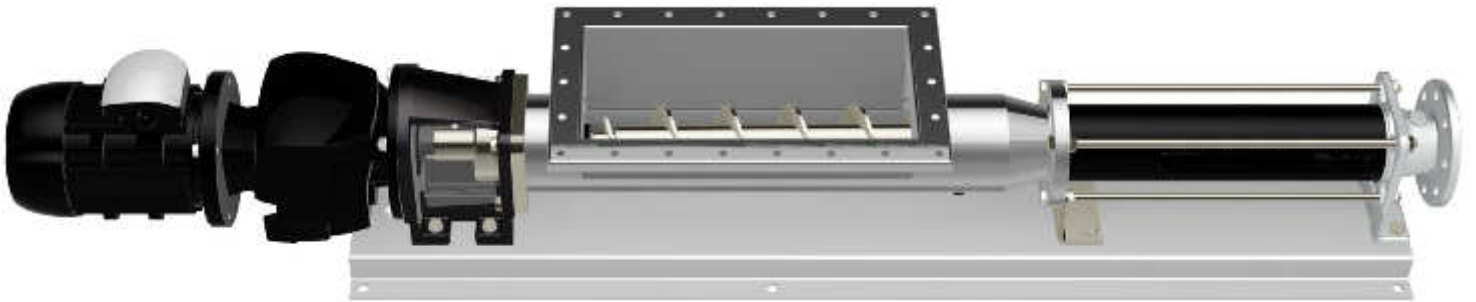


# topflo<sup>®</sup>

» All about your flow<sup>™</sup>



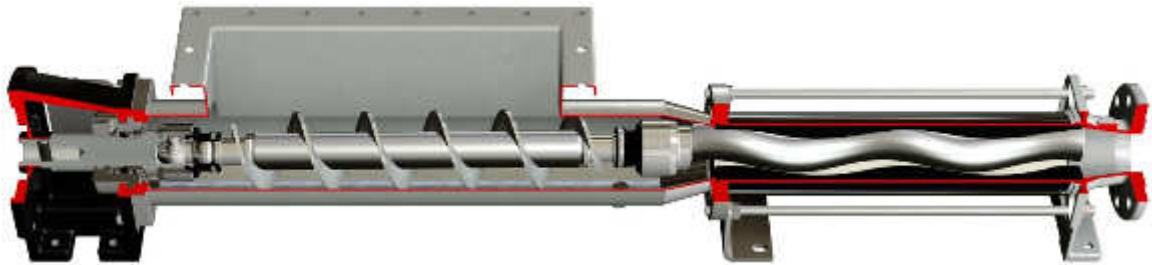
## Industrial Hopper Pump

### Hopper series

The Diamond Series with hopper an 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.

DH and JH Series is the basic version with rectangular hopper and auger feed the hydraulics. The length is customizable depending on application. Suitable for pumping substances poorly flowing up to 18% of dry substance which does not tend to form a bridge. The DH and JN series are distinguished for the type of fitting of the pump to the drive.

- DH Series: the drive is coupled directly to the pump via a flange. This solution is extremely cost effective and compact, considerably reducing installation costs and simplifying maintenance. The forces generated by the hydraulic part are 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.



- JH Series: the drive is connected to the free bare 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 DH series pump with lantern** after a pump with the JX series block housing. 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 joint can be hydraulically balanced.



**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.



**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.



**Materials:** The parts in contact with the product of the DN and JN Diamond Series pumps can be manufactured in various materials. From the version in cast iron to stainless steel (AISI 304 and AISI 316), as well as other materials on request such as Duplex and Super Duplex. Also, in the version in cast iron, the rotating parts are still manufactured in stainless steel AISI 420 or on request in AISI 304 / AISI 316.

**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.

**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, **internal or external**, single mechanical seal with quench, **back to back** double mechanical seal **back to back or tandem** and **double mechanical seals in tandem**, **gland packing with flush or without**, **Packing seal** and **flushed packing seal**. The **shaft seal variants** 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 **type of shaft seal**, 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, also available according to standards API 682 category 1.



