



SPIRAM



NEW STANDARD
OF EFFECTIVE
PUMPING



PRAKTIK PUMP
Professional partner for pumping technologies

SCREW CENTRIFUGAL SPIRAM PUMPS

NEW STANDARD OF EFFECTIVE PUMPING

SPIRAM screw pumps represent the brand product of PRAKTIKPUMP. Their development and construction are accomplished in Slovakia to set an advanced standard of pumping at low pressure and high flow rates. These pumps are intended to transport slurry with high concentration of solids and they meet the strictest requirements for eco-friendly operation.

SPIRAM pumps are centrifugal pumps featured with single-blade impeller of screw shape. This feature guarantees pumping media with minimum likelihood of clogging and maximally prevents entanglement of fibrous matters, while keeping high efficiency, and as a result, the operating costs for pumping units are considerably reduced. Thanks to these benefits, SPIRAM pumps are suitable for handling hard-to-pump fluids with high content of solids.

**WITH ITS TECHNICAL
PARAMETERS, SPIRAM
RANKS AMONG THE WORLD
LEADERS IN THE FIELD OF
CENTRIFUGAL PUMPS.**



SPIRAM
200A

ADVANTAGES OF SPIRAM PUMPS

- HIGH EFFICIENCY
 - LARGE SOLIDS PASSAGE
 - STURDY CONSTRUCTION

ENVIRONMENT-FRIENDLY OPERATION

Low power demanding operation, high reliability and resistance to mechanical or chemical damage mean low susceptibility to occurrence of emergency situations, which could potentially lead to contamination of the environment by transported fluid. All this significantly reduces the operating costs of SPIRAM pumps.

WIDE RANGE OF SOLIDS PASSAGE

SPIRAM addresses current challenges linked, for example, to the sewage wastewater treatment processes. Nowadays, they involve in particular new types of products and materials. These contain components non-degradable in water, which cause significant problems if conventional pumps are used, for example in the wastewater treatment plants.

SMOOTH AND EFFECTIVE RUNNING

PRAKTIKPUMP proposes a solution consisting in the trouble-free operation of our pumps with wide range of solids passage, which has an essential effect on the smooth and continuous operation of the plant facilities. Accordingly, the pump maintenance and repair costs are reduced and the servicing intervals are longer as well.

FROM AN IDEA TO THE PRODUCTS MADE IN SLOVAKIA

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The history of pump technology and water management in the heart of Slovakia is connected with the mining industry and dated back to the 17th century.

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In the twentieth century, especially in its second half, there had been a significant development of engineering industry in the region of Central Slovakia and the construction of rotating machine reached the world's top level.

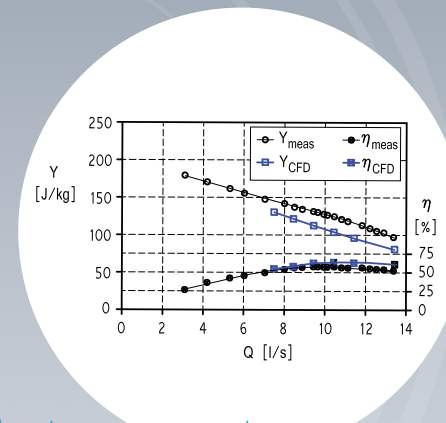
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SPIRAM pumps continue this heritage of workmanship. They combine the long tradition with modern technology. Their research, development and production are performed in Slovakia thanks to teams of professional researchers, specialists in hydraulics or designers.

SPIRAM PRODUCT UNIQUENESS

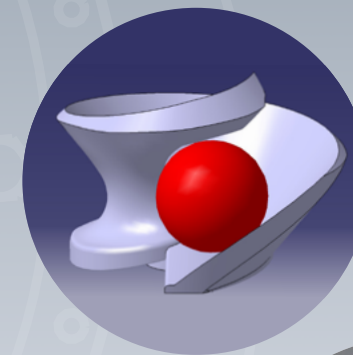
SPIRAM slurry pumps are a unique milestone in the history of the original development of pump units in Slovakia. They are the outcome of the only one research of this kind of pumps (single-bladed hydrodynamic pump with a screw shaped impeller) ever conducted in Slovakia.

The technical complexity of designing the systems for this segment of machinery does cause that there is only a very small number of manufacturers engaged in their production worldwide. By successfully completed development resulting in the their production, PRAKTIKPUMP ranks in this exclusive short list, thus promoting Slovakia as a professional player in the field of value added research, development and production in the engineering industry.



Laboratory measurements
- specific energy and pump
efficiency characteristics

3D model of impeller with
passage control



Unbalanced impeller
(weldment)



Prototype impellers
including pump
itself



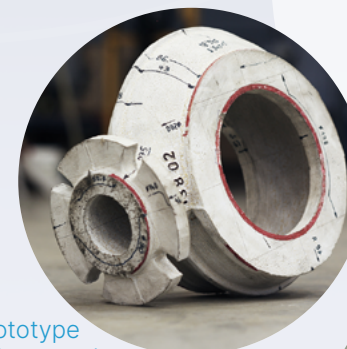
Balanced impeller
(3D printout)



Measurement
procedure in the
pump testing room



Prototype impeller
castings not
dynamically
or statically
balanced



Prototype
volute castings



Final volute
prototype



Final volute
prototype



PRAKTIKPUMP manufacturing
and assembly premises



Pump type 200 ready for
delivery to the customer



Finishing work on
the first products
constructed



Final test of SPIRAM
200 pump

WELL-ELABORATED DESIGN IDEA

TOP ADVANTAGES RESULTING FROM THE SPIRAM PUMP DESIGN

DISCHARGE GROOVE

A very common problem of slurry pumps is the settling of impurities in the sealing space, which results in premature wear or failure of the mechanical seal. SPIRAM pumps have a special feature - a discharge groove provided on the rear plate and a discharge groove provided on the conical surface of the sealing spacer, which are continuously connected.

This maximizes the effect of "discharging" small debris from the sealing space back into the process stream. Such a way of protecting the seal is also present in the case of pumping fibrous fluids. Moreover, such groove is provided also on the front plate, where it prevents the fibrous matters from getting entangled around the impeller.

HEAVY-DUTY VERSION

SPIRAM pumps are available in different versions. These also include the proven "heavy" version of the pump horizontally arranged on the base frame with a separate bearing housing and with a separate foot motor. This version shows extreme durability even in the most demanding applications and a very long service life as well. Other great advantages include low demanding maintenance and operation of this pump version.

SPIRAM 200A

VERSATILE VOLUTE

The volute casing is optimized both hydraulically and structurally to be as versatile as possible. In terms of hydraulics, we can adapt several different impellers for one volute, which are able to cover huge range of flow rates and heads at different rotational speeds. In terms of construction, the volute is designed so that it can be used in different horizontal and vertical installations, which means that one and the same piece of volute can be incorporated either in the standard horizontal version with the bearing housing or in the vertical version with the submersible electric motor.

ADJUSTABLE FRONT PLATE

For pumps equipped with semi-open impeller it is very important that the clearance between the front plate and the impeller is as narrow as possible in order to maintain the design efficiency. In the case of slurry pumps, the clearance increases over time due to the action of the abrasive particles. Such clearance can be corrected to the optimum value using the SPIRAM pump adjustment mechanism, thus keeping the pump highly effective. And, it is important to note the efficiency of the pump is directly linked to the saving of electricity and to the environmental impact.

UNIQUE IMPELLER

The most important component of the SPIRAM pumps is the impeller itself, which looks like a helix. This unique shape makes it possible to transport media containing large solid particles at high efficiency of the pump unit. An indisputable advantage of this type of impeller and hence the entire hydraulic system is the combination of the remarkably wide solids passage and the high hydraulic efficiency in the field of sludge pumps. In case of individual requirements it is possible to design the impeller and so the entire pump with specific parameters, thus obtaining optimum performance characteristics for application concerned.

VARIABLE SEALING SPACE

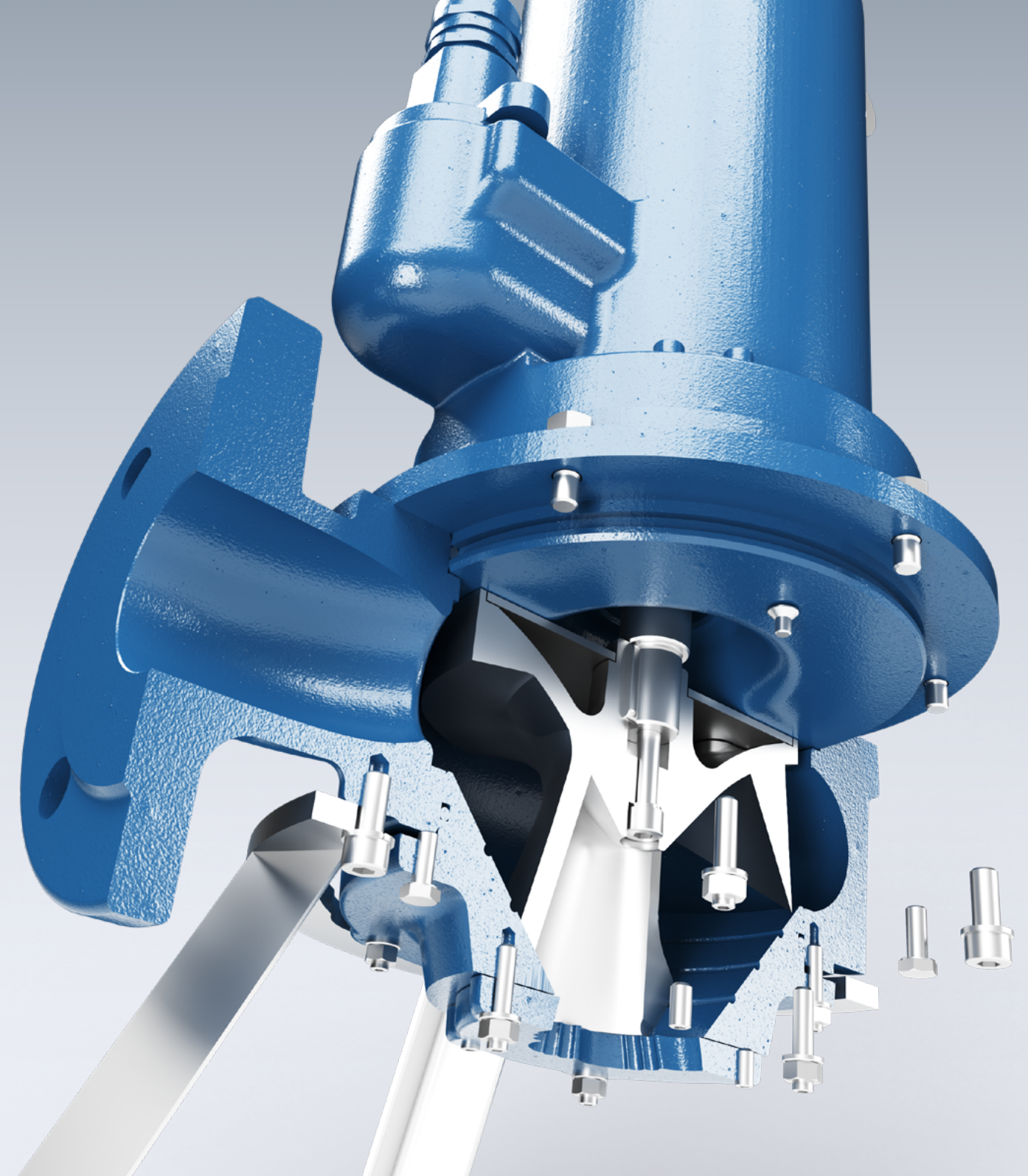
The sealing space of the SPIRAM pumps is designed so that different types of mechanical seals from different manufacturers can be installed there. This means the use of various designs ranking from standard single mechanical seals to double cartridge seals with active cooling or heating the sealing space. SPIRAM pumps also offer special methods of sealing, such as polymer-based packing that is used for heavy duty applications requiring absolute maintenance-free systems.

