

Weeke CNC Machining Center

Venture 240L Showroom Machine MS#37990



Note: Venture 240M pictured for illustrative purposes only.

Basic Machine

- Solid machine frame in rigid moving gantry execution
- Gantry movable in X-direction
- Cross support movable in Y- and Z- directions
- Paint grey RDS 240 80 05
- Direct extraction at drilling block and routing spindle and separate connection for the extraction device (on site)

Guiding System and Drive Technique

- Dust protected linear guiding system
- Rack and pinion in X- and Y- directions and ball screw in Z-direction
- Travel range of the axes:
 - X = 5430 mm
 - Y = 2205 mm
 - Z1 = 420 mm
 - Z2 = 315 mm
- Axis speeds:
 - X/Y = 110 m/min (vector speed)
 - Z = 20 m/min



Figure 1

Guiding System and Drive Technique (continued)

- Maintenance free motors with high resolution optical encoders guarantee high accuracy
- Digital drive control units guarantee high reliability
- The X-linear guide blocks and the X-axis gear rack are automatically lubricated via controlled intervals
- The Y- and Z-axis components are manually lubricated; central lubrication points and automatic information display on the monitor assist maintenance

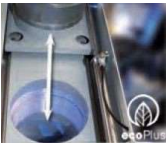


Figure 2

Program-Controlled Dust Extraction Connection

By means of program-controlled assignment, the main dust connection nozzle is assigned to the active processing unit. Thus, the main dust connection nozzle is always located straight above the active processing unit and guarantees optimum dust extraction performance.

Configuration – Working Units

One (1) 21-Spindle Vertical Drilling Block



Figure 3

- Includes quick change system and spindle clamping mechanism
- Vertical drilling aggregate (separately activated with variable high speed range)
- Spindle clamping to achieve the drilling depth safely
- Working capacity: refer to separate layout
- 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: 1,500 to 7,500 rpm with frequency controlled motor
- Drive: 2.3 kW



Figure 4

- Shaft diameter: $d = 10$ mm for quick change system
- Total length of drill: 70 mm
- Drilling diameter: maximum 35 mm (for some locations)
- Distance between spindles: 32 mm
- Type of spindle: individually selectable
- Arrangement: as per attached layout



Figure 5

Horizontal Boring Spindles (6X/4Y)

- Horizontal drilling spindles with 10 spindle outlets (6X/4Y) which can be activated separately via program
- Working capacity: refer to separate layout
- 6 spindles: pitch 32/64 mm; 3 in each X-direction (+X/-X)
- 4 spindles: pitch 32 mm; 2 in each Y-direction (+Y/-Y)
- Drilling depth: maximum 38 mm
- Drilling height Z-direction: 38 mm from upper workpiece edge
- Direction of rotation: right hand / left hand
- Speed: 1,500 to 7,500 rpm with frequency controlled motor
- Shaft diameter: 10 mm
- Total length of drill: 70 mm
- Drill diameter: maximum 20 mm
- Type of spindle: individually selectable

One (1) Grooving Saw (X/Y Swiveling – 90°)

- Grooving saw for processing in both the X- and Y-direction; i.e., 90° swiveling
- Working capacity: refer to separate layout
- Cutting depth: 30 mm
- Cross section: maximum 70 mm²
- Rotation speed: 1,500 to 7,500 rpm with frequency controlled motor
- Tool diameter: 125 mm
- Blade width: maximum 5 mm



Figure 6

One (1) Vertical Liquid-Cooled Router Motor – 12 kW

- Automatic tool change spindle in combination with a tool change magazine
- Working capacity: refer to separate layout
- Tool holder: HSK63
- Tool changing: automatic
- Direction of rotation: right hand / left hand
- Speed: 1,250 to 24,000 rpm stepless programmable
- Drive: frequency controlled AC-motor
- Maximum capacity at the tool: up to 9/12 kW (12/16 hp) in continuous and intermittent operation (S1/S6 - 50%)
- Spindle lubrication: permanent grease lubrication
- Cooling: liquid cooling system
- Dust extraction: central
- *Note: aggregates are not included, but are available as options*

One (1) C-Axis Aggregate Interface – 360° Interpolating

To connect aggregate attachments to the router spindle; includes pneumatic interface and infinitely variable swivel range of 360°

- C-axis interpolating range: 360°
- Torque support: for rigid 3-point support
- Gear: slanted toothed pinion gear

