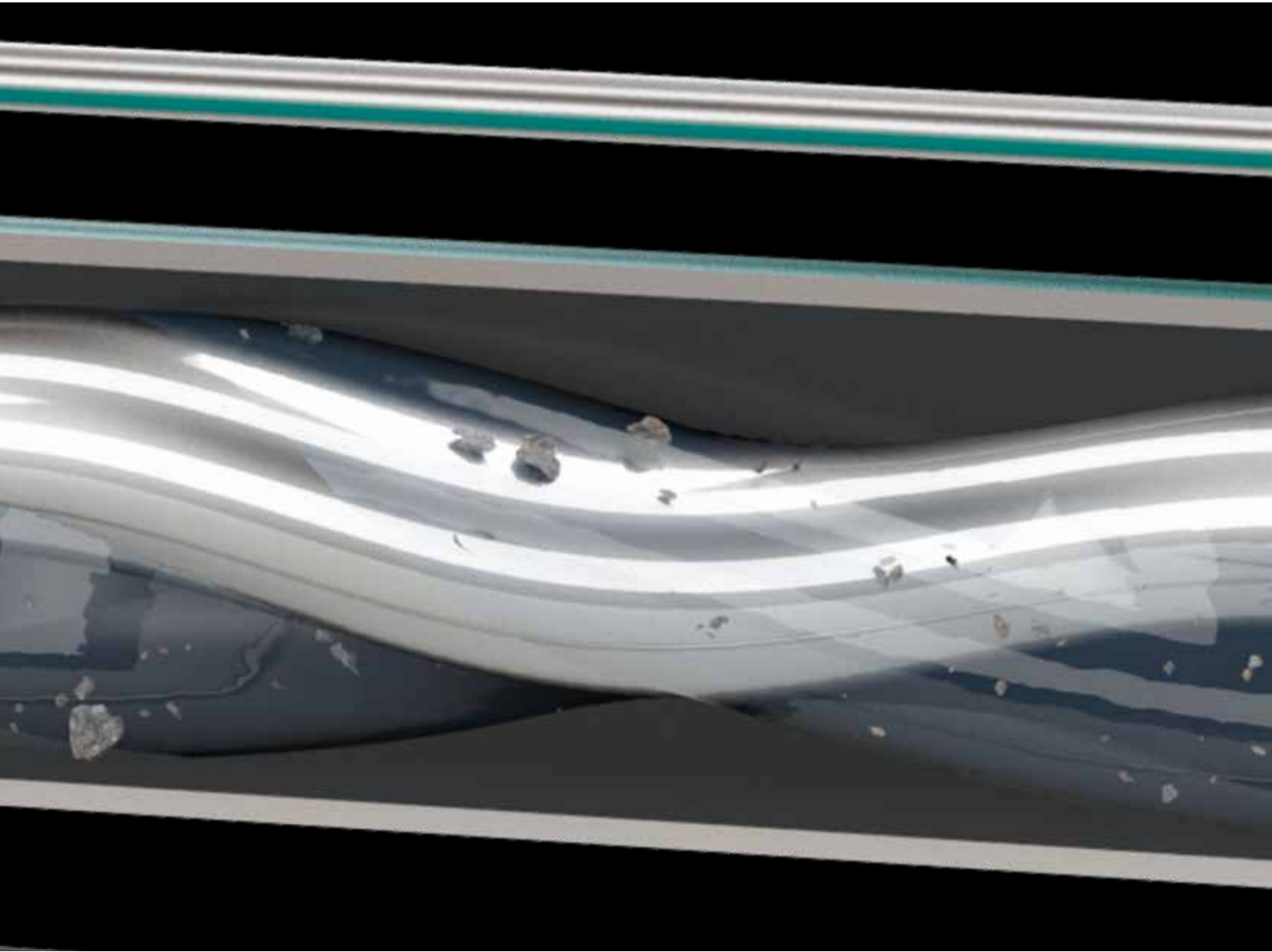


NETZSCH



NEMO[®] Progressing Cavity Pumps

Comprehensive and uncompromising solutions for all industries

NETZSCH Pumps & Systems – Solutions you can trust. ■

For six decades and at five sites all over the world, NETZSCH has been developing and producing high-quality, innovative pump systems supported by a large number of patents.

Good reasons

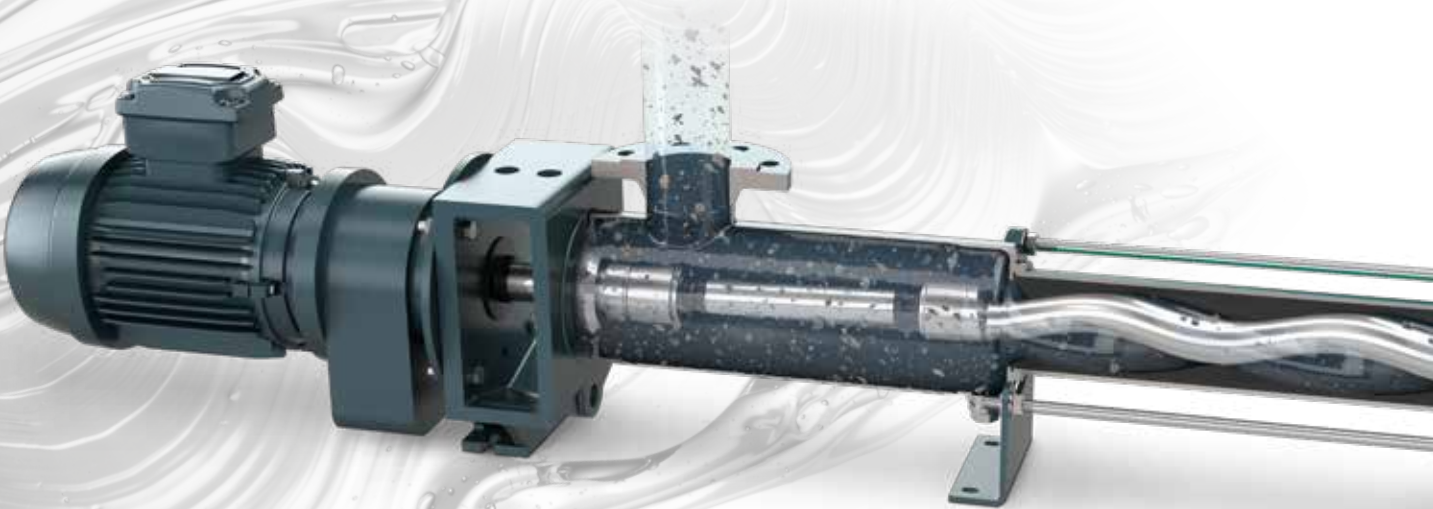
for choosing NEMO[®] Progressing Cavity Pumps

