Surface grinding machines
Surface grinding machine 72/860.1000-125/156

Item number: VT4-00219
Category: Surface grinding machines

The machine is suitable for grinding of the lateral areas of squared mono- and multi crystalline silicon work pieces in the format 125 x 125 mm² and 156 x 156 mm², with four parallel arranged grinding aggregates. Workpiece lengths of 400 up to 1000 mm can be processed. The fully automatic grinding machine excels by following advantages:

- Automatic change of format
- Equipped with two loading areas for manual and fully automatic loading, for instance with the help of an industry robot
- Geometric correction by parallel arranging of grinding aggregates
- Very high repeatability
- Pneumatic clamping and centering of workpiece
- Squared ingot/brick can be processed without preparation
- Automatic wheel wear compensation
- Automatic adjustment of grinding tools with block detection for optimized cycle time by using high-resolution measuring systems
- Detection and evaluation of the workpiece specific quality data after grinding, for instance geometric size, angularity (optional)
- High throughput, even when a high removal is achieved by using 4 grinding disks and separate pre- and fine grinding process for instance: brick size as grown: 157.0 x 157.0 x 1000 mm
  final brick size: 156.0 x 156.0 x 1000 mm
  Cycle time: < 21 min
- Machine capacity: approx. 22,000 bricks/year (based on 24/7-production)
- Quality data of workpieces:
  - Angularity +/- 0.02° (89.980° - 90.020°)
  - Geometric tolerance block width +/- 0.05 mm
  - Average value Ra < 0.1 µm

- Grinding spindles (4 pieces) with air protected spindle bearings
- Infinitely variable grinding spindle drive (4 pieces) via AC-servo motor
- Linear axis (5 pieces) with ball screw drive via AC-servo motor
- CPU Siemens S7/317
- High end industrial PC with dual core processor
- 15” touch panel with HMI, visualisation based on WinCC flexible
- Integrated recipe management
- High-resolution laser measuring sensors (2 pieces)
- Optional: Workpiece format 210 x 210 mm²
- Optional: ARPAT – "Arnold Remote Production Analysis Tool"

Surface Grinding Machine 72/860.500-125/156

Item number: VT4-00216
Category: Surface grinding machines

The machine is suitable for grinding of the lateral areas of squared mono- and multi crystalline silicon work pieces in the format 125 x 125 mm² and 156 x 156 mm², with four parallel arranged grinding aggregates. Workpiece lengths from 180 up to 500 mm can be processed. The fully automatic grinding machine excels by following advantages:

- Automatic change of format
- Automatic wheel wear compensation
- Automatic adjustment of grinding tools with block detection for optimized cycle time by using high-resolution measuring systems
- Detection and evaluation of the workpiece specific quality data after grinding, for instance geometric size, angularity (optional)
- High throughput, even when a high removal is achieved by using 4 grinding disks and separate pre- and fine grinding process for instance: brick size as grown: 157.0 x 157.0 x 1000 mm
  final brick size: 156.0 x 156.0 x 1000 mm
  Cycle time: < 21 min
- Machine capacity: approx. 22,000 bricks/year (based on 24/7-production)
- Quality data of workpieces:
  - Angularity +/- 0.02° (89.980° - 90.020°)
  - Geometric tolerance block width +/- 0.05 mm
  - Average value Ra < 0.1 µm
equipped with two loading areas for manual and fully automatic loading, for instance with the help of an industry robot• geometric correction by parallel arranging of grinding aggregates• very high repeatability• automatic clamping and centering of workpiece• squared ingot/brick can be processed without preparation• automatic wheel wear compensation• automatic adjustment of grinding tools with block detection for optimized cycle time by using high-resolution measuring systems• detection and evaluation of the workpiece specific quality data after grinding, for instance• geometric size, angularity (optional)• high throughput, even when a high removal is achieved by using 4 grinding disks and separate pre- and fine grinding process for instance:

- Brick size as grown: 157,0 x 157,0 x 250 mm
- Final brick size: 156,0 x 156,0 x 250 mm
- Cycle time: < 8 min
- Machine capacity: approx. 58,000 bricks/year (based on 24/7-production)

Quality data of workpieces:
- Angularity +/- 0,01° (89,990° - 90,010°)
- Geometric tolerance block width +/- 0,05 mm
- Average value Ra < 0,1 µm

- Grinding spindles (4 pieces) with air protected spindle bearings
- Infinitely variable grinding spindle drive (4 pieces) via AC-servo motor
- Linear axis (5 pieces) with ball screw drive via AC-servo motor
- CPU Siemens S7/317
- High end industrial PC with dual core processor
- 15" touch panel with HMI, visualisation based on WinCC flexible
- Integrated recipe management
- High-resolution laser measuring sensors (2 pieces)
- Optional: workpiece format 210 x 210 mm²
- Optional: ARPAT – Arnold Remote Production Analysis Tool – machine internal MES

<table>
<thead>
<tr>
<th>workpiece Width</th>
<th>125 - 210 mm</th>
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<tbody>
<tr>
<td>workpiece Height</td>
<td>125 - 210 mm</td>
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<tr>
<td>workpiece Length</td>
<td>180 - 500 mm</td>
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<tr>
<td>workpiece Weight</td>
<td>42 kg</td>
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