

System 3R

# Hybrid Automation



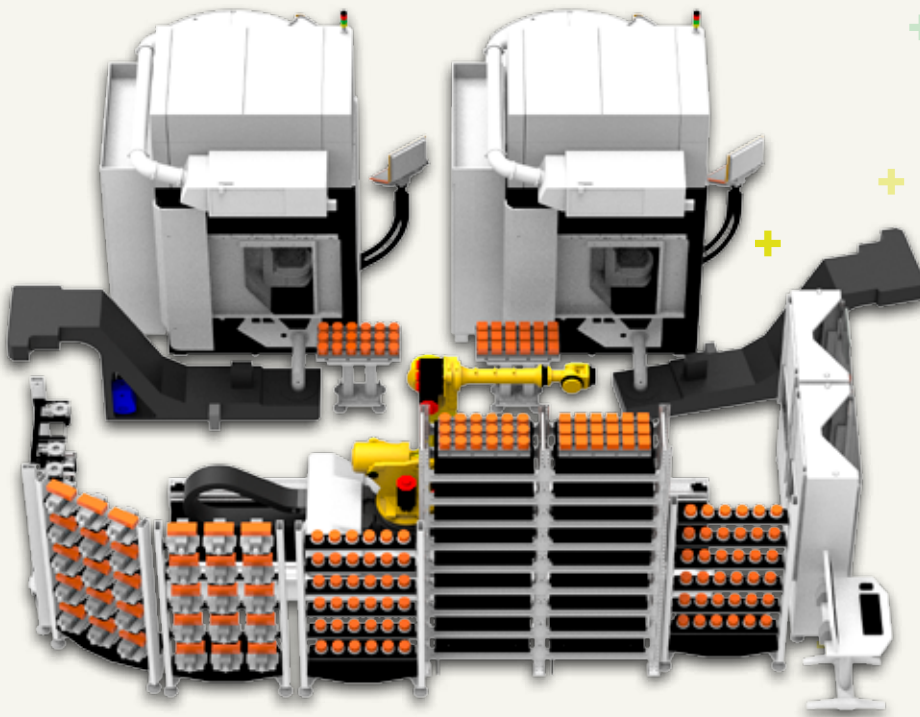
### **GF Machining Solutions: all about you**

When all you need is everything, it's good to know that there is one company that you can count on to deliver complete solutions and services. From world-class electrical discharge machines (EDM), Laser texturing and Additive Manufacturing through to first-class Milling and Spindles, Tooling, Automation and software systems — all backed by unrivalled customer service and support — we, through our AgieCharmilles, Microlution, Mikron Mill, Liechti, Step-Tec and System 3R technologies, help you raise your game and increase your competitive edge.

# Tailored to serve your needs

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System 3R offer automation solutions with industrial robots, both stationary and rail versions within the Die & Mold and Precision Production sector.

Fanuc Solutions cover applications ...  
... maximal payload weight 70-210 kg  
... radial reach, up to 2 655 mm  
... complexed transfer movements  
... parts handling

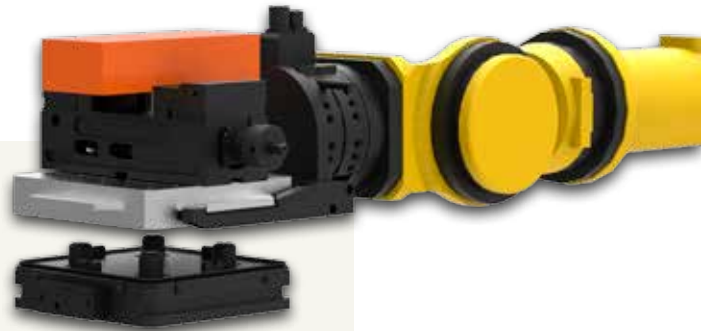
- Hybrid Automation – Concept for mix palletized automation together with parts handling.
- For Parts Handling, fully automatic change from part A to part B in the machine. The system keeps track of NC-program, cassette, gripper, chuck adapters, quantity etc.
- The concept for parts handling is optimal for part families. Meaning grippers and fixtures could possibly be used for more than one unique part.
- In theory, batch size 1 is possible for both palletized automation as well as parts handling.
- The software is based on the WorkShopManager/ CellManager from System 3R. Always Easy-to-use and reliable.
- Traceability functions can be built into the application.