Benefit to the customer

Always focused on benefit to the customer, the NETZSCH product range covers everything from the smallest dosing pumps with flow rates of a few ml to high-performance pumps that transport up to 4,400 gpm / 1,000 m³/h. We also supply grinders and a comprehensive range of accessories. We supply everything in and around the pump to fit your application perfectly, because we understand and know your process.

Proximity to our customers

We guarantee proximity to our customers with 30 branches and more than 130 agencies around the world. Our application-oriented organizational structure across six business fields ensures that each of your contacts at NETZSCH[®] has detailed knowledge of the application, that we comply with national and international standards, and that contact routes are short, delivery is fast and on-site service is knowledgeable.



Individual pump selection

Each pump is precisely tuned to the requirements of the application to deliver optimum performance, service life and reliability.

Our pumps are available with conveying elements in four different rotor/stator geometries, so that the right solution can always be found for your application.

Another benefit from our continued investment in product development is a range of gear joints selected to best fit your application, no matter how demanding.

Lastly, we supply a comprehensive range of options and accessories, as well as expert service. We want you to stay in close contact with NETZSCH even after your pump has been commissioned.

Contact us and see for yourself.

Large capacity and pressure range

- Flow rates from just a few g/h up to 4,400 gpm / a few ml/h up to 1,000 m³/h
- Number of stages ranging from 1 to 8 for pressures from to 90 psi to 680 psi / 6 bar to 48 bar (standard) or up to 4,350 psi / 300 bar (high pressure)

Broad range of applications

The pumps are primarily used with media that have the following features:

- Free of solids to containing solids up to 6" / 150 mm (max.)
- Low to high viscosity (1 mPas – 3 million mPas)
- Thixotropic and dilatant
- Shear sensitive
- Abrasive
- Non-lubricating and lubricating
- Aggressive (pH 0 – 14)
- Adhesive
- Toxic

Wide range of materials

Our range of metallic materials extends from simple grey cast iron and chrome-nickel steel to highly acid-resistant materials such as Duplex, Hastelloy and titanium for different conveying tasks. Ceramics and plastics are offered for aggressive and abrasive applications. Our elastomers range from highly abrasion-resistant natural rubber, to oil-, acid- and alkali-resistant elastomers as well as Aflas and Viton. For products in which elastomers cannot be used because of high temperatures or for reasons of durability, a substantial number of solid-based stators made from plastics or metallic materials are available.

(See pages 20 to 23)

Various conveying elements

Four different rotor/stator geometries variations provide the design that is optimally adapted to your specific task.

(See page 18 and 19)

Wide variety of shaft seals

The range of mechanical shaft seals includes simple seals with and without quench, double-acting seals arranged back to back or in tandem, and cartridge seals. For specific applications, stuffing-box packing, lip seals, and special seals are available. A pump with a magnetic coupling is available for use with toxic media – for the greatest assurance that there are no leaks.

(See pages 24 and 25)

Additional features

- High suction capacity - up to 30 ftwc / 9 mwc
- Direction of rotation and flow can be reversed
- Can be installed in any position
- Quiet, smooth running
- Temperatures from -5 °F to 570 °F / - 20 °C to + 200 °C



Continuous and smooth conveying

Design of the NEMO® Pump

1 Rotor

From wear- and corrosion-resistant metal designs to the wear-free ceramic rotor NEMO CERATEC®.

2 Stator

We manufacture our stators to the latest standards. Minimized tolerance ranges optimize the performance of each pump. Our unique, fully networked production and process data monitoring system, developed in-house, is supported by consistent quality testing.

2.1 Stator with conventional technology

The stator inlet is vulcanized into the tubes with integrated seals on both ends. The inlets are available in a wide variety of NEMOLAST® elastomers, plastics and metals. The stator inlet with a cone-shaped opening improves the product feed into the conveying chamber.

(see pages 20 and 21)

2.2 Stator with iFD technology

The iFD-Stator® consists of a two-part reusable housing with a polygonal profile with a NEMOLAST® elastomer housed within. The advantages of this new technology include a lower breakaway torque, higher efficiency, increased service life, simple and quick replacement, and environmental friendliness.

(See brochure NPA · 344)



3 Drive train

The drive and connecting shaft with coupling rod and two universal joints provide the power transmission from the drive to the rotor.

4 Shaft sealing

Standard design with single-acting, wear-resistant, bi-directional mechanical seals. Single-/double-acting mechanical seals from a range of manufacturers, as well as cartridge and special seals and stuffing-box packing are available.

