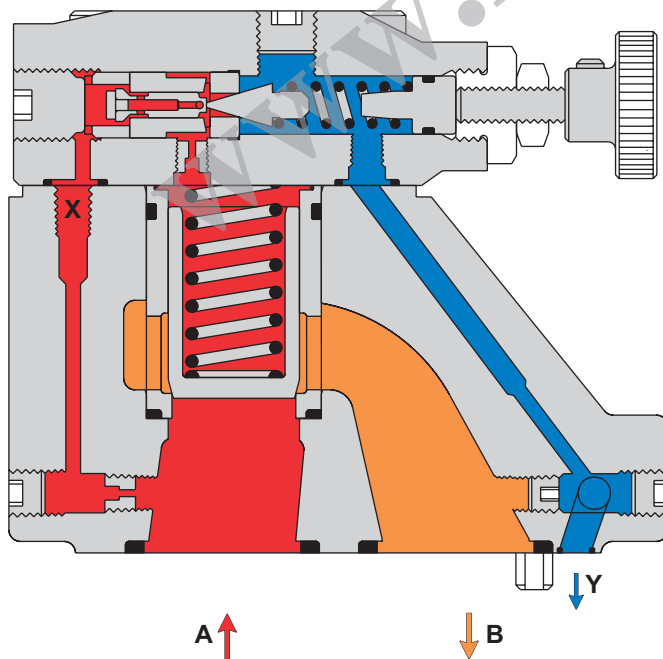
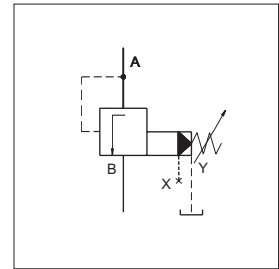


Veljan Sequence Valve Series VR4S are pilot operated controls and enable a hydraulic system to operate in a sequence. Fluid is allowed to pass to a secondary system (Port B) after the primary system (Port A) pressure reaches the preadjusted value set at pilot spring.

VR4S consists of a high flow poppet type seat valve section controlled by the low flow, adjustable pilot section mounted on top. Pressure setting is altered by means of a knurled knob. For tamper proof setting , acorn nut with lead seal is available as option. Optional vent valve VV01 sandwiched between the pilot section and the main body can be used for venting the VR4S valves. Pilot drain can be taken out externally from a pilot head or from a subplate.

Exceptionally fast response is obtained due to the precise ratio between the main piston area and its mass. The unique design features of pilot allows for accurate and stable secondary pressure controls. Precise adjustment and quick response eliminate pressure variation and system shocks.



Port A is connected to the primary section and port B to the secondary section of a hydraulic system. At low pressure, flow entering to Port A is blocked by the main poppet. Pressure at Port A passes through orifices to the pilot section as well as to the top of the main poppet. No flow takes place to this section until the pressure overcomes the spring setting of the pilot cone. The pilot cone is lifted from its seat releasing a small pilot flow through external drain and resulting in a pressure drop across the main poppet. The main poppet opens and allows only enough flow to the secondary system (Port B) maintaining the primary system pressure (Port A) at the pre-set value until the pressure at secondary port rises to the same value. As soon as the pressure is equal in both ports, the control piston in the pilot section closes preventing loss of oil through external drain. The main poppet opens fully and allows pressure at A and B to rise to a higher value than set . In such a situation the VR4S works as a gate valve allowing flow in either direction.

SPECIFICATIONS



General

Type	:	Pilot operated Sequence Valve
Design	:	Poppet type
Mounting	:	Threaded/Subplate/Cartridge/Flange
Mounting position	:	Optional
Port sizes (nominal)	:	3/8", 3/4", 1 1/4"
Direction of flow	:	A→B
Ambient temperature	:	-20° C...+60° C (-4° F...+140° F)
Special working conditions	:	Consult VELJAN

Hydraulics

Pressure control range	:	Minimum - depends on flow Maximum - 5000 psi (350 bar)
Maximum operating pressure	:	
Port A (inlet)	:	5000 psi (350 bar)
Port B (outlet)	:	5000 psi (350 bar)
Port X (pilot)	:	5000 psi (350 bar)
Port Y, Y1 (Pilot drain)	:	Without pressure to tank
Nominal flow gpm (lpm)	:	VR4S 03 (3/8") VR4S 06 (3/4") VR4S 10 (1 1/4") 15.8 (60) 52.9 (200) 119.0 (450)
Maximum flow gpm (lpm)	:	23.8 (90) 79.4 (300) 158.7 (600)
Fluid	:	Mineral oil as per DIN 51524/25 or other fluids on request
Fluid Temperature Range	:	-18° C...+80° C (0° F...+176° F)
Viscosity Range	:	10 to 650 cSt (60 to 3900 SSU)
Optimum operating viscosity	:	30 cSt (180 SSU)
Seal compatibility	:	Code 1 (Buna N) or Code 5 (Viton) (contact Veljan with specific oil details)
Cleanliness recommended	:	Better than NAS 1638 Class 8 or ISO 17/14

