Centrifugal pumps

for machine tools and filter systems,
printing and packaging machines,
temperature control units

Quality Management
DIN EN ISO 9001:2008

Environmental Management
DIN EN ISO 14001

Health and Safety Management
OHSAS 18001

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Spandau pumpen®

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A solution for every application

Main applications

- Machine tools / filter systems
- Printing machines / packaging machines
- Temperature control units
- Optical devices

Immersion pumps for slightly contaminated fluids

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Immersion pumps for highly contaminated fluids

Designation	Q_{max} [l/min]	H_{max} [m]	Type					Page
PMS	400	45	centrifugal pump	■				44
PSH	800	55	centrifugal pump	■				56

Technical Information

Electrical specifications

Introduction

The drive motors meet VDE regulations and European motor standards with an electrical voltage tolerance of ±5% (DIN EN 60 034-1) as well as the requirements for the CE mark.

We also provide designs for special operating conditions (e.g., extreme humidity or dust).

Designs are possible that conform to non-European regulations, e.g. CSA, UL or special requirements, e.g. for the USA or Japan.

Protection class (DIN EN 60 034-5/4.88)	IP 54
Temperature class	F
Pole pairs	2-pole
Ambient temperature (DIN EN 60 034-1)	Max. 40°C At max. 1000 above sea level

Electrical parameters*

	50 Hz	60 Hz
≤ **4 kW**	Δ/Y 230/400 V	Δ/Y 265/460 V
> 4 kW	Δ 400 V	Δ 460 V

* other electrical parameters on request

For connection to 60 Hz, in addition to selection of the corresponding motor winding, the hydraulic properties are adjusted at the factory, for example using smaller impellers.

Switching-on frequency

Spandau pumps are designed for continuous duty. If this is not possible due to the process, the pump's constant flow rate can be attained using a regulating valve, for example.

Motors	Max. duty cycles per hour
< 3 kW	200
3 to 5.5 kW	40
7.5 to 10 kW	20
> 10 kW	15

DESINA

(DistributEd and Standardized INstAllation technology for machine tools and production systems) is a complete concept for the standardization of the electrical, hydraulic, and pneumatic installation of automated machine tools and production systems. Spandau pumps are available with DESINA-compliant electrical connections on request.

Efficiency classification as per DIN EN 60034-30

The drive motors meet at least efficiency IE2.

Efficiency	IE code
Super Premium	IE4
Premium	IE3
High	IE2
Standard	IE1
Below Standard	-

Sound pressure specifications

All sound pressure values indicated in the catalog apply to 50 Hz operation. In 60 Hz operation, the values increase by approx. 3 – 4 dBA. On request, axial fans on the motor side are available to reduce noise.

Frequency converters

Pumps with frequency converters achieve up to 70% energy savings in practice. The controlled speed regulation ensures an effective delivery rate and utilization with lower heat input into the overall system. This reduces the required cooling effort.

A pump with an integrated frequency converter improves the process flows of machines and systems:

- Optimized adaptation to the respective machining process due to speed regulation
- Gentle start-up due to programmable ramp-up time
- Low level of wear on rotating components
- Low-noise operation

Keep the entire machining process under control with a single frequency-controlled pump:

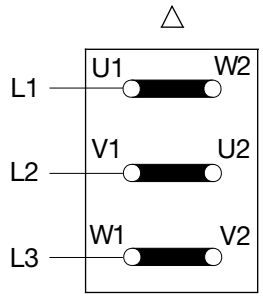
- Delivery rate can be adjusted precisely to the respective power requirements
- Universal controllability of pump speeds through all pressure ranges

Technical Information

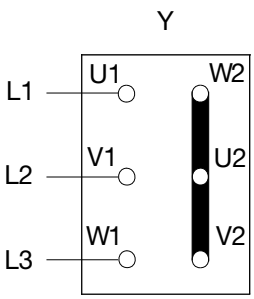
Electrical specifications

Star-delta connection

Delta connection

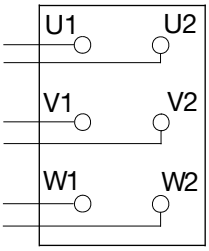


Star connection

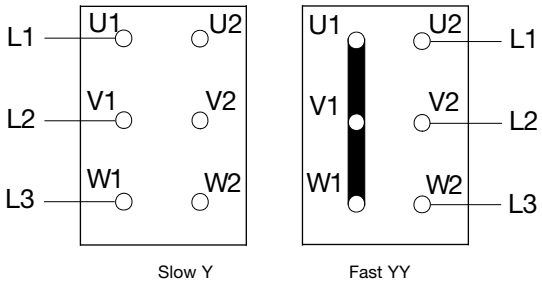


Speed switch

Switchover 4/2 pole Y
with pole-changing switch

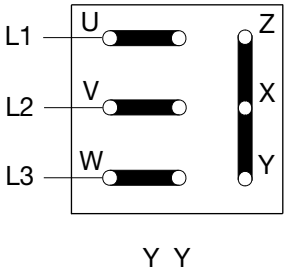


For optional changeover to half speed YY
without pole-changing switch

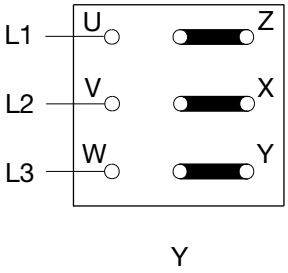


Dahlander connection

Voltage switchover 1:2 YY
low voltage

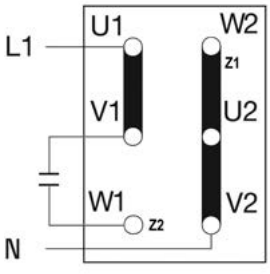


Voltage switchover 1:2 Y
high voltage

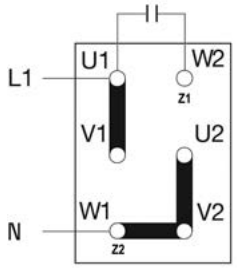


Steinmetz-connection

Clockwise direction of rotation
when viewing the motor fan



Clockwise direction of rotation
when viewing the motor fan



Technical Information

Electrical specifications

Site altitude and ambient temperature

The following tables show the permissible temperature limits based on a coolant temperature of 40°C and a site altitude up to 1000 m above sea level (measured with the resistance method) and maximum temperatures according to DIN EN 60 034-1 assigned to temperature class F.

Temperature class	Winding temperature [°C]		Max. temperature [°C]
	< 600 W	> 600 W	
F	110	105	155

Reduced rated motor performance results if the relevant ambient conditions deviate from the design point, e.g., ambient temperature above 40°C or site altitude above 1000 m above sea level. Deviations in the ambient conditions must be indicated when ordering.

Reduced performance at ambient temperature above 40°C

Ambient temperature [°C] (site altitude up to 1000 m above sea level)	Performance [%P_N]
45	95
50	90
55	88
60	80

Reduced performance at altitude over 1000 m above sea level

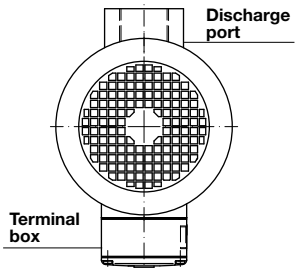
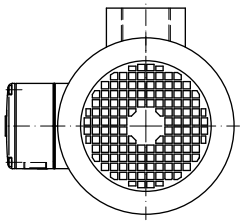
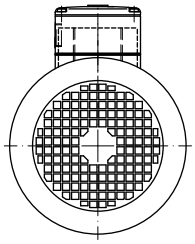
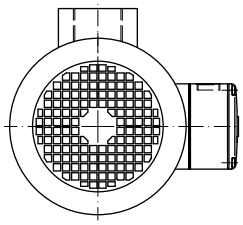
Site altitude [m] (40°C ambient temperature)	Performance [%P_N]
2000	94
3000	86
4000	78

Overload capacity

At a normal operating temperature, under DIN EN 60 034-1/11/95 1.5 times the rated current over a period of 15 seconds is permissible at rated voltage and rated current.

Terminal box positions

The position of the terminal box is specified according to DIN EN 12157 and can be selected from the four layouts depicted below.

Pos.	Layout	Note
1		**Terminal box position 1: Standard design*** Terminal box opposite the discharge port
2		**Terminal box position 2:** Terminal box left of discharge port
3		**Terminal box position 3:** Terminal box above discharge port
4		**Terminal box position 4:** Terminal box right of discharge port

* Please indicate desired position of terminal box when ordering!

Varnishing

Standard: RAL 9005 (black, satin)

Technical Information

Installation and operation

Centrifugal pumps

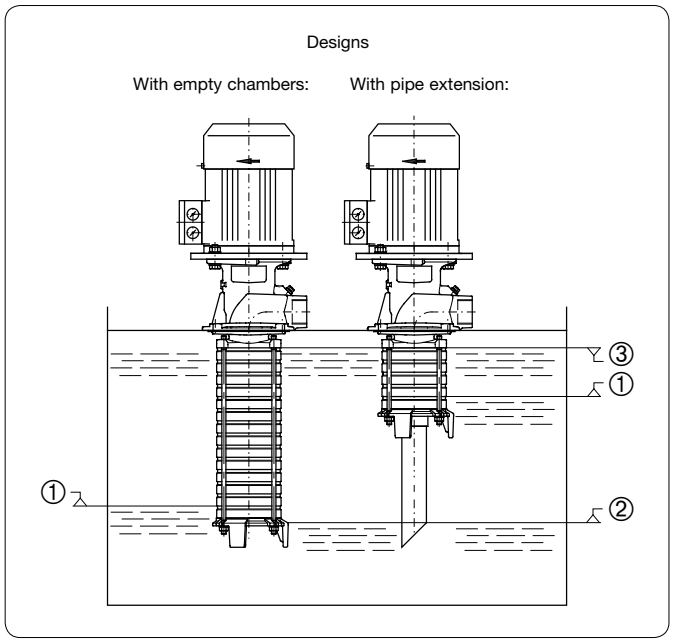
The standard design is suitable for vertical installation in the reservoir.

Spandau immersion pumps can be adapted to various installation conditions by incorporating blind chambers or by adding a pipe extension.

When switching on the pump, the minimum fluid level must be above the lowest pump chamber (1).

The pump then feeds up to the intake opening in the chamber or pipe (2). See the type-specific pump drawings in manuals for the highest permissible fluid level (3).

Note: All devices are only to be installed or mounted by a qualified person. The existing safety measures are to be taken into consideration. Please refer to our operating instructions to avoid errors.



Dry running

The pump must not be put into operation without fluid for pumping. An incorrect direction of rotation and/or dry running can damage the pump. When pumping, the unit can operate without fluid for short periods and under certain circumstances.

A minimum volumetric flow of 5 to 10% of the nominal delivery rate must be ensured.

Order code for centrifugal pumps

based on the PSR pump as an example

Series

Frame size

02 = 2 m³/h (nominal delivery rate)
04 = 4 m³/h (nominal delivery rate)
06 = 6 m³/h (nominal delivery rate)

Stages

To determine the desired number of stages
the corresponding characteristics has to be used.
01 = 1-stage
...
30 = 30-stages

Materials

G = gray cast iron (standard)
C = GG with chemical surface sealing
T = GG coated with paint

Seal

B = gap bush (H_{max} < 150 m)
G = machanical seal (H_{max} > 150 m)

Pump design

S = standard design
V = bottom for extension tube
C = bottom equipped with intake strainer

Immersion depth in mm

To determine the desired immersion depth the appropriate table
"Electrical data, dimensions and weights" has to be used.
122 = 122 mm
...
739 = 739 mm

Motor index

To determine the desired motor index the appropriate table "Electrical data, dimensions
and weights" has to be used. Example: **E** = 0,37 kW

Power supply

01 = 230/400 V at 50 Hz (to 4 kW)
265/460 V at 60 Hz (to 4,6 kW)
02 = Δ400 V at 50 Hz (from 5,5 kW)
Δ460 V at 60 Hz (from 6,3 kW)
05 = **Standard for Europe**
230/400 V at 50 Hz (from 4 kW)
Δ400 V at 50 Hz (from 4 kW)
... further designs on request

Motor design

AA = standard to 0,55 kW (insulation class F, IP 54, 2-pole)
BA = standard from 0,75 kW (insulation class F, IP 54, 2-pole, IE2)
... further designs on request

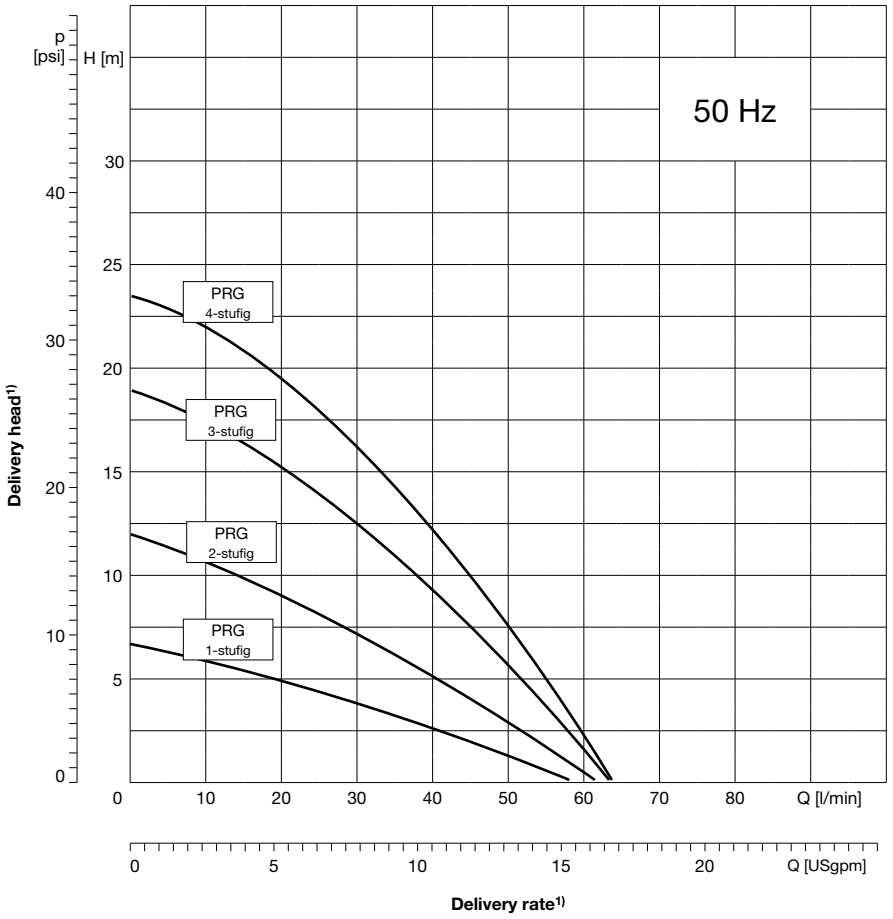
Order example: PSR0218GBS481J01BA
Series: **PSR**, Frame size: **02**, **18**-stages, Material: **G** grey cast iron, Seal: **B** gap bush, Pump design: **S** standard design, Immersion depth: **481** mm, Motor index: **J** 1,5 kW, Power supply: **01** 230/400 V 50 Hz; 265/460 V 60Hz, Motor design: **BA** standard form 0,75 kW

PRG – Immersion pumps, sealless

50 Hz, closed impellers

Features

- One or multi-stages centrifugal pump
- For delivery of slightly contaminated types of fluids
- Installation direcly and vertically into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1 1/4



Technical Data

Delivery rate Q_{max}	62 l/min
Delivery head H_{max}	23 m
Immersion depth t_{max}	320 mm
Immersion depth	max. 20 mm^2/s
Delivery temperature	-20 °C to +60 °C
Grain size	max. Ø0,3 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Water, emulsions (synthetic / mineral oil), also with chemical additives, distilled water deionization, ized water, photographic solutions

Mechanical design

Component	Material
Flange	POM / GF
Shaft	1.4122
Impeller	PEI / GF
Intermediate chamber	POM / GF
Pumps bottom	POM / GF
Bushing	PTFE graphite

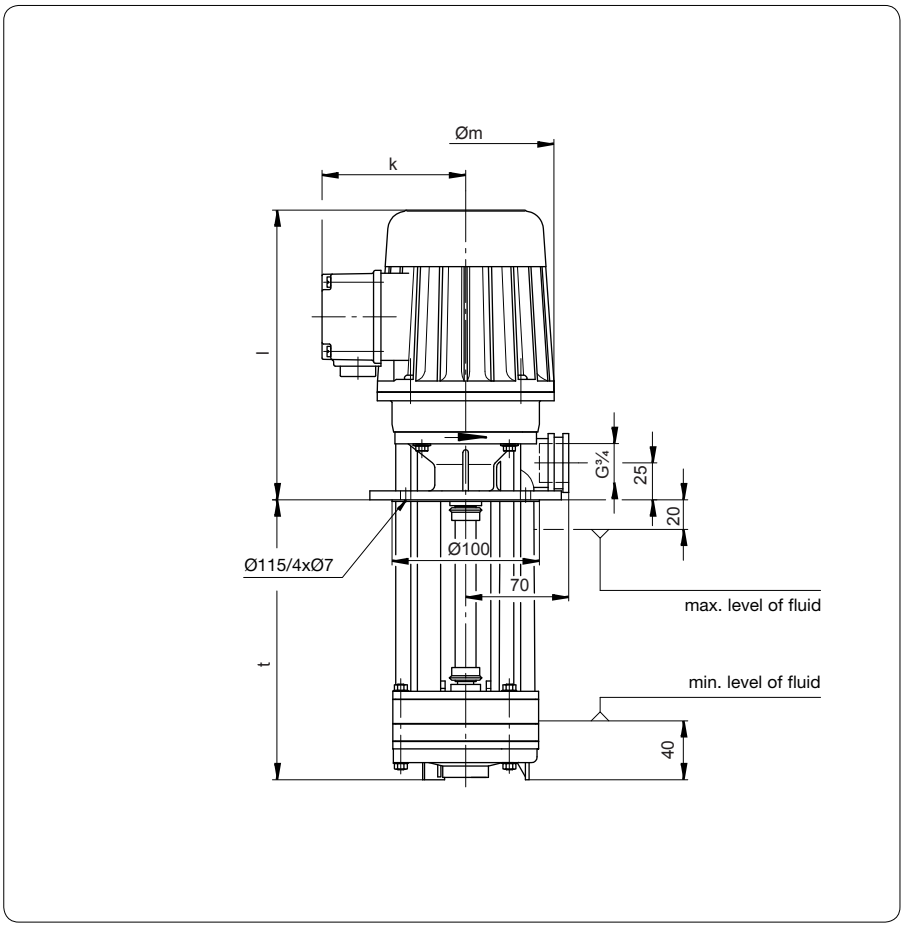
Variations

Component	Material
Mixing paddle	plastic

[1)] Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PRG – Immersion pumps, sealless

50 Hz, closed impellers

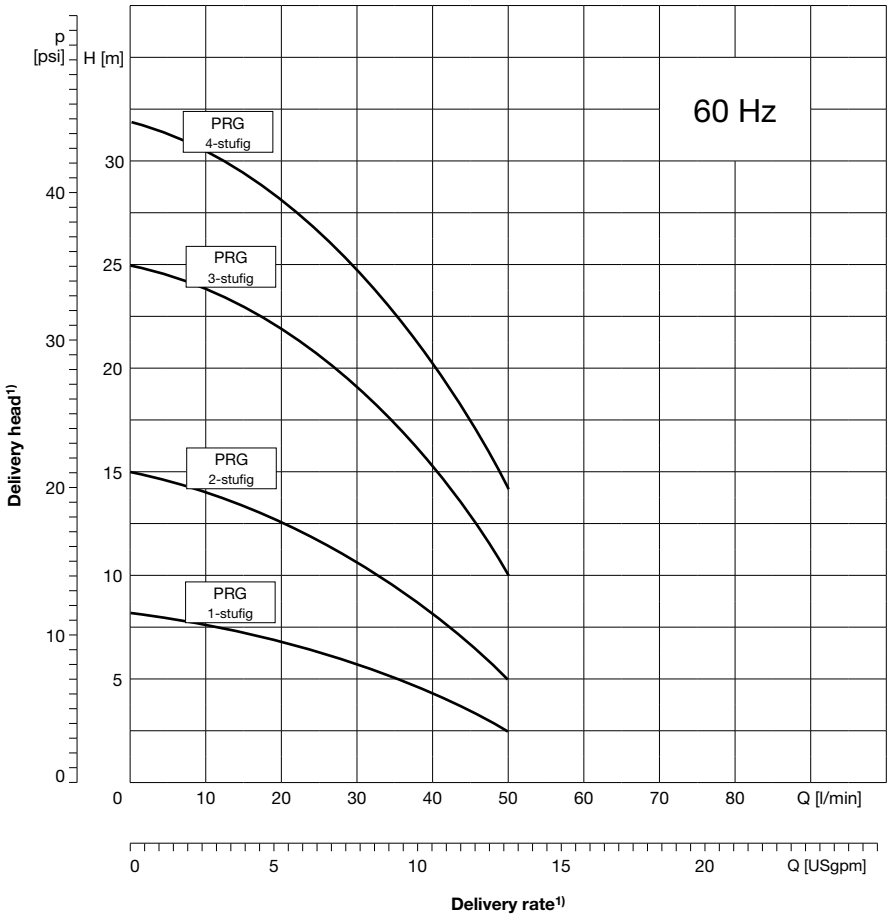


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PRG	06	01	120 140 170 220 270	230/400	A	0,09	0,46/0,26	2618	96	89	173	2,8 – 3,1	44	G¾
		02	140 160 190 240 290	230/400	B	0,12	0,71/0,41	2637	96	89	173	2,9 – 3,3	45	G¾
		03	170 190 220 270 320	230/400	C	0,18	0,86/0,50	2812	120	99	197	4,5 – 4,9	48	G¾
		04	200 220 250 300	230/400	E	0,37	1,72/1,00	2667	120	99	197	4,8 – 5,0	49	G¾

PRG – Immersion pumps, sealless

60 Hz, closed impellers



Features

- One or multi-stages centrifugal pump
- For delivery of slightly contaminated types of fluids
- Installation direcly and vertically into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1 1/4

Technical Data

Delivery rate Q_{max}	50 l/min
Delivery head H_{max}	32 m
Immersion depth t_{max}	320 mm
Immersion depth	max. 20 mm^2/s
Delivery temperature	-20 °C to +60 °C
Grain size	max. Ø0,3 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Water, emulsions (synthetic / mineral oil), also with chemical additives, distilled water deionization, ized water, photographic solutions

Mechanical design

Component	Material
Flange	POM / GF
Shaft	1.4122
Impeller	PEI / GF
Intermediate chamber	POM / GF
Pumps bottom	POM / GF
Bushing	PTFE graphite

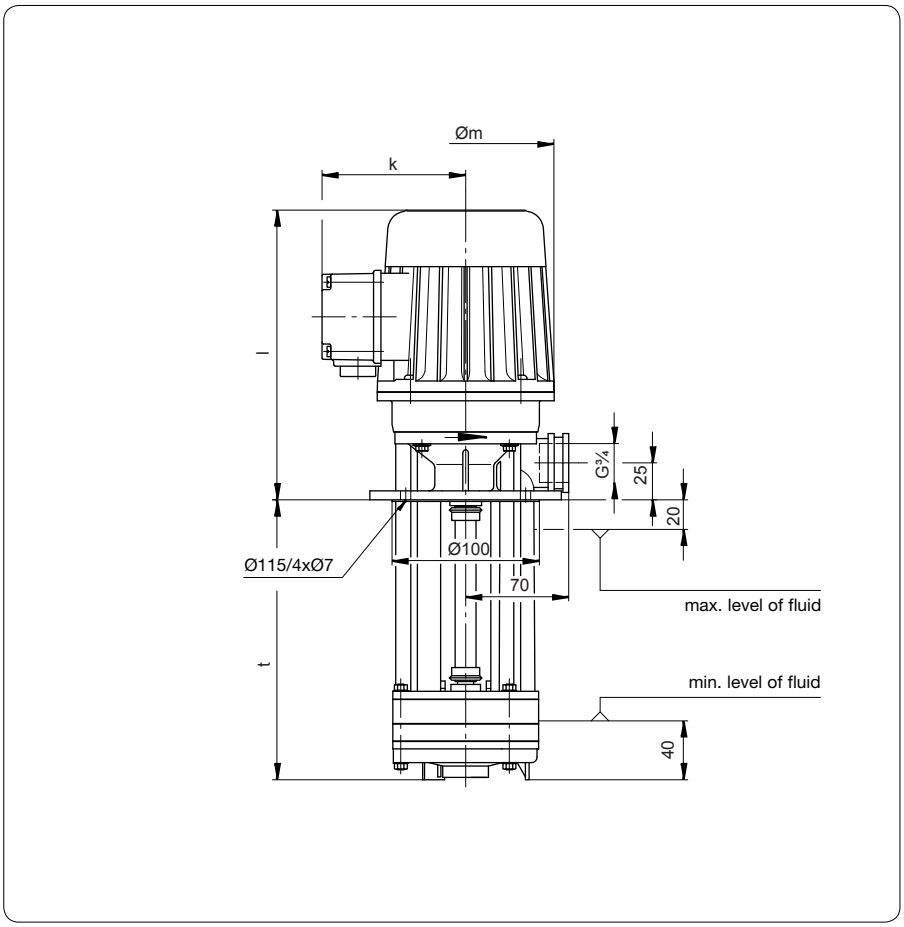
Variations

Component	Material
Mixing paddle	plastic

[1)] Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PRG – Immersion pumps, sealless

