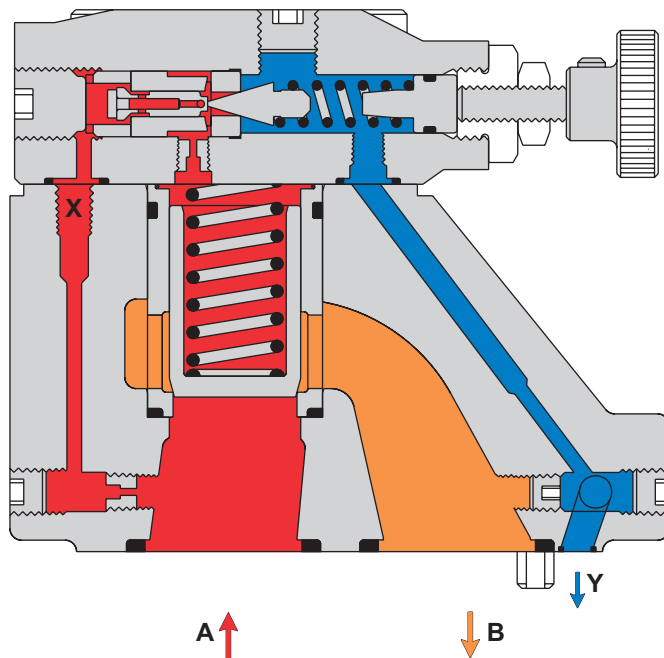
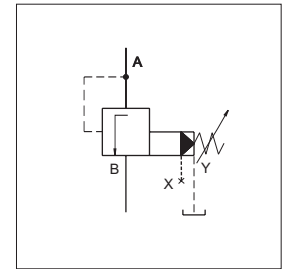


Veljan Sequence Valve Series VR4S are pilot operated controls and enable a hydraulic system to operate in a sequence. Fluid is allowed to pass to a secondary system (Port B) after the primary system (Port A) pressure reaches the preadjusted value set at pilot spring.

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, Y ₁ (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