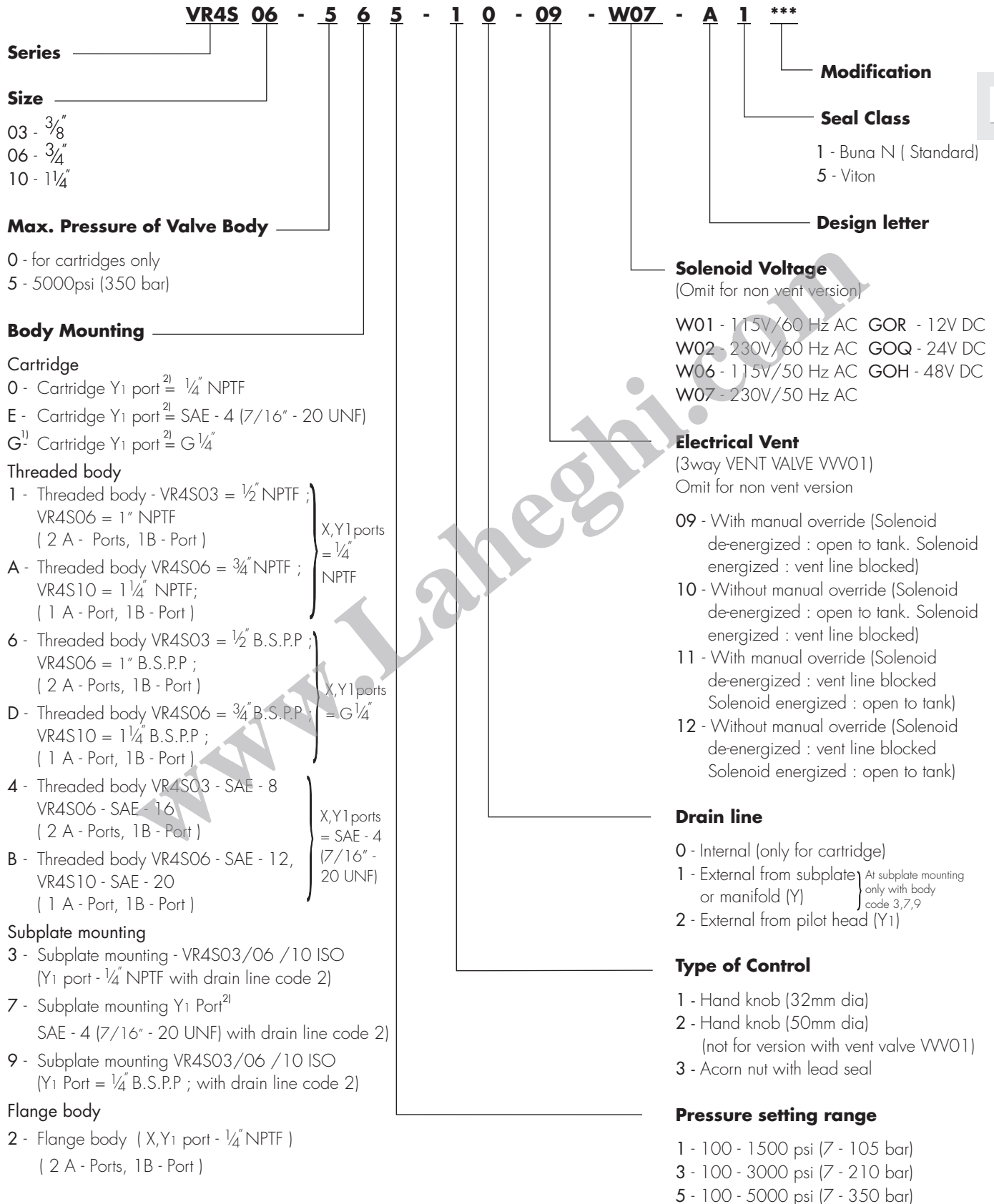
Adjustment

Manual	:	Handwheel
Rotation	:	3.75 rev.
Operating torque	:	0.72 Nm

Electricals (Vent Valve VVV01)

Nominal voltage	:	Solenoid
Permissible voltage fluctuation	:	Refer to Ordering Code
Max. coil temperature	:	+5%...-10%
Type of current	:	+155° C (311° F)
Input power	:	Alternating Current (AC)/Direct Current (DC)
Holding	:	31 W
Inrush	:	78 VA
Relative operating period	:	264 VA
Type of protection	:	100%
	:	I P 65

ORDERING CODE



1) Only with Drain line code 2
 2) Port Y1 is only available at Drain line (code2) external from pilot head.



