System 3R
Transformer
Swedish design and quality
Transform Your Business

- Scalable Automation solutions for various types of machines from a multitude of machine tool manufacturers.
- Whatever the Automation requirement, the Transformer can be tailored to serve your needs: customer-specific solutions.
- Modern design and 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

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

EXTEND

and Transform

Extend the rails for even more magazine capacity and machines.
Customer-specific Solutions

Tailored to serve your needs

**Milling application**
Three Milling machines
Rack magazines
Multiple loading station
Draining station

**Wire-cutting EDM (WEDM) application**
Five WEDM machines
Rack magazines
Loading station
Drying station
Mixed technologies
Two EDM machines
One Milling machine
One coordinate measuring machine
One washing machine
Draining station
Rack magazines
Multiple loading station
Rotary magazine
Standardized modules

For cost-effective solutions

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

**Work preparation/loading station**
One single station for reloading workpieces on pallets or used as a loading station

**Transformer unit**
For 100/150/200 kg transfer weights

**Rack magazine**
Full rack magazine or half rack magazine for electrodes or workpieces
Drying station
Blow off and dry workpieces with air

Draining station
Empty dielectric/cutting fluid from workpiece cavities

Multiple loading station
Load and unload parts without stopping the Automation cell

Washing machine
Clean, rinse and dry the workpieces
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
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
#### Transformer Unit

<table>
<thead>
<tr>
<th>Specification</th>
<th>Transformer 100/150/200</th>
<th>Transformer Linear 100/150/200</th>
</tr>
</thead>
<tbody>
<tr>
<td>Payload</td>
<td>kg</td>
<td>lbs</td>
</tr>
<tr>
<td>Max. X-stroke mm</td>
<td>1250 or 1500</td>
<td>49.21 or 59.05</td>
</tr>
<tr>
<td>Max. Z-stroke mm</td>
<td>1400</td>
<td></td>
</tr>
<tr>
<td>Max. C-rotation °</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>Stationary cell, max. # of machines</td>
<td>Up to 3</td>
<td></td>
</tr>
<tr>
<td>Linear cell, max. # of machines</td>
<td>Up to 12</td>
<td></td>
</tr>
<tr>
<td>Rail type</td>
<td>Standard [Transformer 100]</td>
<td>Heavy [Transformer 150/200]</td>
</tr>
<tr>
<td>Max. rail length m, in</td>
<td>25, 984 [Transformer Linear]</td>
<td>150, 330 [Transformer 150/Transformer Linear 150]</td>
</tr>
<tr>
<td>Max. transfer weight (pallet and workpiece) kg, lbs</td>
<td>100, 220 [Transformer 100/Transformer Linear 100]</td>
<td>150, 330 [Transformer 150/Transformer Linear 150]</td>
</tr>
<tr>
<td>Rack magazine, max. pallet size</td>
<td>mm (in)</td>
<td>700 x 450 (27.56 x 17.71)</td>
</tr>
<tr>
<td>Rotary magazine, max. pallet size</td>
<td>mm (in)</td>
<td>320 x 320 (12.6 x 12.6)</td>
</tr>
<tr>
<td>Loading station kg (lbs), mm (in)</td>
<td>max. 200 (440)</td>
<td>700 x 450 (27.56 x 17.71)</td>
</tr>
<tr>
<td>Washing machine kg (lbs), mm (in)</td>
<td>max. 200 (440)</td>
<td>500 x 500 (19.68 x 19.68)</td>
</tr>
<tr>
<td>Draining station kg (lbs), mm (in)</td>
<td>max. 200 (440)</td>
<td>450 x 450 (17.71 x 17.71)</td>
</tr>
<tr>
<td>Drying station WEDM kg (lbs), mm (in)</td>
<td>max. 30 (66)</td>
<td>300 x 300 (11.81 x 11.81)</td>
</tr>
</tbody>
</table>

#### Optional Grippers
- Double
- Tilling
- Turning
**Fanuc solution**

Fanuc six-axis robots are offered as an option instead of the Transformer manipulator unit for transfer weights ranging between 70-700 kg, or for applications requiring complex movements.

---

**Rail type**

- **Standard**
- **Heavy**

- Rail type: standard
- Rail type: heavy

---

**Transformer 100/150/200**

- 2610/102.75”
- 2680/105.51”
- 2840/111.81”

- 1400/55.11”

- 640/25.20”
- 710 */27.95”
- 730 **/28.74”

- 1250/49.21”
- 1250/1500
- 49.21”/59.05”

- 300°
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>Erowa UPC</td>
<td>4</td>
<td>320 x 320 (12.6 x 12.6)</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>160 x 160 (6.3 x 6.3)</td>
</tr>
<tr>
<td>Macro</td>
<td>36</td>
<td>65 x 65 (2.56 x 2.56)</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>Macro 116</td>
<td>6</td>
<td>150 x 150 (5.9 x 5.9)</td>
</tr>
<tr>
<td>Macro-Magnum</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>1</td>
<td>700 x 500 (27.56 x 19.68)</td>
</tr>
<tr>
<td>GPS 70</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>2</td>
<td>400 x 400 (15.75 x 15.75)</td>
</tr>
<tr>
<td>400 x 400</td>
<td>1</td>
<td>700 x 500 (27.56 x 19.68)</td>
</tr>
</tbody>
</table>

### 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>480 x 400 (18.9 x 15.75)</td>
</tr>
<tr>
<td>GPS 240</td>
<td>1</td>
<td>480 x 400 (18.9 x 15.75)</td>
</tr>
<tr>
<td>Delphin 400 x 400</td>
<td>1</td>
<td>480 x 400 (18.9 x 15.75)</td>
</tr>
</tbody>
</table>

### Options

- Additional shelves
- Door for loading from behind

* Positions per level
  Note: The maximum height of the workpiece depends on the number of levels.
Technical specifications

**Accessories**

**Multiple 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.

**Work preparation station**
Used for preparing the workpieces. The station has doors for easy access and side guards.

- Max. workpiece size: 450 x 450 x 450 mm
- Max. load: 200 kg
- Drip tray for oil and flushing liquid
- Presence monitoring
- Prepared for chuck installation, including foot control and pneumatic connections

**Options**
- Manual flushing liquid sensor
- Manual Indexing unit, 4 x 90 degrees, with locking device
- ID antenna

**Washing 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 including pallet, chuck and workpiece

- **Maximum weight**
  - 200 kg including pallet, chuck and workpiece

**Drying station**
A station with two stages to blow off and dry the workpiece.
First compartment removes fluids with compressed air. Second compartment dries the workpiece.

**Draining station**
After machining, the workpiece is placed in the station where the remaining dielectric is tipped out of the cavities and fed back to the machine.

Optional flushing nozzles available.
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.

Laser

Laser texturing. Laser texturing supplements and extends the technologies offered by GF Machining Solutions. With our laser technology we enable you to produce texturing, 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.

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.

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