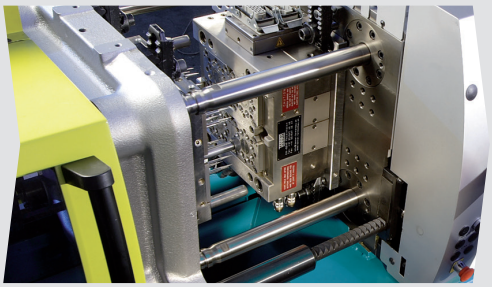
BOY®

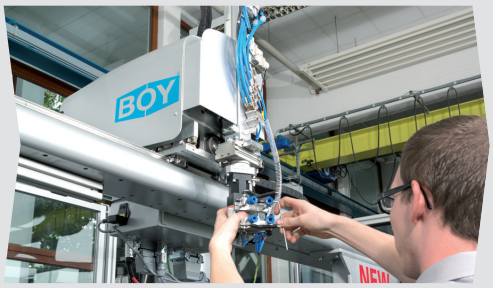
Spritzgiessautomaten

Innovative into the Future – BOY-Injectioneering

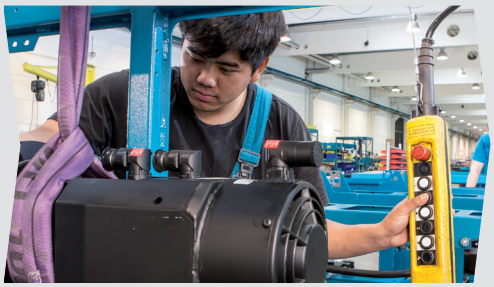
Injection moulding machine BOY 100 E *hybrid*



Great distances between tie bars and platens for mounting larger moulds



Simplest possibilities to integrate a four-axis industrial robot



Most efficient technology with servo-motor pump drive

- **Electro-mechanical driven injection unit**
- Fully controlled
- Four-tie bar, cantilevered **two-platen clamping system**
- Patented pressure intensifier with **integrated valve function**
- Most exact positioning of the moving platen via proportional valve and servo drive technology
- Divided safety gate for the clamping unit
- Optimum L/D ratio of the screw
- **Different injection units** for thermoplastic, thermoset, LSR, and elastomer processing
- **Lateral swivel-out** injection unit
- Robust machine frame with integrated oil tank
- Optional with energy-efficient and high wear-resistant **EconPlast** unit

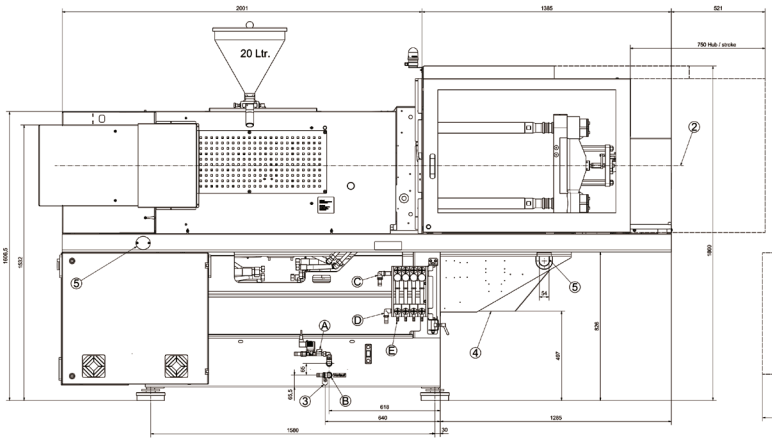
The simultaneous movements (axial and rotational) of the injection unit independent of the machine hydraulics is one of the highlights. The BOY 100 E ***hybrid*** features bigger tie bar distances (430 x 360 mm), platen daylight with 725 mm, and a **clamping force of 1000 kN.**

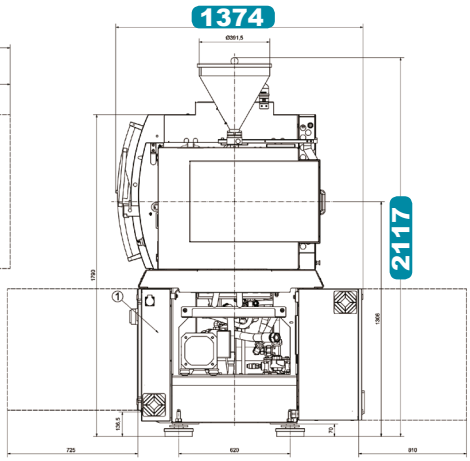
With the entirely new developed injection unit with the international size **SP 170**, the injection and metering movements are electromechanically driven by **two servomotors**. Integrated in this development of the new Servo-Plast-Unit are the experiences with the construction of hydraulic injection units from BOY with those of the suppliers of the highest quality drive components. The result is an **optimum constellation of drive components** such as spindle, bearing, motors and converters, installed into a high quality cast construction.

