Spinning

füller
GLASTECHNOLOGIE

Roundtable Spinning System

APPLICATION

The spinning manufacturing mode is designed to produce glass items with décor and items with flared rims which meet highest demands in the surface quality. The spinning system may be combined with gob feeding and continuous casting (in combination with the horizontal and vertical movement of the roundtable).

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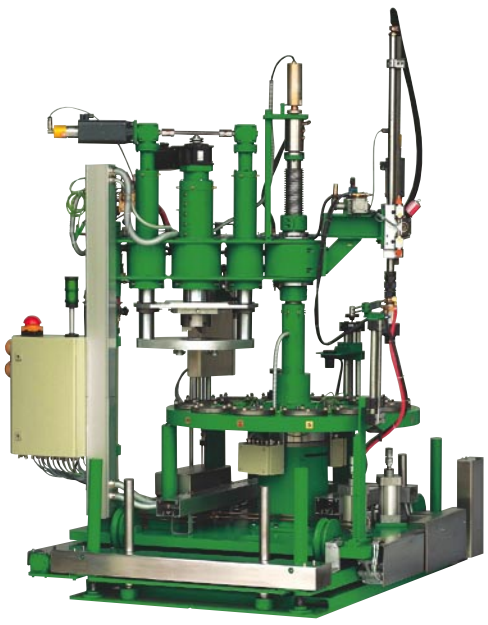
GLASS ITEMS	dishes, bowls, lampshades, plates
TYPES OF GLASS COMPOSITION	lead glass, soda-lime glass, recycling glass, borosilicate glass
DIMENSIONS OF GLASS ITEM	height: 20 mm to 200 mm diameter: 20 mm to 500 mm
GLASS QUANTITY / WEIGHT OF GLASS ITEM	30 g to 10 kg (covering the capacity of the feeder)
PRODUCTION RATE	• index time: 0,94 s to 2 s per index • continuous table rotation for high-speed production • 0,5 piece/min. (i.e. 1 item in 2 min.) up to 60 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 spinning mould 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 revolving mould lid and protective device is lowered and the spinning process is started. The mould lid and protective device are moved by the upper servo-motor system. The rotation profile of the spinning process (rotational speed and time) is based on a fully electronically controlled servo-motor system. The graphic tool of the MMC-software helps to adjust the spinning profile to the design requirements of the glass item and to achieve optimal parameters directly, while the movement parameters are precisely translated by the servo-motor system. After one or more cooling stations the finished glass item is fully automatically taken out.

FEATURES

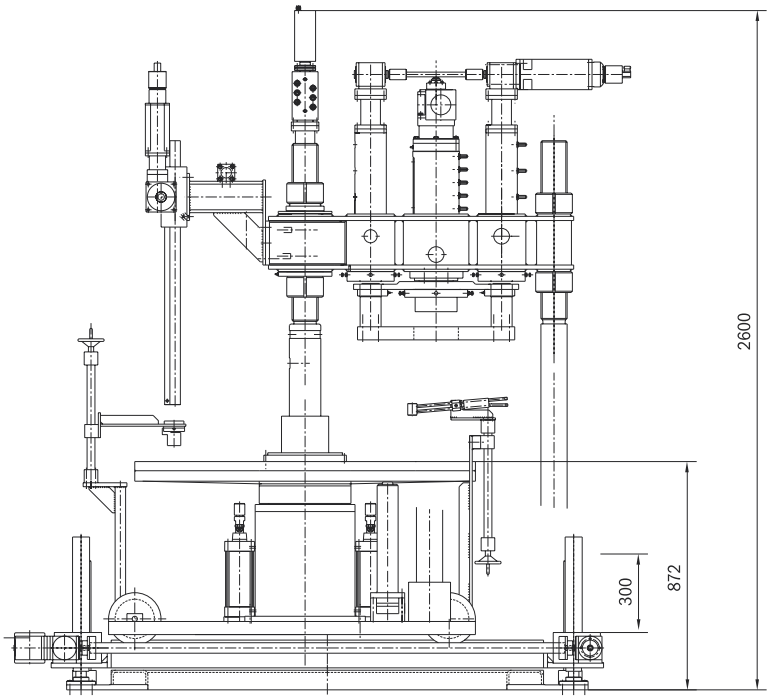
very high and consistent quality	• because the roundtable moves the mould under the orifice of the feeder and the glass is fed into the mould directly • because the two servo-motor systems – height-adjustable machine frame and rotational movement of the roundtable – in combination with the horizontally 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 spinning adapter which allows a precise speed control and an optimal speed profile • due to electronic control and attemperator systems providing optimal mould temperatures
very high surface quality	• because the spinning process enhances the surface quality by stretching the surface • because a pneumatic kick-out system allows to work with very high glass temperatures eliminating the risk of flow-lines and providing excellent surface quality
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 flexible production	• due to a quick-change system for the mould lid and the mould (three-jaw chuck) 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 indexing or continuous table rotation

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 spinning-moulds replace cost-intensive engraving, cutting and acid-polishing
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 and the spinning process

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
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

SPINNING EQUIPMENT

- fully electronically controlled servo-motor spinning unit
- fully electronically controlled servo-motor system for the vertical movement of mould lid and the protective device, mounted on a crossbeam
- holder for mould lid and protective device
- quick-change system for the mould lid and the protective device

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)
- take-out device

TEMPERATURE REGULATION

- optic system for temperature measuring of the moulds
- 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

CAPACITY

- indexing table movement
- continuous table rotation for high-speed production

PERFORMANCE OF PRESS UNITS

- up to 200 rpm

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
- mould holder for block moulds

TEMPERATURE REGULATION FOR TOOLS

- optic system 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)

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