

## PUMPS NETZSCH Genuine Parts



# From Planning through Process Monitoring up to Genuine Parts

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## Consulting, Service and Quality

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When buying a NETZSCH pump you have decided on a quality product for a good reason. In order to maintain the capacity and quality of your pump, we will support you even after the delivery of the pump. Skilled sales and service staff located near your site are at your disposal around the clock.

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## Process Reliability

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NETZSCH service together with quality and genuine parts ensure reliable operation of the pump in your plant. The experience from more than 500,000 pumps installed is the basis for this.

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## Availability

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Five production sites guarantee immediate supply of parts in all regions of the world.

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## Customer Benefit

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Continuous process reliability with lowest life cycle cost.

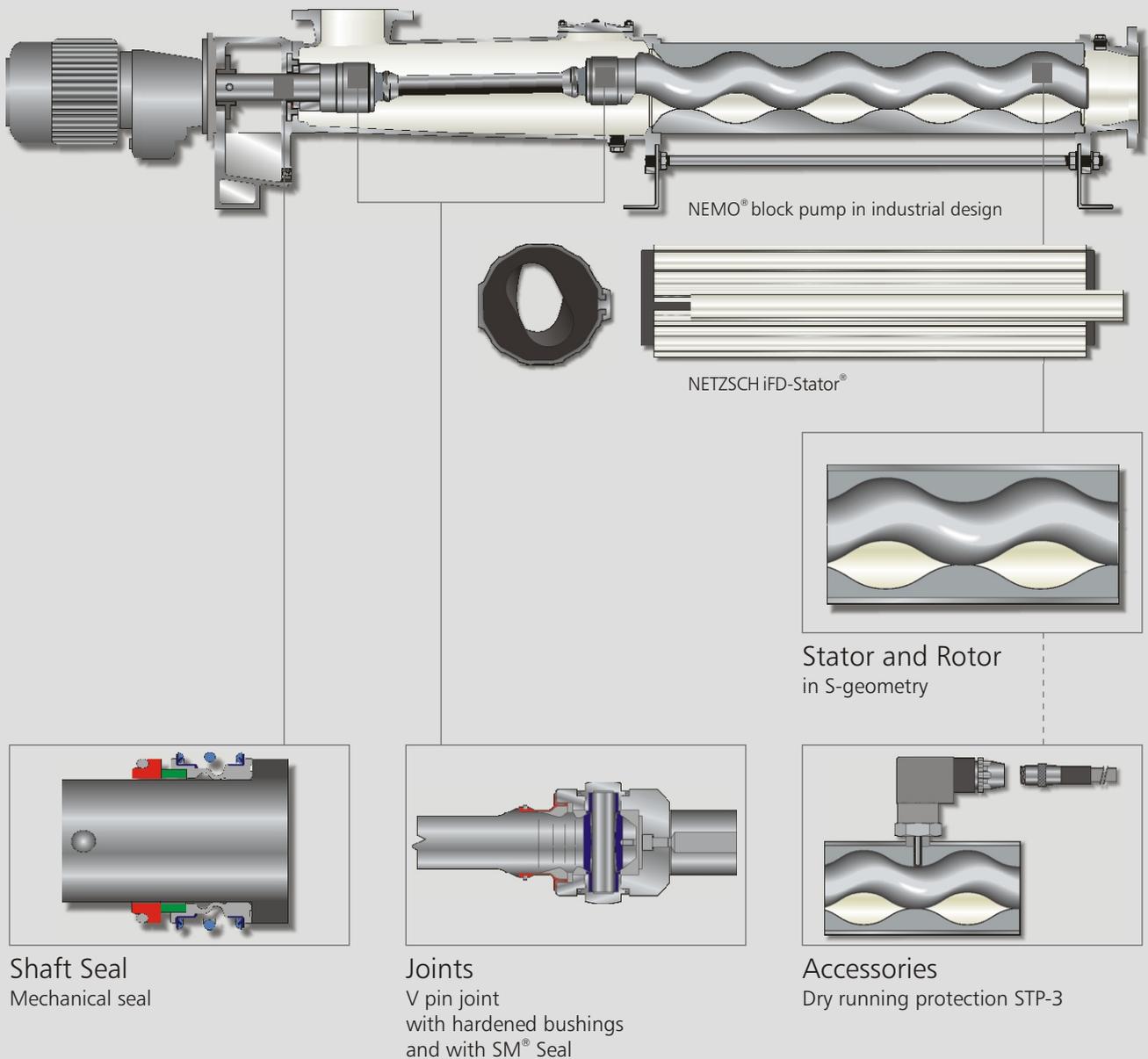


## NETZSCH Genuine Parts

The following components are decisive for maintaining the pump performance:

- Pumping elements stator and rotor
- Shaft seals
- Joint and drive train components
- Accessories