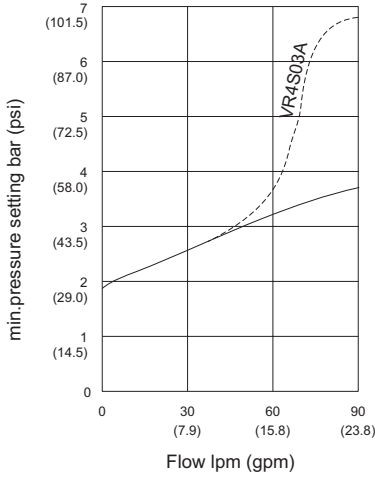
PERFORMANCE CURVES

ps min - qv characteristics

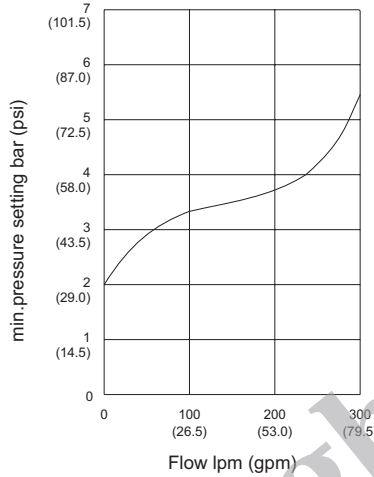
Fluid 60 cSt at 40° C (360 Ssu at 104° F), Test temp. 50° C (120° F) ± 10%

PC

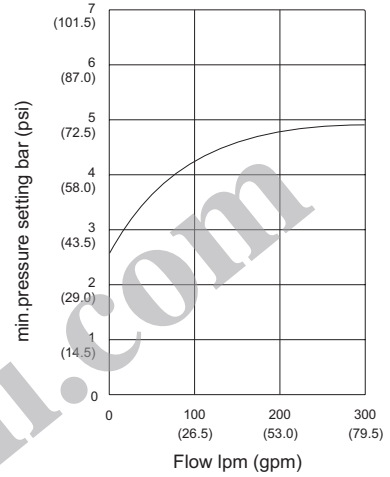
VR4S03



VR4S06



VR4S10

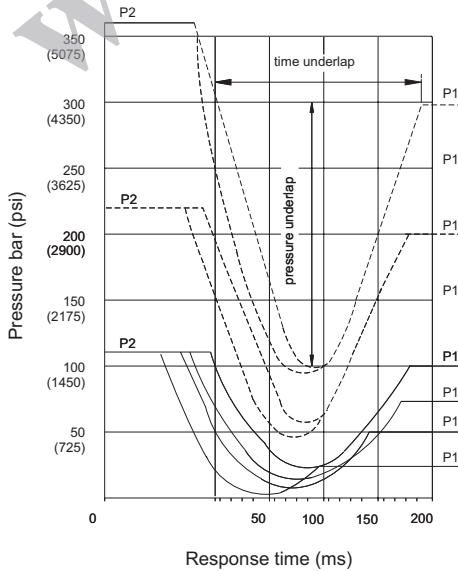


Pressure Characteristics at Closing Point

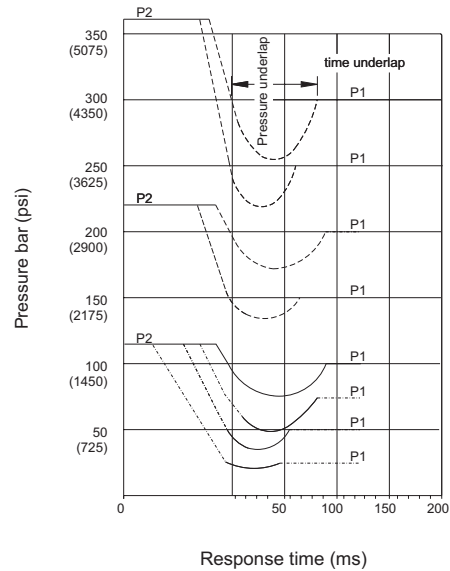
P1 = primary pressure

P2 = secondary pressure (to actuator)

