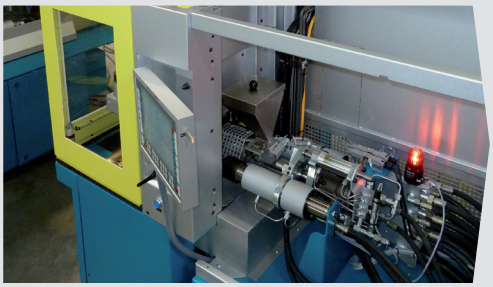
BOY®

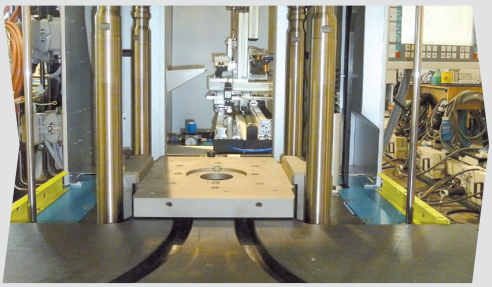
Spritzgiessautomaten

# Innovative into the Future – BOY-Injectioneering

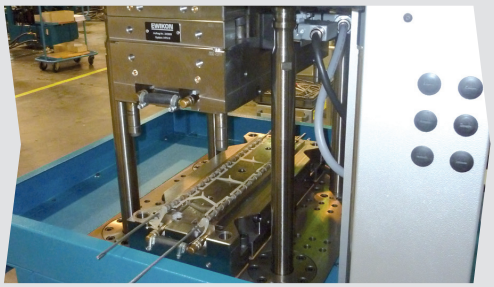

## Insert moulding machines BOY 35 E VV
## BOY 35 E VH



Injection unit for 2C injection moulding tightly mounted on the machine table



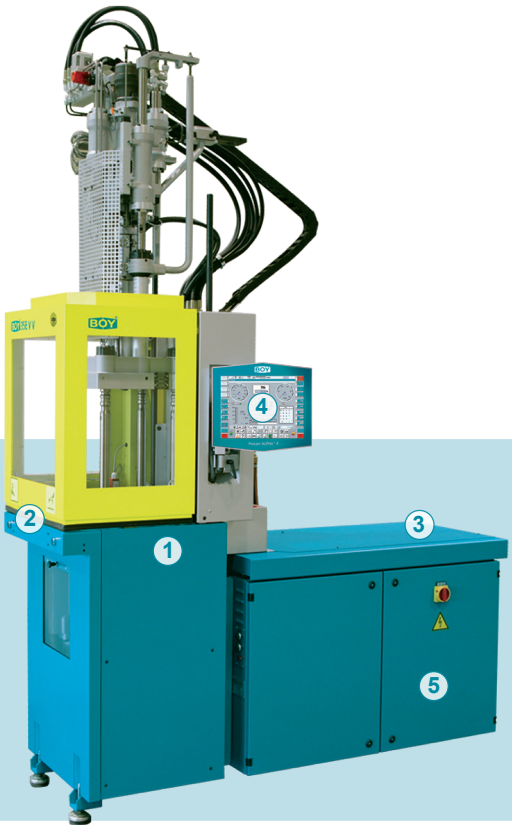
Y-table with curved tracks and integrated automation on the machine table



Continuous production of distance pieces of saw chains

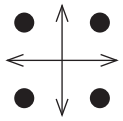
- **Four-tie bar** insert moulding machine
- Fixed lower platen, a shifting of the inserted parts is excluded
- User-friendly automation possibilities (e.g. with Y-table, robots, light barriers, etc.)
- **Speed injection** with injection unit 16 and unit 45 (higher injection speed)
- Processing of thermoplastic material, thermoset, PVC, elastomer, silicone (LSR), MIM, Hotmelt, etc.

The basic concept of the 35 E V is quiet similar to the BOY 35 E horizontal injection moulding machine - merely the injection and clamping unit were **arranged vertically** by a 90° rotation. The lower platen **is fixed**. Therefore, a shifting of the insert parts during mould closing is excluded.



