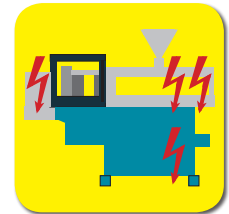




Spritzgiessautomaten

## Innovative into the Future – BOY-Injectioneering



BOY *Electric*



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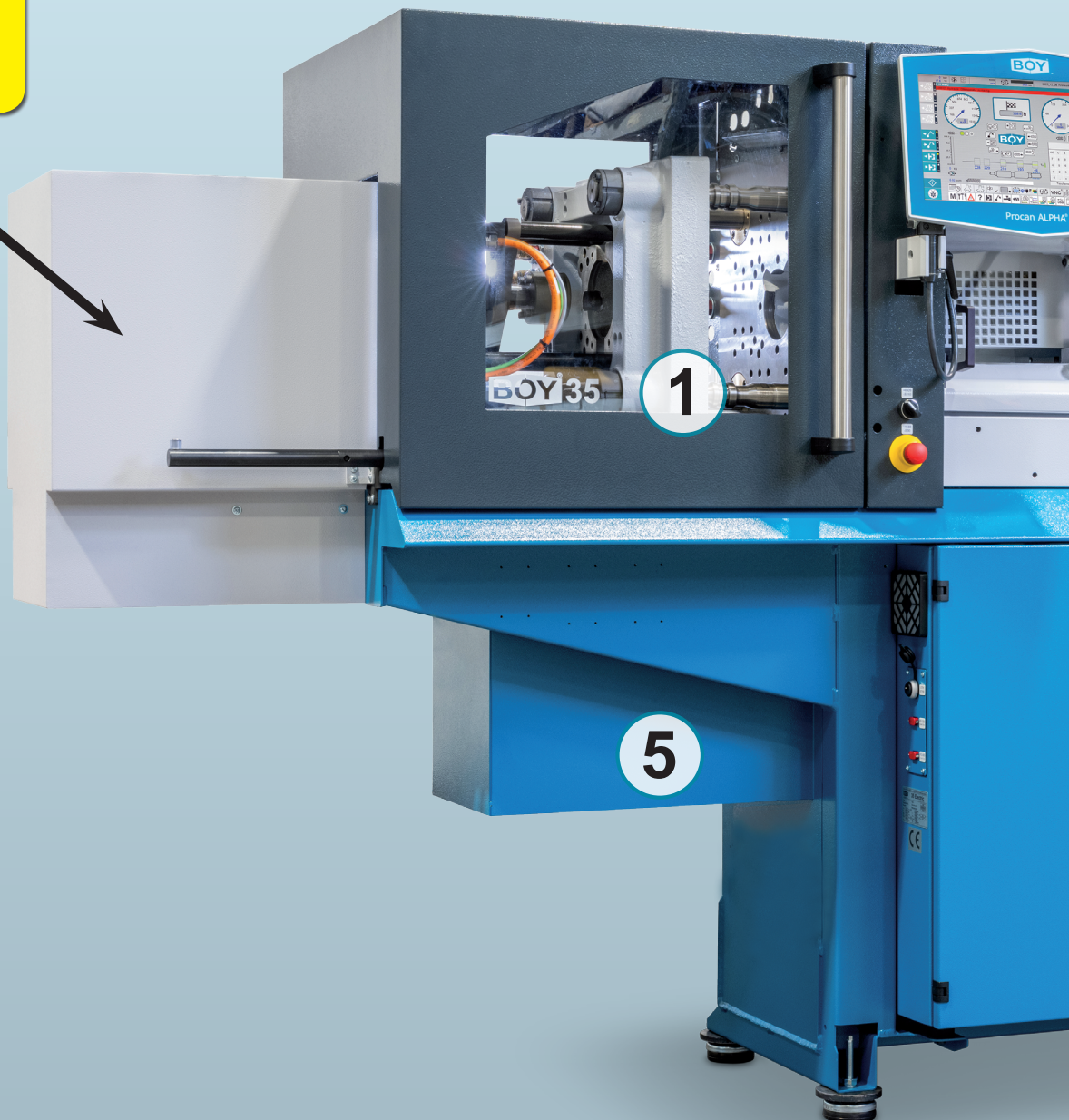
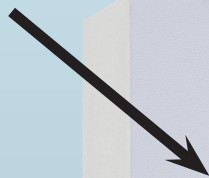
Injection molding machines BOY 35 *Electric*  
BOY 50 *Electric*  
BOY 80 *Electric*  
BOY 100 *Electric*

# The new BOY

- 1 Lubricant-free mold area.



