



## IN-LINE CENTRIFUGAL PUMP TYPE MIL

### APPLICATIONS

Raj Volute casing Inline Centrifugal pumps Type **RIL** are space saving Pump units designed for easy installation and are used for circulating clean non-aggressive fluids.

Water Supply Systems.

Water Circulation / Transfer.

Hot Water Circulation.

Agriculture.

Industry.

Ship Building.

Cooling Towers.

and many other Applications.

### DESIGN DETAILS

**Direction of Rotation** : Clock wise looking from the motor at the Pump.

**Shaft Sealing** : The Shaft is sealed by means of a Mechanical Seal.

**Wearing Ring** : Every Volute Casing is fitted with a Replaceable wearing ring.

**Casing Gasket** : The Volute casing is sealed by means of a flat gasket.

### MOTOR

The Pump is coupled with a Electric Motor, which is a totally enclosed, fan cooled Squirrel-cage motor.

Nominal Speed	:	2900rpm
Enclosure Class	:	IP 55.
Standard Voltages	:	1 X 220 240V 3 X 380 415V

Single-phase Motors have a built in thermal overload protection.

Three phase Motors should be protected by a suitable motor starter as per local regulations.

### PUMP DESIGN

The Pumps are primarily designed to handle water and are suitable for handling water in water supply systems for domestic and industrial use.

Single Stage Pumping units of compact design with back pullout feature with Suction & Discharge Flange arranged in-line opposite one another for direct installation in the pipeline.

Motor and Pump are close coupled by rigid coupling. The complete rotating portion can be removed without disconnecting the Pump casing from the connecting pipe line.



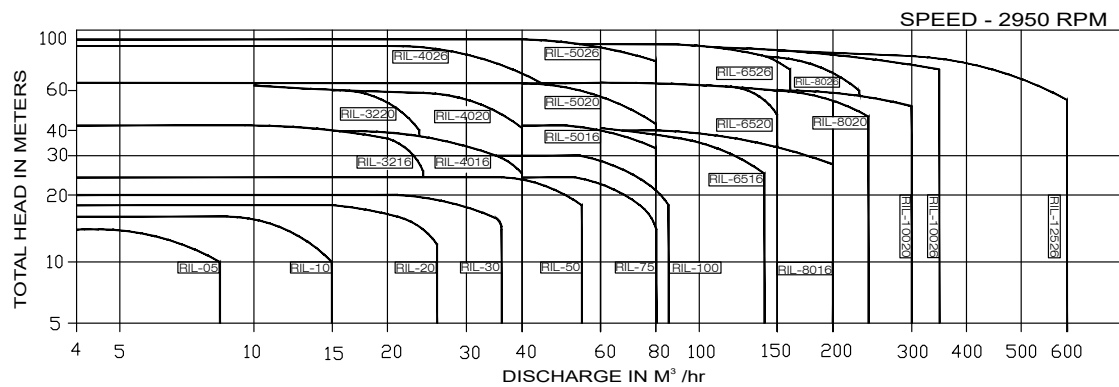


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### MOTOR OPTION

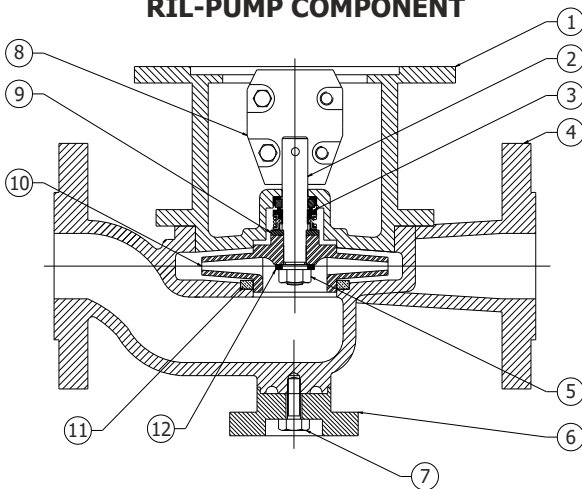
Standard Pumps are fitted with motor adaptor suitable for mounting Vertical Flange Mounting V-1 frame Motor, to suite particular specification where protection class & enclosure are required. Special suitable adaptor can be provided.

GROUP PERFORMANCE OF PUMP TYPE - RIL



Values are valid for water at 1 kg/dm³ and Viscosity of 1 cSt.

