

SONDERMANN
PUMPEN + FILTER GMBH & Co. KG



VERTICAL
CENTRIFUGAL
IMMERSION
PUMPS



COMPETENCE IN
PUMP AND FILTER
TECHNOLOGIES



SONDERMANN MAKES THE DIFFERENCE

Extremely safe products, extremely reliable service.

This is our tradition. And this is why, for decades, experts have trusted in SONDERMANN products and devices. For many reasons such as ...

... LONG-STANDING EXPERIENCE

As early as 1961, SONDERMANN supplied the first magnetically coupled centrifugal pump. The technological superiority we had at that time has been our outstanding feature up to this day. Our special pumps are used in trade and industry all over the world. Many years of acquiring know-how also find expression in the services rendered for the benefit of our clients. Actually, there should be no user problem we do not resolve. This, also, is a matter of experience.

... STRONG PARTNERS

Working now together with FLUX-Geräte GmbH, we are even stronger than before. Our network of customer advisors has expanded and we are able to offer a wider range of problem solutions. Whatever challenge of fluid delivery you face, the job will be done best by either a SONDERMANN or a FLUX pump. Just try us.

... EXCELLENT PRODUCT QUALITY

SONDERMANN is on the outside. Made in Germany is inside. All our pumps and filters are entirely manufactured in Germany. This is certainly one reason for the superior quality of our products. Since we are very serious about each pump and filter, every single one is thoroughly checked in several stages before it leaves the company – with checks down the entire characteristic curve. And of course in accordance with the ISO 9001 quality standard.

... RELIABLE SERVICE

You will recognize a genuine SONDERMANN pump by its operating reliability. And it operates at your location! To achieve this, we make every effort to help you in case of need. In Germany only, especially trained advisors are available at 14 sales locations. From there we coordinate our service operations so that we arrive at your place as quick as possible.

... SPECIAL DESIGNS TO MEET INDIVIDUAL DEMANDS

Please do not hesitate to tell us your specific type of problem. It is a fact that standard designs often are not adequate for the use required. As a consequence, we are best prepared for special designs – and are able to realize them in no time. If we exactly know your problem, we will be able to find a way to resolve it. This is also what SONDERMANN stands for.



SONDERMANN is a member in the association surface technology.

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RT – VERTICAL CENTRIFUGAL IMMERSION PUMPS

INNOVATIVE TECHNOLOGY MAKES THE DIFFERENCE



THE PERFECT SOLUTION

In this area of use too, the search for even better and more perfect solutions has given rise to an unsurpassed technical standard from which our customers profit. SONDERMANN vertical centrifugal immersion pumps boast robust, practical construction and design. Thanks to the use of a variety of materials, the components in contact with the medium are insensitive to both corrosion and chemicals. Other design-related advantages are safety in the event of running dry (without intermediate bearings), the low space requirement and individual conformity to customer-specific installation flange dimensions. SONDERMANN vertical centrifugal immersion pumps are designed for vertical use in non-pressurised tanks, open containers or pits. They have proved to be extremely successful in transporting and circulating pure, slightly contaminated or abrasive media, aqueous solutions, suspensions or liquid mixtures.

THE MEDIA

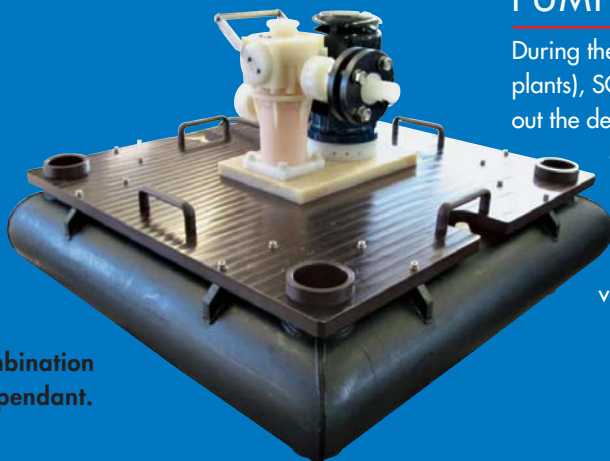
SONDERMANN vertical centrifugal immersion pumps are special designed for acids, caustic solutions, mixtures, solvents, alkaline degreasing baths, electrolytic baths, photo chemicals, radioactive, sterile or particularly valuable liquids, foodstuffs and many other low-viscosity media.

THE UTILIZATION

Consequently, SONDERMANN vertical centrifugal immersion pumps are successfully used in both mechanical and systems engineering as well as in the chemicals and pharmaceuticals industry, environmental and process engineering, water and waste water treatment and in the textiles and foodstuffs industry. But that's not all. Experts also rely on SONDERMANN Series RT pumps for fitting out etching and cleaning systems, refrigeration machines, solar systems and in the photographic and electroplating industries.

PUMPS FOR INDIVIDUAL DEMANDS

During the project planning phase (e.g. of electrolytic plants), SONDERMANN defines interfaces and works out the design of requested special features in close collaboration with the customer. The customer receives an individual, ready-to-install function module. The units are optimally configured to your particular application, and are delivered assembled and ready for operation.



RT filter combination on floating pendant.

THE DESIGN FEATURES



The advantages:

- Corrosion-free
- Robust construction
- High efficiency
- Special shaft sealing
- Specific flange dimensions available

Protection type

IP55 (fan cover with protective roof), explosion protection on request.

Sound pressure level

Low-vibrating running. The sound pressure level is < 70 dB (A) in accordance with DIN EN 12639 noise measurement, liquid pumps.

Electrical drive

TEFC, single-phase or three-phase low-voltage motors with squirrel-cage rotor. Available on request with integrated frequency converter.

Paint finish

Dual-component protective paint finish. Special colours always possible.

Shaft lead-through seal combinations

Various seals are used, depending on the application. SONDERMANN offers a patented sealing system specially for heavily crystallising media.

Corrosion-free

Plastic pump without metal parts in contact with the medium. The motor shaft is completely encased in plastic.

Performance data

The right impeller for any delivery rate (see characteristic fields).



fixed connection, angled 90°



fixed connection, vertically upwards



A filter can be fitted instead of the pressure pipe.



Pressure connection

Threaded connector conforming to DIN 8063. Optional flange connection conforming to DIN 2501 PN10/16.

Flange dimensions

Customer-specific dimensions always possible at short notice!

Robust construction

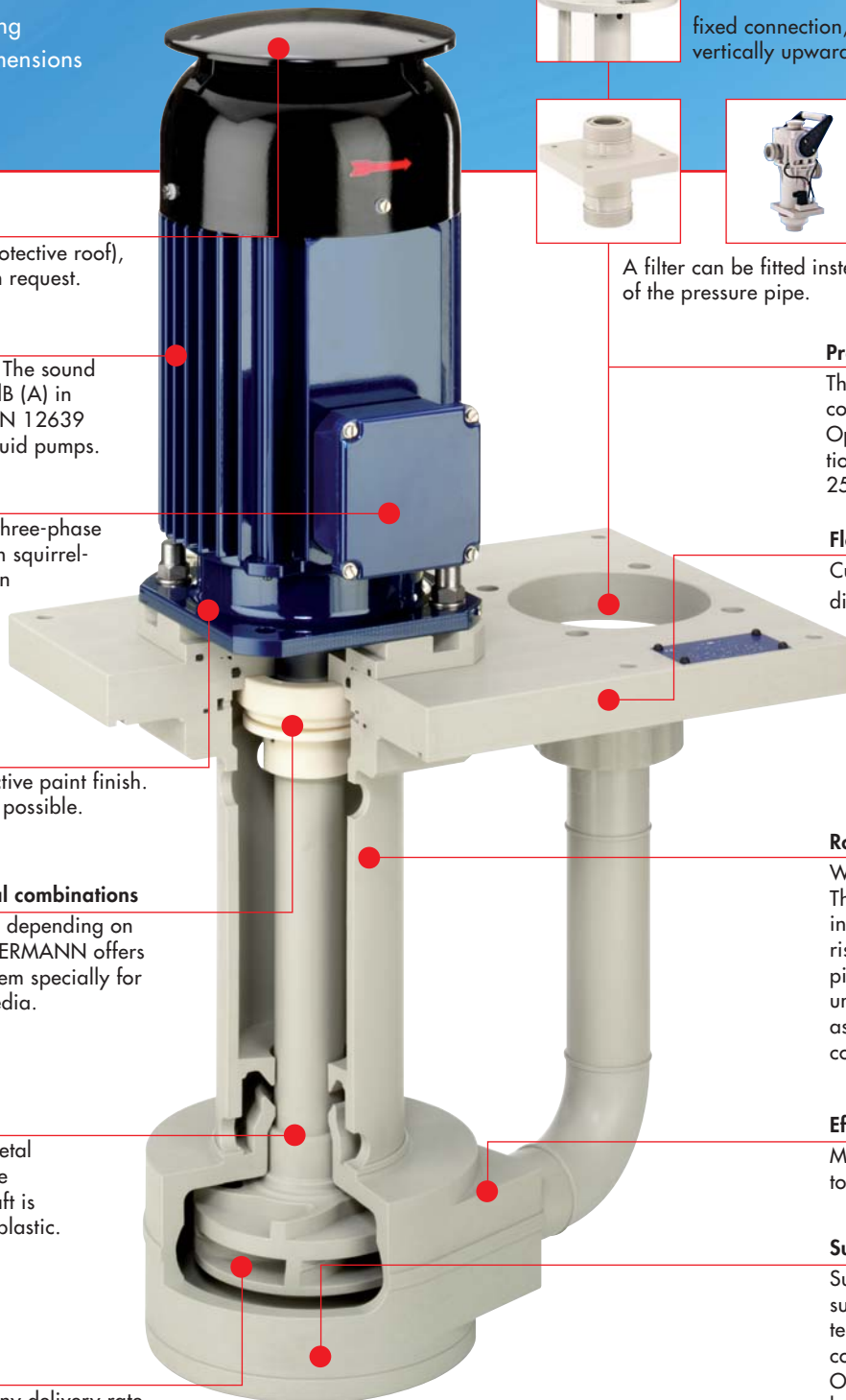
Welded connection: The pump housing, installation flange, riser pipe and pressure pipe form a complete unit. Also available as a flexible screw connection.

Efficiency

More efficient thanks to a spiral housing.

Suction connection

Suction side: includes suction screen to protect the pump against coarse impurities. Optionally also available with an extension pie.