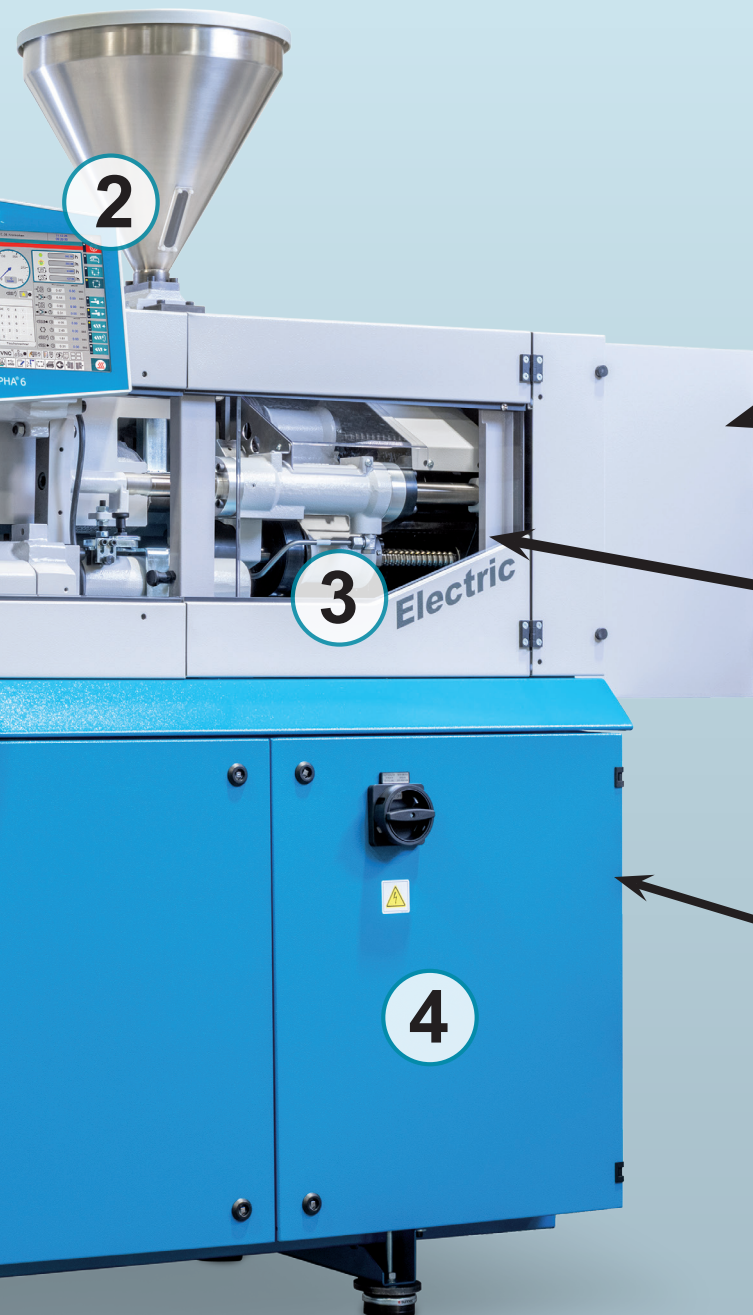
E-Ejector



- 5 The trip chute, which is accessible from three sides, allows easy removal of the injection molded parts.

# Electric series

- 2** State-of-the-art and intuitive Procan ALPHA® 6 machine control.



