

Homag CNC Machining Center

Vantech 480 V12 PRO PT Push Off NBP 084



The Homag Vantech 480 is an industrial machine designed primarily for nested based applications including routing and boring of panel stock. Materials can include woods, plastics, non-ferrous metals and composites.

Homag's reputation for quality remains unsurpassed, as noted by their ISO 9001 manufacturing certification and exceptional volume of machines in operation today. As such, Homag utilizes world class suppliers for procurement of machine components. In addition to utilizing superior components, the **woodWOP** programming software built into the machine is extremely strong and has proven itself on more than 30,000 installations worldwide. Further enhancing itself in the marketplace, the new **woodWOP 7** software brings 3-D capability and enhanced file importation, programming and processing into the fold. Homag's insistence on high quality industrial components paired with an established software interface deliver our customer's a machine that is stable, reliable and user friendly.

The Vantech 480 is constructed on a tubular steel foundation engineered utilizing Finite Element Analysis and heavy steel gussets welded within to ensure stability. Unlike many in this machine class, the robust design and substantial mass provide a solid, vibration-free platform for the machining head.

The X, Y, and Z axes are all supported on THK style linear motion guides. THK style guides are engineered to produce straight line tracking at high travel speeds while providing outstanding stability in both the radial and lateral directions. The X axis is driven by two (2) zero-backlash, pre-loaded helically ground rack and pinion gear systems. The Y and Z axes are driven by high precision ball screw. Indramat solid state drives and digital AC servo motors are employed to power the axes.



Figure 1

Basic Machine

- Solid machine foundation provides the rigidity required for high speed gantry movements and machining operations.
- Gantry movable in X direction
- Cross support movable in Y and Z direction
- Paint Grey RDS 240 80 05
- Direct chip extraction at the processing unit and separate connection for the extraction device (on site)
- Gantry enclosure
- Safety fence at the machine rear, right and left hand side
- Light barriers for safety at the machine front
- Machine is pre-wired to accept remote operating pendant
- Machine frame is pre-configured to accept a gantry mounted push off device and additional material handling elements



Figure 2



Figure 3

Guide System and Drive Technique

- High quality THK style linear guiding system
- Toothed rack assembly (synchronous drive) in the X-direction and ball bearing screw for movement in Y and Z direction
- Digital drive technique in X, Y and Z direction featuring:
 - **Maintenance free motors with high resolution optical encoders ensuring precision accuracy**
 - **Digital drive control units guarantee high reliability**

MATRIX Table 4' x 8'

A grooved phenolic MATRIX vacuum system for holding down work pieces comes standard. The grooves provide for efficient distribution of vacuum, as well as isolating table areas by inlaying a rubber sealing and/or accepting vacuum pods for fixturing small parts.

The MATRIX system offers:

- Vacuum system for clamping of the work pieces on the surface of the vacuum table
- Can be equipped with optional Pod System for elevating parts
- Working table length: 2500 mm (8' / 98.4 Inches)
- Working table width: 1250 mm (4' / 49.2 Inches)
- Workpiece thickness: maximum 100 mm (3.94 Inches)
 - **Includes rubber gasket material**

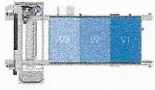


Figure 4

PRO+ Matrix Table

By dividing the matrix table into 3 sections, the PRO table solution is perfectly suited to handle the raw material variance of today's multi-faceted manufacturers. When running raw materials smaller than 4'x8', the operator is able to quickly concentrate vacuum to the area of the machine it is needed. Vacuum zones are selected by soft key at the machine control to create zones of 800mm x 1250mm, 1600mm x 1250mm and 2400mm x 1250mm.

Note: fixture board material (also referred to as "bleeder board" or "spoil board") is not supplied with the machine, but required at time of installation.