PERFORMANCE CHARTS OF RT-PUMPS

Key data of Series RT1 to RT6

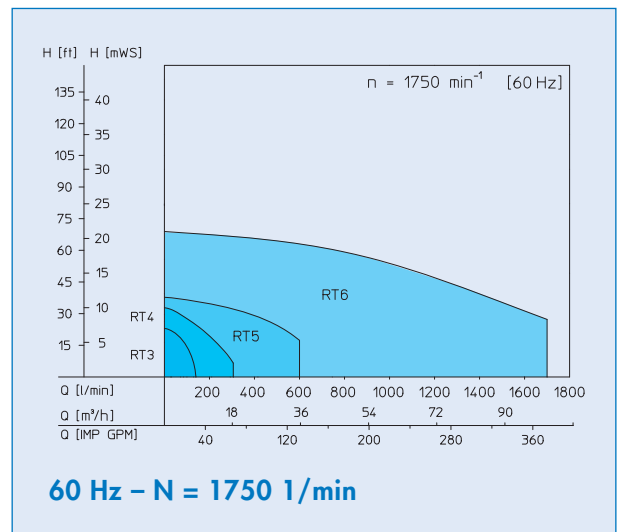
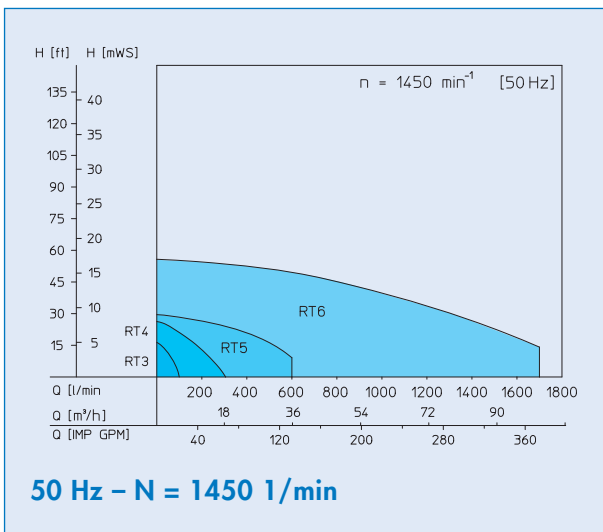
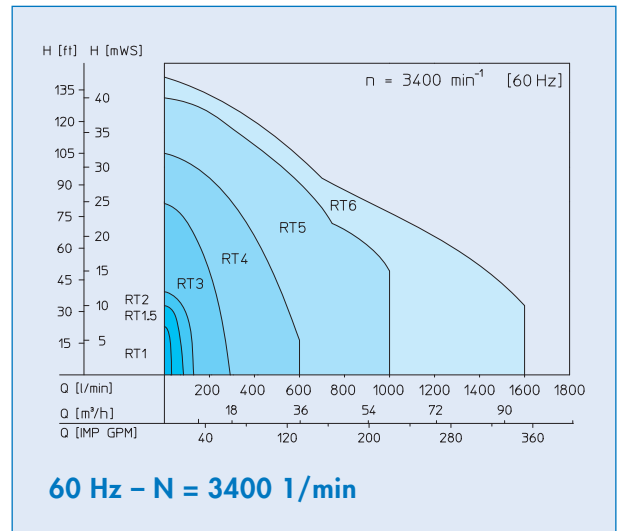
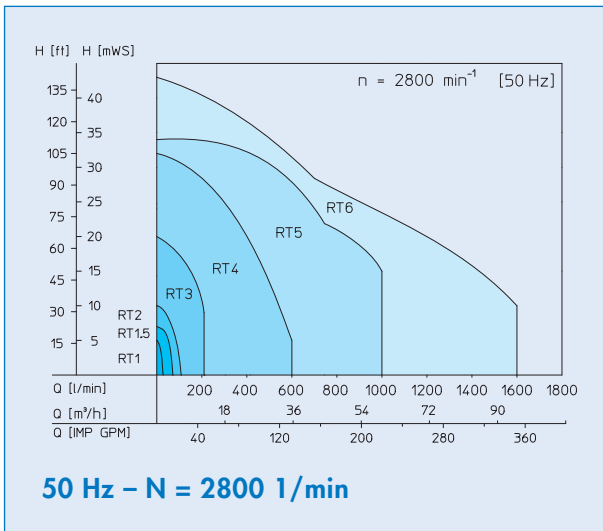
Delivery rate up to 1700 l/min
 Delivery height up to 43 m wc
 Motor power 0.060 bis 15 kW
 Immersion depth 200 up to 500 mm (RT, RT-MS und RT-A)
 Immersion depth 200 up to 2500 mm (RT-Z und RT-M)
 Materials PP, PVDF, CPVC, PFA, ECTFE,
 stainless steel, titanium
 Seals FKM, EPDM, Kalrez, FEP-covered
 Operating temp. bis 100 °C

Materials and temperatures

For each pumping medium we offer the necessary material combination in relation to the temperature.



Materials/ temperatures	°C	°F
Stainless steel, titanium, PEEK, PPS, PFA, ECTFE, Oxid ceramic	100	212
PVDF	95	203
PP, CPVC	80	176





Select from a variety of drives

Three-phase motors	60 W to 15 kW
AC motors	60 W to 1,5 kW
Design	IM B5 oder IM B14
Voltage	See „International mains voltage and frequencies“
Speed	1450/1750 rpm, 50/60Hz 2800/3400 rpm, 50/60Hz
Protection type	IP55 (other protection types on request)
Protective roof	integrated



VARIABLE-SPEED DRIVE

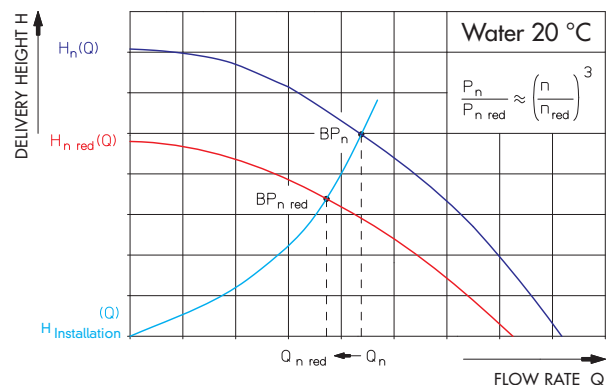
If required, Series RT vertical centrifugal immersion pumps can also be fitted with an integrated variable-speed drive. In all SONDERMANN centrifugal pumps, the pump, motor and frequency converter form one compact unit. This allows small dimensions, increases operational readiness and reduces costs. The frequency converters are available in various versions. Control is optionally possible via: Terminal strip, analog input, serial interface, potentiometer, control panel, field bus (Profibus, etc.)

Thanks to advances in performance electronics, high-performance frequency converter units are now available for controlling and regulating the speed of three-phase asynchronous motors. These variable-speed drives permit a centrifugal pump to be adjusted to suit the particular requirements of an individual application, and enable power consumption to be reduced. This enables every desired operating point to be reached, right up to the load limit of the pump or motor. Low energy consumption and a lack of superfluous control valves save costs, with the result that the high purchase price of a variable-speed centrifugal pump is recovered within a very short time. Centrifugal pumps are designated as an application with square torque. This means that the speed and capacity ratio is cubic. If the speed is reduced, the load is reduced much more. For example, if the speed is reduced by 50 %, only 12 % of the capacity is still required!

If the frequency converter is integrated in the terminal box, the EMC regulations have been fulfilled and there is no need for the adjustment of an external converter. The unit consisting of the frequency converter, three-

phase motor and centrifugal pump is delivered ready to connect and pre-programmed.

In all, far less space is required for new installations. In the case of modernisations, it is possible to make use of all the advantages of a frequency converter in the existing process.



Thanks to the variety of possible external control signals for speed adjustment, this compact system can be directly incorporated into the plant's higher-order control systems. The converter electronics allow soft start-up and soft run-out of the centrifugal pump via programmable ramp run times. By defining maximum and minimum output frequencies on the motor side and by masking out any resonance frequencies that arise, it is possible to optimally adjust the centrifugal pump to the respective application.

THE PERFECT PUMP-DRIVE

The advantages of the variable-speed drive integrated in the motor:

- Energy saving
- Fluid control to suit your requirements
- Space-saving drive
- No power loss in the switch cabinet by the FC
- Less installation work
- The pump is delivered ready to connect and pre-programmed
- No long, cost-intensive, shielded motor cables
- No separate EMC filter
- Gentle pumping of the medium
- No heating-up of the pumped medium by energy dissipation
- No external motor circuit breakers thanks to integrated motor protection functions

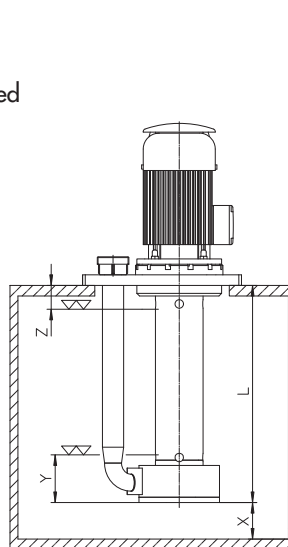
INTERNATIONAL MAINS VOLTAGES AND FREQUENCIES

West Europa	East Europa	Middle East	Far East	North America	Central America	South America	Africa
50 Hz	50 Hz	50 Hz	50 Hz			50 Hz	50 Hz
230/400 V	230/400 V	220/380 V	230/400 V			220/380 V	220/380 V
500 V	690 V	230/400 V	220/380 V				127/220 V
690 V		240/415 V	200/346 V				240/415 V
			240/415 V				
			100/200V				
			60 Hz	60 Hz	60 Hz	60 Hz	
			220/380 V	120/240 V	115/200 V	220/380 V	
			254/440 V	265 /460 V	220/380 V	277/480 V	
			110/120 V	277/480 V	254/440 V	115/ 200 V	
				575 V			
				600 V			

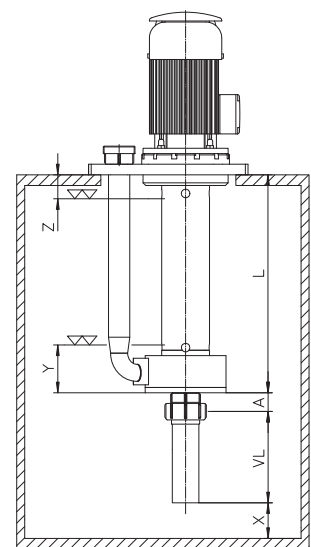
Installation instructions

In order to guarantee safe operation of vertical centrifugal immersion pumps, the following instructions must be followed during the planning and installation phases:

- A Thread length, suction side (for screwing on an extension pipe)
- L Immersion depth
- VL Extension pipe, suction side (max. 500 mm)
- X Minimum distance between the suction connector and the tank bottom
- Y Lowest permissible liquid level during any pump start-up. If a tank is emptied, it must be refilled to above the minimum liquid level before being started up again. While the pump is in operation, the liquid level can be reduced until the screwed-on extension pipe is still below the level, without the pumping flow being interrupted.
- Z Highest permissible filling level



RT – Vertical centrifugal immersion pump



RT – Vertical centrifugal immersion pump with screwed-on extension pipe on the suction side



