



CNC-Spezialmaschinen



**Routing Cell with 6-axis industrial robot M ROB 60**

For the machining of plastic components/ panels and aluminium profiles

## Routing Cell with 6-axis industrial robot M ROB 60

For the machining of plastic components/ panels and aluminium profiles

### Fields of application

We offer custom-tailored designs of the **M ROB 60 machining cabinet**, which is perfectly suited for robot-guided machining of plastic components and aluminium profiles.

A prototype routing cell, for example, consists of a 6-axis industrial robot with a steel plate housing including door, window and two integrated machining tables. The tool changing facility with 8 tool places is horizontally mounted between the two tables.

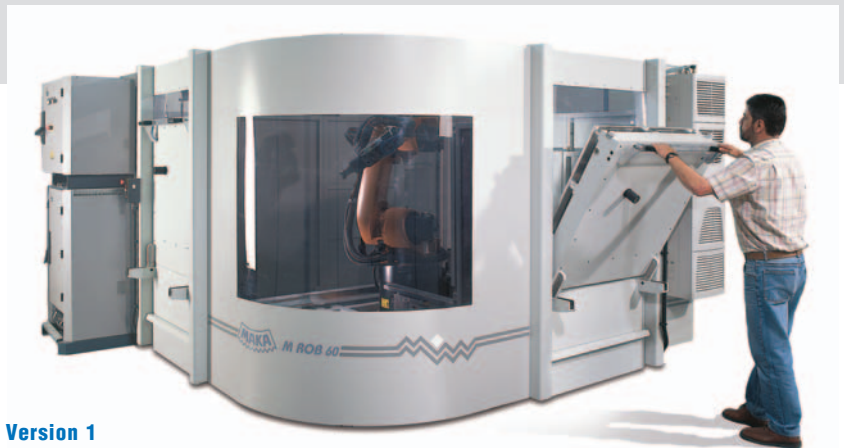
The workpieces are taken up by flexible customized clamping systems which are fixed on solid steel frame tables.

The unit's high-speed routing spindle with a capacity of 10kW is mounted to the robot arm and offers good-quality routing performances. An alternative machine unit with a 6-axis-robot KR 60 Jet is fitted with a cabin of 8 adjacent machining cells for the finishing of GRP parts. Its steel plate housing of 14 m length at the machine front disposes of 8 lifting doors with pneumatic lifting devices. The aluminium top table with measures of 900 x 1,200 mm are designed for customized clamping stations. The tool magazine with 10 tool places is fixed on the X-axis at the portal.

Beside various routing cabins MAKAs most essential innovation can be found in the development of the **converter program**.

This software permits the conversion of a BWO 5-axis CNC program or a post-processor-generated CNC program into a KUKA 6-axis program, thus getting the industrial robot ready to operate.

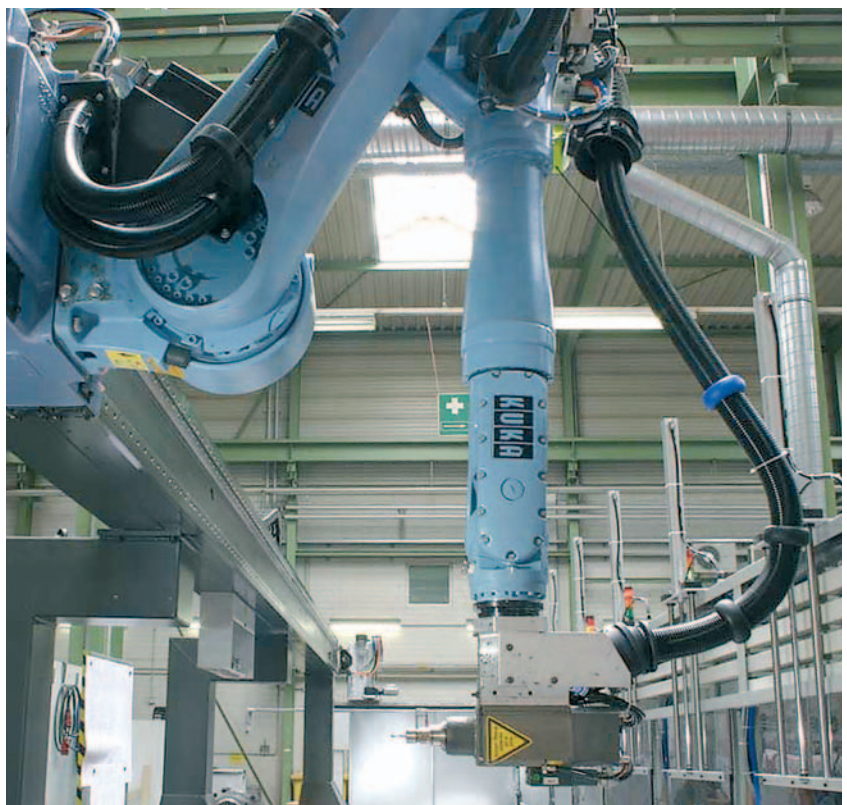
The advantage of the industrial robot lies in a wide-reaching flexibility of application fields like the auto-purification of the routing cell, installation work like the gluing in of insert bushings and last but not least the handling of components.



