

# VPower 120 – 300 t R

For flexible assembly injection molding

world of innovation



# ERGONOMICAL – FLEXIBLE – HIGHLY EFFICIENT

## More productivity through optimal ergonomic design

### The advantages of the VPower R

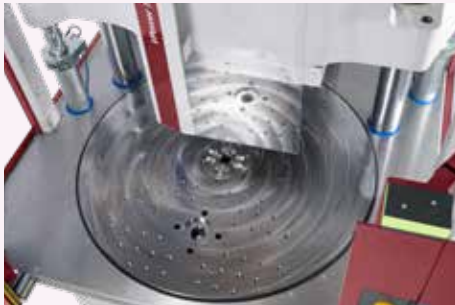
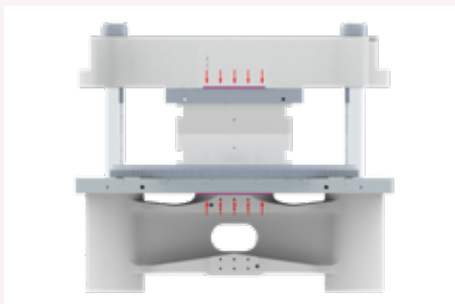
- » Innovative 2-tie-bar rotary table machine concept
- » Reduced footprint compared to predecessor models
- » Servo-driven rotary tables for 2-, 3- and 4-station applications
- » Low, ergonomic working height
- » Injection unit convertible to horizontal or vertical positioning
- » Ultimate mold protection through homogeneous force transmission (Uniforce) in the mold clamping area
- » Easy access to media supply connections below the rotary table
- » Optimal energy efficiency with servo-electric and servo-hydraulic drives
- » Self-explanatory touch screen operation of the Unilog B8 control system
- » Prepared for conversion into a production cell with the Wittmann 4.0 "Plug & Produce" integration package

### The machine series

VPower R: 3 rotary table diameters – 120 to 300 t clamping force\*

\*more models and rotary table sizes in planning





## VPower R

### The system highlights

- » **Rotary table clamping unit without central tie-bar**  
A distinctive feature of the VPower is its optimally accessible rotary table system which, unlike its predecessor model, has dispensed with a central tie-bar in the rotation center. The servo-driven rotary table has been combined with a 2-tie-bar portal clamping unit equipped with two traveling cylinders positioned on the outside for fast opening and closing.
- » **2-tie-bar clamping unit modeled on nature**  
The design of the clamping unit has followed a model from nature to make it both rigid and light. The new Uniforce compensation plate system between the horizontal beams and the mold clamping area also provides an unprecedentedly even and gentle force transmission to the mold.
- » **Fast rotary tables**  
VPower rotary tables are currently available with diameters of 1300 to 2000 mm and combined with servo-electric drives for short rotation times and high-precision positioning. A central lubrication system for all moving parts and seals to prevent penetration of liquids or particles provides highest possible operational safety.
- » **Media supply connection points at the rotary table center**  
The tie-bar-less rotation center provides ample space for the installation of cooling water, hydraulic oil, compressed air and power supply connections under the rotary table. The connections to the molds can be led through the center of the rotary table either via direct tubing or via an oscillating or rotary distributor.
- » **General convertibility from H to V injection and vice versa**  
The modular VPower concept consisting of clamping units of variable sizes and a compact drive model across all sizes is the prerequisite for a minimal footprint. The installation points for the injection units are designed to enable easy conversion of the injection unit from horizontal to vertical configuration and vice versa.

# VPower R CLAMPING UNIT

Top scores for ergonomics and force distribution

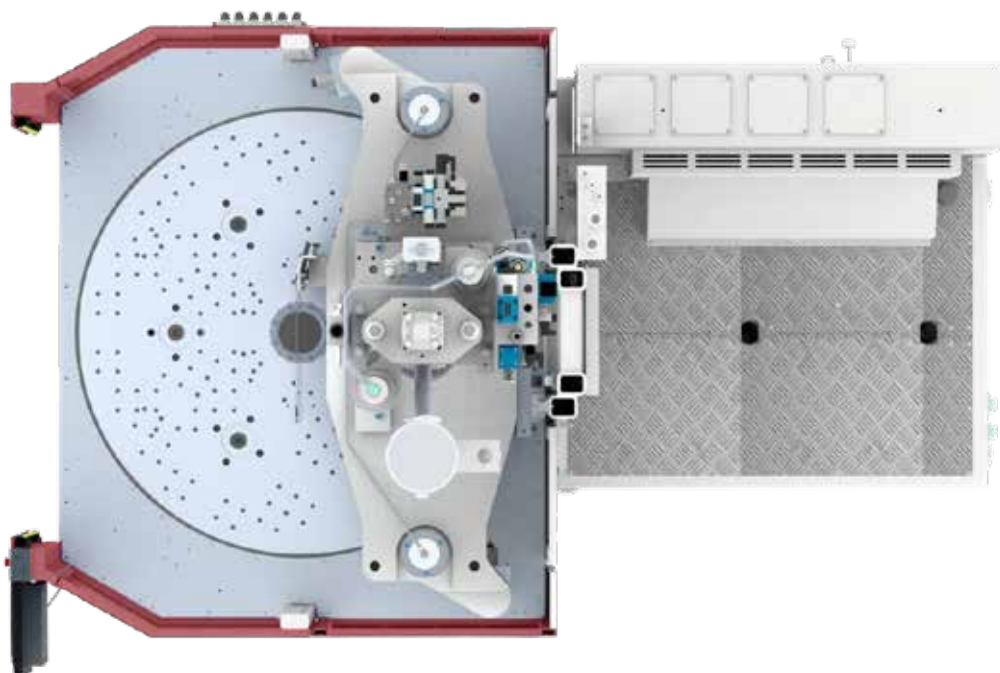
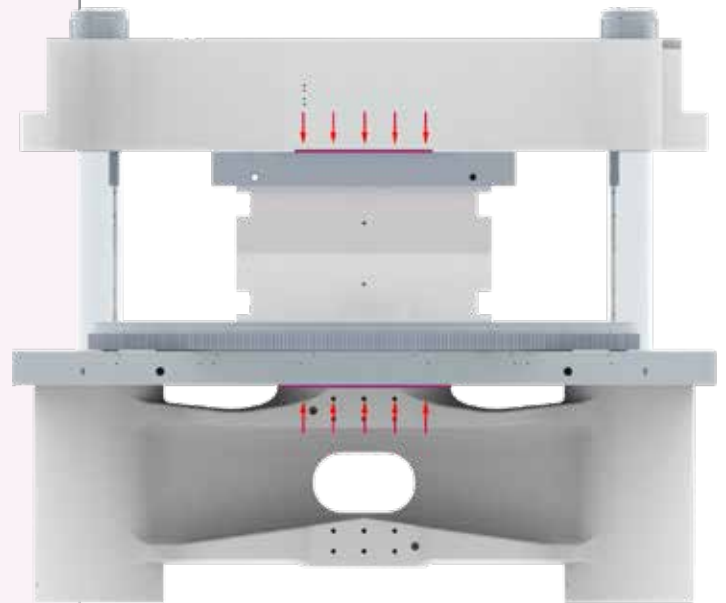
The clamping system of the VPower machine series has incorporated in its technology proven, stress-optimized design elements from nature. It takes the form of a 2-tie-bar portal system offering well-balanced force transmission combined with light weight. The movements are carried out via two low-volume fast-stroking cylinders, while the clamping force is applied via two pulling high-pressure cylinders inside the frame base and the crosshead.

## NEW: Uniforce compensation plate system for maximum mold protection

A new feature is a Uniforce compensation plate system between the frame crosshead and the mold platen, which neutralizes the flexural deformation effect on the clamping area, caused by the force transmission, thus ensuring a so far unparalleled, even force distribution on the mold to reduce wear.

## The advantages

- » Ample space and symmetrical force distribution
- » Symmetrical and evenly distributed force transmission across the clamping area ensures maximum protection of the molds.
- » Deformation of the rotary table and the mold platens reduced to a minimum



# ROTARY TABLES

Fast and precise

**Wittmann**



- » All rotary tables are equipped with servo drives for short rotation times.
- » Available for either oscillating 2-station operation or rotating 2-, 3- or 4-station operation
- » Precise positioning through electronic rotation angle control
- » Dynamic, highly accurate end position control
- » End position definition through indexing
- » Low height and thus overall ergonomically favorable working height of the clamping unit
- » All rotary tables come with a central opening for insertion of cable and/or tube connections (only for oscillating operation), or a rotating conduit for media connections.
- » Rotary union for up to 9 media circuits (temperature control, pneumatics, hydraulics) as well as power circuits and sensors are available on an optional basis.
- » Central greasing for bearings, gears and low-friction sliding areas
- » Fully sealed circumference of the rotary table to prevent penetration of liquids and particles

#### Extension options

- » Additional media circuits
- » Customized ejector positioning
- » Installation of magnetic mold platens
- » Data transmission modules



