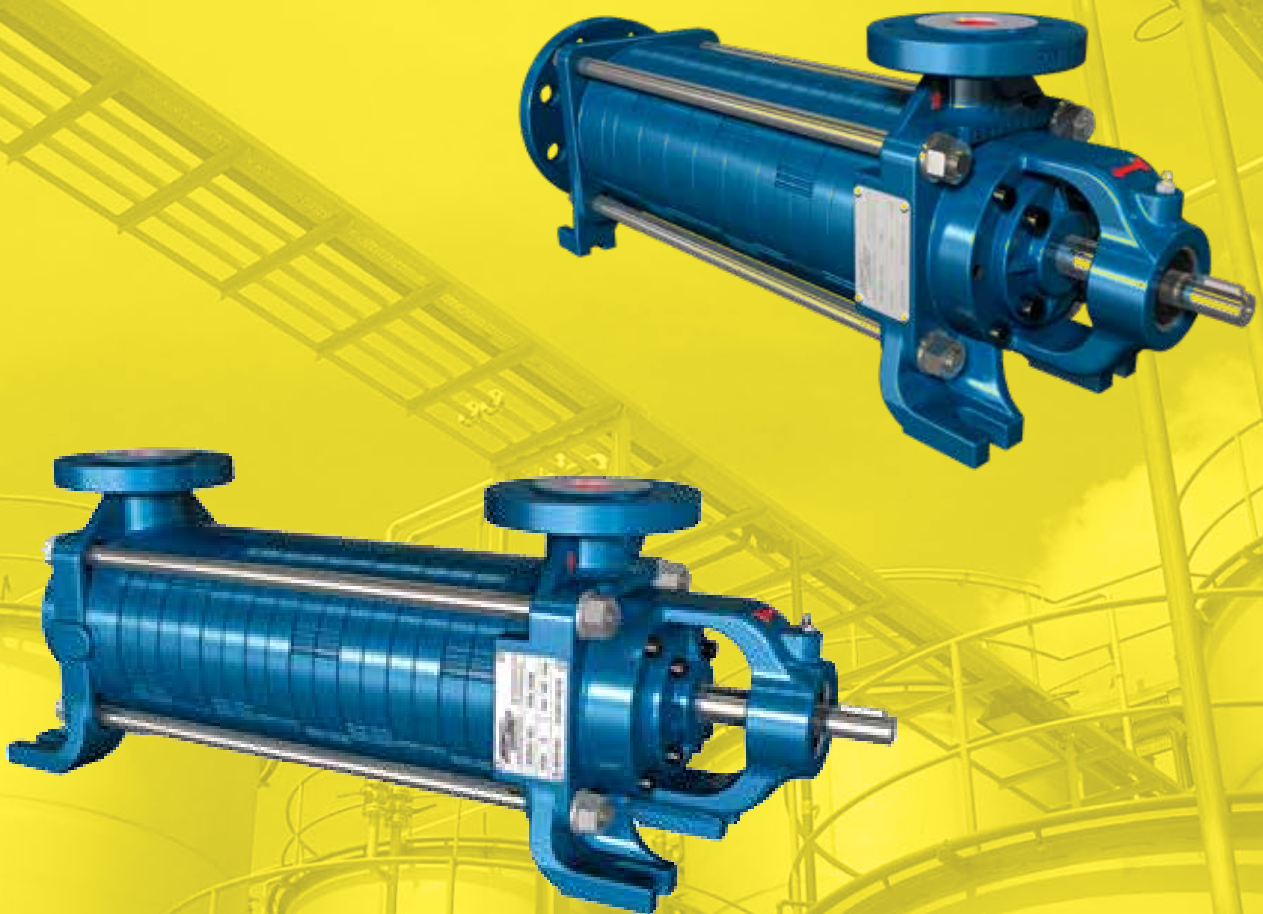


tapflo®

PS SIDE CHANNEL PUMPS

2020| 1



» All about your flow™

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» All about your flow™

We began our journey 40 years ago in Kungälv, a small town on the Swedish west coast, as a family company with an ambition to one day become a global player on the pump market.

Since 1980, we have taken pride in delivering a wealth of knowledge and passion for pumps to the industry, whilst supplying a wide range of premium products for various industrial applications.

Over the years, the company has developed into a global Tapflo Group with branches and distributors present in nearly every region of the world.

One thing did not change - we are still a family company.

Our solutions are designed and manufactured in Europe and distributed globally to offer the best service and flow solutions to our customers for a variety of applications.

