

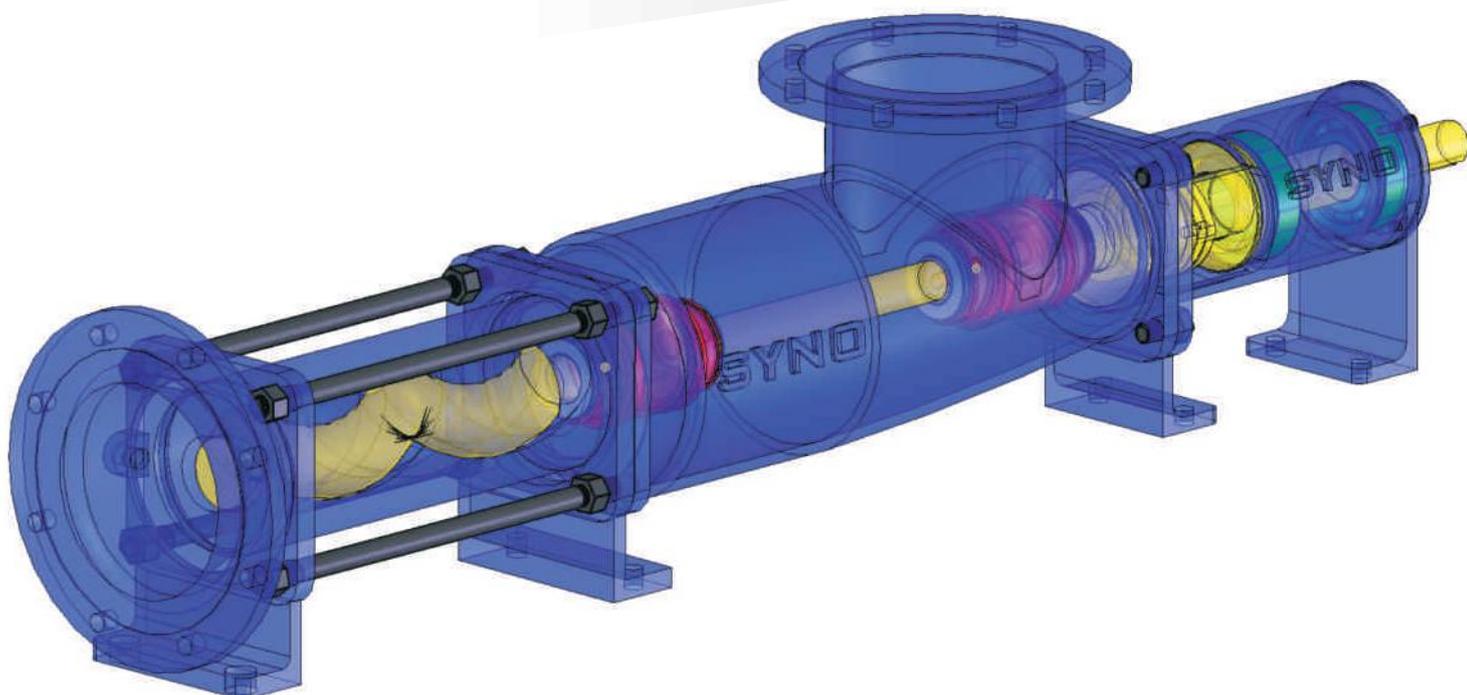
Syno[®]

PROGRESSIVE CAVITY PUMPS

..... *Since 1975*

www.synopumps.com

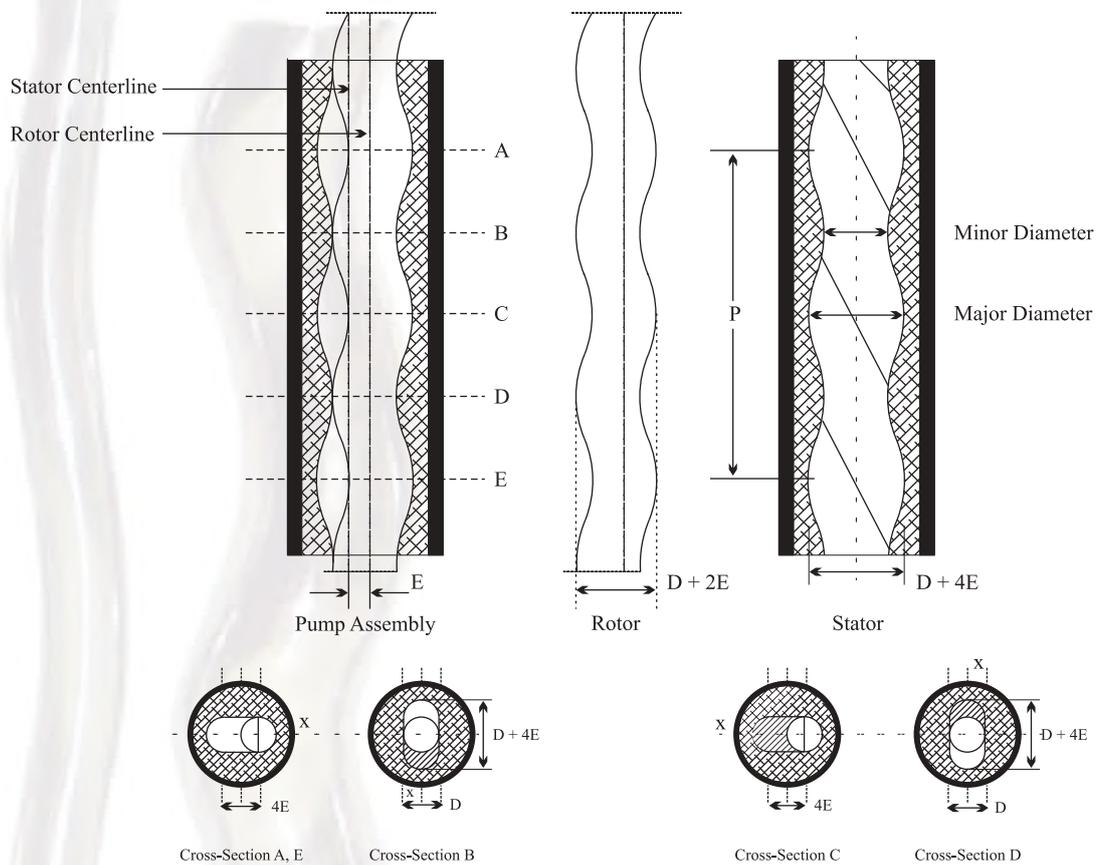
"heart of your process"