E-Dosing



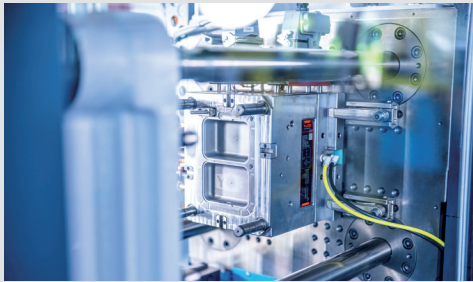
E-Injection



Servo-Drive

- 3** Completely redesigned safety enclosure with fully openable safety door.

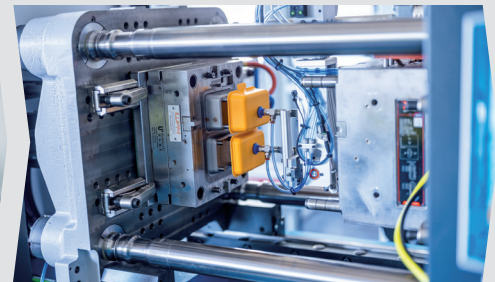
- 4** Stable and compact machine construction.



Spacious tool installation space



Easily accessible plasticizing unit



Synchronization of the movements of LR 5 and electric ejector

- **Parallel movement without double pump**
- **Compactness of a two-platen machine**
- **Highly dynamic injection unit**
- **Lubricant-free tool installation area**
- **Synchronized movement during ejection**
- **Parallel clamping force build-up for injection**
- **Highest positioning accuracy**
- **Possibility to actively brake**

#### **BOY Electric: Proven rethought**

In addition to the proven and energy-saving servo-hydraulic machines of the established E series, our portfolio now also includes the BOY Electric series in the 350-1000 kN clamping force range.

The BOY Electric therefore offers all the advantages of an all-electric injection molding machine in terms of **high dynamics** and **parallel movements**. For example, the drives for injection, dosing and ejector on a BOY Electric are realised electromechanically.

The **electromechanical universal injection unit** has been redesigned and significantly enhanced for the BOY Electric series. The new type of dynamic pressure measurement is unique in the field of injection molding machines and a **patent** has already been granted. The force transmitted to the screw is recorded at the injection mechanism by means of a force sensor and analysed in the machine control system.

The electromechanical drive technology offers additional benefits in the form of **precise position detection**, **dynamic movement** sequences and shorter cycle times thanks to **parallel clamping force build-up for injection**.

The proven **two-platen clamping unit** with the **oil and lubricant-free mold installation space** is supplied by the established and energy-saving servo-hydraulics. Together with the pressure intensifier and differential pressure technology, hydraulic pressure is converted dynamically into the clamping platen movement and energy-efficiently into the clamping force.

