A Polyhydron Group Company

RADIAL PISTON PUMP
2RC

ENGINEERING | **1**

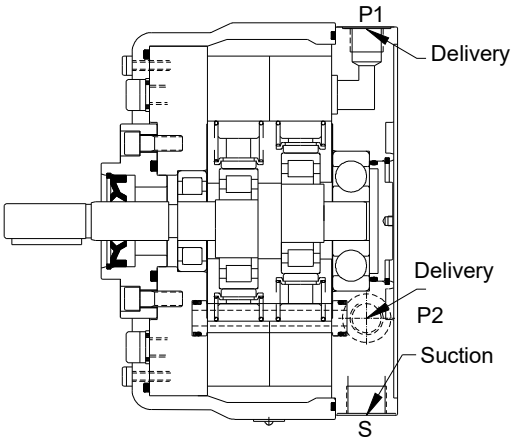
Ref. No. P09046
Release 07/2004

Description

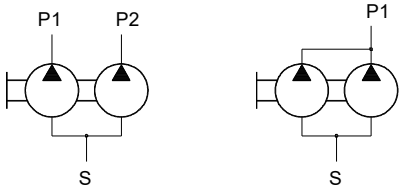
Radial piston arrangement, with 3, 5 or 7 pumping elements. External mounting type. Face mounting, Valve controlled, Fixed delivery. Bi-directional rotation of shaft. Available with extension shaft for through drive. With extension bracket assembly for coupling a low pressure pump having standard flange.

Flows can be combined internally, externally to feed one circuit or used independently to feed Two circuits.

Section



Hydraulic Symbol



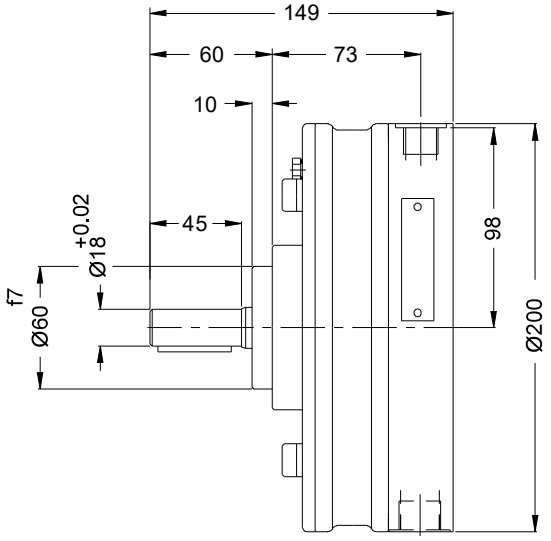
Independent Double Flows

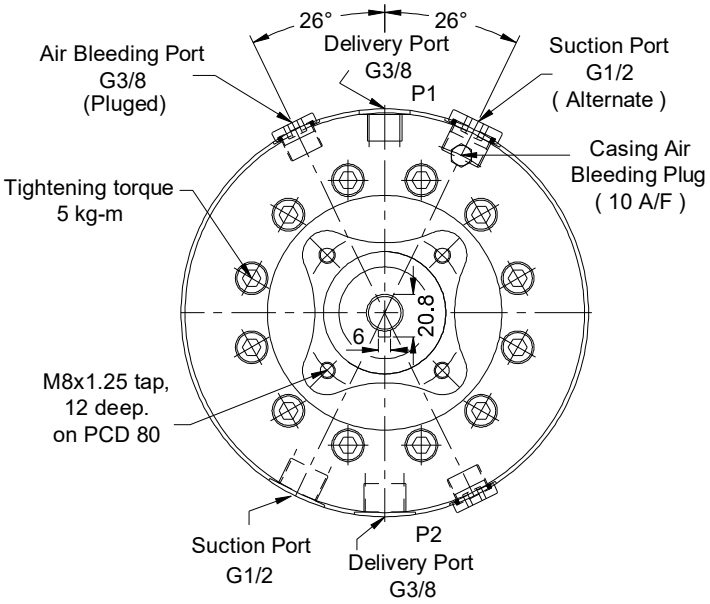
Internally combined Single Flow

Unit dimension

Dimensions in mm.

