

# Mono Mining





## A LEADER IN MINE DEWATERING - DEDICATED TO OUR CUSTOMERS NEEDS

NOV Mono® is a leading name in the design, manufacture and supply of progressive cavity pumps, aftermarket components, grinders, screens and packaged fluid transfer solutions worldwide. We have 7 global sites and a vast global distribution network with over 70 years' experience in PC pump design and over 30 years of pump supply into the mining industry of Australia. When you install and commission a NOV Mono® pump, you know that we have combined all of our technology and experience to develop the most reliable dewatering solutions, aimed at keeping your mine dry and production on-line.

With manufacturing bases in both Australia and England for the manufacture of rotors and stators, sales and service facilities across the globe, be assured that NOV Mono® will support you across all aspects of taking the everyday challenge out of your mine dewatering program. From concept design, through to full turn-key pump station projects, NOV Mono® has the equipment, experience and know-how to get the job done.

## MONO AFTERMARKET

### SERVICE EXCHANGE

With our National Service Exchange Programme we can take away your Mono or Cemo pump and leave you with a completely rebuilt unit - reducing costly downtime and maintaining peak productivity.

Mono provide fast response, short lead times plus removal and installation if required. All our specialist work is carried out using only genuine OEM Mono parts, which are backed by our 12 month nationwide warranty.

### ROTOR RECLAMATION

Mono pumps also offer a rotor reclamation service, returning a worn rotor to near new condition. To achieve maximum performance out of a Mono Pump it is critical that the rotor and stator fit is to the tolerances we have taken years to develop. If you are not reclaiming through Mono are you getting the best possible life from your rotor?

### SPARE PARTS & MONO UNIVERSAL PARTS

We are the ONLY Australian manufacturer of rotors and stators for progressing cavity pumps, therefore, we can ensure fast delivery!

We also manufacture and supply parts for a variety of PC pumps, all of which attract the same warranties and guarantees as parts for a Mono.

## PRODUCTS & SERVICES OFFERED

### CAPITAL PROJECTS

- Dewatering solution designs
- Mono Progressive Cavity Pumps
- Off shelf pump systems
- System design and manufacture

### SERVICE / REPAIR / MAINTENANCE

- Pumps
- Complete Systems
- On-Site and Underground
- Service and Maintenance Contracts
- Condition Monitoring

### SERVICE EXCHANGE

- Rotors
- Shafts
- Bearing Housings
- Bareshaft Pumps

### INSTALLATION & COMMISSIONING

- Above or Below Ground
- Qualified Personnel
- System Design Assistance
- Post Installation Report
- Pre-Commissioning Advice
- Post Commissioning Report
- Technical Assistance

### HIRE

- Progressive Cavity Pumps
- Starters
- Dewatering Rigs
- Process pumps



## THE MOST EFFICIENT CHOICE

The 'Mono' style pump is the most efficient dewatering pump on the world market today. When comparing to a large multistage centrifugal and even piston pumps the efficient helical pump will use on average 1/3 of the power consumption required by these other systems.

When reviewing whole life costs of your next pump station, we recommend you take into account:

- power consumption
- average downtime required to do commonly required preventive maintenance and wear component change outs
- plus the cost of components that would be required

Once you have these figures you will understand why a "Mono" is always the most efficient choice.

## MONO MINE PUMPING

### Mining Stations (Standard EZstrip)

- Least whole life options available.
- Suit fixed or mobile situations
- Different configurations available to meet your requirements



### Compact Range

- Flocculants
- Process plants
- General transfer



### X Range

- Explosive emulsions
- Truck and surface mounting
- Intrinsically safe flexishaft connections