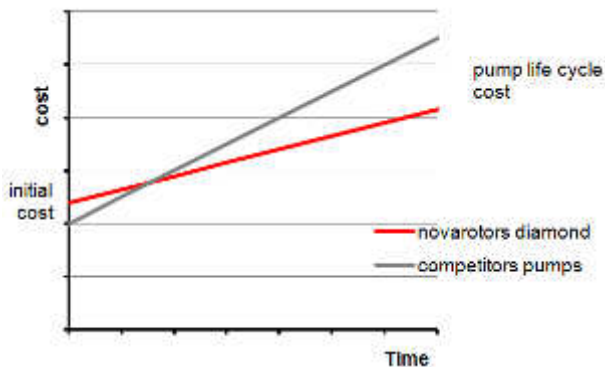
**Performance:** Duration, efficiency, reliability and low consumption. With the Diamond series, we have reached the maximum levels of technological development in every aspect.

**Efficiency:** Maximum performance level, exceptional operating efficiency thanks to the optimum volumetric yield and high pressure and its consumption reduced to a minimum. All the Diamond series hydraulics efficiencies were calculated to guarantee the maximum found on today's market.

**Versatility:** 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.

**Motorizations:** 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.

**Quality** Each part is manufactured according to 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.



**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 replacement 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.

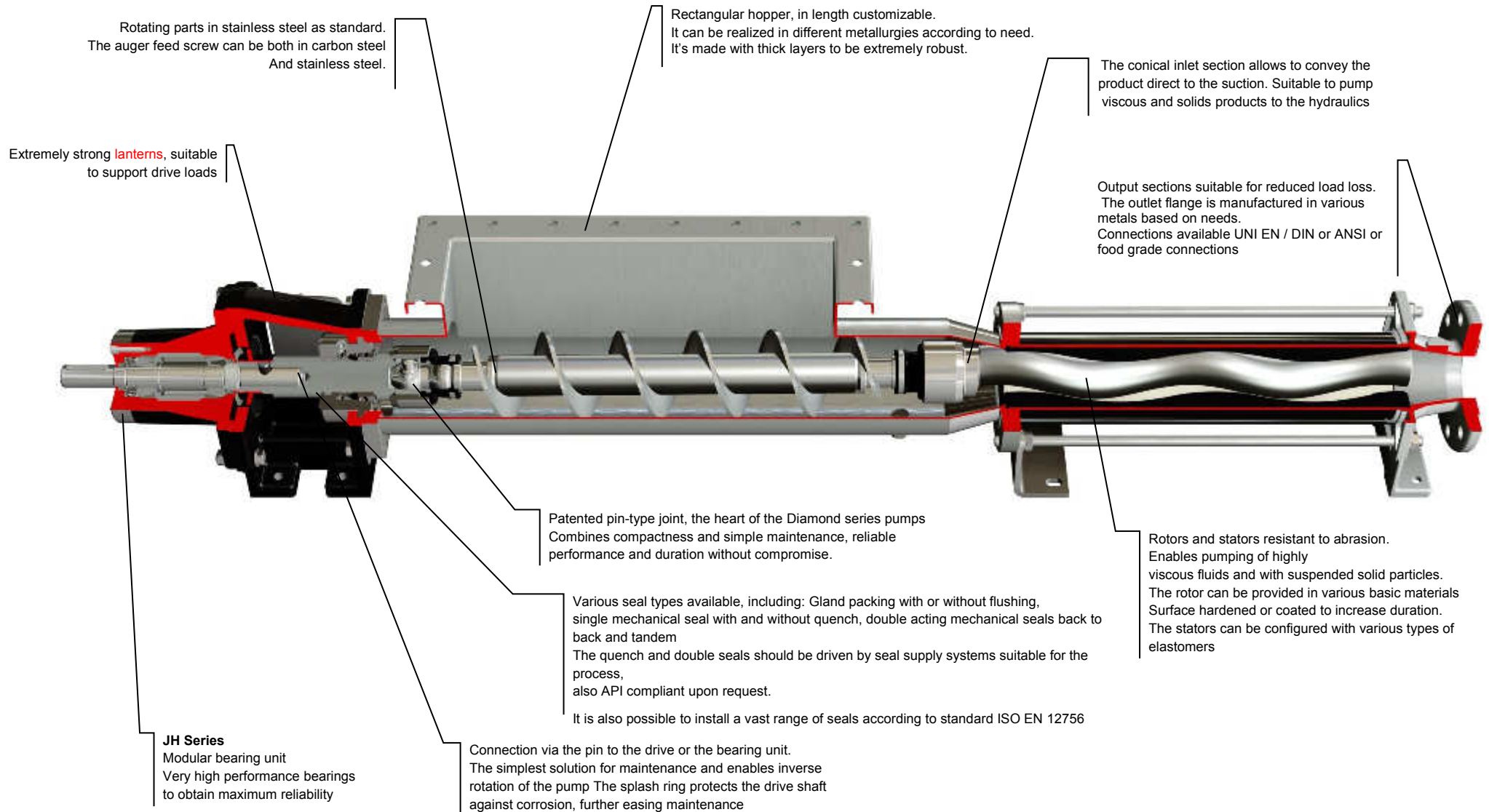
**Cost / benefit :** The Diamond series, thanks to the compactness of its elements combined technical success without comparison at very competitive costs. The modularity allows you to make the right solutions depending on the application to avoid paying for features you do not need, all in favor of its competitiveness.

