



# Plug-and-play The mobile automation cell from KraussMaffei

*Engineering Passion*

***Krauss Maffei***

# Transparent technology

## Take a tour of the mobile automation cell

### Compatible

Can be used on injection molding machines from 35 t to 160 t

### Compact and space saving

Thanks to the compact cell structure

### Flexibility and mobility guaranteed

Thanks to heavy-duty load rollers and forklift straps

### Option to expand:

#### Quality check

Integrated QS parts diversion

### Unique connection concept

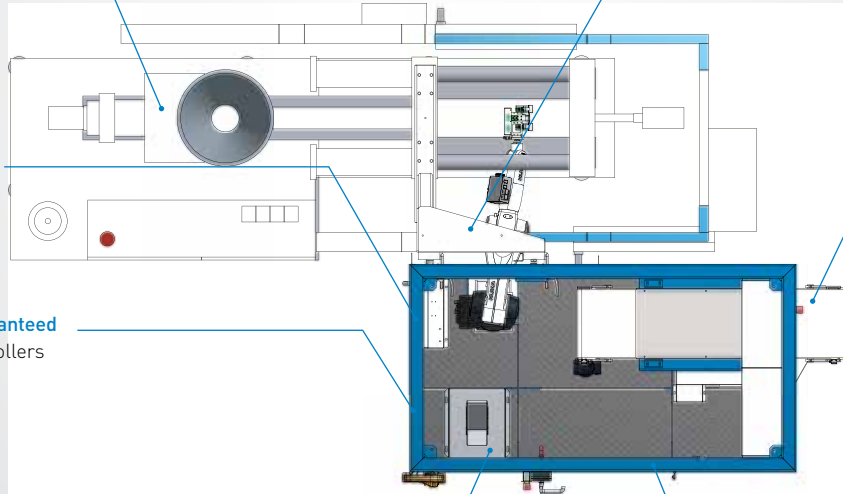
Reduces costs when replacing molds or machines

### Basic equipment for basic tasks

Highly flexible automation with industrial robots

### Innovative MC6 control system

With various optional operating concepts



# Perfectly equipped for your production

## The reliable solution for flexible automation on injection molding machines

Take advantage of the diverse fields of application for KrassMaffei's automation cell. With simple movements of the hand, the mobile cell can be quickly and easily docked, and used on injection molding machines that have a clamping force of 35 t to 160 t.

The mobile automation cell was specifically developed for the flexible production of injection molded parts. Thanks to the roller-mounted design, the cell can be easily and quickly moved between locations, from one injection molding machine to another, provided they have a suitable clamping force and size. A docking console is used to connect the cell to the machine. Plug-and-play means that the cell can be easily docked and undocked, reducing the lengthy time that is required for commissioning. If your injection molding machines are fitted with a docking console, there is now nothing stopping you from using an automation cell in your production.

It is no longer necessary to retroactively teach the demolding point, because our tests for repeating the docking and undocking processes show a high level of reproducibility.

And the control comes with a high level of flexibility too. The operating concept communicates in both directions. Thanks to this, the hand-held pendant on the robot control can be used to operate the injection molding machine, and the machine's MC6 control system can be used to control the automation cell. This ensures reciprocal, perfect operation between the machine and the automation cell. It is also possible to operate the cell as a stand-alone cell.

# Mobility in manufacturing

## Simple to use

### Design and function of the mobile basic cell

The main components of the mobile basic cell are a robust frame with casters and an enclosure. The cell can therefore be easily moved by the operator. However, with the two guide rails that are secured on the frame, it can also be transported using a forklift truck or a crane. As soon as the cell is correctly positioned on the injection molding machine, it is secured using adjustable feet. A compact enclosure that is also closed at the top and designed with robust PC automotive glazing means that the operator can look into the cell and ensures compliance with the necessary safety requirements. The safety concept is rounded off by a safety rail with door handle, key switch and request button.

Thanks to the small dimensions of the standard cell, valuable space is saved in production. This also means that the cell can be maneuvered without problems.

