PUMP PAZH

PUMP SYSTEM MANUFACTURING

PROGRESSIVE TECHNOLOGIES

PROGRESSING CAVITY SCREW PUMPS

Design, Development
Manufacturing
Technical Consultant

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Water purification and water supply

- wastewater and slime water
- groundwater with inclusions
- fecal fluid
- bog muck
- chemical and reagents
- flocculants

Food industry

- milk and milk derivaties
- vegetable oil
- minced meat
- fruit purees
- tomato paste and sause
- fillings with various inclusions
- syrup, sugar pulp
- squash, mash, press cake

Pulp and paper industry

- cellulose
- filling agents
- pigments
- bonding materials
- adhesives
- chemical and reagents

Pharmaceutical and Cosmetic industry

- surfactant liquids
- pastes and ointments
- plasticizers
- creams
- vegetable and animal fats
- chemicals and reagents
- precise dosage

STANDARD GEOMETRY CHARACTERISTICS

- uniform and delicate flow
- wide section allowing solid suspensions to flow freely
- low flowing rate and excellent NPSH
- compact size with respect to the maximum allowable pressure and to the number of stages
- suitable for high and very viscosity
- suitable for compact and pasty products

LONG PITCH GEOMETRY CHARACTERISTICS

- high volumetric efficiency
- extremely delicate flow without pulses
- nearly double delivery at the same operating speed compared to the standard design
- reduced wear of the parts thanks to the low contact speed between rotor and stator
- suitable for medium-low viscosity and abrasive products
- compact size with relation to the maximum delivery
- minimum axial thrusts on transmission and bearings

2/3 THREAD GEOMETRY CHARACTERISTICS

- high volumetric efficiency
- good dosing precision
- delivery approximately equal to 1,5 times the standard geometry at the same operating speed
- suitable for medium-low viscosity products and without solid materials in suspension
- extremely compact size with relation to the maximum delivery

DELIVERY

Thanks to the volumetric operating principle, the delivery of the progressive cavity pump is directly proportional to the number of revolutions.

PRESSURE

The differential pressure depends on the number of stages and on the characteristics of the pumped fluid; in case of non abrasive fluids, the maximum allowable pressure per stage is equal to 6 bar.

TEMPERATURE

The maximum working temperature of the fluid depends on the type of stator.
It also depends on the kind of fluid and the operational conditions of the pump.

IN-TAKE

The screw pump is self-priming even at low running speeds and with fluids such as water at a temperature of 20° C, specific weight = 1 Kg/dm3 and viscosity 1 cP it is capable of in-taking a 7-meter column.

DELIVERY

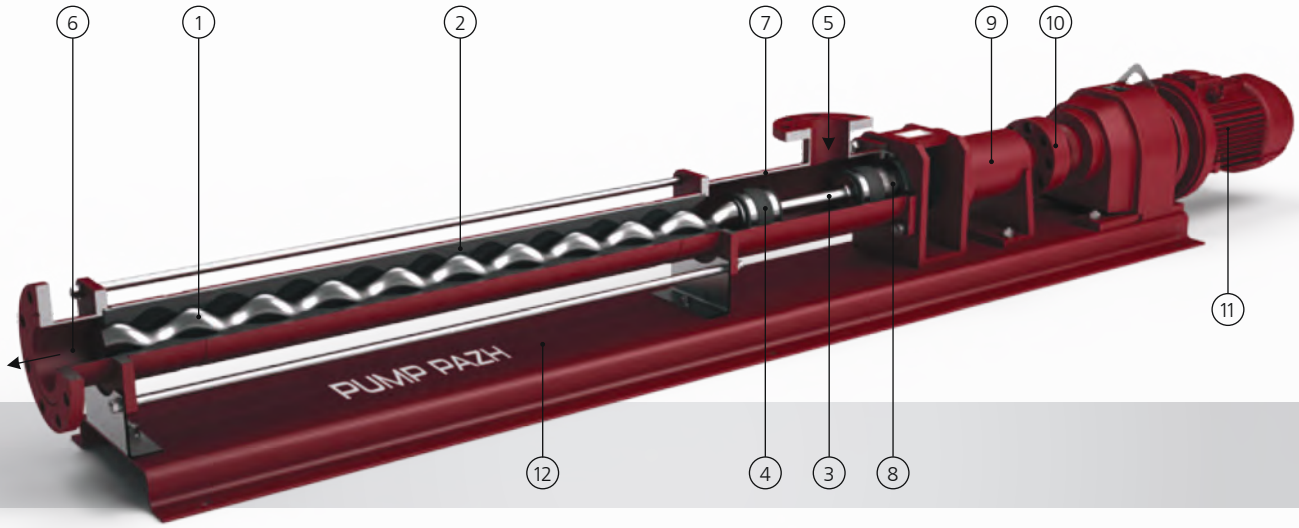
The pump works according to the principle of the volumetric pumps, namely with positive displacement, pumping a constant amount of fluid, smoothly and without sudden variations in flow rate.

FLUIDS THAT CAN BE PUMPED

This type of pump (compatibly with the chemical and mechanical resistance of the elastomer of the stator) is capable of pumping almost all types of non-Newton fluids up to a viscosity of 150/200.000 cP can be pumped without compromising the perfect efficiency of the pump.

STARTING AND ADJUSTMENTS

To safeguard the pump stator fill the pump with the fluid to be pumped and ensure that the stop valves on the inlet and outlet are completely open.
To adjust the fluid flow rate adjust the pump speed if it is coupled with a continuous variable speed motor or fit an adjustable by-pass valve between the outlet and inlet.



01 The Rotor

The external single-start helical line with cross-section the center of which is shifted on the size of eccentricity from the rotative axis. The rotor is made of metallic alloys, coated or uncoated.

02 The Stator

Inner double threaded helical line made of elastomer and fixed inside of the metal sleeve.

03 Transmission rod

It transmits torque from the drive shaft to the rotor, has a high resistance to wear. The usage of transmission rod with a screw feeder is also possible.

04 The Flexible joint

it compensates eccentricity of the rotor, filled with grease and has a sealed structure.

05 Inlet

Depends on the desires of the customer and the model of the pump, the unit can be made in the form of the pipe with the flange sleeve, the quick coupling connection, or in the form of a rectangular charging inlet.

06 Outlet

Depends on the desires of the customer and the model of the pump, the unit can be made in the form of the pipe with the flange sleeve or the quick coupling connection.

07 The Pump Chamber

provides the delivering of pumping substance to the screw pair of pump unit.

08 The Shaft Seal

provides the seal of the shaft. It is possible to use serviced stuffing box, single and double mechanical seal with flushing.

09 The Transitional Rack or The Bearing Rack

It is the connecting node between the drive and the pump chamber. The maintenance of seal of the drive shaft happens through the transitional rack.

10 The Coupling

Provides transmission torque from the geared motor to the bearing rack.

11 The geared motor

can be made as general industrial, climatic, or explosion-proof construction. It can be equipped with a hydraulic drive.

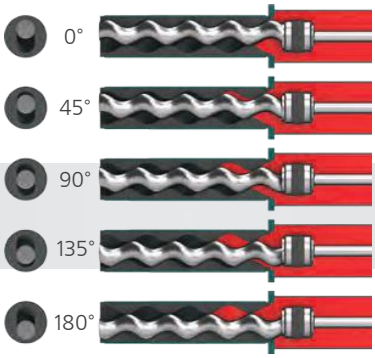
12 The Mounting Plate

provides coaxial fixing of all nodes of the horizontal pump unit.

The main part of the single screw eccentric progressing cavity pump (PCP) is a screw pair consists of:
– the stator: double threaded helical line made of an elastomer inseparably connected with the metallic casing ;
– the rotor: external single thread helix line made of steel coated or uncoated.

The principle of pumping lies in conveying (periodically replacement) the constant capacity of fluids inside the hermetic chambers between rotating rotor and static stator. While the rotor rotates, cavity from suction side increases in volume and creates pressure. Under the pressure convertible fluid fills the formative cavity.
While circular helix rotates and moves, the cavity closes and the rotor conveys the pumping fluid along the stator axial to the pressure side. At the same time the number of such closes cavities to the unit of screw pair length defines the ultimate unit pressure and the volume of each cavity determines its productive capacity.

Single screw eccentric progressing cavity pumps allows the effective pumping of high viscous and multiphase fluids with a significant amount of mechanical inclusions. These pumps have a big number of advantages in comparison with other types of pumps such as centrifugal, guided - vane, gear, membrane and peristaltic that use other methods of power transmission of forward motion in the pumping fluid.



The main advantages of the single screw eccentric progressing cavity pumps are the following factors:

- screw pumps are self-priming, with a vacuum capacity of up to 0.8 bar, and does not require filling of the main line and the operating parts of the unit before starting work;

- screw pumps are volumetric, with one screw turn corresponding to a certain volume of pumped medium, which allows accurate dosing of the pumped liquid;

- single-screw pumps are capable of pumping non-uniform gas-containing and abrasive media that contain strong and fibrous inclusions with a consistency that is not flowable;

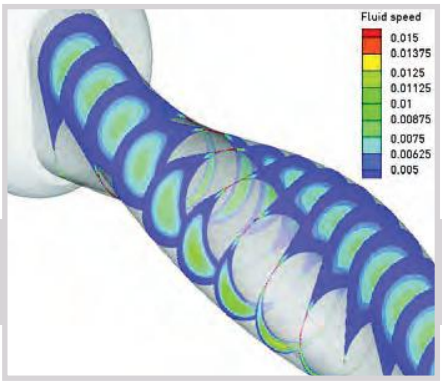
- single-screw pumps do not foam the pumped substance;

- there is no supply failure, as well as refractions in the pressure characteristic, with decreasing or increasing the screw speed - smooth operation with a decrease in productivity;

- ability to control the performance at constant pressure;

- the pump does not cause cavitation in the pumped liquid during passage of air and gas plugs;

- significantly higher efficiency in comparison with other types of pumping equipment and therefore more economical in operation - up to 60% of energy saving;



Pump dynamic numerical simulation


Screw pump rotor

PH single screw eccentric progressing cavity pumps are the most universal and any additional options and configurations are available, such as made of stainless steel, explosion-proof, with extra heat flow part, rectangular feeding inlet, screw feeder, the protection system «dry run», special climatic versions, etc.