Our values, Commitment, Quality and Simplicity are reflected both in our product and business approach.



For fast and flexible service and high-quality products readily available worldwide, choose Tapflo.

Quality commitment

At Tapflo we are simply committed to quality. As a result, our production standards, as well as products quality, comply with various globally recognised certification and quality control standards. The Tapflo manufacturing process is certified according to ISO 9001:2015, confirming that our processes are appropriate, effective, customer-focused and continuously improved.



Tapflo values

Our culture is concluded in Our values

Commitment

We are different from our competitors because of our willingness to exceed the customers' expectations, move fast and be flexible. Our culture is based on the spirit of togetherness, enthusiasm and integrity. We come from all over the world but we share the same values and we respect each other. We are committed.

Quality

We understand that the quality in our work is never better than the weakest link, that's why we focus on every small detail. We share a common passion for continuously finding more efficient and effective ways to provide value to our customers. As a manufacturer we have control of the complete process both in terms of our products and the way we operate internally. That is why we manufacture the highest quality pumps in our segment.

Simplicity

We have a saying, "Simple is art" which means we try to find smooth and uncomplicated solutions in everything. By keeping it simple we can focus on the essential, like designing uncomplicated pumps with few components. For us it is a key to success; strive to simplify what is complex.

PS series – Side Channel Pumps

The solution for critical conditions

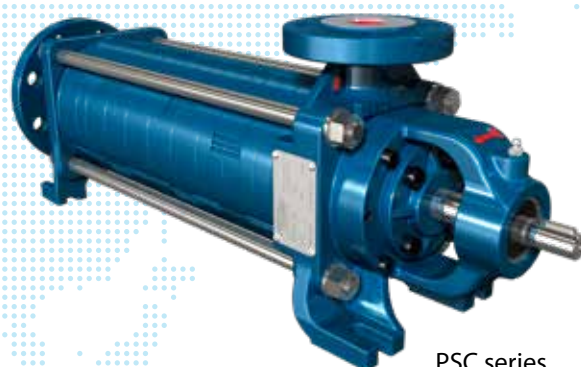
PS pump is a self-priming side channel pump capable of handling gas along with the medium and operates at a low noise level.

PS pumps are used for problem-free pumping of clean liquids at unfavourable suction side conditions.

They are also very suitable for positive suction heads below 0,5m. PS pumps provide the most appropriate solutions for liquefied gases, liquids under vapour pressure, refrigerants and especially PS applications.

Side channel designs fill the hydraulic performance void between positive displacement pumps and centrifugal pumps. Fully open “star” impellers interact with the side channel casing creating an intense transfer of energy to the pumped liquid or liquid / gas mixture.

The corresponding pressure increase (pump head) equals 5 to 10 times the amount generated by a similar size centrifugal pump at the same RPM.



PSC series



PSD series



PSV series

Fast facts

Capacity	0.5 - 35 m ³ /h
Max. Head:	35 bar
Max. Casing pressure:	40 bar
Max. Speed:	1750 d/d (60Hz)
Max. Working temperature:	220 °C
Flange connections:	DIN2501 - ANSI 150 & 300 / PN40

Features & Benefits

- ✓ Self- priming
- ✓ High pressure at low capacity
- ✓ Liquefied gas handling
- ✓ High resistant materials
- ✓ Performance curve characteristic
- ✓ High efficiency
- ✓ Low NPSH value
- ✓ Modular hydraulic system
- ✓ Ability to pump vapour laden liquides (up to 50%)

Typical applications



Ship Yards



LPG Industry



Oil Industry



Chemical & Petrochemical Industry



Pharmaceutical Industry

Working principle

The design of the side channel pump allows for the transfer of liquid-gas mixture with up to 50% vapor; therefore eliminating possible air or vapor locking that can occur in other pump designs. A special suction impeller lowers the NPSH requirement for the pump.

The side-channel pump design is similar to a regenerative turbine in that the impeller makes regenerative passes through the liquid. However, the actual design of the impeller and casing as well as the principles of operation differ greatly.

