

Fiable Hydraulics Pvt Ltd.

Hydraulic Professionals

HYDRAULIC POWER PACKS AND CYLINDER MANUFACTURER

Technical Information RADIAL PISTON PUMPS



Address - Sector 10, MIDC Bhosari, Pimpri-Chinchwad, Maharashtra 411026.

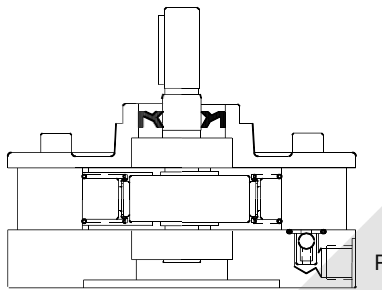
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Description

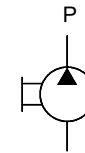
Radial piston arrangement, with 3, 5 or 7 pumping elements.
Oil immersed face mounting. Valve controlled. Fixed delivery.
Bi-directional rotation of shaft. With extension shaft for through
drive. Available with extension bracket assembly for coupling a
low pressure pump having standard flange.



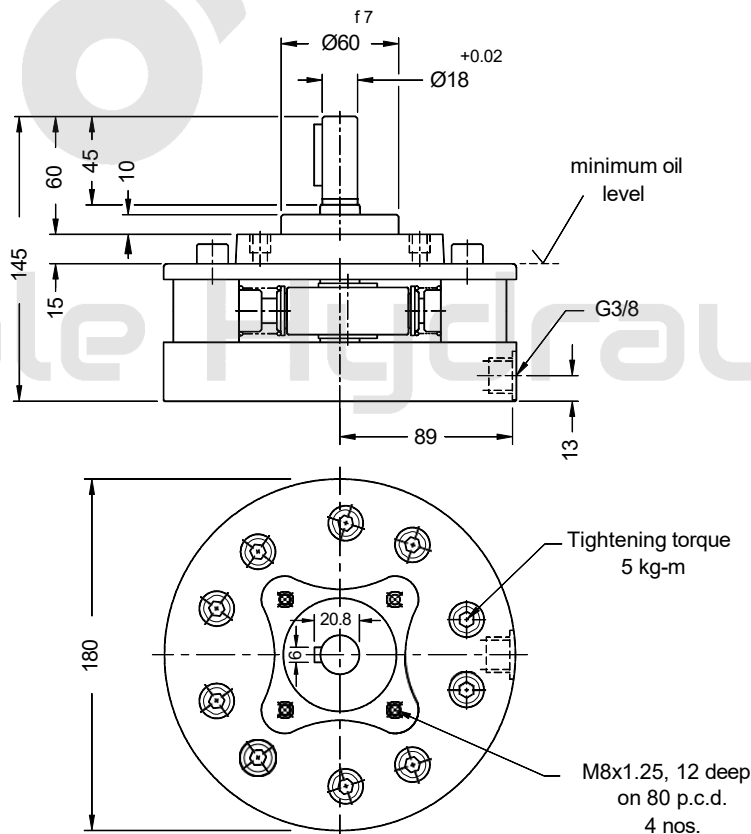
Section



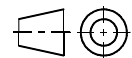
Hydraulic Symbol



Unit dimension



Dimensions in mm.





Technical specification

Designation	1R basic radial piston pump group.
Design	Radial piston, valve controlled.
No. of pistons	3, 5 or 7; depending upon flow requirement.
Mounting	Face mounting.
Interface	Factory standard.
Direction of rotation 1R.....	Can be run in either direction.
..... 1RE	Depends upon the direction of rotation of pump attached.
Connection Suction	Sucks oil directly from tank, no suction port is provided.
..... Delivery.....	G 3/8 female.
Speed range	300 to 2000 rpm.
Hydraulic medium	Mineral oil.
Viscosity range	10 to 100 cSt.
Optimum Viscosity range	16 to 32 cSt.
Temperature range	-10 °C to +80 °C.
	(Do not exceed viscosity limits at extreme temperatures for efficient running of the pump)
Fluid cleanliness requirement	As per ISO Code 16/13.
Performance	Refer Table No. 1.
Mass	11.5 kg.

