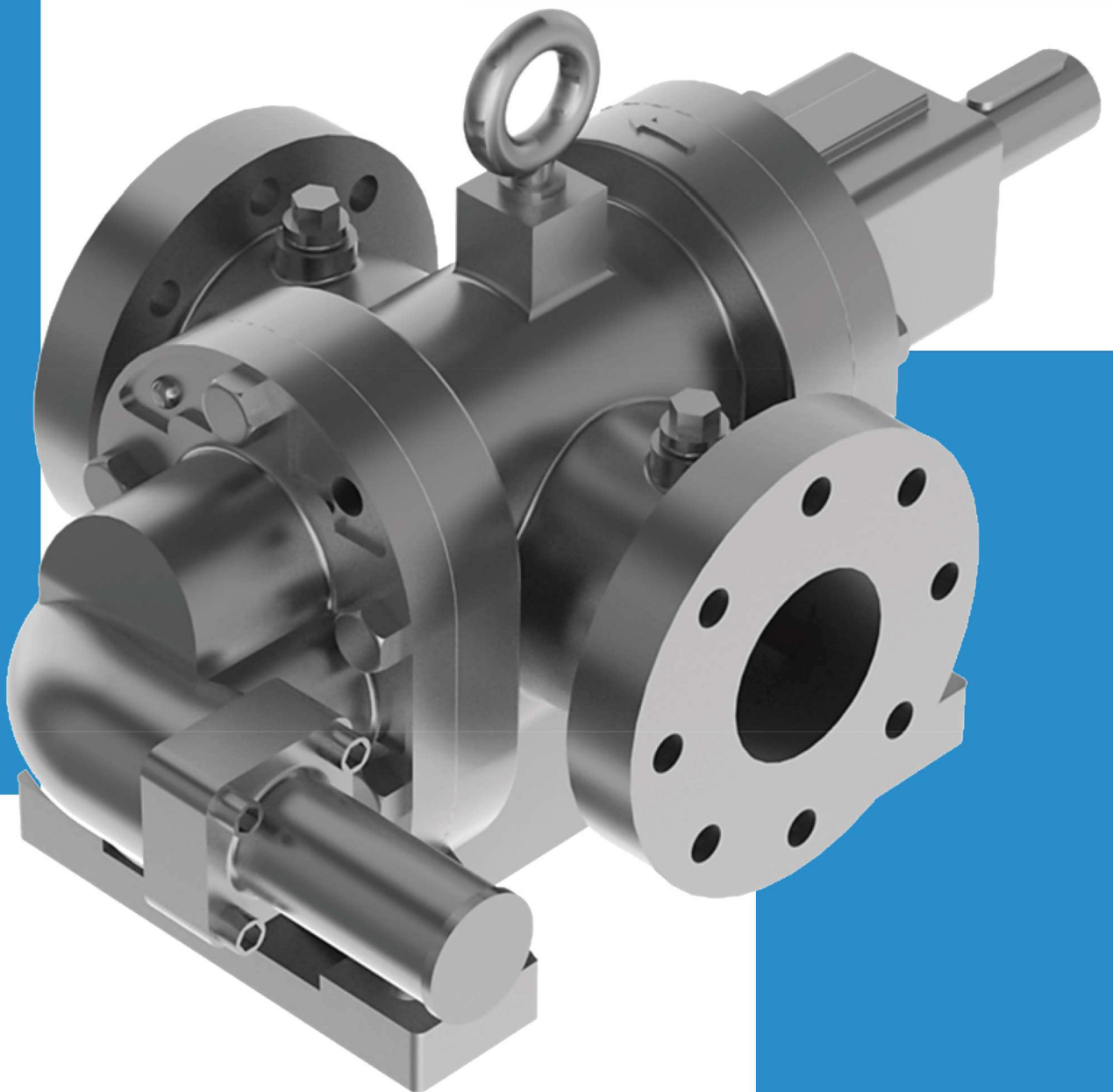


ROTARY GEAR PUMP



RN SERIES



From ½" to 6" size, capacity up to 200 m³/hr pressure up to 11 bar viscosity 100,000 cst temperature up to 110 oc



EBAB GEAR PUMPS

The pump comprises of a pair of herringbone gear fitted on harden & ground shaft with shaft sleeve in flouting design as rotor supported on either side on needle (RN) bush (RB) bearing. Four wear ring plate are packed on both side of the gears.