# INJECTION UNIT

## Versatile horizontal – vertical

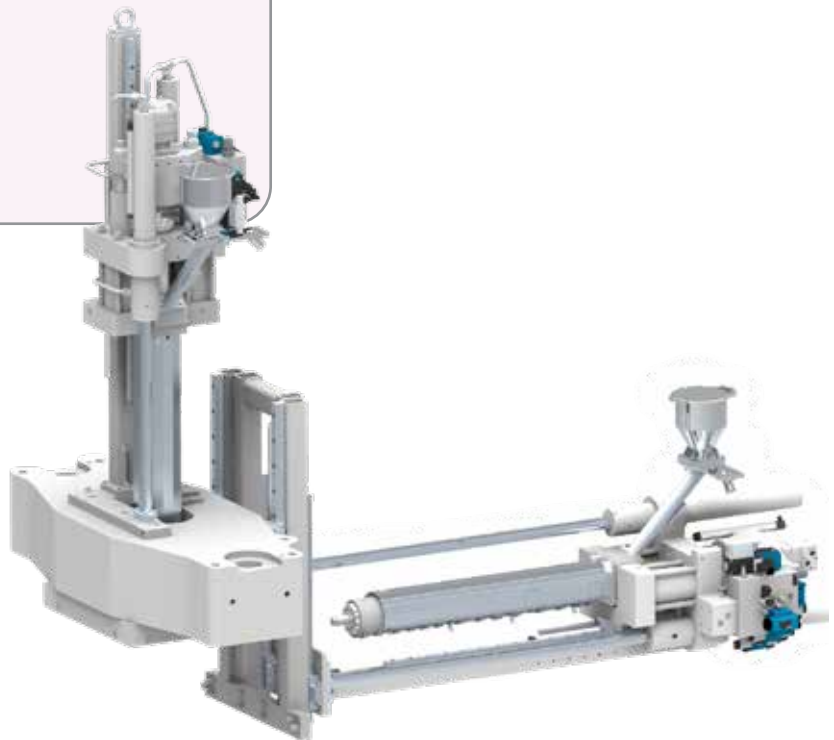
### Proven plasticizing technology

- » All screws from 25 mm upwards come with a 22:1 L/D ratio.
- » All injection aggregates offer a wide range of injection pressures (from 3000 bar for the smallest and up to about 1600 bar for the largest screw diameters).
- » Moment-free nozzle contact through axial positioning of the traveling cylinders for the plasticizing aggregate
- » Barrels can be inserted into different injection aggregates when the screw diameter is identical.
- » Easy access to the nozzle thanks to diagonally arranged traveling cylinders for the nozzle
- » 650 mm nozzle stroke for easy removal of the barrel
- » Electrical height-adjustable horizontal injection unit with path measurement system and easy nozzle centering
- » Aggregate support via linear guides
- » Integrated injection block close to the injection unit
- » Aggregate in V configuration free of obstruction by structural components at the front (hopper on the right), thus minimal risk of collision with automation equipment
- » In combination with the WITTMANN BATTENFELD HiQ software modules (optional), sensitive adjustment strategies are available for compensation of external influencing factors such as temperature, moisture content, proportion of regrind or Masterbatch.



### Anti-wear options

In addition to the high-quality standard finish, an extensive range of optional versions with extra anti-wear and/or anti-corrosion protection is available. Pre-defined option packages and a selection matrix facilitate the choice of the right version.



# INJECTION UNIT

Flexibly horizontal or vertical

**Wittmann**



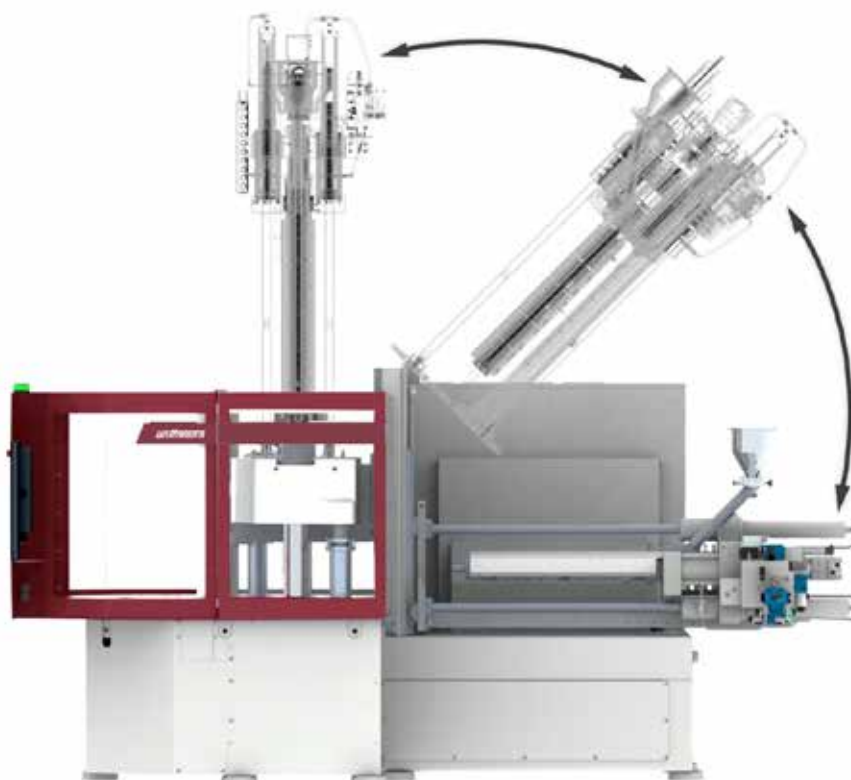
## Versatile convertibility between H and V injection

The clamping units in various sizes are combined with a compact drive module consisting of a frame which houses hydraulic pumps and servo-electric drives and an electric control cabinet. This combination facilitates a minimal footprint.

The installation points for the injection units are designed to enable quick and easy conversion from horizontal to vertical configuration and vice versa, for example to meet varying production requirements. Of course, 2- or 3-color versions with two or three injection units are also available.

## Retrofitting of second injection unit possible

The machine's drive system is laid out for operation with one injection unit as standard. But the VPower R can also be ordered ex works with the extension option for operation with 2 aggregates for 2-component injection molding. This enables easy retrofitting of the second plasticizing unit within a very short time.



# DRIVE TECHNOLOGY

## Energy efficiency through "Drive-on-Demand"



### **Responsive, precise, thrifty**

"Drive-on-Demand" is the innovative combination consisting of a responsive, speed-controlled, air-cooled servo motor and a fixed displacement pump. This drive unit is only activated when required for movements and pressure generation. During cooling periods or cycle breaks for parts handling, the servo drive is switched off and consumes no energy. During operation, "Drive-on-Demand" is the basis for highly dynamic, controlled machine movements and short cycle times.

As in the SmartPower machine series, the "Drive-on-Demand" system is also installed in the VPower machines as standard, which means that this series already complies with the EU Energy Efficiency Directive today.

### **The Highlights**

- » The VPower is equipped with a servo-hydraulic twin pump system as standard, to enable parallel movements of the opening and ejector strokes.
- » Through encapsulation and sound insulation of the motor/pump compartment, the drive unit features extremely low noise emission (65 dBa).
- » The highly effective fine filtration of the hydraulic oil in the main flow channel ensures long-term high precision.



# VPower PRODUCTION CELL

## With WITTMANN automation

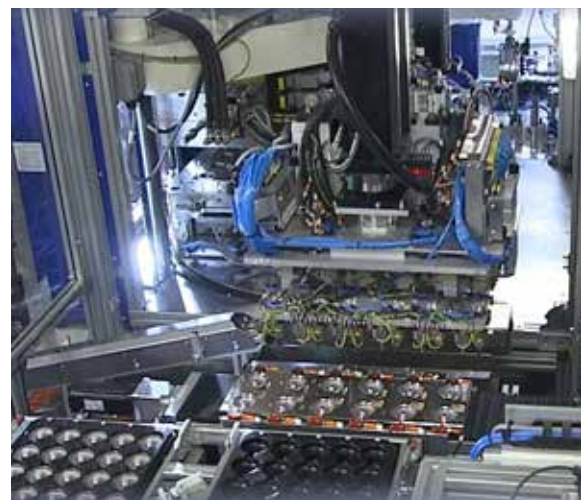
*Wittmann*



The efficiency of assembly injection molding is largely determined by the efficiency of insert handling. Thanks to their fundamentally re-designed clamping unit, VPower injection molding machines offer an unprecedented level of accessibility and ergonomic operation. This facilitates and increases productivity in parts handling by operating staff and reduces the necessary expense for connection of handling robots.

### Many years of automation expertise

With its extensive product portfolio of auxiliary equipment and injection molding machines, WITTMANN BATTENFELD is able to supply from its own resources seamlessly integrated production cells consisting of an injection molding machine, handling automation and auxiliaries. WITTMANN BATTENFELD can also draw on decades of experience in injection molding automation.



# UNILOG B8

## Complex matters simplified

The Unilog B8 machine control system is the WITTMANN BATTENFELD solution to facilitate the operation of complex processes for human operators. For this purpose, the integrated industrial PC has been equipped with an enlarged intuitive touch screen operator terminal. The visualization screen is the interface to the new Windows® 10 IoT operating system, which offers extensive process control functions. Next to the pivotable monitor screen, a connected panel/handset is mounted on the machine's central console.



### Unilog B8 Highlights

- » **Operating logic**  
with a high degree of self-explanation, similar to modern communication devices
- » **2 major operating principles**
  - Operating/movement functions via tactile keys
  - Process functions on touch screen (access via RFID, key card or key ring)
- » **Process visualization**  
via 21.5" touch screen display (full HD), pivoting laterally
- » **New screen functions**
  - Uniform layout for all WITTMANN appliances
  - Recognition of gestures (wiping and zooming by finger movements)
  - Container function – split screen for sub-functions and programs
- » **Status visualization**  
Uniform signaling system across the entire WITTMANN Group
  - Headline on the screen with colored status bars and pop-up menus
  - AmbiLED display on machine
- » **Operator assistance**
  - QuickSetup: process parameter setting assistant using an integrated material database and a simple query system to retrieve molded part data with machine settings pre-selection
  - Extensive help library integrated

