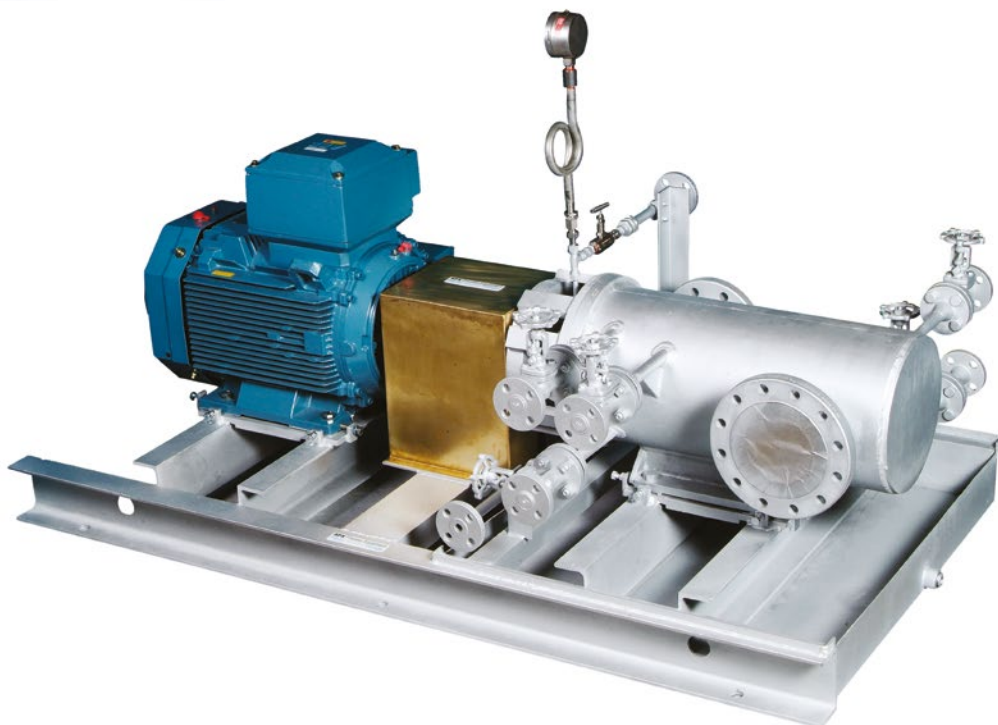


Positive Displacement Pumps



TRIRO - Triple Screw Pumps

With decades of experience in designing and manufacturing rotary positive displacement pumps, SPX FLOW'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, SPX FLOW 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.

Based in Charlotte, North Carolina, SPX FLOW Corporation (NYSE: SPW) is a global Fortune 500 multi-industry manufacturing leader. The company's highly-specialized, engineered products and technologies serve customers in three primary strategic growth markets: infrastructure, process solutions, and diagnostic systems. Many of SPX FLOW's innovative solutions are playing a role in helping to meet rising global demand, particularly in emerging markets, for electricity, processed foods and beverages and vehicle services. The company's products include thermal heat transfer equipment for power plants; power transformers for utility companies; process equipment for the food & beverage industry; and diagnostic tools and equipment for the vehicle service industry. For more information, please visit www.spxflow.com.

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.

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.

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.

Flow range:

0.1 to 750 m³/hr. 0.4
to 3300 USGPM

Operating pressure:

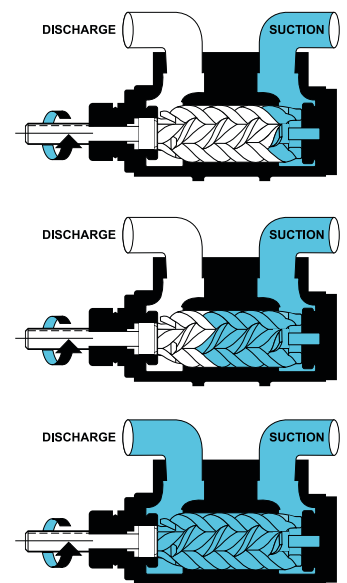
Up to 138 bar
Up to 2000 PSI

Temperature range:

-20 to + 200° C.
-4 to + 390° F.

Viscosity range:

2 to 5000 cSt.



Available Models are

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.



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.



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.



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.



