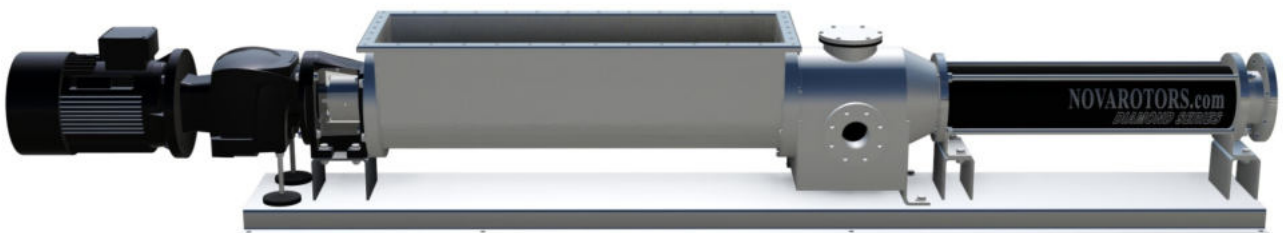


**OUR POWER, YOUR SATISFACTION**



## **DIAMOND SERIES**

Biogas pumps

DHS-T / JHS-T series



**BTS**  
ENGINEERING

<https://prom-nasos.pro>

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## Hopper series

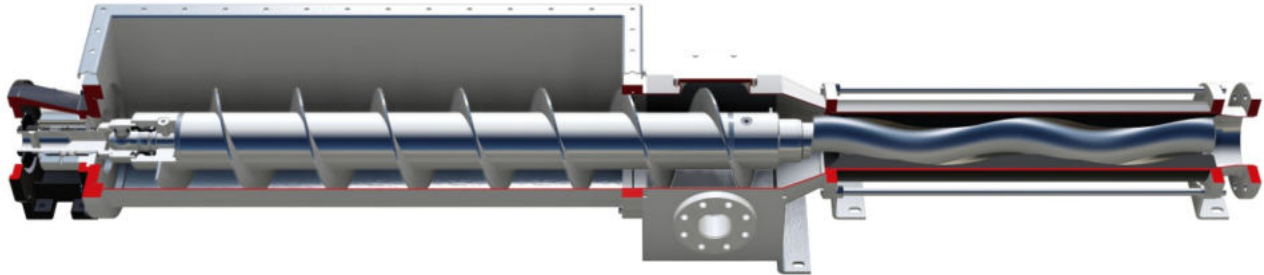
Series with hopper and auger feed screw to convey directly the product to hydraulic part, are the ideal machines for pumping viscous and non-flowing, with a very high solids content.

The DHS-T e JHS-T series are the hopper rectangular version with increased auger feed screw to the hydraulics.

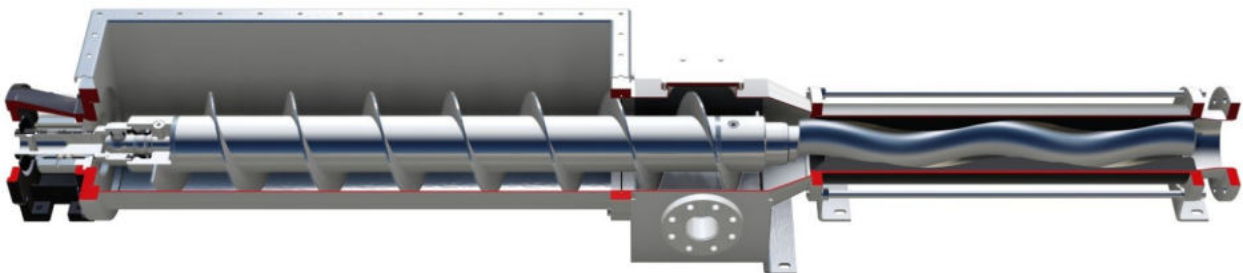
Model specifically realized for Biogas sector for silage pumping with the injection of liquid phase at the suction to improve the solid parts pumping. The separate inlet foreseen the connections for liquid phase injection, and the rectangular bottom collects the stones which can go inside the hopper and to be transport by the auger. This allow to avoid damage to the hydraulic part.

Moreover, an additional wide and quick inspection opening is foreseen to allow the easy cleaning at the suction stage.