One (1) Additional C-Axis for the Flex5axis

Additional C-axis servo motor for adjustment of the tilting angle of Flex5axis units

One (1) Fourteen (14) Place Automatic Tool Change Carousel (Rear)

- Automatic tool change magazine for 14 places
- Arrangement: moving with the support in the X-axis direction
- Tool holder: HSK63
- Magazine places: 14 tool places
- Tool weight: maximum 6 kg including HSK tool holder
- Tool diameter: 130 mm maximum when equipped with 14 like-sized routing tools, d = 260 mm max. with empty places adjacent
- Tool change time: approximately 14 to 19 seconds

One (1) Fourteen (14) Place Automatic Tool Change Carousel (Right Side)

- Additional automatic tool change magazine for 14 places
- Arrangement: mounted laterally at the right-hand side of the machine frame
- Tool holder: HSK63
- Magazine places: 14 tool places
- Tool weight: maximum 6 kg including HSK tool holder
- Tool diameter: maximum 130 mm when equipped with 14 like-sized routing tools, maximum of d = 260 mm with empty places adjacent

One (1) Tool Change Pick-Up Device

Included will be a device for automatic feeding of the tool changer, for both standard HSK-63F tool holders and also for WFC 40-25 tool holders used by Flex5+ and Flex5axis aggregates.



Figure 7



Figure 8

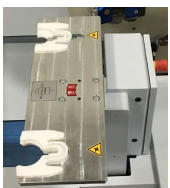


Figure 9



Figure 10

HP Flex5axis Sawing/Routing/Drilling Aggregate for ATC

Weeke Unit #1571 (1 of)

- High Performance (HP) processing aggregates from the Homag Group aggregate range guarantees the highest quality and operating life
- High Performance stands for high efficiency aggregates with technically optimized lubrication of the drilling block parts
- The patented Flex5axis aggregate was developed for high-grade flexibility for saw cuts, as well as drilling and routing processes in diverse angles
- The required angle automatically sets itself during the aggregate close-down phase via the C-axis
- Interpolating processing, e.g., routing 3D shaped parts, is not possible
- An integrated tool-changing interface enables the automatic changing of the processing tools from the tool changer
- Technical data:
 - Spindle exit: 1-sided
 - Tool changing interface: WFC 40-25
 - Swiveling range for routing: 0° to +100°
 - Router chuck: for tool holder WFC 40-25 with collets up to 16 mm dia.
 - Router tool length projection: 145 mm maximum (for cam box processing under 90°)
 - Router tool diameter: 20 mm maximum
 - Cutting cross-section: 130 mm² maximum on chipboard or 100 mm² maximum on solid wood at a 5 meter/min. feed rate
 - Swiveling range for drilling: 0° to +100°
 - Drill chuck: for tool holder WFC 40-25 with collets up to 16 mm dia.
 - Drill length projection: 50 mm maximum (0° to 80°), and 78 mm maximum (80° to 100°)
 - drill diameter: 10 mm maximum
 - swiveling range for sawing: 0° to +90°
 - Saw chuck: for tool holder WFC 40-25 with flange dia. of 40 mm, with eight (8) countersunk M5 screws on a 52 mm dia. (ref.) bolt circle; RH rotation
 - Saw blade size: 240 mm maximum diameter x 6 mm (5 mm body)
 - Vertical cutting depth: 70 mm max. (for workpiece thickness up to 125 mm)
 - Cutting cross-section: 120 mm² maximum on chipboard or 70 mm² maximum on solid wood at a 10 meter/min. feed rate
 - Speed: 15,000 rpm maximum
 - Delivered tools: (1) tool holder WFC 40-25 with flange for saw, (8) M5 countersunk head screws, & (1) tool holder WFC 40-25 with 10 mm collet
 - Includes (3) WFC 40-25 tool chuck adapters for the rear automatic tool changer (for positions #9, #11, and #13 only)

HP Flex5axis Sawing/Routing/Drilling Aggregate for ATC (continued)

- Note: processing tools are not included
- Tooling and processing parameters for this aggregate per the technical data sheet
- Only available for use in a router spindle equipped with an interpolating C-axis (#1068) and the additional C-axis for the Flex5axis aggregate
- Note: the maximum processed workpiece thickness which can be processed depends on the tool length or respective saw blade diameter being used



