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 CO2 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 CO2 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.

Your advantages at a glance

- Laser robot optimized for 3D cutting and perforating
- Designed for CO2 laser
- Laser power of up to 1 kW possible through side mounting of the CO2 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 CO2 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

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 CO2 laser is the optimal tool in this area – especially for processing plastics.

With the CO2 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

Technical data

<table>
<thead>
<tr>
<th>Axis data</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axes 1 – A1</td>
<td>160°/s</td>
</tr>
<tr>
<td>Axes 2 – A2</td>
<td>105°/s</td>
</tr>
<tr>
<td>Axes 3 – A3</td>
<td>200°/s</td>
</tr>
<tr>
<td>Axes 4 – A4</td>
<td>700°/s</td>
</tr>
<tr>
<td>Axes 5 – A5</td>
<td>750°/s</td>
</tr>
</tbody>
</table>

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

[For technical data table and diagram]
Together with our affiliated companies, KUKA Robotics and KUKA Systems, we can be found locally all over the world:

Argentina   Malaysia
Australia   Mexico
Austria   New Zealand
Belgium   Norway
Brazil   Poland
Canada   Portugal
Chile   Russia
China   Sweden
Czech Republic   Switzerland
Germany   Singapore
Hungary   Slovakia
France   Spain
Great Britain   South Africa
India   Taiwan, China
Italy   Thailand
Japan   Turkey
Korea   USA

Specifications regarding the characteristics and usability of the products do not constitute a warranty of properties. They are intended to serve informative purposes only. Solely the respective contract of sale shall be binding in respect of the extent of our services and supplies. Some items of equipment depicted in the illustrations are optional and are not included in the standard scope of supply. Technical Data and illustrations are not binding for the delivery. Subject to change without prior notice.

For further information please contact us at laser.industries.de@kuka.com

KUKA Industries GmbH   Bluecherstrasse 144, 86165 Augsburg/Germany   T +49 821 797-0   F +49 821 797-1991   info.industries.de@kuka.com
KUKA Industries GmbH & Co. KG   Sankt-Jobser-Strasse 53, 52146 Wuerseelen/Germany   T +49 2405 45 468-10   F +49 2405 45 468-28   info.industries.de@kuka.com

Specifications regarding the characteristics and usability of the products do not constitute a warranty of properties. They are intended to serve informative purposes only. Solely the respective contract of sale shall be binding in respect of the extent of our services and supplies. Some items of equipment depicted in the illustrations are optional and are not included in the standard scope of supply. Technical Data and illustrations are not binding for the delivery. Subject to change without prior notice.

WM-Nr. 996121 / 1702 / CO₂-Laserroboter / 2e

www.kuka.com