

CNC machining center 4-Axis
Weeke OPTIMAT BHC Venture 4M
Used machine - year 2011
Machine number: 0-250-82-3091



VENTURE 4M

CNC-controlled machining center for the production of furniture parts made of wood or wood-like materials.

1. BASIC MACHINE

- Sturdy steel frame construction
- Axis travel in X, Y, and Z directions
- Paint finish: Gray RDS 240 80 05
- Direct extraction on the drilling gearbox and milling spindle, as well as a separate extraction connection for the extraction system (provided by the customer)

2. GUIDE SYSTEM AND DRIVE TECHNOLOGY

- Dust-protected linear guide system
- Rack and pinion drive in the X direction and recirculating ball screw in the Y and Z directions

Axes travel:

X = 3860 mm Y = 1880 mm

Z1 = 410 mm Z2 = 185 mm

- Digital drive system in the X, Y, and Z directions (Sercos)
- Axis speed:
Vector speed X/Y = 110 m/min Z = 20 m/min

Consisting of:

- Maintenance-free motors with high-resolution Optical encoders guarantee high accuracy
- Digital drive controllers guarantee high reliability
- Fiber optic cables protect against interference

2.1 AUTOMATIC CENTRAL LUBRICATION (X)

- The four X-linear guide shoes and the X-rack are automatically lubricated at controlled intervals.
- The Y- and Z-axis components are lubricated manually.

Central lubrication points and an automatic warning message on the screen simplify maintenance.

3. CONSOLE TABLE WITH DIODE LIGHT STRIP

- Hoseless vacuum clamping system for clamping sheet materials
- Light-emitting diodes (LEDs) with a 5 mm pitch indicate the programmed

X and Y positions of the workpiece supports and clamping elements

- The workpiece supports are positioned using dust-protected, high-quality guides.
- The pneumatic clamping of the workpiece supports is activated via a switch. The vacuum suction cups are clamped by vacuum.

Work table:

X = 3250 mm (length)

Y = 1250 mm (width)

Z = 125 mm (thickness)

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

Consists of:

6 workpiece supports, continuously adjustable in the X direction, suitable for the hose-free positioning of the vacuum suction cups
1 diode light strip for positioning the workpiece supports in the X direction

6 diode light strips for positioning the clamping elements in the Y direction

8 rear stops for workpiece widths over 960 mm, including electronic limit switch

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6 front stops for workpiece widths up to 960 mm, including electronic limit switch
1 pneumatically lowerable side stop ruler for the right work area, including electronic limit switch End position sensor
1 pneumatically lowerable side stop ruler for the left work area including electric. End-of-stroke monitoring
4 manually mounted folding stops for workpieces with surface overhang for the front stops
4 manually mounted folding stops for the left (2) and right (2) stop rulers
4 controllable plastic positioning aids for heavy workpieces
12 vacuum suction cups, manual, freely positionable without hoses
114 x 160 x 100 mm (L/W/H)
6 vacuum suction cups, manual, freely positionable without hoses
125 x 75 x 100 mm (L/W/H)
1 vacuum connection for templates for the right and left work areas
1 vacuum generator, rated output 100 m3/h
1 preparation for retrofitting two pneumatic supply units for pneumatic clamping elements (sales no. 0861)

4. CONFIGURATION

**V19, H4X/2Y, N1 X-Y 90°, F1-HSK63-12 kW,
C-AXIS, W14 REAR,**

V19 HIGH SPEED 7500 including quick-change system and spindle clamp
Vertical drilling unit (individually controllable with variable speed range). Spindle clamp for reliably achieving the required drilling depth.
Pre-feed stroke
Z-direction: 60 mm
Drilling depth: max. 38 mm (up to 55 mm 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 for quick-change system
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 (design)
2 separate spindles

H4X/2Y

Horizontal drilling unit with 6 drilling spindles that can be individually controlled via the program.
4 drilling spindles: 32 mm pitch
2 each in the X-direction
2 drilling spindles: 1 each in the Y-direction
Drilling depth: max. 38 mm
Drilling height
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

N1 X-Y 90°

Grooving saw unit for machining in the X-Y direction, pivotable 90°. Cutting depth: 30 mm

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Cutting cross-section: max. 70 mm²
Speed: 1,500 - 7,500 rpm, frequency-controlled
Tool diameter: 125 mm
Saw blade thickness: max. 5 mm

F1-HSK63-12 KW

Automatic tool change spindle in combination with tool change magazine.
Tool holder: HSK63
Tool feed: automatic
Direction of rotation: right/left
Speed: 1,250 - 24,000 rpm, continuously programmable
Drive: frequency-controlled three-phase motor
Max. tool power: up to 9/12 kW
in continuous/intermittent operation (S1/S6 - 50%)
Spindle lubrication: permanently lubricated with grease
Cooling: liquid cooling
Bearings: hybrid bearings (ceramic),
low friction, higher rigidity, and maximum service life