## Components of the NEMO® Progressing Cavity Pump



# NEMOLAST® Stators

## Features and Comparison

### Production Accuracy

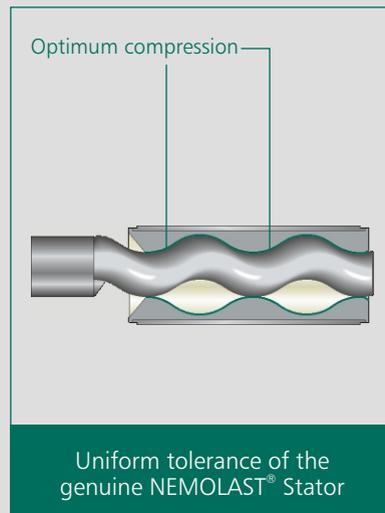
When producing stators the correct relationship between elastomer core and elastomer mixtures is of crucial importance. Depending on the elastomer quality, different shrinkage rates are to be expected in the production of the stators, which is compensated by adjusted elastomer cores. This production process is the key to reliability, efficiency and lifetime performance.

To meet the different demands on elastomer qualities, we exclusively use stators developed and produced by us for our pumps.

NEMOLAST® Stators are the result of decades of experience in the development and production of stators.

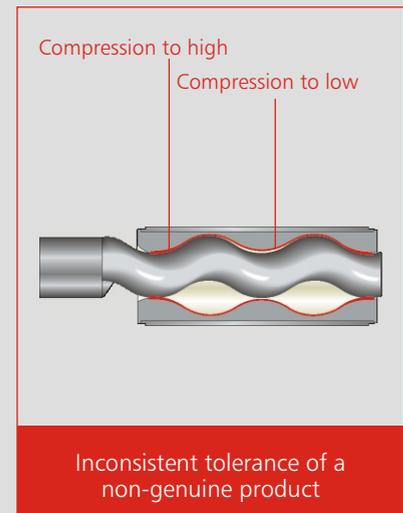
### NEMOLAST® Stators guarantee

- consistent manufacturing process and consistent quality of the elastomer mixtures used
- uniform tolerance along the entire stator length irrespective of the mixture used. This is achieved by the exclusive use of precision tubes and high-precision concave stator cores.



### A non-uniform Tolerance

of a stator made from a cylindrical core results in compression being too high at the stator ends and too low in the center region. This leads to higher starting and operating torques, low pressure stability, high pulsation and decreased service life.



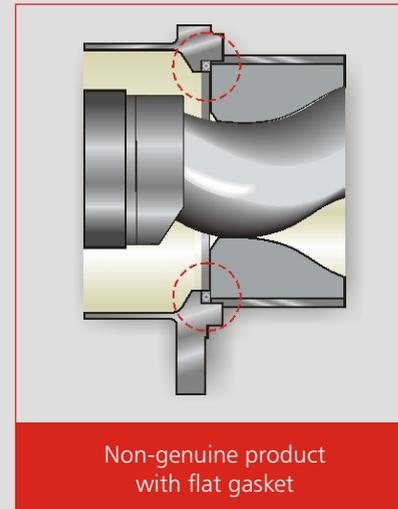
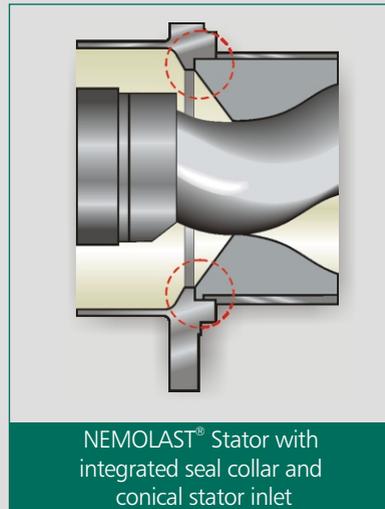
### Advantages

