

EcoPower 55 – 300 t



The leading benchmark for electrical machines
Technology working for you.

Battenfeld
world of innovation

Special features of the EcoPower series 55 – 300 t

The promise: energy-saving, clean and compact

The all-electric *EcoPower*, with clamping forces ranging from 55 to 300 t, combines efficiency with precision. The beltless *EcoPower* scores with a compact injection unit and the clean design of its clamping unit, together with a highly efficient direct drive. The machine also offers a small footprint and is open at the top and on the injection side.



Fast, precise injection

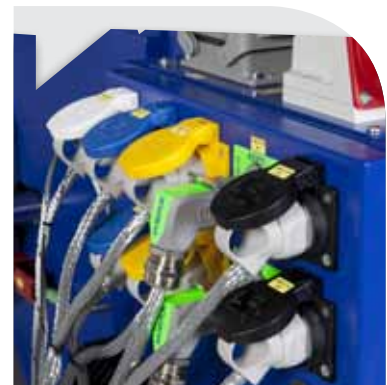
The injection unit is laid out for high-speed and high-precision injection processes even under maximum injection pressure. The encapsulated drive is clean and compact. Injection and metering are effected via a dual drive with a circulating ball spindle at its center.

The *EcoPower* comes with air cooling as standard and two extension options: water cooling with either an open or a closed cooling circuit.



KERS – energy recovery

KERS (Kinetic Energy Recovery System) converts kinetic energy in deceleration processes into electrical energy. The electrical energy thus generated is partly stored and partly used by other drive systems for parallel movements, fed into barrel heating or used to generate control voltage. In this way the entire braking energy is utilized within the machine.





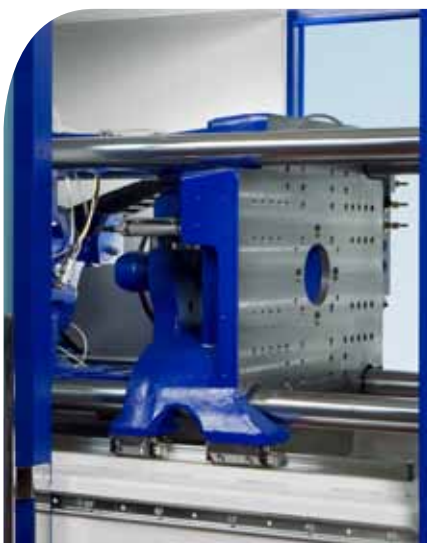
Barrel change from above

The barrel can be completely removed from above. It can also be held in an intermediate position, from which the screw can be quickly removed to the rear for easy maintenance. The use of existing barrels from other machine series is also possible.



Efficient direct drive

The precise, efficient direct toggle drive stands out by its high dynamics and positioning accuracy. It is also extremely energy-efficient.



Flexible safety gate and operating panel

The safety gate, open at the top, is flexible enough to accommodate automation equipment, and easy to clean. The swivel-mounted touch screen of the machine's control system is positioned ergonomically and can be moved to the most convenient working position, which also allows easy access to the nozzle area.

Toggle system

The toggle encasements are sealed on the outside to ensure a clean clamping unit suitable for clean room applications as standard. Starting the injection process parallel to clamping force build-up is also possible in the standard version, leading to a gain in cycle time.



Drive for peripheral movements

A speed-controlled servo-hydraulic drive is used in the standard version, which features a hydraulic ejector, a hydraulic nozzle stroke and an optional core pull. All-electric drives for these functions are available as an option.

In addition to highest precision and speed, the *EcoPower* stands for energy-efficiency and modularity. The following advantages demonstrate the new, unprecedented benchmarks set by the *EcoPower*.

Modularity/flexibility

- Many configuration options and optional extras.
- All customary process technology modules are available.
- Customized equipment for standard high-precision injection molding, clean room technology, medical applications, including packaging and special thin-wall technology.
- Air cooling or optional water cooling with open or closed-loop cooling circuit.
- Ideally suited for automation, from space-saving insider solutions to complex automation systems.

Energy-efficiency

- Minimal energy consumption with internal utilization of braking energy for power supply to the control system and barrel heating. [pat. pend.]
- Modest space requirements and extremely low noise emission (< 68 dB(A)).
- Extremely high degree of efficiency with ultra-modern servo drive technology.

The *EcoPower* offers ultimate modularity and can be laid out perfectly to suit each application. This helps to avoid extra costs for redundant equipment on the one hand, on the other hand there are no more restrictions, which enables optimal utilization of the machine. All-electric systems provide maximum scope for diversity.

Customizing system

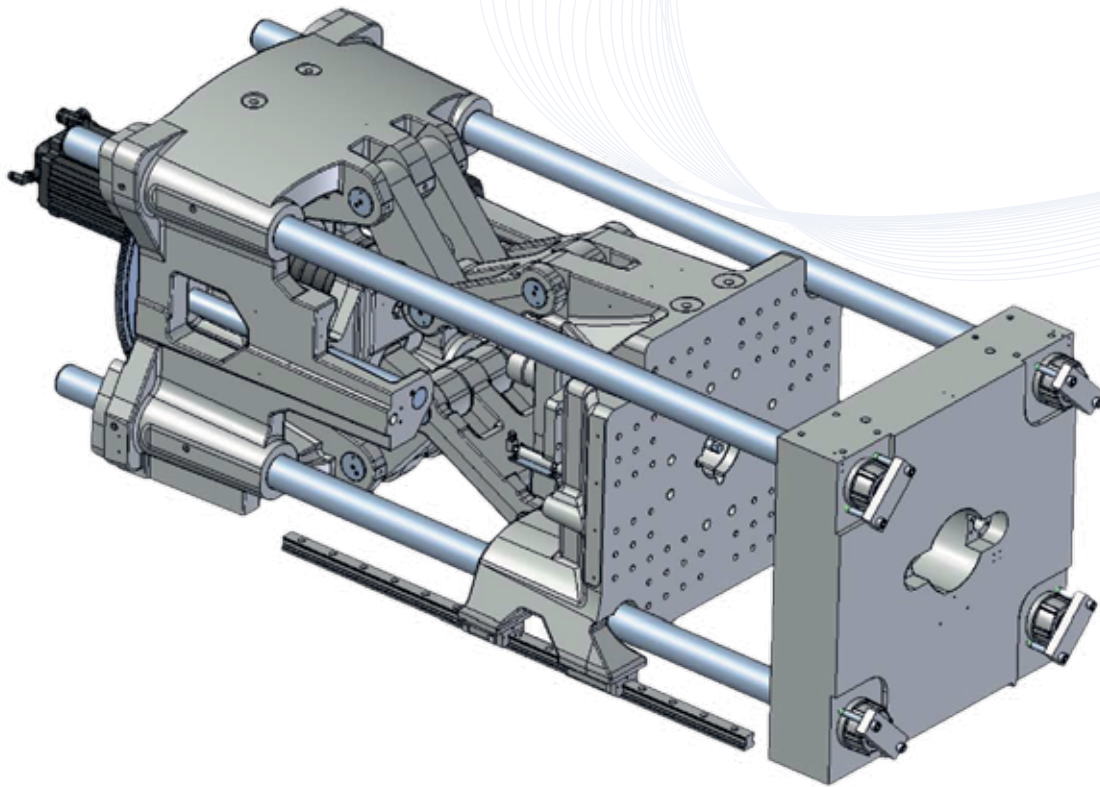
The *EcoPower* "Customizing system" helps to select the right machine. From the standard high-precision equipment up to clean room and high-speed applications, everything can be simply assembled according to the customer's needs. Customary equipment options for the injection side, clamping side, electrical equipment, control system, media and automation can be selected from a catalog.