# Hybrid Automation

Mix to your needs – Palletized or parts handling automation

## Palletized automation

Parts too large or too heavy for parts handling can be palletized



## Automatic vice for parts

The table chuck has integrated (patented) pneumatics for secondary system activation/deactivation



## Parts grippers

Grippers are designed according to dimensions and shape of the material

# Easy Step-by-step



## Prepare

Prepare cassettes and jobs.  
Load cassettes into magazine.  
Execute the jobs via CellManager

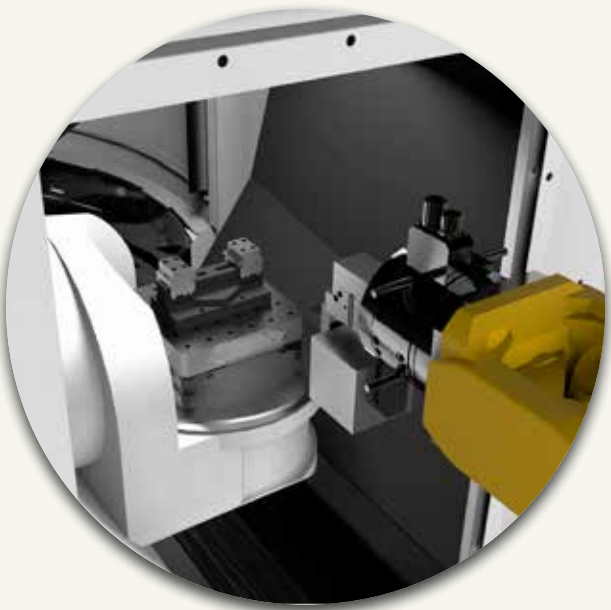
## Choose

Choose specific chuck adapter/  
vice needed for the material



## Bring

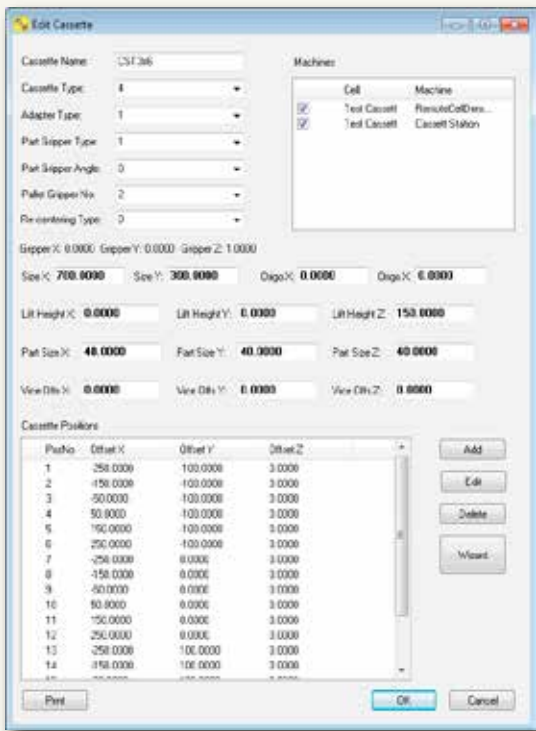
Bring the cassette with materials onto  
the Intermediate station



## Load

Load each material into the  
chuck adapter/vice and start first  
job in the queue.

