



MAGNETICALLY COUPLED CENTRIFUGAL PUMPS



INNOVATIVE PUMP
AND FILTER
TECHNOLOGY



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AND FILTER TECHNOLOGY



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THE RM MAGNETICALLY COUPLED CENTRIFUGAL PUMP WITHOUT SHAFT SEAL

HIGH OPERATIONAL SAFETY, MINIMUM MAINTENANCE



THE PROBLEM:

It is a fact that every rotating sealing joint is wearing out with time. And if a seal breaks down in the end, fluid leaks out. Such leakage is especially dangerous with highly aggressive fluids and may result in heavy costs. When delivering non-lubricating fluids or fluids tending to crystallize in particular, the use of mechanical shaft seals requires very complex arrangements like sealing chambers with double-acting mechanical seals. These arrangements are cost-intensive and require a lot of maintenance. What is more, the necessary maintenance intervals considerably reduce the availability of the pump.

THE SOLUTION:

With RENNER pumps of the RM type, permanent magnets convey the motor drive to the pump impeller without any contact. Thus, there is no shaft exit requiring an appropriate sealing joint. The wet part and the dry part of the pump are hermetically separated from each other by the rear casing so that leakages through worn sealings are definitely ruled out. The pump does not require any maintenance since optimum sealing is ensured by no need of sealing joints at all.

THE UTILIZATION:

RENNER RM pumps are always used when perfect leakproofness and freedom from maintenance are indispensable. They are especially used to deliver aggressive acids and bases, degreasing baths, chemicals, highly corrosive liquids or fluids tending to crystallize. Electroplating shops, printed-circuit board manufacturers, purification plants and the photographic industry profit from RENNER RM pumps. Wherever conventional centrifugal pumps with complex mechanical shaft seals are required, RENNER RM pumps are ideal for use.

THE ADVANTAGES:

- No mechanical sealing of the shaft.
- Motor and pump are mechanically separated from each other.
- Absolutely leakproof.
- Free from maintenance.
- Compact and space-saving design.
- Suction and discharge nozzles are equipped with groove and O-ring sealing to assure easy installation as well as leakproof and clean piping without any leakage.

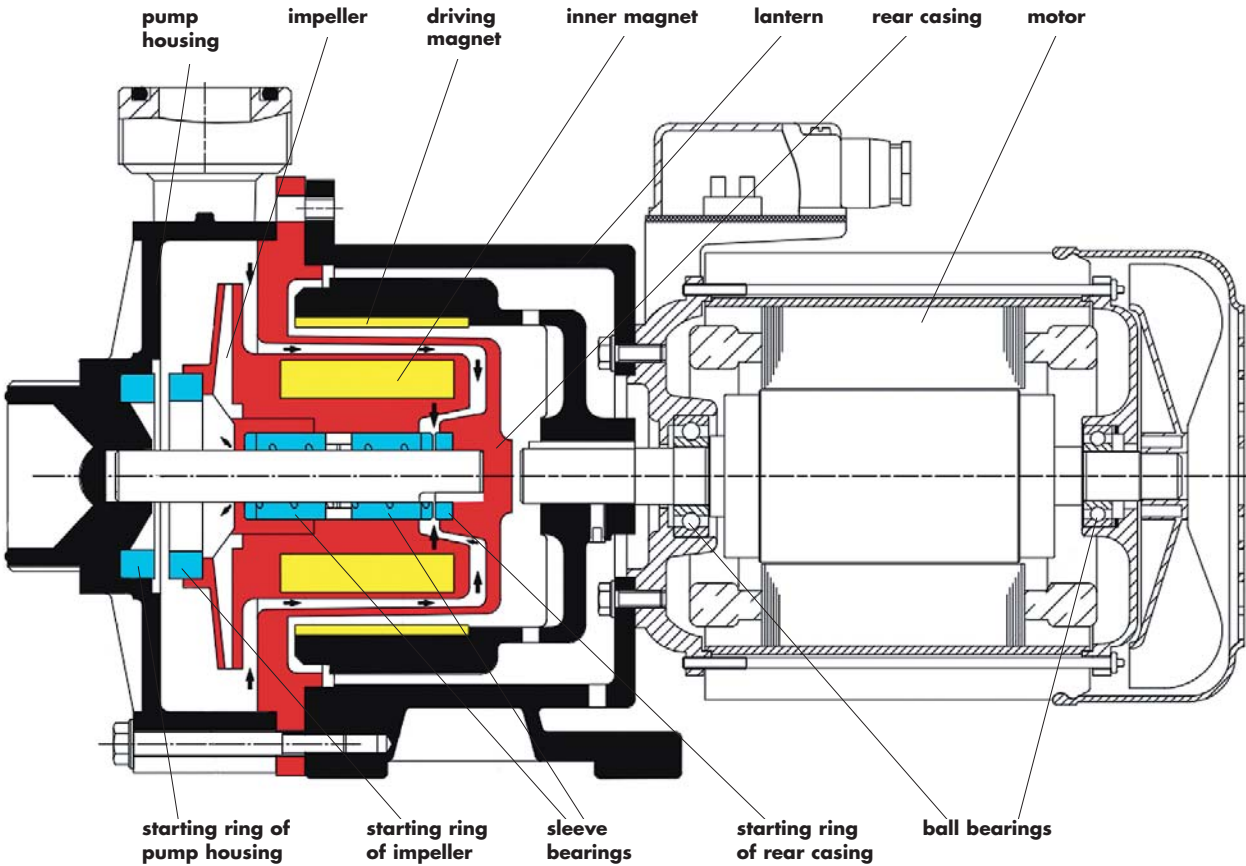




CONSTRUCTIONAL DESIGN OF RM-TYPE PUMPS

The rear casing hermetically seals the pump chamber from the driving motor. The driving magnet rotating outside the rear casing transmits the torque of the motor to the inner magnet and thus to the impeller. The impeller is supported by sleeve bearings and a centering shaft made of high-purity oxide ceramic (99.7%). Thus the bearing is extremely resistant to wear. The use of other bearing materials is possible.

To cool and lubricate the sleeve bearings, part of the fluid delivered passes the impeller and enters the gap between the inner magnet and the rear casing. After flowing through the sleeve bearings, the fluid leaves the casing through special lubricant grooves in front of the impeller.



MODULAR DESIGN



Whatever you want to deliver,
we have the right pump for you.

CHOICE OF MATERIALS

Metal-free and all-plastic making of our pumps is standard since this design guarantees best protection from corrosion. Housings may be also made of special stainless steel.

We offer the right combination of materials for any fluid to be delivered, depending on its temperature.

The following materials are available:

component	symbol	material	temperature range
all components in contact with fluid	PP	polypropylene	0 to + 80 °C
	PVDF	polyvinylidene fluoride	-20 to + 95 °C
	PPS	polyphenylene sulphide	-20 to + 100 °C
	stainless steel	1.4305, 1.4571	-20 to + 100 °C
	oxide ceramic	aluminium oxide 99.7 %	-20 to + 100 °C
	PTFE graphite	PTFE graphite	-20 to + 100 °C

gaskets	EPDM	ethylene-propylene-diene rubber	-20 to + 100 °C
	FKM	fluorinated rubber	-20 to + 100 °C
	FEP coated	perfluoroethylene/propylene copolymer	-20 to + 100 °C
	NBR	nitrile-butadiene rubber	-20 to + 100 °C

DESIGNATION CODE OF RM PUMPS

The designation code of RM pumps consists of 11 positions which refer to the materials and characteristics of every component.

For example:

RM PP V K K K K 7/40 15 90 1 G
- 1 2 3 4 5 6 7 8 9 10 11









Use the table below to put together the ideal pump for your specific needs:

• = standard use / x = optionally available / - = not available

no.	description	code	material/design	RM type 1 to 5						RMS	RMB	
				1	1.5	2	3	4	4.5	5	2.1	3.1
1	pump housing and rear casing, inner magnet, impeller	PP	polypropylene	•	•	•	•	•	•	•	-	•
		PVDF	PVDF	•	•	•	•	•	•	•	•	•
		RY	PPS	-	-	-	-	-	-	-	•	-
		VA	stainless steel	•	•	-	•	•	-	-	-	-
2	O-ring of housing	V	FKM	•	•	•	•	•	•	•	•	•
		E	EPDM	•	•	•	•	•	•	•	•	•
		P	NBR	x	x	x	x	x	x	x	x	x
		T	FKM FEB-coated	x	x	x	x	x	x	x	x	x
3	impeller starting ring	K	oxide ceramic 99.7 %	•	•	•	x	x	x	x	-	x
		G	PTFE graphite	x	x	x	•	•	•	•	-	•
4	starting rings of pump housing	K	oxide ceramic 99.7 %	•	•	•	•	•	•	•	•	•
5	sleeve bearings	K	oxide ceramic 99.7 %	•	•	•	•	•	•	•	•	•
		R	PPS	x	x	x	x	x	x	x	-	x
		G	PTFE graphite	x	x	x	x	x	x	x	-	x
		P	P compound	x	x	x	x	x	x	x	-	-
6	centering shaft	K	oxide ceramic 99.7 %	•	•	•	•	•	•	•	•	•
7	pump capacity	.../...	see performance chart									
8	coupling length [in mm]	15		-	•	•	-	-	-	-	-	-
		30		•	-	•	•	-	-	-	-	•
		45		-	-	•	-	-	-	-	•	-
		60		-	-	-	•	•	•	-	-	-
		90		-	-	-	-	•	•	•	-	-
9	motor capacity	.../...	see performance chart									
10	motor	1	für 1~, 230 V ac	•	•	•	x	x	-	-	x	x
		3	für 3~, 400 V ac	x	x	•	•	•	•	•	•	•
11	suction and discharge parts	G	Withworth screw-thread	•	•	•	•	•	•	•	•	•
		F	mounting flange	x	x	x	x	x	x	x	x	x
		A	ANSI-flange	x	x	x	x	x	x	x	x	x
		N	NPT-thread	x	x	x	x	x	x	x	x	x
		S	hose connection	x	x	x	x	x	x	x	x	x

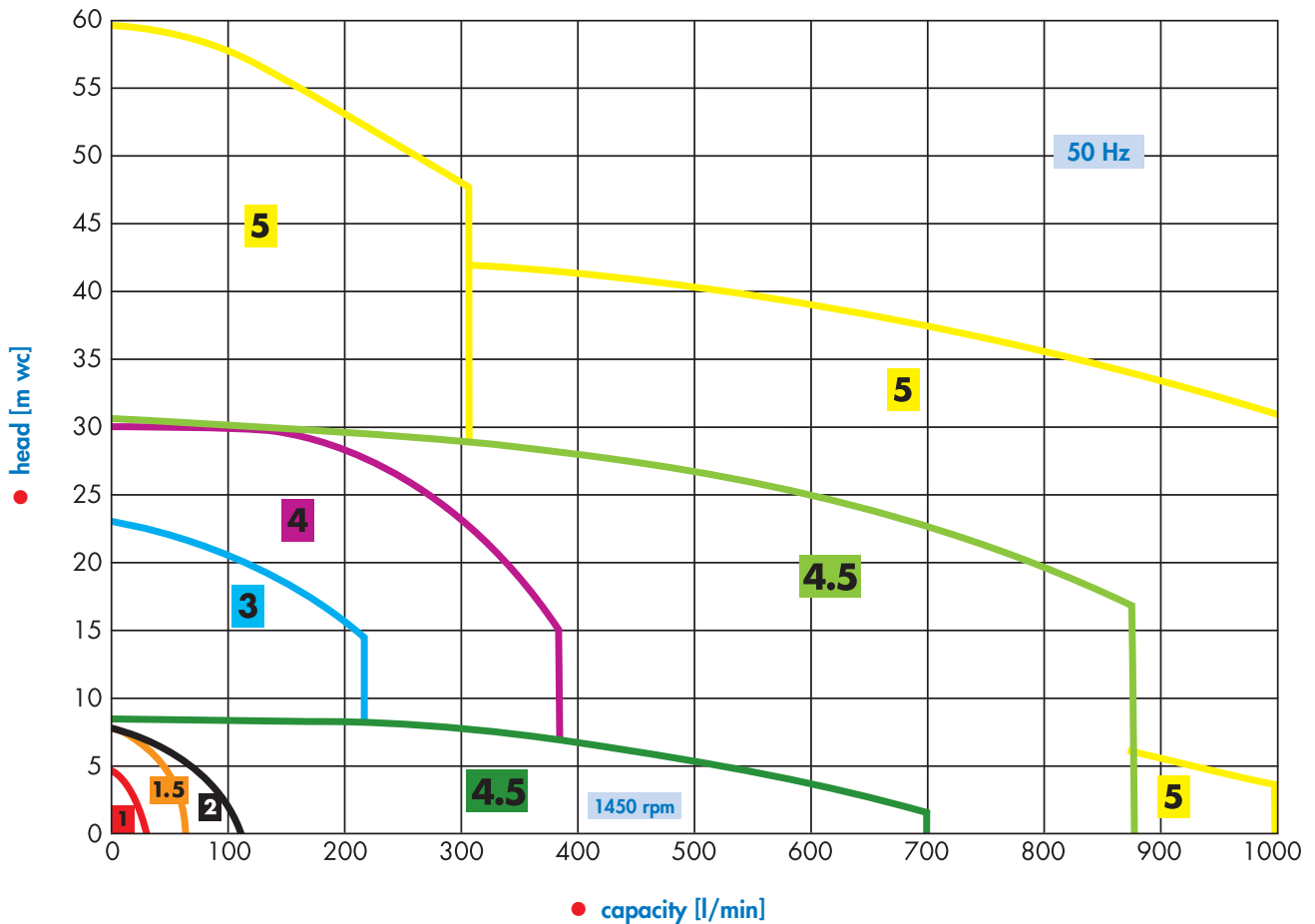
NON-SELF-PRIMING PUMPS OF THE RM TYPE

OVERVIEW

			
RM 1 1 to 30 l/min up to 5 (7) m wc	RM 1.5 1 to 70 (83) l/min up to 7.5 (10) m wc	RM 2 5 to 118 (130) l/min up to 9 (12) m wc	RM 2D 5 to 60 l/min up to 16 m wc
<p style="text-align: center;">THE RIGHT PUMP FOR EVERY DELIVERY CAPACITY</p> <ul style="list-style-type: none"> • Delivery rates of 1 to 1,250 l/min • Delivery heads of 5 to 60 m wc 			
			
RM 3 8 to 200 (230) l/min up to 23 (28) m wc	RM 4 10 to 400 l/min up to 36 m wc	RM 4.5 20 to 900 l/min up to 32 (35) m wc	RM 5 30 to 1,250 l/min up to 60 m wc

Figures in brackets () apply to 60 Hz pump types.

