



# POSITIVE DISPLACEMENT PUMPS

PLENTY®



With decades of experience in designing and manufacturing rotary positive displacement pumps, Celeros Flow Technology's Plenty Mirrlees Pumps have built an excellent reputation for reliable pumping equipment for the marine, oil processing, petrochemical processing, power generation, defense, sugar and general industries. With Plenty Mirrlees Pumps, Celeros Flow Technology has a solution for most pumping applications with a range that includes two screw (TWINRO), three screw (TRIRO) and our 2000 series vane pumps incorporating the unique variable flow feature.

## TRIRO – TRIPLE SCREW PUMPS

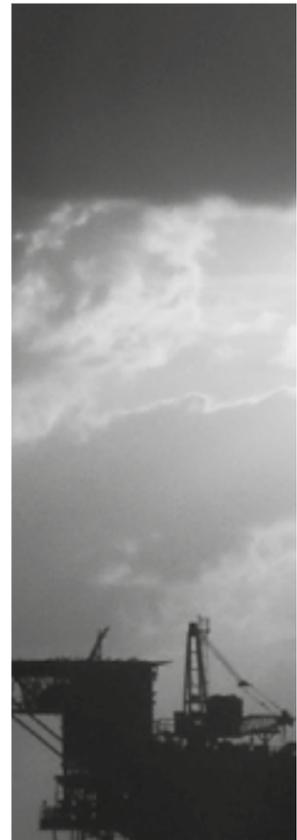
### THE TRIRO PRINCIPLE

The TRIRO pump is of the positive displacement axial flow screw type with only three moving parts – a power rotor and two idler rotors. These three rotors (hence the brand name TRIRO) have accurately machined precisely intermeshing threads which enfold the liquid being pumped and act as seals in relation to each other and to the pump body or sleeve in which they rotate.

Designed to pump oils the pump has an axial pulse free flow and silent operation for sensitive forced lubrication, seal oil circulation and oil firing systems.

Pumps are available in 17 frame sizes with various pitch angles and lengths offering a wide flow and pressure range.

Units are available from a low cost cast iron pedestal mounted version to high pressure steel cased pumps for API 614 systems. Pumps are also available in the popular tank top mounting arrangement for space saving on lube oil consoles, and vertical deck mounting for marine and other space saving transfer duties.



### T-RANGE

This range is designed as a low cost general industrial pump unit for clean liquids. It is constructed in high grade cast iron and features mechanical seal and integral relief valve as standard. Smaller T range pumps are generally available ex stock with the larger units available on very short lead times. Free standing horizontal, vertical and tank top mounted units are available, close coupled to electric motors.



### E-RANGE

This range is designed for medium pressure high flow applications on clean liquids. It is constructed with a renewable sleeve and fabricated steel casing and features mechanical seal and optional integral relief valve as standard. Custom casing designs can be accommodated to meet client dimensions and specifications. This range can be manufactured in accordance with most oil company and turbomechanical specifications including API 614, API 676 and API 610 (where relevant to P.D. pumps). Horizontal base mounted, vertical free standing, and tank top mounted units are available, close coupled to electric motors.



### C-RANGE

This range is designed for medium pressure applications on clean liquids. It is produced as a cartridge design. The cartridge has an aluminum alloy or SG iron construction and features mechanical seal and optional integral relief valve as standard. The cartridge doubles as a renewable sleeve, and can be inserted into a fabricated steel casing to meet the requirements of API specifications. Custom casing designs can be accommodated to meet client dimensions and specifications. This range can be manufactured in accordance with most oil company and turbomechanical specifications including API 614, API 676 and API 610 (where relevant to P.D. pumps). Horizontal free standing, base mounted, and tank top mounted units are available, close coupled to electric motors.



### H-RANGE

This range is designed for high pressure on clean liquids. It is constructed with a renewable sleeve and fabricated steel casing and features mechanical seal and optional integral relief valve as standard. Custom casing designs can be accommodated to meet client dimensions and specifications. This range can be manufactured in accordance with most oil company and turbomechanical specifications including API 614, API 676 and API 610 (where relevant to P.D. pumps). Horizontal base mounted, vertical free standing, and tank top mounted units are available, close coupled to electric motors.



### FEATURES

#### Non standard pumps

TRIRO T, C, E and H ranges can be factory modified for special applications and higher viscosities.

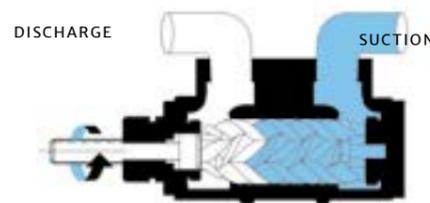
#### Unitisation

Pumps can be supplied bareshaft or assembled with driver in various arrangements including vertical, tanktop, pedestal and baseplate options, with spacer or non-spacer couplings and non spark guards

Pumps from all our range can be supplied in accordance with the requirements of API 676. Other international pump standards or client specifications can be accommodated.