Type of design

horizontal

Pressure

from 1 to 24 bar

Productive capacity

from 0,1 to 160 cubic meters per hour

Used screw pairs

- type S (from 1 to 24 bar)
- type L (from 1 to 6 bar)
- type D (from 1 to 18 bar)
- type P (from 1 to 6 bar)

Material of flow part

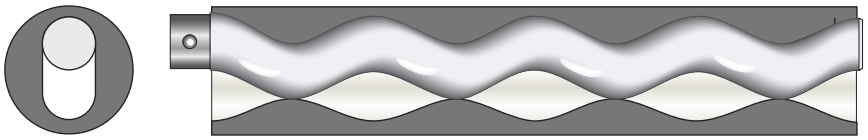
- industrial version HARD STEEL
- hygienic version AISI 314
- chemical version AISI 316

Sealing of drive shaft

- mechanical seal
- double mechanical seal with flushing
- servised stuffing box

S Geometry

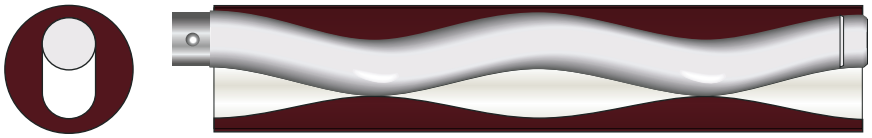
- Very smooth pumping
- Compact dimensions despite large number of stages
- Large rotor inlet cross-sections
- Low flow velocity/NPSH
- Pumps compacted products
- Pumps large solid particles



- 1/2 lobe
- Double stage
- Flow rate: 100%
- Differential pressure: 12 bar

L Geometry

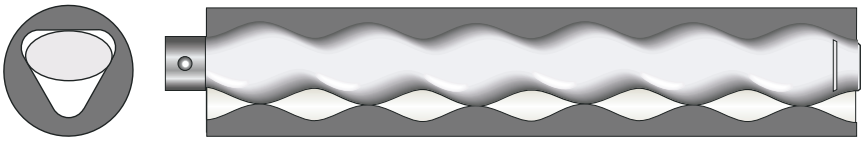
- Good volumetric efficiency/long service life thanks to long seal line between rotor and stator
- Compact dimensions with high flow rates



- 1/2 lobe
- Single stage
- Flow rate: 200%
- Differential pressure: 6 bar

D Geometry

- Very compact dimensions despite high pressures and flow rates
- Almost pulsation-free pumping
- High dosing accuracy

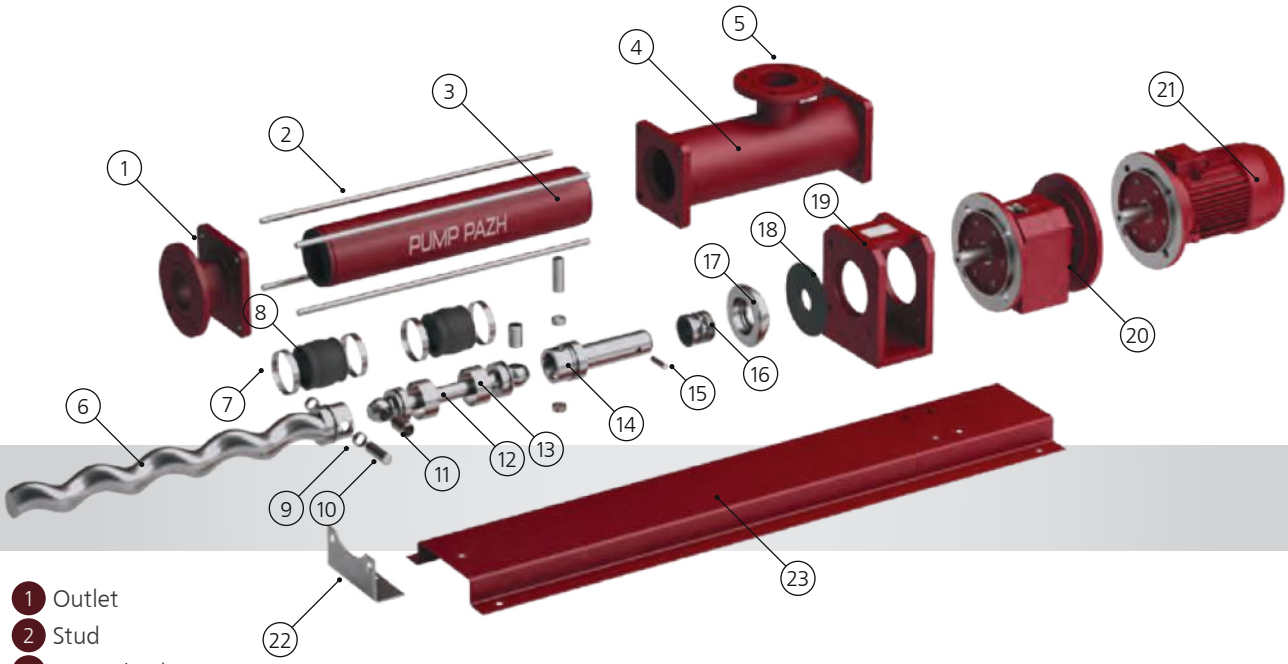


- 2/3 lobe
- Double stage
- Flow rate: 150%
- Differential pressure: 12 bar

P Geometry

- Compact dimensions in conjunction with very high flow rates
- Almost pulsation-free pumping
- High dosing accuracy
- Good volumetric efficiency/long service life thanks to long seal line between rotor and stator

- 2/3 lobe
- Single stage
- Flow rate: 300%
- Differential pressure: 6 bar



1. Outlet
2. Stud
3. Stator in sleeve
4. Chamber
5. Input
6. Rotor
7. Clamp
8. Protecting case
9. Bushing
10. Pin
11. Articulated shaft sleeve
12. Articulated shaft
13. Locking sleeve
14. Transitional shaft
15. Transitional shaft pin
16. Shaft seal
17. Face seal case
18. Gasket
19. Bearing rack
20. Reducer
21. Electric motor
22. Support leg
23. Mounting plate (frame)

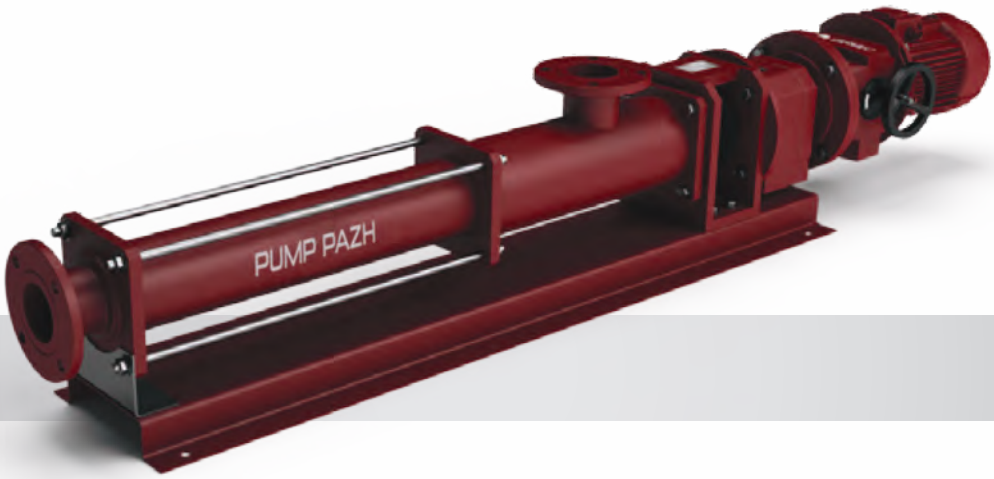
Spare parts and repair kit for screw pumps

Pump unit without bearing stand with directly mounted gearmotor

Used at pump units with pressure up to 12 bar. Such type of the design has a compact form, more easy to assemble and maintain.

Pump unit with the bearing stand design

Used at pump units that can create a pressure more than 12 bar and up to 40 bar inclusive.



Pump unit equipped with friction motor-variator

Allows to adjust performance in a wide range without reducing the reliability of operation of the motor.

Pump unit with belt motor-variator

Allows the manual adjustment of the pump by changing the gear ratio between the electric engine and the drive shaft.

Pump unit with hydraulic drive

It can be used in places where is no possibility of electrical supply. Pump has relatively smaller dimensions and high level of explosion proof.

The pump unit with screw feeder and hopper

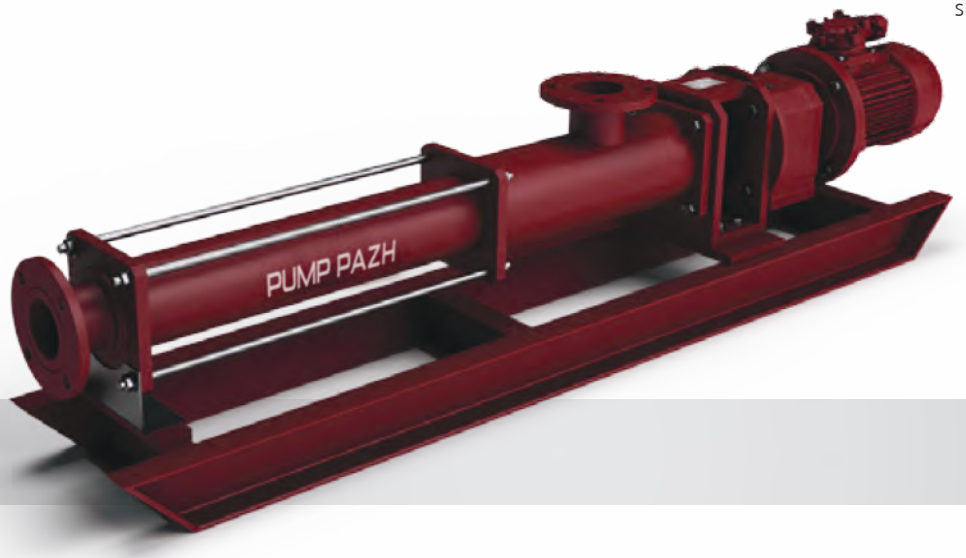
It is used in case of no possibility for connecting the pipe to the inlet of the pump.

Pump with outlet that allows additional CIP washing

Output for CIP washing is designed for automated cleaning and disinfection of the pump unit.

Mining pump unit on the skid

Using for pumping of sludges or waste water into the coal mines.