SPIRAM SUBMERSIBLE PUMPS



SPIRAM submersible pumps, with a spiral impeller vane, are in operation throughout the country in many municipal and industrial applications. Many years of experience in the design and manufacturing of submersible pumps and an uncompromising attention to quality in accordance with ISO 9001 ensure the highest reliability and long service life of all PRAKTIKPUMP products.

The combination of the highest quality materials in an efficient and robust design optimises the service life and at the same time reduces the cost of pump production. Premium electric motor efficiency and optimized hydraulic design minimize the risk of clogging and maximize overall efficiency.



Additional reliability is ensured by a wide range of automated pump condition monitoring options. The condition of the mechanical seal, the temperature of the electric motor and bearings, moisture detection or vibration can be monitored with results that are automatically transmitted to various monitoring devices or warning systems.

Pumps are available in a variety of configurations that can be designed specifically for any demanding application or installation. With three different submersible designs, four electric motor speed variations, active motor cooling options, fully interchangeable impellers and multiple mounting configurations, SPIRAM pumps are suitable for any application.

KEY PARTS

1/ Impeller

Dynamically balanced high-efficiency impellers with single spiral blades with generously sized spherical passages are available with no chance of clogging. The rear disc is designed to prevent solids from entering the clog chamber. The impellers, which are manufactured by casting in GGG40 material as standard, provide excellent durability in typical applications such as wastewater treatment plants. Optional materials include bronze, AISI316 stainless steel, duplex steel and high chromium SPIROHARD alloy.

2/ Mechanical seals

Two independent mechanical seals are used in a tandem arrangement, fitted as standard with hard silicon carbide sliding surfaces to provide excellent abrasion and temperature resistance. For special applications, optional tungsten carbide sliding surfaces are available. Different static seal material designs such as Viton are also available.

3/ Fasteners

All fasteners are made of AISI 304 stainless steel for easier disassembly after years of service. Optional fasteners in AISI 316 stainless steel are available on request.

4/ Shaft

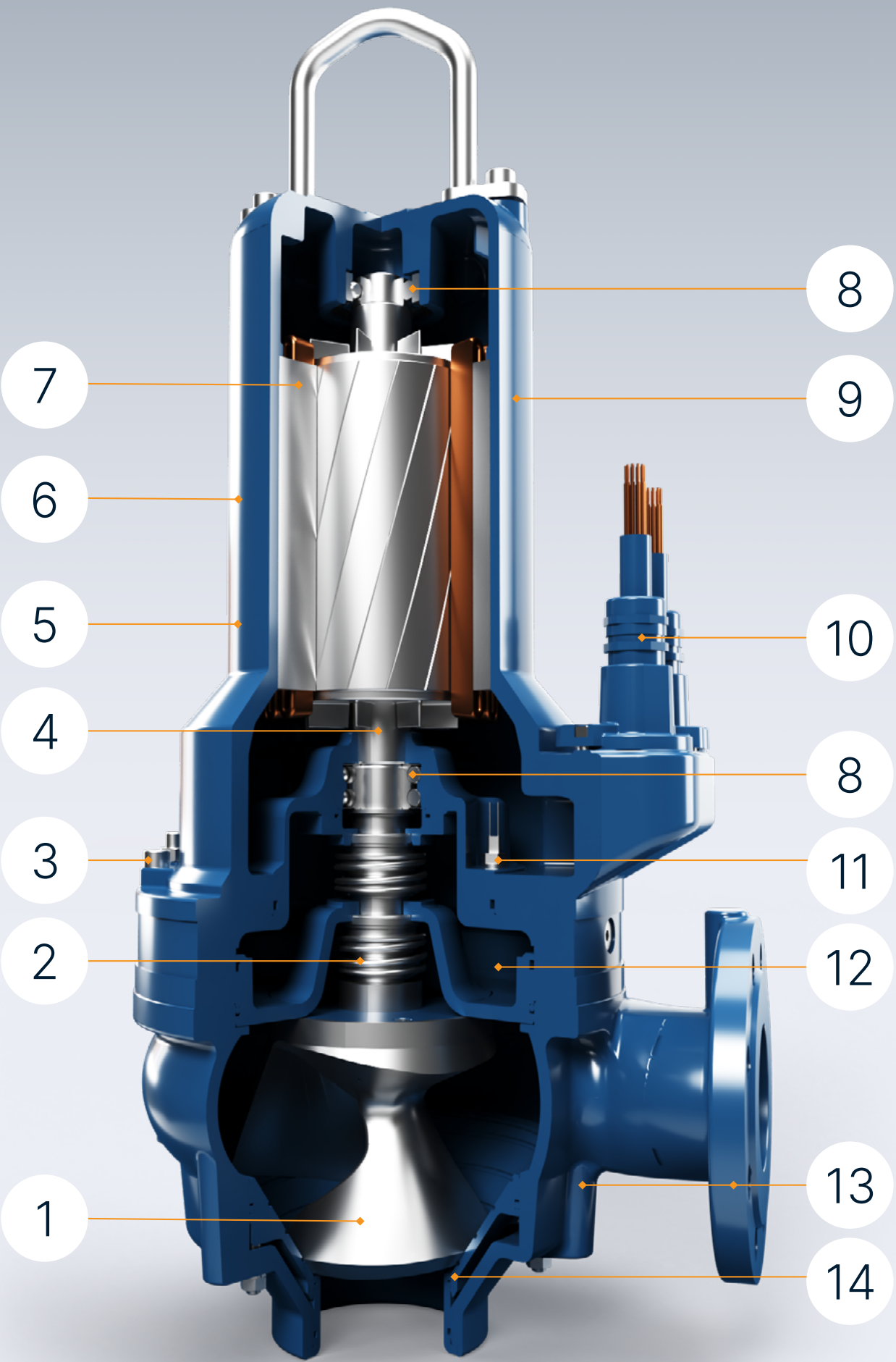
One-piece, dynamically balanced shaft made of AISI 430F material with precision machined surfaces. Short shaft offset of oversized diameter for extremely small deflections and minimum vibration, as well as for excellent mechanical seal tightness and life of the bearings.

5/ Pump body material

By default, all SPIRAM main pump bodies are made by casting from GGG40 material, protected against corrosion by an epoxy coating and sealed with o-rings. For special applications, various stainless steel alloys and also duplex steels are available.

6/ Electric motor cooling

When installing SPIRAM submersible pumps in a dry pit, whether for semi-submersible or special applications, there is the option of using a cooling jacket, available as an optional part of the electric motor.



7/ Protection of electric motor winding

The stator winding temperature is continuously monitored by thermal switches built into each phase and provide protection against high thermal stresses. Optional PT100 sensors are available for continuous monitoring of stator temperature for special applications.

8/ Bearings

Premium bearings permanently lubricated with a heat-resistant grease are over-dimensioned for a maximum service life of class B10. For special requirements, insulated bearings or roller bearings are available for higher load capacity.

9/ Stator

Precision electric motor winding compatible with frequency converters, with Class H insulation and a service factor of 1.15. Options include: premium IE3 electric motor efficiency, specific windings for VFD operation, VPI (vacuum pressure impregnation) insulation, ATEX certification.

10/ Cable entry grommet

Robust screw-in grommet allows easy cable replacement. There is also a watertight seal and protection against rough handling.

11/ Humidity/presence monitoring water

Immediate indication of water intrusion is provided by an optional moisture sensor in the stator or in the terminal block. Early detection will minimize mechanical damage and downtime required for servicing the electric motor.

12/ Oil chamber

A generously sized oil chamber provides lubrication and cooling of the mechanical seals and lower bearings to ensure their long life. Water intrusion into the oil chamber is continuously monitored by the standard built-in leak sensor.

13/ Pump spiral

The SPIRAM submersible pump volute includes a discharge flange according to DIN standards in sizes from DN50 to DN700. For easy inspection and maintenance of the dry sump pumps, a so-called inspection hole is available for the larger pump sizes.

14/ Front disc

The adjustable front disc with ejector groove keeps hydraulic efficiency at a maximum level at all times and is easy to replace as needed. Available in various superior materials such as AISI 316, SPIROHARD, etc.

THE CHARACTERISTICS OF THE SUBMERSIBLE ELECTRIC MOTORS

The electric motors are designed for continuous operation (S1) with a maximum of 15 starts per hour. In addition to the permanently submerged “wet installation” electric motors, an electric motor design with cooling jacket is available for S1 operating mode operating in a non-submerged condition or for dry pit installation.

Engine RPMs:

For standard hydraulic ranges, electric motors are designed with the following speeds:
2900 rpm = 2-pole electric motor
1450 rpm = 4-pole electric motor
960 rpm = 6-pole electric motor
720 rpm = 8-pole electric motor

Voltage:

All data listed refers to an operating voltage of 400 V/3 Ph, 50 Hz. Various supply voltage options are available upon request.

Type of start:

Electric motors come standard in direct start (direct, DOL) or star-triangle (Y/D, St/D). All electric motors are also suitable for operation with a frequency converter or so-called soft starter.

Blast protection:

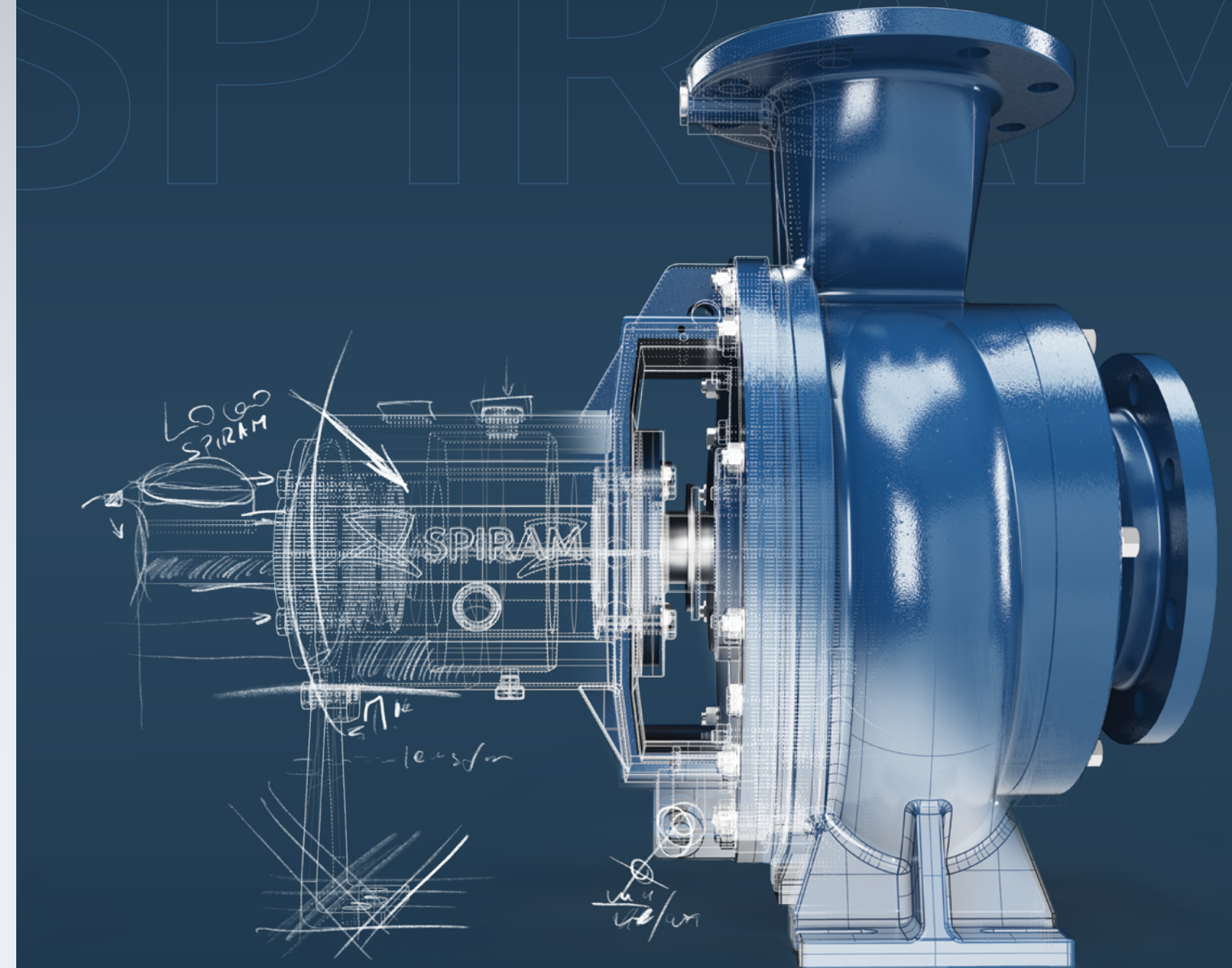
In addition to the standard version, all electric motors are available in an explosion-proof version according to ATEX Ex II 2 G EEXd.