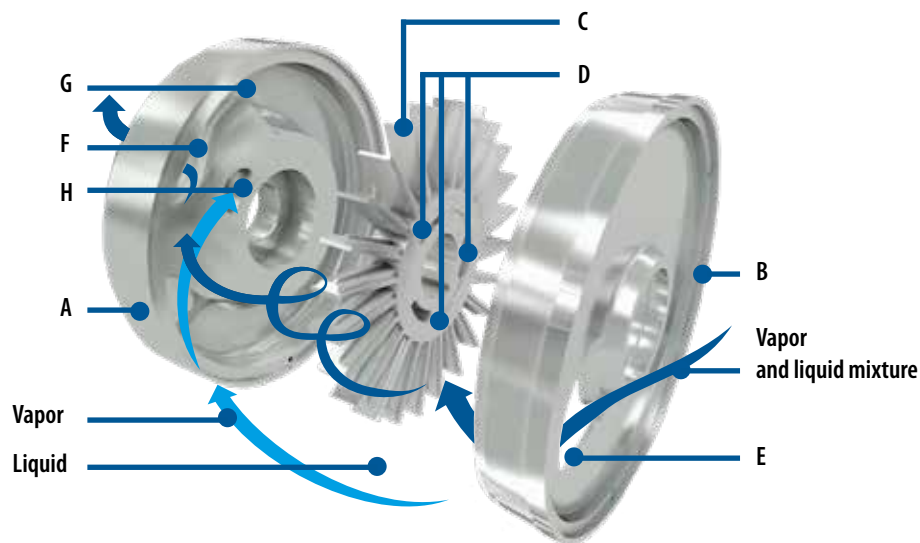
The side-channel pump has a channel only in the discharge stage casing (A) and a flat surface which is flush with the impeller on the suction stage casing (B).

A star-shaped impeller (C) is keyed to the shaft and is axially balanced through equalization holes (D) in the hub of the impeller.

The liquid or liquid/vapor mixture enters each stage of the pump through the inlet port (E).

Once the pump is initially filled with liquid, the pump will provide a siphoning effect at the inlet port. The effect is similar to what happens in water ring pumps. The water remaining in the pump casing forms a type of water ring with a free surface. A venturi effect is created by the rotation of the impeller and the free surface of the water, thus pulling the liquid into the casing.

After the liquid is pulled through the inlet port, it is forced to the outer periphery of the impeller blade by centrifugal action. It is through this centrifugal action that the liquid is accelerated and forced into the side channel. The liquid then flows along the semicircular contour of the side channel from the outermost point to the innermost point until once again it is accelerated by the impeller blade.



Item	Description
A	Discharge Casing
B	Suction Casing
C	Vane Wheel Impeller
D	Equalization Holes
E	Liquid Inlet
F	Liquid Outlet
G	Mini Channel
H	Vapor Balance Outlet

Pump code

I.	II.	III.	IV.	V.	VI.	VII.	VIII.	IX.	
P	S	C	300	8	–	2	B	1	LS

I. Petroland

II. Side Channel Pump

III. Case design:

C = Inlet Horizontal, Outlet Vertical

D = Inlet - Outlet Vertical

(Double Ball Bearing)

V = Inlet - Outlet Vertical

(Single Ball Bearing)

IV. Pump size:

100 - 200 - 300 - 400 - 500 - 600

V. Stages:

1 - 2 - 3 - 4 - 5 - 6 - 7 - 8

VI. Casing Material:

1 = GG25 (Cast Iron)

2 = GGG40.3 (Ductile Iron)

3 = GSC25N (Steel)

4 = AISI 316 Stainless Steel

VII. Impeller Materials:

A = Brass

B = Bronze

P = 316 Stainless Steel

VIII. Shaft Sealing:

1 = Mechanical Seal - Single

2 = Mechanical Seal - Double

3 = Cartridge Mechanical Seal - Double

4 = Packing Gland

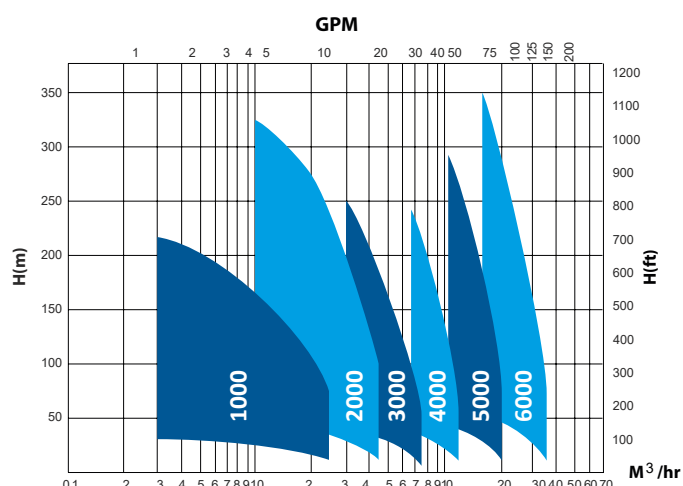
IX. Shaft Sealing:

LS = With Liquid Sensor

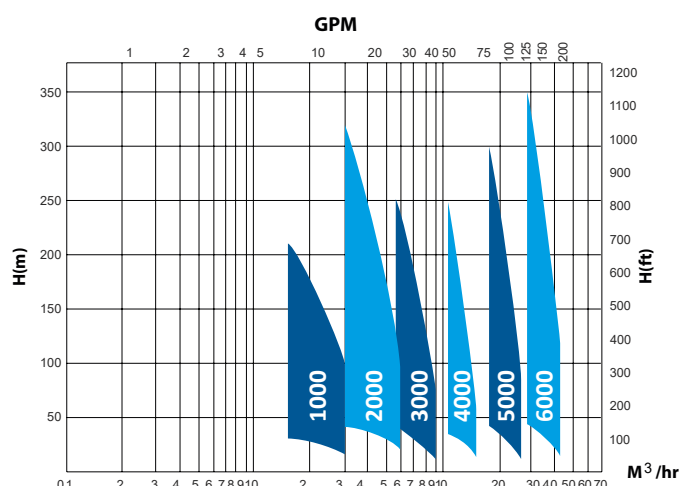
Technical data

Series	1000	2000	3000	4000	5000	6000
Number of Stages	1 - 2 - 3 - 4 - 5 - 6 - 7 - 8					
Inlet Flange	1½ (DN40)	2½ (DN65)	2½ (DN65)	3 (DN80)	4 (DN100)	4 (DN100)
Outlet Flange	¾ (DN20)	1¼ (DN32)	1¼ (DN32)	1½ (DN40)	2 (DN50)	2½ (DN65)
Inlet - Outlet Flanges for PSD & PSV	¾ (DN20)	1¼ (DN32)	1¼ (DN32)	1½ (DN40)	2 (DN50)	2½ (DN65)
Speed	1450 (50 Hz) / 1750 (60Hz)					
Max. Working Pressure	35 Bar (510)					
Differential Range Head ft (m)	50 (15)-690(210)	65(20)-1050(320)	30 (10)-820 (250)	30 (10)-805 (245)	30 (10)-950 (290)	30(10)-1150 (350)
Min. / Max. Temp.	-40°C (-40°F) / 220°C (430°F)					
NPSH ft (m)	1.6 (0.5)-13 (4)	2 (0.6)-3.3 (1)	1.6 (0.5) - 6.6 (2)	1.3 (0.4)-8.2 (2.5)	1.3 (0.4)-12 (3.5)	4.6(1.4)-8.2 (2.5)
Max. Viscosity	230 cSt (1050 SSU)					
Max. Proportion of Gas Allowable	50 %					
Connection Norms	ANSI 150 & 300 Flange / DIN EN 1092 & DIN 2501 PN40 Flange					
Casing Material Options	GG25 (Cast Iron) / GGG50 (Ductile Iron) / GSC25N (Steel) / AISI 316 (Stainless Steel)					
Impeller Material Options	Alloyed Bronze / Bronze RG7 / AISI 316 Stainless Steel					
Shaft Sealing Options	Mechanical seal / Cartridge Mechanical seal / Cartridge double Mechanical seal / Packing gland					
Mechanical Seal Material Options	SIC-Car-Viton / SIC-SIC-Kalrez / SIC-SIC-Teflon					
Pump rpm	1450 rpm (1750 rpm / 60Hz)					
Capacity	Max: 35 m3/h (42 m3/h / 60Hz)					
Accessories	Likuid Sensor (Liquid Level Switch) / Collector / Reducer / Exproof Coupling / By-Pass Valve					

Performance Curves



1450 d/d (50 Hz)



1750 d/d (60 Hz)

PSC model pumps

Pumps of the series PSC are horizontal and self-priming, side channel pumps with a NPSH inducer stage suitable for handling liquids which do not contain solid or abrasive matter. The NPSH inducer stage allows the pump to operate on the suction side under unfavourable conditions and at positive suction heads lower than 0.5 m.