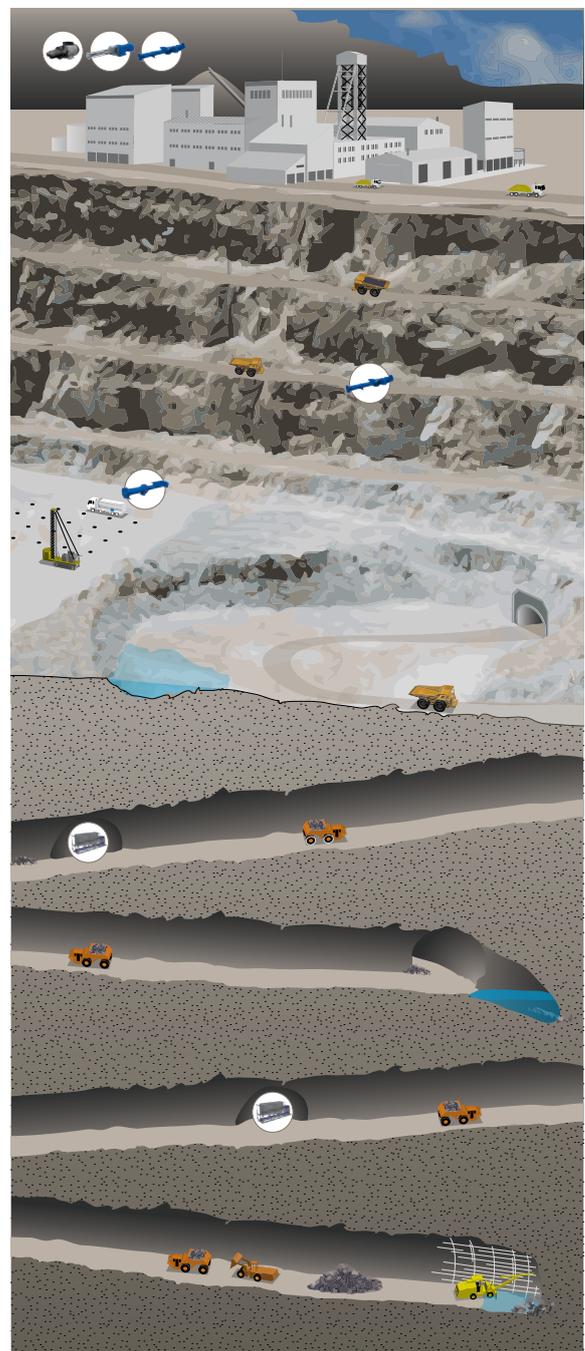
### LF Range

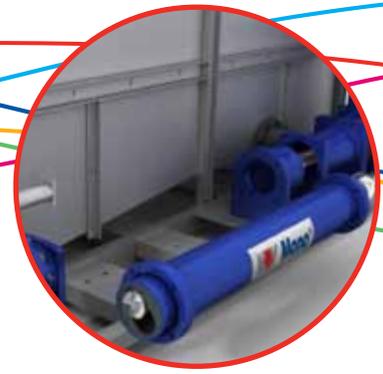
- Metered dosing
- Compact size
- Polymer & flocculant transfer



### CP Range

- Compact & versatile
- Oily water separators
- Oil transfer in maintenance bay





## THE BIGGEST REVOLUTIONARY CHANGE TO MINE DEWATERING IN 30 YEARS.

NOV Mono® has taken the challenge out of dewatering by launching the new EZstrip™ mine dewatering range.

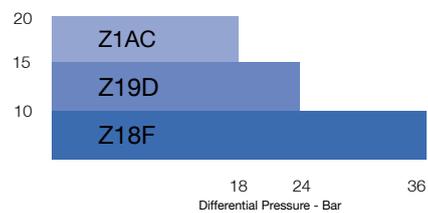
Growing its family of revolutionary maintain-in-place (MIP) solutions, NOV Mono® has launched yet another EZstrip™ innovation which is set to transform the mine dewatering industry by significantly reducing down times.

By consulting our customers, we have developed the first progressive cavity pump MIP system that will dramatically improve efficiencies in maintenance and decline interruptions. This new shorter, lighter and lower pumping package provides the solution for mines that require a smaller more compact area to work with.

### FEATURES & BENEFITS

- 6-7 hour maintenance operation changing out rotor and stator reduced to 1 hour.
- Reduction in maintenance time by up to 80%
- Eliminates dismantling lengths
- Optimal safety to maintenance staff i.e. no working at height or under hoppers
- No packed glands, belts or pulleys to maintain
- 3 pumps to fit in same station footprint
- Ex versions available

### RANGE OVERVIEW



<b>CAPACITY</b>	up to 20 l/s
<b>PRESSURE</b>	up to 36 bar
<b>TEMPERATURE</b>	-10°C up to 110°C
<b>ROTORS</b>	316 stainless steel
<b>STATOR</b>	Nitrile rubber
<b>MODELS</b>	3 options available





## MONO STANDARD MINING PUMP

### 1. ROTOR

Where capital costs are important, Mono can offer HCP coated rotors. In all cases, maximum attention is paid to the rotor profile to maximise efficiency and part life. Where arduous environments are causing significant wear on standard product we can offer alternative rotor coatings to increase life.

