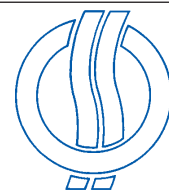


OSSBERGER



PRESSBLOWER
Injection Blow Moulders



PRESSBLOWER Type SB2/60
with Parison Programming



Tasks

Solutions



C. V. Joint Boots



View of production stations

Precision builds the basis for fulfilling high demands which are utmost essential in the automotive industry to maintain the automobile entirely functional for long years.

This particularly applies to car elements like bellows and boots which are not only affected by dynamic stress but also situated close to motor and gearbox and exposed to extreme conditions of road and weather.

Years ago a solution was found to fulfil the task of producing boots of corresponding qualities. Nevertheless the development was carried on; the alternative solution is named

PRESSBLOWER Injection Blow Moulder Type SB2/60

Rack & Pinion Boots



diverse articles





The PRESSBLOWER Process

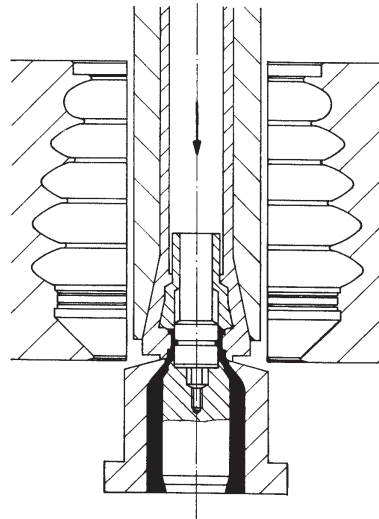
At the beginning of each production cycle an injection mould containing the shape of the future head moves down on an annular nozzle to tighten the same hermetically. The cavity which is gained this way is, at the first working step, filled with a well-dosified quantity of plastic material, then forming the finished head after cooling. Thus an important part of the boot, i.e. the small end diameter, is injection moulded at accurate dimensions.

While in the second working step the injection mould leaves upward a quantity of plastic melt conforming to the drawing speed is extruded through the ring nozzle. Retained by the injection mould on one hand and by the centered ring nozzle on the other a tubular parison of accurate wall thickness is formed. After this drawing procedure two blow mould halves close around the parison, tightening densely against the injection mould and the nozzle. In the blow mould which is thus obtained the parison is blown up to the finished product (3rd working step).

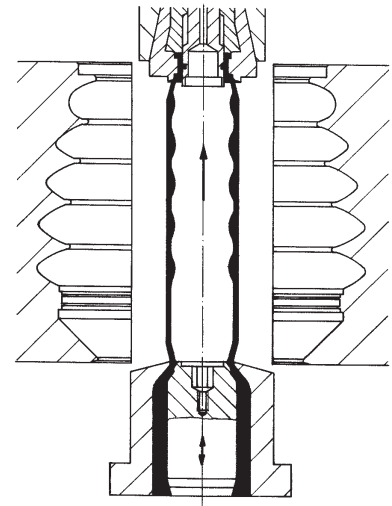
After an adjustable cooling time has elapsed injection mould and blow mould open, a gripper takes the ready-made product apart from the nozzle, conveying the same to the cutter. In the 4th working step a centrifugal cutter mechanism removes the bottom rest, by thus cutting the piece to its exact final length.

The accuracy of wall thicknesses is achieved by

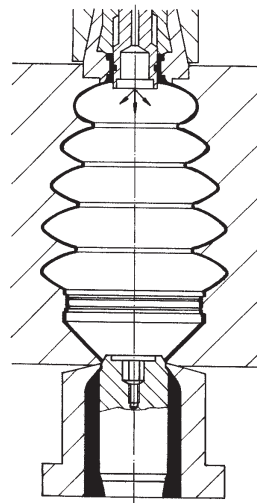
- a measurement and a regulation of all machine movements in accordance with the set strokes
- a profile regulation for nozzle cones and injection moulds depending on the stroke
- regulations of pressure and speed



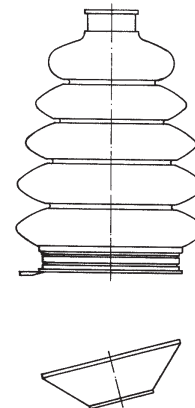
1st step: Injection mould meets nozzle parts for injection moulding of head section



2nd step: Drawing of parison with closed loop speed and nozzle gap control



3rd step: Blowing of parison



4th step: Cutting to dimension and final design



The PRESSBLOWER Injection Blow Moulder

Type SB2/60

for the production of parison programmed boots and bellows or other hollow bodies of varying diameters from blowable

thermoplastics and thermoplastic elastomers (except PVC):

Equipment characteristics

- Ultrasonic and inductive stroke measuring systems for all machine movements (except horizontal gripper movement)
- Storage-programmable multiprocessor control PMC 1000
- Programming, setting and monitoring via monitor screen
- Storing of parameter recipes
- Interface V24 RS 232 for printer connection
- Direct selection of the most important monitor pages through symbol keys
- Trouble shooting program through phase sequence display
- Display of activated functional programs
- Adjustable drop temperature
- Independent setting of position profiles for the two nozzle cones, even within selectable segments
- Position profiles for the two nozzle cones, mutually copyable
- Hydraulic, programmable setting of gripper heights through ultrasonic stroke measuring system
- 4 gripper positions

Characteristics of the article quality control performed by the machine

1st control:

During the extrusion of the parison the hydraulic pressure at the injection piston is displayed graphically by the monitor. The display can be limited to selectable pressure ranges and tolerance fields. Referred to the cycle the tolerance fields define products as accept or reject parts, correspondingly the articles are dropped out of the machine separately.

