

Oilgear Tower

Prefill & Exhaust Valves

VPE Series

Sizes 040 / 050 / 065 / 090

Innovative Fluid Power

Bulletin FV 60 09/10

*Issue 1.0
09.2010*

Valve Size		040	050	065	090
Max. Flow Prefilling (Tank to Cylinder). L/min		255	450	700	1400
Max. Flow Exhaust (Cylinder to Tank). L/min		600	1050	1645	3200
Maximum Pressure	Cylinder, Bar	700	700	500	500
	Tank Standard Valve, Bar	15	15	15	15
	Pilot Connection, Bar	310	310	310	310
Pressure Required to Open Valve (P = Cylinder Pressure), Bar		$P + 3.4 + \text{Tank}$	$1.7P + 3.7 + \text{Tank}$	$2.1P + 3.6 + \text{Tank}$	$5.6P + 4.8 + \text{Tank}$
Ratio, Main Valve to Pilot Piston		1:1	1.63:1	2.1:1	5.6:1
Volume, Pilot Piston Full Stroke, cm ³		17	17	17	17
Fluid	Viscosity	1 to 200 cSt			
	Mineral Oil	ISO 6743/4 Type HM or HV			
	Fire Resistant Fluids	HFDR	Phosphate Ester		
		HFC	Water Glycol		
		HFA _t	High Water Based, Thickened Nominally, 46 cSt		
		HFA _s	98% or 95% Water, Oilgear Towler manufacture a complete range of equipment to handle these fluids. Some may need special materials. Consult Oilgear Towler for information		
Cleanliness	Filters should be provided in the system to maintain the fluid cleaner than ISO 4406 Code 18/13/11 (NAS 1638 7)				

Size	Approximate Weight, kg
040	9
050	16
065	33.5
090	58

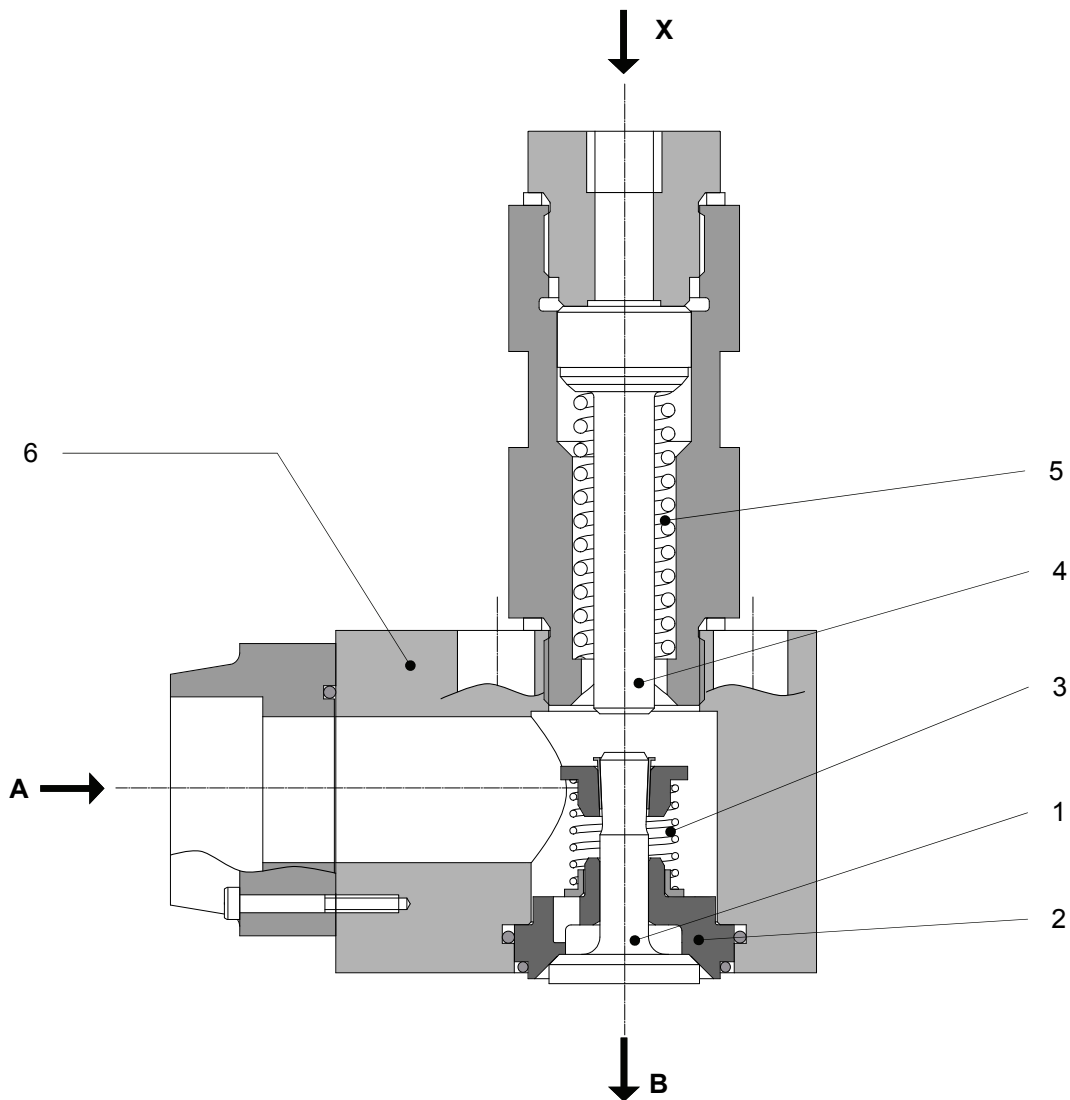
The valve consists of: Main Valve (1), Seat (2), Main Spring (3), Pilot Piston (4), Pilot Spring (5) and Body (6).

