

NEMO® Immersible Pump BT

with integral mounting plate

Depending on pump size, speed and immersion depth up to 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 without fixings. 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 minimises the dead space in the pump housing thus reducing the overall height of the pump above the tank lid.

Performance

Flow rates up to 140 m³/h at pressures up to 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 10m. The immersion tube length can be modified by extending the pump housing, adding a suction pipe or by a combination of the two.



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

Modular system

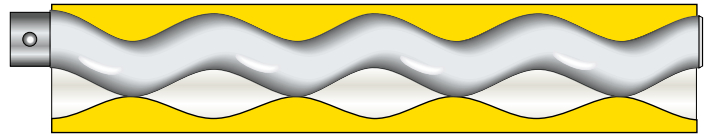
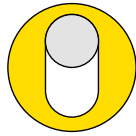
NEMO® Pumps belong to the group of rotary positive displacement pumps. The two conveying elements are the rotor and the fixed stator, in which the rotor eccentrically turns.

As all four pump geometries have the same outer dimensions. We have 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: 12 bar

L Geometry

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



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

D Geometry

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



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

P Geometry

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



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



Testing properties and quality

NEMOLAST®

elastomer quality developed,
continuously tested and
optimised at NETZSCH



Developing new blends



Manufacturing blends

Development

Elastomer research & development is in-house 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 optimises them for the specific requirements of customers.

We therefore 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. Only using original NETZSCH spare parts guarantees our pumps remain reliable.

Production

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

To meet the constantly growing demand for our pumps and the associated demand for spare parts, NETZSCH invested in a new 4000 m² production hall in Waldkraiburg to produce elastomer parts using the latest production methods and the latest product standards. Alongside five extruder sets to manufacture conventional tube stators, injection moulding machines and presses were also acquired to manufacture iFD stators, lobes and casing liners for rotary lobe pumps.

Specific requirements in oil production and transfer

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

Both for elastomer development as well as for optimal material selection the specific bore hole and fluid conditions have to be considered. NETZSCH pumps are used as multiphase pumps, which means that gas-oil-water mixtures and various solids are conveyed simultaneously or alternately.

Therefore, we have developed special elastomer mixtures, for conveying these phases in changing and variable concentrations. Additional challenges to the material are the fluctuating and sometimes very high temperatures and the high differential pressure up to 300 bar between the suction and pressure side. Very aggressive gases (such as H₂S and CO₂) or oils (with high aromatic content) can also be present.



Extruder with stator for oil production



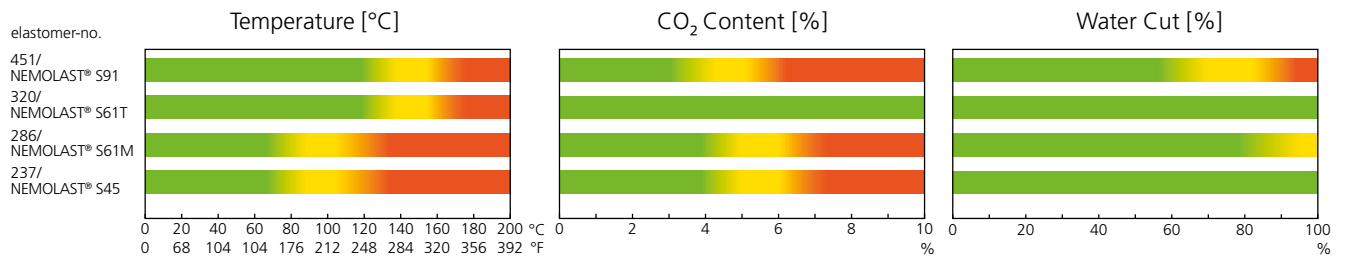
Press with casing liners for TORNADO® T2



