

The background image shows industrial machinery, likely a conveyor system or sorting machine, with grey metal frames and various cables. A large, semi-transparent green and yellow circular graphic is overlaid on the right side of the image.

Ecoline S Series.
**Efficient
solutions for
quality production.**

Efficient solutions for quality production. **Die casting with confidence.**

The Ecoline S is a series of cold-chamber die-casting machines with locking forces ranging from 3,400 to 8,400 kN, particularly well-suited for casting aluminum and magnesium.



7

Robust hydraulic system.

- Reliable and proven hydraulic system
- Inline gear pump
- Suction filter & high pressure filters to increase lifetime of hydraulic components
- System pressure up to 210 bar

6

Convenient control cabinet.

- Digital interfaces for commercially available peripherals
- Proven WAGO terminals
- Robust KEBA hardware
- Pre-wired cabinet for reduced installation time

1

Easy to use control panel.

- Up to 5 % faster programming due to object-oriented graphical user interface
- Outstanding diagnostics for fast trouble shooting & data analysis
- Data traceability up to six months
- Data sharing with OPC and external networks

2

Peripheral integration.

- Digital interfaces to peripherals
- Fast production and die change due to integrated peripherals (data are saved in die program)

3

Powerful injection unit for up to 5 % less scrap.

- High repeatability due to real time shot control in 1st & 3rd phase
- Multi-point setting including braking function – this increases die lifetime and reduces flash – for higher productivity
- Single-circuit system with piston accumulator and integrated intensifier – very fast switch over from 2nd to 3rd phase
- Fill test for exact injection curve setup

5

Reliable closing unit.

- Proven 3-platen toggle system with more than 2,000 systems in the market
- Powerful hydraulic double-cylinder ejector for parallel ejection of parts
- Core pull on movable and fixed platen for high flexibility

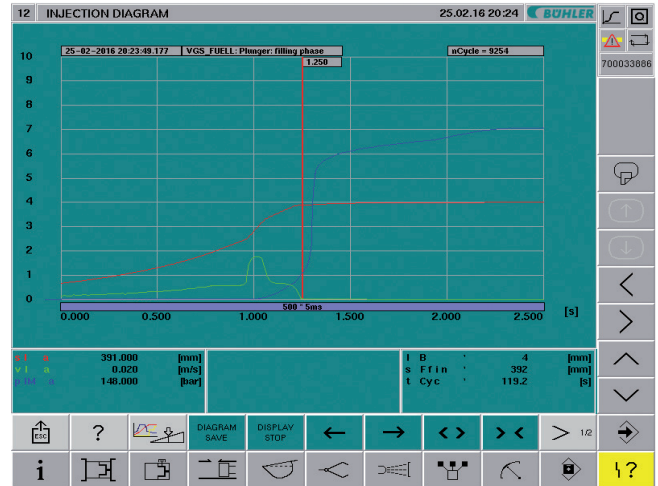
4

Tie bar withdrawal for easy die change.

- Tie bars are completely retractable
- Automatic operation, monitored by control system



Reliable and precise for consistent results. **State-of-the-art technology.**



Straightforward operation.

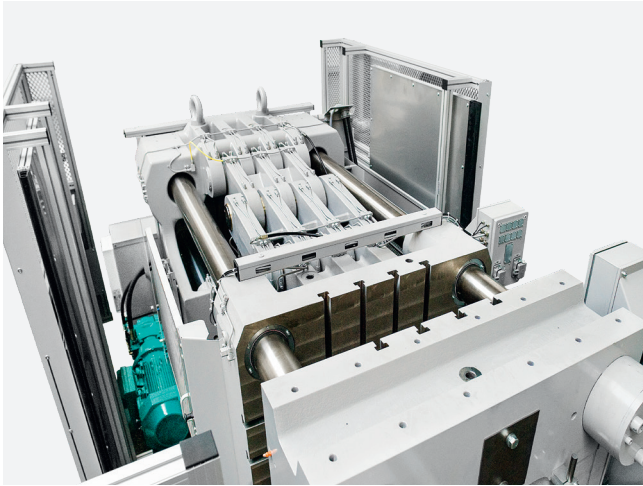
Bühler die-casting machines combine state-of-the-art machine technology with excellent automation solutions. Hardware and software simplify the die-casting process so it is easier than ever to produce high quality castings. The integrated touch-screen operator station connects the user to the casting process through intuitive screens for setup and monitoring. The graphical user interface is customized to reach customer's requirements and provides helpful functions along the entire production process.