Pump is equipped with adjustable relief valve for over pressure protection.

Oil seal design is standard for sealing. Option for mechanical seal or packing. The pump are self priming and supplied with 4 poles motor for viscosity up to 400 CST and lower speed motor (6 & 8 poles) for higher viscosity.

“RN” the product lubricated needle bearing design are suitable for pumping clean viscous liquid such as fuel oil, vegetable oil, lubricant and hydraulic oil.

For pumping low viscosity liquid (jet fuel & turpentine), poor lubricating property liquid (sugar, paint & wax) or liquid containing dirt or impurities, “RNX” independent lubricated bearing should be selected.

“RB” the bushing design is suitable for clean or dirty viscous & semi viscous liquid (soap, paint & wax) where shaft speed is less. Graphite or Teflon bushing is recommended for low viscosity such as toluene & kerosene.

Feature

- ❖ Herringbone rotor design eliminate side thrust
- ❖ Floating gear design ensures uniform load distribution.
- ❖ Optionally steam jacket available.
- ❖ Low leakage path by design improve volumetric efficiency
- ❖ Extra thick shaft and shorter bearing span reduces bending effect

Application Manufacturing Industry

- ❖ Mineral & vegetable oil
- ❖ Paint & lacquer
- ❖ Liquid soap paste
- ❖ Soya oil
- ❖ Lube oil
- ❖ Glycerine
- ❖ Palm oil

Petrochemical Industry

- ❖ Asphalt
- ❖ Solvents
- ❖ Liquid polymer
- ❖ Adhesives

Maine Industry

- ❖ Engine lubrication oil
- ❖ Fuel transfer
- ❖ Lub-Oil
- ❖ Greases

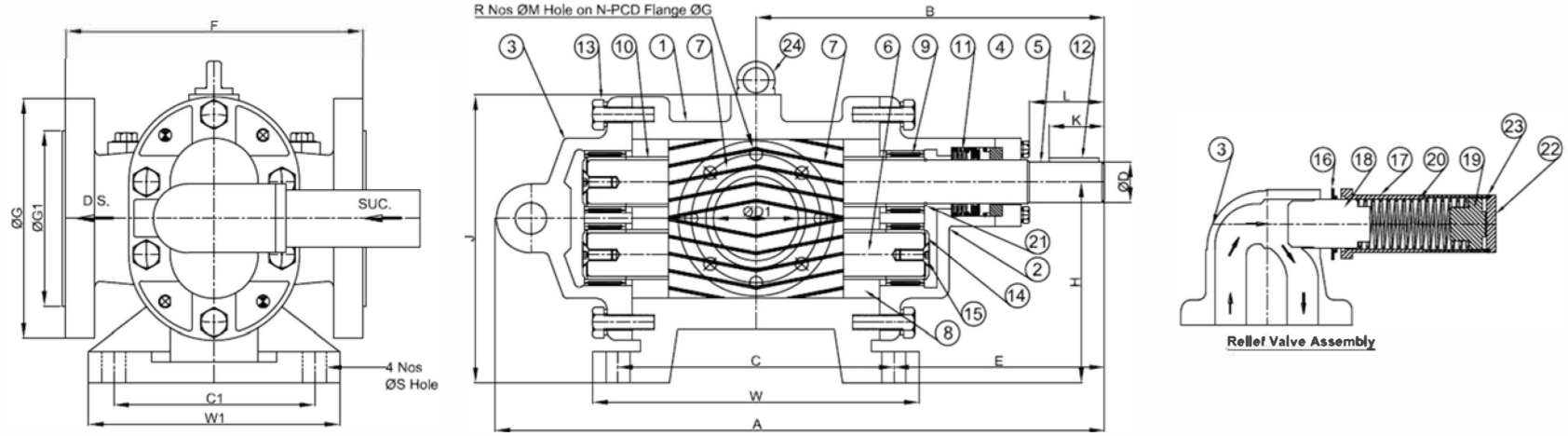
Material of Construction		
No.	Part Material	
1	Pump Casing	CI/CS/SS
2	Front Cover	CI/CS/SS
3	Back Cover	CI/CS/SS
4	Gland Cover	CI/CS/SS
5	Rotor Shaft	AISI 1055/4140/SS
6	Stator Shaft	AISI 1055/4140/SS
7	Impeller Gear	AISI 4340/SS
8	Needle Bearing	INA/IKO
9	Wear Plate	Bronze
10	Lifting Lug	Steel
11	R.V. Housing	Mal. Iron
12	R.V. Piston	AISI 1040/SS
13	R.V. Spring	Spr. St.
14	R.V.AD. Screw	AISI 1040/SS
15	Base Plate	M.S.
16	Coupling Guard	Aluminum
17	Coupling Flexible	
18	Coupling Key	AISI 1040/SS
19	Sealing Sys	OS/MS/GP
20	Dowel Pin	Silv.ST.
21	Comp. Flange	MS/SS
22	H/T Hex-Bolt	AISI 1040/SS