Version 1



Tool magazine: Linear tool magazine, 8 tool places, C:C 150 mm



Version 2 – Routing unit with tool interface HSK F 63, other spindles on request

## Technical Data M ROB 60 Standard

### Custom-tailored

### universal M Rob 60 construction types

#### Version 1

#### M ROB 60 –

#### Steel surface frame for the installation of a 6-axis industrial robot with steel covering for GRP finishing jobs

<b>Routing cell</b>	Steel plate housing with integrated machine table(s), door and window, safety guard with 1 access door
<b>Controller</b>	CAM-ROB, mobile control panel with user interface Win 95/Win XP
<b>Routing spindle</b>	with tool interface HSK F 63, water-cooled, max. power 10 kW, max. speed 24,000 rpm. with automatic tool changing facility
<b>Machine table</b>	Pivoting table: steel frame table(s) with aluminium clamping plate, vertical machining position, optional: rotating table, suited for workpiece loading at both sides, vertical machining position
<b>Swarf management</b>	Swarf collection tray underneath the machining tables, optional underfloor extraction, extraction tubing at RH and LH side,
<b>Working area</b>	Tool dia. 130 mm, total tool length 130 mm X = 1,000 mm, Y = 800 mm, Z = 350 mm
<b>Tool magazine</b>	Linear tool magazine, 8 tool places, C:C 150 mm separate tool place for cleaning tool max. tool weight 3 kg, saw blade up to max. dia. 175 mm

#### Version 2

#### M ROB 60 Jet –

#### Machine unit with 6-axis industrial robot KR 60 Jet incl. cabin with 8 adjacent machining cells for the finishing of GRP parts

<b>Routing cell</b>	Steel plate housing approx. 14 m long, 3,900 mm deep with 2 access doors with window, front side with 8 lifting doors with pneumatic lifting device
<b>Controller</b>	Robot control KR C2 with cabinet & PC, mobile operating panel KCP
<b>Routing spindle</b>	with tool interface HSK E40, water-cooled, max. power 6,5 kW, max. speed 36,000 rpm. with automatic tool changing facility
<b>Machine table</b>	8 aluminium plane top tables 900 mm x 1,200 mm; for customized clamping devices, mounted on linear guides
<b>Working dimensions</b>	X = 900 mm, Y = 1,200 mm, Z = 480 mm (envelope size)
<b>Tool magazine</b>	fixed on the portal centre in X direction, 10 magazine places for tools up to dia. 60 mm, total length 130 mm, max. tool weight 3 kg, saw blade up to dia. 100 mm
<b>Installation conditions</b>	
Machine weight	depends on custom-tailored design of the routing cell
Space required	depends on custom-tailored design of the routing cell