Configuration

Standard • | Optional ◦

		Cooling		Hydraulic system			Electrical equipment		Injection speed	
		Air	Water	Ejector	Nozzle stroke	Core pull	Ejector	Nozzle stroke	standard	High speed
Basic standard		•		•	•				•	
Basic all-electric		•					•	•	•	
Packages	Basis									
- Clean room package	all-electric	◦	•			◦	•	•	•	◦
- LIM	standard	•	◦	•	•	◦	◦		•	◦
- freely configurable	standard		•		•	•	•		•	

Clamping unit EcoPower 55 – 300 t



The benefits of the EcoPower's compact clamping system

- Integration of the servo-hydraulic aggregate for ancillary strokes in the machine frame.
- Patented beltless direct drive for the spindle nut.
- Clean mold space free of lubricating grease through linear guides and sealed toggle encasements.
- Sensitive mold protection.
- Precise platen parallelism across the entire stroke.
- Short dwell times.
- Self-locking 5-point toggle system.
- Precise clamping force control.
- Servo-driven mold height adjustment.
- Clamping force build-up parallel to injection.
- Compact design with generous ejection area open at the bottom.

Injection unit EcoPower 55 – 300 t

A concept for improved parts quality

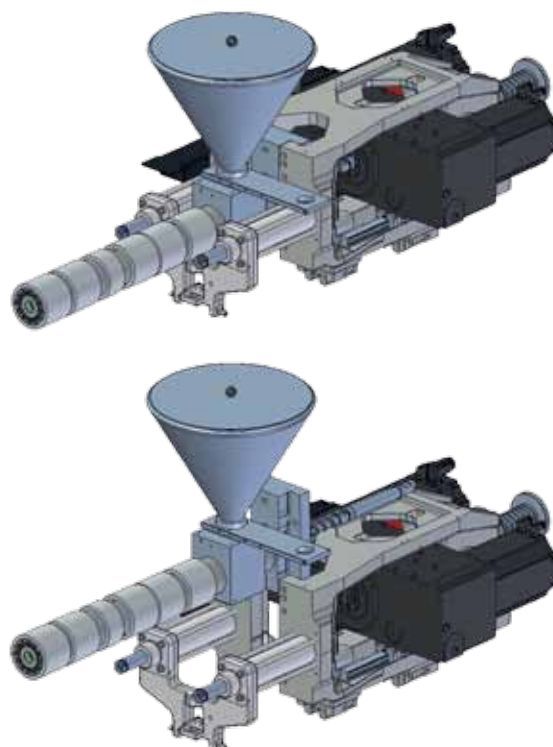
- Optimized melt homogeneity thanks to a uniform L/D ratio of 22:1 and an injection pressure of 2,000 bar with medium-diameter screws.
- Linear guide systems ensure precise axial movements of the injection unit.
- Carriage cylinders positioned opposite each other provide momentum-free nozzle carriage.

Highly dynamic and robust

- Twin drive for injection and dosing.
- Highly dynamic for injection.
- Central ball screw drive with automatic central grease lubrication.
- One-piece, robust cast iron body with linear guides.

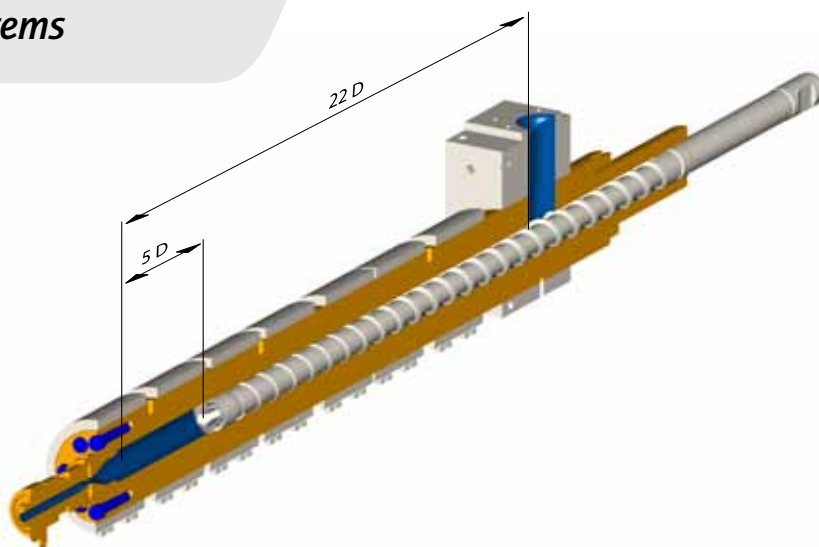
Flexible, ready for fast change

- Can also be mounted as a vertical unit.
- Increased injection speed and dosing performance as an option.
- Injection force measurement or melt pressure sensor for ultimate precision.
- Barrel can be removed from the top.
- Interim position for easy screw change while heated.



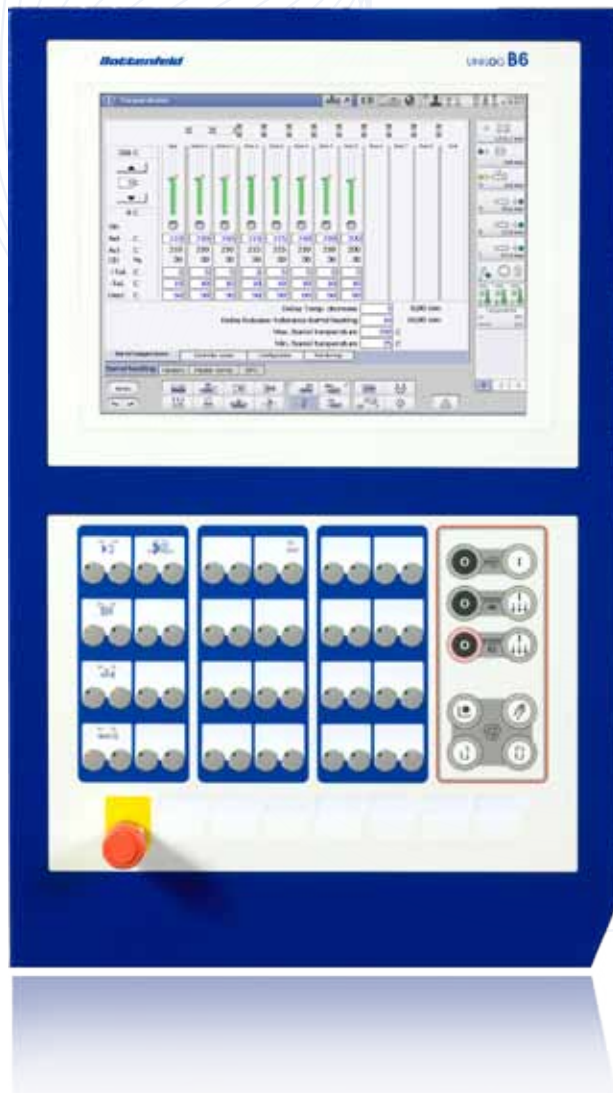
High-performance plasticizing systems

Plasticizing systems for injection molding machines must fulfill many different requirements. By applying a universal L/D ratio of 22 : 1 to the three screw sizes available for each injection unit, the processing window has been optimized to meet rising quality standards. Extremely wear-resistant barrel units are available for processing filled plastic materials.

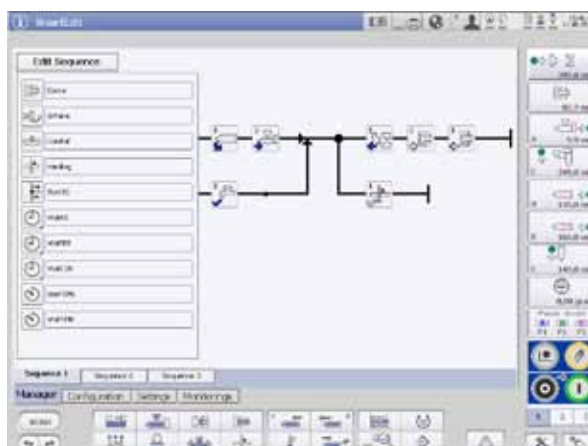


The UNILOG B6^P control system generation

UNILOG B6^P is the name of the new control system generation that is setting benchmarks in user-friendliness, speed and precision. It is used across the entire product portfolio. A powerful system concept optimally geared to the requirements of hydraulics / sensor technology ensures fast, accurate movements along all axes of the machine. Precise analysis of all important process parameters provides the user with the control required for demanding applications.



