



ROTARY GEAR PUMP

TYPE-DG

For Loading, Unloading and Transfer of
all viscous & semi-viscous Liquids,
Oils & Petroleum Product



DG SERIES IN SS CONST.

Special Features:

- Modified Profile Single Helical Gears, Hardened & Ground Shafts Self lubricated sintered Bronze bush bearing, effective Built in Pressure Relief valve
 - Available in 9 .
 - Capacity from 5 to 500 lpm
 - Temperature 90°C, viscosity 10,000 cst
 - Maximum working pressure 10 kg/cm²g
 - Modified version for high temperature up to 250 °C
 - Modified version for Molasses and vacuum application
- With increased efficiency enhancing capacity range, improved operational reliability & relief valve function.
- Optionally converted to foot type with the help of L type bracket. It gives choice to match the electric motor.
- The inlet outlet port orientation can also be change radially.
- Optionally available for Hi-temp up to 250°C and for vacuum application.
- Optionally available with mechanical seal
- Size from ½" to 6" NB Size flanged to ASA-150, B 16.5 Class
- Capacity from 0.5 to 200 m³hr . Pressure up to 11 kg/cm²g.
- Viscosity up to 1,00,00 cst, temperature up to 110 °C

Applications:

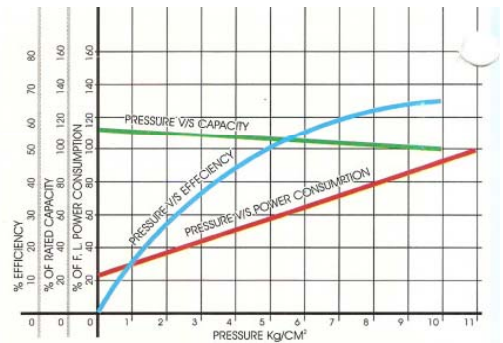
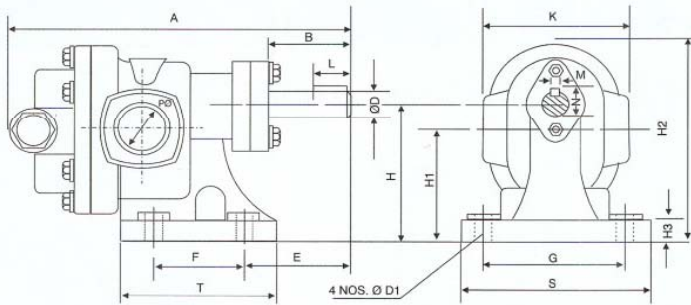
- Due to compact and simple design and with availability of monoblock version, these pumps are ideally suitable for OE applications for
 - Centralised lubricating system
 - Oil filtration cooling and cleaning system
 - Pumping and heating systems
 - Transformer oil purification system
 - Use as a barrel pump
- Transfer of all viscous and semi viscous liquids like LDO, LSHS, lube Oil, Mineral Oil, Paint, varnish, glue, glycerine, glycol, soap solution, kerosene and molasses.
- For loading/unloading & transfer of all kind of petroleum products and any kind of viscous liquids for continuous uninterrupted service.

Reliable pumping solution since 1968...

POWER CHART

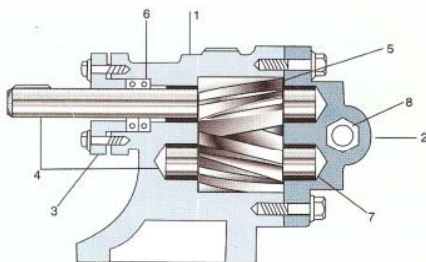
PUMP MODEL	INLET OUTLET SIZE	CAPACITY AT 1440 RPM			POWER CONSUMPTION IN BHP AT DIFFERENTIAL PRESSURE OF kg/Cm ² with 1500 SSU VISCOSITY										WEIGHT OF BARE SHAFT PUMP IN KG.
		LPM	US GPM	M ³ /hr	'X' 1	2	3	4	5	6	7	8	9	10	
DG-5	¼" x ¼"	5	1.3	0.3	0.25		0.35			0.5			1.40		
DG-20	½" x ½"	20	5.3	1.2	0.50			0.75			1.0			2.20	
DG-30	¾" x ¾"	30	7.92	1.8	0.50		0.75			1.0			4.30		
DG-50	1" x 1"	50	13.2	3.0	0.5		0.75		1.0		1.50			5.20	
DG-70	1½" x 1¼"	75	19.8	4.5	1.0		1.50			2.0		3.0		8.30	
DG-110	1½" x 1½"	110	29	6.6	1.5		2.0		3.0		5.0			9.80	
DG-225	2" x 2"	225	59.4	13.5	3.0		5.0			7.5			17.5		
DG-350	2½" x 2½"	350	92.5	21.0	5.0		7.5		10		12.5			35.4	
DG-500	3" x 3"	500	131.6	30	10.0		12.5		15.0		20.0			54.0	