5 Suction and pressure housing

Hydrodynamic design with flange or thread connections in accordance with DIN and international standards. Grey cast iron, chromium-nickel-molybdenum steel, rubber-lined or Halar®-coated cast iron and special materials per requirements.

Halar® is a registered trademark of Solvay Solexis



NEMO® industrial block pump



optional: iFD-Stator® 2.0

6 Block design

As the drive is directly flanged onto the pump's pedestal, the dimensions are compact, the overall weight is low, the shaft heights are constant irrespective of the design and size of the drive – the pump requires low maintenance, is easy to maintain and is economical.

“Full Service in Place”

Pump service without removing the pump from the system

The NEMO® Progressing Cavity Pump in FSIP® design is available...

- in sizes NM045 to NM105 for flow rates from 8 to 880 gpm / 2 to 200 m³/h
- for differential pressures from 90 psi (1 stage) up to 180 psi (2 stages) / 6 bar (1 stage) up to 12 bar (2 stages)
- in various materials, from steel to chrome-nickel-steel, various other materials on request
- with various stator elastomers, from highly abrasion-resistant natural rubber, to oil-, acid-, and alkali-resistant elastomers, to Aflas and Viton
- in all 4 geometries, S, L, D, and P to be customized optimally to your application

... and conveys

- substances with consistencies from runny to pasty, with or without solid content.



1 Housing in FSIP® design with inspection cover

The FSIP® design of the suction housing includes an inspection cover which is the main differentiator from the standard design yet the housing dimensions remain unchanged. All installed NEMO® BY/SY pumps in the sizes from NM 045 to NM 105 can be upgraded without complication. After this upgrade, you can fully service the pump where it is installed providing extra safety since you do not have to move the pump. All wetted parts are easily reachable. All wear parts can be accessed and replaced in less than half the time.

2 Inspection cover

The inspection cover is secured by only 5 screws which can be removed without special tools.

3 Stator with iFD technology

The stator consists of a reusable two-part stator housing and an exchangeable elastomer part. The benefits of the new technology are reduced starting torques, higher degree of efficiency, prolonged lifetime, easier and faster change of the wear part, with environmentally friendly disposal. In combination with the FSIP® suction housing design, the rotor/stator can be changed simply and quickly outside the pump without pre-tensioning, after the stator housing has been opened.

In fact, the rotating unit can simply be lifted out leaving the pump open from flange to flange. “Service length” is no longer required since the pump has a much shorter footprint. Relatively long progressing cavity pumps can be installed with fewer maintenance concerns. This is also valid when a standard stator is being used.



4 Rotor

Available in wear-resistant and corrosion-resistant designs, various materials on request. Multiple geometries and stages are available to meet flow and pressure requirements. FSIP® design allows the rotor and stator to be removed in place. No extra space is needed.

5 5a Drive train and sleeve coupling

Removing the inspection cover from the FSIP® pump allows access to a sleeve coupling which joins the rotor to the coupling rod. Here, only one screw has to be removed to split both elements from each other.

6 Shaft sealing

A single acting mechanical seal in cartridge design (SiC faces) is standard for this FSIP® pump design, which can be easily replaced through the large inspection opening. Other options upon request.

7 Block design

The drive is flanged directly to the pedestal of the pump, resulting in compact dimensions, low total weight, constant axial heights irrespective of the construction type and size of the drive. The pump requires low maintenance, is easy to service, and is economical.

NEMO® Industrial Pumps

NEMO® progressing cavity pumps are used in all industrial markets to convey almost all types of media continuously, smoothly, with low pulsation and dosing in proportion to speed.

NEMO® BY

in block design



Performance

Flow rates up to 1,800 gpm / 400 m³/h at pressures up to 360 psi / 24 bar.

Fields of application

Industrial applications in environmental technology and in the food, oil and chemical industries. For fluid to viscous media with and without solids.

Features

Compact design with directly flanged drive. Its low investment, operating and maintenance costs really make it stand out. Four rotor/stator geometries for optimum performance within every kind of application.

NEMO® SY

with bearing housing and drive shaft



Performance

Flow rates up to 2,200 gpm / 500 m³/h at pressures up to 680 psi / 48 bar (standard) or up to 4,350 psi / 300 bar (special applications).

Fields of application

Industrial applications in environmental technology and in the food, oil and chemical industries. For fluid to viscous media with and without solids.

Features

Design with bearing housing and two-part shaft allows all types of drives to be used universally and makes servicing the rotating parts simple and fast. Four rotor/stator geometries for optimum performance within every kind of application.

NEMO® Progressing Cavity Pump in FSIP® design

FSIP.ready, FSIP.advanced and FSIP.pro

Technique

The FSIP® design is fully compatible with the existing BY and SY series. The concept consists of three levels, FSIP.ready, FSIP.advanced and FSIP.pro, which are designed to upgrade already installed pumps step by step, or which are available for new installations according to the individual needs of our customers.



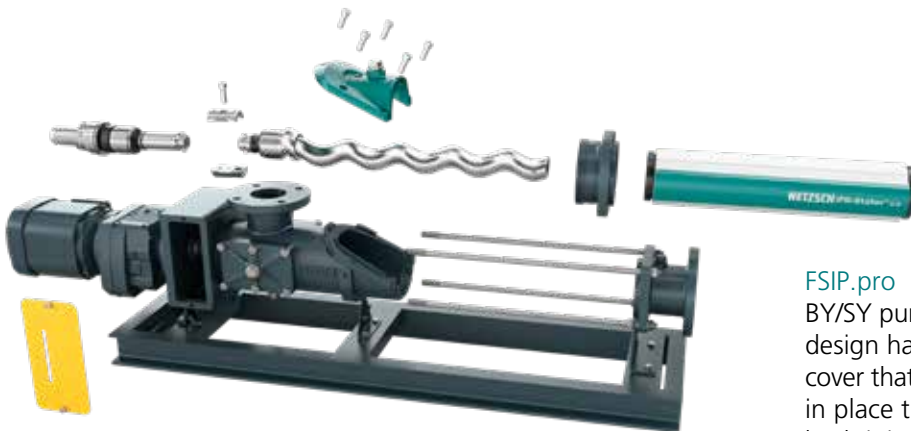
FSIP.ready

Basic BY/SY pump including the revised housing design with large inspection cover, with standard drive train and various seal arrangements.