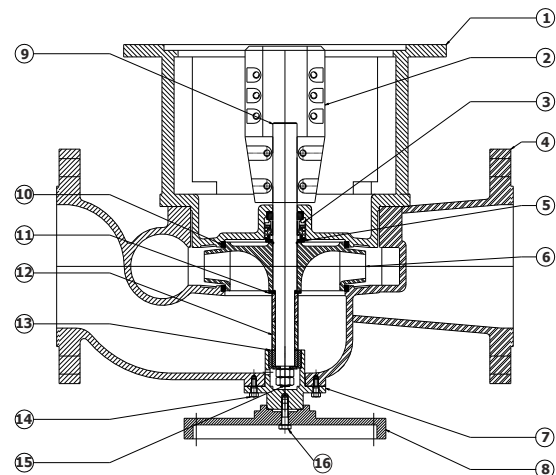
RIL-PUMP COMPONENT



RIL-05 TO RIL-100

- |                      |                    |
|----------------------|--------------------|
| 01 - Adaptor         | 07 - M.S. Bolt     |
| 02 - S.S. Shaft      | 08 - Coupling      |
| 03 - Mechanical Seal | 09 - Spacer Washer |
| 04 - Volute          | 10 - Impeller      |
| 05 - Lock Nut SS     | 11 - Wearing Ring  |
| 06 - Base Plate      | 12 - Spacer Washer |

RIL-PUMP COMPONENT

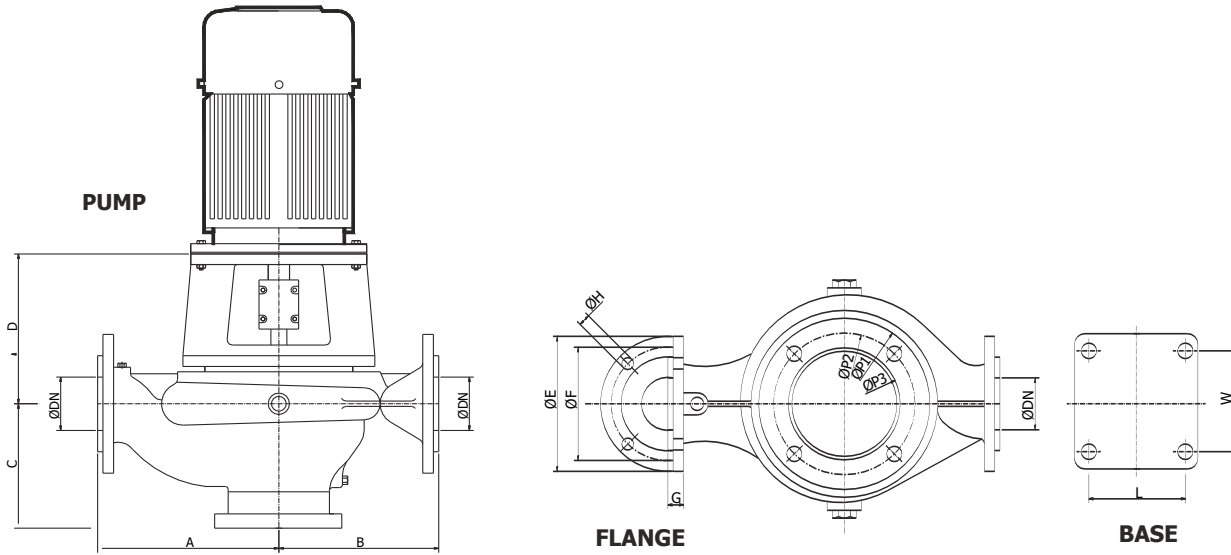


RIL PUMP WITH T.C. SET

- |                      |                    |
|----------------------|--------------------|
| 01 - Adaptor         | 09 - S.S. Shaft    |
| 02 - Coupling        | 10 - Wearing Ring  |
| 03 - Mechanical Seal | 11 - Spacer Washer |
| 04 - Volute          | 12 - Bush SS       |
| 05 - Spacer Washer   | 13 - T.C. Bush     |
| 06 - Impeller        | 14 - Housing Bolt  |
| 07 - Bush Housing    | 15 - Lock Nut      |
| 08 - Base Plate      | 16 - M.S. Bolt     |



IN-LINE CENTRIFUGAL PUMP TYPE MIL



VERTICAL INLINE CENTRIFUGAL PUMPS SERIES RIL.