Pump with heating system of the flow part

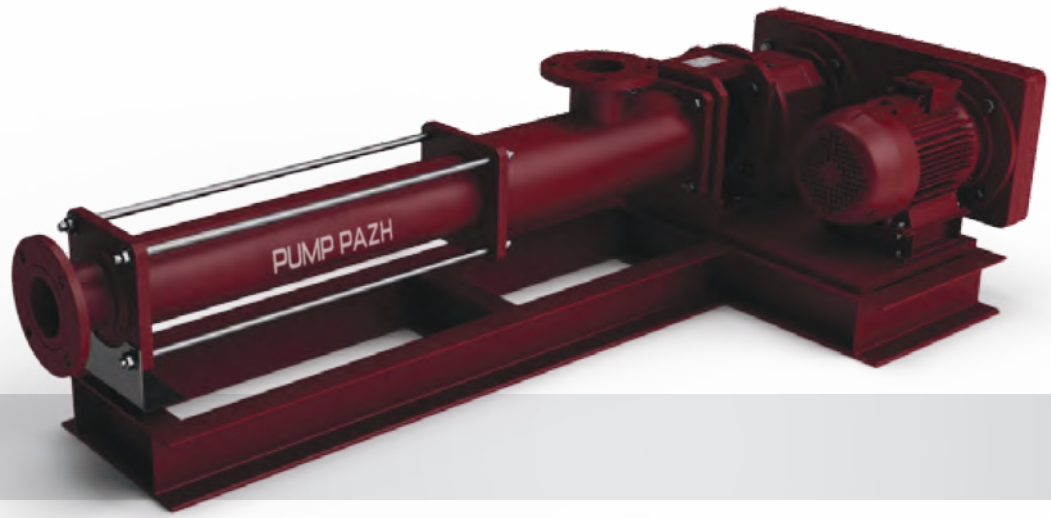
It allows to transfer rapidly-solidifying and viscous liquids.

Pump with «Bypass» system that protects against excessive pressure

«Bypass» system allows additional protection of tubes with high pressure from overpressure.

Shortened pump unit variant

If necessary, the size of the pump unit could be reduced by placing the electric motor on the side.



The mobile version with an electric motor

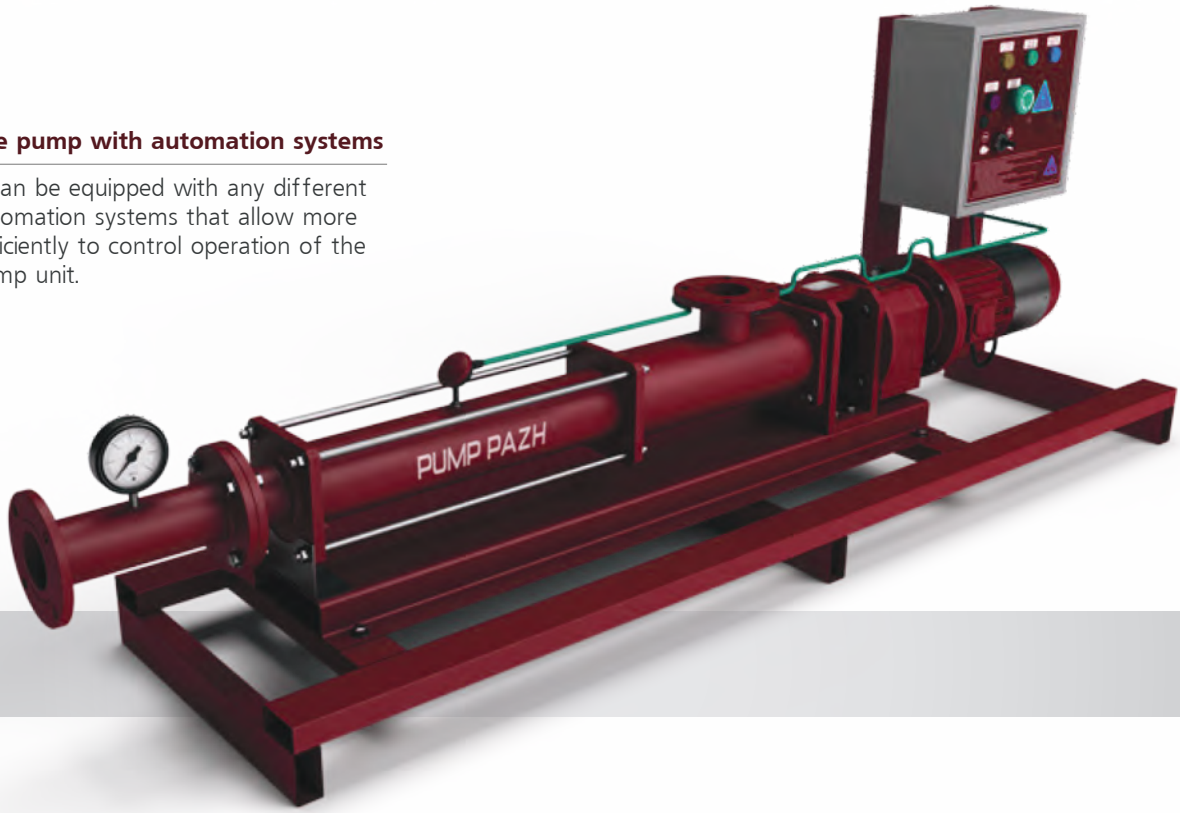
Used in the technological process where is need manual movement of the pump unit between working points, without reference to the place of permanent installation.

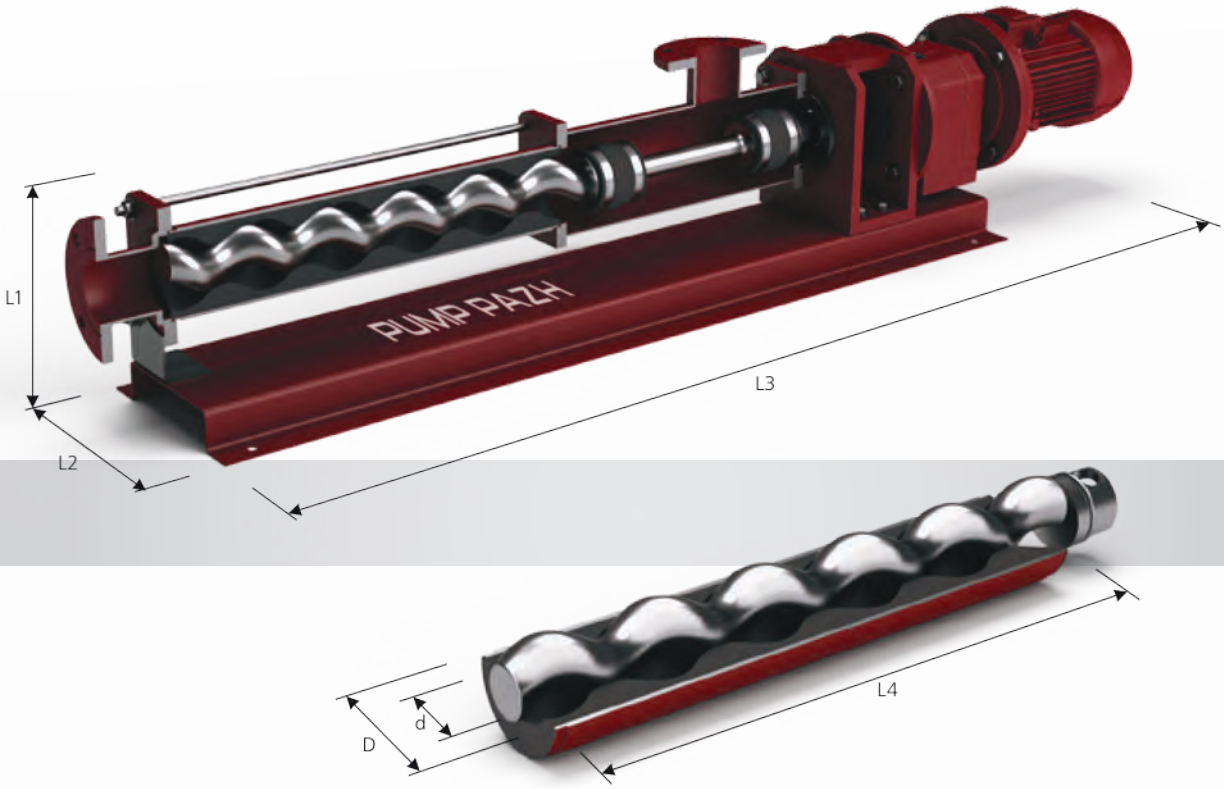
Pump unit made of stainless steel

It using for pumping of corrosive active and acidic liquids.

The pump with automation systems

It can be equipped with any different automation systems that allow more efficiently to control operation of the pump unit.





Single screw eccentric progressing cavity pumps of PH series may have different dimensions depending on the availability of additional options, such as a supporting screw, heating of the flow part, macerator, feeding tube, etc.

Single screw eccentric progressing cavity pumps of PH series may have different versions of actuators, such as the geared-motor, motor-variator, V-belt transmission, as well as variants of different climatic and explosion-proof construction.

PUMP PAZH® company designs Single screw eccentric progressing cavity pumps that depend on individual requirements of the customer, with unique weight, dimensions, characteristics of consumption and pressure.