DIMENSION (in mm)



MODEL	A	B	E	F	G	S	T	H	H1	H2	H3	L	M	N	ØD	ØD1	K	PØ
DG-5	118	21.5	22	35	60	78	60	54	43	78	6	18	4	11	9.5	7	60	¼" BSP
DG-20	156	38	51	40	70	90	70	63	50	90	6	22	4	13.5	12	8	70	½" BSP
DG-30	193	44.5	63.5	45	85	110	80	80	66	115	8	25	5	16	14	10	80	¾" BSP
DG-50	203	55	64.5	50	93	120	95	90	73	128	8	27	5	19	17	10	90	1" BSP
DG-70	240	60	65	60	105	140	110	100	79	140	10	32	6	22.5	20	12	100	1¼" BSP
DG-110	262	65	80	70	115	150	130	110	88	155	12	35	6	24.5	22	12	108	1½" BSP
DG-225	322	84	92	100	140	180	160	132	105	192	15	40	8	28	25	15	142	2" BS
DG-350	384	97	110	120	155	200	185	145	114	215	18	45	8	31	28	17	160	2½" BSP
DG-500	437	108	120	140	180	235	205	160	120	235	20	50	8	33	30	17	170	3" BSP

MATERIAL OF CONSTRUCTION



Sr. No.	PART	MOC.
1	CASING	CI GR. 20
2	R.V COVER	CI GR. 20
3	GLAND COVER	CI GR. 20
4	SHAFTS	EN-9 H&G
5	GEARS	EN-8
6	SEALING	OIL SEAL
7	BEARING	BRONZE BUSH BEARING
8	PLUG	BRASS

APPLICATION

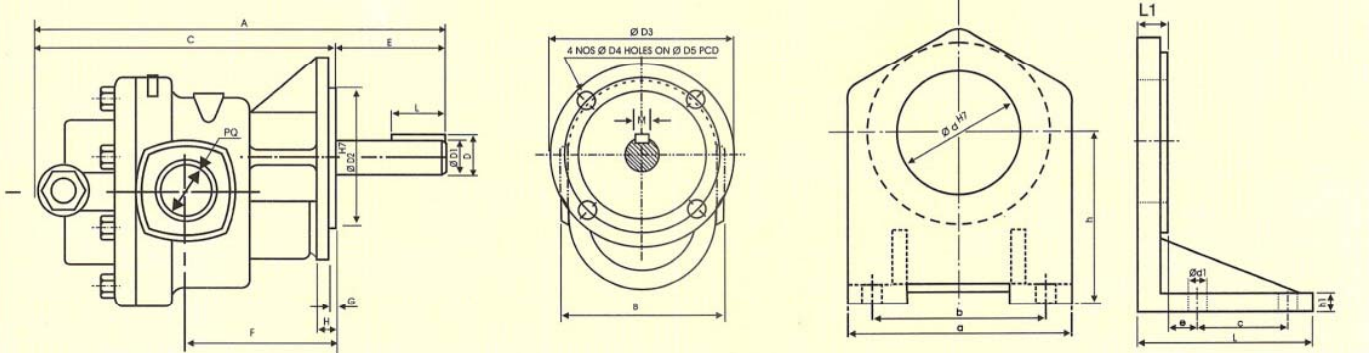
Rotary gear pumps are useful for handling viscous liquids i.e. all kinds of oil , viscous chemicals and food applications. Following liquids can be handled by them:

All kinds of mineral oils, All kinds of vegetable oils Coal, tar, Bitumen, Asphalt, Paints & Varnish, Sugar molasses & syrups, Printing Inks & Dyes, All kind of fish & animal oils, Glycerine 7 glycol, fuel oil, Diesel oil & furnace oil, soap solutions & lard viscous chemicals.