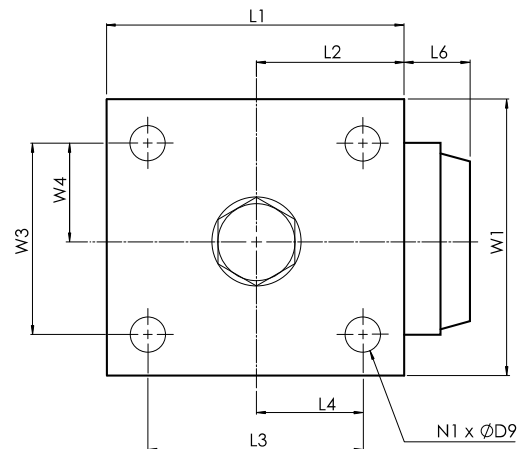
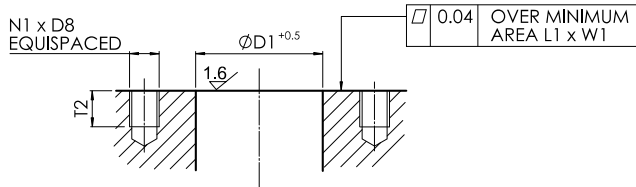
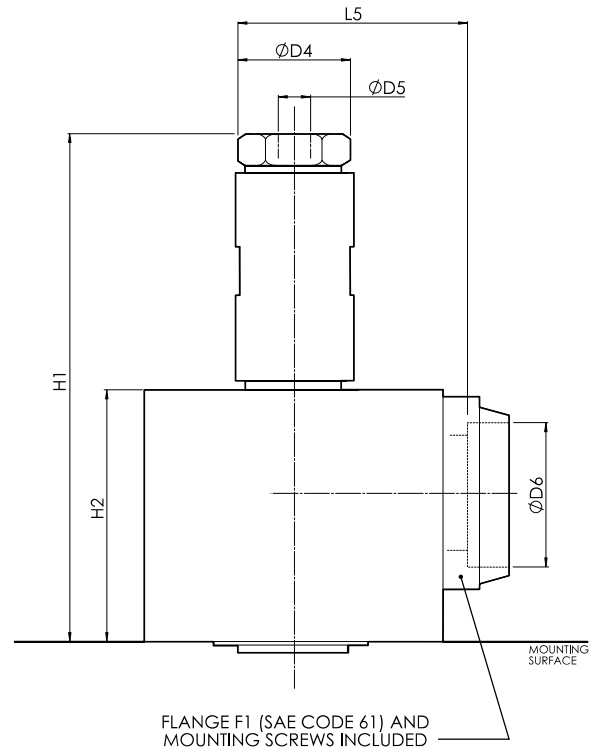
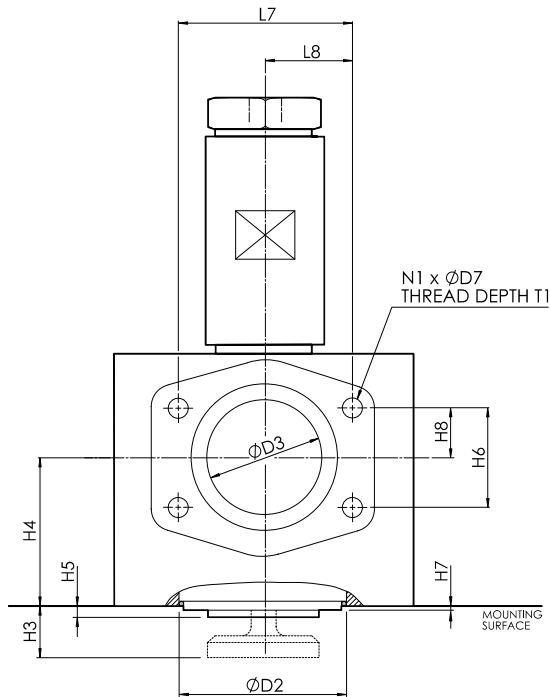
Prefilling