Electric motor monitoring:

All electric motors are supplied with PTC temperature sensors in the windings (standard) or PT100 sensors (optional). Electric motors for either “wet” installation (without cooling jacket) or with cooling jacket are supplied with a probe as standard to monitor the presence of water in the oil chamber. It is also possible to add moisture monitoring in the stator and also in the terminal box. Additional sensors are also available on request, for example for monitoring the bearing temperature.

OPTIONAL TECHNOLOGY

The SPIRAM Gyra pre-rotation system is an optional component of SPIRAM submersible pumps. Its principle of operation is to create a rotating vortex of accumulated waste water in the shaft, which gradually sweeps away debris floating on the surface, thus ensuring maintenance-free and trouble-free operation without the threat of pump clogging. It has the added advantage of keeping the pump's operating point around low flow rates. The rotating flow in fact affects the velocity fields on the pump suction, resulting in a regulation of the operating point on the curve to the left towards low flow rates. This is desirable in terms of the duration of the effect of skimming debris from the surface, while at the same time reducing the pump's input power.



The SPIRAM pump design illustration

IMPELLER USED IN SPIRAM PUMPS

UNIQUE HYDRAULICS FOR TROUBLE-FREE OPERATION

The SPIRAM centrifugal pump uses a specially designed screw-shaped impeller to supply the pumped fluid to the tapered casing or the cone. The impeller then uses the centrifugal force generated by the impeller to push the pumped fluid out of the pump.

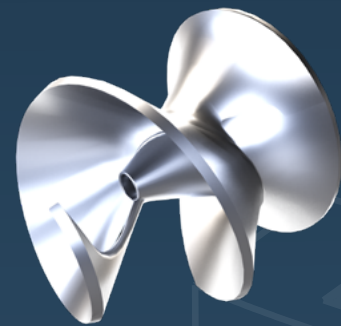
The construction of the screw-shaped single blade is specially designed for low rotational speeds of impeller, avoiding the destruction of hydraulic parts by abrasive particles. This means that the design of the pump has been perfectly executed not only to prevent clogging but also to guarantee long lifetime of the pump.

Each screw-shaped impeller of SPIRAM pumps is designed with an emphasis on the free ball passage. Thanks to it, these pumps are able to handle solid sizes up to 100% of the discharge flange diameter.

The combination of the tapered narrowing of the meridional cut, the small wrap angles of blades and the low lead-in angles of the fluid path promote movement of the product from the impeller suction side to the discharge section with minimal opportunity to cause blocking. In general, the hydraulics type involving a single bladed screw pump with an impeller eliminates the possibility of clogging it. What passes through the inlet port it will also pass through the outlet port, thanks to the spiral rising towards the rear side.

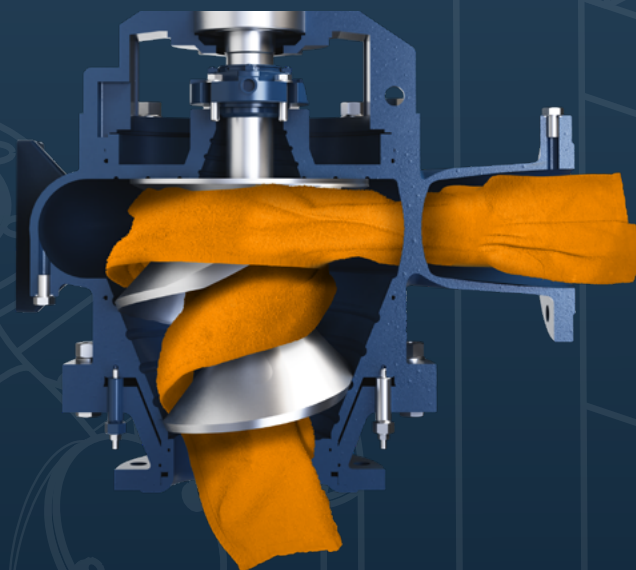
Further, the hydraulics working on such a principle minimizes the time of fluid flow through the pump while reducing the abrasive effect to the pump caused by gravel, sand or similar fine solids.

In addition, each SPIRAM pump is provided with a system of adjusting the clearance between the front plate and the impeller to achieve maximum hydraulic efficiency of the pump with long-term effect on the pre-set minimum power consumption of the pump unit.



The impeller of the SPIRAM pumps comes into contact with the pumped fluid at a lower percentage, thereby differs from common centrifugal impellers with an upstream cutting system. While other pumps cut the fibrous matters and other waste contained in the fluid into smaller parts, the impeller of the SPIRAM pump transports these materials thanks to the low shear force and its shape with no or minimal damage to its structure. All the mention advantages of SPIRAM pumps are available while achieving high hydraulic efficiency of the pump. The hydraulic efficiency of up to 91% for slurry pumps is a parameter that is comparable to that of multi- blade centrifugal pumps intended for pumping clean water.

Thus, the use of SPIRAM pumps creates significant preconditions for long-term trouble-free operation at the lowest possible operating costs.



APPLICATIONS

THANKS TO THEIR BENEFITS, SPIRAM PUMPS ARE THE IDEAL SOLUTION FOR THE USE IN WASTE WATER PURIFICATION, FOOD AND PROCESSING INDUSTRY, ETC.



SLURRY AND WASTE WATER

- Wastewater treatment plants
- Dewatering systems
- Moving hydro mixtures
- Sewerage networks
- Wastewater thickening systems



INDUSTRY

- Chemical industry
- Food industry
- Paper and pulp industry
- Agriculture
- Mining industry



ENERGY

- Coal-, gas-, and nuclear-fired power plants
- Waste-to-energy plants
- Crude oil production
- Incineration plants
- Biogas generation



CIVIL ENGINEERING

- Construction and tunnels
- Flood defence systems
- Reconstruction
- Drainage system
- Building technology

SUBSTANCES PUMPED

SPIRAM pumps are suitable for pumping abrasive hydraulic mixtures, fibrous fluids and organic media in the following industries:

BIOGAS GENERATION

- Bio-waste
- Recovered oils

CHEMICAL PROCESSES

- Sludge from processing silicon carbide
- Salts
- Aggressive and non-aggressive hydro mixtures

PAPER INDUSTRY

- Cellulose mixtures
- Pulp

WTP

- Activated sludge
- Sludge recirculation

CONSTRUCTION

- Cement
- Additives
- Water containing mud

ENERGY

- Fly ash-water mixture

INDUSTRIAL PROCESSING

- Carbon pastes
- Recirculation of hydro mixtures

FOOD INDUSTRY

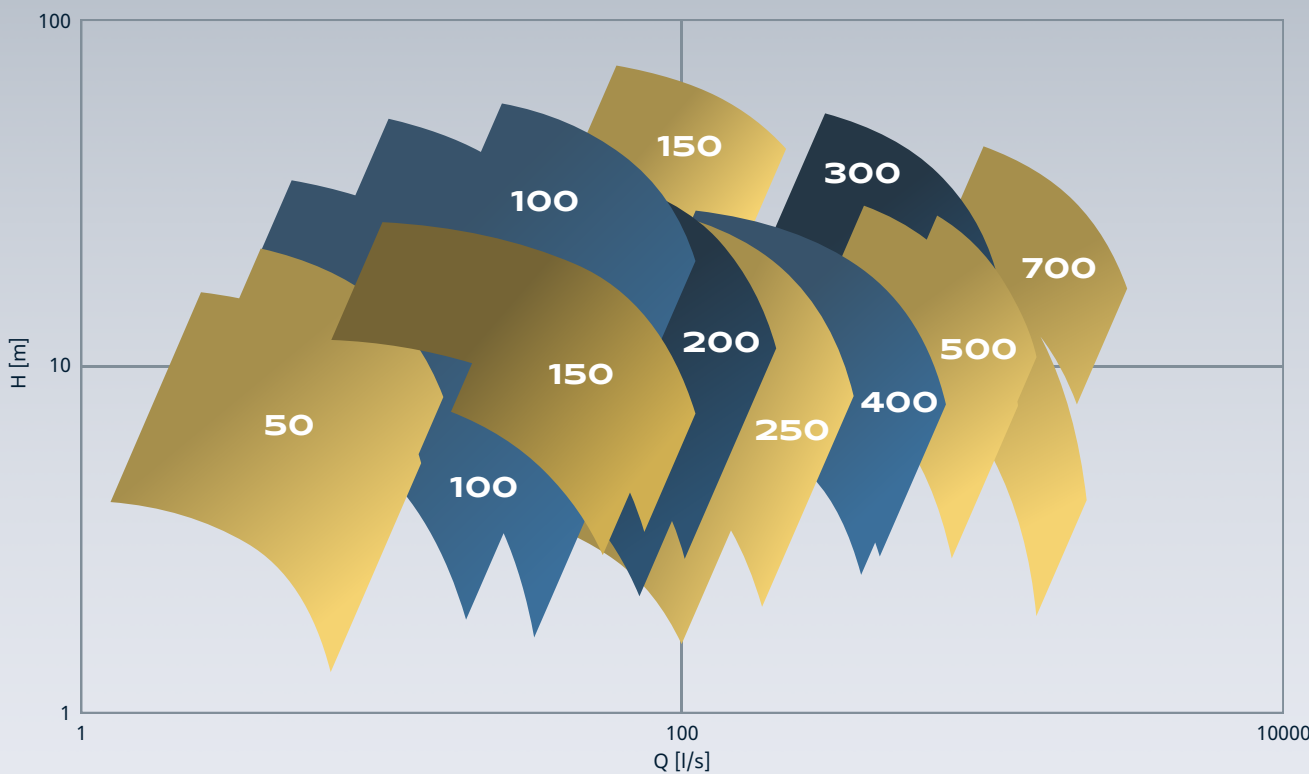
- Bentonite
- Compost
- Hops
- Mash and malt
- Meat cuts
- Bio-waste
- Slaughterhouse waste including bones, vegetable and fruit suspensions

MINING INDUSTRY

- Gravel
- Kaolin clay slurry
- Suspended sand
- Activated carbon

PORTFOLIO SUMMARY

SPIRAM THOMBSTONES



SUMMARY OF PARAMETERS (MAXIMAL VALUES):

- Maximal flow rate: 3000 l/s
- Maximal head: 90m
- Maximal solid content: 10%
- Maximal density: 1300 kg/m³
- Maximal free passage: 300mm
- Maximal efficiency: 91%
- Maximal viscosity: 1200 cP

TECHNICAL DETAILS:

Qmax [l/s]	Qmin [l/s]	Qmax [l/s]	Hmin [m]	Hmax [m]	Pmin [kW]	Pmax [kW]	η max [%]	ø max [mm]
50	2	16	2	20	0,2	3,0	63	50
100	5	80	2	75	0,3	36,0	84,3	75
150	20	110	3	75	1,9	14,1	81,5	100
200	22	165	3	50	2,4	41,0	85,9	115
250	37	300	2	40	2,0	56,3	85	120
300	140	600	3	40	10,9	148,7	84,5	150
400	174	680	3	30	15,1	96,7	82	180
500	249	1500	4	30	42,8	249,8	84,1	230
700	566	3000	3	45	56,6	688,2	91	300

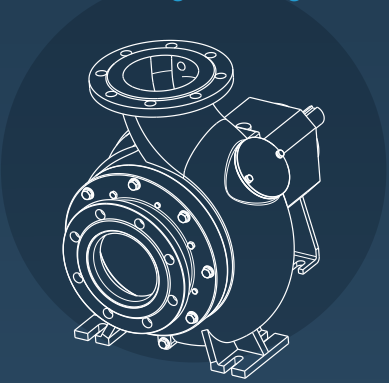
The manufacturer reserves the right to change product specifications, designs, and equipment.