Figure 5

Vacuum System

- The machine design includes (3) three vacuum pumps with a total vacuum capacity of 267 m³/h, 60 Hz They are directly connected with the vacuum table via a distribution device and one of the three vacuum generators serves as master.
- The vacuum system is one of the largest electrical consumers of any manufacturer's machine. For this reason, the Vantech system utilizes an **Eco-Friendly** design to conserve energy and on electrical costs. The pumps operate from a "staggered start" to reduce the maximum draw of the machine upon start up and single pumps can be switched off to save energy when not required.
- Vacuum pumps are activated via soft key at the control panel, outperforming common manual vacuum valve systems.

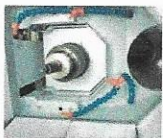


Figure 6

Vertical Router Spindle - Rated at 18 HP

- BENZ/ZIMMER GROUP HSK63 spindle motor that includes an automatic tool change feature in combination with the tool change magazine
- Direction of rotation: right hand / left hand
- Speed: 1,500 - 24,000 rpm stepless programmable
- Drive: frequency controlled AC-motor
- Maximum capacity at the tool: up to 8.5/10 kW (11.4/13.4 HP) in continuous and intermittent operation (S1/S6 - 50%)
- Spindle lubrication: permanent grease lubrication
- Bearing: hybrid bearing (ceramic), little friction, higher stiffness and maximum operating life
- Fan cooled
- Central dust extraction

Multi-Zone Processing

The table and control interface on the Vantech machine is configured to allow the operator to simultaneously load multiple programs at up to four (4) zero points of the machine (number of zero points determined during machine specification). The machine can then optimize drilling and routing routines and run the multiple programs as a single file.

This is an important feature for those who may use the Vantech machine as a “point to point” machining center or provide back-up to that style machine already in operation on their shop floor

Air Jet

Four flexible air jets are integrated into the extraction hood providing a cool, clean and efficient machining area. Air jets are activated via soft key at the control panel.

Automatic Tool Change

To increase flexibility and decrease cycle time, an automatic, rotary tool changer is arranged near the rear right of the machine framework.

Features:

- Tool holder: HSK63
- Magazine places: 13 tool places
- Tool weight: maximum 6 kg (13.22 lbs) including HSK cone
- Tool diameter: 130 mm max when equipped with 13 tools
- Tool change time: approximately 10 - 18 seconds

Automatic Tool Loading Position

The Vantech provides a single point of interaction for loading and unloading the tool changer. Operator efficiency is increased by allowing the machine to take some of the responsibility for managing tooling. Tools are manually inserted into the loading device, positioned close to the left front of the machine for easy access. The machine retrieves the tool and selects the first available position in the tool magazine, deposits the tool, and updates the tool database.

The system has proven an effective method for minimizing tool and machine damage caused by errant manual loading of tools into the machine and/or incorrect entering of data into the machine control. The process is reversed for removing tools from the machine; the machine deposits tools in the loading position and automatically removes the tool from the active tool database. The loading position also utilizes a sensor to prevent the machine from depositing a tool in the position while another tool is present.



Figure 7



Figure 8



Figure 9



Figure 10

Tool Length Control

A heavy duty tool length control system is a standard feature of the machine. To maintain accuracy, tooling is touched off after a change via the tool pick-up station and its length is verified against the tool data stored within the machine control.

12-Spindle Vertical Drill Block

- A vertical drilling block with twelve (12) spindles is included.
- Special feature: Spindle clamping to achieve the drilling depth safely.
- Stroke Z-direction: 60 mm
- Drilling depth: maximum 35 mm
- Direction of rotation: right hand/left hand
- Speed: 3,450 rpm
- Power: 1.5 kW
- Shaft diameter: $d = 10$ mm
- Total length of drill: 70 mm
- Drilling diameter: maximum 35 mm
- Distance between spindles: 32 mm
- Type of spindle: individually selectable
- Spindle Arrangement: X-9 spindles, Y-3 spindles

Push Off Material Handling Package

When a client's production requirements are greater than that of a standard manually off-loaded nesting machine, a few proven pieces of material handling automation can be utilized to increase the output of the basic machine by as much as 40%. This can be achieved without adding labor, running a second shift, or purchasing another machine. The Push Off material handling system detailed below is engineered to meet the higher output requirements of this portion of the nesting market while continuing to require only one operator. Machine with Push Off requires a minimum of 8,300 M³/hour or 4,885 CFM of dust collection.

