

Complete machine description

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| 1 | 1 | <p>Completely refurbished vertical CNC-machining centre model Mill 2000
 Year of construction: 2004, weight: approx. 9.500 kg</p> | |
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Machine-No. 220-85

Scope of delivery:

Column moving machining centre with fixed table

Machine substructure with chip discharge left
 Linear guides with long-term-lubrication

Drilling capacity in steel 60	Ø 36 mm (with insert drill)
Tapping capacity	M 24
Milling capacity in steel 60	350 cm ³ /min.

NC swivel head

Motor spindle for swivel head, grease lubrication
 12,5 kW at 100 % ED
 34,0 kW at 10 % ED, watercooled
 20 - 12.000 rpm, 140 Nm

tool clamping with disk springs, hydraulic knock out,
 tool shaft for HSK-A 63 DIN 69893

NC swivel axis ± 100 °

- 30 rpm, lowest increment 0,001°
- repetition accuracy ± 10" with direct measuring system
- driving torque 280 Nm
- with hydraulic clamping system, max. torque through clamping 1400 Nm

flood coolant, pump capacity 20 l/min at 11 bar

Note: 5-axis transformation with tool orientation and tool tracking isn't included

Hydraulic unit

for continuous duty, at switch cycles less than 30 seconds
 pressure: 170 bar, floating rate: 11,3 ltr/min.
 incl. valves for supply and pressure stages
 for clamping of swivel head and automatic knock out of tool



Pos.	Qty.	Article Description	Price / €
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Travel:

X-axis	2000 mm
Y-axis	480 mm
Z-axis	horizontal spindle 715 mm / vertical spindle 630 mm

Automatic tool changer, protected against chips

No. of tools	40
Tool shaft	HSK A-63
tool dia.	max. 75 mm
tool dia.	
if adjacent places are free	max. 125 mm
Max. tool length	max. 280 mm
Max. tool weight	3 kg (max. 8 kg)
Tool change time	approx. 1,5 s (depends on CNC)
Chip-to-chip-time	approx. 5,0 s (depends on CNC)

Fixed table with chip pan

clamping surface	2600 x 550 mm ²
with 3 T-slots	2 x 18 H12, 1 x 18 H8

AC-servo motors for x-, y- and z-axes

digital direct drives with indirect absolute path measuring system
(no time-consuming reference)
rapid traverse in all axes 60 m/min.

SIEMENS CNC-control 840D

(PCU 50 / NCU 572.3, 6 measuring circuits, 1 canal)
incl. 10,4" TFT colour LCD screen / full keyboard OP010S
incl. network card, control panel logic Windows NT
hard disk. Approx. 2 GB programs storage for free disposal
NC-memory 512 MB
(max.200 programs storage capacity)
for ISO 66025 programming
hard disk with approx. 2 GB for free disposal
drilling cycles G81-G89
drilling and milling cycles
M- and T- functions
circular interpolation (360 degrees)
re-start into program
Subroutines, parameter programming
simultaneous programming
contour programming with cycle support
support through cycles
polar coordinates
tool offsets for geometry, wear



Pos.	Qty.	Article Description	Price / €
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tool radius correction for intersection computing
 crossingradius
 4 zero offsets G54-G57
 30 zero shifts programmable with G-functions
 3D and helical interpolation
 screen switch off
 mirror function
 scaling function
 insert of chamfer and radius
 Universal interface RS 232C (2 x V24) at control panel
 Ethernet connection RJ45 in control panel
 orientated spindlestop
 drip feed function through V24 interface
 dimension metric or inch
 software limitswitch
 NC-diagnosis
 machine-diagnosis
 absolute indirect path measurement systems
 powermeter in screen
 rigid tapping
 look ahead function

CMS Powersafe

Software package for selective shutdown of installed consumers
 such as axis motors, drives, spindles, coolant-pumps and auxiliary equipment
 during production breaks.
 Definable point in time at which the machine goes demand-oriented
 automatically into it's Power Safe mode.

Working hours and piece counter

in the screen

Socket 230 V

at control panel

Socket for portable mini-handwheel

without emergency stop button,
 at control panel

Cabinet cooler as a door mounting unit

Machine enclosure

with loading door, electrically interlocked,
 suitable for loading by crane
 2.500 mm high above floor, incl. machine lamp



Installation elements

MCIS DNC

Option to send and receive NC-programs in a network.
The client-software (e. g. UNIX, Novell, Windows NT)
and the wiring to the network is not included.