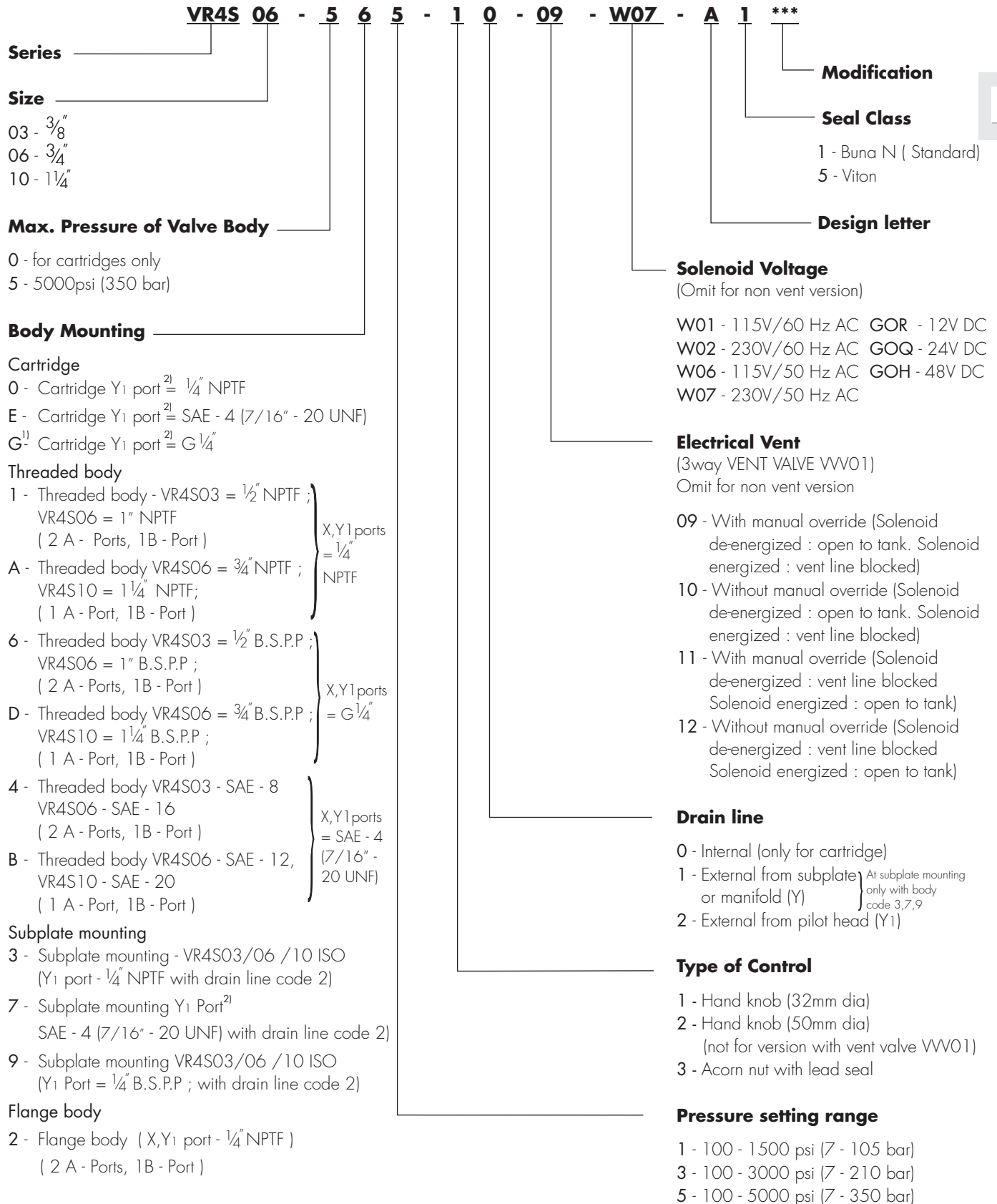
Adjustment

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

Electricals (Vent Valve VVV01)

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

ORDERING CODE



1) Only with Drain line code 2

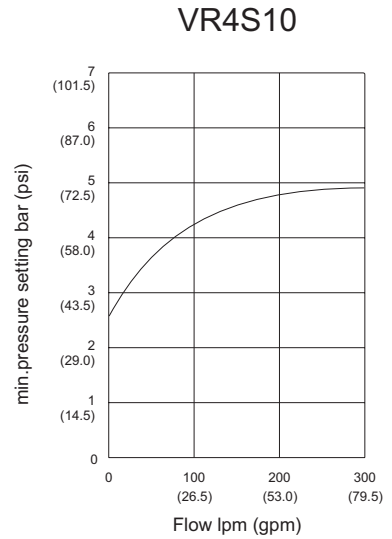
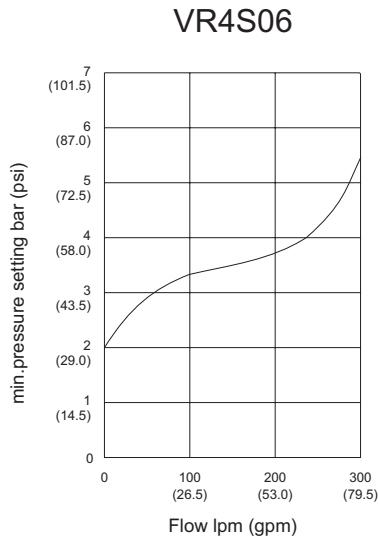
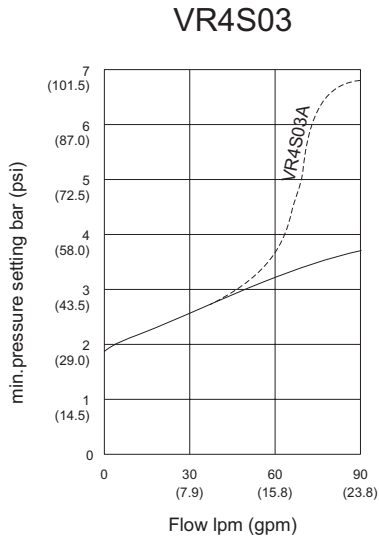
2) Port Y1 is only available at Drain line (code2) external from pilot head.

