System 3R

Transformer Concept with six-axis robot
Tailored to serve your needs
System 3R offer automation solutions with industrial robots, both stationary and rail versions within the Die & Mold and Precision Production sector. The 6-axis robot solution covers applications in terms of:

- transfer weight from 70-700 kg
- radial reach, up to 3 400 mm
- complexed transfer movements
- parts handling
- Whatever the Automation requirement, the 6-axis robot solution can be tailored to serve your needs: customer-specific solutions.
- Modern technology & smart technical solutions using standardized modules allow for cost-effective yet flexible Automation
- User-friendly cell management software: complex Automation made easy!
- Everything from your single source supplier:
GF Machining Solutions

Achieve greater return on your investment!
Scalable Automation – System 3R

Grows with your needs

Begin with a single machine and small magazine capacity.

Begin

Add a second machine and a rotary magazine for more capacity.

Add
Place the robot on rails and add magazine capacity to serve additional machines, or start with a similar solution from the beginning.

EXTEND
Customer-specific Solutions

Tailored to serve your needs

Milling application
Model 360 – Stationary robot
Milling machine
Rack magazines
Loading/index station

Milling application
Model 360 on rail
Three Milling machines
Washing machine
Rack magazines
Loading/index station
Milling application
Model 700 – Stationary robot
Milling machine
Rack magazines
Loading/index station
For cost-effective solutions

Standardized modules

**Model**
- 70–700 kg transfer weights

**Rotary magazine**
- Large capacity in a small footprint

**LFT Small loading station**
- One single station for reloading workpieces on pallets or used as a loading station

**Rack magazine**
- Full rack magazine or half rack magazine for electrodes or workpieces
LFT Rack magazine
Full rack magazine

LFT Large loading station
Load and unload parts without stopping the Automation cell

Cleaning machine
Clean, rinse and dry the workpieces

Loading/index station
Load and unload parts without stopping the Automation cell
WSM – WorkShopManager

User-friendly Cell Management Software

• Necessary data is entered quickly and in a structured manner.
• Quick, precise overview of the entire process chain
• Increased flexibility: The order of priority can be changed at any time.
• Simpler, safer preparation of automated cells
• The risk of errors due to the human factor is minimized.
• Increased process security
Preparation – WorkCenter

- Create an order
- Assign operations and NC programs
- Retrieve offset values
- Release the order for production

Execution – CellManager

- Manages the pallet ID codes and magazine positions
- Creates priority lists
- Automatically starts available jobs in the order of the priority list
- Updates the information in the database with the status and machining times of individual orders

Monitoring – CellMonitor

- Display status of all cells
- Display status of individual machines and processes

Statistics – WSM Statistics

- Retrieve and analyze cell utilization data
- Retrieve and analyze order data
Customer Services

Optimize the uptime of your equipment with our Machine Support services

Annual reconditioning minimizes production stops and optimizes function, precision and performance. GF Machining Solutions offers comprehensive services for your Automation, reference systems and masters and calibration tools.
Preventive maintenance

**Automation**
- Mechanics
- Pneumatics
- Peripheral equipment

**Reference systems**
- Rebuilding chucks
- Inspecting references
- Checking clamping force

**Masters and calibration tools**
- Cleaning and polishing
- CMM inspection
- Quality certificate

**CE Certification**
GF Machining Solutions’ Customer Services also offers CE Certification of Conformity for complete Automation cells.
## Technical specifications
### Six-axis robots

<table>
<thead>
<tr>
<th>Robot Model 70/165/210/360/700</th>
<th>Robot model on rail 70/165/210/360/700</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payload</td>
<td>70, 165, 210, 360, 700 kg, 155, 366, 466, 800, 1555 lbs</td>
</tr>
<tr>
<td>Max. X-reach</td>
<td>70 kg = 2050 mm, 165-360 kg = 2655 mm, 700 kg = 2832 mm</td>
</tr>
<tr>
<td></td>
<td>70 kg = 80.7 in, 165–360 kg = 104.5 in, 700 kg = 111.5 in</td>
</tr>
<tr>
<td>Max. Z-reach</td>
<td>1400 mm</td>
</tr>
<tr>
<td></td>
<td>55.12 in</td>
</tr>
<tr>
<td>Max. C-rotation</td>
<td>360–370°</td>
</tr>
<tr>
<td>Stationary cell, max. # of machines</td>
<td>Up to 3</td>
</tr>
<tr>
<td>Linear cell, max. # of machines</td>
<td>Up to 12</td>
</tr>
<tr>
<td>Rail type</td>
<td>Standard</td>
</tr>
<tr>
<td></td>
<td>Heavy</td>
</tr>
<tr>
<td>Max. rail length</td>
<td>Standard 20 m, 787 in</td>
</tr>
<tr>
<td></td>
<td>Heavy 30 m, 1181 in</td>
</tr>
<tr>
<td>Max. transfer weight (pallet and workpiece)</td>
<td>70 kg, 155 lbs (Model 70)</td>
</tr>
<tr>
<td></td>
<td>165 kg, 366 lbs (Model 165)</td>
</tr>
<tr>
<td></td>
<td>210 kg, 466 lbs (Model 210)</td>
</tr>
<tr>
<td></td>
<td>360 kg, 800 lbs (Model 360)</td>
</tr>
<tr>
<td></td>
<td>700 kg, 1555 lbs (Model 700)</td>
</tr>
</tbody>
</table>

