

Plenty **Mirrlees** Pumps

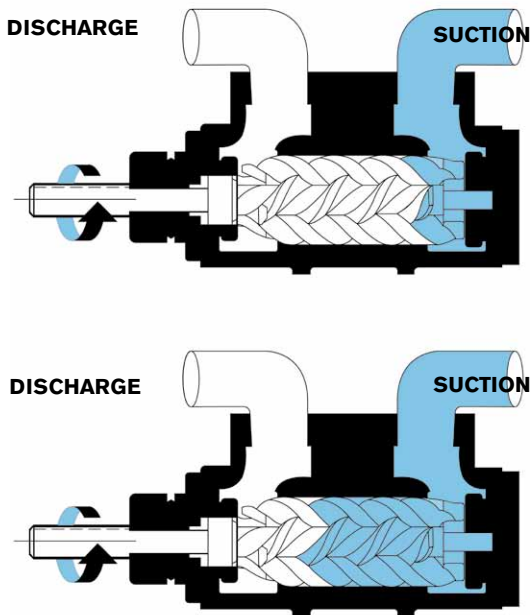
AN SPX BRAND

## Positive Displacement Pumps



**SPX**<sup>®</sup>

# 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

## Operating Parameters

<b>Flow range:</b>	0.1 to 750 m <sup>3</sup> /hr. 0.4 to 330 GPM
<b>Temperature range:</b>	-20 to + 200° C. -4 to + 390° F.
<b>Operating pressure:</b>	Up to 138 bar Up to 2000 PSI
<b>Viscosity range:</b>	2 to 5000 cst. or cps.

## Features

### Non standard pumps

TRIRO T, C/J, 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.

### API 676 and other specifications

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). Plenty are specialists to the industry.

## Applications & Typical Liquids

Forced lubrication - major rotating machine bearings

Seal oil circulation - compressor labyrinth seals

Lube oil transfer -day /storage tanks, etc.

Elevator/lift pumps

Fuel oil firing (boilers, kilns, etc.)

Heavy fuel oil pumping and heating grease

Duplex pumping and filtering sets

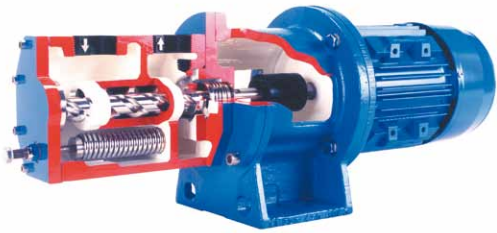
Fuel oil transfer - day/storage tanks

Fats transfer

Bitumen production and loading

They can be used on any clean lubricating liquid chemically compatible with the materials of construction (generally cast iron, steel and aluminium). They are primarily designed for use with Lubricating oil, fuel oil, crude oil, orimulsion, fats and printing inks