60 Hz, closed impellers

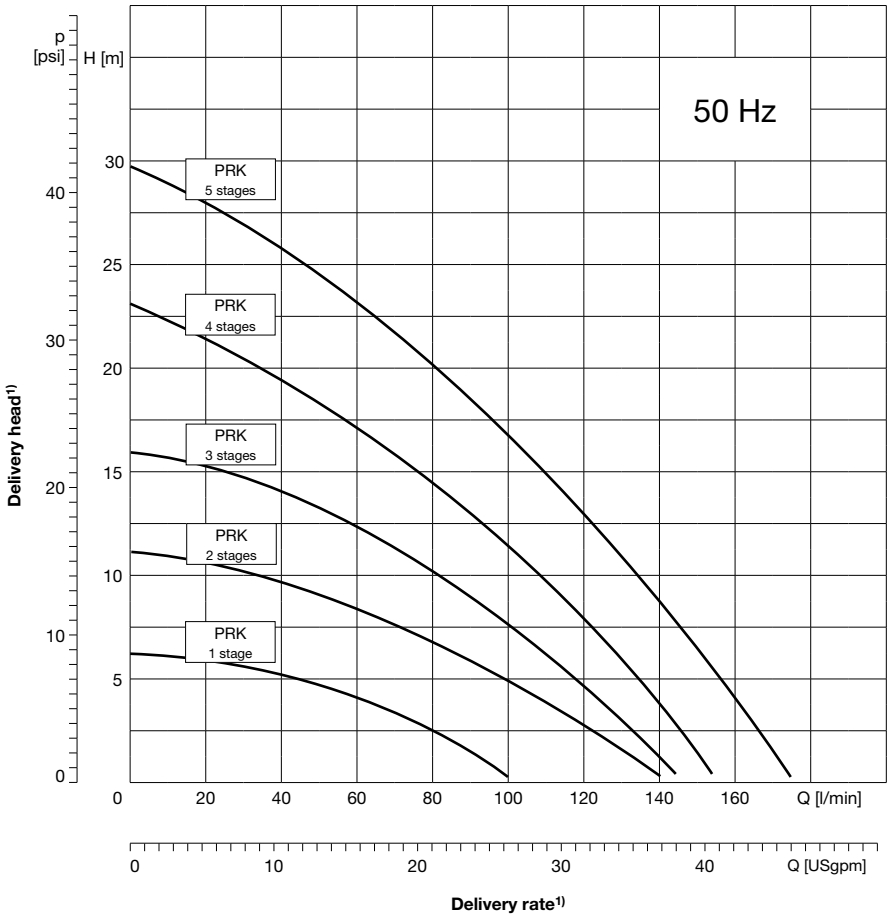


Electrical data, dimensions and weights at 60 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PRG	06	01	120	265/460	A	0,10	0,46/0,26	3257	96	89	173	2,8 – 3,1	45	G¾
			140											
			170											
			220											
			270											
		02	140	265/460	B	0,14	0,71/0,41	3274	96	89	173	2,9 – 3,3	46	G¾
			160											
			190											
			240											
			290											
		03	170	265/460	C	0,21	0,86/0,50	3437	120	99	197	4,5 – 4,9	50	G¾
			190											
			220											
			270											
			320											
		04	200	265/460	E	0,42	1,72/1,00	3329	120	99	197	4,8 – 5,0	51	G¾
			220											
			250											
			300											

PRK – Immersion pumps, hydrostatic sealing

50 Hz, open impellers



Features

- Vertical multistage pump, hydrostatic sealing
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G3/4
- Wide range of immersion depths 90-410 mm

Technical data

Delivery rate Q_{max}	175 l/min
Delivery head H_{max}	29 m
Immersion depth t_{max}	375 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	+5 °C to +60 °C
Grain size	max. Ø3 mm
Contamination	max. 50 g/m^3
Direction of rotation	anti-clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, water, mild acids

Mechanical design

Component	Material
Flange	POM
Base	PPS
Shaft	Stainless steel 1.4122
Impeller	POM
Diffuser	PP
Intermediate chamber	PPS
Bearings	Deep groove ball bearing with covering disk
Pumps bottom	PP
Elastomers	NBR

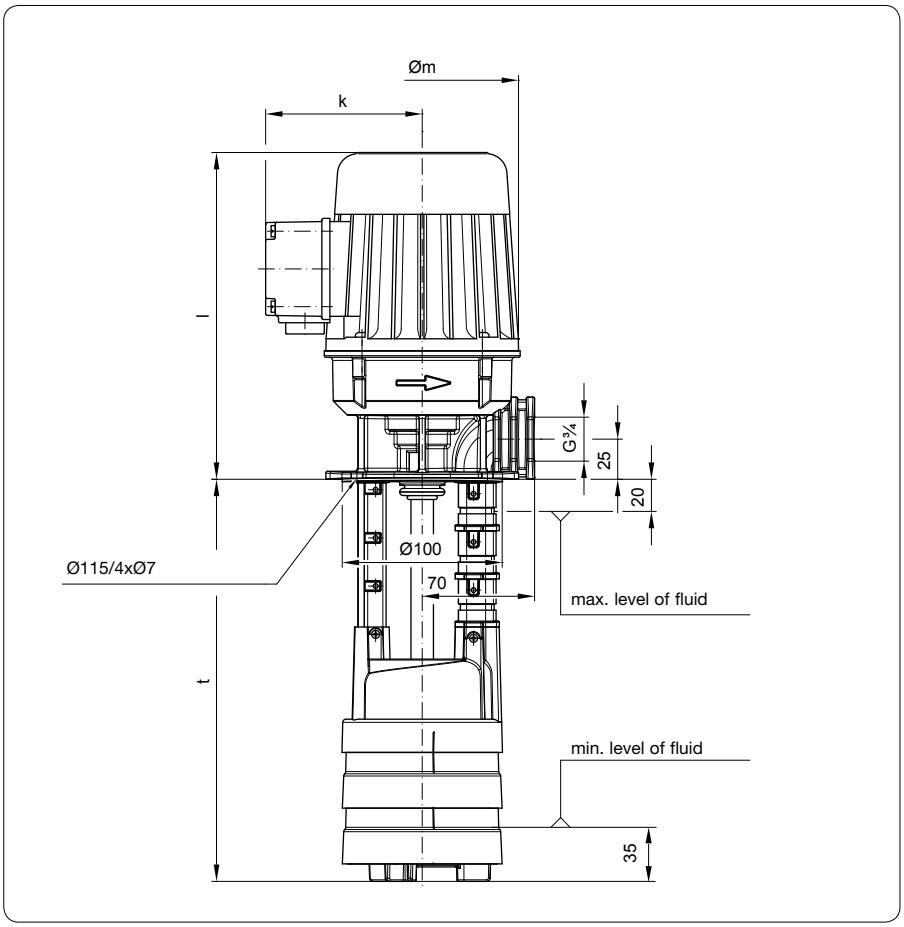
Variations

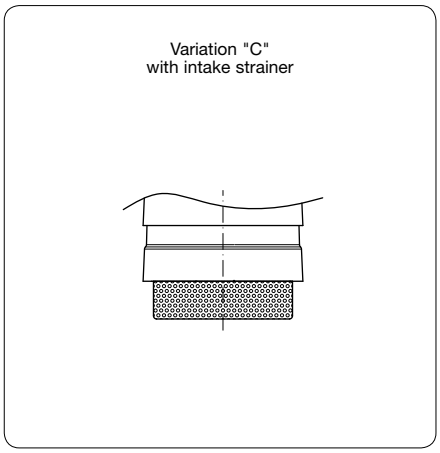
Component	Material
Intake strainer	Stainless steel 1.4301
Extension tube	PP

[1)] Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PRK – Immersion pumps, hydrostatic sealing

50 Hz, open impellers



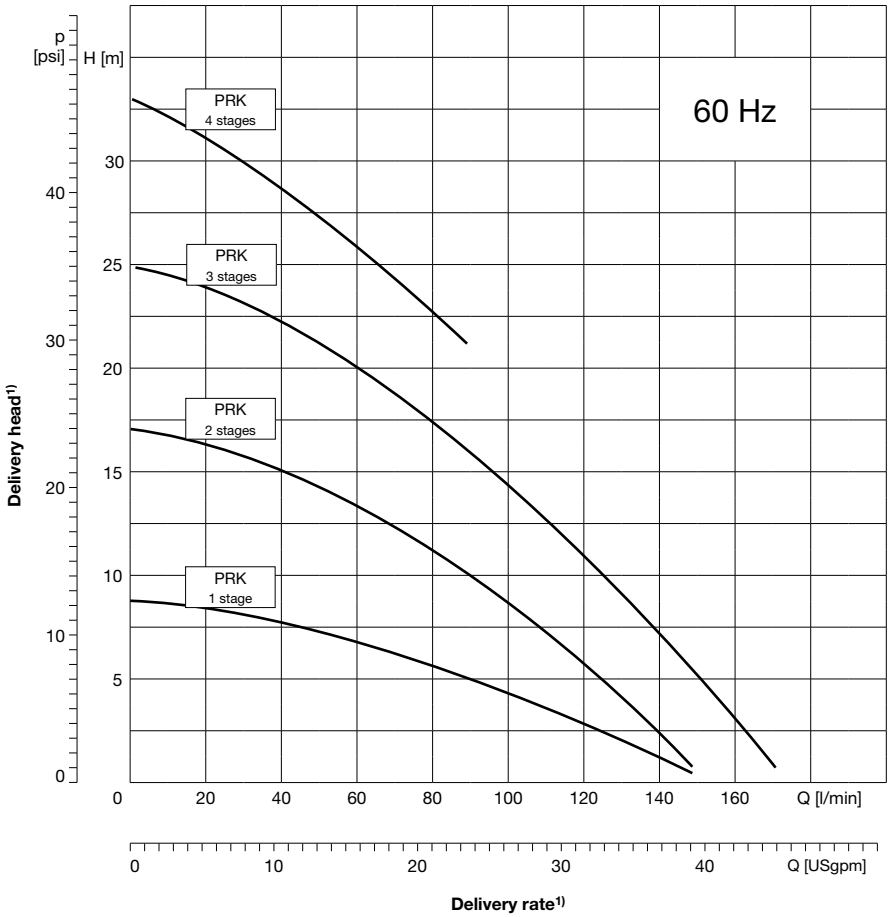


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port series (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PRK	03	01	90 120 150 180 210 240 270	230/400	D	0,25	1,11/0,64	2701	122	99	204	4,0 – 4,4	45	G¾
		02	125 155 185 215 245 275 305	230/400	E	0,37	1,72/1,00	2667	122	99	204	4,2 – 4,6	48	G¾
		03	160 190 220 250 280 310 340	230/400	F	0,55	2,06/1,19	2836	122	99	204	4,4 – 4,8	52	G¾
		04	195 225 255 285 315 345 375	230/400	G	0,75	2,56/1,48	2870	140	114	283	8,1 – 8,5	54	G¾
		05	230 260 290 320 350 380 410	230/400	H	1,1	4,07/2,35	2730	140	114	283	8,3 – 8,7	58	G¾

PRK – Immersion pumps, hydrostatic sealing

60 Hz, open impellers



Features

- Vertical multistage pump, hydrostatic sealing
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G3/4
- Wide range of immersion depths 90-410 mm

Technical data

Delivery rate Q_{max}	170 l/min
Delivery head H_{max}	33 m
Immersion depth t_{max}	375 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	+5 °C to +60 °C
Grain size	max. Ø3 mm
Contamination	max. 50 g/m^3
Direction of rotation	anti-clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, water, mild acids

Mechanical design

Component	Material
Flange	POM
Base	PPS
Shaft	Stainless steel 1.4122
Impeller	POM
Diffuser	PP
Intermediate chamber	PPS
Bearings	Deep groove ball bearing with covering disk
Pumps bottom	PP
Elastomers	NBR

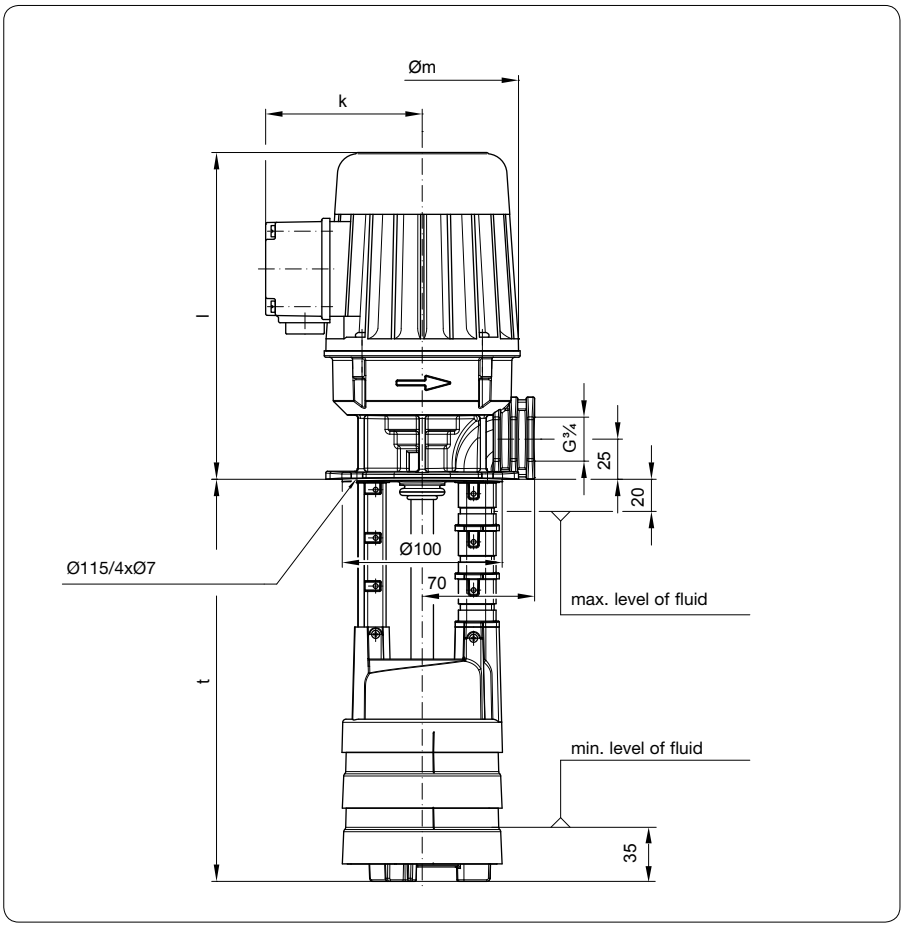
Variations

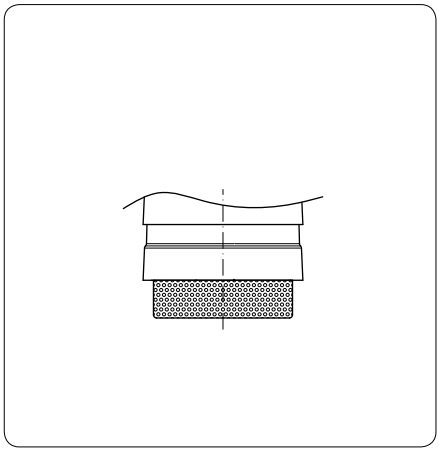
Component	Material
Intake strainer	Stainless steel 1.4301
Extension tube	PP

[1)] Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PRK – Immersion pumps, hydrostatic sealing

60 Hz, open impellers



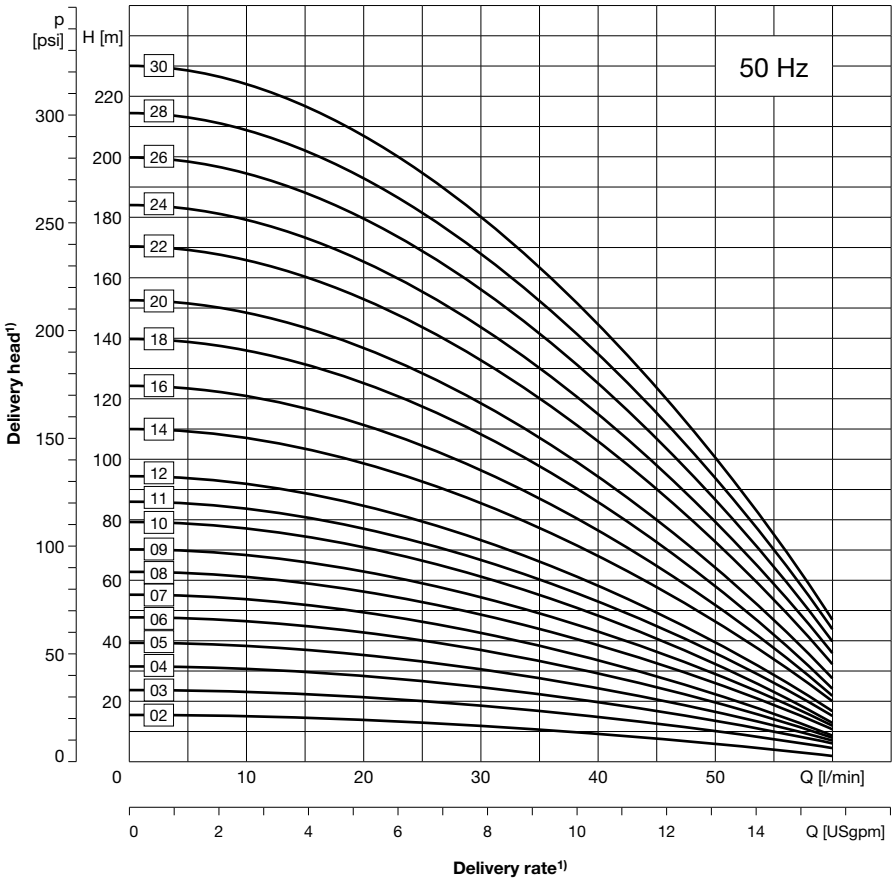


Electrical data, dimensions and weights at 60 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port series (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PRK	03	01	90	265/460	E	0,42	1,72/1,00	3329	122	99	204	4,0 – 4,4	48	G¾
			120											
			150											
			180											
			210											
			240											
			270											
		02	125	265/460	F	0,62	2,06/1,19	3446	122	99	204	4,2 – 4,6	52	G¾
			155											
			185											
			215											
			245											
			275											
			305											
		03	160	265/460	G	0,86	2,56/1,48	3410	140	114	283	7,9 – 8,3	54	G¾
			190											
			220											
			250											
			280											
			310											
			340											
		04	195	265/460	H	1,26	4,07/2,35	3368	140	114	283	8,1 – 8,5	58	G¾
			225											
			255											
			285											
			315											
			345											
			375											

PSR 02 – Immersion pumps, sealless

50 Hz, closed impellers



Features

- Vertical multistage coolant pump
- Connector dimensions as per DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1 1/4

Technical Data

Delivery rate Q_{max}	60 l/min
Delivery head H_{max}	230 m
Immersion depth t_{max}	739 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	-10 °C to +80 °C
Grain size	max. Ø2 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, water, mild acids

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	Stainless steel 1.4122
Gap bush (H_{max} < 150 m)	POM
Mechanical seal (H_{max} > 150 m)	WC, carbon, FKM, stainless steel 1.4571
Impeller	Stainless steel 1.4301
Intermediate chamber	Stainless steel 1.4301
Tension anchor	Stainless steel 1.4057
Bushing	Stainless steel 1.4301
Pumps bottom	Stainless steel 1.4308
Elastomers	FPM

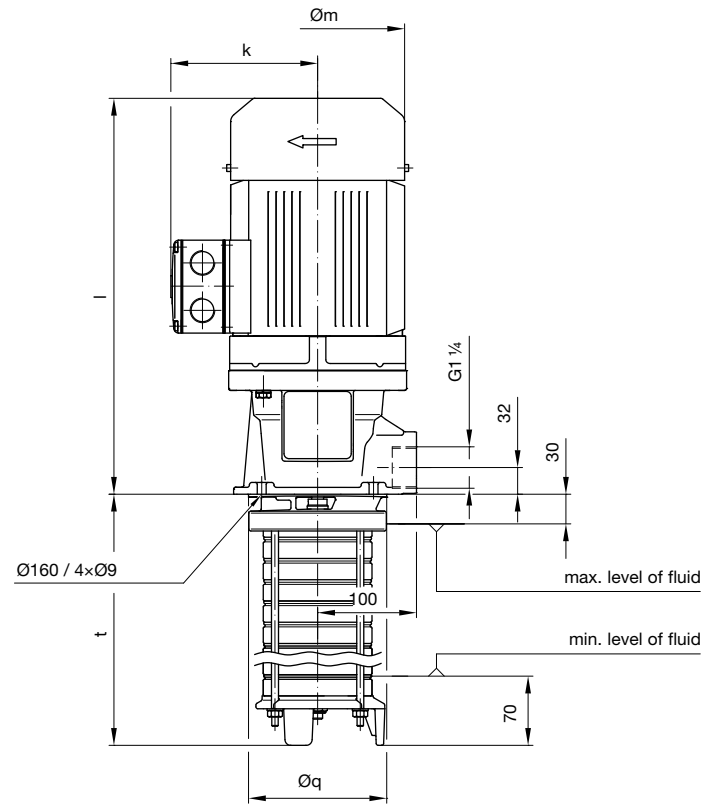
Variations

Component	Material
Flange	with chemical surface sealing or coated with paint
Bottom for extension tube	Stainless steel 1.4301
Intake strainer	Stainless steel 1.4301

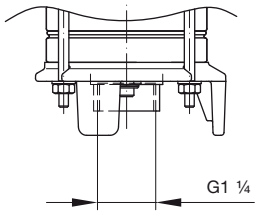
1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PSR 02 – Immersion pumps, sealless

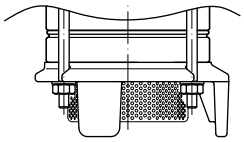
50 Hz, closed impellers



Variation "V"
with bottom for extension tube



Variation "C"
with intake strainer

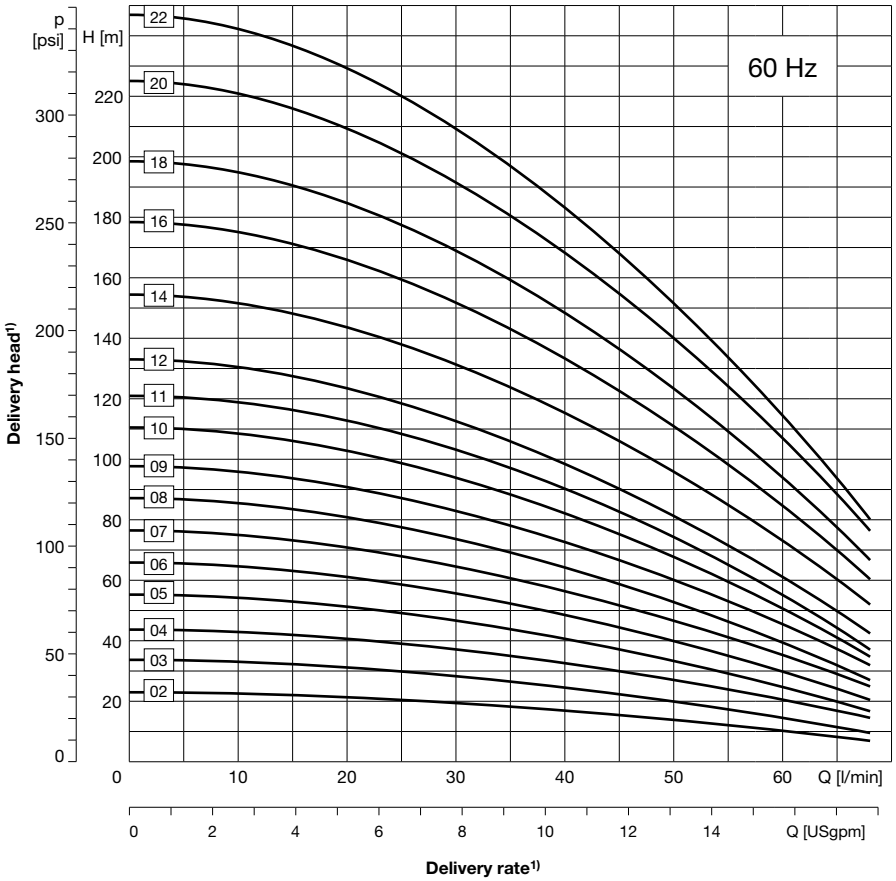


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]				Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øq			
PSR	02	02	137	230/400	E	0,37	1,57/0,91	2902	140	114	223	140	13,1	58	G1¼
		03	158										13,4		
		04	180										13,7		
		05	201										14,0		
		06	223		F	0,55	2,06/1,19	2836	140	114	223	140	14,4	58	
		07	244										14,8		
		08	266										15,1		
		09	287		G	0,75	2,56/1,48	2870	140	114	223	140	15,3	58	
		10	309										15,7		
		11	330		H	1,1	4,07/2,35	2730	140	114	223	140	16,0	58	
		12	352										16,3		
		14	395										16,6		
		16	438		J	1,5	4,95/2,86	2850	176	149	406	140	28,2	60	
		18	481										28,5		
		20	524										28,8		
		22	567		K	2,2	7,15/4,13	2840	176	149	406	140	35,4	60	
		24	610										36,2		
		26	653										36,8		
		28	696										37,3		
		30	739										37,7		

PSR 02 – Immersion pumps, sealless

60 Hz, closed impellers



Features

- Vertical multistage coolant pump
- Connector dimensions as per DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1 1/4

Technical Data

Delivery rate Q_{max}	68 l/min
Delivery head H_{max}	245 m
Immersion depth t_{max}	567 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	-10 °C to +80 °C
Grain size	max. Ø2 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, water, mild acids

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	Stainless steel 1.4122
Gap bush (H_{max} < 150 m)	POM
Mechanical seal (H_{max} > 150 m)	WC, carbon, FKM, stainless steel 1.4571
Impeller	Stainless steel 1.4301
Intermediate chamber	Stainless steel 1.4301
Tension anchor	Stainless steel 1.4057
Bushing	Stainless steel 1.4301
Pumps bottom	Stainless steel 1.4308
Elastomers	FPM

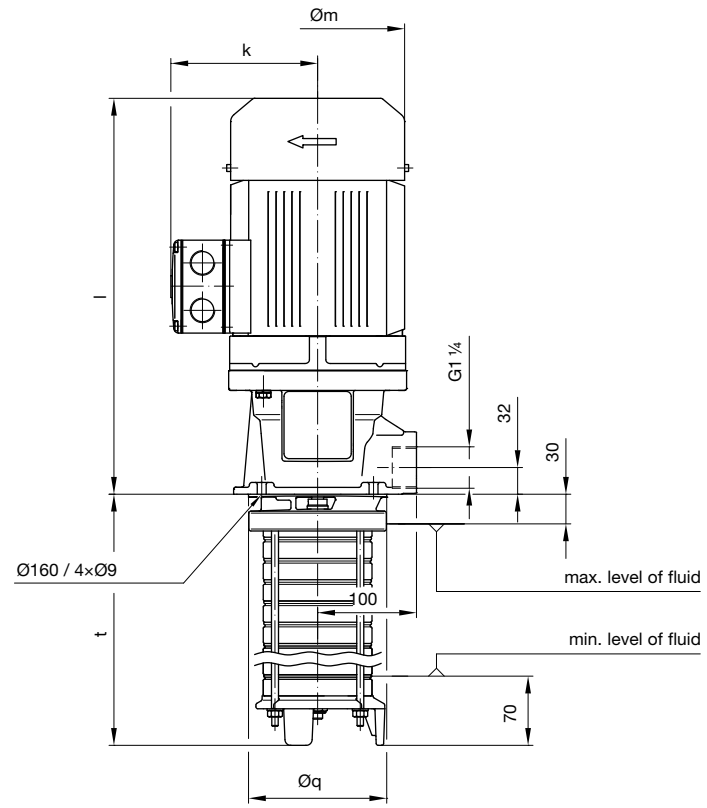
Variations

Component	Material
Flange	with chemical surface sealing or coated with paint
Bottom for extension tube	Stainless steel 1.4301
Intake strainer	Stainless steel 1.4301