TYPE KEYS OF PUMPS TYPE RT

The type names of the pumps are comprised of several characters that refer to the materials and properties of the individual components. Here is an example:

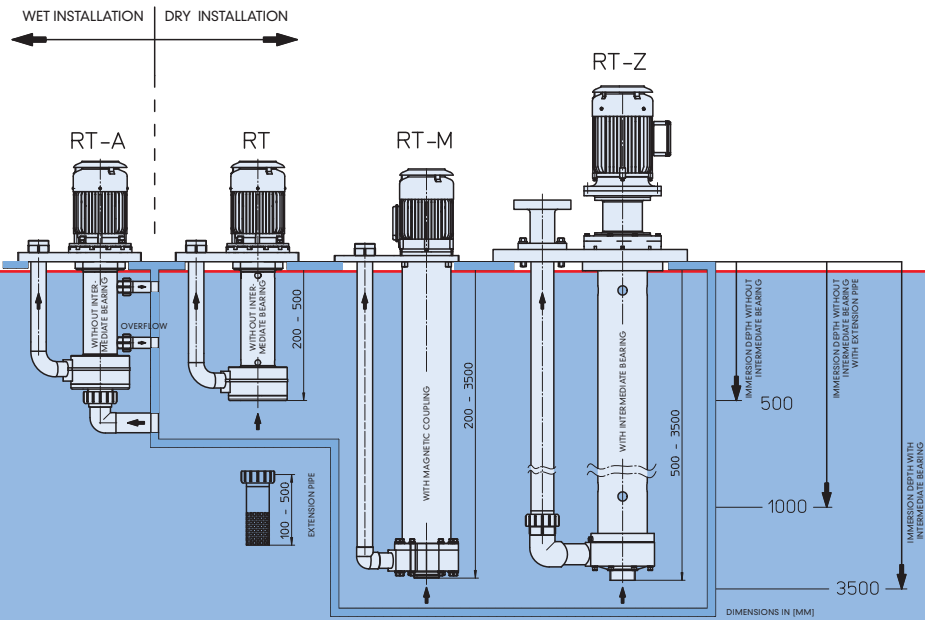
RT L PP 30/340 4 / 3 300 K V Fl. 200 x 300 G 2 1/2
 - 1 2 3 4 5 6 7 8 9 10

You can select the available combinations as shown in following chart.

• = preferred programme / x = on request / - = not available

no.	unit part	code	material	pump type RT 1 to 6							
				1	1.5	2	3	4	5	6	
1		L	pump ventilated	•	•	•	•	•	•	•	•
		M	with magnetic coupling	x	x	•	•	•	x	x	
		Z	with intermediate bearing	x	x	x	•	•	•	•	
		MS	multi-stage pump	•	•	•	•	•	•	•	
2	PESD-unit, impeller with shaft protection tube	PP	polypropylene	•	•	•	•	•	•	•	
		PVDF	PVDF	•	•	•	•	•	•	•	
		CPVC, PVC	CPVC, PVC	x	x	x	x	x	x	x	
		PFA	PFA	x	x	x	x	x	x	x	
		Ti	titanium	x	x	x	•	•	x	x	
		VA	stainless steel	x	x	•	•	•	x	x	
3	pump size	.../...	see performance curves	x	x	x	•	•	•	•	
4	motor power	...									
5	motor	1	for 1~, 230 VAC	•	•	•	x	x	-	-	
		3	for 3~, 400 VAC	x	x	•	•	•	•	•	
6	immersion depth	...	RT: 200 to 500 mm	•	•	•	•	•	•	x	
		...	RT-Z: 200 to 2500 mm	x	x	x	•	•	•	•	
		...	RT-M: 200 to 2500 mm	x	x	•	•	•	x	x	
7	sealing	K or Ti	labyrinth	x	x	x	•	•	•	•	
		V	V-ring	•	•	•	•	•	•	•	
8	O-ring material	V	FKM	•	•	•	•	•	•	•	
		E	EPDM	•	•	•	•	•	•	•	
		P	NBR	x	x	x	x	x	x	x	
		T	FKM FEP-covered	x	x	x	x	x	x	x	
9	installation flange	...	dimensions [mm]								
10	discharge connection	G	Withworth pipe thread	•	•	•	•	•	•	•	
		F	flange	x	x	x	x	x	x	x	
		A	ANSI-flange	x	x	x	x	x	x	x	
		N	NPT-thread	x	x	x	x	x	x	x	
		S	hose connection	x	x	x	x	x	x	x	
		RT-SF	for filter attachment	•	•	•	•	•	•	x	

INSTALLATION EXAMPLES



Installation examples

Here you will find in the SONDERMANN product range the right pump for every medium, every tank depth and every customer-specific plant design.

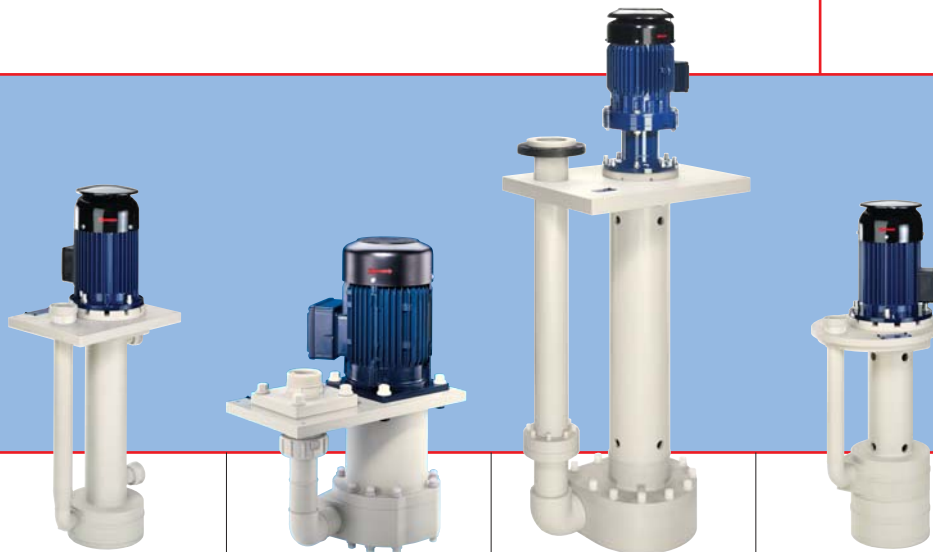
standard version		special versions			
series	RT	RT-A	RT-M	RT-Z	RT-MS
version	centrifugal immersion pump for wet installation safe to run dry	centrifugal immersion pump for dry installation safe to run dry	centrif. immersion pump with magnetic coupling medium lubricated sliding bearings	centrif. immersion pump with intermediate bearings medium lubricated sliding bearings	centrif. immersion pump, multi-stage version safe to run dry
no. stages	1	1	1	1	2 ... n
immersion depth 200 to 500 mm	•	•	•	•	•
immersion depth 200 to 2500 mm	–	–	•	•	on request
filter-attachement poss., RT-SF / RT-FI	•	•	•	•	•
extension pipe (optional) 200 to 500 mm	•	•	•	•	•
series RT 1	•	•	–	–	•
series RT 1.5	•	•	–	–	•
series RT 2	•	•	•	•	•
series RT 3	•	•	•	•	•
series RT 4	•	•	•	•	•
series RT 5	•	•	•	•	•
series RT 6	•	–	–	•	•
delivery head up to [m wc]	43	43	43	43	75
flow rate up to [l/min]	1700	1000	1000	1700	1000
motor power up to [kW]	15	7.5	7.5	15	15
integr. frequency converter available	•	•	•	•	•



THE MOST IMPORTANT SELECTION CRITERIA

Special versions

Following special version series are available:



series	RT-A	RT-M	RT-Z	RT-MS
version	vertical centr. immersion pump RT1 to RT6 for dry installation outside the tank	vertical centr. immersion pump RT2 to RT6 with magnetic coupling	vertical centr. immersion pump RT2 to RT6 with intermediate bearing	multi-stage vertical centrifugal immersion pump
immersion depth	200 to 500 mm	200 to 2500 mm	200 to 2500 mm	200 to 500 mm
function method	attachment of the vertical centrifugal immersion pump outside the tank; connection and piping through the tank wall.	the rear casing hermetically seals off the pump chamber from the drive section. The outer rotating drive magnet transmits the torque to the inner magnet and thereby to the connected impeller.	immersion depth of up to 2500 mm are possible with an additional liquid-lubricated pump shaft intermediate bearing.	connecting several impellers in series increases the delivery head. The increase in the pumping pressure (delivery head) is proportional to the number of impellers with the same delivery rate.
applications	<ul style="list-style-type: none"> if there is a lack of space in the tank same applications as the RT series 	<ul style="list-style-type: none"> pumping of out-gassing media or media that crystallise heavily when in contact with the atmosphere processes incompatible with oxygen same applications as the RT series 	<ul style="list-style-type: none"> applications with extremely deep tanks or a greatly fluctuating liquid level same applications as the RT series 	<ul style="list-style-type: none"> processes with high pressures at low delivery rates when there is a lack of space in the tank (a corresponding single-stage version has a much larger diameter) same applications as the RT series
advantages	<ul style="list-style-type: none"> robust design safe to run dry corrosion-free (parts in contact with the media are made of plastic) no space requirement inside the tank customer-specific installation flange dimensions 	<ul style="list-style-type: none"> hermetically tight no air enters the medium robust design corrosion-free (parts in contact with the media are made of plastic) takes up a little space customer-specific installation flange dimensions 	<ul style="list-style-type: none"> the right installation lengths for every application robust design corrosion-free (parts in contact with the media are made of plastic) customer-specific installation flange dimensions 	<ul style="list-style-type: none"> small, compact element design smaller series with the same pressure robust design corrosion-free (parts in contact with the media are made of plastic) customer-specific installation flange dimensions

The technical data and performance curves of series RT1 to RT6 still apply without changes.