Integrated know-how.

Assistance systems make it possible to fill dies with minimal air entrapment. This increases productivity by as much as five percent. In addition, the system determines the best pre-filling profile at the touch of a button; eliminating the need for complicated injection curve optimization. Still, users can adjust the filling profile as they wish with Bühler's Multistep technology. Digital recording of the plunger movement allows precise monitoring and control of the casting process. Finally, the Ecoline S series' closed loop control ensures consistent results – every injection.

Up to
5%

Increased productivity
due to optimized first
phase.



Greatest consistency.

The 3-platen locking system has already proven itself in over 2,000 Bühler die-casting applications worldwide. The multiple central lubrication ports in each single lash guarantee highest reliability even under harsh production conditions. Bühler's toggle system ensures fast movements and an evenly distributed locking force.



High power performance.

Die filling at high speed and extreme pressure is a foundational requirement for today's complex die castings. State-of-the-art proportional technology meters the high power injection unit during the second phase to overcome process variations and attain consistent results. The regenerative hydraulics used during the first phase, performs reliably and reduces energy consumption.



Central automation solution.

The die-casting machine, sprayer, ladler and extractor are centrally operated and monitored. Because all peripheral movements are perfectly in sequence with the die-casting machine, the cycle time can be optimized and the uptime increases.

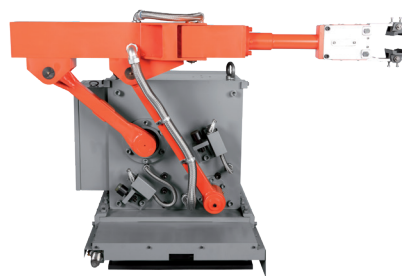
There is no need for complicated interfaces. The cell can be programmed and operated by the machine control system. All settings are stored within the die program. This function reduces the downtime for production changes. It also ensures stable quality of the casted parts and ensures a predictable productivity level.

Thought through and aligned. Integrated peripherals for optimal results.



Consistent ladling.

The BRL Servo metal ladle offers quick movements to minimize cycle time and precise positioning for accurate dosing. Meticulous control of the ladle function ensures stable production. Robust, low-maintenance mechanical systems form the best basis for continuous operation.



Reliable extraction.

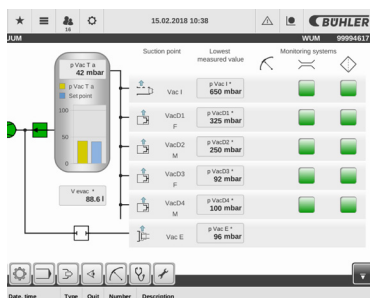
The BE-C Servo extractor grips the castings with pinpoint accuracy and sets them carefully. Quick movements due to the servo drive technology and freely programmable waiting positions prior to extraction help to save valuable cycle time. The integrated parts inspection provides additional transparency to the process and helps to avoid unscheduled interruptions of production.



Optimum spraying.

Even the most complex casting shapes can be completely sprayed out with the BP-XL Servo sprayer. This is made possible by four spray-blow circuits as well as two independent high pressure blowing circuits. The dynamics of the Servo drive technology ensures that cycle times are kept to a minimum.

SmartVac – Vacuum system with higher process transparency.



The SmartVac vacuum system is integrated seamlessly into the die-casting system. It is controlled centrally with the Ecoline S control unit. All relevant vacuum parameters are measured, monitored and assigned to the process directly – for comprehensive process transparency and optimum quality of the components.