### Options for the basic cell:

- Larger dimensions
- ISO7-class white-room
- Coupling of several automation cells

### Facts and figures

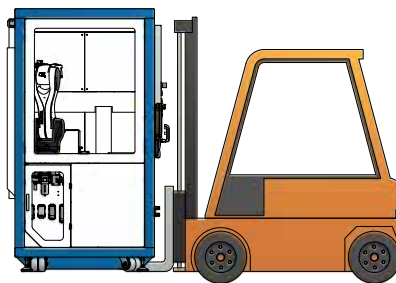
Clamping force range of the injection molding machines	35 t – 160 t
Size of the cell (L x W x H)	2200 x 1200 x 2200 mm
Weight of the welded structure	400 kg
Total weight	1100 kg

### Your advantages:

- Flexible and mobile handling
- Less space required thanks to the compact design
- Guide rails for transport
- Extremely sturdy thanks to the adjustable feet
- Enclosure in accordance with safety requirements
- Low-maintenance thanks to the encapsulated cell



View from operator's side – automation in the minimum amount of space



The advantage of mobility – well-thought-out transport options



View from the opposite side – keeping a close eye on production

## Versatile interior Discover the possibilities

### Peripheral equipment and interior of the cell

A small robot from the KUKA Agilus series is used in the standard version. It has a payload of 6 kg and a maximum reach of 900 mm. It forms the core of the cell and, with a high working speed, is used to demold finished parts from the mold and deposit them on the conveyor. Using the VisuX and ProgTechX software packages, which are included in the standard version, the robots can be controlled in a way that is extremely user-friendly and easy to program.

Furthermore, the standard cell is equipped with a conveyor that is 1500 mm in length and 400 mm in width and that transports the finished injection molded parts from the cell. To check the finished parts, we have equipped the cell with a QS system at this point. This means that the operator can easily divert parts out via the QS container at any time. There is no need to stop production in order to do this.

### Options:

- Various installation options for the robot (wall, floor, console)
- Scrap bin for substandard parts

- Peripheral modules, such as a test system, assembly station, supply unit for inserts, separating station, and many more.

### Facts and figures

<b>Robots</b>	Small KUKA robots from the Agilus series
<b>Robot payload</b>	6 kg (optional 10 kg)
<b>Robot reach</b>	900 mm (optional 700 to 1100 mm)
<b>Conveyor (L x W)</b>	1500 x 400 mm
<b>White-room equipment</b>	Optional for robots and peripheral equipment

### Your advantages:

- Small robots from the KUKA Agilus series: High working speed combined with a high level of precision
- Simple and user-friendly robot programming and control
- Cycle-optimized configuration of all components
- Integrated conveyor for diverting out the parts
- Tailor-made options for your production



Compact peripheral equipment – efficient solution



Easily accessible connecting lines – “plug-and-play”



Small robots and peripheral equipment – in an extremely small space

# Connecting and starting With the ingenious docking system

## Docking console on the injection molding machine and mobile automation cell

To ensure that it is possible to connect the mobile automation cell with the injection molding machine, the machine must be equipped with a docking console. With simple and effortless hand movements, the operator connects the machine to the automation cell, both mechanically and electrically.

## High standard: Repeatable measurement results when docking and undocking

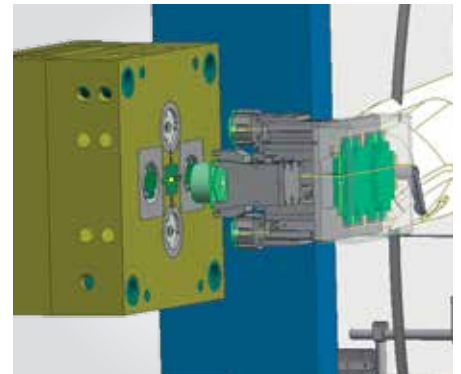
One dial gage per axis (x, y, z) formed the basis for the measurements within the mold. After each docking procedure, the robot gripper was used to move to a secure position in the mold, the measuring values were determined and documented. The following table shows the results of the repeated docking and undocking.

## Facts and figures

Axis definition	Max. value	Diameter value
X-axis = Offset from the center of the injection unit	0.4 mm	0.143 mm
Y-axis = Height offset from to the center of the injection unit	0.35 mm	0.108 mm
Z-axis = Offset in the direction of the fixed platen	0.29 mm	0.134 mm

## Your advantages:

- No retroactive teaching of the demolding point
- Simple and effortless docking and undocking – "plug-and-play"
- High repeatability
- Change programs in a matter of minutes
- Reduced commissioning times
- Flexible fields of application



Robot gripper in the mold



Docking console on the cell's base frame



Docking console on the injection molding machine



Roller-mounted base frame for simple docking and undocking

## Standard or tailor-made Mobile automation cell for flexible production

The mobile automation cell from KraussMaffei can be used in diverse fields of application in the production of injection molded parts.

Thanks to the compact design, the cell – with integrated industrial robot – offers increased flexibility in your production. Thanks to the roller-mounted frame design, the docking console can be used to adapt the cell to any injection molding machine in just a few simple movements.

In addition to standard cells, we also offer units that are tailored to meet your production needs.