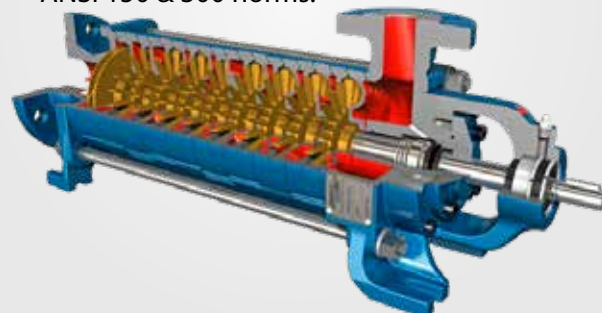
The range comprises of six sizes each with 1 to 8 hydraulic stages whereby an optimum rating is obtained, ensuring the pump selected meets the required capacity and head.

The different material possibilities with uniform dimensions and performance characteristics as well as the standard exchangeable components, coupling with mechanical seal, packing gland and cartridge seal make the PSC particularly recommendable.

The pumps of the PSC /LS series have a retaining stage to avoid the dry running by controlling the liquid level in the pump. This design is especially developed for the handling of liquids under vapour pressure or when pumping from underground tanks.

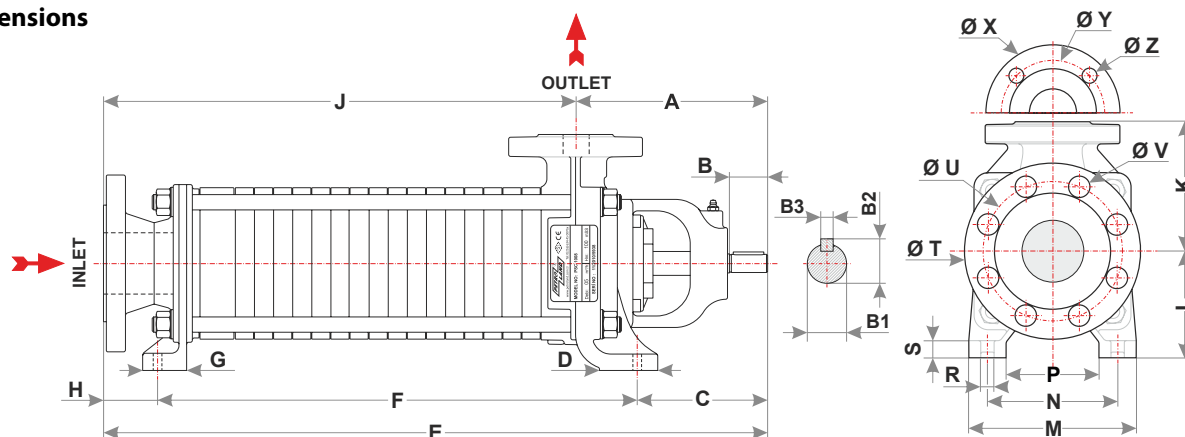


- » Side Channel allows for greater pressure generation per stage over normal centrifugal pump of the same size and speed.
- » Impeller allows PSC Pumps to handle NPSH requirements of less than 0,5 meter.
- » Sealing options available are Packing Gland, Mechanical Seal or Cartridge Seal.
- » Flanges options available are DIN and ANSI 150 & 300 norms.



Technical data

Dimensions



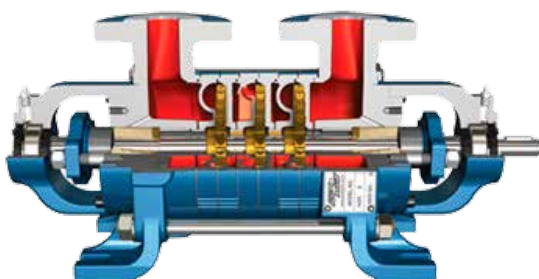
Size	Inlet	Outlet	Dimensions (mm)																					
			A	B	C	D	G	H	K	L	M	N	P	R	S	T	U	V	X	Y	Z	B1	B2	B3
1000	40	20	170	25	114	45	45	45	100	100	142	105	60	12	14	150	110	18*4	105	75	14*4	16	18,2	5
2000	65	32	200	40	134	60	50	53	135	112	180	135	110	14	16	185	145	18*8	140	100	18*4	19	21,5	6
3000	65	32	200	40	134	60	50	53	135	112	180	135	110	14	16	185	145	18*8	140	100	18*4	19	21,5	6
4000	80	40	195	45	140	65	55	63	140	132	200	155	120	14	16	200	160	18*8	150	110	18*4	24	27,0	8
5000	100	50	237	50	160	65	60	68	165	160	220	170	120	16	18	235	190	22*8	165	125	18*4	28	31,0	8
6000	100	65	262	65	172	70	60	70	180	180	255	195	145	16	18	235	190	22*8	185	145	18*8	32	35,5	10

PSD model pumps

Pumps of the series PSD are horizontal and self-priming, side channel pumps of segmental type construction which are able to handle entrained gases.