FSIP.advanced

BY/SY pump with new housing design having a large inspection cover, split coupling rod and various seal arrangements. Rotor and stator can be serviced in place.



FSIP.pro

BY/SY pump with new housing design having a large inspection cover that allows access and servicing in place the of split coupling rod, both joints, rotor, stator and a cartridge-design mechanical seal for "Full Service-in-Place".

NEMO® C.Pro®

Mini dosing pump in plastic design



Performance

Flow rates from 0.002 up to 6.6 gpm / 0.5 up to 1,500 l/h at pressures up to 290 psi / 20 bar.

Fields of application

Industrial applications in environmental and chemical technology to convey and dose low to moderately viscous media with and without solids.

Features

High dosing accuracy (deviation of < 1%). Compact design with directly flanged drive.

Additional information

NEMO® C.Pro®
Brochure NPA · 313

NEMO® Sanitary Pumps

These pumps are designed and manufactured in accordance with EHEDG and QHD guidelines, are CIP/SIP-capable, and comply with the US 3-A Sanitary Standards. Two rotor/stator geometries are available to ensure optimum performance*.

These pumps are suited for sanitary applications in the food, pharmaceutical, cosmetic and biotechnology industries for low and highly viscous media with and without solids.

*excluding NEMO® Mini BH

NEMO® BH

Sanitary pump



Performance

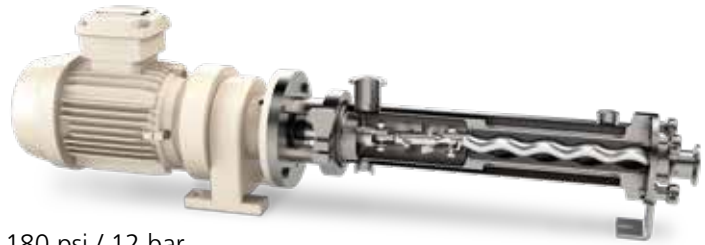
Flow rates up to 616 gpm / 140 m³/h at pressures up to 360 psi / 24 bar.

Features

Compact design with directly flanged drive. Its low investment, operating and maintenance costs really make it stand out.

NEMO® BH

Sanitary Plus Pump with heating jacket



Performance

Flow rates up to 176 gpm / 40 m³/h at pressures up to 180 psi / 12 bar.

Features

This pump is suitable for all sanitary applications in the food, pharmaceutical, cosmetic, and biotechnology industries, especially for viscous media which have to be heated or cooled. This pump operates reliably and guarantees your process: the specially designed mechanical seals are arranged with no dead spaces; the housing and stator are heated; the products are conveyed smoothly; and the pump can be easily cleaned.

Quick-fit connections make disassembly for maintenance simple. This pump is available with various rotor/stator geometries. This model has open sanitary pin joints, exposed housing seals, mixing elements on the coupling rod, and a heating jacket over the entire length of the stator and pump housing. All surfaces that come in contact with the product are polished to prevent deposit formation and to facilitate cleaning.

NEMO® MINI BH

Sanitary Mini Plus Pump



Performance

Flow rates from 0.02 up to 130 gph / 0.1 up to 500 l/h at pressures up to 520 psi / 36 bar.

Features

The flexible rod has no dead space and is wear- and maintenance-free so that it can be used even with highly sensitive and with abrasive products. This pump has high dosing accuracy (deviation of < 1%). The compact design with directly flanged drive delivers low investment, operating and maintenance costs.

NEMO® SH

Sanitary Plus Pump



Performance

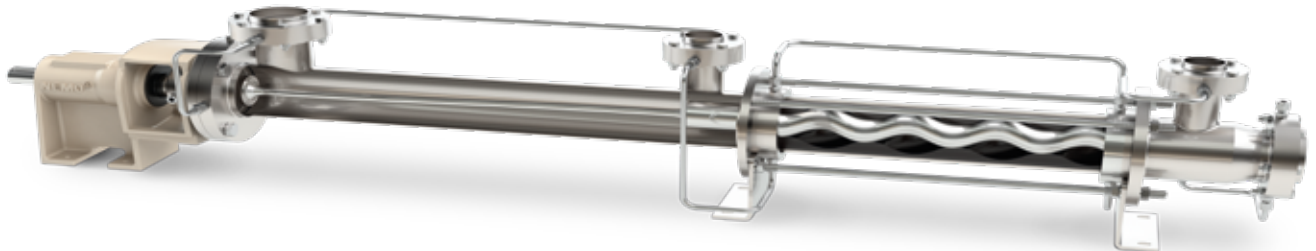
Flow rates up to 616 gpm / 140 m³/h at pressures up to 360 psi / 24 bar.

Features

The flexible rod is without dead space and is wear- and maintenance-free so that it can be used even with highly sensitive and with abrasive products. This design with bearing housing and drive shaft allows the pump to be used with all types of drives.

NEMO® SA

Aseptic pump



Performance

Flow rates up to 616 gpm / 140 m³/h at pressures up to 360 psi / 24 bar.