The benefits of using a NEMOLAST® genuine stator are clear:

- high process safety in conjunction with low out of service time
- longer life time due to low abrasion wear
- lower energy costs due to stability and high efficiency
- low pulsation due to precision tolerances between pumping elements
- high flow rates and pressure stability / dosing accuracy over a wide range of rotational speeds, from a few rpm to the maximum pump speed
- high chemical and thermal compatibility
- best economy and lowest life cycle costs
- certified elastomer qualities

## Further Advantages of NEMOLAST® Stators

- Absolute freedom from leakage due to integrated seal collars at both stator ends. This is the prerequisite for the corrosion resistance of the bonding of elastomer and stator tube. It allows unlimited use with aggressive chemicals and applications in the food processing and pharmaceutical industry.
- Low flow losses due to the conical inlet.



## NM® Stator NEMOLAST® 65 in Comparison with Stators from Copy Manufacturers

tolerance d	59,08 - 58,85	59,44 - 58,84	58,90 - 58,42	59,48 - 58,21	59,54 - 58,17	59,65 - 59,22
tolerance D	107,64 - 107,50	107,64 - 106,92	107,49 - 106,69	107,58 - 106,89	107,68 - 107,07	107,75 - 107,00
taper	< 0,1	< 0,1	< 0,1	0,3	0,4	< 0,1
installation dimensions	+	o	o	--	+	--
conical inlet	yes	yes	no	yes	no	yes
integrated seal	yes	no	yes	no	yes	yes
precision tube	yes	no	no	no	no	no
internal bond strength	optimum	okay	optimum	bonding failure (tube and elastomer)	bonding failure (tube and elastomer)	bonding failure (tube and elastomer)
particularities	no	no	no	flow failure (layer separation)	flow failure (layer separation)	flow failure (layer separation)
discharge flow at n= 200 rpm	100 %	90 %	80 %	92 %	95 %	85 %
max. pressure at n= 200 rpm	18 bar	15 bar	15 bar	14 bar	14 bar	12 bar
pulsation	very low	low	medium	very high	very high	high
starting torque	100 %	120 %	135 %	110 %	115 %	120 %
drive power	100 %	125 %	130 %	112 %	105 %	125 %
heat build up	4° C	15° C	28° C	22° C	45° C	37° C
shore hardness	70	72	74	75	73	72
abrasion acc. to DIN 53516	50 mm <sup>3</sup>	140 mm <sup>3</sup>	130 mm <sup>3</sup>	190 mm <sup>3</sup>	150 mm <sup>3</sup>	120 mm <sup>3</sup>
	NEMOLAST®	Copy 1	Copy 2	Copy 3	Copy 4	Copy 5

green colored= in tolerance, red colored= out of tolerance or waste, += ok, o= medium, --= bad, --= very bad

# The Perfect Interaction

## NEMO<sup>®</sup> Rotor/Stator Geometries

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### High Quality of Production

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Materials, coatings and surface quality as well as the production process are important for dimensional accuracy in the production of rotors.

The rotors are manufactured either by machining or forming. To reduce the rotor mass and the subsequent out of balance forces we use rotors made of solid material or hollow rotors, depending on the application and size of the pump. This permits us to achieve optimum running smoothness with all four rotor geometries. Hollow rotors show a reinforced and thus more resistant surface, resulting in a longer service life.

