



Always the Right Solution™

***Moyno Sets the Standard
In Solving
Sludge Handling Problems
With Progressing Cavity Pumps***

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Moyno® progressing cavity pumps have been used for decades in the municipal water and wastewater treatment markets. From the gentle handling of shear-sensitive polymers to the rugged duty of moving dewatered sludge cake long distances – *Moyno Sets the Standard.*

Moyno – Setting the Standard

Moyno Sets the Standard in ***Durability***

Moyno Sets the Standard in ***Dependability***

Moyno Sets the Standard in ***Application Know-How***

Moyno Sets the Standard in ***Solving Pumping Problems***

Moyno Sets the Standard in ***Technology***

Moyno Sets the Standard in ***Innovation***

Moyno Sets the Standard in ***Advanced Product Design***

Moyno Sets the Standard in ***Rotor Coatings***

Moyno Sets the Standard in ***Elastomer Technology***

Moyno Sets the Standard in ***Pumping Efficiency***

Moyno Sets the Standard in ***Product Quality***

Moyno Sets the Standard in ***State-of-the-Art Manufacturing***

Moyno Sets the Standard in ***Computer Linked Field Inventory***

Moyno Sets the Standard in ***Field Support***

Moyno Sets the Standard in ***Certified Service Facilities***

Moyno Sets the Standard in ***PC Pump Specifications***

Moyno Sets the Standard in ***Total Customer Satisfaction***

The Moyno 2000 progressing cavity pump is considered the engineering standard for handling abrasive sludges. It is well known for its rugged, long lasting crowned, gear joint drive train.

The crowned gear joint drive train is designed to provide many years of trouble-free operation in sludge handling services. Unlike light duty pin joint and bushed pin joint designs, the gear joint separates thrust, radial, and torque loads between several different components over a large surface area. Compressive stresses on the joint caused by thrust, radial, and torque loads are reduced by as much as 20 times that of pin joint compressive stresses. The result is much longer, trouble-free operation.

Benefits of using Moyno progressing cavity pumps:

- Gentle handling of shear-sensitive polymers.
- Highly accurate metering capabilities for feeding centrifuges, GBTs, and belt filter presses.
- Ability to handle solids as large as 2.8" in diameter.
- Compression fit between rotor and stator reduces internal slip, resulting in long wear life.
- Optimized elements provide lower internal velocities than "L" (stretched pitch) geometries. Lower internal velocities result in longer life.
- Packing and mechanical seals are isolated from discharge pressure – longer seal life.
- Moyno pumps are self-priming and can suction lift H₂O up to 28 feet.
- Moyno pumps have the ability to maintain a constant flow rate with wide variations in suction and discharge conditions.
- Moyno pumps provide a metered, non-pulsating flow rate.
- Moyno pumps are both energy and volumetric efficient.
- Moyno pumps operate at a very low noise level.
- Maintenance of Moyno pumps is easy and can be done on site with no special tools.

Advantages of Optimized Geometries vs. “L” (Stretched Pitch) Geometries

- Shortest footprint.
- Lower NPSH.
- Ability to handle longer solids.
- Lower internal velocities...
 - ▶ Less shear on polymers.
 - ▶ Longer rotor/stator life on sludges.

Moyno Ultra Technologies

- *Ultra-Flex*
 - ▶ Over 40 elastomers available.
 - ▶ Stator elastomers formulated for specific fluid conditions.
 - ▶ Outstanding performance and long service life.
- *Ultra-Pro*
 - ▶ Optimized geometric profiles for rotor and stator (see advantages above).
 - ▶ High capacity, high efficiency, low internal velocities, minimal slip, low abrasive wear.
 - ▶ Available in 1:2 and 2:3 geometries.
- *Ultra-Feed*
 - ▶ Superior feed and flow efficiency.
 - ▶ Widest selection of auger feed technologies.
 - ▶ Available in open throat, bridge breaker, and twin screw feeder configurations.
- *Ultra-Shield*
 - ▶ Over 8 premium rotor coatings available.
 - ▶ Excellent wear and corrosion resistance and longer life.
 - ▶ Premium coatings available that outlast and out perform chrome and chromium nitride coatings.
- *Ultra-Drive*
 - ▶ Moyno gear joint effectively separates thrust and radial forces.
 - ▶ Years of successful operation confirm Moyno’s gear joint design superiority.
 - ▶ Hollow shaft design provides the smallest progressing cavity pump footprint and extends bearing and seal life.
 - ▶ Bearings are locked in place and not held in with light duty snap rings.

