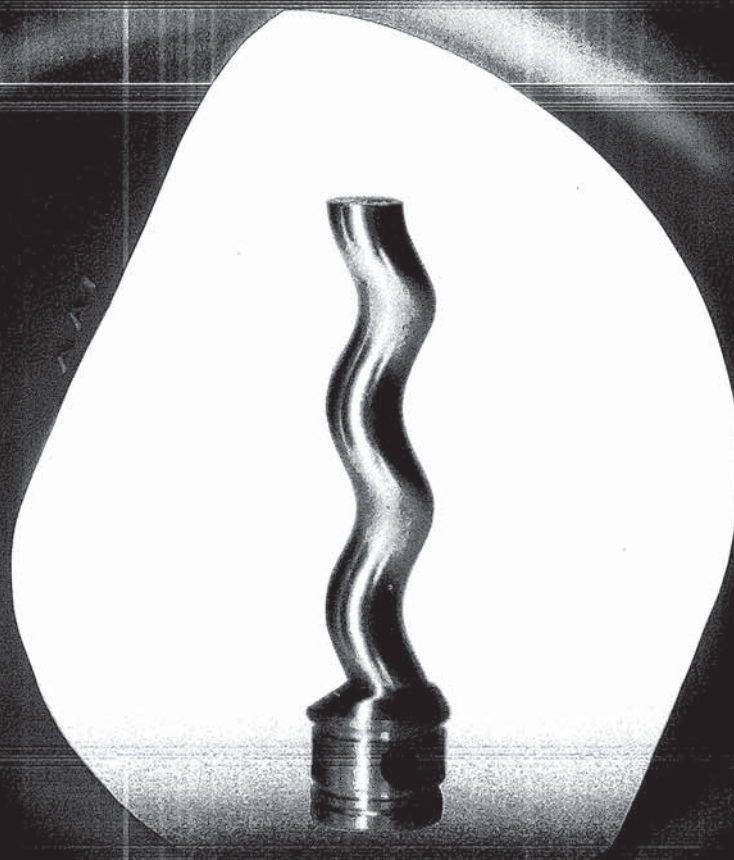
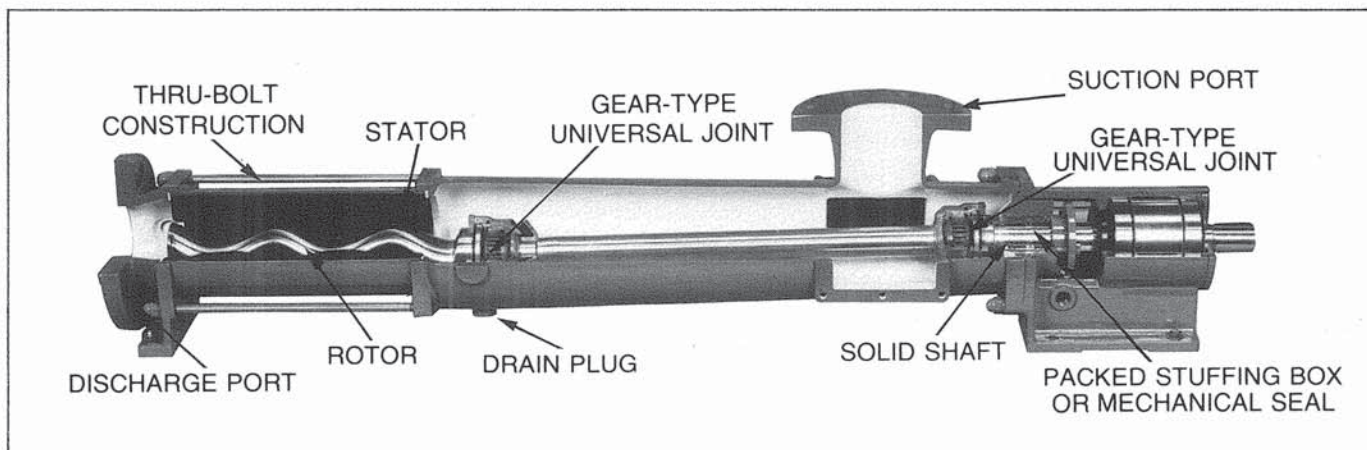


# Netzsch Progressive Cavity Pumps

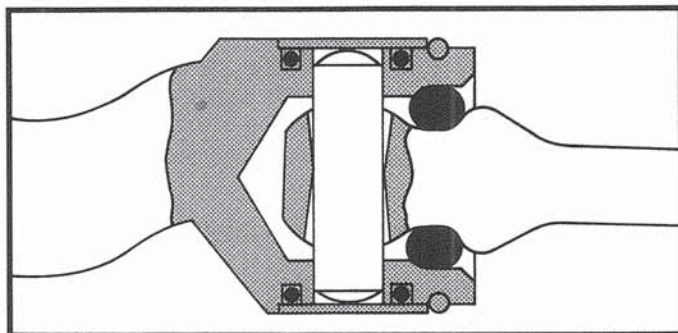




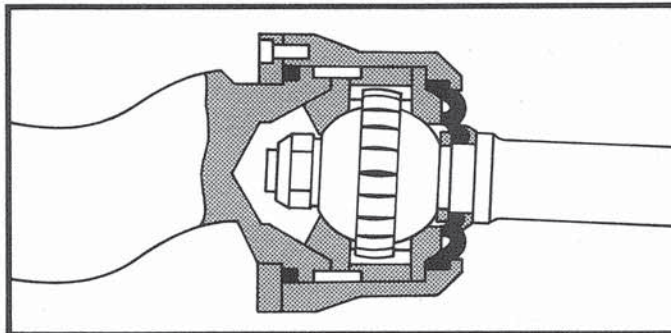
## Why Netzsch Nemo® Progressive Cavity Pumps?