## Available Models are



### C / J 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.

### 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.

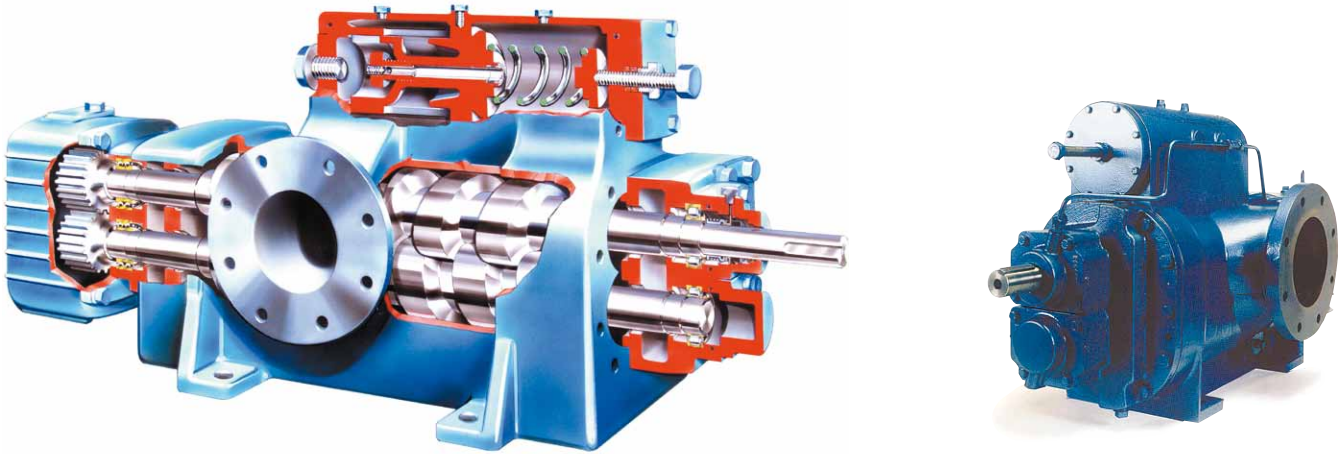


### E Range

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.



# 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.

## Operating Parameters

<b>Flow range:</b>	10 to 1250 m <sup>3</sup> /hr. 44 to 550 GPM
<b>Temperature range:</b>	-40 to + 200° C. -40 to + 390° F.
<b>Operating pressure:</b>	Up to 14 bar Up to 200 PSI
<b>Viscosity range:</b>	1 to 7000 cst. or cps.

## 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:

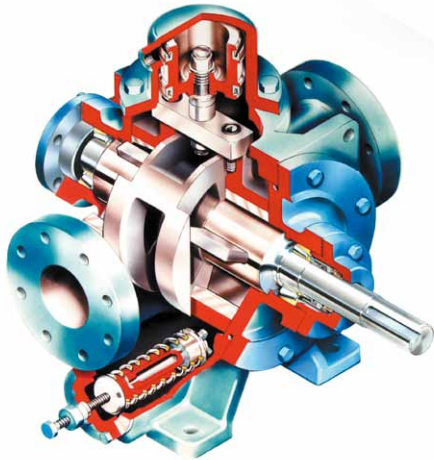
- Lubricating oils
- Fuel oils (residual and distillate)
- Petroleum liquids
- Solvents
- Vegetable oils
- Glues, varnish, resins, paint, polymers

Custom build pumps - typically in stainless steels or bronze are 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 500 m<sup>3</sup>/hr.  
up to 2,000 GPM
- 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).

## Applications

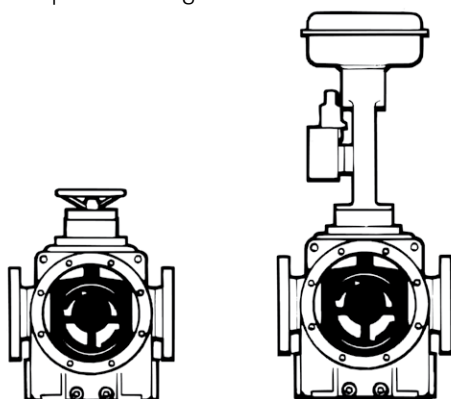
Almost any process plant variable flow requirement.

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

## Typical Liquids

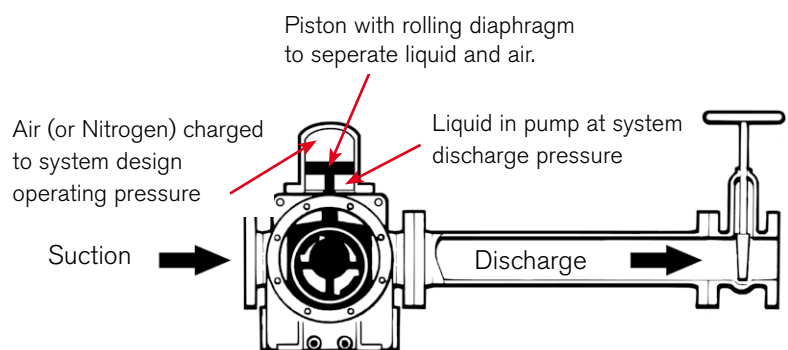
Almost any viscous liquid

- |  |                    |
|--|--------------------|
| Lubricating oils                                 | Edible oils        |
| Lube oil additive                                | Oily water (bilge) |
| Residual (black) and distillate (white) fuel oil | Molasses/fats      |
| Grease   | Emulsions          |
| Bitumen and asphalts                             | Paint (oil based)  |
| Polymers and polyols                             | Soap stock         |
| Resin/varnish/glue                               | Inks               |
|  | Acetate dope       |



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.