PUMP TYPE	DN	ADAPTOR			PUMP				FLANGE				BASE		
		P1	P2	P3	A	B	C	D	E	F	G	H	J	L	W
MIL - 05	32	160	130	110	140	140	90	112	140	100	18	18X4	160	83	120
MIL - 10	40	200	165	130	150	150	110	123	150	110	18	18X4	200	83	130
MIL - 20	50	200	165	130	150	150	110	145	165	125	20	18X4	200	83	130
MIL - 30	65	200	165	130	170	170	135	146	185	145	20	18X4	215	100	180
MIL - 50	80	250	215	180	200	200	145	150	200	160	20	18X4	252	100	157
MIL - 75	80	300	265	230	240	240	150	175	200	160	20	18X4	300	100	175
MIL - 100	100	300	265	230	240	240	160	175	220	180	20	18X4	305	150	170
MIL - 110	32	200	165	130	157	157	90	140	-	-	-	-	220	83	128
MIL - 3216 T	50	250	215	180	190	190	140	170	165	125	20	18X4	264	100	180
MIL - 3220 T	50	300	265	230	200	200	144	165	165	125	20	18X4	300	100	180
MIL - 4016 T	65	300	265	230	190	190	144	176	185	145	20	18X4	300	100	180
MIL - 4020 T	65	300	265	230	250	250	144	176	185	145	20	18X4	300	100	180
MIL - 4026 T	65	350	300	250	248	248	138	240	185	145	22	18X4	350	212	232
MIL - 5016 T	80	350	300	250	238	220	170	245	200	160	22	18X8	350	212	232
MIL - 5020 T	80	350	300	250	235	235	170	245	200	160	22	18X8	350	212	232
MIL - 5026 T	80	400	350	300	245	245	150	260	200	160	22	18X8	400	212	232
MIL - 6516 T	100	350	300	250	260	260	180	250	220	180	24	18X8	350	212	232
MIL - 6520 T	100	350	300	250	260	260	170	250	220	180	24	18X8	350	212	232
MIL - 6526 T	100	550	500	450	265	265	170	250	220	180	24	18X8	550	212	232
MIL - 8016  T	150	350	300	250	295	295	190	270	285	240	29	18X8	410	212	232
MIL - 8016   T	125	400	350	300	285	285	190	285	250	210	29	18X8	400	212	232
MIL - 8020 T	125	400	350	300	285	285	185	280	250	210	29	18X8	400	212	232
MIL - 8026 T	125	550	500	450	285	285	190	315	250	210	29	18X8	400	212	232
MIL - 10020 T	125	550	500	450	300	300	190	325	285	240	29	18X8	550	212	232
MIL - 10020  T	150	550	500	450	300	300	190	325	285	240	29	18X8	550	212	232
MIL - 10020   T	150	550	500	450	300	300	195	325	285	240	29	18X8	550	212	232
MIL - 10026 T	125	550	500	450	310	310	195	320	285	240	29	18X8	550	212	232
MIL - 10026  T	150	550	500	450	310	315	200	320	285	240	29	18X8	550	212	232
MIL - 10026   T	150	550	500	450	315	315	185	320	285	240	29	18X8	550	212	232
MIL - 12526 T	150	660	600	550	410	400	215	355	285	240	29	18X8	660	225	270

"T" Pumps fitted with T.C. Bush.



IN-LINE CENTRIFUGAL PUMP TYPE MIL

PERFORMANCE CHART OF RIL PUMPS AT 2900 RPM

RATING REF	PIPE SIZE IN MM	POWER (HP)	TOTAL HEAD IN METER															
			10	12	14	16	18	20	22	24	26	28	30	32				
			DISCHARGE IN LPM / M <sup>3</sup> /Hr.															
MIL-05	32 X 32	0.5	140 / 8.4	115 / 6.9	70 / 4.2													
MIL-10	40 X 40	1	250 / 15	225 / 13.5	195 / 11.7	145 / 8.7												
MIL-20	50 X 50	2	-	430 / 25.8	400 / 24	350 / 21	260 / 15.6											
MIL-30	65 X 65	3	-		600 / 36	550 / 33	465 / 27.9	350 / 21										
MIL-50	80 X 80	5	-				910 / 54.6	835 / 50.1	750 / 45	600 / 36								
MIL-75	80 X 80	7.5	-		1355 / 81.3	1285 / 77.1	1225 / 73.5	1125 / 67.5	1025 / 61.5	875 / 52.5								