Netzsch Nemo Progressive Cavity Pumps, like all progressive cavity pumps, give you the advantages listed earlier. In addition, Nemo Progressive Cavity Pumps have these advantages:

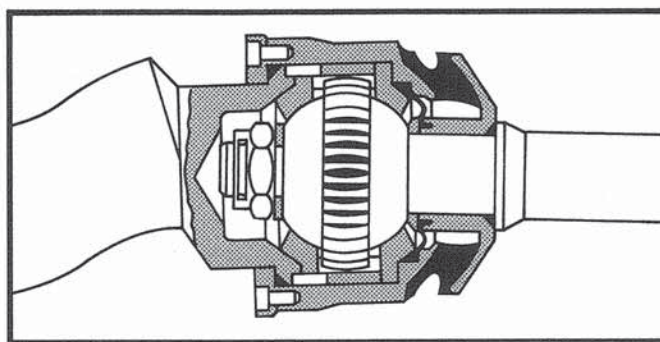
- Extremely low angularity of connecting rod (approx. 1°) results in longer universal joint life
- Solid shaft design for greater dependability
- Single or exclusive double-sealed gear-type universal joints, or pin-type universal joints
- Pumps available in the industries' widest range of customized materials to fit your specific application
- Available in a wide range of capacities and models, many with exclusive clean-out ports
- Thru-bolt construction for easier maintenance



Pin-type universal



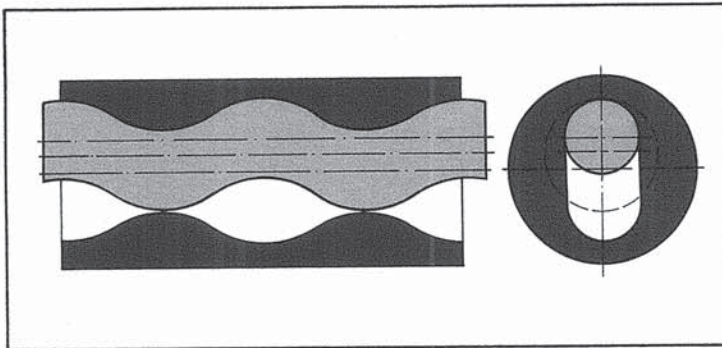
Single-sealed gear universal\*



Double-sealed gear universal



## Principles of Operation of Progressive Cavity Pumps



The Netzsch Nemo® Progressive Cavity Pump is based upon the Moineau principle. The basis of this principle is the geometrical fit between the rotating element of the pump (rotor) and the stationary element (stator). The rotor has the shape of a single helix and is normally made of a metallic material. The stator is formed as a double helix and is normally an elastomer. The interference (compression) fit between the rotor and stator creates a series of sealed chambers called cavities.

Pumping action is achieved by the rotor turning eccentrically within the stator. Fluid enters the cavity formed at the inlet and progresses within that

cavity to the outlet. The result is a positive, non-pulsating flow that is directly proportional to the pump's speed.

This unique geometry enables the pump to handle media with large particles, shear sensitive tendencies, high viscosities, high solids concentrations and abrasives.

There is a wide range of models and materials of construction available for various pumping applications. Your Netzsch representative will recommend the proper combination for your specific need.

## Advantages of Progressive Cavity Pumps

- Low shear rate
- Non-pulsating metered flow
- High viscosity and solid content capabilities
- Better handling of abrasive materials
- Volume unaffected by varying solid content
- Low net positive suction head requirement
- Reversible
- Medium to high pressure capabilities
- Volume practically unaffected by pressure change
- No pressure capability loss at low speeds
- No valves to clog
- Non-vapor and air locking
- Low noise level
- Head independent of speed
- Accurate and reliable flow control
- High-suction lift
- Stable delivery at low flow conditions
- Low speed operation
- Flexibility in operation
- Mounting flexibility

## Applications

acetic acid  
acetic ester  
acid tar  
alkyd resin  
aluminum sulfate  
amino acid  
ammonium chloride  
ammonium phosphate  
apple pulp  
apple-puree  
barium chloride  
bauxite sludge  
beer  
beer wort  
bentonite  
bilge water  
bitumen  
boric acid  
bunker-C-oil  
butylacetate  
calcium chloride  
cellulose  
cellulose acetate  
cement paste  
chocolate compound  
citric acid  
coal mud  
coating mortar  
cocoa compound  
cottage cheese  
cream  
cyanite  
dairy products  
diethylene  
dimethylformamid

dirty oil  
dressing  
drilling mud  
egg-yolk  
emery paste  
engobe  
epoxy resin  
ethyl acetate  
fatty acid  
ferric chlorides  
film-strip solution  
filter cake  
fish oil  
fish press water  
fish pulp  
flocclulants  
formaldehyde  
fruit juices  
fruit mash  
gasolines  
gelatin  
glazings  
glucose  
glues  
glycerine  
goose-liver  
grape juice  
grated potatoes  
grease  
grout  
herbal extracts  
honey hops spent grain  
hydrochloric acid  
ice cream

iron hydroxide  
jam  
juice  
kaolin slurry  
latex  
lead sludge  
magnesium chloride  
malt extract  
mash  
meat pulp  
milk of lime  
milk sugar crystal paste  
molasses  
mortar  
mustard  
nickel sulfate  
oil  
oil sludge waste  
paints  
paraffin  
pectin  
phosphoric acid  
plaster  
polyester resin  
polymer  
polyvinyl  
potassium hydroxide  
potassium nitrate  
pressed concrete  
quicksilver  
salt mash  
sausage  
sewage  
sewage sludge

slip (ceramics)  
soap solution  
sodium acetate  
sodium bicarbonate  
sodium hydroxide  
sodium sulfate  
softener  
spent grain  
spinach  
starch milk  
styrene  
sugar-beet juice  
sugar solution  
sulfur  
sulfuric acid  
syrup  
tar  
titanic oxide paste  
titanium chloride  
titanium dioxide  
tomato pulp  
toothpaste  
turpentine  
undiluted coffee-grounds  
urea resin  
varnish  
vegetable pulp  
washing agent  
waste water  
whiskey  
wine  
xylene  
yeast  
zinc chloride