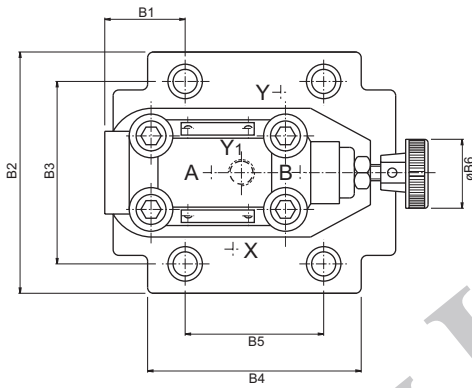
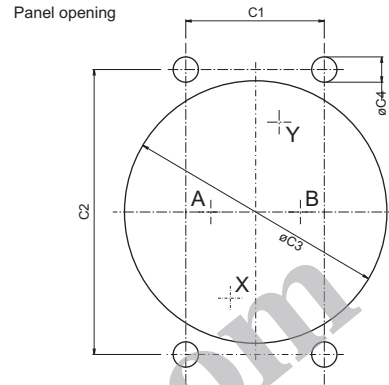
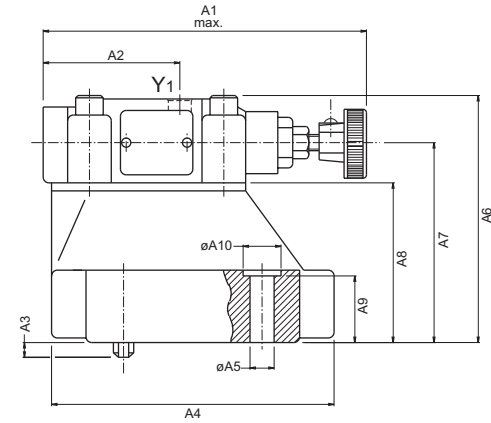
VR4S03



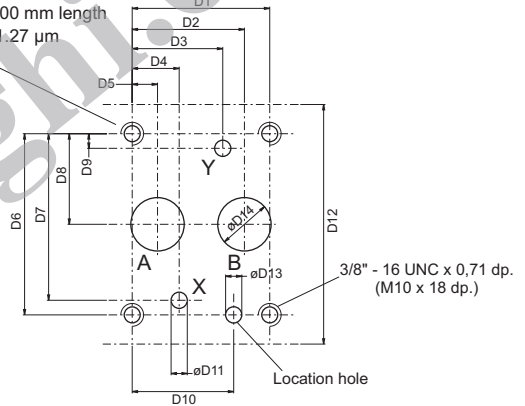
VR4S03A



VR4S06 (3/4") SUBPLATE MOUNTING BODY (#3, #7 & #9) Weight : 9.89 lbs (4.5 kg)



Block mounting face
Flatness 0.01 mm/100 mm length
Surface finish CLA 1.27 µm



Dimensions	Dimensions	
	in	mm
A1	5.55	141.0
A2	2.34	59.5
A3	0.25	6.4
A4	4.842	123.0
A5	ø0.41	ø10.5
A6	4.232	107.5
A7	3.425	87.0
A8	2.736	69.5
A9	1.142	29.0
A10	ø0.65	ø16.5

Dimensions	Dimensions	
	in	mm
B1	1.38	35.0
B2	4.134	105.0
B3	3.126	79.4
B4	3.66	93.0
B5	2.374	60.3
B6	ø1.26	ø32.0

Dimensions	Dimensions	
	in	mm
C1	2.374	60.3
C2	4.88	124.0
C3	ø4.645	ø118.0
C4	ø0.433	ø11.0

Dimensions	Dimensions	
	in	mm
D1	2.374	60.3
D2	1.937	49.2
D3	1.563	39.7
D4	0.811	20.6
D5	0.437	11.1
D6	3.126	79.4
D7	2.874	73.0
D8	1.563	39.7
D9	0.25	6.4
D10	1.75	44.5
D11	ø0.28	ø7.1
D12	4.134	105.0
D13	ø0.92	ø23.4
D14	ø0.28 x 0.433 dp.	ø7.1 x 11.0 dp.

