



# PREFILL AND EXHAUST VALVE

## Model : PV 32 TO PV 80

Ref. No. D 04905  
Release 12 / 2014

ENGINEERING - 1 of 4

A Polyhydron Group Company

### Description

Prefill and Exhaust valves model **PV\*\*** are seat type check valves, allowing free flow from their port **A** to port **B**. For reverse flow, these valve can be opened by applying pilot pressure to their port **X**.

The valves are designed for the purpose of pre-filling large cylinders during their rapid approach motions, which are actuated mean like a pair of kicker cylinders or jack up cylinders or by gravitational force.

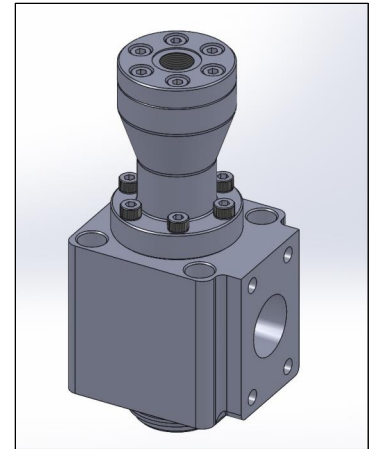
These valves have very low cracking pressure and generous internal passage to help them to offer least possible pressure drop while pre-filling.

Due to low pressure drop, these valve also can handle much higher exhaust flow enabling rapid return of the cylinders.

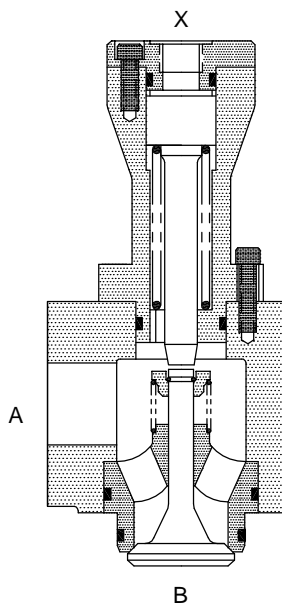
For connectivity, it's **A** port is machined as per Port dimensions for Flanged connection ISO 6162.

The special cavity for the **B** port helps the user to mount these valves directly on the cylinders, thus further reducing the pressure drop in the line.

A hydraulic system having prefill valve without decompression feature, must have an external arrangement of decompressing the oil in the cylinder, before the valve is opened.

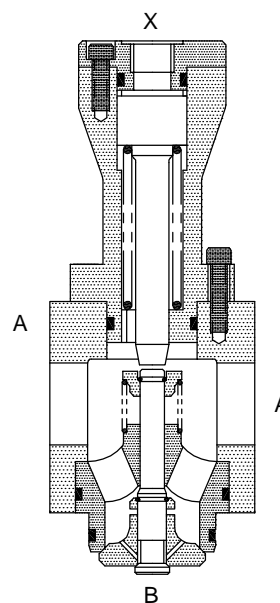


### Section



**Prefill valve without decompression feature**

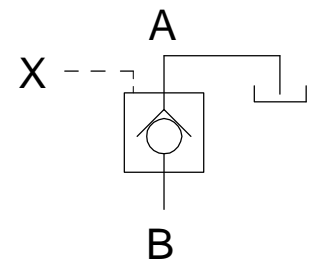
(Model shown with flange bolted to port A)



**Prefill valve with decompression feature**

(Model suitable for mouting inside the oil tank)

