CNC Ultra High Precision

UHP-Turn 450

High precision spindle precision of = <0.8 µm
UHP-Turn 450

- For turning high precision parts
- High process reliability
- Suitable for hard turning
- Optional automation solution for efficient mass production
- Suitable for microfinish and mirror turning
- Lower x-axis ball screw bearing is casted into the basement

Sample part Material: X 45CrSi9-3
Roughness: in Rz more than 20 pieces in middle Rz 1.43; Value: Rz 0.97

Standard configuration:
- CNC Mitsubishi M70V Navi Lathe
- High-end main spindle Built-In type with <0.8 μm run-out
- Pre-tensioned ball screw with internal cooling
- High-accurate pneumatic 3-jaw chuck Ø150 mm (5.9’’)
- Automatic 10-position tool turret
- Tailstock with programmable quill
- HIWIN- linear roller guideways
- High pressure coolant pump
- Chain type chip conveyor (chip exit height 810 mm (31.8’’))
- Automatic central lubrication
- Integrated oil separation (cascade system)
- Elektronic handwheel
- Interface for bar feeder
- LED working light
- 3-color signal light
- Double foot switch for chucking
- Double foot switch for tailstock quill
- Hard jaws, Soft jaws (1 set)
- Auxiliary service tools
- Operation manual

Optional configuration:
- Collet chuck
- Automatic tool setting device
- Precision glass scales
- Automatic parts catcher
- Parts-conveyor
- Cut-off detector
- Door-automation

Measured values
<table>
<thead>
<tr>
<th>Value</th>
<th>Min</th>
<th>Max</th>
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<tbody>
<tr>
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<td>N&lt;USG</td>
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<td>N&lt;USG</td>
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</tr>
<tr>
<td>Neff</td>
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<td>20</td>
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<tr>
<td>Nges</td>
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</table>

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Technical specifications

**UHP-Turn 450 saebel**

**Machine capacity**
- Max. Turning diameter over bed mm 450 (17.7")
- Max. Turning diameter over slide mm 280 (11")
- Max. workpiece diameter mm 280 (11")
- Max. workpiece length mm 330 (13")
- Chuck size mm 150/175 (5.9/6.9")
- Spindle bore mm 45 (1.7")

**Main spindle**
- Speed rpm 6000
- Power (peak) kW 11 (15 HP)
- Spindle nose A2-5

**Travels & feeds**
- X-axis travel mm 150+10 (5.9+0.4")
- Z-axis travel mm 350 (13.8")
- Feed X/Z-axis m/min 36 (141"/min)

**Work feed X / Z-axis** m/min 10 (394"/min)

**Technical specifications**

**Tool changer**
- Number of tool positions pc. 10
- Tool diameter mm 20 (0.8")
- Shank boring bar mm 25 (1")
- Change time (tool neighbor) Sec. 0.5
- Tailstock
- Quill mm 80 (3.2")
- Adjustment mm 210 (8.3")
- Taper MT3

**Weight and dimensions**
- Tank capacity l 120 (31.7 gal)
- Dimensions (LxW) mm 1900x1300 (75x51")
- Weight kg 2700 (5940 lbs)

**Item-No.** 1630149

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<table>
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<th>DESCRIPTION</th>
<th>UNIT</th>
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<td>3</td>
<td></td>
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<td>M1246</td>
</tr>
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<td>4</td>
<td></td>
<td></td>
<td>7016x3 +7011x2 (25°)</td>
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<td>5</td>
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</table>

**Output Power – Speed Characteristic**
- Under Acceleration / Deceleration
- Normal

**Torque – Speed Characteristic**
- Normal

**Output Power – Characteristic**
- Normal

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**Diagram**

- Diagram of UHP-Turn 450 machine with specifications and options.

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**Machine Details**
- Machine may be shown with optional equipment.
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**Contact Information**
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**Link**
- www.kaast.de
**UHP-Turn 450**

High precision spindle, 6,000 rpm, 11 kW and precision of < 0.8 µm

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**Special characteristics of the linear guideway series RG**

The new RG series from Hiwin features a roller as the rolling element instead of steel balls. The roller series offers super high rigidity and very high load capacities. The RG series is designed with a 45-degree contact angle. Elastic deformation of the linear contact surface, during load, is greatly reduced thereby offering greater rigidity and higher load capacities in all 4 load directions. The RG series linear guideway offers high performance for high-precision manufacturing and achieving longer service life.

**Advantages**
- Free of play
- Replaceable
- High precision
- Very high load capacity
- Low displacement force also with high preload

**Construction of the RG series**
- 4-row recirculation roller bearing
- 45° contact angle
- The roller retainers prevent the rollers from falling out when the carriage is removed
- Different sealing variants, depending on application area
- Six connection options for grease nipples or grease adapters

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**Dimensions of the block**

<table>
<thead>
<tr>
<th>Series Size</th>
<th>Installation dim. [mm]</th>
<th>Dimensions of the block [mm]</th>
<th>Load Ratings [N]</th>
<th>Mass [kg]</th>
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<tbody>
<tr>
<td>RGH25HA</td>
<td>H 40, H1 5,5, N 12,5</td>
<td>W 48, B 35,0, B1 6,5, C 50</td>
<td>T 81,0 114,4, L1 21,50, L K1 7,25, K2 12,0, G 120</td>
<td>M 6–M× l 9,5, T 10, H2 10, H3 10, Cdyn 33900, C0 73400</td>
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<td>RGH30CA</td>
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</table>

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UHP-Turn 450

Standard M 70 V control

- LCD Monitor 8,4"
- CF card slot
- NAVI Lathe / contour programming through dialogue

The high-precision encoder of the controller clock in a unique resolution for a machine of this class: This provides the necessary precision. The machines are operated by the Mitsubishi M70-V control.

**Fanuc compatible**

- Workpiece coordinates
- Cannes cycles for drilling operations
- Cannes cycles for turning operations
- Cannes cycles for threads
- Customers macro
- Advances program editing during machining
- External communication
- G10
- Program memory 256 K
- Data input/output Interface

- Ball screw pitch error compensation
- Tool table for length and diameter
- Absolut encoder

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