**Self-priming:** 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.

**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



## 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)  
 Cart for food grade and winery sector  
 (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 inlet unions for pumps at 4 stage  
 Flange UNI 2285 PN64 for inlet unions for pumps at 8 stage  
 Threaded connection GAS BSP

### Sealing system

Gland packing seal B01  
 Gland seal with flushing B02 (flush required according to API PLAN 51, 52, 55)  
 Single mechanical seal G0K9 (API PLAN 2 or flush recommended according to API PLAN 11, 32)  
 Single mechanical seal with Quench Q0K9 (Buffer Quench Pot required flushed according to API PLAN 51, 52, 55)  
 Back-to-back double mechanical seal D0K9 (pressurized flushing required flushed according to API PLAN 53A, 54)  
 Tandem double mechanical seal K0K9 ( buffer / flush required flushed according to API PLAN 52, 53A, 55)  
 Single or double cartridge seals also in API 682 version category 1  
 Seal supply systems are available also in accordance to API (Plan 32, 52, 53A, 54, 62)  
 (For construction details, see the brochure sealing systems and seals)

### Optional for coupling rod

Joint Protection  
 (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 devices

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  
 Heating jacket for hopper  
 Stainless steel stator cover  
 CIP connection  
 Outlet eccentric pipe  
 Separate entrance  
 Tangential flanged connection or with threaded connection  
 Quench Pot flushing  
 Stainless steel lantern  
 Hermetic lantern  
 Carter to protect the motorization  
 (For details, see the brochure constructive options, equipment and installations )

### Certifications

CE  
 ATEX

## FEATURES OF USE

### Operating range

#### Flow

Up to 110m<sup>3</sup>/h

#### Pressure

Up to 24 bar for the standard series (48 bar on request)

#### 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]
D025	2L1	6,9	1000	6
	1K2	9,4	1000	12
	05K4	1,5	800	24
D030	4L1	11	800	6
	2K2	5,6	800	12
	1K4	2,2	600	24
D040	10L1	16,5	600	6
	4K2	8,5	600	12
	2K4	3,7	500	24
	16L1	23,5	600	4
	8K2	12	600	8
D060	20L1	28	500	6
	10K2	14	500	12
	4K4	5,7	400	24
	30L1	33	500	4
	16K2	16,5	500	8
D120	40L1	43	400	6
	20K2	20	400	12
	10K4	10	350	24
	60L1	63,5	400	4
	30K2	32	400	8
D300	80L1	76	350	6
	40K2	38	350	12
	20K4	15,4	300	24
	120L1	110	350	4
	60K2	55	350	8