Model : 2RC3** and 2RC3**-C





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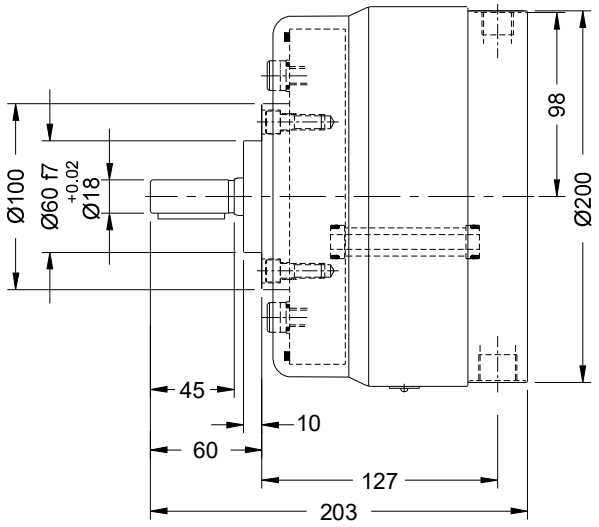
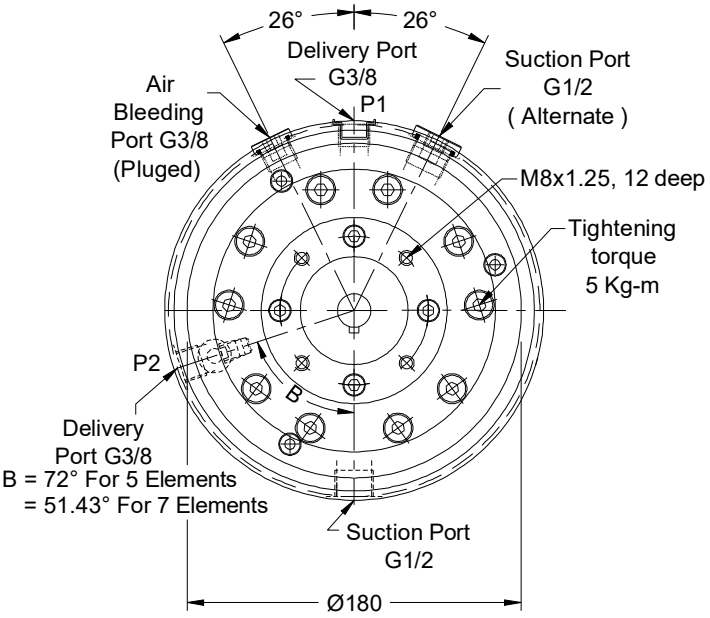
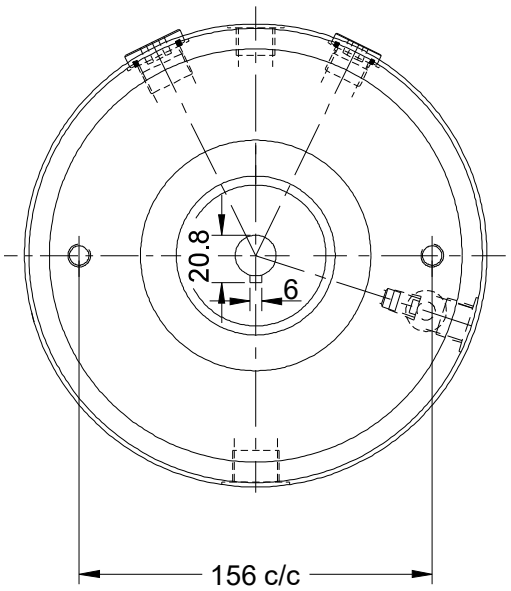
Model : 2RC(5 / 7)** and 2RC(5 / 7)**-C

