

CNC Machining Center 4-Axis
Weeke OPTIMAT BHC Venture 3
Used Machine - Year 2005



WEEKE OPTIMAT Venture 3 – Machine number: 0-250-11-1135

CNC-controlled machining center for the commission-based production of furniture parts made of solid wood and similar materials.

1. BASE MACHINE

- Machine base frame and traveling column made of thick-walled, ribbed steel construction
- Traveling column movable in the X direction
- Cross support movable in the Y and Z directions
- PAINT FINISH Gray RDS 240 80 05
- Central room extraction of the machining unit and a separate extraction connection for the extraction system (provided by the customer)

2. GUIDE SYSTEM AND DRIVE TECHNOLOGY

- Axis travel (X/Y/Z direction) via a compact linear guide system, dust-protected
- Rack and pinion drive in the X direction and recirculating ball screw in the Y and Z directions

- Axis travel ranges:

X = 3810 mm

Y = 1735 mm

Z = 220 mm

- Fully digital drive system in the X, Y, and Z directions. (Sercos)
Axis speed:

X = 100 m/min

Y = 50 m/min

Z = 20 m/min

Consisting of:

- Maintenance-free AC servo motors with high-resolution optical encoders and high system accuracy
- Digital drive controllers with high reliability and fast cycle time (2 ms)
- Digital control via fiber optic bus system (SERCOSRING).
The vacuum cups are clamped by vacuum.

3. CONSOLE TABLE WITH LED DISPLAY

- Hoseless vacuum clamping system for clamping coated and uncoated sheet materials.

The workpiece supports are guided on a dust-protected, hardened, and ground circular guide system. The workpiece supports are pneumatically released for movement.

The vacuum suction cups are clamped by vacuum.

Worktable:

X = 3250 mm (length)

Y = 1220 mm (width)

Z = 125 mm (thickness)

The maximum workpiece thickness to be machined depends on the tool length used.

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Consists of:

6 workpiece support brackets, continuously adjustable in the X direction, suitable for accommodating the hoseless vacuum suction cups

LED POSITIONING SYSTEM (DIODE LIGHT STRIP) FOR 6 WORKPIECE SUPPORTS

Optical LED display system for manual positioning of vacuum clamping elements. The workpiece support and vacuum clamp positions programmed in woodWOP are visually displayed on the support table in a 5 mm LED grid in the X and Y directions. A positioning accuracy of ± 2.5 mm can be achieved using intermediate distances.

Stop cylinders for positioning the workpieces to be machined.

All stops can be lowered according to the program.

4 stops are mounted in the rear area for workpieces with a width of over 960 mm.

6 stops are mounted in the front area for narrow workpieces up to a width of 960 mm.

2 stops for lateral positioning of the workpieces in the right work area (manually adjustable)

2 stops for lateral positioning of the workpieces in the left work area (manually adjustable)

6 manually mounted folding stops for materials with a surface layer overhang
Note: For the front row of stops

4 controlled workpiece insertion aids (plastic material) for positioning heavy workpieces (mounted on consoles 1, 3, 4, and 6).

12 large-area vacuum block suction cups, freely positionable manually without hoses. 114x160x100 mm (L/W/H)

6 vacuum block suction cups for narrow parts, freely positionable manually without hoses.

125x75x100 mm (L/W/H)

1 vacuum connection for templates for connecting self-made vacuum templates, designed for the right work area

1 liquid-cooled, low-maintenance vacuum pump with a capacity of 100 m/h

4. SOFTWARE FUNCTION, MOVING A PROGRAM

With this software extension, WoodWop or CNC programs can be moved orthogonally in the X and Y directions. If a workpiece is moved to a different zero edge (stop), we would like to point out that we do not charge for any corrections for dimensional tolerances within the workpiece.