Table No. 1

Code No.	Geometrical displacement CC/ REV	Rated output at 1450 rpm. (l / min)	Operating pressure bar	Input power requirement (@ 1450 rpm)																					
				50 bar		100 bar		150 bar		200 bar		250 bar		300 bar		350 bar		400 bar		450 bar		500 bar		550 bar	
				KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp
3A	1.21	1.5	550	0.17	0.23	0.3	0.5	0.5	0.7	0.7	0.9	0.9	1.2	1	1.4	1.2	1.6	1.4	1.8	1.6	2.1	1.7	2.3	1.9	2.5
5A	2.01	2.6	550	0.29	0.38	0.6	0.8	0.9	1.2	1.2	1.5	1.4	1.9	1.7	2.3	2	2.7	2.3	3.1	2.6	3.5	2.9	3.8	3.2	4.2
7A	2.81	3.7	550	0.4	0.54	0.8	1.1	1.2	1.6	1.6	2.2	2	2.7	2.4	3.2	2.8	3.8	3.2	4.3	3.6	4.8	4	5.4	4.4	5.9
3B	1.88	2.5	450	0.27	0.36	0.5	0.7	0.8	1.1	1.1	1.4	1.3	1.8	1.6	2.2	1.9	2.5	2.1	2.9	2.4	3.2				
5B	3.14	4.2	450	0.45	0.6	0.9	1.2	1.3	1.8	1.8	2.4	2.2	3	2.7	3.6	3.1	4.2	3.6	4.8	4	5.4				
7B	4.4	5.8	450	0.63	0.84	1.3	1.7	1.9	2.5	2.5	3.4	3.1	4.2	3.8	5	4.4	5.9	5	6.7	5.6	7.5				
3C	2.71	3.7	350	0.39	0.52	0.8	1	1.2	1.6	1.5	2.1	1.9	2.6	2.3	3.1	2.7	3.6								
5C	4.52	6.2	350	0.64	0.86	1.3	1.7	1.9	2.6	2.6	3.5	3.2	4.3	3.9	5.2	4.5	6								
7C	6.33	8.6	350	0.9	1.21	1.8	2.4	2.7	3.6	3.6	4.8	4.5	6	5.4	7.2	6.3	8.5								
3D	3.19	4.3	300	0.45	0.61	0.9	1.2	1.4	1.8	1.8	2.4	2.3	3	2.7	3.6										
5D	5.31	7.2	300	0.76	1.01	1.5	2	2.3	3	3	4.1	3.8	5.1	4.5	6.1										
7D	7.43	10	300	1.06	1.42	2.1	2.8	3.2	4.3	4.2	5.7	5.3	7.1	6.3	8.5										
3E	3.69	5	250	0.53	0.7	1	1.4	1.6	2.1	2.1	2.8	2.6	3.5												
5E	6.16	8.4	250	0.88	1.17	1.8	2.4	2.6	3.5	3.5	4.7	4.4	5.9												
7E	8.62	11.7	250	1.23	1.64	2.5	3.3	3.7	4.9	4.9	6.6	6.1	8.2												
3F	4.24	5.8	200	0.6	0.81	1.2	1.6	1.8	2.4	2.4	3.2														
5F	7.07	9.7	200	1	1.35	2	2.7	3	4	4	5.4														
7F	9.9	13.6	200	1.11	1.89	2.8	3.8	4.2	5.7	5.6	7.5														

Note : The first digit in the code No. indicates No. of pumping elements in the pump. The second letter indicates flow and pressure rating of the pumping elements.

Code No. 7D for example, indicates a pump with 7 pumping elements having rated flow of 10 l / min and operating pressure upto 300 bar.

Extension shaft (For through drive)

Dimensions

[illegible]

Torque limitation - The sum of torque used for the piston pump and torque used at extended shaft end should not exceed 75 Nm (11kW @ 1450 rpm)

Description

Radial piston arrangement, with 3, 5 or 7 pumping elements. Oil immersed or external mounting type.