Special versions:

RT-A (dry installation)

RT-MS (multi-stage version)

Accessories:

Extension pipe
(VL max. = 500 mm)

On/Off switch on
terminal box

Connecting cable completely
wired with plug

Delivery rate up to 32 l/min

Delivery head up to 7 m wc

Immersion depth up to 400 mm

Safe to run dry

For aggressive and neutral
liquids

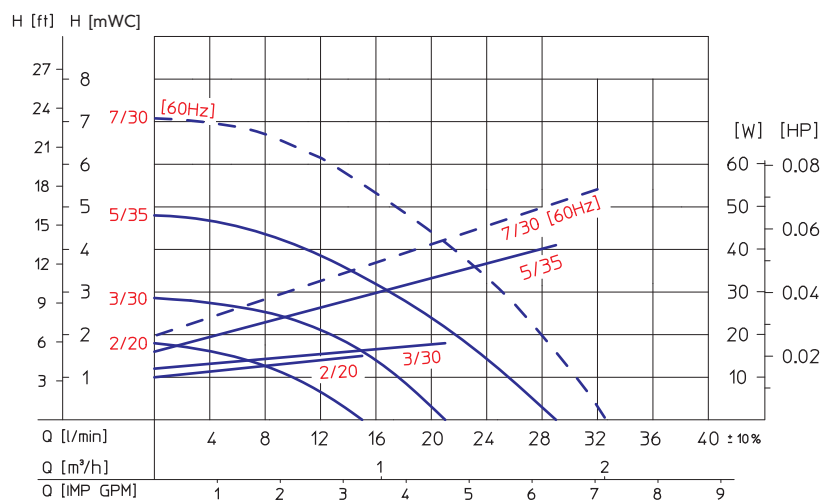
Made of PP and PVDF

Protection type IP55

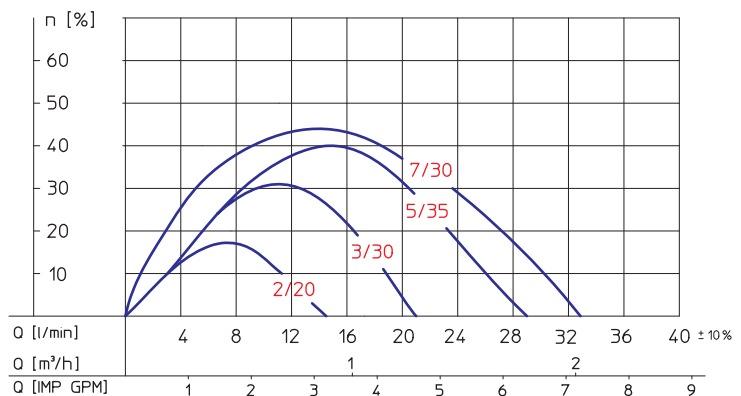
For piping in the tank, the pump is
also available without a pressure
pipe.

PERFORMANCE CHARTS

DELIVERY RATE



EFFICIENCY





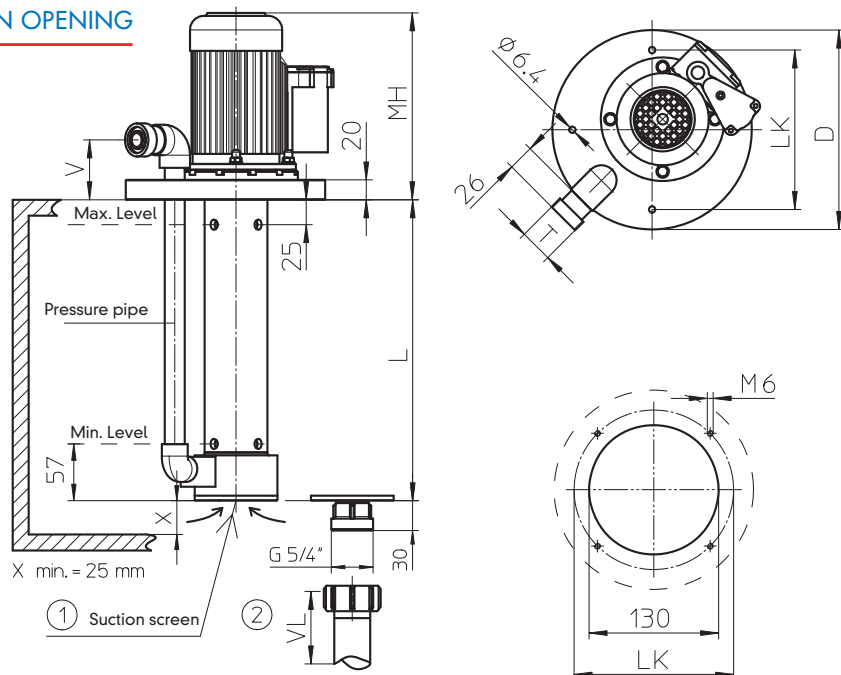
TECHNICAL DATA				
size	2/20	3/30	5/35	7/30***
max. delivery rate [l/min]	15	20	30	32
max. delivery head [m wc]	1.7	2.8	5	7
motor power* at 50 Hz [kW]	0.060	0.060	0.060	-
motor power* at 60 Hz [kW]	0.072	0.072	0.072	0.072
speed at 50 Hz [min ⁻¹]	2850	2850	2850	-
speed at 60 Hz [min ⁻¹]	3450	3450	3450	3450
voltage**	230 V 1-phase or 230/400 V 3-phase			
protection type	IP55			
installation height (MH) [mm]	187.5			
connections	suction side ①	suction screen		
	suction side ②	G 5/4		
	pressure side (T)	G1		

- * All pumps are also available with smaller impeller diameters for liquids with higher specific gravities although this reduces the delivery rates and delivery heads. If necessary, please consult us.
- ** Other voltages and ex proved motors available upon request.
- *** Available only in 60 hertz.

immersion depth (L) [mm]	200	300	400
discharge connection height [mm] (V)	standard = 60 alternatively with other dimensions, rotatable, vertically upwards etc.		
installation flange [mm] (D, LK)	Ø 200, LK 160 other dimensions always possible, also available as a rectangular flange		

DIMENSIONS/INSTALLATION OPENING

immersion depth: L
 installation height: MH
 installation flange: D, LK
 discharge connection: V
 pressure side: T





Special versions:

RT-A (dry installation)

RT-MS (multi-stage version)

Accessories:

Extension pipe
(VL max. = 500 mm)

On/Off switch on
terminal box

Connecting cable completely
wired with plug

Delivery rate up to 85 l/min
Delivery head up to 10 m wc
Immersion depth up to 500 mm
Safe to run dry

For aggressive and neutral
liquids

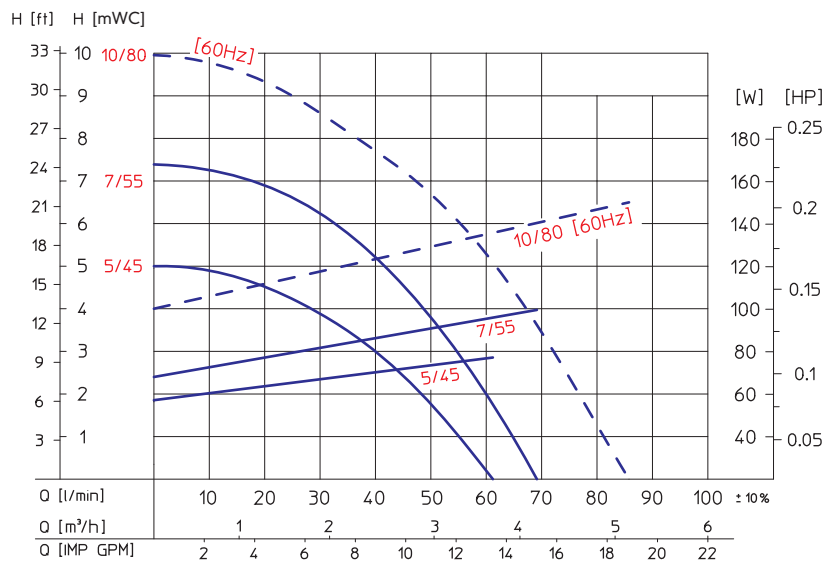
Made of PP and PVDF

Protection type IP55

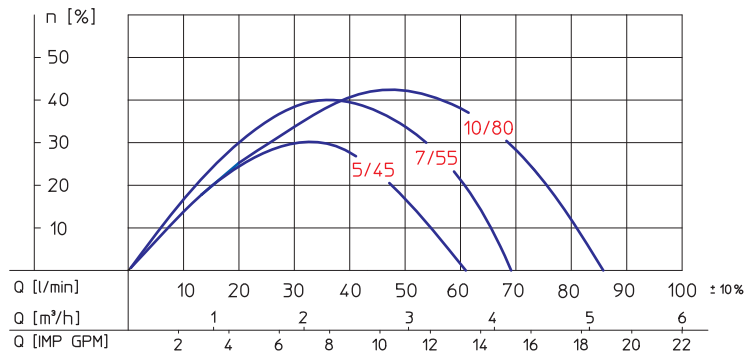
For piping in the tank, the pump is
also available without a pressure
pipe.

PERFORMANCE CHARTS

DELIVERY RATE



EFFICIENCY





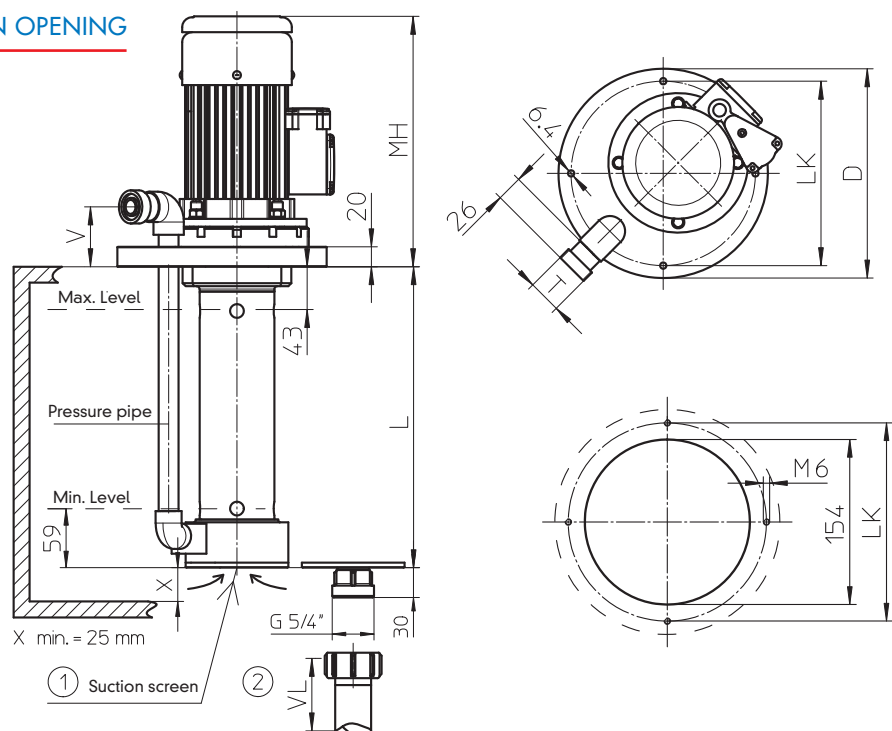
TECHNICAL DATA			
size	5/45	7/55	10/80***
max. delivery rate [l/min]	60	70	85
max. delivery head [m wc]	5	7.5	10
motor power* at 50 Hz [kW]	0.120	0.120	-
motor power* at 60 Hz [kW]	0.144	0.144	0.180
speed at 50 Hz [min ⁻¹]	2850	2850	-
speed at 60 Hz [min ⁻¹]	3450	3450	3450
voltage**	230 V 1-phase or 230/400 V 3-phase		
protection type	IP55		
installation height [mm]	225	225	230
connections	suction side ①	suction screen	
	suction side ②	G 5/4	
	pressure side (T)	G1	

