
Machine construction

Overall dimensions: approx. 4000 x 2000 x 1800 mm
Dimensions inside the frame: approx. 2880 x 1280 mm

- The upmarket Columbus machines are the result of decades long, market driven research and development. They were created by and for practitioners and perfected together with operators and manufacturers of materials.
- The massive welded steel construction is 100 % torsionally rigid and resistant against bending, even when processing big work pieces. The results are longevity and production safety in any situation.
- The ergonomic and smooth-running operation ensures an absolutely body-friendly working method even during fast production processes, what minimizes downtime and ensures fatigue-free working.

Membrane

Natural rubber membrane

Material: natural rubber NR
Dimensions: 3100 x 1500 x 2 mm
Heat resistance: up to + 130 °C
Elongation at tear: 600 %
Material hardness: 40 Shore-A
Colour: grey

Silicone membrane economy

Material: silicone
Dimensions: 3100 x 1500 x 2 mm
Heat resistance: up to + 230 °C
Elongation at tear: 700 %
Material hardness: 40 Shore-A
Colour: white/transparent

Silicone membrane high-performance

Material: silicone
Dimensions: 3100 x 1500 x 2 mm
Heat resistance: up to + 230 °C
Elongation at tear: 700 %
Material hardness: 40 Shore-A
Colour: transparent

- Columbus membranes are extremely heat resistant and very resilient against abrasion, this minimizes expenses on wearing parts.
- They have extraordinary elasticity and rebound capabilities and guarantee best pressing results for a long time.
- Depending on the required heat resistance and mechanical load, Columbus membranes are available in different material types and quality categories (natural rubber, silicone economy, silicone high-performance). Thus, there is always the ideal equipment at the best price for every application.

Membrane fast-change system

Every membrane is suitable
Incl. fixing bolts and profiles

- With the unique Columbus membrane fast-change system, a membrane change can be carried out in less than 10 minutes, what optimizes production processes and significantly shortens production times.
- The sturdy steel frame guarantees a vacuum-tight membrane attachment and thus ensures the best press results and production safety.

Phenolic resin working surface

Material: phenolic resin laminated plywood
Heat resistance: up to + 160 °C
Suction points: up to 70

- The Columbus working surfaces consist of a very heat-resistant and robust phenolic resin laminated plywood. These guarantee longevity even with the toughest use.
- The integrated air suction channels in the working surface, with up to 70 suction points, facilitate full ventilation and evacuation. With this system, maloperation by incorrect placed work pieces is impossible, what minimizes reject rates. Furthermore, the air suction speed increases through that and an evenly spread pressure is guaranteed.

Aluminium working surface

Material: fine grinded engineering aluminium
extreme abrasion resistance
Heat resistance: permanent up to + 250 °C
Suction outlets: 3

- For high-temperature pressing and thermoforming, Columbus offers a permanent heat-resistant and fine grinded aluminium working surface.
- The possibility of using more process heat in combination with vacuum results in an even greater variety of applications, whereby the own product range can be expanded enormously.

Vacuum pump

- The high-performance vacuum pumps from Columbus are 100 % oil-

25 m³ high-performance vacuum pump

Type: dry running rotary vane pump
Air suction speed: 25 m³/h
Pressure: up to 9 t/m²

40 m³ high-performance vacuum pump

Type: dry running rotary vane pump
Air suction speed: 40 m³/h
Pressure: up to 9 t/m²

80 m³ high-performance vacuum pump

Type: dry running rotary vane pump
Air suction speed 80 m³/h
Pressure: up to 9 t/m²

free. While conventional oil-lubricated vacuum pumps spread their lubricating oil throughout the entire room as a harmful and surface-contaminating oil mist, Columbus dry-running rotary vane pumps ensure clean and safe production facilities for people, materials and environment.

- Depending on the requirements and the size of the machine, Columbus offers a variety of high-performance vacuum pumps with different Air suction speed. Thus, there is always the ideal equipment at the best price for every demand.
- High-performance vacuum pumps from Columbus are maintenance-free. This means no expense for servicing - neither time nor cost.

Control unit

Control cabinet for controlling the vacuum pump, the heating drawer and the industrial heating hood

Siemens touch panel: fully automatic process control

Combination program for specific heating processes:

- 10 process steps and variable setting of the parameters temperature, time, opening/closing of the heating hood for cooling,
- saving of 99 process programs

Centrally located vacuum control lever for a manual override during the pressing process.

Pressure monitoring: analog

Temperature control: digital

Heating time control: digital

- The vacuum pump, the heating drawer and the industrial heating hood are controlled via a separate mobile control cabinet
- The control cabinet is equipped with a state-of-the-art Siemens touch panel. This highly modern control and monitoring element provides fully automatic process control. The automation of the production process saves time, optimizes the production process and delivers profitable results due to a high-precision operation.
- The generation and reduction of the vacuum can also be controlled manually on a cross-process basis using the vacuum control lever, which is placed centrally on the machine.
- The combination program for specific heating processes enables the saving of 99 individual process programs. This guarantees an efficient production.
- The vacuum pressure is monitored via a precise analogue vacuum pressure gauge in bar relative.
- The temperature and heating time control of the heating drawer are digital.
- Thanks to the central and clear provision of all control and monitoring elements, the production process can be extremely speeded up and optimally monitored.

Vacuum pressure control

Mechanical vacuum pressure regulator

Control range of vacuum pressure: 200 - 900 mbar rel.