SYNO PROGRESSIVE CAVITY PUMPS PRODUCT CATALOGUE



PROGRESSIVE CAVITY PUMP - PUMPING PRINCIPLE



The pumping element comprises of a precision machined single external helix metallic rotor, and a double internal helix elastomer stator. Due to the special profile of the rotor and stator set, a sealing line is formed along the axis of the rotor which is maintained at both static and dynamic conditions.

As the rotor turns within the stator, these cavities progress from the suction to the discharge end of the pump carrying the fluid.

FEATURES AND BENEFITS

- ▶ **POSITIVE DISPLACEMENT**
- ▶ **INHERENTLY SELF-PRIMING**
- ▶ **INHERENTLY NON CLOGGING**
- ▶ **LOW FLUID VELOCITY**
- ▶ **REVERSIBLE**
- ▶ **Uniform non-pulsating metered flow proportional to speed.**
- ▶ **Head developed independent of speed. Avoids use of foot valve.**
- ▶ **Ability to handle entrained air/gas in fluid. Handles high percentage of suspended solids.**
- ▶ **Ability to handle shear sensitive products.**
- ▶ **Provides Flexibility of operation.**

OUR DESIGN – YOUR ADVANTAGE: EASY SERVICEABILITY, DEPENDABILITY, OPERATING SAFETY

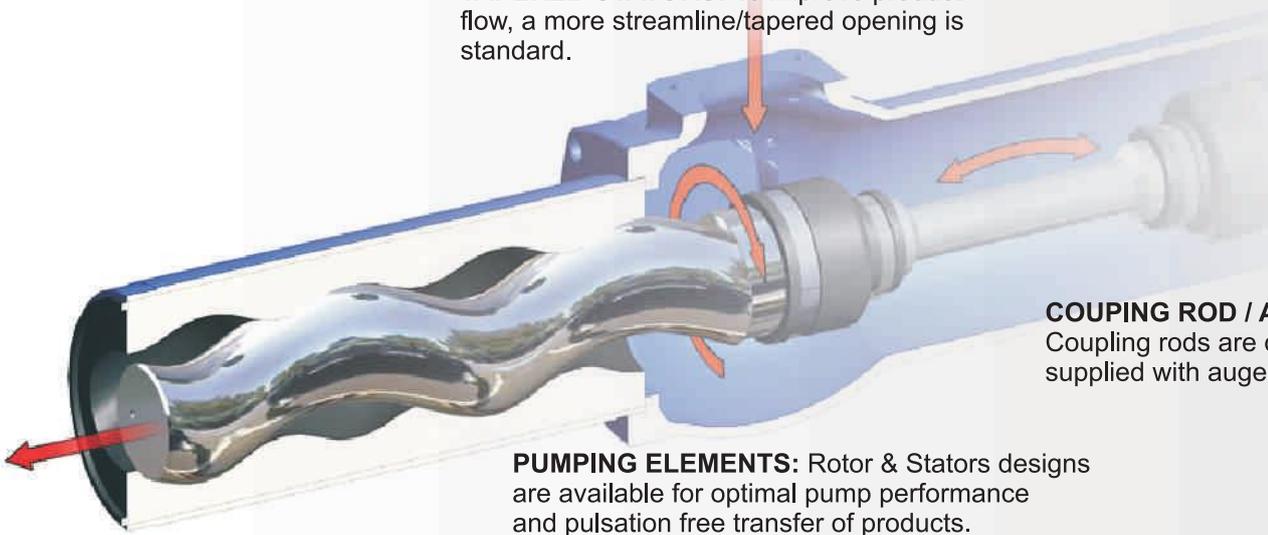
SUCTION / DELIVERY CONNECTIONS:

Standard connections are Tri-Clamp type. Other connections are available including hopper design with auger.

SHAFT SEALING:

Numerous shaft seal designs are available, including sanitary single mechanical seals and sanitary double mechanical seals for sterile applications.

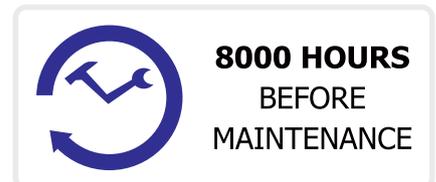
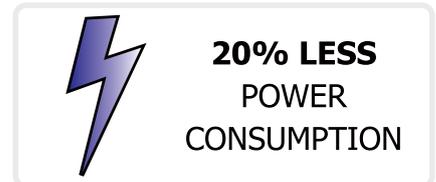
TAPERED STATORS: To improve product flow, a more streamline/tapered opening is standard.



COUPLING ROD / AUGER: Coupling rods are optionally supplied with auger.

PUMPING ELEMENTS: Rotor & Stators designs are available for optimal pump performance and pulsation free transfer of products.

SUCTION HOUSING: Housing is designed free of dead space. Available with heating or cooling jackets.



SEALS - VARIABLE LIKE YOUR APPLICATION

Shaft Seals

Apart from the selection of the right materials, the correct design of the shaft seal is vital for smooth operation. Shaft seals prevent the fluid from leaking through the pump housing into the atmosphere. We use various seal types, all of them specifically selected for the fluid and the safety requirements of the user.