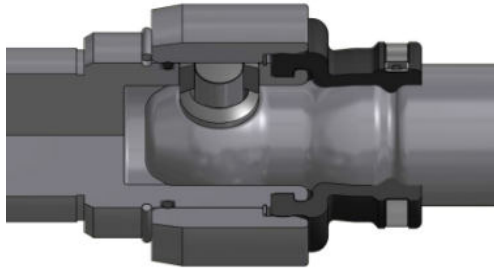
- DHS-T series: the drive is coupled directly to the pump via a flange. This solution is extremely cheap and compact, considerably reducing installation costs and simplifying maintenance. The stress generated by the hydraulic part is supported by the drive itself. Each drive used is adequately selected based on their specific technical parameters and are subject to numerous duration tests with heavy loads.



- Serie JHS-T: the drive is connected to the shaft inlet via a flexible coupling. This configuration is the best solution in terms of performance and durability. All the forces generated by the pump are absorbed by the bearings in the housing. These bearings have very high resistance against loads. They are assembled with extreme precision on the highest quality manufactured parts. It is the best solution when you want to guarantee duration and reliability, yet with greater installation space requirements. The bearing unit designed by us is modular and can be adapted to a DHS Series pump with lantern. It is state of the art for this type of installation.



**Patented Pin Joint:** The pin-type joint, the actual heart of the single screw pump, is the best solution of its type on the market. It offers greater duration, reliability and reduced maintenance costs, managing to combine extreme compactness with unrivalled strength. Its particular manufacturing enables the sub-division of axial loads and torque in different elements, making it one of a kind. As well as the above, replacement of worn parts is cheap thanks to the bushes in the worn zones, avoiding costly replacement of parts (rotor, drive shaft, and female drive shaft). To resist high pressure in the pump casing up to 12 bar, the pin can be hydraulically balanced.



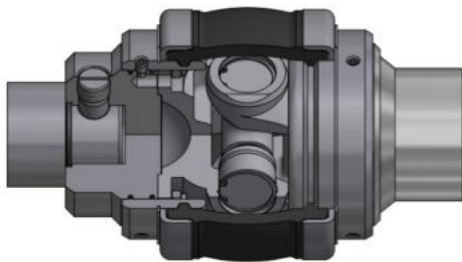
**Materials:** The parts in contact with the product of the DHS and JHS Diamond Series pumps can be manufactured in various materials. From the version in cast iron to stainless steel (AISI 304 and AISI 316). Also, in the version in cast iron, the rotating parts are still manufactured in stainless steel AISI 420 except the auger feed screw or on request in AISI 304 / AISI 316, also for the part in contact with product.

**Low pulsating flows:** Tensional stress and pulsating flow are very low. The centrifugal effect is reduced to a minimum thanks to the low operating speeds and mainly the axial development of the pump.

**Base plates:** The base plates, characterized by considerable thicknesses are very strong. Available in carbon steel or stainless steel. They can also be provided according to standard API 676, in a trolley version, with anti-vibration housing or on skids, according to the client's specifications.



**Cardan Joint:** Cardan joint is the best solution for heavy application with high speed rotation and high pressure inside the pump casing. It improves the allowable torque up to 4 times torque with the same pump size. It is available with internal metal joint protection to for an additional improvement of the rubber service life.



**Shaft sealing:** Different sealing systems can be installed, each solution being suitable to specific usage.

The types available are: mechanical seal, single outer mechanical seal, single mechanical seal with quench, back to back double mechanical seal and double mechanical seals in tandem, Packing seal and flushed packing seal.

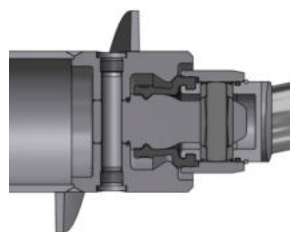
The sealing systems are all interchangeable on the standard pump. Each solution was carefully engineered while taking into consideration all the operating conditions.

As well as changing the sealing system, you can also install various types of mechanical seals based on the application.

The compartments are suitable for installation of the seals manufactured according to the standards ISO EN 12756. As well as this, it is possible to use cartridge seals from the main manufacturers.

