SPX®

Where Ideas Meet Industry

Plenty

MAGMO

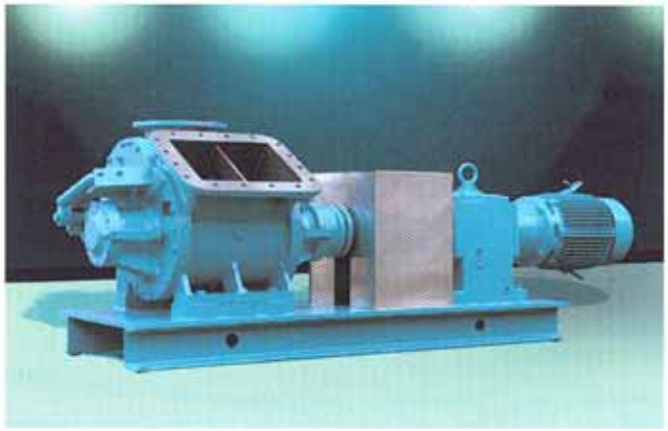
Magmo Massecuite Pump

Plenty Mirrlees Pumps

MAGMO MASSECUITE PUMP

The Magmo pump is a positive displacement pump which uses the 'elipse and scraper' pumping principle. The basic design was originally conceived by the Sugar Industry itself, and Plenty Mirrlees Pumps have been manufacturing this type of pump for over 30 years.

Magmo pumps are designed principally to handle high viscosity abrasive sugar products that contain sugar crystals, such as Massecuite, Magma and Molasses. The design ensures that the Sugar crystals contained within the liquids are not damaged by the pumping action, and that the pump is subjected to minimum wear.



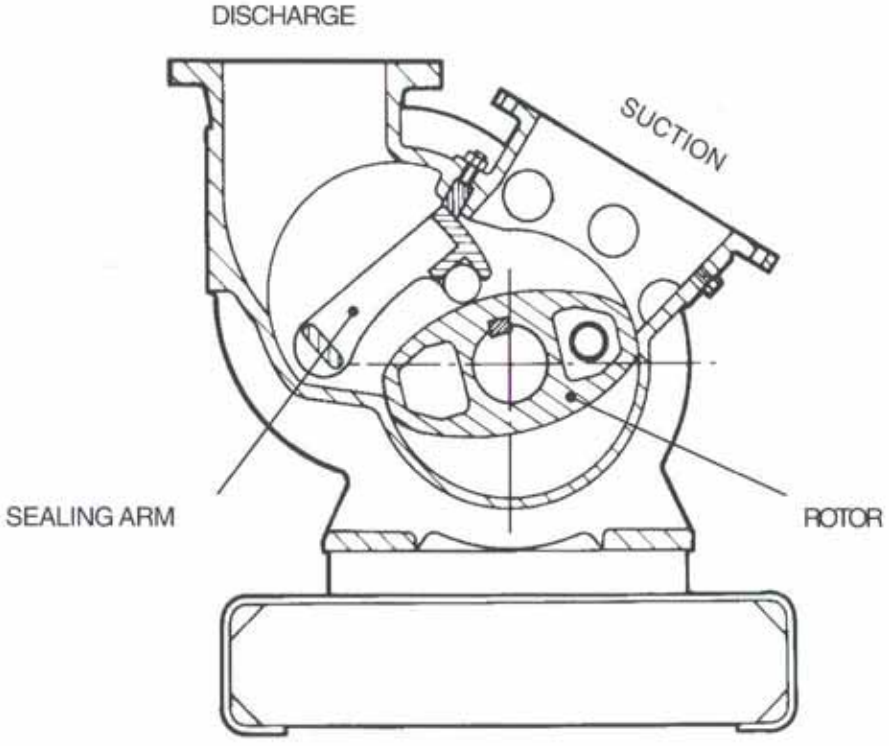
Magmo No. 10 unitised with a Gearmotor and Shear-pin Coupling

Magmo pumps are available in three sizes, No. 6, No. 8 and No. 10. The pump size indicates the discharge flange bore in inches.

