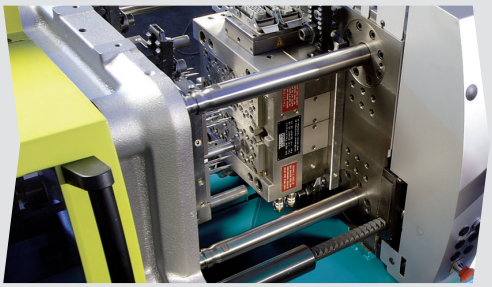
BOY®

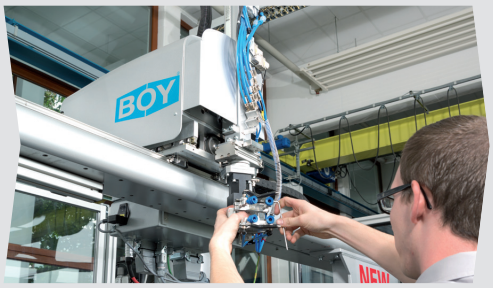
Spritzgiessautomaten

Innovative into the Future – BOY-Injectioneering

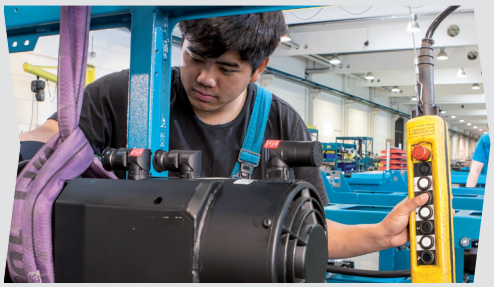
Injection moulding machine BOY 100 E



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

- 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
- Easily accessible ejector
- 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

Some more of everything - that was the motto when the BOY 100 E was developed. A greater daylight between tie bars (430 x 360 mm) and larger platen distances of 725 mm, as well as a **clamping force of 1000 kN** characterize BOY's model.

And as befits a **leader**, the BOY 100 E disposes of the same excellent characteristics of all BOY injection moulding machines feature.

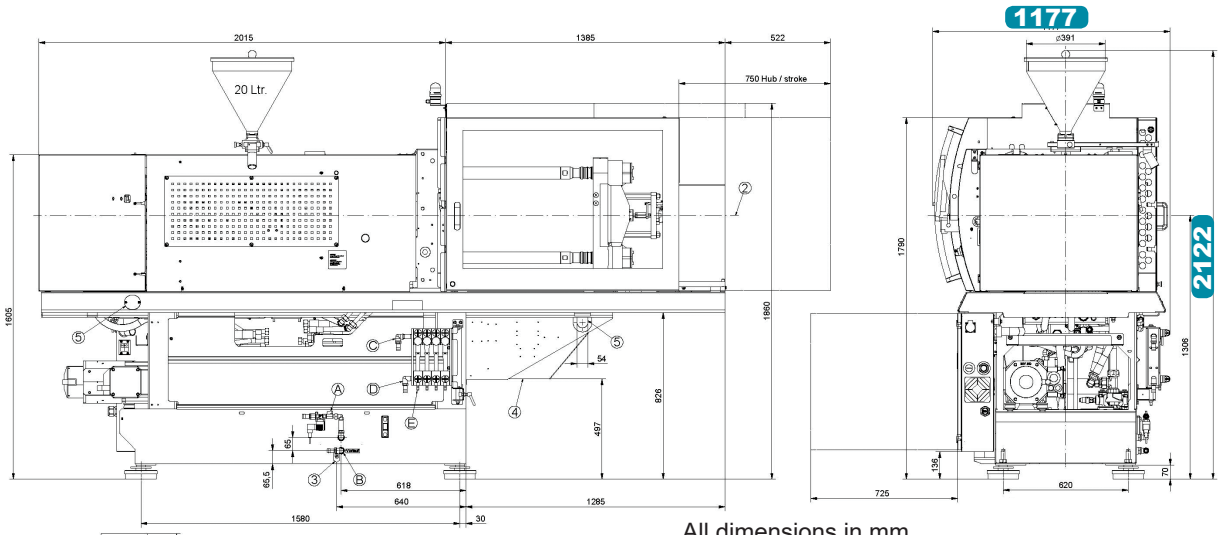
Given the easy handling of the machine, the users of the BOY 100 E enjoy **maximum flexibility**. All components - from the injection unit to the four-tie bar clamping system - **are easily accessible**. The divided safety gate of the clamping unit is easy to open and offers **optimum accessibility** of the mould, which entails short set-up times and a rapid start of production.

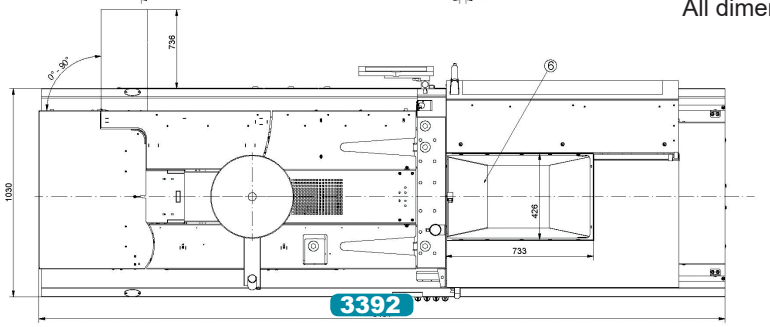
Powerful software applications of the **Procan** series can be chosen for the control of the injection moulding machine. Clearly designed menu structures offer **maximum ease of operation** with optimum results. A multitude of **thermoplastics**, **elastomers**, **silicones** and **thermosets** as well as **metals** and **ceramics** (PIM-Technologie) can be processed trouble-free.