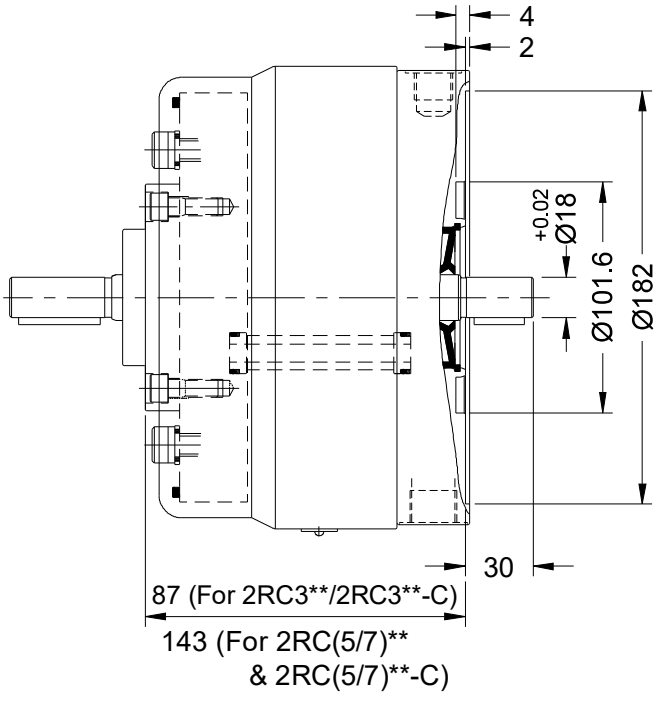




Accessories

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 rpm)

Technical specification

Designation ..... 2RC 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 .....2RC.. Can be run in either direction
2RCE.. 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 — 25 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 ..... 21.4 kg.

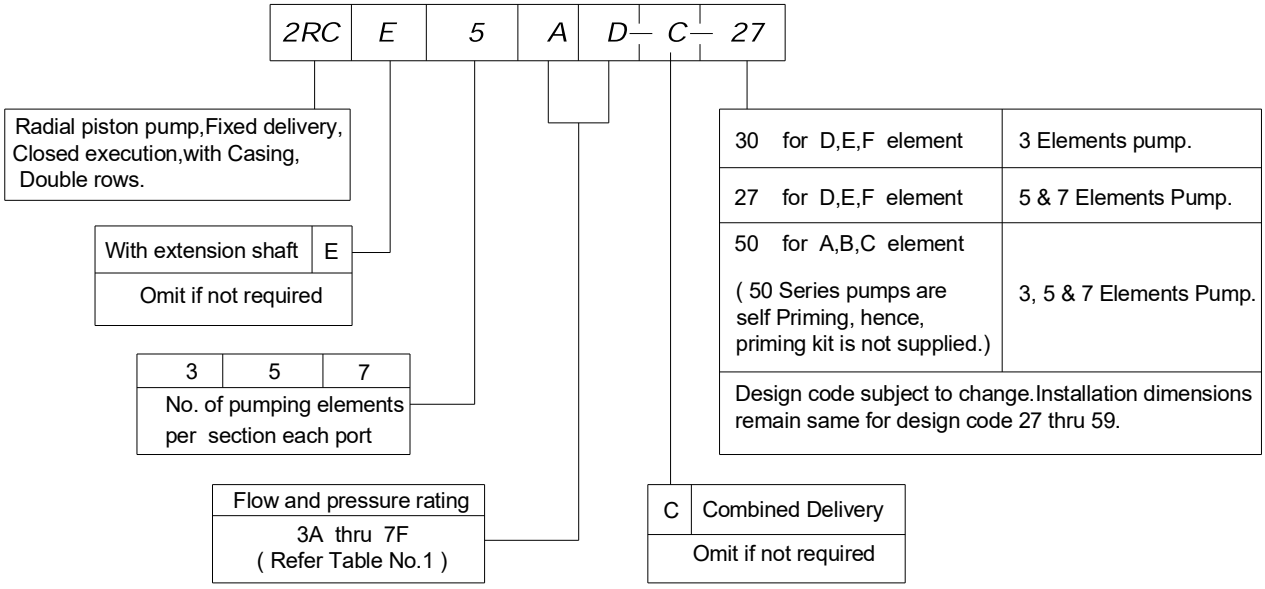
Table No. 1

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 : For double pumps, the above pump code number needs to be modified in the following manner. The first digit in the code number indicates number of pumping elements in each pump section. The second letter indicates flow and pressure rating of the pumping elements of P1 port end section and the third letter indicates flow and pressure rating of the pump elements of P2 port end section. Code no. 5AD for example, indicates a double pump having a flow and pressure rating of 5A for P1 port end section and 5D rating for P2 port end section.