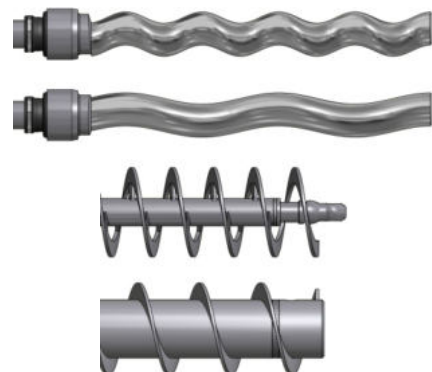
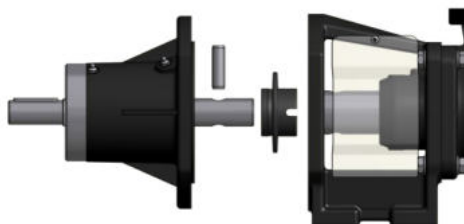


**Joint protection:** In the DHB e JHB series the joint rubber sleeve and clamp are protected from a particular device integrated inside the end of the auger feed screw. This characteristic is of considerable importance because it ensures the integrity of the joint in the case of pumping of abrasive substances or with solid blunt, without the needed to add expensive optional components.

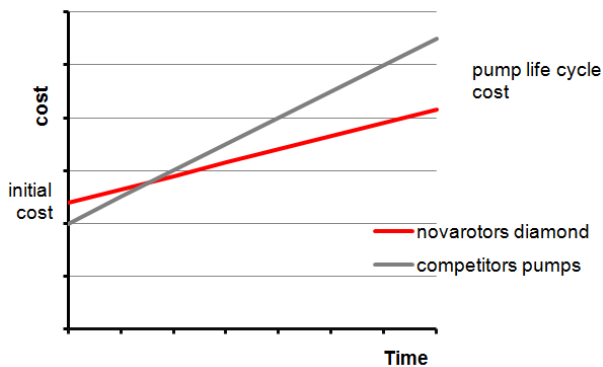


**Performance:** Duration, efficiency, reliability and low consumption. With the Diamond series, we have reached the maximum levels of technological development in every aspect.

**Modularity:** The Diamond series is based on the concept of modularity in every characteristic: hydraulic parts, casing, seals, base plates, housing, drive shafts. Each part can be manufactured in a series of variants without changing the structure of the machine, while keeping the main spare parts standard.



<p><b>Efficiency:</b> Maximum performance level, exceptional operating efficiency thanks to the optimum volumetric yield and high pressure and is consumption reduced to a minimum. All the Diamond series hydraulics efficiencies were calculated to guarantee the maximum found on today's market.</p>	<p><b>Versatility:</b> The Diamond series was designed to be versatile whatever its use. For this reason it can be set up with various options and accessories suitable for every field of application. As well as the above, the peculiar features of the single screw pump are naturally taken advantage of with various types of fluids pumped, from low to the highest viscosity, clean and containing solids varying in size and nature.</p>
<p><b>Motorizations:</b> All the drives which are installed on the Diamond series have been tested for long periods and subject to strict and rigorous technical checks. We can install both electric and hydraulic motors. All the models of reducers and variators present determined characteristics in terms of strength, size of the bearings and the quality of the gears.</p>	<p><b>Quality</b> Each part is manufactured according the highly restrictive quality specifications. Finishes and precision of each part are the basis of each pump manufactured. All parts are subject to specific controls based on their characteristics and functionality.</p>