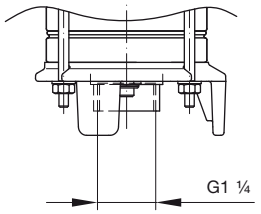
1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PSR 02 – Immersion pumps, sealless

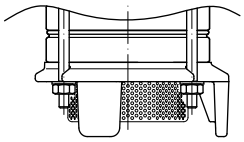
60 Hz, closed impellers



Variation "V"
with bottom for extension tube



Variation "C"
with intake strainer



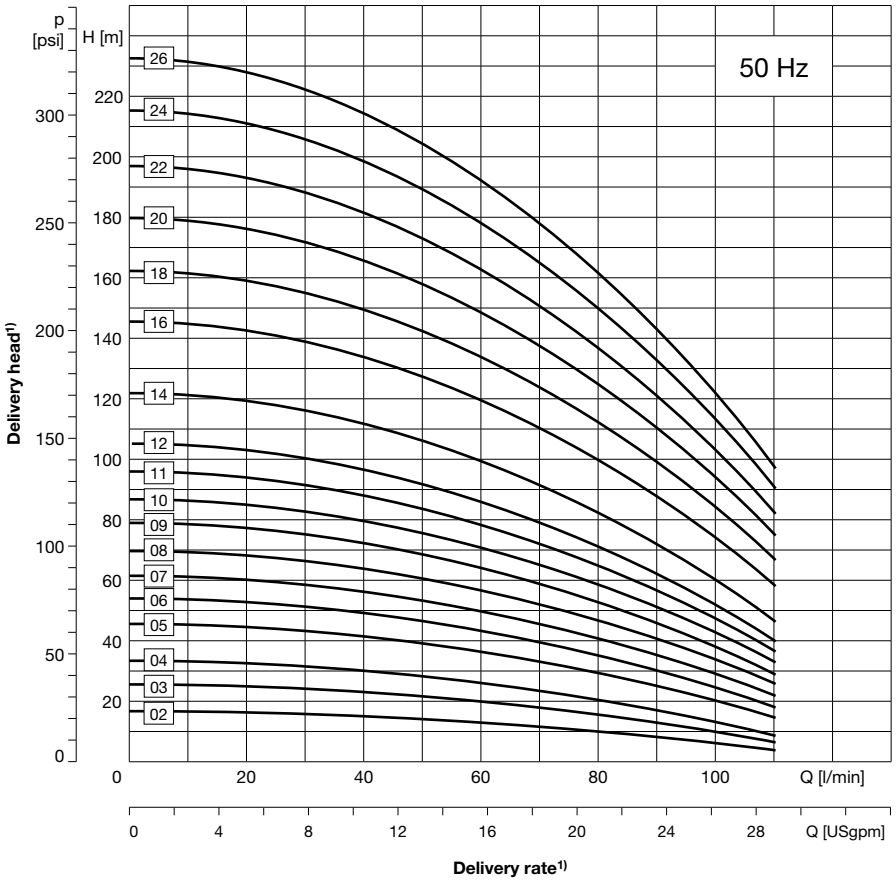
PSR

Electrical data, dimensions and weights at 60 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]				Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øq			
PSR	02	02	137	265/460	E	0,42	1,57/0,91	3502	140	114	223	140	13,1	60	G1¼
		03	158										13,4		
		04	180		F	0,62	2,06/1,19	3446	140	114	223	140	13,7	60	
		05	201		G	0,86	2,56/1,48	3410	140	114	223	140	14,0	60	
		06	223										14,4		
		07	244		H	1,26	4,07/2,35	3368	140	114	223	140	14,8	60	
		08	266										15,1		
		09	287										15,5		
		10	309		J	1,8	5,0/2,9	3460	176	149	406	140	27,1	64	
		11	330										27,4		
		12	352										27,7		
		14	395		K	2,6	7,5/4,3	3400	176	149	406	140	34,3	64	
		16	438										34,9		
		18	481										35,1		
		20	524		L	3,6	10,1/5,82	3500	196	155	427	140	37,7	70	
		22	567										38,3		

PSR 04 – Immersion pumps, sealless

50 Hz, closed impellers



Features

- Vertical multistage coolant pump
- Connector dimensions as per DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1 1/4

Technical Data

Delivery rate Q_{max}	110 l/min
Delivery head H_{max}	232 m
Immersion depth t_{max}	653 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	-10 °C to +80 °C
Grain size	max. Ø2 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, water, mild acids

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	Stainless steel 1.4122
Gap bush (H_{max} < 150 m)	POM
Mechanical seal (H_{max} > 150 m)	WC, carbon, FKM, stainless steel 1.4571
Impeller	Stainless steel 1.4301
Intermediate chamber	Stainless steel 1.4301
Tension anchor	Stainless steel 1.4057
Bushing	Stainless steel 1.4301
Pumps bottom	Stainless steel 1.4308
Elastomers	FPM

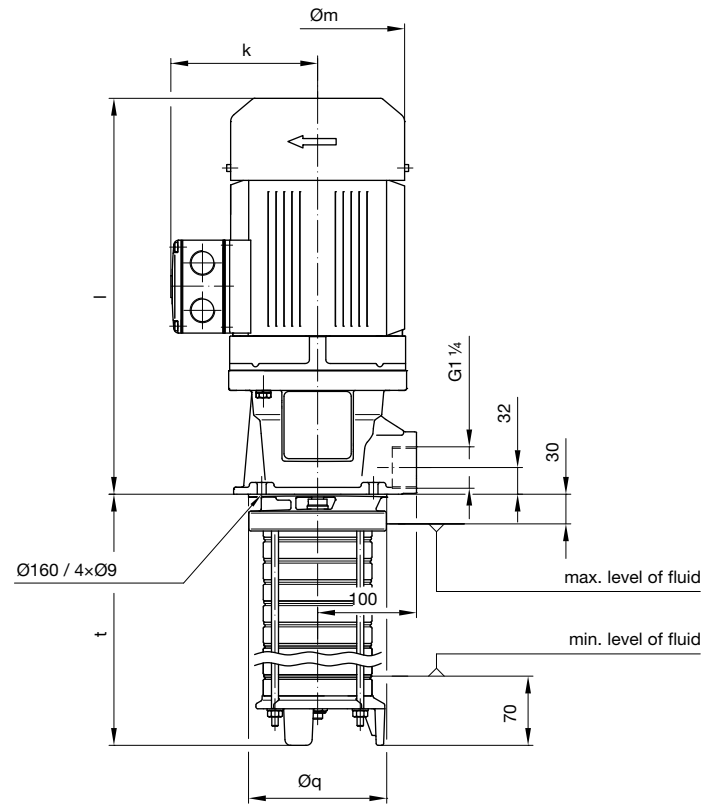
Variations

Component	Material
Flange	with chemical surface sealing or coated with paint
Bottom for extension tube	Stainless steel 1.4301
Intake strainer	Stainless steel 1.4301

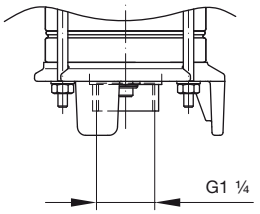
1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PSR 04 – Immersion pumps, sealless

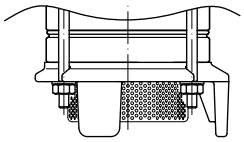
50 Hz, closed impellers



Variation "V"
with bottom for extension tube



Variation "C"
with intake strainer

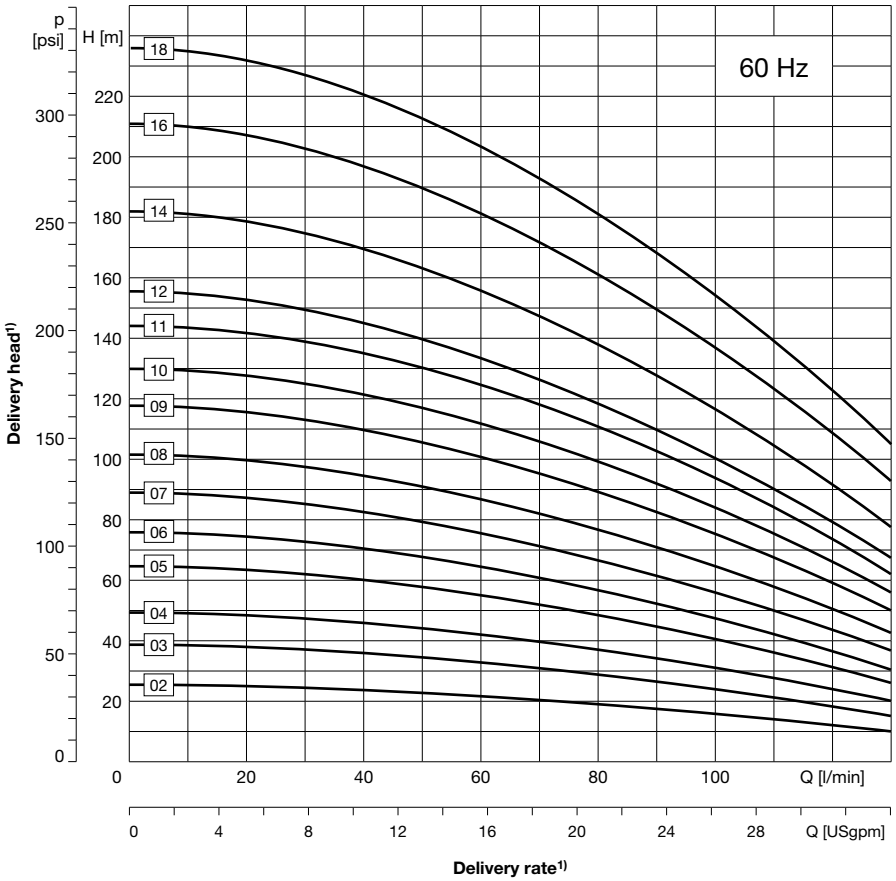


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]				Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øq			
PSR	04	02	137	230/400	E	0,37	1,57/0,91	2902	140	114	223	140	13,1	58	G1¼
		03	158		F	0,55	2,06/1,19	2836	140	114	223	140	13,4	58	
		04	180										13,7		
		05	201		G	0,75	2,56/1,48	2870	140	114	223	140	14,0	58	
		06	223		H	1,1	4,07/2,35	2730	140	114	223	140	14,7	58	
		07	244										15,0		
		08	266		J	1,5	4,95/2,86	2850	176	149	406	140	15,3	60	
		09	287										28,5		
		10	309										28,8		
		11	330		K	2,2	7,15/4,13	2840	176	149	406	140	32,7	60	
		12	352										33,0		
		14	395										33,6		
		16	438		L	3,0	10,0/5,75	2885	196	155	427	140	36,2	67	
		18	481										36,8		
		20	524										37,4		
		22	567		M	4,0	13,0/7,5	2880	196	155	447	140	44,0	69	
		24	610										44,6		
		26	653										45,2		

PSR 04 – Immersion pumps, sealless

60 Hz, closed impellers



Features

- Vertical multistage coolant pump
- Connector dimensions as per DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1 1/4

Technical Data

Delivery rate Q_{max}	130 l/min
Delivery head H_{max}	238 m
Immersion depth t_{max}	481 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	-10 °C to +80 °C
Grain size	max. Ø2 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, water, mild acids

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	Stainless steel 1.4122
Gap bush (H_{max} < 150 m)	POM
Mechanical seal (H_{max} > 150 m)	WC, carbon, FKM, stainless steel 1.4571
Impeller	Stainless steel 1.4301
Intermediate chamber	Stainless steel 1.4301
Tension anchor	Stainless steel 1.4057
Bushing	Stainless steel 1.4301
Pumps bottom	Stainless steel 1.4308
Elastomers	FPM

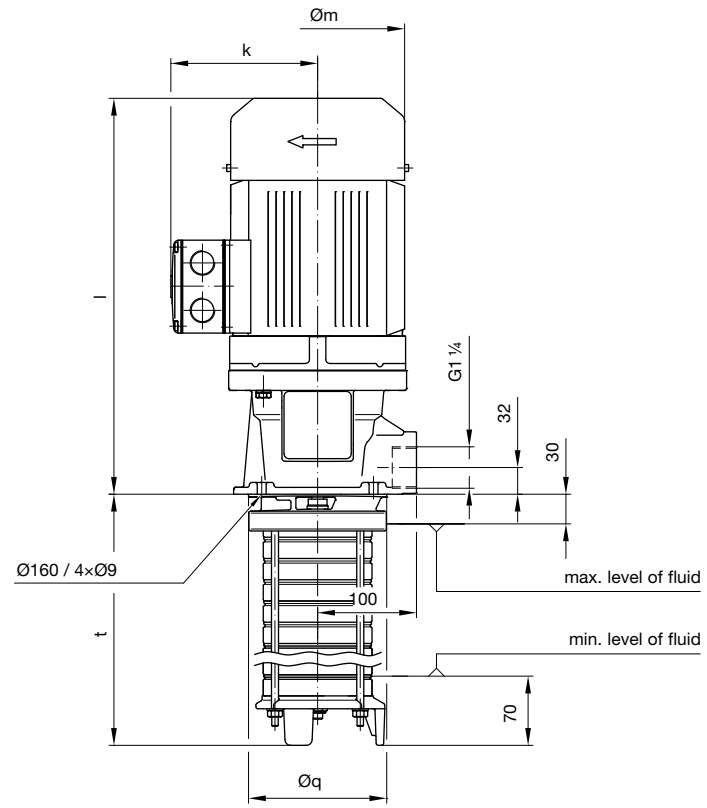
Variations

Component	Material
Flange	with chemical surface sealing or coated with paint
Bottom for extension tube	Stainless steel 1.4301
Intake strainer	Stainless steel 1.4301

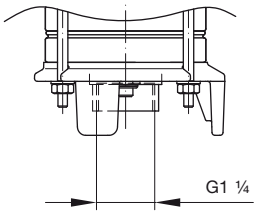
1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PSR 04 – Immersion pumps, sealless

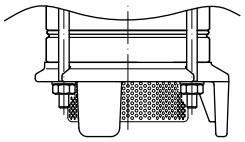
60 Hz, closed impellers



Variation "V"
with bottom for extension tube



Variation "C"
with intake strainer

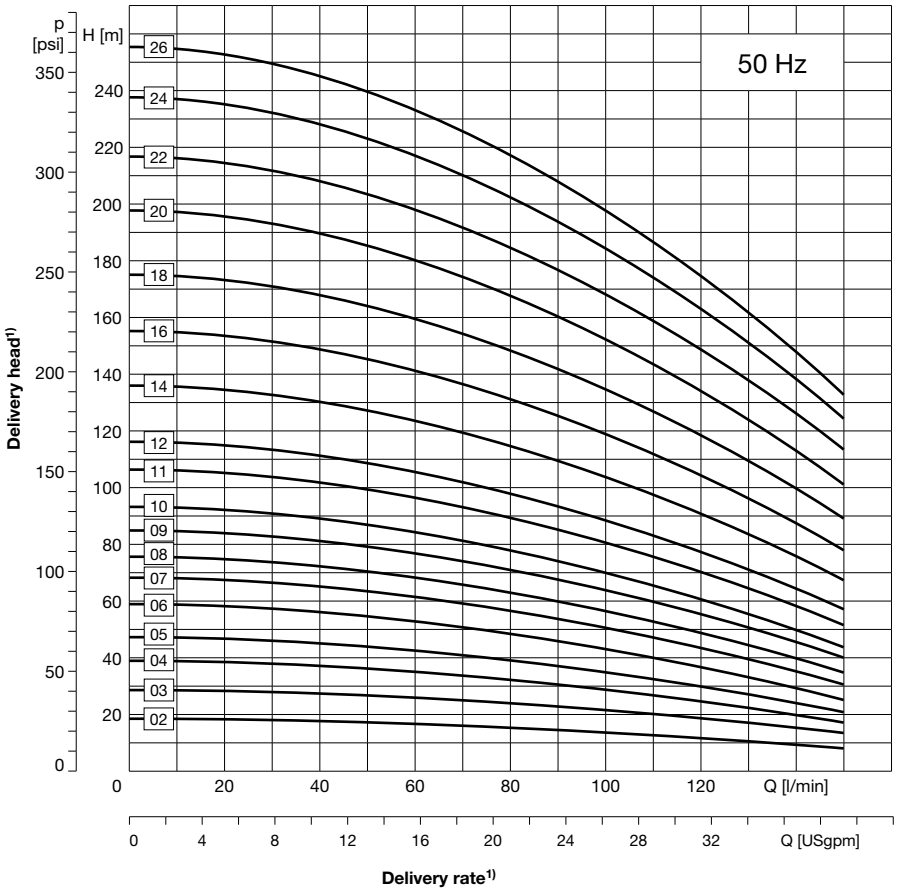


Electrical data, dimensions and weights at 60 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]				Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øq			
PSR	04	02	137	265/460	F	0,62	2,06/1,19	3446	140	114	223	140	13,1	60	G1¼
		03	158		G	0,86	2,56/1,48	3410	140	114	223	140	13,4	60	
		04	180		H	1,26	4,07/2,35	3368	140	114	223	140	14,1	60	
		05	201		J	1,8	5,0/2,9	3460	176	149	406	140	26,6	64	
		06	223										26,9		
		07	244		K	2,6	7,5/4,3	3400	176	149	406	140	30,8	64	
		08	266										31,1		
		09	287		L	3,6	10,1/5,82	3500	196	155	427	140	33,8	70	
		10	309										34,1		
		11	330										34,4		
		12	352		M	4,5	12,7/7,3	3480	196	155	447	140	41,0	72	
		14	395										41,6		
		16	438	Δ 460	N	6,2	Δ 11,5	3490	257	182	530	140	54,2	72	
		18	481										54,8		

PSR 06 – Immersion pumps, sealless

50 Hz, closed impellers



Features

- Vertical multistage coolant pump
- Connector dimensions as per DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1 1/4

Technical Data

Delivery rate Q_{max}	150 l/min
Delivery head H_{max}	255 m
Immersion depth t_{max}	747 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	-10 °C to +80 °C
Grain size	max. Ø2 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, water, mild acids

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	Stainless steel 1.4122
Gap bush (H_{max} < 150 m)	POM
Mechanical seal (H_{max} > 150 m)	WC, carbon, FKM, stainless steel 1.4571
Impeller	Stainless steel 1.4301
Intermediate chamber	Stainless steel 1.4301
Tension anchor	Stainless steel 1.4057
Bushing	Stainless steel 1.4301
Pumps bottom	Stainless steel 1.4308
Elastomers	FPM

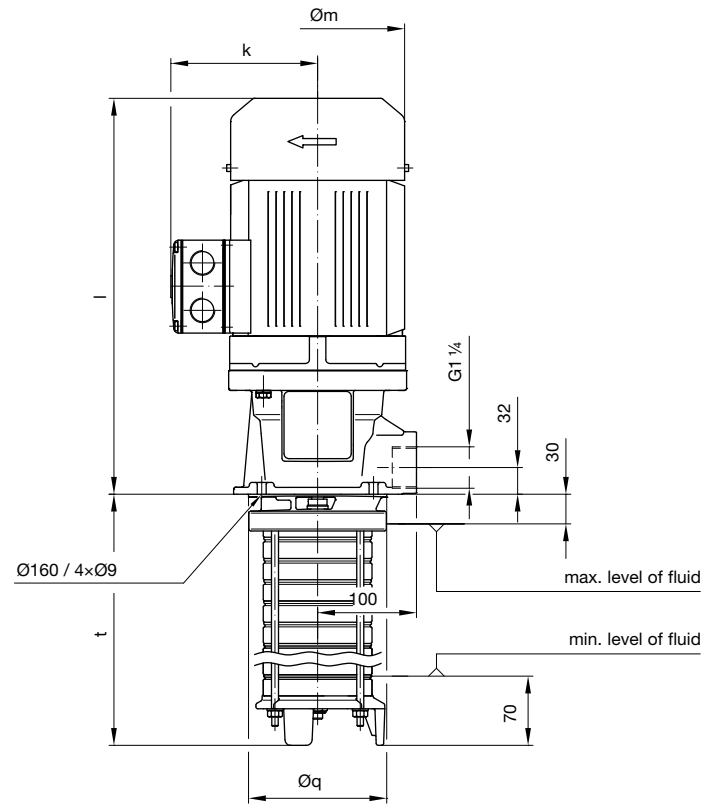
Variations

Component	Material
Flange	with chemical surface sealing or coated with paint
Bottom for extension tube	Stainless steel 1.4301
Intake strainer	Stainless steel 1.4301

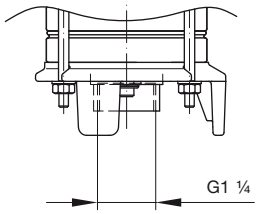
1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PSR 06 – Immersion pumps, sealless

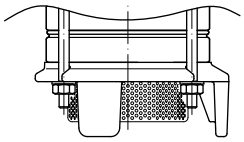
50 Hz, closed impellers



Variation "V"
with bottom for extension tube



Variation "C"
with intake strainer

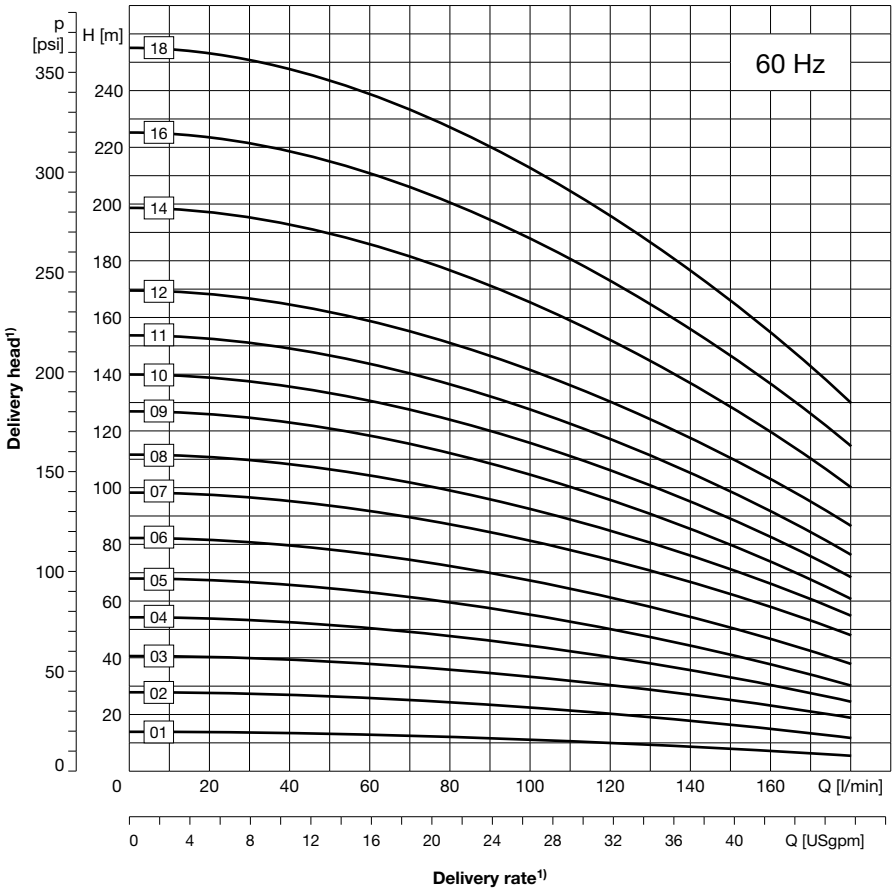


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]				Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øq			
PSR	06	02	147	230/400	F	0,55	2,06/1,19	2836	140	114	223	140	13,2	58	G1¼
		03	172		G	0,75	2,56/1,48	2807	140	114	223	140	13,6	58	
		04	197		H	1,1	4,07/2,35	2730	140	114	223	140	13,9	58	
		05	222										14,3		
		06	247		J	1,5	4,95/2,86	2850	176	149	396	140	26,8	60	
		07	272										27,1		
		08	297		K	2,2	7,15/4,13	2840	176	149	406	140	28,5	60	
		09	322										28,8		
		10	347										29,2		
		11	372		L	3,0	10,0/5,75	2885	196	155	427	140	32,2	67	
		12	397										32,5		
		14	447										33,1		
		16	497		M	4,0	13,0/7,5	2880	196	155	447	140	35,1	69	
		18	547										35,8		
		20	597	Δ 400	N	5,5	11,2	2900	257	182	530	140	47,8	71	
		22	667										48,5		
		24	697										49,2		
		26	747										50,0		

PSR 06 – Immersion pumps, sealless

60 Hz, closed impellers



Features

- Vertical multistage coolant pump
- Connector dimensions as per DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1 1/4

Technical Data

Delivery rate Q_{max}	180 l/min
Delivery head H_{max}	255 m
Immersion depth t_{max}	547 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	-10 °C to +80 °C
Grain size	max. Ø2 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, water, mild acids

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	Stainless steel 1.4122
Gap bush (H_{max} < 150 m)	POM
Mechanical seal (H_{max} > 150 m)	WC, carbon, FKM, stainless steel 1.4571
Impeller	Stainless steel 1.4301
Intermediate chamber	Stainless steel 1.4301
Tension anchor	Stainless steel 1.4057
Bushing	Stainless steel 1.4301
Pumps bottom	Stainless steel 1.4308
Elastomers	FPM

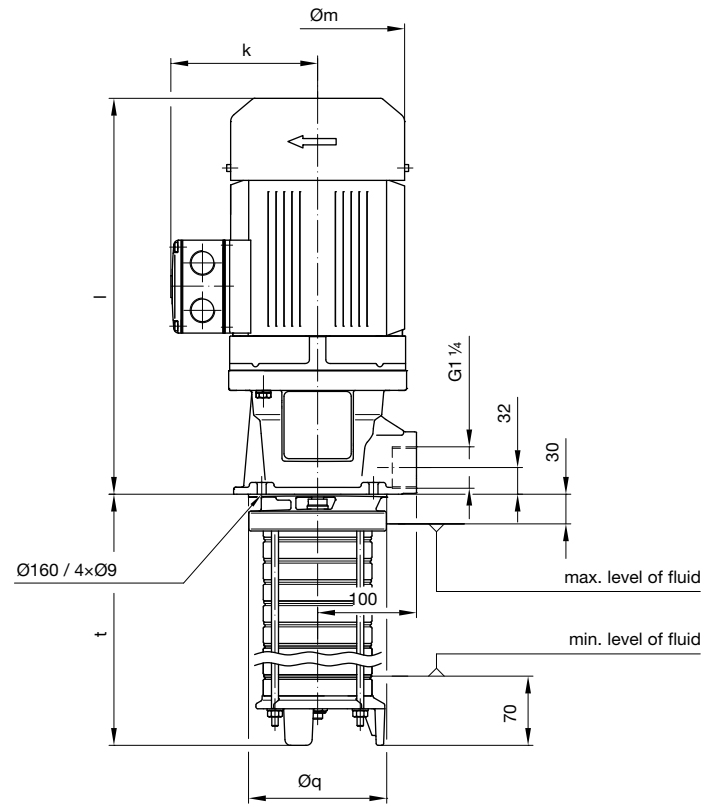
Variations

Component	Material
Flange	with chemical surface sealing or coated with paint
Bottom for extension tube	Stainless steel 1.4301
Intake strainer	Stainless steel 1.4301