# The process in constant view

**Wittmann**

## » SmartEdit

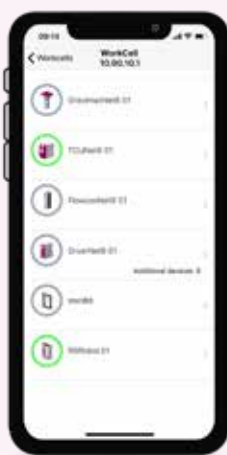
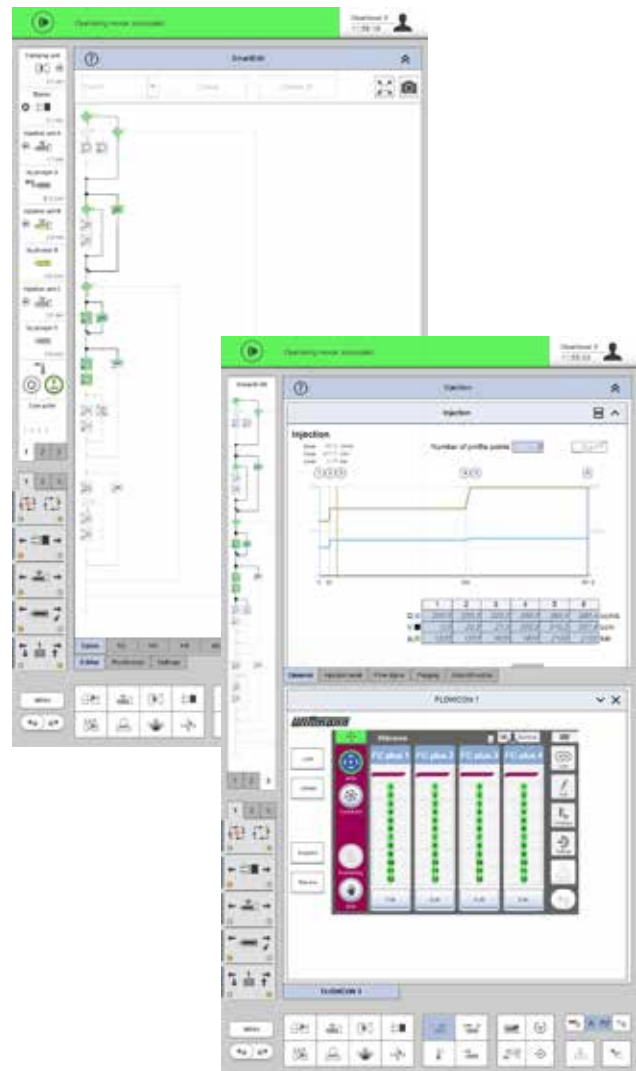
SmartEdit is a visual, icon-based cycle sequence programming facility, which enables direct addition of special functions (core pulls, air valves, etc.) based on a standard process via touch operation on the screen. In this way, a total user-defined sequence can be compiled from a sequence menu. This machine cycle, visualized either horizontally or vertically, can be adjusted simply and flexibly to the process requirements by finger touch with "drag & drop" movements.

### The advantages

- Icon visualization ensures clarity.
- Clear events sequence through node diagram
- Alterations without consequences through "dry test runs"
- Theoretical process sequence can be quickly implemented in practice.
- Automatic calculation of the automation sequence based on the actual set-up data set without machine movements

## » SmartScreen

- Partitioning of screen displays to visualize and operate two different functions simultaneously (e.g. machines and auxiliaries)
- Uniform design of the screen pages within the WITTMANN Group
- Max. 3 containers can be addressed simultaneously for the SmartScreen function.
- Adjustments of set values can be effected directly in the set value profile.



## Remote communication

### » QuickLook 4.0

Production status check via smartphone – simple and comfortable:

- Production data and statuses of all essential appliances in a production cell
- Complete overview of the most important production parameters
- Access to production data, error signals and user-defined data
- The production cell overview offers a clear, simple overview of the production cell's general condition and that of its individual Wittmann 4.0 appliances.

### » Global online service network

- Web-Service 24/7: direct Internet connection to WITTMANN BATTENFELD service
- Web-Training: efficient staff training by means of the virtual training center

# WITTMANN 4.0

## Communication in and with production cells

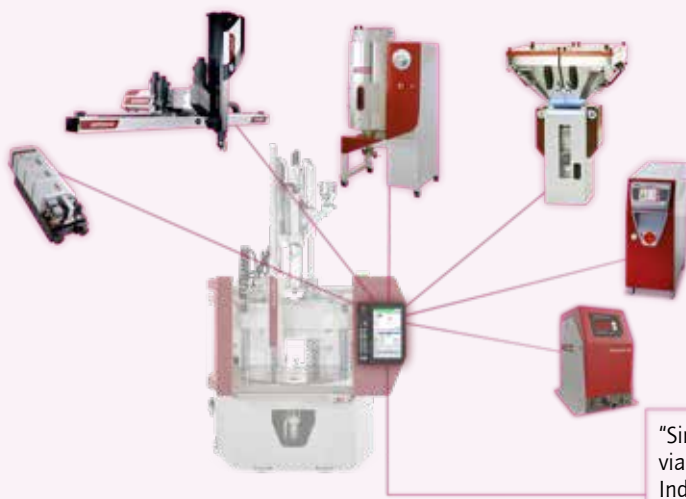
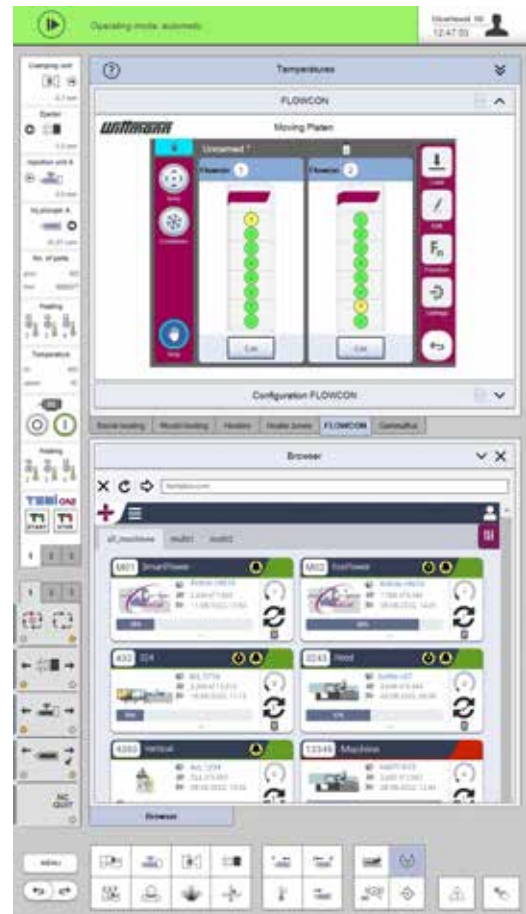
With its communication standard Wittmann 4.0, the WITTMANN Group offers a uniform data transfer platform between injection molding machines and auxiliary equipment from WITTMANN. In case of an appliance change, the corresponding visualizations and settings are loaded automatically via an update function, following the principle of "Plug & Produce".

### Connection of auxiliary via Wittmann 4.0

- » **WITTMANN Flowcon plus water flow regulator, Gravimax blenders and Aton dryers**
  - Units directly addressed and controlled via the machine's control system
  - Joint saving of data in the production cell, the machine and in the network via MES
- » **WITTMANN robots with R8 control system**
  - Operation of robots via the machine's monitor screen
  - High-speed communication between machine and robot to synchronize movements
  - Important machine movements can be set via the R8 robot control system
- » **WITTMANN Tempro plus D temperature controllers**
  - Setting and control of temperatures via the machine's control system possible
  - All functions can be operated either on the unit or via the machine's control system

### Integration in MES system

The integration of machines and complete production cells in an MES system is a prerequisite for an efficient and transparent production facility according to the Industry 4.0 concept. Depending on customers' requirements, small and medium-sized companies as well as global players are offered a compact MES solution based on TEMI+. With to the Windows® 10 IoT operating system, it is also possible to have selected status information from all connected machines on the production floor shown under Smart-Monitoring on the display screen of every machine.



### Wittmann 4.0 system

With Wittmann 4.0, a machine and its robots and auxiliaries are transformed into a uniform technical organism, which communicates externally via a specific IP address. Such a "Single point entry" with an integrated internal firewall substantially increases cyber security.

# OPTIONEN

Modular and flexible

**Wittmann**



## VPower

### The optional highlights

- » **Servo-electric plasticizing**  
As an alternative to the standard hydro motor drive for the rotation of the screw, a direct drive powered by a servo motor is available as an option. It reduces energy consumption and also offers extended scope for parallel operation of the clamping and plasticizing units.
- » **2-component machine**  
The drive unit of the VPower provides the basic prerequisites for operation with 2 aggregates. If the machine has been prepared for the 2-component operation, it can either be ordered as a 2-component injection molding machine ex works, or be retrofitted with a second plasticizing unit later.
- » **Media distributor rotary operation**  
Rotary union distributing various media and electrical signals are available for 3- and 4-station rotary table machines. This type of media distributor offers numerous adjustment options for the hydraulic and pneumatic systems, air supply connections and electrical signals.
- » **Pivotal control terminal**  
For the installation and set-up of complex molds on the rotary table, it is of advantage for the machine operator to keep the molds in view while programming the control system. For this purpose, a pivotable and rotatable control terminal is available as an option instead of the standard fixed terminal.
- » **Auxiliaries from WITTMANN**  
The extensive range of WITTMANN auxiliary appliances offers suitable solutions for all secondary processes of injection molding, from parts handling, material transport and material drying to sprue recycling and mold cooling. With the optional Wittmann 4.0 integration package, all additional appliances can be integrated into the production cell according to the "Plug & Produce" principle.

# APPLICATION TECHNOLOGY

## Competence above standard

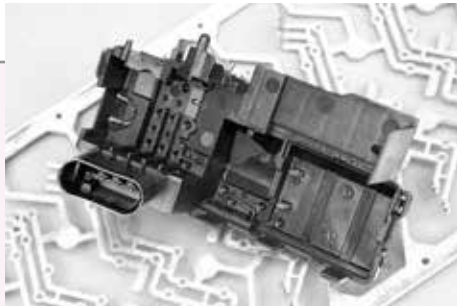


Photo: WITTE Automotive

### » Insert molding of complex electrical structures

Embedding complex conductor tracks in plastic is a traditional assembly molding task. The metal structures are centered inside the mold by retractable fixing pins. Towards the end of the injection process, the pins are pulled back via the core pull function and the remaining holes are filled.



### » Metal/plastic assembly injection molding

Another traditional assembly application is insert molding of metal bushing or threaded inserts. Through insert molding, a positive-locking connection is created which is normally superior to downstream joining by ultrasound or hot pressing.



Photo: WEIDMANN PLASTICS TECHNOLOGY AG

### » Combinations of plastic with plastic

Assembly injection molding is not limited to combinations of plastic with metal, but can also be realized by insert molding of a prefabricated plastic part.



Photo: Promotech

### » Multi-component addition injection molding

Application example for the assembly of a molded part through sequential addition of plastic components in consecutive injection molding stations, as illustrated here by an automobile rain sensor part consisting of 4 components.

# TECHNICAL DATA VPower

**Wittmann**



## COMBINATIONS

Clamping unit	Rotary table	Injection unit						
		130	210	350	525	750	1000	1330
t	mm							
120 R	1300	•	•	•	•			
120 R	1600	•	•	•	•			
160 R	1300		•	•	•	•	•	
160 R	1600		•	•	•	•	•	
220 R	1600			•	•	•	•	
220 R	2000			•	•	•	•	
300 R	2000				•	•	•	•

Material	Factor
ABS	0.88
CA	1.02
CAB	0.97
PA	0.91
PC	0.97
PE	0.71
PMMA	0.94
POM	1.15
PP	0.73

The maximum shotweights (g) are calculated by multiplying the theoretical shot volume (cm<sup>3</sup>) by the above factor.

