

Electric Immersion Pumps

PMS and PMS-T, sealless



**Centrifugal pumps of metal
with high resistance
to wear for diverse
industrial fluids**

Technical data

- Delivery rate
 $Q_{\max} = 400 \text{ l/min}$
- Delivery head
 $H_{\max} = 48 \text{ m}$
- Temperature range
PMS: $0 \text{ }^{\circ}\text{C}$ to $+80 \text{ }^{\circ}\text{C}$
PMS-T: $-70 \text{ }^{\circ}\text{C}$ to $+170 \text{ }^{\circ}\text{C}$

Product features

- Centrifugal pump,
1- to 4-stage models
- Open impellers
- Port dimensions to DIN EN 12157
- Immersion depths of up to 560 mm
- Available in various materials
- "Slurp" type models for
fluids containing trapped air



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Main applications

- Machine tools
- Filtration systems
- Conditioning of coolants and oils
- Cooling systems
- Cleaning and degreasing installations
- Printing machines
- Erosion machines
- Wetting equipment and temperature stabilizers
- Surface coating
- Paraffin plants
- Optical machines
- Glassworking
- etc.

Fluids delivered

- Emulsions, also with chemical additives
- Oils
- Water with anticorrosion additives
- Water-based paints
- Heat-transfer oils
- etc.

Temperature range:

Standard version, PMS: 0 °C to 80 °C

Special material version, PMS-T: - 70 °C to +170 °C

Special impellers are available for fluids with densities deviating from that of water.

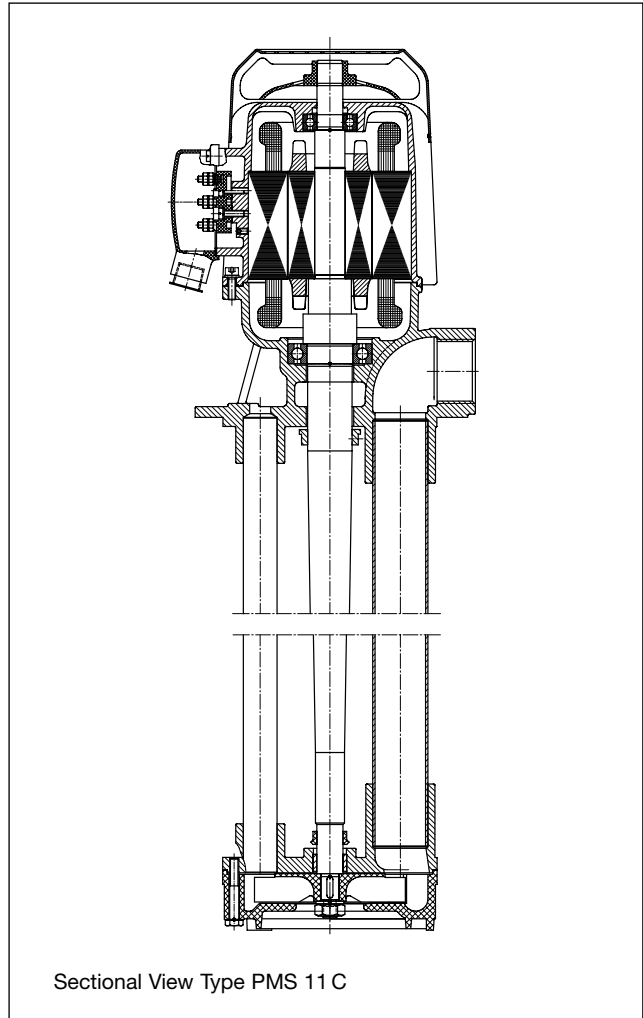
Contaminants with a small grain size are permissible.

Special pumps for slurp operation are available for fluids carrying large amounts of air. They are available in sizes 9, 11 and 15.

Their special design provides for a continuous rate of flow even when fluids contain trapped air.