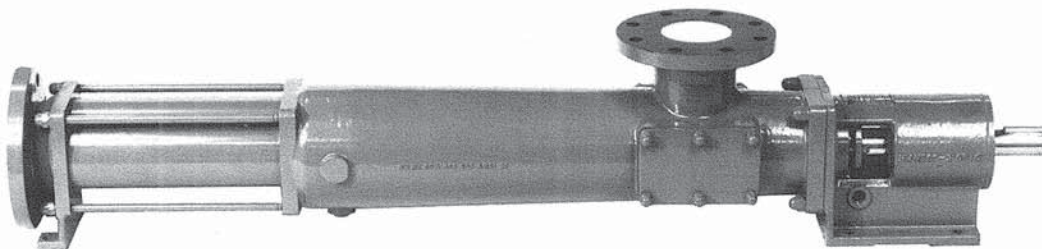


## Netzsch Nemo® Pumps to Handle Every Application

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### NE

#### SERIES Industrial/Municipal



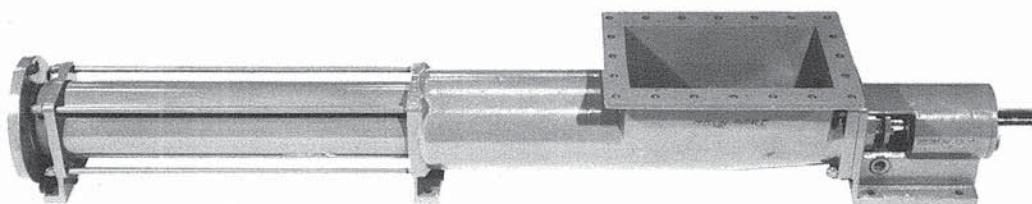
The rugged and versatile NE pumps are ideally suited for most industrial and municipal applications. In addition to handling water-like materials, NE pumps are used to handle sludges, viscous and shear-sensitive slurries, heavy pastes and abrasive media.

NE series pumps have output capacities as high as 2000 gpm, and pressure capabilities up to 1000 psi. They have a solid drive shaft and most sizes are available with

pin-type universal joints, sealed gear-type universal joints, or our exclusive double-sealed gear joint. Housing, rotating parts, rotor, and stator are available in a variety of materials to suit specific applications. Options include a choice of pumping direction, suction rotation, choice of drives, heating or cooling jackets for housing and stator, bypass arrangements, and portable baseplates.

### NES

#### SERIES Auger-Feed



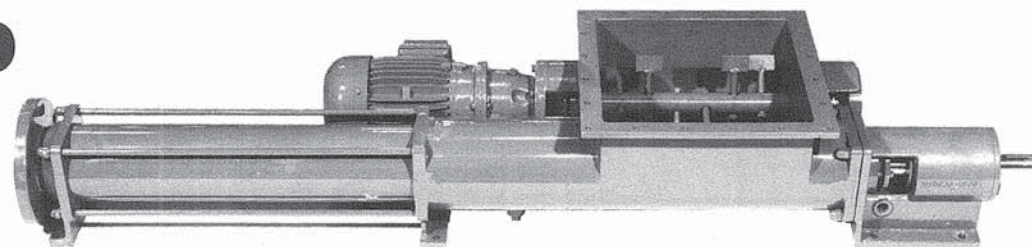
The NES series is designed for pumping materials that have heavy solids concentrations, high viscosities, or virtually no flow characteristics. NES pumps have a large open throat suction that permits full flow of even the most viscous materials. In addition, the NES is equipped with an auger feed which moves the materials into the rotor-stator.

NES series pumps have output capacities as high as

2000 gpm and pressure capabilities up to 1000 psi. They feature a solid drive shaft and most sizes are available with pin-type universal joints or our exclusive double-sealed gear joint. Housing, rotating parts, rotor, and stator are available in a variety of materials to suit specific applications. Options including choice of drives, heating or cooling jacket for stator, and portable baseplates.

### NESP

#### SERIES Bridge Breaker



The NESP series pumps, like the NES series, are designed for pumping materials that have heavy solids concentrations, high viscosities, or virtually no flow characteristics. NESP pumps have a large open throat suction that permits full flow of even the most viscous materials. In addition, NESP pumps have a breaking device for materials that tend to bridge in the open throat. A mixing device can be substituted for materials that do not remain in suspension. Either is powered by an auxiliary motor. An auger feed moves the materials

from the throat into the rotor-stator.

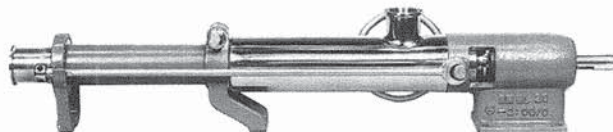
NESP series pumps have output capacities as high as 2000 gpm and pressure capabilities up to 1000 psi. They feature a solid drive shaft and most sizes are available with pin-type universal joints or our exclusive double-sealed gear joint. Housing, rotating parts, rotor, and stator are available in a variety of materials to suit specific applications. Options include choice of drives, heating or cooling jacket for stator, and portable baseplates.



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## NL

**SERIES**  
Quick Clean



NL series pumps are quickly and easily disassembled for cleaning, and have no inaccessible spaces within the pump housing. They are ideal for pumping materials that must be changed often or that tend to deposit or decompose when the pump is stopped. NL series are also used when pumps must be sterilized or disinfected before and after use. In addition to handling water-like materials, NL pumps handle abrasive, high viscosity, shear-sensitive slurries, and heavy pastes with ease.