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RATING REF	PIPE SIZE IN MM	POWER (HP)	TOTAL HEAD IN METER													
			10	12	14	16	18	20	22	24	26	28	30	32		
DISCHARGE IN LPM / M <sup>3</sup> /Hr.																
MIL-100	100 X 100	10	-						1425 / 85.5	1355 / 81.3	1295 / 77.7	1215 / 72.9	1125 / 67.5	1025 / 61.5	900 / 54	-
MIL-110	32 X 32	1	172 / 10.3	160 / 9.6	145 / 8.7	127 / 7.6	107 / 6.4	83 / 5	-							
		1.5	207 / 12.4	200 / 12	188 / 11.3	178 / 10.7	165 / 9.9	148 / 8.9	132 / 7.9	113 / 6.8	90 / 5.4	33 / 2	-			
		2	225 / 13.5	220 / 13.2	210 / 12.6	201 / 12.1	190 / 11.4	180 / 10.8	170 / 10.2	155 / 9.3	137 / 8.2	123 / 7.4	108 / 6.5	67 / 4		
NOTES :-	VALUES ARE VALID FOR WATER AT 1KG/DM3 AND VISCOSITY OF 1 CST.															
	CAPACITY ± 10% , DELIVERY HEAD ±10% , POWER ±10%															
	CURVES ARE APPROXIMATE, PUMP IS GUARANTEED FOR ONE SET OF CONDITIONS; CAPACITY, HEAD, AND EFFICIENCY															
	SELECTION OF THE MOTOR RESULTS FROM OPERATING DATA SPECIFICATION AND IS NOT NECESSARILY VALID FOR THE COMPLETE RANGE OF PERFORMANCE OF THE PRODUCT.															

PUMP MODEL	PIPE SIZE (MM)	MAX. IMPELLER	REQD. IMPELLER	POWER kW / HP	MOTOR FRAME	TOTAL HEAD IN METERS																
						15	16	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85
						DISCHARGE IN M3/Hr																
MIL-3216	50 X 50	178	178	3.7 / 5	100L					31	29.5	26	20									
			148	2.2 / 3	90L		25.5	24	22	14												
MIL-3220	50 X 50	216	216	7.5 / 10	132S							26	25	23.5	22	20	16.5	10				
			200	5.5 / 7.5	132S					24.5	23	22	20	17	11							
MIL-4016	65 X 65	187	187	7.5 / 10	132S							46	41	34	20							
			177	5.5 / 7.5	132S					45	41	34										
			155	3.7 / 5	100L		38	31	19													
MIL-4020	65 X 65	216	216	11 / 15	160M							50	48	43	32							
			195	7.5 / 10	132S					44	40	30										
			175	5.5 / 7.5	132S					41	38	31.5										
MIL-4026	65 X 65	264	264	18.5 / 25	160L							52	49.5	47	45	43	40.5	38	35	29		
			245	15 / 20	160M							47	45	43	40.5	38	35	32	20			
			225	11 / 15	160M					45	43	40.5	38	35	32	28						
MIL-5016 B	80 X 80	180	180	11 / 15	160M					98	95	88	78	65	48							
			156	7.5 / 10	132S	83	81	78	74	61	42											
			144	5.5 / 7.5	132S	72	70	66	60	43												



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PUMP MODEL	PIPE SIZE (MM)	MAX. IMPELLER	REQD. IMPELLER	POWER kW / HP	MOTOR FRAME	TOTAL HEAD IN METERS																								
						15	16	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90							
						DISCHARGE IN M3/Hr																								
MIL-3216 MIL-5020 B	50 X 50	178	215	18.5 / 25	160L														98	93	85	75								
	80 X 80		200	15 / 20	160M														92	85	76	45								
			182	11 / 15	160M														83	74	60									
			160	7.5 / 10	132S														69	57										
MIL-5026 B	80 X 80	266	266	30 / 40	200L																		85	80	73	64	53			
			240	22 / 30	180M																		78	73	67	57	40			
			230	18.5 / 25	160L																		71	64	53					
			210	15 / 20	160M														66	58	47									
MIL-6516 B	100 X 100	181	181	15 / 20	160M														164	150	130	100								
			160	11 / 15	160M	146	144	139	132	105	57																			
			140	7.5 / 10	132S	116	112	100	85																					
MIL-6520 B	100 X 100	220	220	30 / 40	200L														157	154	146	135	117	80						
			200	22 / 30	180M														142	137	127	109	73							
			188	18.5 / 25	160L														135	131	120	100								
			176	15 / 20	160M														124	114	95									