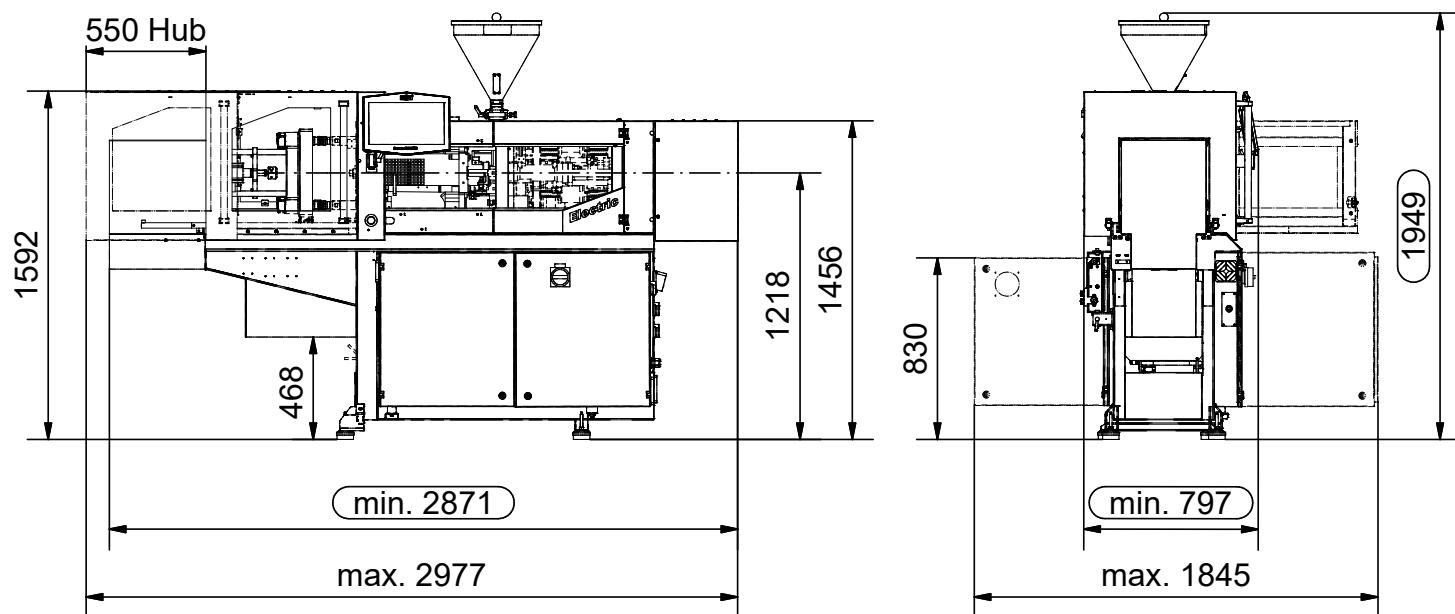
The new **electromechanical ejector** exceeds the dynamics of its hydraulic counterpart: thanks to its accurate position detection and very direct control, **parallel, precise and highly dynamic movements** can be realised in conjunction with clamping platen or handling movements. These not only save cycle time in individual cases, but also protect the product as well as the mold, gripper and machine. The electromechanical ejector also has a major advantage with extremely slow movements, as the stick-slip effects that can occur in the hydraulic system are avoided.

The BOY Electric series has also been given a **new machine design**, which is not only characterized by its new look. The drive and inverter technology is integrated in the smallest possible space and still allows for numerous expansion options. A new, **compact and low-maintenance safety technology** is now also finding its way into the BOY injection molding machines. This OSSD (Output Signal Switching Device) technology enables very user-friendly monitoring at the highest safety level. By systematically integrating the high-performance technology into the BOY Electric, BOY remains true to its philosophy of **minimizing the footprint**.

#### **Parallel movements:**

- High pressure build-up parallel to injection
- High pressure build-up in stages parallel to injection
- Ejector movement parallel to mold movement
- Dosing and decompression throughout the entire cycle (needle valve required)