NL's have outputs up to 150 gpm and pressure capabilities up to 340 psi. The housings, rotating parts and rotor are normally furnished in #316 stainless steel and the stator is a white buna synthetic rubber. (Other materials can be furnished upon request). Options include choice of drives, heating or cooling jackets for housing or stator, bypass arrangements, and portable baseplates.

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## NT

**SERIES**  
Immersion

NT series are close-coupled immersible pumps, in which the rotor/stator elements are placed directly into the material to be pumped. This allows the pumping of materials which otherwise could not be suction-lifted to the pumping elements.

In addition to handling water-like materials, NT pumps handle ointments, printing ink, paints, and heavy pastes with ease. Standard NT pumps have outputs up to 150 gpm and pressure capabilities up to 170 psi, (larger sizes to 1000 gpm, quoted upon request).

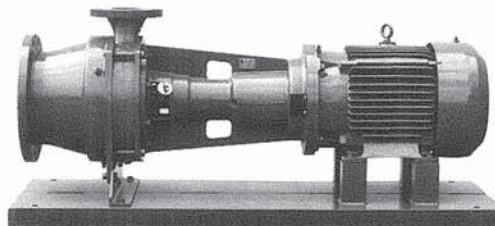
Housing, rotating parts, rotor, and stator are available in a variety of materials to suit specific applications. Options include choice of drives and type of suction and discharge connections.



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## NM

**Macerators**



Grinding, mixing and processing operations, as well as waste treatment plants, use Netzsch Macerators to chop, grind and prepare solids, entrained in liquids, for pumping and processing.

Organic and inorganic materials are ground to particle sizes 3/8" or less, preventing clogging of equipment and producing more homogeneous liquids. This permits the use of cost saving smaller diameter pipe; eliminates pipe, valve and pump blockage; and improves the efficiency of all down line processing. When used in conjunction with Netzsch Nemo Progressive Cavity Pumps, Netzsch Macerators, available in capacities up to 500 gpm, allow optimum process handling of difficult slurries and sludges.

## Technical Information

**Suction Housing:** Cast iron, rubber-coated cast iron, #304 stainless steel, #316 stainless steel, mild steel, Monel, Carpenter 20, Hastelloy, Titanium.

**Rotating Parts:** Mild steel, tool steel, #304 stainless steel, #316 stainless steel, Monel, Carpenter 20, Hastelloy, Titanium.

**Rotor:** Mild steel, tool steel, #304 stainless steel, #316 stainless steel, Monel, Carpenter 20, Hastelloy, Titanium, various plastics. Chrome plating available.

**Stator:** Wide range of natural or synthetic rubbers, tool steel, stainless steel, a variety of rigid plastics.

**Bearings:** Deep-groove ball bearings.

**Joints:** Pin-type universal joints, sealed gear-type universal joints, and our exclusive double-sealed gear joint.

**Drives:** Induction motors, mechanical variable speed drives, hydraulic drives, DC-SCR drives, inverters, internal combustion engines.

**Shaft Sealing:** Packed stuffing box, single or double mechanical seals, special seals.

**Connections:** ANSI flanges, special flanges. NT, immersible pumps with external pipe threads. NL pumps with CIP connections. Most units available with special connections upon request.

**Mounting:** Horizontal, vertical, or other positions.

## Pressure Stages

Single-stage pumps:  
2000 GPM at max., 85 PSI



Two-stage pumps:  
1400 GPM at max., 170 PSI



Four-stage pumps:  
700 GPM at max., 340 PSI



Six-stage pumps:  
450 GPM at max., 450 PSI



Eight-stage pumps:  
400 GPM at max., 510 PSI



Ten-stage pumps:  
250 GPM at max., 750 PSI



Twelve-stage pumps:  
250 GPM at max., 1000 PSI

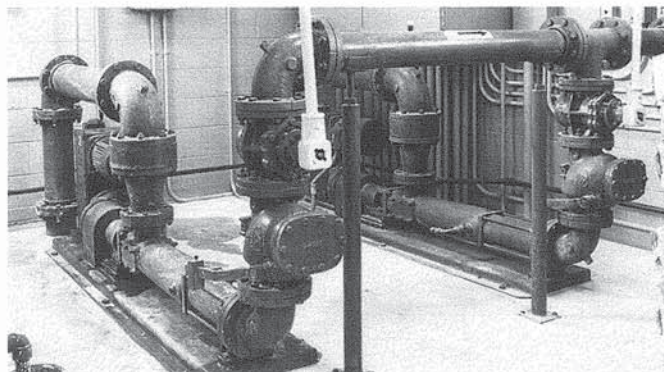




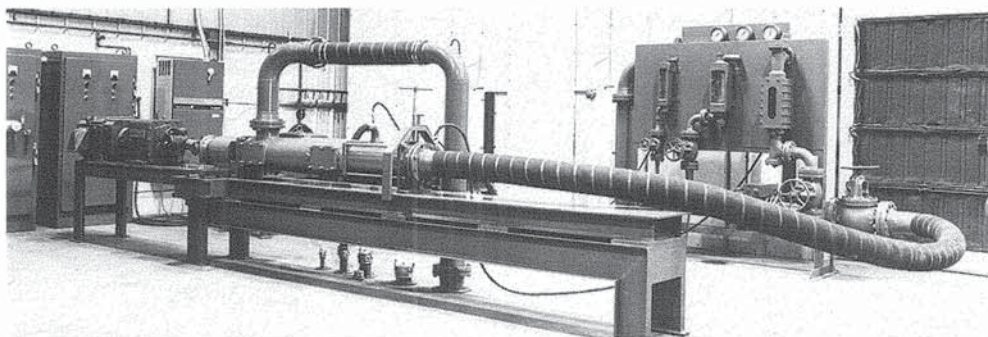
## Experience and Service

Netzsch is one of the original licensees of the Moineau principle of progressive cavity pumps with over 30 years of experience in their manufacture and application. This means that, when Netzsch Representatives make a recommendation on the type of pump and type of rotor and stator materials, you can be assured it is backed by years of experience and a world-wide knowledge of pump applications.