Features

The flexible rod is free of dead space and is wear- and maintenance-free so that it can be used even with highly sensitive and abrasive products. The pump housing has a reduced diameter and a product inlet displaced towards the shaft seal (outlet in vertical installation). This results in a pump chamber completely free of dead space as well as an optimized product flow through the pump.

The cleaning ports are arranged tangentially and the pressure port eccentrically for residue free self-emptying. All sealing points are designed for steam or sterile condensate and the pipe work is installed ready for use to prevent contamination from the environment. The standard stator is supplied with reduced elastomer wall thickness for use at varying product temperatures and with a stator protector to prevent dry running and overheating. This design with bearing housing and drive shaft allows the pump to be used with all types of drives.

Additional information

Business Field Food & Pharmaceutical Brochure NPA · 308

BH Pump Single Sheet NPA · 308-1

BH Plus Pump Single Sheet
NPA · 308-2

NEMO® Hopper Pumps

We provide you NEMO® progressing cavity pumps in various models and materials, designed according to the location of use. Low viscosity product as well as abrasive sludge is reliably conveyed using our pumps with flanged connections.

NEMO® hopper pumps with screw conveyors alone or with our aBP-Module® to prevent bridging are available for media with a high dry material content, such as de-watered sludge.

* Technical notes: the hopper dimensions can be adjusted to suit the specific application.

NEMO® BO/BS

in block design with directly flanged drive or as NEMO® SO/SS with bearing housing and drive shaft



Performance

Flow rates up to 880 gpm / 200 m³/h at pressures up to 360 psi / 24 bar.

Fields of application

Industrial applications in environmental technology, the food industry, and the chemical industry for viscous to non-free flowing media with and without solids.

Features

Housing with rectangular/square feed hopper and coupling rod with conveying screw with compression chamber for improved product feeding into the conveying elements.

NEMO® B.Max®

in block design with directly flanged drive or
with bearing housing and drive shaft



Performance

Flow rates up to 308 gpm / 70 m³/h at pressures up to 680 psi / 48 bar.

Fields of application

Industrial applications in biogas and environmental technology for viscous to non free-flowing media, with and without solids.

Features

The housing has a large, rectangular feed hopper, coupling rod with patented, horizontally positioned conveying screw for optimum product feeding into the conveying elements. The additional hydrodynamically designed flushing stud installed on the hopper housing ensures the substrates are fed and mixed optimally into the biomass.

Additional information

Pulp Feeding
Brochure NMP · 061

NEMO® BP

in block design with directly flanged drive or NEMO® SP
with bearing housing and drive shaft



Performance

Flow rates up to 880 gpm / 200 m³/h at pressures up to 680 psi / 48 bar.
NEMO® BP/SP available from size NM090.

Fields of application

Industrial applications in environmental technology, the food industry and the chemical industry for compacted, lumpy and crumbly media that tends to bridge.

Features

The housing has an integrated bridge breaker to prevent bridging and to mix in additives, enlarged rectangular feed hopper with a removable, cone-shaped compression chamber, and a coupling rod with patented, horizontally positioned conveying screw for optimum product feeding into the conveying elements.

NEMO® BF with optional aBP-Module®

in block design with directly flanged drive or NEMO® SF with bearing housing and drive shaft



The aBP-Module® consists of a top hopper with two inner spoked wheels. The spoked wheels are located close to the hopper walls, creating the effect of "moving hopper walls" which produces a shearing effect in the medium. The speed difference of the spoked wheels, which is independently adjustable, creates the required shearing effect, to consistently prevent bridge building inside the hopper. The structured surface of the spoked wheels assist in product agitation.

Performance

Flow rates up to 880 gpm / 200 m³/h at pressures up to 680 psi / 48 bar.
NEMO® BF/SF with aBP-Module® available from size NM 045 to NM 090.

Fields of application

Industrial applications in environmental technology, the food industry and the chemical industry for highly viscous, compacted and crumbly media. For media that tends to bridge, the pump is fitted with the optional aBP-Module®.

Features

The housing has an enlarged, rectangular feed hopper with removable, cone-shaped compression chamber, and a coupling rod with patented, horizontally positioned conveying screw for optimum product feeding into the conveying elements.

Additional information

aBP-Module® Brochure NPA · 070

Sludge Cake Brochure NPA · 312

NEMO® Immersible Pumps

NEMO® Immersible Pumps are used to empty barrels, containers, tanks, sedimentation tanks, pits etc. and where space is restricted, where there is a risk of cavitation or where there is very low NPSH. These pumps are also used to empty containers holding materials that are hazardous to water or the environment for which standard emptying via a flange on the bottom of the container is not permitted.

NEMO® Immersible Pump BT

with suspension bracket

This pump is used to empty open barrels and containers. It is fitted with a clamp to be suspended from a crane. Immersion depth up to 10 ft / 3 m.

Performance

Flow rates up to 616 gpm / 140 m³/h at pressures up to 360 psi / 24 bar. Depending on the specific application, various models/immersion variants are available. The immersion depth is adapted specifically to the application.

Features

Compact design with directly flanged drive. Four rotor/stator geometries for optimum performance with every kind of application. Immersion depths up to 33 ft / 10 m. The immersion tube length can be modified by extending the pump housing, by adding a suction pipe or by combining the two.



NEMO® Immersible Pump BT

with integral mounting plate

Depending on pump size, speed and immersion depth (33 ft / 10 m), an additional support guide is available to secure the pump to the bottom or to the wall near the bottom. Removal of the pump from a full tank is possible because the guide units are self-centering and secure the pump. Suction is reset upon pump re-insertion. In the variant with discharge connection below the mounting position, the discharge connection of the pump is below the tank lid. The product is either piped to the outside vertically through the lid via a 90° elbow or horizontally through the tank wall. This minimizes the dead space in the pump housing thus reducing the overall height of the pump above the tank lid.