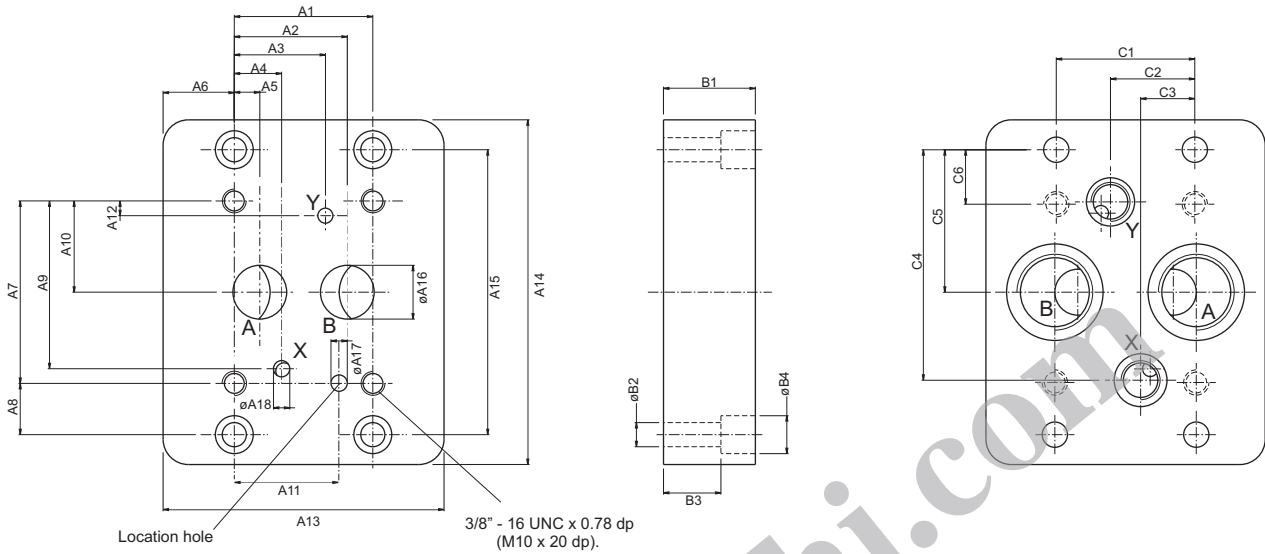
Ports	Function
A	Pressure (inlet)
B	Secondary (outlet)
X	Remote control or vent connection
Y(Y ₁)	External drain ¹⁾

1) Optional from pilot head or subplate.
Port Y₁ is only available at drain line (code 2) external from the pilot head.

SUBPLATE FOR VR4S06 (3/4")

Weight : 10.54 lbs (4.8 kg)

PC



	Dimensions	
	in	mm
A1	2.374	60.5
A2	1.937	49.2
A3	1.563	39.7
A4	0.811	20.6
A5	0.437	11.1
A6	1.22	31.0
A7	3.126	79.4
A8	0.88	22.3
A9	2.874	73.0
A10	1.563	39.7
A11	1.75	44.5
A12	0.25	6.4
A13	4.843	123
A14	5.905	150.0
A15	4.882	124.0
A16	ø0.92	ø23.4
A17	ø0.28 x 0.315 dp.	ø7.1 x 8.0 dp.
A18	ø0.28	ø7.1

	Dimensions	
	in	mm
B1	1.575	40.0
B2	ø0.41	ø10.5
B3	0.984	25.0
B4	ø0.65	ø16.5

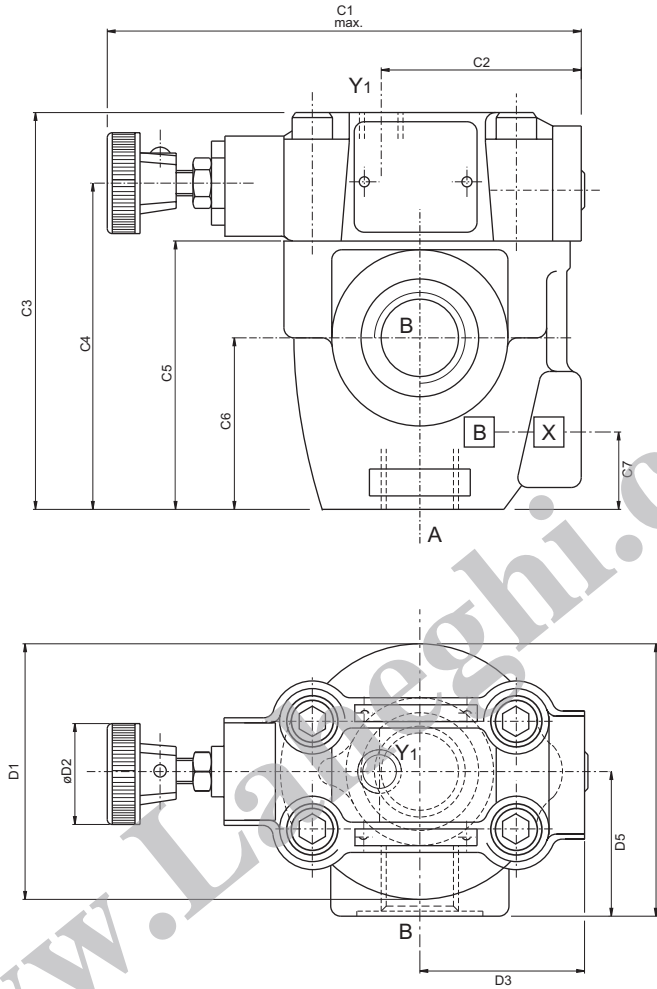
	Dimensions	
	in	mm
C1	2.374	60.3
C2	1.445	36.7
C3	0.93	23.6
C4	3.949	100.3
C5	2.44	62.0
C6	0.933	23.7