### Accessories

<table>
<thead>
<tr>
<th>Accessory</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>LFT half rack magazine, max. pallet size</td>
<td>850 x 550 mm [33.5 x 21.6 in]</td>
</tr>
<tr>
<td>LFT full rack magazine, max. pallet size</td>
<td>850 x 800 mm [33.5 x 31.6 in]</td>
</tr>
<tr>
<td>Half rack magazine, max. pallet size</td>
<td>480 x 400 mm [18.9 x 15.7 in]</td>
</tr>
<tr>
<td>Full rack magazine, max. pallet size</td>
<td>700 x 450 mm [27.6 x 17.7 in]</td>
</tr>
<tr>
<td>Rotary magazine, max. pallet size</td>
<td>320 x 320 mm [12.6 x 12.6 in]</td>
</tr>
<tr>
<td>Multiple loading station</td>
<td>Depending on tooling and number of positions</td>
</tr>
<tr>
<td>LFT loading station</td>
<td>850 x 800 mm [33.5 x 31.6 in]</td>
</tr>
<tr>
<td>Loading station</td>
<td>max. 200 kg [440 lbs], 450 x 450 mm [17.71 x 17.71 in]</td>
</tr>
<tr>
<td>Loading/index station</td>
<td>570 x 570 mm [22.4 x 22.4 in]</td>
</tr>
<tr>
<td>Cleaning machine</td>
<td>max. 200 kg [440 lbs], 500 x 500 mm [19.68 x 19.68 in]</td>
</tr>
</tbody>
</table>
System 3R TRANSFORMER CONCEPT WITH SIX-AXIS ROBOT

Model 70
Reach capacity: 2050 mm, 80.7 in.
C-Rotation: 360°

Model 165
Reach capacity: 2655 mm, 104.5 in.
C-Rotation: 370°

Model 210
Reach capacity: 2655 mm, 104.5 in.
C-Rotation: 370°

Model 360
Reach capacity: 2655 mm, 104.5 in.
C-Rotation: 360°

Model 700
Reach capacity: 2832 mm, 111.4 in.
C-Rotation: 360°

Robot rail
Max robot travel, Standard: 20 m (787 in)
Max robot travel, Heavy: 30 m (1181 in)

Max number of machines
Stationary cell: 3
Linear cell: 12

Rail type
Standard (only for 70, 165 and 210 models)

Heavy

* Depending on model/type
Model 70 = 1757 mm [69 in]
Model 165 = 2081 mm [82 in]
Model 210 = 2115 mm [83 in]
Model 360 = 2285 mm [90 in]
Model 700 = 2565 mm [101 in]

** Depending on model/type
Model 70 = 1717 mm [67.6 in]
Model 165 = 2322 mm [82 in]
Model 210 = 2387 mm [91 in]
Model 360 = 2415 mm [95 in]
Model 700 = 2810 mm [110.6 in]
Magazines are available in two basic designs: rack and rotary. Each magazine unit consists of a number of shelves (determined by the height of the workpieces in question).

### Rotary magazine

<table>
<thead>
<tr>
<th>Tooling*</th>
<th>Pos.**</th>
<th>Size in mm (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynafix</td>
<td>4</td>
<td>320 x 320 (12.6 x 12.6)</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>290 x 290 (11.4 x 11.4)</td>
</tr>
<tr>
<td>GPS 240</td>
<td>4</td>
<td>320 x 320 (12.6 x 12.6)</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>290 x 290 (11.4 x 11.4)</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>260 x 260 (10.2 x 10.2)</td>
</tr>
<tr>
<td>Macro-Magnum</td>
<td>8</td>
<td>210 x 210 (8.27 x 8.27)</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>185 x 185 (7.28 x 7.28)</td>
</tr>
<tr>
<td></td>
<td>12</td>
<td>160 x 160 (6.3 x 6.3)</td>
</tr>
<tr>
<td>GPS 120</td>
<td>12</td>
<td>65 x 65 (2.56 x 2.56)</td>
</tr>
<tr>
<td>Macro</td>
<td>36</td>
<td>Rapid ID scanning</td>
</tr>
</tbody>
</table>

### Full rack magazine

<table>
<thead>
<tr>
<th>Tooling*</th>
<th>Pos.**</th>
<th>Size in mm (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Macro</td>
<td>12</td>
<td>70 x 200 (2.75 x 12.2)</td>
</tr>
<tr>
<td></td>
<td>6</td>
<td>150 x 150 (5.9 x 5.9)</td>
</tr>
<tr>
<td>Macro 116</td>
<td>4</td>
<td>210 x 210 (8.27 x 8.27)</td>
</tr>
<tr>
<td></td>
<td>5</td>
<td>170 x 170 (6.7 x 6.7)</td>
</tr>
<tr>
<td>Dynafix</td>
<td>2</td>
<td>400 x 400 (15.75 x 15.75)</td>
</tr>
<tr>
<td></td>
<td>10</td>
<td>95 x 95 (3.74 x 3.74)</td>
</tr>
<tr>
<td>GPS 240</td>
<td>3</td>
<td>275 x 275 (10.83 x 10.83)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>400 x 400 (15.75 x 15.75)</td>
</tr>
<tr>
<td>Delphin</td>
<td>400 x 400</td>
<td>400 x 400 (15.75 x 15.75)</td>
</tr>
</tbody>
</table>