Model, Size, & Nozzle			CAPACITY AT RATED SPEED								
			3-350 cps			350-1000 cps			1000-3500 cps		
			1440 RPM			960 RPM			720 RPM		
Model	Size	Nozzle	LPM	HP@6 bar	HP@11 bar	LPM	HP@6 bar	HP@11 bar	LPM	HP@6 bar	HP@11 bar
12	S	1/2" 125#FF	8.30	0.20	0.30	5.40	0.13	0.20	4.00	0.12	0.18
	M		16.60	0.40	0.60	10.80	0.25	0.40	8.00	0.23	0.35
	L		25.00	0.60	0.90	16.30	0.38	0.60	12.00	0.35	0.50
25	S	1" 125#FF	33.30	0.80	1.25	21.60	0.45	0.75	16.00	0.45	0.70
	M		50.00	1.20	1.85	32.50	0.75	1.15	24.00	0.65	0.95
	L		60.00	1.50	2.45	40.00	0.95	1.50	28.80	0.82	1.35
40	S	1 1/2" 125#FF	83.30	1.00	3.00	54.10	1.20	1.90	40.00	1.10	1.55
	M		100.00	2.40	3.60	65.00	1.50	2.25	48.00	1.25	2.00
	L		125.00	3.00	4.50	81.30	1.90	2.90	60.00	1.75	2.35
50	S	2" 125#FF	150.00	3.70	5.60	97.50	2.30	3.75	72.00	2.00	2.95
	M		166.66	4.00	6.20	107.90	2.75	4.25	79.70	2.25	3.35
	L		200.00	4.80	7.50	130.00	3.00	4.75	96.00	2.55	3.95
65	S	2 1/2" 125#FF	250.00	6.00	9.40	162.50	4.10	6.25	120.00	3.15	5.00
	M		300.00	7.20	11.25	195.00	5.00	7.00	144.00	3.85	6.00
	L		333.30	7.50	12.00	216.60	5.00	8.25	160.00	4.00	6.50
80	S	3" 125#FF	415.00	10.00	16.00	272.00	7.00	11.00	200.00	5.50	8.50
	M		450.00	10.90	16.90	292.50	7.50	12.00	216.00	6.00	9.25
	L		500.00	12.15	18.80	323.00	8.50	13.00	240.00	6.85	10.00
100	S	4" 125#FF	600.00	14.50	22.50	400.00	10.00	15.50	288.00	7.75	12.50
	M		666.67	16.16	25.00	433.30	11.50	17.50	320.00	8.95	13.50
	L		833.30	20.00	31.33	541.60	14.00	21.50	400.00	10.55	16.50
125	S	5" 125#FF	1000.00	26.66	40.00	666.00	17.50	28.50	480.00	14.25	22.00
	M		1250.00	32.00	50.00	812.50	24.00	34.50	600.00	16.75	27.50
	L		1500.00	40.00	60.00	975.00	27.50	41.00	720.00	21.50	32.50
150	S	6" 125#FF	1660.00	42.50	78.35	1079.00	19.50	53.50	796.80	22.00	40.25
	M		1832.60	50.00	62.50	1191.20	34.50	42.50	879.60	25.75	32.00
	L		2083.00	53.50	75.00	1354.00	36.50	51.00	999.80	28.00	38.50
150F	S	6" 125#FF	2499.00	49.00	90.00	1625.00	51.50	72.50	1200.00	38.50	53.50
	M		2915.50	57.00	105.00	1895.10	57.50	85.00	1399.40	44.50	63.50
	L		3332.00	65.00	120.00	2165.80	60.50	90.00	1599.40	52.50	67.50