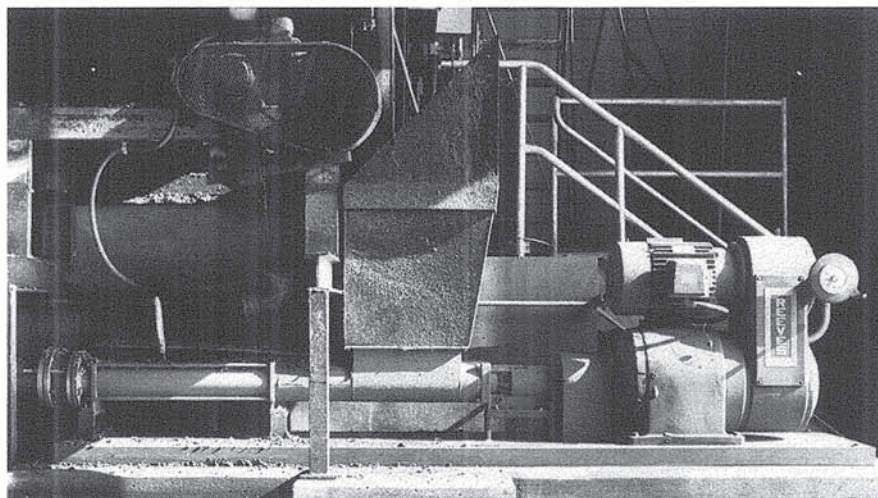
To assure that every pump Netzsch ships is in top operating condition they are performance and hydrostatic tested prior to shipment. This testing is done at our Lionville production facility on two test stands which can handle a full range of pump sizes. These test stands are also available for testing customers pump needs.



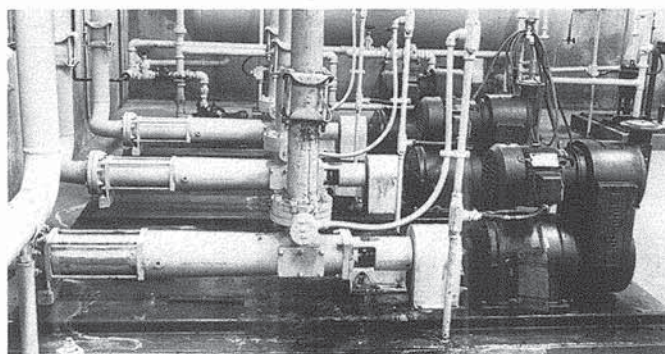
Belt press feed pump (3%-5% solids at 30 psi).



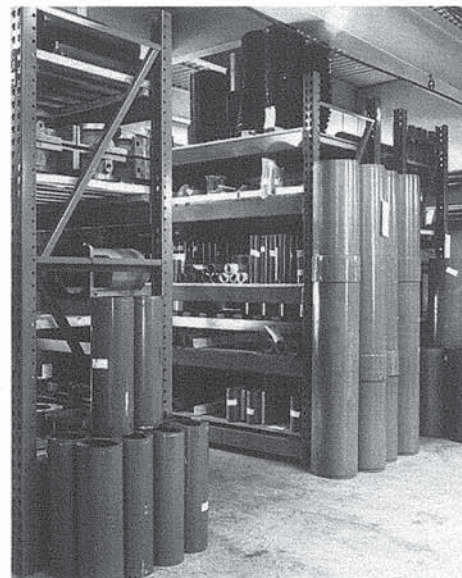
Test stands are equipped with sophisticated DC-SCR Drive System and powered by 75 horsepower motors. Motor starters are available for testing fully assembled test units.



Belt press discharge pump (30% solids at 75 psi).



Industrial waste (3% solids at 20 psi) transfer pump.



Our Lionville facility maintains a fully stocked spare parts department.



**\* SALES REPRESENTATIVES**



**NETZSCH INCORPORATED**

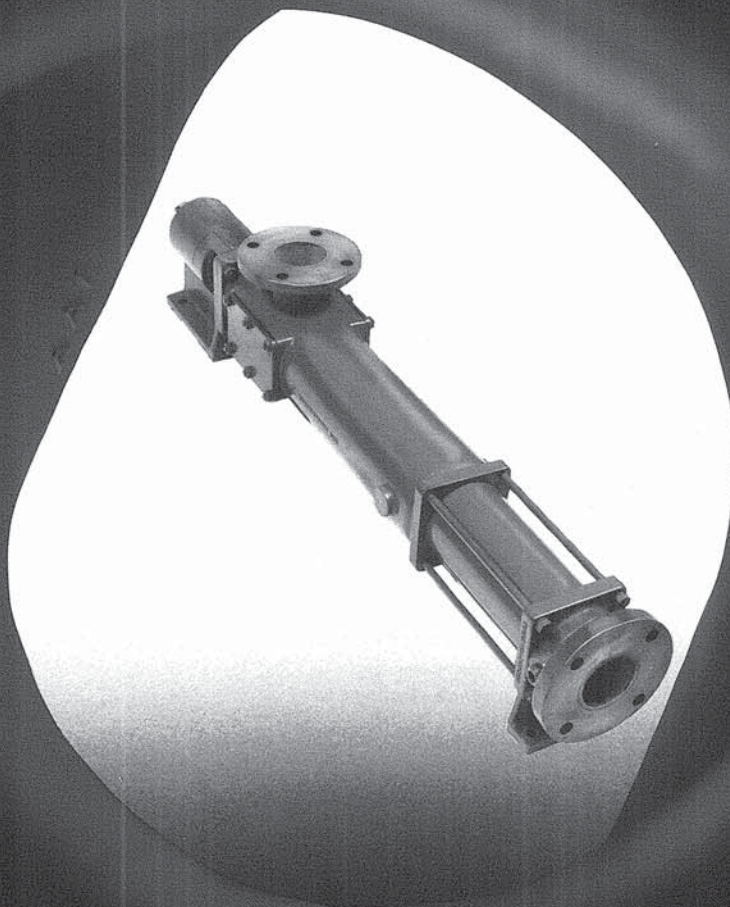
119 Pickering Way  
Exton, PA 19341-1393  
215-363-8010  
Telex: 532868  
Easylink: 62775745



