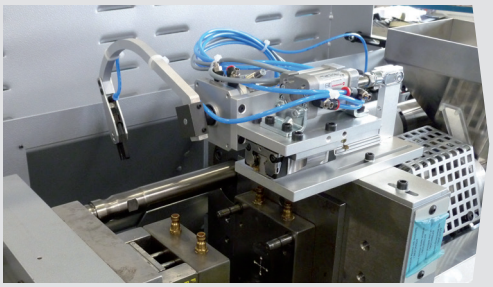
BOY®

Spritzgiessautomaten

Innovative into the Future – BOY Injectioneering

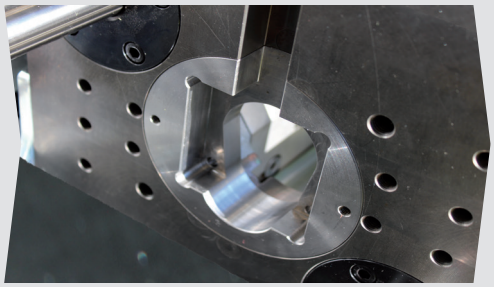
Video BOY XS E

Injection moulding machine BOY XS E



Sprue picker Integrated under the protective safety cover

Compact parts removal handling unit with conveyor bellt on the back side of the machine



Optional Injection unit height-adjustable by 25 mm for a decentralized gating

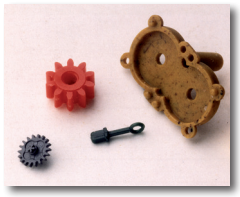
- **Maximum performance** in the **smallest area**
- Designed for continuous **industrial operation**
- More precise, most economical, extremely compact
- **Intuitively** operable and precise ALPHA 6 control
- Selectable **two-platen configurations**
- **Injection unit** that is **height-adjustable** by 25 mm (Option) guarantees a **decentral** gating
- Maximum energy efficiency
- Easily adaptable to **automated** processes and interface options for Industry 4.0

The **BOY XS E** is the successor model to the highly successful BOY XS. The differences to the predecessor model are the very **energy-efficient servo pump drive**, the **ALPHA 6** control with its revised design and the significantly improved accessibility of the machine components.

The **cantilevered two-platen clamping unit** of the BOY XS E with diagonal configuration of the tie bars makes the plasticising unit, the mould space and the ejector easily accessible and facilitates the integration of automation equipment. A special mould holder for **micro moulds** of many well-known standard mould manufacturers is optionally available for the BOY XS E.

With a clamping force of 11 US Tons on a floor space of 0.87 m², the BOY XS E offers a wide range of applications in the **micro and sprueless small part injection moulding** with innovative and proven technologies.

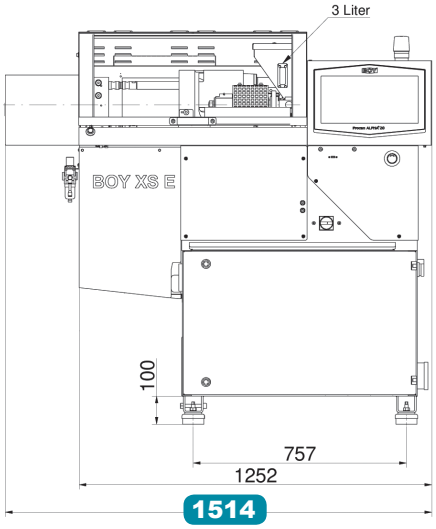
Most smaller injection machines are equipped a with a plunger type of Injection. Instead the **BOY XS E** has a **reciprocating screw** with diameters that range from 8mm to 18mm. This works on the first in first out principal with a specific injection pressures up to 3128 bar. The intelligent design is ideally suited for the requirements of micro injection molding.

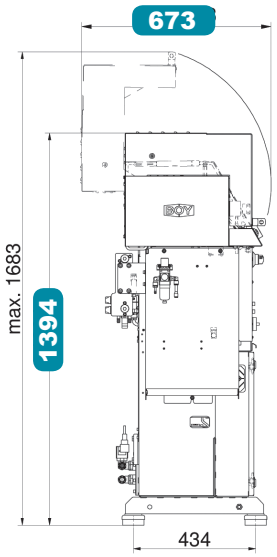


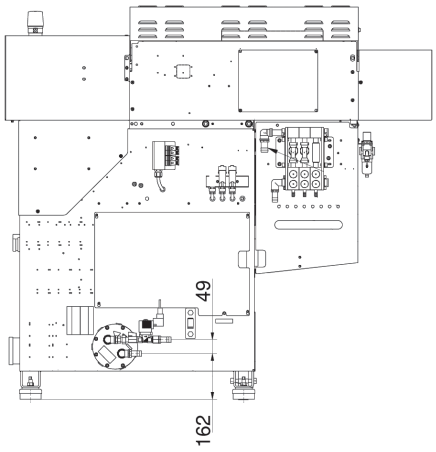
The smallest injection unit of the BOY XS E with **screw diameter of 8 mm** assures shortest residence times – a great advantage for considerate processing of temperature-sensitive materials. The highly demanding production process with the 8 mm screw - which must always be considered in detail from application to application - requires the attention / compliance of the process-relevant injection moulding parameters.