## BOY 35 Electric



### Technical Data – standard version

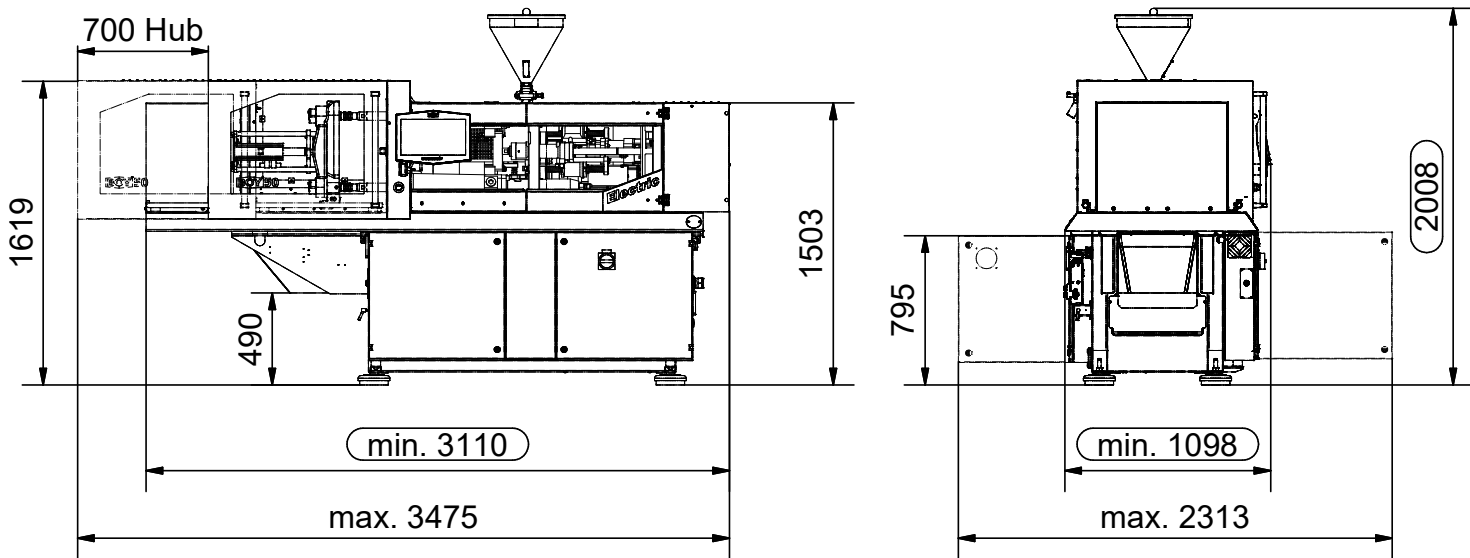
Injection unit for processing thermoplastics		SP 16-96					
Screw diameter	mm / in	14 / 0.55	18 / 0.71	22 / 0.87	24 / 0.94	28 / 1.1	32 / 1.26
Screw- L/D-ratio		18	20	17.5	22	18.6	16.3
Max. stroke volume (theoretical)	in <sup>3</sup>	0.38	1.24	1.86	2.62	3.57	4.66
Max. shot weight in PS (theoretical)	oz	0.2	0.65	0.98	1.38	1.88	2.45
Injection force	US Tons	4.4	7.9	11.4	4.61	6.27	8.20
Injection volume flow	in <sup>3</sup> / sec	1.6	2.6	3.9		11.4	
Max. spec. injection pressure	psi	36,825	39,726	38,508	32,358	23,772	18,202
Max. screw stroke	mm / in	40 / 1.57	80 / 3.15		95 / 3.74		
Nozzle force / contact pressure	US Tons	5.4 / 2.7					
Nozzle retraction stroke	mm / in	205 / 8.07					
Screw torque	ft / lbf	55.32	95.88	132.76	147.51		
Screw speed (infinitely variable)	rpm	500		400			
Screw pullback force	US Tons	3.37		4.95			
Heating power (Nozzle, socket + cylinder)	W	2560	3250	3550	5800		
Hopper capacity	Us gal.	5.28					
Injection speed	in / sec	6.57					

Clamping unit		
Clamping force	US Tons	39.34
Distance between tie bars	in (h x v)	11.02 x 10
Max. daylight between platen	mm / in	500 / 19.69
Max. opening stroke (adjustable)	mm / in	300 / 11.81
Min. mold height	mm / in	200 / 7.87
Max. mold weight on moveable clamping side	lb	485.02
Mold opening force	US Tons	3.32
Mold closing force	US Tons	2.41
Ejector stroke (max.)	mm / in	150 / 5.91
Ejector force pushing / pulling	US Tons	2.25

General					
Installed driving power / total power	kW	21.1 / 23.66	21.1 / 24.35	21.1 / 24.65	21.1 / 26.9
Duration of the dry cycle acc. to EUROMAP 6 (stroke)	s (mm)	1.5 (196)			
Hydraulic system pressure	psi	2611			
Oil tank capacity	US gal.	9.25			