# Nemo<sup>®</sup> Progressive Cavity Pump NE Series

**Applications:** The rugged and versatile NE Series pumps are ideally suited to fill the needs of industrial and municipal applications. Typical uses for Nemo pumps are in the handling of sludges, viscous and shear-sensitive slurries,

heavy pastes and abrasive media. Netzsch's Nemo progressive cavity pumps are used in a wide variety of industries including: municipal waste treatment, chemical, petrochemical, food, tobacco, mining, shipbuilding, pulp and paper.



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# DATA SHEET

## Capacities:

Capacities indicated in the diagram are for materials of water-like viscosities. For materials of higher viscosity or those with abrasive characteristics, the pump should be operated at a slower speed. Applications with abrasion should not use the full design pressure capability of the pump staging.

The composite curve shown is intended only as a guide. For exact sizing, staging, horsepower requirements and corresponding RPM, consult your Netzsch Nemo representative. He will provide you with an actual performance curve of the proper pump size needed for your application.

## Options:

- Bare pump or complete unit
- Choice of rotational direction
- Horizontal or vertical mounting
- Direct connection or Vee-belts and pulleys
- Virtually any choice of drives: induction motors, mechanical variable speed drives, hydraulic drives, DC-SCR drives, inverters and internal combustion engines.
- Heating or cooling jackets for the suction housing and stator
- Bypass arrangements
- Portable baseplates
- Packed stuffing box or mechanical seal
- Clean-out port

## Standard Materials of Construction:

### ■ Suction Housing:

Cast iron  
Cast iron, rubber coated  
# 304 Stainless steel  
# 316 Stainless steel

Also available in:  
Monel  
Carpenter 20  
Hastelloy

### ■ Rotating Parts:

Mild steel  
Tool steel  
# 304 Stainless steel  
# 316 Stainless steel

Also available in:  
Monel  
Carpenter 20  
Hastelloy

### ■ Rotor:

Mild steel  
Tool steel  
# 304 Stainless steel  
# 316 Stainless steel

Also available in:  
Monel  
Carpenter 20  
Hastelloy

Chrome plating available

Also available in various plastic materials

### ■ Stator:

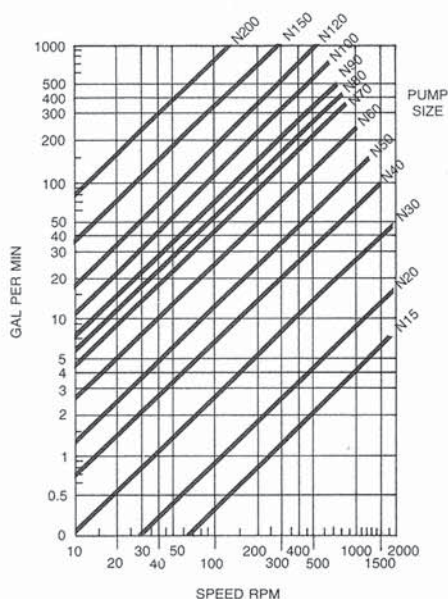
More than 20 different materials are available for stators, the most common choice being an elastomer of either a natural or synthetic rubber. Netzsch Nemo NE Series pumps can be furnished with a wide range of elastomers of various durometer hardnesses, chemical resistances and temperature capabilities. This feature allows a pump to be adapted to your specific application requirements. If an elastomer is not the best choice for a stator material, Netzsch can offer tool steel, stainless steel or a variety of rigid plastics. Consult your Netzsch Nemo representative for the stator best suited to your application.

### ■ Joints:

Most models available with either pin-type, double sealed gear-type or single sealed\* gear-type universal joints.

\*U.S. Patent #3,427,825 & 4,305,596

**Performance curve of the Netzsch Nemo Pumps**



**Pressure Stages**



Single-stage pumps:  
2000 GPM at max., 85 PSI



Two-stage pumps:  
1400 GPM at max., 170 PSI



Four-stage pumps:  
700 GPM at max., 340 PSI



Six-stage pumps:  
450 GPM at max., 450 PSI



Eight-stage pumps:  
400 GPM at max., 510 PSI



Ten-stage pumps:  
250 GPM at max., 750 PSI



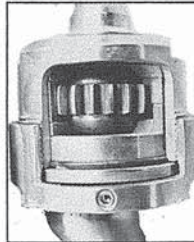
Twelve-stage pumps:  
250 GPM at max., 1000 PSI



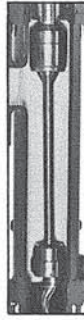
# THE DIFFERENCES

## THAT MAKE THE DIFFERENCE IN PROGRESSIVE CAVITY PUMPS

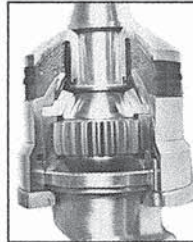
Netzsch Nemo Progressive Cavity Pumps have features that make all the difference in dependable performance. Netzsch was first and, in many cases, still is the only manufacturer to offer the following features:



- Gear-joint\* pumps with a wide range of capacities



- Solid shaft in all models
- 1° angle of eccentricity on the connecting rod
- Thru-bolt stator construction
- Standard gauge/flushing connector on discharge end
- 50 psi reverse flow



- Optional double-sealed gear joints
- A choice of gear-joint materials including stainless steel

**For the Dependable Performance Difference in Progressive Cavity Pumps, Count on Netzsch.**

\*U.S. Pat. No. 3,427,825

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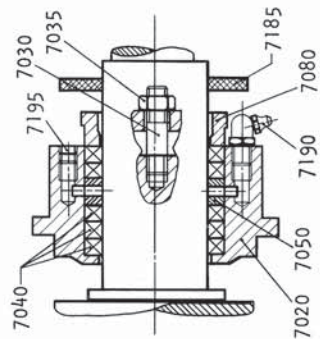
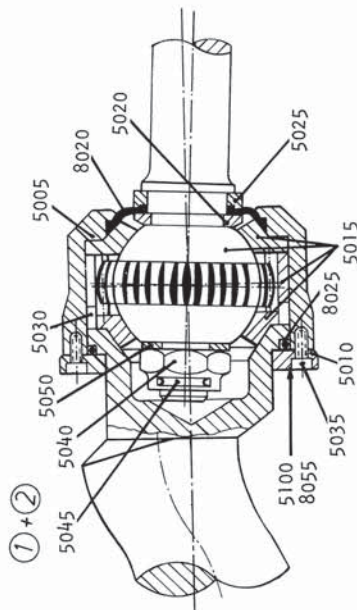
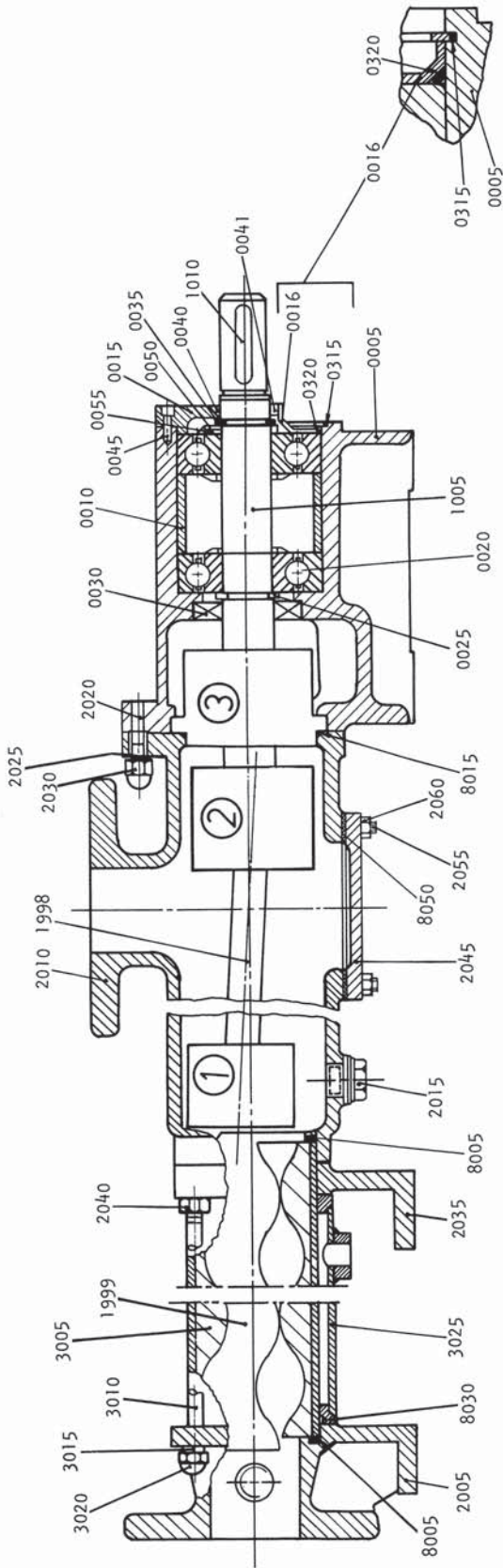
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300/18/3/86



8000
6007
6006
6003
6000
5001
5000
4500
4000
1001
0001



NE Gear Joint, Single Seal

Part No.	Description	Part No.	Description	Part No.	Description
0005	Bearing Housing	2030	Nut, Casting Bolt	5045	Nut Retainer, Connecting Rod
0010	Bearing Spacer	2035	Suction Housing Support	5050	Washer, Connecting Rod
0015	Bearing Cover Plate (Bolt Type)	2040	Rear Stator Nut	5100	Lubrication Screw
0016	Bearing Cover Plate (Snap Ring)	2045	Cover, Clean-Out Port	7020	Gland Housing
0020	Bearing	2055	Bolt, Clean-Out Port	7030	Gland Bolt
0025	Bearing Retainer, Size 15, 20, 60 Only	2060	Nut, Clean-Out Port	7035	Gland Nut
0030	Grease Seal	2115	4-Stage Adapter, Size 80 Only (Not Shown)	7040	Packing
0035	Bearing Retainer	3005	Stator	7050	Lantern Ring
0040	Grease Seal (Cover Plate)	3010	Thru Bolt	7080	Packing Gland
0041	Grease Seal (Cover Plate)	3015	Washer, Front Stator Nut	7185	Slinger
0045	Bolt (Bearing Cover Plate)	3020	Front Stator Nut	7190	Grease Zerk
0050	Bearing Cover	3025	Stator Jacket	7195	NPT Plug
0055	Support Ring	5005	Gear Joint Shell	8005	Stator O-Ring
0315	Snap Ring (Cover Plate)	5010	Head Ring	8015	Casting Seal
0320	O-Ring Seal (Cover Plate)	5015	Complete Gear Joint <sup>a</sup>	8020	Gear Joint Seal
1005	Drive Shaft		a. Crowned Ball Gear	8025	O-Ring, Gear Joint
1010	Drive Shaft Key		b. Ring Gear	8030	O-Ring, Stator Jacket
1998	Connecting Rod		c. Front Thrust Plate	8050	Gasket, Clean-Out Port
1999	Rotor		d. Rear Thrust Plate	8055	Washer, Lubrication Screw
2005	Discharge Casting	5020	Spacer	8125	O-Ring, 4-Stage Adapter, Size 80 Only (Not Shown)
2010	Suction Casting	5025	Connecting Rod Clamp Ring		
2015	Drain Plug	5030	Gear Joint Drive Keys		
2020	Casting Bolt	5035	Head Ring Retainer Screws		
2025	Washer, Casting Bolt	5040	Nut, Connecting Rod		