Pump model PH	P, bar	Q, m³/h	N, kW	R, min	Main dimensions, mm			M, kg	Out., DN, mm	Main stator dimensions, mm			Permitted size of particles (hard/soft)
					L1	L2	L3			L4	D	d	
021S01	4	0,6-1,5	0,55-1,1	525-828	260	200	840	27	25	112	51	20	6 / 9
021S02	12	0,1-1,4	0,55-1,1	220-1090	260	200	940	30	25	212	51	20	6 / 9
021S04	24	0,6-1,5	0,75-1,5	560-1090	260	250	1350	55	25	412	51	21	6 / 9
021L01	6	0,8-2,2	0,75-1,1	350-890	260	200	940	30	25	212	51	20	6 / 9
031S01	6	0,5-2,4	0,55-1,1	262-648	270	220	970	45	50	162	70	30	9 / 13
031S02	12	0,5-1,8	0,75-1,5	262-545	270	220	1105	60	50	304	70	30	9 / 13
031S04	24	0,5-2,1	1,1-3	266-624	300	250	1720	80	50	588	70	31	9 / 13
031L01	6	1,1-3,7	0,75-1,5	216-545	270	220	1105	48	50	304	70	30	9 / 13
038S01	6	2-5,4	1,5-2,2	380-631	320	250	1270	75	65	226	89	38	14 / 21
038S02	12	2,2-5,8	2,2-4	380-638	320	250	1470	90	65	426	89	38	14 / 21
038S04	24	2-4,7	5,5-7,5	380-593	360	300	2325	130	65	826	89	39	14 / 21
038L01	6	4,2-9,8	2,2-4	250-513	320	250	1470	90	65	426	89	38	14 / 21
045S01	6	2-8,5	2,2-4	296-622	300	250	1340	85	80	261	108	45	17 / 26
045S02	12	4,4-10	4-5,5	319-600	300	250	1560	110	80	493	108	45	17 / 26
045S03	18	3,5-8,6	5,5-7,5	297-547	350	300	2470	180	80	725	108	46	17 / 26
045S04	24	2,6-7,1	5,5-11	260-469	350	300	2700	260	80	957	108	46	17 / 26
045L01	6	8,1-18,6	3-5,5	257-515	300	250	1560	115	80	493	108	45	17 / 26
053S01	6	3,9-13	3-5,5	273-547	350	350	1650	150	100	316	121	53	20 / 30
053S02	12	8,1-15,6	5,5-11	273-547	350	350	1930	170	100	598	121	53	20 / 30
053S03	18	3,5-10,5	4-11	167-370	450	350	2840	210	100	880	121	54	20 / 30
053S04	24	5,5-10	11-15	278-397	450	400	2915	290	100	1162	121	54	20 / 30
053L01	6	11,1-28	4-7,5	200-469	350	400	1930	160	100	598	121	53	20 / 30
063S01	6	3,5-20	2,2-7,5	169-469	335	350	1760	185	125	363	146	63	24 / 37
063S02	12	3,3-17,5	4-11	167-397	335	350	2080	240	125	685	146	63	24 / 37
063S03	18	8-17,4	7,5-15	208-360	540	400	3130	415	125	1007	146	64	24 / 37
063S04	24	8-17,1	11-18,5	208-360	540	400	3450	505	125	1329	146	64	24 / 37
063L01	6	13-40,5	4-11	167-397	335	350	2080	240	125	685	146	63	24 / 37
076S01	6	5,2-28,5	4-11	156-381	485	420	2330	480	150	419	168	75	30 / 45
076S02	12	6,5-28,6	7,5-18,5	156-381	485	420	2700	560	150	791	168	75	30 / 45
076S03	18	10-20,5	11-18,5	167-265	550	450	3720	670	150	1163	168	76	30 / 45
076S04	24	10,2-20,2	11-18,5	167-265	550	450	4100	715	150	1535	168	76	30 / 45
076L01	6	20-62,4	7,5-18,5	135-360	485	420	2700	570	150	791	168	75	30 / 45
090S01	6	15-47	11-18,5	186-372	525	450	2620	675	150	500	203	89	36 / 54
090S02	12	18-35	15-18,5	167-265	525	450	3061	785	150	944	203	89	36 / 54
090S03	18	16-33	22-30	158-253	600	450	4320	940	150	1388	203	90	36 / 54
090S04	24	15-35	22-37	137-253	650	500	4875	1010	150	1832	203	90	36 / 54
090L01	6	34-106	11-30	141-372	252	450	3060	790	150	944	203	89	36 / 54
105S01	6	24-57	11-18,5	158-274	600	560	3100	1015	200	623	230	104	41 / 62
105S02	12	27-58	30-45	158-274	600	560	3650	1180	200	1179	230	104	41 / 62
105S03	18	29-56	30-45	158-249	630	580	4210	1410	200	1735	230	105	41 / 62
105S04	24	17-36	37-45	124-189	630	580	4770	1520	200	2291	230	105	41 / 62
105L01	6	55-119	22-37	137-249	600	560	3650	1170	200	1179	230	104	41 / 62
125S01	6	36-74	15-22	137-214	775	600	3890	1350	250	740	273	124	50 / 74
125S02	12	38-77	30-45	137-214	775	600	4550	1570	250	1400	273	124	50 / 74
125S03	18	16-60	37-60	135-220	895	600	6050	1880	250	2060	273	125	50 / 74
125S04	24	8-36	37-60	160-220	895	600	6710	2030	250	2720	273	125	50 / 74
125L01	6	82-160	22-37	106-191	775	600	4550	1580	250	1400	273	124	50 / 74

Single screw eccentric progressing cavity pumps of PV series are applied for pumping liquids from various containers, including buried, having a significant amount of viscous and abrasive sludge. These pumps are also used for pumping fluids from reservoirs, lakes, technological spills, etc.

Type of design

Vertical (length of submersible part up to 10 m)

Pressure

from 1 to 24 bar

Productive capasity

from 0,1 to 200 cubic meters per hour

Using screw pairs

- type S (from 1 to 24 bar)
- type L (from 1 to 6 bar)
- type D (from 1 to 18 bar)
- type P (from 1 to 6 bar)

Material of flow part

- industrial version HARD STEEL
- hygienic version AISI 314
- chemical version AISI 316

Sealing of drive shaft

- mechanical seal
- double mechanical seal with flushing
- serviced stuffing box

Pumped substances

Any industrial liquid substances with different viscosity level, with or without inclusions, including aggressive media: acids, bases, petroleum, acetone, resin etc. The temperature of pumping fluid is up to 140 °C

1. Stator sleeve
2. Stator
3. Chamber
4. Outlet
5. Rotor
6. Pin
7. Bushing
8. Clamp
9. Protecting case
10. Articulated shaft
11. Articulated shaft sleeve
12. Locking sleeve
13. Transitional shaft
14. Transitional shaft pin
15. Face seal
16. Face seal case
17. Gasket
18. Rack
19. Reducer
20. Electric motor

PUMP PAZH® vertical pumps of PV series

Chemical industrial PUMP PAZH® vertical pumps of PV series

The vertical pump unit with a bracket

For the hanging of the pump unit to the Telfer

The vertical pump unit with motor-variator

Allows to adjust the pump unit capacity in a wide range

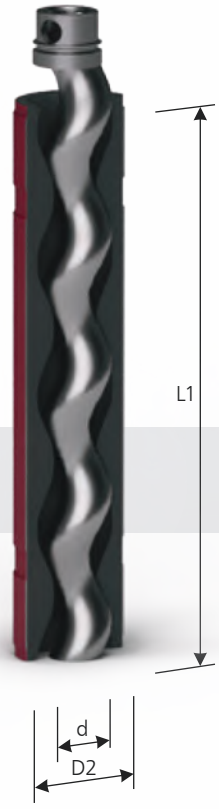
Compact layout of vertical pump unit

It is used in case of limited space in the place of installation.

Dimensions of PV series single screw eccentric progressing cavity pumps can be changed depending on the availability of additional options.

PV series single screw eccentric progressing cavity pumps may have different versions of actuators, such as the gear-motor, motor-variator, frequency converter, as well as options for different climatic and explosion-proof conditions.

PUMP PAZH® designs single screw eccentric progressing cavity pumps according to the individual request of the customer, with unique weight and dimensions parameters and head-flow characteristics.



General industrial PUMP PAZH® vertical pumps of PV series

PUMP PAZH® vertical pump of PV series

Pump model PV	P, bar	Q, m³/h	N, kW	R, min	Main dimensions, mm			M, kg	Out., DN, mm	Main stator dimensions, mm			Permitted size of particles (hard/soft)
					L	D	D1			L1	D2	d	
021S01	4	0,6-1,5	0,55-1,1	525-828	560	200	120	34	25	112	51	20	6 / 9
021S02	12	0,1-1,4	0,55-1,1	220-1090	560	200	120	37	25	212	51	20	6 / 9
021S04	24	0,6-1,5	0,75-1,5	560-1090	630	200	140	62	25	412	51	21	6 / 9
021L01	6	0,8-2,2	0,75-1,1	350-890	560	200	120	37	25	212	51	20	6 / 9
031S01	6	0,5-2,4	0,55-1,1	262-648	690	200	140	54	50	162	70	30	9 / 13
031S02	12	0,5-1,8	0,75-1,5	262-545	690	200	140	70	50	304	70	30	9 / 13
031S04	24	0,5-2,1	1,1-3	266-624	750	250	170	90	50	588	70	31	9 / 13
031L01	6	1,1-3,7	0,75-1,5	216-545	690	200	140	70	50	304	70	30	9 / 13
038S01	6	2-5,4	1,5-2,2	380-631	900	250	170	87	65	226	89	38	14 / 21
038S02	12	2,2-5,8	2,2-4	380-638	900	250	170	103	65	426	89	38	14 / 21
038S04	24	2-4,7	5,5-7,5	380-593	1050	300	175	148	65	826	89	39	14 / 21
038L01	6	4,2-9,8	2,2-4	250-513	900	250	170	105	65	426	89	38	14 / 21
045S01	6	2-8,5	2,2-4	296-622	890	250	175	94	80	261	108	45	17 / 26
045S02	12	4,4-10	4-5,5	319-600	890	250	175	143	80	493	108	45	17 / 26
045S03	18	3,5-8,6	5,5-7,5	297-547	1050	300	190	176	80	725	108	46	17 / 26
045S04	24	2,6-7,1	5,5-11	260-469	1050	300	190	210	80	957	108	46	17 / 26
045L01	6	8,1-18,6	3-5,5	257-515	890	250	175	145	80	493	108	45	17 / 26
053S01	6	3,9-13	3-5,5	273-547	1140	300	215	167	100	316	121	53	20 / 30
053S02	12	8,1-15,6	5,5-11	273-547	1140	300	215	234	100	598	121	53	20 / 30
053S03	18	3,5-10,5	4-11	167-370	1250	350	270	328	100	880	121	54	20 / 30
053S04	24	5,5-10	11-15	278-397	1250	350	270	394	100	1162	121	54	20 / 30
053L01	6	11,1-28	4-7,5	200-469	1140	300	215	235	100	598	121	53	20 / 30
063S01	6	3,5-20	2,2-7,5	169-469	1140	350	215	185	125	363	146	63	24 / 37
063S02	12	3,3-17,5	4-11	167-397	1140	350	215	248	125	685	146	63	24 / 37
063S03	18	8-17,4	7,5-15	208-360	1270	350	270	350	125	1007	146	64	24 / 37
063S04	24	8-17,1	11-18,5	208-360	1270	350	270	490	125	1329	146	64	24 / 37
063L01	6	13-40,5	4-11	167-397	1140	350	215	250	125	685	146	63	24 / 37
076S01	6	5,2-28,5	4-11	156-381	1550	350	270	480	150	419	168	75	30 / 45
076S02	12	6,5-28,6	7,5-18,5	156-381	1550	350	270	576	150	791	168	75	30 / 45
076S03	18	10-20,5	11-18,5	167-265	1580	400	300	806	150	1163	168	76	30 / 45
076S04	24	10,2-20,2	11-18,5	167-265	1580	400	300	968	150	1535	168	76	30 / 45
076L01	6	20-62,4	7,5-18,5	135-360	1550	350	270	576	150	791	168	75	30 / 45
090S01	6	15-47	11-18,5	186-372	1610	350	320	680	150	500	203	89	36 / 54
090S02	12	18-35	15-18,5	167-265	1610	350	320	816	150	944	203	89	36 / 54
090S03	18	16-33	22-30	158-253	1730	400	350	1142	150	1388	203	90	36 / 54
090S04	24	15-35	22-37	137-253	1730	400	350	1370	150	1832	203	90	36 / 54
090L01	6	34-106	11-30	141-372	1610	350	320	816	150	944	203	89	36 / 54
105S01	6	24-57	11-18,5	158-274	1680	400	350	1020	200	623	230	104	41 / 62
105S02	12	27-58	30-45	158-274	1680	400	350	1224	200	1179	230	104	41 / 62
105S03	18	29-56	30-45	158-249	1760	400	360	1714	200	1735	230	105	41 / 62
105S04	24	17-36	37-45	124-189	1760	400	360	2057	200	2291	230	105	41 / 62
105L01	6	55-119	22-37	137-249	1680	400	350	1224	200	1179	230	104	41 / 62
125S01	6	36-74	15-22	137-214	1650	400	360	1370	250	740	273	124	50 / 74
125S02	12	38-77	30-45	137-214	1650	400	360	1644	250	1400	273	124	50 / 74
125S03	18	16-60	37-60	135-220	1830	450	380	2302	250	2060	273	125	50 / 74
125S04	24	8-36	37-60	160-220	1830	450	380	2762	250	2720	273	125	50 / 74
125L01	6	82-160	22-37	106-191	1650	450	360	1644	250	1400	273	124	50 / 74