# User friendly preparation

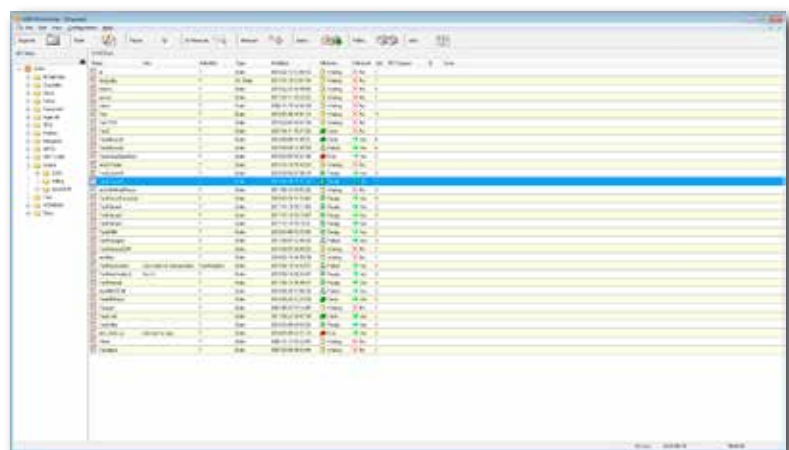
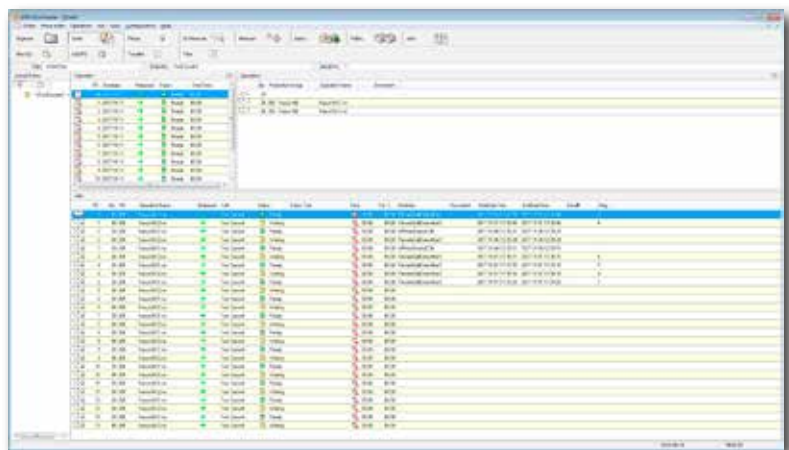


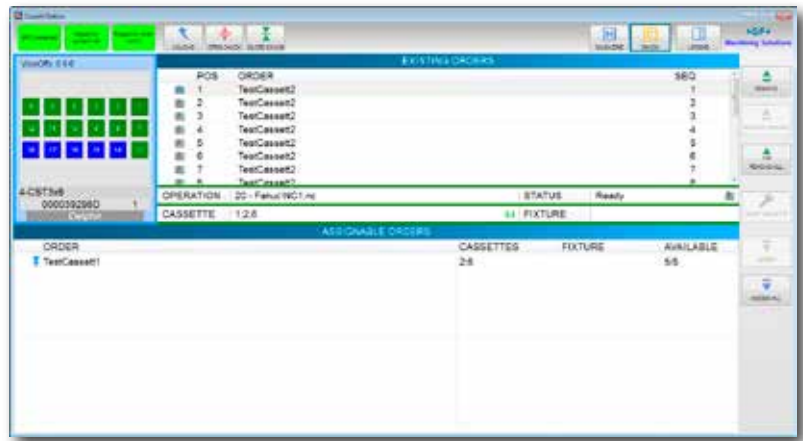
### Cassette registration in WSM WorkCenter

- Enter cassette Name "CST3x6" and Cassette Type "4"
- Enter number of positions for example "18" pos. 3x6
- Enter start positions and offsets
- Material gripper "1" (Lift in/out)
- Angle 0-90
- Chuck adapter "1"
- Cell/machines

