



A Polyhydron Group Company

RADIAL PISTON PUMP 1RC

ENGINEERING

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Ref. No. P04892

Release 06/2006

Description

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

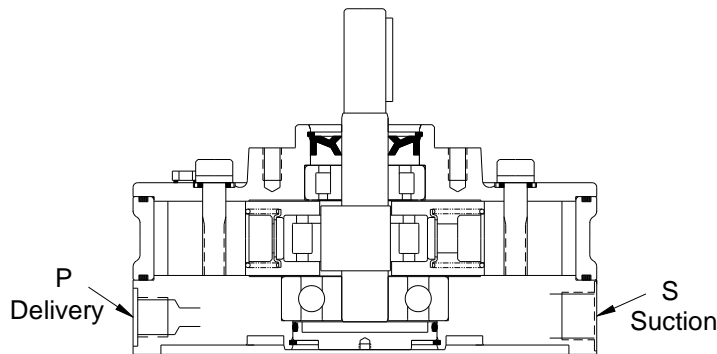
Face mounting, Valve controlled, Fixed delivery.

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

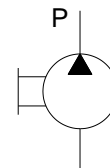
With extension bracket assembly for coupling a low pressure pump having standard flange.



Section

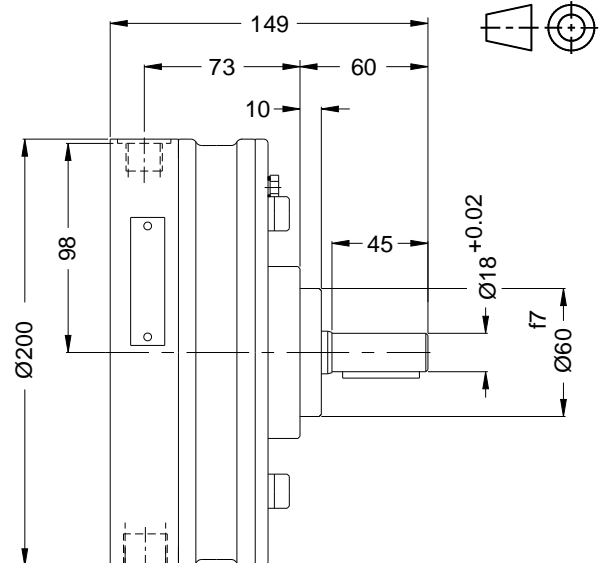
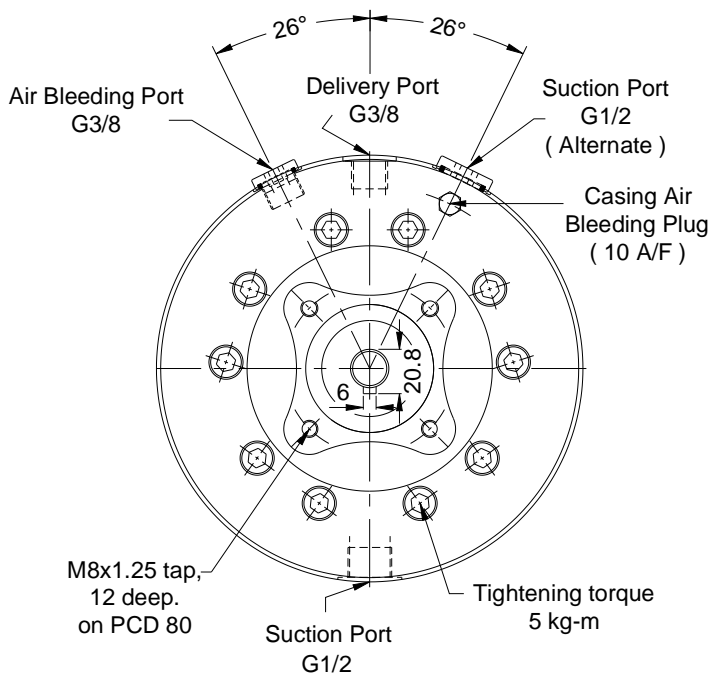


Hydraulic Symbol



Unit Dimensions

Dimensions in mm.



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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.