Rotary gear pumps find wide application in Power plant, steel mills, potteries, refineries, Oil Storage installations etc.

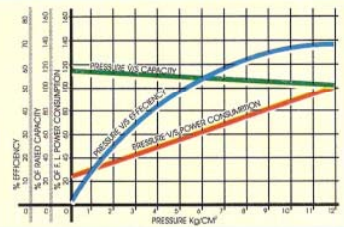
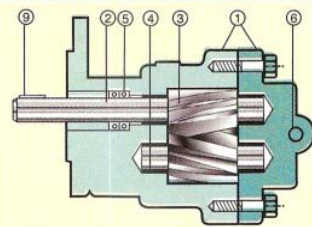
Rotary gear pump type DG-x-LPH is a self priming, Bi directional positive displacement pump with high volumetric efficiency & overall efficiency. The pump in simple two piece CI construction with self lubricating sintered bronze bush bearing, hardened and ground shafts & gear providing maintenance free pump with long service life. The pump can be run in either direction with change in inlet and outlet port position. The relief valve operation can simply be reversed by changing the RV parts on opposite side.

PUMP MODEL	INLET OUTLET SIZE	CAPACITY AT 1440 RPM			REQUIRED POWER IN BHP AT DIFFERENTIAL PRESSURE OF 'X' kg/cm ² WITH 1500 SSU VISCOSITY										WT. OF BARE SHAFT PUMP IN KG.
		LPM	US GPM	M ³ /hr	'X' 1	2	3	5	6	7	8	9	10	12	
DG-05-LPF	¼" X ¼"	2.5	0.65	0.15	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.19	0.22	1.6
		5.00	1.30	0.30	0.20	0.21	0.22	0.24	0.25	0.27	0.30	0.32	0.35	0.41	
DG-15-LPF	½" X ½"	10	2.65	0.60	0.25	0.27	0.29	0.34	0.37	0.40	0.43	0.46	0.50	0.56	2.1
		15	4.00	0.90	0.27	0.31	0.36	0.46	0.52	0.58	0.62	0.68	0.72	0.80	
DG-25-LPF	¾" X ¾"	20	5.30	1.20	0.30	0.35	0.40	0.50	0.55	0.60	0.65	0.70	0.75	0.85	3.9
		25	6.65	1.50	0.32	0.38	0.44	0.52	0.59	0.66	0.73	0.80	0.87	0.98	
DG-50-LPF	1" X 1"	35	9.30	2.10	0.37	0.43	0.50	0.57	0.64	0.72	0.82	0.92	1.02	1.12	4.6
		50	13.30	3.00	0.40	0.50	0.60	0.90	1.05	1.15	1.30	1.45	1.60	1.80	
DG-75-LPF	1¼" X 1¼"	60	16.00	3.60	0.55	0.75	0.98	1.23	1.45	1.65	1.85	2.05	2.25	2.45	7.50
		75	20.00	4.50	0.70	1.00	1.20	1.50	1.78	1.95	2.15	2.35	2.55	2.95	
DG-125-LPF	1½" X 1½"	100	26.60	6.00	0.85	1.10	1.35	1.77	2.00	2.22	2.45	2.70	2.90	3.45	8.80
		125	33.30	7.50	1.05	1.45	1.95	2.40	2.75	2.95	3.25	3.60	4.00	4.50	
DG-200-LPF	2" X 2"	150	40.00	9.00	1.40	1.82	2.45	3.50	4.01	4.50	5.25	5.84	6.35	7.60	16.40
		200	53.30	12.00	1.85	2.45	3.10	4.05	4.65	5.15	5.70	6.25	6.90	8.10	
DG-350-LPF	2½" X 2½"	300	80.00	18.00	3.70	4.50	5.40	7.10	8.05	8.95	10.25	11.15	12.05	13.50	27.80
		350	93.30	21.00	4.15	5.20	6.1	8.20	9.1	10.30	11.20	12.10	13.00	14.05	
DG-500-LPF	3" X 3"	415	110.00	25.00	5.00	6.10	7.12	9.15	10.20	11.30	12.35	13.50	14.65	16.80	36.00
		500	132.50	33.30	6.50	7.90	9.35	12.20	13.90	15.50	16.6	17.30	18.45	21.40	