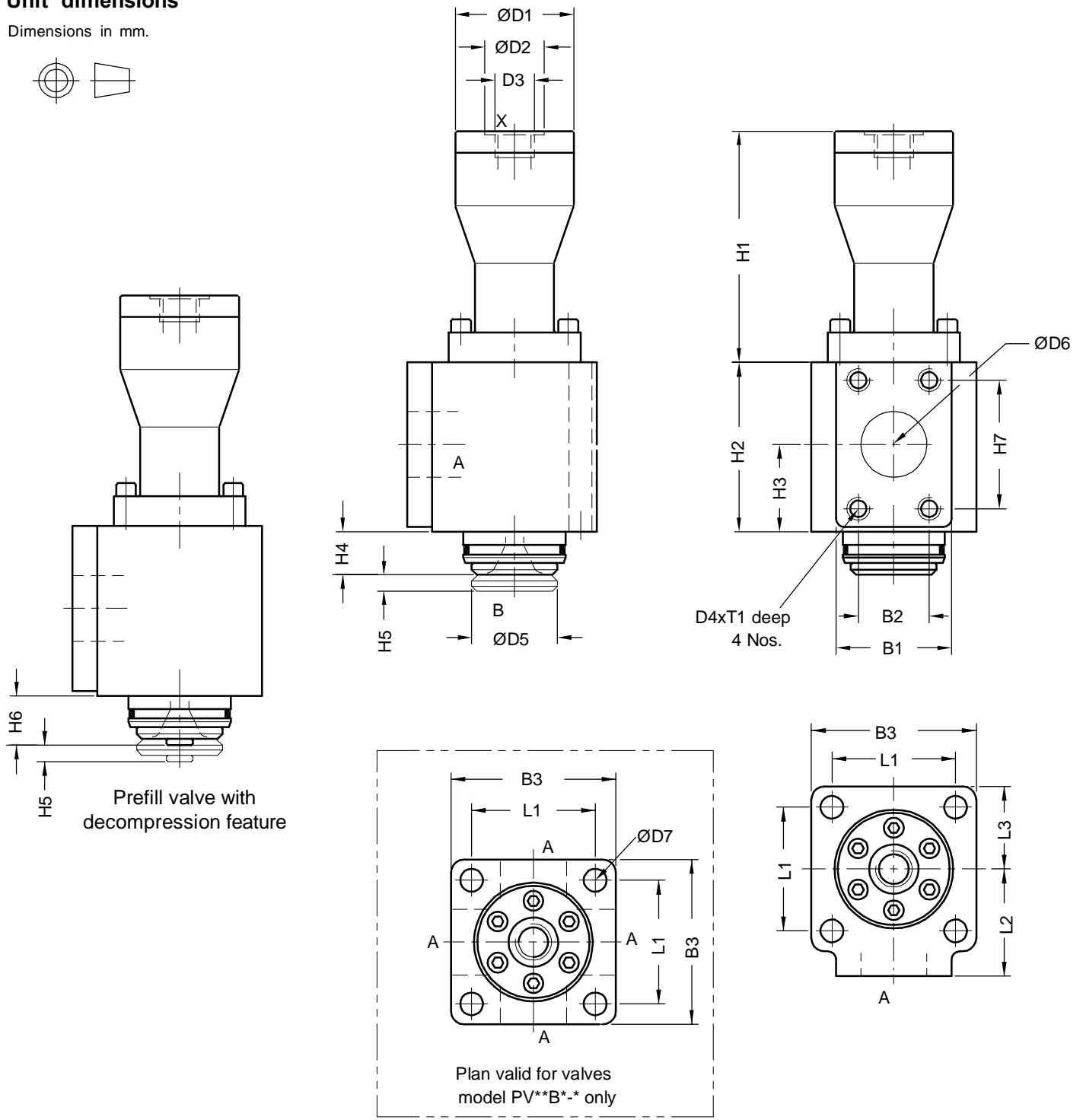
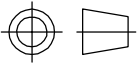
### Hydraulic symbol





**Unit dimensions**

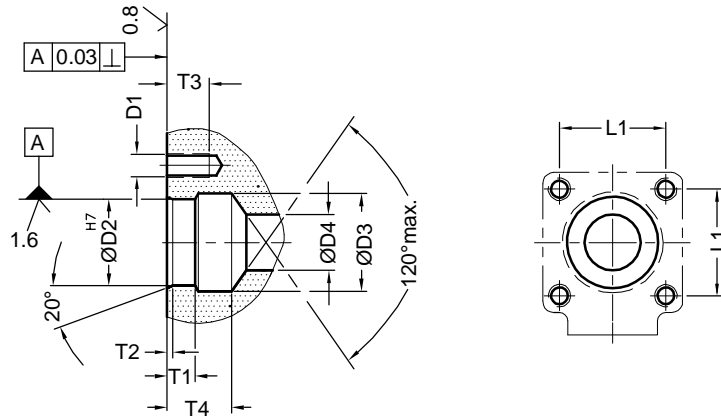
Dimensions in mm.