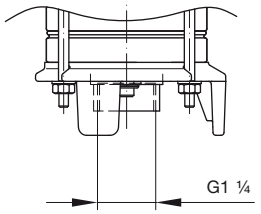
[1)] Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PSR 06 – Immersion pumps, sealless

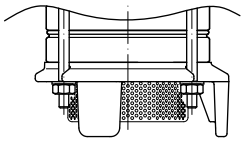
60 Hz, closed impellers



Variation "V"
with bottom for extension tube



Variation "C"
with intake strainer

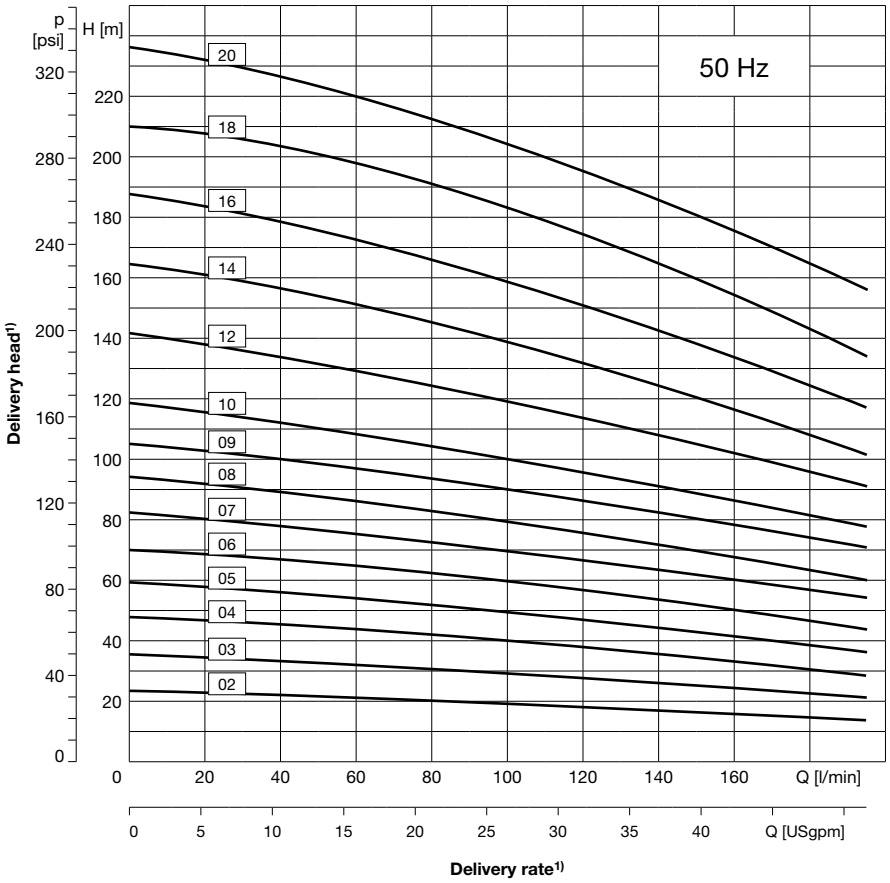


Electrical data, dimensions and weights at 60 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]				Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øq			
PSR	06	01	122	265/460	F	0,62	2,06/1,19	3446	140	114	223	140	13,2	60	G1¼
		02	147		G	0,86	2,56/1,48	3410	140	114	223	140	13,7	60	
		03	172		H	1,26	4,07/2,35	3368	140	114	223	140	14,1	60	
		04	197		J	1,75	4,95/2,86	3465	176	149	396	140	26,2	64	
		05	222		K	2,55	7,15/4,13	3460	176	149	406	140	27,5	64	
		06	247										27,9		
		07	272		L	3,45	10,0/5,75	3505	196	155	427	140	30,7	70	
		08	297										31,1		
		09	322		M	4,6	13,0/7,5	3495	196	155	447	140	33,2	72	
		10	347										33,6		
		11	372										34,0		
		12	397	Δ 460	N	6,2	11,5	3490	257	182	530	140	46,0	72	
		14	447										46,8		
		16	497		O	8,6	14,5	3490	257	182	530	140	52,0	72	
		18	547										52,8		

PXA 10 – Immersion pumps, sealless

50 Hz, closed impellers



PXA

Features

- Vertical multistage centrifugal pump
- For delivery of slightly contaminated fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate
- Pressure port is designed with internal thread G2

Technical Data

Delivery rate Q_{max}	195 l/min
Delivery head H_{max}	235 m
Immersion depth t_{max}	680 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	-10 °C to +80 °C
Grain size	max. Ø2 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, mild acids

Mechanical design

Component	Material
Flange	EN-GJS-400
Shaft	Stainless steel 1.4305
Impeller	Stainless steel 1.4301
Intermediate chamber	Stainless steel 1.4301
Tension anchor	Stainless steel 1.4057
Pumps bottom	EN-GJL-250
Elastomers	FPM
Bearings	Deep groove ball bearing with covering disk
Gap bush (H_{max} < 150 m)	POM
Mechanical seal (H_{max} > 150 m)	WC, Carbide, FPM, Stainless steel 1.4571

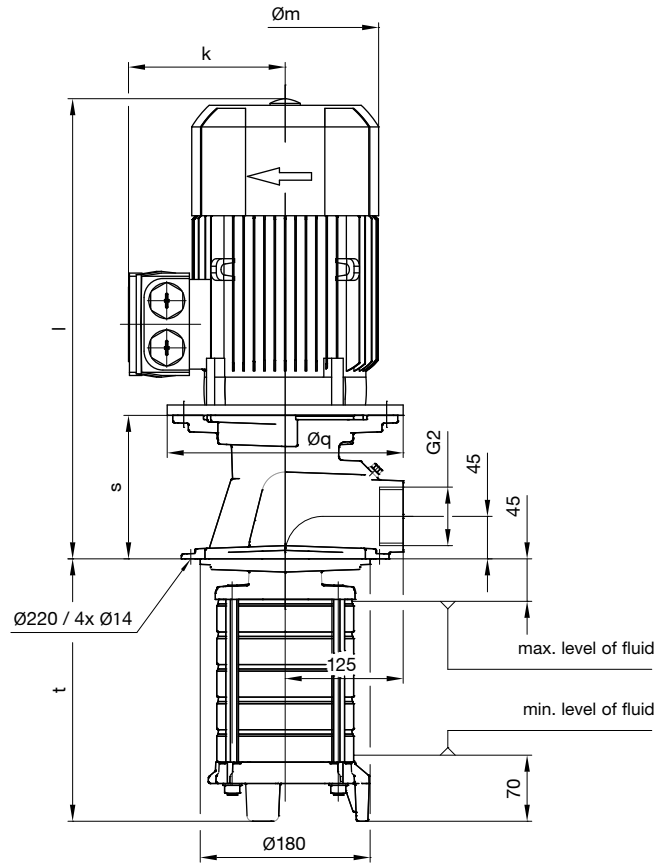
Variations

Component	Material
Mechanical seal	WC, Carbide, FPM, Stainless steel 1.4571
Bottom for extension tube	Stainless steel 1.4301
Intake strainer	Stainless steel 1.4301

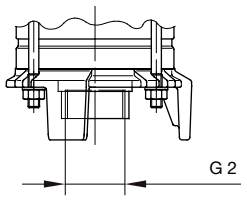
1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PXA 10 – Immersion pumps, sealless

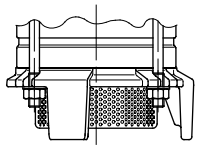
50 Hz, closed impellers



Variation "V"
with bottom for extension tube



Variation "C"
with intake strainer



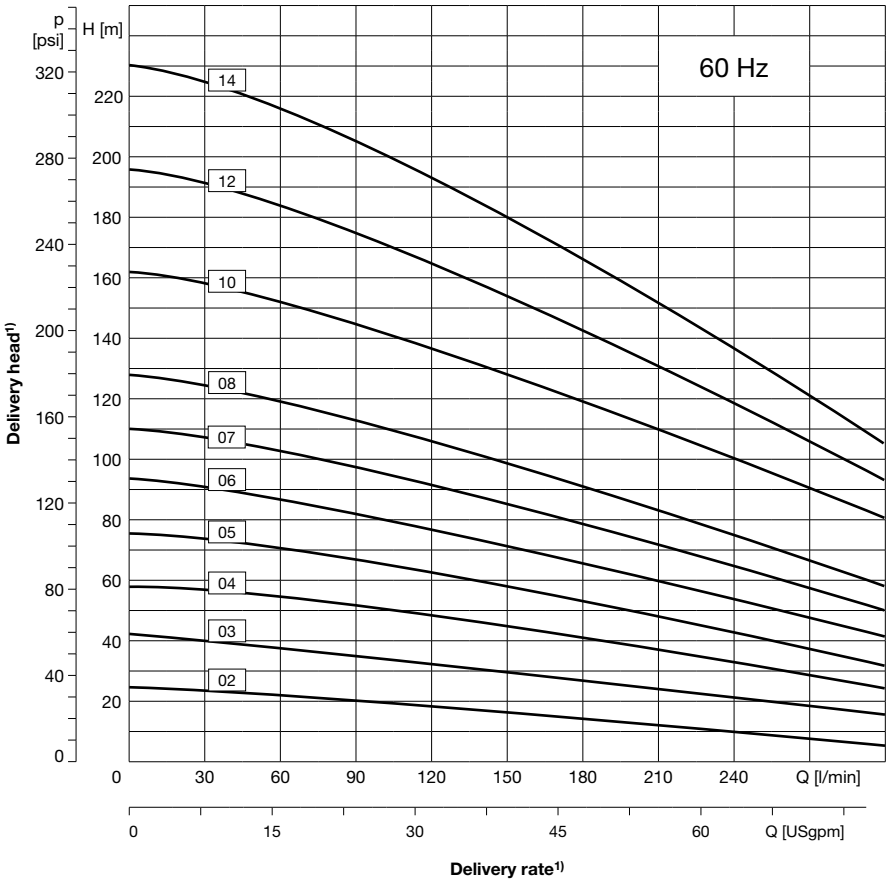
PXA

Electrical data, dimensions and weights at 50 Hz

Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]					Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øq	s			
PXA	10	02	194	230/400	G	0,75	2,75/1,56	2850	159	121	384	200	132	28	60	G2
		03	221		H	1,1	3,95/2,25	2885			419			30		
		04	248		J	1,5	5,2/3,0	2910	178	126	439	200	142	34	65	
		05	275		K	2,2	7,4/4,2	2910			479			39		
		06	302											40		
		07	329		L	3,0	9,9/5,6	2920	198	166	523	250	152	48	67	
		08	356											48		
		09	383		M	4,0	12,7/7,3	2945	222	177	506	250	152	57	69	
		10	410											58		
		12	464	Δ 400	N	5,5	Δ 9,9	2950	262	202	598	300	203	75	68	
		14	518											76		
		16	572											77		
		18	626		O	7,5	Δ 13,1	2950	262	202	648	300	203	93		
		20	680											94		

PXA 10 – Immersion pumps, sealless

60 Hz, closed impellers



Features

- Vertical multistage centrifugal pump
- For delivery of slightly contaminated fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate
- Pressure port is designed with internal thread G2

Technical Data

Delivery rate Q_{max}	300 l/min
Delivery head H_{max}	230 m
Immersion depth t_{max}	518 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	-10 °C to +80 °C
Grain size	max. Ø2 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, mild acids

Mechanical design

Component	Material
Flange	EN-GJS-400
Shaft	Stainless steel 1.4305
Impeller	Stainless steel 1.4301
Intermediate chamber	Stainless steel 1.4301
Tension anchor	Stainless steel 1.4057
Pumps bottom	EN-GJL-250
Elastomers	FPM
Bearings	Deep groove ball bearing with covering disk
Gap bush (H_{max} < 150 m)	POM
Mechanical seal (H_{max} > 150 m)	WC, Carbide, FPM, Stainless steel 1.4571

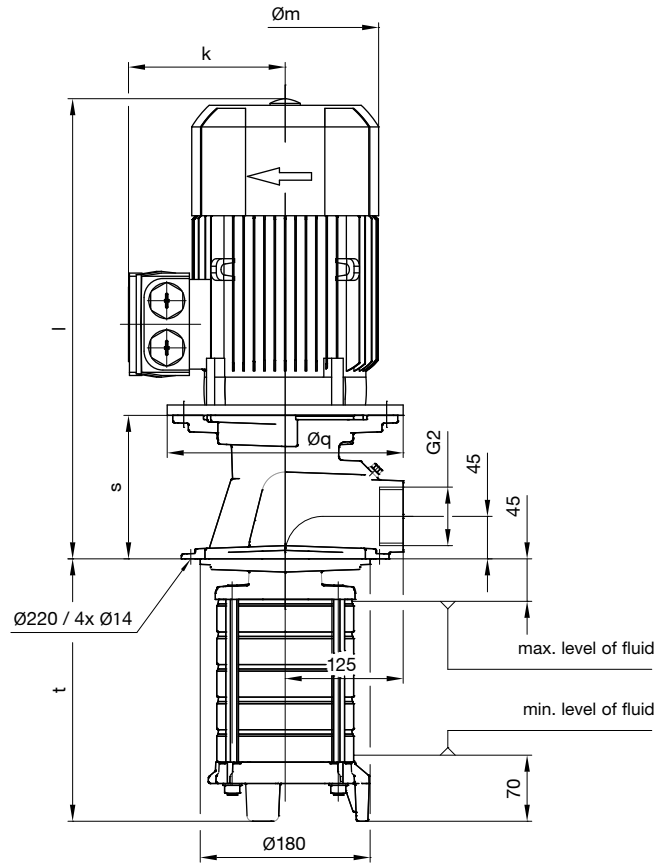
Variations

Component	Material
Mechanical seal	WC, Carbide, FPM, Stainless steel 1.4571
Bottom for extension tube	Stainless steel 1.4301
Intake strainer	Stainless steel 1.4301

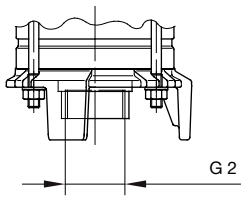
1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PXA 10 – Immersion pumps, sealless

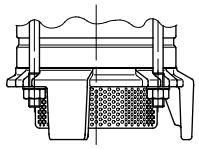
60 Hz, closed impellers



Variation "V"
with bottom for extension tube



Variation "C"
with intake strainer



Electrical data, dimensions and weights at 60 Hz

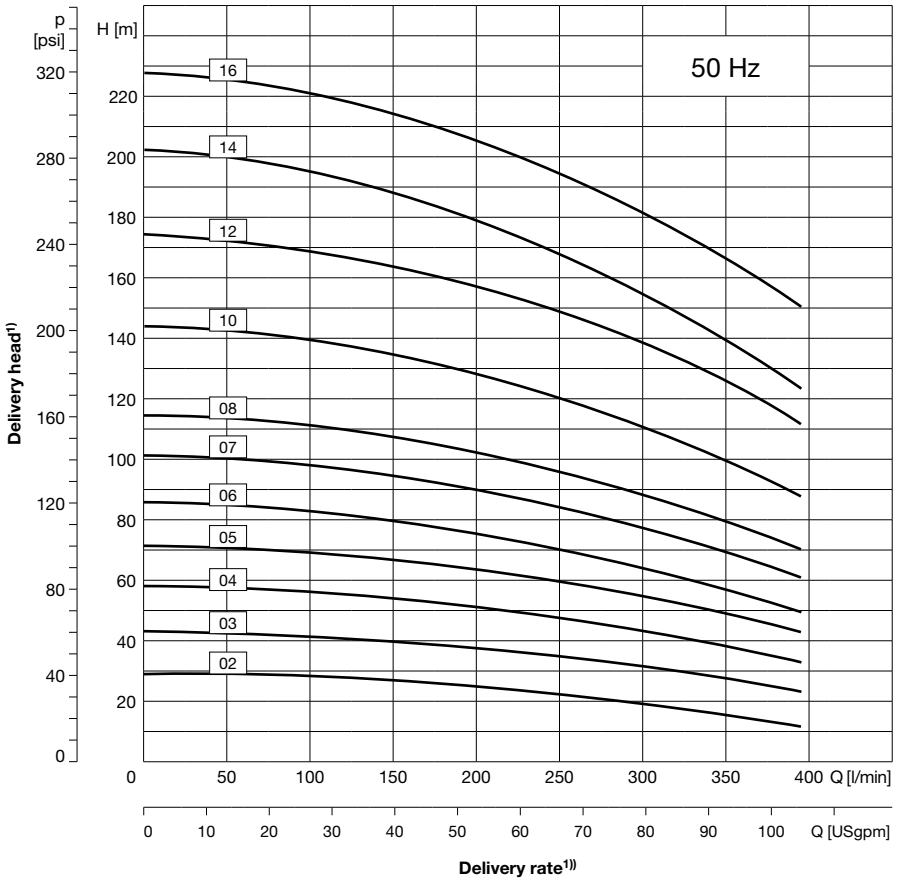
Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]					Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øq	s			
PXA	10	02	194	Y 460	J	1,75	Y 2,95	3510	178	126	439	200	142	33	69	G2
		03	221		K	2,54	Y 4,2	3510			479	200	142	38		
		04	248		L	3,45	Y 5,6	3515	198	166	523	250	152	46	71	
		05	275											46		
		06	302		M	4,55	Y 7,2	3550	222	177	506	250	152	55	73	
		07	329	Δ 460	N	6,3	Δ 9,8	3545	262	202	598	300	203	71	72	
		08	356											72		
		10	410		O	8,6	Δ 13,0	3550	262	202	648	300	203	87		
		12	464											89		
		14	518		P	12,6	Δ 19,5	3555	314	237	727	350	233	112	77	

PXA 18 – Immersion pumps, sealless

50 Hz, closed impellers

Features

- Vertical multistage centrifugal pump
- For delivery of slightly contaminated fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate
- Pressure port is designed with internal thread G2



Technical Data

Delivery rate Q_{max}	390 l/min
Delivery head H_{max}	230 m
Immersion depth t_{max}	692 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	-10 °C to +80 °C
Grain size	max. Ø2 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, mild acids

Mechanical design

Component	Material
Flange	EN-GJS-400
Shaft	Stainless steel 1.4305
Impeller	Stainless steel 1.4301
Intermediate chamber	Stainless steel 1.4301
Tension anchor	Stainless steel 1.4057
Pumps bottom	EN-GJL-250
Elastomers	FPM
Bearings	Deep groove ball bearing with covering disk
Gap bush (H_{max} < 150 m)	POM
Mechanical seal (H_{max} > 150 m)	WC, Carbide, FPM, Stainless steel 1.4571

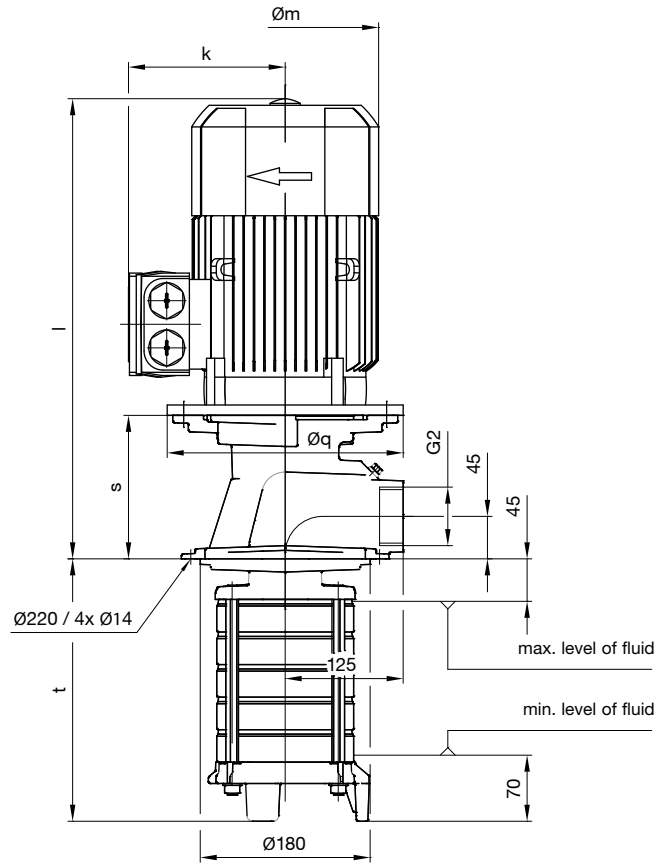
Variations

Component	Material
Mechanical seal	WC, Carbide, FPM, Stainless steel 1.4571
Bottom for extension tube	Stainless steel 1.4301
Intake strainer	Stainless steel 1.4301

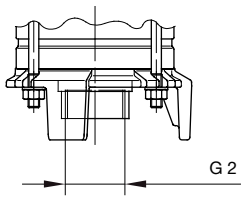
1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PXA 18 – Immersion pumps, sealless

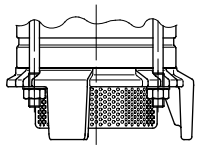
50 Hz, closed impellers



Variation "V"
with bottom for extension tube



Variation "C"
with intake strainer

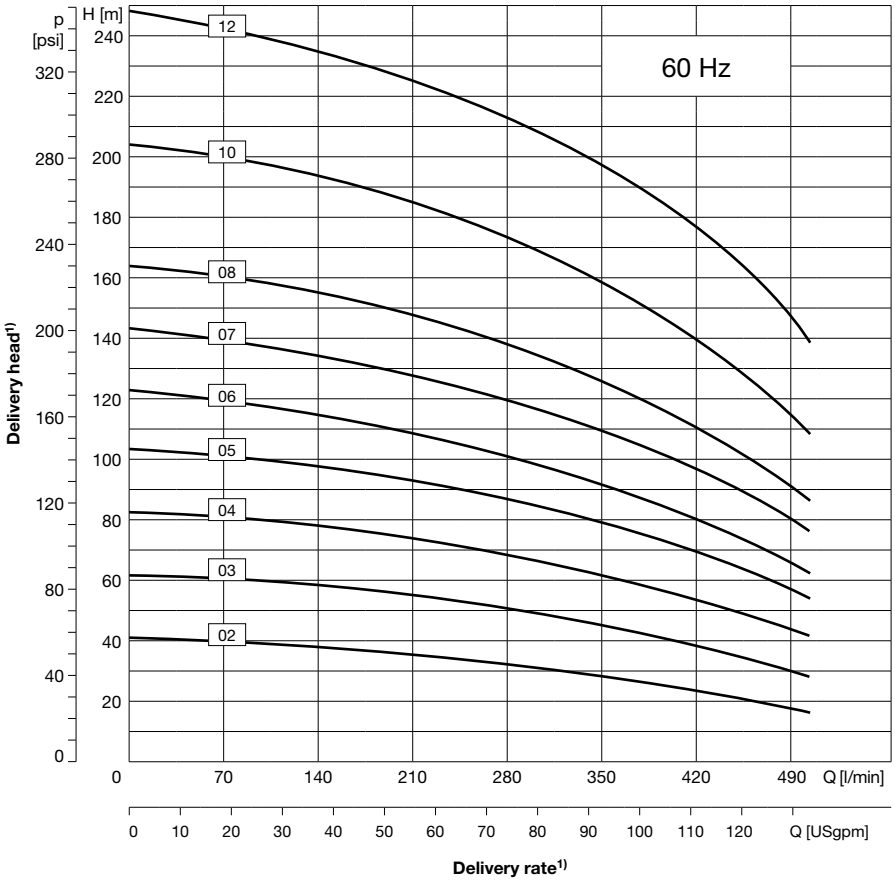


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]					Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øq	s			
PXA	18	02	210	230/400	K	2,2	7,4/4,2	2910	178	126	479	200	142	37	65	G2
		03	244		L	3,0	9,9/5,6	2920	198	166	523	250	152	46	67	
		04	279		M	4,0	12,7/7,3	2945	222	177	506	250	152	55	69	
		05	313	Δ 400	N	5,5	Δ 9,9	2950	262	202	598	300	203	71	68	
		06	348		O	7,5	Δ 13,1	2950	262	202	648	300	203	86	68	
		07	382											87		
		08	417											88		
		10	485		P	11,0	Δ 19,6	2955	314	237	727	350	233	112	70	
		12	554											113		
		14	623		Q	15,0	Δ 27,0	2960	314	237	727	350	233	124		
		16	692											126		

PXA 18 – Immersion pumps, sealless

60 Hz, closed impellers



Features

- Vertical multistage centrifugal pump
- For delivery of slightly contaminated fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate
- Pressure port is designed with internal thread G2

Technical Data

Delivery rate Q_{max}	500 l/min
Delivery head H_{max}	250 m
Immersion depth t_{max}	554 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature	-10 °C to +80 °C
Grain size	max. Ø2 mm
Contamination	max. 50 g/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, cleaning liquids, mild acids

Mechanical design

Component	Material
Flange	EN-GJS-400
Shaft	Stainless steel 1.4305
Impeller	Stainless steel 1.4301
Intermediate chamber	Stainless steel 1.4301
Tension anchor	Stainless steel 1.4057
Pumps bottom	EN-GJL-250
Elastomers	FPM
Bearings	Deep groove ball bearing with covering disk
Gap bush (H_{max} < 150 m)	POM
Mechanical seal (H_{max} > 150 m)	WC, Carbide, FPM, Stainless steel 1.4571

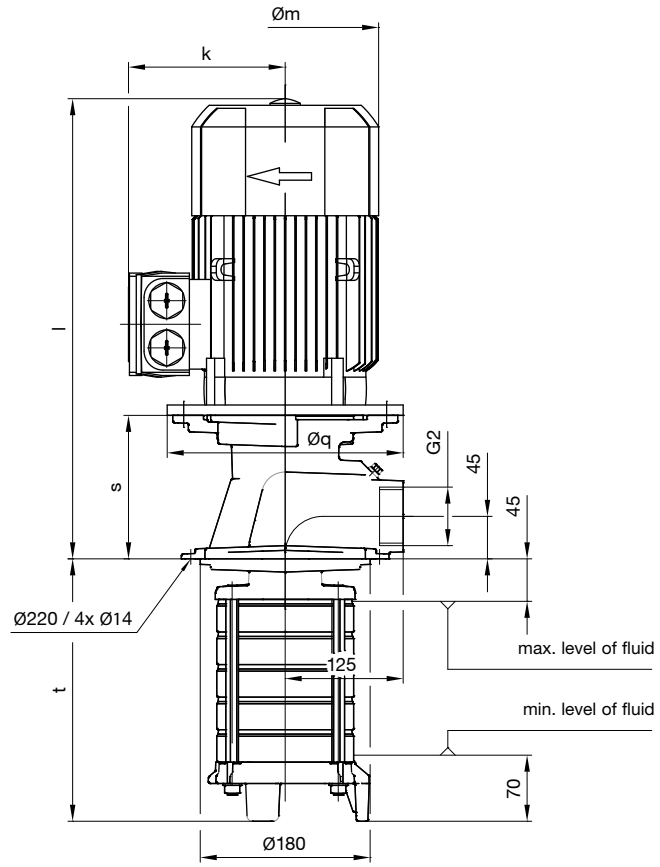
Variations

Component	Material
Mechanical seal	WC, Carbide, FPM, Stainless steel 1.4571
Bottom for extension tube	Stainless steel 1.4301
Intake strainer	Stainless steel 1.4301