Supply Systems

For smooth and safe operation of shaft seals additional equipment is often required to circulate clean buffer fluid through the seal. Depending on the type of shaft seal and the properties of the pumped product, various dead-end or circulation systems according to API 610/682 are used:

- for avoiding deposits of solids from the fluid between the seal faces
- to compensate for leakage of the buffer fluid
- for preventing any leakage reaching the atmosphere
- for lubricating the atmospheric side seal in a double acting mechanical seal arrangement

Further Types of Seals

For special applications many other varieties of seals are available:

- Lip seals with or without flushing
- Gland packing with or without flushing or buffer fluid
- Pumps with magnetic couplings (no seals) for highest safety requirements when pumping dangerous fluids, which are harmful to health and the environment e.g. the conveyance of isocyanate.



Double acting Mechanical Seals

Double acting mechanical seals are mostly used for a smooth and leak free operation when pumping dangerous matter. Other reasons for using double acting mechanical seals are high demands on the service life of the seal faces or if the fluid should have no contact with the atmosphere. Regardless of the fluid; whether solids free, low or high in solids content, low or high in viscosity, abrasive, sticky, prone to crystallisation or otherwise problematic; different designs of seals can be used.

Single acting Mechanical Seals

Bidirectional single acting mechanical seals are used for fluids or suspensions which are not toxic, harmful to the environment or the process. Such mechanical seals are used for fluids which do not tend to cure or stick. Various types are available:

Construction Design

- Balanced or unbalanced
- With single or multiple springs for fluids of low viscosity and/or fluids with low dry solids content
- With elastomer bellows for high solids and fibre content and for abrasive fluids
- Encapsulated mechanical bellows seal for highly viscous fluids with high solids content

APPLICATIONS



Environmental

- Waste Water and Sludge Treatment.
- Sludge Dewatering.
- Metering of chemical additives (polymers).
- Contaminated groundwater [leachate]
- Industrial waste water treatment
- Environmental waste
- Ethanol production

Paper and Pulp

- Coatings
- Colourants
- Starch
- Adhesives
- Latex
- Chemical additives



Food and Beverage Area

- Wine
- Olive oil
- Meats
- Chocolates, yogurts etc.
- Vegetables and fruits
- Fish
- Milk and dairy products.
- Sugar Industry.
- Distilleries and breweries
- Food waste



We Pump Everything !

APPLICATIONS



Chemical

- Speciality chemicals
- Cosmetics
- Pharmaceuticals
- Paints including Titanium Dioxides
- Metering of chemical additives
- Titanium dioxides
- Solvents
- Clay slips

Mining

- Mine de-watering
- Wastewater
- Water treatment
- Slurries
- Dirty Water
- Recovery Agents



Oil and Petrochemical

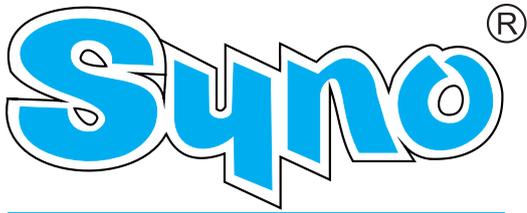
- Offshore oil & gas drilling platforms, fixed and floating
- Flare knock-out drums
- Low NPSH applications [high suction lift applications]
- Crude Oil Processing
- Drilling mud
- Waste oil
- Oil-water separation.

Others Industrial Areas

- Agriculture.
- Construction.
- Building products
- Marine
- Shipbuilding.
- Automotive Industry.



We Pump Everything !



PROGRESSIVE CAVITY PUMPS

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'S' SERIES PUMPS
STANDARD FLANGED DESIGN
GENERAL INDUSTRIAL APPLICATIONS

S' Series is ideal for handling slurries, viscous, shear sensitive or two or tri phase mixtures or when applications require, significant suction lift capabilities. These pumps are used for a wide variety of pumping and transfer duties. The design of Pump is ideally suited for both low to high flow applications and also allows for the development of multi-stage pumps that increase the pressure handling capabilities. These Pumps are found tough rugged industrial applications handling anything from abrasive slurries, aggressive or reactive chemicals, to viscous liquids, oils, or suspensions and aqueous solutions at elevated temperatures. They are known for their flawless performance, efficiency & trouble-free operation along with long service life features.

Technical Features

Capacity	1 to 400 m3/hr
Pressure	upto 24 Bar
Temp.	upto 180° C
Viscosity	upto 80,000 cP

On Request:

- Double Mechanical Seal Cartage Type
- Jacketed for Hot Water Circulation
- Trolley Mounted or Custom made Skid
- Tungsten Carbide Coating with HP/HVOF Process
- Special Execution for Low or High Temperature