A pressure registration printout in the form of value tables is possible on hardcopy.

Piece counters register the quantity of accept parts produced.

2nd control:

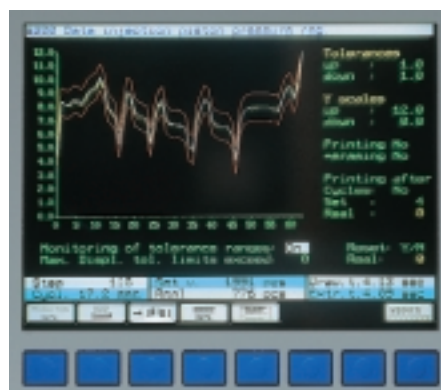
A balance at each production station registers the part weight. Referred to the cycle selectable tolerance fields define products as accept or reject parts.



3rd control:

The bellows produced are compressed at each production side by a piston moving down to a stop to produce a higher pressure force on the weighing surface. Selectable tolerance fields recognise an unacceptable wall thickness distribution in the convolutes, referred to the cycle they define products as accept or reject parts.

Accept and reject products are separated by shifts and dropped out of the machine separately.





The PRESSBLOWER Injection Blow Moulder

Type SB2/60

Machine of welded steel construction, inclusive of

Technical data:

- Main drive motor 15 kW
- Radial piston pump
- Drawing unit with profile-controlled drawing speed
- Blowing unit
- Accumulator head with 2 independently profile-programmable dies and speed regulated injection piston
- Transfer grippers
- Trimming devices
- 2 Balances and shifts for separation of accept or reject parts per cycle
- Audio visual alarm
- 60 mm Ø extruder 22 D, hydraulic driven
- 16 closed loop heating circuits for: 4 x plasticising zones (heating and cooling), 4 x distributor head, 3 x injection head, left and right respectively, 2 x nozzle cone heating
- 5 cooling circuits for oil chilling, blow moulds left and right, injection moulds left and right
- 2 closed loop hydraulic controls utilising Bosch proportional valves for plasticision and blow mould
- 3 closed loop hydraulic controls by Bosch control valves for injection mould, injection piston and nozzle cone
- 2 pneumatic circuits for blowing and parison support air, gripper movement and product control
- Safety guard hydraulically interlocked with electronically monitored safety switch
- Operating panel at the stand with
 - lockable emergency stop button
 - 8 servicing buttons
 - 2 safety guard buttons
- Hydraulic pressure display for 5 pressures
- Blow and support air adjustment
- Pneumatic adjustment of gripper closing force
- Control of article drop-out
- Oil filter with pollution indicator on screen monitor
- Oil level and temperature indication with monitoring
- Maintenance unit for compressed-air supply
- Separate outlets for articles, reject parts and cut-off
- Cooling water visual indicators for injection and blow moulds and oil chiller
- Transfer cable control cabinet/machine.

Control cabinet

- Control cabinet with 4 doors, incl. chilling unit, temperature monitoring, visual and acoustic alarms
- Colour display
- Operating panel
- Key switch
- Operating mode selector
- Disk drive
- Connections for measuring outputs and printer
- Multiprocessor control
- Insert for electronic cards
- Insert for amplifier cards and command for proportional and closed loop proportional valves

Article dimensions

Cylindrical/tapered/oval bellows and other hollow bodies of

max. diameter: 140 mm
max. length: 350 mm with cut-off
max. weight: 140 gr/pce. with cut-off

Connecting values Standard design

Current:
35 kW, fusing by 125 Amps (at 400 V)
3 x 400 Volt + Neutral + Earth, 50 C

Cooling water:
1", 2 ... 4 bars, 10 ... 15 °C
Compressed air:
6 ... 10 bars

Consumption values

Electrical: appr. 14.0 kW

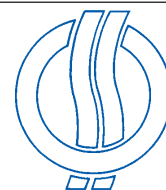
Cooling water: appr. 5.8 kW
Compressed air: appr. 2800 l air suck in per hour

Dimensions and weights

Machine:
3100 mm x 1850 mm x 2450 mm;
gross appr. 2470 kgs

Control cabinet:
1500 mm x 1050 mm x 2380 mm;
gross appr. 15 kgs
in total gross appr. 3085 kgs

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**OSSBERGER-TURBINENFABRIK
GmbH + Co**

Plastic Machinery Division

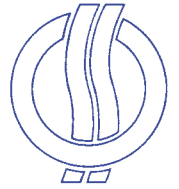
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Reserve to changes

OSSBERGER



PRESSBLOWER **Injection Blow Moulder**

NEW:

*especially for shock absorbers
and dust covers*



PRESSBLOWER SB2/60
with top cutting devices



PRESSBLOWER Injection Blow Moulder

SB2/60

with top cutting devices

Shock absorber bellows and dust covers used in the automotive industry are often having large diameters at both ends.

To make these products ready for assembly in one single cycle the PRESSBLOWER Injection Blow Moulders SB2/60 can now be equipped with two top cutting devices as a new feature for this machine type.

The last steps, i.e. weighing of the product and – if desired – compression test, are integral standard features on PRESSBLOWER SB2/60.



The photos on the right show the part after demoulding from a blow mould as well as after having been trimmed to its final dimensions.



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Plastics Technology

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PRESSBLOWER Injection Blow Moulder



**PRESSBLOWER Type SB2/60
with new control system P-open**