Material	Factor
PP + 20 % Talc	0.85
PP + 40 % Talc	0.98
PP + 20 % GF	0.85
PS	0.91
PVC hard	1.12
PVC soft	1.02
SAN	0.88
SB	0.88
PF	1.3
UP	1.6

Dark grey boxes = thermosets

# DATA VPower 120 R

Clamping unit		VPower 120	
Clamping force	kN	1200	
Rotary table diameter	mm	1300	
Working height	mm	930	
Min. mold height	mm	250	
Opening stroke/opening force	mm/kN	350/123	
Max. daylight	mm	600	
Ejector stroke/ejector force	mm/kN	150/27.5	
Angle/time of rotation	°/s	180/1.4	
Dry cycle time <sup>1)</sup>	s – mm	2.7 – 150	

Injection unit		130 H/V				210 H/V			350 H/V			525 H/V		
Screw diameter	mm	18	22	25	30	25	30	35	30	35	40	35	40	45
Screw stroke	mm	90	110	125	125	125	150	150	150	175	175	175	200	200
Screw L/D ratio		20	20	22	22	22			22			22		
Theoretical shot volume	cm <sup>3</sup>	22.9	41.8	61.4	88.4	61.3	106	144	106	169	220	168	251	318
Specific injection pressure	bar	3000	2864	2218	1540	2940	2042	1500	2835	2083	1595	2500	2100	1659
Max. screw speed	min <sup>-1</sup>	477				496			472			378		
Max. plasticizing rate (PS) <sup>2)</sup>	g/s	4.8	6.9	12.6	18.5	13.1	19.2	29.7	18.3	28.3	45.2	22.7	36.2	47.1
Screw torque	Nm	120	238	340	357	340	490	490	600	621	621	770		
Nozzle stroke/contact force	mm/kN	650/47				650/79			650/79			650/79		
Injection rate into air	cm <sup>3</sup> /s	65	98	126	182	113	163	222	117	160	209	121	158	200
Injection rate into air with double pump (option)	cm <sup>3</sup> /s	78	116	150	216	155	223	303	161	218	285	166	217	274
Barrel heating power	kW	5.5	6.3	9.0	10.4	9.0	10.4	10.4	10.4	10.4	12.9	11.5	14.0	17.3
Number of heating zones	kW	4				4			4			4		
Energy efficiency class <sup>3)</sup>		2+	2+	2+	4+	2+	4+	5+	3+	5+	6+	5+	6+	7+

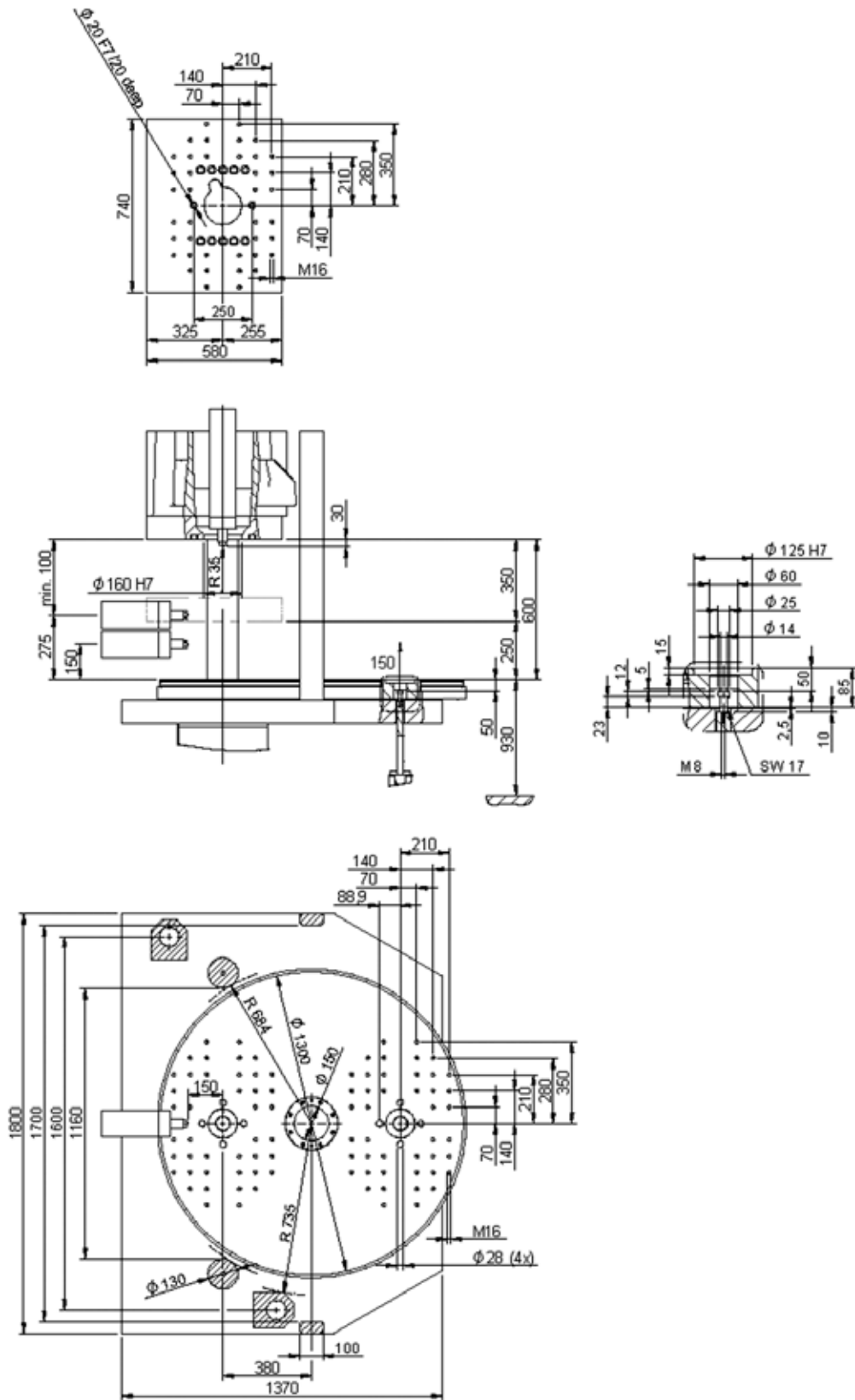
Drive														
Drive power	kW	22				22			22			22		
Oil tank volume	l	390				390			390			390		
Elect. power supply without options	kVA	37				39			41			43		
Emission sound pressure level <sup>4)</sup>	dB(A)	65				65			65			65		

Weights, dimensions														
Net weight (exclusive oil)	kg	9800				9900			10000			10100		
H – Length x width x height <sup>5)</sup>	m	3.6 x 1.9 x 2.1				3.7 x 1.9 x 2.1			3.9 x 1.9 x 2.1			4.1 x 1.9 x 2.1		
V – Length x width x height <sup>5)</sup>	m	3.3 x 1.9 x 3.7				3.3 x 1.9 x 3.8			3.3 x 1.9 x 4.0			3.3 x 1.9 x 4.2		
Max. mold weight rotary table	kg	1000												
Max. mold weight clamping unit	kg	500												
Min. mold diameter	mm x mm	300 x 300												

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm  
3) calculated according to Euromap 60.1 (Cycle I) 4) according to ÖNORM EN 201:2010 annex K  
5) length with medium screw diameter in rearmost operating position



# Rotary table diameter 1300 mm



# DATEN VPower 120 R

Clamping unit		VPower 120		
Clamping force	kN	1200		
Rotary table diameter	mm	1600		
Working height	mm	930		
Min. mold height	mm	250		
Opening stroke/opening force	mm/kN	350/123		
Max. daylight	mm	600		
Ejector stroke/ejector force	mm/kN	150/27.5		
Angle/time of rotation	°/s	180/1.9		
Dry cycle time <sup>1)</sup>	s – mm	2.7 – 150		

Injection unit		130 H/V				210 H/V			350 H/V			525 H/V		
Screw diameter	mm	18	22	25	30	25	30	35	30	35	40	35	40	45
Screw stroke	mm	90	110	125	125	125	150	150	150	175	175	175	200	200
Screw L/D ratio		20	20	22	22	22			22			22		
Theoretical shot volume	cm <sup>3</sup>	22.9	41.8	61.4	88.4	61.3	106	144	106	169	220	168	251	318
Specific injection pressure	bar	3000	2864	2218	1540	2940	2042	1500	2835	2083	1595	2500	2100	1659
Max. screw speed	min <sup>-1</sup>	477				589			472			378		
Max. plasticizing rate (PS) <sup>2)</sup>	g/s	4.8	6.9	12.6	18.5	15.6	22.8	35.3	18.3	28.3	45.2	22.7	36.2	47.1
Screw torque	Nm	120	238	340	357	340	490	490	600	621	621	770		
Nozzle stroke/contact force	mm/kN	650/47				650/79			650/79			650/79		
Injection rate into air	cm <sup>3</sup> /s	65	98	126	182	113	163	222	117	160	209	121	158	200
Injection rate into air with double pump (option)	cm <sup>3</sup> /s	78	116	150	216	155	223	303	161	218	285	166	217	274
Barrel heating power	kW	5.5	6.3	9.0	10.4	9.0	10.4	10.4	10.4	10.4	12.9	11.5	14.0	17.3
Number of heating zones	kW	4				4			4			4		
Energy efficiency class <sup>3)</sup>		2+	2+	2+	4+	2+	4+	5+	3+	5+	6+	5+	6+	7+

Drive														
Drive power	kW	22				22			22			22		
Oil tank volume	l	390				390			390			390		
Elect. power supply without options	kVA	37				39			41			43		
Emission sound pressure level <sup>4)</sup>	dB(A)	65				65			65			65		