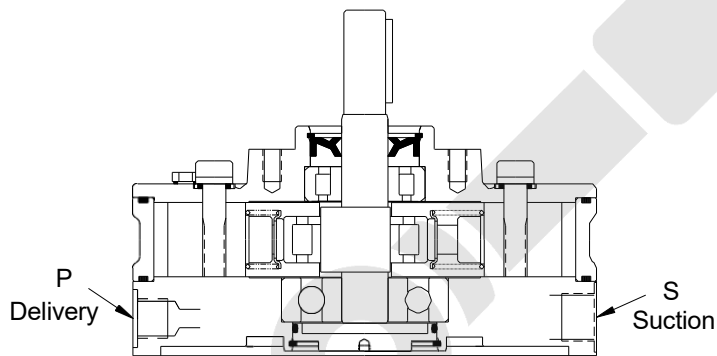
Face mounting, Valve controlled, Fixed delivery.

Bi-directional rotation of shaft. Available with extension shaft for through drive.

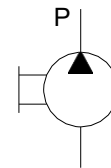
With extension bracket assembly for coupling a low pressure pump having standard flange.



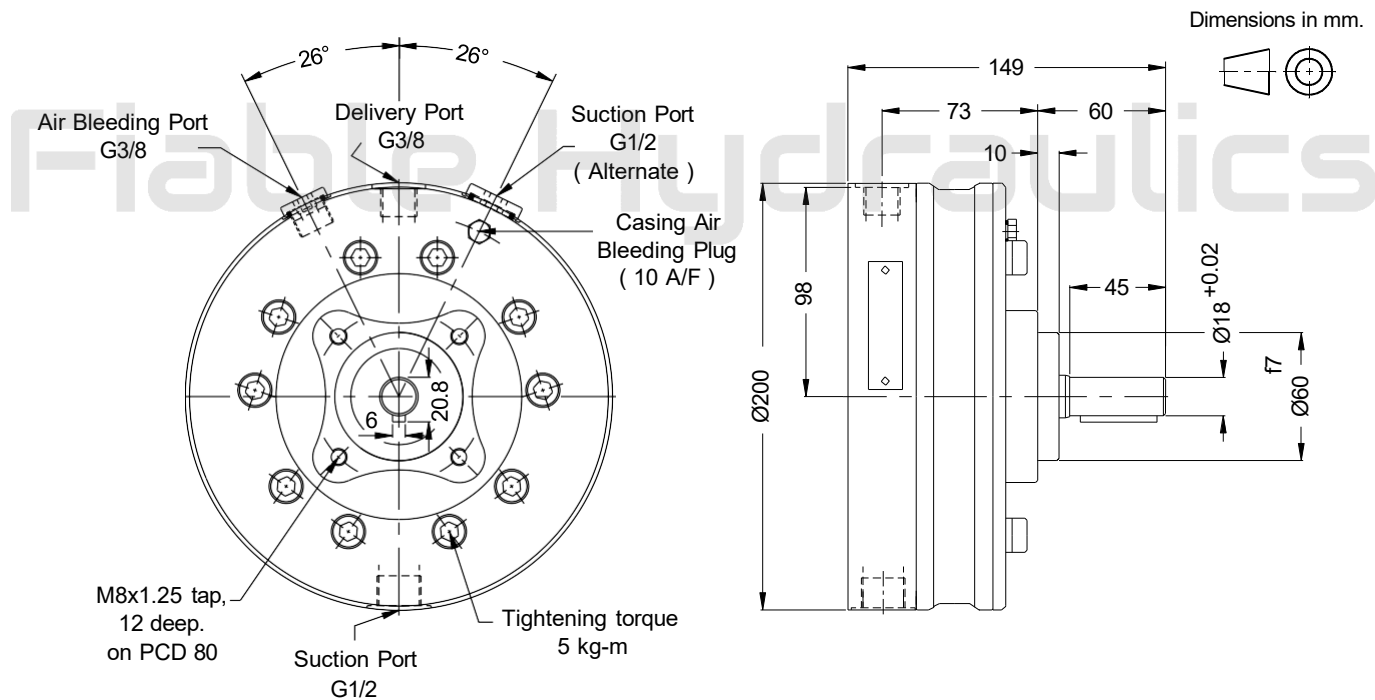
Section



Hydraulic Symbol



Unit Dimensions





Technical Specifications

Designation	1RC basic radial piston pump group
Design	Radial piston, valve controlled
No. of pistons	3,5 or 7 ; depending upon the flow requirement
Mounting	Face mounting
Direction of rotation	1RC Can be run in either direction
	1RCE Depends upon the direction of rotation of pump attached.
Connection Suction	G 1/2 female. Suction head — The oil level can be max. 300 mm below the suction port of the pump. Suction pipe size — 16 o. d. x 2 th. (as far as possible use straight pipe)
	Delivery G 3/8 female.
Suction pressure	0.02 to 3 bar positive.
Speed range	300 to 2000 rpm.
Hydraulic medium	Mineral oil
Viscosity range	10 to 100 cSt.
Temperature range	-10 °C to +80 °C.
	(Do not exceed viscosity limits at extreme temperatures for efficient running of the pump)
Fluid cleanliness requirement	As per ISO Code 16/13
Performance	Refer Table No. 1
Mass	14 kg.