CHARACTERISTIC CURVES OF RM-TYPE PUMPS



TYPE DESIGNATION CODE OF RM PUMPS

GENERAL OVERVIEW OF NON-SELF-PRIMING RM PUMPS									
RM	type	maximum delivery rate [l/min]	maximum delivery head [m wc]	maximum density [g/cm ³]	motor capacity [kW]	parts of suction and discharge	material	weight [kg]	see page
1	2/20	15	1.7	2.5	0.06	G 1 ¹ / ₄ / G 1	PP	2.7	12-13
	3/30	20	2.8	2.5	0.06		PVDF	2.8	
	5/35	30	4.9	1.7	0.06		VA	3.4	
1.5	5/45	60	5.0	2.2	0.12	G 1 ¹ / ₄ / G 1	PP	4.3	14-15
	7/55	70	7.5	1.25	0.12		PVDF	4.5	
							VA	6.0	
2	5/50	60	5.0	1.2	0.09	G 1 ¹ / ₄ / G 1 ¹ / ₄	PP PVDF PPS	5.2	16-18
				2.2	0.18			6.6	
				2.5	0.25			6.6	
	7/40	70	6.5	1.3	0.125			5.7	
				2.5	0.25			6.6	
	8/60	80	7.3	1.0	0.125			5.7	
				1.45	0.18			6.6	
				2.0	0.25			6.8	
	10/100	100	8.4	1.0	0.18			6.6	
				1.4	0.25			6.8	
10/110	118	9.5	0.8	0.18	6.6				
			1.1	0.25	6.8				
2D	16/110	60	16.0	1.3	0.25			9.0	19
3	10/120	160	10	1.3	0.37	G 2 / G 1 ¹ / ₂	PP PVDF VA	9.4	20-21
				1.25	0.37			9.4	
	12/150	175	13.0	1.8	0.55			9.5	
				1.0	0.37			9.4	
	14/180	190	14.0	1.45	0.55			9.5	
				1.0	0.55			9.5	
	16/200	200	16.2	1.25	0.75			11.4	
1.2				0.75	11.4				
20/200	200	19.0	1.7	1.1	11.8				
23/200	200	23.0	1.6	1.5	14.5				
4	9/350	305	9.0	1.25	0.75	G 2 ¹ / ₄ / G 2	PP PVDF VA	17.0	22-23
				0.8	0.75			13.0	
	18/240	310	17.5	1.25	1.1			15.5	
				1.6	1.5			18.0	
				1.0	1.1			15.5	
	20/300	325	20.0	1.2	1.5			18.0	
				1.0	1.5			18.0	
	24/340	350	24.5	1.4	2.2			27.5	
				1.1	2.2			27.5	
	27/400	400	27.0	1.5	3.0			29.0	
1.9				4.0	31.0				
1.3				3.0	29.0				
30/400	400	30.0	1.8	4.0	31.0				
			1.2	3.0	29.0				
			1.6	4.0	31.0				
35/200	250	36.0							
4.5	10/550	700	9.0	1.6	2.2	G 2 ³ / ₄ / G 2 ¹ / ₄	PP PVDF	28.0	24-25
				1.25	3.0			34.0	
	18/550	750	18.0	1.7	4.0			36.0	
				1.4	4.0			37.0	
	23/650	833	23.0	1.0	5.5			47.0	
30/850	900	32.0	1.15	7.5	57.0				
5	40/300	300	40.0	0.9	3.0	G 2 ³ / ₄ / G 2 ¹ / ₄	PP PVDF	49.0	26-27
				1.0	4.0			53.0	
	45/300	300	46.0	1.1	5.5			57.0	
				1.25	4.0			51.0	
	60/300	300	60.0	1.6	5.5			61.0	
13/1000	1000	13.0							
35/1200	1250	35.0	1.1	12.5	80.0				

Figures apply to 50 Hz pump types

SELF-PRIMING PUMPS OF RMS AND RMB TYPES

OVERVIEW



A pump of the RMS type is the order of the day to deliver small volume flow rates at high pressure.

Delivery rate
1 to 16 (22) l/min

Delivery head
up to 39 (54) m wc

Suction head
up to 7 m wc

Figures in brackets ()
apply to 60 Hz pump types.



Because of the integrated priming tank, this centrifugal pump becomes a self-priming pump with the following features:

Delivery rate
8 to 250 l/min

Delivery head
up to 18 m wc

Suction head
up to 3.5 m wc

GENERAL OVERVIEW OF SELF-PRIMING RM PUMPS

RM	type	maximum delivery rate [l/min]	maximum delivery head/ suction head [m wc]	maximum density [g/cm ³]	motor capacity [kW]	material	weight [kg]	parts of suction and discharge	see page
RMS	9/8	7	10/1	1.55	0.37	PVDF	8.5	G 1/2 internal thread	28-29
				2.0	0.55		9.0		
	34/17	7	12/3	1.55	0.37	PPS	8.5		
				2.0	0.55		9.0		
		15	31/1	1.55	0.37	PVDF	7.5		
				2.0	0.55		8.0		
16.2	38/7	1.55	0.37	PPS	7.5				
		2.0	0.55		8.0				
RMB	12/175	175	12/3	1.0	0.55	PP	10.0	G 2 external thread	30-31
				1.4	0.75		13.0		
	15/225	225	17/3.5	1.0	0.75	PVDF	13.0		
				1.2	0.75		13.0		
18/250	240	18/1.0	1.2	0.75		13.0			

TYPE RM-TS, ABSOLUTELY SAFE TO RUN DRY



NEW! ABSOLUTELY SAFE TO RUN DRY!

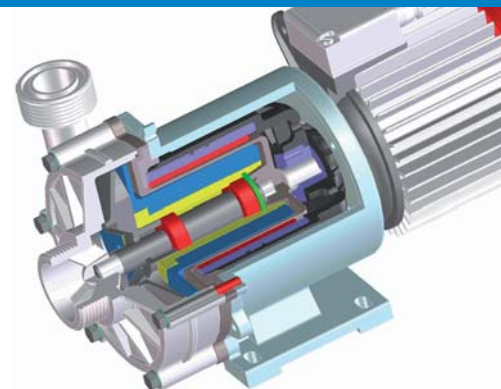
A simple but reliable and safe design:

- ▶ no sleeve bearings
- ▶ extremely high resistance to chemicals
- ▶ all existing pumps of the RM-type can be adapted to the new system safe to run dry
- ▶ the pumps may be also used at high speeds without any problems
- ▶ increased efficiency by using bearings with an extremely small coefficient of friction

The RM-TS series includes pumps from the RM2-TS type with a delivery rate of 110 l/min, 10 m wc and 90 W motor to the RM5-TS type with a delivery rate of 1,500 l/min, 60 m wc and a 15 kW motor.

Technical data and dimensioned drawings of RM-TS pumps are identical with those of standard types of RM pumps, see following pages.

Picture above: RM-TS type 4.5



AT LAST A PUMP THAT IS ABSOLUTELY SAFE TO RUN DRY!

Conventional magnetically coupled pumps can hardly cope with dry running. In fact, their sleeve bearings need continuous liquid-film lubrication to keep bearing friction and the resulting frictional heat as low as possible and also to provide the bearing with sufficient cooling.

The RM-TS pump is the first magnetically coupled centrifugal pump on the market that is absolutely safe to run dry.

This new series of pumps include all advantages of our longstanding experience with pumps of the RM type and the additional certainty that they will not be damaged by dry running. The coefficient of friction of the new bearing system is so small that only a minimum of heat is generated. Therefore, the bearing does not require any liquid lubrication.

All components of the pump head that are in contact with the fluid, are still metal-free and made exclusively of materials that assure optimum chemical resistance against aggressive fluids.

Since the pump does not have a shaft seal, it is hermetically sealed off and, because of this unique design, leakages through worn shaft sealings are definitely ruled out.



Delivery rate up to 30 l/min
 Delivery head up to 4.9 (7.1) m wc
 No shaft seal required
 For aggressive and neutral liquids

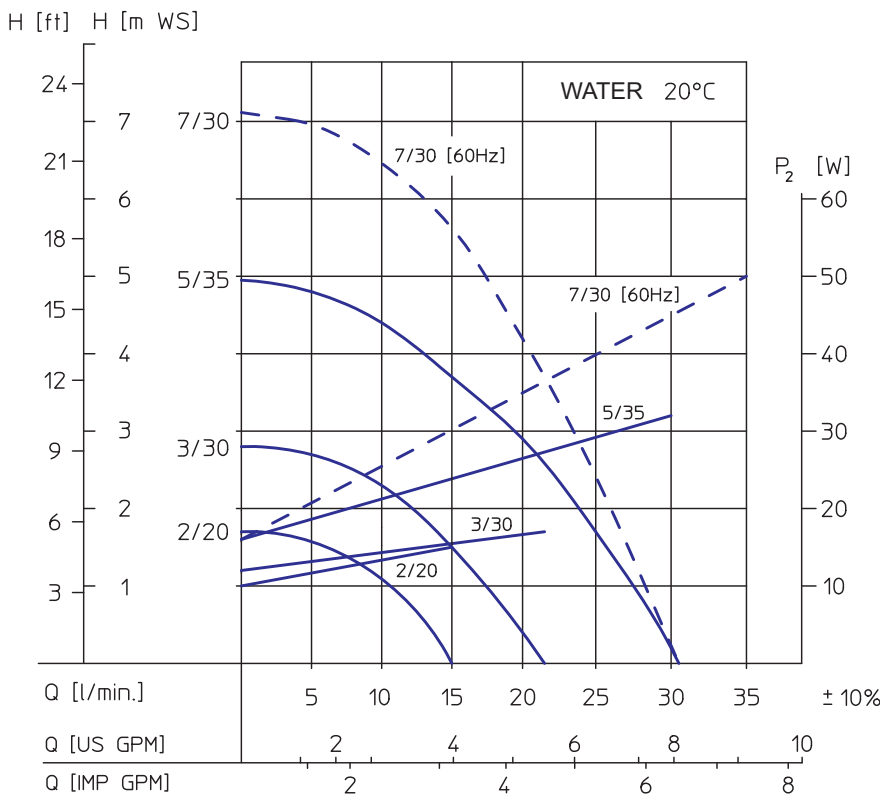
Made of PP, PVDF and stainless steel

Protection class IP 55

Figures in brackets () apply to 60 Hz pump types.

Magnetically coupled centrifugal pumps of type 1 are non-self-priming pumps that operate in horizontal position and are made in monobloc design. A magnetic coupling connects the pump to the motor and transmits the power of the motor to the impeller.

PERFORMANCE CHARTS



STANDARD DESIGN

Housing, impeller and impeller magnet coating are made of glass-fibre re-inforced PP plastic or PVDF or stainless steel. Sleeve bearings, starting rings and centering shaft are made of 99.7 % pure oxide ceramic, and the O-ring sealing of the housing is made of either FKM or EPDM. (See table on page 7 for other materials.)

Speed at 50 Hz = 2850 min⁻¹
 Speed at 60 Hz = 3420 min⁻¹

Please indicate the voltage and frequency desired when placing your order.

NON-SELF-PRIMING RM – TYPE 1

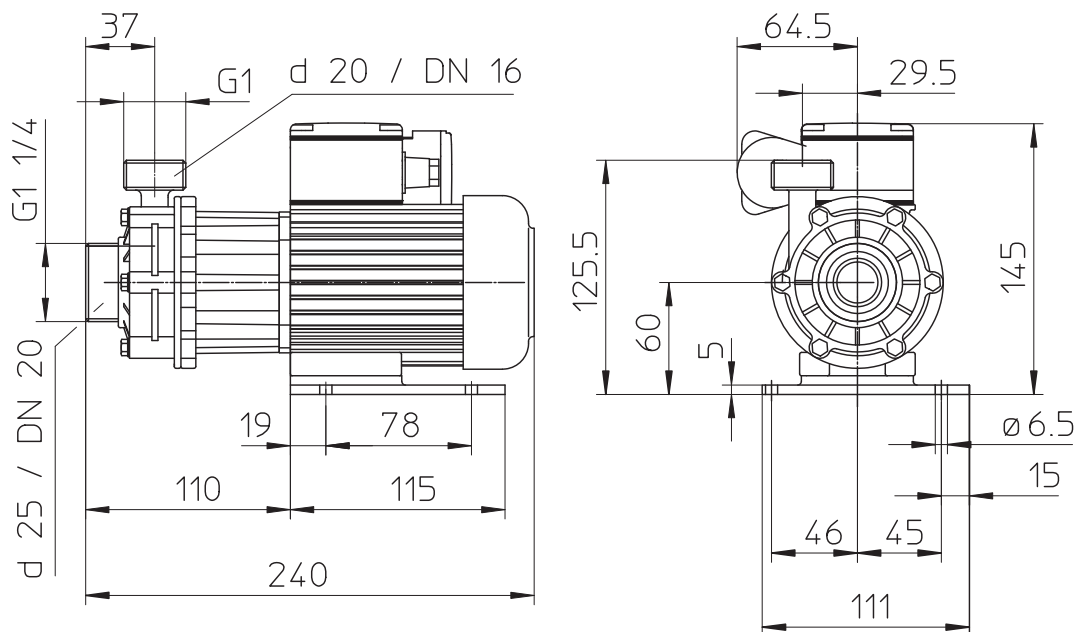
TECHNICAL DATA

size	2/20	3/30	5/35	7/30*
maximum delivery rate [l/min]	15	20	30	30
maximum delivery head [m wc]	1.7	2.8	4.9	7.1
maximum density [g/cm ³] ^{***}	2.5	2.5	1.7	1.25
motor capacity at 50 Hz [kW]	0.060	0.060	0.060	–
motor capacity at 60 Hz [kW]	0.072	0.072	0.072	0.072
voltage**	230 V ac or 230/400 V three-phase current			
current rating	0.7 A with alternating current or 0.5/0.29 A with three-phase current			
protection class	hose-proof according to IP 55			
ports	suction side G 1 1/4		discharge side G 1	
recommended maximum flow rate	suction side 1 m/s		discharge side 3 m/s	
material	PP	PVDF	stainless steel	
maximum temperature	80 °C	95 °C	100 °C	
maximum system pressure at 20 °C	1.0 bar	2.0 bar	8.0 bar	
weight	2.7 kg	2.8 kg	3.4 kg	

* Available only in 60 Hz.