These pumps have been specifically designed for heavy duty applications within industry. When pumping pure, turbid or aggressive media the design is ideally suited.

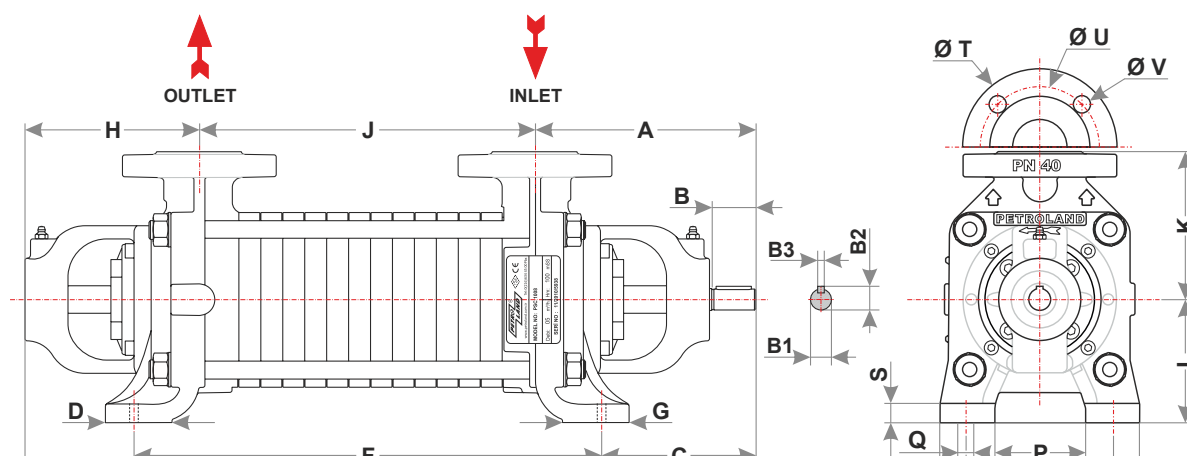
The range comprises of six sizes each with 1 to 8 hydraulic stages where by an optimum rating is obtained, ensuring the pump selected meets the required capacity and head. PSD is a Side Channel pump operates at a low noise level.



- » Side Channel allows for greater pressure generation per stage over normal centrifugal pump of the same size and speed.
- » Double bearing design is produced for heavy duty applications
- » Sealing options available are Packing Gland, Mechanical Seal or Cartridge Seal.
- » Flanges options available are DIN and ANSI 150 & 300 norms.

Technical data

Dimensions



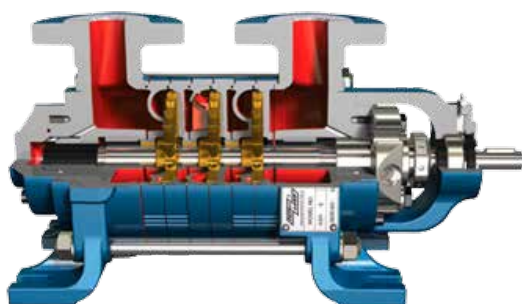
Size	Inlet	Outlet	Dimensions (mm)																		
			A	B	C	D	G	H	K	L	M	N	P	Q	S	T	U	V	B1	B2	B3
1000	20	20	170	25	112	45	45	140	100	100	142	105	60	12	14	105	75	14*4	16	18,2	5
2000	32	32	200	40	134	65	65	160	132	112	180	135	110	14	16	140	140	18*4	19	21,5	6
3000	32	32	200	40	134	65	65	160	162	112	180	135	110	14	16	140	140	18*4	19	21,5	6
4000	40	40	195	45	140	70	70	147	140	132	200	155	120	14	16	150	150	18*4	24	27,0	8
5000	50	50	237	50	160	70	70	182	165	160	220	170	120	16	18	165	165	18*4	28	31,0	8
6000	65	65	262	65	172	70	70	197	180	180	260	195	145	16	18	185	185	18*8	32	35,5	10

PSV model pumps

Pumps of the series PSV are horizontal and self-priming, side channel pumps of segmental type construction which are able to handle entrained gases.

These pumps have been specifically designed for medium duty applications within industry. When pumping pure, turbid or aggressive media the design is ideally suited.