Table No. 1

Code No.	Geometrical displacement CC/ REV	Rated output at 1450 rpm. (l / min)	Operating pressure bar	Input power requirement (@ 1450 rpm)																					
				50 bar		100 bar		150 bar		200 bar		250 bar		300 bar		350 bar		400 bar		450 bar		500 bar		550 bar	
				KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp	KW	Hp
3A	1.21	1.5	550	0.17	0.23	0.3	0.5	0.5	0.7	0.7	0.9	0.9	1.2	1	1.4	1.2	1.6	1.4	1.8	1.6	2.1	1.7	2.3	1.9	2.5
5A	2.01	2.6	550	0.29	0.38	0.6	0.8	0.9	1.2	1.2	1.5	1.4	1.9	1.7	2.3	2	2.7	2.3	3.1	2.6	3.5	2.9	3.8	3.2	4.2
7A	2.81	3.7	550	0.4	0.54	0.8	1.1	1.2	1.6	1.6	2.2	2	2.7	2.4	3.2	2.8	3.8	3.2	4.3	3.6	4.8	4	5.4	4.4	5.9
3B	1.88	2.5	450	0.27	0.36	0.5	0.7	0.8	1.1	1.1	1.4	1.3	1.8	1.6	2.2	1.9	2.5	2.1	2.9	2.4	3.2				
5B	3.14	4.2	450	0.45	0.6	0.9	1.2	1.3	1.8	1.8	2.4	2.2	3	2.7	3.6	3.1	4.2	3.6	4.8	4	5.4				
7B	4.4	5.8	450	0.63	0.84	1.3	1.7	1.9	2.5	2.5	3.4	3.1	4.2	3.8	5	4.4	5.9	5	6.7	5.6	7.5				
3C	2.71	3.7	350	0.39	0.52	0.8	1	1.2	1.6	1.5	2.1	1.9	2.6	2.3	3.1	2.7	3.6								
5C	4.52	6.2	350	0.64	0.86	1.3	1.7	1.9	2.6	2.6	3.5	3.2	4.3	3.9	5.2	4.5	6								
7C	6.33	8.6	350	0.9	1.21	1.8	2.4	2.7	3.6	3.6	4.8	4.5	6	5.4	7.2	6.3	8.5								
3D	3.19	4.3	300	0.45	0.61	0.9	1.2	1.4	1.8	1.8	2.4	2.3	3	2.7	3.6										
5D	5.31	7.2	300	0.76	1.01	1.5	2	2.3	3	3	4.1	3.8	5.1	4.5	6.1										
7D	7.43	10	300	1.06	1.42	2.1	2.8	3.2	4.3	4.2	5.7	5.3	7.1	6.3	8.5										
3E	3.69	5	250	0.53	0.7	1	1.4	1.6	2.1	2.1	2.8	2.6	3.5												
5E	6.16	8.4	250	0.88	1.17	1.8	2.4	2.6	3.5	3.5	4.7	4.4	5.9												
7E	8.62	11.7	250	1.23	1.64	2.5	3.3	3.7	4.9	4.9	6.6	6.1	8.2												
3F	4.24	5.8	200	0.6	0.81	1.2	1.6	1.8	2.4	2.4	3.2														
5F	7.07	9.7	200	1	1.35	2	2.7	3	4	4	5.4														
7F	9.9	13.6	200	1.11	1.89	2.8	3.8	4.2	5.7	5.6	7.5														

Note : The first digit in the code No. indicates No. of pumping elements in the pump. The second letter indicates flow and pressure rating of the pumping elements.

