

| Pos. | Qty. | Article Description | Price / € |
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## Complete machine description

- 1 1 Completely refurbished vertical CNC-machining centre model FZ 12 KS**  
**Year of construction: 2005, weight: 6.900 kg**

**Machine-No. 251-13**

Scope of delivery:

- 100 1 **Column moving machining centre** with machine bed in mineral cast technique and workpiece swivel table  
 Guideways with long-term-grease lubrication

- 200 1 **Digital main drive with spindle**  
 with air purge and monitoring of the tool clamping  
 7,5 kW at 100 %  
 13,0 kW at 25 %  
 spindle speed range up to 15.000 rpm; 70 Nm

|                   |                             |
|-------------------|-----------------------------|
| Drilling capacity | Ø 25 mm (with insert drill) |
| Tapping capacity  | M 20                        |
| Milling capacity  | 120 cm <sup>3</sup> /min    |

Remark:

With normal conditions the machine does not have to be anchored to the floor.  
 (For slippery floors we recommend anchoring.)

- 300 1 **Travel:**  
 X-axis 550 mm  
 Y-axis 320 mm  
 Z-axis 360 mm

- 400 1 **Automatic tool changer**  
 through robust, full enclosed pick up tool changer, with mechanical impact protection and cleaning of the tool taper through air blow
- |                   |                              |
|-------------------|------------------------------|
| No. of tools      | 24                           |
| Tool taper        | HSK-A 50 DIN 69893           |
| Max. tool dia.    | max. 60 mm                   |
| Tool length       | max. 250 mm                  |
| Max. tool weight  | max. 3 kg                    |
| Tool change time  | appr. 0,9 s (depends on CNC) |
| Chip-to-chip-time | appr. 2,4 s (depends on CNC) |



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| 500  | 1    | <b>AC-servo motors for x-, y- and z-axes</b><br>digital direct drives with indirect absolut path measuring system<br>rapid traverse in all axes 75 m/min.<br>Acceleration: X-axis 1 g, Y-axis 1,5 g, Z-axis 2,0 g   |           |
| 600  | 1    | <b>Fanuc 18i MB – 5 axes continuous path control</b><br>10,4" LCD monochrom screen<br>Memory capacity 256 KB<br>Drilling cycles G81-G89<br>Absolute path measuring system<br>M- and T-functions<br>Circular interpolation (360 degrees)<br>Re-start into program<br>Makro B subroutines<br>Look ahead<br>Simultaneous programming<br>Automatic corner override<br>32 tool offsets<br>cutter radius – contour compensation<br>6 zero shifts G54-G59<br>metric/inch switch<br>3D-Interpolation/helical interpolation<br>S-analogue<br>Rigid tapping<br>Orientated spindle stop<br>Slot for PCMCIA memory card<br>Interface RS 232C on the side at the control panel<br>Software-limitswitch<br>NC-diagnosis / machine diagnosis |           |
| 700  | 1    | <b>CHIRON Maintenance Management in the screen</b><br>display of the pending maintenance:<br>advance warning = "prepare maintenance",<br>warning = "carry out maintenance",<br>machine stop = "catch up on maintenance".<br>Abridged instructions for the pending<br>maintenance with graphic illustration on CD-ROM.<br>Confirmation of the performed maintenance<br>through the maintenance staff by password.  |           |
| 800  | 1    | <b>Thermodrive</b><br>at indirect absolute path measuring system  |           |
| 900  | 1    | <b>Socket 240 V</b><br>at control panel   |           |
| 1000 | 1    | <b>Socket for portable mini-hand wheel</b><br>without emergency stop button,<br>at control panel  |           |



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| 1100 | 1    | <b>Cabinet cooler as a door mounting unit</b>   |           |
| 1200 | 1    | <b>Signal lamp for 3 signals</b><br>Signal "red" = failure<br>Signal "white" = machine loaded<br>Signal "green" = machine is running  |           |
| 1300 | 1    | <b>Machine enclosure</b><br>2140 mm high above floor with sliding doors,<br>electrically interlocked, incl. machine lamp<br>service friendly with removable side walls<br>working area with vertical bellows  |           |
| 1400 | 1    | <b>Chip conveyor (scratch band) Typ 340 K-1/100</b><br>discharge height 490 mm<br>tank capacity 100 l,<br>pump capacity 20 l/min at 0,8 bar<br>lifting pump 110 l/min<br>coolant cleaning through slot filter box<br><b>verschleißfeste Führungsschiene sowie Verschleißboden</b>   |           |
| 1500 | 1    | <b>Oil-free air service unit</b><br>with automatic condensate separator,<br>pressure control of the air supply<br>and micro filter 0,01 µm for air purge  |           |
| 1600 | 1    | <b>Coolant equipment KF 150 / FKA 500</b><br>(also for sludge generating materials, e.g. grey cast iron, GGG,<br>Al with Si >= 12%)<br>tank capacity 500 l<br><br>low pressure pump capacity from 40 l/min. at 3.2 bar<br>up to 120 l/min at 3.2 bar<br>high pressure pump capacity 28 l/min at 30bar<br><br>full stream purification via compact paper bond filter KF 150,<br>with coolant purification 50 µm nominal<br>twin filter in the high pressure circuit for<br>the protection of the machine |           |
| 1700 | 1    | <b>Wash gun</b><br>with 1 connection and quick coupling each<br>in loading- and working area  |           |