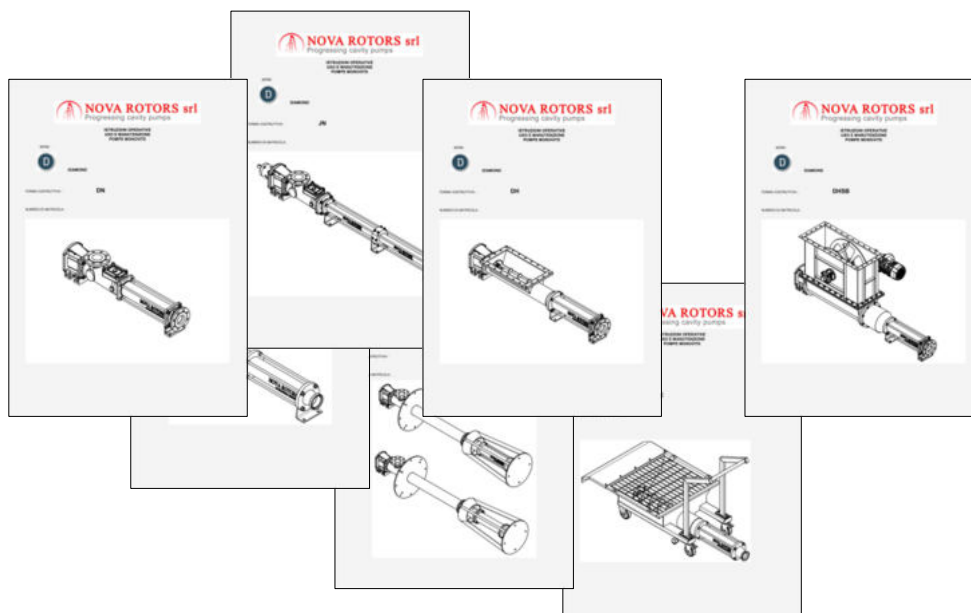


**Maintenance:** The Diamond series is designed to ensure easy maintenance and normally require the replacement of a minimum number of components. In particular the joint bushes allow the replace of the same without having to replace shafts and rotors. The costs of maintenance are really reduced. The cost of the pump, considered in his full life cycle, is highly competitive

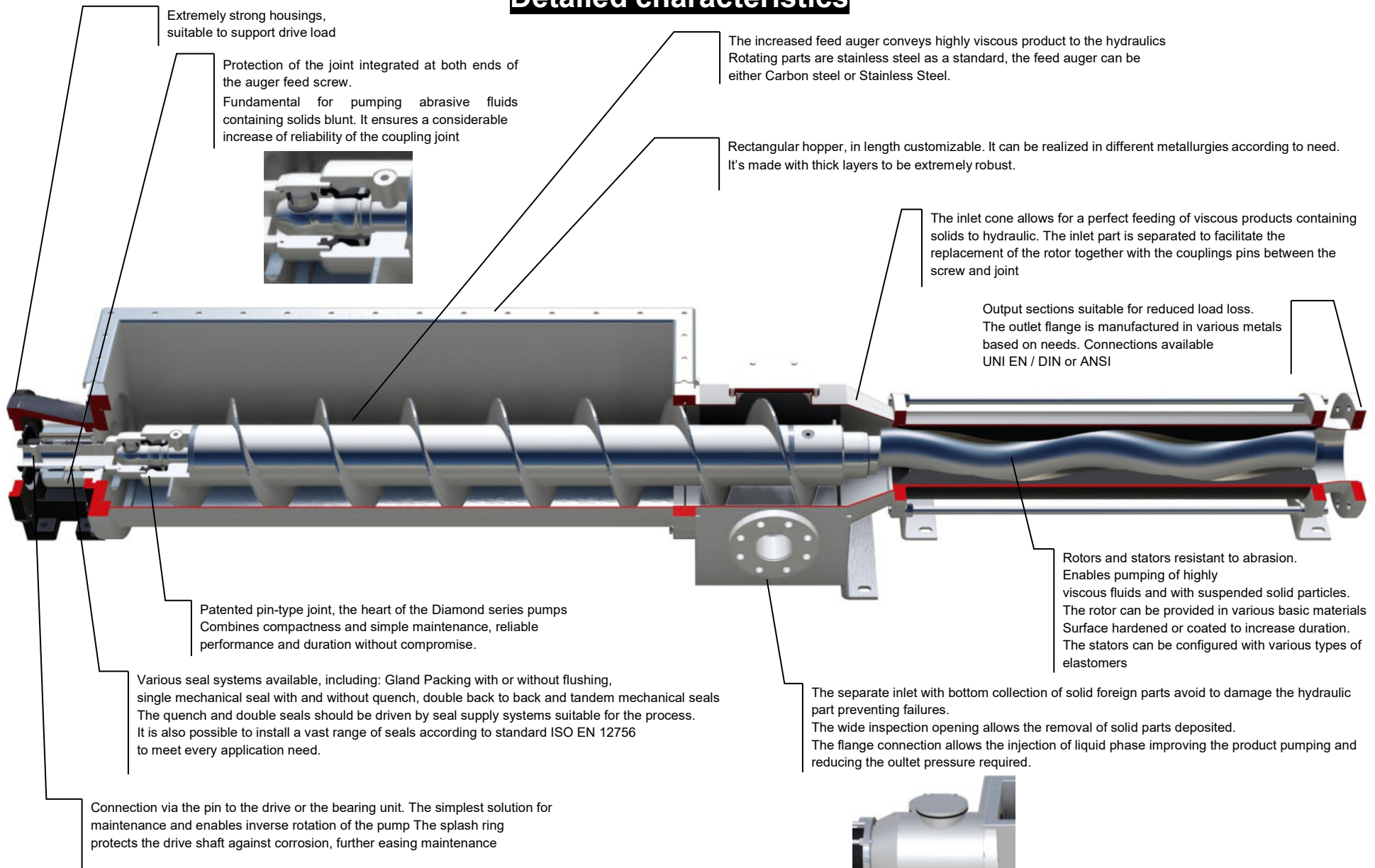
<p><b>Cost / benefit :</b> The Diamond series, thanks to the compactness of its elements combined technical success without comparison at very competitive costs. The modularity allows you to make the right solutions depending on the application to avoid paying for features you do not need, all in favor of its competitiveness.</p>	<p><b>Self-priming:</b> The peculiarities of the hydraulic parts of the progressive cavity pump allow excellent self-priming (up to 7m). The Diamond series were designed to create the minimum loss possible in the pump body, thanks to large sections and a joint compact design and fluid dynamic.</p>
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**Ease of installation:** The pumps of the Diamond series are easy to install due to compactness, simplicity of operation and operational flexibility thanks to the various features included.