PRINCIPLE OF OPERATION

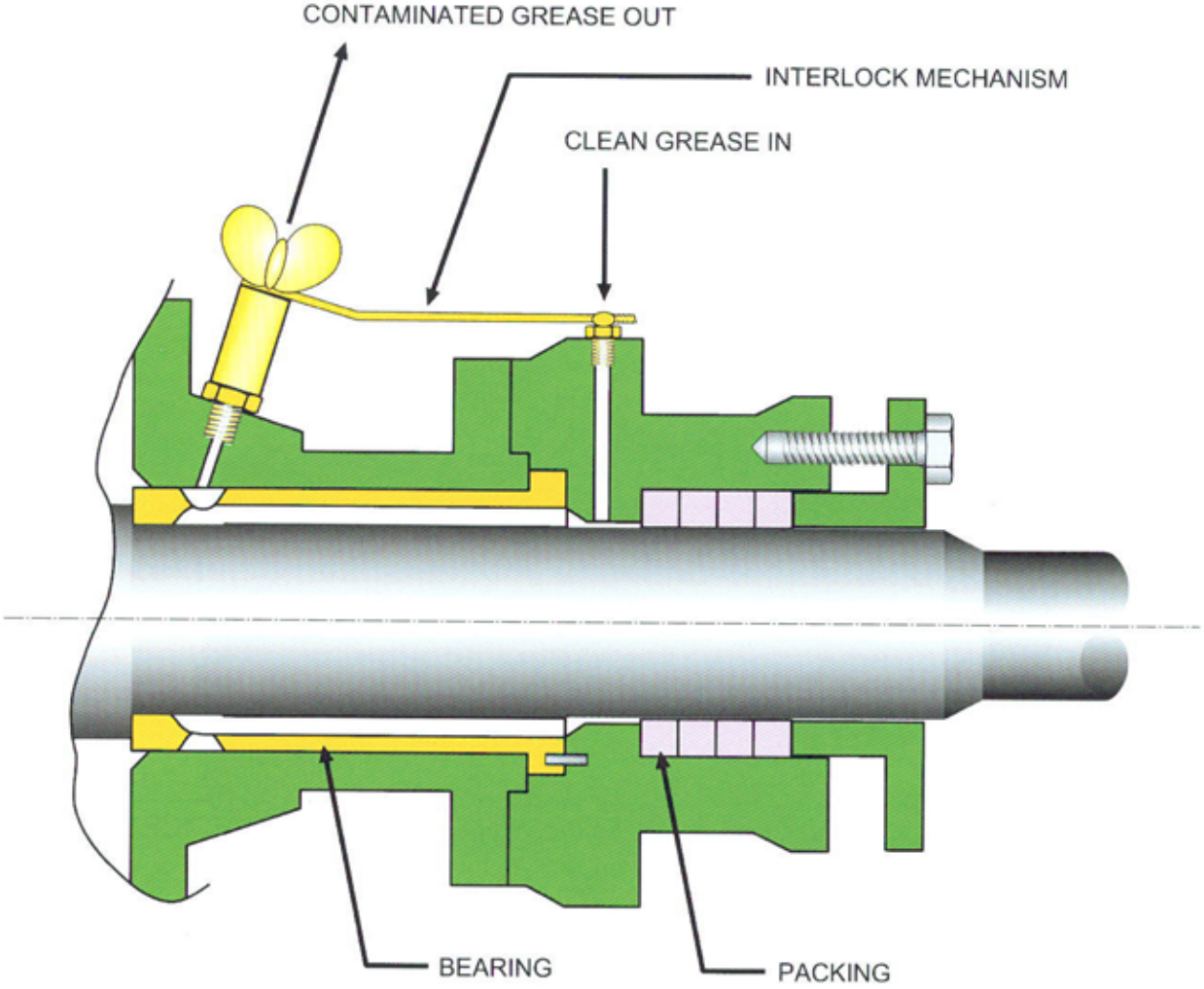
The pumping principle is very simple. An elliptical shaped rotor rotates in a cylindrical housing. The pumped medium is trapped in the cavities formed between the rotor and the housing, and is carried round from suction to discharge. A hinged sealing arm, which follows the surface of the rotor, scrapes off the pumped medium and directs it up into the discharge. The sealing arm is spring loaded to maintain contact with the rotor, however, above 2 bar g it is assisted by the discharge pressure, so the spring force is unnecessary.

Special care has been taken in designing the suction branch to ease the flow into the pump. This avoids starvation, and allows the pump to run at higher speeds.