** Other voltages available upon request.

*** With maximum volume rate of flow. To deliver liquids with a higher relative density, the pump has to be throttled (see the following performance chart).



Position of the terminal box: standard position is on top (if you need it mounted on the right or the left, please indicate when placing your order).

Position of the discharge port: vertical position is standard (differing positions at 12 x 30° are possible, please indicate when placing your order).

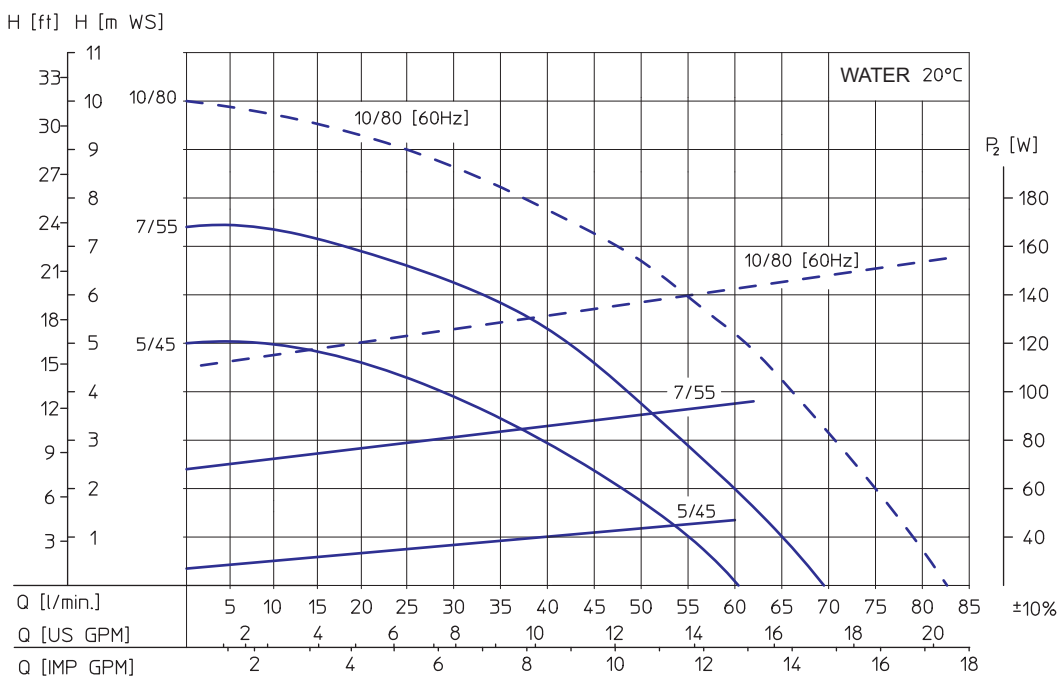


Delivery rate up to 70 (83) l/min
 Delivery head up to 7.5 (10) m wc
 No shaft seal required
 For aggressive and neutral liquids
 Made of PP, PVDF and stainless steel
 Protection class IP 55

Figures in brackets ()
 apply to 60 Hz pump types.

Magnetically coupled centrifugal pumps of type 1.5 are non-self-priming pumps that operate in horizontal position and are made in monobloc design. A magnetic coupling connects the pump to the motor and transmits the power of the motor to the impeller.

PERFORMANCE CHARTS



STANDARD DESIGN

Housing, impeller and impeller magnet coating are made of glass-fibre reinforced PP plastic or PVDF or stainless steel. Sleeve bearings, starting rings and centering shaft are made of 99.7 % pure oxide ceramic, and the O-ring sealing of the housing is made of either FKM or EPDM. (See table on page 7 for other materials.)

NON-SELF-PRIMING RM – TYPE 1.5

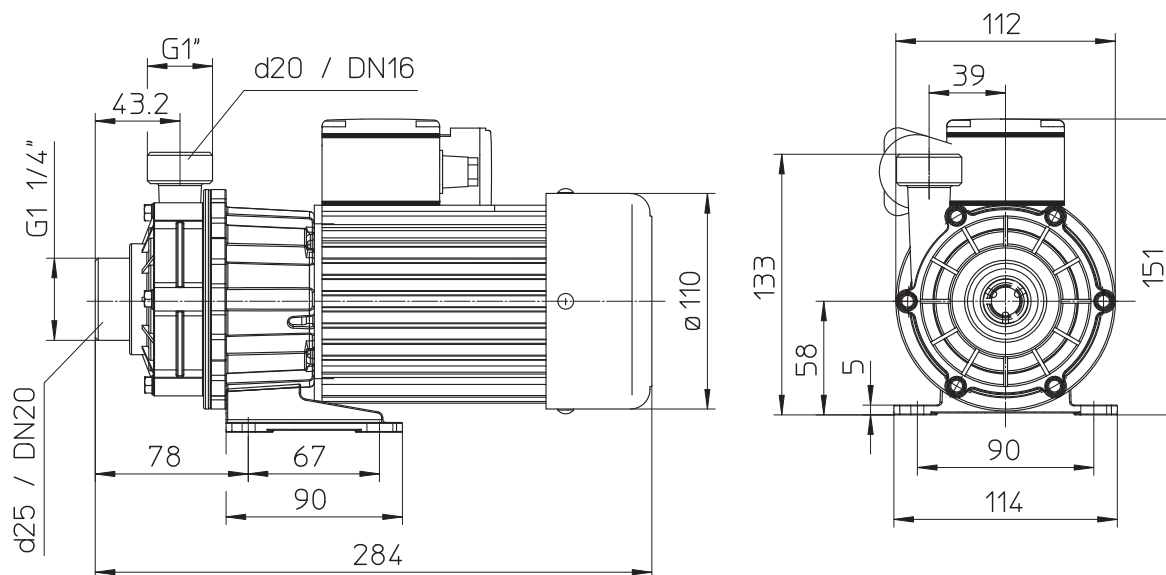
TECHNICAL DATA

size	5/45	7/55	10/80*
maximum delivery rate [l/min]	60	70	83
maximum delivery head [m wc]	5,0	7.5	10.0
maximum density [g/cm ³] ^{***}	2,2	1.25	1.0
motor capacity at 50 Hz 50 Hz [kW]	0.120	0.120	–
motor capacity at 50 Hz 60 Hz [kW]	0.144	0.144	0.180
voltage**			
230 V ac or 230/400 V three-phase current			
current rating			
0.7 A with alternating current or 0.5/0.29 A with three-phase current			
protection class			
hose-proof according to IP 55			
ports		suction side G 1 1/4	discharge side G 1
recommended maximum flow rate		suction side 1 m/s	discharge 3 m/s
material			
	PP	PVDF	stainless steel
maximum temperature			
	80 °C	95 °C	100 °C
maximum system pressure at 20 °C			
	1.5 bar	2.5 bar	8.0 bar
weight			
	4.3 kg	4.5 kg	6.0 kg

* Available only in 60 Hz.

** Other voltages available upon request.

*** With maximum volume rate of flow. To deliver liquids with a higher relative density, the pump has to be throttled (see the following performance chart).



Position of the terminal box: standard position is on top (if you need it mounted on the right or the left, please indicate when placing your order).

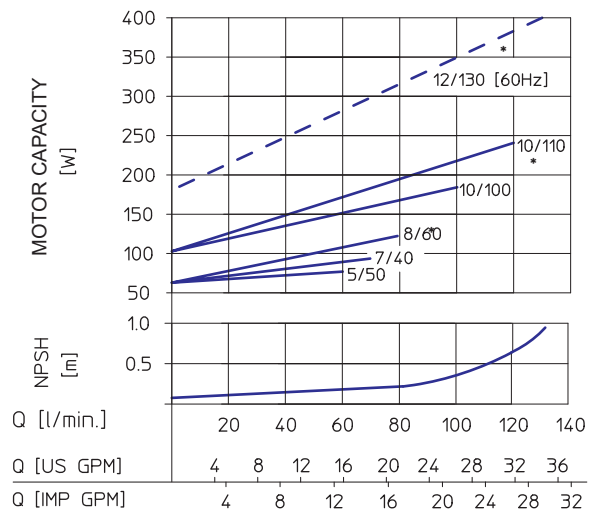
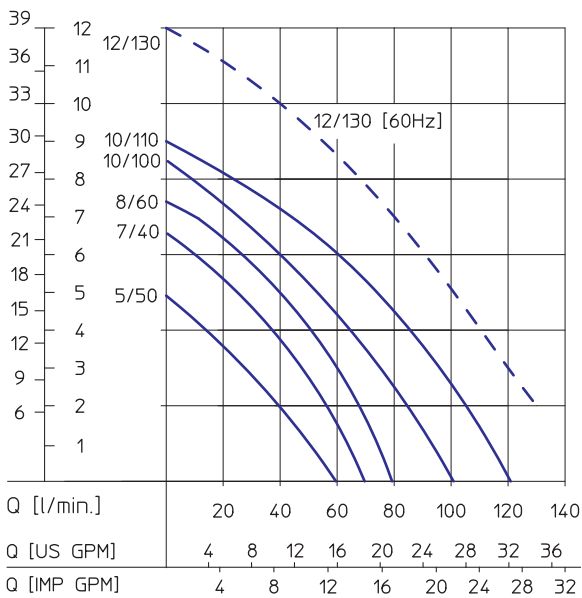
Position of the discharge port: vertical position is standard (differing positions at 12 x 30° are possible, please indicate when placing your order).



Delivery rate up to 118 l/min
 Delivery head up to 9.5 m wc
 No shaft seal required
 For aggressive and neutral liquids
 Made of PP or PVDF
 Protection class IP 55

Magnetically coupled centrifugal pumps of type 2 are non-self-priming pumps that operate in horizontal position and are made in monobloc design. A magnetic coupling connects the pump to the motor and transmits the power of the motor to the impeller.

PERFORMANCE CHARTS



* available only as type 2U with non ventilated motor

STANDARD DESIGN

Housing, impeller and impeller magnet coating are made of glass-fibre reinforced PP plastic or PVDF. Sleeve bearings, starting rings and centering shaft are made of 99.7% pure oxide ceramic, and the O-ring sealing of the housing is made of either FKM or EPDM. (See table on page 7 for other materials.)

Speed at 50 Hz = 2850 min⁻¹
 Speed at 60 Hz = 3420 min⁻¹

Please indicate the voltage and frequency desired when placing your order.

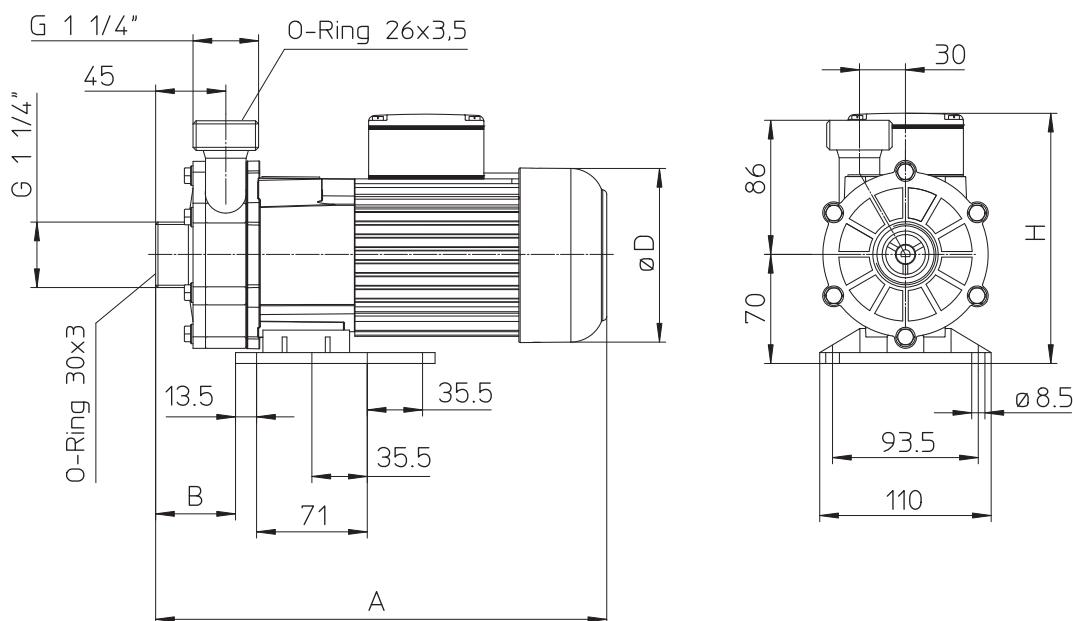
NON-SELF-PRIMING RM – TYPE 2

TECHNICAL DATA

size	5/50	8/60		10/110
maximum delivery rate [l/min]	60	80		118
maximum delivery head [m wc]	5.0	7.3		9.5
maximum density [g/cm ³] ^{***}	2.0	1.5	2.0	1.6
motor capacity at 50 Hz [kW]	0.125	0.180	0.250	0.370
motor capacity at 60 Hz [kW]	0.150	0.216	0.300	0.444
current rating (400 V) [A]	0.5	0.8	0.8	1.02
rated speed at 50 Hz [min ⁻¹]	2850	2850		2850
rated speed at 60 Hz [min ⁻¹]	3440	3440		3440
weight (approx.) [kg]	5.7	6.6	6.8	7.5
dimension A (ca.) [mm]	289	289	304	322
dimension D (ca.) [mm]	112	112	123	123
dimension H (ca.) [mm]	160.5	160.5	168	168
dimension B [mm]	continuously adjustable from 20 to 45 mm			
voltage**	230 V ac or 230/400 V three-phase current			
protection class	hose-proof according to IP 55			
ports	suction side G 1 ¹ / ₄		discharge side G 1 ¹ / ₄	
recommended maximum flow rate	suction side 1 m/s		discharge side 3 m/s	
material	PP		PVDF	
maximum temperature	80 °C		95 °C	
maximum system pressure at 20 °C	1.0 bar		2.0 bar	

** Other voltages available upon request.

*** With maximum volume rate of flow. To deliver liquids with a higher relative density, the pump has to be throttled (see the following performance chart).