Order No.	Port sizes		4 Mounting screws*		
	A+B	X+Y	Dimension	Order No.	min.tensile strength
VSS - P - 16 - G 114	1" NPTF	1/4" NPTF	3/8"-16UNC 1 3/4" lg	V359-16220	at p ≤ 210 bar = 100 daN/mm ² (Torque 68 Nm) at p > 210 bar = 120 daN/mm ² (Torque 82 Nm)
VSS - B - 12 - G 115	3/4" B.S.P.P.	1/4" B.S.P.P.	M10 x 45mm DIN 912 - 12.9	V700 - 71602	
VSS - B - 16 - G 115	1" B.S.P.P.				

* Mounting screws are included in subplate order.
For valves ordered without subplate, mounting screws must be ordered separately.

VR4S06 (3/4") - THREADED BODY (#A, #B & #D)

Weight : 7.4 lbs (3.3 kg)



	Dimensions	
	in	mm
C1	5.55	141.0
C2	2.34	59.5
C3	4.646	118.0
C4	3.82	97.0
C5	3.15	80.0
C6	2.01	51.0
C7	0.905	23.0

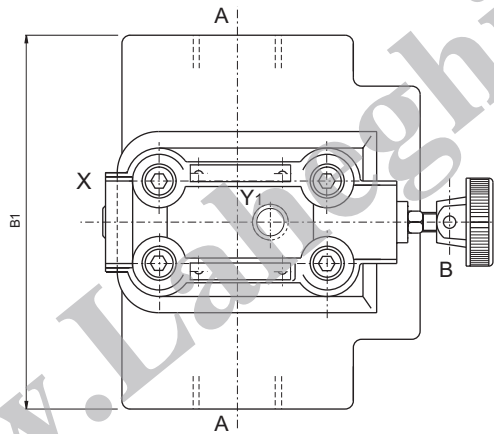
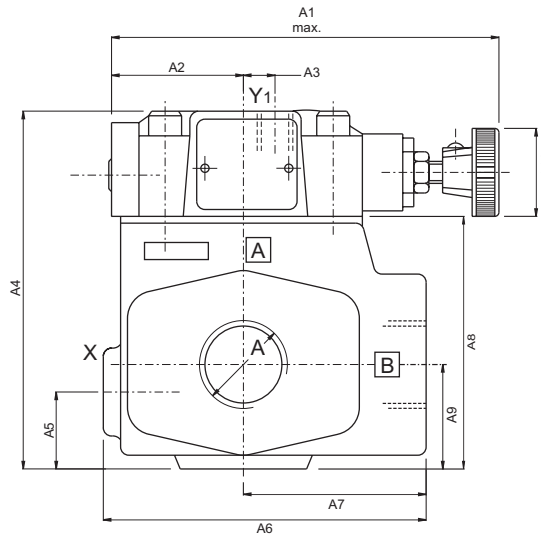
	Dimensions	
	in	mm
D1	2.99	76.0
D2	ø1.26	ø32.0
D3	1.93	49.0
D4	3.19	81.0
D5	1.693	43.0

Ports	Function	Port Sizes
A	Pressure (inlet)	3/4" NPTF or G 3/4" or SAE - 12 (1 ¹ / ₁₆ " - 12 UNF)
B	Secondary (outlet)	3/4" NPTF or G 3/4" or SAE - 12 (1 ¹ / ₁₆ " - 12 UNF)
X	Remote control or vent connection	1/4" NPTF or G 1/4" or SAE - 4 (7/16" - 20 UNF)
Y1	External drain	1/4" NPTF or G 1/4" or SAE - 4 (7/16" - 20 UNF)