The SmartVac standard version allows the use of thermally self-locking valves, so called chill blocks, at a maximum of two suction points – one at the fixed and one at the movable side. As an option, other commercially available valves can be controlled.

Ecoline S and Ecoline S Pro.

Technical data / dimensions.

		Type 34	Type 53	Type 66	Type 84
Injection unit					
Injection force dynamic	kN	137	192	288	288
Injection force intensified	kN	377	526	771	771
Plunger stroke	mm	500	600	700	700
Max. plunger speed ~	m/s	8.5	8.5	8.5	8.5
Shot position (Ecoline S)	mm	-125	-175	-175	-250
Shot position (Ecoline S Pro)	mm	0 – -210	0 – -250	0 – -300	0 – -300
Production data					
Plunger diameter	mm	50 – 80	60 – 100	70 – 120	70 – 120
Max. casting volume	cm ³	654 – 1676	1131 – 3142	1796 – 5278	1796 – 5278
Max. casting weight, filling rate 60% (Al)	kg	1.6 – 4.2	2.8 – 7.8	4.5 – 13.2	4.5 – 13.2
Max. metal pressure	bar	1921 – 750	1861 – 670	2004 – 682	2,004 – 682
Max. projected area	cm ²	175 – 448	282 – 784	330 – 970	420 – 1230
Closing unit					
Max. locking force	kN	3,400	5,300	6,600	8,400
Distance between tie bars	mm	650	720	780	900
Die height (min./max.)	mm	300/700	330/810	360/900	400/1000
Die opening stroke	mm	510	640	800	800
Smallest permissible die dimensions	mm	450 x 450	560 x 560	620 x 620	720 x 720
Ejector force	kN	100	150	225	225
Ejector stroke	mm	120	145	175	175
Further characteristics					
Installed load at 400V/50Hz	kW	22	30	37	37
Max. system pressure	bar	210	210	210	210
Hydraulic fluid filling quantity	l	650	1000	1180	1180
Machine weight (ready for production)	kg	13500	18500	28000	34500

