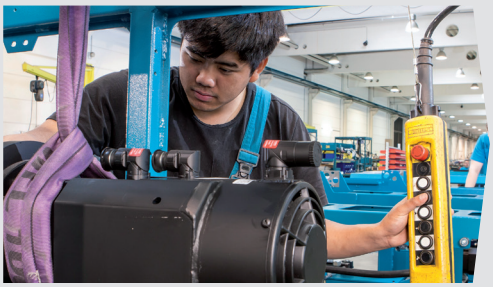
BOY®

Spritzgiessautomaten

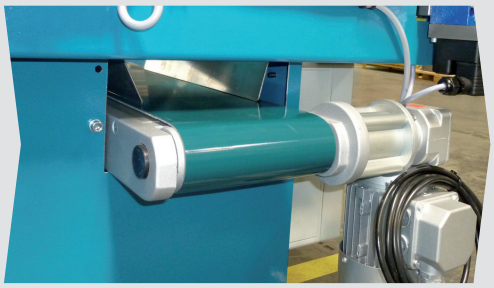
# Innovative into the Future – BOY-Injectioneering


## Injection moulding machine BOY 25 E



Most efficient technology with servo-motor pump drive

Optional EconPlast technology from screw diameter 18 mm



Optional sorting conveyor belt – integrated in the trip chute of the BOY 25 E

- Attractive price/performance ratio
- Robust, well thought-out design with **cantilevered** two-platen clamping unit
- High efficiency through low machine hour rates
- Generous tie bar and platen distances
- Optionally with high wear-resistant EconPlast technology (only with SP 82)

The BOY 25 E is based on a well proven design. Since 1968, more than 25,000 machines of this series have been delivered.

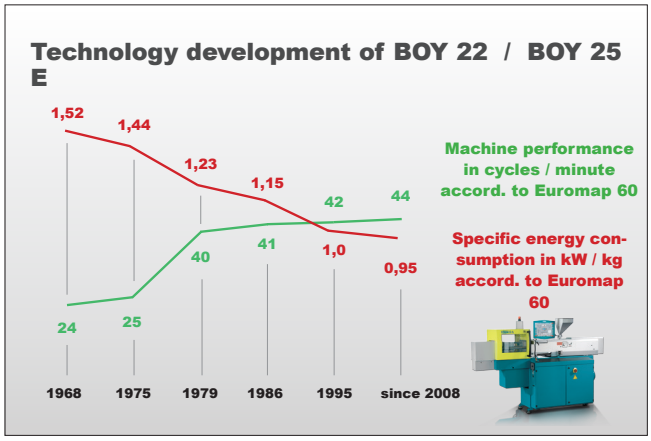
Significant innovation is the increase to 250 kN clamping force and the possibility of a **differential injection**, which provides increased injection speeds.

With further optimizations such as the use of high speed pistons and an hydraulic pump with 10 % more conveying volume, a clear increase of the machine speeds, **improved dynamics** and a shorter dry cycle time could be achieved.

The BOY 25 E is characterized by **highest precision** and reliability. With a footprint of 1.8 m², the extremely compact injection moulding machine is simple, clear and ergonomically designed. The cantilevered clamping unit features easy access and room for numerous options including automated systems.
Six different sized injection units combined with seven different screw diameters offer a wide range of individual equipment options.