Figure 11

One (1) Console Table with Diode Light Band (LED) Positioning System

- Tubeless vacuum clamping system for clamping of panel materials
- Positioning of workpiece supports via dust-protected high quality guide ways
- The pneumatic clamping of the workpiece support is activated by push-button; the vacuum pods will be clamped by vacuum
- Divided vacuum system in two zones (A & B); activation via two separate foot switches
- Working field:
 - X = 4500 mm (Maximum length)
 - Y = 1400 mm (Approx. length of console)
 - Y = 1600 mm (Maximum routing width and workpiece passage)
 - Z = 125 mm (Maximum thickness)
- The maximum workpiece thickness which can be processed depends on the length of the tool which is used
- Eight (8) workpiece consoles (1400 mm) which can be infinitely adjusted in X-direction, suitable for the tubeless manually-positionable vacuum pods



Figure 12

- Six (6) pneumatically-lowerable longitudinal rear stop cylinders, includes electronic surveillance of lower cylinder position
- Eight (8) pneumatically-lowerable longitudinal front stop cylinders, includes electronic surveillance of lower cylinder position
- One (1) pneumatically lowerable side stop system 'Pure Stop' (#0818) for the working area on the right, includes electronic surveillance of lower cylinder position
- One (1) pneumatically lowerable side stop system 'Pure Stop' (#0818) for the working area on the left, includes electronic surveillance of lower cylinder position
- Four (4) tilting stops which can be fitted manually, for surface material overhang for the stop cylinders



Figure 13

Console Table with Diode Light Band (LED) Positioning System (continued)

- Four (4) tilting stops which can be fitted manually, 2 for the left hand stop fence and 2 for the right hand stop fence
- Six (6) controlled panel feeding rails of HPL for easy positioning of heavy workpieces, located on consoles 1, 3, 4, 5, 6, and 8
- Sixteen (16) vacuum pods, tubeless manually-positionable 114x160x100 mm (L/W/H)
- Eight (8) vacuum pods, tubeless manually-positionable 125x75x100 mm (L/W/H)
- One (1) vacuum connection for connection of templates for the right hand and left hand working field

Two (2) Vacuum Pumps: with Total Capacity of 168 M³/hr @ 60 Hz

Includes two (2) vacuum pumps with a capacity of 84 M³/hr @ 60 Hz each



Figure 14

Diode Light Band (LED) Positioning System

- LED grid of 5 mm shows the programmed X- and Y-positions of the workpiece console and the clamping elements
- 1 diode light band for positioning of the workpiece supports in X-direction
- 8 diode light bands for positioning of the clamping elements in Y-direction



Figure 15

Chip Conveyor

Weeke Units #1810 & #1820 (1 of each)

A chip / scrap conveyor will be integrated into the machine frame; out-feed direction to the **right-hand side**. For disposing of the chips and waste parts, a container or dust extraction connection must be provided by the customer.



Figure 16

powerControl with powerTouch

- Operating panel with full HD Multitouch Display in widescreen format
- Standardized Homag Group operating surface – powerTouch
- Ergonomic touch operating with gestures such as zooming, scrolling, and swiping
- Simple navigation for standardized and intuitive operation of the machine
- Intelligent display of readiness of production by light function
- Machine data capturing MMR Basic for maintenance depending on need and for the representation of important operating figures (e.g., number of pieces, production time, etc.)
- Optionally expandable to MMR Professional for optimization of production by capturing and evaluation of the downtimes of the machine as well as the reasons for disturbances
- Operating system: Windows 7 Professional (English)



Figure 17

powerControl with powerTouch (continued)

powerControl PC86 Hardware:

- PLC control according to international standard IEC 61131
- 21.5" full HD Multitouch Display with 16:9 wide screen
- EtherNet connection 10/100 MBIT RJ45 (without switch)
- Central USB connection at the operating panel
- Provision TeleserviceNet Soft capability – feasibility of remote diagnostics via the internet through a customer-provided DSL connection within the guarantee period; after the guarantee period, a corresponding teleservice contract has to be signed for the use of the teleservice
- UPS (uninterruptable power supply) for the PC
- potentiometer and emergency stop switch