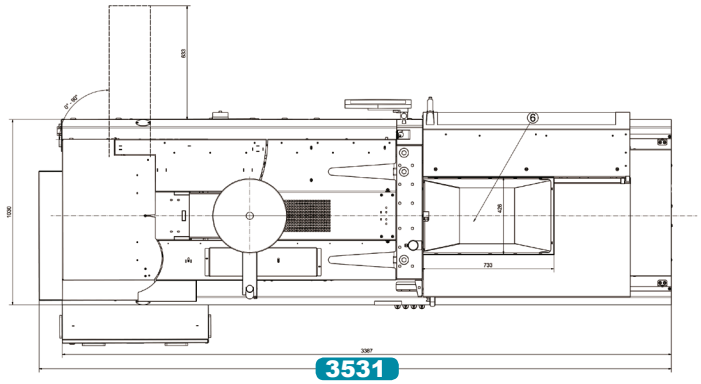
The extremely stiff designed injection axis guarantees maximum **precision and repetitive accuracy**. In combination with state-of-the-art force-measuring-technology in an optimal arrangement (patent pending), the highest accuracy in **maintaining the switching-points** of the set injection process is guaranteed within a **tolerance of +/- 0.01 mm**.

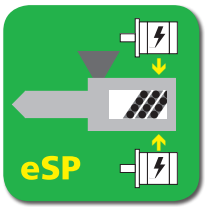
Despite the many intelligent, balanced components and a multitude of optional equipment, the injection moulding machine from BOY makes do with **little floor space** (just under 4.8 square metres). Available options include controls for **handling devices**, picker as well as brush units, unscrewing devices, core pulls, and integrated hot runner controls.
Powerful software applications of the **Procan** series can be chosen for the control of the injection moulding machine. Clearly designed menu structures offer **maximum ease of operation** with optimum results.

1. The machine design features the best ergonomics and efficient operation.
2. The ejector chute, open on three sides, guarantees optimum removal of the moulded parts.
3. Easy handling and flexibility with regard to additional equipment due to the cantilevered clamping system.
4. Optimum control technology with intuitive operation concept.
5. Stable machine design with integrated oil tank.









E-Drive

Technical Data – standard version[1)]

Injection unit for processing thermoplastics		SP 170			
Screw diameter	mm	28	32	38	42
Screw- L/D-ratio		22.7	20	16.7	15
Max. stroke volume (theoretical)	cm^3	76.9	100.5	141.8	173.2
Max. shot weight in PS (theoretical)	g	70.0	91.4	129.0	157.6
Injection force	kN	136			
Injection volume flow	cm^3/s	92.4	120.6	170.1	207.8
Max. spec. injection pressure	bar	2210	1692	1203	982
Max. screw stroke	mm	125			
Nozzle force / contact pressure	kN	48			
Nozzle retraction stroke	mm	215			
Screw torque	Nm	280[2] / 350[3]			
Screw speed (infinitely variable)	U / min.	410[2] / 325[3]			
Screw pulback force	kN	66			
Heating power (nozzle + cylinder)	W	7700			
Hopper capacity	litre	20			
Injection speed	mm/s	150			

Clamping unit		
Clamping force	kN	1000
Distance between tie bars	mm (h x v)	430 x 360
Max. daylight between platen	mm	725 (900)
Max. opening stroke (adjustable)	mm	475
Min. mould height	mm	250 (425)
Max. mould weight on moveable clamping side	kg	500
Mould opening force	kN	57.8
Mould closing force	kN	41.2
Ejector stroke (max.)	mm	130 (150)
Ejector force pushing / pulling	kN	20.4 / 13.5 (20.4 / 13.5) (42.7 / 30)

General		
Installed driving power / total power	kW	26.5 / 34.2 (400 V)
Duration of the dry cycle (EUROMAP 6)	s – mm	2.1 – 301
Hydraulic system pressure	bar	180
Oil tank capacity	litre	200

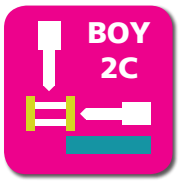
Dimensiones and weights		
Dimensions (LxWxH) / Footprint	mm / m^2	3531 x 1374 x 2117 / 4.76
Total weight net (without oil)	kg	3640
Total weight gross (pallet & foil / wooden case)	kg	3780 / 4190
Transport dimensions / case (LxWxH) approx.	m	3.95 x 1.4 x 2.2 / 3.95 x 1.4 x 2.05

1) no more injection units available 2) using a hydraulic motor with 162 cm^3 stroke volume 3) using a hydraulic motor with 204 cm^3 stroke volume

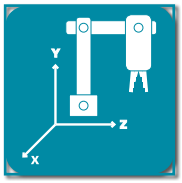
Servo-Drive

Control

Injection Unit

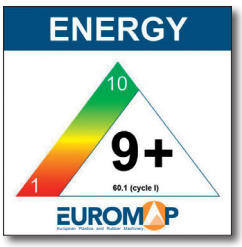


Multi Component



Automation

E-Drive



The specified efficiency classification is achievable depending on the respective machine equipment.