CONSTRUCTION DESIGNS

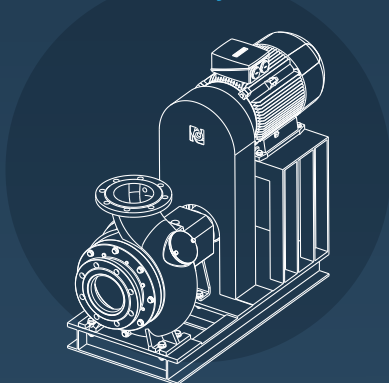
SPIRAM PUMP VARIANTS

SPIRAM centrifugal pumps can be provided in several formats depending on the installation conditions: close and long coupled versions for “dry” pumping; vertical spindle designs with the pump head immersed in the liquid stream or fully submersible pumps.

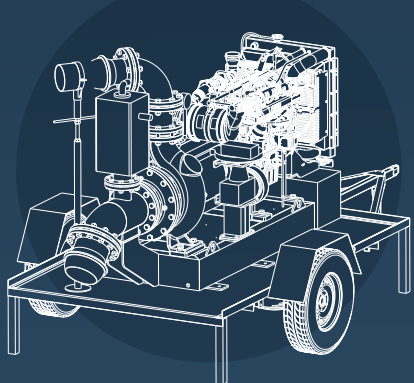
Horizontal design with bearing housing



Horizontal design driven by belt



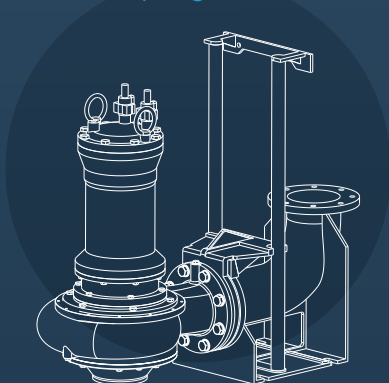
Horizontal design with diesel drive



Submersible design - free standing



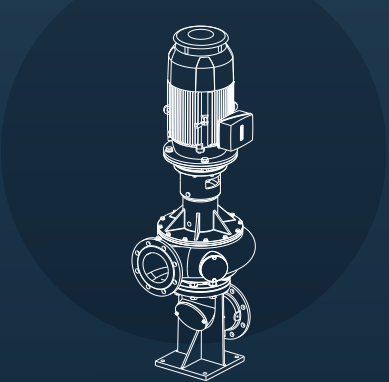
Submersible design - coupling device



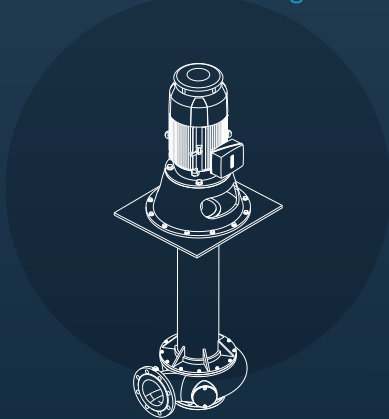
Submersible design - dry pit with cooling jacket



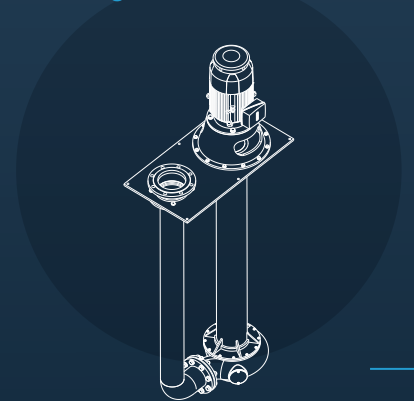
Monoblock design with standard motor (horizontal, vertical)



Immersible design



Immersible design - discharge flange above the floor



SEALING SPACE OPTIONS

ONE SPACE FOR ALL SEAL SYSTEMS AND API PLANS

Variability of the sealing space for SPIRAM pumps consists in the design of the rear pump plate, which is ready for installation of different types of seals. Different versions of mechanical seals can be used independently of their manufacturers.

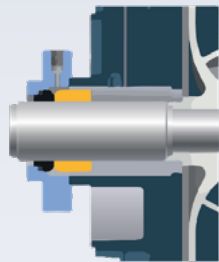
Most commonly used options include:

- Gland packing (without/with lantern ring),
- Single mechanical seal (single-spring, single-component,...),
- Cartridge mechanical seal (single, dual, back-to-back, double tandem),
- Special packed stuffing box (polymer based seal rings, without/with lantern ring),
- It is also possible to use an API Plan to prevent abrasion damage to the mechanical seal or to eliminate potential leakages.

Seal protection: The seal is protected in two ways. The conical shape of the seal chamber allows the accumulated air to be naturally discharged towards the pump outlet. Thanks to this technical solution, the pumped fluid always gets in contact with the seal to lubricate or cool it. The helical groove discharges sludge and solid particles from the seal to the pump outlet in a simple way. The rear part of the impeller or the follower rotates and imparts a proportion of its kinetic energy to the liquid present in the sealing space. The helical groove is oriented so that the impurities are transported towards the pump outlet by rotating liquid. In this way, the abrasive action of impurities on the sealing faces of the mechanical seal is eliminated and their service life is significantly extended.

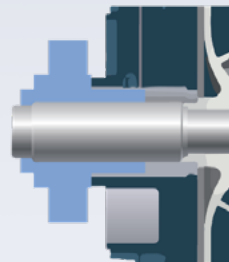
SINGLE SEAL - STANDARD

Self lubricated single mechanical seal.



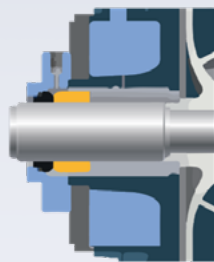
CARTRIDGE SEAL

Standard seal chamber is big enough to seat almost all the cartridges on the market.



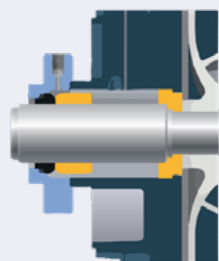
HEATING / COOLING CHAMBER

The heating or cooling chamber can be easily installed on all RD-RG pumps.



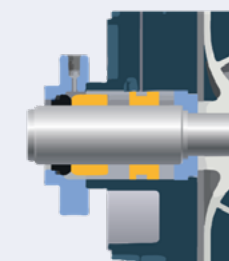
SINGLE SEAL + BOTTOM RING

To use combined with PLAN 11 from the discharge or PLAN 32 from external circuit. Also available «E» execution without bottom ring.



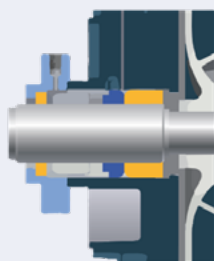
SINGLE SEAL + PUMPING RING + BOTTOM RING

To use with hot or over-heated liquids and in combination with external heat exchanger. PLAN 23.



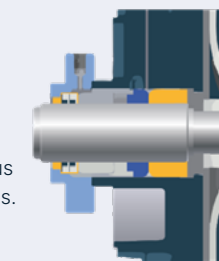
SINGLE SEAL + QUENCH

Quench mainly used for steam barrier.



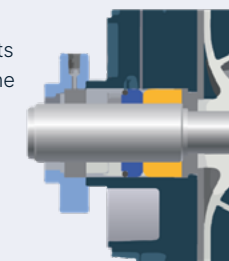
SINGLE SEAL + SELF LUBRIC. LIP SEAL QUENCH

Combined seal, for dry running without auxiliary liquids or for discontinuous flushing. Safety barrier for hazardous liquids or ATEX zones.



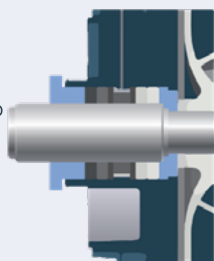
SINGLE SEAL CLOSE TO THE IMPELLER

Single seal for dirty or viscous liquids. its position, close to the impeller, facilitates lubrication.



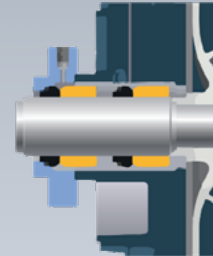
GLAND PACKING WITH HYDRAULIC BARRIER

Gland packing seal with barrier hydraulic ring and flushing. Also available «B» execution without ring.



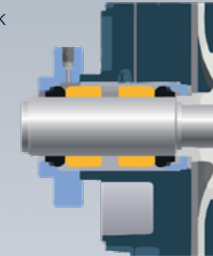
DOUBLE TANDEM MECHANICAL SEAL

Double tandem mechanical seal. PLAN 52. Also available washing connection for the pump side seal.



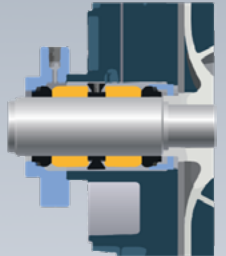
DOUBLE BACK TO BACK MECHANICAL SEAL

Double back to back seal. PLAN 53 - PLAN 54.



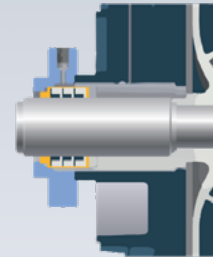
DOUBLE BACK TO BACK SEAL + PUMPING RING

Double back to back seal with pumping ring. PLAN 53 - PLAN 54.



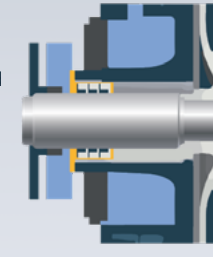
SELF LUBRICATED LIP SEAL

Self-lubricated seal rings suitable for clean and viscous liquids. Also available on ceramized shaft sleeve.



LIP SEAL + QUENCH + HEATING CHAMB.

As «V» type, but with safety gland packing quench and heating chamber.



VESSELS, SELF COOLED SYSTEM ETC...

Swallowing primarily designed for steam barrier seals.



MATERIALS OF CONSTRUCTION

SPIRAM pumps are available in different materials for different applications ranging from light-duty operation in wastewater treatment plants to aggressive chemical environments where not only chemical compatibility and stability, but also high abrasion resistance of individual pump components is required.

1. CAST IRON

- Grey iron
- Ductile iron
- Special alloy cast iron CR27 (intended for thermal treatment to achieve high abrasion resistance)

2. STAINLESS STEELS

Stainless steels are used wherever resistance to aggressive media is required. However, different types of stainless steel provide other advantageous properties that are required in some specific applications. (AISI304/L, AISI316/L, 316Ti)

3. DUPLEX STAINLESS STEELS

Duplex steels combine the advantages of ferritic and austenitic stainless steel. They have increased resistance to aggressive media and also more advantageous mechanical properties therefore they are often used in the most demanding industrial applications. (A890, 329, ...)