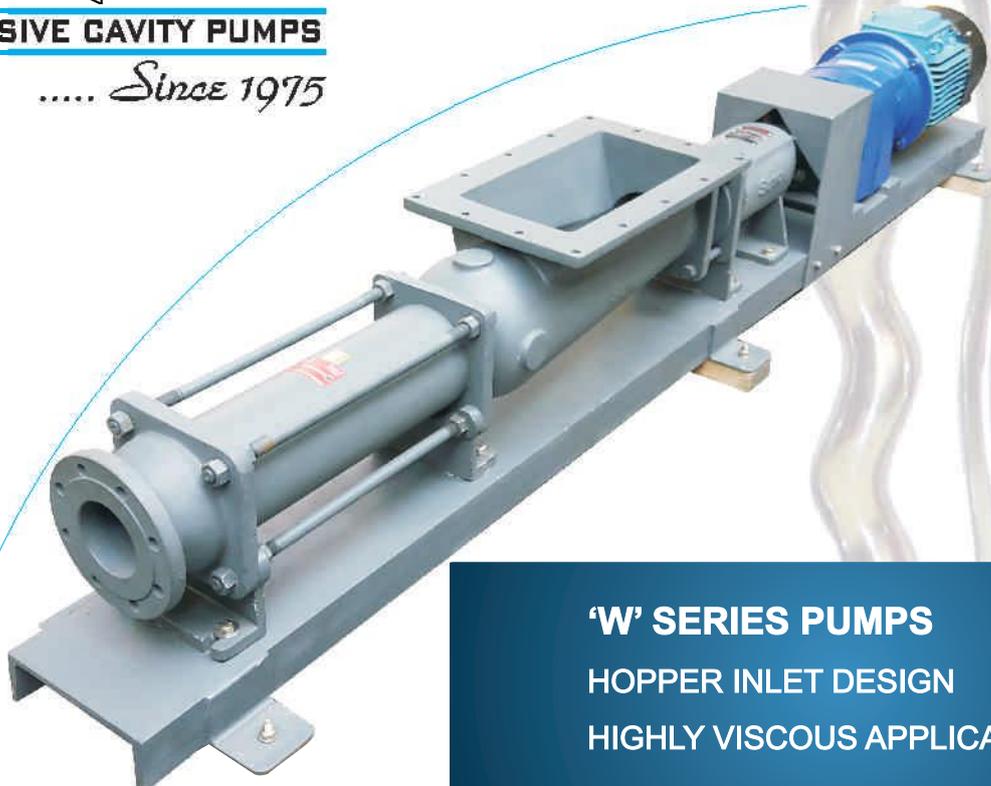
Materials

Housings	All Grades of: Cast Iron / Stainless Steel / Duplex Steel / Hastelloy etc.
Rotating Parts	All Grades of: Stainless Steel / Tool Steel / Duplex Steel / Hastelloy etc.
Sealing	Mechanical Seal / Gland
Stator	High Nitrile Black / Nitrile(White) / EPDM / Viton / Natural / Neoprene / Silicon etc..



PROGRESSIVE CAVITY PUMPS

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'W' SERIES PUMPS
HOPPER INLET DESIGN
HIGHLY VISCOUS APPLICATIONS

Pumping highly viscous, solids laden, non-Newtonian fluids are a difficult and complex process. At Syno, we have the knowledge and expertise to help you. The Wide Throat Series has been designed to handle highly viscous materials, such as sludges, slurries, thick non-flowing pastes and de-watered sludge cake which ensures easy and efficient handling of high-viscosity fluids. The design of the "W" Series is such that many different applications can be handled. The hopper type suction inlet allows gravity flow of extreme viscous materials on to the augur cum coupling rod which pushes the substance into the pumping cavity. For the many difficult and varied applications encountered, the pumps are run at a relatively slow speed, therefore the pump will handle shear sensitive products with minimal product damage, abrasive solids in suspension and highly viscous materials. This pump offers higher level of performance than standard open throat style pumps.

Technical Features

Capacity	1 to 400 m3/hr
Pressure	upto 24 Bar
Temp.	upto 180° C
Viscosity	upto 1,000,000 cP

On Request:

- Double Mechanical Seal Cartage Type
- Jacketed for Hot Water Circulation
- Trolley Mounted or Custom made Skid
- Tungsten Carbide Coating with HP/HVOF Process
- Special Execution for Low or High Temperature

Materials

Housings	All Grades of: Cast Iron / Stainless Steel / Duplex Steel / Haste Alloy etc.
Rotating Parts	All Grades of: Stainless Steel / Tool Steel / Duplex Steel / Haste Alloys etc.
Sealing	Mechanical Seal / Gland
Stator	High Nitrile Black / Nitrile(White) / EPDM / Viton / Natural / Neoprene / Silicon etc..



PROGRESSIVE CAVITY PUMPS

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**'F' SERIES SANITARY PUMPS
US-FDA COMPLIANT FOOD GRADE
NO FOOD RETAINING POCKETS**

Syno 'F' Series is perfect for food pumps and pumping systems for hygienic manufacturing industries including the food, beverage, biotech and pharmaceutical sectors. Food products such as dairy, baked goods, cereals, beverages and confectionary demand pumps that meet today's hygiene standards and are able to handle products with care. With these pump, you can easily handle a wide range of viscous fluids and solid ingredients with next to no product damage. These pumps are typically manufactured from stainless steel or other food grade materials, to ensure the food is being handled in a way that is safe for human consumption. Depending on the viscosity of the liquid being transferred and whether the product is shear sensitive, differing pump technologies may be used for a food grade pump. We offer models specifically designed to handle viscous, delicate or temperature-sensitive ingredients and never compromise on the critical aspect of hygiene. Syno Food Pumps have the lowest product damage rates in the industry and are the pump of choice for food processors around the world.

Technical Features

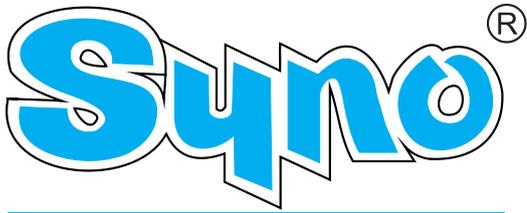
Capacity	1 to 200 m3/hr
Pressure	upto 24 Bar
Temp.	upto 180° C
Viscosity	upto 80,000 cP

On Request:

- Double Mechanical Seal Cartage Type
- Jacketed for Hot Water Circulation
- Trolley Mounted or Custom made Skid
- Tungsten Carbide Coating with HP/HVOF Process
- Special Execution for Low or High Temperature