### WSM WorkCenter - Enter order data

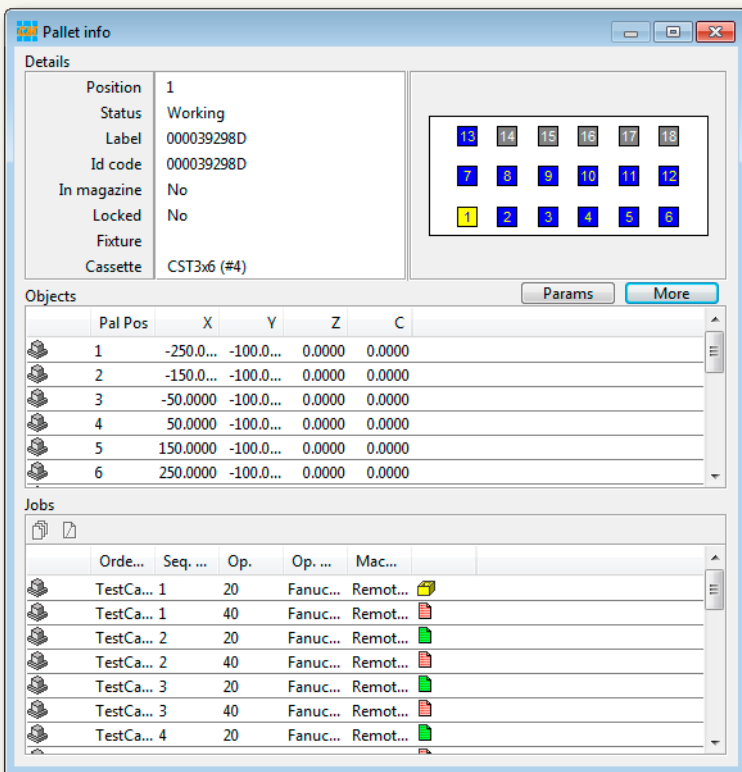
- Create order name "Hybrid4"
- Choose article number
- Enter order quantity "1"
- Choose operation - Milling
- Select NC program - NC01