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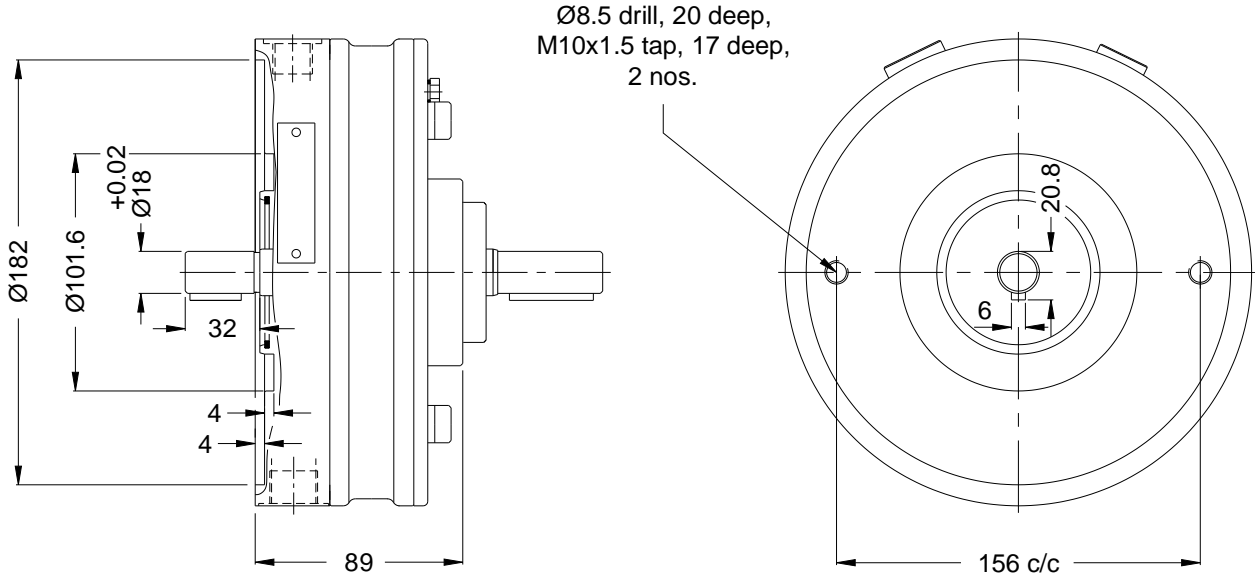
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Accessories

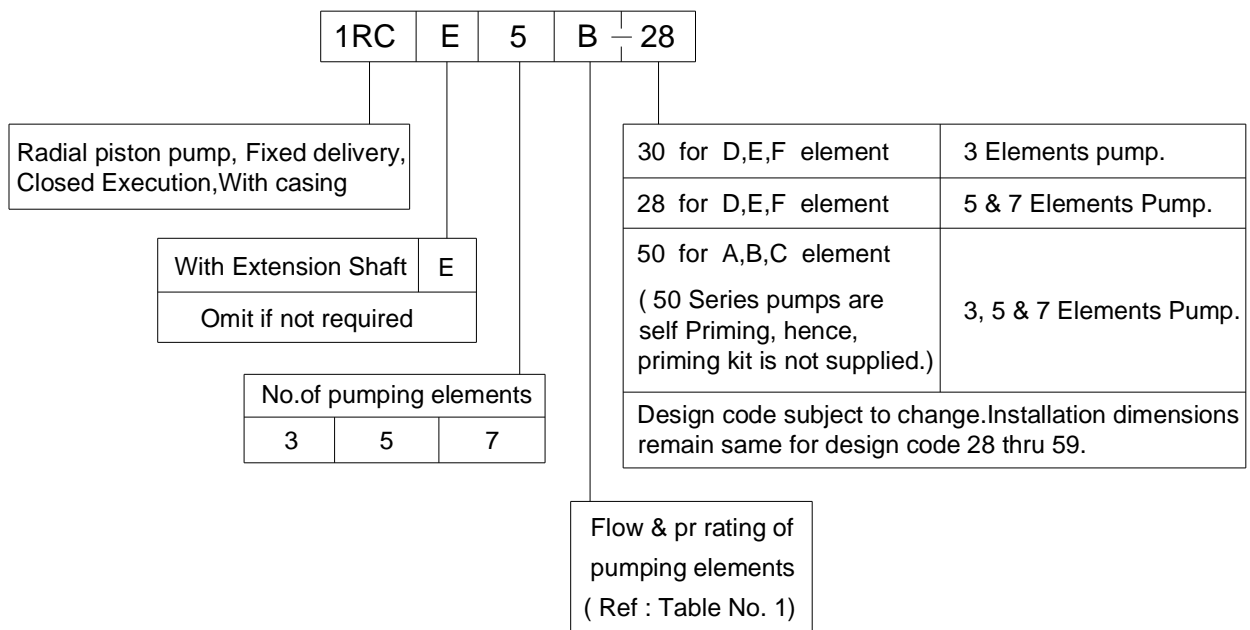
Extension shaft (for through drive)

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.)

