be cut and perforated. These include:

- Polyethylene
- Polypropylene
- Carbon-fiber reinforced plastics
- Glass-fiber reinforced plastics
- Wood



Workspace

Motion range of axis 1 to 5		Work envelope	
A1	+150° / – 180° *	**A**	2,300
A2	+60° / – 115°	**B**	80
A3	+160° / – 0°	**C**	824
A4	± 210°	**D**	935
A5	± 135°	**E**	2,820
		F	870
		G	1,080
		H	870
		I	350
		J	1,950

* Restricted due to external cable guiding

Technical data

RV6L-CO_2	
Max. weight processing optics / process accessories	6 kg
Additional load A3 incl. process-specific installation	10 kg
Max. weight laser	400 kg
Repeatability	± 0.05 mm
Weight (without control cabinet, laser and base)	960 kg
Connected load (without laser)	7.1 kVA
Mains fusing	Max. 3 × 25 A fuse slow blowing

Axis data	Speed
Axis 1 – A1	140 °/s
Axis 2 – A2	105 °/s
Axis 3 – A3	200 °/s
Axis 4 – A4	700 °/s
Axis 5 – A5	750 °/s

The conditions for installation from the laser beam source manufacturer have to be observed.

Together with our affiliated companies, KUKA Robotics and KUKA Systems, we can be found locally all over the world:

Argentina
Australia
Austria
Belgium
Brazil
Canada
Chile
China
Czech Republic
Germany
Hungary
France
Great Britain
India
Italy
Japan
Korea
Malaysia
Mexico
New Zealand
Norway
Poland
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