Figure 18

powerControl PC86 Software

- powerControl CNC-core with:
 - Path control in all axis and parallel sequences by multi-channel technology
 - Look-ahead-function for optimal speed at the transitions
 - Dynamic pre-control for top precise accuracy of the contour
- powerControl software package with graphical operating programs:
 - woodWOP 7: for graphical, dialogue-oriented generation of CNC-programs
 - Tool Database: with graphical operator guide to manage tool data
 - Production List Software: for management and creation of product lists for individual manufacturing; hereby production sequences, target amounts, and processing information can be stored
 - Machine Data Recording: for recording of produced work piece quantities and supervision of the maintenance work
 - Software Function Moving: function to manufacture a right-hand program at the left-hand workpiece stop and a left-hand program at the right-hand workpiece stop
 - Software Function Optimization of Space Occupation: in this mode, processes are optimized in order to save tool changes (in case the processing sequence of the individual programs allow it); workpiece programs can be combined over the entire table or per each table half; note: optimization of space occupation is not possible in production list operation and/or in the case of programs with programmed 'NC stop function'



Figure 19

Barcode Software (woodScan)

Weeke Unit #6625 (1 of)

- 'woodScan' for preparing the control for automatically taking over a 1D or 2D barcode from the barcode reader (optional)
- The connection of the barcode reader with the control is effected via a separate interface
- Simple allocation of the barcode information to the machine control
- Range of functions:
 - Up to two (2) different barcodes per part can be read
 - Transfer of up to ten variables, which positions must be defined clearly in the barcode
 - Transfer of location or mode information, by choice as a second barcode or as the last character in the barcode
 - Transfer of program names in a production list with transfer of a set-point which position must be defined clearly in a barcode
 - Import of a production list
- Customer-specific requirements can optionally be realized after clarification and upon additional expense (Unit #6298)

woodWOP CAM Plug-In Basic for the Machine (Single Place License)

Weeke Unit #6814 (1 of)

This software module includes the following functions:

- Import of 3D CAD data in the following formats: DXF, STEP (AP 214, AP 203), IGES (up to version 5.3), and STL
- CAD Plug-In for the generation of 3D surfaces, e.g., through cross-sections, limitations, rotation, or extrusion
- Texts: alignment along a guide curve, as well as single line fonts
- Automatic generation of routing contours by means of the surfaces and the geometries of the tool used
- The following CAM Macros are available for the surface processing:
 - 3D roughing with recognition of residual material
 - 3D smoothing with different routing strategies
 - 3D circumference routing, based on surfaces and curves
 - Routing and projecting 3D curves
 - Routing of pockets with recognition of residual material
- Output of routing paths only for vertical processing (3-axis processing)
- For safe handling with CAM Plug-In, a training course is recommended (Unit #8722 or #8724, which are available optionally)
- Note: woodWOP programs with CAM Macros cannot be mirrored, multiply occupied, or nested
- License is only valid for the machine; further workplace licenses are also available optionally



Figure 20

Software Package for External (Office) PC – Single-User License

- woodWOP 7: for graphical, dialogue-oriented generation of CNC programs
- woodWOP DXF Basic: exchange from 2D CAD programs to woodWOP
 - Import of 2D DXF files
 - Conversion is effected according to fixed profiles (rules)
 - Display of geometry, layer, and drawing elements
 - Generation of the woodWOP program

Note: the installation of the software onto the Office PC and the integration of the machine into the customer network will be carried out by the customer; this can be contracted optionally from Homag or Stiles Machinery at an additional expense to the customer.

Copy protection of all software licenses via the Homag Group license server. The product must be activated by contacting Stiles Technical Support by phone at 616-698-6615 following the installation.

Software Package Basic for External PC (Single User License):

Weeke Unit #6775 (1 of)

- woodAssembler & woodVisio (Weeke Unit #6012)
 - woodAssembler is a program for visualizing woodWOP programs (MPR) in 3D
 - It enables the assembly of individual workpieces to finished objects
 - It includes import interface for objects from Blum Dynalog
 - woodVisio visualizes objects generated in woodAssembler or Blum Dynalog with surface materials
 - The objects are displayed in a free-standing position
 - An expandable library with surface materials is provided
 - Note: woodWOP programs must be stored in or converted to MPR format, as the new MPRX file format is not supported
- woodNest Basic (Weeke Unit #6692)
 - Software for the nesting of woodWOP programs
 - Manual positioning and turning of pieces with the mouse by drag and drop
 - Optical (manual) visualization of spacing between the workpieces
 - Note: woodWOP programs must be stored in or converted to MPR format, as the new MPRX file format is not supported
- 3D CNC-Simulation (Weeke Unit #6001)
 - This license can be used either on the machine or on an office PC
 - For graphical simulation of a CNC program in 3D
 - Time calculation with an accuracy of $\pm 10\%$
 - Display of error messages
 - display and checking of the vacuum pod positions
 - Collision check of tools with the workpiece or clamping elements

Software package can only be operated with Windows® 7 or 8.

