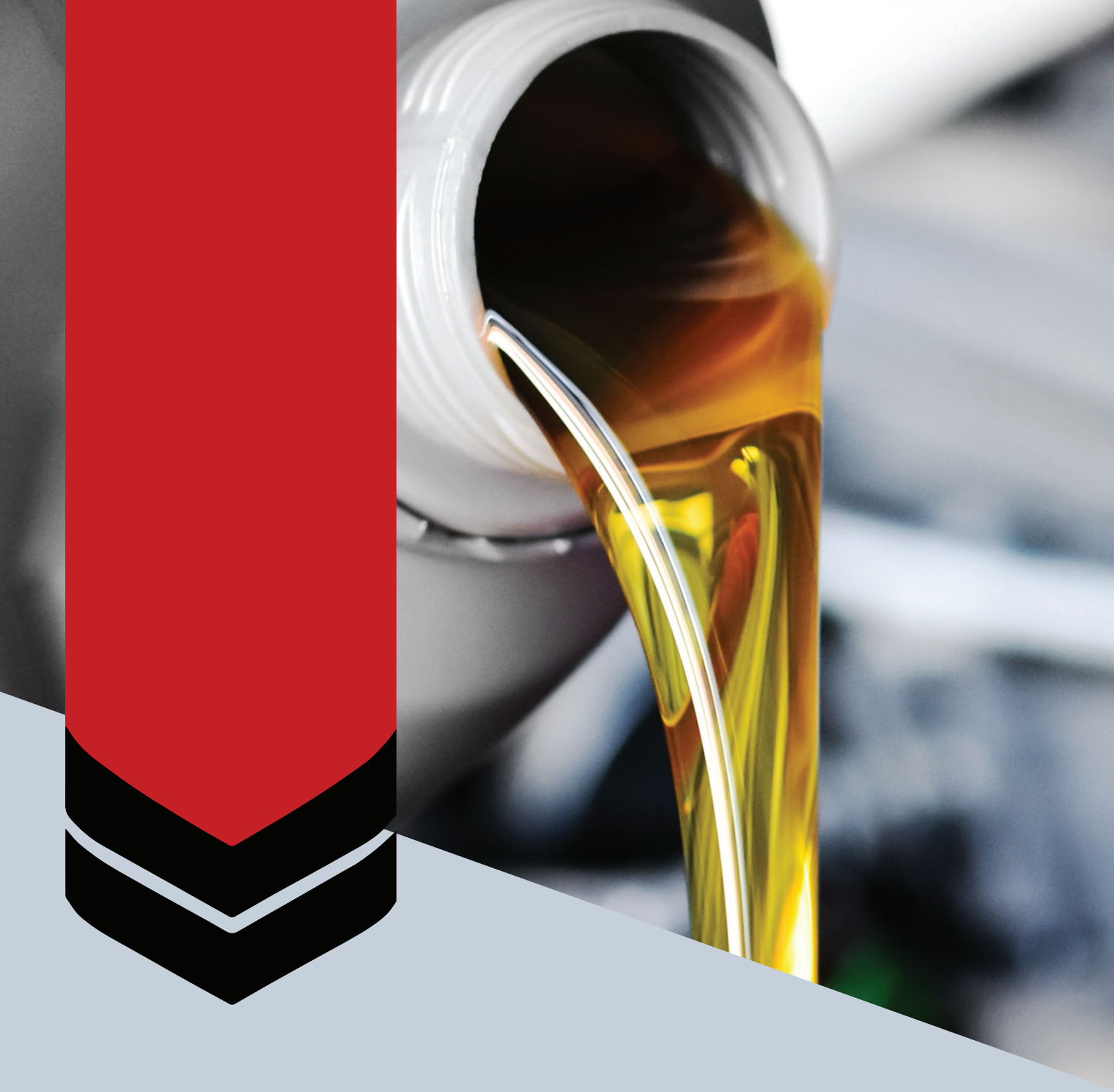


MAGMAFLO

VISCOUS FLUID PUMPS

POSITIVE DISPLACEMENT ROTARY PUMPS

The robust Magmaflo pump is the latest in a long line of positive displacement rotary pumps which have proven reliability and efficiency for over twenty years. Magmaflo sliding vane pumps are designed for use in many arduous industrial applications: moving with ease, liquids, which vary in viscosity, from free-flowing fuel and light oils through to heavy duty bitumen and tars.

