

LIPPERT

MEMBER OF SCHUG GROUP

HIGH PRESSURE SLIP CASTING SYSTEM

FOR CUPS – TYPE BTDG



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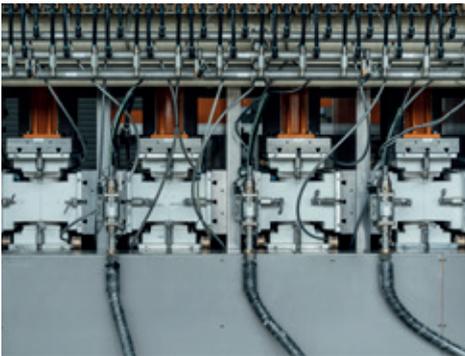
The high pressure slip casting system „Type BTDG“ has been designed for series production of cups, including handles, in one production step, at an very high production output rate.

Thanks to an in-house innovation team consisting of experts in the fields of ceramics, engineering, design and manufacturing, a further development of Lippert's highly successful cup pressure casting machine „Type TDG-500-20“ was designed.

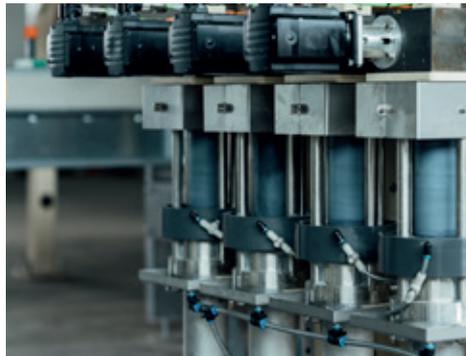
This further development „Type BTDG“ combines the functionality of the machine „Type TDG-500-20“ with high production output and thus enables the serial production of cups in the

pressure casting process. Compared to the standard model with an output of approx. 100 articles/h, the high pressure slip casting machine „Type BTDG“ could be optimised by a factor of four in production output and convinces with an output of up to 400 articles/h (25 cycles x 16 articles) at a total cycle time of 144 seconds, a total of 4 moulds with 4 articles per mould.

An innovation is the automatic fettling machine, which can be directly attached to the pressure casting machine, enabling automatic finishing of the pressure casting seam.