Loading door of total enclosure

“opening and closing” automatic
incl. thrust shaft switch
and 2 x two-hand push buttons for clamping
OPEN-CLOSE instead of button at the control panel

Special center divider

Incl. sliding element and pneumatic cylinder for
Front- and back driving.

Production package with HP pump (HSK A63) consisting of:

- Chip conveyor (scratch band)

instead of coolant equipment with chip container
discharge height 1.250 mm, discharge to the left,
tank capacity 200 ltr., lift pump with 200 ltr./min. at 1,5 bar,
incl. bed flushing system

- Coolant equipment

tank capacity 1.200 ltr.,
pump capacity 200 ltr./min. at 2,0 bar
high pressure pump, pump capacity 20 ltr./min at 30 bar,
coolant filtration with vacuum rotation filter VRF 250,
filtration 50 µm nominal,
with mud remover in clean water tank

- Machine preparation

for through tool coolant system including:
- sealing system in the DIN 69893 HSK A63 collet
- coolant distributor installed at the main spindle drive
- coolant leakage sensor
- implemented mud flap in the high pressure piping
- solenoid valve, controlled via machine program

We recommend for tool holders the use of our
patented coolant tube with sieve.

Advantages:

- Decrease of the clogging in the internal coolant channel.
- Reduction of the wear at the O-ring seal in the collet.



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2 x wash gun

NC-rotary-table package, integrated in clamping surface, complete installed consisting of:

- NC-rotary-table, type ATD 320
- 4th NC-axis, complete
- Pneumatic supply without control
- With coolant

Technical description for NC-rotary-table:

Part accuracy $\pm 1''$ with absolute, direct measuring system RCN 723, face plate dia. 520 mm, with 2 parallel T-nuts 18 H12, fixture pin dia. 16h7, 4 fixtures bores M10, centre bore dia. 50 + 0,012, max. spindle rev. 100 min⁻¹, max. axial load 20.000 N, max. transmittable torque with cooling 190 Nm, max. torque if the table is clamped 3.000 Nm, prepared for hydraulic spindle clamping

Hydraulic or pneumatic turning supply 2-core for rotary table

2 Exhaust fans

air cleaner mounted on the machine
exhaust capacity each 800 m³/h

Smoke and gases that arise during the processing are not filtered by this units. In this case we recommend the connection to a central exhaust fan.

Signal lamp for 3 signals

Signal "red" = failure
Signal "white" = machine loaded
Signal "green" = machine is running
mounted on machine enclosure

Centre divider

with mechanically activated door. Position closed, checked electrically.
Shuttle machining Standard 2 x 750.
Shuttle machining swivel head 2 x 765 (swivel head only in 0 ° - position)
incl. machining area recognition M61/M62
and start and receipt push buttons, mounted on both sides.
Quick removable because of pluggable connections and screwed bolts.



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Glass scales

overpressured

X, Y, Z = 2000 x 500 x 550 mm

bei NC-Schwenkkopf Y, Z = 480 x 715 / 630 mm

Laser measurement acc. VDI/DGQ 3441

2 x Pneumatic supply

without control and 1 outlet coupling

2 x Hydraulic connection for 210 bar

with 2 connecting couplings "A + B" and hydraulic installation up to outside of machine bed, electrical control for clamping ON - OFF via push button at control panel

Extension hydraulic unit

for clamping of rotary table or counter bearing with 1 second pressure stage, 1 additional clamping circuit and 1 connecting coupling with hydraulic installation up to outside of machine bed for one table side (4th axis)

Extension hydraulic unit

of Hydraulic unit from the NC-Tilting head package pressure: 210 bar, floating rate: 4,3 ltr/min. incl. valves for supply of 2 clamping devices and 2 pressure switches for clamping control

Cutting tools

The cutting tools have to be balanced according to DIN ISO 1940, class G 2,5, in two levels, with max. operating speed

Machine colour

Two-components-structure varnish - 3 colours

light grey acc. to NCS S1502-B

blue acc. to NCS S2050-R80B

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°



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.

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.