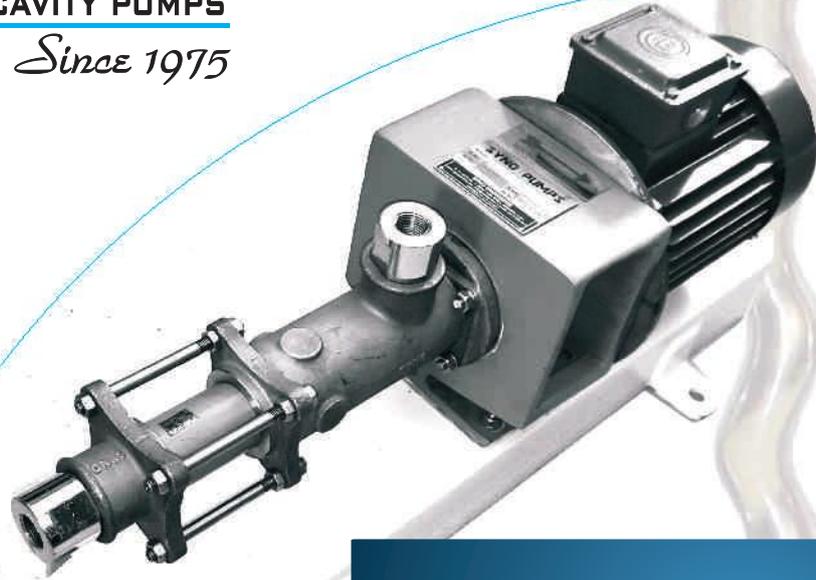
Materials

Housings	Stainless Steel - SS304 / SS316 / SS316L
Rotating Parts	Stainless Steel - SS304 / SS316 / SS316L
Sealing	Mechanical Seal / Gland
Stator	Food Grade - Nitrile, Nitrile (White), EPDM / etc..



PROGRESSIVE CAVITY PUMPS

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'DC' SERIES DOSING PUMPS
PRECISION DOSING APPLICATION
LOW CAPACITY PULSATION FREE

Syno 'DC' Series offers a range of Dosing & Metering Pumps with Syno's innovative design, quality workmanship and reliability. This Series is specifically designed for low flow, metering or dosing applications - offering continuous and accurate repeatability. 'DC' Series Pumps are used for feeding intermittently or continuously a controlled quantity of fluid / chemical within pre-determined time or at fixed intervals. The compact 'DC' pumps have high tolerance to aggressive chemicals and the renowned reliability of Syno. The repeatability accuracy has less than 1% fluctuation. These pumps are self priming, and the gentle non pulsating pumping action helps maintain product integrity with even the most difficult materials. The range of suitable substances includes viscous and slurry products, solids in suspension and air/liquid/solids mixtures. These versatile pumps have output directly proportional to speed.

Technical Features

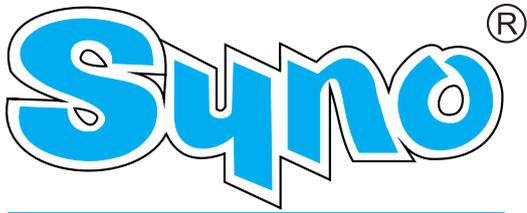
Capacity	10 lph to 8000 lph
Pressure	upto 48 Bar
Temp.	upto 180° C
Viscosity	upto 60,000 cP

On Request:

- Double Mechanical Seal Cartage Type
- Jacketed for Hot Water Circulation
- Trolley Mounted or Custom made Skid
- Tungsten Carbide Coating with HP/HVOF Process
- Special Execution for Low or High Temperature

Materials

Housings	All Grades of: Cast Iron / Stainless Steel / Duplex Steel / Hastelloy etc.
Rotating Parts	All Grades of: Stainless Steel / Tool Steel / Duplex Steel / Hastelloy etc.
Sealing	Mechanical Seal / Gland
Stator	High Nitrile Black / Nitrile(White) / EPDM / Viton / Natural / Neoprene / Silicon etc..



PROGRESSIVE CAVITY PUMPS

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'BBC' BARREL PUMPS
BARREL PUMP FOR VISCOUS FLUIDS
EASY MAINTENANCE FREE PUMPING

Chemicals, oils, greases and other process liquids are delivered in containers ranging in various sizes from 100L-200L drums. Barrel pumps, complete with down tubes, are used to empty these containers safely and efficiently with the minimum of effort. A drum pump can be used to circulate as well as pump, with the ability to empty 99% of the fluid. To ensure compatibility with all liquids being handled, drum pumps are available in a variety of different materials. Syno Barrel Screw pumps have a portable design and very useful for pumping out high viscous material from Barrels. Available with Air or Electric motors. Syno Barrel Screw Pumps can be used for transfer of Pastes, Tomato Paste, Ketchup, Srikhand, Adhesives, Glucose, Petroleum Jelly, other Jellies, cosmetics, Shampoos, Creams, Paste and many such viscous materials. Syno Barrel pumps are especially useful in the Food industry, Beverage Industry and Pharma industry as they prevent contamination from environment during transfer as also due to manual handling of the material.