In one hour the impressive Magmaflo can move up to 180m^3 of liquid at viscosities from 1.00CS - 44,000CS (200,000)SSU at temperatures reaching 180°C.

High output at slow speeds coupled with a smooth pumping action eliminates damage to the pumped product. This also means that the Magmaflo has greater reliability and pump life - a saving in costs with minimal maintenance and down time.Tailor-made solutions to the most complex pumping problems are easy for the Magmaflo which allow for maximum flexibility in combining pump elements, and a wide choice of materials.

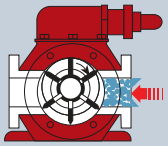
HOW IT WORKS

The Magmaflo is a self priming positive displacement pump of simple rotary sliding vane design. As the rotor revolves, a fixed volume of fluid is discharged. This is moved from the suction port to the discharge port by the vanes which slide within the rotor against the pumping chamber wall.

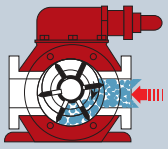
Three forces ensure close contact between the vanes and the pumping chamber wall:

1. **Pump rotation produces centrifugal force.**
2. **Idler rings located within the rotor.**
3. **Hydraulic pressure from behind the vanes.**

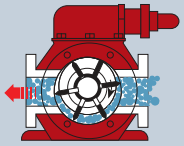
SLIDING VANE PUMP ACTION



As the pump rotor revolves, mechanical, centrifugal & hydraulic forces move the sliding vanes outward from their slot in the rotor towards the suction port.



A vacuum is created by the expanded chamber & the fluid is drawn in & positioned between the vanes where it is transferred to the outlet port for discharge.



As the vanes reach the summit of the cycle they are pressed into their slots by the roof of the pumping chamber.

SLIDING VANES COST LESS TO MAINTAIN

The Magmaflo pump is designed to allow for easy maintenance without special tools and in most cases without even having to disconnect the pump from the piping system. To change vanes, simply remove the outer head and replace critically worn vanes as and when necessary. Routine servicing is just as easy, keeping downtime and maintenance costs to a minimum.

SELF-ADJUSTING VANES SUSTAIN EFFICIENCY

The Magmaflo pump maintains high volumetric efficiency throughout service. Because the rotor vanes are self-adjusting, internal pump slip is reduced to a minimum. Suction and discharge capacity is unimpaired even after arduous service. Compensation for wear on the vanes is effected as the vanes are able to slide outward within their slots thereby maintaining the same fine clearance against the pumping chamber.

PRODUCTS WE PUMP

Glucose & Molasses

Syrups & Chocolate

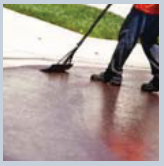
Edible Oils

Paint & Varnishes

Crude & Lube Oils

Cellulose Acetates, Liquid Yeast & Glue

Melted Wax & Fats

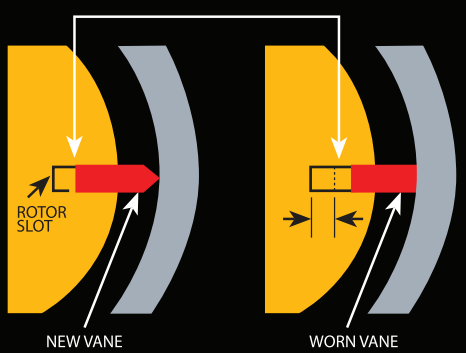

Bitumen & Tar

Liquid Paraffin

Feul & Light Oils

Hexanes & Resins

Vane compensates for wear by sliding further out of rotor slot



PUMP SELECTION GUIDE

SIZE	THEORETICAL DISPLACEMENT PER REV. (Imp.Gal)	I/Rev	MAXIMUM RPM SPEED	MAXIMUM DISPLACEMENT IGMP	LM
RV 30	0.033	0.151 L/Rev	400	13.28	60.4
RV 40	0.104	0.474 L/Rev	400	41.57	189
RV 50	0.171	0.779 L/Rev	350	59.83	272
RV 75	0.308	1.401 L/Rev	350	107.78	490
RV 80	0.344	1.566 L/Rev	350	120.54	548
RV 100	0.663	3.015 L/Rev	350	232.06	1.055
RV 150	2.073	9.426 L/Rev	300	622.07	2.828
RV 200	3.405	15.483 L/Rev	250	851.28	3.870