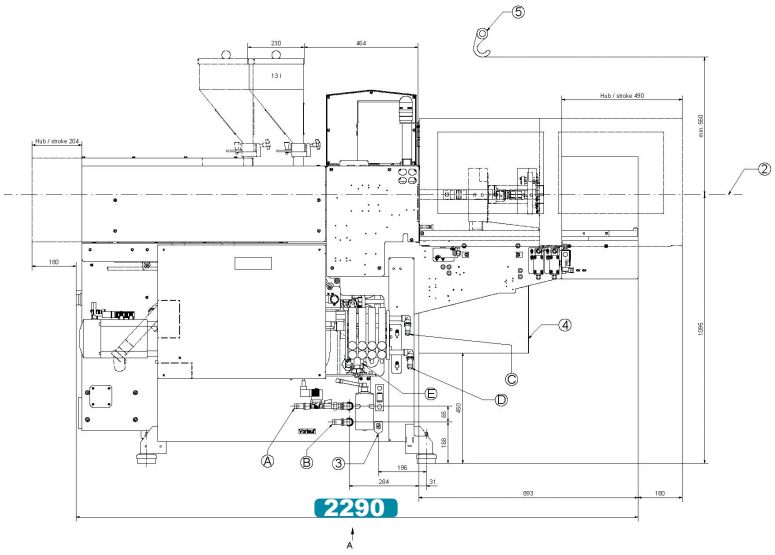
Thus, **higher injection speeds** are possible by differential injection with the 250-11, 250-16, and the 250-39 units.

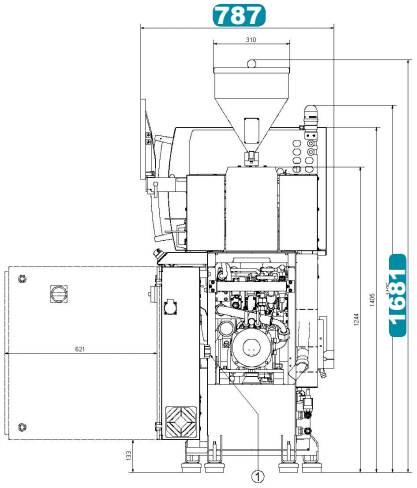
A multitude of **thermoplastics**, **elastomers**, **silicones** and **thermosets** as well as **metals** and **ceramics** (PIM-Technology) can be processed trouble-free on the BOY 25 E.

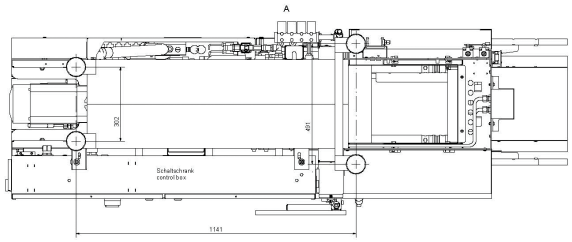




1. The machine design features the best ergonomics and efficient operation.
2. The ejector chute, open on three sides, guarantees optimum removal of the moulded parts.
3. Easy handling and flexibility with regard to additional equipment due to the cantilevered clamping system.
4. Optimum control technology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