Automated Push-Off of Finished Nests

The system utilizes a gantry mounted push-off device to automatically eject finished parts from the machine table without manual operator intervention. Once the nest is complete, the machine returns to the loading side of the machine, drops its push-off device and cycles from left to right, collecting finished parts and waste along the way. The unit also contains a table cleaning sweep integrated into the push-off to clean dust and debris from the spoilboard in preparation for the next raw board.

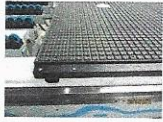


Figure 11

Push Off Material Handling Package (continued)

Pneumatic Side Reference Fences and Locating Pins

Supplementing the pneumatic reference pins delivered within our standard machine configuration, full length solid fences serve as the means for locating materials to the working zones of the machine. Paired with a pneumatic reference pin located at the front right and front left of the machine, the system offers two “zero” points for accurately locating raw materials. Fences retract during machining. When the finished nest is ejected, the fences are raised again to help guide parts from the machine table to the transfer conveyor at the end of the machine. Both the fences and the pins are under down stroke surveillance to prevent the machine from routing a fence or pin in the event of an incomplete cycle.

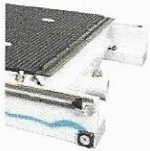


Figure 12

Dust Extraction from Below

A bottom dust collection channel with blast gate is integrated into the machine frame to collect dust from the nest as the parts are ejected from the machine. As the vacuum from the table competes with the dust collection for the waste, some dust will remain in the cut. The dust collection channel from below collects this dust as the parts are pushed from the machine and onto the transfer conveyor. This feature ultimately leaves less mess to manually clean at the end of a shift.

Transfer Conveyor

A conveyor belt receives the finished parts and automatically advances them to the operator for sorting at the end of the table via communication with photo-electric sensors. This allows the machine to process parts while the operator is unloading the previous nest and prevents parts from being pushed off onto the floor if the operator is not present to receive them. Minimum recommended part thickness for consistent part conveyance is 12mm (1/2”).

Dust Collection from Above

The transfer table is also integrated with a dust collection hood from above to clean residual dust from the top of the work pieces and the conveyor belt. This small feature proves very valuable for those applying barcode labels or other methods of identifying parts coming from the router, as the parts are free from much of the dust and debris of the machining process.



Figure 13

Vantech Maintenance Kit

A tool kit is included with the machine consisting of: 46mm single open end wrench, 58x62mm hook spanner wrench; grease gun with hose, grease and ball end allen wrench set.



Figure 14

Power Control with PowerTouch

The Vantech 480 features a Microsoft Windows 7 based state-of-the-art **PowerTouch** control complete with intuitive software. The included **woodWOP 7** programming system is the heart of the machine and is unmatched by any programming software available with a machine today. The powerful drawing functions offered by **woodWOP 7** simplify programming for operators without CNC experience and provide the premium features required to satisfy advanced users. In addition to the software within the machine control, a copy of the program is included for installation on an office PC for off-line programming.



Figure 15

Hardware:

- 21.5" Full HD wide screen multi-touch display; keyboard, mouse, and an industrial PC
- Operating system Windows 7 (US)
- PLC control according to international standard IEC 61131
- USB connection at the operating panel
- EtherNet connection 10/100 MBIT RJ45 (without switch)

Hand Control Pendant

Remove terminal featuring an E-stop, as well as manual control of feed speed, machine axes and dust hood.