Position of the terminal box: standard position is on top (if you need it mounted on the right or the left, please indicate when placing your order).

Position of the discharge port: vertical position is standard (differing positions at 12 x 30° are possible, please indicate when placing your order).



Delivery rate up to
118 (130) l/min

Delivery head up to 16 m WS
(type 2D as twin pump)

No shaft seal required

For aggressive and neutral
liquids

With non-ventilated motor so
that it is insensitive to vapour

Made of PP or PVDF

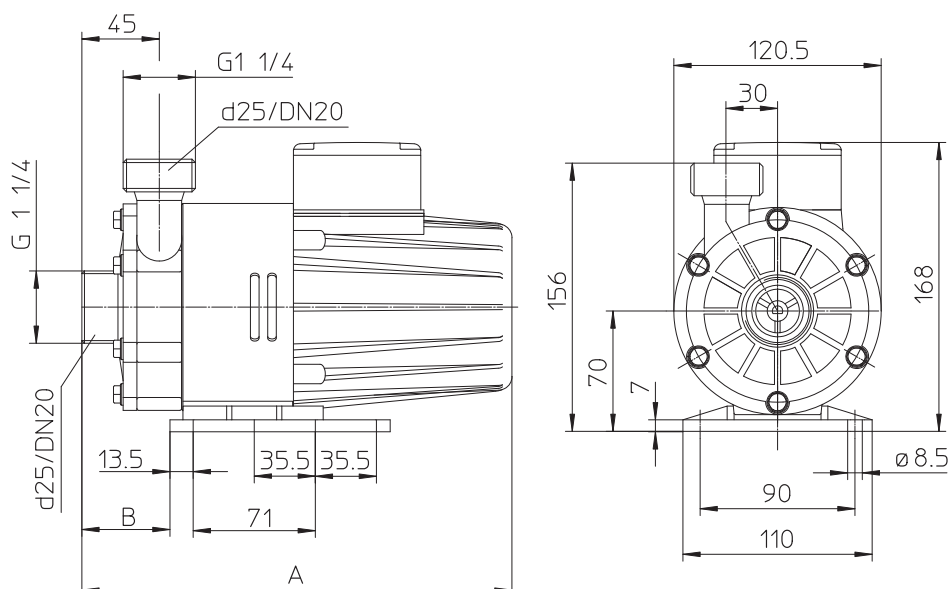
Protection class IP 55

Figures in brackets ()
apply to 60 Hz pump types.

size	5/50			7/40		8/60			10/100		10/110		12/130*
maximum delivery rate [l/min]	60			70		80			100		118		130
maximum delivery head [m wc]	5.0			6.5		7.3			8.4		9.5		12.0
maximum density [g/cm ³]**	1.2	2.2	2.5	1.3	2.5	1.0	1.45	2.0	1.0	1.4	0.8	1.1	1.0
motor capacity at 50 Hz [kW]	0.09	0.18	0.25	0.12	0.25	0.12	0.18	0.25	0.18	0.25	0.18	0.25	–
motor capacity at 60 Hz [kW]	0.108	0.216	0.30	0.14	0.30	0.14	0.216	0.30	0.216	0.30	0.216	0.30	0.37
current rating (400 V) [A]	0.35	0.65	0.65	0.45	0.65	0.45	0.65	0.65	0.65	0.65	0.65	0.65	1.02
rated speed at 50 Hz [min ⁻¹]	2850			2850		2850			2850		2850		–
rated speed at 60 Hz [min ⁻¹]	3440			3440		3440			3440		3440		3440
weight (approx.) [kg]	5.2	6.6	6.6	5.7	6.6	5.7	6.6	6.8	6.6	6.8	6.6	6.8	7.5
dimension A [mm]	235	250	265	250	265	250	265	265	265	265	265	265	310
dimension B [mm]	continuously adjustable from 20 to 45 mm												

* Available only in 60 Hz.

*** With maximum volume rate of flow. To deliver liquids with a higher relative density, the pump has to be throttled (see the following performance chart).



Position of the terminal box:
standard position is on top
(if you need it mounted on the
right or the left, please indicate
when placing your order).
Position of the discharge port:
vertical position is standard
(differing positions at 12 x 30°
are possible, please indicate
when placing your order).

NON-SELF-PRIMING RM – TYPE 2D



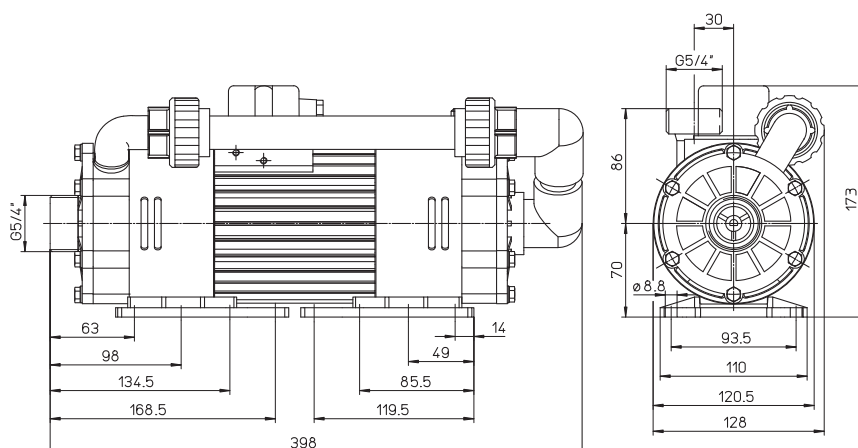
This pump is equipped with a non-ventilated (0.25 kW) motor with two shaft ends. A pump head of size 8/60 is mounted to each side of the motor.

You may use this pump as a twin pump with one driving motor to double its delivery rate to 2 x 80 l/min or as a twin pump in series connection (two-stage) to increase discharge pressure. Maximum delivery head then is 16 m wc.

size	8/60	8/60 series connection
maximum delivery rate [l/min]	2 x 80	60
maximum delivery head [m wc]	7.3	16
maximum density [g/cm ³]***	1.0	1.3
motor capacity at 50 Hz [kW]	250	250
motor capacity at 60 Hz [kW]	300	300
current rating (400 V) [A]	0.65	0.65
rated speed at 50 Hz [min ⁻¹]	2850	2850
rated speed at 60 Hz [min ⁻¹]	3440	3440
weight (ca.) [kg]	8.5	9.0
voltage**	230 V ac or 230/400 V three-phase current	
protection class	hose-proof according to IP 55	
ports	suction side G 1 ¹ / ₄	discharge side G 1 ¹ / ₄
recommended maximum flow rate	suction side 1 m/s	discharge side 3 m/s
material	PP	PVDF
maximum temperature	80 °C	95 °C
maximum system pressure at 20 °C	2.5 bar	3.5 bar

** Other voltages available upon request.

*** With maximum volume rate of flow. To deliver liquids with a higher relative density, the pump has to be throttled (see the following performance chart).



STANDARD DESIGN

Housing, impeller and impeller magnet coating are made of glass-fibre reinforced PP plastic or PVDF. Sleeve bearings, starting rings and centering shaft are made of 99.7% pure oxide ceramic, and the O-ring sealing of the housing is made of either FKM or EPDM. (See table on page 7 for other materials.)



Delivery rate up to 200 (230) l/min

Delivery head up to 23 (28) m wc

No shaft seal required

For aggressive and neutral liquids

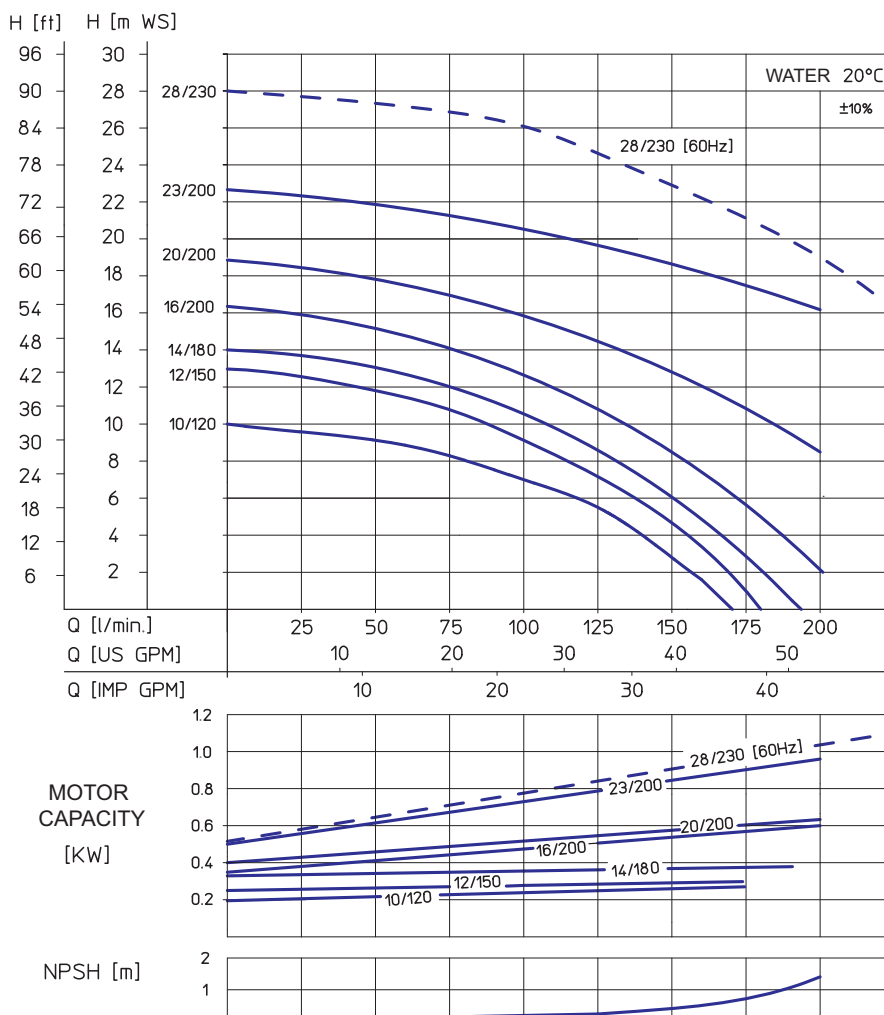
Made of PP or PVDF

Protection class IP 55

Figures in brackets () apply to 60 Hz pump types.

Magnetically coupled centrifugal pumps of type 3 are non-self-priming pumps that operate in horizontal position and are made in monobloc design. A magnetic coupling connects the pump to the motor and transmits the power of the motor to the impeller.

PERFORMANCE CHARTS



STANDARD DESIGN

Housing, impeller and impeller magnet coating are made of glass-fibre reinforced PP plastic or PVDF or stainless steel. Sleeve bearings, starting rings and centering shaft are made of 99.7 % pure oxide ceramic, and the O-ring sealing of the housing is made of either FKM or EPDM. (See table on page 7 for other materials.)

