

Automation with six-axis Fanuc industrial robot

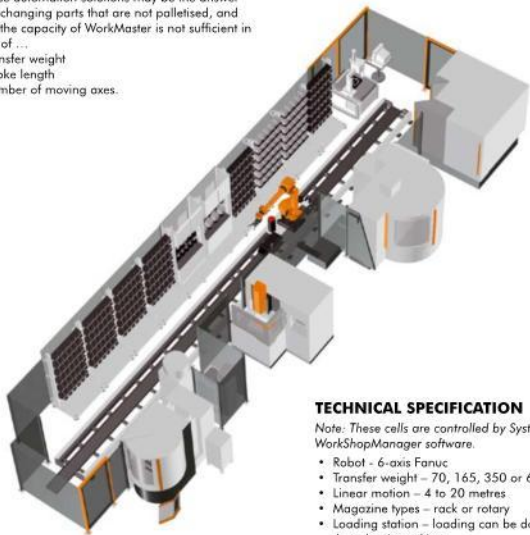


SYSTEM 3R HAS STARTED

collaboration with other players in the field of automation, meaning that we can now offer automation solutions with industrial robots, both stationary and rail-borne.

These automation solutions may be the answer when changing parts that are not palletised, and when the capacity of WorkMaster is not sufficient in terms of ...

- ... transfer weight
- ... stroke length
- ... number of moving axes.



TECHNICAL SPECIFICATION

Note: These cells are controlled by System 3R's WorkShopManager software.

- Robot - 6-axis Fanuc
- Transfer weight - 70, 165, 350 or 600 kg
- Linear motion - 4 to 20 metres
- Magazine types - rack or rotary
- Loading station - loading can be done while the robot is working
- ID system*

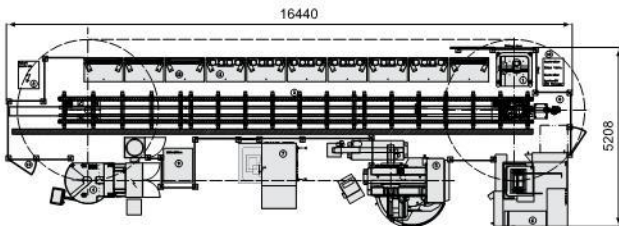
* Rack magazine - identification takes place automatically in the loading station. Rotary magazine - identification takes place by fast scanning of all magazine levels at the same time.



CONFIGURATION EXAMPLE

Production cell with several machining technologies. Milling, die-sinking EDM wire EDM and measurement. Gripper and pallet stations integrated into the rail sledge.

- Robot – Fanuc 710iC70.
- Milling machine for electrode manufacture.
- Milling machine for machining parts.
- Station for air-blast cleaning of graphite electrodes and washing of workpieces.
- Die-sinking EDM machine.
- Wire EDM machine.
- Measuring machine for determining offset values, and for inspection measurement of machined electrodes and workpieces.



GREATER AUTONOMY

New possibilities are opened up, thanks to a greater number of moving axes.

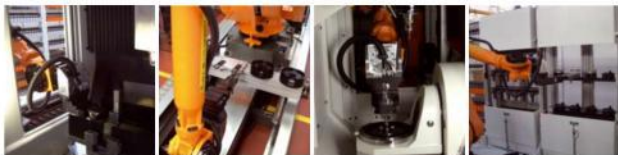
- Loading and unloading of pallets in horizontal and vertical chucks without change of gripper jaw.
- Tipping-out of liquid in a mould tool
- Gripper jaw station in the rail sledge. The robot always has all gripper jaws with it.
- Magazine stations on the rail sledge. These are used as an intermediate station for changing grip on a pallet, or when a finished pallet is to be changed in a machine.

WORKSHOPMANAGER

All processes in the cell are controlled by System 3R's WorkShopManager software.

- Every object has its sequence of operations with the respective machining program.
- Every object is placed on a pallet with its own ID code stored in the database.
- On identification, WorkShopManager determines the status and magazine position of the object and decides to which machine the pallet must be loaded, as well as which machining program is to be transferred to the machine and started.

For further information about WorkShopManager, see separate brochure.



MODULAR MAGAZINES GIVE FLEXIBILITY

The magazines are available in two basic designs – rack or rotary. In both cases they are matched to System 3R's pallet system. Each magazine unit consists of a number of shelves. The number is determined by the height of the workpieces in

question. Because of the modular design, you can start with fewer pallet positions. When the need arises, you can add one or more magazine units to increase the production capacity in step with the growth of your business.

Half rack magazine

- Five levels
- Maximum load per level – 150 kg
- Maximum total load – 1200 kg
- ▶ Option – door for loading from behind
- ▶ Option – more shelves

Tool system	Number of positions per shelf	Maximum dimensions workpiece
GPS240	1	450 x 450 mm
Dynafix	1	450 x 450 mm
Delphin	1	450 x 450 mm
MacroMagnum	1	200 x 200 / Ø200 mm



Full rack magazine

- five levels (standard)
- Maximum load per level – 300 kg
- Maximum total load – 1200 kg
- ▶ Option – door for loading from behind
- ▶ Option – more shelves

Tool system	Number of positions per shelf	Maximum dimension workpiece
MacroJunior	21	45 x 45 / Ø45 mm
Macro 54 och 70	12	70 x 200 / Ø80 mm
GPS70	12	70 x 200 / Ø80 mm
Macro Ø116	6	150 x 150 / Ø160 mm
GPS120	6	150 x 150 / Ø160 mm
MacroMagnum	5	170 x 170 / Ø185 mm
GPS240	3	275 x 275 mm
GPS240	2	400 x 400 mm
Dynafix	2	400 x 400 mm
Delphin	2	400 x 400 mm

In **wire EDM**, only customer-specific solutions, since the number of positions per shelf is determined mainly by the size of the workpiece and therefore of the clamping elements and not by the tool system – whether you choose Macro, Unimatic or MacroTwin.



Rotary magazine

- Maximum total load – 1000 kg

Tool system	Number of positions per shelf	Maximum dimensions workpiece
Macro Ø116	20	135 x 135 / Ø150 mm
GPS120	20	135 x 135 / Ø150 mm
MacroMagnum	15	160 x 160 / Ø190 mm
GPS240	6	280 x 280 mm
Dynafix	6	280 x 280 mm

In **wire EDM**, only customer-specific solutions, since the number of positions per shelf is determined mainly by the size of the workpiece and therefore of the clamping elements and not by the tool system – whether you choose Macro, Unimatic or MacroTwin.



Indexing magazine

- Maximum total load – 1000 kg

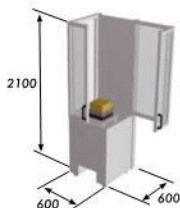
Tool system	Number of positions per shelf	Maximum dimensions workpiece
MacroCombi	60	44 x 44 / Ø44 mm
Macro 54 och 70	32	65 x 65 / Ø90 mm
GPS70	32	90 x 90 / Ø95 mm



WPS – preparation station / loading station

Station for the preparation of workpieces. The station has a door and side guards. Fencing is not needed. A chuck is not included.

- Maximum workpiece dimensions – 450x450x450 mm
 - Maximum load – 200 kg
 - Collection tray for oil and flushing liquid
 - Presence monitoring
 - Prepared for chuck installation, including foot control and pneumatic connections
- ▶ Option – manual flushing liquid sensor
▶ Manual indexing unit, 4x90 degrees, with locking device
▶ D antenna, fixed



Loading station

Tool system	Number of positions per shelf
Macro	18
MacroMagnum	8
GPS240	4
Dynafix	4



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