- * All pumps are also available with smaller impeller diameters for liquids with higher specific gravities although this reduces the delivery rates and delivery heads. If necessary, please consult us.
- ** Other voltages and ex proved motors available upon request.
- *** Available only in 60 hertz.

immersion depth (L) [mm]	200	300	400	500
discharge connection height [mm] (V)	standard = 60 alternatively with other dimensions, rotatable, vertically upwards etc.			
installation flange [mm] (D, LK)	Ø 200, LK 160 other dimensions always possible, also available as a rectangular flange			

DIMENSIONS/INSTALLATION OPENING

immersion depth: L
 installation height: MH
 installation flange: D, LK
 discharge connection: V
 pressure side: T





Special versions:

- RT-A (dry installation)
- RT-M (with magnetic coupling)
- RT-Z (with intermediate bearing)
- RT-MS (multi-stage version)

Accessories:

- Extension pipe (VL max. = 500 mm)
- On/Off switch on terminal box
- Connecting cable completely wired with plug

- Delivery rate up to 130 l/min
- Delivery head up to 12 m wc
- Immersion depth up to 500 mm
- Safe to run dry

For aggressive and neutral liquids

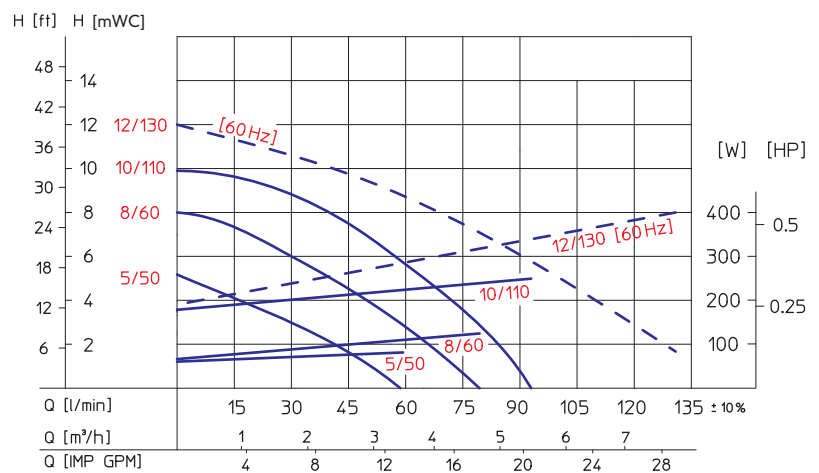
Made of PP, PVDF and stainless steel

Protection type IP55

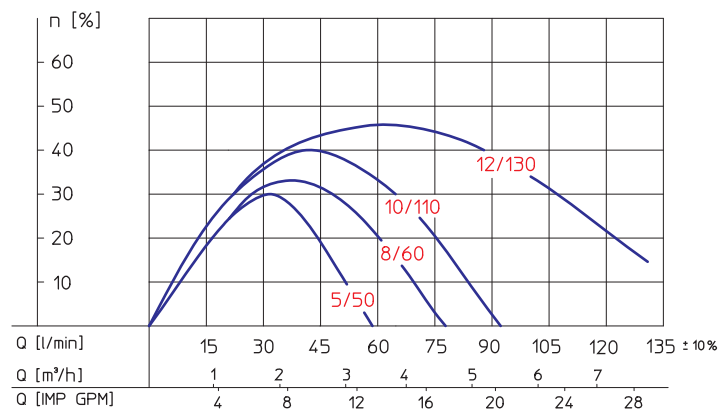
For piping in the tank, the pump is also available without a pressure pipe.

PERFORMANCE CHARTS

DELIVERY RATE



EFFICIENCY





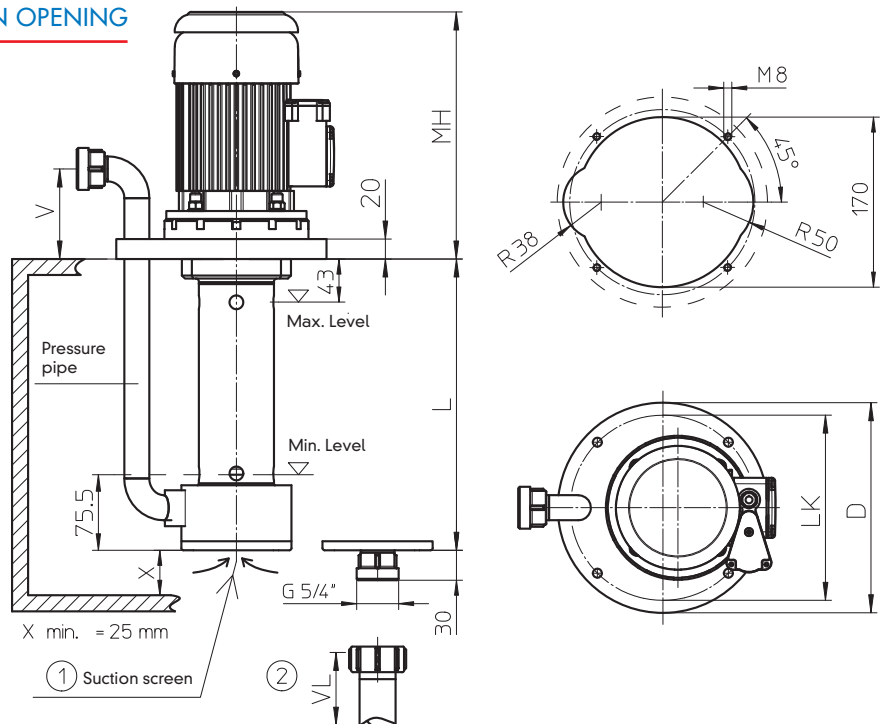
TECHNICAL DATA				
size	5/50	8/60	10/110	12/130***
max. delivery rate [l/min]	60	75	100	130
max. delivery head [m wc]	5	8	10	12
motor power* at 50 Hz [kW]	0.125	0.180	0.250	-
motor power* at 60 Hz [kW]	0.150	0.200	0.300	0.440
speed at 50 Hz [min ⁻¹]	2850	2850	2850	-
speed at 60 Hz [min ⁻¹]	3450	3450	3450	3450
voltage**	230 V 1-phase or 230/400 V 3-phase			
protection type	IP55			
installation height [mm]	235	240	257	257
connections suction side ①	suction screen			
suction side ②	G 5/4			
pressure side (T)	G1			

- * All pumps are also available with smaller impeller diameters for liquids with higher specific gravities although this reduces the delivery rates and delivery heads. If necessary, please consult us.
- ** Other voltages and ex proved motors available upon request.
- *** Available only in 60 hertz.

immersion depth (L) [mm]	200	300	400	500
discharge connection height [mm] (V)	standard = 90 alternatively with other dimensions, rotatable, vertically upwards etc.			
installation flange [mm] (D, LK)	Ø 210, LK 185 other dimensions always possible, also available as a rectangular flange			

DIMENSIONS/INSTALLATION OPENING

immersion depth: L
 installation height: MH
 installation flange: D, LK
 discharge connection: V
 pressure side: T





Sonderausführungen:

- RT-A (Trockenaufstellung)
- RT-M (magnetgekuppelt)
- RT-Z (mit Zwischenlager)
- RT-MS (mehrstufige Ausführung)

Zubehör:

- Verlängerungsrohr (VL max. = 500 mm)
- Ein-/Aus-Schalter am Klemmenkasten
- Anschlusskabel mit Stecker komplett verdrahtet

- Delivery rate up to 280 l/min
- Delivery head up to 25 m wc
- Immersion depth up to 500 mm
- Safe to run dry

For aggressive and neutral liquids

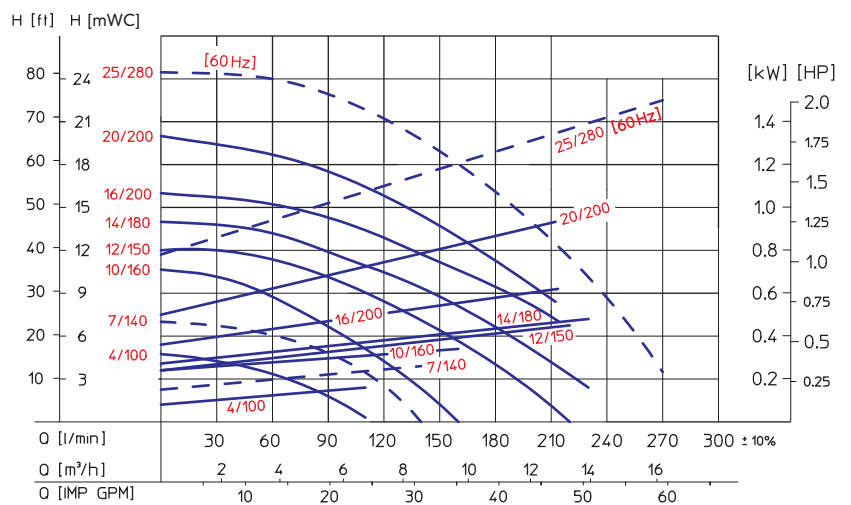
Made of PP, PVDF, titanium and stainless steel

Protection type IP55

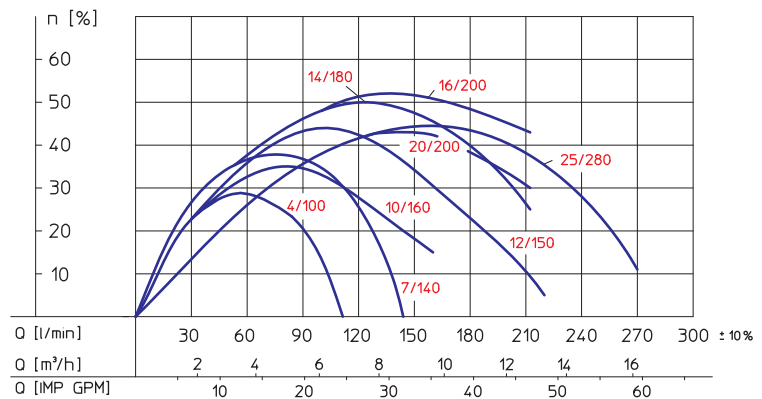
For piping in the tank, the pump is also available without a pressure pipe.