The screw pair (rotor and stator) - defines the operating principles and basic technical characteristics of single screw eccentric progressing cavity pump units.

PUMP PAZH® offers two types of screw pairs - S and L configuration:

PUMP PAZH® rotors: type S (on the left) and type L (on the right)

Type S

The screw pair with the normal pitch of helical line is used for standard and stilted pumps with a differential pressure from 1 to 24 bar.

S01 pressure from 1 to 6 bar

S02 pressure from 1 to 12 bar

S03 pressure from 1 to 18 bar

S04 pressure from 1 to 24 bar

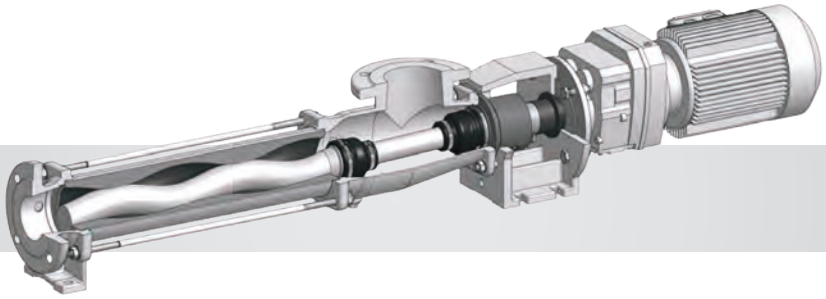
PUMP PAZH® screw pair

Type L

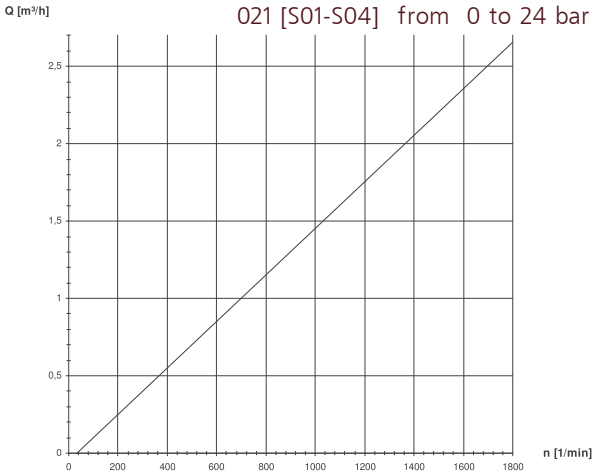
The screw pair with increased lead of a helix. It is used for pumps with increased productive capacity and a differential pressure from 1 to 6 bar.

L01 pressure from 1 to 6 bar

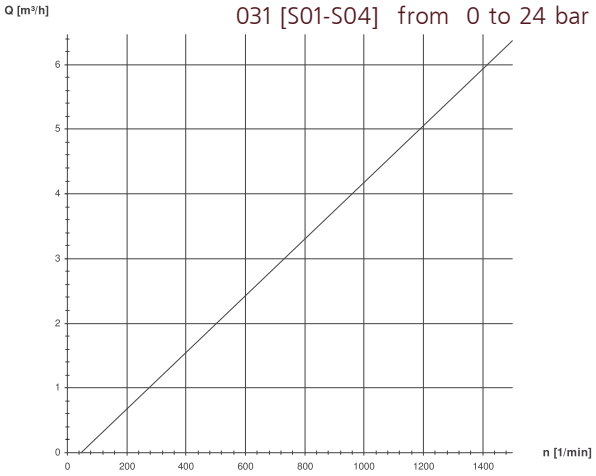
The graphs reflect the linear dependence of the capacity of screw pairs on revolutions of drive shaft. This allows to select more carefully the pumping equipment with the required flow rate characteristics, that is particularly important in technological processes that require precise dosing.