Typical product applications

Forced Lubrication

major rotating machine bearings



Seal Oil Circulation

compressor labyrinth seals



Lube Oil Transfer

day /storage tanks etc



Elevator / Lift Pumps

Heavy Fuel Pumping and Heating Grease

Duplex Pumping and Filtering Sets

Fuel Oil Transfer

day /storage tanks etc

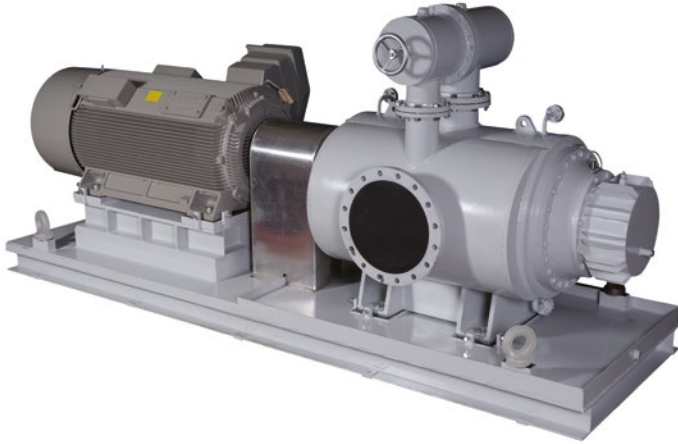
LSDO Boiler Systems for Marine Vessels

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.



TWINRO Twin Screw Pumps

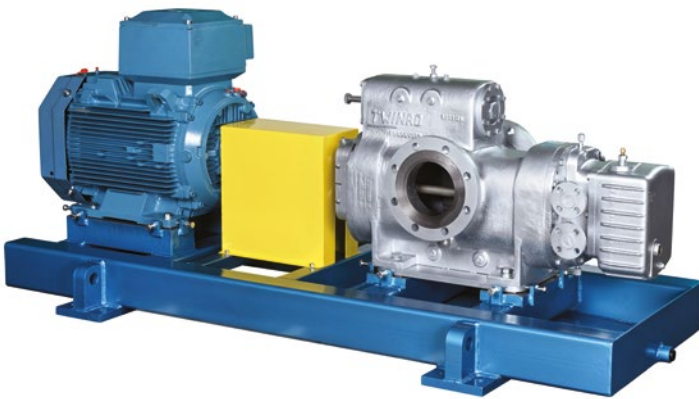


Bulk liquid transfer pumps utilizing two contra rotating screws providing a smooth pulse free flow. Each screw is accurately located between bearings providing a physical gap between the screws and between the screwset and casing, this providing a positive displacement pump which does not require internal 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 five models available - W80, W125, W225, W375 and W750.

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



OPERATING PARAMETERS

Flow range:

10 to 500 m³/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.

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

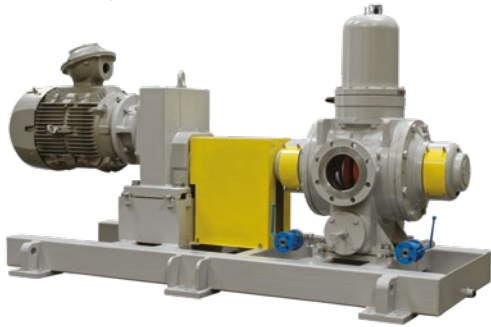
Solvents

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 m³/hr (1166 USGPM). Flow rates up to 500m³/hr (2200 USGPM) can be accommodated on special applications

Temperature range:

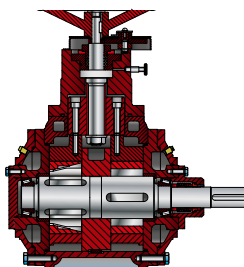
-30 to + 260° C.

Operating pressure:

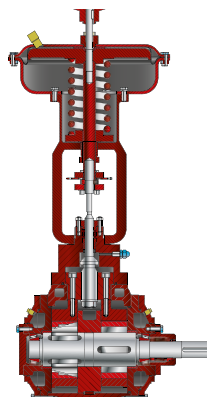
14 bar (standard) up to 25 bar (special construction) 200 PSI (standard) up to 260 (special construction)

Viscosity range:

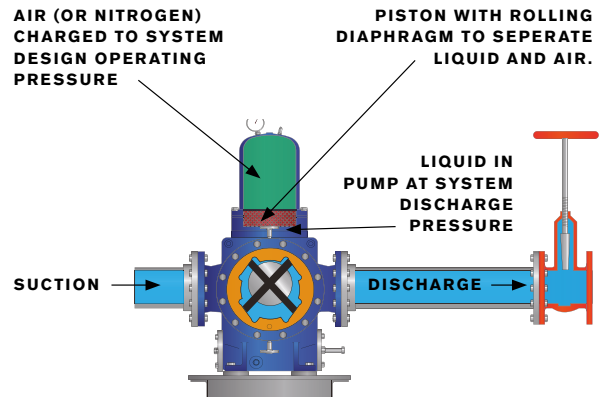
2 to 75,000 cSt. (standard). Viscosities up to 500,000 cSt can be accommodated on special applications.



HANDWHEEL



ACTUATOR



Typical product applications

Almost any process plant variable flow requirement.

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

Typical liquids

Lubricating oils

Resin/varnish/glue

Lube oil additive

Edible oils

Residual (black) fuel oil

Molasses/fats

Distillate (white) fuel oil

Emulsions

Grease

Paint (oil based)

Bitumen and asphalts

Soap stock

Polymers and polyols

Inks

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 m³/hr (1166 USGPM). Flow rates up to 500m³/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. (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

Grease

Bitumens

Polymers

Molasses and other viscous liquids



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 m³/hr.