MODEL	A	B	C	D	øD1	øD3	øD4	øD5	E	F	G	H	L	M	øD2	PQ	a	b	c	ød1	e	h	h1	L	L1
DG-05-LPF	117	64	87	11.0	9.5	72	6.5	59	30	74	2	8	18.0	3	45	¼" BSP	78	60	35	8.0	12	63	10	77	12
DG-15-LPF	152	70	116	13.0	12	80	8.0	66	36	92	2	9	22.0	4	50	½" BSP	90	70	40	8.0	15	71	12	80	12
DG-25-LPF	183	80	138	16.0	14	90	8.5	73	45	115	2.5	10	25.0	5	55	¾" BSP	108	85	45	10.0	16	80	12	90	13
DG-50-LPF	202	86	147	19.0	17	100	9.5	80	55	125	3	10	27.5	5	60	1" BSP	120	93	50	10.0	16	90	12	100	16
DG-75-LPF	233	100	168	22.5	20	112	11.5	92	65	148	3	12	32.0	6	72	1¼" BSP	145	105	60	12.0	15	100	15	110	20
DG-125-LPF	260	108	185	24.5	22	120	11.5	100	75	162	3	12	35.0	6	80	1½" BSP	155	115	70	12.0	17	112	15	135	20
DG-200-LPF	327	142	225	28.0	25	135	13.5	112	102	207	3	15	40.0	8	90	2" BSP	190	140	100	15.0	18	132	15	160	20
DG-350-LPF	370	160	260	31.0	28	152	13.5	128	110	242	3	15	45.0	8	105	2½" BSP	210	155	120	18.0	20	160	18	182	22
DG-500-LPF	428	170	308	33.0	30	175	17.5	142	120	275	3	17	50.0	8	110	3" BSP	240	170	135	19.0	22	180	20	200	22

- (1) Casing & covers : C.I. Gr 20 , IS - 210
- (2) Drive shafts : EN - 9 hardened & gr.
- (3) Rotary gears : EN - 8 toughened
- (4) Bush bearings : Sintered bronze
- (5) Shaft Seals : Oil seal / Mech. Seal
- (6) R.V. spring : AISI S.S. 302
- (7) R.V. ball : EN - 31 hardened gr
- (8) R.V. screw & plug : Brass
- (9) Key for coupling : Mild steel



Rotary Twin Gear Pump

Reliability in performance is one of main factor that influences your choice of pump. Efficiency is another factor which cannot be neglected. These are also chief consideration while designing pumps. When it comes to handling viscous or semi viscous liquids DG pump is an obvious choice for the very reason.

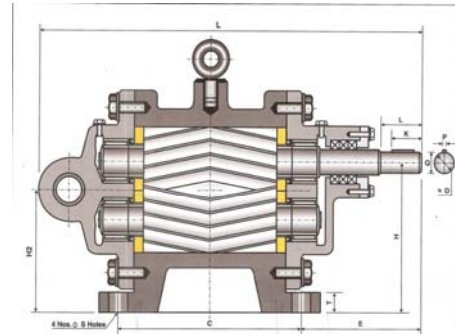
All DG rotary twin gear pumps are proven for it's reliability, efficiency, compactness and noiseless operation. These pumps have outclassed conventional gear pump offering better overall performance at reduced costs. Many imported and indigenous pumps in power station, steel plants, refineries, oil installation cement plant and cargo ship

ADVANTAGES :

- Double Helical Herringbone Gear design ensures Design no Side Thrust maintain Constant volumetric efficiency by design low leakage path.
- Modified profile teeth gives low moment of inertia, low Frictional Losses & enhances the tooth life.
- Floating Gear design ensures uniform matching, equal load distribution & Silent Running.
- Extra Thick Shaft with stands bending effectively - gives higher bearing Life.
- Sleeve on Shaft make maintenance easy & economical.