**Detailed documentation:** Each pump comes with clear and detailed operating instructions. Orders are followed by experienced and qualified staff that integrates in providing detailed documentation on demand and specific for the product supplied.

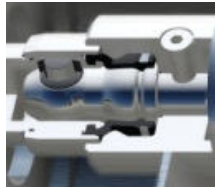


## Detailed characteristics



Extremely strong housings, suitable to support drive load

Protection of the joint integrated at both ends of the auger feed screw.  
Fundamental for pumping abrasive fluids containing solids blunt. It ensures a considerable increase of reliability of the coupling joint



The increased feed auger conveys highly viscous product to the hydraulics  
Rotating parts are stainless steel as a standard, the feed auger can be either Carbon steel or Stainless Steel.

Rectangular hopper, in length customizable. It can be realized in different metallurgies according to need. It's made with thick layers to be extremely robust.

The inlet cone allows for a perfect feeding of viscous products containing solids to hydraulic. The inlet part is separated to facilitate the replacement of the rotor together with the couplings pins between the screw and joint

Output sections suitable for reduced load loss.  
The outlet flange is manufactured in various metals based on needs. Connections available UNI EN / DIN or ANSI

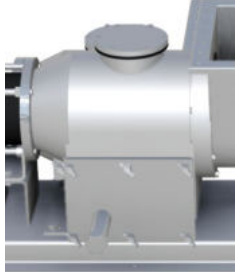
Patented pin-type joint, the heart of the Diamond series pumps  
Combines compactness and simple maintenance, reliable performance and duration without compromise.

Various seal systems available, including: Gland Packing with or without flushing, single mechanical seal with and without quench, double back to back and tandem mechanical seals  
The quench and double seals should be driven by seal supply systems suitable for the process.  
It is also possible to install a vast range of seals according to standard ISO EN 12756 to meet every application need.

Connection via the pin to the drive or the bearing unit. The simplest solution for maintenance and enables inverse rotation of the pump  
The splash ring protects the drive shaft against corrosion, further easing maintenance

The separate inlet with bottom collection of solid foreign parts avoid to damage the hydraulic part preventing failures.  
The wide inspection opening allows the removal of solid parts deposited.  
The flange connection allows the injection of liquid phase improving the product pumping and reducing the outlet pressure required.

Rotors and stators resistant to abrasion.  
Enables pumping of highly viscous fluids and with suspended solid particles.  
The rotor can be provided in various basic materials  
Surface hardened or coated to increase duration.  
The stators can be configured with various types of elastomers



## VERSION AND OPTION

### Casing material

#### Base materials:

S275JR, AISI 304, AISI 316

### Materials of the sealing shaft

#### Base materials:

AISI 420, AISI 304, AISI 316, F51(Duplex), F55 (Super Duplex)

#### Coatings:

Hardened Chrome plated HCP  
Chrome oxide plasma (ceramic coating)

### Rotor material

#### Base materials:

AISI 420, AISI 304, AISI 316, F51(Duplex), F55 (Super Duplex)

#### Heat treatments:

Hardening induction (only on AISI 420)

#### Coatings:

Hardened Chrome plated HCP  
Chrome oxide plasma (ceramic coating)  
Tungsten carbide HVOF

### Stator material

#### Base materials:

NBR, food grade NBR, white NBR food grade  
EPDM, EPDM food grade, white EPDM food grade  
FPM, FPM food grade  
HNBR, HNBR food grade  
SYLICON  
Buna-N (available on select models on request)  
HYPALON (available on select models on request)  
PTFE (available on select models on request)