Injection moulding machine for iFD-stators®

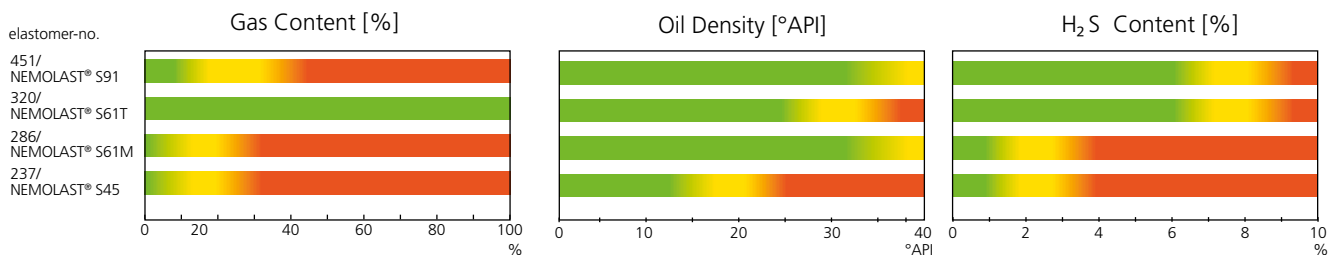
	NEMOLAST® – stator qualities for industrial applications				
Material description/ NEMOLAST® Code	11	31	43	46*2)	61T
Colour	black	black	white	black	black
Base polymer	Natural rubber/ butadiene rubber (NR/BR)	Chlorinated polyethylene (CM)	Ethylene propylene diene rubber (EPDM)	Ethylene propylene diene rubber (EPDM)	Hydrogenated acrylonitrile butadiene rubber (HNBR)
Ageing 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	-20	-10	-20	-25	-5
Max. operating temperature	+90	+110	+100	+130	+140
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	+	++	++	
-5	-5	-5	-40	-5	-20	-20
+100	+100	+100	+150	+160	+160	+200
<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

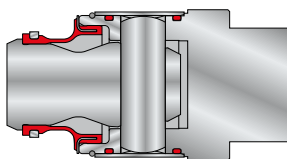
Having the right joint in your NEMO® pump has a decisive impact on operational reliability and life-cycle costs. The optimum joint is selected on the basis of the application, the operating conditions and the conveyed media. To achieve the optimum performance of a NEMO® pump, joints at NETZSCH also be further developed and adapted to the individual conditions.

The right NEMO® joint

FOR EVERY APPLICATION

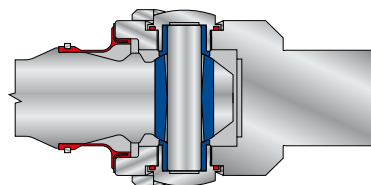
B Universal Pin Joint

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



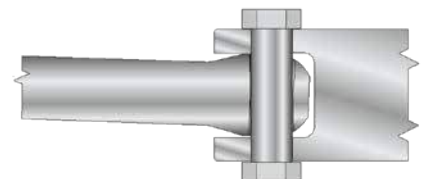
V Pin Joint

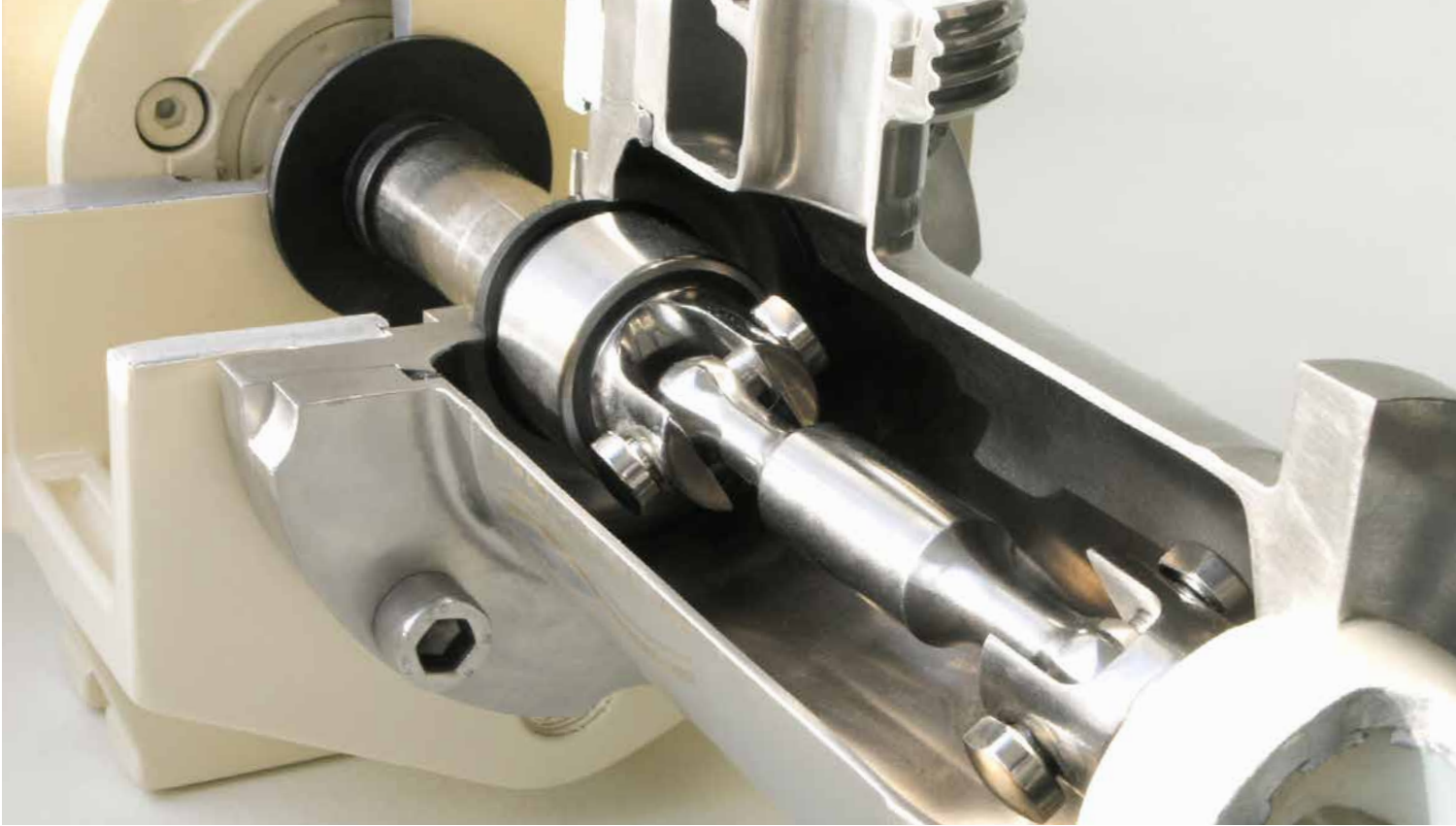
The NEMO® V pin joint functions in the same way as the B pin joint, but has a longer service life under tough operating conditions thanks to hardened bushings, which are fitted into boreholes in the coupling rod and the rotor/drive shaft head and can be replaced easily during maintenance.