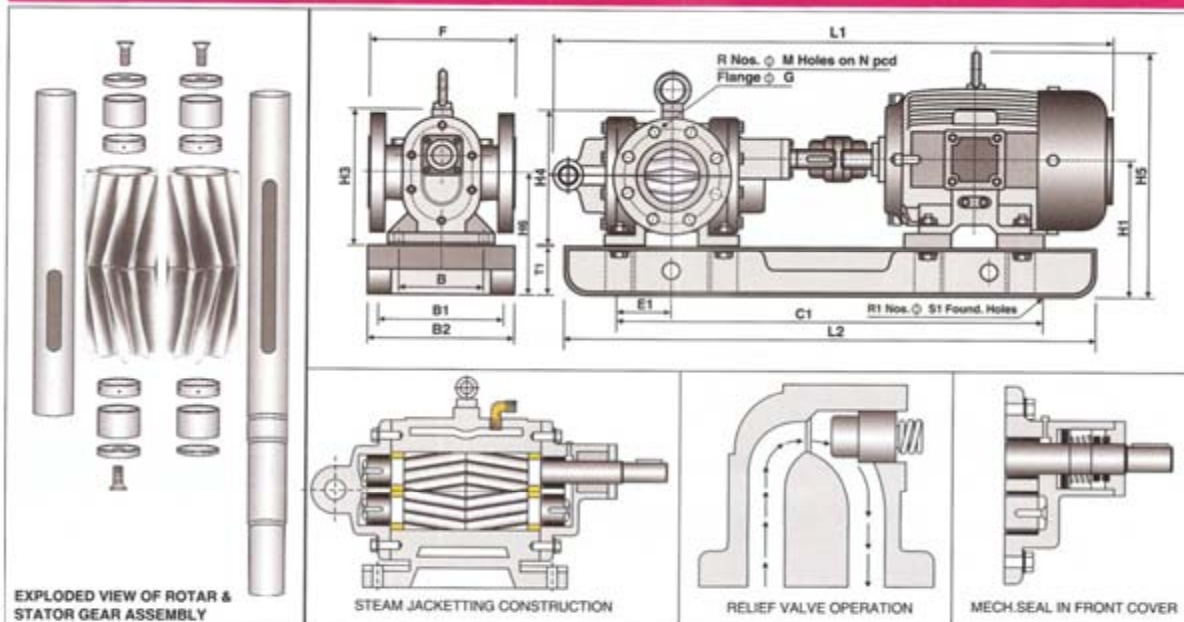
PART LIST WITH MATERIAL OF CONSTRUCTION

Sr. No.	ITEM	QTY.	MATERIAL
01	PUMP CASING	1	CI/CS/SS
02	FRONT COVER	1	CI/CS/SS
03	BACK COVER	1	CI/CS/SS
04	GLAND COVER	1	CI/CS/SS
05	ROTOR SHAFT	1	EN9/19/SS
06	STATOR SHAFT	1	EN9/19/SS
07	IMPELLER GEAR	4	EN24/19/SS
08	NEEDLE BEARING	4	INA/IKO/NTN
09	WEAR PLATE	4	BRONZE
10	LIFTING HOOK	1	STEEL
11	R. V. ADJUSTING SCREW	1	EN-8 / SS
12	R. V. PISTON	1	EN-8 / SS
13	R. V. SPRING	1	SP. STEEL
14	R. V. PLUG	1	EN-8 / SS
15	BASE PLATE	1	M.S.
16	COUP. GUARD	1	ALUMN./MS
17	COUPLING	1	FLEXIBLE
18	COUP. KEY,	1	EN-8 / SS
19	SEALING SYS.	2	OS/MS/GP
20	DOWEL PIN	4	SILV. ST.
21	COMP. FLANGE	2	MS / SS
22	H/T. HEX BOLT	12	EN-8 / SS