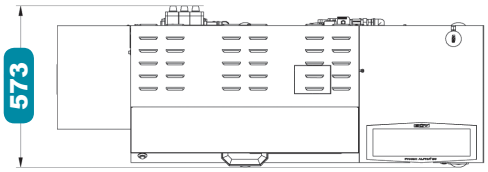
Not only the screen format of the intuitive ALPHA 6 control has been changed to 16:9, but the more modern visualisation with new symbols and added functions ensure an absolute precision and repeatability with **easy operability**.

1. The machine design features the best ergonomics and efficient operation.
2. The ejector chute (optional), 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. Sate of the Art control technology with intuitive operating concept.
5. A strong design with integrated service/cleaning drawer.









Technical Date – standard version

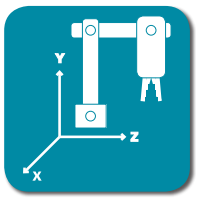
Injection unit for processing thermoplastics		SP 3[1]	SP 14			SP 23
Screw diameter	mm / in	8 / 0.31	12 / 0.47	14 / 0.55	16 / 0.63	18 / 0.71
Screw- L/D-ratio		22	19.7	16.9	14.6	16
Max. stroke volume (theoretical)	in^3	00.6	0.27	0.37	0.49	0.93
Max. shot weight in PS (theoretical)	oz	0.04 (POM)	0.14	0.20	0.26	0.49
Injection force	US Tons	1.38	3.89	3.89	3.89	4.84
Injection flow (theoretical)	oz / sec	0.21	0.90	1.23	1.61	1.63
Max. spec. injection pressure	psi	36,753	45,377	33,330	25,527	21,983
Max. screw stroke	mm / in	20 / 0.79	40 / 1.57	40 / 1.57	40 / 1.57	60 / 2.36
Nozzle force / contact pressure	US Tons	1.10	2.20	2.20	2.20	2.20
Nozzle retraction stroke	mm / in	100 / 3.94	100 / 3.94	100 / 3.94	100 / 3.94	100 / 3.394
Screw torque	ft / lbf	9.2 (362.6 psi)	36.9 (1,071 psi)	55.3 (1,643 psi)	73.7 (2,143 psi)	73.7 (2,143 psi)
Screw speed (infinitely variable)	rpm	max. 340	max. 340	max. 340	max. 340	max. 340
Screw pulback force	US Tons	0.55	0.55	0.55	0.55	0.55
Heating power (nozzle + cylinder)	W	1335	1825	1825	1825	1825
Hopper capacity	US gal.	0.79	0.79	0.79	0.79	0.79
Clamping unit						
Clamping force	US Tons	11.0				
Distance between tie bars	in (h x v)	6.30 (diagonal 8.07)				
Max. daylight between platen	mm / in	250 / 9.84 (optional 200 / 7.87)				
Max. opening stroke (adjustable)	mm / in	150 / 5.91				
Min. mould height	mm / in	100 / 3.94 (optional 50 / 1.97)				
Max. mould weight on moveable clamping side	lb (max)	48.5				
Mould opening force	US Tons	2,42				
Mould closing force	US Tons	1.10				
Ejector stroke (max.)	mm / in	50 / 1.97				
Ejector force pushing / pulling	US Tons	0.92 / 0.92				
General						
Installed driving power / total power	kW	3.0 / 4.34 (400 V)	3.0 / 4.83 (400 V)		2.6 / 4.09 (400 V)	
Duration of the dry cycle (EUROMAP 6)	s – mm	1.3 – 112				
Hydraulic system pressure	psi	3191				
Oil tank capacity	US gal.	6.7				
Dimensiones and weights		**BOY XS E**				
Dimensions (LxWxH) / Footprint	in / square in	59.6 x 22.6 x 54.9[2] / 1211				
Total weight net (without oil)	lb	970				
Total weight gross (pallet & foil / wooden case)	lb	1124 / 1370				
Transport dimensions / case (LxWxH) approx.	in	61 x 27.6 x 63 / 66.9 x 27.6 x 70.9				

1) Not suitable for all materials; applicability on request 2) max. 66.26 inch

Servo - Drive

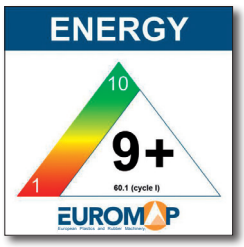
Control

Screw



Automation

Made in Germany



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	2+1 ☐
Needle shut-off nozzle (pneumatic for XXS-LSR)	○
Slide-away for quick material change (25/35/55 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	–
Height-adjustable injection unit (up to 25 mm)	○

Elektronics

USB interface for access and data exchange	■
Interface kit: Serial/Temperature device, USB/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 400 V ~ switched + 230 V ~ (Standard supply 32 A)	☐
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

Enlarged mould height by 25 mm	☐
Moving platen support to improve the precision	–
Number of set points of mould closing speed / opening speed	8/8
Number of reopening attempts after mould closing	■
Hydr. ejector with adjustable pressure, speed, position + no. of strokes, intermediate stop position	■
Hydraulic ejector with adjustable stroke 45 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	☐
Mould holder 75 x 75 mm	○

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 000885
A 03/23

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

Data and Equipment (complete overview)

Competence brochure

BOY®
Spritzgiessautomaten

Boy Machines, Inc.
199 Philips Road
Exton, Pennsylvania 19341

Phone: (610) 363-9121
Fax: (610) 363-0163
sales@boymachines.com
www.boymachines.com

BOY-APP
free of charge at
http://app.dr-boy.de