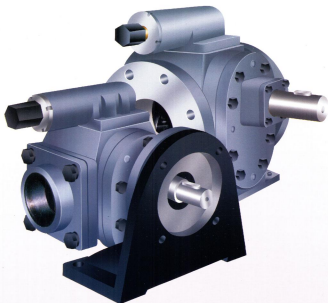




## Rotary Gear Pump



type

**RDBX - RDNX**

From 1/2" to 6" Size, Capacity up to 125 M<sup>3</sup>/hr  
Pressure up to 21 bar Viscosity 1,00,000 CST  
temperature - up to 110° C

**EFFICIENT · RELIABLE · PROVEN · COMPACT**

**The Preferred One**

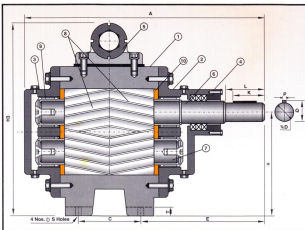
# **ROTODEL Rotary gear pump**

Handling high volume of viscous liquid at medium pressure is a challenge & calls for expertise. We at DEL have aquired this over last 25 years through in house research & development based on customer feed back & field trials

The proven range of rotary twin gear pump type 'RDRN' 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 ROTODEL 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 lth. wearing plate packed in between and placed inside close tolerance accurately machined casing with built in pressure relief valve makes the 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 RDBX is a bush bearing version & is offered upto 2 1/2" size.

This pump can also be offered with different MOC viz. CI, CS, Bronze, SS etc. Pump upto 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.



## **PARTS LIST WITH Material of Construction**

SR.	ITEM	QT.	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	R. V. BODY	1	CI/CS/SS
06	ROTOR SHAFT	1	EN 9/19/SS
07	STATOR SHAFT	1	EN 9/19/SS
08	IMPELLER GEAR	4	EN 24/SS
09	NEEDLE BRG	4	IKO / INA
10	WEAR PLATE	4	LTB
11	R. V. PISTON	1	EN 8/SS
12	R. V. SPRING	1	SPRI. STEEL
13	R. V. AD SCREW	1	EN 8/SS
14	BASE PLATE	1	M.S.
15	COUP. GUARD	1	ALUMN.
16	COUPLING	1	FLEXIBLE
17	COUP. KEY	1	EN 8/SS
18	SEALING SYS.	2	OS/MS/GP
19	DOWEL PIN	4	SILV. ST.
20	COMP. FLANGE	2	MS/SS
21	HT HEX BOLT	12	EN 8/SS
22	INNER SLEEVE	4	EN - 31-57
23	V-SEAL	4	NITRILE.RJ.
24	SNAP RING	1	EN - 31
25	C. S. SCREW	3	EN - 24

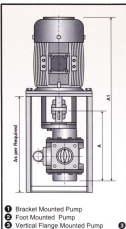
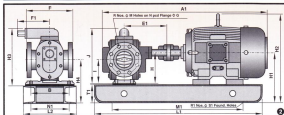
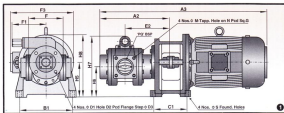
## **PUMP MOTOR CODING**

<b>SIGN # INDICATES PUMP SIZE</b>
5 - SHORT, 6 - MEDIUM, 7 - LONG
<b>SIGN @ INDICATES PUMP TYPE</b>
6 - RDBX, 7 - RDNX,

## **AVAILABLE MODEL SIZE & CAPACITY**

MODEL NO. / BSP SIZE	1440 RPM CAPACITY	PUMP GD' IN KGMP	ELE. MOTOR H.P.	FR. SIZE
	LPM	US GPM	M³/Hr	
50	66.00	01.32	0.30	0.0001 0.50 71 M
SML	68.33	02.21	0.50	0.0002 1.00 80 M
1/2"	16.66	04.42	1.00	0.0003 1.50 90 S
100	25.00	06.60	1.50	0.0005 1.00 80 M
SML	33.32	08.80	2.00	0.0007 2.00 90 L
1"	41.65	11.00	2.50	0.0008 3.00 100 L
125	50.00	13.25	3.00	0.0005 2.00 90 L
SML	60.00	16.66	3.60	0.0006 3.00 100 L
1 1/4"	83.00	22.00	5.00	0.0008 5.00 112 M
150	100.00	26.50	6.00	0.0045 3.00 100 L
SML	125.00	33.00	7.50	0.0057 5.00 112 M
1 1/2"	150.00	39.75	9.00	0.0068 7.50 132 S
200	166.60	44.16	10.00	0.0068 5.00 112 M
SML	200.00	53.00	12.00	0.0081 10.00 132 M
2"	250.00	66.25	15.00	0.0100 15.00 160 M
250	300.00	79.50	18.00	0.0160 7.50 132 S
SML	333.00	88.33	20.00	0.0174 15.00 160 M
2 1/2"	350.00	92.75	21.00	0.0185 20.00 160 L
300	400.00	106.00	24.00	0.0361 25.00 180 M
SML	450.00	119.00	27.00	0.0469 30.00 180 L
3"	600.00	159.00	36.00	0.0580 35.00 200 L
400	700.00	185.50	42.00	0.0750 40.00 200 L
SML	800.00	212.00	48.00	0.0870 50.00 225 S
4"	900.00	238.50	54.00	0.0980 60.00 225 M
500	1000.00	265.00	60.00	0.1080 60.00 225 M
SML	1200.00	318.00	72.00	0.2800 75.00 250 M
5"	1400.00	371.00	84.00	0.0174 100.00 280 S
600	1666.00	441.50	100.00	0.3245 75.00 250 M
SML	1915.00	506.00	115.00	0.3683 100.00 280 S
6"	2062.00	552.00	125.00	0.3947 120.00 280 M