USEFUL CONVERSIONS

1 IMP GAL = 1.20 US GAL = 4.546 LITRE
1 IMP GAL = 10.00lb x 5p Gr.weight in lbs
$1m^3$ = 219.9 IMP.GAL = 35.31 cu ft

$$HP = \frac{\text{TORQUE lb/ft x RPM}}{5250}$$

$1cm^3 = .06IN^3$
$1IN^3 = 16.39cm^3$
1HP = .745 Kw

$$bhp = \frac{\text{GPM X PSI}}{1428 \times \text{Efficiency}}$$

VISCOSITY CONVERSION

1 Poise = 100 centiposise (CP) {dynamic}
1 Stoke = 100 centistoke (CS) {kinematic}
Posie = Stoke x Product Specific Gravity

SSU = Poise x 445 (approx.)
SSU = centistoke x 4/653 (for values over 70CS)

FIGURE 01 PERFORMANCE DATA BASED ON 5 BAR & VISCOSITY 32CS (1500SSU)

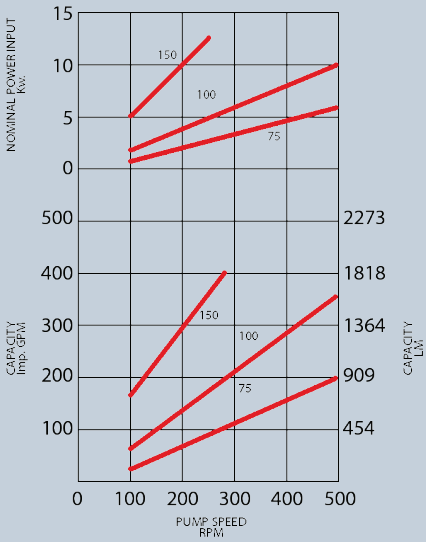


FIGURE 02 PUMP RATED SPEED = 500rmp (20mm - 100mm pumps) = 250 rpm (150mm pumps)

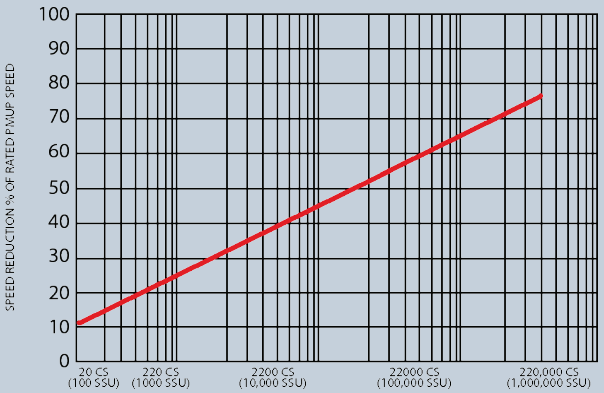


FIGURE 03 PERFORMANCE DATA BASED ON 5 BAR & VISCOSITY 32CS (1500SSU)

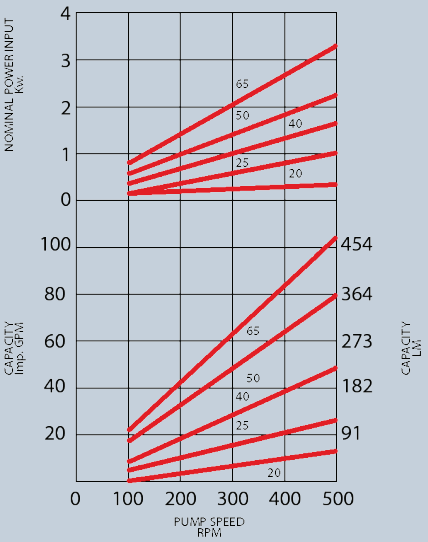
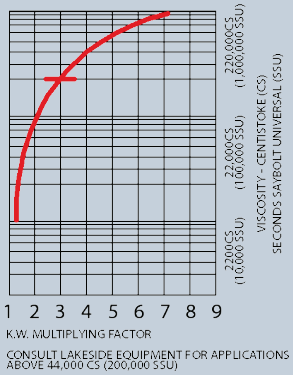


FIGURE 04 ROTORY PUMP SPEED REDUCTION CURVE VISCOSITY - CENTISTOKE (SSU)



CONSULT LAKESIDE EQUIPMENT FOR APPLICATIONS ABOVE 44,000 CS (200,000 SSU)