NON-SELF-PRIMING RM – TYPE 3

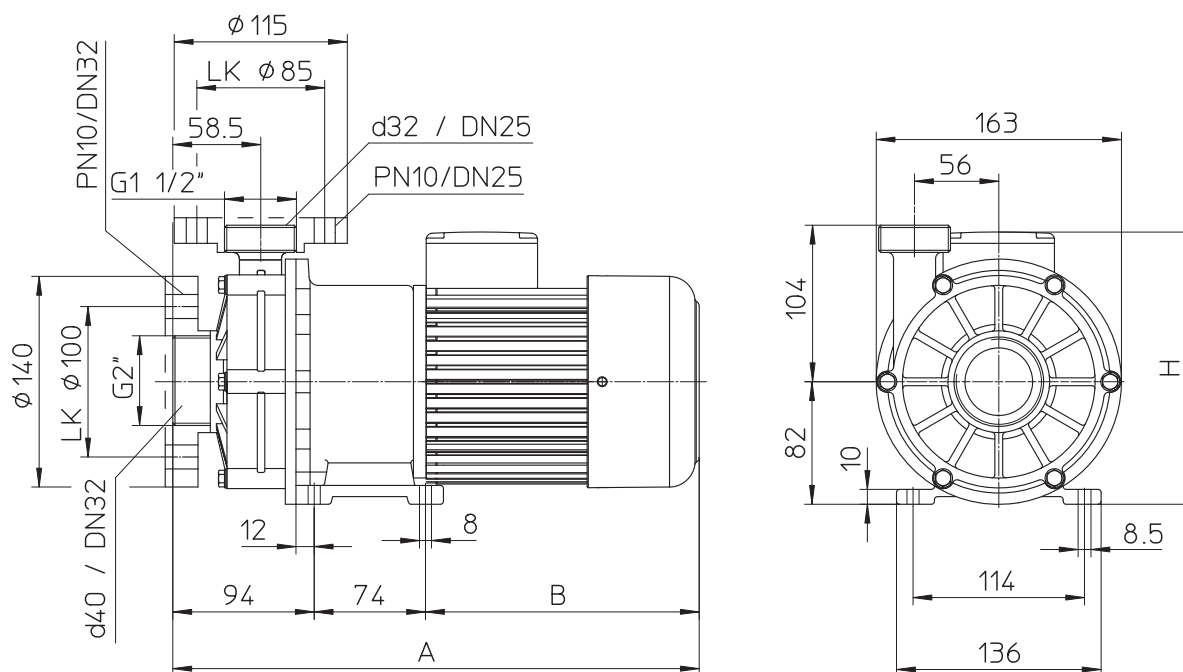
TECHNICAL DATA

size	10/120	12/150		14/180		16/200		20/200		23/200	28/230*
maximum delivery rate [l/min]	160	175		190		200		200		200	230
maximum delivery head [m wc]	10	13.0		14.0		16.5		19.5		23.0	28
maximum density [g/cm ³] ^{***}	1.3	1.25	1.8	1.0	1.45	1.0	1.25	1.2	1.7	1.6	1.5
motor capacity at 50 Hz [kW]	0.37	0.37	0.55	0.37	0.55	0.55	0.75	0.75	1.1	1.5	–
motor capacity at 60 Hz [kW]	0.44	0.44	0.66	0.44	0.66	0.66	0.9	0.9	1.32	1.8	1.8
current rating (400 V) [A]	1.02	1.02	1.6	1.02	1.6	1.6	2.2	2.2	2.8	3.25	3.25
rated speed at 50 Hz [min ⁻¹]	2900	2900		2900		2900		2900		2900	–
rated speed at 60 Hz [min ⁻¹]	3440	3440		3440		3440		3440		3440	3440
dimension A [mm]	350	350	366	350	366	366	366	366	385	400	400
dimension B [mm]	182	182	198	182	198	198	198	198	216	230	230
dimension H [mm]	181	181	181	181	181	181	181	181	181	205	205
weight (PP/PVDF approx.) [kg]	9.4	9.4	9.5	9.4	9.5	9.5	11.4	11.4	11.8	14.5	15.0
voltage**	230 V ac or 230/400 V three-phase current										
protection class	hose-proof according to IP 55										
ports	suction side G 2						discharge side G 1 1/2				
recommended maximum flow rate	suction side 1 m/s						discharge side 3 m/s				
material	PP				PVDF				stainless steel		
maximum temperature	80 °C				95 °C				100 °C		
maximum system pressure at 20 °C	2.5 bar				3.5 bar				8.0 bar		

* Available only in 60 Hz.

** Other voltages available upon request.

*** With maximum volume rate of flow. To deliver liquids with a higher relative density, the pump has to be throttled (see the following performance chart).



Position of the terminal box: standard position is on top (if you need it mounted on the right or the left, please indicate when placing your order).

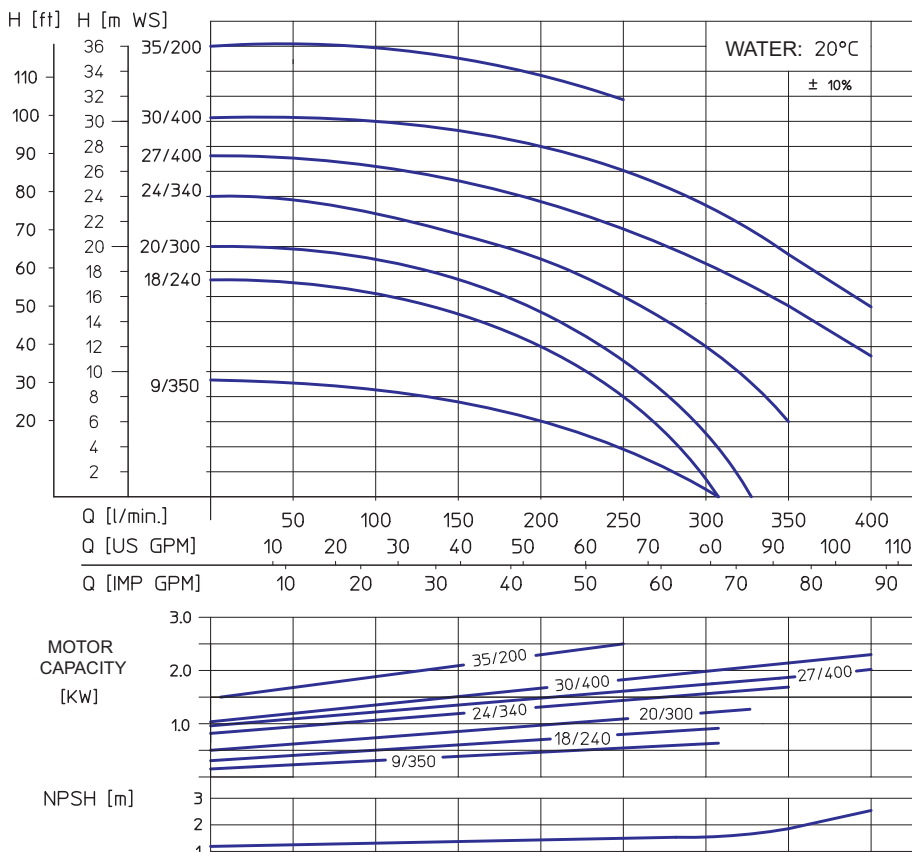
Position of the discharge port: vertical position is standard (differing positions at 12 x 30° are possible, please indicate when placing your order).



- Delivery rate up to 400 l/min
- Delivery head up to 36 m wc
- No shaft seal required
- For aggressive and neutral liquids
- Made of PP, PVDF and stainless steel
- Protection class IP 55

Magnetically coupled centrifugal pumps of type 4 are non-self-priming pumps that operate in horizontal position and are made in monobloc design. A magnetic coupling connects the pump to the motor and transmits the power of the motor to the impeller.

PERFORMANCE CHARTS



STANDARD DESIGN

Housing, impeller and impeller magnet coating are made of glass-fibre reinforced PP plastic or PVDF or stainless steel. Sleeve bearings, starting rings and centering shaft are made of 99.7 % pure oxide ceramic, and the O-ring sealing of the housing is made of either FKM or EPDM. (See table on page 7 for other materials.)

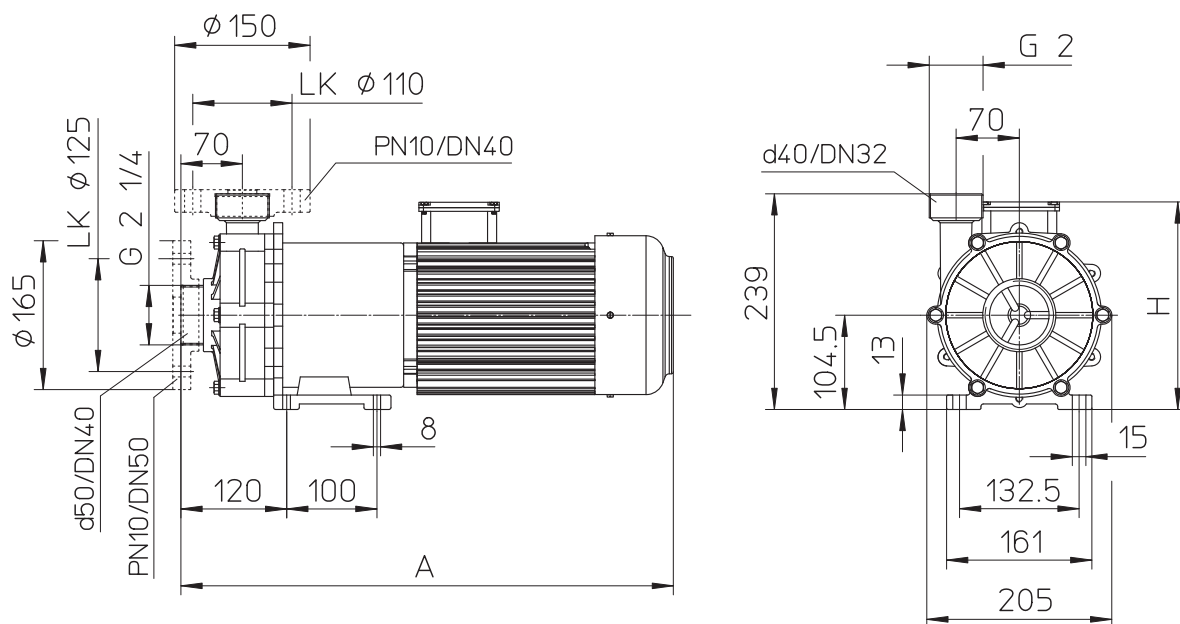
NON-SELF-PRIMING RM – TYPE 4

TECHNICAL DATA

size	9/350		18/240		20/300		24/340		27/400			30/400		35/200	
maximum delivery rate [l/min]	305		310		325		350		400			400		250	
maximum delivery head [m wc]	9.0		17.5		20		24.0		27			30		36	
maximum density [g/cm ³] ^{***}	1.25	0.8	1.25	1.6	1.0	1.2	1.0	1.4	1.1	1.5	1.9	1.3	1.8	1.2	1.6
motor capacity at 50 Hz [kW]	0.75	0.75	1.1	1.5	1.1	1.5	1.5	2.2	2.2	3.0	4.0	3.0	4.0	3.0	4.0
motor capacity at 60 Hz [kW]	0.9	0.9	1.32	1.8	1.32	1.8	1.8	2.64	2.64	3.6	4.8	3.6	4.8	3.6	4.8
current rating (400 V) [A]	2.1	2.2	2.8	3.25	2.8	3.25	3.25	4.75	4.75	6.2	8.1	6.2	8.1	6.2	8.1
rated speed at 50 Hz [min ⁻¹]	1450		2900		2900		2900		2900			2900		2900	
rated speed at 60 Hz [min ⁻¹]	1750		3440		3440		3440		3440			3440		3440	
dimension A [mm]	430	400	457	474	457	474	474	530	530	580	580	580	580	580	600
dimension H [mm]	227	220	220	220	220	220	220	230	230	258	258	258	258	258	258
weight (PP/PVDF approx.) [kg]	17.0	13.0	15.5	18.0	15.5	180	18.0	27.5	27.5	29.0	31.0	29.0	31.0	29.0	31.0
voltage**	230 V ac or 230/400 V three-phase current														
protection class	hose-proof according to IP 55														
ports	suction side G 2 1/4							discharge side G 2							
recommended maximum flow rate	suction side 1 m/s							discharge side 3 m/s							
material	PP					PVDF					stainless steel				
maximum temperature	80 °C					95 °C					100 °C				
maximum system pressure at 20 °C	5.0 bar					6.0 bar					10.0 bar				

** Other voltages available upon request.

*** With maximum volume rate of flow. To deliver liquids with a higher relative density, the pump has to be throttled (see the following performance chart).



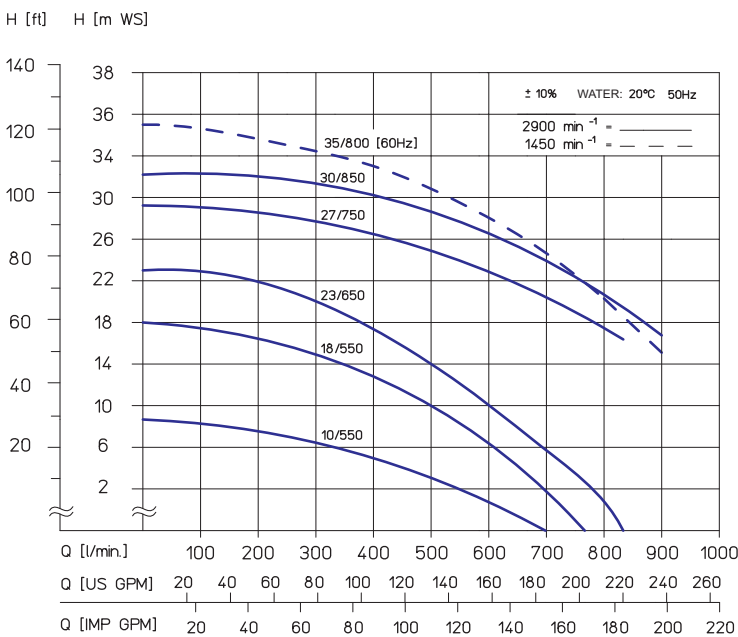
Position of the terminal box: standard position is on top (if you need it mounted on the right or the left, please indicate when placing your order).
 Position of the discharge port: vertical position is standard (differing positions at 12 x 30° are possible, please indicate when placing your order).



- Delivery rate up to 900 l/min
- Delivery head up to 35 m wc
- No shaft seal required
- For aggressive and neutral liquids
- Made of PP or PVDF
- Protection class IP 55

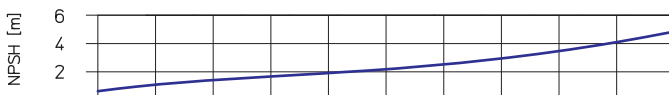
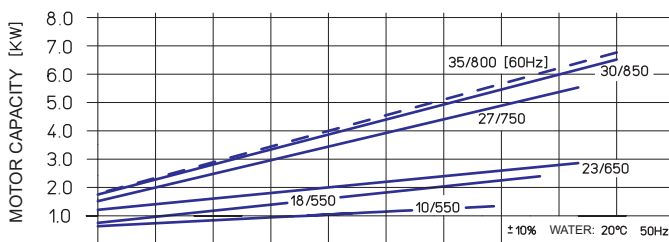
Magnetically coupled centrifugal pumps of type 4.5 are non-self-priming pumps that operate in horizontal position and are made in monobloc design. A magnetic coupling connects the pump to the motor and transmits the power of the motor to the impeller.