Model	Capacity At 1440 RPM		ELE. MOT OR	FR Size	Pump GD 2 in kg/m ²	
	LPM	US GPM				m ³ /hr
DHG-08-LP	8.30	2.20	0.50	0.50	71M	0.0008
DHG-16-LP	16.60	4.40	1.00	0.75	80M	0.0009
DHG-25-LP	25.00	6.60	1.50	1.00	80M	0.001
DHG-33-LP	33.30	8.80	2.00	0.75	80M	0.0007
DHG-50-LP	50.00	13.20	3.00	1.00	80M	0.0008
DHG-60-LP	60.00	15.84	3.60	2.00	80M	0.0009
DHG-83-LP	83.30	22.00	5.00	2.00	90L	0.0028
DHG-100-LP	100.00	26.40	6.00	3.00	90L	0.0029
DHG-125-LP	125.00	33.30	7.50	5.00	100L	0.0032
DHG-150-LP	150.00	39.00	9.00	3.00	112M	0.0068
DHG-166-LP	166.00	44.00	10.00	5.00	112M	0.0074
DHG-200-LP	200.00	52.80	12.00	7.50	132 S	0.008
DHG-250-LP	250.00	66.00	15.00	5.00	112M	0.01
DHG-300-LP	299.88	79.20	18.00	7.50	132 S	0.013
DHG-330-LP	333.30	88.00	20.00	10.00	132 M	0.015
DHG-415-LP	415.00	105.00	25.00	10.00	132 M	0.02
DHG-450-LP	449.82	118.00	27.00	12.50	160 M	0.024
DHG-500-LP	500.00	132.00	30.00	15.00	160 M	0.027
DHG-600-LP	599.76	158.40	36.00	15.00	160 M	0.056
DHG-666-LP	666.66	176.00	40.00	20.00	160 L	0.062
DHG-833-LP	833.30	220.00	50.00	25.00	180 M	0.072
DHG-1000-LP	1000.00	264.00	60.00	20.00	160 L	0.098
DHG-1250-LP	1250.00	330.00	75.00	30.00	160 L	0.112
DHG-1500-LP	1499.00	396.00	90.00	40.00	200 L	0.177
DHG-1660-LP	1660.00	440.00	100.00	30.00	180 L	0.27
DHG-1833-LP	1833.60	484.00	110.00	50.00	225 S	0.31
DHG-2083-LP	2083.00	550.00	125.00	60.00	225 M	0.355
DHG-2500-LP	2499.00	660.00	150.00	50.00	225 S	0.4561
DHG-2915-LP	2915.00	770.00	175.00	75.00	250 M	0.542
DHG-3332-LP	3332.00	880.00	200.00	100.00	280 S	0.601

TYPE-DHG-___LP



DIMENSION -> OVERALL					MOUNTING								SHAFT				FLANGE		WEIGHT BP-COU PUMP BP-COU IN KGS.		
L1	H4 L	H5	L2	B2	H3	B C	S S1	E F	H H2	H1	T1 T	E1	C1	B1	H6	D R1	K L3	P Q		M N	G R
500	124	265	500	145	125	80	8	91	80	158	75	37	340	112	147	11.5	22	4	16	89	11.5
534	-	285	525	170	130	-	-	-	-	163	-	36	365	125	152	-	-	-	-	-	8.1
534	239	285	525	170	130	100	15	150	68	163	10	36	365	125	152	4	30	13	60	4	12
564	137	285	600	145	139	90	10	100	90	168	75	26	360	120	152	15	25	5	16	108	12.1
564	-	285	600	145	139	-	-	-	-	168	-	26	360	120	152	-	-	-	-	-	14.1
615	271	315	650	180	146	110	15	160	74	175	10	26	410	140	159	4	30	17	79	4	13
659	163	315	625	165	167	105	10	119	100	180	75	30	375	130	160	21	25	6	16	127	14.1
698	-	328	750	205	165	-	-	-	-	178	-	30	500	170	158	-	-	-	-	-	23
752	318	353	750	230	175	130	15	180	80	190	12	26	500	190	170	4	40	23.5	98	4	18
735	175	346	775	210	176	110	12	133	112	190	75	50	525	170	168	24	39	8	19	152	17.5
775	-	351	800	230	176	-	-	-	-	190	-	65	550	190	168	-	-	-	-	-	28.4
843	359	396	850	256	198	150	15	200	90	210	14	50	600	216	188	4	50	27	121	4	20.9
850	200	376	800	240	283	130	15	163	132	214	75	35	550	205	184	27	40	8	19	178	18.6
903	-	298	900	255	203	-	-	-	-	210	-	50	650	216	184	-	-	-	-	-	43
954	419	398	950	255	203	160	15	220	106	210	15	50	700	216	184	4	55	30	140	4	22.6
1010	241	449	1050	287	245	160	18	168	160	263	100	84	750	240	234	32	49	10	19	190	22.2
1110	-	473	1100	304	285	-	-	-	-	263	-	75	800	254	234	-	-	-	-	-	59
1110	480	523	1100	304	245	220	19	240	131	263	22	75	800	254	234	4	60	35	152	4	33
1183	275	523	1200	315	278	180	18	189	180	283	100	58	800	265	248	37	54	10	19	229	40.2
1230	-	559	1250	310	278	-	-	-	-	283	-	58	900	254	248	-	-	-	-	-	82.3
1290	555	559	1300	330	278	270	19	280	145	283	25	90	900	279	248	4	65	40	190	8	47.2
1292	295	568	1350	300	305	200	19	215	200	338	125	55	950	254	298	47	60	14	22	254	58.2
1350	-	539	1400	365	297	-	-	-	-	328	-	125	1000	300	288	-	-	-	-	-	150
1445	613	672	1400	380	297	280	22	300	160	328	25	116	1000	318	288	4	85	50.5	216	8	50.6
1430	345	642	1500	305	352	220	20	215	225	358	150	183	1100	245	311	52	80	16	22	279	50.6
1605	-	723	1650	420	348	-	-	-	-	353	-	137	1150	356	306	-	-	-	-	-	175
1605	695	728	1650	430	348	350	22	340	178	353	25	137	1150	356	306	4	95	56	241	8	76.2
1660	360	778	1650	430	358	240	22	231	250	403	150	136	1150	356	353	57	81	16	22	279	77.6
1880	-	853	1800	480	435	-	-	-	-	433	-	126	1350	457	383	-	-	-	-	-	190
1880	750	853	1850	530	390	380	22	360	200	433	28	126	1350	457	383	4	100	59	241	8	87.3