Design features

- sealless
- free-floating shaft supported only by bearing assembly in the motor
- open impellers
- 1- to 4-stage models
- connecting dimensions to DIN EN 12 157
- immersion depths of up to 560 mm



Mechanical design

Component	Type PMS	Type PMS-T
Motor housing	aluminum	aluminum
Pump support	cast iron and steel	cast iron and steel
Pump bottom	POM	cast iron
Intermediate chamber	cast iron	cast iron
Impeller	POM	cast iron
Shaft	ETG	ETG
Splash ring	NBR (Perbunan)	steel
Antifriction bearings	radial deep-groove ball bearing with 2 side plates (2 Z) with permanent lubrication	radial deep-groove ball with side plate (1 Z) with special grease
Small parts (in contact with fluid)	steel	steel

Optional materials:

Special models of stainless steel are possible:

Shaft of stainless steel 1.4122 or 1.4571, pump parts on request.

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Electrical design

The drive motors conform to VDE regulations as well as to European motor standards (DIN EN 60034-1/11.95) and the requirements of the CE mark.

Designs in conformity with non-European regulations, e.g. Canadian Standards Association (CSA), Underwriters Laboratories INC. (UL) or special requirements, e.g. the USA or Japan, are possible. Moreover, we also produce models for special operating conditions (e.g. exposure to humidity or dust).

The regular models have motor windings designed for continuous operation and connection to a mains voltage of 230/400 V (> 4 kW: mains voltage of Δ 400 V) \pm 10%, 50 Hz in accordance with IEC 38/5.87.

On request the motors can be customized to all common mains values.

	Standard	Options
Degree of protection (DIN EN 60034-5/4.88)	IP 54	IP 55
Insulation class	F.B	F
Ambient temperature (DIN EN 60034-1/02.99)	max. 40 °C	50 °C and higher
Relative humidity (DIN 50015)	max. 92 %	95 % and higher
Site altitude (DIN EN 60034-1/11.95)	< 1000 m ü. NN	on request
Electrical parameters	230/400 V, 50 Hz 255/440 V, 60 Hz	on request
Mains operation	three-phase	single-phase AC
Number of poles	2 poles	4 poles
Terminal box		
– layout (DIN EN 12157)	layout 1	layout 2, 3 or 4
– material	high-impact plastic	light metal
– cable entry (DIN 40430/2.71)	PMS 4 C, 5 B, 6 C, 7 B, 12 B: 2x M 16 x 1.5 PMS 9 C, 11 C, 17 C, 20 C: M 16 x 1.5 PMS 15 D, 20 D, 30 D, 38 D, 48 D: 2x M 25 x 1.5	on request
Protective surface coating	synthetic-resin lacquer color: RAL 9005 (black, matt)	Special finish on request.
Special protection		Motor protection (thermistors in the winding/PTC); fan cowl with canopy.

Installation and operation

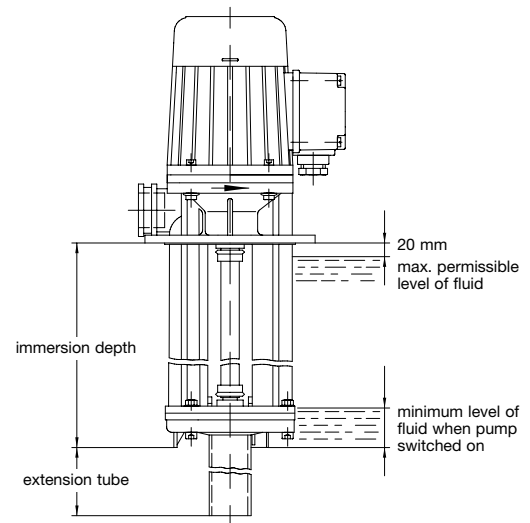
The unit is installed upright. The maximum permissible level of fluid amounts to 20 mm below the mounting flange (cf. following drawing).

The pumps can run dry for brief periods of time.

Operation against dead head is possible.

Direction of rotation: counterclockwise, as viewed looking down on the motor's ventilation side.

Optionen



Model with extension tube

if immersion depth deviates from standard.

Order example

Model _____ **PMS 7 B-350**
 Size _____
 Immersion depth t _____

Please indicate electrical parameters, e.g. 230/400 V, 50 Hz.

When ordering spare parts, always indicate the 10-place serial number (see motor rating plate).