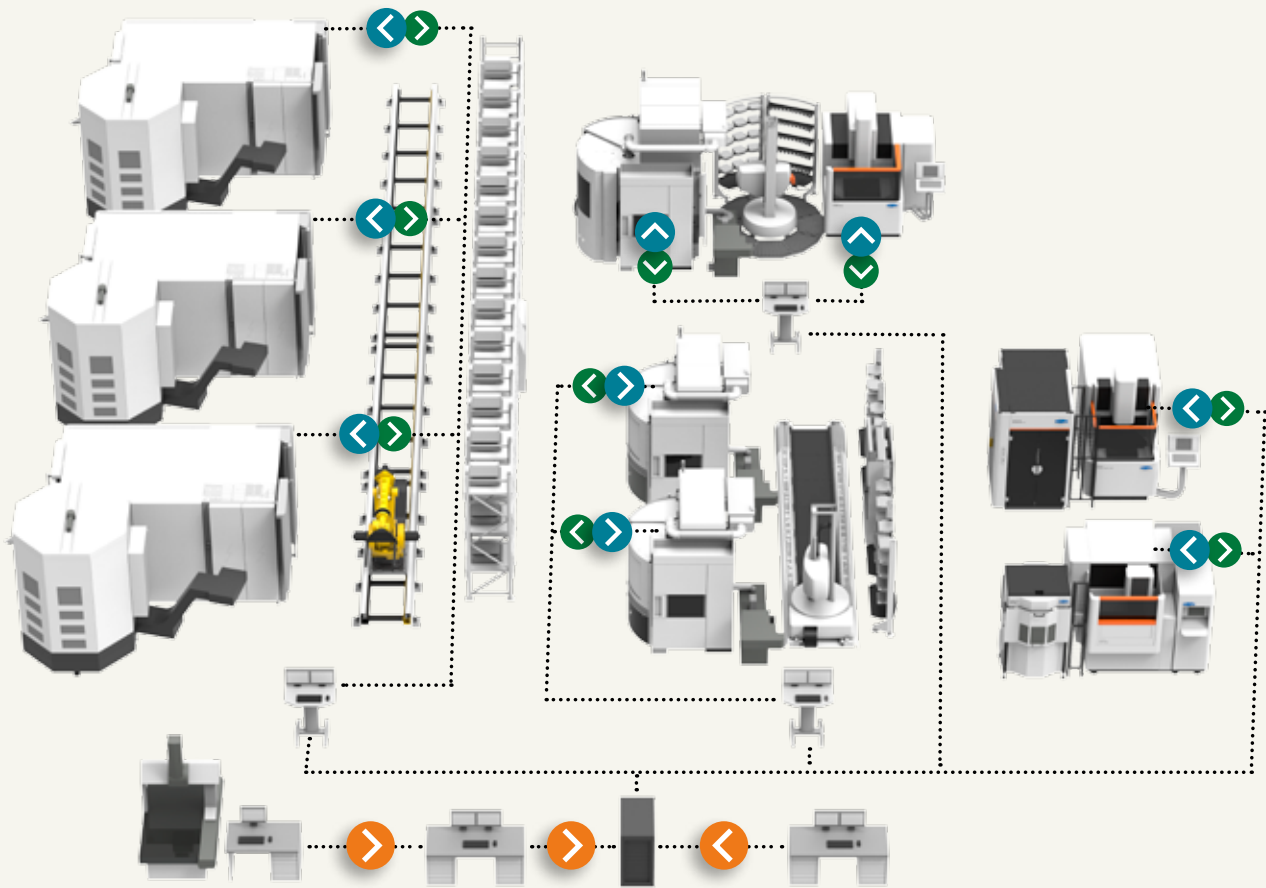
### Cassette Station

- Check the orders and which cassette type is required
- Unload cassette from magazine to Cassette Station
- Assign jobs to the materials
- Load cassette to the magazine – start milling machine