### Base plates

Standard Base  
Base with anti-vibration housing (feet spacer)  
Base with risers  
Skid with lifting devices  
Cart for industrial sector (trolley)  
(For details, see the brochure constructive options, equipment and installations)

### Connections

Flange UNI 2278 PN16 for pumps at 1 and 2 stage  
Flange UNI 2284 or 6084 PN40 for outlet unions for pumps at 4 stage  
Flange UNI 2285 PN64 for outlet unions for pumps at 8 stage  
Flange ASME B16.5 #150 for pumps at 1 and 2 stage  
Flange ASME B16.5 #300 for outlet unions for pumps at 4 and 8 stage  
Threaded connection GAS BSP

### Sealing system

Gland packing seal B01  
Gland seal with flushing B02 (flush required)  
Single mechanical seal G0K9  
Single mechanical seal with Quench Q0K9 (buffer-Quench-pot required)  
Back-to-back double mechanical seal D0K9 (pressurized flushing required)  
Tandem double mechanical seal K0K9 (buffer / flush required)  
Single or double cartridge seals  
Seal supply systems are available  
(For construction details, see the brochure sealing systems and seals)

### Optional for coupling rod

Joint protection  
Coupling rod with feed screw  
Cardan Joint  
(For details, see the brochure constructive options, equipment and installations)

### Protection devices

Temperature probe for dry running protection (standard in the ATEX version)  
Flow switch  
Pressure switch  
(For details, see the brochure constructive options, equipment and installations)

### Control device

Control panel  
Control panel with inverter  
Drive with integrated inverter  
(For details, see the brochure constructive options, equipment and installations)

### Equipment and optional

Stator heating jacket  
Hopper heating jacket  
Stainless steel stator cover  
Tangential flanged connection or with threaded connection  
Quench Pot flushing  
Lantern in stainless steel  
Hermetic Lantern  
Carter to protect the motorization  
Separate entrance  
(For details, see the brochure constructive options, equipment and installations)

### Certifications

CE  
ATEX

## FEATURES OF USE

### Operating range

#### Flow

Up to 680 m<sup>3</sup>/h

#### Pressure

Up to 24 bar for the standard series (48bar for the series K8)

#### Temperature

from -40°C until to 150°C

### Typical applications

Sewage sludge

Water Treatment

Industrial sludge

Detergents and product for chemical industry

Product of papermaking industry

Agriculture

Product derived from petro-chemical

Marine Industry

## TABLE OF MODELS

### Flow and pressure

Size	Model	Qmax 2 bar [m <sup>3</sup> /h]	rpm max	P max [bar]
<b>D020</b>	1L1	4,9	1400	6
	05K2	2,5	1400	12
	025K4	0,7	800	24
<b>D025</b>	2L1	6,9	1000	6
	1K2	9,4	1000	12
	05K4	1,5	800	24
	025K8	0,5	600	48
<b>D030</b>	4L1	11	800	6
	2K2	5,6	800	12
	1K4	2,2	600	24
	05K8	1	500	48
<b>D040</b>	10L1	16,5	600	6
	4K2	8,5	600	12
	2K4	3,7	500	24
	1K8	1,5	400	48
	16L1	23,5	600	6
	8K2	12	600	12
<b>D060</b>	20L1	28	500	6
	10K2	14	500	12
	4K4	5,7	400	24
	2K8	2,6	350	48
	30L1	33	500	6
	16K2	16,5	500	12
<b>D120</b>	40L1	43	400	6
	20K2	20	400	12
	10K4	10	350	24
	4K8	5	350	48
	60L1	63,5	400	6
	30K2	32	400	12
<b>D300</b>	80L1	76	350	6
	40K2	38	350	12
	20K4	15,4	300	24
	10K8	8,5	300	48
	120L1	110	350	6
	60K2	55	350	12
<b>D400</b>	160L1	140	350	6
	80K2	78	350	12
	40K4	33	300	24
	20K8	16	300	48
	240L1	230	350	6
	120K2	115	350	12
<b>D500</b>	320L1	220	300	6
	160K2	120	300	12
	80K4	66	250	24
	40K8	33	250	48
	480L1	315	300	6
	240K2	155	300	12
<b>D600</b>	640L1	460	300	6
	320K2	235	300	12
	160K4	100	250	24
	80K8	50	250	48
	960L1	680	300	6
	480K2	340	300	12

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