Pressing

füller
GLASTECHNOLOGIE

Roundtable Press

APPLICATION

The pressing manufacturing mode is designed to produce glass items with décor and items with a wide range of simple and complex shapes. The pressing system may be combined with gob feeding and continuous casting (in combination with the movement of the roundtable and the height-adjustable frame). It is also compatible with every mould system available (block mould, basket mould, hinge mould).

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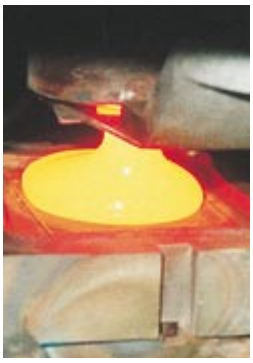
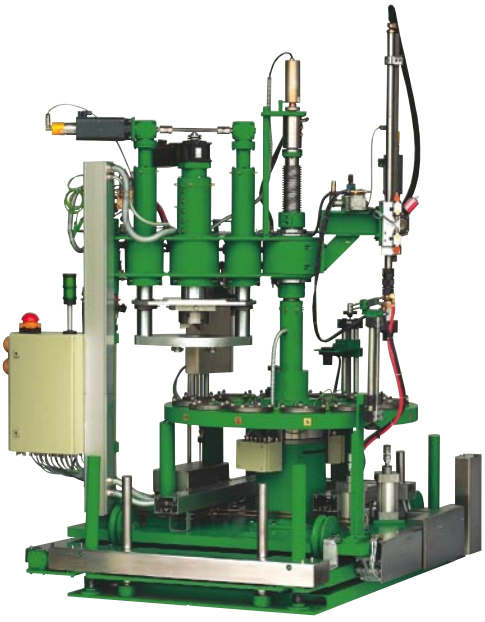
GLASS ITEMS	goblets, feet for stemware, stems, tumblers, jars, mugs, coasters, plates, vases, dishes, bowls, picture frames, chandelier parts, lampshades, haedlamps, reflectors, lenses
TYPES OF GLASS COMPOSITION	lead glass, soda-lime glass, recycling glass, borosilicate glass
DIMENSIONS OF GLASS ITEM	diameter: up to 500 mm height: up to 400 mm
GLASS QUANTITY / WEIGHT OF GLASS ITEM	20 g to 10 kg (covering the capacity of the feeder)
PRODUCTION RATE	• index time: 0,94 s to 2 s per index • single gob: 0,5 piece/min. (i.e. 1 item in 2 min.) up to 60 pieces/min. • double gob: up to 100 pieces/min.





MODE OF OPERATION

The roundtable is equipped with 2 to 20 stations. The servo-driven table allows to run production on varying numbers of stations for varying capacities. The roundtable moves the mould and closing device for hinge moulds into the feeding station, where the mould is fed with a precisely defined quantity of glass. If necessary, the shearmark may be fire-polished by infrared burners in an intermediate station, before the glass item is pressed in the press station. The plunger and ring are moved by the top pressing unit. The servo-motor system is equipped with a sensor which reduces the pressing pressure to a holding pressure as soon as the item is sufficiently pressed. After one or more cooling stations the item is fully automatically taken out.

FEATURES

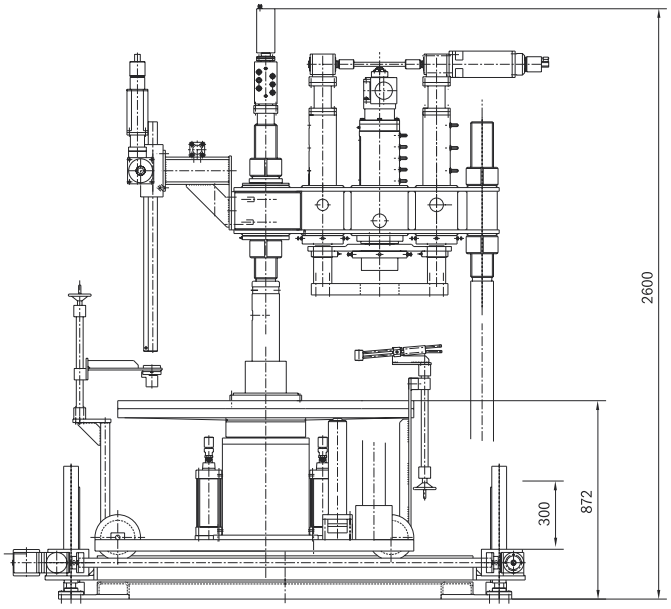
very high quality	• because the roundtable moves the mould under the orifice of the feeder and the glass is fed into the mould directly • because the two servo-motor systems – height-adjustable machine frame and rotational movement of the roundtable – in combination with the horizontally adjustable machine frame allow a precise positioning of the mould for feeding • since the risk of cord caused by overlaps is eliminated because the electronically controlled positioning of the mould ensures a filling process which is individually adjusted to the mould • due to highly efficient infrared burners which eliminate the shearmark • due to an electronically controlled servo-motor pressing unit which allows a precise pressing pressure adjustment and ensures achieving an optimal pressing pressure (motor torque = pressing force)
very high quality of heavy glass items	• because the height-adjustable frame is fully electronically controlled and allows to lower the mould while being filled in order to keep a minimum distance between the orifice of the feeder and the base of the mould and guarantees a carefully tuned filling process
very high quality for technically challenging designs	• due to the servo-motor driven table which provides optimal conditions for pressing oval or rectangular glass items (i.e. picture frames), since the filling process (continuous casting) may be supported by a horizontal movement of the mould
very consistent quality	• due to an intelligent press sensor, which prevents the glass item from being over-pressed if temperature and weight fluctuations occur and which allows the pressing pressure to be individually and precisely adjusted • due to fully electronically controlled systems for plunger-cooling and ring-heating which provide optimal mould and plunger temperatures
highly flexible production	• due to a quick-change system for plunger and moulds reducing job-change times to a minimum • due to easy job-changes since the MMC-software provides an efficient product management tool which stores the adjustments of all production parameters under the specific name of the glass item and provides optimal production parameters for later resumption of production
very high productivity	• due to a significant increase in the production capacity by the extension of the time the glass item remains in the mould, because no intermediate step between the take-out station and the feeding station is required • due to single gob and double gob feeding