Torque Limitation : The sum of torque used for P1 and P2 port end section should not exceed 75 Nm (11 kw at 1450 rpm) at any given instance.

Ordering code



Note 1 : A double pump of model code 2RC5AD-27, for example, will have 5 pumping elements of 'A' flow and pressure rating at it's P1 port end section and 5 pumping elements of 'D' flow and pressure rating at it's P2 port end section.

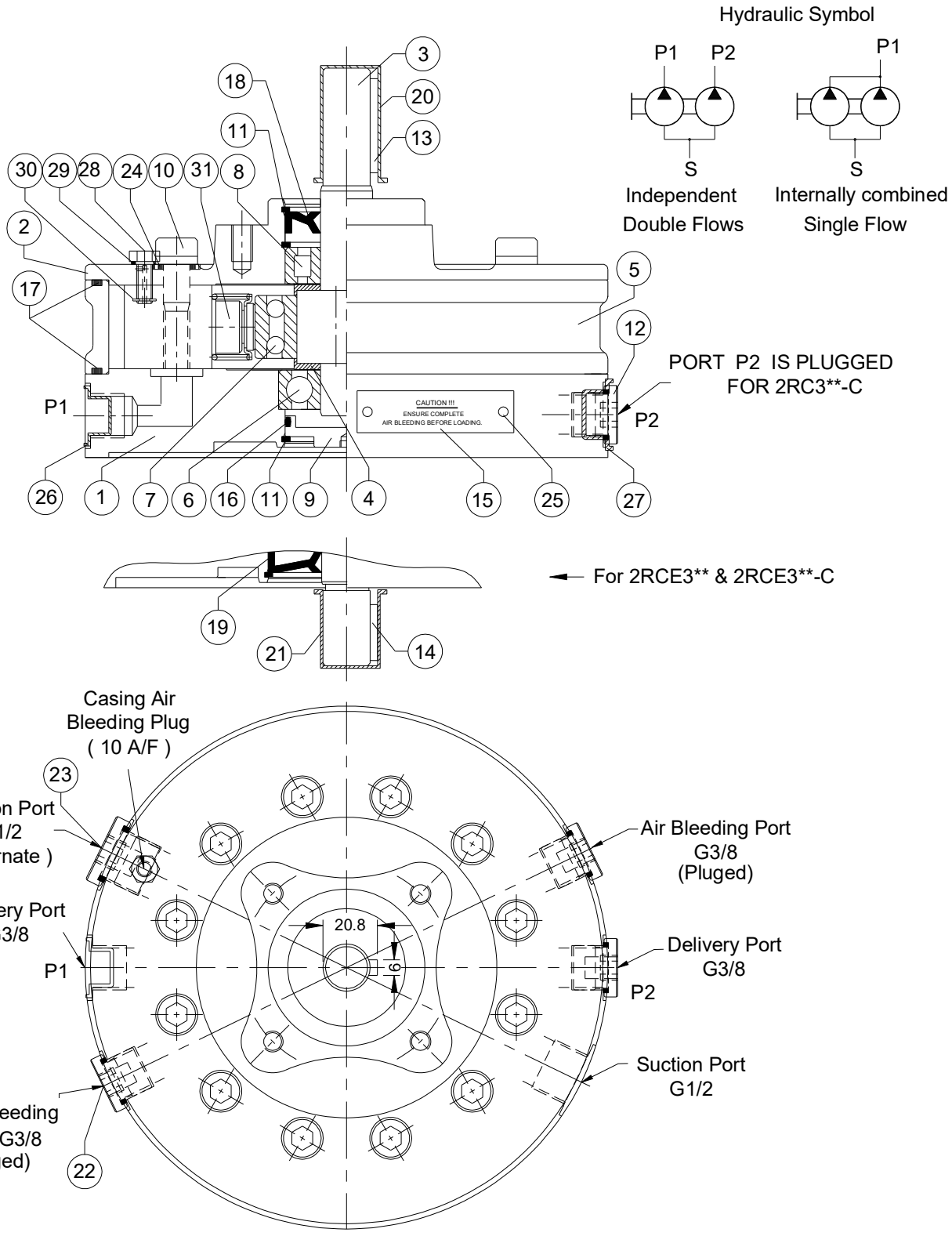
Note 2 : An Internally combined single flow pump of model code 2RC5AD-C-27, for example, will have 5 pumping elements of 'A' flow and pressure rating at it's P1 port end section and 5 pumping elements of 'D' flow and pressure rating at it's P2 port end section.