PUMP MODEL	PIPE SIZE (MM)	MAX. IMPELLER	REQD. IMPELLER	POWER kW / HP	MOTOR FRAME	TOTAL HEAD IN METERS																		
						15	16	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
						DISCHARGE IN M3/Hr																		
MIL-3216 MIL-6526 B	50 X 50	178	264	45 / 60	225M														150	145	140	130	120	100
	100 X 100		250	37 / 50	200L														140	135	128	118	100	
			236	30 / 40	200L														131	125	115	100		
			210	22 / 30	180M														115	106	91			
			200	18.5 / 25	160L														110	102	88			
MIL-8016B	125 X 125	176	176	18.5 / 25	160L														190	170	90			
			162	15 / 20	160M														160	90				
			153	11 / 15	160M														160	120				
MIL-8016	150 X 150	210	210	30 / 40	200L														220	190	130			
			195	22 / 30	180M														208	178	100			
			184	18.5 / 25	160L														190	180	125			
			172	15 / 20	160M														180	149				
MIL-8020	125 X 125	240	235	45 / 60	225M														208	190	156	70		
			225	37 / 50	200L														202	192	170	120		
			210	30 / 40	200L														188	177	145			
			190	22 / 30	180M														168	148	80			



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						15	16	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
						DISCHARGE IN M3/Hr																	
MIL-3216 MIL-8026	50 X 50	178	261	55 / 75	250M																		
	125 X 125		245	45 / 60	225M																		
			230	37 / 50	200L																		
			215	30 / 40	200L	152	130	70															
MIL-10020	125 X 125	218	218	55 / 75	250M																		
			210	45 / 60	225M																		
			197	37 / 50	200L	208	190	90															
MIL-10020 I	150 X 150	240	240	55 / 75	250M																		
			228	45 / 60	225M	348	230	314	295	277	260	237	210										
			213	37 / 50	200L	324	304	285	265	248	225	190											
			200	30 / 40	200L	308	290	268	248	225	200												
MIL-10026B	125 x 125	264	264	90 / 120	280M																		
			248	75 / 100	280S																		
			225	55 / 75	250M																		
			210	45 / 60	225M	290	270	245	195														

PUMP MODEL	PIPE SIZE (MM)	MAX. IMPELLER	REQD. IMPELLER	POWER kW / HP	MOTOR FRAME	TOTAL HEAD IN METERS																	
						15	16	18	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
						DISCHARGE IN M3/Hr																	
MIL-3216 MIL-10026 1 <sup>ST</sup>	50 X 50	178	290	90 / 120	280M																		
	150 x 150		268	75 / 100	280S	354	340	330	320	305	295	280	265	245	215								
			243	55 / 75	250M	324	310	298	285	270	260	240	210	170									
MIL-12526	150 X 150	264	264	160 / 215	315LX																		
			253	132 / 180	315M																		
			238	110 / 150	315S																		
			224	90 / 120	280M	288	274	260	245	228	204	160	675	640	600	545	470	360	220				

VALUES ARE VALID FOR WATER AT 1KG/DM3 AND VISCOSITY OF 1 CST.

CAPACITY ± 10% , DELIVERY HEAD ±10% , POWER ±10%

CURVES ARE APPROXIMATE, PUMP IS GUARANTEED FOR ONE SET OF CONDITIONS; CAPACITY, HEAD, AND EFFICIENCY

SELECTION OF THE MOTOR RESULTS FROM OPERATING DATA SPECIFICATION AND IS NOT NECESSARILY VALID FOR THE COMPLETE RANGE OF PERFORMANCE OF THE PRODUCT.

**NOTES :-**



**IN-LINE CENTRIFUGAL PUMP TYPE MIL**



**PUMPS INSTALLED IN STEEL PLANT**



**PUMPS INSTALLED IN FILTRATION PLANT**



**IN-LINE PUMPS WORKING AT A.C PLANTS**



**HIGH PRESSURE VERTICAL IN-LINE  
COMBO PUMPS.  
PRESSURE: 18 BAR  
FLOW: 500M<sup>3</sup>/Hr**