proposal

PREPARED FOR:

ATTENTION:

PROPOSAL:

PROPOSAL DATE:
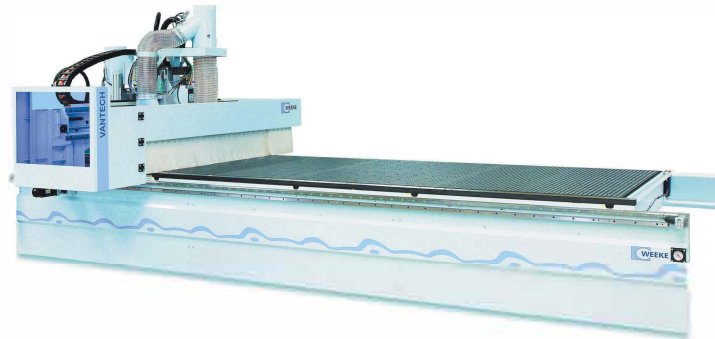
SALES
REPRESENTATIVE:

LIMZ MACHINERY GROUP

EQUIPMENT: **WEEKE CNC MACHINING CENTER - VANTECH 512 V7 PRO+ NBP 084**

CONDITION: **NEW**

Weeke CNC Machining Center

Vantech 512 V7 PRO+ NBP 084

The Weeke Vantech 512 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.

Weeke's reputation for quality remains unsurpassed, as noted by their ISO 9001 manufacturing certification and exceptional volume of machines in operation today. As such, Weeke 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. Weeke'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 512 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.

Figure 1

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.

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

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

Figure 3

- Digital drive technique in X, Y and Z direction featuring:
  - **Maintenance free motors with high resolution optical encodersensuring precision accuracy**
  - **Digital drive control units guarantee high reliability**

MATRIX Table 5′ x 12′

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: 3700 mm (12' / 145 Inches)
- Working table width: 1550 mm (5' / 61 Inches)
- Workpiece thickness: maximum 100 mm (3.94 Inches)
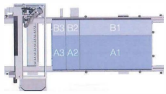 - **Includes rubber gasket material**

Figure 4

PRO+ Matrix Table – 10 Vacuum Fields

By dividing the matrix table into 6 zones, reading the raw material size of the incoming program and automatically concentrating vacuum pressure to the correct area of the machine, the PRO+ solution is perfectly suited to handle the raw material variance of today's multi-faceted manufacturers. The machine is able to automatically create 6 optimized vacuum zones: **4'x8', 4'x10', 4'x12', 5'x8', 5'x10' and 5'x12'.** The Vacuum fields that create zones A1, A2, and A3 can also be semi-automatically selected at the machine control.

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.

Vacuum System

Figure 5

- The machine design includes (4) four vacuum pumps with a total vacuum capacity of 356 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.

Vertical Router Spindle – Rated at 16.1 HP

Figure 6

- 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: 1,250 - 24,000 rpm stepless programmable
- Drive: frequency controlled to a maximum capacity at the tool: up to 7.5/9 kW (10/12 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. Customers who run 5' x 5' raw materials (Birch Plywood for example) also like the feature because they can run two sheets of raw material side by side in a single machine cycle.

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.

Figure 7

Automatic Tool Change

To increase flexibility and decrease cycle time, an automatic tool changer (ATC) is arranged near the left of the machine framework.

Features:

- Tool holder: HSK63
- Magazine places: 8 tool places
- Tool weight: maximum 5 kg (11.02 lbs.) including HSK cone
- Tool diameter: 135 mm max when equipped with 8 tools
- Tool change time: approximately 10 - 18 seconds
- Tool loading: via integrated pick-up place at the tool changer

Figure 8

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.
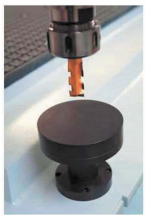

Figure 9

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.

Figure 10

7-Spindle Vertical Drill Block

- A vertical drilling block with seven (7) spindles is included.
- Special feature: Spindle clamping to achieve the drilling depth safely.
- Stroke Z-direction: 60 mm
- Drilling depth: maximum 38 mm (up to 55 mm for special borers)
- 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

Reference Pins

The machine carries a total of 11 reference pins. There are 6 pneumatically actuated aluminum workpiece stops mounted around the machine table for referencing full sheets. Two are located at the rear of the machine and one is located at the right rear right, two are located at the front and one at the front right of the machine. Five additional pins are also included for locating small parts with one located at the front left, and four at the front. Pins are automatically actuated and surveyed by the machine control to prevent the machine from running when the pins are not completely depressed.

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 11

Power Control PC85T

The Vantech 512 features a Microsoft Windows 7 based 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.

Hardware:

Figure 12

- 17" flat screen monitor, keyboard 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)

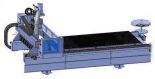**Machine Software Bundle:** (software pre-loaded on the machine PC)

Figure 13

Power Control PC85T (continued)

PC85T 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

PC85T 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 14

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
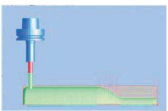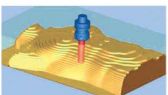 - Programs can be administered by drag and drop

Figure 15

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 University 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 Weeke 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 University 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 University at (616) 698-7500.