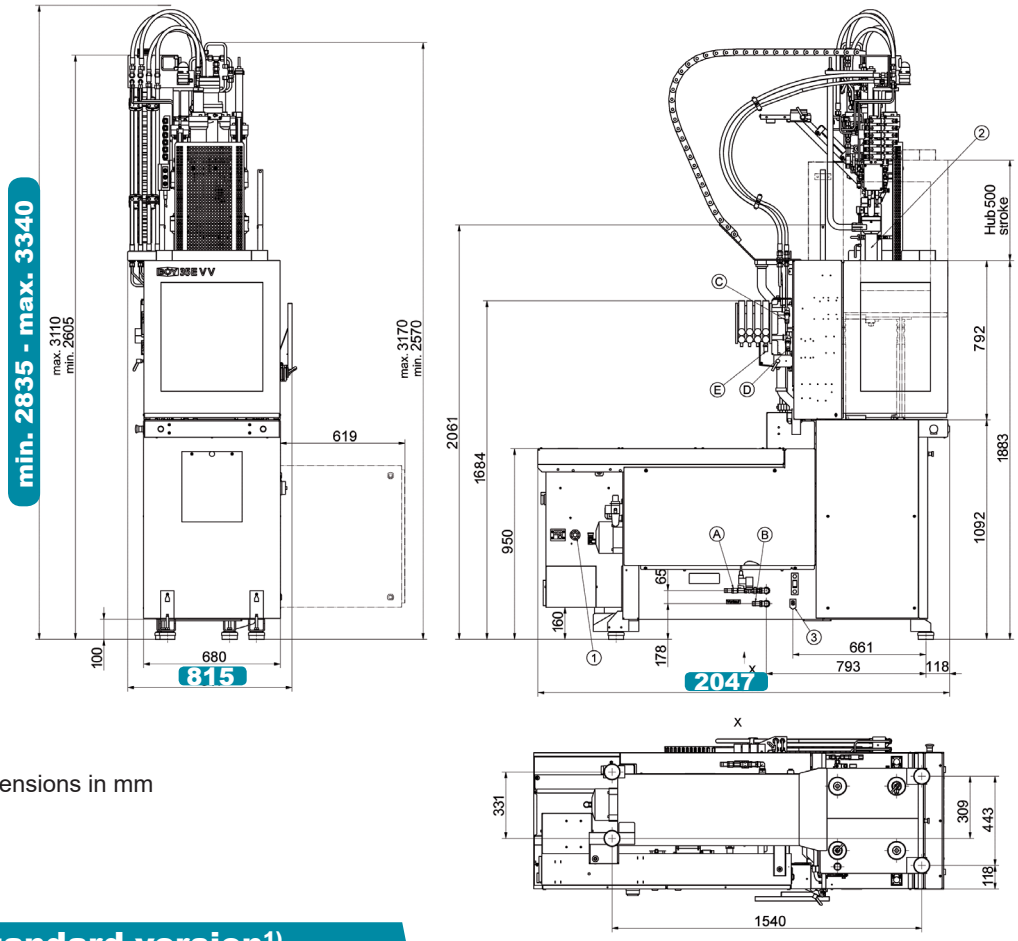

Shot weights of up to 69.5 g (PS) for highly precise applications, compact dimensions, **ample space** for peripheral equipment on the machine frame, as well as the possibility to also use smaller injection units make the BOY 35 E VV an ideal solution for **fully automatic over-moulding** of insert parts.

User-friendly automation possibilities (e.g. with Y-tables, robots, light barriers, etc.)



Injection into the parting line – no problem with the **BOY 35 E HV**. Especially in this market segment, BOY has worldwide a very big market share. With horizontal arranged injection unit and vertically clamping unit, injection of the materials is done into the parting line of the mould. Thus, injection points on decor surfaces can be prevented. A complex and expensive hot runner technique is not required; the production of sprues can be avoided.