4. NICKEL AND ITS ALLOYS

Nickel is almost completely resistant to dilute acids due to its ability to form a protective coat on its surface in the oxidation phase when getting into contact with the acid for the first time. Nickel-based alloys excellently resist aggressive media and they are highly chemically stable. Thanks to their specific properties, these alloys are often used in the chemical industry. (C-22, C-4, B-2/3, C-276...)

5. TITANIUM AND ITS ALLOYS

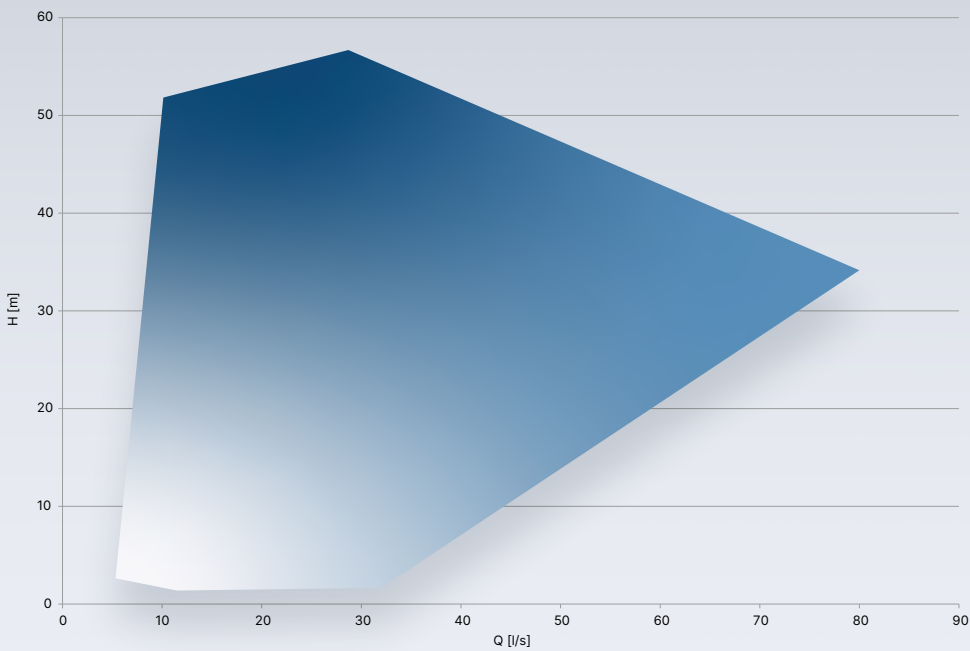
Titanium and titanium alloys are suitable for media and environments with a very high oxidation rate and high chloride content, for example in desalinization plants.

SPIRAM 50 SERIES

TECHNICAL INFORMATIONS

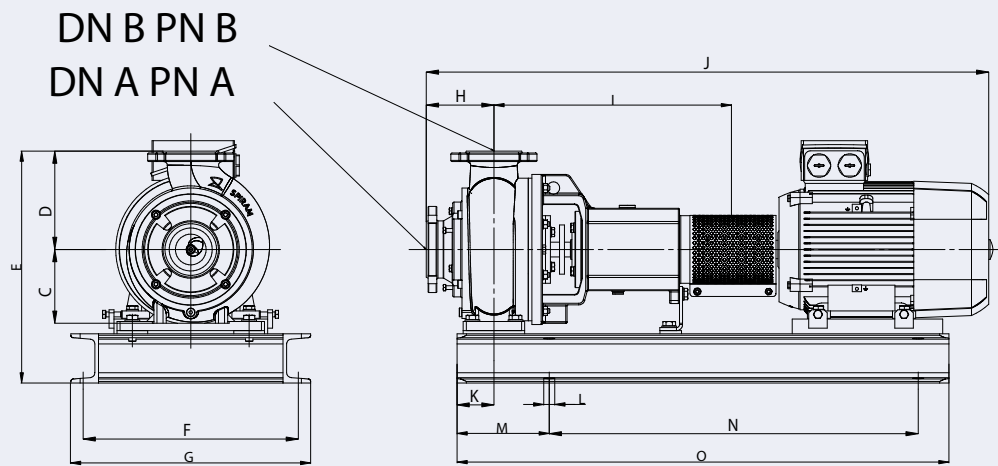
Pump version	Pump size	Type of impeller	Suction/Discharge DN/PN	Free passage (mm)	Flow BEP Q (l/s)	Head BEP H (m)	Efficiency η_h (%)	Speed (rpm)	Non-overloading power P (kW)
SPIRAM 50-A-A	A	A	50/16-50/16	50	9,4	13,3	60,6	2900	2,5
SPIRAM 50-A-A	A	A	50/16-50/16	50	4,7	3,3	60,6	1450	0,3
SPIRAM 50-A-B	A	B	50/16-50/16	50	8,7	10,6	63,0	2900	1,6
SPIRAM 50-A-B	A	B	50/16-50/16	50	4,3	2,7	63,0	1450	0,2

FLOW-CHART – QH CHARACTERISTICS



DIMENSIONAL DRAWING – HORIZONTAL VERSION

END SUCTION	DN(A) PN(A)	DN(B) PN(B)	L	L1	L2	W	W1	W2	H	H1	H2
SPIRAM 50 A	50/6	50/6	900	110	600	300	200	250	380	160	160

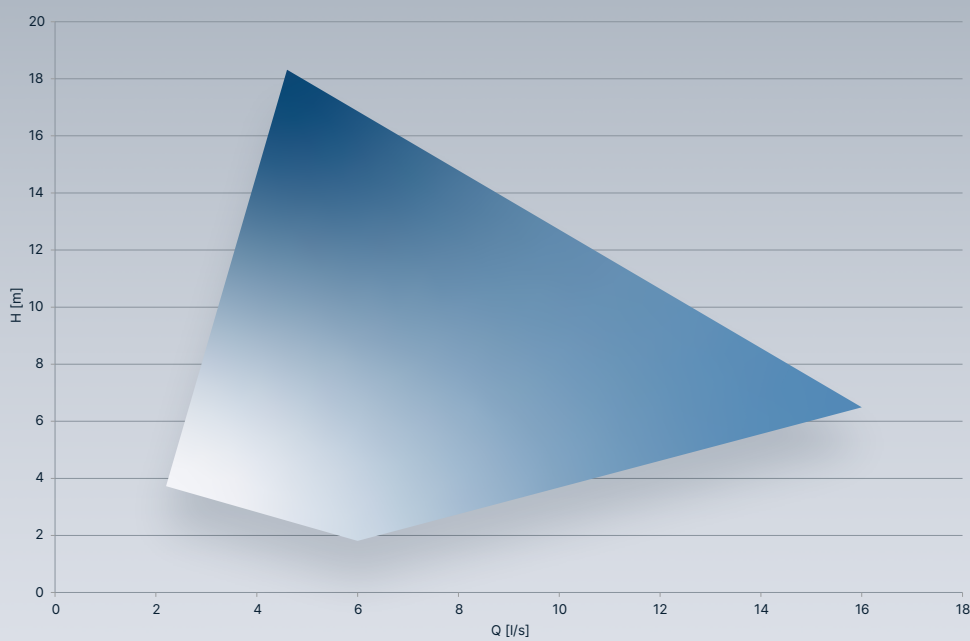


SPIRAM 100 SERIES

TECHNICAL INFORMATIONS

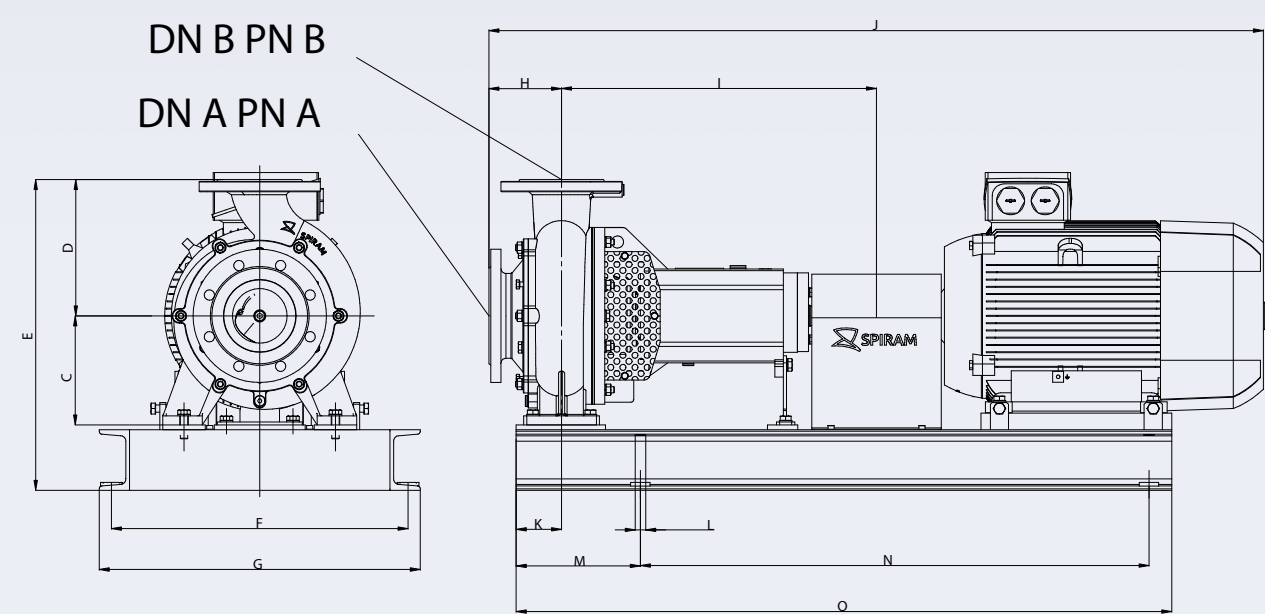
Pump version	Pump size	Type of impeller	Suction/Discharge DN/PN	Free passage (mm)	Flow BEP Q (l/s)	Head BEP H (m)	Efficiency η_h (%)	Speed (rpm)	Non-overloading power P (kW)
SPIRAM 100-A-A	A	A	100/16-80/16	50	31,9	30,9	79,4	2900	12,2
SPIRAM 100-A-A	A	A	100/16-80/16	50	16,0	7,7	79,4	1450	1,5
SPIRAM 100-A-B	A	B	100/16-80/16	50	22,1	20,8	75,9	2900	6,0
SPIRAM 100-A-B	A	B	100/16-80/16	50	11,1	5,2	75,9	1450	0,7
SPIRAM 100-B-A	B	A	100/16-100/16	75	63,7	41,3	78,1	2900	36,7
SPIRAM 100-B-A	B	A	100/16-100/16	75	31,8	10,3	78,1	1450	4,6
SPIRAM 100-B-B	B	B	100/16-100/16	75	40,4	18,7	77,7	2900	10,2
SPIRAM 100-B-B	B	B	100/16-100/16	75	20,2	4,7	77,7	1450	1,3
SPIRAM 100-B-F	B	F	100/16-100/16	75	35,9	13,3	73,0	2900	6,5
SPIRAM 100-B-F	B	F	100/16-100/16	75	18,0	3,3	73,0	1450	0,8
SPIRAM 100-C-A	C	A	100/16-80/16	75	15,0	8,8	61,9	2900	2,4
SPIRAM 100-C-A	C	A	100/16-80/16	75	7,5	2,2	61,9	1450	0,3
SPIRAM 100-D-A	D	A	100/16-80/16	75	51,9	34,1	78,7	2900	27,1
SPIRAM 100-D-A	D	A	100/16-80/16	75	25,9	8,5	78,7	1450	3,4
SPIRAM 100-D-A	D	A	100/16-80/16	75	17,3	3,8	78,7	980	1,0
SPIRAM 100-D-B	D	B	100/16-80/16	75	50,2	27,3	78,1	2900	18,3
SPIRAM 100-D-B	D	B	100/16-80/16	75	25,1	6,8	78,1	1450	2,3
SPIRAM 100-D-B	D	B	100/16-80/16	75	16,7	3,0	78,1	980	0,7
SPIRAM 100-D-C	D	C	100/16-80/16	75	35,8	19,3	76,5	2900	9,4
SPIRAM 100-D-C	D	C	100/16-80/16	75	17,9	4,8	76,5	1450	1,2
SPIRAM 100-D-C	D	C	100/16-80/16	75	11,9	2,1	76,5	980	0,3
SPIRAM 100-E-A	E	A	100/16-100/16	75	35,0	28,7	84,3	2900	12,1
SPIRAM 100-E-A	E	A	100/16-100/16	75	17,5	7,2	84,3	1450	1,5
SPIRAM 100-F-A	F	A	100/16-80/16	60	34,8	14,0	75,9	2900	6,3
SPIRAM 100-F-A	F	A	100/16-80/16	60	23,2	6,2	75,9	1450	0,8
SPIRAM 100-G-A	G	A	100/16-100/16	75	29,9	12,5	78,2	1450	7,7
SPIRAM 100-G-A	G	A	100/16-100/16	75	30,2	14,6	78,2	980	2,3
SPIRAM 100-G-B	G	B	100/16-100/16	75	15,1	3,6	77,4	1450	6,2
SPIRAM 100-G-C	G	C	100/16-100/16	75	30,0	11,1	75,8	1450	4,6