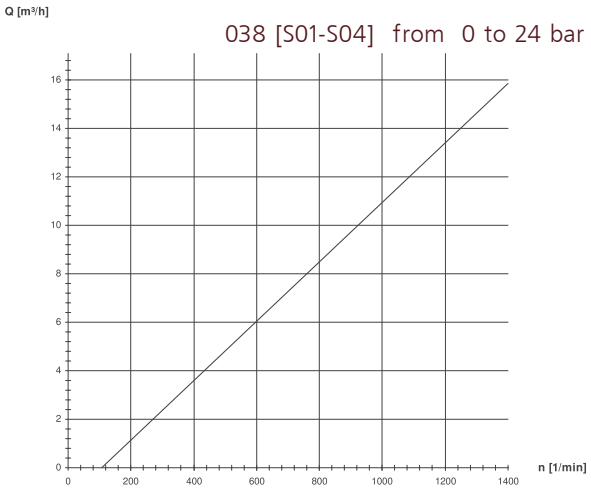
021 [S01-S04] from 0 to 24 bar



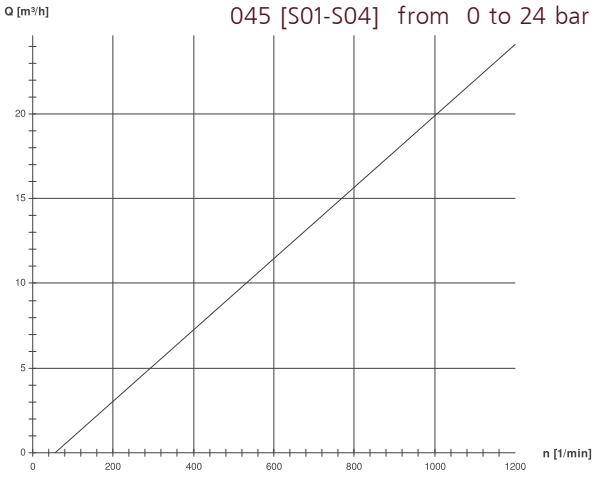
031 [S01-S04] from 0 to 24 bar



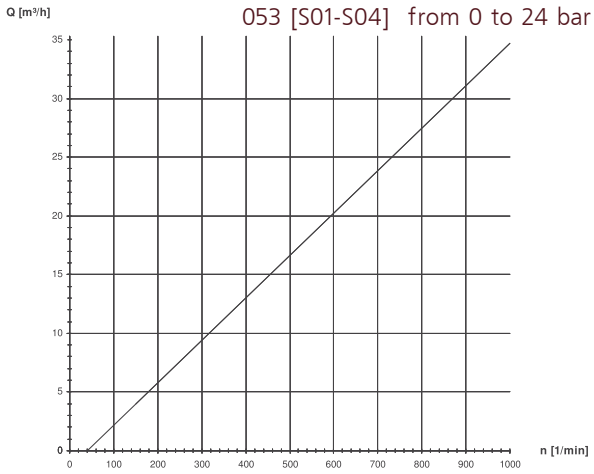
038 [S01-S04] from 0 to 24 bar



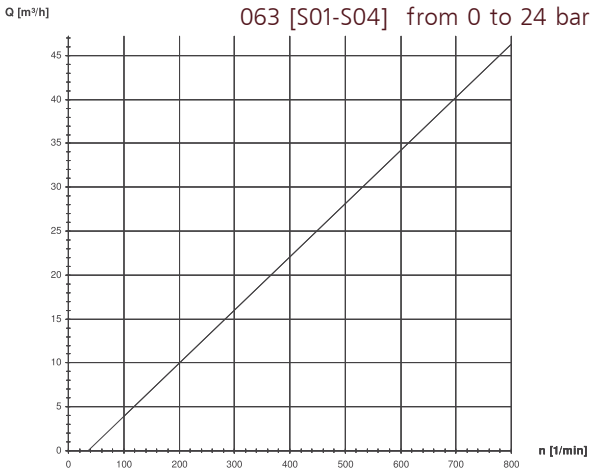
045 [S01-S04] from 0 to 24 bar



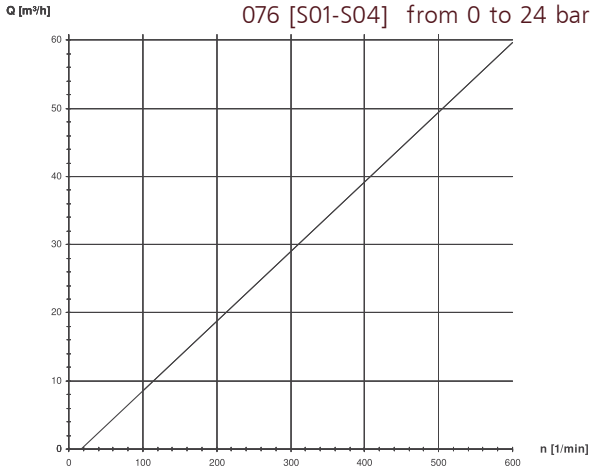
053 [S01-S04] from 0 to 24 bar



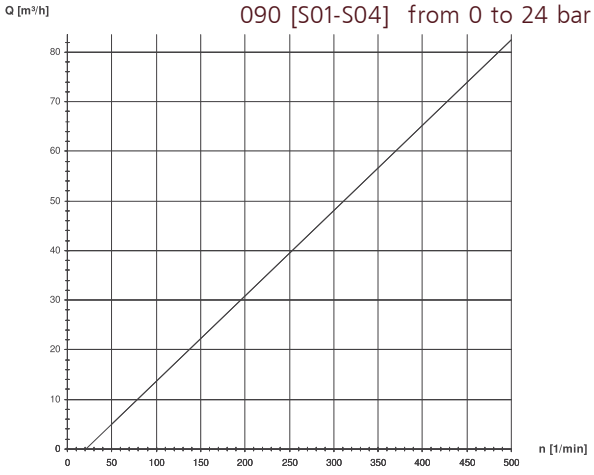
063 [S01-S04] from 0 to 24 bar



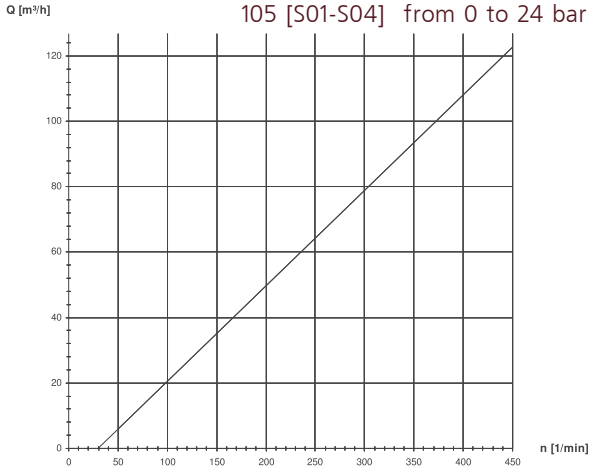
076 [S01-S04] from 0 to 24 bar



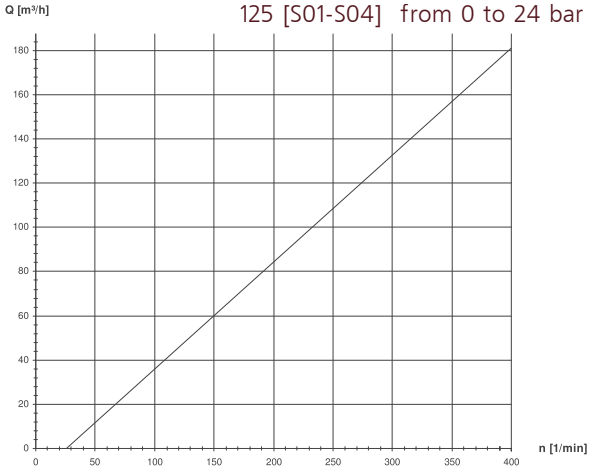
090 [S01-S04] from 0 to 24 bar

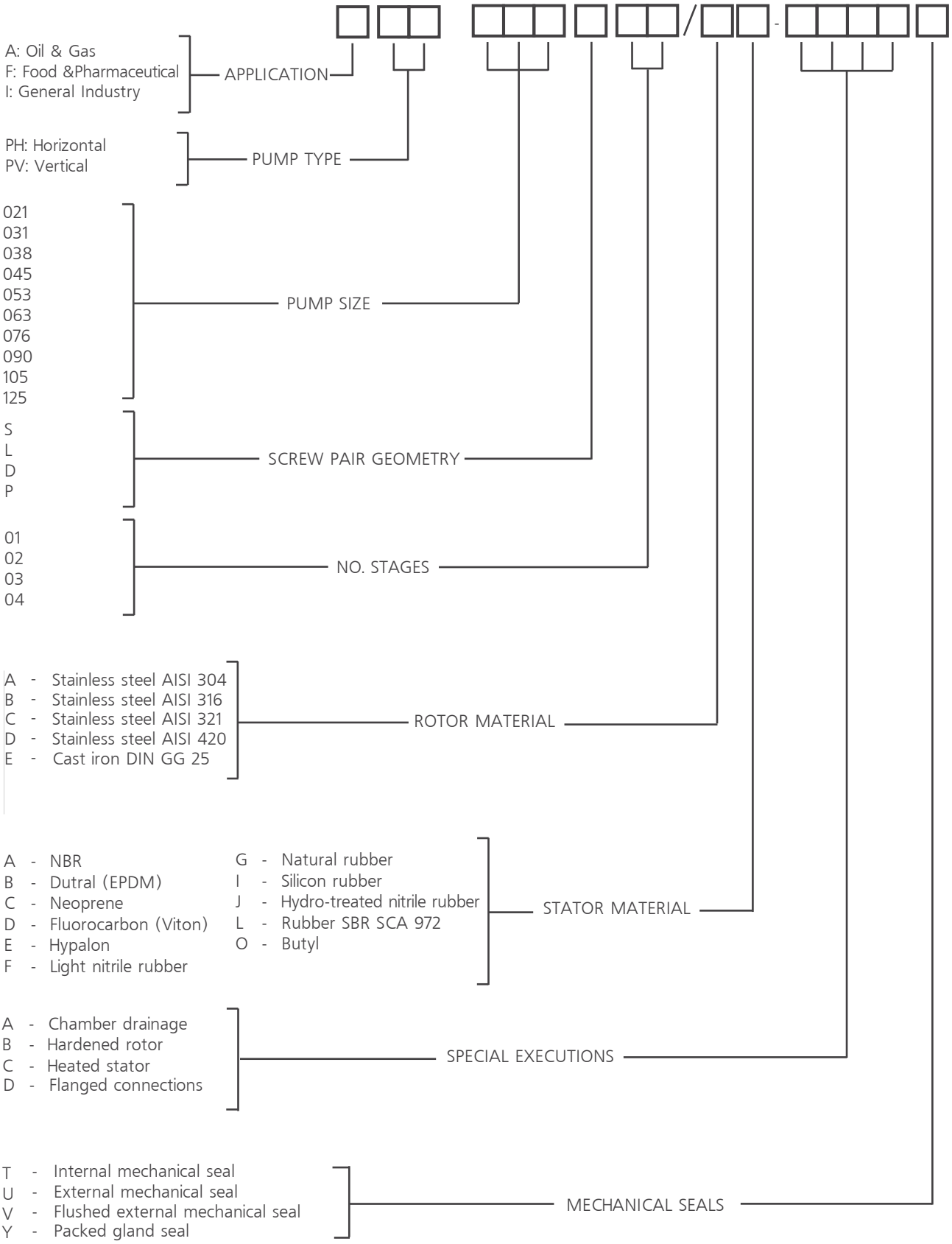


105 [S01-S04] from 0 to 24 bar



125 [S01-S04] from 0 to 24 bar



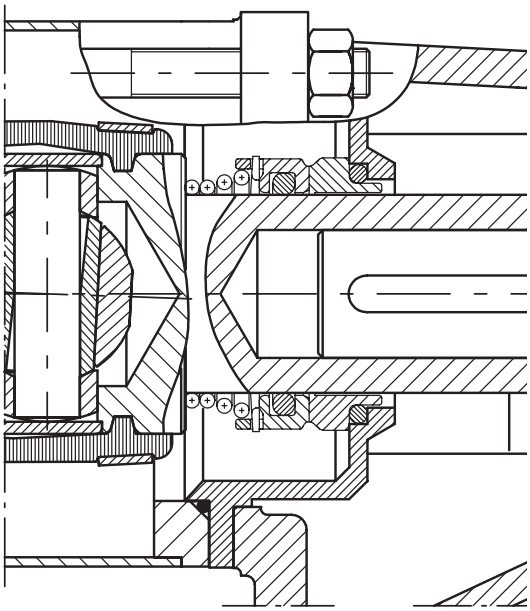


Example: **APH 045S01/BA-BDT**

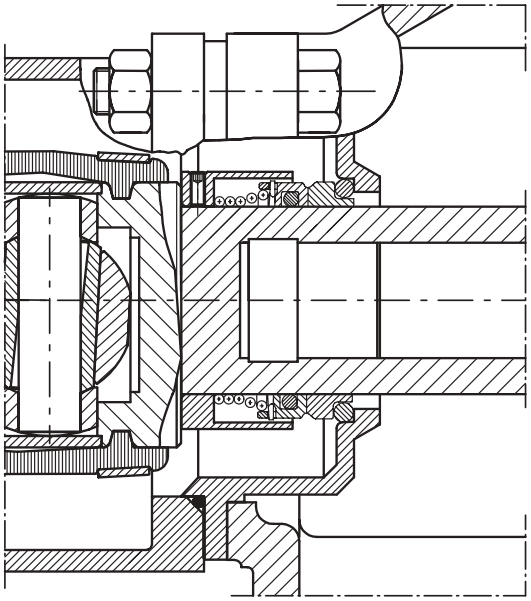
INTERNAL MECHANICAL SEAL

EXECUTION T

The rotary mechanical seal is internal in order to ensure improved cooling and consequently to reduce its wear. The type of mechanical seal and the materials of the rotating surfaces and of the elastomers are chosen each time, among the several types available, according to the nature of the handled product.

