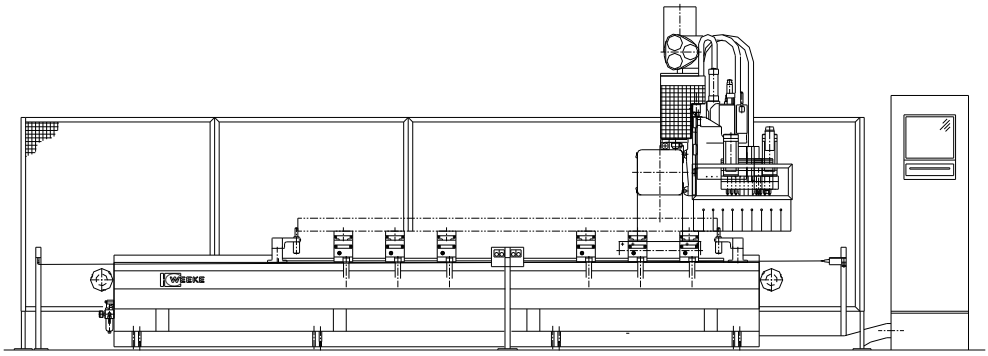
Weeke CNC Machining Center, Venture 1



Weeke's Venture 1 is a flexible CNC machining center designed primarily for routing, boring, and grooving of flat panel components without special workpiece fixtures.

The Weeke factory, located in Northern Germany, is uncompromising and maintains extremely high quality standards. They are an ISO 9001 certified machine tool builder. Weeke uses world class suppliers for critical items not made in house. Externally sourced components are sold and serviced on a worldwide basis and, of course, here in the U.S. Insistence on quality, coupled with the use of highly industrialized components, results in a very stable machining center--one that requires a minimum of inspection, preventive maintenance, or repair.

The Venture 1 is constructed on a steel frame, with heavy steel plates welded to the frame inside the base to insure stability. The design and substantial mass provide a solid, vibration-free platform for the machining head. The head rides on THK linear motion guides. In fact, the X-, Y-, and Z-axes are all supported on THK machine tool guides. THK guides were designed to produce extremely smooth positioning at high traverse rates. They have outstanding stability--both in the radial and side directions. The X-axis is driven by a zero-backlash, pre-loaded helically ground rack and pinion gear system. The Y- and Z-axes are driven by high precision ball screw.

Indramat solid state drives and digital AC servo motors are utilized to move the axes. Fiber-optic cables are used for communication between the drive system and the Beckhoff machine control.

The Venture 1 features a Windows based control with user-friendly WoodWOP 5.0 programming software. In addition to the programming software in the machine control, the WoodWOP program is included (on CD-ROM) for installation on other PC's. With a PC in the office, the machine can be programmed off-line using the same intuitive icon driven software the operator has in the machine's computer control.

Vertical Routing With Automatic Tool Changer (ATC)

A fan cooled 7.5 kW (10 HP) vertical router motor with an automatic tool changer (ATC) is located at the front of the spindle carriage. The spindle motor utilizes grease sealed ceramic bearings for higher performance and maximum bearing life. This spindle also uses the HSK63 standard for the taper in the spindle and the accompanying tool holders. The HSK63 design is the latest technology in tool holding systems and has been proven to be stiffer (less deflection) and much more accurate than conventional tapered shank designs, especially at high rpms. Additionally, the exceptional mass and rigidity of the machine's frame helps the router achieve a good surface finish with high feed rates and long tool life.

The router motor is equipped with a ride-along automatic tool/aggregate changer to perform tooling changes during program execution. This function can be a great advantage when different tool diameters and/or profiles are required to complete a given work piece. A magazine for four (4) tools rides along at the back of the spindle support beam and is protected against dust by a retracting door. The magazine accepts HSK tool holders with tapered shanks. HSK is available in left or right rotation (CW or CCW), with a complete selection of collet sizes in inch or metric increments.

Tool Change Assistant Device

Device for automatic feeding of the tool changer.

Vertical Boring with 18 High-Speed Spindles

The vertical-boring head is located at the back of the spindle carriage and has eighteen (18) spindles. Nine (9) spindles aligned in the X-axis are typically utilized for row hole boring. Nine (9) spindles aligned in the Y-axis are typically utilized for construction hole boring. These spindles are on 32-mm center distances.