Software Package Basic for External PC (continued)

Notes:

- The license server is installed on only one computer (virtual servers and terminal servers are not supported)
- On a machine computer, only single place licenses can be run
- On the Office PC, all software products are protected either by single place or floating licenses; it is technically not possible to install different type licenses

Note: the installation of the software on an Office PC and the integration of the machine into the customer’s network will be the responsibility of the customer. This can be optionally supported by Stiles’/Weeke’s software support at an additional expense to the customer.

The product must be activated by contacting Stiles Technical Support by phone at 616-698-6615 following the installation.

Operating Manuals: English

Weeke Unit #8322 (1 of)

Scope of delivery (to be delivered with the machine):

- Operating manuals in English – consisting of operating and maintenance instructions on DIN A4 paper and digital data media
- Spare parts descriptions and wiring diagrams in English on digital data media
- Help texts in English integrated in the machine control
- Operating system dialog in English

woodWOP CAM Plug-In Basic for Office PC (Single-Place License)

Weeke Unit #6815 (1 of)

This software module transforms woodWOP into a CAD/CAM system which enables interpolating processing of 3D surfaces with 3-axis; it is directly integrated into the woodWOP operating surface, and includes the following functions:

- Import of 3D CAD data in the following formats: DXF, STEP (AP 214, AP 203), IGES (up to version 5.3)
- CAD Plug-In for the generation of 3D surfaces, e.g., through cross-sections, limitations, rotation, or extrusion
- Texts: alignment along a guide curve, as well as single line fonts
- Automatic generation of tool paths by means of the surfaces and the geometries of the tool used
- The following CAM Macros are available for the surface processing:
 - 3D roughing with recognition of residual material
 - 3D smoothing with different routing strategies
 - Routing and projecting 3D curves
 - Routing of pockets with recognition of residual material

woodWOP CAM Plug-In Basic for Office PC (continued)

- Output of routing paths only for vertical processing (3-axis processing)
- For safe handling with CAM Plug-In, a training course is recommended (Unit #8722 or #8724, which are available optionally)
- Only available in connection with woodWOP CAM Plug-In Basic for the Machine (Unit #6814) and woodWOP 7
- Note: woodWOP programs with CAM Macros cannot be mirrored, multiply occupied, and nested
- Note: single place licenses are connected to a specific computer; the quantity of the purchased licenses determines on how many computers the software can be used
- Note: the license server is installed on one computer (terminal servers are not supported)
- Note: the installation of the software for the process planning workplace and the integration of the machine into the customer network will be the responsibility of the customer; for an additional expense, support can be provided by Weeke/Stiles software support
- The product must be activated by contacting Stiles Technical Support by phone at 616-698-6615 following the installation

woodWOP CAD/CAM Interface Standard

Weeke Unit #6661 (1 of)

- Software module (universal macro) **required** for data take-over of processing paths as NC code from one of the following CAD/CAM systems: AlphaCAM, Compass staircase software, TopSolid WoodCAM (Missler), Wagemeyer, or CAM MAX (imos)
- When using any other CAD/CAM software package, the interface must be newly developed and tested (Weeke Unit #6662 is then required)
- The data must be issued by the CAD/CAM system in the Weeke format; documentation should be requested by the customer from the software company
- For this, a corresponding postprocessor from the software house must be purchased by the customer and installed in the CAD/CAM system
- The software house is responsible for the functional scope of the CAD/CAM software, the postprocessor, and the quality of the data
- Set-up of the CAD/CAM software is effected at the customer's facility after acceptance of the machine
- If a Weeke technician is necessary for set-up of the CAD/CAM software, this will be invoiced for time and expenses at the normal Weeke service rates
- If the set-up of the CAD/CAM software at Weeke is necessary, or when customer-specific tools shall be created, separate costs occur; these must be quoted separately after consultation

Off-Line Programming Training

Two seats in the Stiles University courses MC086 for programming training in the WoodWOP software and CR086 for operating training are included with the machine. The courses are designed to provide Weeke CNC Machining Center owners with the introductory information necessary to utilize WoodWOP software and operate the machine. Participants must have basic computer skills including use of Windows "operating systems".