Weights, dimensions														
Net weight (exclusive oil)	kg	12100				12200			12300			12400		
H – Length x width x height <sup>5)</sup>	m	3.8 x 2.1 x 2.1				3.9 x 2.1 x 2.1			4.1 x 2.1 x 2.1			4.3 x 2.1 x 2.1		
V – Length x width x height <sup>5)</sup>	m	3.5 x 2.1 x 3.7				3.5 x 2.1 x 3.8			3.5 x 2.1 x 4.0			3.5 x 2.1 x 4.2		
Max. mold weight rotary table	kg	1600												
Max. mold weight clamping unit	kg	800												
Min. mold diameter	mm x mm	350 x 350												

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm  
3) calculated according to Euromap 60.1 (Cycle I) 4) according to ÖNORM EN 201:2010 annex K  
5) length with medium screw diameter in rearmost operating position



# DATEN VPower 160 R

Clamping unit		VPower 160		
Clamping force	kN	1600		
Rotary table diameter	mm	1300		
Working height	mm	930		
Min. mold height	mm	300		
Opening stroke/opening force	mm/kN	350/156		
Max. daylight	mm	650		
Ejector stroke/ejector force	mm/kN	150/27.5		
Angle/time of rotation	°/s	180/1.4		
Dry cycle time <sup>1)</sup>	s – mm	2.8 – 150		

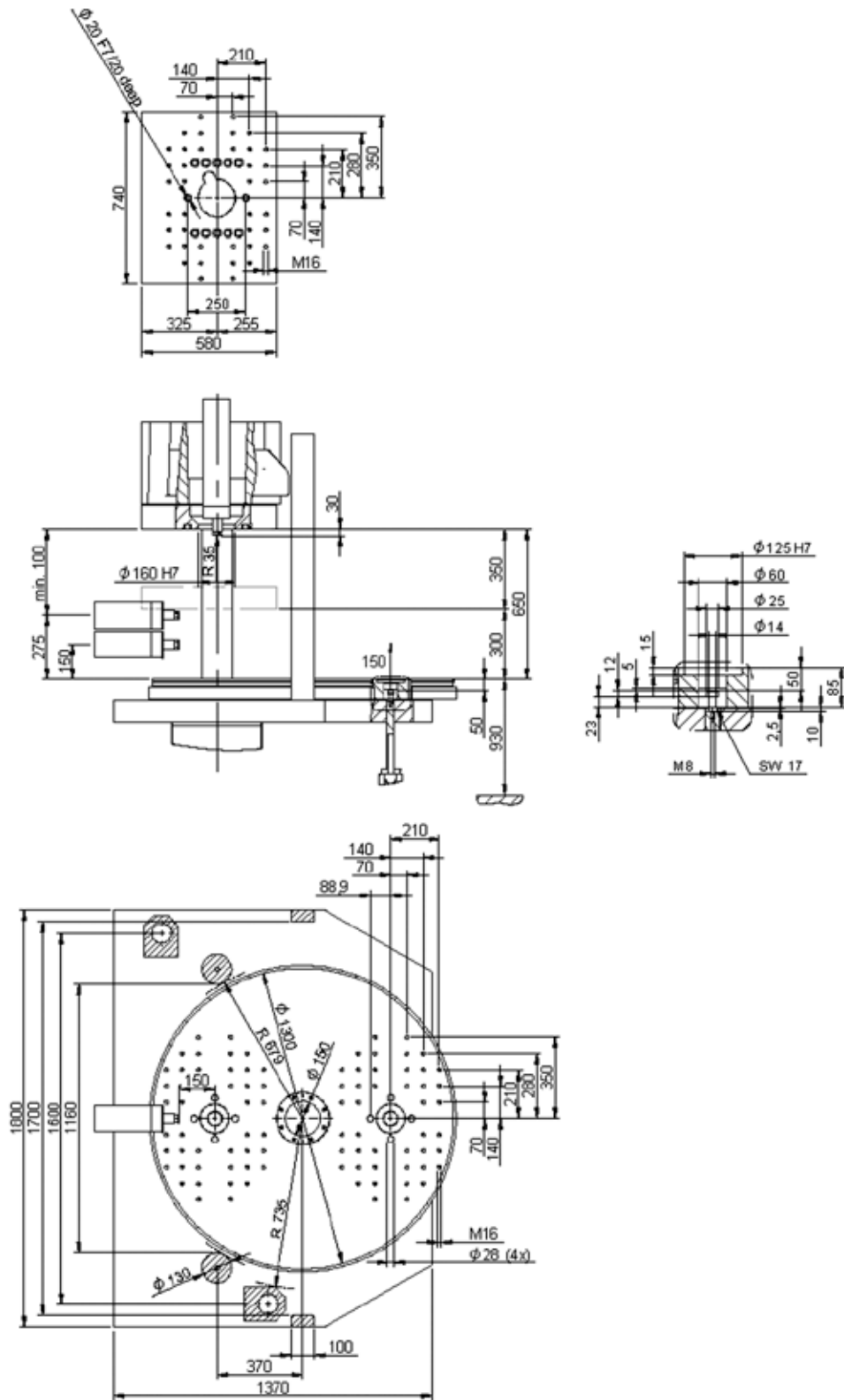
Injection unit		210 H/V			350 H/V			525 H/V			750 H/V			1000 H/V		
Screw diameter	mm	25	30	35	30	35	40	35	40	45	40	45	50	45	50	55
Screw stroke	mm	125	150	150	150	175	175	175	200	200	200	225	225	225	250	250
Screw L/D ratio		22			22			22			22			22		
Theoretical shot volume	cm <sup>3</sup>	61.3	106	144	106	169	220	168	251	318	251	358	442	357	491	594
Specific injection pressure	bar	2940	2042	1500	2835	2083	1595	2500	2100	1659	2500	2116	1714	2490	2016	1666
Max. screw speed	min <sup>-1</sup>	589			472			516			398			260		
Max. plasticizing rate (PS) <sup>2)</sup>	g/s	15.6	22.8	35.3	18.3	28.3	45.2	30	47	63	38	49	60	32	39	48
Screw torque	Nm	340	490	490	600	621	621	770			998			1540		
Nozzle stroke/contact force	mm/kN	650/79			650/79			650/79			650/79			650/79		
Injection rate into air	cm <sup>3</sup> /s	113	163	222	117	160	209	166	217	274	170	215	265	183	226	273
Injection rate into air with double pump (option)	cm <sup>3</sup> /s	155	223	303	161	218	285	217	283	359	222	281	347	239	296	357
Barrel heating power	kW	9.0	10.4	10.4	10.4	10.4	12.9	11.5	14.0	17.3	14.0	17.3	21.9	17.3	21.9	24.2
Number of heating zones	kW	4			4			4			4			4		
Energy efficiency class <sup>3)</sup>		2+	4+	5+	2+	4+	5+	4+	5+	6+	5+	6+	7+	5+	6+	7+

Drive													
Drive power	kW	30			30			30			30		
Oil tank volume	l	390			390			390			390		
Elect. power supply without options	kVA	48			50			52			55		
Emission sound pressure level <sup>4)</sup>	dB(A)	65			65			65			65		

Weights, dimensions													
Net weight (exclusive oil)	kg	9900			10000			10100			10200		
H – Length x width x height <sup>5)</sup>	m	3.7 x 1.9 x 2.1			3.9 x 1.9 x 2.1			4.1 x 1.9 x 2.1			4.3 x 1.9 x 2.1		
V – Length x width x height <sup>5)</sup>	m	3.3 x 1.9 x 3.9			3.3 x 1.9 x 4.1			3.3 x 1.9 x 4.3			3.3 x 1.9 x 4.5		
Max. mold weight rotary table	kg	1000											
Max. mold weight clamping unit	kg	500											
Min. mold diameter	mm x mm	300 x 300											

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm  
3) calculated according to Euromap 60.1 (Cycle I) 4) according to ÖNORM EN 201:2010 annex K  
5) length with medium screw diameter in rearmost operating position

# Rotary table diameter 1300 mm



# DATEN VPower 160 R

Clamping unit		VPower 160		
Clamping force	kN	1600		
Rotary table diameter	mm	1600		
Working height	mm	930		
Min. mold height	mm	300		
Opening stroke/opening force	mm/kN	350/156		
Max. daylight	mm	650		
Ejector stroke/ejector force	mm/kN	150/27.5		
Angle/time of rotation	°/s	180/1.9		
Dry cycle time <sup>1)</sup>	s – mm	2.8 – 150		

