

## Innovative into the Future – BOY-Injectioneering

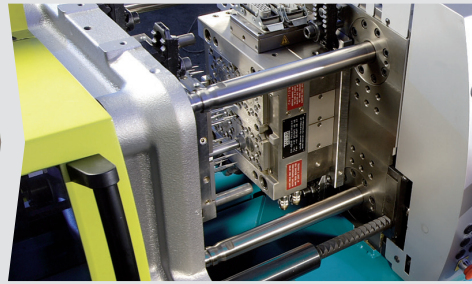


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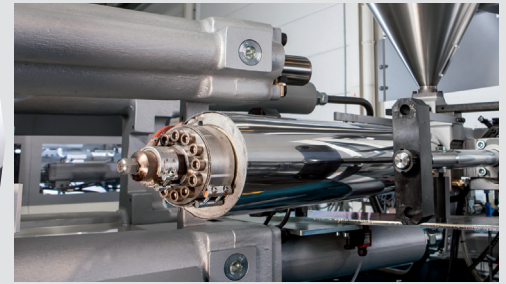
Injection moulding machine BOY 90 E PRO



Production cell with CE-compliant safety housing



Great distances between tie bars and platens for mounting larger moulds



Optional EconPlast technology from screw diameter 24 mm

- 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
- Two-part safety gate of 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 high wear-resistant and energy-efficient **EconPlast** unit

The **BOY 90 E PRO** provides 900 kN clamping force and is equipped with the SP 370 injection unit. With this plasticizing unit, stroke volumes of up to 280.5 cm<sup>3</sup> are possible.

A greater daylight between tie bars (430 x 360 mm) and

larger platen distances of 725 mm assures the assembly of larger moulds.

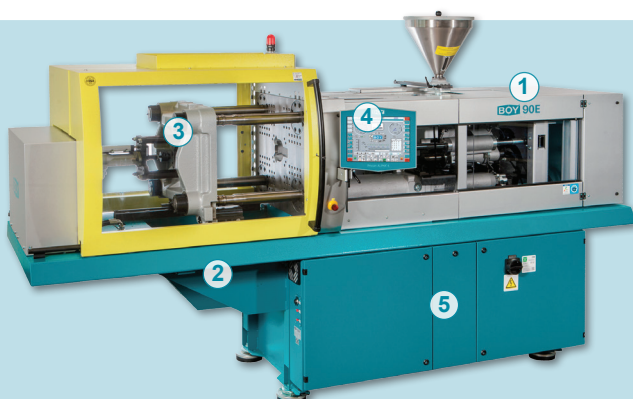
Given the easy handling of the machine, the users of the BOY 90 E **PRO** enjoy maximum **flexibility**. All components - from the injection unit to the four-tie bar clamping system - **are easily accessible**. The divided safety gate of the clamping unit is easy to open and offers **optimum accessibility** 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.

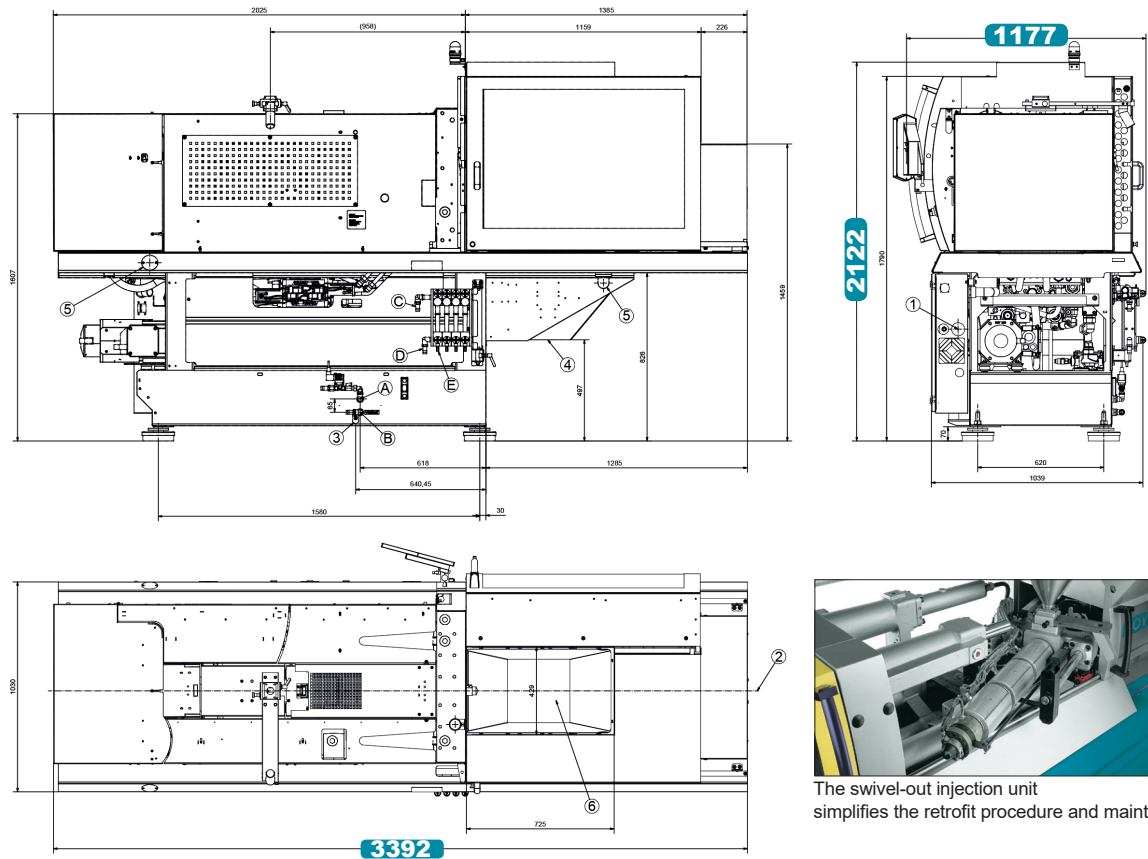
A multitude of **thermoplastics**, **elastomers**, **silicones** and **thermosets** as well as **metals** and **ceramics** (PIM-Technology) can be processed trouble-free with the BOY 90 E **PRO**.