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| 1800 | 1    | <p><b>Machine preparation</b><br/>for through tool coolant system including:</p> <ul style="list-style-type: none"> <li>- sealing system in the DIN 69893 HSK A50* collet or DIN 69871 Form A40</li> <li>- coolant distributor installed at the main spindle drive</li> <li>  coolant leakage sensor</li> <li>- implemented mud flap in the high pressure piping</li> <li>- solenoid valve, controlled via machine program</li> </ul> <p>* At HSK A63 we recommend for tool holders the use of our patented coolant tube with sieve.<br/>Advantages: - Decrease of the clogging in the internal coolant channel.</p> <ul style="list-style-type: none"> <li>- Reduction of the wear at the O-ring seal in the collet.</li> </ul> |           |
| 1900 | 1    | <b>Fixture washing incl. coolant connection</b>  |           |
| 2000 | 1    | <b>Walk switch</b>   |           |
| 2100 | 1    | <b>Automatic central grease lubrication</b>  |           |
| 2200 | 1    | <p><b>Electric cabinet</b><br/>Indoor light of the electrical cabinet including additional transformer ON/ OFF switch at the light.</p>  |           |
| 2300 | 1    | <p><b>CHIRON Tool lifetime control with:</b></p> <ul style="list-style-type: none"> <li>- tool place organization</li> <li>- sister tool organization</li> <li>- working area organization by 4-figure program no. in the display (only at machines with several working areas)</li> <li>- tool data check for geometric values</li> </ul>   |           |
| 2400 | 1    | <p><b>2-spindle 2-axes rotary table</b><br/>type AWU 160-2 / AWU 200</p> <p>Peiseler twin pot rotary (B-axis) type AWU 160<br/>face plate <math>\varnothing</math> 180 mm, centre face <math>\varnothing</math> 40 H6<br/>spindle distance <b>250 mm</b><br/>prepared for hydraulic face plate clamping<br/>repetition accuracy out of worm gear drive <math>\pm</math> 15 sec. of arc<br/>max. tangential torque transmitted through worm gear drive for rotary milling 220 Nm<br/>when the face plate is clamped (60 bar) 800 Nm<br/>max. tilting moment 1200 Nm<br/>including pneumatic cylinder for chuck clamping</p>   |           |



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|      |      | <p>Tilting unit <b>AWU 160</b> (A-axis)<br/>           tilting <math>\pm 90</math> degree + 5 degree overload to one side<br/>           prepared to assemble AWU 160 twin<br/>           repetition accuracy out of worm gear drive <math>\pm 10</math> sec. of arc<br/>           prepared for hydraulic clamping and <b>5-fold distributor</b></p> <p>Counter bearing with hydraulic clamping bush</p> <p>2 axis motor covered, complete installed</p> <p>4th and 5th axis</p> <p>overpressure connection</p> |           |
| 2500 | 1    | <p><b>Indoor lighting of the cabinet</b><br/>           connected before main switch<br/>           (only for power supply with loadable neutral)</p>  |           |
| 2500 | 1    | <p><b>Flow control switch</b><br/>           for coolant through tool</p>  |           |
| 2600 | 1    | <p><b>Pneumatic and hydraulic connections</b></p>  |           |
| 2700 | 1    | <p><b>Hydraulic connection for 210 bar</b><br/>           With connection coupling for clamping the 2-spindle 2-axes rotary table</p>  |           |
| 2800 | 1    | <p><b>Hydraulic connection for 210 bar</b><br/>           with 2 connecting couplings "A + B" and<br/>           hydraulic installation up to outside of<br/>           machine bed, electrical control for clamping<br/>           ON - OFF via push button at control panel</p>  |           |
| 2900 | 1    | <p><b>Cutting tools</b><br/>           The cutting tools have to be balanced<br/>           according to DIN ISO 1940, class G 2,5,<br/>           in two levels, with max. operating speed</p>  |           |



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**Documentation**

Operating manuals, programming and operating manuals 1-fold on a USB-Stick.

Please refer to the manufacturer's instructions for each component.

**Machine colour**

Two-components-structure varnish - 2 colours

light grey acc. to NCS S1502-B

basalt grey acc. to RAL 7012

**Main circuit**

total power supply 400 / 230V  $\pm$  10 %, 50 cycles N/PE,

neutral conductor, load possible, pressure supply

6 bar,  $\pm$  1 bar at all procedures,

room temperature max 40°