Distributor:



RN SERIES



Model	A	B	C	C1	ØD	ØD1	E	F	G	H	J	K	L	M	N	R	S	W	W1	PUMP WT
RN-12	239	141	100	80	11.5	0.5"	91	150	89	80	122	22	30	16	60.0	4	8	125	105	8.0
RN-25	271	156	110	90	15	1"	100	160	108	90	136	25	30	16	79.3	4	10	150	130	14.0
RN-40	318	184	130	105	21	1.5"	119	180	127	100	160	25	40	16	98.4	4	10	175	135	22.5
RN-50	359	208	150	110	24	2"	133	200	152	112	174	39	50	19	120.6	4	12	175	140	28.0
RN-65	419	243	160	130	27	2.5"	163	220	178	132	200	40	55	19	139.7	4	15	200	160	43.0
RN-80	481	278	220	160	32	3"	168	240	190	160	240	49	60	19	152.4	4	18	260	200	59.0
RN-100	554	324	270	180	37	4"	189	280	228	180	274	54	65	19	190.5	8	18	325	215	82.0
RN-125	615	355	280	200	47	5"	215	300	254	200	293	60	85	22	215.9	8	19	330	240	150.0
RN-150	690	388	350	220	52	6"	215	340	279	225	343	80	95	22	241.3	8	20	400	280	175.0
R N - 150F	749	420	380	240	57	6"	230	360	279	250	357	81	100	22	241.3	8	22	430	300	190.0

S. NO	Description	S. NO	Description	S. NO	Description
01	Pump Body	09	Needle Roller Brg. (RN)	17	R.V. Housing
02	Front Cover	10	Sleeve	18	R.V. Piston
03	Back Cover with R.V.	11	Shaft Seal	19	R.V.AD. Screw
04	Seal Cover	12	Key	20	Spring
05	Rotor Shaft	13	HT Bolt	21	Snap Ring
06	Stator Shaft	14	Washer	22	Spacer
07	R.H. & L.H. Gear	15	C.S.K. Bolt	23	O Ring
08	Wearing Plate	16	Lip Seal Washer	24	Lifting Lug