4 moulds, each containing 4 articles



Piston pumps with oxide ceramic-coated plunger

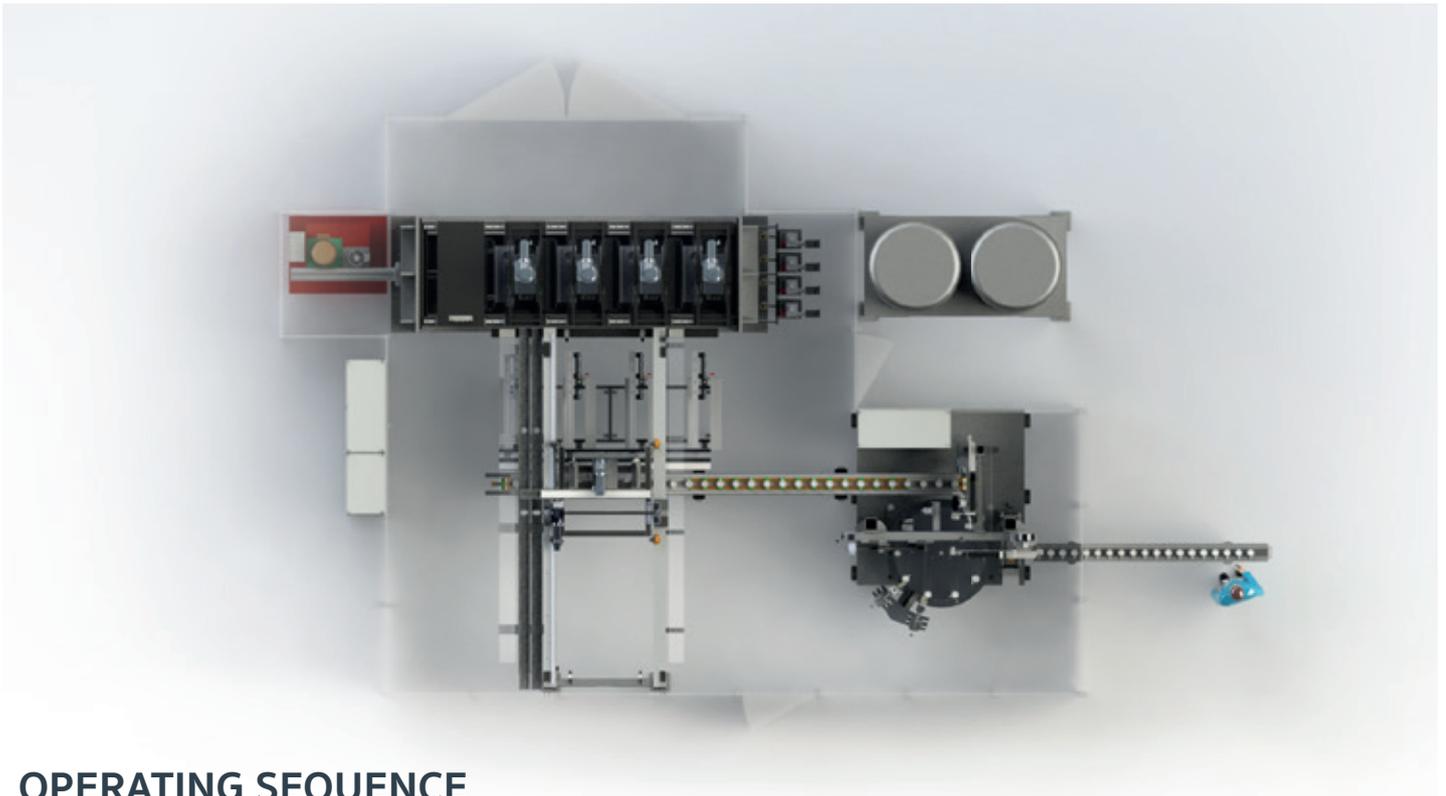


Spindle belt with 62 cup setters



BENEFITS

- production of cups with handles in one production step
- significantly higher production quantities
- predestined for series production (infrequent article changes, high output)
- economical article production
- saves space thanks to its compact design
- versatile article design possible
- automatic fettling of all pressure-cast joints
- excellent service by Lippert expertise team



OPERATING SEQUENCE

The „Type BTDG“ high-pressure slip casting machine can be operated with up to four working moulds simultaneously. These consist of two individual pressure casting moulds, each with two cavities. At the start of the cycle, the side parts of the moulds close hydraulically and the upper mould parts close by servo motors.

The slip pressure is generated by a servo-controlled pressure pump in a defined sequence, programmable in the system control.

Once the body formation time has elapsed, the mould automatically opens. First of all, the top parts move upwards and then all side mould elements open to the side, in synchronization with the respective core part, thus enabling access to the articles.

A transfer device then removes the articles from the production mould by means of suction on the base of the cups before they are conveyed to the next working step.

After removal of the articles, the working moulds are cleaned by a rinsing program and thereafter prepared for the next cycle.

Subsequently, the removed pressure-cast cups are placed in a suspended position above the infrared heating elements by means of a transfer device. This involves initial solidification of the articles before they are placed onto the spindle conveyor for further transport.

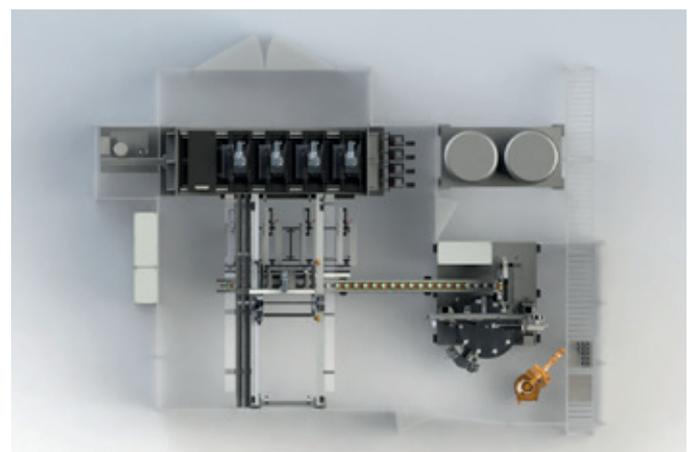
The spindle belt, synchronized with the pressure casting cycle, transports the articles to the fettling machine, which is fettling the handle seams, the side seams and the cup rim.

This process occurs on a rotary table at several processing stations, which systematically performs the steps of aligning the handles, milling the sprue, fettling the handle and side seams.

A lifting device is used to remove the cup from the fettling table and prepare it for sponging off the rim. The finished cups are then placed directly on a firing slab or in a drying system by robot. Alternatively, they are automatically placed on a conveyor belt for further transport and can then be manually transferred to the next process.

The operator then processes the article, inspects its quality and if necessary touches up a little.

Alternatively, a robot can set the cup directly onto a firing slab or into a drying system.



TECHNICAL DATA

TYPE BTDG

PERFORMANCE

Up to 400 articles per hour (25 cycles x 16 articles) and total cycle time of 144 seconds, with four moulds, each containing four articles.

A practical performance specification for a cup is not possible, due to the criteria described below, and may differ from the theoretical maximum performance specified above.



The performance depends on the following criteria

- slip used (e. g. slip quality, rheology)
- size and design of the article (e. g. thickness of the body)
- mould design and material (e. g. porosity)

MAX. INTRODUCABLE FORCES

Side mould: 400 kN
Top mould: 200 kN

SLIP PUMP/PRESSURE GENERATOR FILLING VOLUMES

4 units, each max 1.5 litres

SLIP HEATING TUBES

4 pieces, each with 1.6 dm³ volume –
temperature max. 40°C

MAX. SLIP PRESSURE

30 bar

WORKING PRESSURE

15 - 25 bar (depending on mould and slip used)

MAX. NUMBER OF PRODUCTION MOULDS

4

MAX. MOULD UTILISATION PER PRODUCTION MOULD

4 articles

MAX. PRODUCTION MOULD DIMENSIONS

875 x 390 x 450 mm
(length x width x height)

MAX. SIDE OPENING DIMENSION

approx. 230 mm

MAX. HEIGHT OPENING DIMENSION

approx. 300 mm

NECESSARY RINSING WATER PRESSURE

2 - 4 bar

NECESSARY RINSING WATER TEMPERATURE

max. 50°C

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