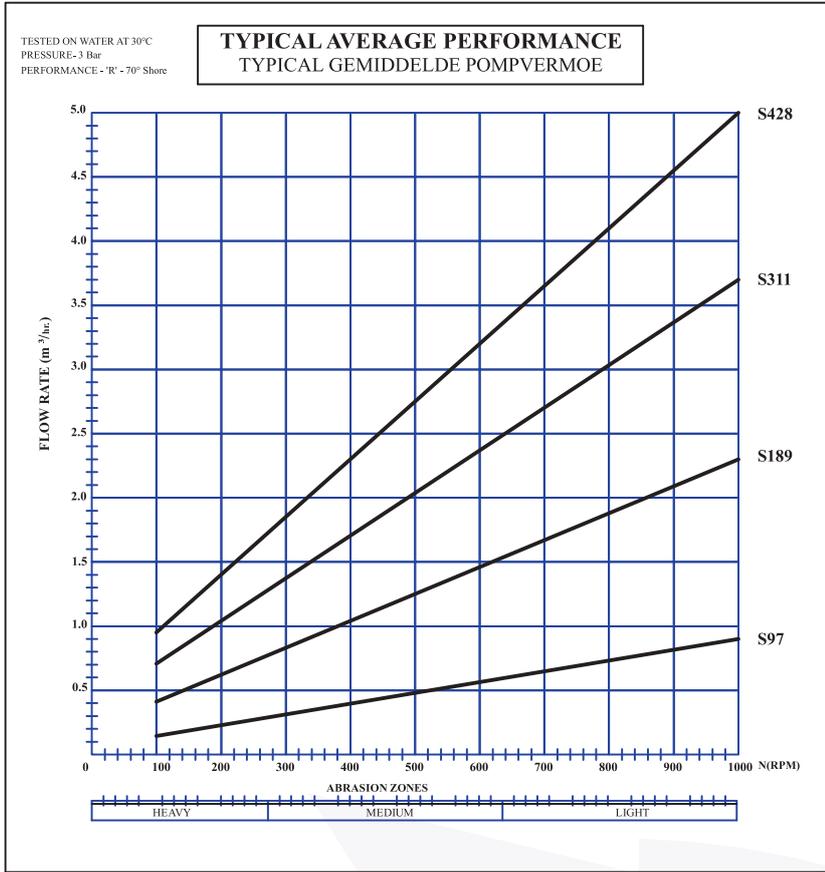


Technical Features	
Capacity	8000 LPH (in 47mm barrel size)
Pressure	upto 24 Bar
Temp.	upto 180° C
Viscosity	upto 60,000 cP

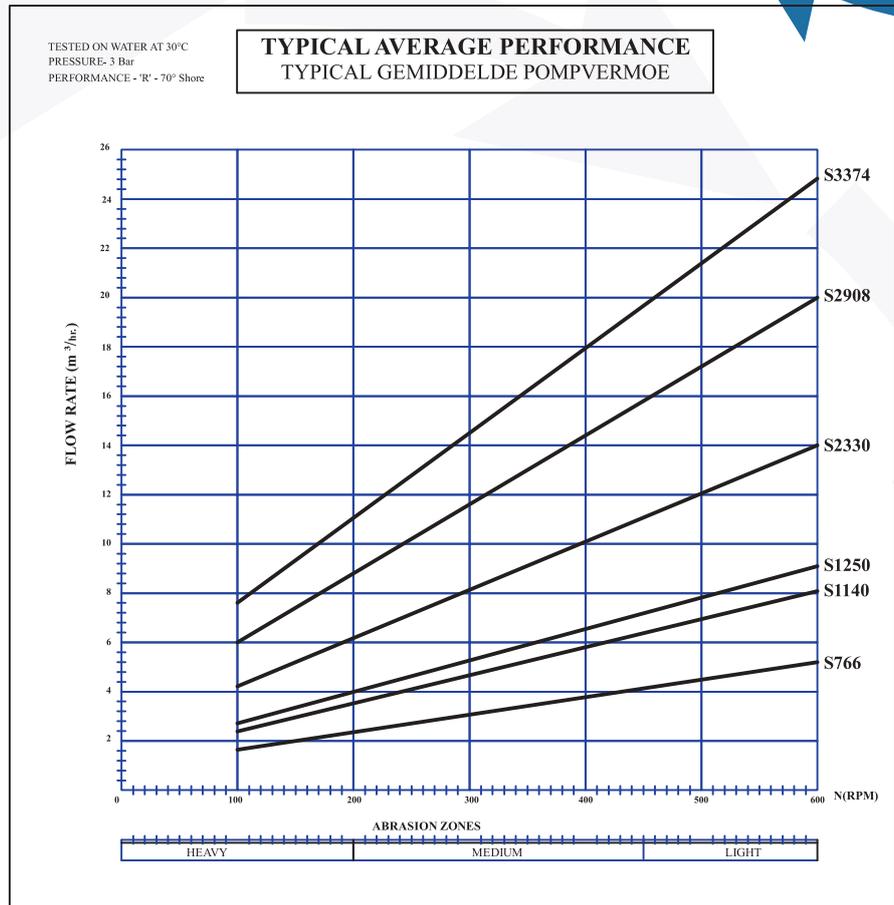
On Request:
Double Mechanical Seal Cartage Type
Special Mounting Arrangements
Special Execution for Low or High Temperature
Tungsten Carbide Coating with HP/HVOF Process

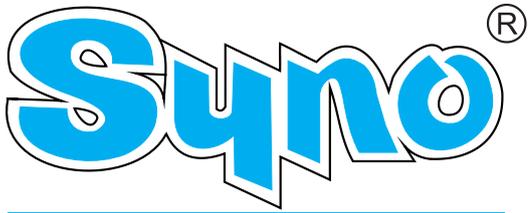
Materials	
Housings	All Grades of: Cast Iron / Stainless Steel / Duplex Steel / Hastelloy etc.
Rotating Parts	All Grades of: Stainless Steel / Tool Steel / Duplex Steel / Hastelloy etc.
Sealing	Mechanical Seal / Gland
Stator	High Nitrile Black / Nitrile(White) / EPDM / Viton / Natural / Neoprene / Silicon etc..