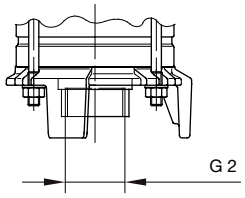
1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PXA 18 – Immersion pumps, sealless

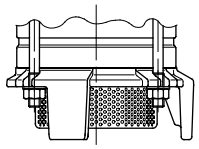
60 Hz, closed impellers



Variation "V"
with bottom for extension tube



Variation "C"
with intake strainer



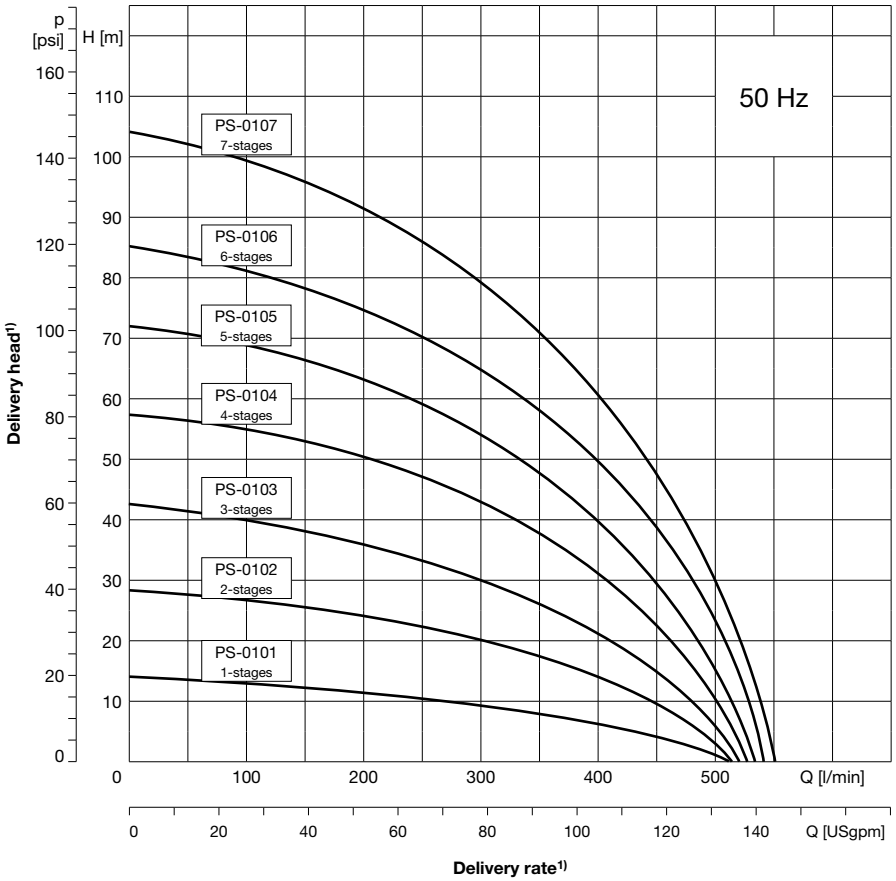
PXA

Electrical data, dimensions and weights at 60 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]					Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øq	s			
PXA	18	02	210	Y 460	M	4,55	Y 7,2	3550	222	177	506	250	152	52,9	73	G2
		03	244											58,7		
		04	279	Δ 460	O	8,6	Δ 13,0	3550	262	202	648	300	203	84,2	72	
		05	313											85,1		
		06	348		P	12,6	Δ 19,5	3555	314	237	727	350	233	107,9	77	
		07	382											108,8		
		08	417		Q	17,3	Δ 27	3555	314	237	727	350	233	118,7		
		10	485		R	21,3	Δ 32	3555	314	237	787	350	233	130,5		
		12	554											132,3		

PS 01 – Immersion pumps, sealless

50 Hz, closed impellers



Features

- Vertical multistage coolant pump
- For delivery of clean, polluted and viscous types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G2

PS/PSL

Technical Data

Delivery rate Q_{max}	1250 l/min
Delivery head H_{max}	105 m
Immersion depth t_{max}	670 mm
Kinematic viscosity	max. 30 mm^2/s
Delivery temperature	0 °C to +80 °C
Grain size	max. Ø4 mm
Contamination	max. 8,2 kg/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's venti-lation side)
Fluids delivered	Emulsions, cooling and cutting oils, Water with rust-proofing additives, heat carrier oil

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	1.0762
Impeller	EN-GJL-200
Intermediate chamber	EN-GJL-200
Bearings	Deep groove ball bearing with covering disk
Bushing	Sintered iron
Pumps bottom	EN-GJL-200

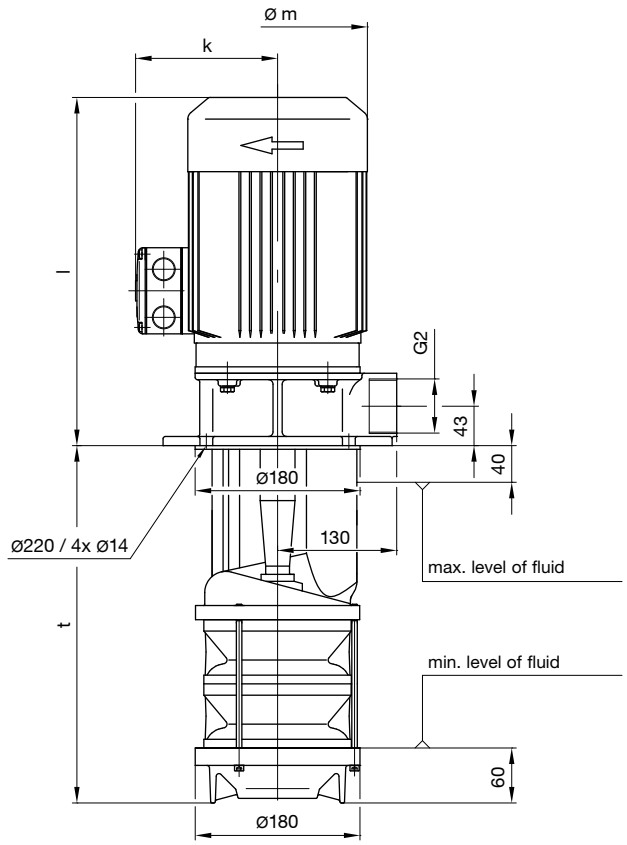
Variations

Component	Material
Mechanical seal	NBR
Extension tube	1.0308

[1] Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PS 01 – Immersion pumps, sealless

50 Hz, closed impellers

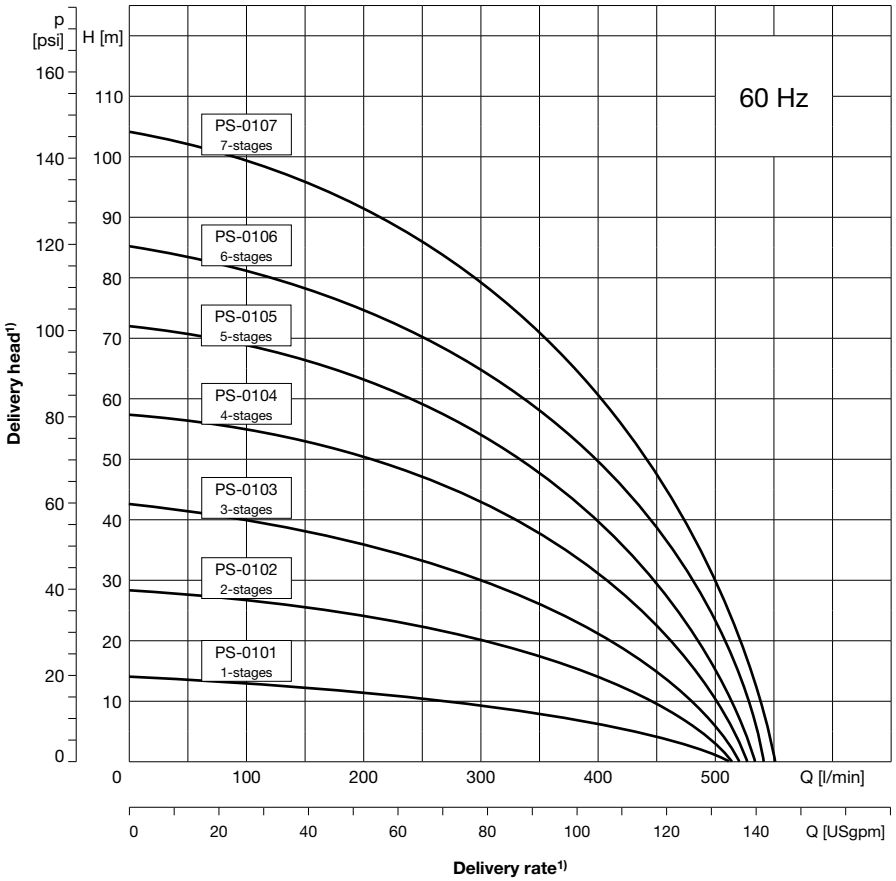


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PS PSL	01	01	250	230/400	H	1,1	4,07/2,35	2730	140	114	286	36	62-64	G2
			320									38		
			450									40		
			550									42		
		02	320		K	2,2	7,15/4,13	2840	176	149	360	44	65-77	
			390									46		
			520									48		
			620									50		
		03	390		L	3,0	10,0/5,75	2885	196	155	380	51	68-74	
			460									53		
			590									55		
		04	460		M	4,0	13,0/7,5	2880	196	155	400	59	69-75	
			530									61		
			660									63		
		05	530	Δ 400	N	5,5	Δ 11,2	2900	257	182	484	85	68-75	
			600									87		
		06	600									91	69-75	
		07	670		O	7,5	Δ 14,5	2900	257	182	484	105	72-75	

PS 01 – Immersion pumps, sealless

60 Hz, closed impellers



Features

- Vertical multistage coolant pump
- For delivery of clean, polluted and viscous types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G2

PS/PSL

Technical Data

Delivery rate Q_{max}	1250 l/min
Delivery head H_{max}	105 m
Immersion depth t_{max}	670 mm
Kinematic viscosity	max. 30 mm^2/s
Delivery temperature	0 °C to +80 °C
Grain size	max. Ø4 mm
Contamination	max. 8,2 kg/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's venti-lation side)
Fluids delivered	Emulsions, cooling and cutting oils, Water with rust-proofing additives, heat carrier oil

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	1.0762
Impeller	EN-GJL-200
Intermediate chamber	EN-GJL-200
Bearings	Deep groove ball bearing with covering disk
Bushing	Sintered iron
Pumps bottom	EN-GJL-200

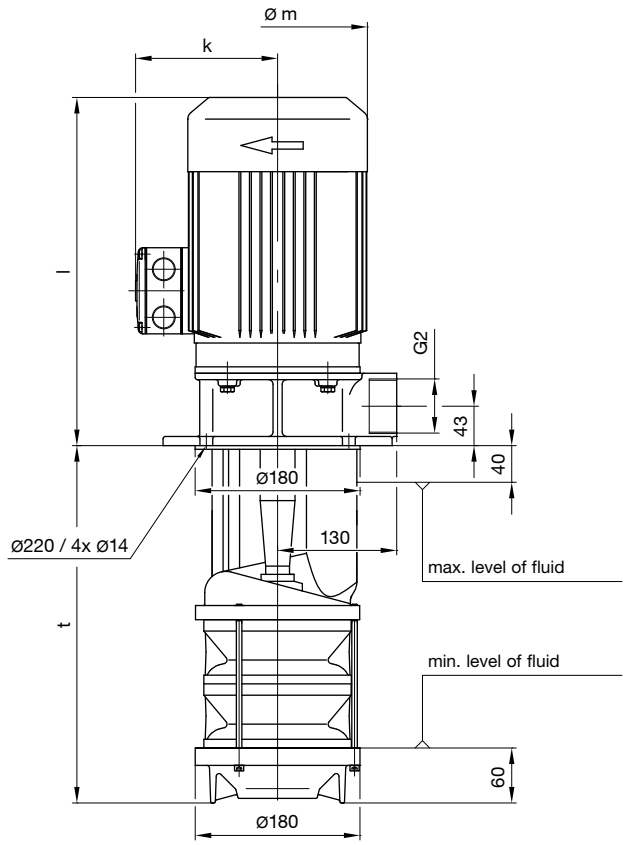
Variations

Component	Material
Mechanical seal	NBR
Extension tube	1.0308

[1)] Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PS 01 – Immersion pumps, sealless

60 Hz, closed impellers



Electrical data, dimensions and weights at 60 Hz

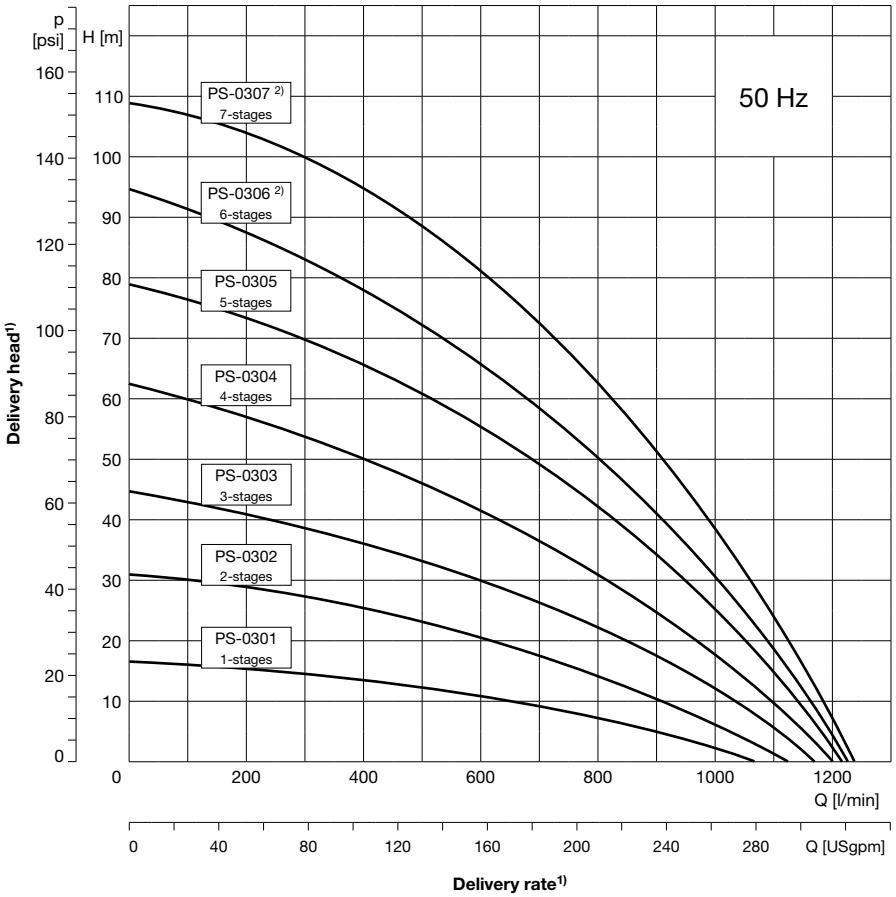
Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PS PSL	01	01	250	265/460	H	1,26	4,07/2,35	3368	140	114	286	36	62-64	G2
			320									38		
			450									40		
			550									42		
		02	320		K	2,6	7,5/4,3	3400	176	149	360	44	65-77	
			390									46		
			520									48		
			620									50		
		03	390		L	3,6	10,1/5,82	3500	196	155	380	51	68-74	
			460									53		
			590									55		
		04	460		M	4,5	12,7/7,3	3480	196	155	400	59	69-75	
			530									61		
			660									63		
		05	530	Δ 460	N	6,2	Δ 11,2	3480	257	182	484	85	68-75	
			600									87		
		06	600									91	69-75	
		07	670		O	8,6	Δ 14,5	3480	257	182	484	105	72-75	

PS 03 – Immersion pumps, sealless

50 Hz, closed impellers

Features

- Vertical multistage coolant pump
- For delivery of clean, polluted and viscous types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G2



Technical Data

Delivery rate Q_{max}	1250 l/min
Delivery head H_{max}	105 m
Immersion depth t_{max}	670 mm
Kinematic viscosity	max. 30 mm^2/s
Delivery temperature	0 °C to +80 °C
Grain size	max. Ø4 mm
Contamination	max. 8,2 kg/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's venti-lation side)
Fluids delivered	Emulsions, cooling and cutting oils, Water with rust-proofing additives, heat carrier oil

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	1.0762
Impeller	EN-GJL-200
Intermediate chamber	EN-GJL-200
Bearings	Deep groove ball bearing with covering disk
Bushing	Sintered iron
Pumps bottom	EN-GJL-200

Variations

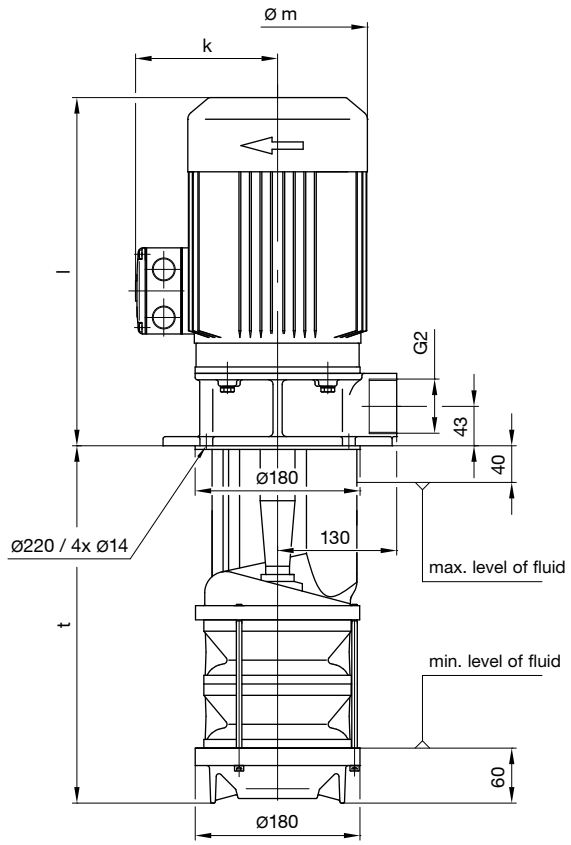
Component	Material
Mechanical seal	NBR
Extension tube	1.0308

[1] Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

[2] Frame sizes PS/PSL 0306 and 0307 available on request.

PS 03 – Immersion pumps, sealless

50 Hz, closed impellers



Electrical data, dimensions and weights at 50 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PS PSL	03	01	250	230/400	K	2,2	7,15/4,13	2840	176	149	360	38	63-65	G2
			320									40		
			450									42		
			550									44		
		02	320		M	4,0	13,0/7,5	2840	196	155	380	47	67-75	
			390									49		
			520									51		
			620									53		
		03	390	Δ 400	N	5,5	Δ 11,2	2900	257	182	484	73	70-77	
			460									75		
			590									77		
		04	460		O	7,5	Δ 14,5	2900	257	182	484	86	70-78	
			530									88		
		05	05		Y	9,5	Δ 17,5	2920	257	182	522	102	73-79	
			530									104		
		06*	06*		P	11	Δ 21	2920	257	182	522	120	75-79	
		07*	600		Q	15	Δ 29	2900	257	182	566	136	75-80	

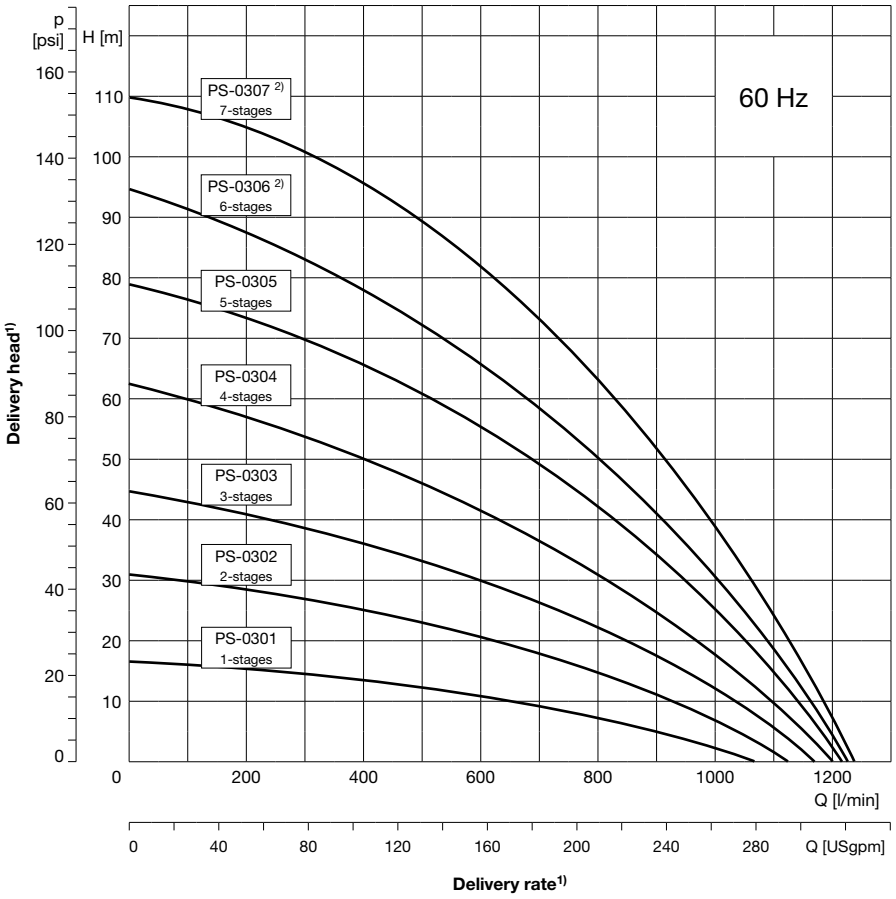
* Frame sizes PS/PSL 0306 and 0307 available on request.

PS 03 – Immersion pumps, sealless

60 Hz, closed impellers

Features

- Vertical multistage coolant pump
- For delivery of clean, polluted and viscous types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G2



Technical Data

Delivery rate Q_{max}	1250 l/min
Delivery head H_{max}	105 m
Immersion depth t_{max}	670 mm
Kinematic viscosity	max. 30 mm^2/s
Delivery temperature	0 °C to +80 °C
Grain size	max. Ø4 mm
Contamination	max. 8,2 kg/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, Water with rust-proofing additives, heat carrier oil

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	1.0762
Impeller	EN-GJL-200
Intermediate chamber	EN-GJL-200
Bearings	Deep groove ball bearing with covering disk
Bushing	Sintered iron
Pumps bottom	EN-GJL-200

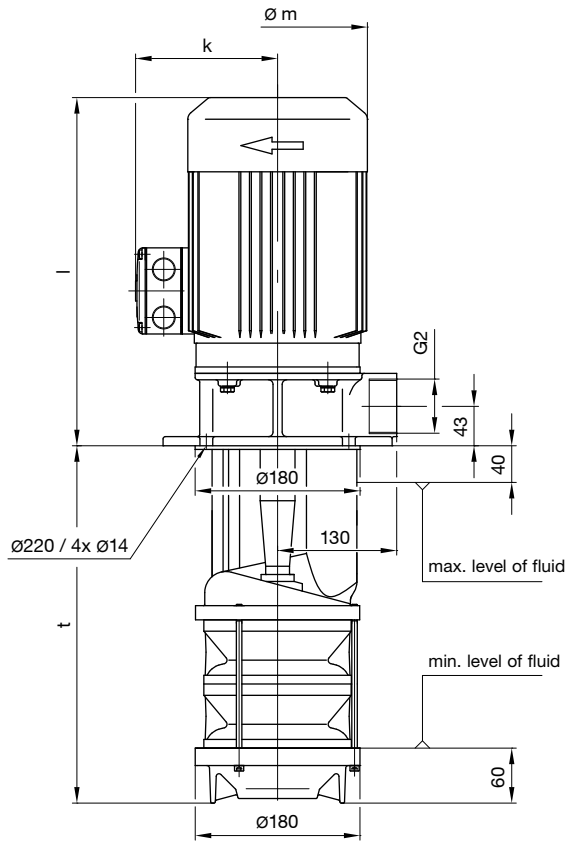
Variations

Component	Material
Mechanical seal	NBR
Extension tube	1.0308

[1] Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.
[2] Frame sizes PS/PSL 0306 and 0307 available on request.

PS 03 – Immersion pumps, sealless

60 Hz, closed impellers



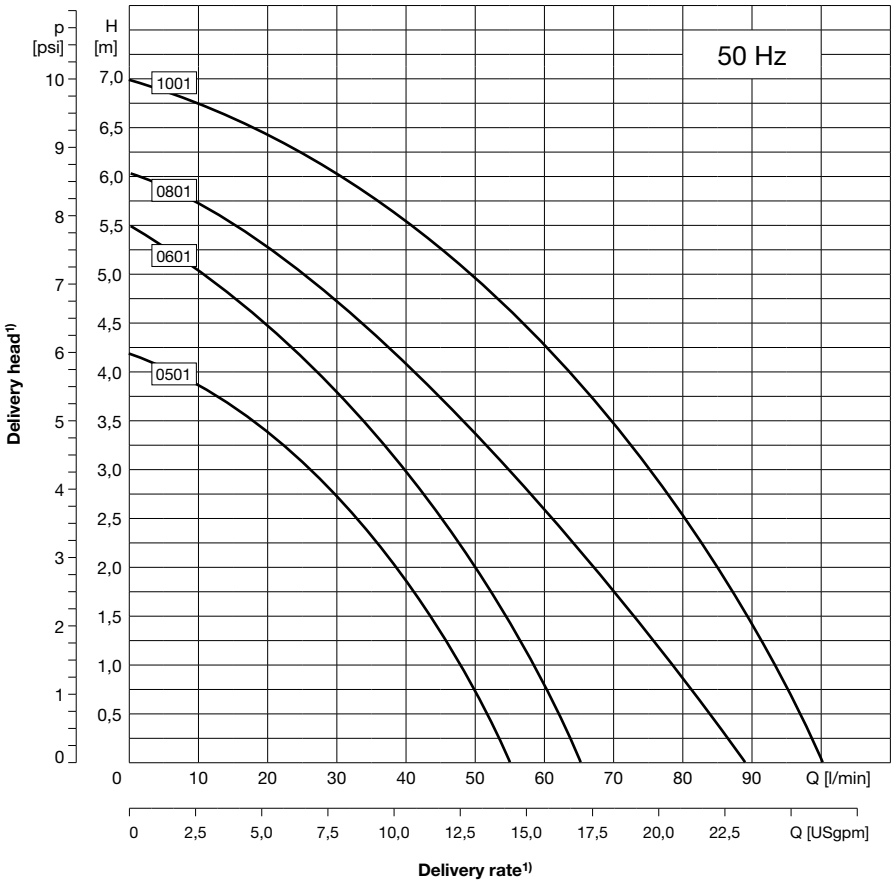
Electrical data, dimensions and weights at 60 Hz

Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PS PSL	03	01	250	265/460	K	2,6	7,5/4,3	3400	176	149	360	38	63-65	G2
			320									40		
			450									42		
			550									44		
		02	320		M	4,5	12,7/7,3	3480	196	155	380	47	67-75	
			390									49		
			520									51		
			620									53		
		03	390	Δ 460	N	6,2	Δ 11,2	3480	257	182	484	73	70-77	
			460									75		
			590									77		
		04	460		O	8,6	Δ 14,5	3480	257	182	484	86	70-78	
			530									88		
		05	05		Y	11,0	Δ 17,5	3504	257	182	522	102	73-79	
			530									104		
		06*	06*		P	12,5	Δ 21	3500	257	182	522	120	75-79	
		07*	600		Q	17	Δ 29	3480	257	182	566	136	75-80	

* Frame sizes PS/PSL 0306 and 0307 available on request.