FLOW-CHART – QH CHARACTERISTICS



DIMENSIONAL DRAWING – HORIZONTAL VERSION

END SUCTION	DN(A) PN(A)	DN(B) PN(B)	L	L1	L2	W	W1	W2	H	H1	H2
SPIRAM 100 A	100/16	80/16	1200	120	800	400	320	360	505	160	225

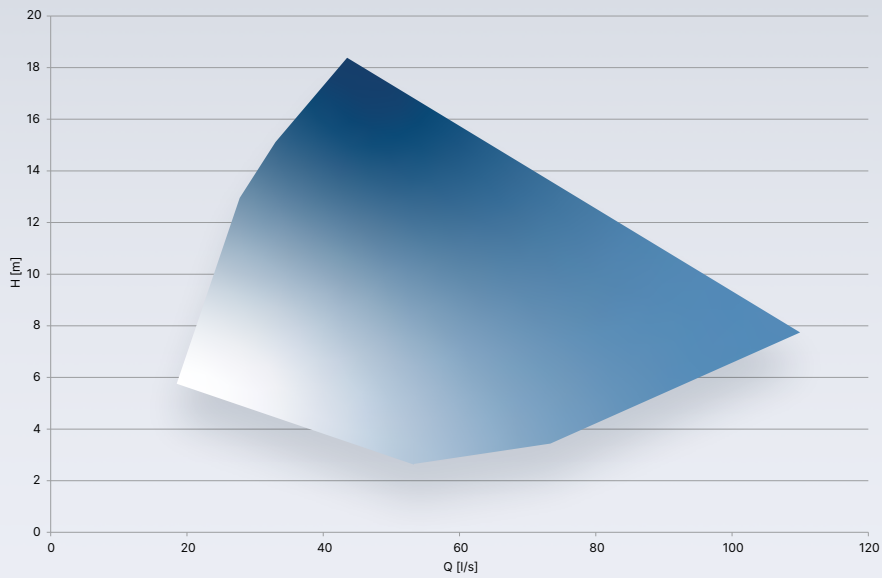


SPIRAM 150 SERIES

TECHNICAL INFORMATIONS

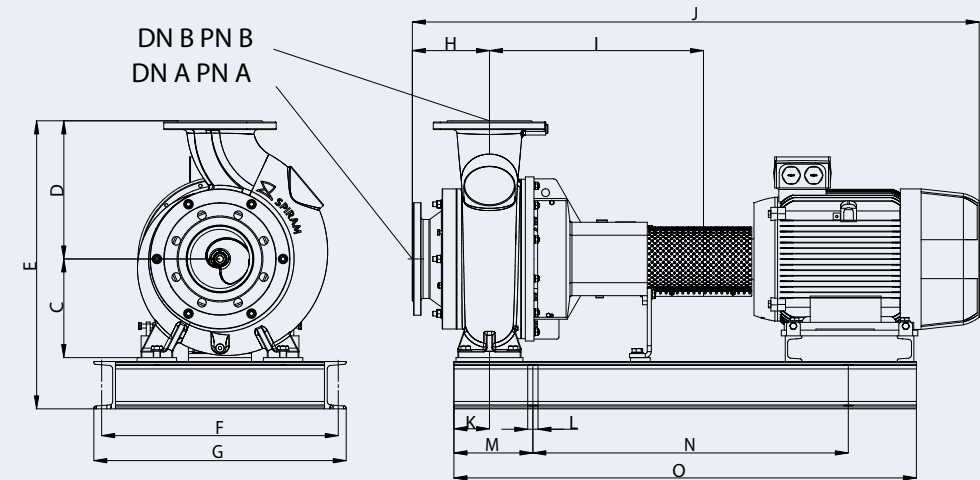
Pump version	Pump size	Type of impeller	Suction/Discharge DN/PN	Free passage (mm)	Flow BEP Q (l/s)	Head BEP H (m)	Efficiency η_h (%)	Speed (rpm)	Non-overloading power P (kW)
SPIRAM 150-A-A	A	A	150/16-150/16	95	74,9	13,3	79,9	1450	14,0
SPIRAM 150-A-A	A	A	150/16-150/16	95	49,9	5,9	79,9	980	4,2
SPIRAM 150-A-B	A	B	150/16-150/16	100	59,9	8,8	80,3	1450	6,8
SPIRAM 150-A-B	A	B	150/16-150/16	100	39,9	3,9	80,3	980	2,0
SPIRAM 150-A-C	A	C	150/16-150/16	100	69,9	10,0	81,5	1450	8,4
SPIRAM 150-A-C	A	C	150/16-150/16	100	46,6	4,4	81,5	980	2,5
SPIRAM 150-B-A	B	A	150/16-150/16	75	54,9	9,3	79,7	1450	7,3
SPIRAM 150-B-A	B	A	150/16-150/16	75	36,6	4,1	79,7	980	2,1

FLOW-CHART – QH CHARACTERISTICS



DIMENSIONAL DRAWING – HORIZONTAL VERSION

END SUCTION	DN(A) PN(A)	DN(B) PN(B)	L	L1	L2	W	W1	W2	H	H1	H2
SPIRAM 150 A	150/16	150/16	1500	230	1000	500	430	360	720	250	350

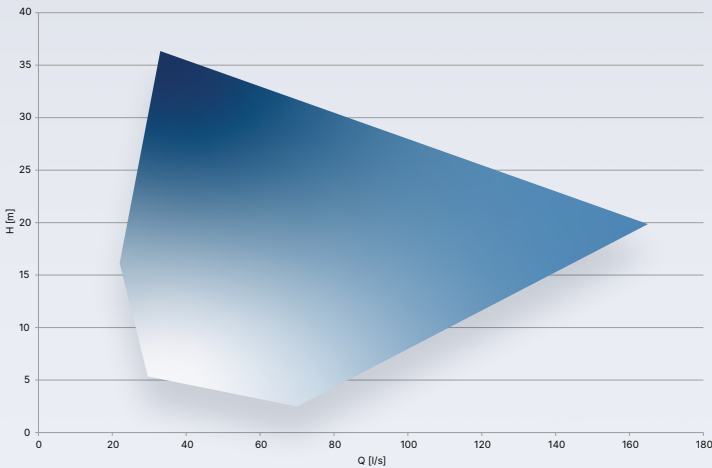


SPIRAM 200 SERIES

TECHNICAL INFORMATION

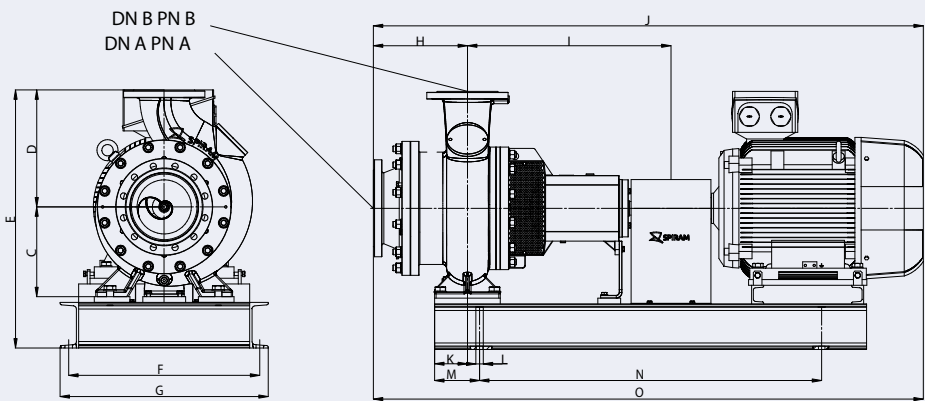
Pump version	Pump size	Type of impeller	Suction/Discharge DN/PN	Free passage (mm)	Flow BEP Q (l/s)	Head BEP H (m)	Efficiency η_h (%)	Speed (rpm)	Non-overloading power P (kW)
SPIRAM 200-A-A	A	A	200/16-150/16	115	126,7	24,4	85,9	1450	41,0
SPIRAM 200-A-A	A	A	200/16-150/16	115	84,5	10,8	85,9	980	12,1
SPIRAM 200-A-A	A	A	200/16-150/16	115	63,4	6,1	85,9		5,1
SPIRAM 200-A-B	A	B	200/16-150/16	115	104,8	14,9	81,5	1450	20,0
SPIRAM 200-A-B	A	B	200/16-150/16	115	69,8	6,6	81,5	980	5,9
SPIRAM 200-A-B	A	B	200/16-150/16	115	52,4	3,7	81,5		2,5
SPIRAM 200-A-C	A	C	200/16-150/16	115	120,0	15,0	82,0	1450	21,5
SPIRAM 200-A-C	A	C	200/16-150/16	115	80,0	6,7	82,0	980	6,4
SPIRAM 200-A-C	A	C	200/16-150/16	115	60,0	3,7	82,0		2,7
SPIRAM 200-B-A	B	A	200/16-150/16	75	64,9	27,3	80,3	1450	25,1
SPIRAM 200-B-A	B	A	200/16-150/16	75	43,3	12,1	80,3	980	7,4
SPIRAM 200-B-B	B	B	200/16-150/16	75	64,9	23,8	80,7	1450	21,5
SPIRAM 200-B-B	B	B	200/16-150/16	75	43,3	10,6	80,7	980	6,4

FLOW-CHART – QH CHARACTERISTICS



DIMENSIONAL DRAWING – HORIZONTAL VERSION

END SUCTION	DN(A) PN(A)	DN(B) PN(B)	L	L1	L2	W	W1	W2	H	H1	H2
SPIRAM 200 A	200/16	150/16	1800	330	1200	600	250	480	845	315	410