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 4.0 (!) square metres.

It also stands for **efficiency** and an unparalleled price/performance ratio. Compared to the competitors, the **material throughput** of the BOY 100 E is markedly higher than that of comparable machines. Available options include controls for handling devices, picker as well as brush units, unscrewing devices, core pulls, and integrated hot runner controls.

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.





Required floor space in comparison

BOY 100 E = 4.00 m²

6.08 m²*

** Average floor space of nine competitors*

Technical Data – standard version[1)]

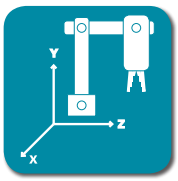
Injection unit for processing thermoplastics		SP 220 [4]	SP 400 (Standard)		
Screw diameter	mm / inch	36 / 1.42	36 / 1.42	42 / 1.65	48 / 1.89
Screw- L/D-ratio		23	23	20	17
Max. stroke volume (theoretical)	in^3	9.93	9.93	13.52	17.67
Max. shot weight in PS (theoretical)	oz	5.22	5.22	7.11	9.29
Injection force	US Tons	15.07	27.39	27.39	27.39
Injection flow (theoretical)	oz/s	9.38	5.16	7.02	9.17
Max. spec. injection pressure	psi	19,551	35,534	26,107	19,986
Max. screw stroke	mm / inch	160 / 6.3	160 / 6.3	160 / 6.3	160 / 6.3
Nozzle force / contact pressure	US Tons	7.15	7.15	7.15	7.15
Nozzle retraction stroke	mm / inch	243 / 9.57	243 / 9.57	243 / 9.57	243 / 9.57
Screw torque	ft / lbf	368.8[1] / 390.9[2]	368.8[1] / 390.9[2]	368.8[1] / 390.9[2]	390.9[2]
Screw speed (infinitely variable)	rpm	280[1] / 250[2]	280[1] / 250[2]	280[1] / 250[2]	280[1] / 250[2]
Screw pulback force	US Tons	5.83	5.83	5.83	5.83
Heating power (nozzle + cylinder)	W	11250	11250	11250	11250
Hopper capacity	US gal.	5.28	5.28	5.28	5.28
Clamping unit					
Clamping force	US Tons	110			
Distance between tie bars	inch (h x v)	16.93 x 14.17			
Max. daylight between platen	inch	725 / 28.54			
Max. opening stroke (adjustable)	mm / inch	475 / 18.7			
Min. mould height	mm / inch	250 / 9.84			
Max. mould weight on moveable clamping side	lb	1102			
Mould opening force	US Tons	6.36			
Mould closing force	US Tons	4.53			
Ejector stroke (max.)	mm / inch	130 (150) / 5.12 (5.91)			
Ejector force pushing / pulling	US Tons	2.24 / 1.48	(2.24 / 1.48)	(4.69 / 3.3)	
General					
Installed driving power / total power	kW	15 / 26.3 (400 V)	15 / 26.3 (400 V)	15 / 26.3 (400 V)	15 / 26.3 (400 V)
Duration of the dry cycle (EUROMAP 6)	s – mm	2.1 – 301	2.1 – 301	2.1 – 301	2.1 – 301
Hydraulic system pressure	psi	2828	2828	2828	2828
Oil tank capacity	US gal.	52.8	52.8	52.8	52.8
Dimensiones and weights					
Dimensions (LxWxH) / Footprint	inch / in^2	133.5 x 46.3 x 83.3 / 6181			
Total weight net (without oil)	lb	6317			
Total weight gross (pallet & foil / wooden case)	lb	6582 / 7420			
Transport dimensions / case (LxWxH) approx.	inch	155.5 x 47.2 x 86.6 / 156.7 x 50.4 x 80.7			

1) more injection units see Technical Data and Equipment 2) using a hydraulic motor with 300 cm^3 stroke volume 3) using a hydraulic motor with 348 cm^3 stroke volume 4) Speed injection

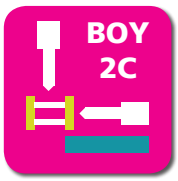

Servo–Drive


Procan ALPHA®

Technology

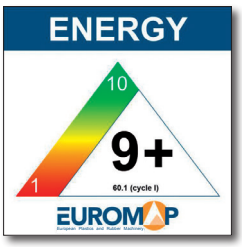


Automation



Multi Component

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	2
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	■
Servo-electric screw drive (separate feed line required)	○
High wear-resistant plasticizing units	○
High wear-resistant EconPlast unit	○
Speed injection	□

Electronics

USB interface for access and data exchange	■
Interface kit: Serial/Temperature device, USB/Printer 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)	– (–)
	□
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	□

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	□

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

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


Data and Equipment (complete overview)


Competence brochure

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Spritzgiessautomaten

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