1. The machine design features the best ergonomics and efficient operation.
2. Characteristic for all BOY insert moulding machines is the fixed lower platen.
3. Free machine table for integration of automation equipment. (higher injection speed)
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 96 (Standard) | | |
|---|---|---|---|---|
| Screw diameter | mm / inch | 24 / 0.94 | 28 / 1.10 | 32 / 1.26 |
| Screw- L/D-ratio | | 22 | 18.6 | 16.3 |
| Max. stroke volume (theoretical) | $in^3$ | 2.62 | 3.57 | 4.67 |
| Max. shot weight in PS (theoretical) | oz | 1.38 | 1.88 | 2.45 |
| Injection force | US Tons | 11.11 | 11.11 | 11.11 |
| Injection flow (theoretical) | oz/s | 2.42 | 3.30 | 4.31 |
| Max. spec. injection pressure | psi | 32,358 | 23,772 | 18,202 |
| Max. screw stroke | mm / inch | 95 / 3.74 | 95 / 3.74 | 95 / 36.74 |
| Nozzle force / contact pressure | US Tons | 5.28 / 2.64[5] | 5.28 / 2.64[5] | 5.28 / 2.64[5] |
| Nozzle retraction stroke | mm / inch | 205 / 8.07 | 205 / 8.07 | 205 / 8.07 |
| Screw torque | ft / lbf | 132.7[2] / 213.8[3] | 132.7[2] / 213.8[3] | 132.7[2] / 213.8[3] |
| Screw speed (infinitely variable) | rpm | 10-250[3] / 10-400[2] | 10-250[3] / 10-400[2] | 10-250[3] / 10-400[2] |
| Screw pullback force | US Tons | 4.84 | 4.84 | 4.84 |
| Heating power (nozzle + cylinder) | W | 5800 | 5800 | 5800 |
| Hopper capacity | US gal. | – / 5.28[5] | – / 5.28[5] | – / 5.28[5] |

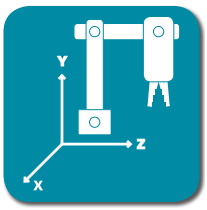
| Clamping unit | | |
|---|---|---|
| Clamping force | US Tons | 38.5 |
| Distance between tie bars | inch (h x v) | 11 x 10 |
| Max. daylight between platen | mm / inch | 500 / 19.7[6] |
| Max. opening stroke (adjustable) | mm / inch | 300 / 11.8 |
| Min. mould height | mm / inch | 200 / 7.87[6] |
| Max. mould weight on moveable clamping side | lb | 485 |
| Mould opening force | US Tons | 3.25 |
| Mould closing force | US Tons | 2.35 |
| Ejector stroke (max.) | inch | 3.15 (5.12) |
| Ejector force pushing / pulling | US Tons | 2.62 / 1.74 |

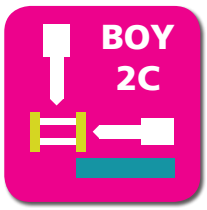
| General | | |
|---|---|---|
| Installed driving power / total power | kW | 7.4 / 13.2 (400 V) |
| Duration of the dry cycle (EUROMAP 6) | s – mm | 1.5 – 196 |
| Hydraulic system pressure | psi | 3046 |
| Oil tank capacity | US gal. | 17.2 |

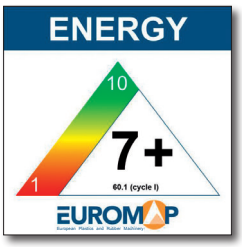
| Dimensiones and weights | | BOY 35 E VV | BOY 35 E VH |
|---|---|---|---|
| Dimensions (LxWxH) / Footprint | inch / $in^2$ | 80.6 x 32.1 x 111.6[4] / 2587 | 80.6 x 31.6 x 92.0[7] / 2547 |
| Total weight net (without oil) | lb | 3130 | 3196 |
| Total weight gross (pallet & foil / wooden case) | lb | 3295 / 3836 | 3362 / 3902 |
| Transport dimensions / case (LxWxH) approx. | inch | 90.6 x 47.2 x 90.6 / 90.6 x 47.2 x 88.6 | 90.6 x 47.2 x 90.6 / 90.6 x 47.2 x 88.6 |

1) more injection units see Technical Data 2) motor / volume 100 $cm^3$ / 1885 psi 3) stroke volume 160 $cm^3$ / 1885 psi 4) max. 131.5 in 5) VH-machine 6) optional 3.94 in larger 7) max. 101 in




**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 | ■ |
| 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 400 V ~ / 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

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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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