Common Applications for Moyno Progressing Cavity Pumps in the Wastewater Treatment Industry

A. Municipal Sludge

- ▶ Primary
- ▶ Secondary
- ▶ Thickened
- ▶ Waste-Activated
- ▶ Dissolved Air Flotation
- ▶ Mixed Liquor
- ▶ Incinerator Feed
- ▶ Heat Exchanger Feed
- ▶ Dewatering Equipment Feed
 - GBTs
 - Belt Filter Presses
 - Centrifuges
 - Vacuum Filters
 - Plate and Frame Presses

B. Chemicals – Metering/Dosing and Transfer

- ▶ Polymer
- ▶ Lime Slurry
- ▶ Ferric Chloride
- ▶ Alum
- ▶ Sodium Hypochlorite

C. Scum and Grease

D. Raw Sewage

- ▶ High Head Lift Stations
- ▶ Sampling

E. Dewatered Sludge Cake

- ▶ From Belt Filter Presses
- ▶ From Centrifuges
- ▶ From Foreign Sludge Receiving Stations
- ▶ From Sludge Silos
- ▶ From Vacuum Fillers
- ▶ From Plate and Frame Presses

Pump Selection Considerations

Most municipal sludges are considered to be of medium abrasion, however, some can be extremely abrasive. The following are common causes of sludges with heavy abrasion:

- Combined storm and sanitary sewers.
- Ineffective or no grit removal system.
- Rocks, gravel, heavy sand content.
- Snails.
- Trash (poor screening).

Progressing Cavity Pump Selection for Medium Abrasion Sludge

Casing Material	: Cast Iron
Rotor Material	: Tool Steel/Chrome Plated
Stator Material	: Nitrile, 70 Durometer
Shaft Material	: Tool Steel/Chrome Plated or Seal/Packing Area
Sealing	: Packing or Mechanical Seal
Maximum Pressure Per Stage	: 35 psi
Maximum Pump RPM	: 300 RPM

Progressing Cavity Pump Selection for Heavy Abrasion Sludge

Casing Material	: Cast Iron
Rotor Material	: Tool Steel with Premium Moyno Ultra-Shield® Coating, Oversized
Stator Material	: Nitrile, 55 Durometer
Shaft Material	: Tool Steel with Shaft Sleeve
Sealing	: Packing with Water Flush System
Maximum Pressure Per Stage	: 15 psi
Maximum Pump RPM	: 200 RPM

General Specifications for Progressing Cavity Sludge Pumps

- Specify crown gear type universal joints.
- Specify inspection ports.
- Specify optimized geometry vs. "L" (stretched pitch) geometry.
- Sludges greater than 10% -- use open throat hopper designs.
- Specify pressure relief system on discharge side of pump.
- Specify fluid detection device to prevent run dry.

Special Conditions

- High Rag/Hair/Stringy Material Content
 - ▶ Consider Moyno Pipeliner™ or Annihilator™ grinders.
 - ▶ If no sludge grinding, specify Moyno Fiber Deflector.

- High Rock or Trash Content
 - ▶ Consider Moyno Pipeliner or Annihilator grinders.
 - ▶ Specify a trap on the suction side of pump.

- Suction Lifts/Long Suction Lines/Negative Suction Conditions
 - ▶ Reverse rotation. If packing is used, discharge pressure cannot be above 40 – 50 psi. If pressure is higher than 40 – 50 psi, utilize a mechanical seal.
 - ▶ Consider specifying a two-stage pump.

- Limited Space
 - ▶ Specify piggyback arrangement.
 - ▶ Specify hollow shaft – solid shaft designs are about 25% longer.
 - ▶ Use right angle gearboxes.
 - ▶ Consider wall mounting the pumps.
 - ▶ Use Moyno Vertical pumps.

- Corrosion
 - ▶ Contact Moyno for special materials and special Ultra-Shield rotor coatings.