Ordering Code



Note : For Bell housing refer sheet no. P09035.
For Extension bracket sheet no. P09090.



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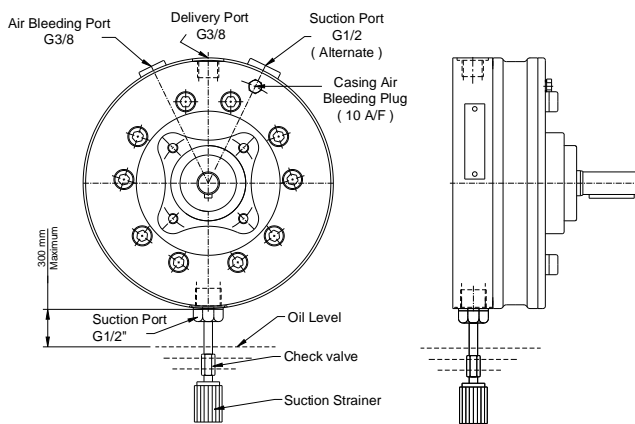
RADIAL PISTON PUMP 1RC

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Priming Procedure for closed Execution Pump

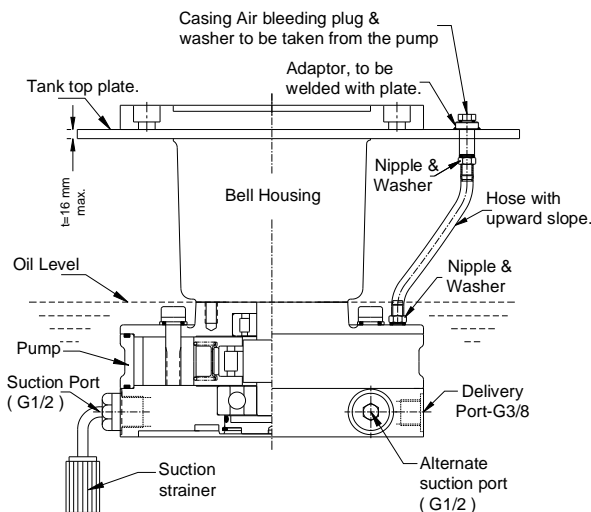


Case I : When the pump suction port height exceeds 300 mm above oil level.

- 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.

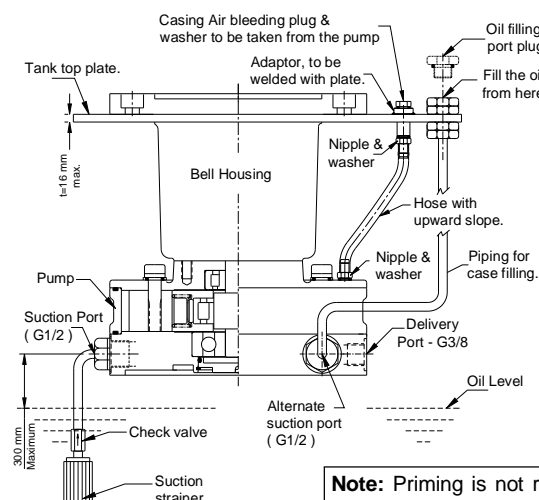
- 1) The pump need not have a check valve as mentioned above.
- 2) During commissioning the Air bleeding port should be kept open to tank by connecting a hose pipe.
- 3) Now, repeat the steps 4 to 7 of case -I.



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.