Technical Specifications

hsk 63 router spindle power (constant from 9000 rpm to 18000 rpm)	**9.0 kw/12.0 hp**
router spindle speed	**1,250 – 24,000 rpm**
tool magazine capacity	**8**
pneumatic reference pins	**11**
vacuum pump capacity	**4 pumps w/ total capacity 356 m³/h**
working length	**3700 mm/145"**
working width	**1550 mm/61"**
maximum workpiece thickness	**100 mm**
axis stroke/positioning speeds	
x-axis	**4890 mm/192.5″**
y-axis	**1952 mm/76.75″**
z-axis	**245 mm/9.6″**
x/y/z vector speed	**96/96/25 m/min**
approx. machine weight	**7,936 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)	200 mm (7 7/8") height – approx. 2230 mm (87 3/4")
air velocity (minimum)	28 m/sec - 92 ft/sec
static pressure	minimum 2200 pascal
air volume	3170 m^3/h – 1900 cfm
compressed air	
connection size(s)	r ½ 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.

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Figure 16

Figure 17

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Figure 1

Figure 2

Figure 3

Figure 4
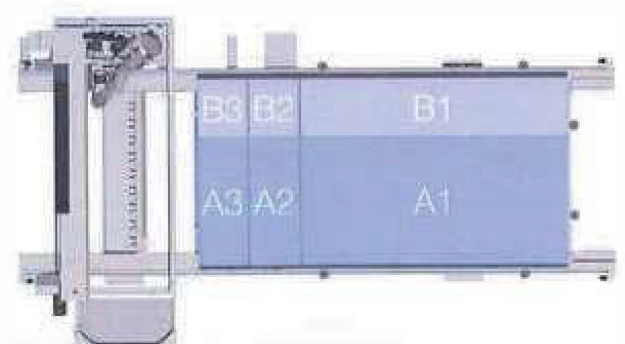
Figure 5

Figure 6

Figure 7

Figure 8

Figure 9

Figure 10
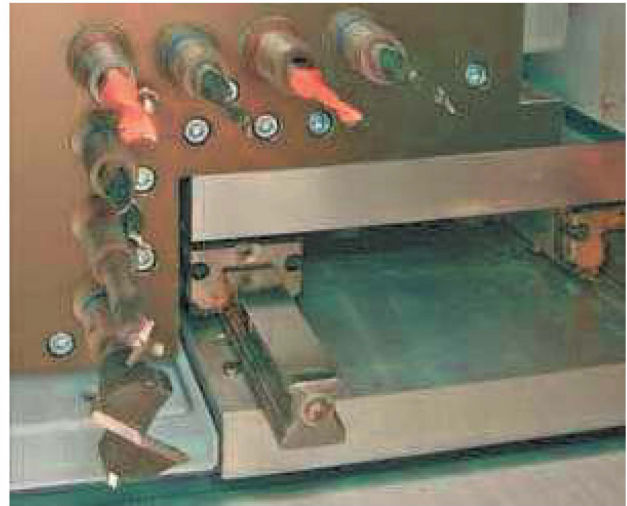
Figure 11

Figure 12

Figure 13

Figure 14
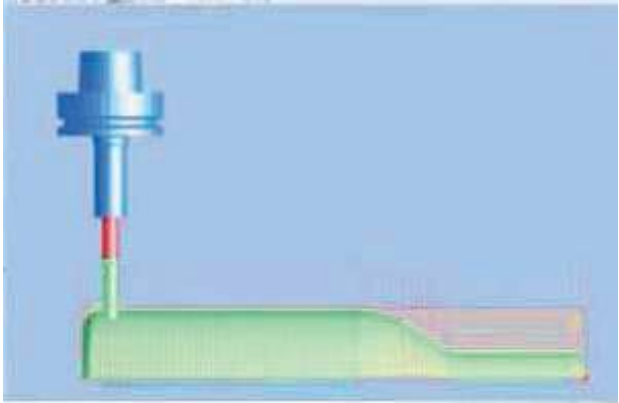
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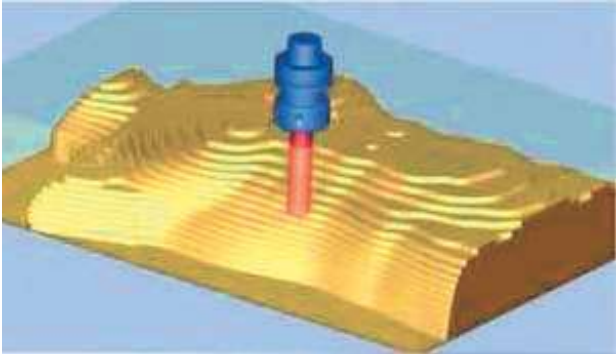
Figure 16

Figure 17

Figure 18