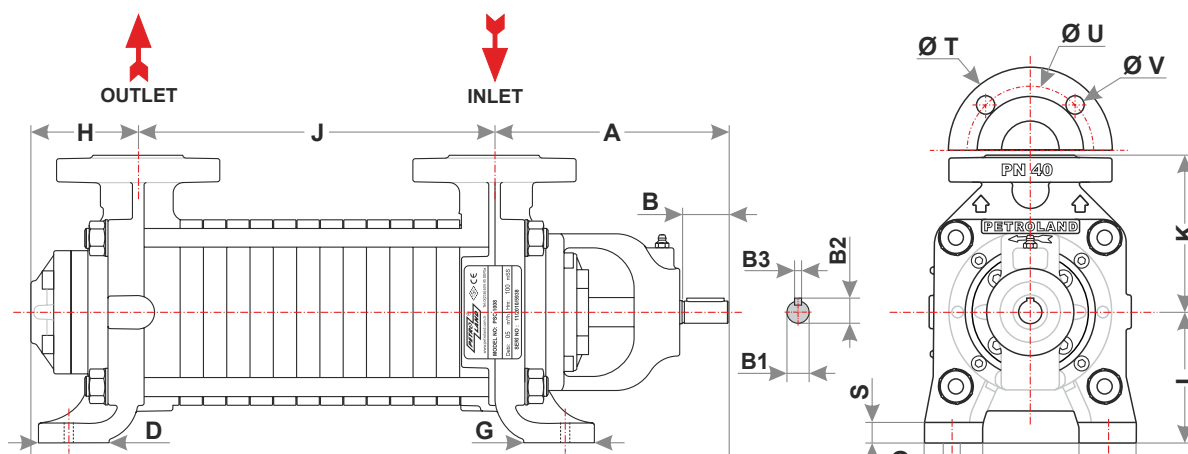
The range comprises of six sizes each with 1 to 8 hydraulic stages whereby an optimum rating is obtained, ensuring the pump selected meets the required capacity and head.



- » Side Channel allows for greater pressure generation per stage over normal centrifugal pump of the same size and speed.
- » Single bearing design is produced or medium duty applications
- » Sealing options available are Packing Gland, Mechanical Seal or Cartridge Seal.
- » Flanges options available are DIN and ANSI 150 & 300 norms.
- » Carbon Graphite Bushing

Technical data

Dimensions



Size	Inlet	Outlet	Dimensions (mm)																		
			A	B	C	D	G	H	K	L	M	N	P	Q	S	T	U	V	B1	B2	B3
1000	20	20	170	25	112	45	45	70	100	100	142	105	60	12	14	105	75	14*4	16	18,2	5
2000	32	32	200	40	134	65	65	95	132	112	180	135	110	14	16	140	140	18*4	19	21,5	6
3000	32	32	200	40	134	65	65	95	132	112	180	135	110	14	16	140	140	18*4	19	21,5	6
4000	40	40	195	45	140	70	70	70	140	132	200	155	120	14	16	150	150	18*4	24	27,0	8
5000	50	50	237	50	160	70	70	100	165	160	220	170	120	16	18	165	165	18*4	28	31,0	8
6000	65	65	262	65	172	70	70	100	180	180	260	195	145	16	18	185	185	18*8	32	35,5	10

Type of By-Pass

Differential by-pass valves are designed to protect pumps and system components from excessive pressure damage.

By-pass valves can be setted between 0-15 bar.

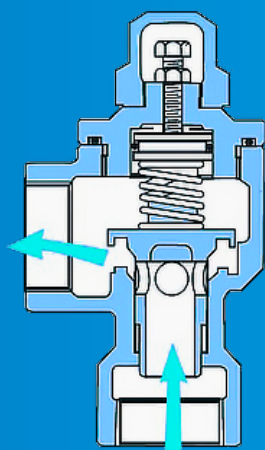
With only two moving parts, operation is simple and reliable.

By-pass should not be open continuously to protect system against any damage or explosion.

Pumps can be supplied with or without By-Pass Valves.



Working principle



Fluid forces to open the poppet of the by-pass valve as the pressure raises in the discharge pipeline instantly. If the pressure raised greater than the setting pressure, pressurized spring lets the poppet to open and start by-pass circulation. Fluid returns into feed tank. Circulation over a long period of time through the by-pass valve causes a significant heating up.

By-Pass valve is one of the most important for the LPG and anhydrous ammonia handling applications. By-Pass valve opens precisely at the preset spring even if the capacity changes. By-pass valve has only two moving parts which provides simple and safe construction.