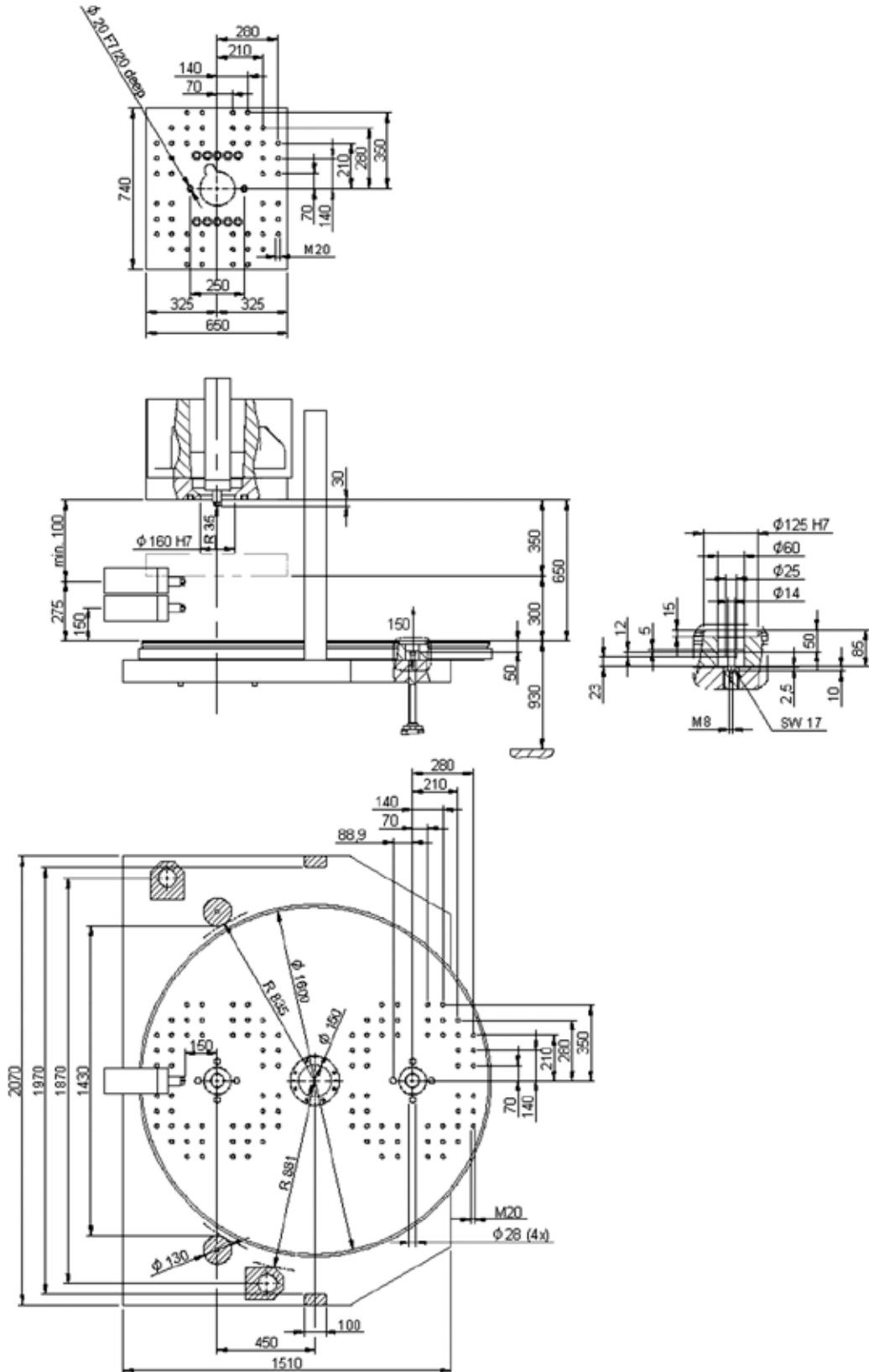
Injection unit		210 H/V			350 H/V			525 H/V			750 H/V			1000 H/V		
Screw diameter	mm	25	30	35	30	35	40	35	40	45	40	45	50	45	50	55
Screw stroke	mm	125	150	150	150	175	175	175	200	200	200	225	225	225	250	250
Screw L/D ratio		22			22			22			22			22		
Theoretical shot volume	cm <sup>3</sup>	61.3	106	144	106	169	220	168	251	318	251	358	442	357	491	594
Specific injection pressure	bar	2940	2042	1500	2835	2083	1595	2500	2100	1659	2500	2116	1714	2490	2016	1666
Max. screw speed	min <sup>-1</sup>	589			472			516			398			260		
Max. plasticizing rate (PS) <sup>2)</sup>	g/s	15.6	22.8	35.3	18.3	28.3	45.2	30	47	63	38	49	60	32	39	48
Screw torque	Nm	340	490	490	600	621	621	770			998			1540		
Nozzle stroke/contact force	mm/kN	650/79			650/79			650/79			650/79			650/79		
Injection rate into air	cm <sup>3</sup> /s	113	163	222	117	160	209	166	217	274	170	215	265	183	226	273
Injection rate into air with double pump (option)	cm <sup>3</sup> /s	155	223	303	161	218	285	217	283	359	222	281	347	239	296	357
Barrel heating power	kW	9.0	10.4	10.4	10.4	10.4	12.9	11.5	14.0	17.3	14.0	17.3	21.9	17.3	21.9	24.2
Number of heating zones	kW	4			4			4			4			4		
Energy efficiency class <sup>3)</sup>		2+	4+	5+	2+	4+	5+	4+	5+	6+	5+	6+	7+	5+	6+	7+

Drive													
Drive power	kW	30			30			30			30		
Oil tank volume	l	390			390			390			390		
Elect. power supply without options	kVA	48			50			52			55		
Emission sound pressure level <sup>4)</sup>	dB(A)	65			65			65			65		

Weights, dimensions																
Net weight (exclusive oil)	kg	12200			12300			12400			12500			12800		
H – Length x width x height <sup>5)</sup>	m	3.9 x 2.1 x 2.1			4.1 x 2.1 x 2.1			4.3 x 2.1 x 2.1			4.5 x 2.1 x 2.1			4.7 x 2.1 x 2.1		
V – Length x width x height <sup>5)</sup>	m	3.5 x 2.1 x 3.9			3.5 x 2.1 x 4.1			3.5 x 2.1 x 4.3			3.5 x 2.1 x 4.5			3.5 x 2.1 x 4.7		
Max. mold weight rotary table	kg	1600														
Max. mold weight clamping unit	kg	800														
Min. mold diameter	mm x mm	350 x 350														

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm  
3) calculated according to Euromap 60.1 (Cycle I) 4) according to ÖNORM EN 201:2010 annex K  
5) length with medium screw diameter in rearmost operating position

# Rotary table diameter 1600 mm



# DATEN VPower 220 R

Clamping unit		VPower 220	
Clamping force	kN	2200	
Rotary table diameter	mm	1600	
Working height	mm	995	
Min. mold height	mm	300	
Opening stroke/opening force	mm/kN	400/192	
Max. daylight	mm	700	
Ejector stroke/ejector force	mm/kN	150/27.5	
Angle/time of rotation	°/s	180/1.9	
Dry cycle time <sup>1)</sup>	s – mm	3.0 – 150	

Injection unit		350 H/V			525 H/V			750 H/V			1000 H/V		
Screw diameter	mm	30	35	40	35	40	45	40	45	50	45	50	55
Screw stroke	mm	150	175	175	175	200	200	200	225	225	225	250	250
Screw L/D ratio		22			22			22			22		
Theoretical shot volume	cm <sup>3</sup>	106	169	220	168	251	318	251	358	442	357	491	594
Specific injection pressure	bar	2835	2083	1595	2500	2100	1659	2500	2116	1714	2490	2016	1666
Max. screw speed	min <sup>-1</sup>	472			516			398			260		
Max. plasticizing rate (PS) <sup>2)</sup>	g/s	18.3	28.3	45.2	30	47	63	38	49	60	32	39	48
Screw torque	Nm	600	621	621	770			998			1540		
Nozzle stroke/contact force	mm/kN	650/79			650/79			650/79			650/79		
Injection rate into air	cm <sup>3</sup> /s	117	160	209	166	217	274	170	215	265	183	226	273
Injection rate into air with double pump (option)	cm <sup>3</sup> /s	161	218	285	217	283	359	222	281	347	239	296	357
Barrel heating power	kW	10.4	10.4	12.9	11.5	14.0	17.3	14.0	17.3	21.9	17.3	21.9	24.2
Number of heating zones	kW	4			4			4	4	5	4	5	5
Energy efficiency class <sup>3)</sup>		2+	4+	5+	4+	5+	6+	5+	6+	7+	5+	6+	7+

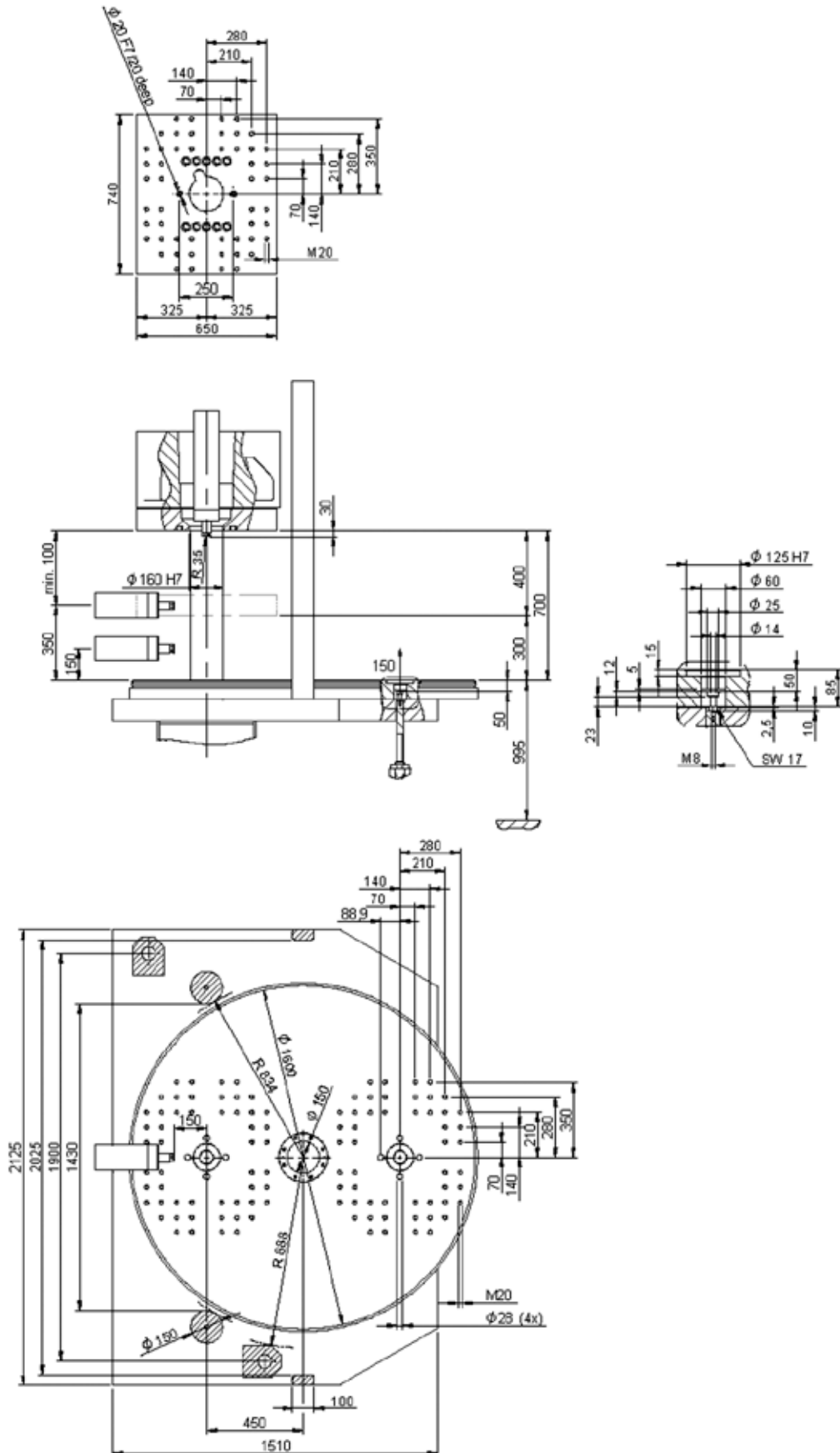
Drive													
Drive power	kW	30			30			30			30		
Oil tank volume	l	390			390			390			390		
Elect. power supply without options	kVA	50			52			55			57		
Emission sound pressure level <sup>4)</sup>	dB(A)	65			65			65			65		