- Operating system Windows.
- 15" TFT color screen with unlimited touch screen functionality for operation and display.
- 2 rows of soft keys to select machine functions.
- Freely configurable status bar for all machine operating functions.
- Access authorization via password system and USB flash drive, complete events protocol, quality table, online support system, envelope curves monitoring, cycle time analysis, alarm message via Email and other functions.
- The complete machine documentation including all operation manuals, spare parts drawings and parts lists can also be retrieved. In addition, users can integrate their own PDF files and make them available to machine operators.
- USB interfaces are available on the operating unit to connect peripheral equipment such as a printer, keyboard or USB flash drive, or they may be used as an access control system in combination with the integrated password system. Two Ethernet interfaces are installed in the control cabinet at the rear.
- Optional: Manual operating panel with 48 membrane keys to operate the machine's axes and optional equipment and 10 membrane keys with luminous rings are available for the basic machine functions (drive, operation modes, heaters). Space for 7 additional optional mechanical switches/keys.
- Optional: Hi-Q package with SPC chart, trend diagram and further recording possibilities.



SmartEdit

With the *SmartEdit* function, the machine cycle can be visualized and/or created or adjusted as needed. Status information during the ongoing production process shows the exact position within the cycle at any time. Production start-up, progress and shut-down can be visualized and edited in separate diagrams, either vertically or horizontally. Configuration of program sequences for ejectors, core pulls, air valves and robots is also possible. A special feature is the automatic calculation of the automatic process without machine movements on the basis of the current parameter settings.

Energy measurement

Clear visualization of energy consumption is possible with UNILOG B6[®]. Various modes of operation can be displayed as required in terms of cycle time or material consumption.

Consequently, the machine's energy- and cost-efficiency with regard to energy consumption can also be evaluated and calculated by means of accurate process analyses.

Included as standard with *EcoPower*, *MicroPower* and *SmartPower* machines, available as an option for other models.

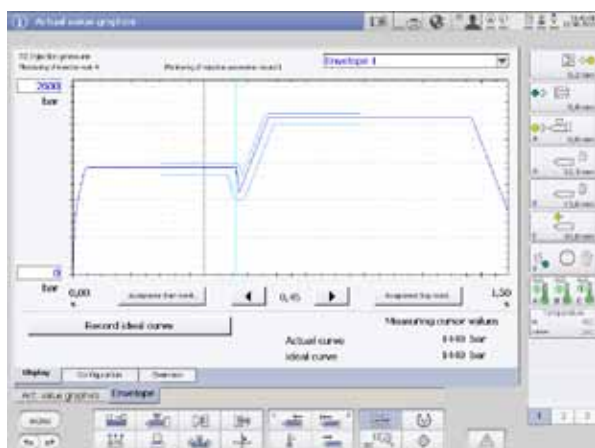


Quality monitoring

With up to four (HiQ package up to 16) envelope curves, the monitoring parameters are optimally adapted to the individual process.

An ideal curve serves as monitoring reference within the tolerance margin. Whenever the tolerance margin is exceeded, an alarm is triggered and the faulty part automatically sorted out.

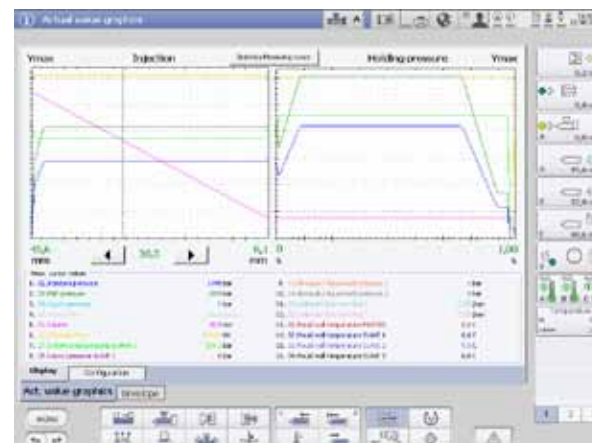
Every parameter can be visualized via the quality table and evaluated by means of an SPC chart.



Trend diagrams

Important process factors can be clearly and concisely visualized. All data processing and monitoring functions are covered by a single control system.

Open interfaces facilitate access, simplify operation and integration in customers' networks.



Integration and communication



Robot control

WITTMANN robots are operated simply and flexibly via the machine's monitor screen, no switch-over is necessary between machine and robot control.

The total overview is given on one screen. The control system of the robot itself is still placed directly on the robot.

Communication takes place via a CAN bus system, the EUROMAP interface remains free.

Webcam

A webcam is integrated in the injection molding machine to visualize production monitoring. This makes it possible to display areas on the B6^p control system that are normally not open to view, such as robot-assisted part deposition or the mold area.

The integrated webcam is used in particular also for Web-Service 24/7. Intelligible pictures of the problem situation on site can be transmitted to our global support center to enable effective analysis.



SmartMonitoring via authentig

With SmartMonitoring, WITTMANN BATTENFELD offers a process data acquisition software which provides access to a universal database. The new program authentig is applied in cooperation with T.I.G. (Technische Informationssysteme GmbH).

SmartMonitoring makes it possible to obtain an online overview of the entire plant from a B6^p monitor.

authentig is an innovative MES (manufacturing execution system) offering a unique portfolio of functions. With up to 10 program modules virtually anything is possible in the areas of overview, analysis, production planning and maintenance.

Web-Service 24/7

WITTMANN BATTENFELD meets the plastics industry's demand for 24/7 availability with a global network of experts.

With the help of the web service center, experienced service engineers establish a direct link to the customer's injection molding machine via the Internet.

In this way, actual service tasks on the machines are performed quickly and flexibly, which ensures optimal productivity and conservation of value.



Application technology *EcoPower* 55 – 300 t

The demands placed on products and components in plastics technology are becoming more and more stringent. The machines of the *EcoPower* series are characterized by ultimate energy-efficiency, cleanness and precision. Other advantages are their low noise level and high reproducibility of parts; their high degree of efficiency ensures low-cost production. This enables the *EcoPower* to meet the most stringent demands for a wide range of applications. It covers virtually all areas of application including medical technology, industrial and high-precision parts, from automotive components to baby care.

Medical and clean-room technology

Thanks to their minimal emissions, low heat radiation and smooth surfaces, the all-electric machines of the *EcoPower* series are predestined for clean room applications. With the additional benefit of high process reliability, the *EcoPower* is ideally suited to a great variety of applications in



medical technology. For example, the production of parts for the Respimat® inhaler, disposable syringes and blood sampling devices yields end products of the highest quality that fully meet the requirements of modern medical technology.



Photo: courtesy of
Boehringer Ingelheim GmbH©

Industrial parts, high-precision parts

The *EcoPower* ensures highest standards of precision and reproducibility, with free-of-play force transmission and servo-electric drives. Parts such as SIM card holders, mini coils, etc. can be produced with high accuracy



and at high speeds. Minimal cycle times and reliable production processes ensure profitability and top-quality products.



Photo: courtesy of
Schlaeger Kunststofftechnik GmbH©

Automotive, baby care

The *EcoPower* can be used for all types of plastics and elastomers, including LIM (= liquid injection molding). Possible applications range from

automotive parts (single-wire seals) or baby care products (pacifiers) to gaskets and gasket elements.



"ALL IN ONE" Insider solution

The Insider solution combines the injection molding machine with an automatic parts removal system and a conveyor belt to form a compact, space-saving unit. Custom-built peripheral equipment for preparation and downstream finishing, as well as special equipment such as an integrated light barrier or installation of a second conveyor belt are included in the production program as options. The Insider is available with up to 300 t clamping force as standard and offers processors a number of advantages.

The robust, compact design of the Insider stands the test in a long-term operation through stability and accessibility.

Space-saving design

Space requirements are up to 50 per cent below those of conventional automation solutions.

Improved material flow

All parts can be removed from the end of the clamping unit. This facilitates the arrangement of several machines in rows.

Reduced robot cycle times

Cycle times are reduced by shorter traverse paths and direct depositing of parts on the conveyor belt.

Easy access in spite of integration

Thanks to easy removal of the conveyor belt and feeding area, access to the injection molding machine is as comfortable as in machines without automation systems.

No separate safety barriers

Since there is no need for separate safety barriers, costs have been reduced, yet all occupational health and safety regulations are complied with.

CE mark

The CE mark for certified safety is granted for every machine with an Insider solution, which saves costs for individual inspections.