### WSM CellManager

- Start the job according to the priority list
- View the status of each job



WSM – WorkShopManager

# User-friendly Cell Management Software

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





.....> **Preparation – WSM WorkCenter**

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

.....> **Monitoring – WSM 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

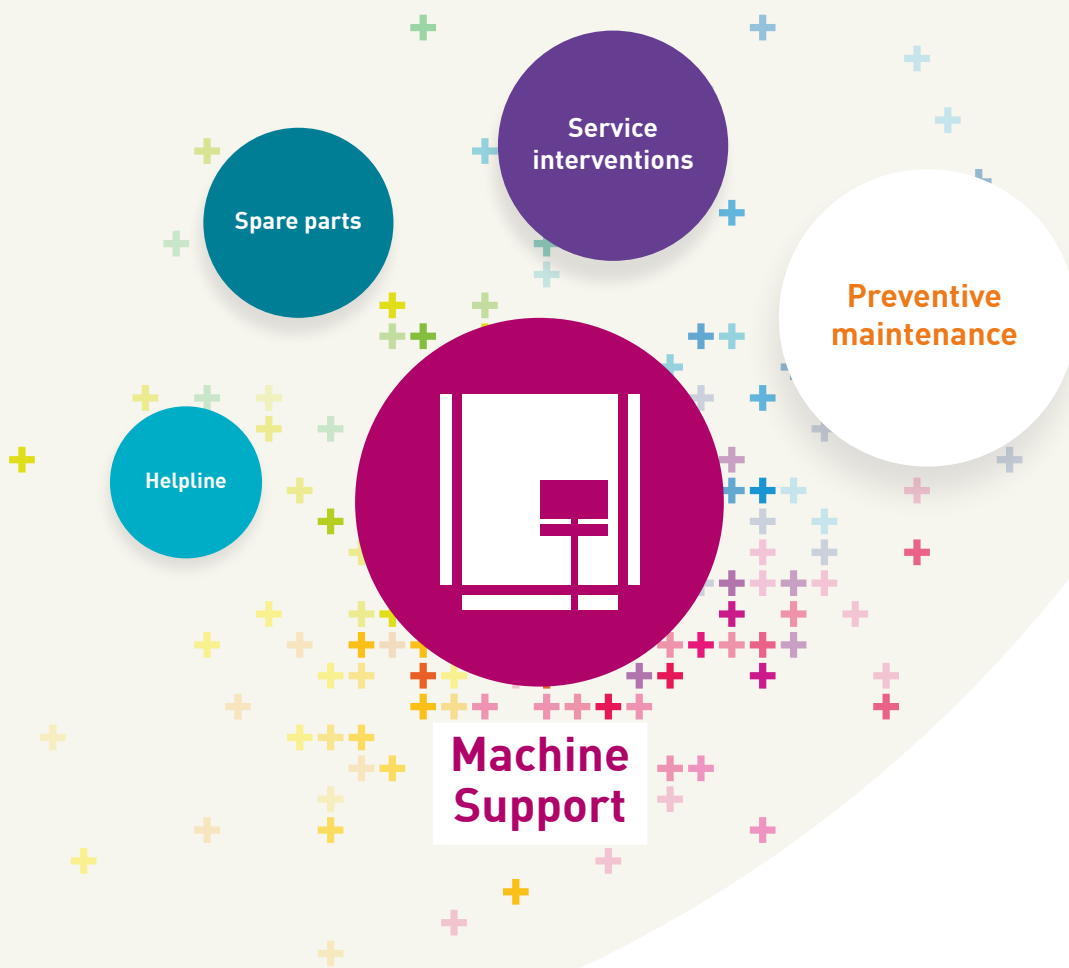
.....> **Execution – WSM CellManager**

- 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

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

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## Automation

- Mechanics
- Pneumatics
- Peripheral equipment



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## Reference systems

- Rebuilding chucks
- Inspecting references
- Checking clamping force



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## Masters and calibration tools

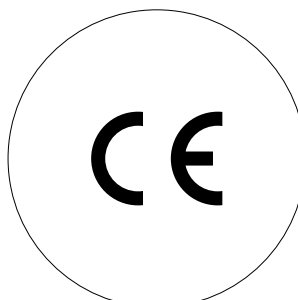
- Cleaning and polishing
- CMM inspection
- Quality certificate



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## CE Certification

GF Machining Solutions' Customer Services also offers CE Certification of Conformity for complete Automation cells.



## Technical specifications



Fanuc 70/165/210



Standard rail

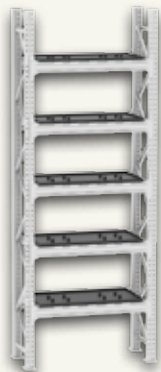
### Fanuc 70/165/210

Payload	70, 165, 210 kg. 155, 366, 466 lbs
Max. X-reach	70 kg = 2050 mm, 165-210 kg = 2655 mm 70 kg = 80.7 in, 165-210 kg = 104.5 in
Max. Z-reach	1400 mm 55.12 in
Max. C-rotation	360-370°
Stationary cell, max. # of machines	Up to 3
Linear cell, max. # of machines	Up to 12
Rail type	Standard
Max. rail length	Standard 20 m, 787 in
Max. transfer weight (pallet and workpiece)	70 kg, 155 lbs (Fanuc 70) 165 kg, 366 lbs (Fanuc 165) 210 kg, 466 lbs (Fanuc 210)

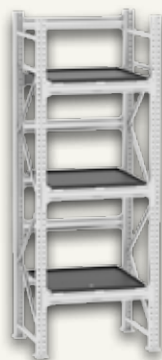
## Accessories & options



Rotary



LFT half rack



LFT full rack



Half rack

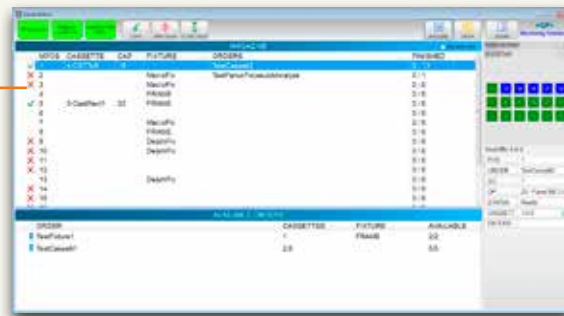


Full rack

Two basic designs: rack and rotary. Each magazine unit consists of a number of shelves (determined by the height of the workpieces in question).

For detailed information, see separate Robot brochure.

## Accessories & options

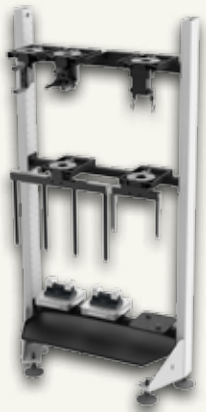


### Cassette Station

Prepare and load cassettes  
Mandatory: Touch screen.

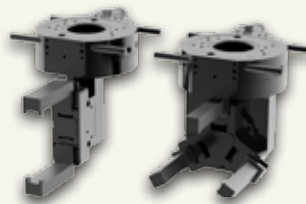
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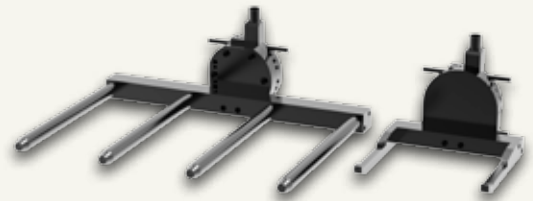
### Storage for grippers and adapters

Rack magazine with gripper storage and pallet positions.