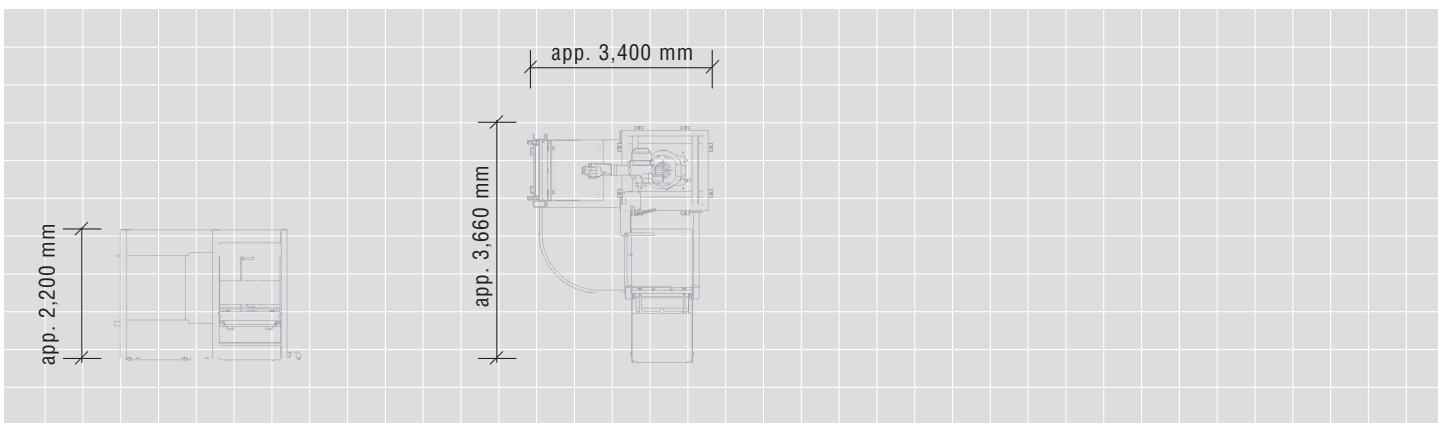


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## Foundation and surface plan

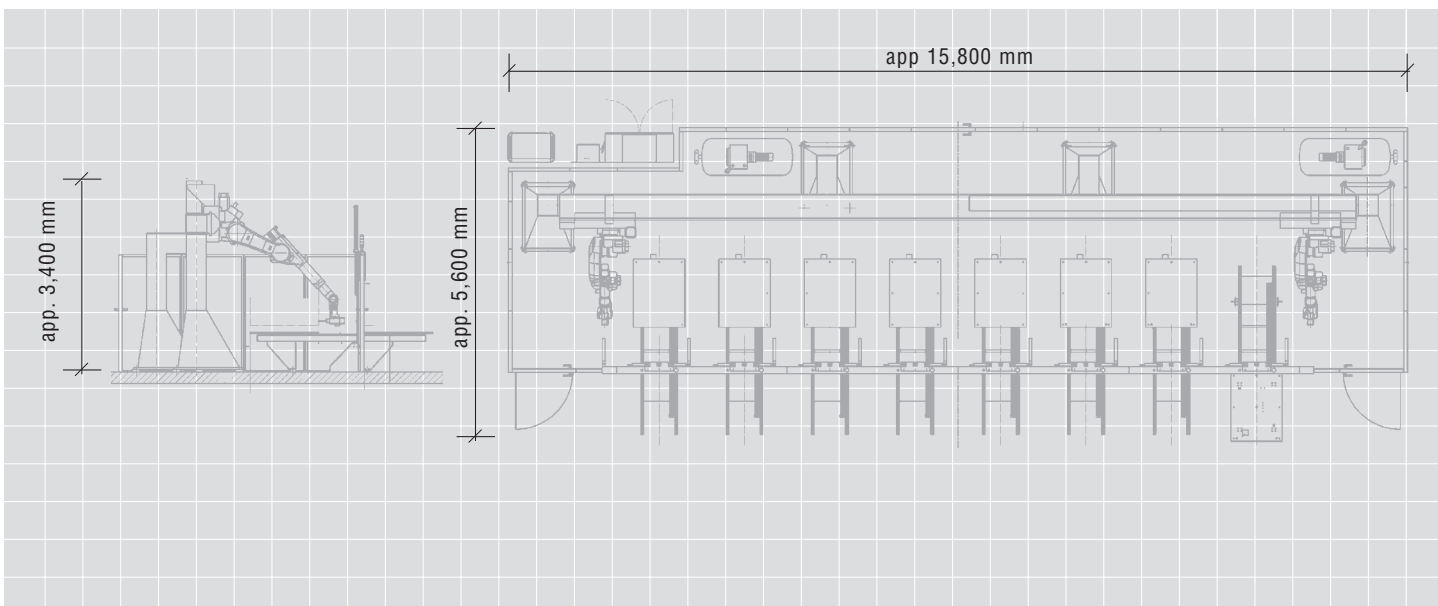
i.e. additional space for peripheral devices (control cabinet etc.) needs to be considered accordingly; see foundation plan

**Version 1: M ROB 60** – Steel surface frame for the installation of a 6-axis industrial robot with steel covering for GRP finishing jobs



**Version 2: M ROB 60 Jet** –

Machine unit with 6-axis industrial robot KR 60 Jet incl. cabin with 8 adjacent machining cells for the finishing of GRP parts



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