PUMP CHARACTERISTIC :-

Gear pump is self priming positive displacement pump with positive pressure characteristic. the capacity of the pump is directly proportional to the speed and is remain constant regardless of differential pressure the difference between theoretical and delivered capacity is the slip of the pump which depends up on speed, Differential pressure, viscosity of liquid working clearance & workman ship the pumps are capable of handling any viscosity the slip reduce with viscosity but the viscous power increases due to the resistance of the fluid to shear, the pump has a self priming capability however some net in let pressure available must always equal or exceed to the pumps required NPSH to avoid cavitation depending up on the viscosity of the liquids to be pumped & pumps speed.

INTERNAL POWER LOSSES :-

The Internal power losses in rotary pump are made up of two types Mechanical & Viscous, the Mechanical Losses Included all the Power Necessary to over pump the mechanical friction drag of all the moving parts within the pumps, the Mechanical loss in creases with increasing speed and viscosity and may or may not be depend on differential pressure, the viscous drag effects against all the parts as well as from the shearing action of the liquids it self This can be computed from the Graph on this page.

PUMP HORSEPOWER :-

The brake horsepower require to drive a rotary pump is the sum of the Theoretical Liquid H.P. and the Internal power losses. the theoretical liquid horse power is the actual work done in moving the fluid from its in let pressure condition to the out let at discharge pressure condition and is product of constant

$$C=0.037 \text{ (capacity-LMP, Pressure Kg/cm}^2\text{)} \quad C=2.3 \text{ (capacity-GPM, Pressure PSI)}$$

PUMP SELECTION & USES

Pump is self lubricated needle Roller Bearing type Pumps used for clean Viscous Liquid Having Sufficient Lubricating Property such as a clean Lube Oil, Gear Oil, Hydraulic Oil, Fish and Animal Oil, ASTM Oil, Glycerin, Vegetable Oil, SAE Lubricating Oil for continues duty How ever for Intermittent duty Bush Bearing type pump Model DIRB. Should be selected. Pump Model DIRX is independent Lubricated Needle Roller Bearing type pumps used for liquid having low viscosity, poor lubricating value or containing Dirts or Impurities. Such as Dirty Lube oil, crud oil, HSD, LDO, Kerosene Sugar Solution, Turpentine, varnish, wood Pulp, Fine Powder slurry Glycol, Glue, etc. for Liquid, which tends to solidify at room temperature such as asphalt, Bitumen, castor oil, Furnace oil, Tar, Cellulose Starch, LSHS, HPS, Molasses, Naphtha, Phenol resin, RFO, Silicate Soap Solution, Viscous, Wax etc. Jacketed Pump MODEL DIRNXJ Should be Selected to Facilitate the heating the pump by steam or Thermic fluid.

PUMPSPEED :

Pump are recommended to run at rated speed up to 500 cst viscosity for viscosity Between 500 to 1250 cst Pump speed should be reduce up to 60 % of Rated speed for viscosity between 1250 to 2500 cst speed should be reduced up to 30% of rated Speed.

INSPECTION & TESTING

All the pumps are Assembled after the due Inspection of each & every parts then they are tested for its performance in a accordance with JIS 8312-1976- We are also offered third Party Inspection of any consultants & Inspection Agencies.