5. 10/100 MBIT ETHERNET CONNECTION FOR MACHINE RJ45 (WITHOUT HUB)

Activation of the internal 10/100 Mbit network card and installation of the associated software. Activation of the Windows network function. Network connection cable (approx. 2 m) for connecting the PC network card to the customer-provided amplifier (hub). The required hub is provided by the customer. If the hub is not installed in the machine's control cabinet, the customer must provide a network cable of the appropriate length (note the maximum length: 100 Mbit maximum approx. 100 m). The network is a pure peer-to-peer connection. The installation of the network card for the external PC and the network cable must be carried out by the customer. If the machine requires connection to other networks, e.g., Novell, this must be installed by the customer. <

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Note: No network software may be installed on the machine's PC without consulting WEEKE. WEEKE assumes no liability for malfunctions caused by third parties.

1 handheld terminal

With potentiometer and emergency stop switch for controlling the machine (e.g., for running complex machining programs)

5. MACHINING CONFIGURATION V19, H4X/2Y, N1, F1-HSK-9 KW, C-AXIS, W8 REAR

V19 HIGH SPEED 7500

incl. quick-change and spindle clamp

Vertical drilling unit with manual quick-change system and continuously variable, program-controlled high-speed range.

Furthermore, the vertical, individually accessible drilling spindles are equipped with a positively guided spindle clamp for safe

drilling depth achievement.

Z-direction stroke: 60 mm

Drilling depth: max. 38 mm

(up to 55 mm, however, with special drill bit)

Direction of rotation: right/left

Speed: 1,500 - 7,500 rpm, frequency-controlled

Drive: 2.7 kW

Drill chuck: d = 10 mm

Total drill length: 70 mm

Drill diameter: max. 35 mm

Spindle spacing: 32 mm

Spindle type: individually controllable

Arrangement: 9 spindles in the X direction (hole row)

8 spindles in the Y direction (construction)

2 separate spindles

H4X/2Y

Horizontal drilling unit with 4 drilling spindles that can be individually selected via the program.

2 drilling spindles each (32 mm pitch) are arranged on the right and left in the X direction.

Drilling depth: max. 38 mm

Drilling height in the Z direction: 38 mm from the top edge of the workpiece

Direction of rotation: right/left

Speed: 1,500 - 7,500 rpm, frequency-controlled

Drill chuck: d = 10 mm

Total drill length: 70 mm

Drill diameter: max. 20 mm

Spindle type: individually controllable

Horizontal drilling unit with 2 drilling spindles that can be individually selected via the program.

One drilling spindle each arranged at the front and rear in the Y direction.

Drilling depth: max. 38 mm

Drilling height in Z direction: 38 mm from the top edge of the workpiece

Direction of rotation: counterclockwise

Speed: 1,500 - 7,500 rpm, frequency-controlled

Drill chuck: d = 10 mm

Total drill length: 70 mm

Drill diameter: max. 20 mm

Spindle type: individually controllable

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N1

Grooving saw unit arranged in the X-direction.

Cutting depth: 10 mm
Cutting cross-section: max. 50 mm²
Direction of rotation: clockwise
Speed: 1,500 - 7,500 rpm frequency-controlled
Saw blade holder: 30 mm
Tool diameter: 100 mm
Saw blade thickness: max. 5 mm

F1-HSK63-9 KW

Tool change spindle for the use of shank tools, which are automatically changed from the disc change magazine.

Tool holder: for HSK taper

Tool retraction: automatic
Direction of rotation: right/left
Speed: continuously programmable from 1,250 to 24,000 rpm
Drive: frequency-controlled three-phase motor
Max. tool power: up to 7.5 / 9 kW in continuous/intermittent operation (S1/S6-50%)
Spindle lubrication: permanently greased
Bearings: hybrid bearings (ceramic) for low friction, higher rigidity, and maximum service life

C-AXIS UNIT INTERFACE

For mounting adapter units including pneumatic interface and swivel drive (360° adjustment axis)
C-axis adjustment range: 360 degrees
Torque drive: for 3-point support
Gearbox: helical gear pinions

W8 REAR

Automatic tool change magazine for 8 positions (Disc changer)
Moves along the machine support in the X direction. The disc change magazine is designed for use with milling tools with HSK tapers.
Arrangement: Moves along the support in the X direction
Magazine positions: 8 tool positions
Tool weight: max. 5 kg total weight including HSK holder
Tool diameter: max. 100 mm when fully loaded (8 milling tools)
max. 160 mm for smaller tool diameters
Adapter units: max. 4 can be stored in the magazine
Tool change time: approx. 12-18 seconds chip to chip

6. CNC CONTROL AND SOFTWARE

The electrical control cabinet with integrated control center is positioned freestanding on the right side of the machine.