### 2. FLEXISHAFT®

The Mono designed and patented flexishaft has been proven over 40 years of service. It is protected with an inert Halar coating and comes with a 5 year warranty.

### 6. END COVER

All standard pumps are fitted with marine grade Ni-Resist end covers and adaptor flanges to minimise the effects of erosion, corrosion and leakage traditionally found in stainless steel and cast iron end covers.

### 7. BEARING HOUSING

The standard mining pump is built with a heavy duty bearing housing, including taper roller bearings and grease packed labyrinth seals. With easy access to multiple greasing points, the bearings can be kept clean and well lubricated to maximise bearings life in extremely harsh often wet environments.

### 4. TIE BARS & ANTI-ROTATION RINGS

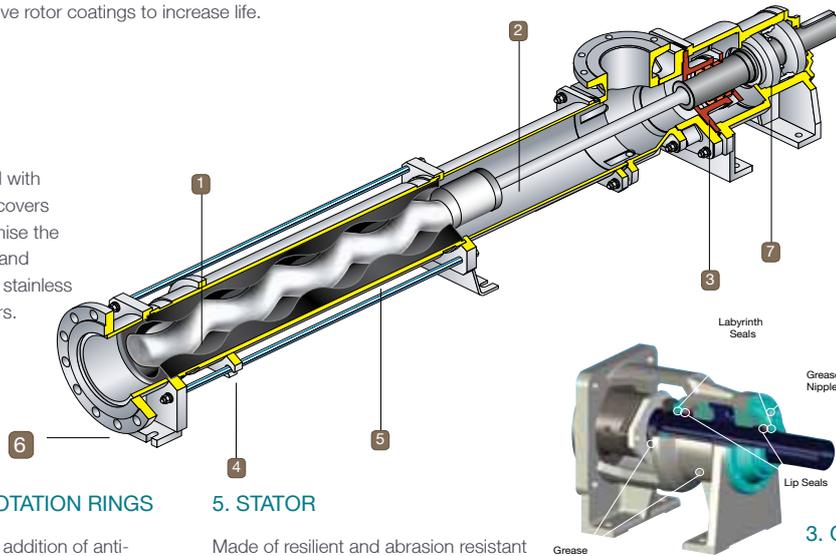
The use of tie bars with the addition of anti-reversing rings is the recommended solution for elimination of the stator moving when in place.

### 5. STATOR

Made of resilient and abrasion resistant synthetic rubber compound (Nitrile). Dimensional accuracy can be assured through sophisticated co-ordinate measuring technologies.

### 3. GLAND

Mono has again listened to our customer's requirements, all standard pumps now come assembled with Teflon coated braided packing rings.



## MONO STANDARD MINING STATION

Utilising years of service to the mining industry, NOV Mono® has developed a standardised mine dewatering station in a configuration to suit your needs, be it fixed or mobile situation they are available in bareshaft, motorised or full hopper station with the options shown here.

1. Rotor made of quality 316 S/S, coated with .5mm HCP (diametrically). With years of experience in this field Mono do not recommend a thicker Chrome coating as it can lead to faster degradation of tolerance between rotor and stator.

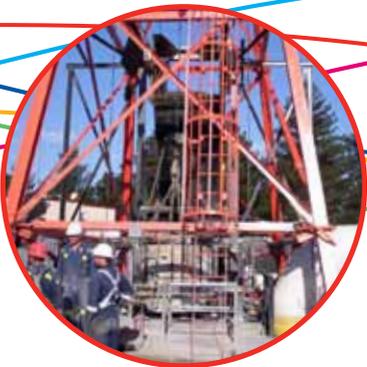
2. Hopper fully seam welded from 6mm sheet steel, then epoxy painted with quality "International Protective Coatings" product.