#### Turbomechanical specifications

Once again pumps from all our ranges can be supplied to meet most turbomechanical specifications and applications including API 614, and API 610 (where relevant to P.D. pumps). Celeros Flow Technology are specialists to the industry.



### OPERATING PARAMETERS

Flow range: 0.1 to 750 m<sup>3</sup>/hr.  
0.4 to 3300 USGPM

Operating pressure: Up to 138 bar  
Up to 2000 PSI

Temperature range: -20 to + 200° C.  
-4 to + 390° F.

Viscosity range: 2 to 5000 cst. or cps.

### API 676 and other specifications

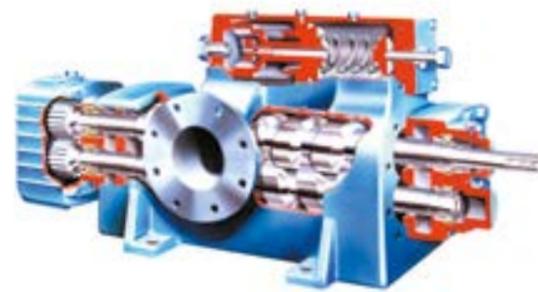
# TWINRO TWIN SCREW PUMPS

Bulk liquid transfer pumps utilizing two contra rotating screws providing a smooth pulse free flow. Each screw is accurately located between bearings providing a physical gap between the screws and between the screwset and casing, this providing a positive displacement pump which does not require internal lubrication from the pumped liquid.

Pumps are available with a sensitive adjustable relief valve for rapid opening and damped closing and can be fitted with relief valve jacking device for manual by pass/re-circulation of liquid.

There are four models available - W80, W125, W225 and W375.

The pump is available for horizontal baseplate mounting with option for vertical installation.



## OPERATING PARAMETERS

**Flow range:**  
10 to 500 m<sup>3</sup>/hr.  
(up to 800 on application)  
44 to 2200 USGPM

**Temperature range:**  
-40 to + 200° C.  
-40 to + 390° F.

**Operating pressure:**  
Up to 14 bar  
Up to 200 PSI

**Viscosity range:**  
1 to 7000 cst. or cps.

## TYPICAL PRODUCT APPLICATIONS

Any bulk transfer of liquid - such as:  
Rail/road car unloading/loading

Tank to tank transfer  
(and process to tank transfer)

Ships bunkering

Ships liquid cargo pumping

Bilge and ballast pumping

Distribution in liquid marketing terminals

Pipeline and process flow requirements

## TYPICAL LIQUIDS

Pumps constructed from stock materials  
(iron and steel) are commonly used for:

Lubricating oils

Fuel oils (residual and distillate)

Petroleum liquids

Solvents

Vegetable oils

Glues, varnish, resins, paint, polymers

Custom build pumps - typically stainless steel is used for applications with mild corrosion effect, such as palm oils, fatty acids, water (fresh or sea), some acids.

# VANE PUMPS



## U2000 - VARIABLE FLOW ROTARY PUMPS

The "U" (Universal) 2000 offers infinitely variable flow from zero to 100% by varying the eccentricity of the shaft to rotor mechanism within the pump. The eccentricity can be varied in three ways.

Manually at the pump by a handwheel situated on top of the pump.

Remotely from a control center with a pneumatic or electric stroke actuator on top of the pump

Automatically by C.P.C. (Constant Pressure Control) where pump flow is automatically adjusted to suit a constant system design pressure.

Energy absorbed is proportional to the eccentricity (flow) setting, offering, considerable energy savings over conventional fixed flow pumps using system pressure/flow control valves. The C.P.C. system is particularly suited to automated blending plants where blending vessels and filling machines have constantly varying flow requirements.

## OPERATING PARAMETERS

### Flow range:

up to 265 m<sup>3</sup>/hr (1166 USGPM).  
Flow rates up to 500m<sup>3</sup>/hr  
(2200 USGPM)  
can be accommodated on special applications

### Temperature range:

-30 to + 260° C.

### Operating pressure:

14 bar (standard) up to 25 bar  
(special construction)  
200 PSI (standard) up to 260  
(special construction)

### Viscosity range:

2 to 75,000 cst. or cps. (standard).  
Viscosities up to 500,000 cst can be accommodated on special applications.

## TYPICAL PRODUCT APPLICATIONS

Almost any process plant variable flow requirement.

Typically: Lube oil blending, bitumen blending, ships bunkering.