VR4S06 (3/4") - THREADED BODY (#1, #4 & #6)

Weight : 14.5 lbs (6.6 kg)

PC



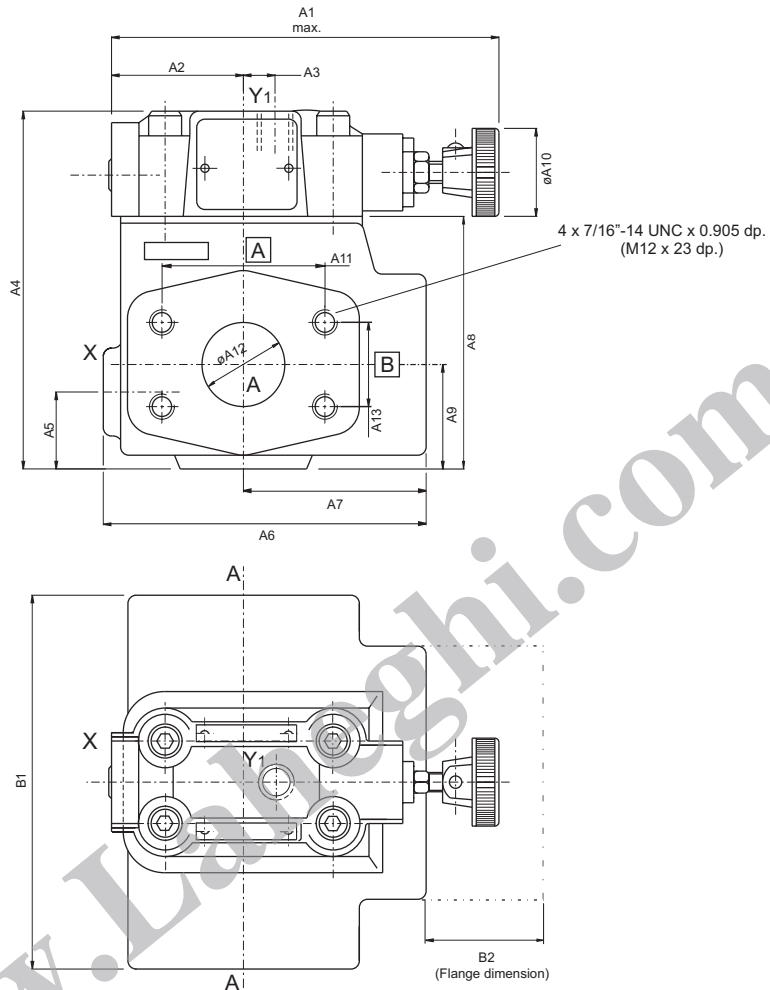
	Dimensions	
	in	mm
A1	5.55	141.0
A2	1.89	48.0
A3	0.453	11.5
A4	5.12	130.0
A5	1.102	28.0
A6	4.626	117.5
A7	2.62	66.5
A8	3.622	92.0
A9	1.496	38.0
A10	$\phi 1.26$	$\phi 32.0$

	Dimensions	
	in	mm
B1	5.35	136.0

Ports	Function	Port Sizes
A (2)	Pressure (inlet)	1" NPTF or G 1" or SAE - 16 (1 5/16" - 12 UNF)
B	Secondary (outlet)	1" NPTF or G 1" or SAE - 16 (1 5/16" - 12 UNF)
X	Remote control or vent connection	1/4" NPTF or G 1/4" or SAE - 4 (7/16" - 20 UNF)
Y1	External drain	1/4" NPTF or G 1/4" or SAE - 4 (7/16" - 20 UNF)

VR4S06 (3/4") - FLANGE BODY (#2)

Weight : 14.5 lbs (6.6 kg)



Dimensions	Dimensions	
	in	mm
A1	5.55	141.0
A2	1.89	48.0
A3	0.453	11.5
A4	5.12	130.0
A5	1.102	28.0
A6	4.626	114.3
A7	2.5	63.5
A8	3.622	92.0
A9	1.5	38.1
A10	ø1.26	ø32.0
A11	2.307	58.6
A12	ø1.18	ø30.0
A13	1.188	30.2

