



# RELIABLE ENGINEERING CO.

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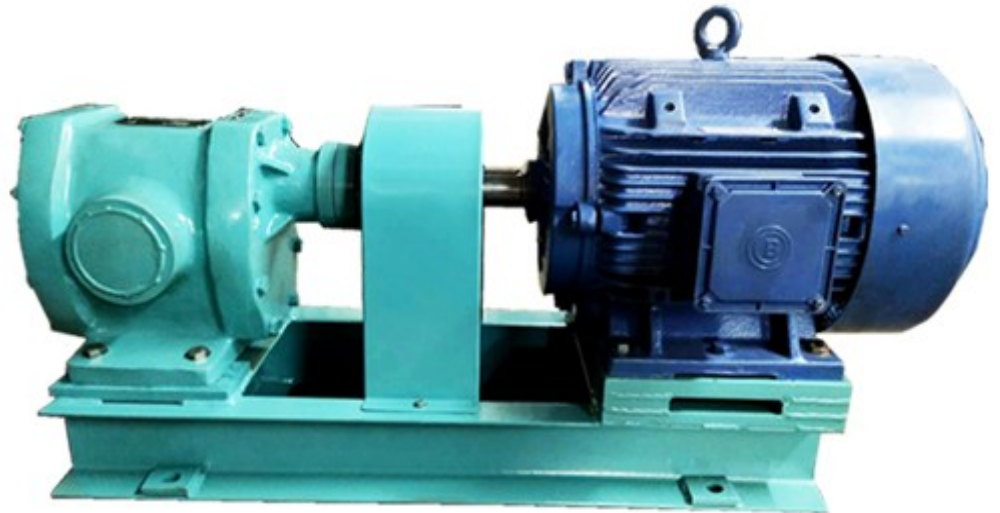
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**POSITIVE DIPLACEMENT  
ROTARY GEAR PUMPS**



## RANGE OF APPLICATION

The UM-2 series is a versatile range of Positive Displacement Rotary Gear Pumps preferably used for Transfer/Feed of light, medium to highly viscous fluids having use in

- Refining Technology.
- Petrochemical and Chemical Industries.
- Crude Oil & Natural Gas Producing / Processing Plants.
- Fuel Oil Transfer / Firing in general industry.
- Transfer / feed of viscous materials in process industry.
- Soap / Fatty Acid / Glycerine / Edible oil / Synthetic Detergent Plants
- Lubrication systems.
- Rayon / Manmade fibre plants for pumping feed stocks/ viscose/polymer
- Cryogenic liquid transfer.

## SPECIAL FEATURES

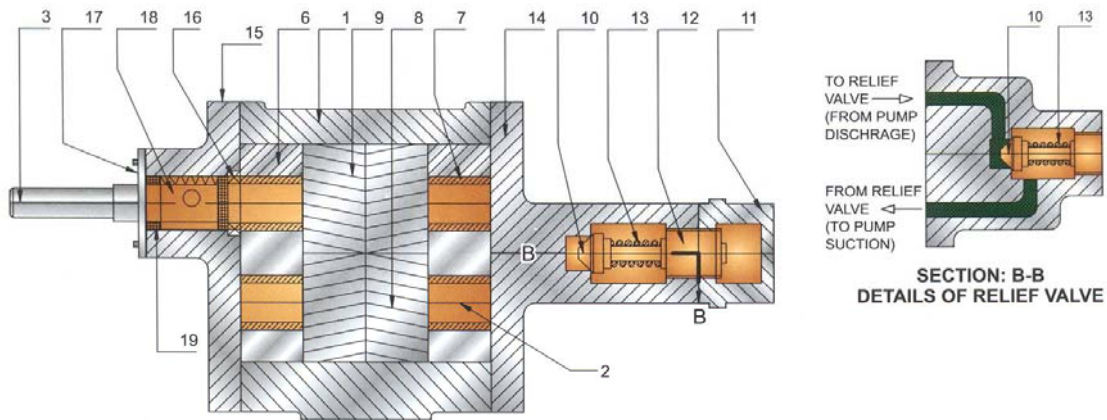
- A versatile, general purpose pump capable of dealing with wide variety of viscous liquids.
- No axial thrust, balanced gear design
- Replaceable bush bearings housed in pump body with positive self lubrication arrangement.
- Simplicity of design ensures ease of maintenance, reduce downtime and maintenance.
- With or without built in relief valve
- Design, Construction, Performance as per API 674, Hydraulic Institute Standard

## OPERATION

Rotary Gear Pumps are Positive Displacement pumps of Extremely simple Design. They consists of only two moving parts, a Drive Gear and a Driven Gear rotating on replaceable bush bearings fitted in the pump housing. Gears form chambers containing liquid being pumped. When the Drive gear is rotated, the chambers are filled at the suction side and liquid travels in the teeth cavity on the two outer sides of the two gears, with the meshing of the gears the same being discharged evenly through delivery connection. The output is virtually free from Pulsation and Turbulance.