The vertical spindles are designed with a mechanical locking feature, which adds rigidity and stability (accuracy) to the drilling process. The drill spindles utilize standard boring bits, 70 mm long, up to 25 mm in diameter, with 10-mm diameter smooth shanks. A 1.5 kW motor drives the vertical-boring gearbox. Spindle rpm is programmable between 1,500 to 7,500 rpm.

Horizontal Boring with Six Individually Selectable Spindles

The horizontal-boring block has two (2) spindles oriented to the right, and two (2) to the left (X-axis), on 32-mm centers. There are also two (2) spindles in the Y-axis. One (1) spindle is oriented to the front, and one (1) spindle to the back of the machine. Spindle rpm is programmable between 1,500 to 7,500 rpm. *Note: maximum horizontal boring depth is 45 mm.*

Grooving Saw

The X-Y axes 90 degree grooving saw is powered by the 2.7 kW, 60 Hz drill block motor. It is installed at the back of the machining head. 125-mm diameter saw blades are required for this unit. Spindle rpm is programmable between 1,500 to 7,500 rpm.

Frequency Inverter

A solid state frequency inverter manufactured by KEB is utilized to power the router. The inverter output is programmable through the control with usable rpm range from 1,200 to 24,000 rpm. The design of the motor and frequency inverter provides constant power output between 9,000 to 18,000 rpm. Spindle rotation, RH or LH, is programmable.

Panel Support Benches – Console Style

There are xix (6) panel support benches with a total of fourteen (14) vacuum pods. Ten (10) of the vacuum pods are 114 mm x 160 mm x 100 mm (height). Four (4) of the vacuum pods are 75 mm x 125 mm x 100 mm (height). The support benches have a control button conveniently located on the front to disengage the pneumatic brakes for the X-axis adjustment of the bench. With six (6) support benches, it is possible to load the machine with two (2) work pieces at a time.

Panel Feeding Rails

Panel feeding rails are supplied on four of the six support benches. The rails are attached to one side of benches 1, 3, 4, and 6 (can be moved to either side). The rails move upward to provide a smooth surface for loading and unloading. The rails retract downward to set the panels on the vacuum pods.

Laser Pin for Vacuum Cup Positioning

By means of a separate NC-program a laser beam indicates the exact vacuum cup position.

Bar Code Reader

Hand held scanner that reads all popular bar codes.
Note: a separate electrical line (110-volt) will need to be supplied for this device.

Pneumatically Adjustable Side Fence

On both the left and right hand working fields of the machine are located lowerable fences.

Vacuum Pump

A powerful vacuum pump with **100 M^3/hr** capacity has enough reserve suction for the most demanding jobs.

Dust Extraction Efficiency

Dust extraction efficiency is maximized by a central dust collection manifold, 200 mm in diameter, with individually controlled connections to the router, vertical boring block, and grooving saw. As each machining unit is activated, dust ports to other devices are automatically closed.

Perimeter Fence

A perimeter fence helps prevent accidental intrusion from the ends or back of the machine.

Safety Mats

Safety mats will assist in stopping the machine if the operator enters the working area while the machining head is in operation. The mats are divided into three (3) independent zones so you may load or unload parts at one end of the machine while the machine continues to work on the opposite end.

HSK 63 Tool Holders

Two (2) HSK 63 tool holders for use in the automatic tool changer router spindle comes with one standard size collet, 1/2"

Weeke MCC Control

The machine is equipped with the Weeke MCC Control system featuring a Beckhoff PLC. MCC is a continuous path control system with intuitive programming software. The Weeke control features a graphic operator interface with icons to simplify operation. Programming with Windows based WoodWOP software is with simple coordinates or by the entry of formulas to define the relationship between panel size and machining locations (parametric programming). Some of the features of the Weeke MCC Control include the following:

- Personal Computer for operator interface
- PC is a Windows based Pentium compatible machine
- 40.0 GB hard drive
- 512 MB of RAM
- floppy disk drive 3.5"
- CD ROM drive
- USB connection at the operating panel
- the PC is connected to a Beckhoff programmable logic control for high speed, accurate, and reliable control of all machine functions
- high resolution color graphics with 15" TFT color monitor
- full function industrial keyboard
- bar code reader interface and software included (scanning device is optional)
- Parallel interface for printer
- simultaneous three-axis linear control
- EtherNET interface for local area network (connection to office PCs)
- fully compatible and integrated with Holzma Cut-Rite Plus software
- report generation software included
- post processor for DXF file conversion is included
- RS-232 serial interface for simple PC connection

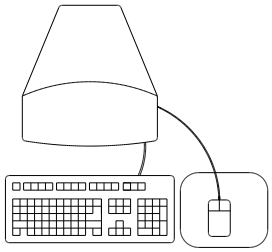
Hand Terminal

A hand terminal with potentiometer for feed speed control and emergency push button is available to run the machine.