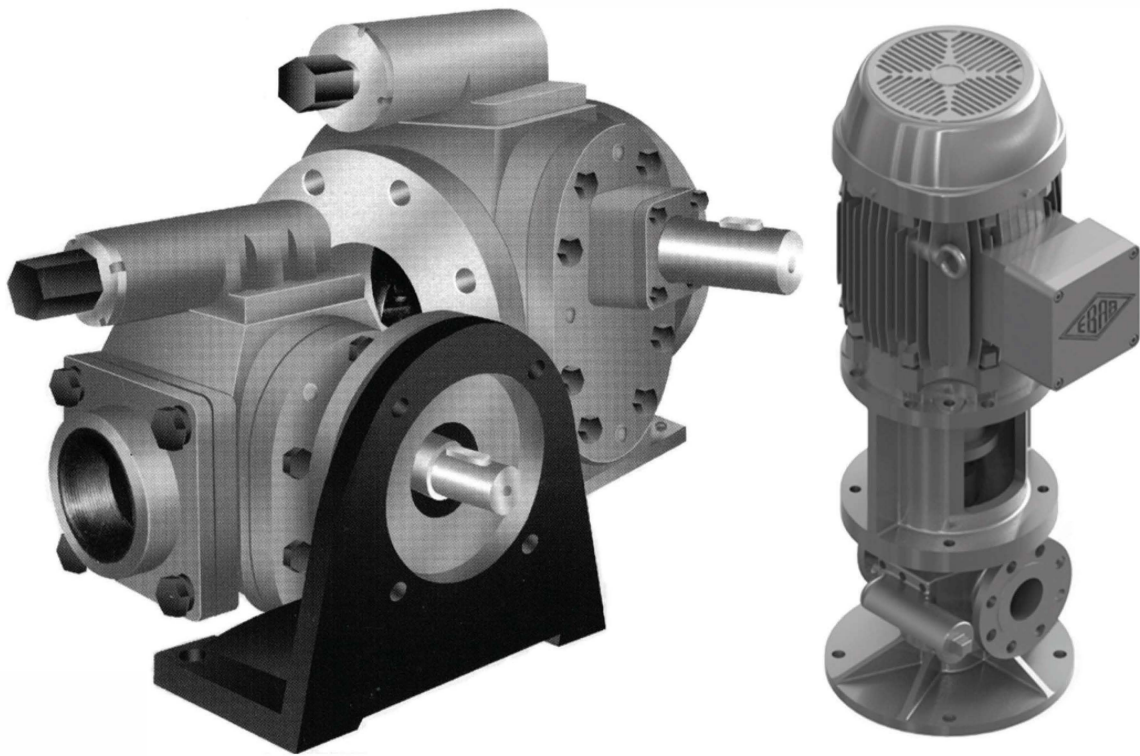


EBAB GEAR PUMPS

Rotary Gear Pump

RNH SERIES

From ½" to 6" size, capacity up to 125m³/hr Pressure up to 21 bar viscosity 100,000 cst Temperature up to 110 oc.



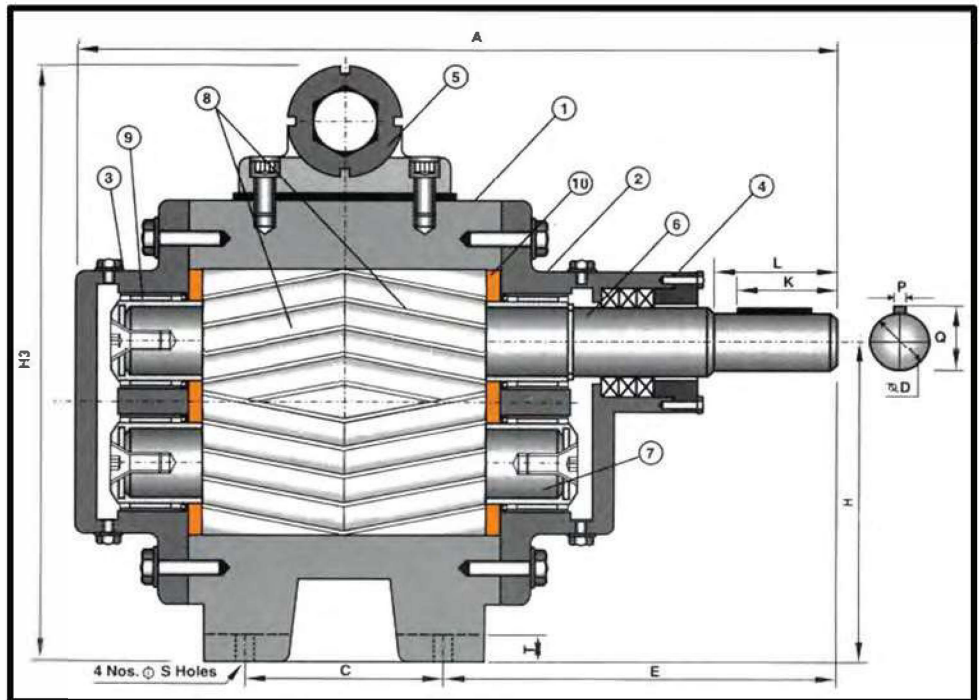
EBAB GEAR PUMPS

RNH SERIES

The proven range of rotary twin gear pump type "RNH" have been modified to achieve high pressure by reducing the bearing span, balancing the hydraulic force & blocking the slippage path but without compromising on the basic features prominent with all EBAB rotary pumps viz the compactness, efficiency, reliability & low noise level.