Dimensions and weights		
Dimensions (LxWxH) / Footprint	in / in <sup>2</sup>	113.03 x 31.38 x 76.73 / 3547
Total weight net (without oil)	lb	3086
Total weight gross (pallet & foil / wooden case)	lb	4090 / 4475
Transport dimensions / case (LxWxH) approx.	in	118.1 x 41.7 x 82.7 / 118.1 x 41.3 x 70.9

## BOY 50 Electric



### Technical Data – standard version

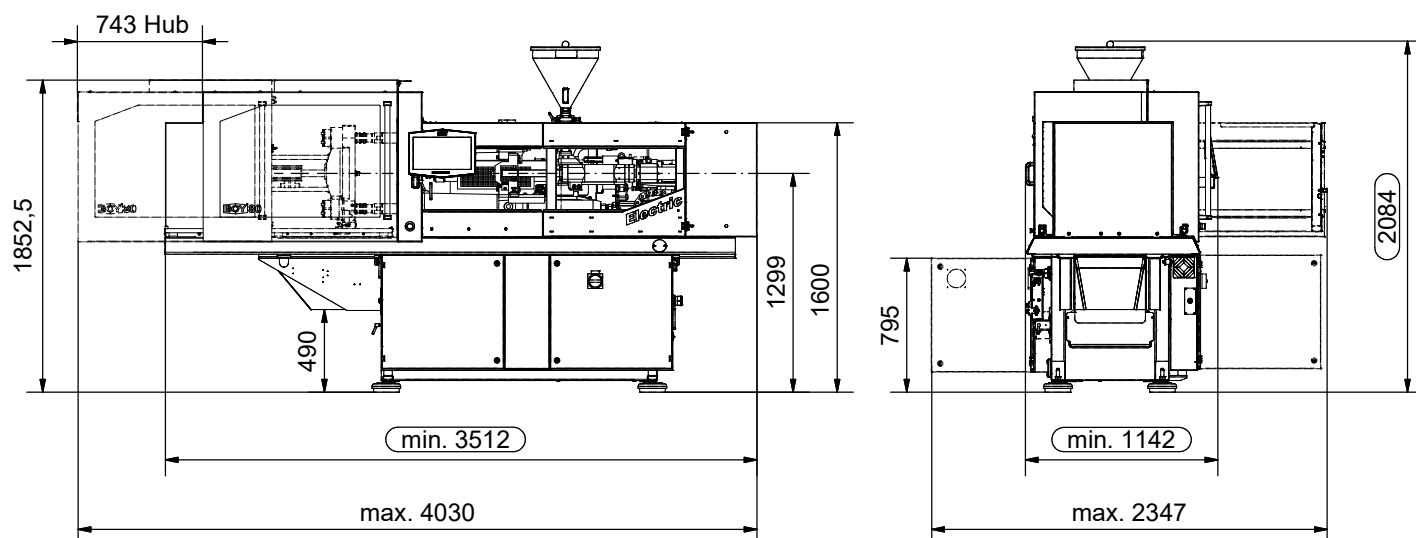
Injection unit for processing thermoplastics		SP 16-96					
Screw diameter	mm / in	14 / 0.55	18 / 0.71	22 / 0.87	24 / 0.94	28 / 1.1	32 / 1.26
Screw- L/D-ratio		18	20	17.5	22	18.6	16.3
Max. stroke volume (theoretical)	in <sup>3</sup>	0.38	1.24	1.86	2.62	3.57	4.66
Max. shot weight in PS (theoretical)	oz	0.2	0.65	0.98	1.38	1.88	2.45
Injection force	US Tons	4.4	7.9	11.4			
Injection volume flow	in <sup>3</sup> / sec	1.6	2.6	3.9	4.6	6.3	8.2
Max. spec. injection pressure	psi	36,825	39,726	38,508	32,358	23,772	18,202
Max. screw stroke	mm / in	40 / 1.57	80 / 3.15		95 / 3.74		
Nozzle force / contact pressure	US Tons	5.4					
Nozzle retraction stroke	mm / in	205 / 8.07					
Screw torque	ft / lbf	55.32	95.88	132.76	147.51		
Screw speed (infinitely variable)	rpm	500		400			
Screw pullback force	US Tons	3.37		4.95			
Heating power (Nozzle. socket + cylinder)	W	2560	3250	3550	5800		
Hopper capacity	Us gal.	5.28					
Injection speed	in / sec	6.57					