PERFORMANCE CURVES

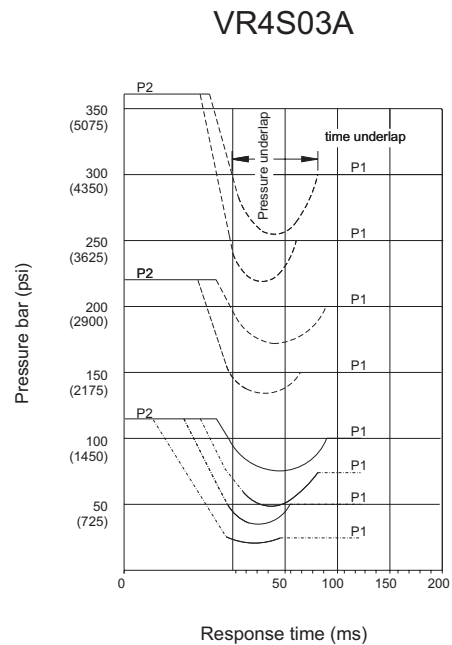
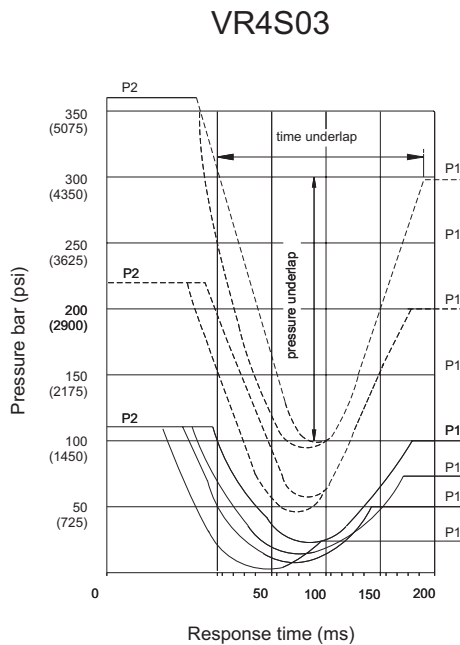
ps min - qv characteristics

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

PC

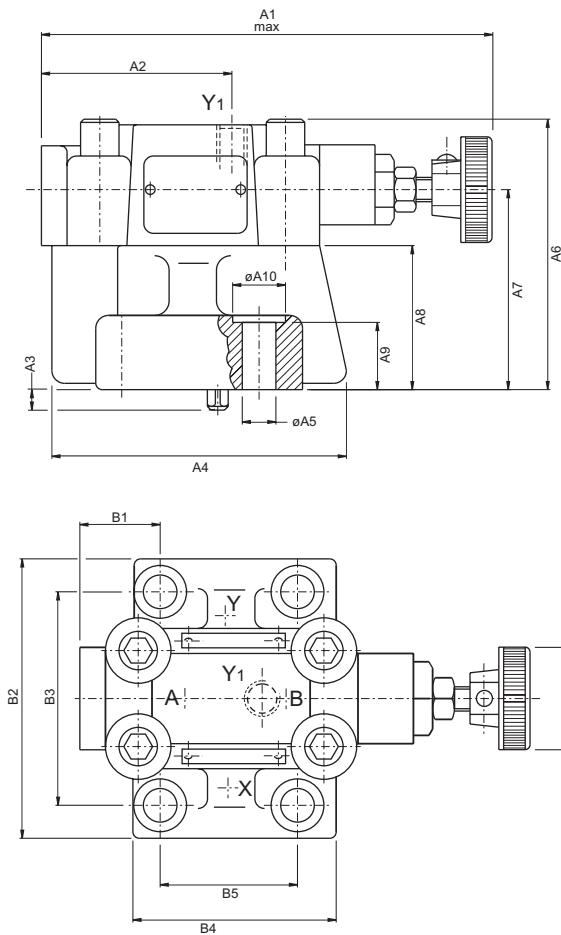


Pressure Characteristics at Closing Point
 P1 = primary pressure
 P2 = secondary pressure (to actuator)

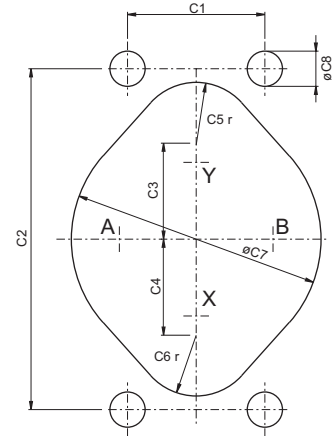


VR4S03 (3/8") SUBPLATE MOUNTING BODY (#3, #7 & #9)