Cost-efficient production

Thanks to the space-saving design of the Insider, not only the material flow on the injection molding machine is improved, but the convenient movement of molded parts to the end of the clamping unit also allows for more favorable positioning of the machines.



Possible combinations of clamping units/injection units

Clamping unit	Injection unit					
t	70	130	350	750	1330	2100
55	•	•	•			
90		•	•			
110		•	•	•		
160			•	•		
180			•	•	•	
240				•	•	•
300				•	•	•

Shot weight conversion table

Material	Factor	Material	Factor
ABS	0.88	PP + 20% Talc	0.85
CA	1.02	PP + 40% Talc	0.98
CAB	0.97	PP + 20% GF	0.85
PA	0.91	PS	0.91
PC	0.97	PVC hard	1.12
PE	0.71	PVC soft	1.02
PMMA	0.94	SAN	0.88
POM	1.15	SB	0.88
PP	0.73	PF	1.3
		UP	1.6

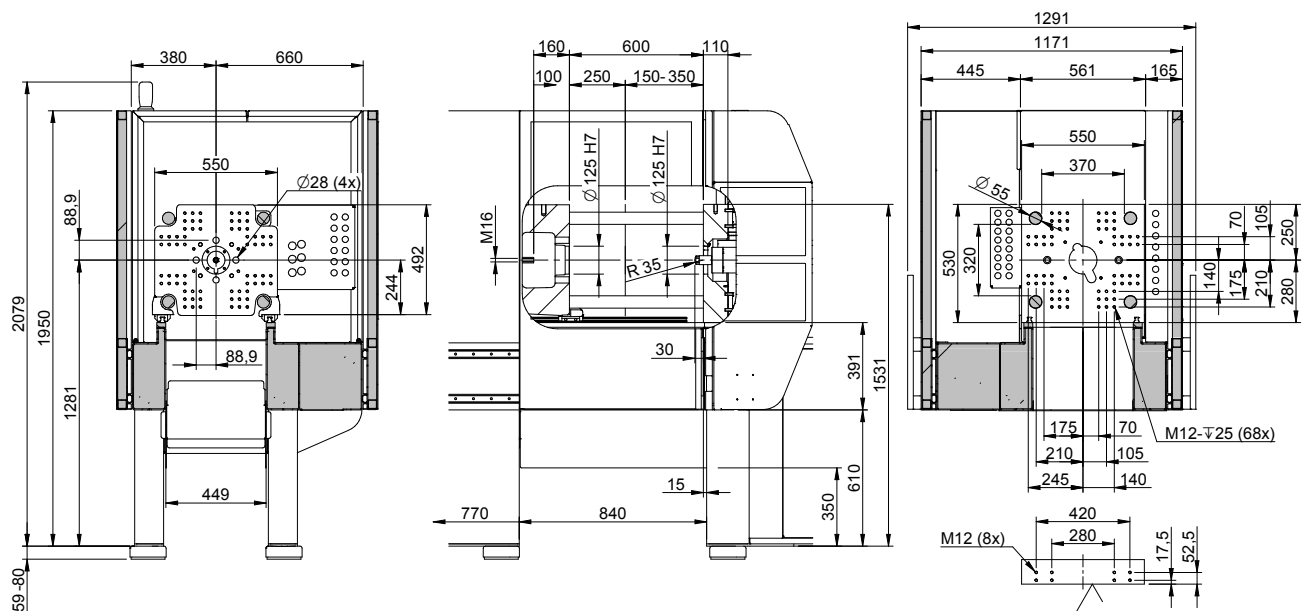
The maximum shotweights (g) are calculated by multiplying the theoretical shot volume (cm³) by the above factor.

Dark grey boxes = thermosets

Clamping unit		EcoPower 55											
Clamping force/clamping pressure	kN	550											
Distance between tie bars	mm x mm	370 x 320											
Mold height	mm	150 ... 350											
Opening stroke	mm	250											
Max. daylight	mm	600											
Ejector stroke hydr./electr.	mm/mm	100/100											
Ejector force	kN	25											
Dry cycle time ¹⁾	s – mm	1.3 – 224											
Injection unit		70			130					350			
Screw diameter	mm	14	18	22	14	18	22	25	30	25	30	35	40
Screw stroke	mm	90			90	110		125		175			
Screw L/D ratio		20			20			22		22			
Theoretical shot volume	cm³	13.9	22.9	34.2	13.9	28	41.8	61.4	88.4	85.9	124	168	220
Specific injection pressure	bar	3,000	3,000	2,046	3,000	3,000	2,864	2,218	1,540	3,000	2,835	2,083	1,595
Max. screw speed	min ⁻¹	600			500			400		350			
Max. plasticizing rate (PS) ²⁾	g/s	2	6	8.6	1.7	5	7.2	10.5	15.4	9.3	13.5	21	33.5
Max. screw torque	Nm	90	150		90	150		250		500			
Nozzle stroke/contact force	mm/kN	250/40			250/40					250/40			
Injection rate into air	cm³/s	61.6	102	152	30.8	50.9	76	98.2	141	98.2	141	192	251
Injection rate into air increased (option)	cm³/s					102	152	196	283				
Barrel heating power	kW	2.9	5.5	6.3	2.9	5.5	6.3	9	10.4	9	10.4	10.4	12.9
Number heating zones		4			4					4			
Drive													
Electrical power supply without/with Europackage	kVA	11/40			11/40					22/51			
Weights, dimensions													
Net weight	kg	3,200			3,200					3,400			
Length ³⁾ x width x height	m	3.8 x 1.4 x 2			3.9 x 1.4 x 2					4.2 x 1.4 x 2			
Max. mold weight ⁴⁾	kg	600											
Min. mold dimension	mm x mm	246 x 196											

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm

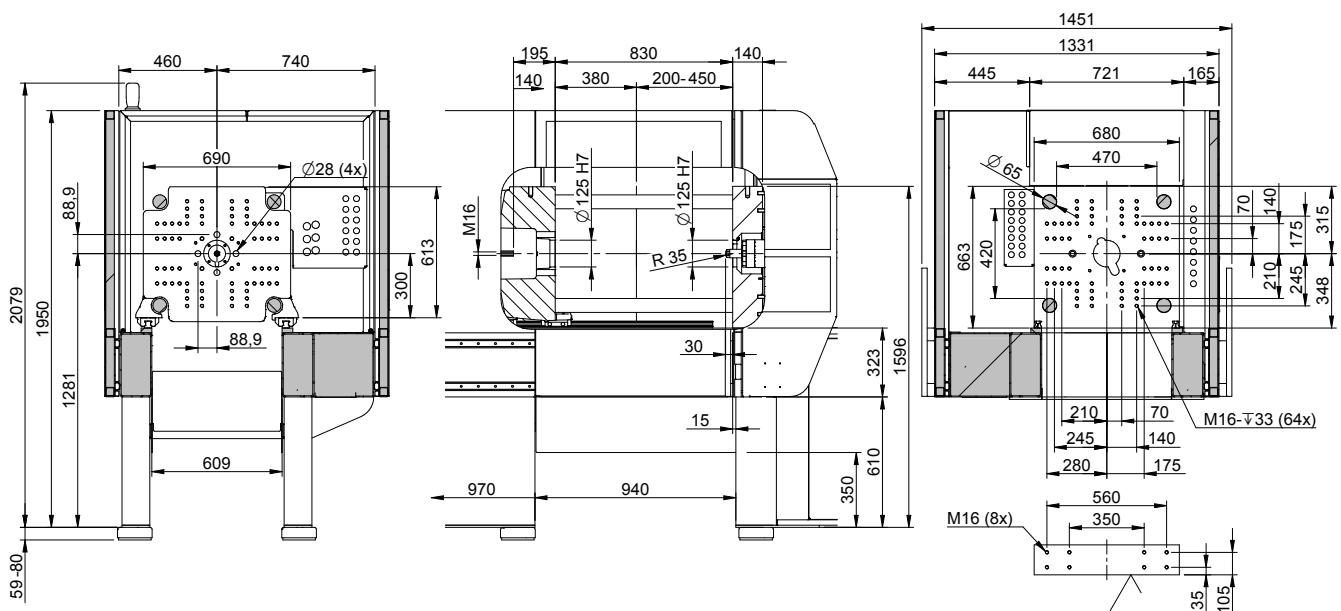
3) max. length with middle screw diameter in back position and min. mold height 4) max. 2/3 on clamping platen