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### Large Variety of Materials

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NETZSCH rotors are available in a large variety of materials, from hardened tool steel to high-alloy special steels such as Duplex, Hastelloy and Titanium. All rotors can be provided with surface coatings for increasing service lives, if required. For especially abrasive and aggressive media, NETZSCH offers the NEMO CERATEC<sup>®</sup> Rotor made of solid ceramic, which has a hardness similar to that of a diamond and is thus nearly free from wear.

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### Advantages of NETZSCH Genuine Rotors

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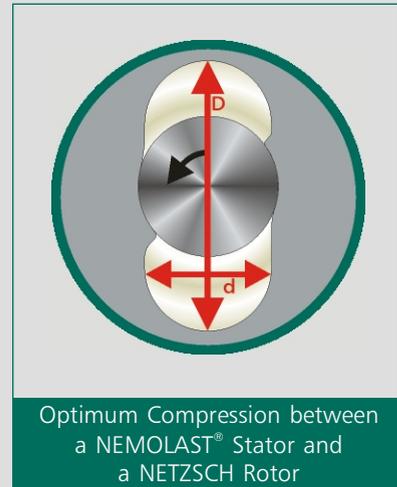
- High plant reliability with low down times
- Long service life due to low wear
- Low energy costs due to constantly high efficiencies
- Low pulsation due to high accuracy of the rotor profile
- High stability in delivery capacity and pressure / high dosing accuracy over a wide speed range from a few revolutions to the speed maximum of the pump
- Best economic efficiency and lowest life cycle cost



## High Efficiencies

NEMO® pumping elements have excellent mechanical and volumetric efficiencies at low starting torques and lowest pulsation. To achieve this, the compression between rotor and stator has been optimized at the small (d) and at the large (D) diameter. Depending on the ambient and operation temperatures, the rotor dimensions are adjusted to ensure functionality and avoid overheating of the stator.

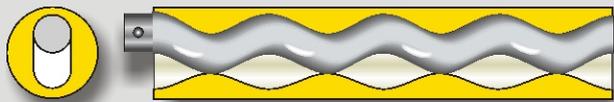
High contour accuracy and excellent surface quality of the rotors, together with the high-precision NEMOLAST® Stators, guarantee a long service life with constant capacity.



## NEMO® Rotor/Stator Geometries Modular Design

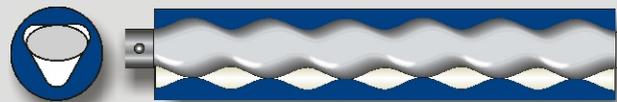
As all four pump geometries have the same outer dimensions, we have a modular design where - apart from rotor and stator - all other components are identical. When a change in flow rate or pressure is required, installed NEMO® Pumps can be adapted to the new operating conditions by simply changing rotor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

### S-Geometry



- 1/2 lobe
- Flow rate: 100%
- Double stage
- Differential pressure: 180 psi / 12 bar

### D-Geometry



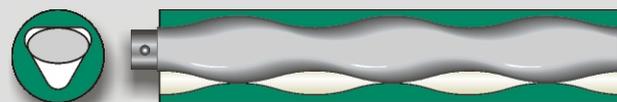
- 2/3 lobe
- Flow rate: 150%
- Double stage
- Differential pressure: 180psi / 12 bar

### L-Geometry



- 1/2 lobe
- Flow rate: 200%
- Single stage
- Differential pressure: 90 psi / 6 bar

### P-Geometry



- 2/3 lobe
- Flow rate: 300%
- Single stage
- Differential pressure: 90psi / 6 bar

# Genuine NEMO® Joints Function and Overview

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## Function

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Joints or power transmission elements are required for power transmission from the drive to the eccentrically rotating rotor of an eccentric screw pump.

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## Fitting Accuracy

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As well as rotor and stator, the joints are also subject to natural wear. This is reduced to a minimum by the interaction of the precision matched NEMO® joint components, gaskets and lubricants.