\* U.S. Pat. No. 3,427,825

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KEY	BY	DATE	APP'D
<div style="display: flex; justify-content: space-between; align-items: center;"> <div>  </div> <div style="text-align: center;"> <p><b>NETZSCH INC.</b>  <b>Exton, PA 19341-1393</b></p> </div> </div>			
TITLE		NEGOA THICKENED SLUDGE PUMP	
DRAWN	J.D.	DATE	7-22-86
ENGR	PRC CONSOER TOWNSEND	CHECKED	APP'D
PEASE & SON / 5009		DRAWING	NUMBER
PROJECT		0301063986	
TACOMA WASTP		KEY	



TACOMA WWT  
 Netzsch Job #03010546  
 Netzsch Model NE60A



NETZSCH INCORPORATED  
 119 PICKERING WAY, EXTON, PA. 19341-1393

Capacity - 75 GPM

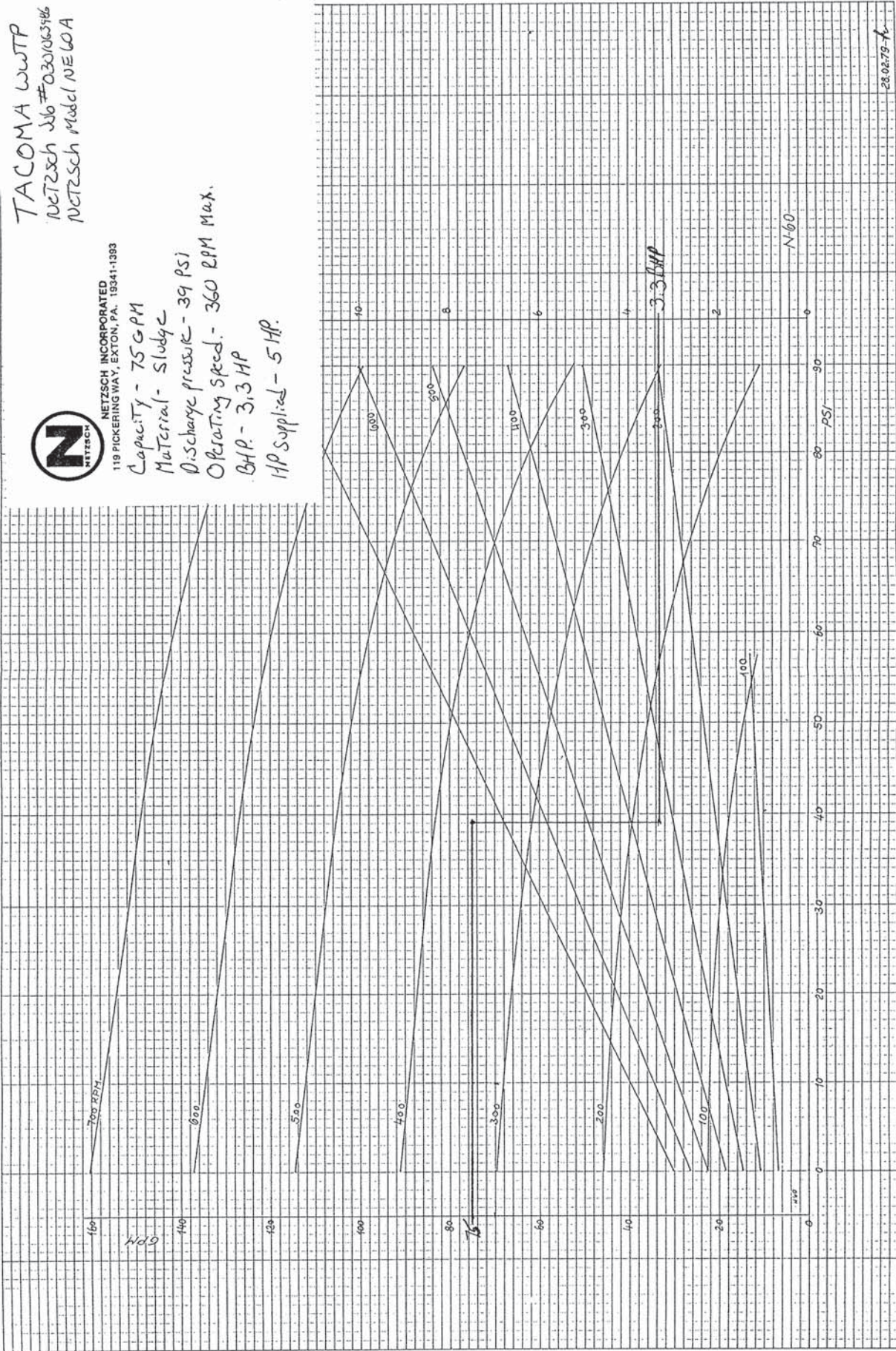
Material - Sludge

Discharge Pressure - 39 PSI

Operating Speed - 360 RPM Max.

BHP - 3.3 HP

HP Supplied - 5 HP



28.02.79