When the pressure at Port B falls to create a differential across the valve (from Port A to Port B) which is sufficient to overcome the force in the Main Spring (3), the Main Valve (1) will open allowing free flow from Port A to Port B.

Exhaust

The pressure acting on Port B holds the Main Valve (1) on the Seat (2), keeping the valve closed. To allow flow in the return direction (from Port A to Port B) the pressure at Port B must first be decompressed to a level which will not cause shocks in the system. Pressure can then be applied to Port X, the Pilot Piston (4) is then forced down compressing the Pilot Spring (5) and opening the Main Valve (1), allowing exhaust flow from Port B to Port A.





Size	D1	D2	D3	D4	D5	D6	D7	D8	D9	F1	H1	H2	H3	H4	H5	H6	H7	H8
040	50.1	57.2	38	60	³ / ₈ " BSP	48.3	M12	M20	22	1 1/2"	219	89	15	47.6	2.8	45.7	1.6	22.85
050	64.6	73	45	60	³ / ₈ " BSP	60.3	M12	M24	26	2"	230	100	18	57	4.6	42.9	1.5	21.45
065	78.7	86	60	60	³ / ₈ " BSP	76.2	M12	M24	26	2 1/2"	260	130	26.3	76	5.8	50.8	1.6	25.40

Size	L1	L2	L3	L4	L5	L6	L7	L8	N1	T1	T2	W1	W3	W4	Fasteners	Quantity
040	125	75	66.6	33.3	100	44	70	35	4	23	35	102	66.6	33.3	M20 X 120 SHCS	4
050	150	90	79.4	39.7	115	45	77.8	38.9	4	23	36	120	79.4	39.7	M24 X 130 SHCS	4
065	150	80	101.6	50.8	105	50	89	44.5	4	25	36	154	101.6	50.8	M24 X 160 SHCS	4

ALL DIMENSIONS IN MM

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		<p>Issue: 1.0</p>	<p>Release 09-2010</p>

Pressure/Flow Curve
Type VPE - CB

Mounted Horizontally
The values of flow and pressure are for an oil with viscosity 40 cSt at 40°C

————— **Prefill** (Flow A to B) - - - - - **Exhaust** (Flow B to A)