FIGURE 05 PERFORMANCE DATA BASED ON 5 BAR & VISCOSITY 32CS (1500SSU)

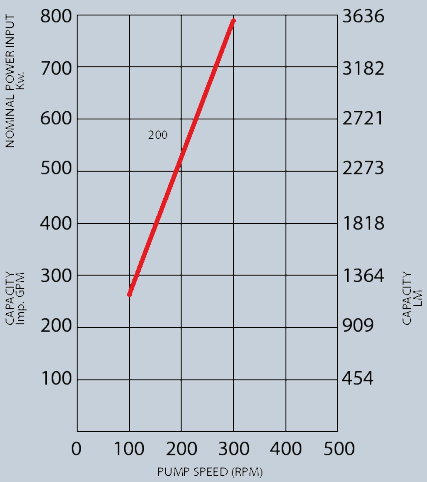
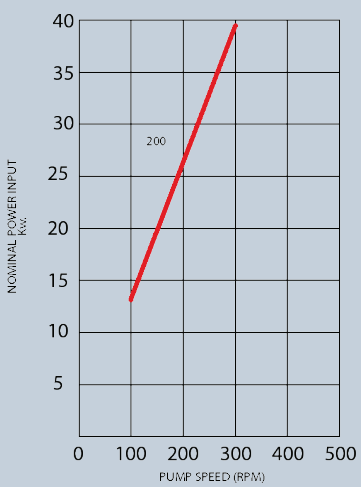
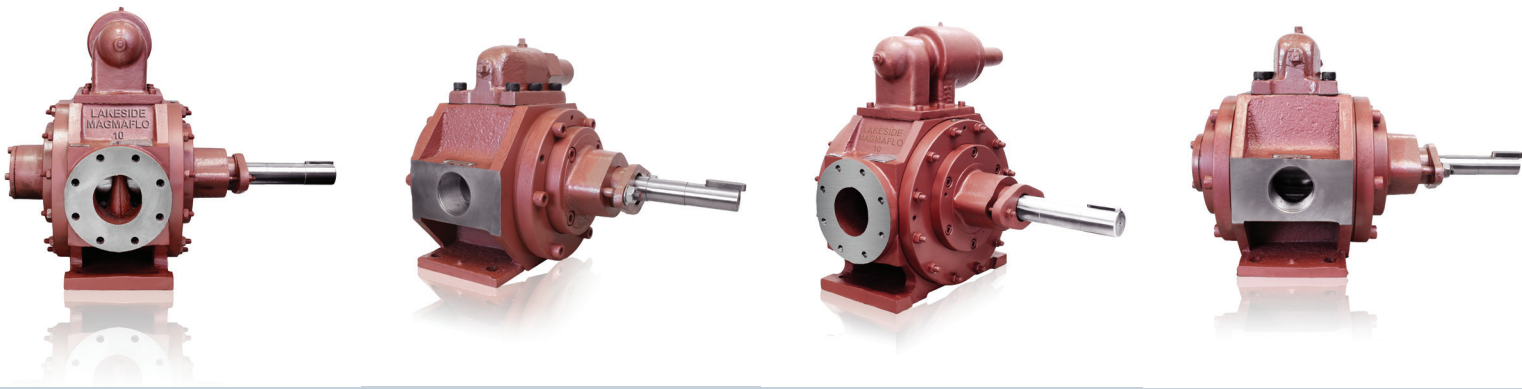


FIGURE 06 PERFORMANCE DATA BASED ON 5 BAR & VISCOSITY 32CS (1500SSU)