## CONSTRUCTION

<b>PUMP BODY</b>	Standard Construction in Close Grain Cast Iron conforming to IS 210 FG 260 Alternatively also available in Cast Carbon Steel, Stainless Steel 410, 304, 304L, 316, 316L, 321, Alloy-20, Hastelloy-A.B.C., Monel. Pump body in jacketed construction available for Heating/Cooling.
<b>GEARS</b>	Standard construction in Carbon Steel conforming to IS 1570 55C4 or BS 970 EN-9 Alternatively also available in Stainless Steel - 410, 304, 304L, 316, 316L, Alloy-20 Gears can be Spur, Helical, or Herringbourne type. Gears are Hob Cut, depending upon duty conditions gears and shafts are hardened and ground (Not in standard pumps)
<b>SHAFTS</b>	Standard construction in Carbon Steel conforming to IS 1570 55C4 or BS 970 EN-9 Alternatively also available in Stainless Steel - 410, 304, 304L, 316, 316L, Alloy-20
<b>RELIEF VALVE</b>	Standard Pumps are with built in relief valve, however depending upon application pump can be supplied without built in relief valve.
<b>SHAFT SEALING</b>	Standard Shaft sealing in Packed Gland type, Optional pumps with shaft mechanically sealed with or without flushing/Cooling plan available.
<b>TEMPERATURE</b>	Standard Pumps are built for operating temperature upto 80 <sup>0</sup> C, Pumps for higher operating temperature upto +350 <sup>0</sup> C, pumps for handling liquids upto -40 <sup>0</sup> C are also available.
<b>PRESSURES</b>	Standard Pumps are built for ideal working pressure upto 7 Kg/cm <sup>2</sup> for continuous duty. However pumps for higher operating pressures upto 30 Kg/cm <sup>2</sup> can be supplied.
<b>VISCOCITY</b>	Normally liquids with viscosities upto 1000 cPs can be handled by standard pumps, however depending upon speed of pump, higher viscosity upto 2,00,000 cPs can be handled.
<b>PORTS</b>	Standard Pumps have BSP F suction and discharge ports, however pumps with BSP M, NPT F, NPT M, and Flanged end as per IS, ANSI B, 16.5, DIN or BS can be supplied.
<b>DRIVE</b>	In general the pumps should be driven directly via flexible coupling. It is permissible to drive the pump by V-belt, chain or gears provided that radial load is absorbed by additional external bearings.
<b>GENERAL</b>	<ul style="list-style-type: none"><li>• Pumps with Internal / External Roller / Ball Bearings can also be supplied.</li><li>• Pumps to suit specific Foundation / Dimensional Requirement can also be supplied.</li></ul>



### CONSTRUCTIONAL DETAILS

PART	STANDARD PUMP	HIGH PRESSURE PUMP	HIGH TEMPERATURE PUMP	STAINLESS STEEL PUMPS	SPECIAL METAL PUMPS
PUMP BODY (1)	CI	CS	CI/CS	SS	SM
GEARS (8) (9)	CS	CS, H & G	CS	SS	SM
SHAFT (3)	CS	CS, H & G	CS	SS	SM
BEARINGS (7)	BRONZE	CI	CI	CFT/PEEK	CFT / PEEK
BUSH BLOCK (6)	CI	CI	CI	SS	SM
RELIEF VALVE (10)	BUILT IN	BUILT IN	BUILT IN	OPTIONAL	OPTIONAL
GASKETS	OIL PAPER	SILICONE	SILICON/COPPER	PTFE	PTFE
JACKET	XX	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL
SHAFT SEAL	PACKED	PACKED	PACKED	PACKED	PACKED
MECHANICAL SEAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL	OPTIONAL

LEGEND : CI - Cast Iron, CS : Carbon Steel, H&G : Hardened & Ground, SS : Stainless Steel, SM : Special Metal of Choice, CFT : Carbon Filled PTFE