C-AXIS UNIT INTERFACE

(360-degree interpolation axis) For mounting adapter units, including a pneumatic interface and a continuously variable swivel range of 360°.
C-axis interpolation range: 360 degrees
Torque transmission: for 3-point support
Gearbox: helical gear pinions
C-AXIS SUITABLE FOR FLEX-5 UNIT RETROFIT

W14 REAR

Automatic tool change magazine with 14 positions.
Arrangement: travels along the support in the X direction
Tool holder: HSK63
Magazine positions: 14 tool positions
Tool weight: max. 5 kg total weight including HSK holder
Tool diameter: max. 130 mm when fully loaded (14 milling tools)
max. 260 mm with free space on the adjacent positions
Tool change time: approx. 12-18 seconds

4.1 Auxiliary tool change device
Auxiliary device for automatically loading the tool changer.

5. power control PC85

Modern control system based on a Windows PC

Hardware:

- PLC control according to the international standard IEC 61131
- Windows XP (US) embedded operating system
- PC with at least 2 GHz and 512 MB RAM
- 17-inch TFT flat screen
- 1 hard drive with at least 40 GB
- 3.5-inch floppy disk drive
- CD-RW drive suitable for reading and writing CDs
(no dust protection guarantee)
- USB port on the control panel
- Digital drive technology via fiber optic cable
- Decentralized, digital fieldbus system
- 10/100 MBIT RJ45 Ethernet connection (without switch)
- Provision of teleservice (modem)
Includes the general provision of teleservice capability of a machine, including the corresponding modem, as well as the free use of teleservice services within the warranty period.
After the warranty period, a corresponding teleservice contract

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- must be concluded to use the teleservice.
 - UPS (Uninterruptible Power Supply) protects the computer from damage in the event of a power failure, overload, or short circuit. In the event of a power failure, the computer shuts down in a controlled manner after one minute, thus preventing data loss.
 - Control terminal with potentiometer and emergency stop button.
- Software:
- PC85 CNC kernel with:
 - Continuous path control in all axes and parallel processes using multi-channel technology
 - Look-ahead function for optimal speeds at transitions
 - Dynamic feedforward control for the most precise contour accuracy
 - PC85 software package with graphical operating programs:
 - woodWOP for graphical, dialog-oriented creation of CNC programs
 - Graphical tool database
 - Production list management
 - CNC operation
 - Graphical display of occupied locations
 - Error message in plain text
 - Schuler MDE Basic for machine data acquisition
 - Software function: Shifting a program
 - With this software extension, woodWOP programs can be mirrored in the location allocation differently than specified for the target location.
 - 3D NC SIMULATION AND TIME CALCULATION (1 license)
 - Graphical simulation of the CNC program in 3D
 - Time calculation with an accuracy of +/- 10%
 - Display of error messages
 - Display and checking the positions of the vacuum cups
 - Note: Not for motorized consoles
 - Simulates all machining operations in X/Y/Z and, to a limited extent, the C axis
 - Copy protection: License server
 - Software package for external PC:
 - woodWOP for graphical, dialog-oriented creation of CNC programs
 - DXF Postprocessor Basic for connecting 2D CAD programs to woodWOP
 - Import of 2D DXF files
 - Conversion is performed according to defined profiles (rules)
 - Display of geometry, layers, and drawing elements
 - Generation of the woodWOP program
 - 3D woodDesign: Software with a modern 3D interface for the interactive design of cabinet furniture with output of woodWOP programs with components for the individual machining steps, which are executed sequentially
6. CE SAFETY AND PROTECTION DEVICE
- Protective grilles on the sides and rear
 - Three-part safety mat in the front allows for the placement of workpieces in the non-active work area.
7. WEEKE Quality Package
- The power cable feeds (cable trays) in the X, Y, and Z directions are supplied in a closed design.
 - The linear guides in the X and Y directions are supplied with cover strips (metal).
8. DOCUMENTATION
- Documentation in printed form and on CD-ROM including spare parts

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catalog and circuit diagram

Number: 1531 1 time

LOCK MOLD MILLING UNIT 2 SPIN. D=16/20 (L)

Machining units from the HOMAG Group unit technology guarantee the highest quality and service life standards. The mechanics used in HOMAG Group unit technology are specially designed for the requirements of lock case machining. A controllable air blow nozzle on the unit is used both to cool the milling tool and to blow out the formed chips. By blowing out the chips, higher machining speeds and increased tool life can be achieved.