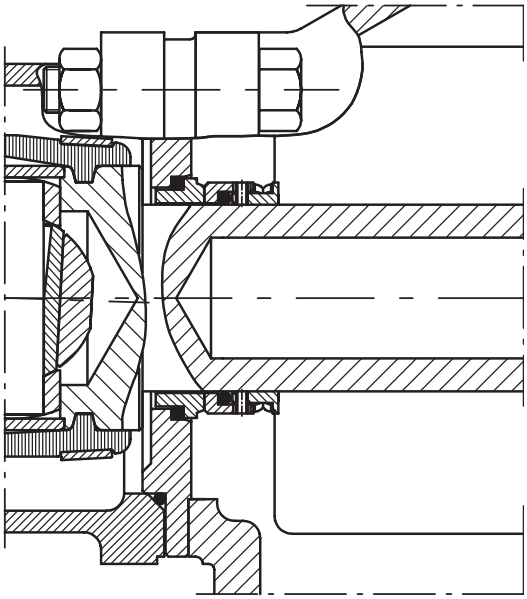


One direction



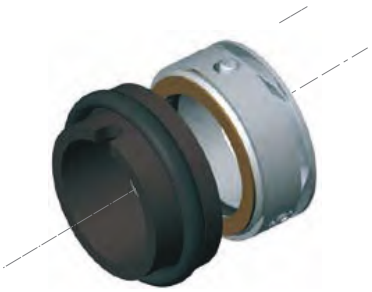
Reversible

EXTERNAL MECHANICAL SEAL

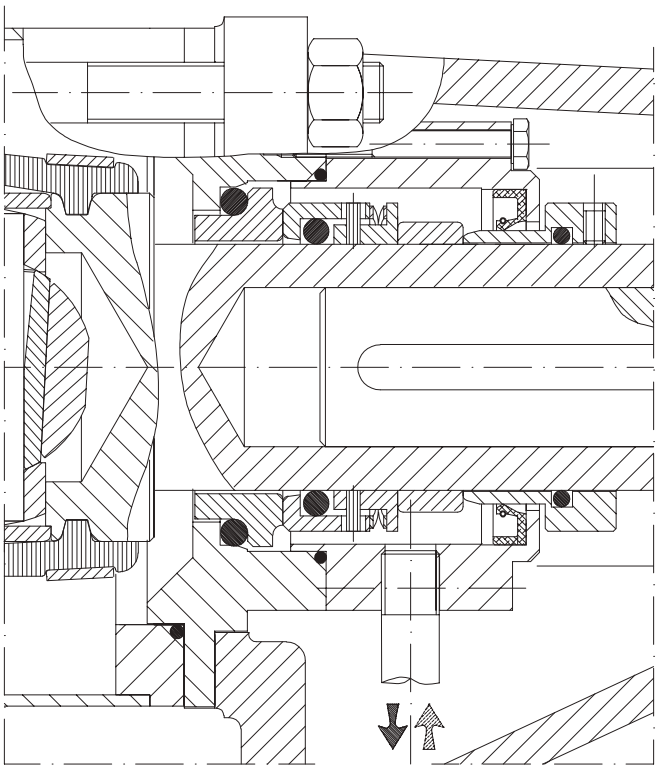


EXECUTION U

For all cases for which the flushing is impossible and where the mechanical seal must not touch the pumped product, in order to avoid sanitary problems, corrosion and conditioning of its running.



FLUSHED MECHANICAL SEALS



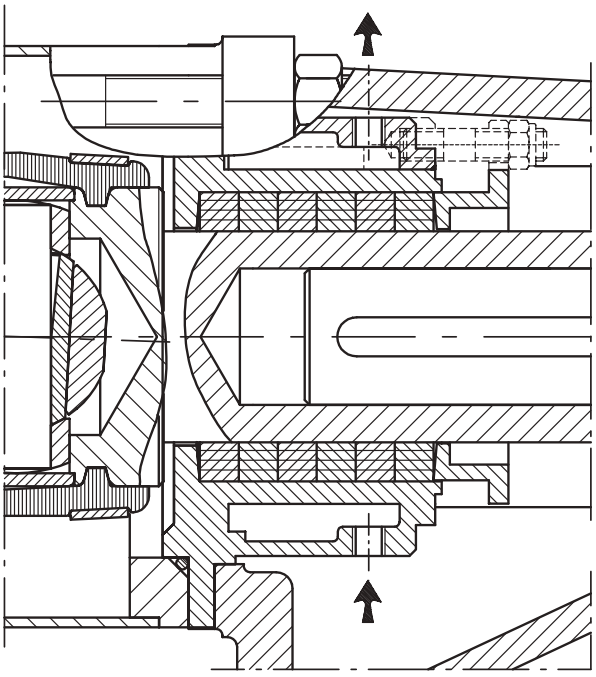
EXECUTION V

Double mechanical seal with circulation of the cleaning and cooling liquid.
It is used with products that tend to crystallise, to glue, to harden, to be abrasive, to reach high temperatures and whenever the seal life is limited.
The function of the fluxing is to clean, lubricate and cool the seal; the circulating liquid must be clean and compatible with the pumped liquid.
If the seal is leaking the fluxing liquid will point out this fault.
The V execution is composed by an axial mechanical seal and a radial one working on ceramic coated shaft.

Radial mech. seal

Mechanical seal

PACKED GLAND SEAL



EXECUTION Y

Traditional solution in which a slight dripping does not disturb.

Media	Dynamic Viscosity mPa (cps)	Temprature, deg, °C	Stator elastomer	Rotor steel
Oil and Chemical Products				
Alkyds Resin	500 - 3000	20	NBR	AISI 321
Latex Emulsions	200	20	NBR	AISI 321
Liquid Soap	58	60	NBR	AISI 321
Liquid Wax	500	90	NBR	AISI 321
Crude Oil 19.4° - 19° API	200 - 400	20	NBR	AISI 420 heat-treated
Crude Oil 32.3° - 28.7° API	42 - 163	20	NBR	AISI 420 heat-treated
Crude Oil 43.6° - 31.9° API	42 - 163	20	NBR	AISI 420 heat-treated
Formation Oils	0.2 - 2000		NBR	AISI 420 heat-treated
Formation Oils of fields in Western Siberia	0.3 - 7.5	50 - 92	NBR	AISI 420 heat-treated
Fuel Oil	2022	25	NBR	AISI 420 heat-treated
Diesel Fuel	8	20	NBR	AISI 321
Gelled Hydrochloric Acid	2305	20	EPDM	AISI 321
Concentrated Hydrochloric Acid	638	20	EPDM	AISI 321
Kerosene-water emulsion (20% water, 80% kerosene)	5000	20	NBR	AISI 321
Kerosene-water emulsion (30% water, 70% kerosene)	84	20	NBR	AISI 321
Emulsion (20% mixture of kerosene gas oil acid, 80% HCl)	4200	30	NBR	AISI 321
Emulsion (40% mixture of kerosene gas oil acid, 60% HCl)	80	30	NBR	AISI 321
Oleic Acid	40	20	NBR	AISI 321
Paraffin Emulsion	3000	20	NBR	AISI 321
Polyester caoutchouc	3000	30	NBR	AISI 321
Polyglycerol caprate	6000 - 7000	15	NBR	AISI 321
Polymeric solution	20000 - 7100	20	NBR	AISI 321
Polyol (A-component)	85000	10	NBR	AISI 321
Polyol unpigmented	500 - 5000	20	NBR	AISI 321
Polyester resin	3000	30	NBR	AISI 321
Potassium hydroxide	67	20	NR	AISI 321
Printing inks	550 - 2200	40	NR	AISI 321
The dough-like substance	100	40		AISI 321
Dissolved rubber	7100	20	NBR	AISI 321
Caustic soda 50%	45	20	NR	AISI 321
Very liquid adhesives and paints	70 - 500	20	NBR	AISI 321
The majority of paints and enamels	500 - 3000	20	NBR	AISI 321
Dense paints	3000	20	NBR	AISI 321
Dense adhesives (for wood flooring or linoleum)	3000 - 50000	20	NBR	AISI 321
Waterborne varnish	900	20	NBR	AISI 321
Varnishes (25% pigment)	3000	20	NBR	AISI 321
Sealing comounds and mastics	10000 - 500000	20	NR	AISI 321
Sealing compounds and mastics	1500	70	NBR	AISI 321
Cosmetic and pharmaceutical products				
Vaseline oil	300	20	NBR	AISI 321
Dental fillings	30000	20	NBR	AISI 321
Shampoo	3000	20	NBR	AISI 321
Toothpaste	70000	40	NBR	AISI 321
Vitamin oil	4500	10	NBR	AISI 321
Whipped products	1500	40		AISI 321
Glycol	20 - 40	20	NBR	AISI 321
Dipropylene glycol	107	20	NBR	AISI 321
Gelafin	1200	45	NBR	AISI 321
Glycerine 100%	4500	10	NBR	AISI 321
Glycerine 100%	650 - 1490	20	NBR	AISI 321
Hand Creme	8000	20	NBR	AISI 321
Vegetable oils / Animal oils				
Peanut Oil	40	40	NBR	AISI 321
Caster Oil	580 - 1500	20	NBR	AISI 321
Caster Oil	2420	10	NBR	AISI 321
Coconat Oil	60 - 80	20	NBR	AISI 321
Cocoa Butter	50	60	NBR	AISI 321
Cod Liver Oil	35	40	NBR	AISI 321
Corn Oil	30	60	NBR	AISI 321
Hermp seed oil	60	20	NBR	AISI 321
Pig Fat	65	40	NBR	AISI 321
Linseed Oil	55	20	NBR	AISI 321
Linseed Oil	30	40	NBR	AISI 321
Olive Oil	85	20	NBR	AISI 321
Olive Oil	40	40	NBR	AISI 321
Palm Oil	130	20	NBR	AISI 321
Palm Oil	45	40	NBR	AISI 321
Soya Oil	60 - 80	20	NBR	AISI 321
Soybean oil, processed	600 - 800	20	NBR	AISI 321
Rap seed oil	160	20	NBR	AISI 321