LOW CAPACITY SELECTION



MEDIUM-LOW CAPACITY SELECTION





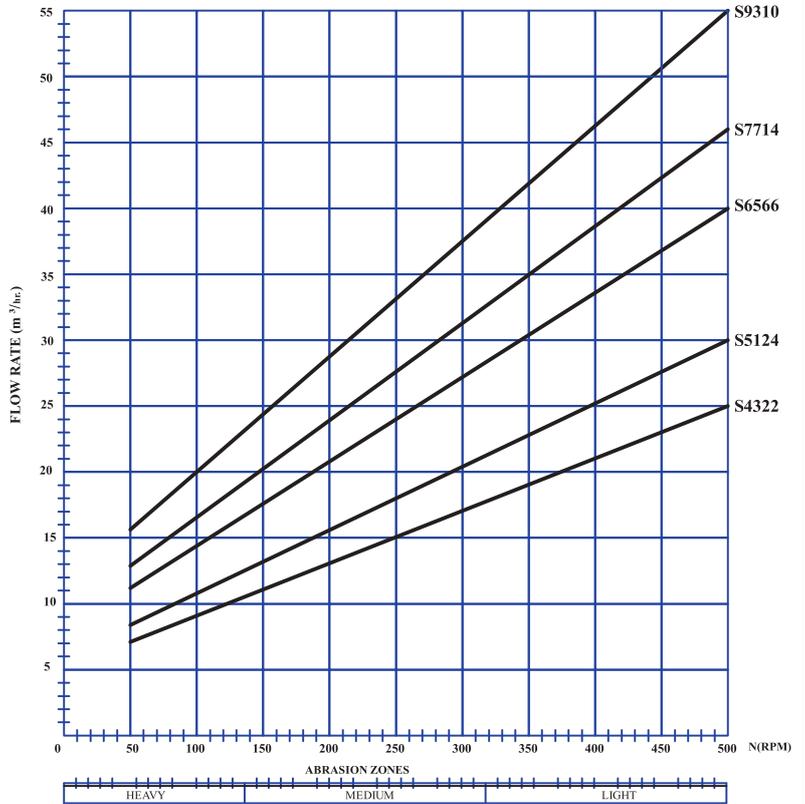
PROGRESSIVE CAVITY PUMPS

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MID-HIGH CAPACITY SELECTION

TESTED ON WATER AT 30°C
 PRESSURE- 3 Bar
 PERFORMANCE - 'R' - 70° Shore

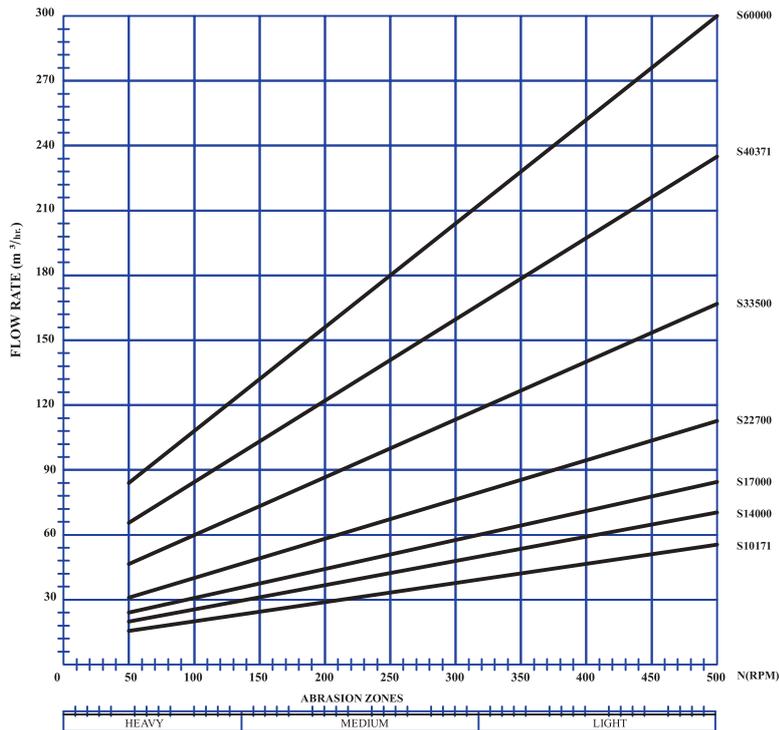
TYPICAL AVERAGE PERFORMANCE
 TYPICAL GEMIDDELDE POMPVERMOE



HIGH CAPACITY SELECTION

TESTED ON WATER AT 30°C
 PRESSURE- 3 Bar
 PERFORMANCE - 'R' - 70° Shore

TYPICAL AVERAGE PERFORMANCE
 TYPICAL GEMIDDELDE POMPVERMOE



SPARE PARTS RANGE

Syno has gained more than 40 years expertise in manufacturing and designing spare parts and are known for their widest range of spare parts manufacturing of renowned Progressive Cavity Pump brand. From understanding typical geometry of spare parts like Rotor and Stator to strict quality procedure ensuring the control of accurate manufacturing tolerances, resulting in dimensionally interchangeability of spare parts.

ELASTOMER TECHNOLOGY- OUR ASSET

Syno has been in elastomer business over 68 years way before stepping into Pump business. In late 60s Syno manufactured Rubber Stators for renowned brands. Elastomer research & development is in-house at Syno. At its in-house laboratory and in technical collaboration with selected senior advisors and masters in elastomer established over many years, Syno develop and tests elastomer blends and optimizes 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.



UNIVERSAL CARDAN JOINT



2 Years Warranty
30% Low Maintenance Cost.



Zero leakage

@ Low Torque



Warranty

A full 12 months warranty is standard with all Syno components.

Purchasing Syno spares results in greater efficiency, reduced purchasing and running costs and longer equipment life - as well as guaranteed quality and value for money.

100% INTERCHANGEABLE TO EXISTING PUMP
EX-STOCK PARTS - DISPATCH WITHIN 48 HOURS
EXCELLENT SPARE PART PERFORMANCE



Advice, service and quality are our strengths. Strict quality standard test procedures and certification accordance with 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 40 years with more than 50000 installed pumps behind us!!

RETROFIT PARTS FOR OTHER BRANDS

GLOBALLY TRUSTED SYNO RETROFIT PARTS

At Syno it is not simple re-engineering but intelligent engineering. No wonder, more and more customers are finding Syno manufactured progressive parts no doubt-economical and outperforming the originals.