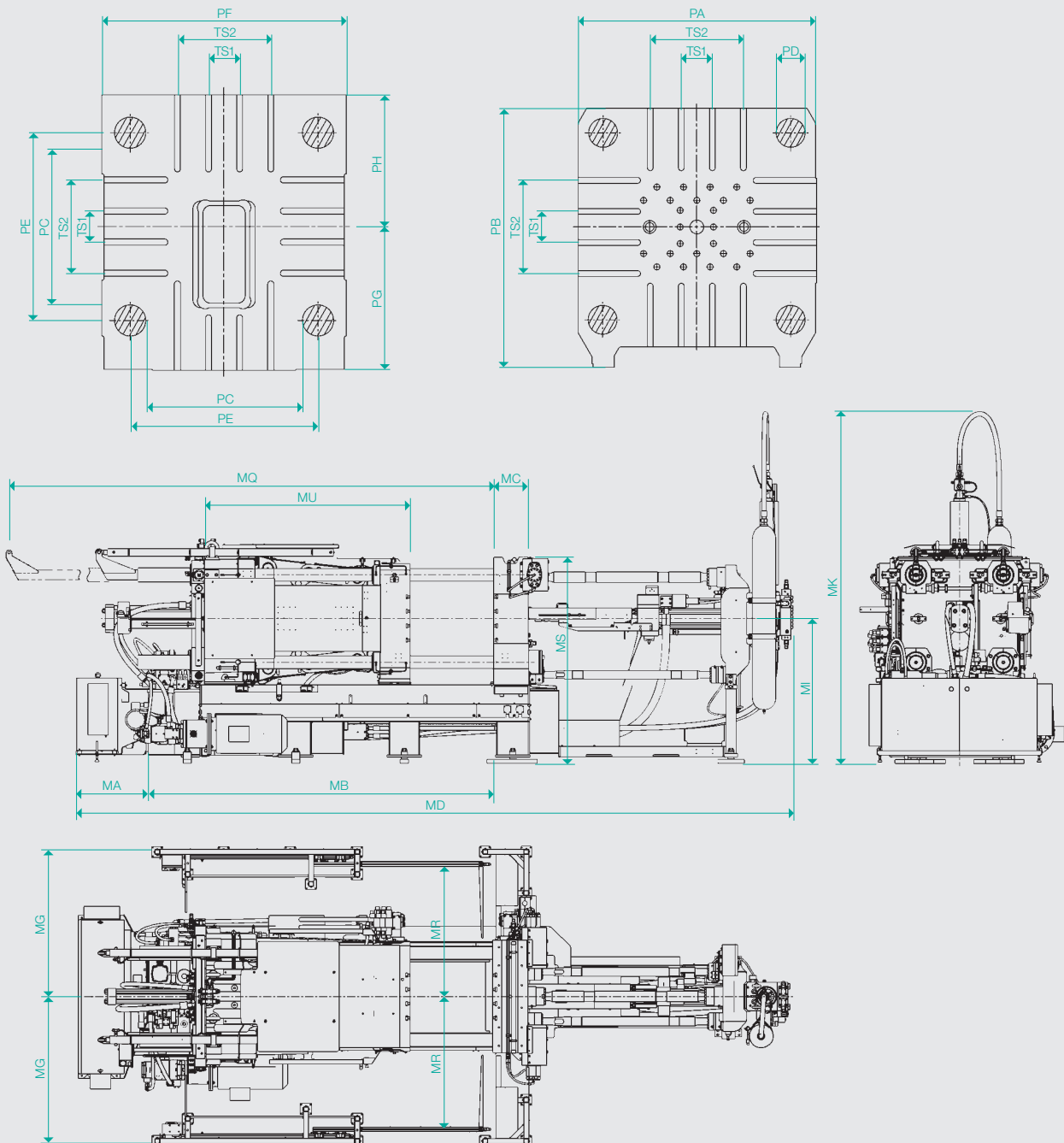
	PA	PB	PC	PD	PE	PF	PG	PH	TS1	TS2
Type 34	970	1,035	650	100	750	990	564.5	535.5	140	420
Type 53	1,075	1,167.5	720	125	845	1100	642	593	140	420
Type 66	1,215	1,368	780	150	930	1270	774.5	679.5	140	420
Type 84	1,385	1,516	900	170	1070	1430	837.5	769.5	140	420

Units in mm

	MA	MB	MC	MD	MG	MI	MK _{max.}	MQ	MR	MS	MU
Type 34	720	2900	295	6234	1125	1309.5	3192	5070	1000	1845	1605
Type 53	720	3370	340	6988	1395	1402	3406	5800	1270	1995	1990
Type 66	720	4000	360	7992	1515	1539.5	3615	6985	1390	2219	2353
Type 84	745	3975	410	7992	1775	1602.5	3678	7100	1600	2372	2428

Units in mm

Subject to change without notice.



Subject to change without notice.

Integrated peripherals.

Technical data / dimensions.

Dosing device BRL Servo

		BRL-3	BRL-4
Application		Ecoline S Type 34 and 53	Ecoline S Type 66 and 84
Dosing size / cycle	kg (Al)	1– 6	2–12
Travel path horizontal	mm	1876	2260
Bath level descent	mm	350	450
Connected power	kW	1.5	2.5
Dimensions of ladling unit (L×W×H)	mm	1198 × 604 × 1300	1306 × 604 × 1375
Weight of ladling unit	kg	260	310

Spraying device BP-XL Servo

		BP-XL2	BP-XL3	BP-XL4
Application		Ecoline S Type 34	Ecoline S Type 53	Ecoline S Type 66 and 84
Vertical stroke	mm	800	1100	1200
Horizontal stroke	mm	750	900	1100
Number of spray-blow circuits		4	4	4
Number of release agents		1	1	1
Number of high-pressure blow circuits		2	2	2
Drive type		AC-Servo	AC-Servo	AC-Servo
Connected power	kW	4	4	4
Dimensions of sprayer (L×W×H)	mm	1365 × (700) × 1900	1515 × (700) × 2200	1715 × (700) × 2300
Weight of spray unit	kg	355	380	400
Weight of spray head max.	kg	35	33	32