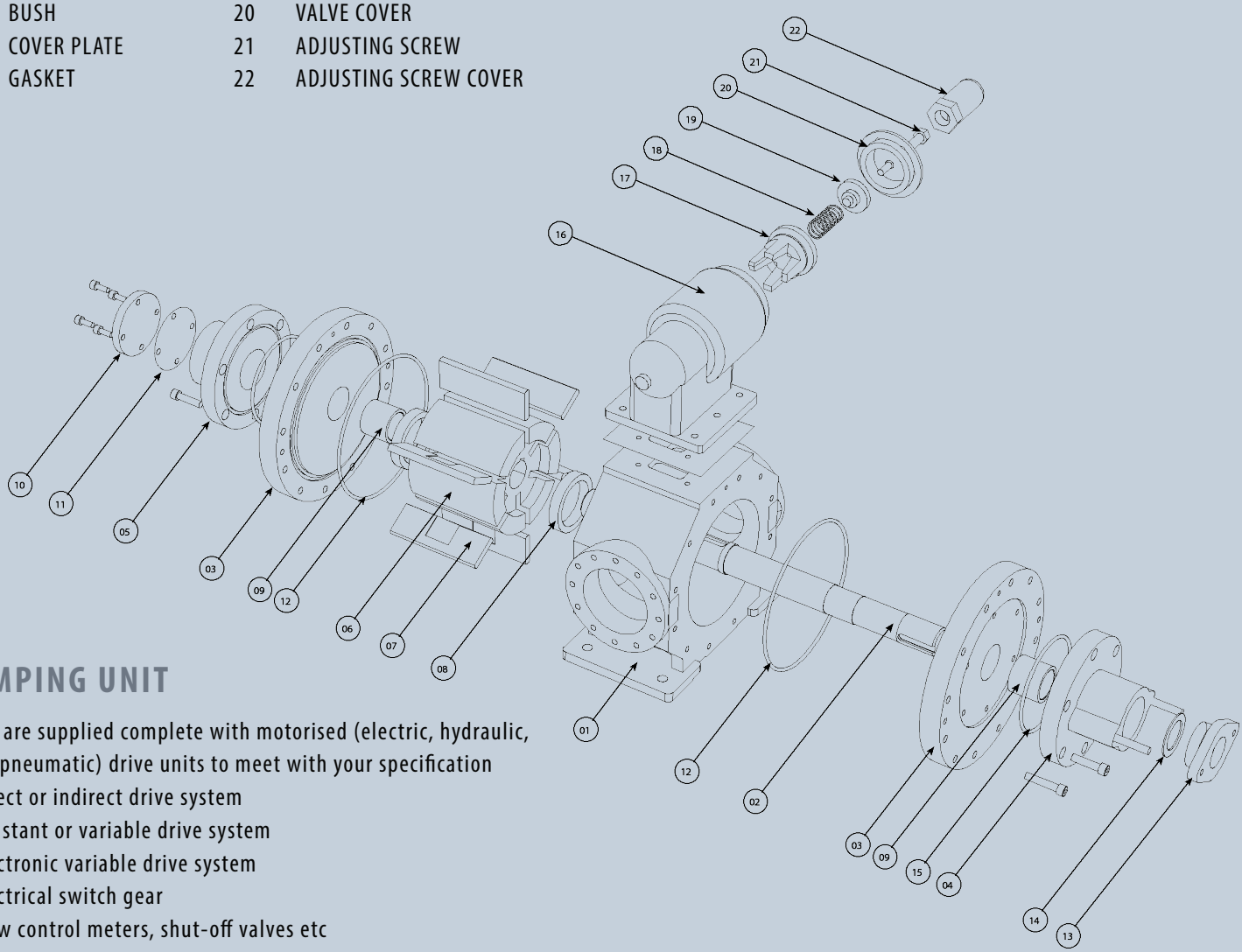
BASIC PUMP DESIGN

01	HOUSING	12	"O" SEAL
02	SHAFT	13	GLAND FOLLOWER
03	SIDE COVER	14	GLAND WASHER
04	GLAND PACK HEAD	15	"O" SEAL
05	NON DRIVE HEAD	16	RELIEF VALVE HOUSING
06	ROTOR	17	POPPET VALVE
07	VANE	18	COMPRESSION SPRING
08	ROTOR RING	19	SPRING PAD
09	BUSH	20	VALVE COVER
10	COVER PLATE	21	ADJUSTING SCREW
11	GASKET	22	ADJUSTING SCREW COVER

STANDARD PUMP CONFIGURATIONS

BARE SHAFT PUMP

1. Jacketed or non-jacketed
2. Through shaft or blank end design
3. Connecting ports available - flanged or threaded
4. Mechanical seal or packed gland
5. Seal flushing arrangement
6. Foot mounted
7. Standard bush, hub bush and taper roller bearing design



PUMPING UNIT

These are supplied complete with motorised (electric, hydraulic, I.C or pneumatic) drive units to meet with your specification

1. Direct or indirect drive system
2. Constant or variable drive system
3. Electronic variable drive system
4. Electrical switch gear
5. Flow control meters, shut-off valves etc

LAKESIDE EQUIPMENT

MANUFACTURED BY LAKESIDE EQUIPMENT (PTY) LTD.
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