Performance

Flow rates up to 616 gpm / 140 m³/h at pressures up to 360 psi / 24 bar. Depending on the specific application, various models/immersion variants are available. The immersion depth is adapted specifically to the application.

Features

Compact design with directly flanged drive. Four rotor/stator geometries for optimum performance for every kind of application. Immersion depths up to 33 ft / 10 m. The immersion tube length can be modified by extending the pump housing, by adding a suction pipe or by combining the two.



Operating method and conveying principle in NEMO PUMPS® with different rotor/stator geometries

Modular system

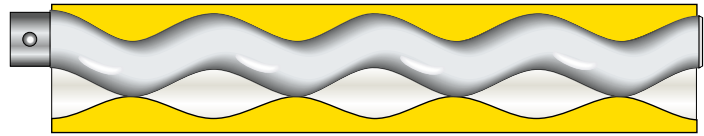
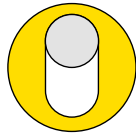
NEMO® Pumps belong to the group of rotary positive displacement pumps. The two conveying elements are the rotor and the fixed stator, in which the rotor eccentrically turns.

All four pump geometries have the same outer dimensions that allows a modular design where – apart from rotor and stator – all other components are identical. When a change in flow rate or pressure is required, installed NEMO® Pumps can be adapted to the new operating conditions by simply changing rotor and stator.



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: 180 psi / 12 bar
- Multistage design available for pressures up to 4,350 psi / 300 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: 90 psi / 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: 180 psi / 12 bar
- Multistage design available for pressures up to 4,350 psi / 300 bar

P Geometry

- Compact dimensions in conjunction with very high flow rates
- Almost pulsation-free pumping
- High metering 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: 90 psi / 6 bar



Testing properties and quality

NEMOLAST®

elastomer quality developed,
constantly tested and
optimized at NETZSCH



Developing new blends



Manufacturing blends

Development

Elastomer research & development is resident at NETZSCH. At its in-house laboratory and in close collaboration with selected materials suppliers established over many years, NETZSCH develops and tests elastomer blends and optimizes them to meet specific customer requirements.

We offer each customer the optimum quality of elastomer for the media to be conveyed in terms of abrasion resistance, temperature range, dynamic load and chemical resistance – something other suppliers cannot offer. By only using original NETZSCH spare parts we can guarantee the pumps you purchase remain reliable.

Our 60 years of experience in a wide range of industries and processes and 40 years of experience developing and manufacturing elastomers for NEMO® pumps has led to the development of complex bonded parts made of glass fiber, metal and elastomer for the casing liners of our new generation of TORNADO® T2 rotary lobe pumps.



Extruder with stator for oil production

Production

To meet the growing demand for our pumps and the associated demand for spare parts, NETZSCH invested in a new 43,055 ft² / 4000 m² production facility in Waldkraiburg to produce elastomer parts using the latest production methods and the latest product standards. Along with five extruder sets for manufacturing conventional tube stators, injection molding machines and presses were acquired to facilitate the manufacture of iFD-Stators®, lobes and casing liners for rotary lobe pumps.



Press with casing liners for TORNADO® T2

Specific requirements in oil production and transfer

NETZSCH stators stand out with their long service life, leading to a significant reduction in operating costs. This applies in particular to the difficult operating conditions in oil production.

Not only for elastomer development but also for optimal material selection, specific bore hole and fluid conditions have to be considered for oil and gas operations. NETZSCH pumps can be used as multiphase pumps in this market because gas-oil-water mixtures and various solids can be conveyed simultaneously or alternately.

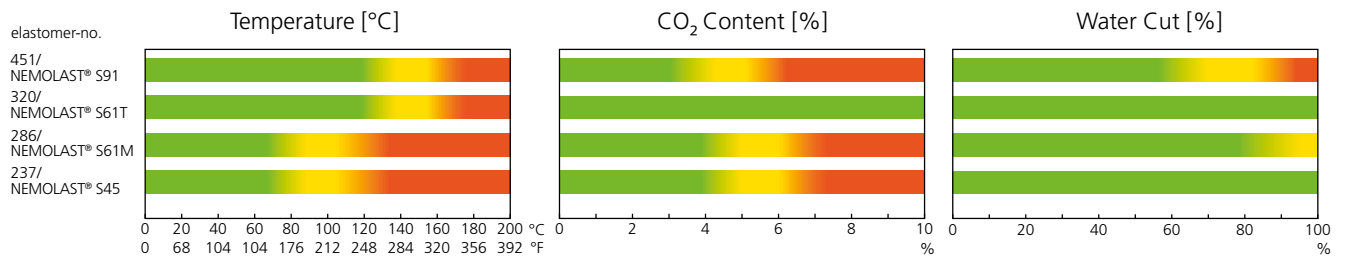
For this reason, we have developed special elastomer mixtures, for conveying these phases in changing and variable concentrations. Additional challenges placed upon these mixtures can include the fluctuating and sometimes very high temperatures, high differential pressure up to 4,350 psi / 300 bar between the suction and pressure side, very aggressive gases (such as H₂S and CO₂) or the presence of oils (with high aromatic content).