Clamping unit		EcoPower 90									
Clamping force/clamping pressure	kN	900									
Distance between tie bars	mm x mm	470 x 420									
Mold height	mm	200 ... 450									
Opening stroke	mm	380									
Max. daylight	mm	830									
Ejector stroke hydr./electr.	mm/mm	140/125									
Ejector force	kN	25									
Dry cycle time ¹⁾	s – mm	1.5 – 294									
Injection unit		130					350				
Screw diameter	mm	14	18	22	25	30	25	30	35	40	
Screw stroke	mm	90	110		125		175				
Screw L/D ratio		20			22		22				
Theoretical shot volume	cm³	13.9	28	41.8	61.4	88.4	85.9	124	168	220	
Specific injection pressure	bar	3,000	3,000	2,864	2,218	1,540	3,000	2,835	2,083	1,595	
Max. screw speed	min ⁻¹	500			400		350				
Max. plasticizing rate (PS) ²⁾	g/s	1.7	5	7.2	10.5	15.4	9.3	13.5	21	33.5	
Max. screw torque	Nm	90	150		250		500				
Nozzle stroke/contact force	mm/kN	250/40					250/40				
Injection rate into air	cm³/s	30.8	50.9	76	98.2	141	98.2	141	192	251	
Injection rate into air increased (option)	cm³/s		102	152	196	283	196	283	385	503	
Barrel heating power	kW	2.9	5.5	6.3	9	10.4	9	10.4	10.4	12.9	
Number heating zones		4					4				
Drive											
Electrical power supply without/ with Europackage	kVA	17/46					28/58				
Weights, dimensions											
Net weight	kg	4,600					4,800				
Length ³⁾ x width x height	m	4.2 x 1.5 x 2.1					4.5 x 1.5 x 2.1				
Max. mold weight ⁴⁾	kg	1,000									
Min. mold dimension	mm x mm	296 x 246									

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm

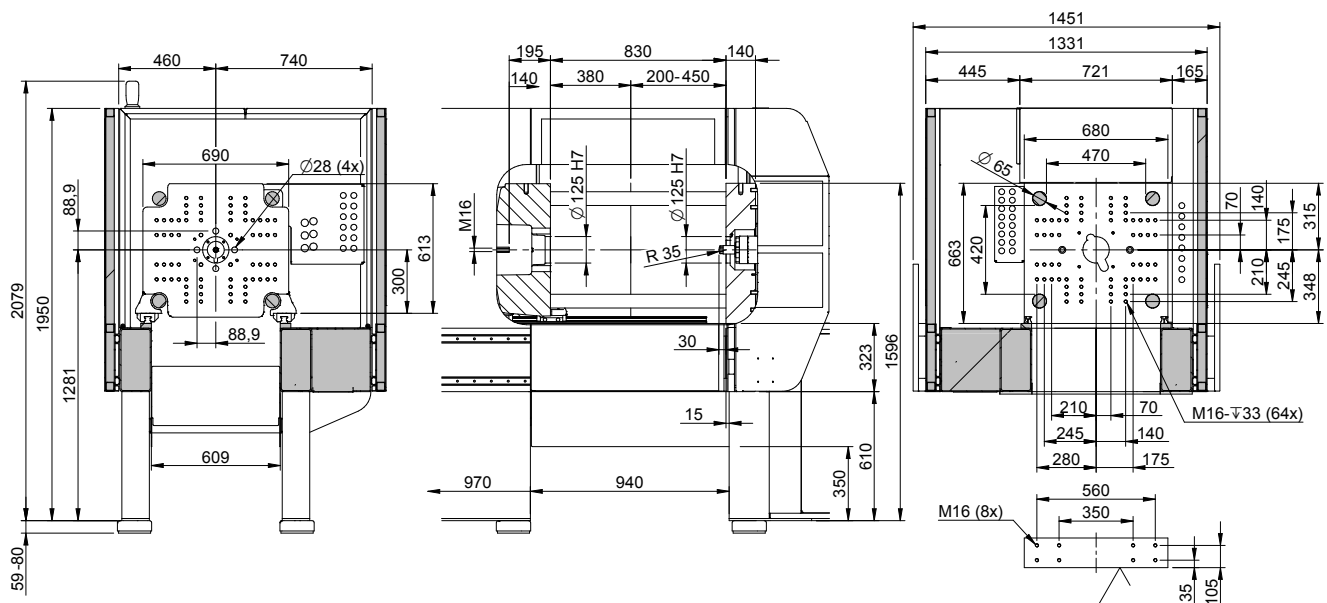
3) max. length with middle screw diameter in back position and min. mold height 4) max. 2/3 on clamping platen



Clamping unit		EcoPower 110															
Clamping force/clamping pressure	kN	1,100															
Distance between tie bars	mm x mm	470 x 420															
Mold height	mm	200 ... 450															
Opening stroke	mm	380															
Max. daylight	mm	830															
Ejector stroke hydr./electr.	mm	140/125															
Ejector force	kN	25															
Dry cycle time ¹⁾	s – mm	1.5 – 294															
Injection unit		130					350					750					
Screw diameter	mm	14	18	22	25	30	25	30	35	40	35	40	45	50			
Screw stroke	mm	90	110		125		175				200	225					
Screw L/D ratio		20			22		22				22						
Theoretical shot volume	cm³	13.9	28	41.8	61.4	88.4	85.9	124	168	220	193	283	358	442			
Specific injection pressure	bar	3,000	3,000	2,864	2,218	1,540	3,000	2,835	2,083	1,595	3,000	2,678	2,116	1,714			
Max. screw speed	min ⁻¹	500			400		350				325						
Max. plasticizing rate (PS) ²⁾	g/s	1.7	5	7.2	10.5	15.4	9.3	13.5	21	33.5	19.5	31.1	40.5	49			
Max. screw torque	Nm	90	150		250		500				900						
Nozzle stroke/contact force	mm/kN	250/40					250/40				350/40						
Injection rate into air	cm³/s	30.8	50.9	76	98.2	141	98.2	141	192	251	192	251	318	393			
Injection rate into air increased (option)	cm³/s		102	152	196	283	196	283	385	503							
Barrel heating power	kW	2.9	5.5	6.3	9	10.4	9	10.4	10.4	12.9	11.5	14	17.3	21.9			
Number heating zones		4					4				4	4	4	5			
Drive																	
Electrical power supply without/with Europackage	kVA	17/46					28/58					34/64					
Weights, dimensions																	
Net weight	kg	4,600					4,800					5,200					
Length ³⁾ x width x height	m	4.2 x 1.5 x 2.1					4.5 x 1.5 x 2.1					5.2 x 1.5 x 2.1					
Max. mold weight ⁴⁾	kg	1,000															
Min. mold dimension	mm x mm	296 x 296															