The maximum pressure available will be, minimum of above combination of pumping elements.

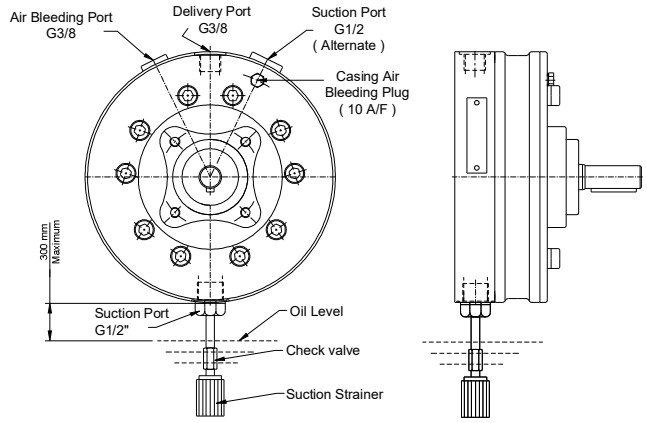
Note 3 : For Bell housing assembly Refer Sheet No. P09035.

For Extension bracket assembly Refer Sheet No. P09090.

Sectional view and Part list of 2RC3**-C / 2RCE**-C and 2RC3** / 2RCE3**



Priming Procedure for closed Execution Pump

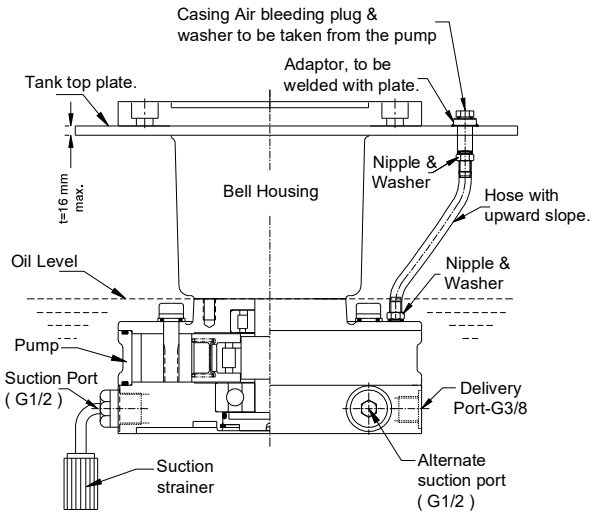


Case I : When the pump suction port height exceeds 300 mm above oil level.

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 / uninterupted 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.

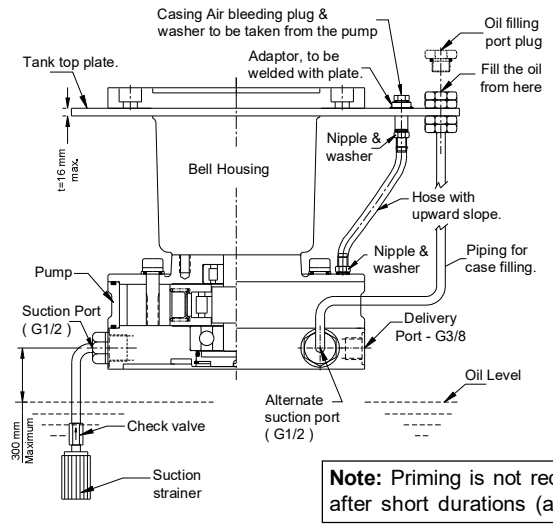
1) The pump need not have a check valve as mentioned above.
2) During commissioning the Air bleeding port should be kept open to tank by connecting a hose pipe.
3) Now, repeat the steps 4 to 7 of case -I.



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