## Typical Liquids

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

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

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.

## Operating Parameters

**Flow range:** Up to 500 m<sup>3</sup>/hr.  
up to 2,000 GPM

**Temperature range:** -30 to + 260° C  
-22 to + 500° F.

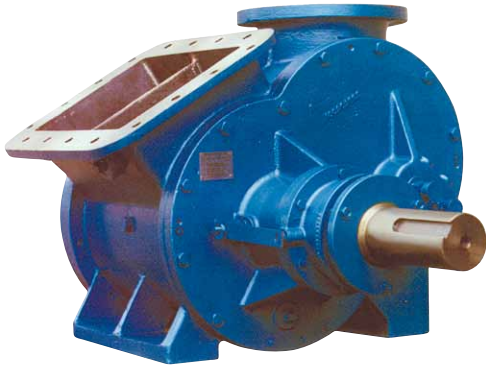
**Operating pressure:** 14 bar (standard)  
up to 25 bar (special construction)  
200 PSI (standard) up to  
260 (special construction)

**Viscosity range:** 2 to 75,000 cst. or cps.  
(standard).



# MAGMO - Ellipse and Scraper Pumps

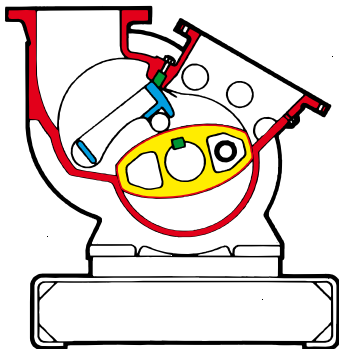
In the sugar industry the highly reliable MAGMO pump is world known for its ability to give long lasting trouble free service in tough conditions.



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.

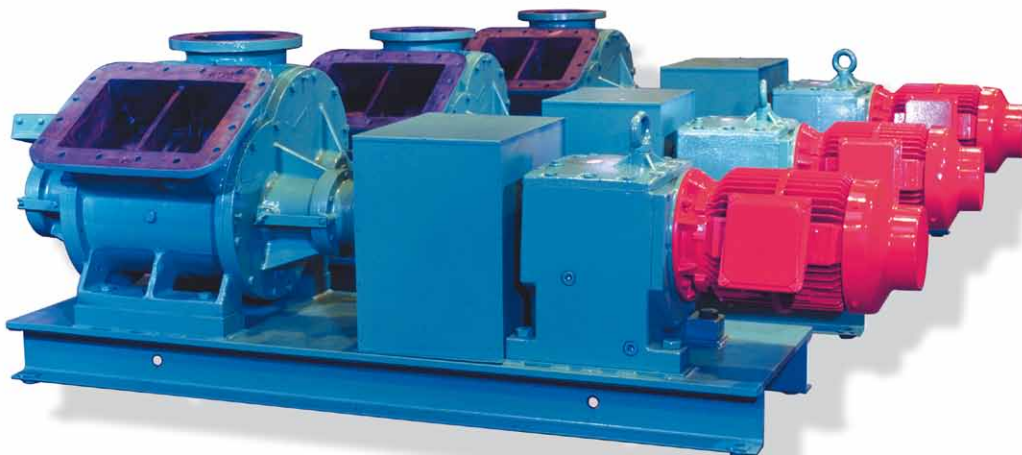
The MAGMO pump is extremely robust and simple to maintain in remote sites. It runs at low speeds (typically 20 to 40 r.p.m.) and can be arranged in "V" belt or gearbox drive format. Shearpin couplings are also available for pump and gearbox protection.

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 GPM
- Temperature range:** Ambient (up to 50° C max.)  
Ambient (up to 122 ° C max.)
- Operating pressure:** Up to 7 bar  
Up to 100 PSI
- Maximum viscosity:** approx. 1,000,000 cst. or cps.





Your local contact:



SPX Flow Technology  
611 Sugar Creek Road  
Delavan, WI 53115  
Phone: (262)728-1900 or (800)252-5200 Fax: (262)728-4904 or (800)252-5012  
E-mail: [plentypumps@spx.com](mailto:plentypumps@spx.com)  
[www.plentymirrleespumps.com](http://www.plentymirrleespumps.com)  
[www.spxft.com](http://www.spxft.com)

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