Check valve model codes (To be ordered separately)

- 1) 1R-series :— C10T0-03
- 2) 2R-series :— C15T0-04
- 3) 11R-series :— C20T0-03
- 4) 12R-series :— C20T0-03



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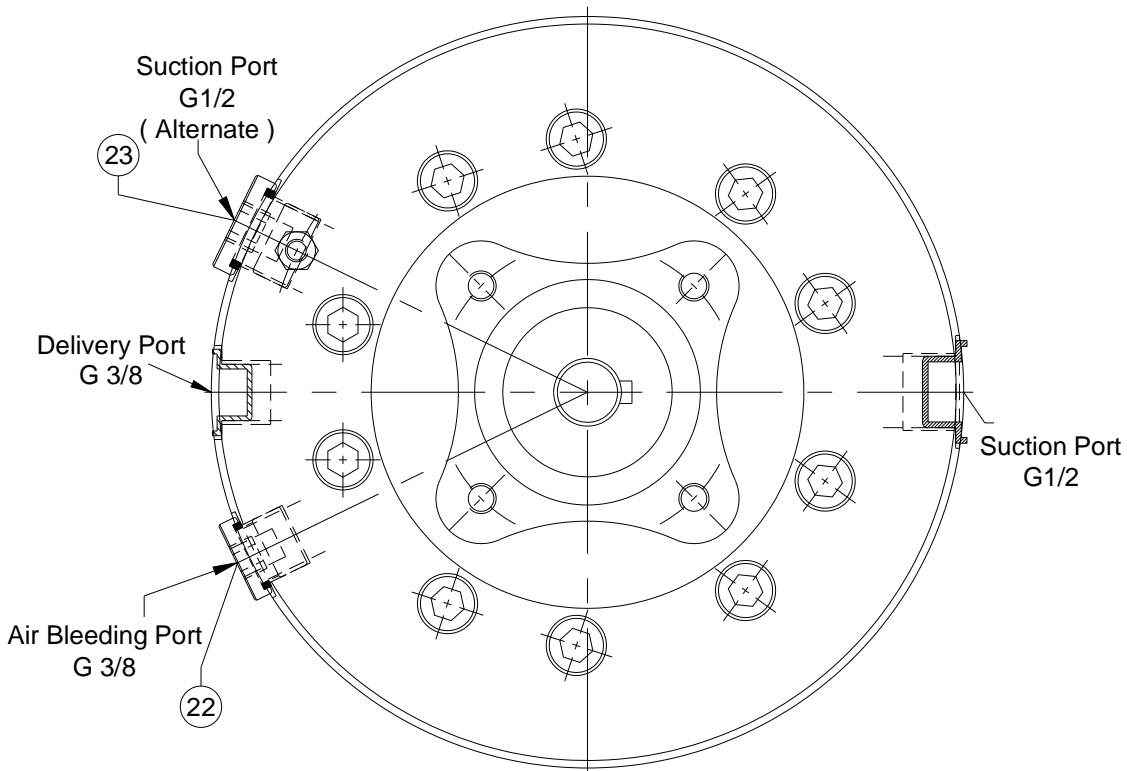
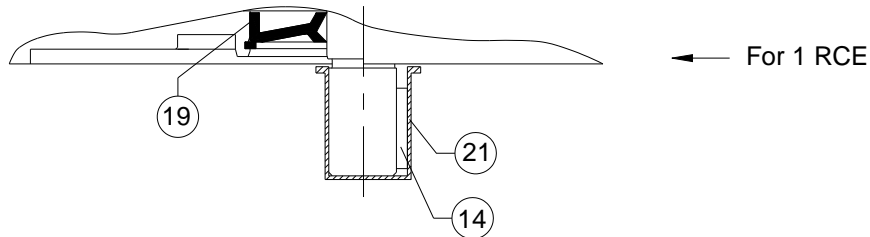
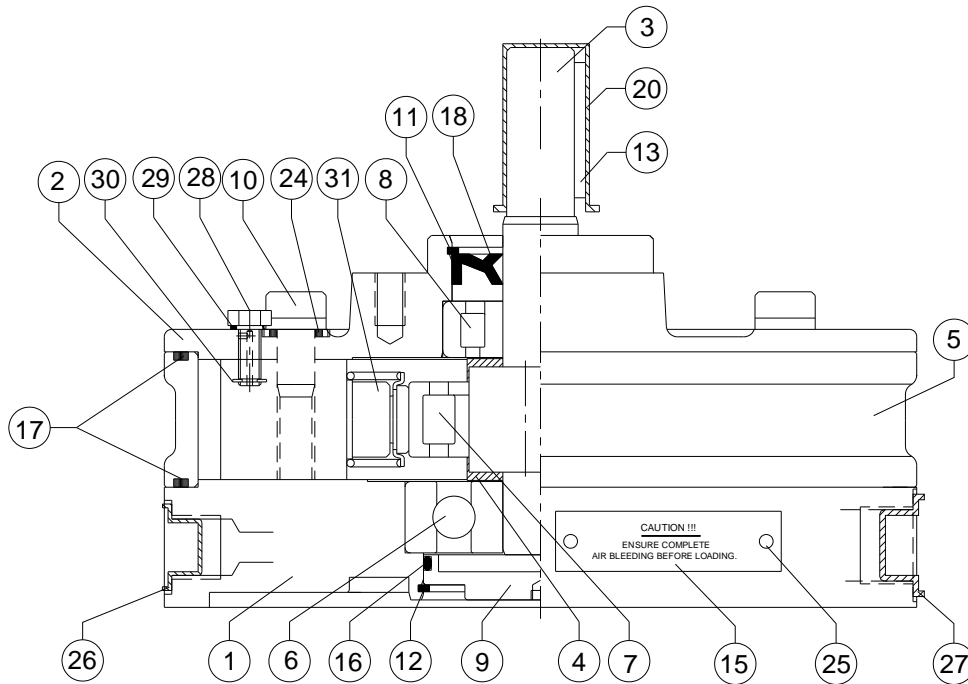
RADIAL PISTON PUMP 1RC