Size	Mass kg	B1	B2	B3	ØD1	ØD2	D3	D4	ØD5	ØD6	ØD7	H1	H2	H3	H4	H5	H6	H7	L1	L2	L3	T1
32	4.3	80	58.7	80	47	25	G3/8	M10	39	32	11	101	75	40	20	8	22.5	30.2	58	55	40	15
40	9	70	43	100	72	30	G1/2	M12	52	40	18	117	103	53	26	10	30	78	75	65	50	20
50	14	100	51	120	87	30	G1/2	M12	67	50	22	137	113	58	32	12	37	89	90	75	60	20
63	25	115	62	145	105	30	G1/2	M16	82	63	26	176	139	71.5	34	15	40	106.5	105	90	72.5	25
80	45.5	115	62	180	132	36	G3/4	M16	102	80	33	237	160	77.5	36	20	43	106.5	130	102	90	25



**Mounting Cavity Details**



Size	D1	ØD2 H7	ØD3	ØD4 min.	L1	T1	T2	T3	T4 min.	Valve Fixing S.H.C. Screw	Tightening Torque (Nm)
<b>32</b>	M10	52	52	32	58	--	3	18	36	M10 x 90 L, 4 nos.	77
<b>40</b>	M16	62	66	40	75	20	4	27	46	M16 x 130 L, 4 nos.	215
<b>50</b>	M20	80	84	50	90	25	5	32	57	M20 x 140 L, 4 nos.	450
<b>63</b>	M24	95	104	63	105	25	5	46	64	M24 x 180 L, 4 nos.	1110
<b>80</b>	M30	115	130	80	130	30	5	50	76	M30 x 200 L, 4 nos.	2250

**Technical specifications**

- Construction ..... Poppet type, Pilot operated.
- Mounting ..... Inside oil tank mouting or flanged A port, as per ISO 6162  
Special machined cavity for port B.
- Mounting position ..... Optional
- Flow direction ..... Free flow from port A to port B.  
Piloted flow from port B to port A
- Maximum operating pressure..... At port A                   16 bar  
At port B and port X   315 bar
- Cracking pressure..... 0.2 bar
- Pilot pressure required to have flow.....  
from port B to port A.                    $P_x > 2 \times P_b - P_a + 8$  bar (to open main poppet of the valve)  
    $P_x > P_b / 5 - (1.2 \times P_a) + 8$  bar (to open decompression poppet of the valve)  
Where     $P_x$  = Pilot pressure at port X (bar)  
               $P_a$  = Pressure at port A (bar)  
               $P_b$  = Pressure at port B (bar)

Pilot Volume.....