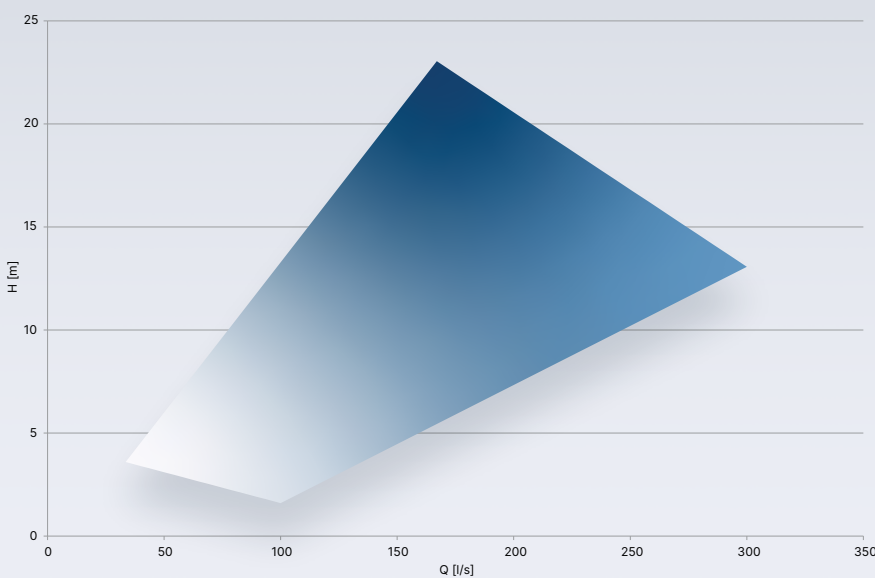


SPIRAM 250 SERIES

TECHNICAL INFORMATION

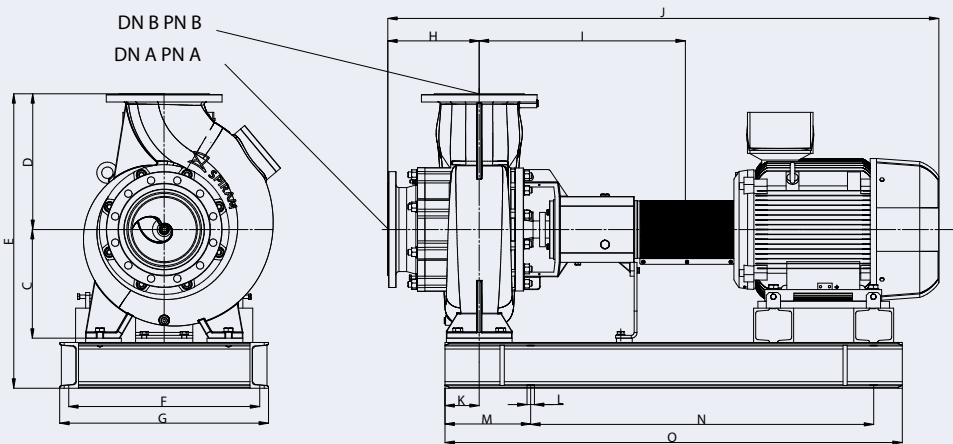
Pump version	Pump size	Type of impeller	Suction/Discharge DN/PN	Free passage (mm)	Flow BEP Q (l/s)	Head BEP H (m)	Efficiency η_h (%)	Speed (rpm)	Non-overloading power P (kW)
SPIRAM 250-A-A	A	A	250/10-250/10	120	240,0	17,5	79,8	1450	57,1
SPIRAM 250-A-A	A	A	250/10-250/10	120	160,0	7,8	79,8	980	16,9
SPIRAM 250-A-A	A	A	250/10-250/10	120	120,0	4,4	79,8		7,1
SPIRAM 250-A-B	A	B	250/10-250/10	110	143,1	9,8	85,1	1450	17,7
SPIRAM 250-A-B	A	B	250/10-250/10	110	95,4	4,4	85,1	980	5,2
SPIRAM 250-A-B	A	B	250/10-250/10	110	71,6	2,4	85,1	720	2,2
SPIRAM 250-A-C	A	C	250/10-250/10	120	205,0	12,4	82,5	1450	37,0
SPIRAM 250-A-C	A	C	250/10-250/10	120	136,7	5,5	82,5	980	11,0
SPIRAM 250-A-C	A	C	250/10-250/10	120	102,5	3,1	82,5	720	4,6

FLOW-CHART – QH CHARACTERISTICS



DIMENSIONAL DRAWING – HORIZONTAL VERSION

END SUCTION	DN(A) PN(A)	DN(B) PN(B)	L	L1	L2	W	W1	W2	H	H1	H2
SPIRAM 250 A	250/10	250/10	1850	360	1200	650	585	520	1050	400	475

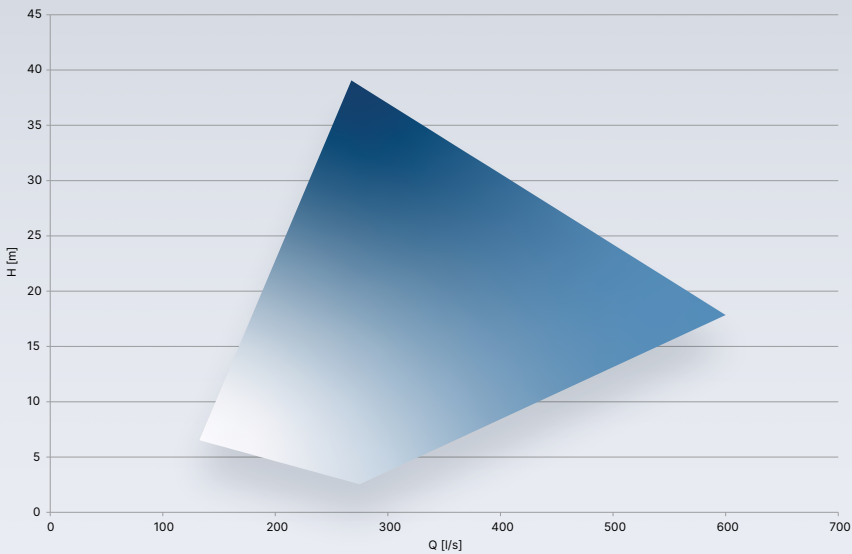


SPIRAM 300 SERIES

TECHNICAL INFORMATIONS

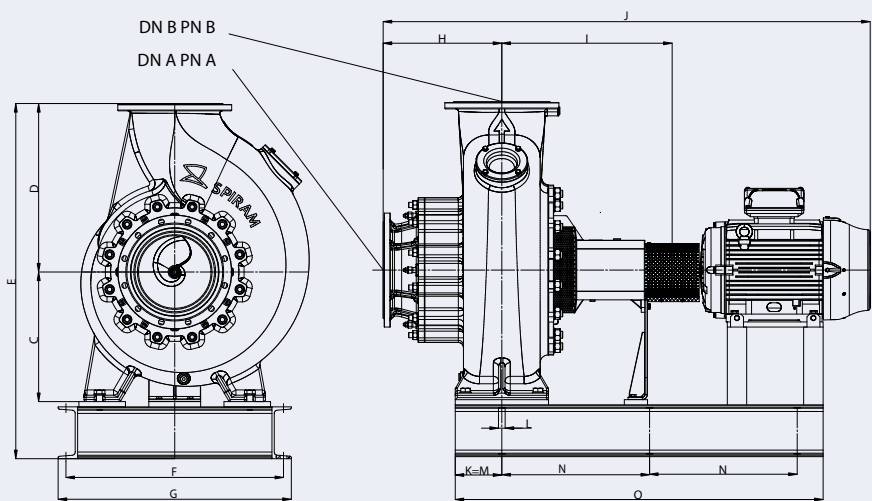
Pump version	Pump size	Type of impeller	Suction/Discharge DN/PN	Free passage (mm)	Flow BEP Q (l/s)	Head BEP H (m)	Efficiency η_h (%)	Speed (rpm)	Non-overloading power P (kW)
SPIRAM 300-A-A	A	A	300/10-300/10	150	449,1	27,4	84,6	1450	149,4
SPIRAM 300-A-A	A	A	300/10-300/10	150	299,4	12,2	84,6	980	44,3
SPIRAM 300-A-A	A	A	300/10-300/10	150	224,5	6,9	84,6	720	18,7
SPIRAM 300-A-D	A	D	300/10-300/10	150	398,8	18,6	83,2	1450	93,7
SPIRAM 300-A-D	A	D	300/10-300/10	150	265,8	8,3	83,2	980	27,7
SPIRAM 300-A-D	A	D	300/10-300/10	150	199,4	4,6	83,2	720	11,7

FLOW-CHART – QH CHARACTERISTICS



DIMENSIONAL DRAWING – HORIZONTAL VERSION

END SUCTION	DN(A) PN(A)	DN(B) PN(B)	L	L1	L2	W	W1	W2	H	H1	H2
SPIRAM 300 A	300/10	300/10	1900	550	1300	760	640	580	1290	560	650

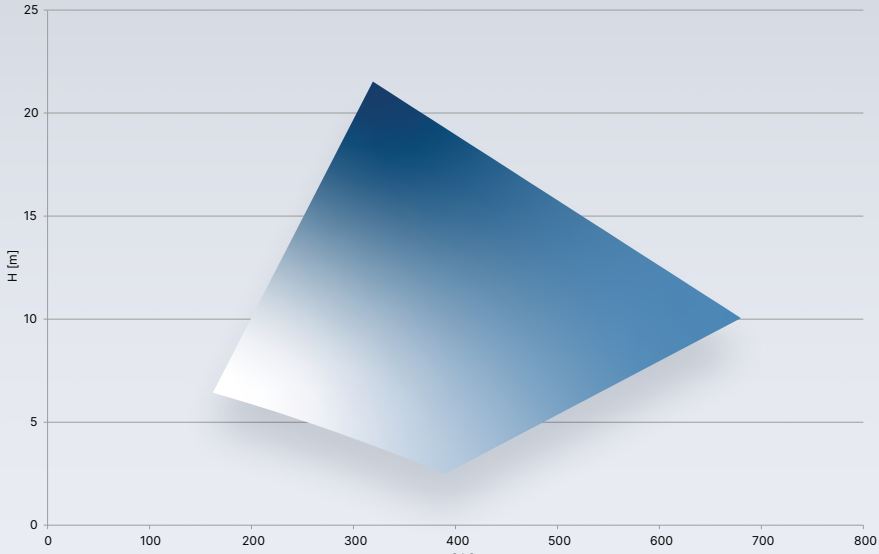


SPIRAM 400 SERIES

TECHNICAL INFORMATIONS

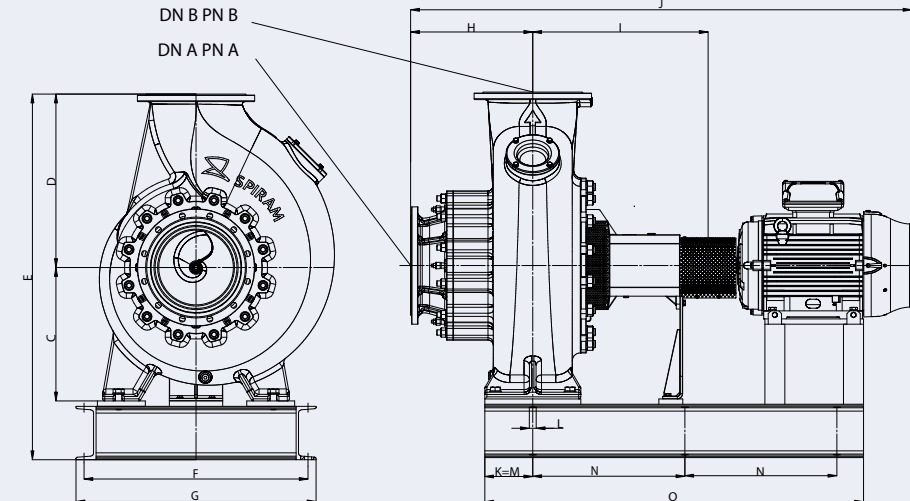
Pump version	Pump size	Type of impeller	Suction/Discharge DN/PN	Free passage (mm)	Flow BEP Q (l/s)	Head BEP H (m)	Efficiency η_h (%)	Speed (rpm)	Non-overloading power P (kW)
SPIRAM 400-A-A	A	A	400/10-400/10	180	534,3	14,7	81,0	980	96,5
SPIRAM 400-A-A	A	A	400/10-400/10	180	400,8	8,2	81,0	720	40,7
SPIRAM 400-A-A	A	A	400/10-400/10	180	320,6	5,3	81,0	590	20,9
SPIRAM 400-A-B	A	B	400/10-400/10	180	491,7	11,9	82,0	980	72,3
SPIRAM 400-A-B	A	B	400/10-400/10	180	368,8	6,7	82,0	720	30,5
SPIRAM 400-A-B	A	B	400/10-400/10	180	295,0	4,3	82,0	590	15,6