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## Protection of the Pump by Using Genuine Joint

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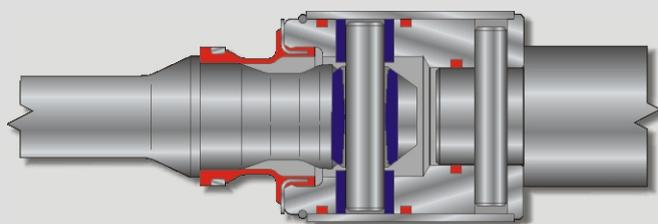
Only the use of genuine NEMO® joint components with approved lubricants ensures that the pump performance is maintained after maintenance or repair. In cases of doubt, new parts are preferred to a reassembly of used joint components.

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## NEMO® V-Universal-Pin Joint

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with hardened bushes and with SM® seal

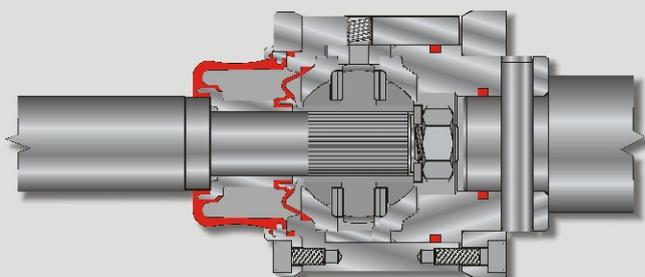


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## NEMO® K-Joint/Gear Joint

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patented



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## Function

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Shaft seals avoid leakage of the pumped medium from the interior of the pump into the environment in case of overpressure, and intrusion of air into the pumped medium in case of underpressure. We use various seals selected according to the media and safety requirements of the customer.

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## Fitting Accuracy

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NETZSCH uses only original seals from reputable manufacturers. In case of maintenance or repair, worn seals should be replaced with original seals in order to avoid leakage, damage to the environment and early failure of the pump. All common seals can be supplied ex stock.

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## Protection of the Pump by Using Genuine Accessories

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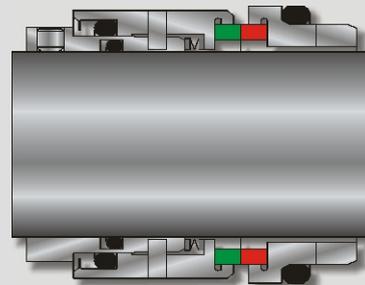
NETZSCH dry running and over/under pressure protection devices protect the rotor and stator of the pump from thermal damage and the pump as well as the aggregates and fittings from overpressure. These devices increase the operational safety of the pump and the plant and prevent down time.

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## Mechanical Seal

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Original seal HJ977GN

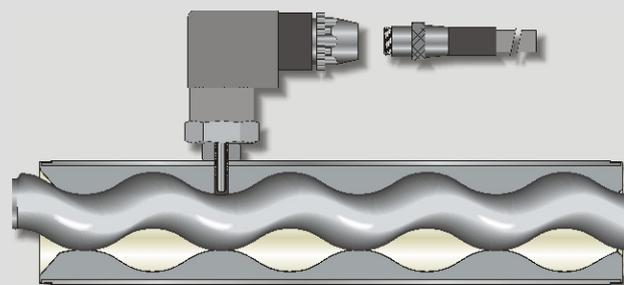


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## Statorprotection STP-3

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Dry running protection



# To us, NETZSCH Service is as important as the Quality of our Pumps!

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## Quality

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With the worldwide implementation of common quality standards in accordance with ISO9001 for development and manufacture we ensure the highest quality regardless of the production location.

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## Availability

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Five development and production sites as well as 20 sales offices, a cooperation partner and another 200 NETZSCH representatives guarantee immediate supply of parts in all regions of the world.