*Retrofit Spares Parts manufactured Syno interchangeable for following brands:

Netzsch® Roto® Mono® Seepex® Moyno® Allweiler®

OVER 40 DECADES OF EXPERTISE CONTINUAL IMPROVEMENT

We at Syno completely understands the functionality of all vital parts, materials and critical manufacturing tolerances. This is the backbone of Syno's high quality and reliable range of Progressive parts. Syno is amongst the very few progressive cavity pump manufacturer who have been manufacturing elastomer formulation Stators, HCP Plant, Specific testing facility in-house since its inception. Syno not only makes its own compounds, but also manufactures moulds in-house that are engineered to take into account the unique shrinkage patterns. This, combined with strict process controls, results in Stators and other critical parts of unparalleled dimensional accuracy.



COST EFFECTIVE - INTERCHANGEABILITY - PERFORMANCE
ONE STOP SHOP FOR ALL YOUR PC PUMP PARTS

Syno retrofit parts, it works!

*NOTE : DISCLAIMER:

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CUSTOMIZED BUILT - SPECIAL PURPOSE UNITS



RIG TESTING UNIT

Custom - Trailer Mounted Unit Built for Cairn Energy for frequent movement through un-even terrain - Indian Desert of Rajasthan.

Unit been fitted with Vibration Stabilizers during operation.

Special features:

1. DGMS Certified Flameproof Motor & VFD Enclosure with unique cooling arrangements.
2. Cartex Double Mechanical Seal with Thermosyphon Cooling Plan.
3. Built with manifold with PRV to header arrangement.

GROUT PUMP UNIT

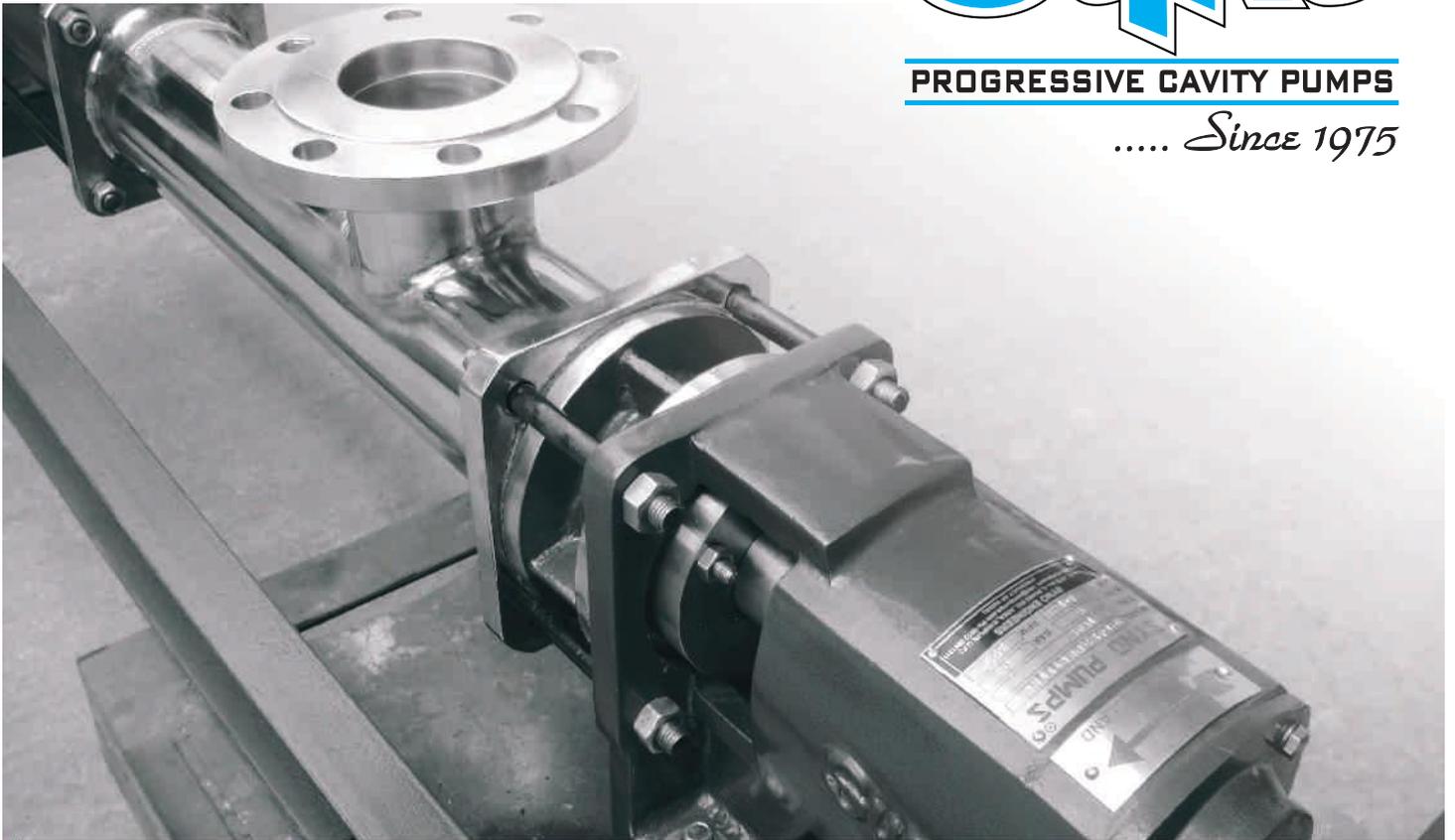
TRAILER MOUNTED GROUTING MACHINE
Built by WAGS - Australia installed with a
SYNO Pump - WNA Series



Syno[®]

PROGRESSIVE CAVITY PUMPS

.... *Since 1975*



OVER 40 YEARS OF FLUIDS ENGINEERING EXPERTISE



MAKE IN INDIA

SYNO ENGINEERS

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WORLDWIDE PRESENCE