FEATURES

easily adapted to any existing production surroundings	• because the roundtable is compatible with different feeding systems: manual feeding, ball feeder and all feeder systems available
large cost-savings	• because the décor pressing-moulds replace cost-intensive engraving, cutting and acid-polishing • due to a mould-check system which eliminates the risk of damaging the pressing tools if moulds are not empty and reduces standstills for tool changes and maintenance to a minimum
optimal production conditions	• because the relevant parameters may be altered while the machine is in operation and optimal results may thus be achieved immediately • because the MMC-software facilitates noting, connecting and keeping record of all adjustments and events and helps to efficiently control and monitor the production process
extremely user-friendly	• due to the uncomplicated user menu of the MMC-software • due to the MMC-software's graphic programming tool which includes all movement cycles, the pressing process and the pressing sensor

TECHNICAL DETAILS

ELECTRICAL SUPPLY	3/N/PE AC 50/60 Hz 230/400 V 3 x 220 V optional
COMPRESSED AIR	0,5 – 0,6 MPa
DISTILLED COOLING WATER IN THE CIRCULATION	0,3 MPa
GAS	5 kPa
OXYGEN	0,5 Mpa
COOLING AIR (AIR COOLING FAN)	10 kPa air manifold: 30 m^3/min. for 10 kPa



THE PACKAGE INCLUDES

BASE PLATE AND FRAME
- height-adjustable frame (providing optimal conditions for continuous casting for varying heights of moulds), driven by a freely programmed, fully electronically controlled servo-motor system
- horizontally adjustable machine frame; pneumatically driven steel construction on four wheels
- 2 columns and crossbeam

ROUNDTABLE EQUIPMENT
- roundtable, driven by a freely programmed and fully electronically controlled servo-motor system
- pressing support systems for the roundtable
- centre column with slip ring for the electric supply with torsion lock and refined steel protection and revolving feed for all media

PRESSING EQUIPMENT
- freely programmed and fully electronically controlled servo-motor pressing unit (mounted onto the crossbeam)
- reinforced pneumatic press plate
- holder for the plunger and ring
- quick-change system for the plunger and ring

MOULD EQUIPMENT (HINGE MOULDS)
- mould holders with quick-change system
- automatic closing devices for the hinge moulds
- (pneumatic) mould clamp

FUNCTIONAL STATION EQUIPMENT
- infrared burners for re-heating the shearmark
- pneumatic kick-out and mould-checker [control system which assures that the mould is ready to be refilled)

TEMPERATURE REGULATION
- thermocouples for temperature measuring of the moulds and the plunger
- plunger-cooling and ring-heating (electrical resistance heating)
- cooling system for the glass item (manifold)
- cooling system for the moulds

ELECTRONIC CONTROL SYSTEM
- PC-based real time system with MMC-software and Windows 2000 operating system, incl. cooling system

OPTIONS

MACHINE LAYOUT
- number of stations: 2 to 20 stations
- diameter of roundtable: 500 mm to 2000 mm
- height-adjustable frame: 300 mm or 400 mm stroke
- horizontally adjustable machine frame: wheels or rails

PRESSING EQUIPMENT
- servo-motor pressing unit in combination with reinforced pneumatic press plate for ring
- 2 servo-motor pressing units for separately moving plunger and ring
- 2 servo-motor pressing units for double gob operation (one pressing unit for each gob; if operated with single gob system the pressing units are coupled to double the pressing pressure)

PERFORMANCE OF PRESS UNITS
- force: 2,2 t to 4,5 t, 9 t
- speed: 100 mm/s to 600 mm/s

MOULD EQUIPMENT
- air-cooled mould plates / mould holders
- water-cooled mould plates / mould holders
- electrically isolated mould plates / mould holders
- quick change system for mould plates / mould holders
- pneumatic opening- and closing device for the moulds
- fully electronically and position-controlled servo-motor system for opening and closing of moulds
- pneumatic mould clamp
- pneumatic double-clamp system for the moulds
- fully electronically and position-controlled servo-motor system for clamping the moulds
- mould holder for block moulds
- mould holder for basket moulds
- mould holder for hinge moulds
- mould holder for 2-parted moulds
- mould holder for 3-parted moulds
- mould holder for 4-parted moulds

TEMPERATURE CONTROL FOR TOOLS
- thermocouples for measuring the temperature of the tools

cooling
- air-cooling / air manifold
- airmover based on injector principle
- airmover based on water/air-mixture
- water-cooling (closed circulation)

heating
- burner system
- electrical resistance heating

FUNCTIONAL STATION EQUIPMENT
- station for re-heating the shearmark
- burner system for fire-polishing rims or seams
- pneumatic kick-out
- mould-checker (control system which assures that the mould is ready to be re-filled)
- fully automatic take-out device (mechanical gripper or vacuum)

EXTENSIONS
- increased number of fully equipped stations
- Four-in-One Combi-System (combination of injecting, pressing, spinning and/or casting manufacturing mode)

ELECTRONIC CONTROL
- external control panel, when there is insufficient space to install the control panel close to the press