

## Complete machine description

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| 1 | 1 | <b>Completely refurbished vertical CNC-machining centre model MC 334</b><br><b>Year of construction: 2003, weight: 8.100 kg</b> |  |
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### Machine-No. 2024

#### Design as follows:

Spindle distance A: 320 mm  
Traverse Ranges  
X axis 700 mm  
Y axis 520 mm  
Z axis 400 mm  
Feed Thrust:  
X-Y axis 7000 N  
Z axis 12000 N

#### Traverse Rates - Axes Dynamic

Rapid traverse in X- Y- and Z- axes 60 m/min  
Feed rate X- Y- and Z- axes 1-10000 mm/min  
Axis Dynamics: a max. (m/sec<sup>2</sup>) X=5.0; Y=7.0; Z=10.0

#### Swivel Table

Swivel drive pneumatic.  
Pneumatically pull down in face gearing.  
Clamping area 2 x 1000 x 580 mm  
Number and size of T-slots per clamping area: 4 x 18 H12 (DIN 650)  
Number and diameter of location holes per clamping area: 2 x ø30 F7  
Acceptable table load 2 x 400 kg  
Indexing time approx. 3,5 sec.

#### Spindle Units with direct drives

Torque constant up to 2200 rpm:  
At 100% cont. duty 77 Nm; at 20% cont. duty 170 Nm  
Driving power over 2200 rpm:  
At 100% cont. duty 17,8 Kw; at 20% cont. duty 39,2 Kw  
Tool holder SK 40  
Draw bar pulling force 8000 N  
Spindle diameter 70 mm  
Spindle speed: 10.000 1/min.



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### Tool Magazine

Tool places standard 2 x 24  
Tool diameter maximum:  
all places used  $\varnothing$  105 mm  
with empty adjacent tool place  $\varnothing$  160 mm  
Tool length max. 300 mm  
Tool register SK 40 DIN 69871  
Tool weight max. 12 kg  
Chip-to-chip time approx. 3,7 sec.

### Measuring System

X-Y axis, digital pulse coder (Fanuc, cyclic absolute, siemens absolute)  
Absolute measuring value processing resolution 0.001 mm

### Installation Data

Space required for machine approx. 20m<sup>2</sup>  
Weight approx. 13.000 kg  
Working voltage 3x400 V  $\pm$ 10%; 50Hz; N/PE.  
Control voltage 24 V DC  
Valve voltage 24 V DC  
Customers side requirement:  
Connected rating machine 80 KVA  
Fuse before master switch 3 x 150 A  
Connected cross section 3 x 70 mm<sup>2</sup> + 1 x 35 mm<sup>2</sup>  
Required air pressure min. 6 bar  
ISO 8573-1 Klasse 4  
Necessary connection inner diameter  $\varnothing$ 13mm

### Guarding Equipment

Enclosure of working area

### Axis movement with open safety door

If the safety door is open, axis movement and spindle rotation are just possible during setting mode.  
Speed of axis max. 2 m/min. Spindle RPM max. 800 1/min.  
Actuated by press-button and confirmation key.

### Lamp in Working Area

### Permanent Lubrication low-Maintenance

All linear guides and ball screws are equipped with long-time lubrication systems,  
3 years max. 5000 working hours maintenance-free.  
After 5000 working hours linear guides and ball screws must be lubricated.



## Air-Conditioning of the Electrical-Cabinet

### Scaper conveyor suitable for all kinds of material and swarf shapes.

Ejection height 1050 mm on left side of MC.  
Integrated wedge wire sieve box, changeable.  
Tank for 300 l.  
External coolant supply integrated in spindle head with adjustable nozzles.  
If mainly cast iron or light metal has to be machined, additional coolant concentration units are necessary.