SERVICE

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Sectional view and Part list





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RADIAL PISTON PUMP 1RC

SERVICE

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Sl.No.	Description	1RC3		Size	Qty.	1RC 5 / 7		Size	Qty.
		1RC3	1RCE3			1RC 5 / 7	1RCE 5 / 7		
1	Valve plate	11204			1	11209/11212	11209/11212		1
2	Cover plate	11224			1	11228/11230	11228/11230		1
3	Shaft	11242	11243		1	11242	11243		1
4	Balancing Plate	11251			2	11252			2
5	Casing Ring	11232			1	11232			1
6	Bottom Bearing	11261		KOYO 6404	1	11264		6404	1
7	Centre Bearing.	11262		NUP 2206	1	11265		NUP 2206	1
8	Top Bearing.	11266		NJ 304 ECP	1	11266		NJ 304 ECP	1
9	End cap	11255	---	Ø62	1	11256	---	Ø62	1
10	Cap screw	11271		M10x55 L	6	11271		M10x55 L	10/14
11	Circlip	11285		Ø47 (Type B)	3	11285		Ø47 (Type B)	1
12	Circlip	---		---	1	11286		Ø62 (Type B)	1
13	Shaft Key	11293		6x6x36	1	11293		6x6x36	1
14	Shaft Key	---	11294	6x6x36	1	---	11294	6x6x22	1
15	Label (Caution)	11282			1	11282			1
16	O' Ring	11287	---	54x4	1	11288	---	54x4	1
17	O' Ring	11290		189x3	2	11290		189x3	2
* 18	Rotary Shaft Seal	11278		Dou. Lip 47	1	11278		Dou. Lip 47	1
* 19	Rotary Shaft Seal	---	11278	Dou. Lip 47	1	---	11279	Dou. Lip 62	1
20	Plastic cap	11283		1R	1	11283		1R	1
21	Plastic cap	---	11284	1R	1	---	11284	1RE(Shaft)	1
22	Elastomeric Plug	00203		G 3/8	1	00203		G 3/8	1
23	Elastomeric Plug	00204		G 1/2	1	00204		G 1/2	1
24	Bonded Seal	00160		G 1/8	6	00160		G 1/8	10/14
25	Rivet	00001		Ø2, 4.5 L	2	00001		Ø2, 4.5 L	2
26	Rubber Port Plug	00012		G 3/8 Plug Cap	1	00012		G 3/8 Plug Cap	1
27	Rubber Port Plug	00013		G 1/2 Plug Cap	1	00013		G 1/2 Plug Cap	1
28	Hex Plug	11299		M6x16	1	11299		M6x16	1
29	Copper washer	11297		Ø6.5xØ9.5x1	1	11297		Ø6.5xØ9.5x1	1
30	External Circlip	00065		Dia. 4 Nom.	1	00065		Dia. 4 Nom.	1

Sl.No.	Description	Product	Qty.	
31	Pump element assly. (Refer Data Sheet No. D11100)	1R-A-01 / 1R-B-01 / 1R-C-01 1R-D-01 / 1R-E-01 / 1R-F-01	1RC*3	1RC*5/7
			3	5 / 7

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Subject to revision.