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm

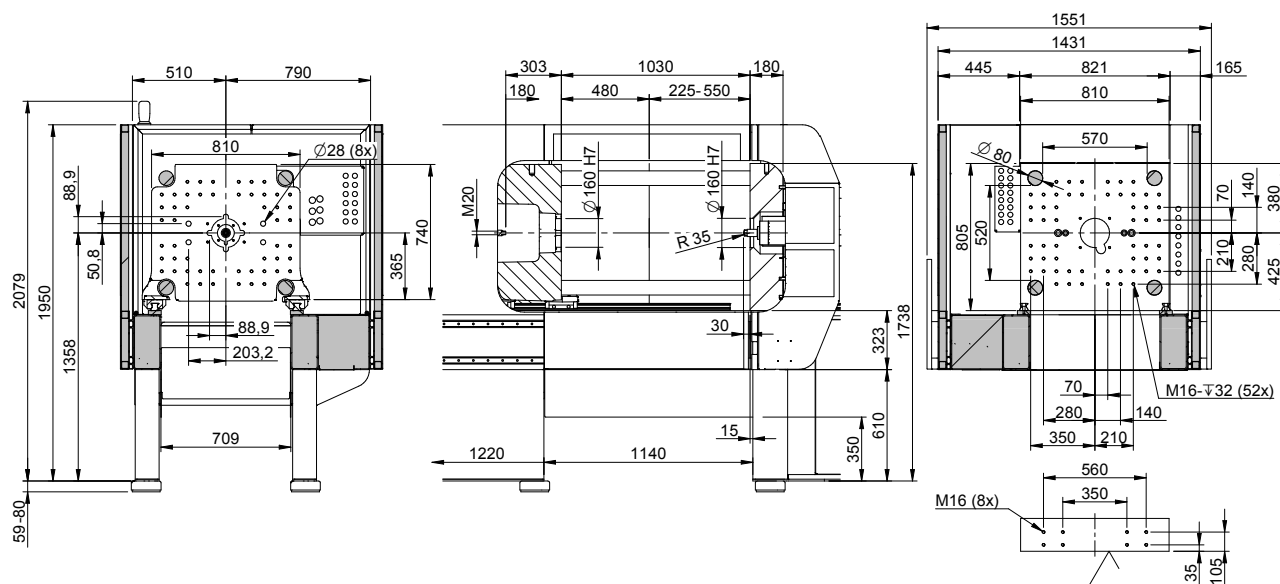
3) max. length with middle screw diameter in back position and min. mold height 4) max. 2/3 on clamping platen



Clamping unit		EcoPower 160							
Clamping force/clamping pressure	kN	1,600							
Distance between tie bars	mm x mm	570 x 520							
Mold height	mm	225 ... 550							
Opening stroke	mm	480							
Max. daylight	mm	1030							
Ejector stroke hydr./electr.	mm	180/160							
Ejector force	kN	40							
Dry cycle time ¹⁾	s – mm	1.7 – 364							
Injection unit		350				750			
Screw diameter	mm	25	30	35	40	35	40	45	50
Screw stroke	mm	175				200	225		
Screw L/D ratio		22				22			
Theoretical shot volume	cm³	85.9	124	168	220	193	283	358	442
Specific injection pressure	bar	3,000	2,835	2,083	1,595	3,000	2,678	2,116	1,714
Max. screw speed	min ⁻¹	350				325			
Max. plasticizing rate (PS) ²⁾	g/s	9.3	13.5	21	33.5	19.5	31.1	40.5	49
Max. screw torque	Nm	500				900			
Nozzle stroke/contact force	mm/kN	250/40				350/40			
Injection rate into air	cm³/s	98.2	141	192	251	192	251	318	393
Injection rate into air increased (option)	cm³/s	196	283	385	503	337	440	557	687
Barrel heating power	kW	9	10.4	10.4	12.9	11.5	14	17.3	21.9
Number heating zones		4				4	4	4	5
Drive									
Electrical power supply without/with Europackage	kVA	32/62				38/68			
Weights, dimensions									
Net weight	kg	6,800				7,200			
Length ³⁾ x width x height	m	5.2 x 1.6 x 2.1				5.7 x 1.6 x 2.1			
Max. mold weight ⁴⁾	kg	1,800							
Min. mold dimension	mm x mm	346 x 296							

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm

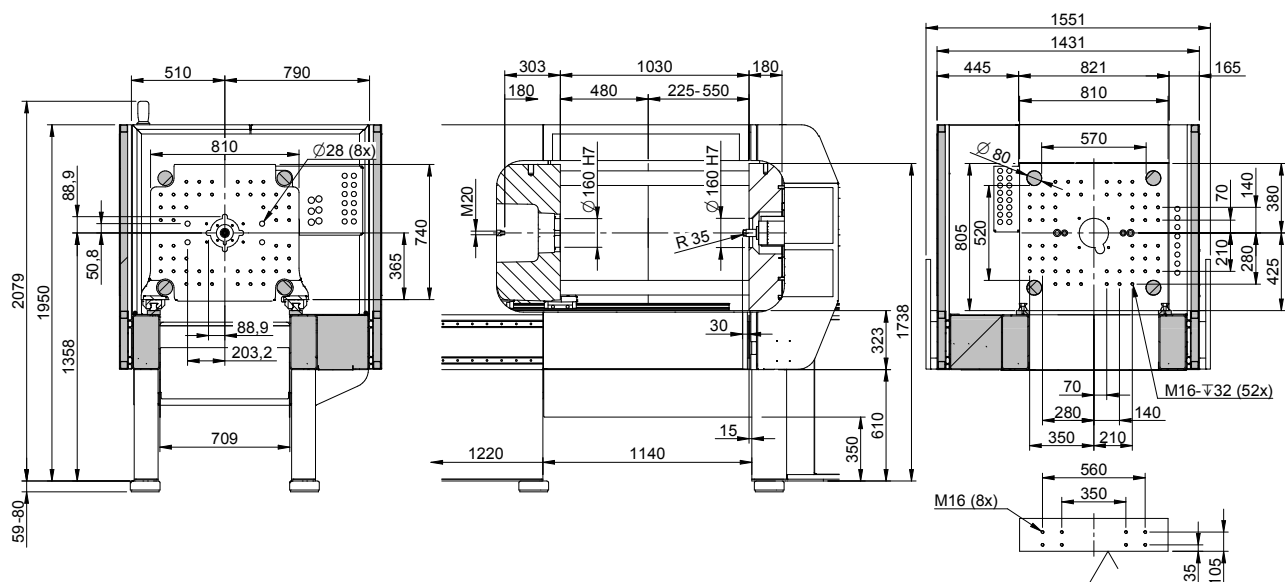
3) max. length with middle screw diameter in back position 4) max. 2/3 on clamping platen



Clamping unit		EcoPower 180											
Clamping force/clamping pressure	kN	1,800											
Distance between tie bars	mm x mm	570 x 520											
Mold height	mm	225 ... 550											
Opening stroke	mm	480											
Max. daylight	mm	1,030											
Ejector stroke hydr./electr.	mm/mm	180/160											
Ejector force	kN	40											
Dry cycle time ¹⁾	s – mm	1.7 – 364											
Injection unit		350				750				1330			
Screw diameter	mm	25	30	35	40	35	40	45	50	45	50	55	65
Screw stroke	mm	175				200	225			250	275		
Screw L/D ratio		22				22				22			
Theoretical shot volume	cm³	85.9	124	168	220	193	283	358	442	398	540	653	913
Specific injection pressure	bar	3,000	2,835	2,083	1,595	3,000	2,678	2,116	1,714	3,000	2,470	2,041	1,461
Max. screw speed	min ⁻¹	350				325				300			
Max. plasticizing rate (PS) ²⁾	g/s	9.3	13.5	21	33.5	19.5	31.1	40.5	49	37.4	45.2	56	67
Max. screw torque	Nm	500				900				1,500			
Nozzle stroke/contact force	mm/kN	250/40				350/40				400/80			
Injection rate into air	cm³/s	98.2	141	192	251	192	251	318	393	254	314	380	531
Injection rate into air increased (option)	cm³/s	196	283	385	503	337	440	557	687				
Barrel heating power	kW	9	10.4	10.4	12.9	11.5	14	17.3	21.9	17.3	21.9	24.2	27
Number heating zones		4				4	4	4	5	4	5	5	5
Drive													
Electrical power supply without/ with Europackage	kVA	32/62				38/68				48/78			
Weights, dimensions													
Net weight	kg	6,800				7,200				8,800			
Length ³⁾ x width x height	m	5.2 x 1.6 x 2.1				5.7 x 1.6 x 2.1				6.4 x 1.6 x 2.1			
Max. mold weight ⁴⁾	kg	1,800											
Min. mold dimension	mm x mm	346 x 346											