PMS 05, 06, 08, 10 – Immersion pumps, sealless

50 Hz, open impellers



Features

- Vertical multistage pump
- Connecting dimensions according to DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G3/4
- Unventilated motor

Technical data

Delivery rate Q_{max}	100 l/min
Delivery head H_{max}	7 m
Immersion depth t_{max}	350 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature Material "P" Material "G"	 0 °C to 60 °C 0 °C to 80 °C
Grain size	max. Ø5 mm
Contamination	max. 10 kg/m^3
Direction of rotation	anti-clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Various industrial use fluids, emulsions, also with chemical additives, oils, water with corrosion protection additive, water colors, heat transfer oils

Mechanical design

Component	Material
Flange	EN-GJL-200 and steel
Shaft	1.0762
Impeller	POM
Intermediate chamber	EN-GJL-200
Bushes	PTFE graphite
Pumps bottom material "P"	POM
Splash ring material "P"	NBR

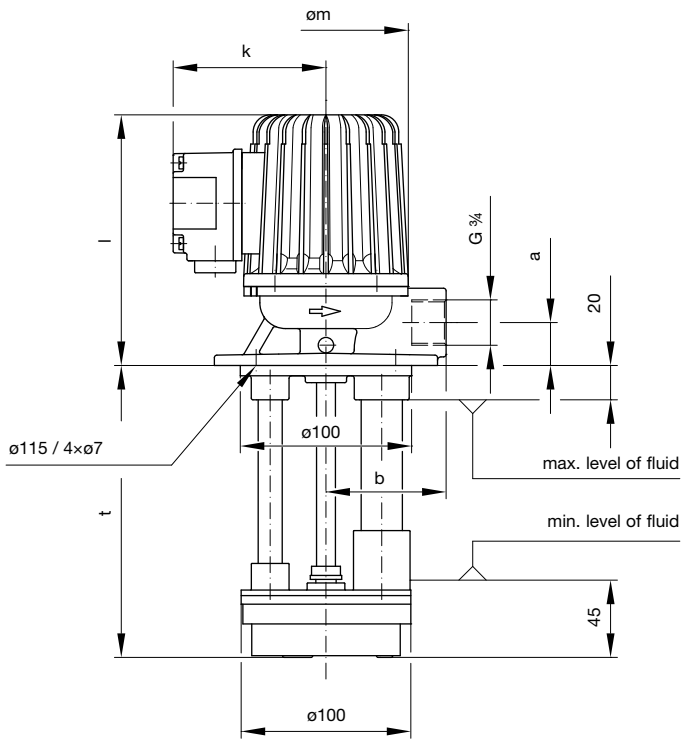
Variations

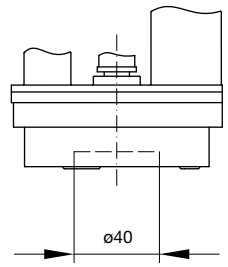
Component	Material
Bottom with extension tube "V"	EN-GJL-200
Impeller material "G"	EN-GJL-200
Bottom standard design "G"	EN-GJL-200
Splash ring material "G"	1.0718

1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PMS 05, 06, 08, 10 – Immersion pumps, sealless

50 Hz, open impellers



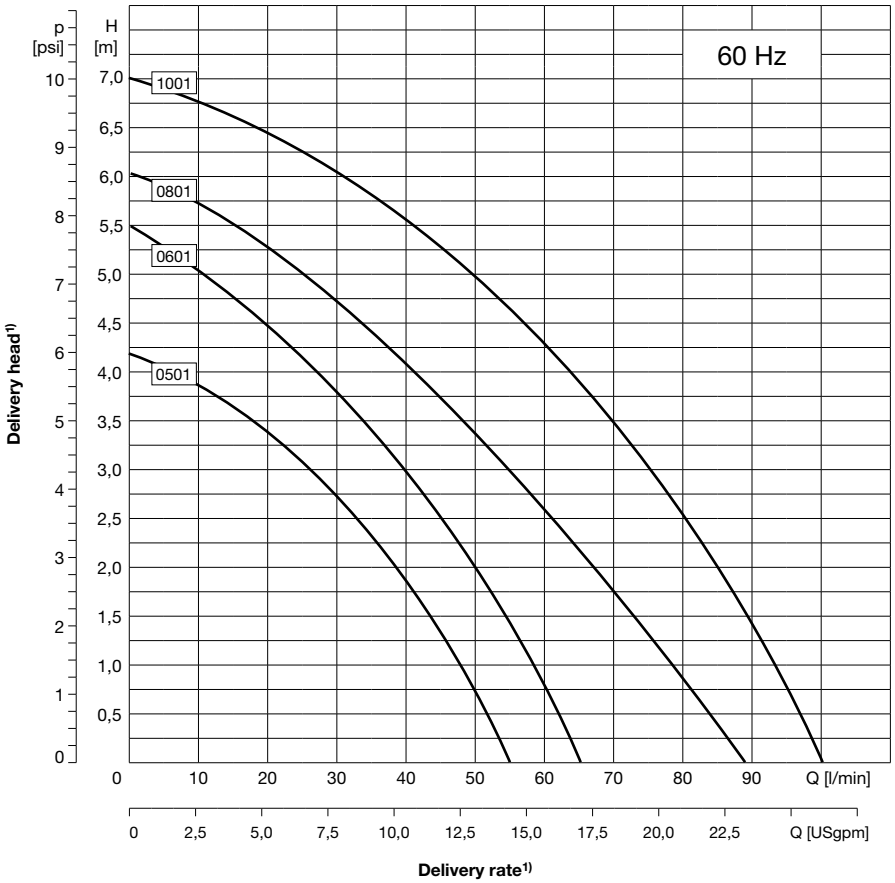


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]					Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øa	b			
PMS	05	01	90 120 140 170 200 220 250 270 350	230/400	A	0,09	0,46/0,26	2618	96	89	146	25	70	4,4 – 5,0	46	G¾
	06	01	90 120 140 170 200 220 250 270 350	230/400	A	0,09	0,46/0,26	2618	96	89	146	25	70	4,4 – 5,0	46	
	08	01	120 170 220 250 270 350	230/400	B	0,12	0,50/0,29	2655	96	89	168	25	70	4,4 – 5,0	55	
	10	01	90 120 140 170 200 220 250 270 350	230/400	C	0,18	0,83/0,48	2788	120	99	160	25	70	6,3 – 7,3	55	

PMS 05, 06, 08, 10 – Immersion pumps, sealless

60 Hz, open impellers



Merkmale

- Vertical multistage pump
- Connecting dimensions according to DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G3/4
- Unventilated motor

Technical data

Delivery rate Q_{max}	100 l/min
Delivery head H_{max}	7 m
Immersion depth t_{max}	350 mm
Kinematic viscosity	max. 20 mm^2/s
Delivery temperature Material "P" Material "G"	 0 °C bis 60 °C 0 °C bis 80 °C
Grain size	max. Ø5 mm
Contamination	max. 10 kg/m^3
Direction of rotation	anti-clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Various industrial use fluids, emulsions, also with chemical additives, oils, water with corrosion protection additive, water colors, heat transfer oils

Mechanical design

Component	Material
Flange	EN-GJL-200 and steel
Shaft	1.0762
Impeller	POM
Intermediate chamber	EN-GJL-200
Bushes	PTFE graphite
Pumps bottom material "P"	POM
Splash ring material "P"	NBR

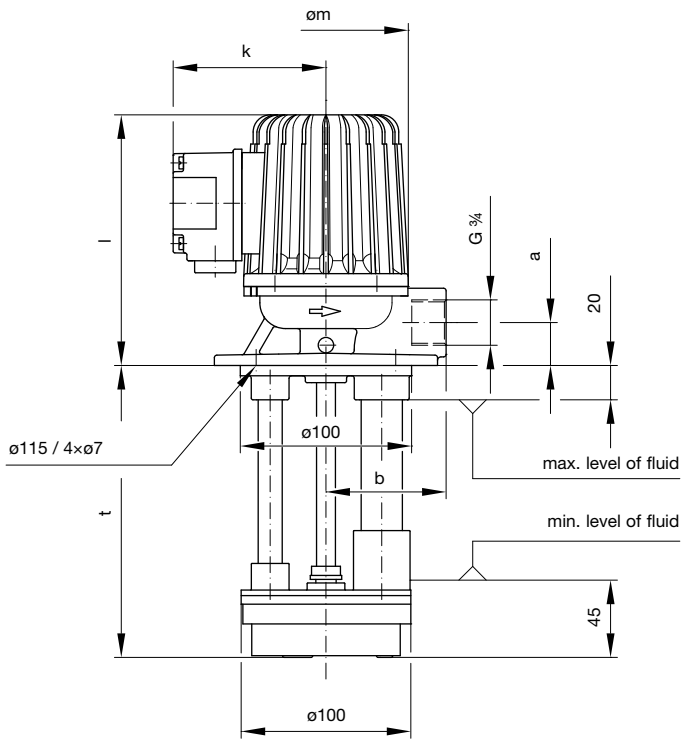
Variations

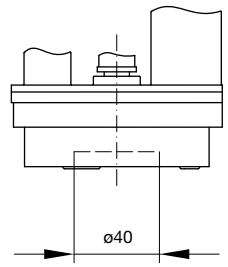
Component	Material
Bottom with extension tube "V"	EN-GJL-200
Impeller material "G"	EN-GJL-200
Bottom standard design "G"	EN-GJL-200
Splash ring material "G"	1.0718

1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PMS 05, 06, 08, 10 – Immersion pumps, sealless

60 Hz, open impellers



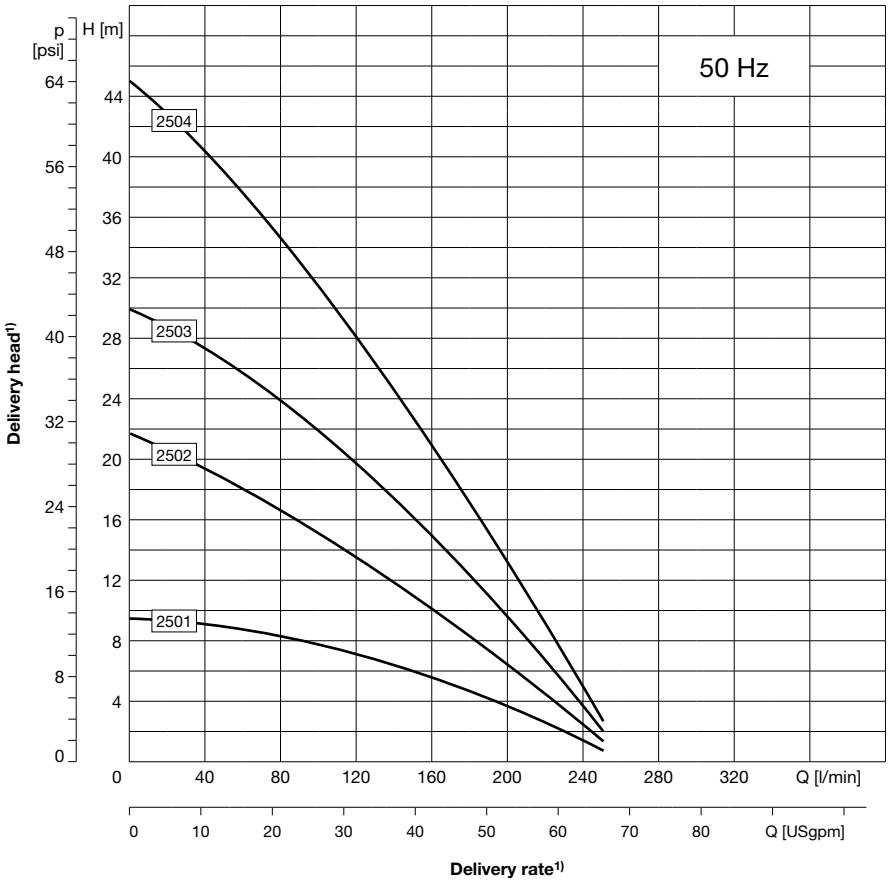


Electrical data, dimensions and weights at 60 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]					Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øa	b			
PMS	05	01	90 120 140 170 200 220 250 270 350	265/460	A	0,09	0,46/0,26	3257	96	89	146	25	70	4,4 – 5,0	46	G¾
	06	01	90 120 140 170 200 220 250 270 350	265/460	A	0,09	0,46/0,26	3257	96	89	146	25	70	4,4 – 5,0	46	
	08	01	120 170 220 250 270 350	265/460	B	0,12	0,50/0,29	3320	96	89	168	25	70	4,4 – 5,0	55	
	10	01	90 120 140 170 200 220 250 270 350	265/460	C	0,18	0,83/0,48	3437	120	99	160	25	70	6,3 – 7,3	55	

PMS 25 – Immersion pumps, sealless

50 Hz, open impellers



Merkmale

- Vertical multistage pump
- Connecting dimensions according to DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1¼

PMS

Technical data

Delivery rate Q_{max}	250 l/min
Delivery head H_{max}	45 m
Immersion depth t_{max}	550 mm
Kinematic viscosity	max. 20 mm²/s
Delivery temperature Material "P" Material "G"	 0 °C bis 60 °C 0 °C bis 80 °C
Grain size	max. Ø8 mm
Contamination	max. 1,5% (proportion by weight)
Direction of rotation	anti-clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Various industrial use fluids, emulsions, also with chemical additives, oils, water with corrosion protection additive, water colors, heat transfer oils

Mechanical design

Component	Material
Flange	EN-GJL-200 and steel
Shaft	1.0762
Impeller	POM
Intermediate chamber	EN-GJL-200
Bushes	PTFE graphite
Pumps bottom material "P"	POM
Splash ring material "P"	NBR

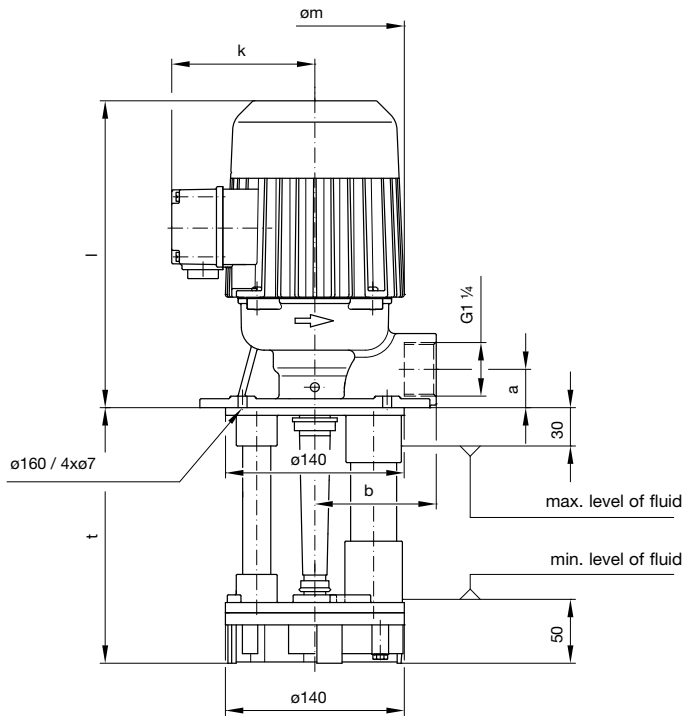
Variations

Component	Material
Bottom with extension tube "V"	EN-GJL-200
Impeller material "G"	EN-GJL-200
Bottom standard design "G"	EN-GJL-200
Splash ring material "G"	1.0718

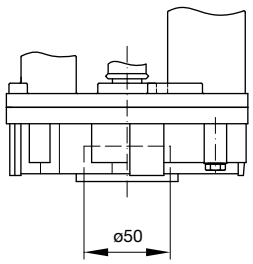
1) Data for viscosity of ~1 mm²/s at a density of ~1 kg/dm³. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PMS 25 – Immersion pumps, sealless

50 Hz, open impellers



Variation "V"
with bottom for extension tube

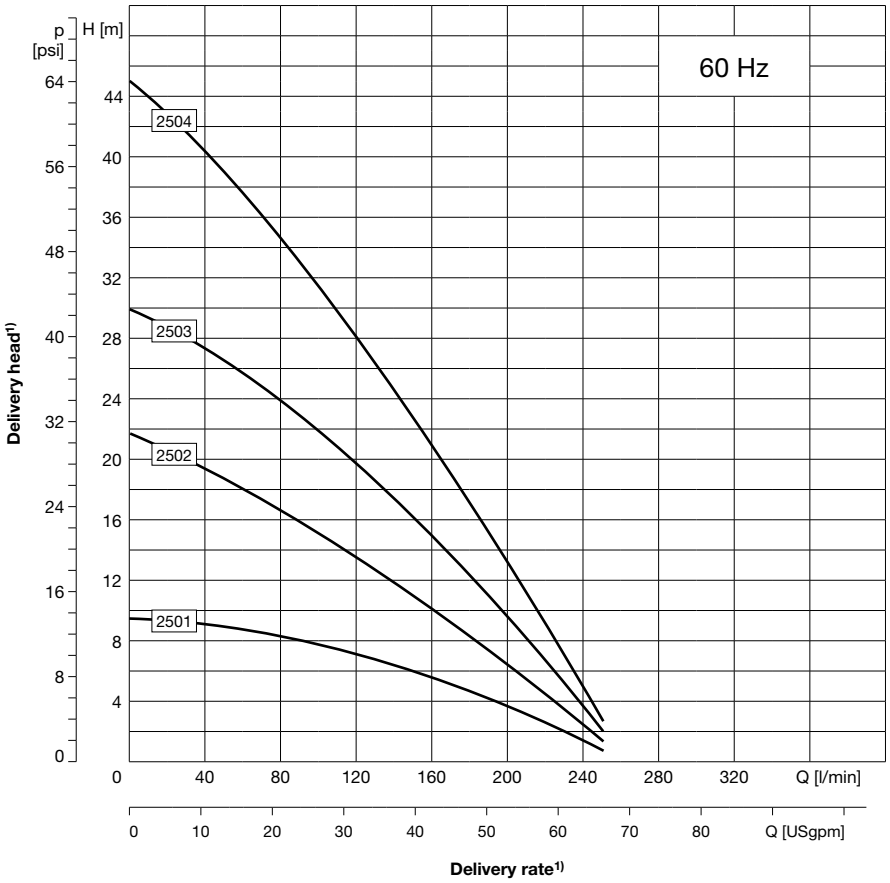


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]					Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øa	b			
PMS	25	01	170	230/400	F	0,55	2,06/1,19	2836	140	114	241	30	95	13,2 – 16,3	59	G1¼
			200													
			270													
			350													
			440													
			550													
		02	270	230/400	J	1,5	4,95/2,86	2850	176	149	332	32	100	24,0 – 27,5	59	
			310													
			350													
			390													
			480													
		03	310	230/400	J	1,5	4,95/2,86	2850	176	149	332	32	100	26,5 – 29,0	65	
			350													
			390													
			430													
		04	350	230/400	L	3,0	10,0/5,75	2885	196	155	352	32	100	31,0	65	

PMS 25 – Immersion pumps, sealless

60 Hz, open impellers



Merkmale

- Vertical multistage pump
- Connecting dimensions according to DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1¼

PMS

Technical data

Delivery rate Q_{max}	250 l/min
Delivery head H_{max}	45 m
Immersion depth t_{max}	550 mm
Kinematic viscosity	max. 20 mm²/s
Delivery temperature Material "P" Material "G"	 0 °C bis 60 °C 0 °C bis 80 °C
Grain size	max. Ø8 mm
Contamination	max. 1,5% (proportion by weight)
Direction of rotation	anti-clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Various industrial use fluids, emulsions, also with chemical additives, oils, water with corrosion protection additive, water colors, heat transfer oils

Mechanical design

Component	Material
Flange	EN-GJL-200 and steel
Shaft	1.0762
Impeller	POM
Intermediate chamber	EN-GJL-200
Bushes	PTFE graphite
Pumps bottom material "P"	POM
Splash ring material "P"	NBR

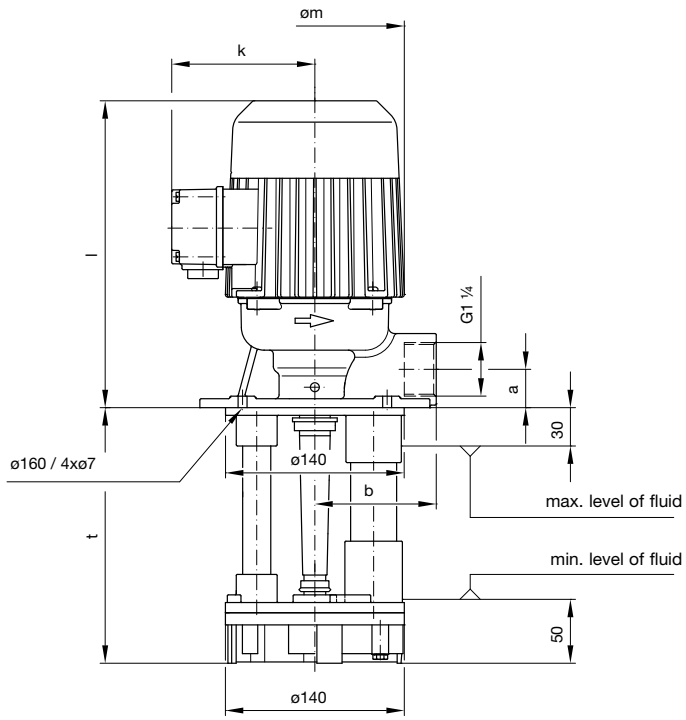
Variations

Component	Material
Bottom with extension tube "V"	EN-GJL-200
Impeller material "G"	EN-GJL-200
Bottom standard design "G"	EN-GJL-200
Splash ring material "G"	1.0718

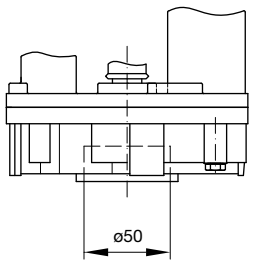
1) Data for viscosity of ~1 mm²/s at a density of ~1 kg/dm³. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PMS 25 – Immersion pumps, sealless

60 Hz, open impellers



Variation "V"
with bottom for extension tube

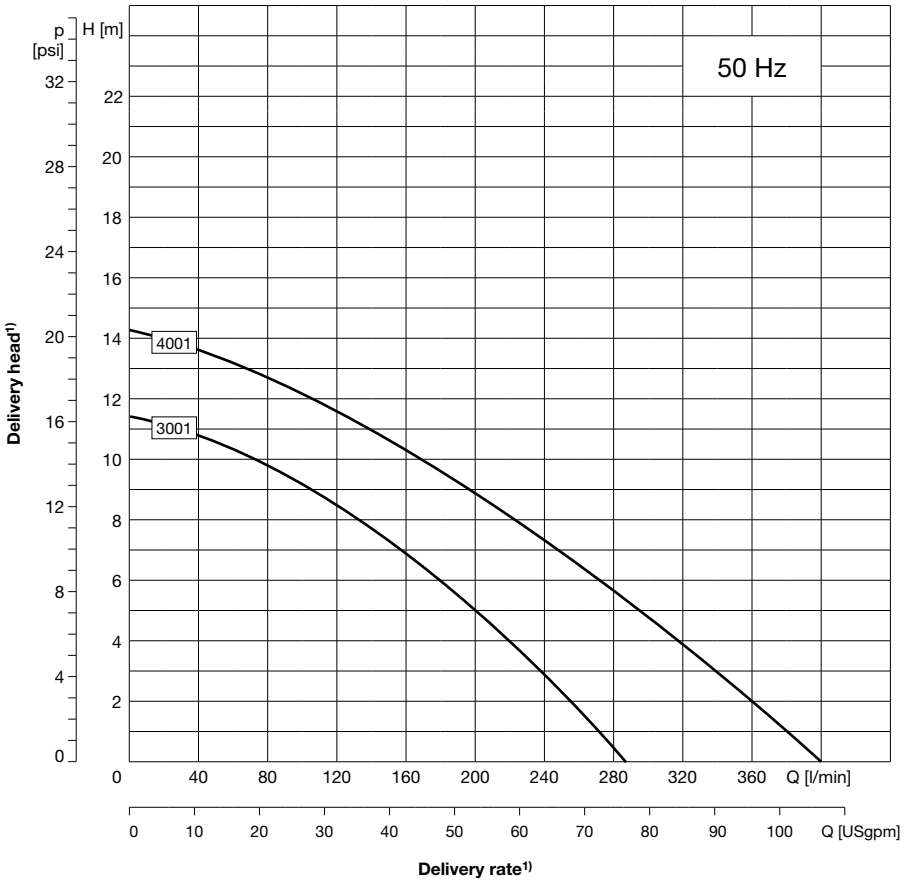


Electrical data, dimensions and weights at 60 Hz

Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]					Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øa	b			
PMS	25	01	170	265/460	F	0,55	1,75/1,01	3446	140	114	241	30	95	13,2 – 16,3	59	G1¼
			200													
			270													
			350													
			440													
			550													
		02	270	265/460	J	1,5	4,33/2,5	3465	176	149	332	32	100	24,0 – 27,5	59	
			310													
			350													
			390													
			480													
		03	310	265/460	J	1,5	4,33/2,5	3465	176	149	332	32	100	26,5 – 29,0	65	
			350													
			390													
			430													
		04	350	265/460	L	3,0	8,65/5,0	3505	196	155	352	32	100	31,0	65	