PERFORMANCE CHARTS

DELIVERY RATE



EFFICIENCY





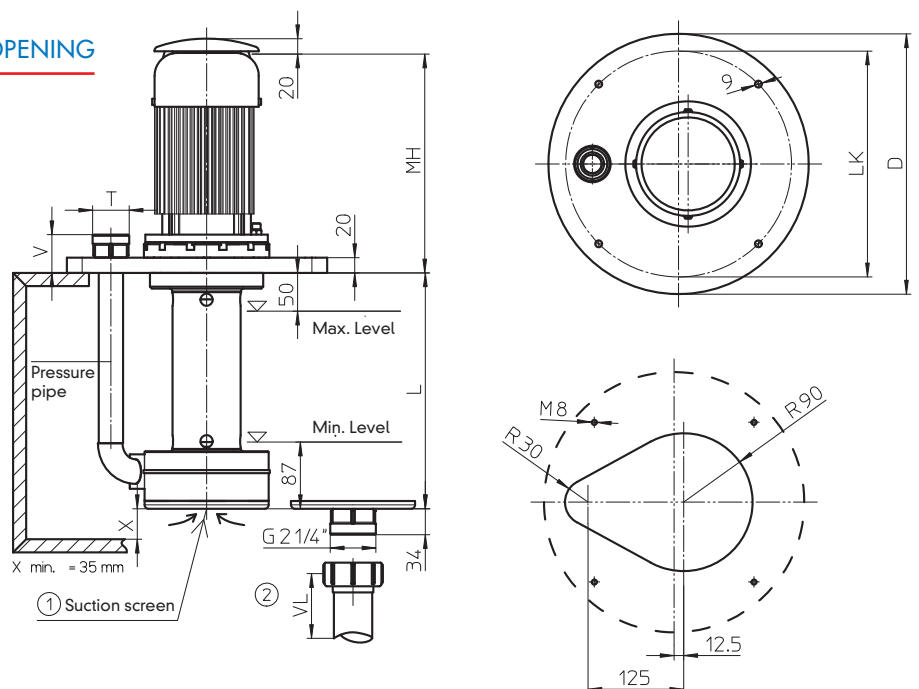
TECHNICAL DATA								
size	4/100	7/140***	10/160	12/150	14/180	16/200	20/200	25/280***
max. delivery rate [l/min]	100	140	160	220	230	210	210	280
max. delivery head [m wc]	5	7	10	12	14	16	20	25
motor power* at 50 Hz [kW]	0.250	-	0.370	0.550	0.550	0.650	1.1	-
motor power* at 60 Hz [kW]	0.300	0.300	0.440	0.650	0.650	0.700	1.3	1.8
speed at 50 Hz [min ⁻¹]	1450	-	2850	2850	2850	2850	2850	-
speed at 60 Hz [min ⁻¹]	1750	1750	3450	3450	3450	3450	3450	3450
voltage**	230 V 1-phase or 230/400 V 3-phase							
protection type	IP55							
installation height [mm]	292	292	276	292	292	292	310	310
connections suction side ①	suction screen							
suction side ②	G 2 1/4							
pressure side (T)	G 2 1/4	G 2 1/4	G 1 1/2	G 1 1/2	G 1 1/2	G 1 1/2	G 1 1/2	G 2 1/4

- * All pumps are also available with smaller impeller diameters for liquids with higher specific gravities although this reduces the delivery rates and delivery heads. If necessary, please consult us.
- ** Other voltages and ex proved motors available upon request.
- *** Available only in 60 hertz.

immersion depth (L) [mm]	200	300	400	500
discharge connection height [mm] (V)	standard = 50 alternatively with other dimensions, rotatable, vertically upwards etc.			
installation flange [mm] (D, LK)	Ø 340, LK 295 other dimensions always possible, also available as a rectangular flange			

DIMENSIONS/INSTALLATION OPENING

immersion depth: L
 installation height: MH
 installation flange: D, LK
 discharge connection: V
 pressure side: T





Special versions:

- RT-A (dry installation)
- RT-M (with magnetic coupling)
- RT-Z (with intermediate bearing)
- RT-MS (multi-stage version)

Accessories:

- Extension pipe (VL max. = 500 mm)
- On/Off switch on terminal box
- Connecting cable completely wired with plug

- Delivery rate up to 550 l/min
- Delivery head up to 32 m wc
- Immersion depth up to 500 mm
- Safe to run dry

For aggressive and neutral liquids

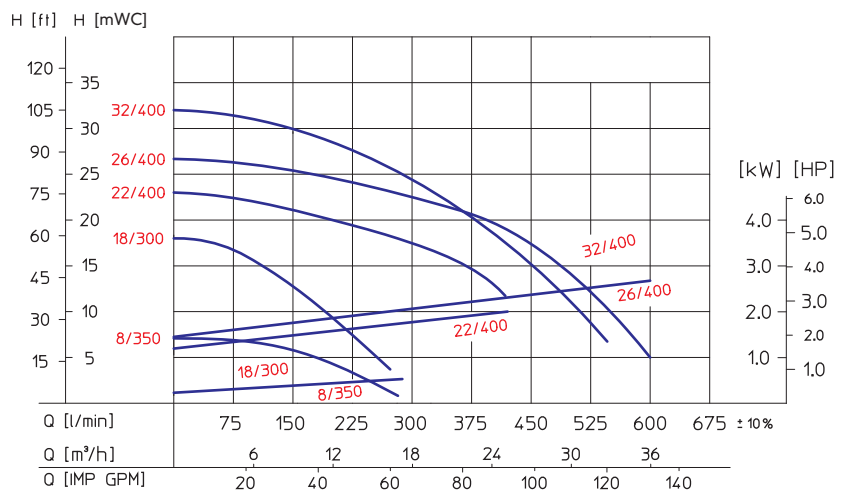
Made of PP, PVDF, titanium and stainless steel

Protection type IP55

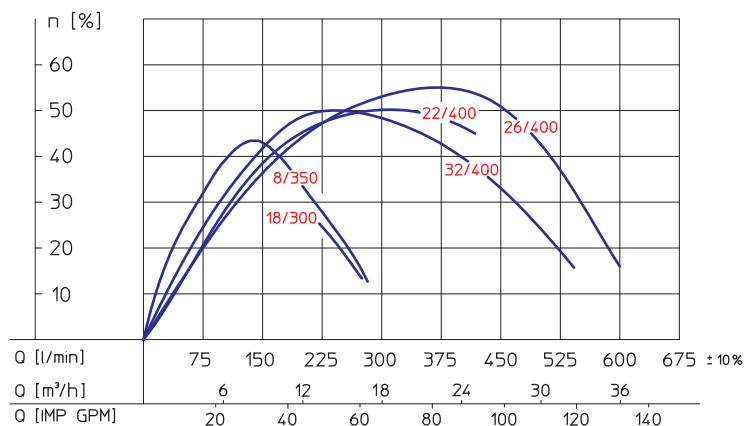
For piping in the tank, the pump is also available without a pressure pipe.

PERFORMANCE CHARTS

DELIVERY RATE



EFFICIENCY





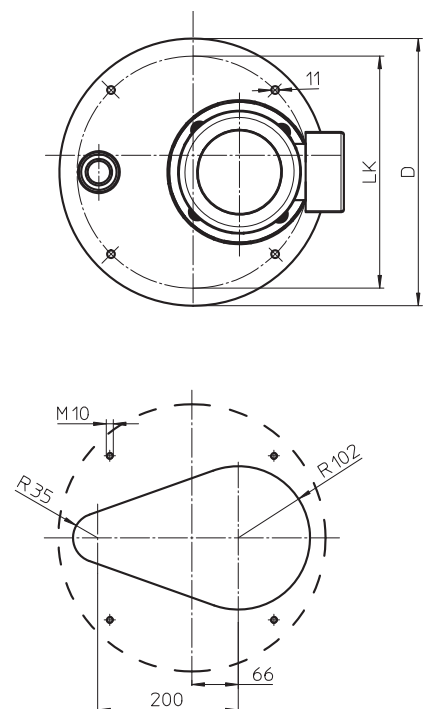
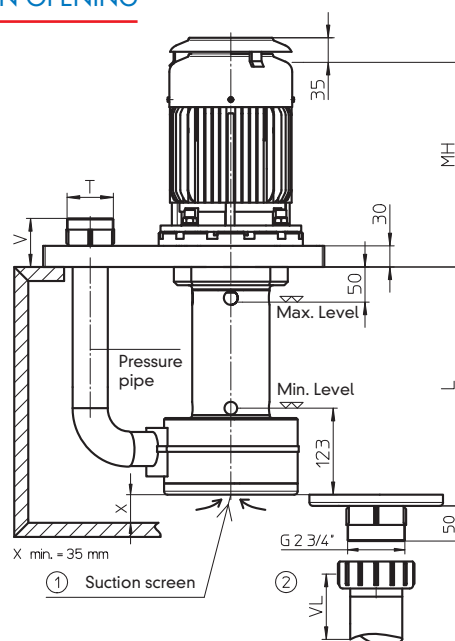
TECHNICAL DATA					
size	8/350	18/300	22/400	26/400	32/400
max. delivery rate [l/min]	300	300	400	600	550
max. delivery head [m wc]	7	18	23	26	32
motor power* at 50 Hz [kW]	1.1	1.1	1.8	3.7	3.7
motor power* at 60 Hz [kW]	1.3	1.3	2.7	3.7	3.7
speed at 50 Hz [min ⁻¹]	1450	2850	2850	2850	2850
speed at 60 Hz [min ⁻¹]	1750	3450	3450	3450	3450
voltage**	230 V 1-phase or 230/400 V 3-phase				
protection type	IP55				
installation height [mm]	350	294	291	316	316
connections	suction side ①	suction screen			
	suction side ②	G 2 3/4			
	pressure side (T)	G 2 1/4			

- * All pumps are also available with smaller impeller diameters for liquids with higher specific gravities although this reduces the delivery rates and delivery heads. If necessary, please consult us.
- ** Other voltages and ex proved motors available upon request.

immersion depth (L) [mm]	200	300	400	500
discharge connection height [mm] (V)	standard = 69 alternatively with other dimensions, rotatable, with angle 90° etc.			
installation flange [mm] (D, LK)	Ø 380, LK 330 other dimensions always possible, also available as a rectangular flange			

DIMENSIONS/INSTALLATION OPENING

immersion depth: L
 installation height: MH
 installation flange: D, LK
 discharge connection: V
 pressure side: T





Special versions:

- RT-A (dry installation)
- RT-M (with magnetic coupling)
- RT-Z (with intermediate bearing)
- RT-MS (multi-stage version)

Accessories:

- Extension pipe (VL max. = 500 mm)
- On/Off switch on terminal box
- Connecting cable completely wired with plug

- Delivery rate up to 680 l/min
- Delivery head up to 42 m wc
- Immersion depth up to 500 mm
- Safe to run dry