Clamping unit	
Clamping force	US Tons 56.2
Distance between tie bars	in (h x v) 14.17 x 13.19
Max. daylight between platen	mm / in 650 / 25.59
Max. opening stroke (adjustable)	mm / in 400 / 15.75
Min. mold height	mm / in 250 / 9.84
Max. mold weight on moveable clamping side	lb max. 881.85
Mold opening force	US Tons 4.27
Mold closing force	US Tons 2.74
Ejector stroke (max.)	mm / in 150 / 5.91
Ejector force pushing / pulling	US Tons 2.25

General	
Installed driving power / total power	kW 21.1 / 23.66 21.1 / 24.35 21.1 / 24.65 21.1 / 26.9
Duration of the dry cycle acc. to EUROMAP 6 (stroke)	s (mm) 1.9 (252)
Hydraulic system pressure	psi 2611
Oil tank capacity	US gal. 15.85

Dimensions and weights	
Dimensions (LxWxH) / Footprint	in / in <sup>2</sup> 122.44 x 43.23 x 79.09 / 5293
Total weight net (without oil)	lb 5732
Total weight gross (pallet & foil / wooden case)	lb 7374 / 8036
Transport dimensions / case (LxWxH) approx.	in 135 x 45.3 x 80.7 / 135 x 45.3 x 76.8

## BOY 80 Electric / BOY 100 Electric



### Technical Data – standard version

Injection unit for processing thermoplastics		SP 170 / SP 215 (BOY 100 Electric)			
Screw diameter	mm / in	28 / 1.1	32 / 1.26	38 / 1.5	42 / 1.65
Screw- L/D-ratio		22.7	20	16.7	15
Max. stroke volume (theoretical)	in <sup>3</sup>	4.7	6.13	8.65	10.57
Max. shot weight in PS (theoretical)	oz	2.47	3.23	4.55	5.56
Injection force	US Tons	15.3 / <b>19.3</b>			
Injection volume flow	in <sup>3</sup> / sec	5.6 / <b>9</b>	7.4 / <b>11.8</b>	10.4 / <b>16.6</b>	12.7 / <b>20.3</b>
Max. spec. injection pressure	psi	32,053 / <b>40,582</b>	24,540 / <b>31,067</b>	17,448 / <b>22,031</b>	14,243 / <b>18,043</b>
Max. screw stroke	mm / in	125 / 4.92			
Nozzle force / contact pressure	US Tons	5.4			
Nozzle retraction stroke	mm / in	230 / 8.46			
Screw torque	ft / lbf	169.64			
Screw speed (infinitely variable)	rpm	500			
Screw pullback force	US Tons	7.42 / <b>3.37</b>			
Heating power (Nozzle. socket + cylinder)	W	7700			
Hopper capacity	Us gal.	5.28			
Injection speed	in / sec	5.91 / <b>9.45</b>			

Clamping unit		
Clamping force	US Tons	89.92 / <b>112.4</b>
Distance between tie bars	in (h x v)	16.93 x 14.17
Max. daylight between platen	mm / in	725 / 28.54
Max. opening stroke (adjustable)	mm / in	475 / 18.7
Min. mold height	mm / in	250 / 9.84
Max. mold weight on moveable clamping side	lb	1102.31
Mold opening force	US Tons	6.5
Mold closing force	US Tons	4.63
Ejector stroke (max.)	mm / in	150 / 5.91
Ejector force pushing / pulling	US Tons	2.25

General		
Installed driving power / total power	kW	44 / 51.7
Duration of the dry cycle acc. to EUROMAP 6 (stroke)	s (mm)	2.1 (301)
Hydraulic system pressure	psi	2611
Oil tank capacity	US gal.	15.85