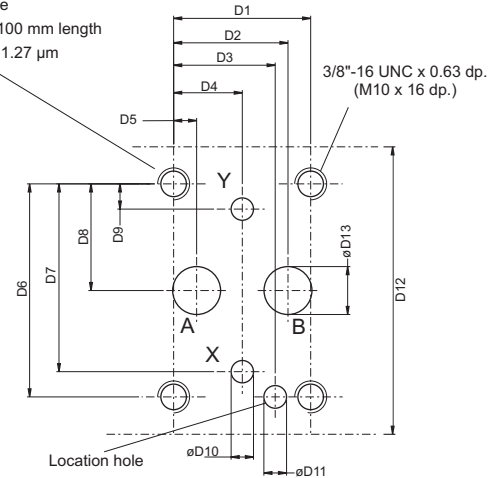
Weight : 5.93 lbs (2.7 kg)



Panel opening



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	3.62	92.0
A5	ø0.41	ø10.5
A6	3.33	84.5
A7	2.46	62.5
A8	1.77	45.0
A9	0.83	21.0
A10	ø0.65	ø16.5

Dimensions	Dimensions	
	in	mm
B1	1.14	29.0
B2	3.437	87.3
B3	2.626	66.7
B4	2.5	63.5
B5	1.69	42.9
B6	ø1.26	ø32.0

Dimensions	Dimensions	
	in	mm
C1	1.69	42.9
C2	4.19	106.5
C3	1.18	30.0
C4	1.18	30.0
C5	0.75 r	19.0 r
C6	0.75 r	19.0 r
C7	ø3.07	ø78.0
C8	ø0.43	ø11.0

Dimensions	Dimensions	
	in	mm
D1	1.69	42.9
D2	1.41	35.8
D3	0.253	31.8
D4	0.846	21.5
D5	0.283	7.2
D6	2.626	66.7
D7	2.315	58.8
D8	1.315	33.4
D9	0.311	7.9
D10	ø0.275	ø7.0
D11	ø0.28 x 0.315 dp.	ø7.1 x 8.0 dp.
D12	3.543	90.0
D13	ø0.59	ø15.0

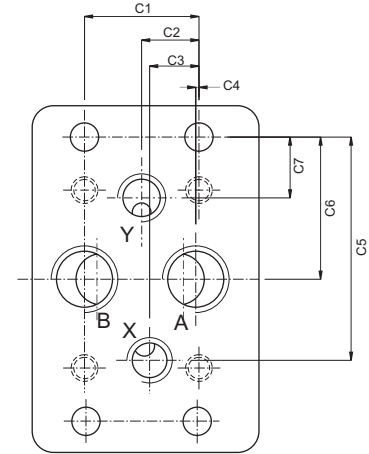
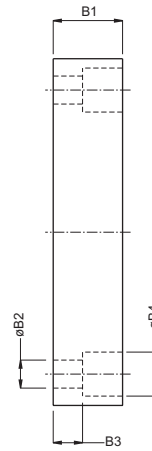
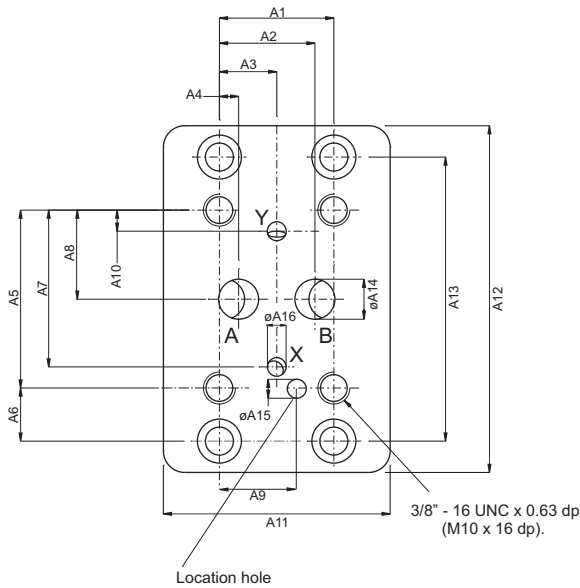
Ports	Function
A	Pressure (inlet)
B	Secondary (outlet)
X	Remote control or vent connection
Y(Y ₁)	External drain ¹⁾