### 1 Wash gun

For manual cleaning of the loading area

### FANUC 18i M

FANUC 3-Axis-CNC  
further Axis possible as option

memory capacity 128 KB

63 programs with program name stored  
Program number 4 digits, record number 5 digits  
Formation of Subroutine (Nesting max. 4 mark )  
Decimal point  
Resolution 0,001 mm  
10,4" colour screen  
Ladder diagram of the SPS on control screen  
Interface RS 232-C / V 24 according DIN 66020  
3 D- linear interpolation G1 (max. 4 Axis at the same time)  
Circular interpolation G2/G3, line interpolation screws  
Full circle programming and circular interpolation with Radius specification

Exact Stop and railway system G09, G61, G63, G64  
Automatic Reference point approach G28, G29  
Programmable zero point shift G53-G59/G92  
Local zero point shift G52  
drilling cycles G73. G74. G76. G80-G89. with G98 and G99  
variable, programmable dwell time G04  
Thread without compensation chuck  
Tool length compensation G43, G44, G49  
For each Tool 3 corrections for length and radius  
Cutter radius compensation G40-G42



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Tool life monitoring  
Tool call over 8-digit T address  
Correction memory max.  $\pm 999.999$  mm  
Feed 0-120% in 10% steps  
Rapid traverse 0-100% in 10% steps  
Spindle speed override 50-120% in 10% steps  
Diagnostic display. Operating messages in plain text  
Parallel programming, to avoid stand still times.  
Highly accurate, digital, absolute path measurement preparation.

### **Coolant Filtration Paper (200 l/min)**

Paper tape through-shaped filter, installed on coolant tank 600 l.  
A good utilization of the filter paper is guaranteed due the high level of fluid.  
Compact design, Filter paper width 710 mm.  
Filter performance 200 l/min - emulsion.  
Installed 1 roll of filter paper, width 200 mm, 710 mm.  
Middle filter mesh 50 microns.  
With feed-back facility in the event of paper shortage.  
Paper transport controlled by level switch

### **Internal Coolant through Spindle 20 bar**

Internal coolant supply through the work spindle.  
for tool holder acc. 69871 (SK) Form AD or  
Form B, for tool holder acc. DIN 69893 (HSK)  
Form A, coolant-high pressure pump  
(just possible in connection with coolant cleaning unit)

### **Full Enclosure of Working Area**

As protection against swarf and fumes  
the working area of the machine is completely  
closed. The drive units are placed outside of the  
capsule.



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### Hydraulic Basic Equipment

Necessary in case of hydraulically actuated clamping fixtures.

Consisting of:

- > High pressure aggregate system pressure 200 bar.
- > Hydr. clamping block for 1 double acting clamping cycle (2 controlled lines). The clamping line is with one manual adjustable pressure control from 30-200 bar and one pressure monitoring (dissolve line 200 bar). The lines are installed until the machine table.
- > Electrical soft- and hardware.
- > Transmitter on loading station with followed functions: "clamping", control lamp "clamping reached" and "unclamping".

### Distributor for Swivel Table 20-fold

Distributor for oil supply to clamping fixtures mounted on one or two sides of swivel table. Central space-saving installation in the middle of the swivel table. Supply through middle of swivel table. The oil-distributor is prepared for the additional supply to electrical units on the swivel table.

### Machine colour

Standard painting: 3-coloured light grey/basalt grey RAL 7035/7012/4010 with telemagenta stripes

### 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°

### Information Export

We point out that the CNC-machining centres are subject to controls. For the export from the European Union an export license is necessary.

### Information Machine safety

The machine is designed and built in accordance with the European machine guideline, according placing the product on the first time onto the market.

Other safety features due to special company rules and specifications can be considered. The actual cost will be invoiced.



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### Information Coolant lubrication

The machine is designed for standard water soluble coolant and fully enclosed at the standard version. The machine must be equipped with fume extraction.

The machine contents different plastics, varnish, resin and glue, which are selected carefully for using coolant and cutting oil. The use of aggressive coolant and additive could cause major damages and machine stops. Contact in any case your coolant supplier before machine set-up and installation.