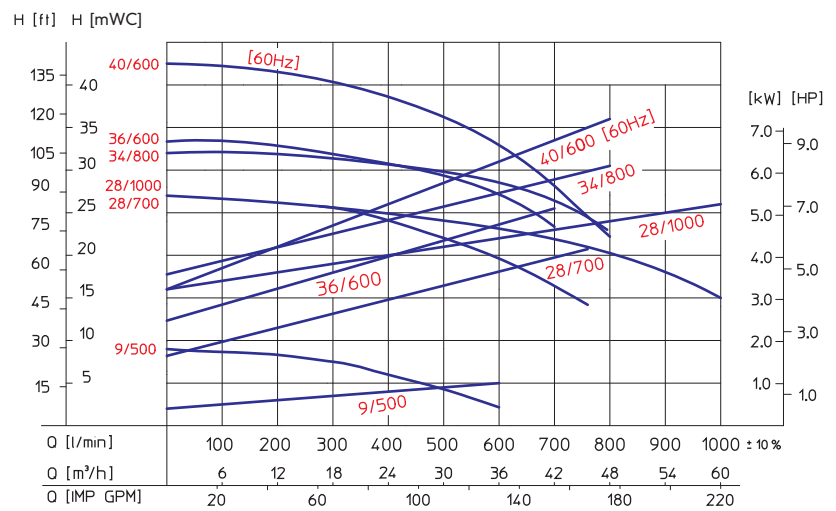
For aggressive and neutral liquids

Made of PP, PVDF

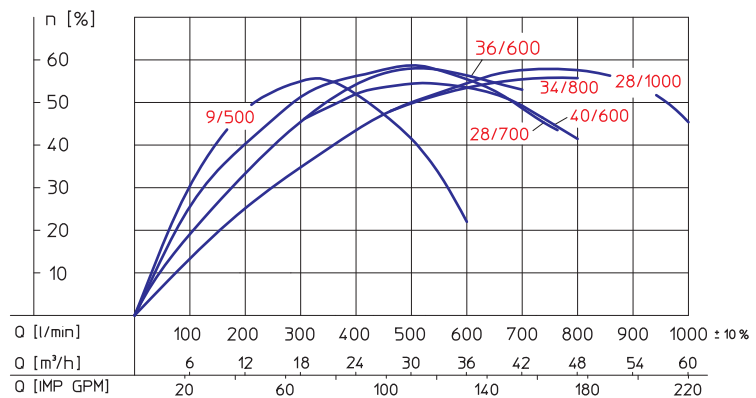
Protection type IP55

For piping in the tank, the pump is also available without a pressure pipe.

DELIVERY RATE



EFFICIENCY



PERFORMANCE CHARTS





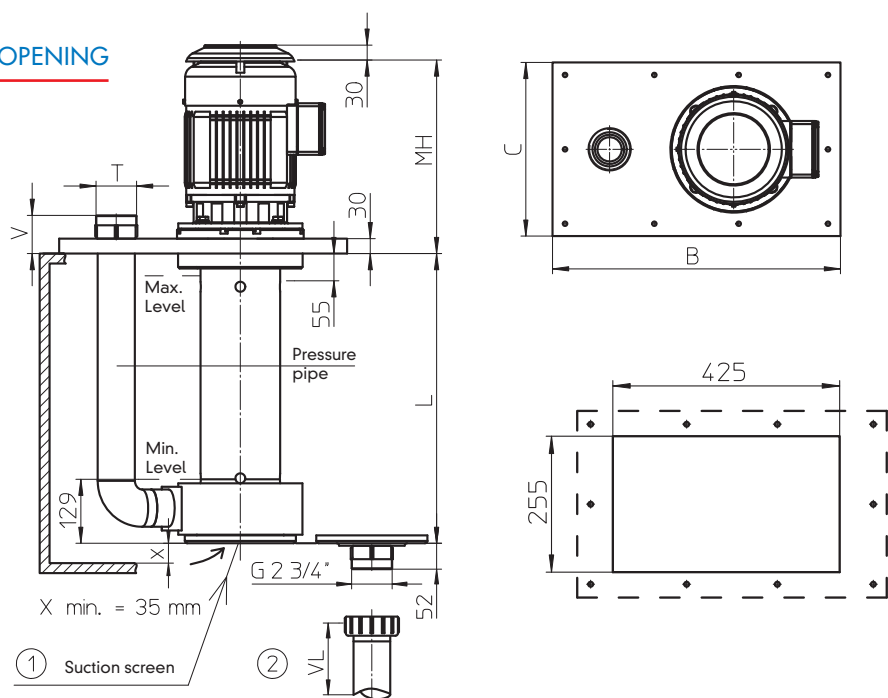
TECHNICAL DATA						
size	9/500	28/700	36/600	34/800	28/1000	40/600***
max. delivery rate [l/min]	600	750	400 (700)	600 (800)	1000	680
max. delivery head [m wc]	9	28	34	32	28	42
motor power* at 50 Hz [kW]	1.8	4.0	4.0	5.5	5.5	-
motor power* at 60 Hz [kW]	2.0	4.8	4.8	6.6	6.6	6.6
speed at 50 Hz [min ⁻¹]	1450	2850	2850	2850	2850	-
speed at 60 Hz [min ⁻¹]	1750	3450	3450	3450	3450	3450
voltage**	230 V 1-phase or 230/400 V 3-phase					
protection type	IP55					
installation height [mm]	369.5	369.5	369.5	384.5	384.5	384.5
connections suction side ①	suction screen					
suction side ②	G 2 3/4					
pressure side (T)	G 2 3/4	G 2 3/4	G 2 1/4	G 2 3/4	G 2 3/4	G 3 1/2

- * All pumps are also available with smaller impeller diameters for liquids with higher specific gravities although this reduces the delivery rates and delivery heads. If necessary, please consult us.
- ** Other voltages and ex proved motors available upon request.
- *** Available only in 60 hertz.

immersion depth (L) [mm]	270	300	400	500
discharge connection height [mm] (V)	standard = 77 alternatively with other dimensions, rotatable, with angle 90° etc.			
installation flange [mm] (D, LK)	Ø 580, LK 350 other dimensions always possible, also available as a rectangular flange			

DIMENSIONS/INSTALLATION OPENING

immersion depth: L
 installation height: MH
 installation flange: D, LK
 discharge connection: V
 pressure side: T





Special versions:

- RT-A (dry installation)
- RT-M (with magnetic coupling)
- RT-Z (with intermediate bearing)
- RT-MS (multi-stage version)

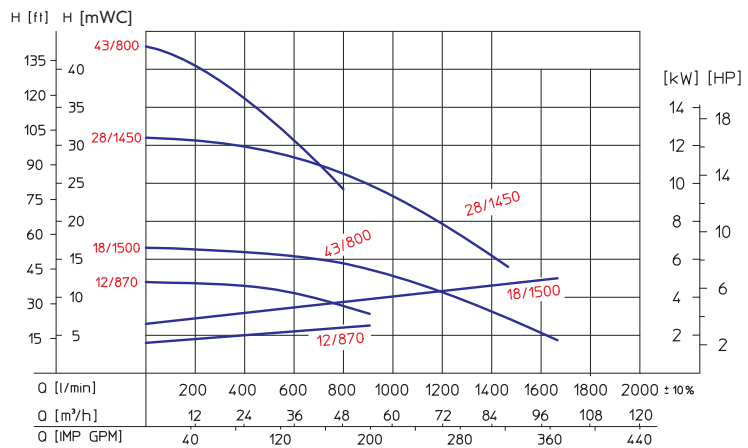
Accessories:

- Extension pipe (VL max. = 500 mm)
- On/Off switch on terminal box
- Connecting cable completely wired with plug

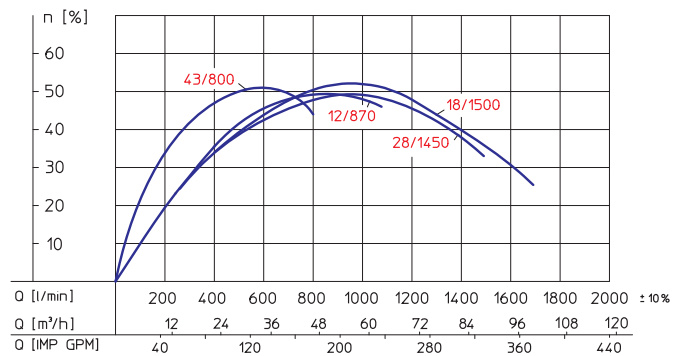
- Delivery rate up to 800 l/min
- Delivery head up to 43 m wc
- Immersion depth up to 850 mm
- Safe to run dry
- For aggressive and neutral liquids
- Made of PP, PVDF
- Protection type IP55

For piping in the tank, the pump is also available without a pressure pipe.

DELIVERY RATE



EFFICIENCY



PERFORMANCE CHARTS





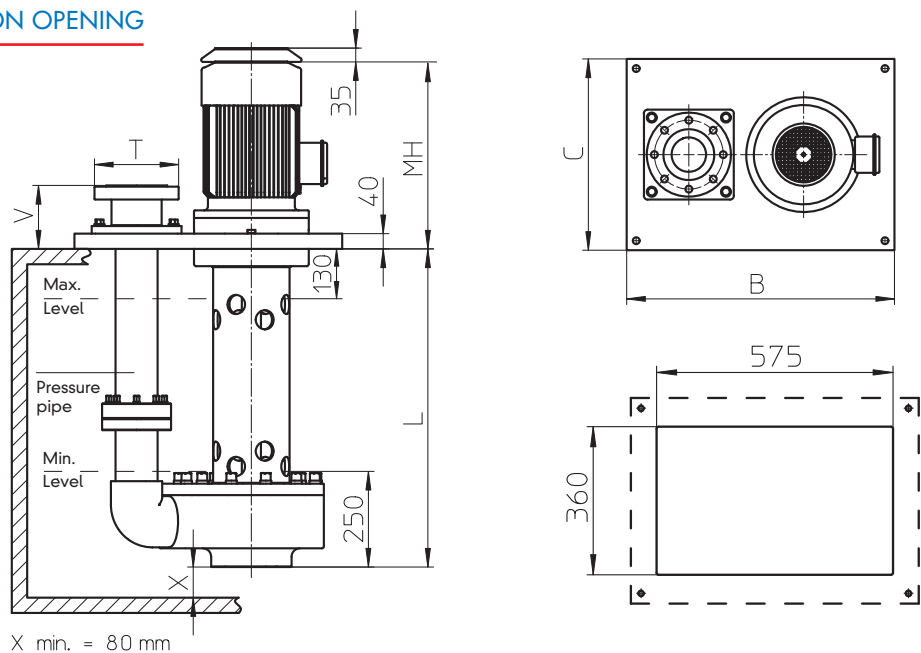
TECHNICAL DATA				
size	12/870	18/1500	28/1450	43/800
max. delivery rate [l/min]	900	1700	1500	800
max. delivery head [m wc]	12	17	31	43
motor power* at 50 Hz [kW]	4.0	7.5	12.5	7.5
motor power* at 60 Hz [kW]	4.8	9.0	15.0	9.0
speed at 50 Hz [min ⁻¹]	1450	1450	2850	2850
speed at 60 Hz [min ⁻¹]	1750	1750	3450	3450
voltage**	230 V 1-phase or 230/400 V 3-phase			
protection type	IP55			
installation height (MH) [mm]	406	518	518	425
connections suction side ①	suction screen			
suction side ②	without thread			
pressure side (T)	flange d110DN100	flange d110DN100	flange d110DN100	thread G 2 3/4

- * All pumps are also available with smaller impeller diameters for liquids with higher specific gravities although this reduces the delivery rates and delivery heads. If necessary, please consult us.
- ** Other voltages and ex proved motors available upon request.

immersion depth (L) [mm]	500	600	700	800	850
discharge connection height [mm] (V)	standard = 166 alternatively with other dimensions, rotatable with elbow 90°, lapped flange etc.				
installation flange [mm] (B, C)	700 x 500, other dimensions always possible, also also available as a round flange				

DIMENSIONS/INSTALLATION OPENING

immersion depth: L
 installation height: MH
 installation flange: B, C
 discharge connection: V
 pressure side: T





CLEAN PROCESSES

For a number of applications, filter elements are required for "clean" processes. Of course, SONDERMANN can also supply pumps and filters in a combined and compact configuration as a single unit, mounted on an installation flange. Here, the units are optimally configured to your particular application, and are delivered ready for operation. In terms of their construction, all filter housings are designed in such a way that they are equally suitable for holding cartridge, plate, bag and active carbon inserts. Quick-change filter housings are available in 2 sizes for short downtimes during maintenance intervals: SF1 and SF3.