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

VR4S03 (3/8") SUBPLATE

Weight : 4.4 lbs (2.0 kg)

PC



	Dimensions	
	in	mm
A1	1.69	42.9
A2	1.41	35.8
A3	0.846	21.5
A4	0.283	7.2
A5	2.626	66.7
A6	0.783	19.9
A7	2.315	58.8
A8	1.315	33.4
A9	1.25	31.8
A10	0.311	7.9
A11	3.346	85.0
A12	5.12	130.0
A13	4.19	106.5
A14	ø0.59	ø15.0
A15	ø0.28 x 0.315 dp.	ø7.1 x 8.0 dp.
A16	ø0.275	ø7.0

	Dimensions	
	in	mm
B1	1.024	26.0
B2	ø0.41	ø10.5
B3	0.433	11.0
B4	ø0.65	ø16.5

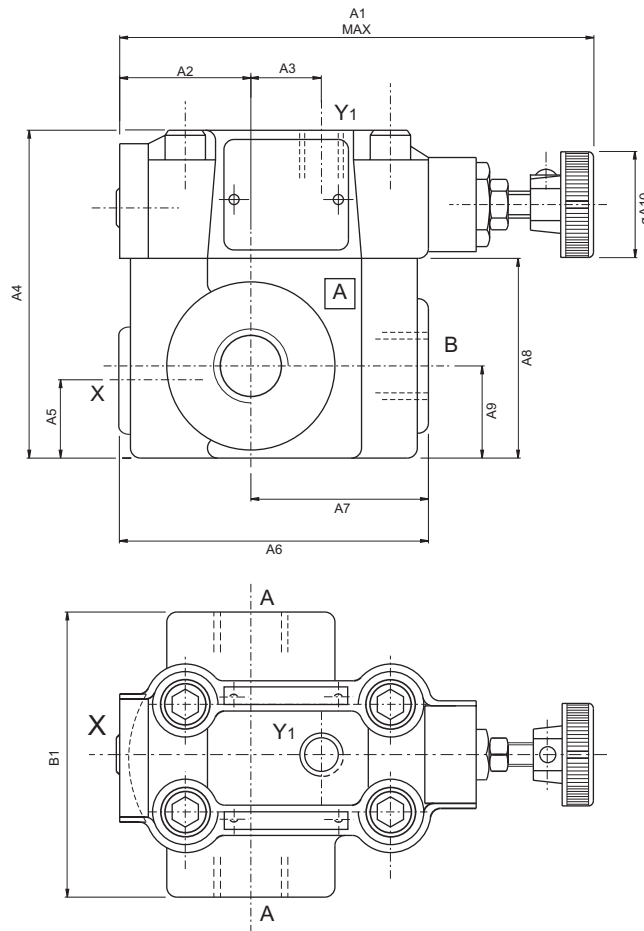
	Dimensions	
	in	mm
C1	1.69	42.9
C2	0.846	21.5
C3	0.73	18.5
C4	0.047	1.2
C5	3.295	83.7
C6	2.1	53.3
C7	0.9	22.8

Order No.	Port sizes		4 Mounting screws*		
	A+B	X+Y	Dimension	Order No.	min.tensile strength
VSS - P - 08 - G 112	1/2" NPTF	1/4" NPTF	3/8"- 16UNC 1 1/4 lg.	V358 - 16180	at p ≤ 210 bar = 100 daN/mm ² (Torque 68 Nm)
VSS - B - 08 - G 113	1/2" B.S.P.P	1/4" B.S.P.P.	M10 x 35mm DIN 912 - 12.9	V700 - 70039	at p > 210 bar = 120 daN/mm ² (Torque 82 Nm)

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

VR4S03 (3/8") - THREADED BODY (#1, #4 & #6)

Weight : 7.03 lbs (3.2 kg)



	Dimensions	
	in	mm
A1	5.55	141.0
A2	1.535	39.0
A3	0.807	20.5
A4	3.84	97.5
A5	0.92	23.3
A6	3.62	91.9
A7	2.08	52.8
A8	2.34	59.4
A9	1.08	27.4
A10	ø1.26	ø32.0