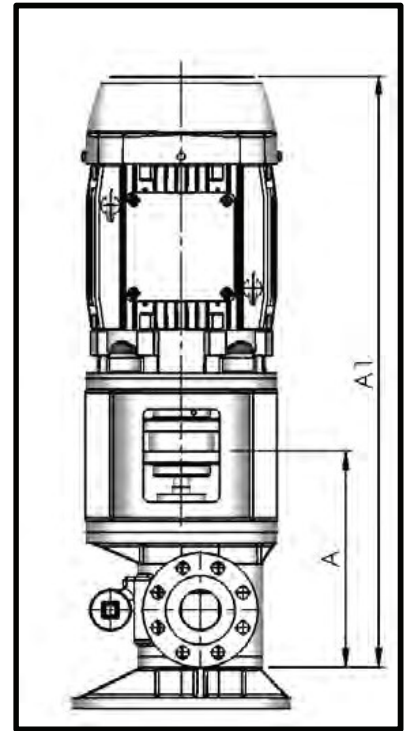
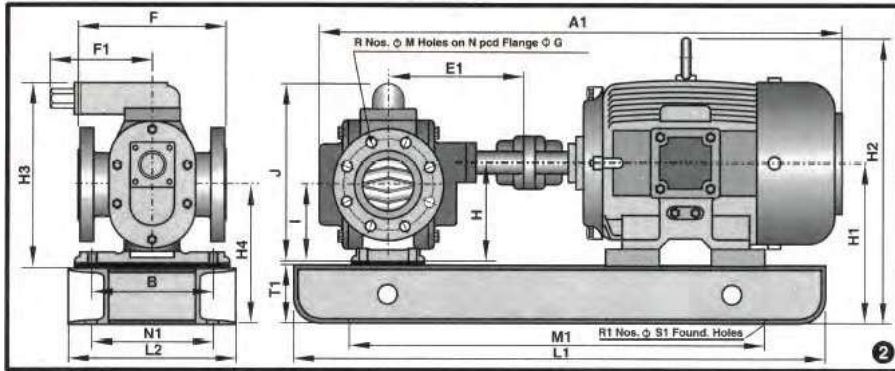
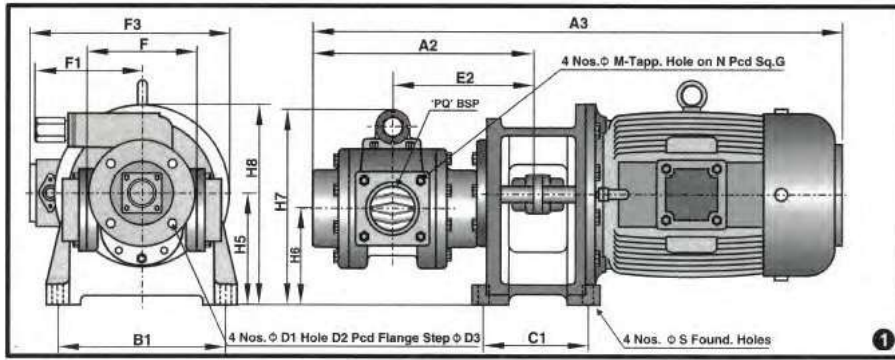
A pair of impeller with herringbone gear fitted on hardened & ground shaft with shaft sleeves in floating design supported on either side on needle / bush bearings located on end covers with ltb. wearing plate packed in between and placed inside close tolerance accurately machined casing with built in pressure relief valve makes to pump. Size 1/2" to 2 1/2" are provided with BSP thread inlet - outlet flange connections & they are available with foot or flange mounting. Size 3" to 6" are foot mounted with inlet - outlet port drilled to ASA-300 class. Type RNX is a bush bearing version & is offered up to 2 1/2" size.

This pump can also be offered with different MOC viz. CI, CS, Bronze, SS etc. Pump up to 35 bar are also offered in this series by further reducing the bearing span. The flange type pump coupled with flange type electric motor is offered in horizontal as well as vertical construction.