Digital FESTO vacuum pressure control

Control range of vacuum pressure: precisely 20 - 900 mbar rel. (variable) incl. 200 l vacuum tank

- With a vacuum pressure control, the vacuum pressure of the vacuum press can be adjusted variably. Since the processing of certain materials (e.g. very soft materials) requires an adapted vacuum pressure, new, profitable application possibilities are opened up with a vacuum pressure control.
- The vacuum pressure can be controlled with either a mechanical regulator, or a digital controller.
- The digital vacuum pressure control is available in combination with a 200 l vacuum tank, which enables an extremely fast vacuum generation. Due to the faster vacuum generation, materials and adhesives can be processed with very short process times.

Vertical opening mechanism

Type: pneumatic

Pneumatic cylinder: 8 pcs.

two-hand safety operation

Overall dimensions: approx. 4000 x 2000 x 1800/2400 mm

Stroke: approx. 650 mm

- The vertical, pneumatic opening mechanism guarantees precise pressing of different shapes and geometries, since the vertical travel does not cause any shifting of the layers and the base stencil. This level of precision reduces reject rates to zero.
- The possibility of a 4-sided operation of the vacuum press ensures an uncomplicated and fast workflow and increases productivity.
- The reliable, oil-free pneumatic cylinders protect work pieces and the production facility against oil contamination.
- The built-in two-hand safety operation guarantees maximum safety.

Heating drawer

Usable area: approx. 2600 x 1200 mm

- With the heating drawer, all thermoplastics, solid surface materials and composite materials can be heated temperature-accurately, to form them afterwards in the vacuum press. This application offers

Material thickness: 0 - 70 mm
Heating power of the CHS heating system: 16 kW | 400 V | 50/60 Hz
Circulating hot air fans: 2 pcs.
Electronic temperature control: up to + 230 °C
Pull-out working surface with grating: 30 x 30 mm grid

- magnificent opportunities for expanding the product range and opening up new markets with inexhaustible revenue potential.
- The built-in CHS heating system ensures very efficient heating performance and guarantees an extremely fast heating process that enormously speeds up the entire production process.
 - The high-performance circulating hot air fans distribute the hot air evenly throughout the entire heating drawer and thus ensure an exact temperature distribution on the workpiece. This guarantees best results during the pressing process and prevents rejects caused by uneven heating.
 - The sturdy and extremely heat-resistant construction guarantees longevity and production safety even under high influence of heat.
 - The electronic temperature control allows variable temperature adjustment up to + 230 °C and allows precise monitoring during the entire heating process.
 - The non-corrosive, pull-out working surface with grating has a grid of 30 x 30 mm and is very easy to operate. It is so massively constructed that even heavier materials, which would twist conventional heating drawers, can be inserted without any difficulties.

Perforated stainless steel sheet

Overall dimensions: approx. 2000 x 1000 x 2 mm
Perforation: 5 mm

- The working surface of the heating drawer offers a 30 x 30 mm grid in the standard version. The optional insertable perforated stainless steel sheet provides a flat, smooth surface on which sensitive materials (such as transparent plastic) can be heated.
- Due to the perforation, the heat distribution is not affected by the perforated stainless steel sheet and the heating results are just as perfect as with the working surface of the standard version.

Industrial heating hood

Material: aluminium with heat insulation
Heating power of the CHS heating system: 13.5 kW | 32 amps. | 50/60 Hz
Circulating hot air fans: 3 pcs.
Temperature control: electronic up to + 210 °C (variable)

- The industrial heating hood not only makes thermoforming and 3D foil laminating possible, but also transfers them into highly efficient and highly profitable applications. This offers great opportunities for expanding the product range and opening up new markets with corresponding sales potentials.
- The industrial heating hood also allows to optimize many other production processes and to shorten cycle times.
- The built-in CHS heating system ensures a very efficient heating power and offers, even with complicated shapes, perfect foil laminating and thermoforming results. As a result, the highest quality workpieces can be manufactured, which will be admired by customers.
- Powerful Circulating hot air fans distribute the hot air evenly throughout the entire heating hood and thus ensure an exact temperature distribution on the workpiece. The permanent hot air stream also heats the material during molding, preventing freezing during the thermoforming process. This guarantees perfect results and minimal reject rates.
- Due to the economical construction, the entire area of the working surface can be used. This means that even large workpieces can be optimally processed.
- The variably adjustable, electronic temperature control allows precise heat treatment and ensures optimal monitoring of the entire heating process.

Deep drawing frame

Outer dimensions: 2880 x 1150 mm, adjustable in a 200 mm grid
Subframes (included): 650/1270/2880 x 1150 mm
Fixture with star knobs

- The deep drawing frame (in combination with the vertical opening mechanism) introduces a whole new application area: thermoforming of plastics.
- With the deep drawing frame, thermoforming becomes a highly efficient application which offers many possibilities to extend the product range and explore new markets with inexhaustible sales potentials.

- The forming window can be adjusted to the particular material, which makes processing of complicated shapes and problematic plastics in high quality very easy.
 - Due to three included subframes, the material can be processed very precisely in different sizes what minimizes waste. This reduces the cost of expensive materials considerably.
 - The set-up time of the deep drawing frame is very short and speeds the overall production process up.
 - The deep drawing frame can be used as well for 3D foil laminating of higher parts and provides a well-rounded package of profitable applications.
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