Remote Diagnostics and Technical Support

The MCC control is equipped with the hardware and software required for remote diagnostics and technical support. This system includes an on-board PC modem and remote service manager software. With this configuration, Stiles technical support can connect to the IPC control from a remote location to assist with troubleshooting and machine problem or error diagnosis. This service is provided with the machine free of charge for a period of two years from date of installation of the machine. *Note: A dedicated phone line must be provided to the machine in order to use this feature. This is the customer's responsibility.*

Off-Line Programming



In addition to the WoodWOP programming software in the machine control, this same software is included (on CD ROM) for installation on other PC's. Using a PC in the office, the machine can be programmed off-line with the same intuitive icon driven WoodWOP software that the operator has within the machine control. The PC software has no copy protection. If you have a network, you may install the software on as many PCs as you like without buying additional copies of the software.

Simulation and Cycle Time Software

The simulation software allows for graphic review of the machining process once a part has been programmed in WoodWOP. Additionally, the software calculates machine cycle times required to produce the part, based on the machine parameters. One copy of the software is pre-loaded on the machine. Additional copies of the software are available as optional equipment.

Technical Specifications

Number of vertical drilling spindles	**18**
Vertical drilling spindle power	**1.5 kW/2 HP**
Vertical drilling spindle speed	**1,500 to 7,500 rpm**
Number of horizontal drilling spindles	**6**
Horizontal drilling spindle power	**2.7 kW/3.5 HP**
Horizontal drilling spindle speed	**1,500 to 7,500 rpm**
X-Y axes 90 degree grooving saw power	**2.7 kW/3.5 HP**
X-Y axes 90 degree saw rotation speed	**1,500 to 7,500 rpm**
Saw blade diameter required	**125 mm/4.9"**
ATC router spindle power (power constant from 9000 rpm to 18000 rpm)	**7.5 kW; 10 HP**
ATC router spindle speed	**1,200 to 24,000 rpm**
Tool magazine capacity	**4 tools**
HSK63 tool holders supplied	**4**
Collets for HSK63 tool holders	**4**
Number of panel support benches	**6**
Number of vacuum pods	**14**
Number of panel feeding rails	**4**
Vacuum pump capacity	**100 M^3/hr**
Length of machine	**5830 mm/19' 3"**
Width of machine	**3580 mm/12'**
Height of machine	**2300 mm/91"**
Working length	**3250 mm/128"**
Working width - support bench width	**1050 mm/41"**
Max. panel thickness	**100 mm/3.9"**
Machine weight	**4,200 kg/9,259 lbs.**
Max. drilling depth for through holes	**55 mm**
Axis stroke/positioning speed	
X-axis	**3860 mm/60 M/min**
Y-axis	**1523 mm/50 M/min**
Z 1 / Z 2-axis	**250/185 mm/15 M/min**

Start Up Tooling *

Three (3)	**5 mm RH brad point drills**
Three (3)	**5 mm LH brad point drills**
Five (5)	**8 mm RH brad point drills**
Five (5)	**8 mm LH brad point drills**
Two (2)	**HSK 63 RH tool holders (included in above count)**
One (1)	**25 mm collet (included in above count)**
One (1)	**10 mm collet (included in above count)**
One (1)	**125 mm grooving saw blade**

* These items are non-negotiable and non-returnable.

Utility Requirements

Electrical		
Operating Voltage	**208/480 Volts / 3 Phase / 60 Hz**	
Amperage Service	**63/35 Amps @ 208/480 Volts**	
Control Voltage	**24 Volt**	
Total Connected Load	**17.5 kW**	
Dust Extraction		
Connection Size(s)	**200 mm – height approximately 2000 mm**	
Air Velocity (minimum)	**28 m/sec**	**92 ft/sec**
Static Pressure	**Minimum 2000 Pacal**	
Air Volume	**3170 m^3/h**	**1900 cfm**
Compressed Air		
Connection Size(s)	**½ in**	
Pressure Required	**100 psi**	**7 bar**
Consumption / Volume	**100/200 l/min**	**10-15 cfm**
Ambient Temperature		
Operating Range	**35° C (max)**	**95° F (max)**
Foundation Requirement		
Concrete Thickness	**200 mm (min.)**	**8 in (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.