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).

Equipment for the **process automation** can be mounted space saving on the BOY 90 E. Many options for example handling devices, picker as well as brush and unscrewing controls, core pulls and integrated hot runner controls can be chosen.



- 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 Robust machine design with integrated oil tank.



The swivel-out injection unit simplifies the retrofit procedure and maintenance.

## Technical Data – standard version<sup>1)</sup>

### Injection unit for processing thermoplastics

### SP 370

Screw diameter	mm	36	42	48
Screw- L/D-ratio		23	20	17
Max. stroke volume (theoretical)	cm <sup>3</sup>	157.8	214.7	280.5
Max. shot weight in PS (theoretical)	g	143.6	195.5	255.3
Injection force	kN	240	240	240
Injection flow (theoretical)	g/s	148.2	201.8	263.5
Max. spec. injection pressure	bar	2347	1724	1320
Max. screw stroke	mm	155	155	155
Nozzle force / contact pressure	kN	65	65	65
Nozzle retraction stroke	mm	243	243	243
Screw torque	Nm	500 <sup>2</sup> / 530 <sup>3</sup>	500 <sup>2</sup> / 530 <sup>3</sup>	500 <sup>2</sup> / 530 <sup>3</sup>
Screw speed (infinitely variable)	U / min.	280 <sup>2</sup> / 250 <sup>3</sup>	280 <sup>2</sup> / 250 <sup>3</sup>	280 <sup>2</sup> / 250 <sup>3</sup>
Screw pulback force	kN	53	53	53
Heating power (nozzle + cylinder)	W	11250	11250	11250
Hopper capacity	litre	-	-	-

### Clamping unit

Clamping force	kN	900	900	900
Distance between tie bars	mm (h x v)	430 x 360	430 x 360	430 x 360
Max. daylight between platen	mm	725	725	725
Max. opening stroke (adjustable)	mm	475	475	475
Min. mould height	mm	250	250	250
Max. mould weight on moveable clamping side	kg	500 / ab 300	500 / ab 300	500 / ab 300
Mould opening force	kN	57.8	57.8	57.8
Mould closing force	kN	41.2	41.2	41.2
Ejector stroke (max.)	mm	130 (150)	130 (150)	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	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
Hydraulic system pressure	bar	182	182	182
Oil tank capacity	litre	200	200	200

### Dimensiones and weights

Dimensions (LxWxH) / Footprint	mm / m <sup>2</sup>	3980 x 1280 x 2050 / 4.00		
Total weight net (without oil)	kg	2865		
Total weight gross (pallet & foil / wooden case)	kg	2985 / 3365		
Transport dimensions / case (LxWxH) approx.	m	3.95 x 1.2 x 2.2 / 3.95 x 1.28 x 2.05		

1) no further injection units available    2) hydraulic motor with 300 cm<sup>3</sup> stroke volume    3) hydraulic motor with 348 cm<sup>3</sup> stroke volume



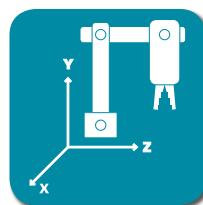
Servo-Drive



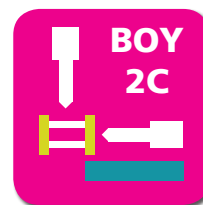
Procan ALPHA 4®



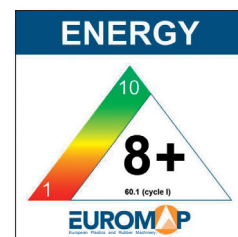
Technology



Automation



Multi Component



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	–

### 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 direction of rotation with intermediate stop	□
Hydraulic unscrewing device, two directions of rotation with intermediate stop and counter	□
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/Printer and Ethernet/Wifi	□
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 temperature 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

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



Data and Equipment (complete overview)



Competence brochure

**BOY**  
Spritzgiessautomaten

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