Figure 16

PowerControl software package with graphical operating programs:

- **woodWOP 7** for powerful, yet simple generation of CNC-programs
 - Graphical tool selection from your database
 - Production list administration
 - Graphical presentation of work zones
 - Clear text error messaging
- 3D NC-Simulation and Time Calculation: One (1) license

PowerControl CNC-Core Includes:

- Path control in all axis and parallel sequences by multi-channel technology
- Look-ahead-function for optimal speed at the transitions



Figure 17

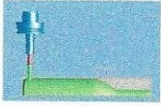


Figure 18

Power Control with PowerTouch (continued)

Software for External PC - Single Seat Licenses for the Following Programs:

Requires computer operating Windows 7 or 8

- **woodWOP 7** for powerful, yet simple generation of CNC-programs
- DXF-postprocessor Basic for the data exchange from 2D-CAD-programs to woodWOP
 - Import of 2D-DXF-files via pre-determined layering rules
 - Display of geometry, layer and drawing elements
 - Generation of woodWOP program files
- Schuler MDE Basic for machine data recording
- WoodNest Basic
 - Software for the Nesting of woodWOP program files
 - Manual positioning and turning of work pieces by drag and drop
 - Visualization of spacing between work pieces
- woodWOP MOSAIC
 - Software to view thumbnails of woodWOP files
 - Allows woodWOP data files and complete directories to be managed from a graphical point of view
 - Programs can be administered by drag and drop

Manuals and Control Texts

- Standard Manuals, CD, as well as .PDF versions stored on the machine containing operating and maintenance instructions
- Display texts for machine operators of the POWER CONTROL
- Spare parts descriptions consisting of CAD-drawings and wiring diagrams

Training

On site machine operation and troubleshooting instruction is administered by a Stiles Field Service Representative at the time the machine is installed. In addition, one seat in Stiles Education courses MC096 for training with **woodWOP** and CR096 for operating and programming is included with the machine. Completion of the courses is encouraged prior to machine installation. The courses are designed to provide Homag CNC Machining Center owners with the introductory information necessary to utilize the **woodWOP** software and operate the machine. Participants must have basic computer skills including the use of Microsoft Windows.

Stiles Education classes are conducted at Stiles Machinery locations. Customer is responsible for all travel and living expenses incurred during training. Training scholarships will expire one (1) year from machine delivery. To enroll your employees, please contact Stiles Education at (616) 698-7500.

Technical Specifications

hsk 63 router spindle power (constant from 9000 rpm to 18000 rpm)	10.0 kw/13.4 hp
router spindle speed	1,250 – 24,000 rpm
tool magazine capacity	7
pneumatic reference	2 fences and 2 pins
vacuum pump capacity	3 pumps w/ total capacity 324 m ³ /h
working length	2500 mm/98.4"
working width	1250 mm/49.2"
max l x w for automatic push off	2500 mm x 1245 mm
recommended panel weight for automatic push off	≤100 kg
maximum workpiece thickness	100 mm / 60 mm for auto unload
axis stroke/positioning speeds	2500 mm x 1245 mm
x-axis	3710 mm/146.1"
y-axis	1652 mm/65.0"
z-axis	245 mm/9.6"
x/y/z vector speed	96/96/25 m/min
approx. machine weight	6,175 lbs.

Utility Specifications

electrical	
operating voltage	480 volts / 3 phase / 60 hz
amperage service	50 amps @ 480 volts
control voltage	24 volt
total connected load	27.5 kw
dust extraction	
connection size(s)	(2) 200 mm, (1) 160 mm, (2) 140 mm
air velocity (minimum)	28 m/sec - 92 ft/sec
static pressure	minimum 2200 pascal
air volume	8,300 m³/h - 4,885 cfm
compressed air	
connection size(s)	r 1/2 inch
pressure required	100 psi - 7 bar
consumption volume	600/700 nl/min
ambient temperature	
operating range	35° c (max) - 95° f (max)
foundation requirement	
concrete thickness	200 mm (min.) - 8 inch (min.)

Voltage supplied must not fluctuate in excess of +/- 5% of its stated value. Voltage must be balanced phase-to-phase and phase-to-ground.

Note: The stated values are only applicable to the machine as specified. Adding or deleting optional equipment may change service connection requirements.

Price

Total price of above machine \$ _____

All prices quoted are F.O.B. Place of Inventory/Port of Entry

Price quoted includes installation and training

Price quoted excludes all state and local taxes