BEARING & SEALING ARRANGEMENT

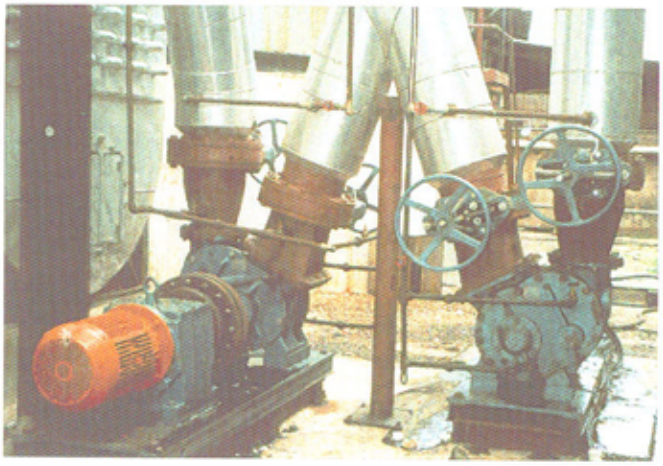
The bearing and sealing arrangement has been designed to deal with the wear and leakage problems associated with high viscosity abrasive duties. The bearing bushes are divided into an inner and outer section. The inner section divides the liquid in the pump and the grease in the bearing. The outer portion, which has longtitudinal grooves, forms the bearing.



The grease in the bearing will slowly become contaminated over time by the pumped medium. This contaminated grease must be replaced by fresh grease to avoid premature bearing wear.

Re-greasing the bearing is a flushing operation. Fresh grease is introduced through a grease nipple at the outer end of the bearing, displacing the old contaminated grease along the grooves and through a drain valve at the inner end. The drain valve is simply interlocked to the grease nipple to ensure that both are open during greasing. This prevents grease being forced into the main pumping chamber and contaminating the pumped liquid.

This configuration of bearing ensures minimum contamination of the bearing, and that the packing is sealing clean grease and not abrasive liquid.

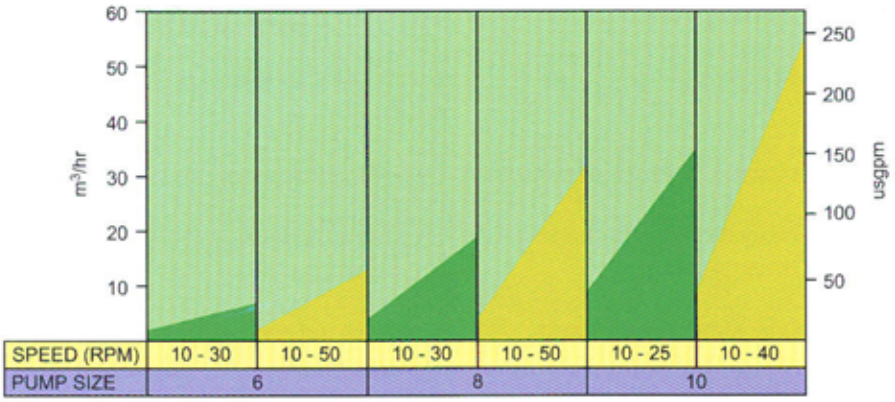


Magmo pumps recirculating Massecuite to a Vertical Crystallizer

PERFORMANCE TABLE

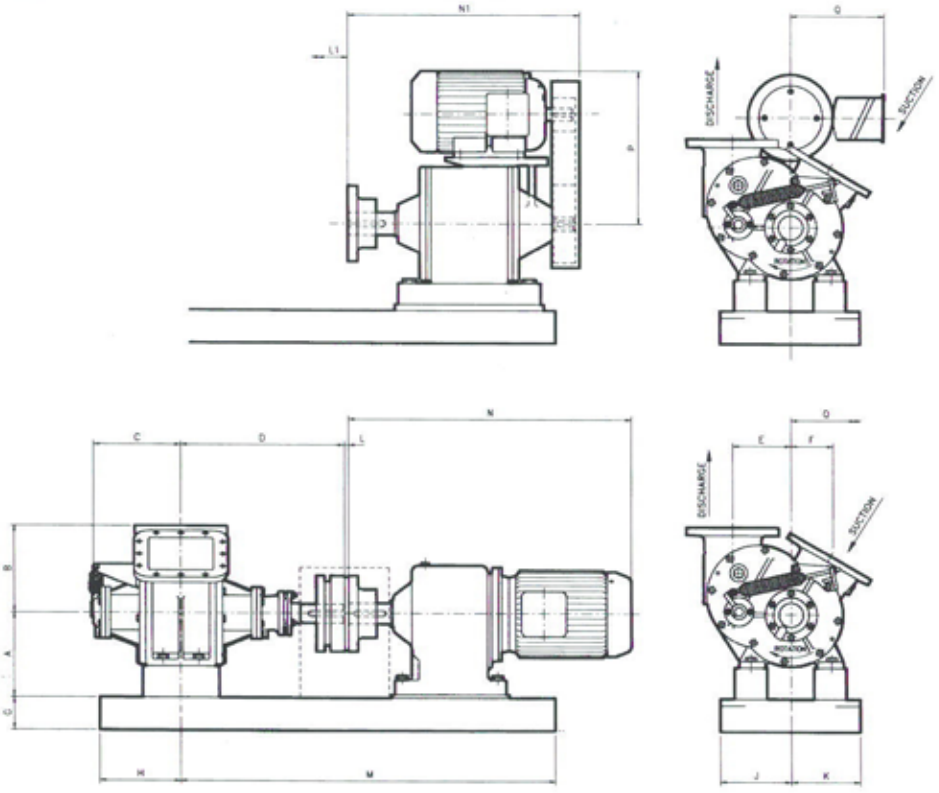
A or B Massecuite.