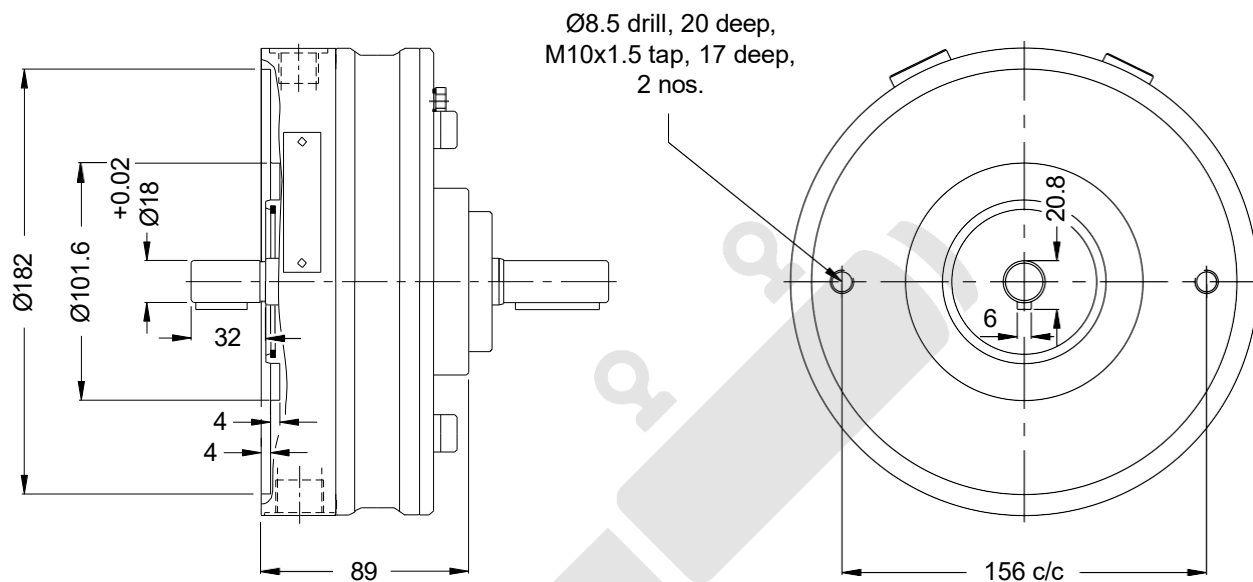
Code No. 7D for example, indicates a pump with 7 pumping elements having rated flow of 10 l / min and operating pressure upto 300 bar.



Accessories

Extension shaft (for through drive)

Dimensions



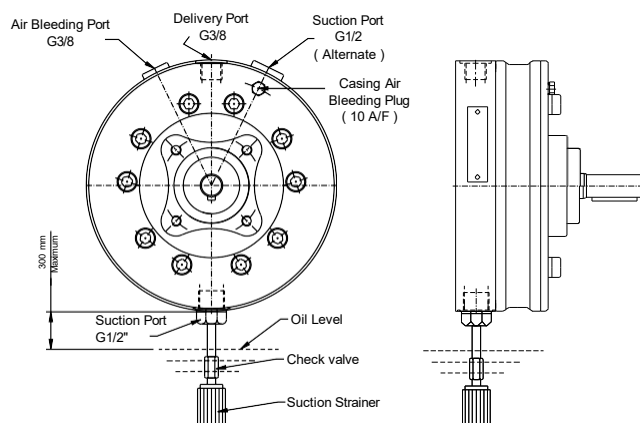
Note : Torque limitation - The sum of torque used for the piston pump and torque used at extended shaft end should not exceed 75 Nm (11 kw at 1450 r.p.m.)

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Priming Procedure for closed Execution Pump

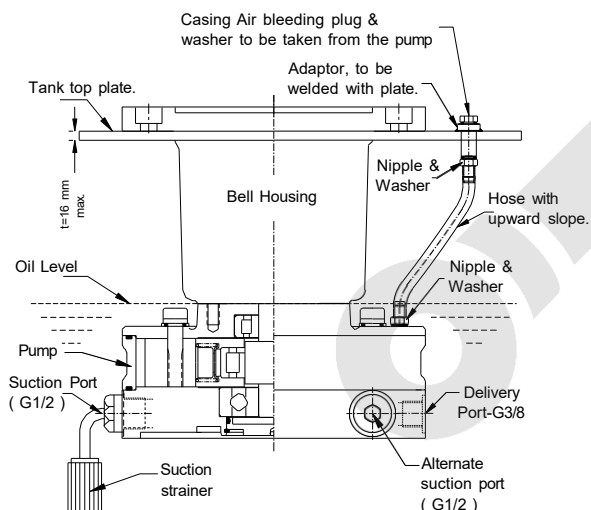


Case I : When the pump suction port height exceeds 300 mm above oil level.