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm

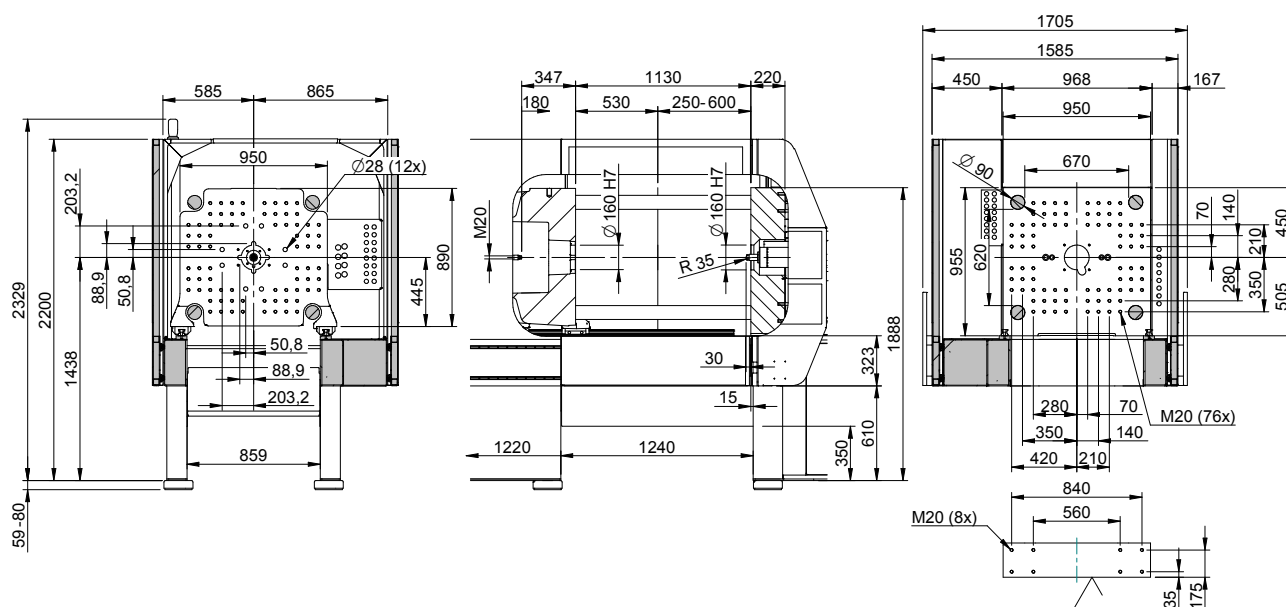
3) max. length with middle screw diameter in back position and min. mold height 4) max. 2/3 on clamping platen



Clamping unit		EcoPower 240											
Clamping force/clamping pressure	kN	2,400											
Distance between tie bars	mm x mm	670 x 620											
Mold height	mm	250 ... 600											
Opening stroke	mm	530											
Max. daylight	mm	1,130											
Ejector stroke hydr./electr.	mm/mm	180/180											
Ejector force	kN	60											
Dry cycle time ¹⁾	s – mm	1.9 – 434											
Injection unit		750				1330				2100			
Screw diameter	mm	35	40	45	50	45	50	55	65	55	65	75	
Screw stroke	mm	200	225			250	275			320			
Screw L/D ratio		22				22				22			
Theoretical shot volume	cm³	193	283	358	442	398	540	653	913	760	1,062	1,414	
Specific injection pressure	bar	3,000	2,678	2,116	1,714	3,000	2,470	2,041	1,461	2,500	1,959	1,471	
Max. screw speed	min ⁻¹	325				300				275			
Max. plasticizing rate (PS) ²⁾	g/s	19.5	31.1	40.5	49	37.4	45.2	56	67	51	76	116	
Max. screw torque	Nm	900				1,500				2,300			
Nozzle stroke/contact force	mm/kN	350/40				400/80				500/100			
Injection rate into air	cm³/s	192	251	318	393	254	314	380	531	356	498	663	
Injection rate into air increased (option)	cm³/s	337	440	557	687								
Barrel heating power	kW	11.5	14	17.3	21.9	17.3	21.9	24.2	27	22.7	26.4	32.7	
Number heating zones		4	4	4	5	4	5	5	5	5	5	5	
Drive													
Electrical power supply without/ with Europackage	kVA	50/80				60/90				90/120			
Weights, dimensions													
Net weight	kg	9,700				11,300				13,500			
Length ³⁾ x width x height	m	6.2 x 1.8 x 2.4				6.9 x 1.8 x 2.4				7.5 x 1.8 x 2.4			
Max. mold weight ⁴⁾	kg	2,400											
Min. mold dimension	mm x mm	396 x 396											

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm

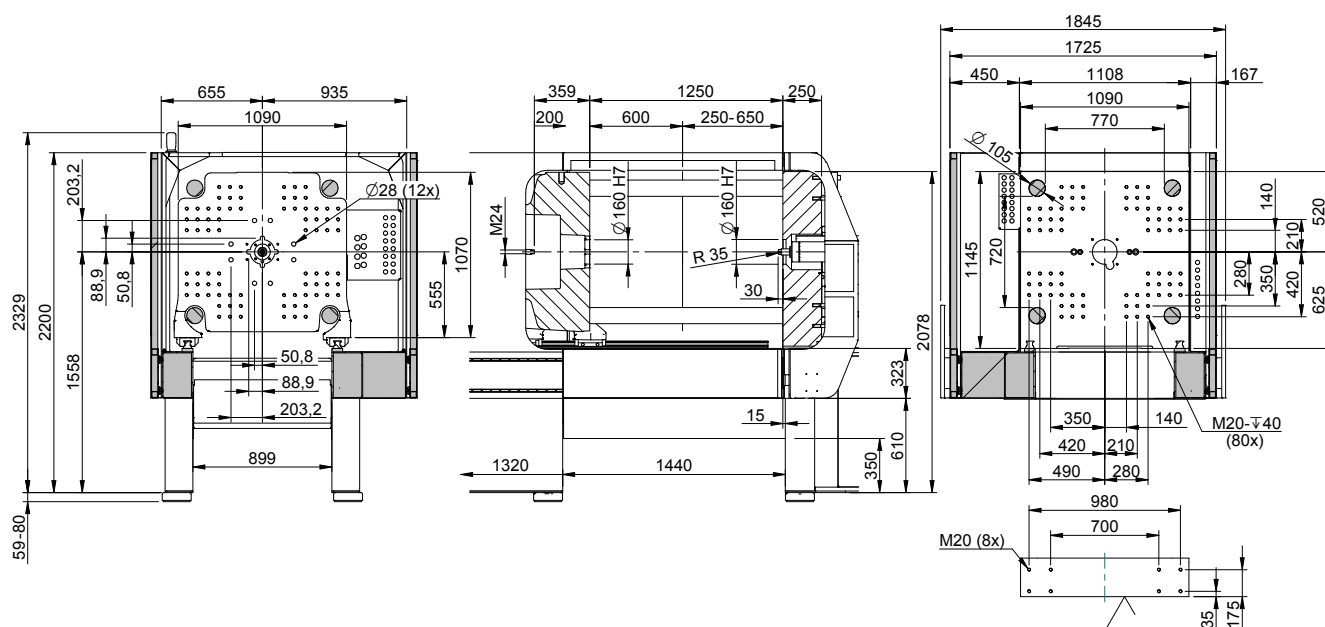
3) max. length with middle screw diameter in back position and min. mold height 4) max. 2/3 on clamping platen



Clamping unit		EcoPower 300											
Clamping force/clamping pressure	kN	3,000											
Distance between tie bars	mm x mm	770 x 720											
Mold height	mm	250 ... 650											
Opening stroke	mm	600											
Max. daylight	mm	1,250											
Ejector stroke hydr./electr.	mm/mm	180/180											
Ejector force	kN	60											
Dry cycle time ¹⁾	s – mm	2.2 – 504											
Injection unit		750				1330				2100			
Screw diameter	mm	35	40	45	50	45	50	55	65	55	65	75	
Screw stroke	mm	200	225			250	275			320			
Screw L/D ratio		22				22				22			
Theoretical shot volume	cm³	193	283	358	442	398	540	653	913	760	1,062	1,414	
Specific injection pressure	bar	3,000	2,678	2,116	1,714	3,000	2,470	2,041	1,461	2,500	1,959	1,471	
Max. screw speed	min ⁻¹	325				300				275			
Max. plasticizing rate (PS) ²⁾	g/s	19.5	31.1	40.5	49	37.4	45.2	56	67	51	76	116	
Max. screw torque	Nm	900				1,500				2,300			
Nozzle stroke/contact force	mm/kN	350/40				400/80				500/100			
Injection rate into air	cm³/s	192	251	318	393	254	314	380	531	356	498	663	
Injection rate into air increased (option)	cm³/s	337	440	557	687								
Barrel heating power	kW	11.5	14	17.3	21.9	17.3	21.9	24.2	27	22.7	26.4	32.7	
Number heating zones		4	4	4	5	4	5	5	5	5	5	5	
Drive													
Electrical power supply without/with Europackage	kVA	50/80				60/90				100/130			
Weights, dimensions													
Net weight	kg	12,500				14,100				16,300			
Length ³⁾ x width x height	m	6.8 x 1.9 x 2.4				7.5 x 1.9 x 2.4				8.1 x 1.9 x 2.4			
Max. mold weight ⁴⁾	kg	3,000											
Min. mold dimension	mm x mm	446 x 396											