Size	32	40	50	63	80
<b>cm<sup>3</sup></b>	5.3	10.9	21.3	39	77.6

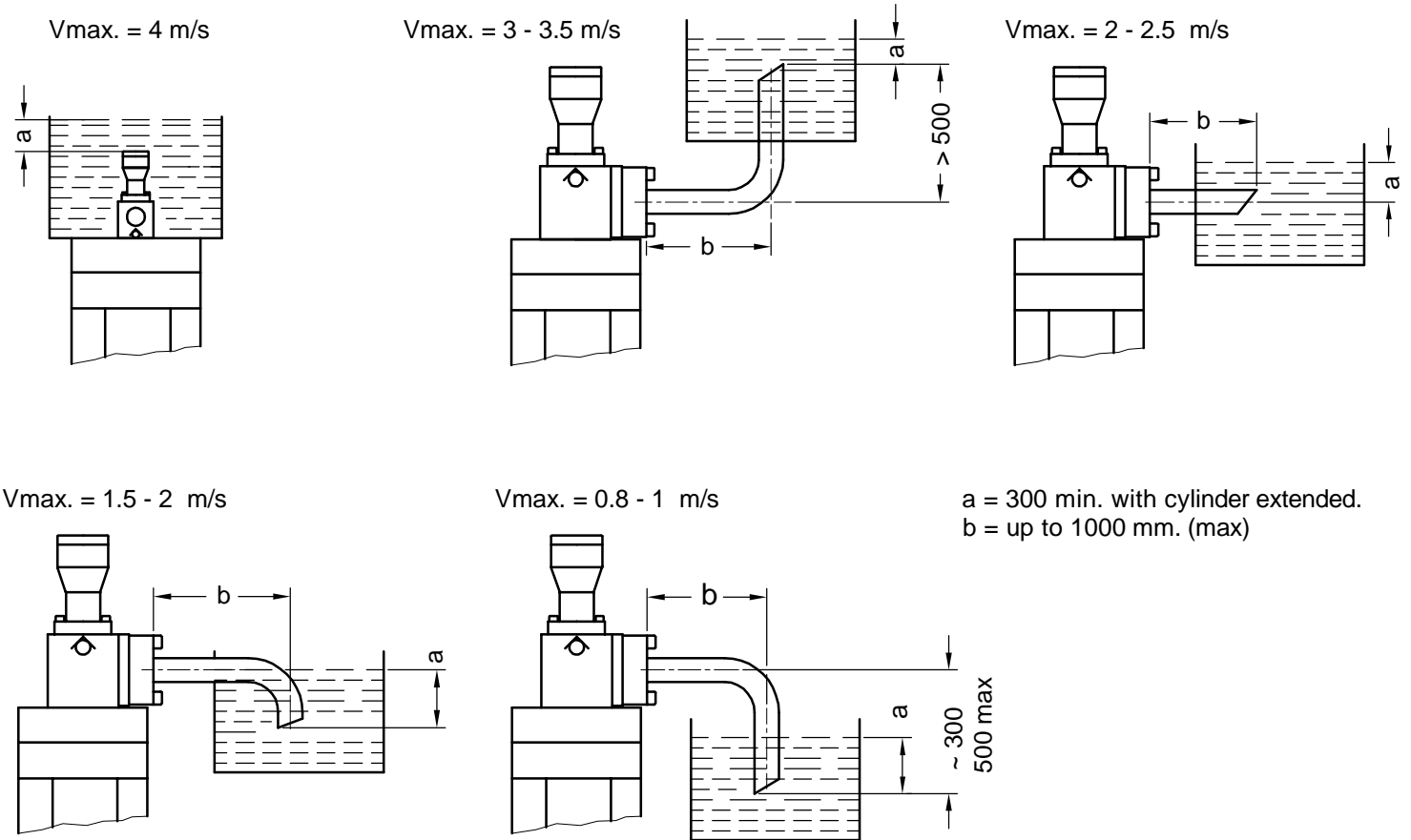
Flow handling Capacity (Nominal) l/min.....

Size	At an average velocity of oil through the valve (m/sec)							
	0.5	1	1.5	2	2.5	3	3.5	4
	L / min.							
<b>32</b>	24	48	72	96	120	144	178	216
<b>40</b>	38	76	114	152	190	228	260	304
<b>50</b>	59	118	177	236	295	354	413	472
<b>63</b>	93	186	279	372	465	508	651	744
<b>80</b>	152	304	456	608	760	912	1064	1216

- Oil velocity during pre-filling (Suction)..... Refer figure below
- Hydraulic medium ..... Mineral oil.
- Viscosity range ..... 10 cSt to 380 cSt
- Fluid temperature range ..... -20°C to +80°C
- Fluid cleanliness requirement ..... ISO 4406 20/18/15 or better.
- Mass ..... Refer table on page 2.



Oil velocity during prefilling (suction) for different arrangements



Ordering code