16.3 to 220 USGPM

Temperature range:

Ambient (up to 50° C max.)

Ambient (up to 122° C max.)

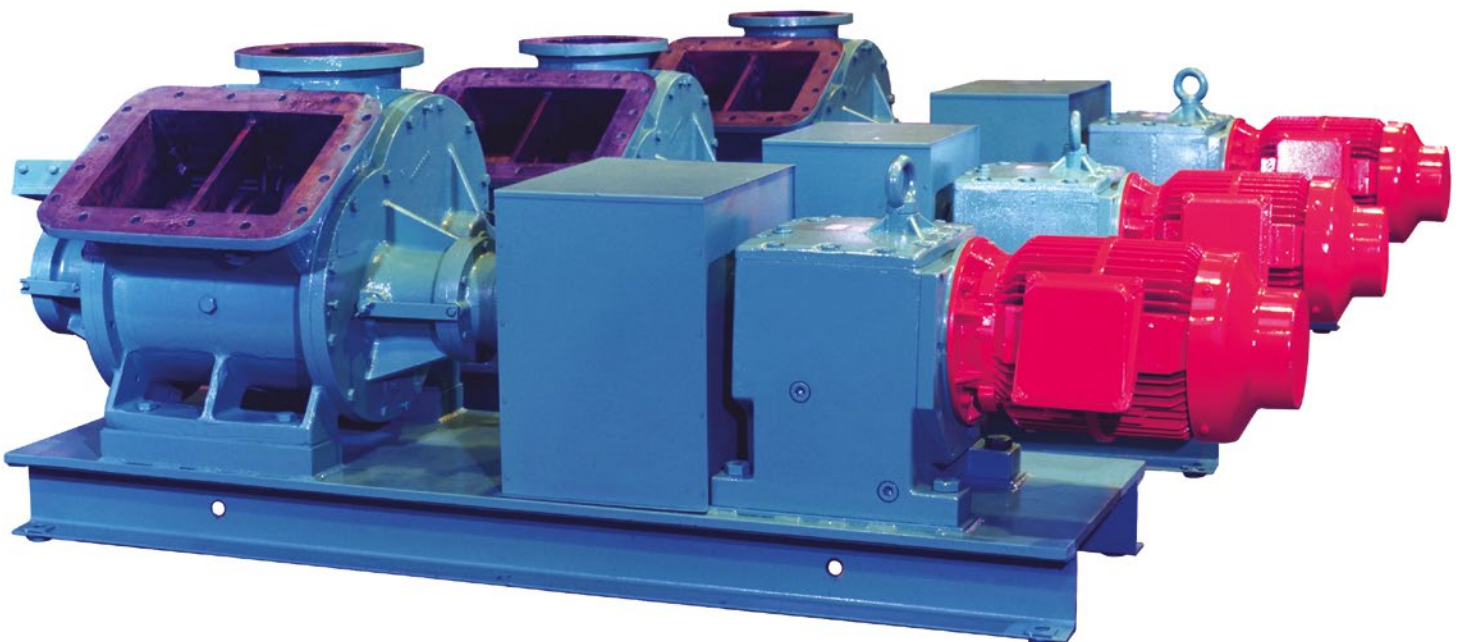
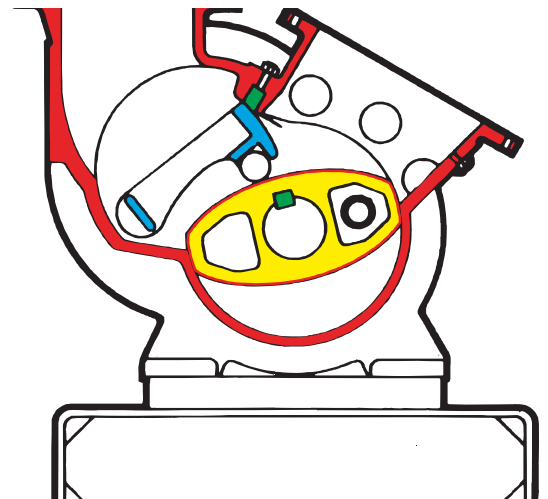
Operating pressure:

Up to 7 bar

Up to 100 PSI

Maximum viscosity:

approx. 1,000,000 cSt.





Global locations

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SPX Food+Beverage develops and implements processing technologies and other measures to help companies manage critical issues in food and beverage processing.

SPX Power+energy offers solutions for building and updating energy infrastructure, as well as for processes ranging from fuel extraction to electricity distribution.

SPX Vehicle+Transit devises products and technologies for the service and repair of automobiles and recreational vehicles, rail, heavy equipment, marine craft and mass transit.

SPX Industrial Processes creates equipment and technologies to help customers transform materials efficiently, safely and with low downtime or environmental impact.

SPX Infrastructure serves the many market sectors involved in building and ensuring the reliability of the infrastructure, ranging from utilities to communications and broadcast.

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