Series RT-FI covers a wide performance range for the filtration of all galvanic electrolytes, and also nickel zinc, currentless nickel and currentless copper. Depending on the application (safety devices are currently already installed on the plant), all universal filter housings can be fitted with a cover safety switch. Three different filter sizes with many different filter elements are

available for combination with our vertical centrifugal immersion pumps. Clamping screws are used to secure the filter cover. These filters are characterised by a compact design as well as by the possibility of using them at high pressures and high temperatures.

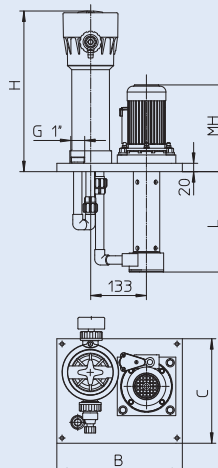


Vertical centrifugal immersion pump RT1 to RT5, combined with universal filter housing.

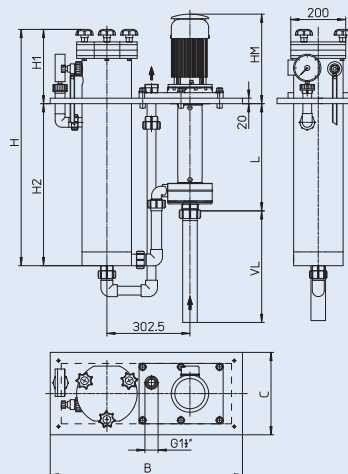


UNIVERSAL FILTER HOUSING

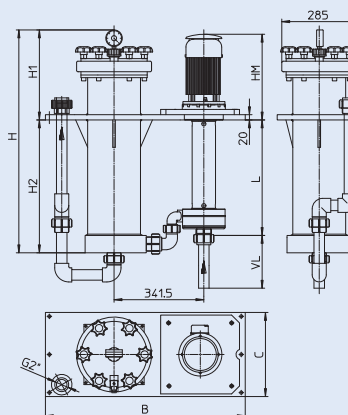
size 1	
number of cartridges	1
housing length [inch]	10" 20"
volume [dm ³]	2.36 bis 4.25
materials	PP, PVC, Plexiglas [®] , Jena-Glas [®] , stainless steel, titanium
filter elements (optionally)	wound cartridge, cloth cartridge, membrane cartridge, filter paper, active carbon



size 3	
number of cartridges	3
housing length [inch]	10" 20"
volume [dm ³]	8.4 bis 13.5
materials	PP, PVDF, stainless steel, titanium
filter elements (optionally)	wound cartridge, membrane cartridge, filter cloth, filter sieve, filter bag, active carbon



size 4	
number of cartridges	4
housing length [inch]	10" 20"
volume [dm ³]	9 bis 15
materials	PP, PVDF, stainless steel, titanium
filter elements (optionally)	wound cartridge, membrane cartridge, cloth cartridge, filter papaer, filter bag, active carbon



COMBINATION EXAMPLES

QUICK CHANGE FILTER HOUSING		
SF 1		
number of cartridges	1	
housing length [inch]	10" 20"	
volume [dm³]	2.37 bis 4.25	
materials	PP, PVC	
filter elements (optionally)	filter sieve, wound cartridge	
SF 3		
number of cartridges	3	
housing length [inch]	10" 20"	
volume [dm³]	8.4 bis 13.5	
materials	PP, PVDF	
filter elements (optionally)	wound cartridge, filter bag, active carbon	

QUICK CHANGE FILTER

Series RT-SF has proved to be especially successful when used in chemical plants. These filters are characterised by a compact design and by simple and quick handling by means of a quick-action closure, thereby enabling maintenance times to be greatly reduced. Two different filter sizes with many different filter elements are available for combination with our vertical centrifugal immersion pumps.

Quick-change filters are fitted with two safety switches as standard. These prevent operation of the filter without the filter cover or with it open. During the project planning phase (e.g. of electrolytic plants), SONDERMANN defines interfaces and works out the design of requested special features

in close collaboration with the customer. The customer receives an individual, ready-to-install function module. The units are optimally configured to your particular application, and are delivered assembled and ready for operation.



Vertical centrifugal immersion pump RT1 to RT5, combined with quick change filter housing.



FOR CENTRIFUGAL PUMPS

Electronic monitoring of motor currents protects the pump from dry running, overheating and overload. If the above mentioned operating states are not absolutely impossible with your installation, you should use an electronic process monitor to switch off the pump before it is damaged. Such monitors will not only avoid damage to the pump, but also downtime and costs resulting thereof. At the same time, the monitor checks the pumping process for the set delivery rate. Once the cause of a malfunction is eliminated, the pump is immediately ready to continue operation. The process monitor is easy to install into the pump's power supply unit. As it is not necessary to build it into pipe runs, this process monitor also is ideal to retrofit existing installations. Four different types of process monitors are available:



RPR CONTROL 100-1

to be built into control cabinets (mounted on top-hat rail) without programming unit.

RPR CONTROL 100-2

to be built into control cabinets (mounted on top-hat rail) with integrated programming unit.

RPR CONTROL 100-3

Field device with power section of up to 4.0 kW (up to 7.5 kW optionally available), mounted in an IP 65 casing for installation in the field (e.g. at the filter), complete with indicating lamps and push-button but without programming unit.

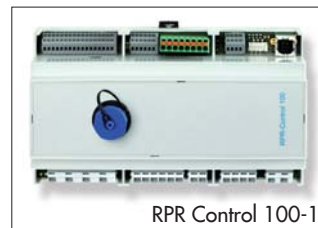
SEPARATE PROGRAMMING UNIT

Hand-held appliance with cable and plug to programme the switching thresholds of RPR-Control 100-1 and RPR-Control 100-3.

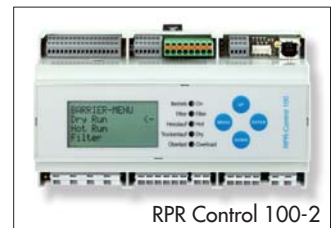
FUNCTION

An overload controller with analogue output monitors the actual power of the pump motor. There are four switching thresholds defined:

- dry-running (fault, the motor is switched off);
- overheating (fault, the motor is switched off);
- overload (fault, the motor is switched off);
- filter contaminated (warning).



RPR Control 100-1



RPR Control 100-2



RPR-Control 100-3



separate programming unit

The switching thresholds are user-programmable. Also included is a real-time clock with elapsed-time meter, e. g. to monitor maintenance intervals.

SALES AREAS IN GERMANY



Thanks to our wide distribution network all over Germany, you will always find SONDERMANN pumps at close range.



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15 Thüringen/Sachsen-Anhalt

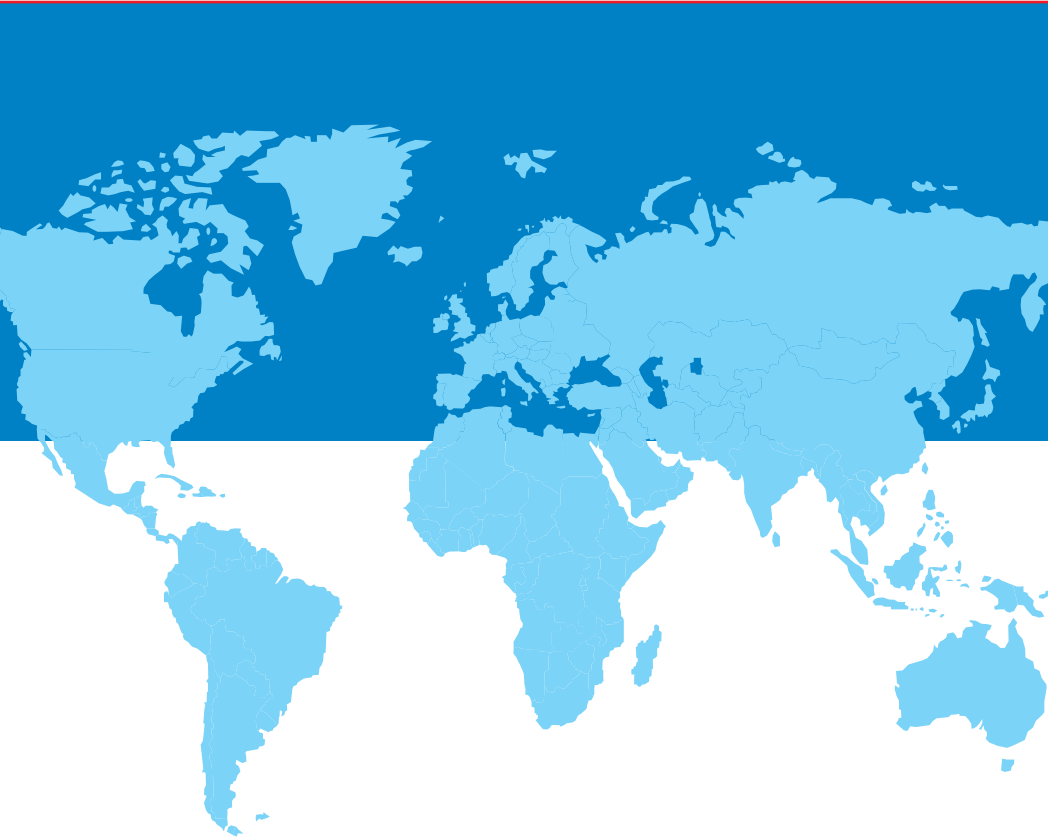
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www.sondermann-pumpen.de



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