## TYPICAL LIQUIDS

Lubricating oils

Lube oil additive

Residual (black) and distillate (white) fuel

Oil

Grease

Bitumen and asphalts

Polymers and polyols

Resin/varnish/glue

Edible oils

Oily water (bilge)

Molasses/fats

Emulsions

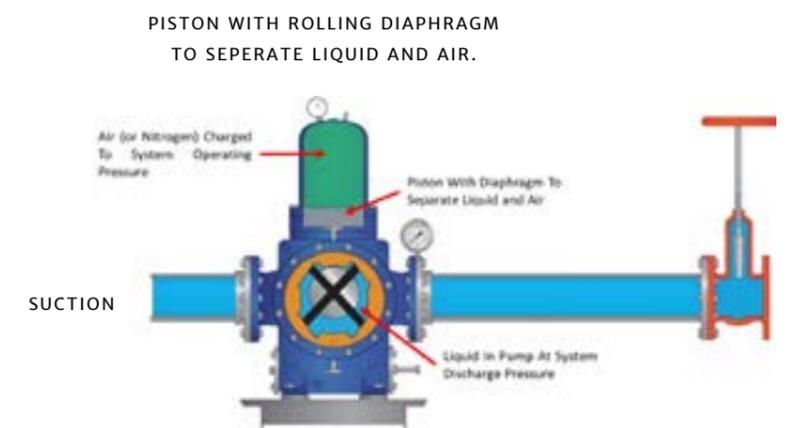
Paint (oil based)



HANDWHEEL



ACTUATOR



# VANE PUMPS

## G2000 & P2000 - FIXED FLOW ROTARY PUMPS

A rotary pump with a unique construction of eight blades with flat tips sliding in a precision machined rotor. The mechanism provides for low shear, low pulse flow with high volumetric and mechanical efficiency. The design enables low or highly viscous liquids to be pumped. The robust construction ensures very low vibration quiet running and a long service life. Designed to operate at low speeds offering high resistance to wear. Pumps are available in a variety of metallurgical combinations to suit a wide variety of liquid and plant requirements. Heating jackets for steam or heating oil are available. Sealing is by mechanical seal or soft packing. Bearing arrangement can be journal (sleeve) type or ball/roller bearing lubricated by the pumped liquid, or ball/roller bearings external to the pumped liquid. Pumps can be supplied with internal full flow pressure relief valves or without relief valves to API 676 requirements.

### OPERATING PARAMETERS

**Flow range:**

up to 265 m<sup>3</sup>/hr (1166 USGPM).  
Flow rates up to 500m<sup>3</sup>/hr (2200 USGPM) can be accommodated on special applications

**Temperature range:**

-30 to + 260° C  
-22 to + 500° F.

**Operating pressure:**

14 bar (standard) up to 25 bar (special construction)  
200 PSI (standard) up to 260 (special construction)

**Viscosity range:**

2 to 75,000 cst. or cps. (standard).  
Viscosity up to 500,000 cst on special applications.



### THE FIXED FLOW PUMPS ARE AVAILABLE IN TWO MOUNTING STYLES

**G2000**

For conventional baseplate mounting (featuring an API bedplate) with either direct motor drive or geared motor unit for lower speeds.

**P2000**

Integral floor mounting for minimum space requirement and timing belt drive from top mounted electric motor.

### TYPICAL LIQUIDS

The pumps are suitable for almost any liquid with lubricating properties and are particularly suitable for

- |          |                                    |
|----------|------------------------------------|
| Oils     | Polymers                           |
| Grease   | Molasses and other viscous liquids |
| Bitumens |                                    |



# MAGMO - ELLIPSE AND SCRAPER PUMPS

In the sugar industry the highly reliable MAGMO pump is world known for its ability to give long lasting trouble free service in tough conditions. Available in three sizes (No. 6, No. 8 and No. 10). The pumps are specifically designed for pumping massecuite and magma in the sugar processing industry.

The MAGMO pump is extremely robust and simple to maintain in remote sites. It runs at low speeds (typically 20 to 40 r.p.m.) and can be arranged in "V" belt or gearbox drive format. Shearpin couplings are also available for pump and gearbox protection.

The pump features a large inlet chamber, robust bearings and strong spring mechanism to keep the scraper effective over the elliptical rotor.

### OPERATING PARAMETERS

**Flow range:**

3.7 to 50 m<sup>3</sup>/hr.  
16.3 to 220 USGPM

**Operating pressure:**

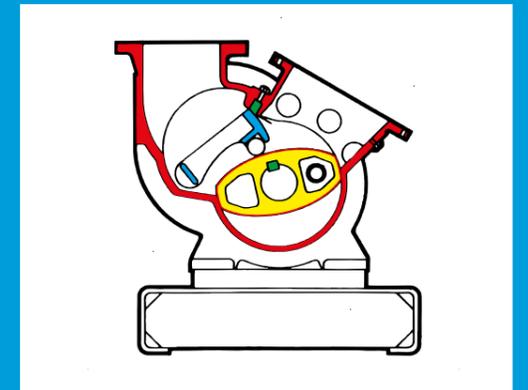
Up to 7 bar  
Up to 100 PSI

**Temperature range:**

Ambient (up to 50° C max.)  
Ambient (up to 122 ° C max.)

**Maximum viscosity:**

approx. 1,000,000 cst. or cps.





# POSITIVE DISPLACEMENT PUMPS

- | SPEED
- | EXCELLENCE
- | PARTNERSHIP



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