Injection molding machine for iFD-stators®

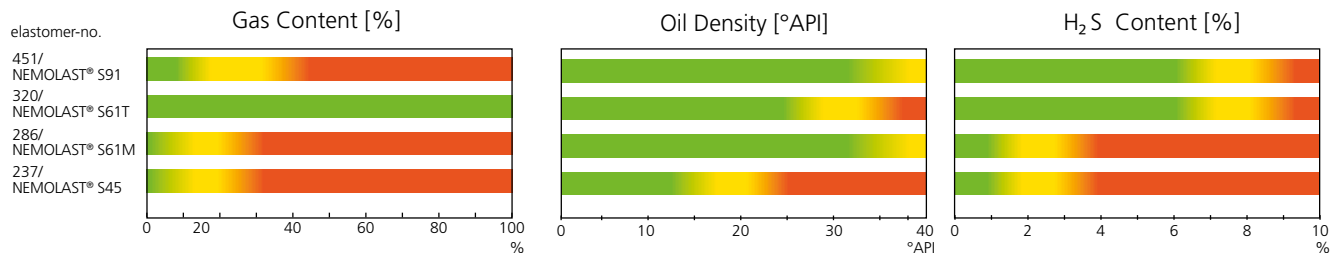
	NEMOLAST® – stator qualities for industrial applications				
Material description/ NEMOLAST® Code	11	31	43	46*2)	61T
Color	black	black	white	black	black
Base polymer	Natural rubber/ butadiene rubber (NR/BR)	Chlorinated polyethylene (CM)	Ethylene propylene diene rubber (EPDM)	Ethylene propylene diene rubber (EPDM)	Hydrogenated acrylonitrile butadiene rubber (HNBR)
Aging resistance	0	++	+	+	++
Ozone resistance	–	++	+	++	++
Petrol resistance	--	--	--	--	0
Oil and fat resistance	--	–	--	--	++
Acid resistance	0	++	0	+	0
Alkali resistance	0	++	0	+	0
Hot water	0	+	+	+	0
Min. operating temperature	-4 °F / -20 °C	14 °F / -10 °C	-4 °F / -20 °C	-13 °F / -25 °C	23 °F / -5 °C
Max. operating temperature	194 °F / 90 °C	230 °F / 110 °C	212 °F / 100 °C	266 °F / 130 °C	284 °F / 140 °C
Abrasion resistance mm ³	<40	<90	<320	<130	<40
Abrasion resistance	++	++	0	+	++
Hardness range (shore)	64 ± 5	73 ± 5	70 ± 5	70 ± 5	73 ± 5
FDA	no	no	no	yes	no
Nitrosamine-free	no	no	no	yes	no

NEMOLAST® stator qualities for oil production and transfer



					Solid Stators	
62L* ²⁾	65L* ¹⁾	66L* ²⁾	85	91* ²⁾	teflon	cast iron** ³⁾
black	black	black	opaque	black	white	grey
Acrylonitrile butadiene rubber (NBR)	Acrylonitrile butadiene rubber (NBR)	Acrylonitrile butadiene rubber (NBR)	Silicone rubber (SI)	Fluororubber (FKM FPM)	Polytetrafluoroethylene	Grey cast iron
0	0	0	+	++	++	For neutral media
-	-	-	+	++	++	
0	0	0	--	++	++	
+	+	+	+	++	++	
0	0	0	--	++	++	
0	0	0	+	++	++	
0	0	0	+	++	++	
23 °F / -5 °C	23 °F / -5 °C	23 °F / -5 °C	-40 °F / -40 °C	23 °F / -5 °C	-4 °F / -20 °C	-4 °F / -20 °C
212 °F / 100 °C	212 °F / 100 °C	212 °F / 100 °C	302 °F / 150 °C	320 °F / 160 °C	320 °F / 160 °C	392 °F / 200 °C
<60	<70	<130	<60	<160	-	-
++	++	+	++	+	-	-
73 ± 5	70 ± 5	68 ± 5	65 ± 5	73 ± 5	-	-
no	yes	yes	yes	no	yes	-
yes	yes	yes	yes	no	-	-

*¹⁾ only for TORNADO® T2 rotary lobe pumps
 *²⁾ also for TORNADO® T2 rotary lobe pumps
 *³⁾ different solid stator materials on request



Please take into consideration that the given material limits are a guideline. The final selection has to be based on a detailed analysis (e.g. swelling test).

■ recommended range
 ■ caution range
 ■ not recommended

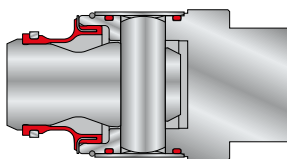
Having the right joint in your NEMO® pump has a decisive impact on operational reliability and life-cycle costs. The optimum joint selected depends on the application, the operating conditions and the conveyed media. To achieve the optimum performance of a NEMO® pump, additional joint adaptations can be made to better address individual conditions.

NEMO® universal joints

THE RIGHT JOINT FOR EVERY APPLICATION

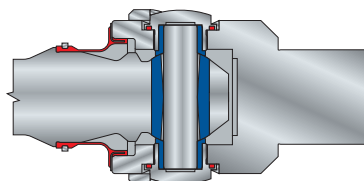
B Universal Pin Joint

The NEMO® universal pin joint is the standard joint for NEMO® industrial pumps due to its simple design and outstanding degree of reliability. The joint has a very long service life, because it is oil-filled and sealed using a NEMO® SM® seal. The joint can also be used without the seal at extremely high temperatures and flow rates where elastomers are not acceptable. The joint, has a minimum number of components and can be easily dismantled for maintenance.



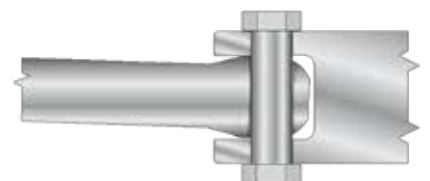
V Pin Joint

The operational characteristics of the NEMO® V pin joint are similar to those of the B pin joint, but it has a longer service life under tough operating conditions because of hardened bushings, which are fitted into boreholes in the coupling rod and the rotor/drive shaft head. The V pin joint with hardened bushings is easy to remove for maintenance.