	Dimensions	
	in	mm
B1	3.34	84.8

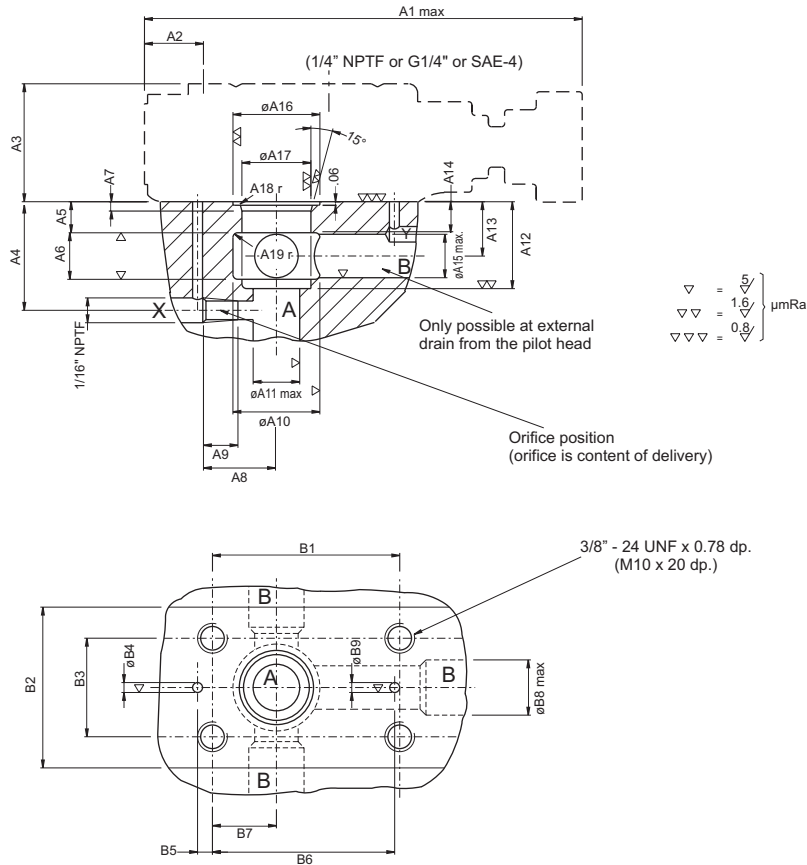
Ports	Function	Port Sizes
A(2)	Pressure (inlet)	1/2" NPTF or G 1/2" or SAE - 8 (3/4" - 16 UNF)
B	Secondary port (outlet)	1/2" NPTF or G 1/2" or SAE - 8 (3/4" - 16 UNF)
X ¹⁾	Remote control or vent connection	1/4" NPTF or G 1/4" or SAE - 4 (7/16" - 20 UNF)
Y ₁	External drain	1/4" NPTF or G 1/4" or SAE - 4 (7/16" - 20 UNF)

1) closed when supplied

CARTRIDGE WITH PILOT VALVE VR4S03 (3/8") (#0, #E & #G)

Weight : 1.31 lbs (0.6 kg)

PC



	Dimensions	
	in	mm
A1	5.55	141.0
A2	0.75	19.0
A3	1.49	38.0
A4	1.38	35.0
A5	0.39	10.0
A6	0.59	15.0
A7	0.12	3.0
A8	0.925	23.5
A9	0.437	11.1
A10	1.1	$\phi 28.0$
A11	$\phi 0.6$	$\phi 15.0$
A12	1.1	28.0
A13	0.69	17.5
A14	0.1	10.0
A15	$\phi 0.55$	$\phi 14.0$
A16	$\phi 1.1^{+0.004}$	$\phi 28.0^{+0.1}$
A17	$\phi 0.875^{+0.0008}$	$\phi 22.225^{+0.02}$
A18	0.016	0.4
A19	0.06	1.5

	Dimensions	
	in	mm
B1	2.375 ± 0.008	60.32 ± 0.2
B2	2.04	51.8
B3	1.25 ± 0.008	31.75 ± 0.2
B4	$\phi 0.126$	$\phi 3.2$
B5	0.19	4.8
B6	2.31	58.7
B7	0.81	20.6
B8	$\phi 0.7$	$\phi 17.8$
B9	$\phi 0.126$	$\phi 3.2$

Ports	Function
A	Pressure (Inlet)
B	Secondary port (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.	V359 - 15220
or	or
M10 x 45mm, DIN 912 - 12.9	V700 - 71602

* Mounting screws must be ordered separately