PART LIST WITH Material of Construction				AVAILABLE MODEL SIZE & CAPACITY					
SR	ITEM	QT	MATERIAL	MODEL 'PQ' BSQ SIZE	LPM (1450 RPM)	LPM (950 RPM)	M ³ /HR	ELE. MOTOR H.P.	FR. SIZE
1	PUMP CASING	1	CI/CS/SS	12L	16.66 (1.00)	10.99	1.00	1.50	90S
2	FRONT COVER	1	CI/CS/SS						
3	BACK COVER	1	CI/CS/SS	25M	33.32 (2.00)	21.98	2.00	2.00	90L
4	GLAND COVER	1	CI/CS/SS						
5	R. V. BODY	1	CI/CS/SS	32M	60.00 (3.60)	39.58	3.60	3.00	100L
6	ROTOR SHAFT	1	AISI 1055/4041/SS						
7	STATOR SHAFT	1	AISI 1055/4041/SS	40L	150.00	98.96	9.00	7.50	132S
8	IMPELLER GEAR	4	AISI 4340/ SS						
9	NEEDLE BRG	4	IKO/INA	50L	250.00	164.93	15.00	15.00	160M
10	WEAR PLATE	4	LTB						
11	R.V. PISTON	1	AISI 1040/SS	65L	350.00	230.90	21.00	20.00	160L
12	R.V. SPRING	1	SPRING STEEL						
13	R.V. AD SCREW	1	AISI 1040/SS	80M	450.00	296.88	27.00	30.00	180L
14	BASE PLATE	1	M.S.						
15	COUP. GUARD	1	ALUMN.	80L	600.00	395.83	36.00	35.00	200L
16	COUPLING	1	FLEXIBLE						
17	COUP. KEY	1	AISI 1040/SS	100L	900.00	593.75	54.00	60.00	225M
18	SEALING SYS.	2	OS/MS/GP						
19	DOWEL PIN	4	SILV. ST.	125L	1400.0	923.61	84.00	100.00	280S
20	COM.FLANGE	2	MS/SS						
21	H/T HEX BOT	12	AISI 1040/SS	150S	1666.0	1099.10	100.0	75.00	250M
22	INNER SLEEVE	4	AISI 52100						
23	V-SEAL	4	NITRILE.RU.	150L	2082.0	1373.54	125.0	120.00	280M
24	SNAP RING	1	AISI 52100						
25	C. S. SCREW	3	AISI 4340						

RNH SERIES



MODEL	DIMENSION																	WEIGHT BP-COU PUMP BP-COU IN KG.						
	OVERALL						MOUNTING							SHAFT			FLANGE							
	A1	J	H2	L1	L2	H3	A2	A3	B1	C1	E2	H5	H6	H1	H4	M1	N1		R1	ØD	ØD1	ØD2	ØD3	
		F1					F3	B	C	E1	F	H	T						P	K				G
12L	522	139	225	475	180	162	196	460	125	75	123	100	89	134	123	430	140	04	11.5	8	66	52	7.5	
		112					173	119	40	133	100	71	15					04	22					Sq 65
		175					180	8.5	15	58	112	60	40					13	25					M8
25M	560	151	225	525	180	165	209	508	155	85	131	120	104	134	118	480	140	04	15	10	83	68	11	
		112					203	125	45	143	120	80	15					05	25					Sq 70
		200					220	8.5	15	69	112	64	40					17	30					M8
32M	630	185	289	600	200	195	236	610	190	110	153	120	100	154	134	545	160	04	21	10	105	85	14.5	
		141					245	155	50	168	135	90	15					06	30					Sq 80
		220					220	10	15	81	141	70	50					23.5	40					M10
40L	764	205	362	700	250	241	278	677	230	130	180	145	123	186	164	645	216	04	24	14	125	100	18.75	
		153					265	170	55	195	145	100	20					08	40					Sq100
		255					270	12	15	95	153	78	50					27	50					M12
50L	950	234	435	900	285	286	338	762	290	180	222	190	164	229	203	830	230	04	27	14	140	115	21	
		173					285	200	70	223	165	112	20					08	40					Sq120
		315					340	12	19	94	173	86	65					30	55					M12
65L	1030	261	445	950	315	294	355	882	290	180	223	190	161	239	210	700	254	04	32	14	152	125	23	
		173					325	225	80	250	190	132	25					10	50					Sq135
		320					340	15	19	104	173	103	75					35	60					M14
80M	1165	338	568	1150	330	342	205							284	250	850	279	04	37	210	168	08	73	
							180	90	289	280	180	25	10					55	22					22
		436						19	19	244	205	146	100					40	65					22
80L	1235	338	616	1200	355	362	205							304	270	900	318	04	37	210	168	08	37	
							180	90	289	280	180	25	10					55	22					22
		436						19	19	244	205	146	100					40	65					22
100L	1360	375	666	1400	406	404	230							329	289	900	356	04	47	254	200	08	58	
							180	130	323	300	200	28	14					70	22					22
		487						19	22	258	230	160	100					50.5	80					22
125L	1590	420	854	1600	520	479	230							409	363	1150	457	04	52	279	235	08	76	
							200	150	346	340	225	28	16					75	22					22
		533						22	22	271	230	179	150					56	85					22
150S	1510	467	819	1650	470	471	245							404	354	1150	406	04	57	317	270	12	78	
							215	170	358	345	250	28	16					80	22					22
		550						22	22	293	245	200	150					61	95					22
150L	1610	467	879	1700	520	501	245							434	384	1150	457	04	57	317	270	12	85	
							200	150	346	340	225	28	16					80	22					22
		550						22	22	271	230	179	150					61	95					22