PERFORMANCE CHARTS



STANDARD DESIGN

Housing, impeller and impeller magnet coating are made of glass-fibre reinforced PP plastic or PVDF. Sleeve bearings, starting rings and centering shaft are made of 99.7 % pure oxide ceramic, and the O-ring sealing of the housing is made of either FKM or EPDM. (See table on page 7 for other materials.)



NON-SELF-PRIMING RM – TYPE 4.5

TECHNICAL DATA

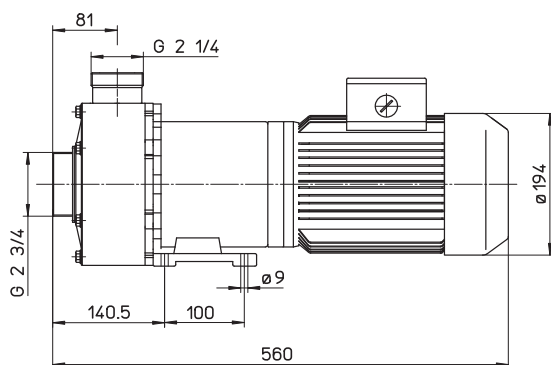
size	10/550	18/550		23/650	27/750	30/850	35/800*
maximum delivery rate [l/min]	700	750		833	833	900	900
maximum delivery head [m wc]	9.0	18.0		23,0	28,0	32	35
maximum density [g/cm ³] ^{***}	1.6	1.25	1.7	1.4	1.0	1.15	1.0
motor capacity at 50 Hz [kW]	2.2	3.0	4.0	4.0	5.5	7.5	–
motor capacity at 60 Hz [kW]	2.6	3.6	4.8	4.8	6.6	9.0	6.6
current rating (400 V) [A]	4.9	6.25	8.1	8.1	11.0	14.5	13.8
rated speed at 50 Hz [min ⁻¹]	1450	2900		2900	2900	2900	–
rated speed at 60 Hz [min ⁻¹]	1750	3440		3440	3440	3440	3440
weight [kg]	28.0	34.0	36.0	37.0	47.0	57.0	48.5

voltage**	230 V ac or 230/400 V three-phase current		
protection class	hose-proof according to IP 55		
ports	suction side G 2 ³ / ₄		discharge side G 2 ¹ / ₄
recommended maximum flow rate	suction side 1 m/s		discharge side 3 m/s
material	PP		PVDF
maximum temperature	80 °C		95 °C
maximum system pressure at 20 °C	5.0 bar		6.0 bar

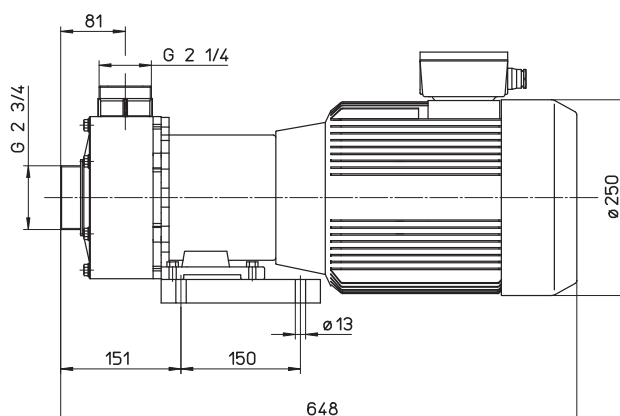
* Available only in 60 Hz.

** Other voltages available upon request.

*** With maximum volume rate of flow. To deliver liquids with a higher relative density, the pump has to be throttled (see the following performance chart).



dimensions for standard motor up to 4.0 kW



dimensions for standard motor up to 7.5 kW

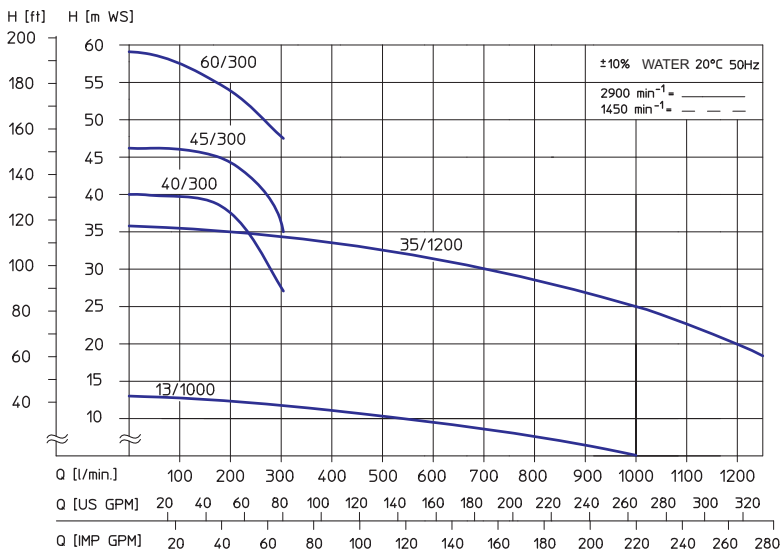
Position of the terminal box: standard position is on top (if you need it mounted on the right or the left, please indicate when placing your order).
 Position of the discharge port: vertical position is standard (differing positions at 12 x 30° are possible, please indicate when placing your order).



- Delivery rate up to 1.250 l/min
- Delivery head up to 60 m wc
- No shaft seal required
- For aggressive and neutral liquids
- Made of PP or PVDF
- Protection class IP 55

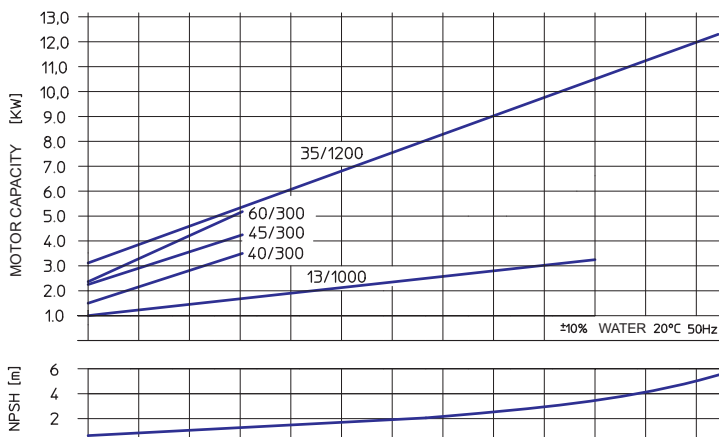
Magnetically coupled centrifugal pumps of type 5 are non-self-priming pumps that operate in horizontal position and are made in monobloc design. A magnetic coupling connects the pump to the motor and transmits the power of the motor to the impeller.

PERFORMANCE CHARTS



STANDARD DESIGN

Housing, impeller and impeller magnet coating are made of glass-fibre reinforced PP plastic or PVDF. Sleeve bearings, starting rings and centering shaft are made of 99.7% pure oxide ceramic, and the O-ring sealing of the housing is made of either FKM or EPDM. (See table on page 7 for other materials.)

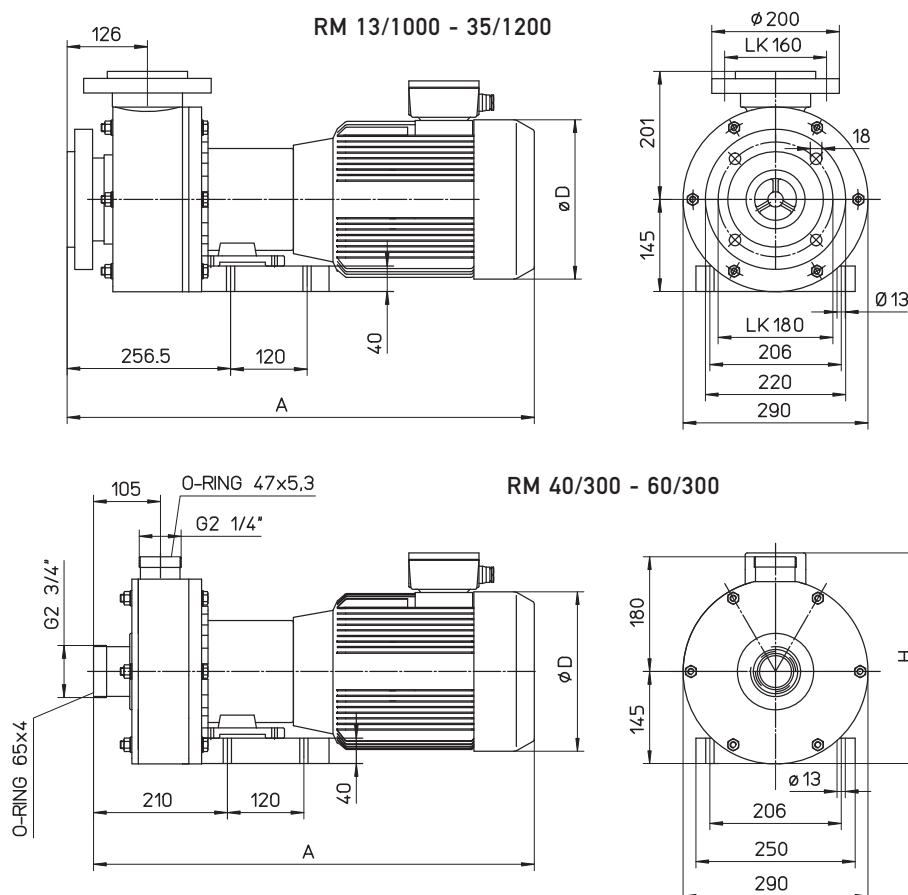


NON-SELF-PRIMING RM – TYPE 5

TECHNICAL DATA

size	40/300	45/300	60/300	13/1000		35/1200
maximum delivery rate [l/min]	300	300	300	1000		1250
maximum delivery head [m wc]	40	45	60	13		35
maximum density [g/cm ³] ^{***}	0.9	1.0	1.1	1.25	1.6	1.1
motor capacity a 50 Hz [kW]	3.0	4.0	5.5	4.0	5.5	12.5
motor capacity a 60 Hz [kW]	3.6	4.8	6.6	4.8	6.6	15.0
current rating (400 V) [A]	6.25	8.1	11.0	8.1	11.0	24.0
rated speed at 50 Hz [min ⁻¹]	2900	2900	2900	1450	1450	2900
rated speed at 60 Hz [min ⁻¹]	3440	3440	3440	1750	1750	3440
ports suction side	G2 3/4	G2 3/4	G2 3/4	FF d110	FF d110	FF d110
ports discharge side	G2 1/4	G2 1/4	G2 1/4	FF d90	FF d90	FF d90
weight when made of PP approx. [kg]	49	53	57	51	61	80
weight when made of PVDF approx. [kg]	56	60	66	52	69	90
dimension A [mm]	619	625	692	680	740	780
dimension H [mm]	316	316	331	–	–	–
dimension D [mm]	194	220	250	220	250	260

voltage**	230 V ac or 230/400 V three-phase current	
protection class	hose-proof according to IP 55	
recommended maximum flow rate	suction side 1 m/s	discharge side 3 m/s
material	PP	PVDF
maximum temperature	80 °C	95 °C
maximum system pressure at 20 °C	6.0 bar	6.0 bar



** Other voltages available upon request.

*** With maximum volume rate of flow. To deliver liquids with a higher relative density, the pump has to be throttled (see the following performance chart).

Position of the terminal box: standard position is on top (if you need it mounted on the right or the left, please indicate when placing your order).

Position of the discharge port: vertical position is standard (differing positions at 12 x 30° are possible, please indicate when placing your order).



Self-priming
side-channel pump

Delivery rate up to
16 (21) l/min

Delivery head up to
39 (54) m wc

No shaft seal required

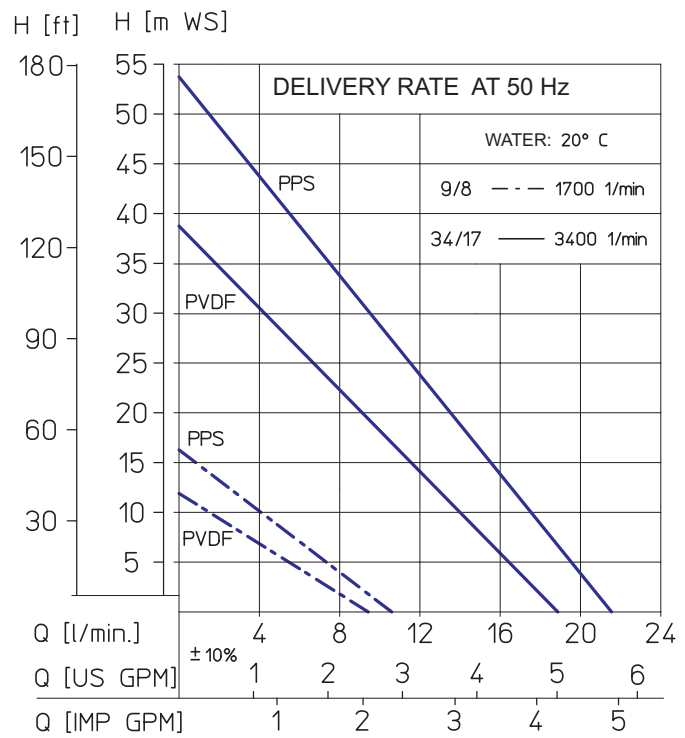
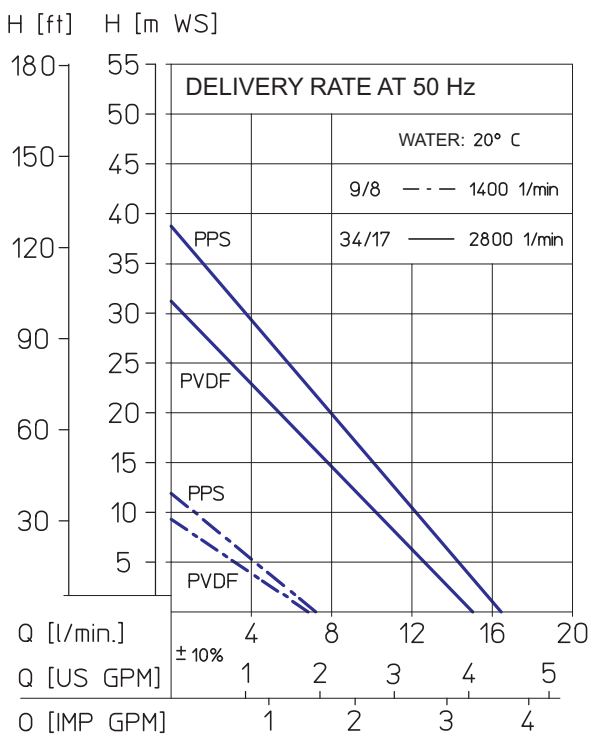
For aggressive and neutral liquids

Made of PPS or PVDF

Protection class IP 55

Figures in brackets ()
apply to 60 Hz pump types.