PMS 30, 40 – Immersion pumps, sealless

50 Hz, open impellers



Merkmale

- Vertical multistage pump
- Connecting dimensions according to DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1¼

Technical data

Delivery rate Q_{max}	400 l/min
Delivery head H_{max}	14 m
Immersion depth t_{max}	560 mm
Kinematic viscosity	max. 20 mm²/s
Delivery temperature Material "P" Material "G"	 0 °C bis 60 °C 0 °C bis 80 °C
Grain size	max. Ø8 mm
Contamination	max. 1,5% (proportion by weight)
Direction of rotation	anti-clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Various industrial use fluids, emulsions, also with chemical additives, oils, water with corrosion protection additive, water colors, heat transfer oils

Mechanical design

Component	Material
Flange	EN-GJL-200 and steel
Shaft	1.0762
Impeller	POM
Intermediate chamber	EN-GJL-200
Bushes	PTFE graphite
Pumps bottom material "P"	POM
Splash ring material "P"	NBR

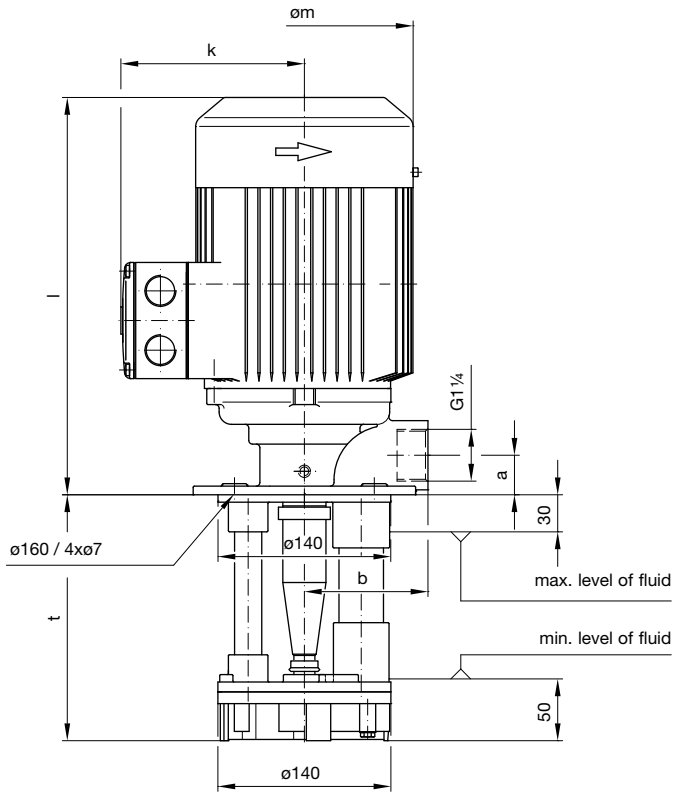
Variations

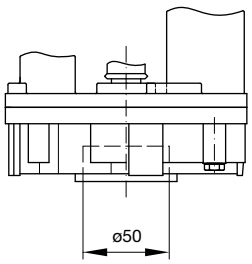
Component	Material
Bottom with extension tube "V"	EN-GJL-200
Impeller material "G"	EN-GJL-200
Bottom standard design "G"	EN-GJL-200
Splash ring material "G"	1.0718

1) Data for viscosity of ~1 mm²/s at a density of ~1 kg/dm³. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PMS 30, 40 – Immersion pumps, sealless

50 Hz, open impellers



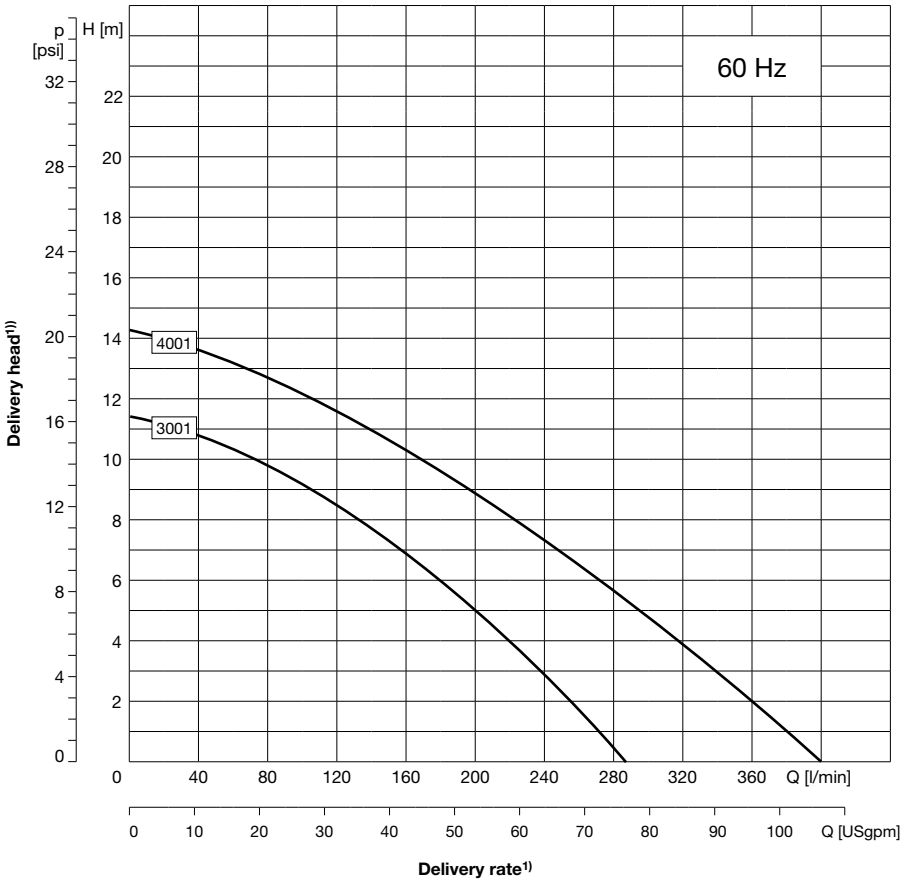


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]					Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øa	b			
PMS	30	01	170	230/400	G	0,75	2,56/1,48	2870	140	114	241	30	95	13,2 – 16,3	59	G1¼
			200													
			270													
			350													
			440													
			550													
	40	01	210	230/400	J	1,5	4,95/2,86	2850	176	149	332	32	100	23,0 – 26,0	65	
			240													
			280													
			320													
			360													
			560													

PMS 30, 40 – Immersion pumps, sealless

60 Hz, open impellers



Merkmale

- Vertical multistage pump
- Connecting dimensions according to DIN EN 12157
- For delivery of slightly contaminated types of fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate and designed with internal thread G1¼

Technical data

Delivery rate Q_{max}	400 l/min
Delivery head H_{max}	14 m
Immersion depth t_{max}	560 mm
Kinematic viscosity	max. 20 mm²/s
Delivery temperature Material "P" Material "G"	 0 °C bis 60 °C 0 °C bis 80 °C
Grain size	max. Ø8 mm
Contamination	max. 1,5% (proportion by weight)
Direction of rotation	anti-clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Various industrial use fluids, emulsions, also with chemical additives, oils, water with corrosion protection additive, water colors, heat transfer oils

Mechanical design

Component	Material
Flange	EN-GJL-200 and steel
Shaft	1.0762
Impeller	POM
Intermediate chamber	EN-GJL-200
Bushes	PTFE graphite
Pumps bottom material "P"	POM
Splash ring material "P"	NBR

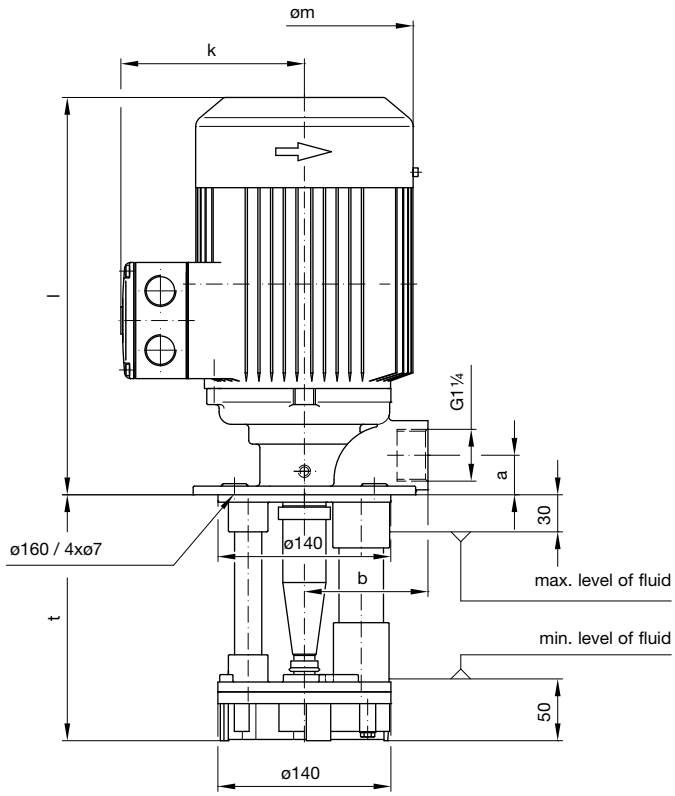
Variations

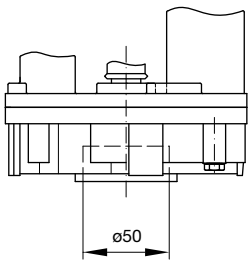
Component	Material
Bottom with extension tube "V"	EN-GJL-200
Impeller material "G"	EN-GJL-200
Bottom standard design "G"	EN-GJL-200
Splash ring material "G"	1.0718

1) Data for viscosity of ~1 mm²/s at a density of ~1 kg/dm³. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PMS 30, 40 – Immersion pumps, sealless

60 Hz, open impellers





Electrical data, dimensions and weights at 60 Hz

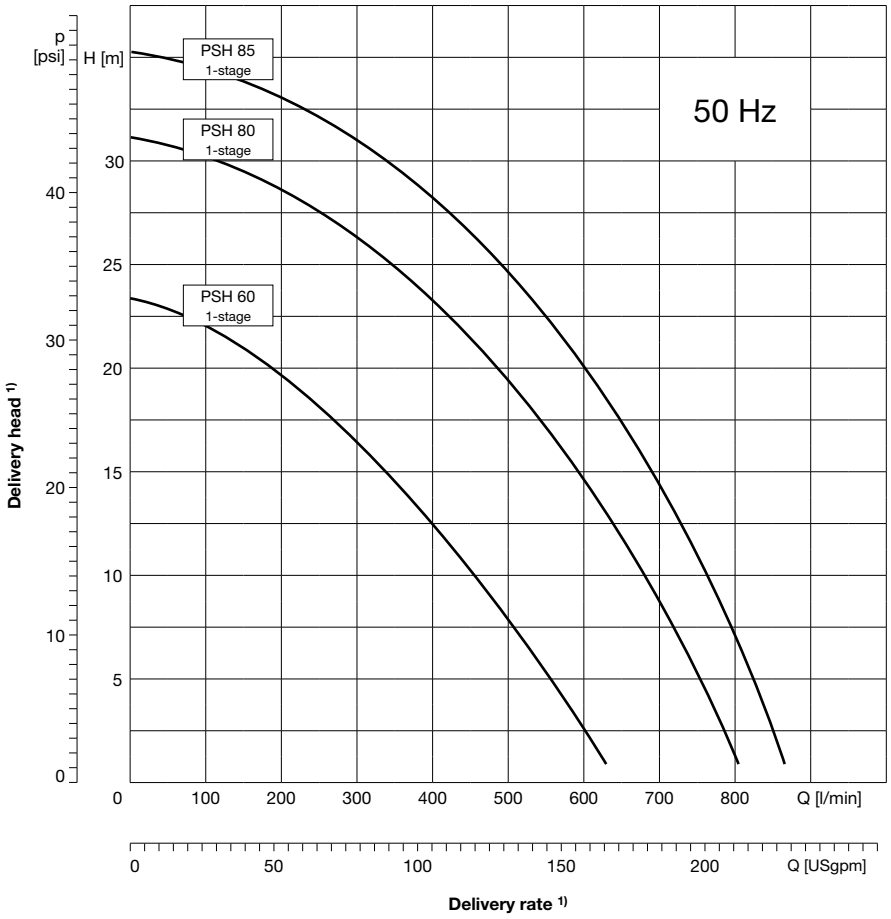
Type of pump			Immersion depth t [mm]	Rated motor values					Dimensions [mm]					Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l	Øa	b			
PMS	30	01	170	265/460	G	0,75	2,27/1,31	3410	140	114	241	30	95	13,2 bis 16,3	59	G1¼
			200													
			270													
			350													
			440													
			550													
	40	01	210	265/460	J	1,5	4,33/2,5	3465	176	149	332	32	100	23,0 bis 26,0	65	
			240													
			280													
			320													
			360													
			560													

PSH – Immersion pumps, sealless

50 Hz, singlestage, open impellers

Features

- Vertical singlestage centrifugal pump
- For delivery of for highly contaminated fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate
- Pressure port is designed with internal thread G1¼ (single stage)



Technical Data

Delivery rate Q_{max}	860 l/min
Delivery head H_{max}	32 m
Immersion depth t_{max}	550 mm
Kinematic viscosity	max. 30 mm^2/s
Delivery temperature	-30°C to +80°C
Grain size	max. Ø8 mm
Contamination	max. 9,5 kg/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, water with antirust additive, heat transfer oils

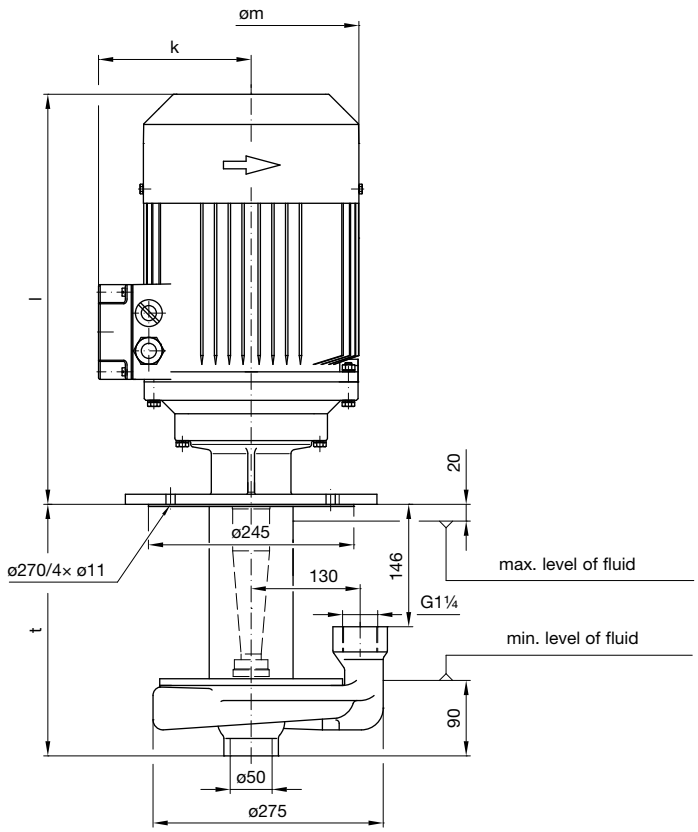
Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	1.0762
Impeller	EN-GJL-200
Intermediate chamber	EN-GJL-200
Intermediate part	Aluminum (Al Cu Mg Pb F 38)
Pumps bottom	EN-GJL-200
Spray ring	1.0503

1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PSH – Immersion pumps, sealless

50 Hz, singlestage, open impellers

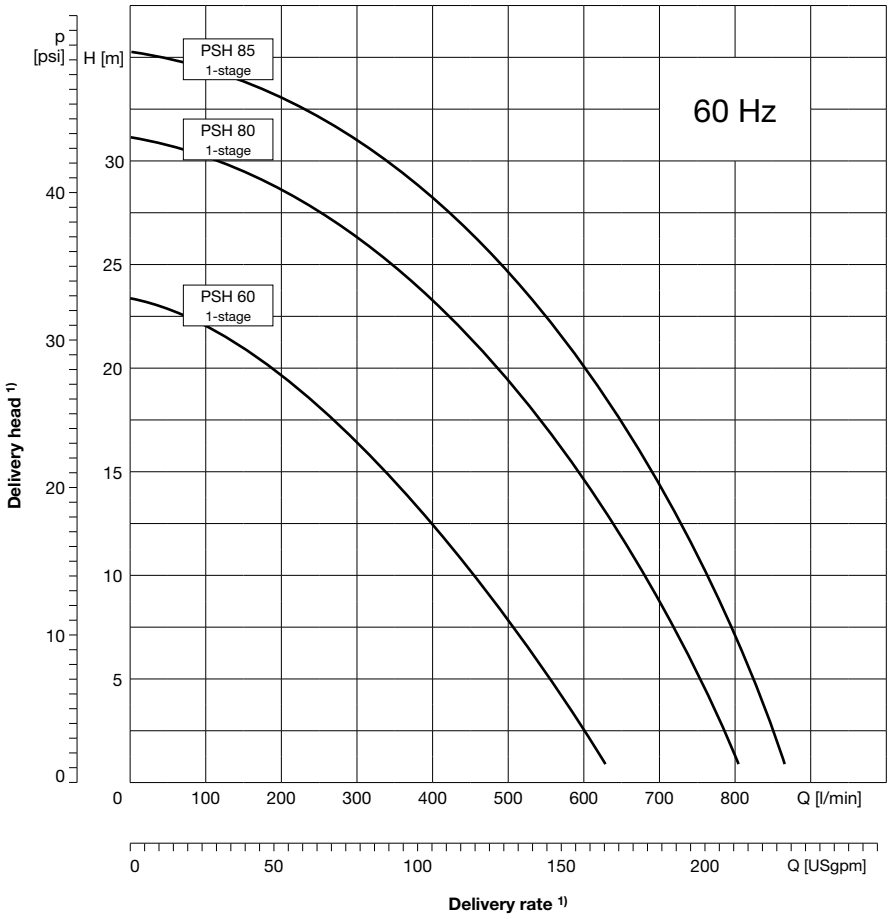


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PSH	60	01	300	230/400	L	3,0	10,0/5,75	2885	196	155	392	42,5	68-74	G1¼
			550									55,5		
	80	01	300	Δ 400	N	5,5	Δ 11,2	2900	257	182	488	65,2	68-75	G1¼
			550									78,2		
	85	01	300	Δ 400	N	5,5	Δ 11,2	2900	257	182	488	65,2	68-75	G1¼
			550									78,2		

PSH – Immersion pumps, sealless

60 Hz, singlestage, open impellers



Features

- Vertical singlestage centrifugal pump
- For delivery of for highly contaminated fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate
- Pressure port is designed with internal thread G1¼ (single stage)

Technical Data

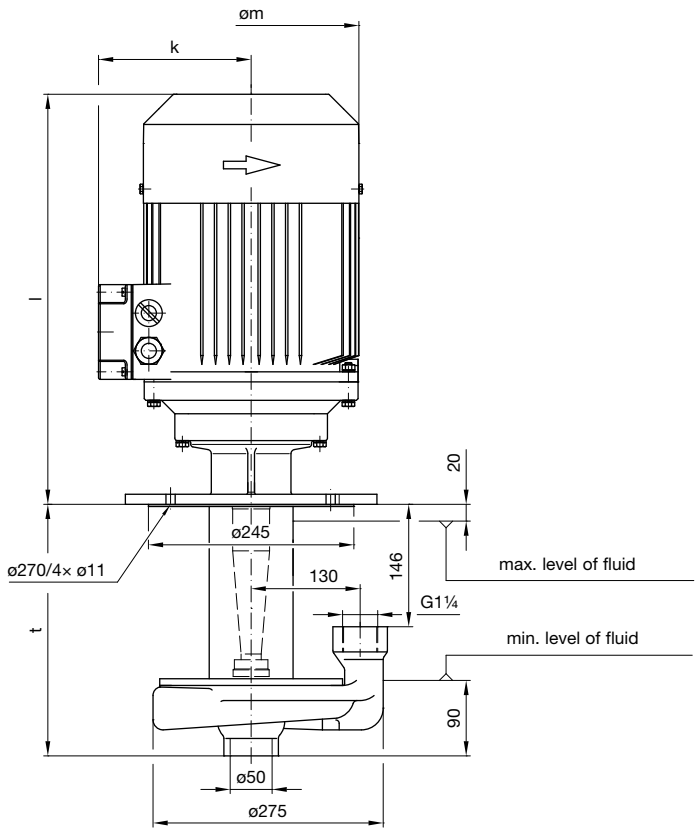
Delivery rate Q_{max}	860 l/min
Delivery head H_{max}	32 m
Immersion depth t_{max}	550 mm
Kinematic viscosity	max. 30 mm^2/s
Delivery temperature	-30°C to +80°C
Grain size	max. Ø8 mm
Contamination	max. 9,5 kg/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, water with antirust additive, heat transfer oils

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	1.0762
Impeller	EN-GJL-200
Intermediate chamber	EN-GJL-200
Intermediate part	Aluminum (Al Cu Mg Pb F 38)
Pumps bottom	EN-GJL-200
Spray ring	1.0503

PSH – Immersion pumps, sealless

60 Hz, singlestage, open impellers



Electrical data, dimensions and weights at 60 Hz

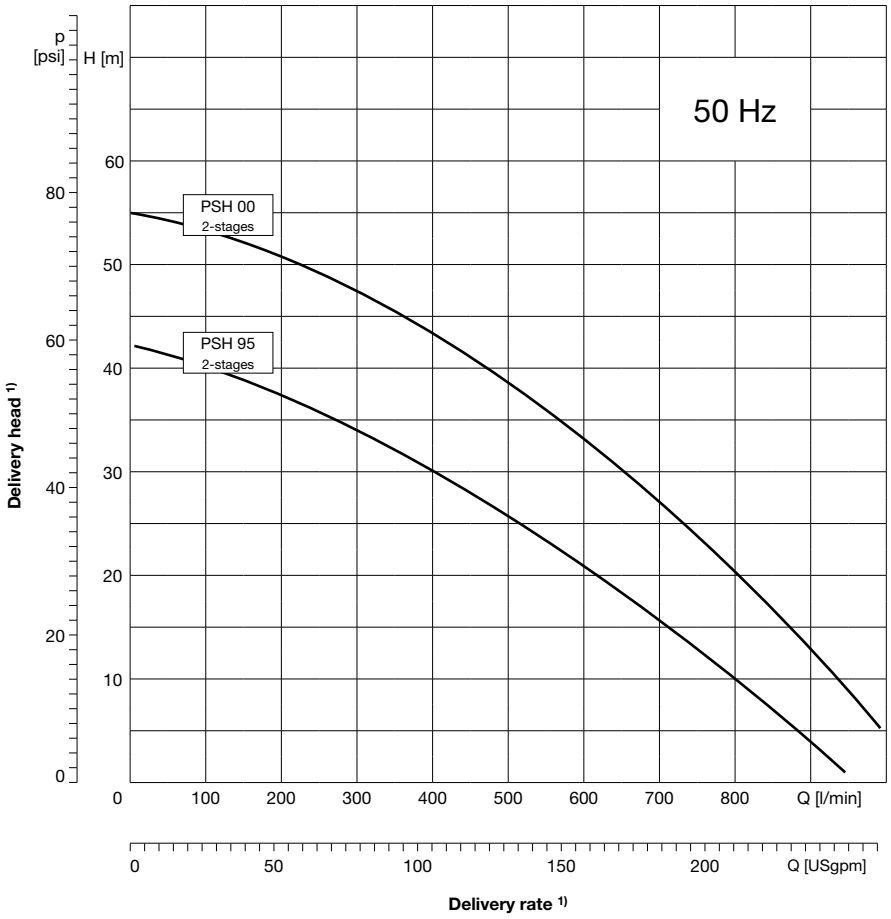
Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PSH	60	01	300	265/460	L	3,6	10,0/5,75	3500	196	155	392	42,5	68-74	G1¼
			550									55,5		
	80	01	300	Δ 460	N	6,2	Δ 11,2	3480	257	182	488	65,2	68-75	G1¼
			550									78,2		
	85	01	300	Δ 460	N	6,2	Δ 11,2	3480	257	182	488	65,2	68-75	G1¼
			550									78,2		

PSH – Immersion pumps, sealless

50 Hz, dualstage, open impellers

Features

- Vertical multistage centrifugal pump
- For delivery of for highly contaminated fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate
- Pressure port is designed with internal thread G1½ (dual stages)



Technical Data

Delivery rate Q_{max}	1000 l/min
Delivery head H_{max}	54 m
Immersion depth t_{max}	350 mm
Kinematic viscosity	max. 30 mm^2/s
Delivery temperature	-30°C to +80°C
Grain size	max. Ø8 mm
Contamination	max. 9,5 kg/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, water with antirust additive, heat transfer oils

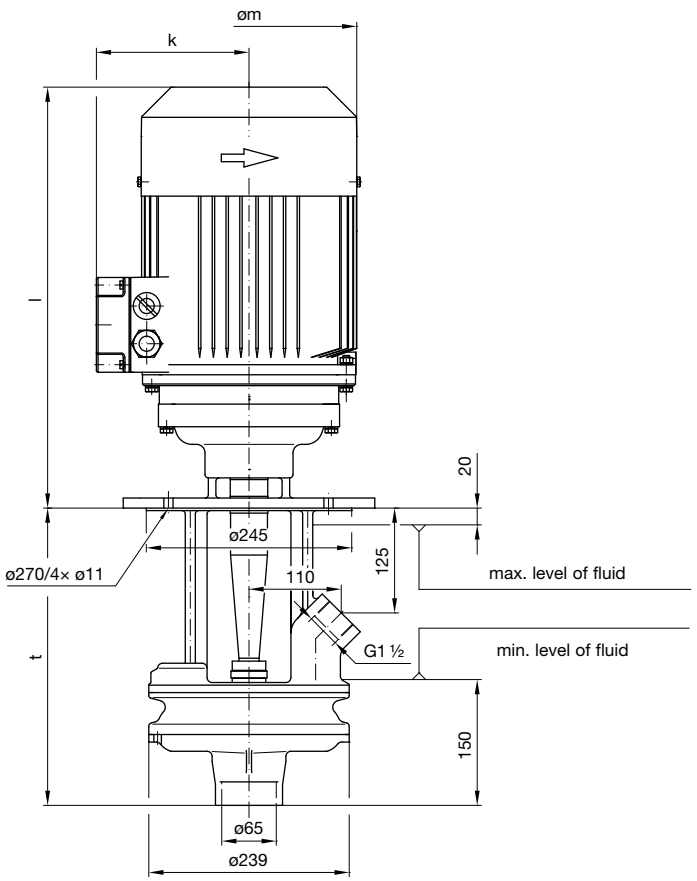
Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	1.0762
Impeller	EN-GJL-200
Intermediate chamber	EN-GJL-200
Intermediate part	Aluminum (Al Cu Mg Pb F 38)
Pumps bottom	EN-GJL-200
Spray ring	1.0503

1) Data for viscosity of ~1 mm^2/s at a density of ~1 kg/dm^3. Minimum volumetric flow: 5 to 10 % of nominal delivery rate.