3. Flexishaft®, originally designed by Mono pumps 30 years ago, comes with 5 year Warranty.

4. High efficiency 1000V motors with class H insulation and IP66 rating.

5. Pulley guards made to strict Australian standards with no risk to personal injury per OH&S guidelines.



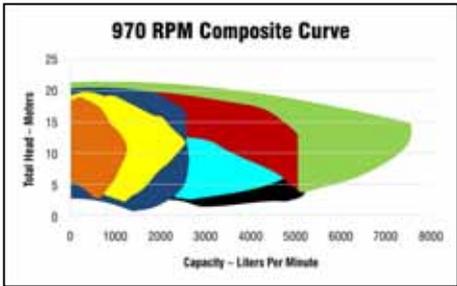


## MISSION® CENTRIFUGAL PUMPS

Mission Magnum™ and 2500 Supreme™

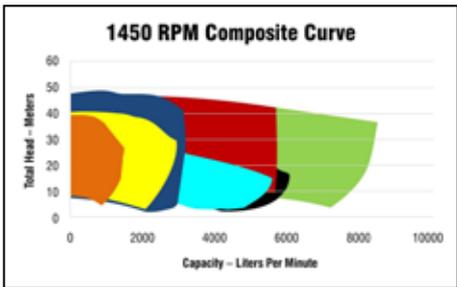
The Mission Magnum and 2500 Supreme centrifugal pumps are proven as reliable, heavy duty, low-cost slurry pumps. These pumps are equipped with a heavy duty 2½" shaft protected by a stainless steel shaft sleeve, double row outboard bearings and inboard roller bearings.

Magnum and 2500 Supreme pumps are rated for continuous service in applications up to 200 HP (149 kW). Fluid ends are available in hard iron, stainless steel, aluminum bronze, Magnachrome™, and Supreme Hard™. (Not all sizes are furnished in all materials listed. Call for availability.)

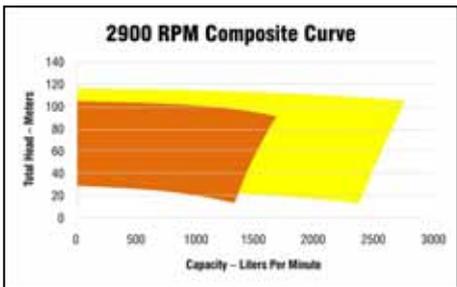


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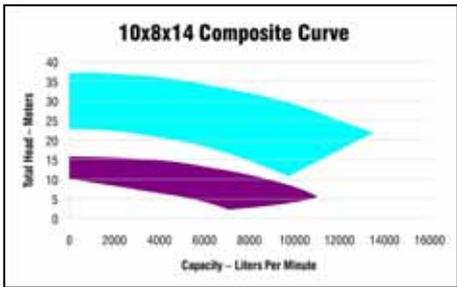
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4x3x13



970 RPM
1450 RPM



## RECIPROCATING PUMPS

National® • Oilwell® • Wheatley® • Gaso® • Omega™ • Bear™



## PUMPS AND SERVICES

NOV offers a broad range of reciprocating pumps along with custom fabrication, training, commissioning, and field service to meet customer pumping requirements worldwide.

- Continuous duty single-acting  
Input range: 2 – 1200 HP (1 – 895 kW)  
Pressure: up to 6,175 PSI (42,575 kPa)
- Continuous duty double-acting  
Input range: 9 – 182 kW (12 – 244 HP)  
Pressure: up to 12,411 kPa (1,800 PSI)

## FLUID-END EXPENDABLES

NOV's line of premium pump expendables includes tungsten carbide plungers, spherical valve assemblies, and premium plunger packing.

## FEATURES AND BENEFITS

- High mechanical efficiency (90%) and high volumetric efficiency (95%) regardless of operating point
- Can be adapted to pump fluids with entrained sand particles or slurries
- Constant delivered flow independent of system pressure
- Easily field maintained and repaired
- Can be equipped with a diverse range of fluid-end materials

## ACCESSORIES

NOV also offers a wide range of relief valves and pulsation dampeners in sizes of 100, 300, 600, 900, and 1200 cubic inches.

## TYPICAL MINING APPLICATIONS

- Single lift (high head) dewatering of unsettled (dirty) mine water
- High concentration slurry pipeline pumps
- Tailings disposal
- Filter press pumps
- Longwall (hydraulic) coal mining

## MULTISTAGE SURFACE PUMP (MSP)

The NOV MSP unit is a cost effective, low maintenance solution for high volume, high pressure fluid\*\* movement.

- Max head 247 bar, max flow 82 l/s
- Thrust chamber is field repairable with no need to remove pump or motor.
- Mechanical seal can be replaced in situ in 1 hour
- Minimal downtime for scheduled maintenance in comparison to similar units.

\*\*Fluid being pumped cannot contain large solids, recommend filtration prior to pump.



## NOV FILTRATION

NOV also offer a range of Reverse Osmosis hydro cyclones & solids, filtration control systems and other fluid handling solutions.

NOV also offer a range of Reverse Osmosis, Hydro Cyclones, solids handling & filtration control solutions to suit your needs in this ever increasing market place.

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One Company, Unlimited Solutions