6.1 HARDWARE: POWERCONTROL SYSTEM

- CNC control including drive modules
- Intelligent control system: While the CNC controls the machining operations, new data can be entered independently on the PC.
- PC (Personal Computer) for operator guidance
- Intel Pentium 4
- English operating system Windows XP embedded
- 15-inch TFT graphics monitor
- At least 256 MB RAM
- At least 40 GB hard disk space (various partitions)

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- 3.5-inch floppy disk drive
- Network (EtherNet/IP) is optionally available onboard.

Additional PCI slots allow for additional network cards.

- Serial interface for barcode, modem, or ceiling laser
 - Parallel interface for printer connection
 - CD-ROM drive suitable for reading and writing CDs
- (No dust protection guarantee)

6.2 SOFTWARE: POWER CONTROL SYSTEM WOODWOP

woodWOP is a workshop-oriented programming system (WOP) specifically tailored to the needs of stationary technology in industry and trades. Simple operator guidance facilitates the creation of processing programs. A uniform data format allows processing programs to be exchanged between different CNC machines in the HOMAG Group.

- MACHINE DATA ACQUISITION (MDC)

The machine and service data acquisition system stores the number of workpieces, operating times, downtimes, malfunctions, and production times. A runtime specification created based on the operating time of individual units and motors provides information about necessary maintenance intervals.

- PRODUCTION LIST

Production processes can be compiled and saved within the production list. The lists can be processed line by line or simultaneously on all processing stations. A maximum of 10 variables can be defined for the use of variable programs.

- NC SIMULATION AND TIME CALCULATION

A 'moving' unit layout simulates the machining sequences in the sequence specified in the NC program.

Further checks are possible:

- Time calculation approx. +/- 10%
 - Travel range check
 - Collision check
 - Vacuum suction cup position check
- Simulates all 3-axis machining operations
Supplied with copy protection (dongle)

7. SOFTWARE FOR EXTERNAL PERSONAL COMPUTER 3D WOODDESIGN

woodDesign is a modern 3D design program for the interactive design of cabinet furniture and interior fittings.

- WOODWOP FOR PC

With this programming software, machining programs are created externally on a PC, e.g., in work preparation.

8. REMOTE DIAGNOSIS TELESERVICE, MODEM

Includes the general provision of a machine's teleservice capability, including the appropriate modem, as well as the free use of teleservice services within the warranty period. After the warranty period, a corresponding teleservice contract must be concluded for the use of the teleservice service.

9. CE SAFETY AND PROTECTION DEVICE

- Protective grilles on the sides and rear.
- Three-part safety mats in the front area designed for alternating field occupancy. While the machine operator is resetting or reloading one side of the work area, the machining center can perform the programmed machining on the opposite side of the work area.

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10. UPS (UNINTERRUPTIBLE POWER SUPPLY) INCLUDING VOLTAGE STABILIZER

supplies the electronic control system and the control circuit with power from the built-in batteries for approximately 3 minutes in the event of a voltage drop. The UPS also acts as a voltage stabilizer for the electronics, switching to battery operation even in the event of undervoltage or overvoltage.

11. WEEKE Quality Package

- The power cable feeds (cable carriers) in the X, Y, and Z axes are supplied in a closed design.
- The power cable feed including pneumatics (cable carriers for the workpiece consoles) is supplied in a closed design.
- The linear guides in the X and Y axes are supplied with cover strips (metal).

12. DOCUMENTATION

- Documentation in printed form and on CD-ROM including a spare parts catalog and circuit diagram.

- Note: Tools and collets are not included in delivery!