RNH SERIES

PUMP OPERATION & PERFORMANCE CHARACTERISTICS: Gear pump is the most versatile rotary positive displacement pump & it scores over other types of Pd pumps viz. Screw, Vane, Lobe, Tracoidal, Radial piston etc. & therefore it is used for the widest range of application i.e. loading-unloading, transfer, fuel pressurizing, hydraulic, lubrication in IC engines, Polymers metering applications etc. Gear pump can develop high pressure up to 210 bar in same configuration simply by tightening the working clearances & improving the workmanship, whereas in screw pump the thread length is needed to increase making the pump bulky & difficult to manufacture. In gear pump each tooth gap contributes to the capacity while in screw pump only one pitch length contributes to the capacity thus gear pumps are always compact & efficient. The capacity of the pump varies directly with speed but remain constant against pressure, however some liquid always by-passes to suction due to running clearance between the casing & impeller causing slip, which depends upon the differential pressure, viscosity of the liquid & the workmanship. Gear pumps are capable of handling liquids of any viscosity, the slip reduces with increase in viscosity but the frictional power increases. Though the pump has a self-priming capability some net positive suction head (NPSH) is always required to avoid cavitation, this again depends on the viscosity of the liquid to be pumped & the pumping speed.

INTERNAL POWER LOSSES:

In rotary gear pumps are of two types. The mechanical loss is the power required to overcome friction drag of all the moving part within the pump while viscous loss is power loss due to fluid viscous drag & shearing action of the fluid, this can be calculated from the graph shown here.

HORSE POWER CALCULATION:

The BHP required to drive a rotary pump is sum of the theoretical HP & internal losses. The former is the actual work done in moving the fluid from inlet pressure condition to outlet pressure condition & is product of constant $C=0.037$, Capacity in $m^3/hr.$ & Pressure in Kg/Cm^2 Or Constant $C=2.3$, Capacity in GPM & Pressure in PSI .

GEAR PUMP SELECTION & USES:

RNH series pump are medium pressure pumps designed for viscous pressure application up to 21

Bar. The bush bearing version type RDBX is used for clean or dirty viscous & semi viscous liquid where the shaft surface speed is less. Pump up to 2" size can be run at 1440 RPM & for higher size the speed should be reduced to 960 RPM or lower. The self-lubricated needle roller bearing type can be used for clear viscous liquid & can be run at 1440 RPM for all the sizes. This pump are ideally suited for fuel pressuring, hydraulic, medium pressure lubrication & transfer applications.

INSPECTION & TESTING: All pumps are assembled after due inspection of each & every parts are tested for duty parameters in accordance with API-676.