Extraction device BE-C Servo

		BE-C3	BE-C4
Application		Ecoline S Type 34 and 53	Ecoline S Type 66 and 84
Number of axes		3	3
Handling weight	kg	6	10
Maximum range	mm	1160	1271
Drive type		electrical, pneumatic	electrical, pneumatic
Connected power	kW	3	4
Interference contour of extractor (without gripper and load) (L×W×H)	mm	920 × 900 × 1200	1030 × 1095 × 1350
Biscuit diameter	mm	60–90	70–100
Weight of extractor	kg	680	680

SmartVac Ecoline

		200/63	300/63
Application		Ecoline S Type 34 and 53	Ecoline S Type 66 and 84
Volumetric capacity of the vacuum tank	l	200	300
Vacuum pump	m³/h	63	63
Installed power	kW	2.0	2.0

Ecoline S and Ecoline S Pro. Options.

	Ecoline S	Ecoline S Pro
Injection unit		
Automatic determination of 1 st phase profile	B	B
Multistep programming of injection profile	o	B
Braking before end of die filling	o	B
Program for production start with reduced speeds and pressures	o	B
Fill test: Plunger intermediate stop for process optimization	o	B
Pressure vessels with Euro-certificate	o	B
Casting position adjustment	--	B
1 standard casting position	B	--
Automatic plunger lubrication complete	o	o
Shot sleeve holder	o	o
Plunger rod according to Bühler standard	B	B
Closing unit		
Die platen with Bühler standard T-slots and Bühler standard ejector holes	B	B
Die platen with T-slots and ejector holes according to customer requirements	o	o
Hydraulic core pull unit M1	B	B
Further hydraulic core pull units – fixed and movable platen	o	o
Pressure reducing and controlled check valves for cores	o	o
Squeezing with core pull	o	o
Automatic locking force control with pressure Lockmat, locking pressure measurement	o	B
Toggle system side guard; Safety enclosure right and left	B	B
Window on operator side to view die area	o	B
Safety enclosure left / right with electric motor driven safety gate and reversing movement	o	o
Toggle system top cover	o	o
Hydraulic column withdrawal on column no. 2 / no. 4 (not for Ecoline S 34 and Ecoline S Pro 34)	o	o
Mechanical die closing safety scotch	o	o
Water cooling consisting of: Loose valves and control	o	o
Water cooling monitoring with water cup	o	o
Control system		
Cell control for integrated Bühler peripherals	B	B
Operator column with 8.4" multicolor touchscreen integrated in fencing	B	--
Stand-alone control column, rotatable	o	B
12" multicolor touchscreen	o	B
Interface for network connection Ethernet / Remote connection enabled for accessing screen pages	B	B
General operator help with hints, hdydraulic diagram, diagnostic diagram	B	B
Process monitoring with trend data and tolerance surveillance of process values	o	B
Extended core program with free programmable core movement sequences	o	B
Spray program for cores and squeeze pins	o	o
Simultaneous movement in the die space including the machine, extractor, sprayer and dosing	o	o
Electrical interfaces		
Interface for ladler or dosing furnace	B	B
Interface for extraction	o	o
Interface for spray equipment	o	o
Interface for plunger lubrication	o	o
Interface for vacuum	o	o
Triple interface for emergency OFF peripheral equipment	o	o
Potential-free contact for Jet Cooling System	o	o
Electrical connection for fencing around ladler and peripherals	o	o

B - Basic; o - Optional

Subject to change without notice.



DC en 0619

Bühler AG

CH-9240 Uzwil
Switzerland

T +41 71 955 11 11
F +41 71 955 25 88

die-casting@buhlergroup.com
buhlergroup.com/die-casting