FLOW-CHART – QH CHARACTERISTICS



DIMENSIONAL DRAWING – HORIZONTAL VERSION

END SUCTION	DN(A) PN(A)	DN(B) PN(B)	L	L1	L2	W	W1	W2	H	H1	H2
SPIRAM 400 A	400/10	400/10	2500	670	1500	800	720	640	1350	660	500

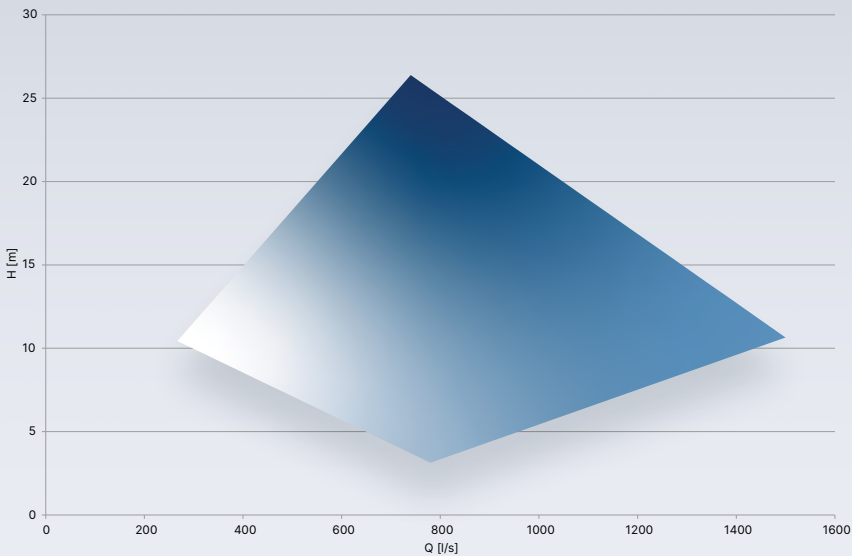


SPIRAM 500 SERIES

TECHNICAL INFORMATIONS

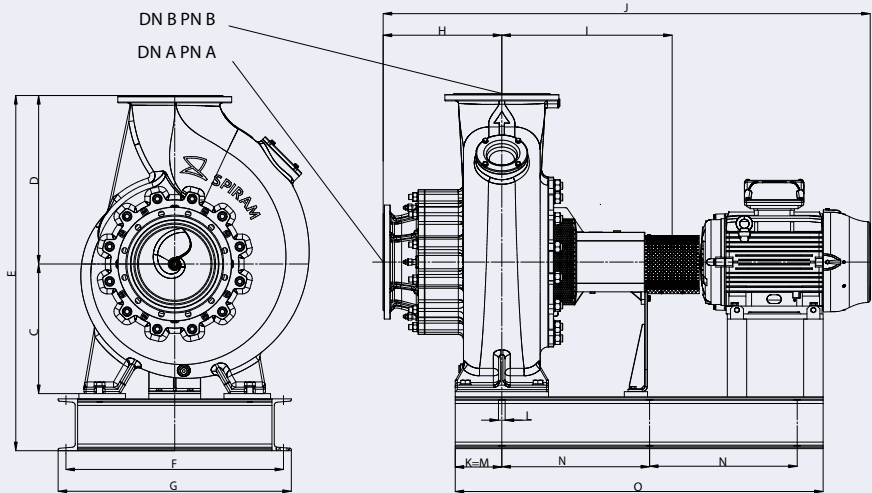
Pump version	Pump size	Type of impeller	Suction/Discharge DN/PN	Free passage (mm)	Flow BEP Q (l/s)	Head BEP H (m)	Efficiency η_h (%)	Speed (rpm)	Non-overloading power P (kW)
SPIRAM 500-A-A	A	A	500/10-500/10	230	945,6	17,1	80,3	980	259,8
SPIRAM 500-A-A	A	A	500/10-500/10	230	709,2	9,6	80,3	720	109,6
SPIRAM 500-A-A	A	A	500/10-500/10	230	567,4	6,1	80,3	590	56,1
SPIRAM 500-A-B	A	B	500/10-500/10	230	1035,0	20,2	84,1	980	250,2
SPIRAM 500-A-B	A	B	500/10-500/10	230	776,3	11,4	84,1	720	105,5
SPIRAM 500-A-B	A	B	500/10-500/10	230	621,0	7,3	84,1	590	54,0

FLOW-CHART – QH CHARACTERISTICS



DIMENSIONAL DRAWING – HORIZONTAL VERSION

END SUCTION	DN(A) PN(A)	DN(B) PN(B)	L	L1	L2	W	W1	W2	H	H1	H2
SPIRAM 500 A	500/10	500/10	2750	850	1700	950	865	780	1650	840	630

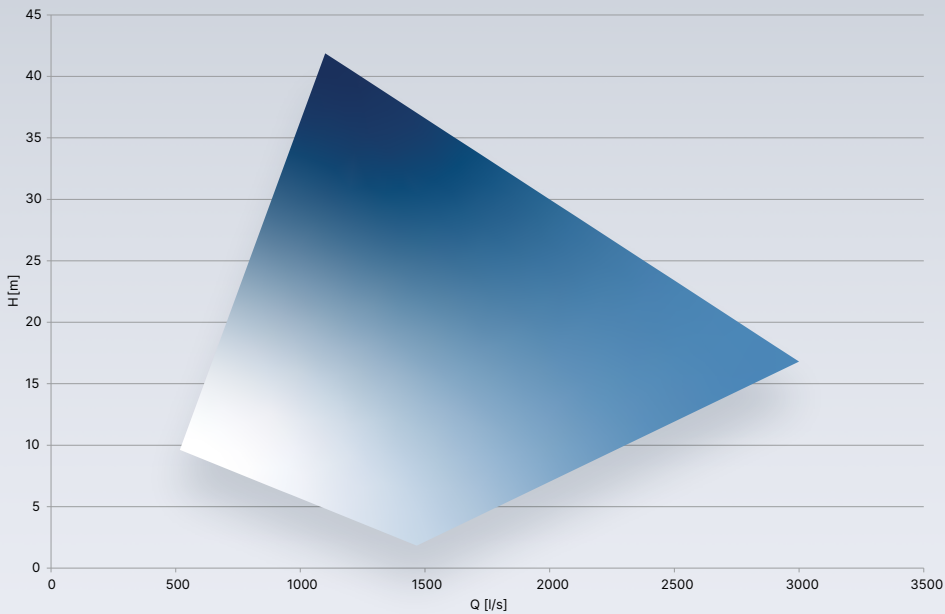


SPIRAM 700 SERIES

TECHNICAL INFORMATIONS

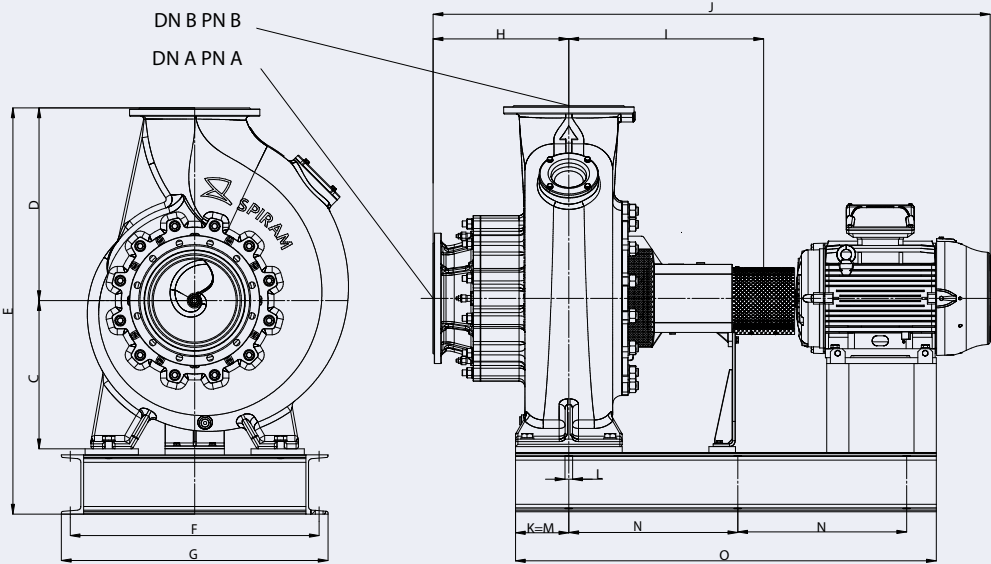
Pump version	Pump size	Type of impeller	Suction/Discharge DN/PN	Free passage (mm)	Flow BEP Q (l/s)	Head BEP H (m)	Efficiency η_h (%)	Speed (rpm)	Non-overloading power P (kW)
SPIRAM 700-A-A	A	A	700/10-700/10	285	2037,5	29,5	86,0	720	687,1
SPIRAM 700-A-A	A	A	700/10-700/10	285	1630,0	18,8	86,0	590	351,8
SPIRAM 700-A-A	A	A	700/10-700/10	285	1358,3	13,1	86,0	490	203,6

FLOW-CHART – QH CHARACTERISTICS



DIMENSIONAL DRAWING – HORIZONTAL VERSION

END SUCTION	DN(A) PN(A)	DN(B) PN(B)	L	L1	L2	W	W1	W2	H	H1	H2
SPIRAM 700 A	700/10	700/10	3300	850	200	1600	1000	1400	2130	950	880



MANUFACTURER'S GUARANTEE FOR SERVICING

PRAKTIKPUMP PROVIDES WARRANTY AND POST WARRANTY PROFESSIONAL COMPREHENSIVE SERVICING OF SPIRAM PUMPS TO THE FOLLOWING EXTENT:

Installation of pumps, commissioning, routine service checks and inspections, preventive checks and inspections, professional diagnostics in case of failure, use of advanced diagnostic methods.

Pump repairs are carried out in our newly built service centre specialized in repairing and servicing of pumps, pump units, blowers, vacuum pumps, etc., or directly at the pump installation site.

Servicing is performed by our trained service technicians with extensive experience in the field of repairs at a high professional level. Professional level is regularly increased by the

participation of service technicians in trainings focused on different areas related to the pump technology.

Our central spare parts warehouse in Zvolen allows fast, flexible and hassle-free availability of all spare parts for all pump versions.

Most of the components are manufactured directly in Slovakia, which allows flexibly respond to the changing situations and keep optimum stock of necessary spare parts always available when needed without lengthy acquisition times if a supplier is from other country.





PRAKTIKPUMP
Profesionálny partner pre čerpace technológie

ABOUT OUR COMPANY

PRAKTIKPUMP is a project engineering and implementation company specialized in technological units with an emphasis on machinery technology. Our activities are backed up by the sound expertise in the field of pumps and other rotating machinery. For many years, we have been involved in executing complex turnkey projects in different industrial sectors including water industry.

We are innovators and pioneers dealing with new technologies in the pump industry. Our company has been developing and manufacturing pumps available under own brand name SPIRAM. We are authors of SMART PUMPING CONCEPT, the smart predictive diagnostics software for rotating machinery.

PRAKTIKPUMP, s.r.o.
Jesenského 63, 960 01 Zvolen, Slovakia

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