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Typ	Characteristics																							
	Delivery rate Q [l/min] at delivery head H [m]																							
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	
PMS 4 C	48	39	25	5																				
PMS 5 B	57	47	36	23	10																			
PMS 6 C	80	66	54	40	20	1																		
PMS 7 B	96	86	75	62	48	32	4																	
▶ PMS 9 C	270	256	236	211	186	161	124	85	37															
▶ PMS 11 C	280	264	247	230	206	181	157	127	95	64	20													
PMS 12 B 2-stage	88	84	79	74	68	61	54	45	37	28	18	7												
▶ PMS 15 D	400	380	355	340	320	290	265	245	220	180	140	100	50	15										
PMS 17 C 2-stage	228	224	213	202	191	180	169	159	148	137	126	114	110	88	75	58	39							
PMS 20 D 2-stage	258	254	244	234	225	215	204	192	179	166	154	140	126	111	96	80	64	46	28	8				
PMS 20 C 2-stage	190	186	179	173	167	158	148	139	130	120	111	101	91	81	72	61	50	37	24	11				
PMS 30 D 3-stage	260	248	242	236	230	224	217	210	204	197	190	182	175	167	160	150	142	133	125	115	105	95	85	
PMS 38 D 3-stage	221	218	212	208	205	201	197	192	188	183	179	174	170	164	161	154	149	144	138	134	127	122	116	
PMS 48 D 4-stage																					157 *)	153	149	144
PMS 5 BT	57	47	36	23	10																			
PMS 6 CT	87	77	64	50	33	13																		
PMS 7 BT	96	86	75	62	48	32	4																	
PMS12BT 2-stage	88	84	79	74	68	61	54	45	37	28	18	7												

▶ Also available as „System Spandau” slurp model

PMS .. T pumps are suitable for fluid temperatures of -70 °C to +170 °C.

The data apply for fluids with viscosity of 1 mm²/s at a density of 1 kg/dm³.

*) Pumps may only be operated at this level or higher.

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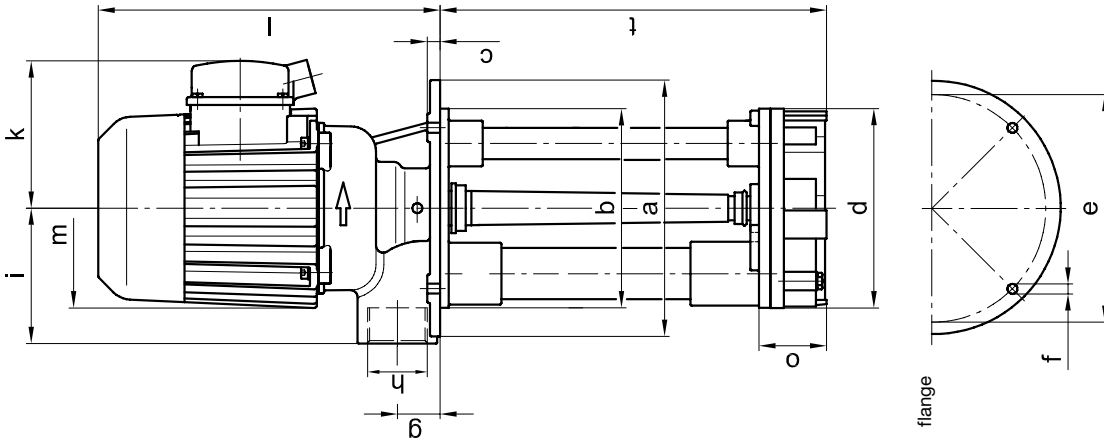
Characteristics														Electrical data				
24	25	26	27	28	29	30	32	34	36	38	40	44	48	Rated power [kW]	Rated voltage Δ / Y [V]	Rated current Δ / Y [A]	Rated speed 50 Hz [rpm]	Noise level [dB(A)]
														0.08	230/400	0.42/0.24	2707	46
														0.12	230/400	0.50/0.29	2655	46
														0.14	230/400	0.78/0.45	2506	55
														0.2	230/400	0.93/0.54	2800	55
														0.75	230/400	2.72/1.57	2753	59
														0.75	230/400	2.72/1.57	2753	59
														0.37	230/400	1.73/1.00	2667	55
														1.5	230/400	5.7/3.3	2815	59
														0.75	230/400	3.46/2.00	2846	59
														1.5	230/400	5.7/3.3	2875	59
														0.9	230/400	3.86/2.23	2807	59
75	65	50	40	25	15									1.5	230/400	5.7/3.3	2815	65
110	104	98	90	84	76	70	55	38	16	1				2.2	230/400	8.0/4.6	2825	65
140	134	130	126	121	116	110	100	90	78	66	53	24	1	2.2	230/400	8.0/4.6	2730	65
														0.12	230/400	0.71/0.41	2637	46
														0.25	230/400	1.11/0.64	2701	55
														0.25	230/400	1.11/0.64	2701	55
														0.37	230/400	1.73/1.00	2667	55