Application example:

The lock case milling unit is used for lock case milling and hinge milling in door manufacturing, as well as for baluster drilling in stair manufacturing.

Technical Data:

- Spindle exit: 2-sided
- Tool holder 1: Weldon chuck
D=20 mm
- Total tool length: max. 180 mm
- Tool projection: max. 135 mm
- Tool holder 2: Collet DIN 6499
up to D=10 mm
- Total tool length: max. 70 mm
- Tool projection: max. 50 mm
- Spindle speed: max. 15,000 rpm
- Included tools: 1 x Standard collet d=10 mm
1 x Reducing sleeve
D=16 mm

Note:

Machining tools are not included!

Tool and machining parameters for this unit are listed in the technical data sheet.

G.0004 Number: 1519 1 time

DRILLING/MILLING UNIT, 4 SPINDLES (50 MM)

Machining units from the HOMAG Group - unit technology guarantee the highest quality and service life standards. Thanks to the four-sided spindle exit, up to four different milling and drilling tools are available simultaneously without any tool changes.

Examples of use:

The drilling and milling unit is used for horizontal milling and drilling operations at any angle with different diameters, such as for object bands.

Technical data:

- Spindle exit: 4-sided
- Tool holder: up to 16 mm shank diameter
- Tool projection: max. 50 mm
- Spindle speed: max. 14,400 rpm
- Included

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tools: 4 x standard collets
d=10 mm

Note:

Machining tools are not included!
Tool and machining parameters of this
unit according to the technical data sheet.

G.0007 Number: 1069 1 time

C-AXIS EXTENSION FOR FLEX5+ UNIT

- Coupling element for C-axis
- Pneumatic valves, pressure switch and pressure monitoring
- For automatic exchange of the Flex5/Flex5+ unit
- Not in conjunction with main spindle with electronic interface or probe spindle

Note: Only in conjunction with Vk No. 1018, 1065, 1066, 1068

Number: 1576 1 time

HP FLEX5+ SAWING, MILLING, DRILLING UNIT

High-performance machining units from the HOMAG Group's unit technology guarantee the highest quality and service life standards.

High performance stands for high-performance units with technically optimized lubrication of the gearbox components.

The patented FLEX5+ unit from the HOMAG Group was developed for a high degree of flexibility in sawing, drilling, and milling operations at various angles. The angle to be set is automatically adjusted via the C-axis when the unit is at rest. An integrated tool-changing interface enables the automatic exchange of machining tools from the tool changer.

Example application: The HP FLEX5+ sawing, milling, and drilling unit is used wherever various sawing cuts or drilling and milling operations at different angles need to be performed on a single workpiece, such as in the production of sloping ceiling cabinets and concealed hinges.

Technical Data:

- Spindle exit: 1-sided
- Tool change interface:
WFC 40-25
- Milling swivel range: 0 to +100 degrees
- Cutter holder: for tool holder
WFC40-25 with collets
up to 16 mm shank diameter
- Tool projection: max. 50 mm
- Tool diameter: max. 20 mm
- Cutting cross-section
at feed rate 5 m/min: max. 130 mm² for
chipboard
max. 100 mm² for
solid wood
- Swivel range drilling: 0 to +100 degrees
- Drill holder: for tool holder
WFC40-25 with
collets up to 16 mm
shank diameter
- Tool projection: max. 78 mm
- Tool diameter: max. 10 mm
- Swivel range sawing: 0 to +90 degrees

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- Saw blade holder: for tool holder WFC40-25 with flange for saw blade, pitch circle 52 mm
- Tool diameter: max. 220 mm x 6 mm (blade body 5 mm)
- Vertical cutting depth: max. 60 mm
- Cutting cross-section at feed rate 10 m/min: max. 120 mm² for chipboard
max. 70 mm² for solid wood
- Spindle speed: max. 15,000 rpm
- Included

Tools: 1 x Tool holder
WFC40-25 with
flange for saw
incl. 8 countersunk screws
M5
1 x Tool holder
WFC40-25 incl.
Collet
d=10 mm

Note:
Machining tools are not included!

Tool and machining parameters of this unit according to the technical data sheet.

D.99 number: 8321 (1)
DOCUMENTATION AND CONTROL TEXTS: GERMAN
Scope of delivery:
1. Operating manuals
consisting of operating and maintenance instructions
on DIN A4 paper and CD-ROM
2. On-screen operating texts
for machine operators, for POWERCONTROL
3. Spare parts descriptions
consisting of CAD drawings and circuit diagrams on CD-ROM
- Delivery time: With machine delivery

- Note: Tools and collets are not included!