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## NETZSCH Pumps North America, LLC

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## Service

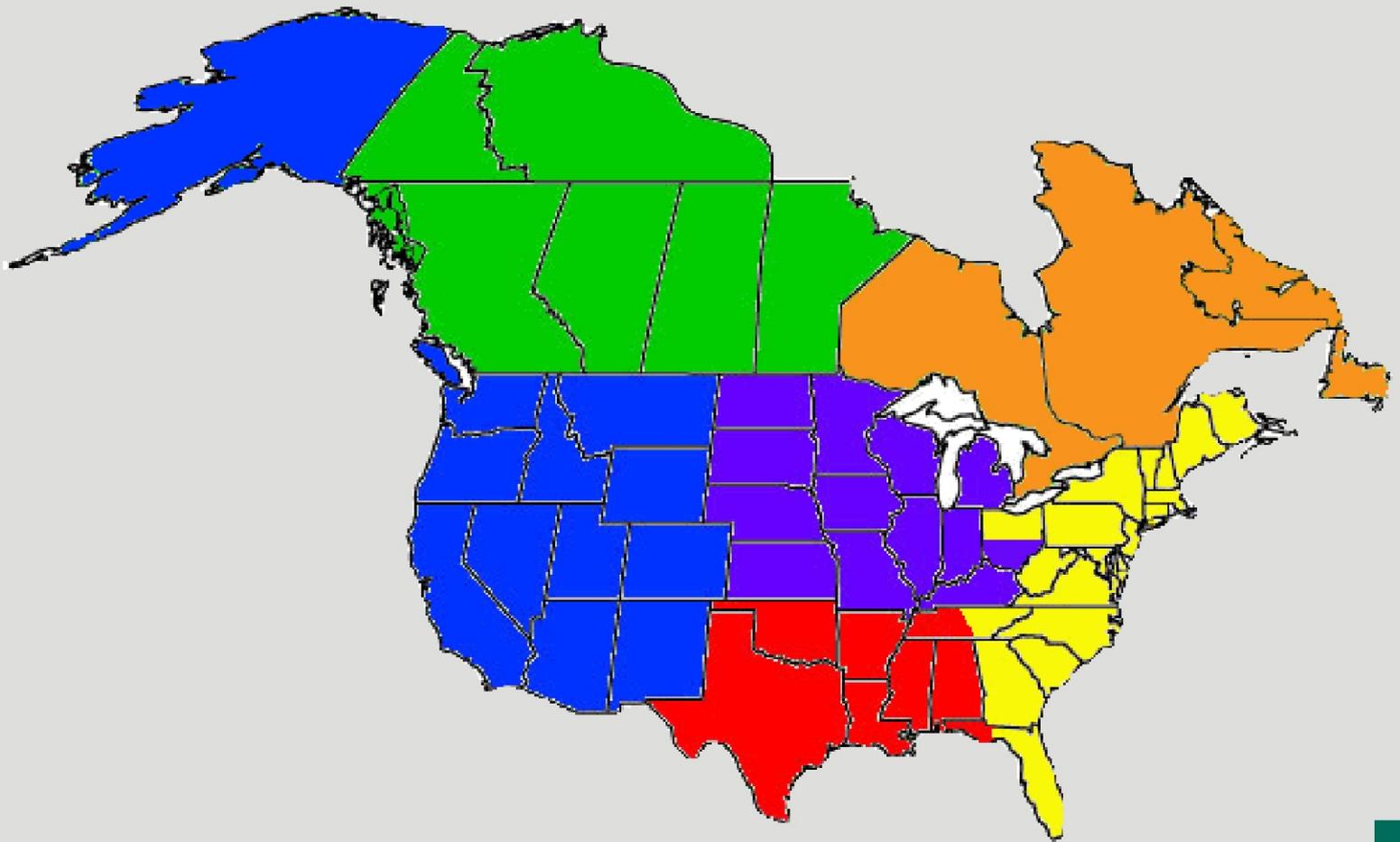
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- Trained personnel for handling NETZSCH pumps
- Avoid mistakes with installation and commissioning
- Save costs by preventive maintenance and professional repairs
- Save time when analysing damage and restarting pumps
- Optimize your stock of NETZSCH Genuine Spare Parts

## Service Network for you on Site

In your area well-trained service partners are available for quick and economic service of the pumps at your premises.

You will find your personal service partner on our homepage [www.netzsch.com](http://www.netzsch.com) | Pumps | Consultation/Service | Authorized Service Partner or ask our service team.



Your NETZSCH Service-Team

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[www.netzsch.com](http://www.netzsch.com)

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