



Micro5 | Highlights

Compact size ratio of 5:1

250 mm : 50 mm

Precise without cooling

- Very high static stiffness
- Design based on ideal sphere of activity
- Positioning accuracy < 2 μm
- Repeatability 0.5 μm

Outstanding thermal stability

Sphere of activity approx. 150 mm

High dynamics – made for HSC

- Very high dynamic stiffness
- Acceleration up to 2.5 g with moving masses of max. 10 kg
- Rapid traverse 30 m/min

Energy consumption

 500 W – 50-fold lower energy consumption for the same milling performance, relative to a standard machining center



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Micro5 | Basic structure

| Basic structure technical data | | | |
|--------------------------------|-------|-------------------------|--|
| X-Y-Z stroke | mm | 78-56-50 | |
| X-Y-Z rapid traverse | m/min | 30-30-30 | |
| Axis acceleration | m/s² | 15 to 25 | |
| Max. moving masses | kg | 10 | |
| Positioning accuracy | μm | < 2 | |
| Repeatability | μm | 0.5 | |
| Weight | kg | 550 | |
| Electrical connection | | 230 V / 50 Hz / 10 A | |





Micro5 | Tool magazine

| Tool magazine technical data | | |
|---|----|---------|
| Chip-to-chip time | S | 3.5 |
| Number of tools | | 60 |
| Tool taper | | ATC 15 |
| Max. tool diameter (if adjacent places are free) | mm | 18 (40) |
| Tool length max. | mm | 50 |
| Tool weight max. | g | 30 |

Tool magazine highlights:

- Set up with tools during operation
- Robust tower tool store
- Highly dynamic tool change arm with 4-fold gripper





Micro5 | Pallet changer

Pallet changer technical data

| Number of pallets | | 3 - 6 |
|---|----|---|
| Time to change pallet | S | 10 |
| Max. interference diameter (if adjacent places are free) | mm | 58 (78 with lateral flattened area) |
| Overall height | mm | 62 |
| Total weight per pallet | g | 500 |







800

700

600

500

400

300

200

100

0

Micro5 | Milling spindle









Milling spindle technical data

| Max. speed | rpm | 60,000 |
|---|-----|----------------------|
| Spindle torque | Ncm | 10 (40% duty cycle) |
| Spindle power | W | 625 (40% duty cycle) |
| Tool taper | | ATC 15 |
| Diameter for milling tools | mm | 0.1-3 |
| Max. radial bearing load for a tool length of 40 mm | Ν | 65 |

Speed / Vitesse

Micro5 | Rotary axes

| Rotary axes technical data | | |
|----------------------------|-----|-------|
| B axis | | |
| Swiveling angle | 0 | ± 110 |
| Max. speed | rpm | 140 |
| Max. torque | Nm | 8.9 |
| System accuracy | " | ± 5 |
| C axis | | |
| Max. speed | rpm | 140 |
| Max. torque | Nm | 4.3 |
| System accuracy | н | ± 7.8 |

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Zero-point clamping system:

- Type YERLY Y32P4
- For manual or automatic workpiece clamping

Centric vice:

- Type SMW AUTOBLOK EM-G
- For automatic workpiece clamping
- Clamping jaw width 40 mm
 - Clamping jaw stroke 0.5 mm

Collet chuck:

.

- For collets dia. 10 mm
 - For automatic workpiece clamping
- Clamping range for workpiece of dia. 1 to 6 mm

Micro5 | Coolant – Chip management





Micro5 & Feed5 | Material flow

Pallet automation





Workpiece automation

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<image>

| Robot technical data | | |
|--|----|----------------------|
| Manufacturer | | YASKAWA |
| Туре | | MotoMINI |
| Number of controlled axis | | 6 |
| Max. load capacity | g | 500 |
| Max. workpiece weight (single/double gripper) | g | 200 / 100 |
| Reach | mm | 350 |
| Repeatability | mm | 0.03 |
| Robot control system (incl. for 7th axis) | | MOTOMAN YRC1000micro |

Feed5 | Robot

AWAYZAY

Feed5 | Options



Single/double gripper 1 Alignment station 2 Base pallet with workpiece-specific inlays 3 Pallet cart 4 SPC/N.i.O. discharge station 5

Feed5 | Highlights – Modular design



Feed5 | Base pallet & pallet cart

Workpiece-specific pallet inlays

(example image)



Feed5 pallet cart



- Versions:
 - 11 base pallets, pallet height incl. workpiece max. 70 mm
 - 16 base pallets, pallet height incl. workpiece max. 45 mm
 - 33 base pallets, pallet height incl. workpiece max. 20 mm
- Max. total load capacity: 165 kg



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Feed5 | Autonomy use case

Feed5 with palletizer + 1 x Micro5

| Boundary conditions | Autonomy duration |
|--|-------------------|
| 1232 units Storage capacity for watch plates 50 x 50 x 3 mm with a machining time of 10 min/unit | 8 d 13 h 20 min |
| 550 units Storage capacity for watch case blanks with a machining time of 20 min/unit | 7 d 15 h 20 min |
| | |



Feed5 with palletizer + 2 x Micro5

| Boundary conditions | Autonomy duration |
|--|-------------------|
| 1232 units Storage capacity for watch plates 50 x 50 x 3 mm with a machining time of 10 min/unit | 4 d 7 h 10 min |
| 550 units Storage capacity for watch case blanks with a machining time of 20 min/unit | 3 d 19 h 40 min |



Vision Stock5

Productivity:

175,255 units/year with a machining time of 10 min for four units with a technical availability of 85%

Connectivity:

Homogeneous overall system

Footprint: < 30 m²

Energy requirements: 6.2 kW



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Vision AGV



Applications | Watch housing

| 3lank | Outer dia. 40 mm Inner dia. 22 mm Height 6 mm |
|------------|---|
| Vaterial | Stainless steel 1.4404 |
| Cycle time | OP10 + OP20 = 15 min |
| Result | Outstanding surface finish, only requires very minimal rework (polishing) |

SFACTOry⁵ micro⁵

Watch housing

Machining round plate Ø40 x Ø22 x 6 mm Material: Stainless steel 1.4404 (316L)



Application | Watch plate



| Blank | Plate 50 x 30 x 3 |
|-------------------------|---|
| Material | Brass |
| Cycle time | 20 min (one clamping position) |
| Access for machining | Top side, bottom side and removing finished plate |





- 1 Locking with pneumatic cylinder
- 2 3-point clamping with two alignment pins
- 3 Vacuum clamping for removing finished part

Link Video

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Application | Testcut

Medical bone plates

Material: Titan grade 4 Volume: appr. 5.000 pcs different types Machining content: complete machining from flat bars Machining time: goal 15 to 20 min/pc Challenges: surface quality, accuracy of holes, burrs, final separation

Maulteile:

Dimension: appr. 10 mm x 40 mm Material: stainless steel Machining time: appr. 20 min Challenges: high surface finish, accuracy free of burrs

Head of manual dental drill (dentist):

Dimension: appr. 25 mm x 15 mm Material: stainless steel Machining time: appr. 15 min Challenges: high surface finish, accuracy, small deep holes, free of burrs







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A Swiss innovation – globally scaled

From Switzerland and used around the world

Next Webinar on January 18th 2023

A SWISS INNOVATION GLOBALLY SCALED

Installed base Micro5





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