Dimensions and weights		
Dimensions (LxWxH) / Footprint	in / in <sup>2</sup>	138.27 x 44.96 x 82.05 / 6217
Total weight net (without oil)	lb	7275
Total weight gross (pallet & foil / wooden case)	lb	9403 / 10240
Transport dimensions / case (LxWxH) approx.	in	155.5 x 47.2 x 86.6 / 156.7 x 50.4 x 80.7



E-Injection



E-Dosing



E-Ejector



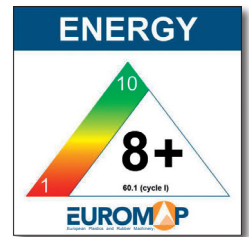
Control



Integrated LR 5



Servo-Drive



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

## Equipment

Injection unit		Electronics	
Pivoting injection unit	■	USB interface for access and data exchange	■
Preset screw speed values with ramping transition	■	Interface kit: Serial/Temperature device, USB/Printer and Ethernet	□
Cold start protection	■	OPC interface	□
Number of set points of injection speed	9	4 freely programmable inputs/outputs	□
Number of set points of injection pressure	9	Piece counter	■
Start of holding pressure dependent on hydraulic pressure, stroke and time	■	Preselect cycle counter with auto shut-off	■
Start of holding pressure, cavity pressure-dependent	□	Grounded socket outlet 230 V ~ / 10 A (alternatively can be switched off)	■(-)
Number of set points of holding pressure	9	CEE socket outlet 400 V ~ / 16 A (alternatively can be switched off)	■(-)
Production monitoring at start of holding pressure	■	Socket distributor 3 x 400 V ~ / 3 x 230 V ~ switched (separate feed line required)	□
Closed loop control for the complete injection profile and back pressure	■	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 mm <sup>2</sup>	□
Control for intrusion-injection	■	Switch cabinet ventilation	■
Microprocessor-controlled heating zones for cylinder and nozzle (setpoint and actual values)	■	Standardized interface for handling units (EUROMAP 67)	□
Hydraulically actuated needle shut-off nozzle	○	Separate feeder (heating and motor current)	■
Hopper quick discharge	■	7-day timer	○
Automatic material loader / feeder	□	Additional temperature control	□
Adjustable nozzle force	■	Brush control	□
Delayed nozzle retraction	■	Connector for safety switch to inhibit mold closing	□
Servo-electric screw drive + injection	■	Integrated hot runner control, 8/16-fold (separate feed line required)	□
High wear-resistant plasticizing units	○	Air conditioning unit for control cabinet	□
High wear-resistant EconPlast unit	○	Alarm signal with sound	□
Simultaneous injection to build up clamping force	■		
Clamping force build-up can be activated parallel to injection	■		
Electromechanical injection movement	■		
Clamping unit		Hydraulics	
Reduced mold height by 50 mm	□	Servo-motor pump drive (Servo-drive)	■
Moving platen support to improve the precision when using large molds	■	Oil preheating circuit automatic	■
Number of set points of mold closing speed / opening speed	9	Oil temperature gauge / Controlled oil cooling / Oil level indicator	■
Number of reopening attempts after mold closing	■	Proportional valve with stroke feedback and positioning action for clamp unit (only for the BOY 50 <i>Electric</i> and BOY 80 <i>Electric</i> )	■
Electromechanical ejector:	■		
Dig. adjustable force, speed, position + no. of strokes, intermediate stop position	■		
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 1-way/2-way and freely selectable alternative programmes	□		
Injection compression (coining) and breathing with mold 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	□		
Mold lifting crane	□		
Simultaneous ejector	■		
Integrated sprue picker	□		
		General	
		Cooling water distributor with electric shut-off valve for injection mold	-
		Temperature control for feed throat	□
		6/8-zone water distributor with digital flow ratio measurement	□
		Tool kit	□
		Spare parts package	□
		Oil filling	■
		Anti-vibration mounts	■

■ standard    ○ alternatively    □ optimal    – not available

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

Data and Equipment (complete overview)



competence brochure



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