- 1) During assembly / installation provide a check valve with almost nil cracking pressure on the suction pipe. (Refer check valve model codes given below).
- 2) Fill up the casing with oil (Use Alternate Suction port - G1/2" BSP & ensure it to be air tight after filling).
- 3) Connect a Hose pipe of suitable size to the air bleeding port - G 3/8 BSP.
- 4) Now, switch on the motor & wait for some time till you get full / uninterrupted flow.
- 5) As soon as you get the uninterrupted flow, switch off the motor & plug the Air Bleeding port.
- 6) Now, run the pump for short period at no load.
- 7) Adjust the system main pressure relief valve to a required value and start using the system.

Case II: When the pump suction port height is less than 300 mm above oil level.

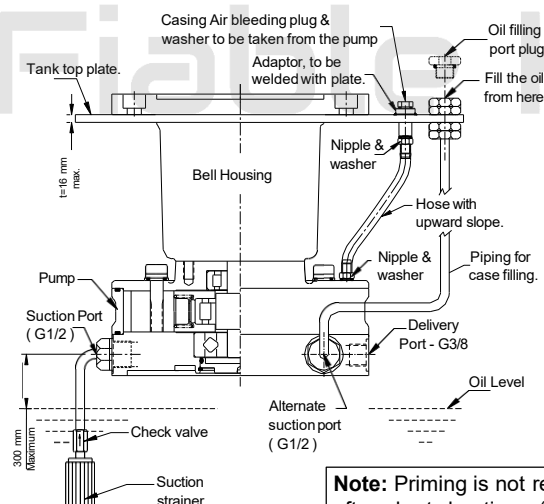
- 1) The pump need not have a check valve as mentioned above.
- 2) During commissioning the Air bleeding port should be kept open to tank by connecting a hose pipe.
- 3) Now, repeat the steps 4 to 7 of case -I.



Case I: When the casing pump is immersed in oil.

- 1) Make the connection for air bleeding as shown in fig. using the kit provided with the pump.
- 2) Loosen the Casing air bleeding plug completely.
- 3) Wait for some time for the oil to fill the pump casing.
- 4) The plug may now be retighten.
- 5) Now run the pump for short period at no load.
- 6) Adjust the main pressure relief valve of the system at required value and start using the system.

***This procedure is required for Element D,E,F only.
50 series Pumps with element A,B,C are Self priming,
hence, it is not supplied.***



Case II: When the oil level is below the suction port (i.e up to a distance of 300mm. Maximum).

- 1) Make the connection for air bleeding as shown in fig. using the kit provided with the pump.
- 2) Fit a check valve with almost nil cracking pressure at the bottom of the suction pipe. (Refer check valve model codes given below).
- 3) Now fill the pump casing with oil. This can be done by providing a pipe connection to alternate suction port as shown.
- 4) Now loosen the casing air bleeding plug completely & fill the casing till oil is seen coming out of casing air bleeding port.
- 5) Tighten the casing air bleeding plug once the casing is filled. Also, plug the oil filling port & ensure it to be air tight.
- 6) Now run the pump at no load for some time.
- 7) Adjust the main pressure relief valve of the system at required value and start using the system.

Note: Priming is not required to be done every time you start the pump after short durations (a day or two) of non-operation.

Suction pipe specification

- 1) 1R-series :— 16 O.D.x 2 mm thick (Preferably straight) for Single row pump.
- 2) 2R-series :— 25 O.D.x 2 mm thick (Preferably straight) for Double row pump.
- 3) 11R-series :— 25 O.D.x 2 mm thick (Preferably straight) for Single row pump.
- 4) 12R-series :— 30 O.D.x 2 mm thick (Preferably straight) for Double row pump.

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- Hydraulic Power Pack
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- Hydraulic Motors
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Fiable Hydraulics Pvt Ltd

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