PSH – Immersion pumps, sealless

50 Hz, dualstage, open impellers

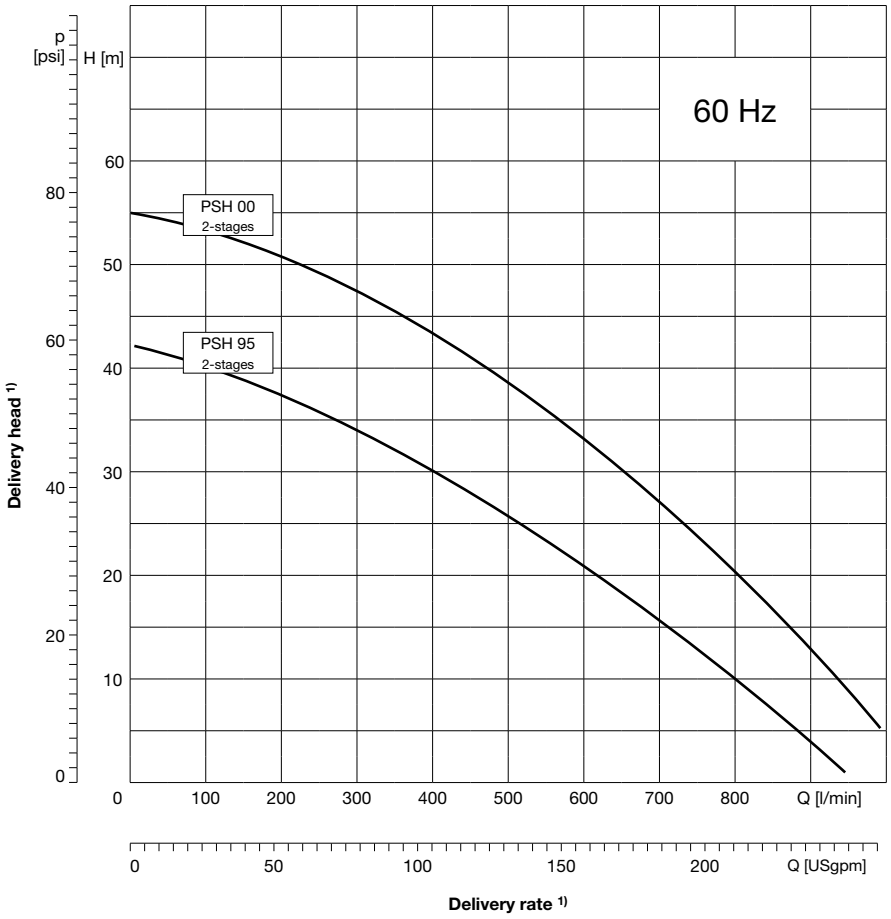


Electrical data, dimensions and weights at 50 Hz

Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PSH	**95**	02	350	Δ 400	O	7,5	Δ 14,5	2900	257	182	501	77,9	72-75	G1½
	00	02	350	Δ 400	P	11,0	Δ 21	2920	257	182	539	115,2	75-79	

PSH – Immersion pumps, sealless

60 Hz, dualstage, open impellers



Features

- Vertical multistage centrifugal pump
- For delivery of for highly contaminated fluids
- Installation direcly into the reservoir
- Pressure port is located above the reservoir plate
- Pressure port is designed with internal thread G1½ (dual stages)

Technical Data

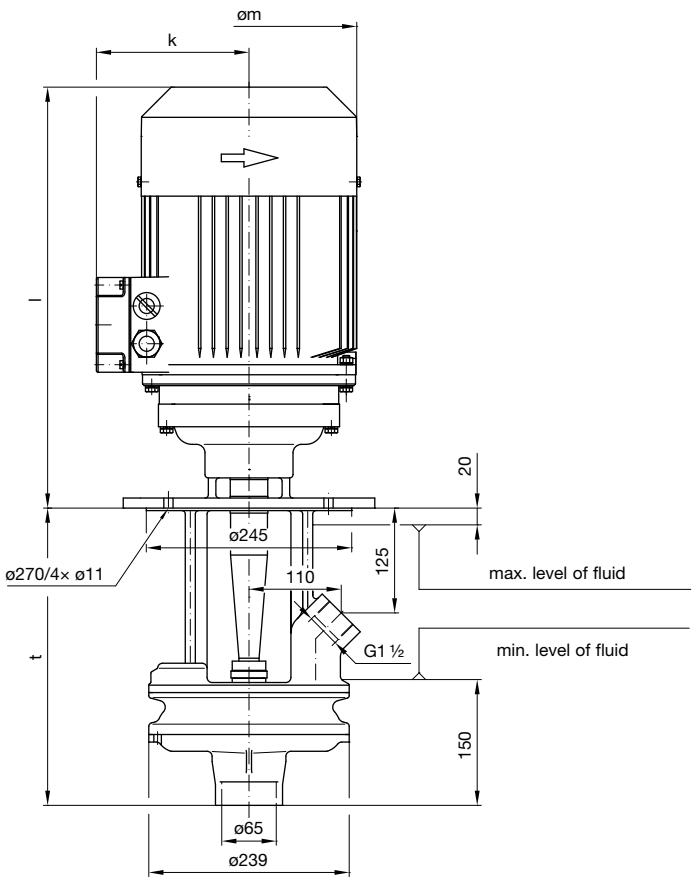
Delivery rate Q_{max}	1000 l/min
Delivery head H_{max}	54 m
Immersion depth t_{max}	350 mm
Kinematic viscosity	max. 30 mm^2/s
Delivery temperature	-30°C to +80°C
Grain size	max. Ø8 mm
Contamination	max. 9,5 kg/m^3
Direction of rotation	clockwise (as viewed looking down on the motor's ventilation side)
Fluids delivered	Emulsions, cooling and cutting oils, water with antirust additive, heat transfer oils

Mechanical design

Component	Material
Flange	EN-GJL-200
Shaft	1.0762
Impeller	EN-GJL-200
Intermediate chamber	EN-GJL-200
Intermediate part	Aluminum (Al Cu Mg Pb F 38)
Pumps bottom	EN-GJL-200
Spray ring	1.0503

PSH – Immersion pumps, sealless

60 Hz, dualstage, open impellers



Electrical data, dimensions and weights at 60 Hz

Type of pump			Immer-sion depth t [mm]	Rated motor values					Dimensions [mm]			Weight [kg]	Sonic pressure [dBA]	Pressure port (DIN ISO 228)
Series	Frame size	Stages		Voltage Δ/Y U [V]	Motor index	Output P_N [kW]	Current Δ/Y I_N [A]	Speed n_N [min^{-1}]	Øm	k	l			
PSH	**95**	02	350	Δ 460	O	8,6	Δ 14,5	3480	257	182	501	77,9	72-75	G1½
	00	02	350	Δ 460	P	12,5	Δ 21	3500	257	182	539	115,2	75-79	

PRG – Immersion pumps, sealless

Order key

P R G [ ][ ] [ ][ ] [ ] [ ][ ] [ ][ ][ ] [ ] [ ][ ] [ ][ ]

Series

Frame size

06

Stages

To determine the desired number of stages
the corresponding characteristics has to be used.
01 = 1-stage
...
04 = 4-stages

Materials

P = POM (standard)

Seal

B = gap bush (standard)

Pump design

S = standard design
I = intruder

Immersion depth in

To determine the desired immersion depth the appropriate table
"Electrical data, dimensions and weights" has to be used.
120 = 120 mm
...
320 = 320 mm

Motorindex

To determine the desired immersion depth the appropriate table
"Electrical data, dimensions and weights" has to be used.
Example:
E = 0,37 kW

Power supply

01 = 230/400 V at 50 Hz
265/460 V at 60Hz
05 = **standard for Europe**
230/400 V 50 Hz
... further designs on request

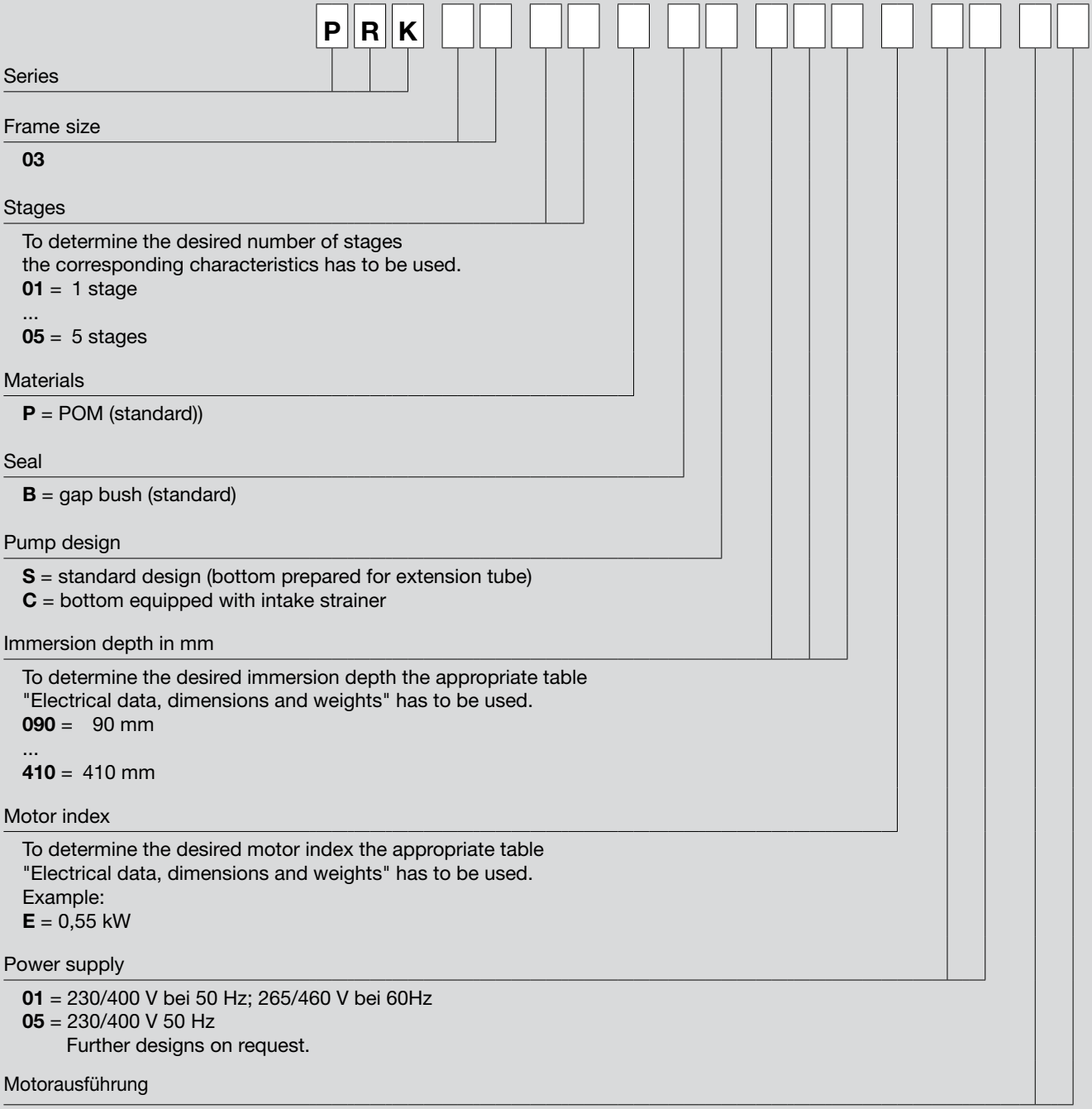
Motor index

AA = standard to 0,55 kW (insulation class F, IP 54, 2-pole)
EA = single-phase motor
... further designs on request

Order example: PRG0602PBS160B05AA
Series:: **PRG**, frame size: **06**, **02**-stages, material: **P** POM plastic, seal:: **B** bush, Pump design: **S** standard design, immersion depth: **160** mm, Motor index: **B** 0,12 kW, Power supply: **05** 230/400 V 50 Hz;
Motor design: **AA** standard

PRK – Immersion pumps, hydrostatic sealing

Order key



Series

Frame size

03

Stages

To determine the desired number of stages
the corresponding characteristics has to be used.
01 = 1 stage
...
05 = 5 stages

Materials

P = POM (standard))

Seal

B = gap bush (standard)

Pump design

S = standard design (bottom prepared for extension tube)
C = bottom equipped with intake strainer

Immersion depth in mm

To determine the desired immersion depth the appropriate table
"Electrical data, dimensions and weights" has to be used.
090 = 90 mm
...
410 = 410 mm

Motor index

To determine the desired motor index the appropriate table
"Electrical data, dimensions and weights" has to be used.
Example:
E = 0,55 kW

Power supply

01 = 230/400 V bei 50 Hz; 265/460 V bei 60Hz
05 = 230/400 V 50 Hz
Further designs on request.

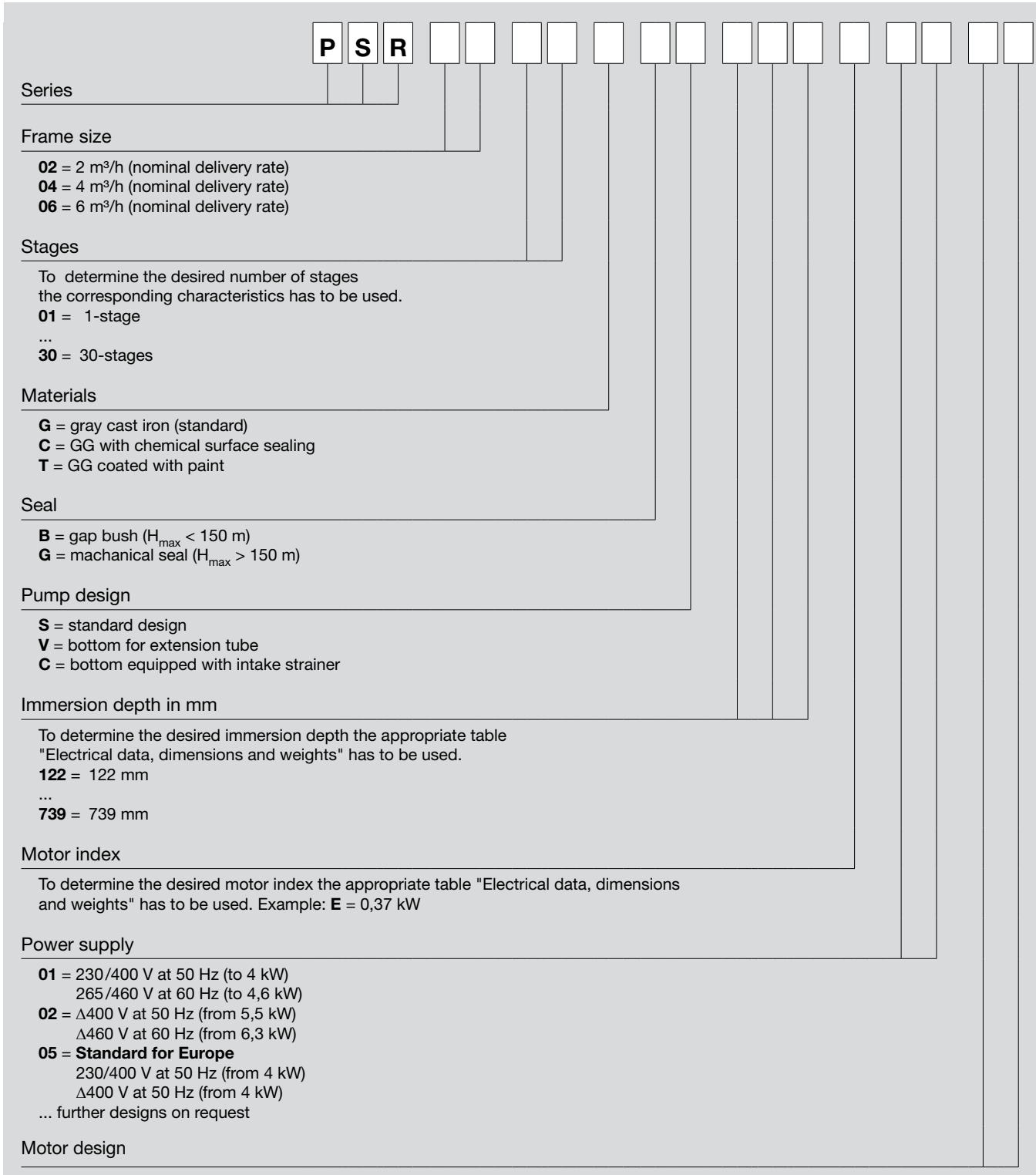
Motorausführung

AA = standard to 0,55 kW (insulation class F, IP 54, 2-pole,)
BA = standard from 0,75 kW (insulation class F, IP 54, 2-pole,, IE2)
Further designs on request.

Order example: PRK0304PBS255G05BA
Series:: **PRK**, frame size: **03**, **4** stages,, material: **P** POM plastic, seal: **B** gap bush, pump design: **S** standard design, immersion depth: **225** mm, motor index:: **G** 0,75 kW, power supply: **05** 230/400 V 50 Hz;
Motor design: **BA** standard (IE2)

PSR – Immersion pumps, sealless

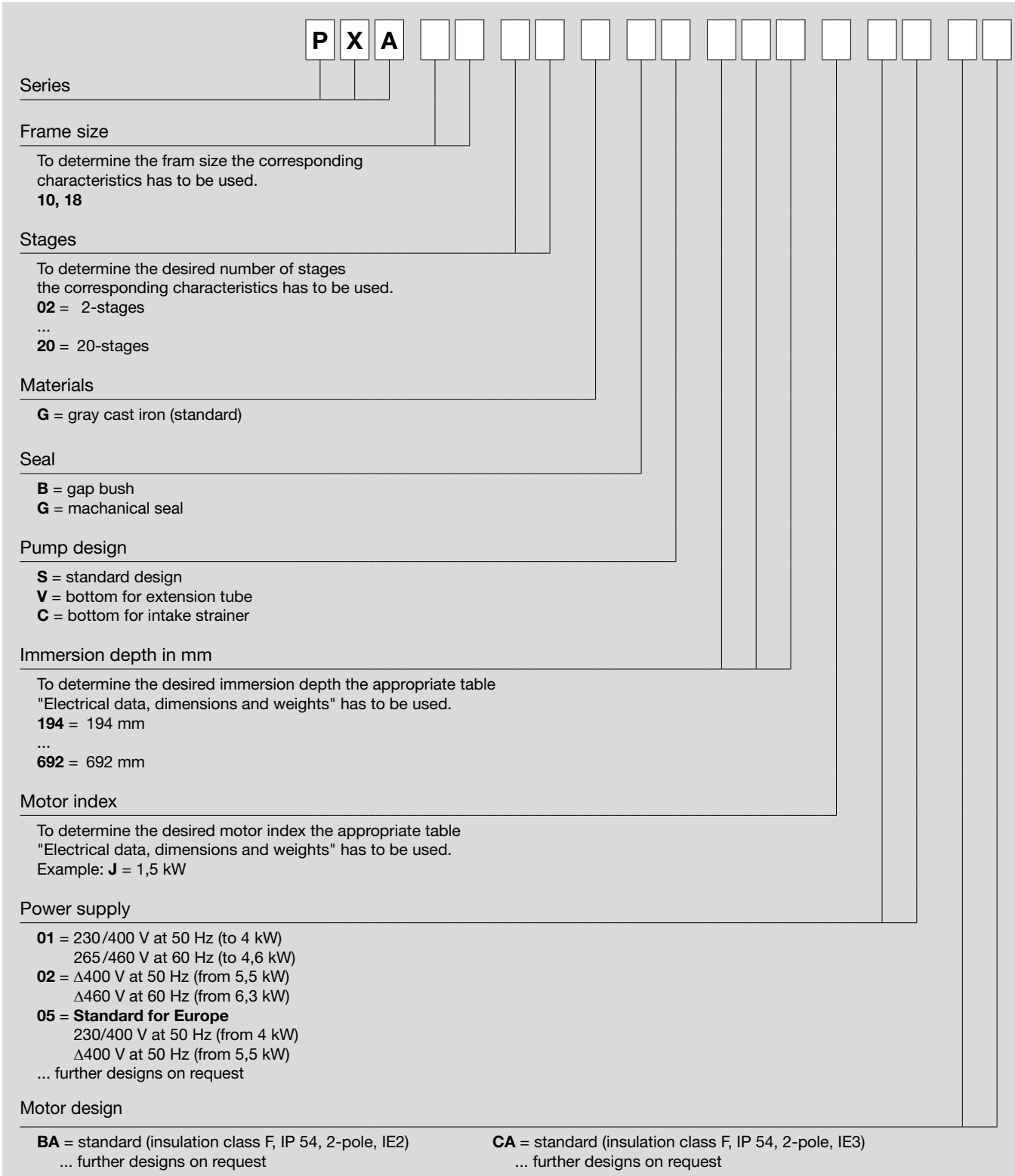
Order key



Order example: PSR0218GBS481J01BA
Series: **PSR**, Frame size: **02**, **18**-stages, Material: **G** grey cast iron, Seal: **B** gap bush, Pump design: **S** standard design, Immersion depth: **481** mm, Motor index: **J** 1,5 kW, Power supply: **01** 230/400 V 50 Hz; 265/460 V 60Hz, Motor design: **BA** standard form 0,75 kW

PXA 10/18 – Immersion pumps, sealless

Order key



Order example: PXA1009GBS383M05BA
Series: **PXA**, Frame size: **10**, **09**-stages, Material: **G** grey cast iron, Seal: **B** gap bush, Pump design: **S** standard design, Immersion depth: **383** mm, Motor index: **M** 4,0 kW, Power supply: **05** 230/400 V 50 Hz (< 4 kW), Motor design: **CA** Standard (IE3)

* All data and measurements refer to the IE3-motors.

PS/PSL – Immersion pumps, sealless

Order key

Series

PS- = Standard design
PSL = "Slurp" for air-polluted liquids

Frame size

To determine the frame size the corresponding characteristics has to be used.
01, 03

Stages

To determine the desired number of stages the corresponding characteristics has to be used.
01 = 1-stages
...
07 = 7-stages

Materials

G = gray cast iron (standard)

Seal

B = gap bush (standard)

Pump design

S = standard design
V = bottom for extension tube

Immersion depth in mm

250 = 250 mm
...
670 = 670 mm

Motor index

To determine the desired motor index the appropriate table "Electrical data, dimensions and weights" has to be used.
Example: **J =** 1,5 kW

Power supply

01 = 230/400 V at 50 Hz (to 4 kW)
265/460 V at 60 Hz (to 4,6 kW)
02 = Δ400 V at 50 Hz (from 5,5 kW)
Δ460 V at 60 Hz (from 6,3 kW)
05 = **Standard for Europe**
230/400 V at 50 Hz (from 4 kW)
Δ400 V at 50 Hz (from 4 kW)
... further designs on request

Motor design

BA = standard (insulation class F, IP 54, 2-pole, IE2)
... further designs on request

Order example: PS-0104GBS460M01BA
Series: **PS**, Frame size: **01**, **04**-stages, Material: **G** grey cast iron, Seal: **B** gap bush, Pump design: **S** standard design, Immersion depth: **460** mm, Motor index: **M** 4,0 kW, Power supply: **01** 230/400 V 50 Hz, 265/460 V 60 Hz, Motor design: **BA** standard (IE2)

PMS – Immersion pumps, sealless

Order key

Series

Frame size

To determine the fram size the corresponding characteristics has to be used.
05, 06, 08, 10, 25, 30, 40

Stages

To determine the desired number of stages the corresponding characteristics has to be used.
01 = 1-stage
...
04 = 4-stages

Materials

P = plastic (Standard)
G = gray cast iron

Seal

B = gap bush

Pump design

S = standard design
V = bottom for extension tube

Immersion depth in mm

To determine the desired immersion depth the appropriate table "Electrical data, dimensions and weights" has to be used.
90 = 90 mm
...
560 = 560 mm

Motor index

To determine the desired motor index the appropriate table "Electrical data, dimensions and weights" has to be used.
Example: **H** = 1,1 kW

Power supply

01 = 230/400 V at 50 Hz
265/460 V at 60 Hz
05 = **Standard für Europa**
230/400 V at 50 Hz
... further designs on request

Motor design

AA = standard up to 0,55 kW (insulation class F, IP 54, 2-pole)
BA = standard from 0,75 kW (insulation class F, IP 54, 2-pole, IE2)
... further designs on request

Order example: PMS4001GBS280J01BA
Series: **PMS**, Frame size: **40**, **01**-stage, Material: **G** grey cast iron, Seal: **B** gap bush, Pump design: **S** standard design, Immersion depth: **280** mm, Motor index: **J** 1,5 kW, Power supply: **01** 230/400 V at 50 Hz, 265/460 V at 60 Hz, Motor design: **BA** Standard (IE2)

* All data and measurements refer to the IE2-motors.

PSH – Immersion pumps, sealless

Order key

Series

Frame size

To determine the desired frame size the corresponding characteristics has to be used.

60 = max. 600 l/min
80 = max. 800 l/min
85 = max. 850 l/min
95 = max. 950 l/min
00 = max. 1000 l/min

Stages

To determine the desired number of stages the corresponding characteristics has to be used.
01 = 1 stages
02 = 2 stages

Materials

G = gray cast iron (standard)

Seal

O = sealless (standard)

Pump design

S = standard design

Immersion depth in mm

300 = 300 mm
...
550 = 550 mm

Motor index

To determine the desired motor index the appropriate table "Electrical data, dimensions and weights" has to be used.
Example: **L** = 3,0 kW

Power supply

01 = 230/400 V at 50 Hz (to 4 kW)
265/460 V at 60 Hz (to 4,6 kW)
02 = Δ400 V at 50 Hz (from 5,5 kW)
Δ460 V at 60 Hz (from 6,3 kW)
05 = **Standard for Europe**
230/400 V at 50 Hz (from 4 kW)
Δ400 V at 50 Hz (from 4 kW)

... further designs on request

Motor design

BA = standard (insulation class F, IP 54, 2-pole, IE2)
Further designs on request.

Order example: PSH8501GOS550N02BA
Series: **PSH**, Frame size: **85**, **01** stage, Material: **G** grey cast iron, Seal: **O** gap bush, Pump design: **S** standard design, Immersion depth: **550** mm, Motor index: **N** 5,5 kW, Power supply: **02** Δ400 V 50 Hz, Δ460 V 60 Hz, Motor design: **BA** Standard (IE2)

Notes

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