

## Chamfering grinding machines

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25.02.2010  
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## Chamfering machine 72/852.500-125/156

Item number: VT4-00217

Category: Chamfering grinding machines



The machine is suitable for chamfering of squared mono- or multi crystalline silicon workpieces in the format of 125 x 125 mm<sup>2</sup> and 156 x 156 mm<sup>2</sup> with two parallel arranged grinding aggregates (2x combined pre- and fine grinding). Workpiece lengths of 180 up to 500 mm can be processed. The fully automatic machine excels by following advantages:

- grinding of chamfers 45°
- equipped with two loading areas for manual and fully automatic loading, for instance via industrial robot
- pneumatic clamping and centering of workpiece
- automatic edge detection and adjustment of grinding tools with block length detection for optimized cycle time by using high-resolution measuring systems
- detection and evaluation of workpiece specific quality data after grinding, for instance chamfer size, chipping and un-grinded chamfer areas based brick defects incl. an evaluation of useable ingot lengths
- automatic wheel wear compensation
- high throughput even when a high removal is achieved by using 2 combined pre- and fine grinding disks, for instance: Brick size as grown: 156,0 x 156,0 x 250 mm

Final brick size: 156,0 x 156,0 x 250 mm

with: 156,0 x 156,0 x 250 mm

chamfer width of 1,0 mm

Cycle time: 4 min

Machine capacity: approx. 118.000 bricks/year (based on a 24/7-production)

Optional:

- workpiece format 210 x 210 mm<sup>2</sup>
- ARPAT –“Arnold Remote Production Analyses Tool”- machine internal MES
- Quality data of workpiece:
  - geometric tolerance chamfer width +/- 0,05 mm
  - average value Ra <math>\leq 0,1 \mu\text{m}</math>

- grinding spindles (2 pieces) with air protected spindle bearings
- infinitely variable grinding spindle drive (2 pieces) via AC-servo motor
- linear axis (3 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 mm<sup>2</sup>
- Optional: ARPAT –“Arnold Remote Production Analyses Tool”- machine internal MES

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Workpiece length	180 - 500 mm
Workpiece format	125 x 125 mm <sup>2</sup> ; 156 x 156 mm <sup>2</sup>
Workpiece weight	max. 30 kg
Machine measurements without switch cabinet (LxWxH)	3960 x 2020 x 2400 mm
Machine weight	2000 kg

## Chamfering and profiling machine 72/854

Item number: VT4-00062

Category: Chamfering grinding machines

This machine is suitable for grinding from even (45°) or round chamfer of squared mono- and multi crystalline silicon workpieces with diameter format 90 - 210 mm, with two grinding aggregates (1 x cup wheel, 1 x fine profile wheel). With the machine can be processed workpiece lengths of 100 – 1000 mm, a combination of several workpieces is possible. The machine excels by following advantages: grinding from even (45°) or round chamfers; high flexible machine concept; low investment costs; low cost of ownership; low tool costs; high lifetime of grinding disks; 6 months; machine uptime 97% Quality data of workpiece: average value Ra; 0,7 µm (profiling) average value Ra; 0,1 µm (chamfering 45°)



- grinding spindle with special labyrinth sealing (2 pce)
- precision spindle with air protection (2 pce)
- tool carriage driven via AC-servo motor (2 pce)
- manual OP 177B Color 7
- SPS Siemens S7-300 with 2 axis positioning modules

Workpiece length	100 - 1000 mm
Workpiece format	90 - 210 mm
Workpiece weight	approx. 100 kg
Machine measurements (LxWxH)	2500 x 1250 x 1700 mm
Machine weight	approx. 1000 kg

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