PERFORMANCE CHARTS

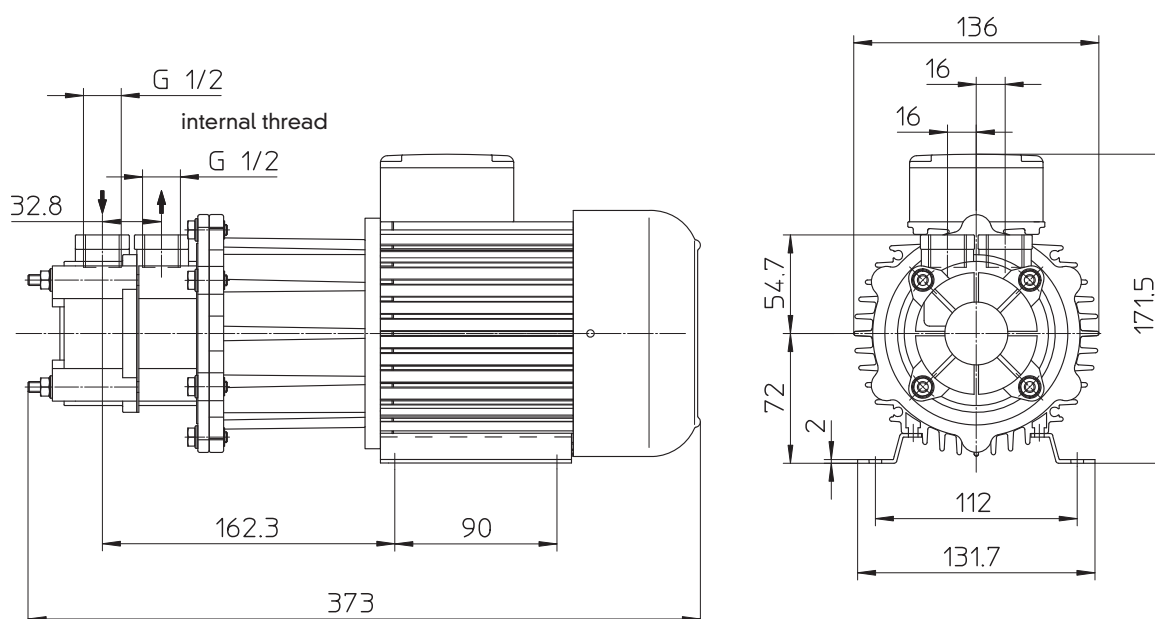


SEL-PRIMING RMS TYPE 2.1

TECHNICAL DATA

size	9/8						34/17					
design	PPS	PVDF	PPS	PVDF	PPS	PVDF	PPS	PVDF	PPS	PVDF	PPS	PVDF
maximum delivery rate [l/min]	7	7	7	7	7	7	16	15	16	15	16	15
maximum delivery head [m wc]	12	10	12	10	12	10	39	31	39	31	39	31
max. suction head at 20 °C [m wc]	3.0	1.0	3.0	1.0	3.0	1.0	7.0	1.0	7.0	1.0	7.0	1.0
maximum temperature [°C]	100	80	100	80	100	80	100	80	100	80	100	80
maximum density [g/cm ³]	1.55		1.35		2.0		1.55		1.35		2.0	
motor capacity at 50 Hz [kW]	0.37		0.37		0.55		0.37		0.37		0.55	
motor capacity at 60 Hz [kW]	0.44		0.44		0.66		0.44		0.44		0.66	
current rating (400 V) [A]	0.7		0.7		1.0		1.0		1.0		1.5	
rated speed at 50 Hz [min ⁻¹]	1400		1400		1400		2800		2800		2800	
rated speed at 60 Hz [min ⁻¹]	1700		1700		1700		3400		3400		3400	
weight approx. [kg]	8.5		8.0		9.0		7.5		7.0		8.0	
voltage**	230 V ac or 230/400 V three-phase current											
protection class	hose-proof according to IP 55											
ports	suction side IG 1/2						discharge side IG 1/2					
material (design)	PPS						PVDF					
housing section	PPS						PVDF					
impeller	PPS						oxide ceramic 99,7 %					
lantern	PP						PP					
inner magnet coating	PPS or PP						PVDF					
centering shaft, starting ring	oxide ceramic 99,7 %						oxide ceramic 99,7 %					
sleeve bearings	oxide ceramic 99,7 %						oxide ceramic 99,7 %					

** Other voltages available upon request.



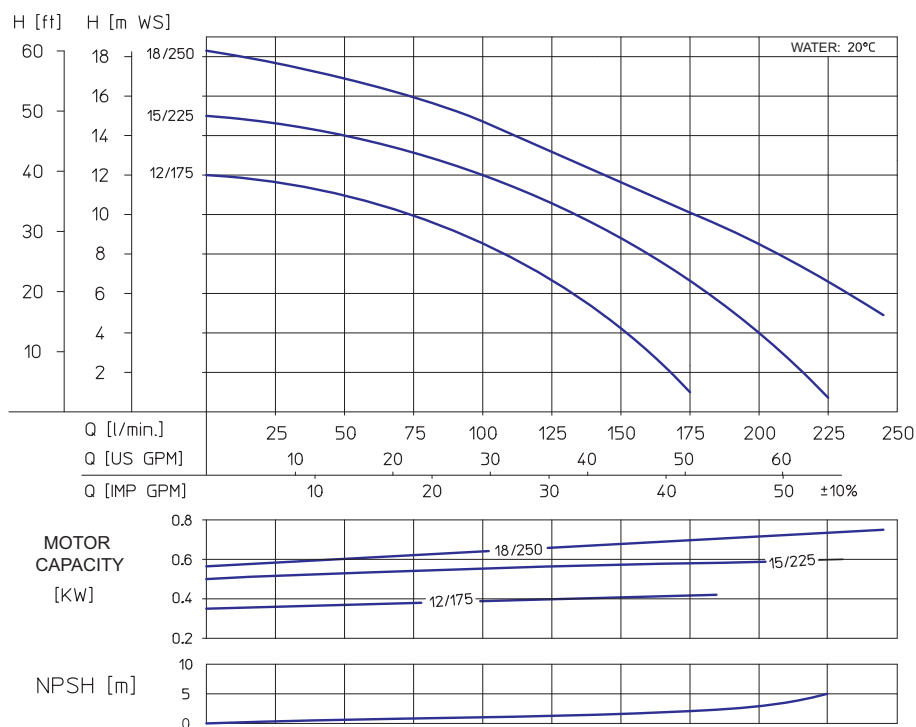
Position of the terminal box: standard position is on top (if you need it mounted on the right or the left, please indicate when placing your order).



- Centrifugal pump with integrated priming tank
- Delivery rate up to 240 l/min
- Delivery head up to 18 m wc
- No shaft seal required
- For aggressive and neutral liquids
- Made of PP or PVDF
- Protection class IP 55

Magnetically coupled centrifugal pumps of the RMB type are self-priming pumps with integrated priming tanks. They are made of plastic, built in monobloc design and operate in horizontal position. A magnetic coupling connects the pump to the motor and transmits the power of the motor to the impeller.

PERFORMANCE CHARTS



STANDARD DESIGN

Housing, impeller and impeller magnet coating are made of glass-fibre reinforced PP plastic or PVDF. Sleeve bearings, starting rings and centering shaft are made of 99.7% pure oxide ceramic, and the O-ring sealing of the housing is made of either FKM or EPDM. (See table on page 7 for other materials.)

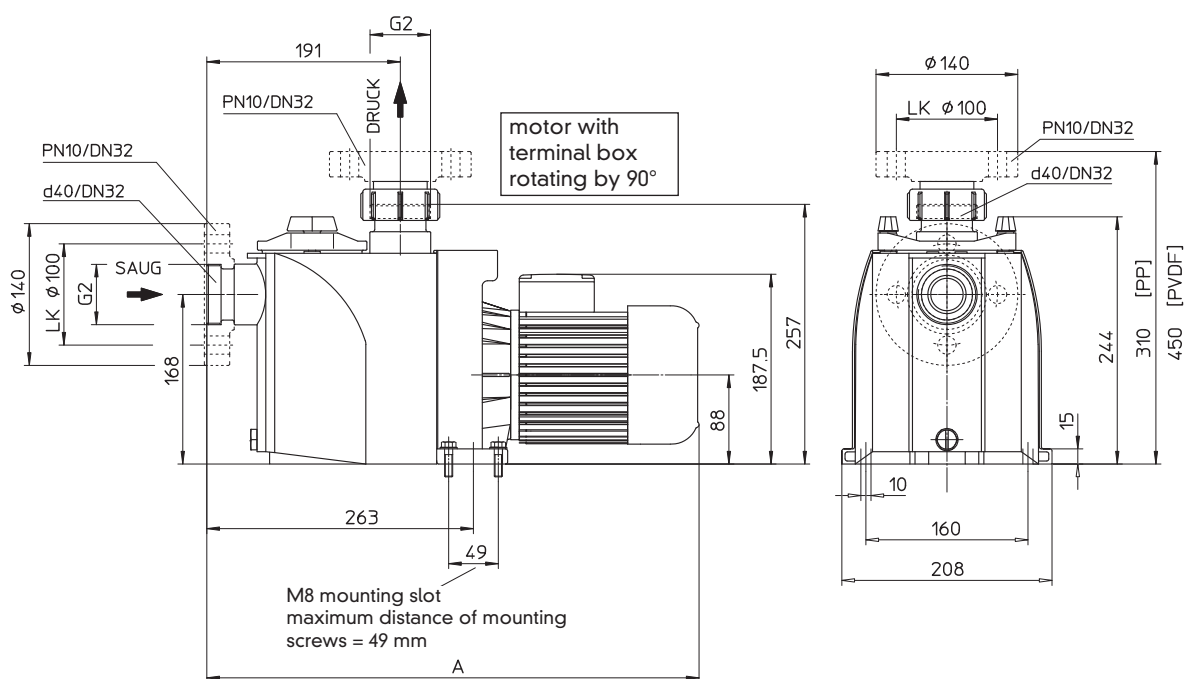
SELF-PRIMING RMB TYPE 3.1

TECHNICAL DATA

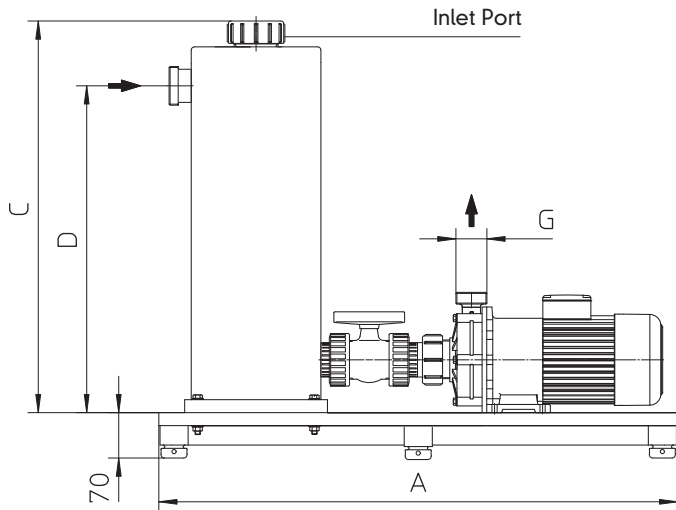
size	12/175		15/225	18/250
maximum delivery rate [l/min]	175		225	240
maximum delivery head [m wc]	12		15	18
max. suction head at 20 °C [m wc]	3.0		3,5	1.0
maximum density [g/cm ³] ^{***}	1.3	1.8	1.2	1.0
motor capacity at 50 Hz [kW]	0.55	0.75	0.75	0.75
motor capacity at 60 Hz [kW]	0.66	0.9	0.9	0.9
current rating (400 V) [A]	1.6	2.2	2.2	2.2
rated speed at 50 Hz [min ⁻¹]	2800	2800	2800	2800
rated speed at 60 Hz [min ⁻¹]	3400	3400	3400	3400
parts suction side	G2	G2	G2	G2
ports discharge side	G2	G2	G2	G2
weight approx. [kg]	10	13	13	13
dimension A [mm]	490	500	500	500
voltage**	230 V ac or 230/400 V three-phase current			
protection class	house-proof according to IP 55			
recommended maximum flow rate	suction side 1 m/s		discharge side 3 m/s	
materials	PP		PVDF	
maximum temperature	65 °C		85 °C	
maximum system pressure at 20 °C	2.5 bar		3.5 bar	

** Other voltages available upon request.

*** With maximum volume rate of flow. To deliver liquids with a higher relative density, the pump has to be throttled (see the following performance chart).



Position of the terminal box: standard position is on top (if you need it mounted on the right or the left, please indicate when placing your order).