Weights, dimensions													
Net weight (exclusive oil)	kg	14300			14400			14500			14800		
H – Length x width x height <sup>5)</sup>	m	4.1 x 2.2 x 2.3			4.3 x 2.2 x 2.3			4.5 x 2.2 x 2.3			4.7 x 2.2 x 2.3		
V – Length x width x height <sup>5)</sup>	m	3.5 x 2.2 x 4.3			3.5 x 2.2 x 4.5			3.5 x 2.2 x 4.7			3.5 x 2.2 x 4.9		
Max. mold weight rotary table	kg	1600											
Max. mold weight clamping unit	kg	800											
Min. mold diameter	mm x mm	350 x 350											

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm  
3) calculated according to Euromap 60.1 (Cycle I) 4) according to ÖNORM EN 201:2010 annex K  
5) length with medium screw diameter in rearmost operating position



# Rotary table diameter 1600 mm



# DATEN VPower 220 R

Clamping unit		VPower 220	
Clamping force	kN	2200	
Rotary table diameter	mm	2000	
Working height	mm	995	
Min. mold height	mm	300	
Opening stroke/opening force	mm/kN	400/192	
Max. daylight	mm	700	
Ejector stroke/ejector force	mm/kN	150/27.5	
Angle/time of rotation	°/s	180/2.5	
Dry cycle time <sup>1)</sup>	s – mm	3.0 – 150	

Injection unit		350 H/V			525 H/V			750 H/V			1000 H/V		
Screw diameter	mm	30	35	40	35	40	45	40	45	50	45	50	55
Screw stroke	mm	150	175	175	175	200	200	200	225	225	225	250	250
Screw L/D ratio		22			22			22			22		
Theoretical shot volume	cm <sup>3</sup>	160	169	220	168	251	318	251	358	442	357	491	594
Specific injection pressure	bar	2835	2083	1595	2500	2100	1659	2500	2116	1714	2490	2016	1666
Max. screw speed	min <sup>-1</sup>	472			516			398			260		
Max. plasticizing rate (PS) <sup>2)</sup>	g/s	18.3	28.3	45.2	30	47	63	38	49	60	32	39	48
Screw torque	Nm	600	621	621	770			998			1540		
Nozzle stroke/contact force	mm/kN	650/79			650/79			650/79			650/79		
Injection rate into air	cm <sup>3</sup> /s	117	160	209	166	217	274	170	215	265	183	226	273
Injection rate into air with double pump (option)	cm <sup>3</sup> /s	161	218	285	217	283	359	222	281	347	239	296	357
Barrel heating power	kW	10.4	10.4	12.9	11.5	14.0	17.3	14.0	17.3	21.9	17.3	21.9	24.2
Number of heating zones	kW	4			4			4	4	5	4	5	5
Energy efficiency class <sup>3)</sup>		2+	4+	5+	4+	5+	6+	5+	6+	7+	5+	6+	7+

Drive					
Drive power	kW	30		30	
Oil tank volume	l	390		390	
Elect. power supply without options	kVA	50		55	
Emission sound pressure level <sup>4)</sup>	dB(A)	65		65	

Weights, dimensions					
Net weight (exclusive oil)	kg	18100		18200	
H – Length x width x height <sup>5)</sup>	m	4.5 x 2.5 x 2.3		4.7 x 2.5 x 2.3	
V – Length x width x height <sup>5)</sup>	m	3.9 x 2.5 x 4.3		3.9 x 2.5 x 4.5	
Max. mold weight rotary table	kg	3000			
Max. mold weight clamping unit	kg	1500			
Min. mold diameter	mm x mm	550 x 550			

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm  
3) calculated according to Euromap 60.1 (Cycle I) 4) according to ÖNORM EN 201:2010 annex K  
5) length with medium screw diameter in rearmost operating position



# DATEN VPower 300 R

Clamping unit		VPower 300	
Clamping force	kN	3000	
Rotary table diameter	mm	2000	
Working height	mm	995	
Min. mold height	mm	400	
Opening stroke/opening force	mm/kN	400/251	
Max. daylight	mm	800	
Ejector stroke/ejector force	mm/kN	150/27.5	
Angle/time of rotation	°/s	180/2.5	
Dry cycle time <sup>1)</sup>	s – mm	3.2 – 150	

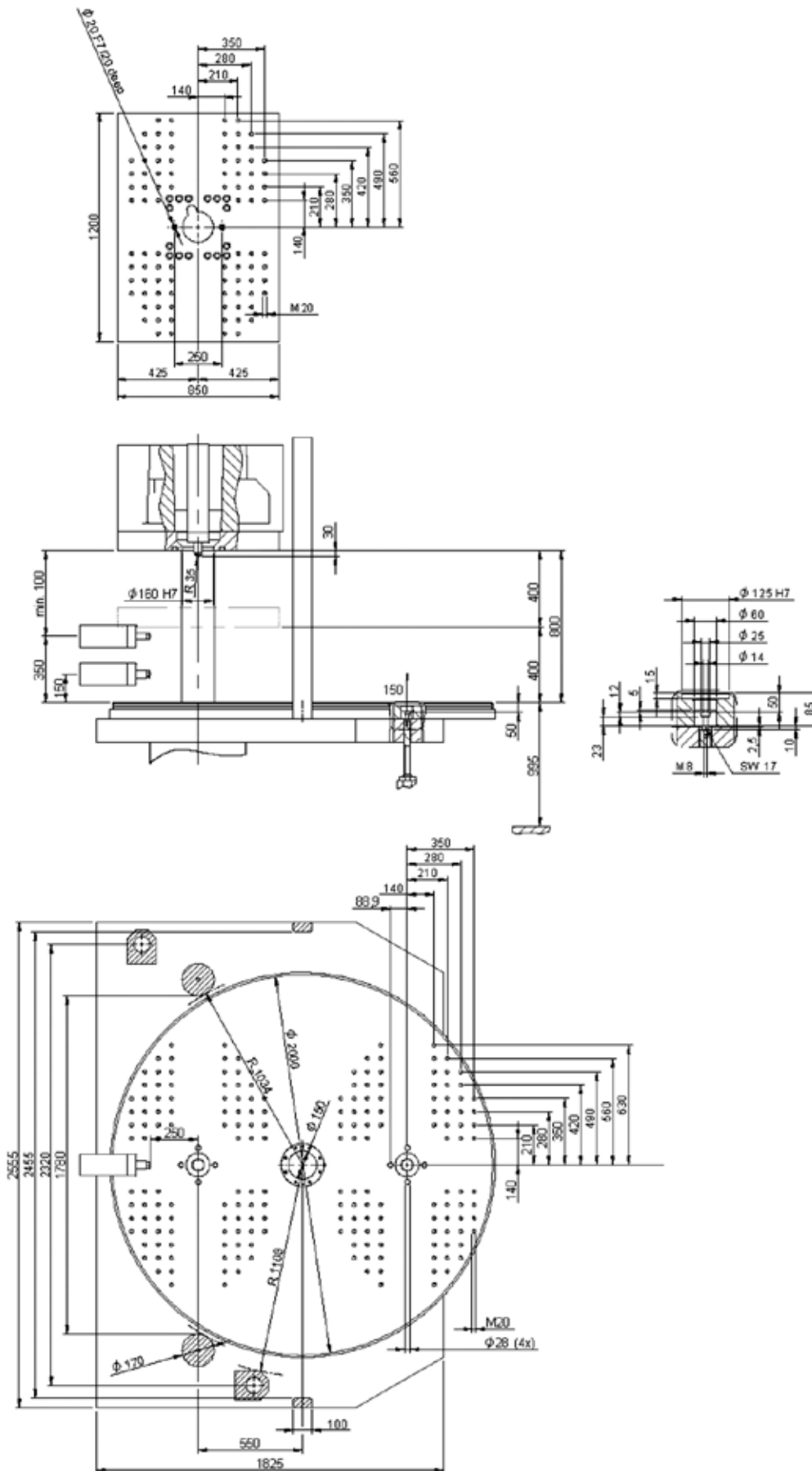
Injection unit		525 H/V			750 H/V			1000 H/V			1330 H/V		
Screw diameter	mm	35	40	45	40	45	50	45	50	55	50	55	65
Screw stroke	mm	175	200	200	200	225	225	225	250	250	250	275	275
Screw L/D ratio		22			22			22			22		
Theoretical shot volume	cm <sup>3</sup>	168	251	318	251	358	442	357	491	594	491	653	913
Specific injection pressure	bar	2500	2100	1659	2500	2116	1714	2490	2016	1666	2470	2041	1461
Max. screw speed	min <sup>-1</sup>	516			398			350			278		
Max. plasticizing rate (PS) <sup>2)</sup>	g/s	30	47	63	38	49	60	44	53	65	42	52	62
Screw torque	Nm	770			998			1540			1940		
Nozzle stroke/contact force	mm/kN	650/79			650/79			650/79			650/79		
Injection rate into air	cm <sup>3</sup> /s	166	217	274	170	215	265	246	304	368	248	300	419
Injection rate into air with double pump (option)	cm <sup>3</sup> /s	217	283	359	222	281	347	330	408	494	333	403	563
Barrel heating power	kW	11.5	14.0	17.3	14.0	17.3	21.9	17.3	21.9	24.2	21.9	24.2	27.0
Number of heating zones	kW	4			4			4			5		
Energy efficiency class <sup>3)</sup>		4+	5+	6+	5+	6+	7+	5+	6+	7+	6+	7+	8+

Drive					
Drive power	kW	37		37	
Oil tank volume	l	390		390	
Elect. power supply without options	kVA	59		62	
Emission sound pressure level <sup>4)</sup>	dB(A)	65		65	