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Dimensions and Weights

Type	t [mm]	Weight [kg]	l	øm	øa	øb -0.2	c	ød	øe	øf	g	h	i	k ¹⁾	o	Air cooled motors
PMS4C PMS5B	90	4.4	150	96	130	100	6	99	115	7	25 G ^{3/4}	70	88	45		-
	120	5.0														
	140															
	170															
	220															
	250															
270	168															
350		5.0														
120			168	96	130	100	6	99	115	7	25 G ^{3/4}	70	88	45	X	
170																
220																
250																
270																
350	162															
90		6.3														
120			162	120	130	100	6	99	115	7	25 G ^{3/4}	70	98	45	-	
140																
170																
200																
220																
250																
270	7.3															
350		13.2														
170			241	140	180	140	9	140	160	7	30 G1 ^{1/4}	95	112	48	X	
200																
270																
350																
440																
550	16.3															
170		9														
190			180	120	130	100	6	99	115	7	25 G ^{3/4}	70	98	95	X	
220																
250																
270																
300																



The standard models of air-cooled motors are supplied without a protective cover. The motors can also be provided with a protective cover if necessary - the respective safety regulations and valid machine protection laws must be observed. Dimension „l“ is then increased approx. 31 mm.

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Dimensions and Weights

Type	t [mm]	Weight [kg]	l	øm	øa	øb -0.2	c	ød	øe	øf	g	h	i	k ¹⁾	o	Air cooled motors
PMS15D	210	23	291	176	180	140	9	140	160	7	30	G1 ^{1/4}	100	149	55	X
	240															
	280															
	320															
	360															
560	26															
PMS17C	210	15.7	241	140	180	140	9	140	160	7	30	G1 ^{1/4}	95	112	88	X
	310															
	350															
	390	17.0														
PMS20D	270	24	291	176	180	140	9	140	160	7	32	G1 ^{1/4}	100	149	85	X
	310															
	350															
	390															
	480	27.5														
PMS20C	270	16.3	241	140	180	140	9	140	160	7	30	G1 ^{1/4}	95	112	88	X
	310															
	350															
	390	17.2														
PMS30D	310	26.5	291	176	180	140	9	140	160	7	32	G1 ^{1/4}	100	149	125	X
	350															
PMS38D	390	29	317	176	180	140	9	140	160	7	32	G1 ^{1/4}	100	149	165	X
	430															
PMS48D	350	29	317	176	180	140	9	140	160	7	32	G1 ^{1/4}	100	149	165	X
	390															
	430															
	470	31.5														

▲ Also available as „System Spandau“ slurp model.

Dimensions and Weights

Type	t mm	Weight [kg]	l	øm	øa	øb -0.2	c	ød	øe	øf	g	h	i	k	o
PMS5BT	120	6	168	96	130	100	6	99	115	7	25	G ^{3/4}	70	108	45
	170														
	220														
	270	7													
PMS6CT	120	9	180	120	130	100	6	99	115	7	25	G ^{3/4}	70	118	45
	170														
	220														
	250														
PMS7BT	270	11													
	350														
PMS12BT	170	9	180	120	130	100	6	99	115	7	25	G ^{3/4}	70	118	95
	220														
	270														
	300	10													

1) Terminal box dimensions are some 20 mm larger in the case of versions for CSA/USA requirements and higher insulation classes or when the free ends of thermistors are fed into the terminal boxes.