### Part Grippers

Manufactured according to the part dimensions.



### Cassette Grippers

Manufactured according to the Cassette dimensions.



### Intermediate Station

Manufactured according to the Cassette dimensions.



### Cassette Layout

Manufactured according to the Cassette dimensions.



### Automatic Vices

Manufactured according to the part dimensions.

# 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 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.



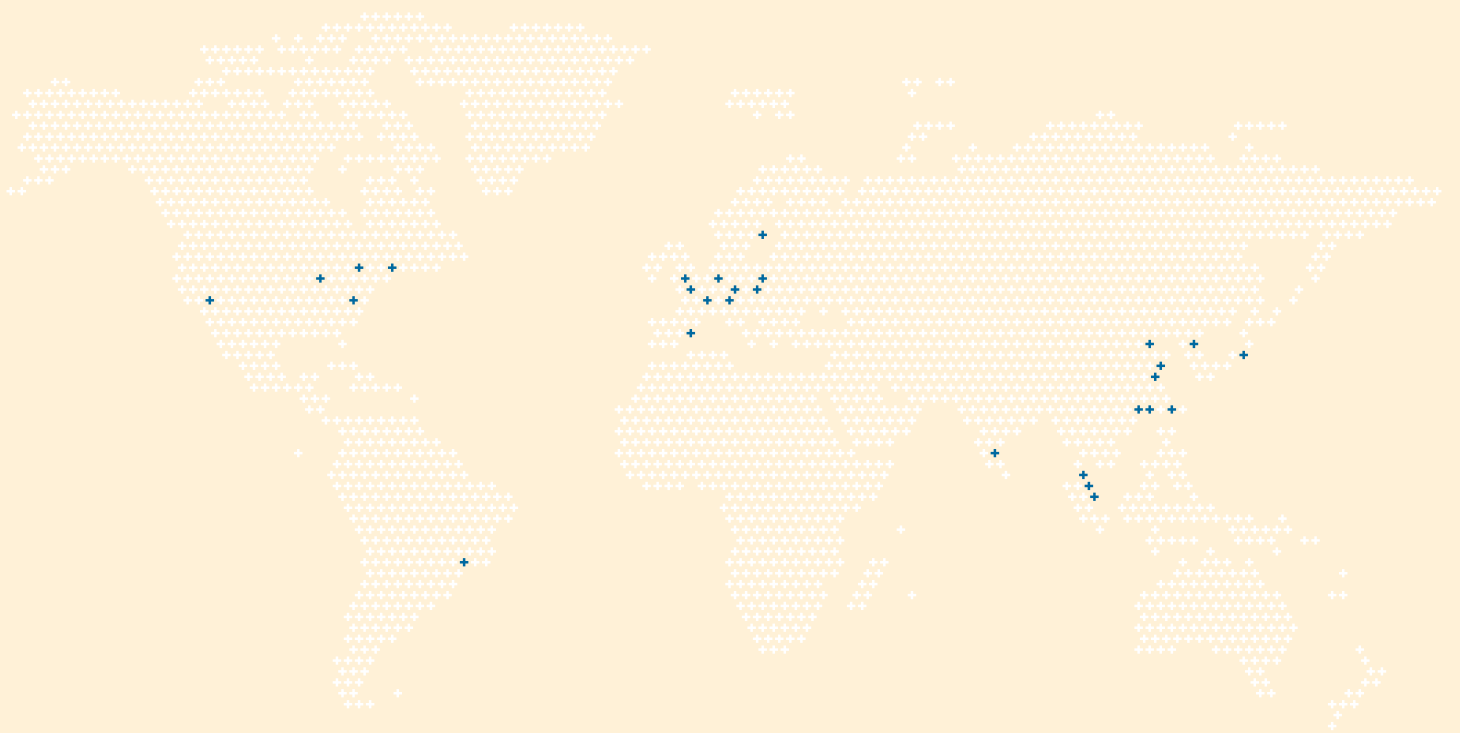
## Automation

**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](http://www.gfms.com)