Weights, dimensions					
Net weight (exclusive oil)	kg	20100		20200	
H – Length x width x height <sup>5)</sup>	m	4.7 x 2.6 x 2.5		4.9 x 2.6 x 2.5	
V – Length x width x height <sup>5)</sup>	m	3.9 x 2.6 x 4.6		3.9 x 2.6 x 4.8	
Max. mold weight rotary table	kg	3000			
Max. mold weight clamping unit	kg	1500			
Min. mold diameter	mm x mm	550 x 550			

1) theoretical according to EUROMAP 6 2) according to WITTMANN BATTENFELD norm  
3) calculated according to Euromap 60.1 (Cycle I) 4) according to ÖNORM EN 201:2010 annex K  
5) length with medium screw diameter in rearmost operating position

# Rotary table diameter 2000 mm



# STANDARD

## Base machine

Drop - voltage 230/400 V/3p+N-TN/TT, 50 Hz

Painting RAL 7047 tele grey 4 / RAL 3004 crimson

Air cooling system for drive unit, water cooling for feeding zone and oil cooler with solenoid valve

Test-run with hydraulic oil HLP32 zinc free according to DIN 51524 T2 / purity level 17/15/12 according to ISO 4406 (attention: oils are not included in delivery), lubricants according to H2 quality

Printed operating manual incl. user manual on USB flash drive in any EU language acc. to definition of country incl. type examination certificate TÜV Austria in German incl. protocol: electrical safety acc. to EN 60204-1

Injection molding machine according to machinery directive 2006/42/EG incl. declaration of conformity and CE-marking

## Hydraulics

Drive unit S0 with speed controlled servo motor for hydraulic pump to increase the energy efficiency incl. add. pump with speed-controlled servo motor for indexing the rotary table, core pull movement or parall. ejection

Hydraulics with oil cooler controlled in water inlet of cooling, oil level

Monitoring, oil filtration with electrical clogging indicator

Oil preheating of hydraulic drive

## Clamping unit

Clamping force and closing and opening forces adjustable

Mold safety program

Exact platen parallelism with low-friction linear guides.

Mold platen according to EUROMAP 2, clamping surface metallic bright, rest painted

Rotary table servo motor drive for 2 stations, oscillating 180°, rotary speed adjustable via touch screen

Final positioning by means of the hydraulic index cylinder

Stainless steel cladding of rotary table

Rotary table on sliding plates: PTFE sliding surface

Central lubrication for rotary table sliding plates and gear ring

Hydr. ejector in operating position, adjustable via several ejector programs

Clamping cylinder plunger induction hardened and hard chrome-plated, ejector piston hard chrome-plated, position sensor contactless

Pneumatic mold safety mechanism with electr. monitoring

Pre-selection of active mold lower parts (1 or 2) for production process

## Injection unit

Horizontal or vertical injection unit

Horizontal injection unit offers automatic height adjustability

Splash guard

Hydraulic screw drive

Injection, holding and back press. contr. with defined nozzle carriage press.

Plasticizing unit AK+, L/D=22, 3-zone universal screw, 3-parts check valve, heater bands up to 350 °C w/o insulation

Thermocouple failure monitor

Maximum temperature supervision

Plug-in ceramic heater bands

Temperature control of feed throat integrated

Injection cylinder plunger hard chrome-plated and position sensor contactless

Selectable barrel stand-by temperature

Decompression before and/or after metering

Physical units - bar, ccm, mm/s etc.

Screw protection

Auxiliaries 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 inject. to holding pressure dep. on stroke, time & pressure

Open nozzle R35

Splash guard and barrel covering in standard execution according to EN201, L/D 22 protected via transporter switch

Material hopper 6 l (MH206) for automatic material feed, sliding device with shut-off function for material with sliding guide

## Safety gate

Covering injection side - maintenance door screwed together

Safety gate with maintenance door left, right and behind electr. and hydr. monitors, plexiglas clear / frame RAL 3004 crimson

Infrared light curtain in operating station

## Electrics

Control zone for nozzle heater band 230 V

AmbiLED-status indicator

Fuse protection for sockets

Switch cabinet cooling - circ. fan for environment temperature to 30 °C

Emergency stop switch button

Printer socket

USB - 1 x operating unit

1 Ethernet interface (switch cabinet)

Printer via USB connection or network

## Control system

Control system Unilog B8 - 21,5" multi-touch screen (full HD)

Pivotable control panel with selectable haptic keys

Software for operating hours counter

Closing/Opening - 5 profile steps

Ejection - 3 profile steps

Nozzle forward/back - 3 profile steps

Injection/Holding pressure - 10 profile steps

Screw speed/Back pressure - 6 profile steps

Parts counter with good/bad part evaluation

Purging program through open mold, 2-station application

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, password system and RFID authorization system (1 x check card IT-level-15, 1 x token customer level-30 and 1 x token customer service level-20 are included in delivery)

Freely configurable status bar

Physical, process-related units

Automatic dimming

Logbook with filter function

User programming system (APS)

Userpage and note pad function

Cycle time analysis

Hardcopy function

Internal data storage via USB connection or network

Online language selection and online selection of imperial or metric units

Time monitoring

Basic Quality Monitoring (1 freely configurable network connection, quality table with 1000 storage depth, events protocol (logbook) for 1000 events, actual value graphics with 5 curves, 1 envel. curves monitoring)

Injection, metering and demolding integral supervision

Alarm message via e-mail

QuickSetup - assistance program for initial parameter setting

Energy consumption monitoring for motors and heating

Dynamic visualization of the mold table, mold, injection, insert and removal status as well as mold configuration

Preselection of single or multiple insert or removal processes

<b>Base machine</b>
Regional packages, country-specific
Special voltages
Special varnishing
Handlingpack. with parted safety gate and/or. deactiv. light curtain
Parts chute for separation of good/bad parts or photoelectric ejection check
<b>Hydraulics/Pneumatics</b>
Drive unit S2 with speed controlled servo motor for hydr. pump incl. add. pump for core pull movement, parall. ejection and rapid injection
Raw filter in water inlet of cooling incl. adapter with ball valve for oil maintenance on oil tank w/o bypass filter unit
Hydraulic core pull for clamping plate, interface according to EUROMAP 13, incl. core pull pressure release
Pneum. core pull and air valves on clamping plate/rotary table, incl. pressure regulator
Hydraulic manifolds for one mold shut-off nozzle or more
Compressed air pressure maintenance unit incl. 1 or more way pressure regulation incl. directional exhaust valve with blocking function
Vacuum equipment on clamping plate/rotary table
<b>Clamping unit</b>
Mold platen according to SPI, JIS, T-slots
Mold platen incl. cooling channels and temperature regulation
Rotary table for 3 and 4 station application 120° or 90°
Mold installation dimension on customer request
Hydraulic ejector replaceable, 3 and 4 station application
Add. hydraulic ejector on clamping platen
Double check valve to keep ejector in end-position
Electric ejector with holding brake
Ejector cross according to EUROMAP/SPI
Mechanical or pneumatic ejector coupling
Ejector platen safety
Ejector back up while in two-hand operation
<b>Injection unit</b>
Injection unit convertible (H/V) for alternative operation
High torque hydraulic screw drive/high revolution hydraulic screw drive
Screw drive by servo motor for parallel recovery
Injection, holding and back pressure controlled via servo valve
Check valve to hold screw in position after end of dosing
Corrosion resistance injection unit
Plasticizing unit AK+, AK++, AKCN
Barrier section, screw with mixing section w/o grooves
Ball type screw tip
Melt pressure transducer, melt temperature sensor
Heater bands up to 450 °C
Special plasticizing unit for LIM, MIM, CIM, Duroplast, PVC
Barrel insulation
Open nozzles in special execution
Open Airmould-nozzles
Needle type shut-off nozzle operated with spring, pneumatically or hydraulically
Barrel covering and splash guard in special execution
Pneum. purging guard for H- and V-injection unit
Purging function via open mold on customer request incl. purging tray w/o monitoring
Material hopper in special execution w/o pneum. shut and emptying function w/o magnet in material hopper
Unifeed
Mixing and dosing units
Vacuum package incl. vacuum pump

<b>Safety gate</b>
Extended execution for manual part removal
Add. light curtain for clamping unit or 3 <sup>rd</sup> operation station protection
Special protection cage for the construction of automation systems incl. required mechanical and electrical interfaces
<b>Cooling</b>
Manual cooling water distributor, flow and temperatur monitoring or with flow control, with/without blow-off valve
Solenoid valve for cooling water distributor
Machine cooling by T-piece in inlet pipe
Filter back flushable/water pressure supervision in inlet pipe
Distributor block on rotary table/clamping plate with/without insulation
Rotary distributor for conditioning, hydr. and pneum. for rotary application, w/o electr. signal transmission, contactless, w/o slipping transmission up to 10 A power section
<b>Electrics</b>
Temperature control zones for hot runner
Acustic element integrated in signal lamp
Socket combination
Add. fan in electr. switch cabinet for increased environment temperature
Cabinet air conditioner
Additional emergency stop switch button
Interface for robot, conveyor belt, TCU, dosing unit, Airmould, mold surveillance, production data logging system, RJG eDart, Priamus BlueLine, danger zone boundary, ejection in mold middle plate, brushing device, relay signals
<b>Control system</b>
Cavity pressure switchover
BNC sockets for injection process analysis
Expert Quality Monitoring (4 freely configurable network connections, quality table with 10000 storage depth, events protocol (logbook) for 10000 events, actual value graphic with 16 curves, 4 envelope curves monitoring, SPC charts, trend diagrams)
<b>Mold identification</b>
Special programs on customer request
HiQ Cushion - melt cushion control
HiQ Flow - injection integral control
HiQ Melt - monitoring of material quality
HiQ Packing - holding pressure speed limitation
Energy consumption analysis
Clamp force supervision
Special programs on customer request
Purge of cold plug
Additional output card/input card, freely programmable
Integration package Wittmann 4.0
Control panel free-standing or mounted on a pivotable arm
<b>Additional equipment</b>
Tool kit
Levelling pads
Lighting in mold space
Mold clamping systems in mechanical, electrical or hydraulic execution
Platform for safe access to the injection unit in V-position incl. protection with transponder switch
Integration package (robot, feeder, dosing unit, TCU, mold integration)
WITTMANN BATTENFELD web service during warranty period free of charge
Remote control package

The Wittmann logo is located in the bottom right corner of the page. It consists of the word "Wittmann" in a white, italicized, sans-serif font, set against a dark red, rounded rectangular background.

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