Media	Dynamic Viscosity mPa (cps)	Temprature, deg, °C	Stator elastomer	Rotor steel
Cotton seed oil	60	20	NBR	AISI 321
Salad - oil	65	20	NBR	AISI 321
Whale oil	100	20	NBR	AISI 321
Mineral oil products				
Motor oil SAE 5	30	20	NBR	AISI 420 heat-treated
Motor oil SAE 10	50	20	NBR	AISI 420 heat-treated
Motor oil SAE 15	130	20	NBR	AISI 420 heat-treated
Motor oil SAE 15W40	390	20	NBR	AISI 420 heat-treated
Motor oil SAE 15W40	3000	-15	NBR	AISI 420 heat-treated
Motor oil SAE 30	380	20	NBR	AISI 420 heat-treated
Motor oil SAE 40	600	20	NBR	AISI 420 heat-treated
Motor oil SAE 50	750 - 900	20	NBR	AISI 420 heat-treated
Motor oil SAE 5W	50	20	NBR	AISI 420 heat-treated
Motor oil SAE 10W	160	20	NBR	AISI 420 heat-treated
Motor oil SAE 20W	160	20	NBR	AISI 420 heat-treated
Gear oil SAE 90	700	20	NBR	AISI 420 heat-treated
Gear oil SAE 140	2300 - 2700	20	NBR	AISI 420 heat-treated
Hydraulic oil HLP 46	120	20	NBR	AISI 420 heat-treated
Hydraulic oil HLP 68	195	20	NBR	AISI 420 heat-treated
Hydraulic oil HLP 100	300	20	NBR	AISI 420 heat-treated
Engine oil, thick	600	20	NBR	AISI 420 heat-treated
Engine oil, Liquid	150	20	NBR	AISI 420 heat-treated
Electric insulating oil	30	30	NBR	AISI 420 heat-treated
Electric insulating oil	75	10	NBR	AISI 420 heat-treated
Lubricating oil	60 - 200	20	NBR	AISI 420 heat-treated
Oil for steam turbines	30 - 1100	20	NBR	AISI 420 heat-treated
Dairy products				
Butter Fat	45	40	NBR	AISI 321
Cheese Spread	30000	60	NBR	AISI 321
Soft Cheese	30000	60	NBR	AISI 321
Cocoa butter	50	60	NBR	AISI 321
Condensed Milk	80	40	NBR	AISI 321
Sweetened condensed milk	6100	20	NBR	AISI 321
Cream (30-50 % fat content)	15 - 115	20	NBR	AISI 321
Cream	500	20	NBR	AISI 321
Milk	2	20	NBR	AISI 321
Whey	800 - 1500	40	NBR	AISI 321
Sour cream (30-50%)	11 - 115	20	NBR	AISI 321
Yoghurt	150	40	NBR	AISI 321
Liquid egg	150	45	NBR	AISI 321
Foodstuffs				
Cocoa - pasta	4000	20	NBR	AISI 321
Water	894	20	NBR	AISI 321
Baby Food	1400	40	NBR	AISI 321
Brewer's Yeast	370	20	NBR	AISI 321
Vegetable Soup	430	20	NBR	AISI 321
Chocolate products	2600	40	NBR	AISI 321
Chocolate Sauce	280	50	NBR	AISI 321
Fruit Pulp	600	20	NBR	AISI 321
Whipped Desserts	1500	40	NBR	AISI 321
Gelatine	1200	45	NBR	AISI 321
Glucose	4300 - 6800	25 - 30	NBR	AISI 321
Gravy	110	80	NBR	AISI 321
Salat dressing	1300 - 2600	20	NBR	AISI 321
jam	8500	20	NBR	AISI 321
Malt Extract	9500	20	NBR	AISI 321
Mayonnaise	2000	20	NBR	AISI 321
Pectin	300	40	NBR	AISI 321
Fruit juice	50	20	NBR	AISI 321
Fruit Huice Concentrate	1500 - 2500	20	NBR	AISI 321
Fruite Pure	600	20	NBR	AISI 321
Apple Pure	1500	20	NBR	AISI 321
Thick sweet porridge	1000	40	NBR	AISI 321
Strach solution, 25° Baurne	300	20	NBR	AISI 321
Sugar syrup 650 Bx	120	20	NBR	AISI 321
Sugar syrup 750 Bx	400	20	NBR	AISI 321
Tomato Ketchup	1000	30	NBR	AISI 321
Tomato Pure	195	20	NBR	AISI 321
Honey	2000	40	NBR	AISI 321
Alcoholic Beverages	10 - 100	20	NBR	AISI 321
Liquid Eggs	150	45	NBR	AISI 321

Name of the Company _____

Contact numbers _____

Contact person _____

E-mail: _____

* - to help you in choosing the right pump, please, fill out as much as possible information provided in this questionnaire

QUESTIONNAIRE FOR HELICAL PROGRESSING CAVITY PUMPS SELECTION

PARAMETERS	DESCRIPTION
Application (Oil & Gas/Food &Pharmaceutical/General Industry)	
Pump type (horizontal/vertical)	
Fluid name	
Capacity, m^3/h	
Inlet pressure, bar	
Outlet pressure, bar	
Fluid temperature (min/max) °C	
Density, kg/m^3	
Viscosity, cP	
PH	
Presence of particles	
Size of particles, mm	
Site ambient temperature (min/max), °C	
Diameter of suction / discharge pipes, mm	
Inlet/outlet connection type (flange/dairy fitting)	
Shaft seal type (stuffing box/mechanical/double mechanical)	
Installation location (indoor/outdoor)	

Additional options

FEATURES	YES	NO	DESCRIPTION
Screw feeder			
Input neck			
Heating of pump chamber/screw pair			
CIP flushing of the unit			
Explosion-proof version			
Frequency converter			
Control system «dry run»			
Overpressure protection			
Special climatic version			

Name of the Company _____

Contact numbers _____

Contact person _____

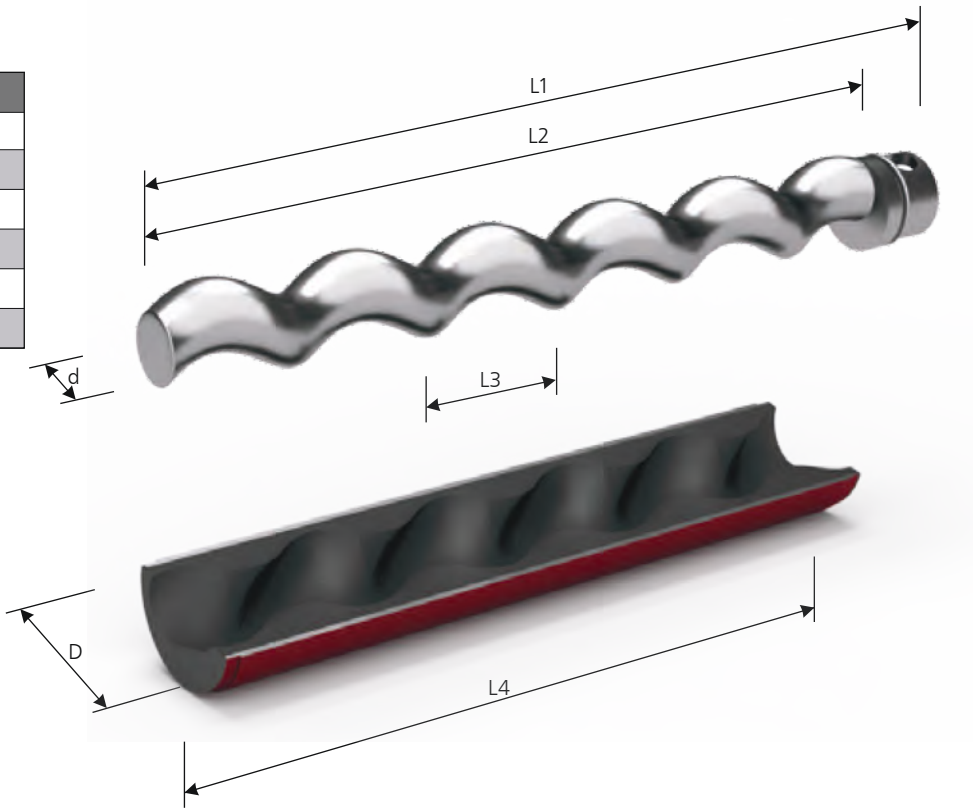
E-mail: _____

* - to help you in choosing the right pump, please, fill out as much as possible information provided in this questionnaire

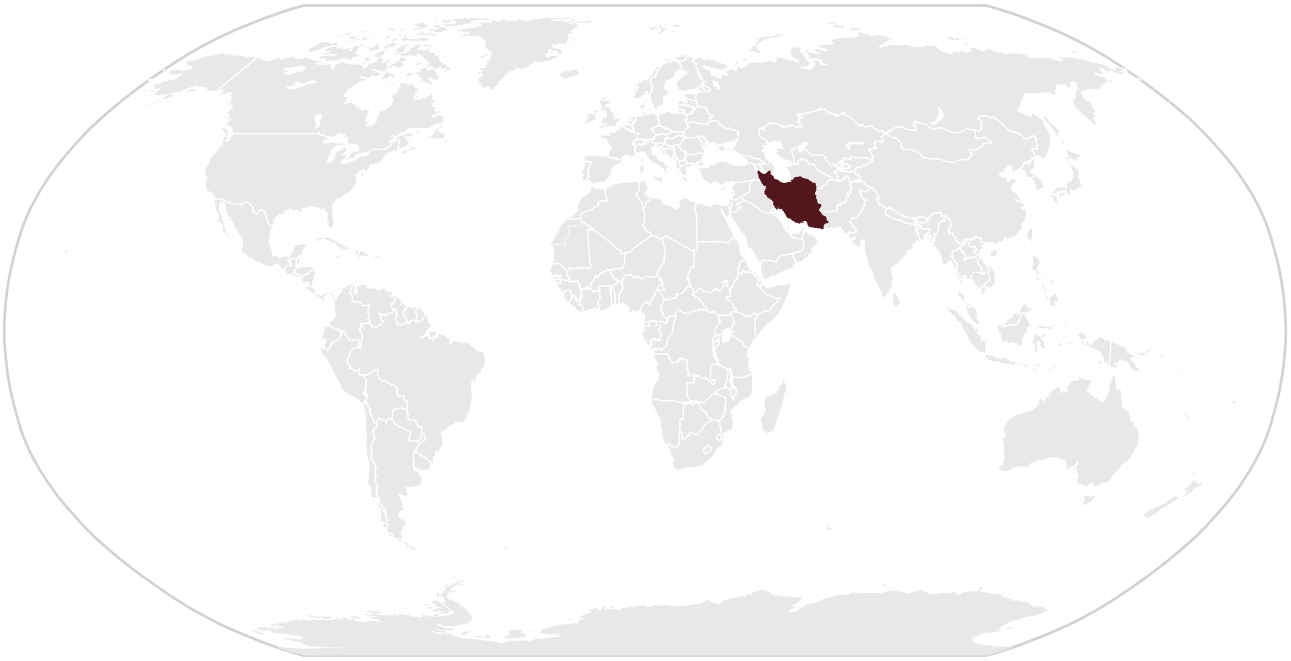
QUESTIONNAIRE FOR HELICAL SCREW PAIR

PARAMETERS	DESCRIPTION
Original manufacturer (O&M)	
Pump model/Order number	
Fluid name	
Capacity, m^3/h	
Inlet pressure, bar	
Outlet pressure, bar	
Fluid temperature (min/max) °C	
Density, kg/m^3	
Viscosity, cP	
PH	
Presence of particles	
Size of particles, mm	
Site ambient temperature (min/max), °C	
Diameter of suction / discharge pipes, mm	
Rotor material	
Stator material	
Screw pair geometry type (S/L/D/P)	

PARAMETERS	VALUES
L1, мм	
L2, мм	
d, мм	
L3, мм	
D, мм	
L4, мм	



SUSTAINABLE GROWTH
COMMITMENT TO VALUES



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