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm

3) max. length with middle screw diameter in back position and min. mold height 4) max. 2/3 on clamping platen



Standard features EcoPower UNILOG B6^P

Base machine

Integrated servohydraulic power unit containing speed controlled servomotor and internal gear pump for ejector and nozzle movement including adjustable nozzle contact force

Base machine fully electric

Servolectric ejector and injection unit movement

Machine in general

Paint RAL 7047 tele grey 4/RAL 5002 ultramarine blue

One-piece machine frame

Built-in control cabinet

Parts transport on operator side, rear side or axial

Automatic central lubrication system

Clamping unit

Clamping system with 5-point twin toggle, servo electrical direct drive via ball screw

Servo-electric mold height adjustment

Adjustable clamping and opening stroke, adjustable mold locking system

Mold safety program with envelope curves monitoring for optimal mold cover

Precise platen parallelism with low-maintenance moving platen support

Platen drillings and register rings as per EUROMAP

Fixing holes for robot on top of the fixed platen as per EUROMAP 18

Clamping force display on screen

Clamping force monitoring incl. display via screen

Injection unit

Screw drive by 3-phase servomotor, screw speed continuously adjustable via screen

Screw L/D = 22 with check valve, screw nitrated and bimetallic barrel AK+

Thermocouple failure monitor

Maximum temperature supervision

Plug-in ceramic heater bands

Temperature control of feed throat integrated

Open nozzle

Quick cylinder removal to the top

Barrel guarding

Hopper 6 l, prepared for WITTMANN loader

Linear bearings for the injection unit

Selectable barrel stand-by temperature

Decompression before and/or after metering

Physical units – bar, ccm, mm/s etc.

Screw protection

Peripheral screw speed indication

Linear interpolation of holding pressure set values

Bar chart for barrel temperature with set value and actual value display

Selectable injection pressure limitation

Changeover from injection to holding pressure depending on stroke, time and pressure

Safety gate

Safety gate with electric monitoring according to CE standard on front and rear side

Maintenance-free safety gate locked by electromagnet

Safety gate free for mold change and handling by robot

Electrical components

Operating voltage 230/400 V-3PH, 50 Hz

Fuse protection for sockets

Common voltage supply for drive and heat

Separate voltage supply for drive and heat USA/CDN

Control unit UNILOG B6^P with touchscreen and operating system Windows

Software for operating hours counter

Closing/Opening – 5 profile steps

Ejection forward/back – 3 profile steps

Nozzle forward/back – 3 profile steps

Injection/holding pressure – 10 profile steps

Injection parallel to clamping force build-up

Screw speed/Back pressure – 6 profile steps

Parts counter with good/bad part evaluation

Purging program through open mold

Stroke zero offset settings

Start-up program

Switchover to holding pressure MASTER/SLAVE by injection time, screw stroke/injection volume and injection pressure

Self-teaching temperature controller

Display of temperature inside electrical cabinet

Seven-day timer

Access authorization via USB interface

Access protection via password system

Freely configurable status bar

Physical, process-related units

15" TFT color screen – touch screen

Energy consumption monitoring for motors and heating

Automatic dimming

SmartEdit

Logbook with filter function

User programming system (APS)

Userpage

Note pad function

Cycle time analysis

Energy measurement displayed

1 freely configurable network connection

Hardcopy function

Internal data storage via USB connection or network

Online language selection

Online selection of imperial or metric units

Operator manual incl. hydr., mech. and el. schedules online

Time monitoring

Quality table, 1,000 storage depth

Events protocol (logbook) for 1,000 events

Actual value graphics with 5 curves

1 Envelope curves monitoring

Injection integral supervision

Metering integral supervision

Alarm message via Email

USB – 2x operating unit

1 Ethernet interface (switch cabinet)

Printer via USB connection or network

Optional features EcoPower UNILOG B6^P

Base machine option

Water cooling system of the machine with closed cooling circuit via water/water heat exchanger

Mold height increased

Pneumatic/Hydraulic

Oil heating for hydraulic aggregate

Oil cooler with cooling water regulation for hydraulic aggregate

Hydr. core pulls incl. add. drive system. Limit switch function according to EUROMAP 13. Pressure and speeds adjustable

Core pull pressure release

Pneumatic core pull

Pneumatic manifold for Mouldmaster nozzle (controlled 1 nozzle or more parallel in the mold)

Clamping unit

T-slots in mold platens

Cooling channels in mold platens

Nikel plated mold platen

SPI bolt pattern

Servo electric ejector only for standard base machine

Ejector cross in clamping platen as per EUROMAP/SPI

Mechanical ejector couple

Ejector platen safety device as per EUROMAP 13

Mechanical mold safety mechanism

Parts chute

Parts chute for separation of good/bad parts

Photoelectric ejection check

Air valve, action initiated (ON) and timer (OFF)

Quick mold clamping system magnet

Injection unit

Grooves in the feeding zone of barrel for improved feeding

Increased injection and plasticizing performance

High temperature heater bands up to 450° C

Barrel insulation

Ball type screw tip

Check valve with carbide insert

Non-standard open nozzle

Needle type shutoff nozzle with spring, pneumatically operated

Melt temperature or pressure sensor in cylinder head

Pressure transducer for melt pressure switch over

Wear resistant screw AK+

Wear resistant screw and barrel AKPA for polyamide

Corrosion resistant screw and barrel AKCN in chrome nitride or AKTN titan nitride

High wear and corrosion resistant screw and barrel AK ++

Screw with mixing section or barrier section

Liquid Silicon unit LIM and 2-component meter mix pump

PIM (MIM/CIM) package

Vacuum pump

Material hopper volume 29 litres

Hopper magnet

Safety gate

Front side safety system for manual part removal

Automatic safety gate at the operator side

Initiate next cycle by closing safety gate in semi-auto operation

Safety gate clearance operator side/rear side extended

Safety gate lowered at the top of the upper tie bar

Cooling and conditioning

Flow controller with temperature gauges

Shut-off valve for cooling water battery

Blow out valve for cooling water battery

Distributor of cooling circuits on the fixed platen of the moving platen

Machine cooling via cooling water distributor with T-pieces

Electrical components

Temperature control zone for hot runner

Special voltage

Control cabinet cooler

Membrane keyboard for manual movements of UNILOG B6^P

Additional socket

Manual board

Closed loop temperature control of mold

Additional socket

Emergency stop button on rear side

Energy consumption analysis

Switch over to holding pressure by cavity or melt pressure

Switch over to holding pressure by external signal

Injection compression and venting sequences

Melt cushion control

Signal tower with acoustic elements

Temperature control interface digital, serial 20 mA TTY protocol

CAN-Bus-interface for mold conditioner as per EUROMAP 66-2

Interface BFMOLD® via CAN BUS for WITTMANN D-series

Interface for AIRMOULD® mobile

Interface for robots as per EUROMAP 67

Interface for conveyor belt

Interface for dosing pump

RJG eDart interface

Master interface for danger zone boundary (DZB)

Interface for full integration of robot incl. Ethernet switch

Host computer interface/PDA (EUROMAP 63)

Relays contact parallel to plasticizing

Machine fault (potential-free contact)

BNC connectors for injection process analysis

Interface for vacuum pump

Second injection data setting for automatic start up

User specific programmable set value limits

Web- and remote service

SmartMonitoring MES-software package authentic

Additional equipment

HiQ package, Euro package, Insider package

Inline thermography

Webcam

Special paint and/or touch-up paint

Tool kit

Levelling pads

Additional manual on USB flash drive

Lighting in mold space



Technology working for you.

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