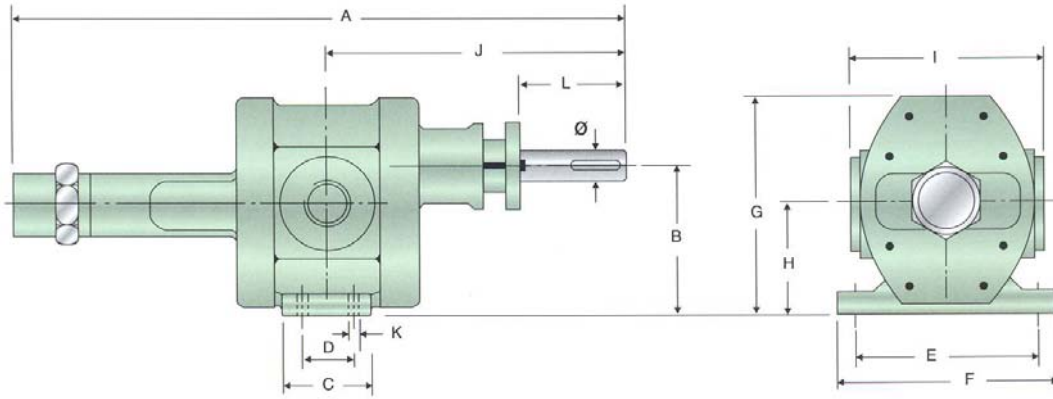
### PERFORMANCE CHART OF STANDARD PUMP RANGE

MODEL	SIZE IN MM	CAPACITY - LPM @				MODEL	SIZE IN MM	CAPACITY - LPM @					
		1500 rpm	1000 rpm	750 rpm	100 rpm			1500 rpm	1000 rpm	750 rpm	100 rpm		
15	1/2"	15 X 15	10	07	5	0.7	50	2"	50 X 50	170	115	85	11.5
15S	1/2"	15 X 15	20	15	10	1.5	50S	2"	50 X 50	230	155	115	15.5
20	3/4"	20 X 20	30	20	15	2.0	65	2 1/2"	65 X 65	315	210	158	21.0
25	1"	25 X 25	45	30	22.5	3.0	65S	2 1/2"	65 X 65	450	300	225	30.0
30	1.1/4"	30 X 30	65	46	35	4.6	75	3"	75 X 75	680	455	340	45.5
40	1.1/2"	40 X 40	100	65	50	6.5	100	4"	100 X 100	980	655	490	65.5
40S	1.1/2"	40 X 40	130	85	65	8.5	125	5"	125 X 125	1250	835	625	83.5
							150	6"	150 X 150	2000	1335	1000	133.5
$\text{H.P.} = \frac{\text{LPM} \times \text{kg/cm}^2}{150}$							$\text{H.P.} = \frac{\text{LPM} \times \text{kg/cm}^2}{250}$						

NOTE : (1) Above Capacities are indicative Capacities for standard pumps at respective Pump Speed. Depending upon application Pumping speed may be reduced to ensure trouble free operation.

(2) From the HP formulae given above select motor of next higher rating. This formulae holds good for liquids having viscosity of upto 750 cPs and Sp. Gravity upto 1.25.





SIZE	A	B	C	D	E	F	G	H	I	J	K	L	Ø	KEYWAY
15 x 15	348	95	55	30	103	128	140	76	140	187	10	75	16	5x2.5x32
20 x 20	368	95	40	103	128	140	140	76	140	187	10	75	16	5x2.5x32
25 x 25	415	113	67	39	109	138	154	88	154	208	10	75	19	5x2.5x32
30 x 30	455	120	74	42	145	176	155	90	155	225	11	80	22	6x3x38
40 x 40	475	120	74	43	145	176	160	90	160	238	11	80	22	6x3x38
40 x 40	500	122	100	66	142	177	175	90	160	250	11	80	25	6x3x45
50 x 50	555	122	154	117	142	177	175	90	160	278	11	85	25	6x3x45
50 x 50	570	157	175	85	157	195	225	117	250	275	13	110	32	6x3x45
65 x 65	625	157	172	126	152	195	225	117	250	310	13	110	32	6x3x45
65 x 65	660	197	160	110	193	241	278	150	290	375	14	75	35	8x4x51

ALL DIMENSIONS ARE IN MM      TOLERANCE - ± 5 mm except  $\phi$  - 0.025 mm.      ALL PORT SIZES ARE IN BSP FEMALE

- TECHNICAL SPECIFICATION AND DIMENSIONS ARE SUBJECT TO REVISION.
- ASK FOR CERTIFIED DIMENSIONAL DRAWING OFFERED PUMP MAY OR MAY NOT HAVE ALL THE FEATURES AS DETAILED IN THE CATALOGUE