H Hygienic 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 and is polished, so is easy to clean. The hygienic pin joint meets the requirements of the US 3-A Sanitary Standards.





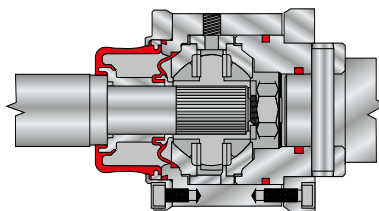
Flextec Flexible Rod

This flexible rod is wear- and maintenance-free, because no parts move against each other as in other joint types. It also does not require lubricants or seals, so that it can be used at the extremely high ambient pressures and temperatures. As it is free of crevices and dead space, the flexible rod is also used to convey highly sensitive products in aseptic conditions. The flexible rod meets the requirements of the US 3-A Sanitary Standards.



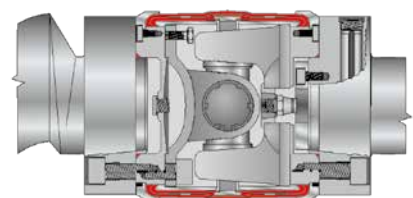
K Joint

The patented K joint was designed for highly demanding industrial applications. It is kinematically designed so that the torque and axial loads are shared by separate elements within the joint. The joint is oil lubricated and sealed hermetically by two joint seals that are resistant to/compatible with the lubricant and the pumped product. Filling the space between the two joint seals additionally with oil means that the joint can be used at ambient pressures of up to 12 bar.



Z Double Seal Pivot Joint

For large flows and/or pressures (from bearing block size NM125Y upward), NEMO® industrial pumps are equipped with kinematic precision cartridge type double seal pivot joints, which have been designed with extremely high permanent loads, torques and axial forces in mind. The joint is oil lubricated and sealed hermetically by two joint seals that are resistant to/compatible with the lubricant and the pumped product.



FROM A TO Z

Accessories & Service

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

Process monitoring

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

- Dry running protection (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 pressurised 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
- Pressurised 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 Trolleys

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

Further information

NETZSCH Customer Service
Brochure NPS · 400




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 experience over 60 years with more than 500,000 installed pumps behind us.

Spare Parts and Service

In your area welltrained service partners are available for quick and economic service of the pumps at your premises. You will find your personal service partner in our homepage at **www.pumps.netzsch.com** | Consultation/ Service.



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 3,400 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® multi screw pumps, macerators/grinders, dosing technology and equipment custom built and challenging solutions for different applications on a global basis.

NETZSCH Pumps & Systems – Solutions you can trust ■

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BEST
2014 PRACTICES
AWARD

GLOBAL PROGRESSIVE CAVITY
PUMPS IN OIL AND GAS
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