C Massecuite.



The table above is based upon performance when pumping A, B or C Massecuite. Due to the higher viscosity encountered when pumping C Massecuite, the maximum operating speed of the Magmo pump range is de-rated.

APPROXIMATE DIMENSIONS



*Pumps can be constructed with suction right (as shown) or suction left, to suit installation.

Approximate dimensions (in). DO NOT use for installation purposes.																				
PUMP SIZE	PUMP ONLY						UNIT						FLANGES		*GEARBOX/MOTOR				
	*A	B	C	D	E	F	G	H	J	K	L	L1	SUCTION	DISCHARGE	M	N	N1	P	Q
6	9 7/8	10 5/8	10 5/8	18 3/4	7	4 3/4	4	10	8 1/2	8 1/2	1/2	1/2	8 x 8	6"	44 3/4	34	24	17 3/8	7 3/4
	12 3/8														51 1/4	39 3/4	30	19 1/4	7 3/4
8	9 7/8	14	14 1/2	28 1/2	10	6 3/8	6 1/4	13 3/8	11 7/8	11 7/8	1/2	1/2	11 1/2 x 11 1/2	8"	44 3/4	34	24	17 3/8	7 3/4
	12 3/8														51 1/4	37 3/4	30	21 1/2	9 1/8
10	12 3/8	18	20 3/4	32 1/2	11 1/4	8	8	16	9	12	1/2	1/2	13 x 16 7/8	10"	51 1/4	39 3/4	30	19 1/4	7 3/4
	15 3/8														70 3/4	55	33 1/2	25 1/2	13 1/2

*Dimensions are given for the smallest and largest motor and gearbox sizes for each pump.

PUMP FEATURE	USER BENEFIT
Gentle pumping action	Minimum sugar crystal damage.
Large suction port	Eliminates cavitation problems, and allows higher running speeds.
Good tolerance to large particles	Prevents pump siezure
Grease packed bearings with flushing arrangement	Extended bearing and pump life. Zero leakage of pumped liquid.
Replaceable sealing strip and sealing arm wear strip	Low cost wearing parts that are easily replaced to extend the overall pump life through a number of campaigns.
Heavy duty sealing arm spring	Ensures operation through many millions of cycles.
Shear pin coupling	Dis-engages drive if an obstruction enters the pump, or the discharge pressure exceeds 15 bar g, ensuring there is no damage to the pump drive train.
Belt Drive Unit	Belts will slip if an obstruction enters the pump, ensuring there is no damage to the pump drive train. Pump speed can be easily changed on site by changing the pulley ratios.

MAGMO

OPERATING PARAMETERS

Magmo pumps are designed to operate primarily on Massecuite, Magma and Molasses.

Flow range	-	5 USgpm to 246 USgpm
Speed	-	10 rpm to 50 rpm
Discharge Pressure	-	10 psi
Viscosity	-	Unlimited

Bareshaft Magmo No. 10

MATERIALS OF CONSTRUCTION

STANDARD CONSTRUCTION

Casing	-	Cast Iron
Rotor	-	Cast Iron
Sealing Arm	-	Ductile Iron (with Hardened edge)
Shaft	-	Ductile Iron
Bearing Bushes	-	Bronze
Sealing	-	Packed Gland

OPTIONS

Shaft	-	Stainless Steel
Rotor	-	Bronze
Sealing	-	Mechanical Seal
Drive Options	-	Direct Drive from geared motor through a shear pin coupling. Direct Drive from belt driven gearbox through a standard coupling.

Magmo No. 6 belt driven unit

All Magmo pumps are supplied with steaming out connections as standard.

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Specifications and technical data may be changed without notice.

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