All dimensions in mm

## Technical Data – standard version[1)]

| Injection unit for processing thermoplastics | | SP 69 | | SP 82 | |
|---|---|---|---|---|---|
| Screw diameter | mm / inch | 22 / 0.87 | 24 / 0.94 | 28 / 1.10 | 32 / 1.26 |
| Screw- L/D-ratio | | 17.5 | 22 | 18.6 | 16.3 |
| Max. stroke volume (theoretical) | $in^3$ | 1.86 | 2.62 | 3.57 | 4.67 |
| Max. shot weight in PS (theoretical) | oz | 0.98 | 1.38 | 1.88 | 2.45 |
| Injection force | US Tons | 9.57 | 9.57 | 9.57 | 9.57 |
| Injection flow (theoretical) | oz/s | 1.86 | 2.21 | 3.00 | 3.92 |
| Max. spec. injection pressure | psi | 33,025 | 27,746 | 20,378 | 15,606 |
| Max. screw stroke | inch | 3.15 | 3.74 | 3.74 | 3.74 |
| Nozzle force / contact pressure | US Tons | 5.28 | 5.28 | 5.28 | 5.28 |
| Nozzle retraction stroke | inch | 8.07 | 8.07 | 8.07 | 8.07 |
| Screw torque | ft / lbf | 132.7 (1885 psi) | 132.7[2] / 213.9[3] | 132.7[2] / 213.9[3] | 132.7[2] / 213.9[3] |
| Screw speed (infinitely variable) | rpm | 400 | 400[2] / 250[3] | 400[2] / 250[3] | 400[2] / 250[3] |
| Screw pullback force | US Tons | 4.18 | 4.18 | 4.18 | 4.18 |
| Heating power (nozzle + cylinder) | W | 3550 | 5800 | 5800 | 5800 |
| Hopper capacity | US gal. | 3.4 | 3.4 | 3.4 | 3.4 |
| **Clamping unit** | | | | | |
| Clamping force | US Tons | 27.5 | 27.5 | 27.5 | 27.5 |
| Distance between tie bars | inch (h x v) | 10 | 10 | 10 | 10 |
| Max. daylight between platen | mm / inch | 400 / 15.75 | 400 / 15.75 | 400 / 15.75 | 400 / 15.75 |
| Max. opening stroke (adjustable) | mm / inch | 200 / 7.87 | 200 / 7.87 | 200 / 7.87 | 200 / 7.87 |
| Min. mould height | mm / inch | 200 / 7.87 | 200 / 7.87 | 200 / 7.87 | 200 / 7.87 |
| Max. mould weight on moveable clamping side | lb | 331 | 331 | 331 | 331 |
| Mould opening force | US Tons | 1.94 | 1.94 | 1.94 | 1.94 |
| Mould closing force | US Tons | 1.94 | 1.94 | 1.94 | 1.94 |
| Ejector stroke (max.) | mm / inch | 80 / 3.15 | 80 / 3.15 | 80 / 3.15 | 80 / 3.15 |
| Ejector force pushing / pulling | US Tons | 1.99 / 1.32 | 1.99 / 1.32 | 1.99 / 1.32 | 1.99 / 1.32 |
| **General** | | | | | |
| Installed driving power / total power | kW | 7.4 / 11.0 (400 V) | 7.4 / 13.2 | 7.4 / 13.2 | 7.4 / 13.2 |
| Duration of the dry cycle (EUROMAP 6) | s – mm | 1.24 – 178 | 1.24 – 178 | 1.24 – 178 | 1.24 – 178 |
| Hydraulic system pressure (clamping / injection) | psi | 2683 / 2610 | 2683 / 2610 | 2683 / 2610 | 2683 / 2610 |
| Oil tank capacity | US gal. | 17.2 | 17.2 | 17.2 | 17.2 |

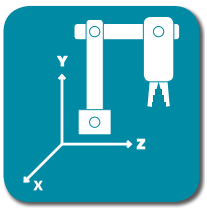
| Dimensiones and weights | | BOY 25 E |
|---|---|---|
| Dimensions (LxWxH) / Footprint | inch / $in^2$ | 90.2 x 31.0 x 66.2 / 2796 |
| Total weight net (without oil) | lb | 1653 |
| Total weight gross (pallet & foil / wooden case) | lb | 1796 / 2204 |
| Transport dimensions / case (LxWxH) approx. | inch | 90.6 x 41.7 x 82.7 / 90.6 x 41.3 x 70.9 |

1) more injection units see Technical Data and Equipment 2) stroke volume 100 $cm^3$ / 1885 psi 3) stroke volume 160 $cm^3$ / 1885 psi

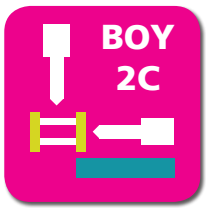

Servo–Drive

Procan ALPHA®

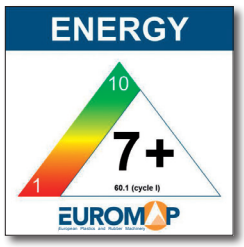
Technology



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 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/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) | – (–) |
| 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 000768
A11/22

Modification in design and equipment reserved

**You would like to learn more about this BOY injection unit?**


**Data and Equipment** (complete overview)


**Competence brochure**

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Spritzgiessautomaten

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