Stiles University classes are conducted at Stiles Machinery locations. The 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.

Transformer for Customer's Supply Voltage

Weeke Unit #6570 (1 of)

- Facilitates connection to machine from customer's electrical source for three-phase voltage of 208 V, 230/240 V, or 460/480 V

Electric Components According to UL Standards

Weeke Unit #6559 (1 of)

Electric Equipment

- Separate switch cabinet for positioning on the right or left side in front of the processing table (standard is on the right)
- Operation terminal is integrated in the switch cabinet
- Permissible environmental temperature is 50°F to 104°F (10°C to 40°C); if temperature will exceed the 104°F maximum, an optional air conditioner for the switch cabinet must be purchased by the customer

Weeke Quality Package

- Energy guiding chains (cable trail) in X-, Y-, and Z-direction are supplied in closed execution to prevent cable damage caused by residual pieces, chips, etc.
- Linear guides in X- and Y-direction are covered with a steel band in order to prevent dirt intrusion



Figure 21

CE-Security and Safety Units

- Ride-along partial encapsulation for the processing units offers optimum operating safety and process control
- Safety barriers at the rear, left, and right hand side
- The front safety mat is divided into 3 areas for feeding of workpieces in the area which is not active
- Attention: it is not allowed to run the machine without all-around safety barriers
- EC conformity (EC) according to the currently valid Machinery Directive for individual machines in operation



Figure 22

Energy Saving Mode

- Includes the EcoPlus button for starting stand-by operation
- The EcoPlus button can be activated during processing
- This will have the following impacts after the end of the program:
 - Primary power of drives will be switched off
 - Vacuum pumps will be switched off
 - When machine is not processing, stand-by operation will be activated after a pre-set time
 - Activation of EcoPlus sets a potential-free output which can activate the slide (supplied by the customer) of an external extraction device



Figure 23

Tool Box "Starter Kit" for Venture

Weeke Unit #9950 (1 of)

- Dowel Hole Drills:
 - Three (3) RH dowel-hole drills for quick-change system HW d = 5 mm
 - Three (3) LH dowel-hole drills for quick-change system HW d = 5 mm
 - Five (5) RH dowel-hole drills for quick-change system HW d = 8 mm
 - Five (5) LH dowel-hole drills for quick-change system HW d = 8 mm
- Tool Chucks:
 - Two (2) HSK-63F collet chucks, with one (1) 10 mm collet and one (1) 25 mm collet
 - One (1) HSK-63F collet chuck with one (1) 16 mm collet, measured and mounted with one (1) spiral rough-cut router bit
HW/D16/NL55/S16/GL110/Z3/RE
 - One (1) HSK-63F collet chuck with one (1) 16 mm collet, measured and mounted with one (1) spiral finish-cut router bit
HW/D16/NL55/S16/GL110/Z3/RE
 - One (1) HSK-63F shrink-fit tool holder "Thermo Grip", measured and mounted with one (1) replaceable insert cutter
HW/D18/NL50/S25x60/L125/RE
- Grooving Saw Blade:
 - 125 mm diameter
 - Flat tooth grooving saw blade d = 125 mm / W = 3.2 mm

Utility Specifications

electrical		
operating voltage	3 phase 460/480 volt, ±5%	
frequency	60 hz	
total connected load	28 kw	
nominal amperage	44 amps @ 460/480 volts	
amperage service	60 amps @ 460/480 volts (pre-fuse protection)	
dust extraction		
connection size(s)	1 @ 200 mm dia. (height approx. 2130 mm)	
air velocity (minimum)	minimum 28 m/sec	92 ft/sec
static pressure	minimum 2000 pa	
air volume	minimum 3170 m³/h	1865 cfm
compressed air (quality according to iso 8573-1, quality class 4 in case of water content; quality class 3 in case of total oil content & solid impurities)		
connection size(s)	r 1/2"	
pressure required	7 bar	102 psi
compressed air consumption	ca 100 - 200 nl/min	(3.5 - 7.1 cfm)*
ambient temperature		
operating range	10° - 40° c (min/max)	50° - 104° f (min/max)
foundation		
surface pressure in the area of the points of support: 1.20 n/mm²		
thickness of concrete minimum 200 mm (7.9")		
concrete quality c25/30 xc1 capable of bearing pressure and tension		
the foundation has to be at ground level		

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.