Equipment

Injection unit

Pivoting injection unit	■
Preset screw speed values with ramping transition	■
Cold start protection	■
Number of set points of injection speed	8
Number of set points of injection pressure	8
Start of holding pressure dependent on hydraulic pressure, stroke and time	■
Start of holding pressure, cavity pressure-dependent	□
Number of set points of holding pressure	8
Production monitoring at start of holding pressure	■
Closed loop control for the complete injection profile and back pressure	■
Control for intrusion-injection	■
PID microprocessor-controlled heating zones for cylinder + nozzle set and temp. display	5
Hydraulically actuated needle shut-off nozzle (pneumatic for XS-LSR)	○
Slide-away for quick material change (25 / 35 / 60 VV / 35 HV / 2C M without hopper)	■
Automatic material loader / feeder	□
Adjustable nozzle force	■
Delayed nozzle retraction	■
High wear-resistant plasticizing units	○
High wear-resistant EconPlast unit	○

Clamping unit

Reduced mould height by 50 mm	□
Moving platen support to improve the precision when using large moulds	■
Number of set points of mould closing speed / opening speed	8/8
Number of reopening attempts after mould closing	■
Hydr. ejector with dig. adjustable pressure, speed, position + no. of strokes, intermediate stop position	■
Hydraulic ejector with adjustable stroke 80 mm (for XS = 50 mm)	–
Hydraulic ejector with adjustable stroke 130 mm	■
Hydraulic ejector with adjustable stroke 150 mm and 42,7 kN force	○
Hydraulic unscrewing device, one or two directions of rotation with intermediate stop	□
Hydraulic unscrewing device, two directions, proportional valve and pulse generator	□
Core pull control with 4/3 way directional control valve and freely selectable operational programmes	□
Injection compression (coining) and breathing with mould degassing control	□
Hydraulic guard safety device	■
Self adjusting mechanical drop bar safety system with electronic monitor	□
Safety gate for handling devices	■
Electronically operated safety gate	○
Selection flap	○
Air ejection	□
Mould lifting crane	□
Simultaneous ejector movement (with double pump)	□
Integrated sprue picker	□

Electronics

USB interface for access and data exchange	■
Interface kit: Serial/Temperature device, USB and Ethernet	□
OPC interface	□
4 freely programmable inputs/outputs	□
Piece counter	■
Preselect cycle counter with auto shut-off	■
Grounded socket outlet 230 V ~ / 10 A (alternatively can be switched off)	■(□)
CEE socket outlet 400 V ~ / 16 A (alternatively can be switched off)	– (–)
Socket distributor 3 x 400 V ~ / 3 x 230 V ~ switched (separate feed line required)	□
Energy distributor with four fixed connections, up to 5 x 400 V CEE + 3 x 230 V (sockets can be switched off optionally). Standard supply 125 A / 5 x 50 mm²	□
Switch cabinet ventilation	■
Standardized interface for handling units (EUROMAP 67)	□
Separate feeder (heating and motor current)	○
7-day timer	■
Additional temperature control	□
Brush control	□
Connector for safety switch to inhibit mould closing	□
Integrated hot runner control, 8/16-fold (separate feed line required)	□
Air conditioning unit for control cabinet	□
Alarm signal with sound	□

Hydraulics

Electronically controlled variable pump	–
Servo-motor pump drive (Servo-drive)	■
Oil preheating circuit automatic	■
Oil temperatur gauge / Controlled oil cooling / Oil level indicator	■
Oil level and temperature monitoring	■
Optical oil filter contamination indicator	–
Proportional action valve for the clamping unit	–
Proportional valve with stroke feedback and positioning action for clamp unit	■

General

Cooling water distributor with electric shut-off valve for injection mould	○
Temperature control for feed throat	□
6- / 8-zone water distributor	○
Tool kit	□
Spare parts package	□
Oil filling	□
Anti-vibration mounts	■

■ standard ○ alternatively □ optional – not available

A 000662
E 03/25
Modification in design and equipment reserved

You would like to learn more about this BOY injection moulding machine?

Data and Equipment (complete overview)

Competence brochure

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