Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
<th>Unit</th>
<th>VU-5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table size (L×W×H)</td>
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<tr>
<td>Max. table load</td>
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<td>kg</td>
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<tr>
<td>Stroke</td>
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<tr>
<td>Feed</td>
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<td>mm/min</td>
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<td>ATC</td>
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<tr>
<td>Motor</td>
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<td>kW</td>
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<tr>
<td>Max. tool weight</td>
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<td>kg</td>
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<tr>
<td>Motor</td>
<td></td>
<td>kW</td>
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<tr>
<td>Spindle nose to table</td>
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<td>mm</td>
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<tr>
<td>X/Y/Z axis rapid traverse</td>
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<td>m/min</td>
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<tr>
<td>Cutting feedrate</td>
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<td>mm/min</td>
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<td>Tool shank</td>
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<tr>
<td>Tool capacity</td>
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<tr>
<td>Spindle motor</td>
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<td>kW</td>
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<td>Motor</td>
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<td>kW</td>
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<td>Max. tool weight</td>
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<td>kg</td>
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<tr>
<td>Coolant motor</td>
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<td>Spindle nose to table</td>
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<td>mm</td>
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</table>

**Liquid metal polishing**

- **Al-6061**
  - Without ultrasonic: Rmax 1.48 µm, Rz 1.28 µm, Ra 0.204 µm
  - With ultrasonic: Rmax 1.28 µm, Rz 1.43 µm, Ra 0.204 µm

**Aluminum**

- Rmax 3.28 µm, Rz 3.13 µm, Ra 0.44 µm
- With ultrasonic: Rmax 1.28 µm, Rz 1.43 µm, Ra 0.204 µm

**Cutting feedrate**
- 2,900 mm/min

**Controller**
- FANUC 0i-MD, SIEMENS 828D
- MITSUBISHI M70

**Controller**
- 1,984 x 2,300 x 2,755

**Liquid metal polishing**

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**Benefits / Ultrasonic applications**

1. The excellent ultrasonic control technology can ensure the stability of long-term machining. Frequency scanning and power setting can be completed automatically by controller to improve productivity.
2. Periodic tool axial vibration (15-45 kHz) decreases the cutting resistance and increases the surface quality.
3. Modular design, equipped with BBT-30 tool holder and high-speed spindle, allows high efficiency machining.
4. Coolant through spindle is available for chip disposal and to reduce tool wear caused by temperature rise and cutting resistance.
5. The roughness of metal cutting surface is around Ra 0.2 µm, it reduces the polishing procedure and achieves the quality of final finishing.
6. The ultrasonic machining technology not only reduces shipping but also has the ability to process microhole machining on hard and brittle materials.

**Machining examples of brittle materials**

**Medical industry**
- Artificial crown machining

**Automotive industry**
- Valve deburring
- Surface finishing

**Die & mold industry**
- Surface finishing
- Roughing and finishing

**Aerospace industry**
- Surface finishing

**Precise ceramic industry**
- Roughing and finishing

**Glass industry**
- Drilling, polishing, chamfering

**Aluminium oxide ceramic machining**
- Slot Profile

**Sapphire glass machining**
- Circular hole

**Silicon wafer drilling**
- Tool diameter Ø0.5 mm, cutting depth 10 mm.
- Tool life without ultrasonic: 3 holes with ultrasonic: 236 holes

**Roughing and Finishing**
- Workpiece spec.: Ø11 hole
- Workpiece thickness: 0.4 mm
- Cycle time: 17 sec

**Precision ceramic industry**
- PItem: Ø12 µm
- Ra 8.52 µm
- Ra 1.28 µm

**Silicon wafer drilling**
- Workpiece spec.: Ø1 x L10 mm
- Workpiece thickness: 0.4 mm
- Cycle time: 77 sec

**Machining method:** Drilling & Polishing

**Machining method:** Polishing & chamfering simultaneously
- Workpiece spec.: 4" x
- Workpiece thickness: 0.4 mm
- Cycle time: 44 sec