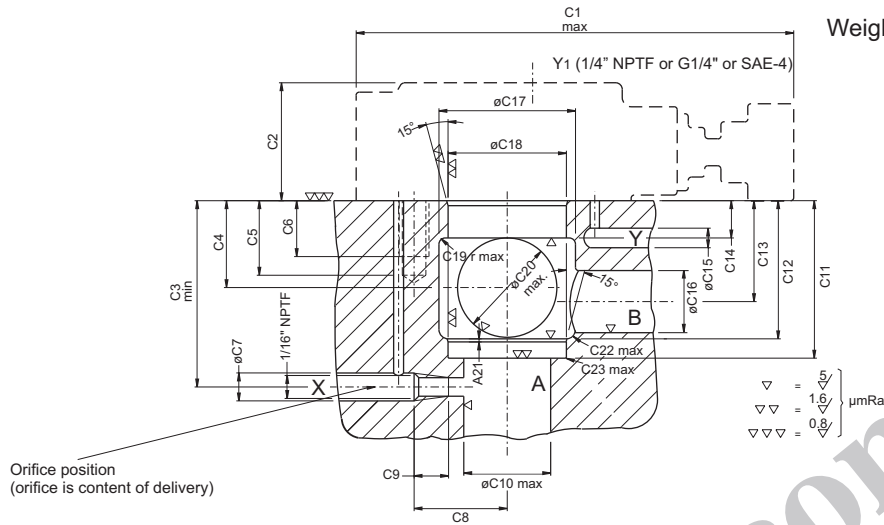
Dimensions	Dimensions	
	in	mm
B1	5.35	136.0
B2	1.56	39.8

Ports	Function	Flange model no	Flange order no	Port Sizes
A (2x)	Pressure (inlet)	VFS4 - B - 20 - 26	VS14 - 66935	1 1/4" B.S.P.P
B	Secondary port (outlet)	or VFS4 - P - 20 - 26	or VS14 - 66927	or 1 1/4" NPTF
X	Remote control or vent connection	-	-	1/4" B.S.P.P
Y ₁	External drain	-	-	or 1/4" NPTF

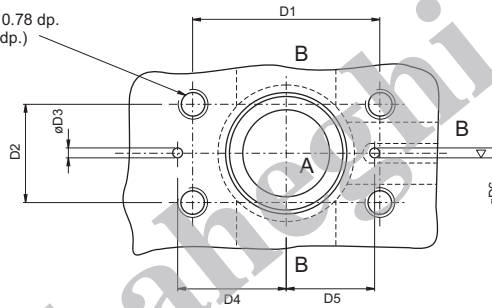
Flanges must be ordered separately.
Mounting screws are included in flange order.

CARTRIDGES WITH PILOT VALVES VR4S06/VR4S10 (#0, #E & #G)

Weight : 2.64 lbs (1.2 kg)



3/8" - 24 UNF x 0.78 dp.
(M10 x 20 dp.)



Dimensions	Dimensions	
	in	mm
C1	5.55	141.0
C2	1.49	38.0
C3	2.362	60
C4	1.083 ^{+0.019}	27.5 ^{+0.5}
C5	0.945	24.0
C6	0.78	20.0
C7	ø0.35	ø9.0
C8	1.18	30.0
C9	0.437	11.1
C10	ø1.1	ø28.0
C11	1.997 ^{+0.003}	50.73 ^{+0.07}
C12	1.75	44.5
C13	1.28	32.5
C14	0.47	12.0
C15	ø0.25	ø6.3
C16	ø0.79	ø20
C17	ø1.732 ^{+0.04}	ø44.0 ^{+1.0}
C18	ø1.5 ^{H8}	ø38.1 ^{H8}
C19	0.08 r	2.0 r
C20	ø1.26	ø32.0
C21	0.04	1.0
C22	0.08 r	2.0 r
C23	0.016 r	0.4 r

Dimensions	Dimensions	
	in	mm
D1	2.375 ^{+0.008}	60.32 ^{+0.2}
D2	1.25 ^{+0.008}	31.75 ^{+0.2}
D3	ø0.126	ø3.2
D4	1.38	35.0
D5	1.12	28.5
D6	ø0.126	ø3.2

Ports	Function
A	Pressure (Inlet)
B	Secondary (Outlet)
X	External control connection
Y, Y ₁ ¹⁾	Drain

1) Port Y₁ is only available at drain line (code 2) external from the pilot head.

4 Mounting screws*	
Dimensions	Order No.
3/8" - 24 UNF x 1 ³ / ₄ " lg. or M10 x 45mm, DIN 912 - 12.9	V359 - 15220 or V700 - 71602

* Mounting screws must be ordered separately