H Sanitary Pin Joint

This open, patented pin joint has been developed specifically for use in NEMO® hygienic pumps. The joint has no crevices or dead space. It is polished and easy to clean. The hygienic pin joint is made in accordance with the US 3-A Sanitary Standards.





Flextec Flexible Rod

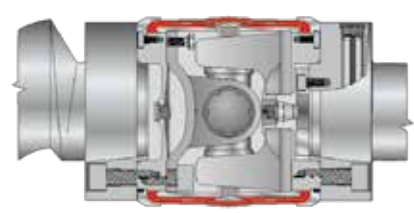
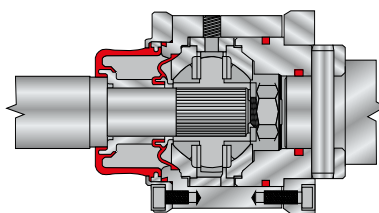
This flexible rod is wear- and maintenance free because there are no components moving against each other as in other joint types. Neither lubrication nor seals are required. The flexible rod is suitable for high pressures and high temperatures. It is free from crevices and dead spaces which allows the flexible rod to be used for pumping highly sensitive products in aseptic conditions. It is designed in accordance with the US 3-A Sanitary Standards.

Gear Joint (double sealed)

The patented gear joint was designed for extremely arduous industrial applications involving constant pump running, frequent stop/starts or shock loads. It is kinematically designed so that the torque and axial loads are borne by separate elements within the joint. The joint is oil-filled and hermetically sealed by two seals which are resistant (compatible) to the lubricant and to the pumped substance. Filling the space between the two seals with oil allows the use of the joints at pressures up to 180 psi / 12 bar. Specially designed gear joints are available to handle up to 1,450 psi / 100 bar.

Z Double Seal Pivot Joint

For the greatest flow rates and pressures possible, where torques and axial loads are at their highest (in drive train size NM 125SY and above), NEMO® pumps are fitted as standard with a cartridge type precision pivot joint. This joint is oil-filled and hermetically sealed with two seals that are resistant (compatible) to the lubricant and to the pumped substance. It is qualified for continuous operation. A special design with balanced seal is available for extremely high pressures.



FROM A TO Z

Accessories & Service

Accessories to increase the operational safety of both pump and plant and to prevent downtimes

Process monitoring

Dry running protectors safeguard elastomer parts of the pump against thermal damage and protect the pump.

- Dry running protection (STP3, STPA2A, STP2D)
- Flow sensors for solid stators
- Speed monitoring device

Overpressure and underpressure protectors safeguard the pump and protect downstream aggregates and valves against overpressure and underpressure.

- Diaphragm Pressure Gauge
- Pressure control device DTSL 3
- Multi-function pressure instrument
- By-pass line

Seal Support Systems

Additional flushing, quench or pressurized flushing systems that flush or close the seals with clean conveyed medium are often required to ensure shaft seals function correctly and reliably.

- Quench pot
- Permanent lubricator
- Pressurized flush for double mechanical seals

Tools and additional equipment

A large number of useful equipment is available to correctly maintain and smoothly operate your pumps.

- Gear joint filling unit
- Ring dosing nozzle
- Chemical anchor
- Stator removal tool

Protection Units and Carts

In all areas of production within the food, pharmaceutical and cosmetic industries, a range of optional parts are available to ensure uncompromising hygiene and to enable mobile use.

- Covers for drives
- Transport devices
- Machine feet - flexible, rigid

Additional information

Quickship Flyer NPA · 907



NETZSCH Service

The benefit to you

Advice, service and quality are our strengths. Strict quality standards, test procedures and certification in accordance with DIN EN ISO 9001 guarantee that you receive the very highest quality without exception. To maintain the performance and quality of your pump, we continue to provide support after delivery in all aspects of your pump to ensure it operates reliably in your system. We have over 60 years with more than 500,000 installed pumps behind us.

QuickShip Program

Quick, easy, and convenient sizing and selection tool with a popular selection of BY pumps

- No other pump supplier offers a program like this
- Pumps ship within 24- or 72- hours
- Use for quick budget pricing
- Pumps include gearmotors, first class mechanical seals and baseplates
- Material options and geometry options also available

The logo for the QuickShip program, featuring the word "QuickShip" in a stylized, italicized font with a blue underline.

Spare Parts and Service

Our distributor / representative partners are available for quick and economic service of your pump at your site. You will find your local distributor / representative in the locator on our website at:

www.pumps.netzsch.com

or you can call our Customer Service team at:

1-610 363-8010 United States

1-705 797-8426 Canada

24 / 7 EMERGENCY HOTLINE:

For urgent spare parts needs or service issues, please call our

1-484-986-8480



The NETZSCH Group is a mid-sized, family-owned German company engaging in the manufacture of machinery and instrumentation with worldwide production, sales, and service branches.

The three Business Units – Analyzing & Testing, Grinding & Dispersing and Pumps & Systems – provide tailored solutions for highest-level needs. Over 3,500 employees at 210 sales and production centers in 35 countries across the globe guarantee that expert service is never far from our customers.

The NETZSCH Business Unit Pumps & Systems offers with NEMO® progressing cavity pumps, TORNADO® rotary lobe pumps, NOTOS™ multiple screw pumps, macerators/grinders, dosing technology and equipment custom built and challenging solutions for different applications on a globally.

NETZSCH Pumps & Systems – Solutions you can trust ■

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