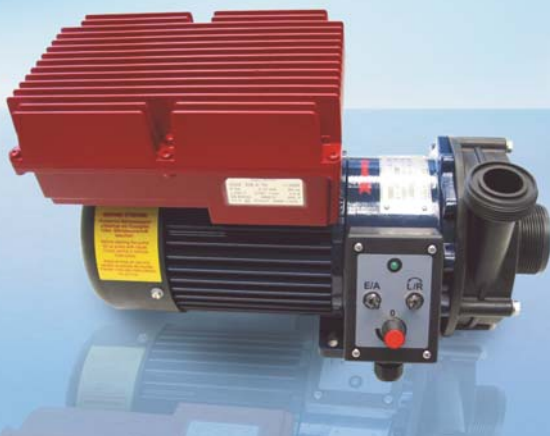
All non-self-priming pumps of the RM type may be combined with an extra priming tank to be self-priming as well.

RENNER supplies you with the whole installation completely mounted to a base plate.

Priming tanks are available in different sizes ranging from 5 to 50 litres. When arranging the design, make sure that the volume of the priming tank is about 1.5 times larger than the overall volume of the suction-pipe runs to be evacuated.

base plate		material			volume	dimensions			pump	thread size	
A	B	PP	PVDF	PVC	litres	C	D	Ø E	type	suction side F	discharge side G
600	250	x	x	x	5	310	250	200	1	G 1 1/4"	G 1"
600	270	x	x	x	5	310	250	200	1.5	G 1 1/4"	G 1"
600	270	x	x	x	10	560	500	200	1.5	G 1 1/4"	G 1"
600	270	x	x	x	10	560	500	200	2	G 1 1/4"	G 1 1/4"
600	270	x	x	x	15	810	750	200	2	G 1 1/4"	G 1 1/4"
1000	270	x	x	x	15	810	750	200	3	G 2"	G 1 1/2"
1000	270	x	x	x	20	1060	1000	200	3	G 2"	G 1 1/2"
1000	300	x			30	890	790	250	3	G 2"	G 1 1/2"
1000	300	x			25	790	690	250	4	G 2 1/4"	G 2"
1000	300	x			30	890	790	250	4	G 2 1/4"	G 2"
1200	300	x			30	890	790	250	4.5	G 2 3/4"	G 2 1/4"
1200	400	x			50	1175	1075	300	4.5	G 2 3/4"	G 2 1/4"

RM PUMP WITH INTEGRATED FREQUENCY CONVERTER



IF SEVERAL DELIVERY RATES ARE REQUIRED SPEED CONTROL IS USED TO PRECISELY SET THE OPERATING POINT DESIRED.

Features:

- Power ranges: 0.37 to 1.1 kW
- Voltage: 230 V single-phase, 50 or 60 Hz
- The speed rate is set either by a signal of an imposed control unit or by the control panel mounted to the motor.
- The frequency converter is perfectly tuned to the characteristic of the pump.
- This operating principle saves much energy in contrast to adjusting delivery rates by means of flow-control valves.

ACCESSORIES AND OPTIONAL EQUIPMENT TO RM PUMPS

ACCESSORIES TO THE MOTOR

pilotherm or PTC thermistor

ON/OFF switch with cable 2.5 m long and plug (only with 230 V ac)

protective motor switch with ON/OFF switch, mounted and wired to the terminal box

three-phase connection cable 5 m long with CEE plug of 5 x 16 A, completely installed

O-RING SEALINGS TO SUCTION AND DISCHARGE PORTS

type	O-ring to suction side [mm]	O-ring to discharge side [mm]	FKM	EPDM	FEP-coated FKM
1, 1.5	26 x 3.5 mm	21 x 3.0 mm	X	X	X
2	30 x 3 mm	26 x 3.5 mm	X	X	X
3	48 x 3.5 mm	31.35 x 3.53 mm	X	X	X
3.1	40.6 x 5.3 mm	40.6 x 5.3 mm	X	X	X
4	53.5 x 3.5 mm	40 x 5 mm	X	X	X
4.5	65 x 4 mm	47 x 5.3 mm	X	X	X

THREE-PIECE HOSE CONNECTIONS WITH SPIGOT NUT AND HOSE NIPPLE INCLUDING O-RINGS

thread size	hose nipple	suitable for suction ports of the following pump types	suitable for suction ports of the following pump types	PP material	PVDF material
G 1	18 21		1, 1.5	X	X
G 1 ¹ / ₄	18 21 26 30	1, 1.5, 2	2	X	X
G 1 ¹ / ₂	1" 1 ¹ / ₄ " 1 ¹ / ₂ "		3	X	X
G 2	1" 1 ¹ / ₄ " 1 ¹ / ₂ " 2"	3, 3.1	3.1, 4	X	X
G 2 ¹ / ₄	1 ¹ / ₂ " 2"	4	4.5	X	X

FLANGES TO SCREW ONTO THREADED PORTS INCLUDING O-RINGS

one set = 1 flange to the suction side, 1 flange to the discharge side

type	nominal diameter of suction part	nominal diameter of discharge part	PP material	PVDF material
2	DN 20 PN 10	DN 20 PN 10	X	X
3	DN 32 PN 10	DN 25 PN 10	X	X
4	DN 50 PN 10	DN 40 PN 10	X	X
5	DN 65 PN 10	DN 50 PN 10	X	X

We also offer you a **wide range of accessories** to perfectly complete the installation of SONDERMANN pumps. These accessories include, for example, plastic spigot nuts, hose nipples, plastic screws, filter plates, suction screen filters, differential pressure switches etc. Do not hesitate to ask us for advice! We would be glad to help you.

TYPE RM-COOL



Brushless electronically controlled motor

Adjustable speed of 1 to 3,240 min⁻¹

For short-term and continuous operation

Made of PPS, PP and PVDF

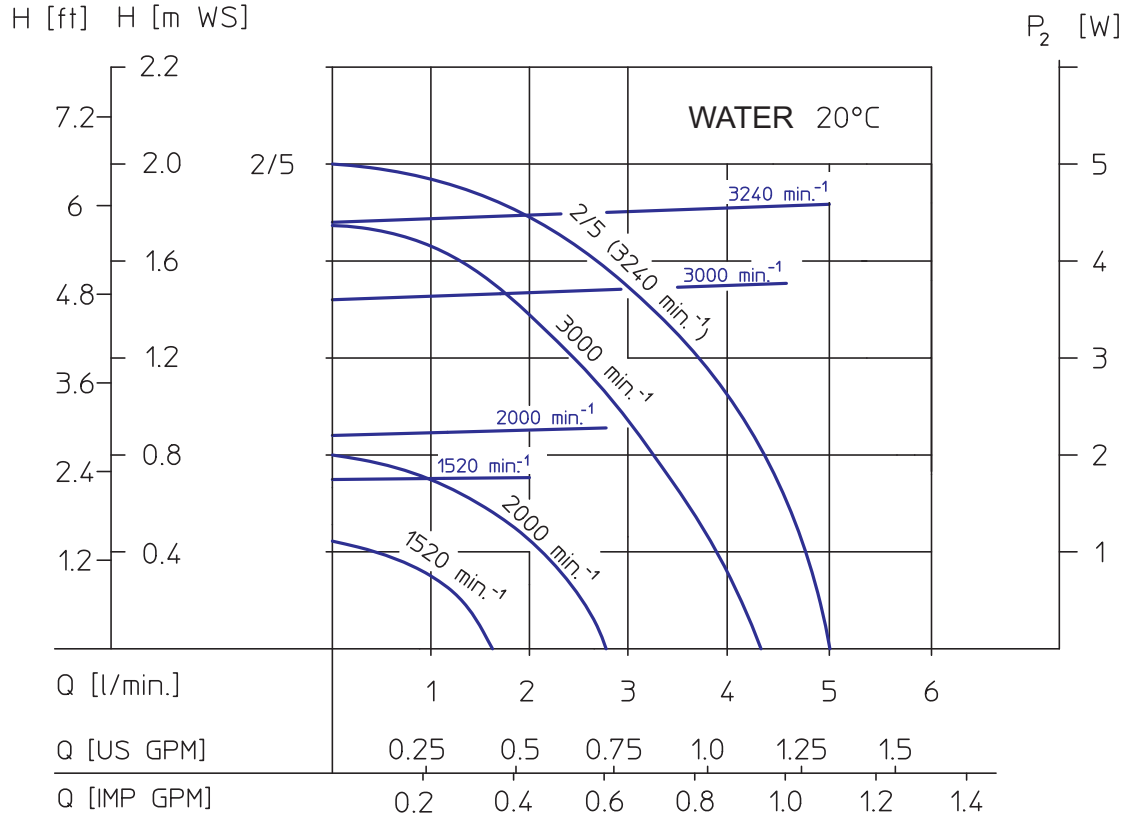
Delivery rate up to 5 l/min

Delivery head up to 2 m wc

No shaft seal required

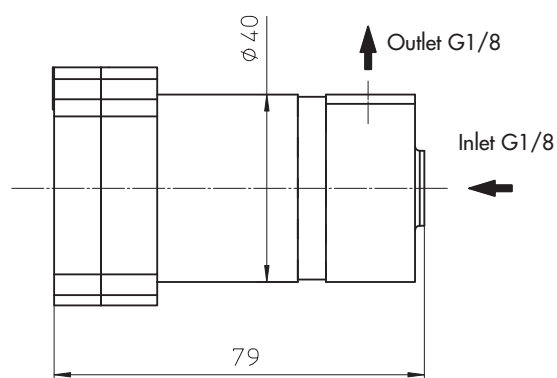
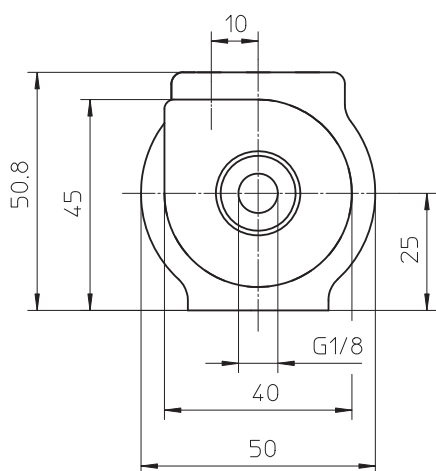
The magnetically coupled centrifugal mini-pump of the RM-Cool type 0.5 is the ideal high-performance cooling system to absolutely reliably remove heat from laser devices and computers and is also used in process engineering and solar energy technology etc.

PERFORMANCE CHARTS

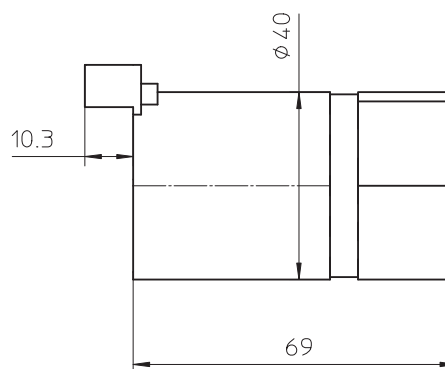
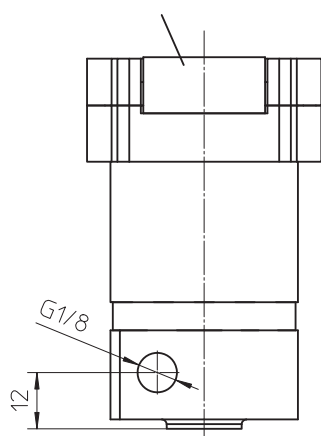


TECHNICAL DATA

motor	brushless electronically controlled motor
voltage	12, 24 or 48 V dc; direct connection to the power supply unit of a PC, for example
motor capacity	7 Watt
speed	adjustable from 1 to 3240 min ⁻¹
delivery rate	up to 5 l /min
delivery head	up to 2 m wc
ports	suction side/discharge side G 1/8"
materials	PPS, PP or PVDF
bearings	oxide ceramic
sealing	FKM, EPDM or NBR
temperature range	up to 100 °C
weight	approx. 175 – 215 g



electrical connection



ELECTRONIC PROTECTION

FOR MAGNETICALLY COUPLED 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.

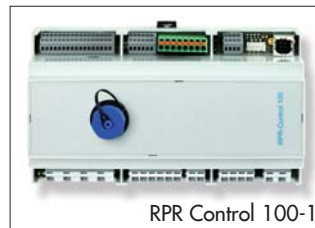
SEPARATE PROGRAMMING UNIT

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

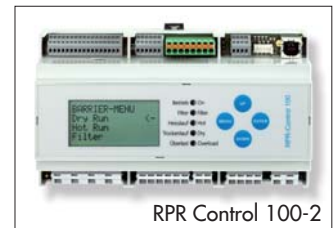
FUNCTION

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



seperate 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.



FOR SIMPLE AND COST-EFFECTIVE MONITORING

Characteristics:

- The housing is made of polypropylene or PVDF. Flow monitors are to be built into the discharge pipes of magnetically coupled centrifugal pumps of types 2 to 4.
- Every flow monitor has an integrated float switch and a reed contact. A spigot nut at the inlet side of the flow monitor is used to screw it to an external thread with O-ring sealing.
- The outlet side of the flow monitor is equipped with a grooved external thread to take the O-ring seal. The necessary O-rings are optionally available.

When ordering a flow monitor, please indicate the density of the fluid delivered.

type	size	PP material	PVDF material	O-ring	FKM material	EPDM material
2	d 25 DN 20 – G 1¼"	x	x	26 x 3,5	x	x
3	d 32 DN 25 – G 1½"	x	x	31,35 x 3,53	x	x
4	d 40 DN 32 – G 2"	x	x	40,6 x 5,3	x	x

The standard PP design is suitable to deliver low-viscosity fluids resembling water with densities of 0.8 to 1.5.

The standard PVDF design is suitable to deliver low-viscosity fluids resembling water with densities of 0.8 to 1.84.

Electrical switchgear

wired within an ISO housing including contactor, relays and hand-actuated switches, suitable for all sizes.

Electrical switchgear as above

but in addition with built-in time-limit relay to be manually adjusted.

The wiring of the flow monitor to the electrical switchgear is provided by the customer and not included in the scope of delivery.



INNOVATIVE PUMP
AND FILTER TECHNOLOGY