Technical data

By-Pass PB type	Max. operating pressure	By-Pass Inlet-Outlet	Connection type	
PB 25	15 bar (217.5 PSI)	1"	BSP	NPT
PB 32		1¼"		
PB 40		1½"		
PB 50		2"		

By-Pass PC type	Max. operating pressure	By-Pass Inlet-Outlet	Connection type	
PC 25	15 bar (217.5 PSI)	1"	BSP	NPT
PC 32		1¼"		
PC 40		1½"		
PC 50		2"		

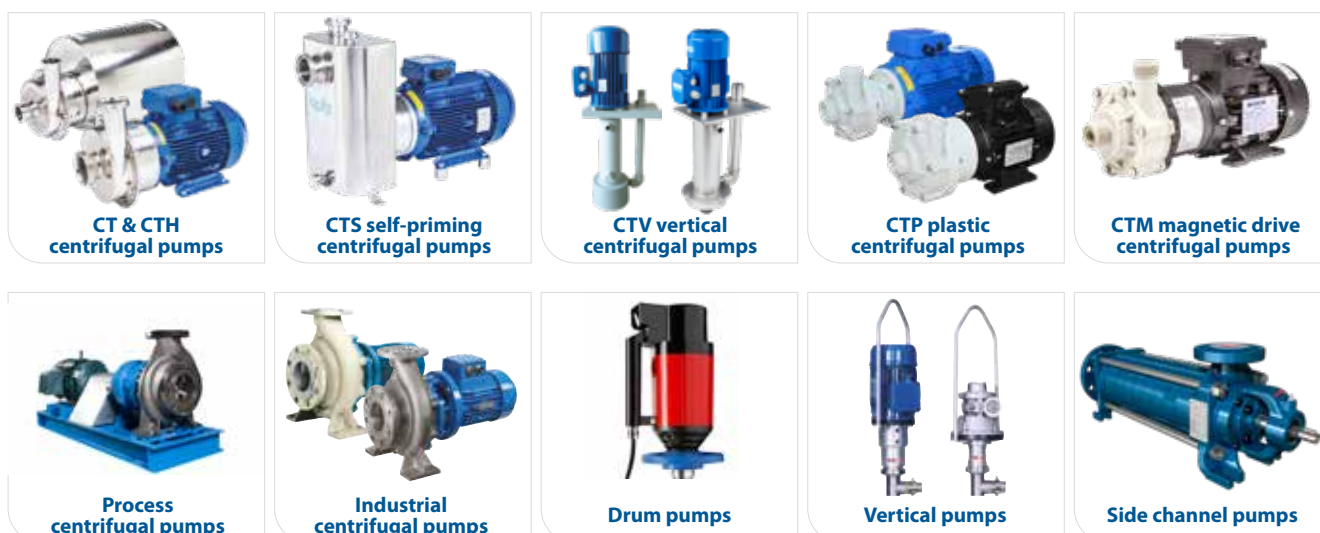
By-Pass PBF type	Max. operating pressure	By-Pass Inlet-Outlet	Connection type	
PBF 25	15 bar (217.5 PSI)	1¼"	BSP	NPT
PBF 32		1½"		
PBF 40		2"		
PBF 50		2½"		

Special flange application upon request

Positive Displacement Pumps



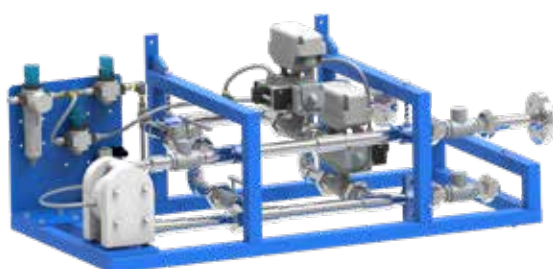
Centrifugal Pumps



Accessories



Unique constructions at a high level



Custom design aims to adapt standard solutions for non-standard needs in industrial processes. This is often achieved by making small modifications to standard products and thus becoming applicable to specific process requirements.

TAPFLO d.o.o.



Tapflo Serbia

Braće Ribnikara 56/308 | 21000 Novi Sad

Tel: +381 21 445808

Fax: +381 21 445808

mail: sales@tapflo.rs

www.tapflo.rs

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Tapflo products and services are available in 75 countries on 6 continents.

Tapflo is represented worldwide by own Tapflo Group Companies and carefully selected distributors assuring highest Tapflo service quality for our customers' convenience.

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