### LFT Full rack magazine

<table>
<thead>
<tr>
<th>Tooling*</th>
<th>Pos.**</th>
<th>Size in mm (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynafix</td>
<td>1</td>
<td>850 x 800 (33.4 x 31.5)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>400 x 800 (15.7 x 31.5)</td>
</tr>
<tr>
<td>GPS 240</td>
<td>1</td>
<td>850 x 800 (33.4 x 31.5)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>400 x 800 (15.7 x 31.5)</td>
</tr>
<tr>
<td>Delphin</td>
<td>1</td>
<td>850 x 800 (33.4 x 31.5)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>400 x 800 (15.7 x 31.5)</td>
</tr>
</tbody>
</table>

### LFT half rack magazine

<table>
<thead>
<tr>
<th>Tooling*</th>
<th>Pos.**</th>
<th>Size in mm (in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dynafix</td>
<td>1</td>
<td>850 x 550 (33.4 x 21.6)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>500 x 500 (19.7 x 19.7)</td>
</tr>
<tr>
<td>GPS 240</td>
<td>1</td>
<td>850 x 550 (33.4 x 21.6)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>500 x 500 (19.7 x 19.7)</td>
</tr>
<tr>
<td>Delphin</td>
<td>1</td>
<td>850 x 550 (33.4 x 21.6)</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>500 x 500 (19.7 x 19.7)</td>
</tr>
</tbody>
</table>

### Options

- Additional shelves
- Door for loading from behind

* Other tooling upon request
** Positions per level
Note: The maximum height of the workpiece depends on the number of levels
Technical specifications

Accessories

**Multiple loading station & LFT Loading station**
Used for loading and unloading without the need to stop the Automation cell

The station is equipped with ID antennas and presence sensors.
It can be configured to meet the requirements of tooling type and part sizes.

**Loading/index Station**
Used for preparing the workpieces with a indexing table.

- Max. workpiece size, round: dia. 800 mm (31.5 in)
- Max. workpiece size, square: 570 x 570 mm (22.4 x 22.4 in)
- Max. load: 500 kg (1111 lbs)
- Load or work preparation area for all standard tooling
- Indexable every 30°
- Collecting tray for oil & flushing liquid
- Presence detection

**Cleaning machine**
A washing machine intended for cleaning, rinsing and air drying metal components placed on a pallet.
The unit consists of an insulated cabinet with a lifting door, fixed spraying system and a rotating fixture for the pallets. The unit is automatically loaded by the robot.

**Maximum part size**
500 x 500 x 500 mm (19.7 x 19.7 x 19.7 in)
including pallet, chuck and workpiece

**Maximum weight**
200 kg (440 lbs) including pallet, chuck and workpiece
GF Machining Solutions

Milling

High-Speed and High-Performance Milling Centers. In terms of cutting speed, HSM centers are 10 times faster than conventional milling machines. Greater accuracy and a better surface finish are also achieved. This means that even tempered materials can be machined to a condition where they are largely ready to use. One essential advantage of HSM is that with systematic integration, the process chain can be significantly shortened. HSM has developed alongside EDM into one of the key technologies in mold and tool making.

EDM

Electric Discharge Machines. EDM can be used to machine conductive materials of any hardness (for example steel or titanium) to an accuracy of up to one-thousandth of a millimeter with no mechanical action. By virtue of these properties, EDM is one of the key technologies in mold and tool making. There are two distinct processes — wire-cutting EDM and die-sinking EDM.

Automation

Tooling, Automation, Software. Tooling for fixing workpieces and tools; automation systems and system software for configuring machine tools and recording and exchanging data with the various system components and design advantages.

Laser

Laser texturing. Laser texturing supplements and extends the technologies offered by GF Machining Solutions. With our laser technology we enable you to produce texturizing, engraving, microstructuring, marking and labeling of 2D geometries right through to complex 3D geometries. Laser texturing, compared to conventional surface treatment using manual etching processes, offers economic, ecological and design advantages.

Customer Services

Operations, Machine and Business Support. Customer Services provides with three levels of support all kind of services for GF Machining Solutions machines. Operations Support offers the complete range of original wear parts and certified consumables including wires, filters, electrodes, resin and many other materials. Machine Support contains all services connected with spare parts, technical support and preventive services. Business Support offers business solutions tailored to the customer’s specific needs.
At a glance

We enable our customers to run their businesses efficiently and effectively by offering innovative Milling, EDM, Laser and Automation solutions. A comprehensive package of Customer Services completes our proposition.

www.gfms.com