## RDBX-RDNX



DIEMENSIONS																							WEIGHT BP-COU IN KG	Product Code
OVERALL						MOUNTING											SHAFT			FLANGE				
J						A2 F7	A3 F8	B1 B S	C1 C ST	E2 E	H5 F1	H6 Y	H1	H4	M1	N1	T1	D P D	K L	d01 G M	a D2 N	a D3 R		
A1	A	H2	L1	L2	H3	F7	F8	S	ST	E	F1	Y	H1	H4	M1	N1	T1	P	L	G	N	R		
455	139	235	425	140	143	196	480	125	75	123	100	89	115	104	370	112	04	11.5		8	66	52	7.00	9Q20#
505	251	450	150	153	112	173		119	40	133	100	71	124	113	405	112	15	04	22	Sq 65			6.00	9Q20#
522	206	225	475	180	162	175	180	8.5	15	58	112	60	134	123	430	140	04	13	25	M8	66.5	04	7.50	9Q20#
520	151	251	500	170	155	209	508	155	85	131	120	104	124	108	445	135	04	15		10	83	68	10.15	9F20#
560		225	525	180	165	112	203	125	45	143	120	80	134	118	480	140	15	05	25	Sq 70			11.00	9F20#
599	219	279	550	200	174	200	220	8.5	15	69	112	64	144	128	505	160	04	17	30	M8	73	04	13.0	9F20#
591	185	235	550	180	189	236	610	190	110	153	120	100	144	124	495	140	04	21		10	105	85	12.00	9H20#
630		289	600	200	195	141	245	155	50	168	135	90	154	134	545	160	15	06	30	Sq 80			14.50	9H20#
658	250	323	600	230	211	220	220	10	15	81	141	70	166	146	545	190	50	23.5	40	M10	85	04	15.50	9H20#
673	205	289	625	200	207	278	672	230	130	180	145	123	154	132	570	160	04	24		14	125	100	15.00	9J20#
700		321	650	230	220	153	265	170	55	195	145	100	166	144	595	190	20	08	40	Sq 100			24.00	9J20#
764	293	362	700	250	241	255	270	12	15	95	153	78	186	164	645	216	50	27	50	M12	106	04	18.75	9J20#
786	234	338	700	230	238	338	762	190	160	222	190	164	181	155	630	190	04	27		14	140	115	18.00	9K20#
850		377	825	250	258	173	285	200	70	223	165	112	205	175	755	216	20	08	40	Sq 120			35.00	9K20#
950	339	435	900	285	286	315	340	12	19	94	173	86	229	203	830	230	65	30	55	M12	127	04	21.00	9K20#
850	261	367	800	260	266	355	882	200	180	223	190	161	211	182	550	200	04	32		14	152	125	19.00	9L20#
930		445	900	315	294	173	325	225	80	250	190	132	239	210	650	254	25	10	50	Sq 135			55.00	9L20#
1030	375	445	950	315	294	320	340	15	19	104	173	103	239	210	700	254	75	36	60	M14	149	04	23.00	9L20#
1165	338	568	1150	330	342							284	250	850	279	04		37					33.00	9M20#
1165		568	1150	330	342	205		180	90	289	250	180	284	250	850	279	25	10	55	210			73.00	9M20#
1235	436	616	1200	355	362			19	19	244	205	146	304	270	900	318	100	40	65	22	168	08	37.00	9M20#
1285	375	616	1300	370	379							304	264	900	318	04		47					52.00	9N20#
1330		666	1400	406	404	230		180	130	323	300	200	329	289	900	356	28	14	70	254			92.00	9N20#
1360	487	666	1400	406	404			19	22	258	230	160	329	289	900	356	100	50.5	80	22	200	08	58.00	9N20#
1405	420	691	1450	430	424							354	308	1050	356	04		52					62.00	9P20#
1495		794	1550	470	449	230		200	150	346	340	225	379	333	1050	406	28	16	75	279			142.00	9P20#
1590	533	854	1600	520	479			22	22	271	230	179	409	363	1150	457	150	56	85	22	235	08	76.00	9P20#
1510	467	819	1650	470	471							404	354	1150	406	04		57					78.00	9R20#
1610		879	1700	520	501	245		215	170	358	345	240	434	384	1150	457	28	16	80	317			173.00	9R20#
1610	550	879	1700	520	501			22	22	293	245	200	434	384	1150	457	150	61	95	22	270	12	85.00	9R20#

**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<sup>3</sup>/hr. & Pressure in Kg/Cm<sup>2</sup> Or Constant  $C=2.3$ , Capacity in GPM & Pressure in PSI.

#### GEAR PUMP SELECTION & USES :

RDBX/NX 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 2½" 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 pressurizing, hydraulic, medium pressure lubrication & transfer applications.

**INSPECTION & TESTING :** All pumps are assembled after due inspection of each & every parts & than they are tested for duty parameters in accordance with API-676 & JIS-B 8312-1976. Third party inspection are also offered, we are approved by following consultants & inspection agencies.

**EIL - KPG - UHDE - TCE - PDIL - JACCOBH&G - TOYO - LURGI - LLOYED - IRS - BVQI - SIMMONS**

A DEL ENTERPRISES  
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