

**ORDERING CODE**

**VR5\* 06 - 5 3 5 - 1 4 - 09 - W07 - A 1 \*\*\***

**Series**

- VR5V - Pressure Relief Valve
- VR5U - Pressure Unloading Valve
- VR5S - Pressure Sequence Valve

**Size**

- 06 - 3/4"
- 08 - 1"
- 10 - 1 1/4"
- 12 - 1 1/2"

**Max. Pressure of Valve Body**

- 5 - 5000psi (350 bar) - SAE 61 flange  
(VR5\*06/08/10/12)
- 6 - 6000psi (420 bar) - SAE 62 flange  
(VR5V12 only)

**Body**

Ports X<sub>1</sub>, Y<sub>1</sub><sup>1)</sup>, M

- 1 - 1/4" NPTF
- 3 - SAE - 4 (7/16" - 20 UNF)
- 9 - G 1/4"

<sup>1)</sup>Port Y<sub>1</sub> is only available at external drain from the pilot head

**Pressure setting range**

- 1 - 100 - 1500 psi (7 - 105 bar)
- 3 - 100 - 3000 psi (7 - 210 bar)
- 5 - 100 - 5000 psi (7 - 350 bar), VR5U:Pressure Differential 15%
- 6 - 100 - 6000 psi (7 - 420 bar) (VR5V12 only)

**Type of Control**

- 1 - Hand knob (32mm dia)
- 2 - Hand knob (50mm dia) (not for version with vent valve VVV01)
- 3 - Acorn nut with lead seal

VR5U:Pressure Differential 20%

**Modification**

**Seal Class**

- 1 - Buna N (Standard)
- 5 - Viton

**Design letter**

**Solenoid Voltage**

(Omit for non vent version)

- W01 - 115V/60 Hz AC GOR - 12V DC
- W02 - 230V/60 Hz AC GOQ - 24V DC
- W06 - 115V/50 Hz AC GOH - 48V DC
- W07 - 230V/50 Hz AC

**Electrical Vent**

(3way VENT VALVE VVV01)

Omit for non vent version

- 09 - With manual override (Solenoid de-energized : open to tank. Solenoid Energized : vent line blocked)
- 10 - Without manual override (Solenoid de-energized : open to tank. Solenoid energized : vent line blocked)
- 11 - With manual override (Solenoid de-energized : vent line blocked Solenoid energized : open to tank)
- 12 - Without manual override (Solenoid de-energized : vent line blocked Solenoid energized : open to tank)

**Pilot Connection**

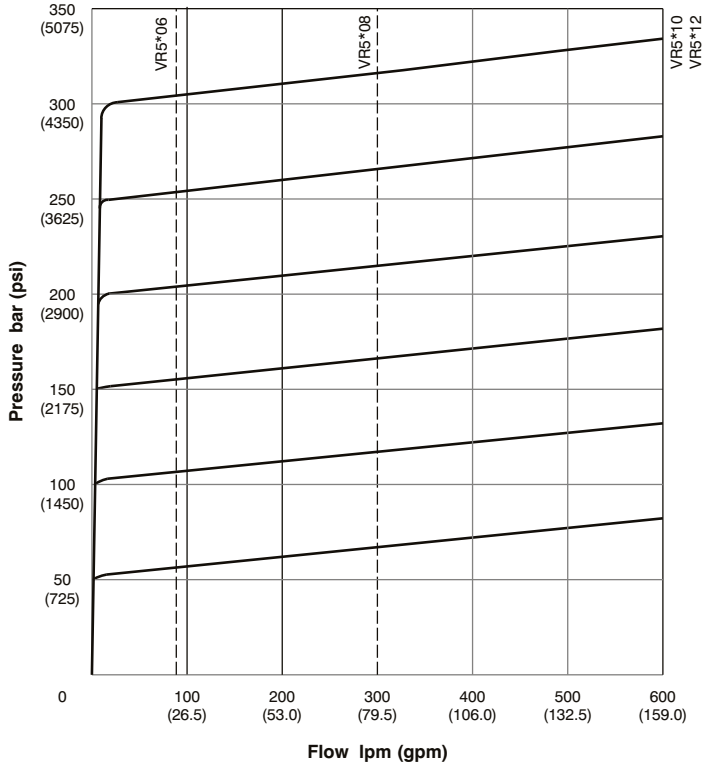
- 2 - Internal PD - Internal PP (VR5V)
- 4 - External PD - External PP<sup>2</sup> (VR5U)
- 5 - Internal PD - External PP<sup>2</sup> (VR5U)
- 6 - External PD - Internal PP (VR5V,VR5S)

<sup>2)</sup>External pilot pressure connection on flange face

PC

PERFORMANCE

PC

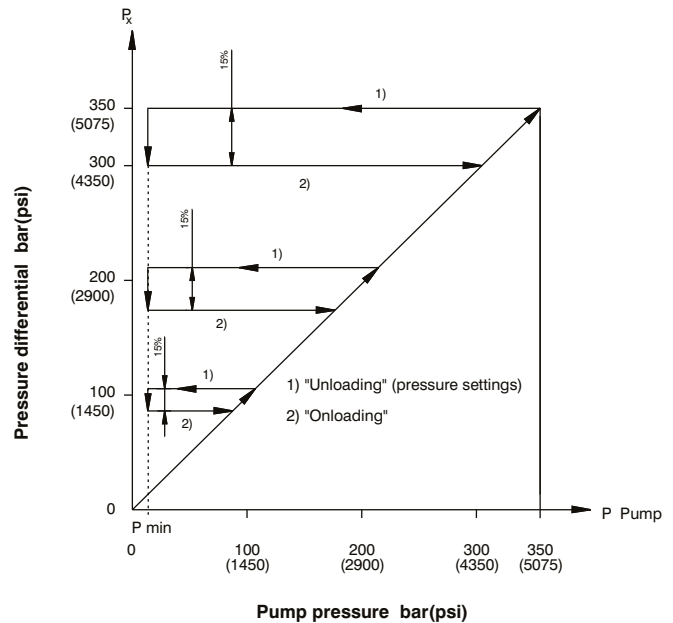


P-Q Curves

Min. possible pressure setting  $\geq 3$  bar. (43.5 psi)  
 Fluid 40 cSt at  $50^{\circ}\text{C} \pm 0.5^{\circ}\text{C}$ . (240 SSU at  $120^{\circ}\text{F} \pm 32.9^{\circ}\text{F}$ )

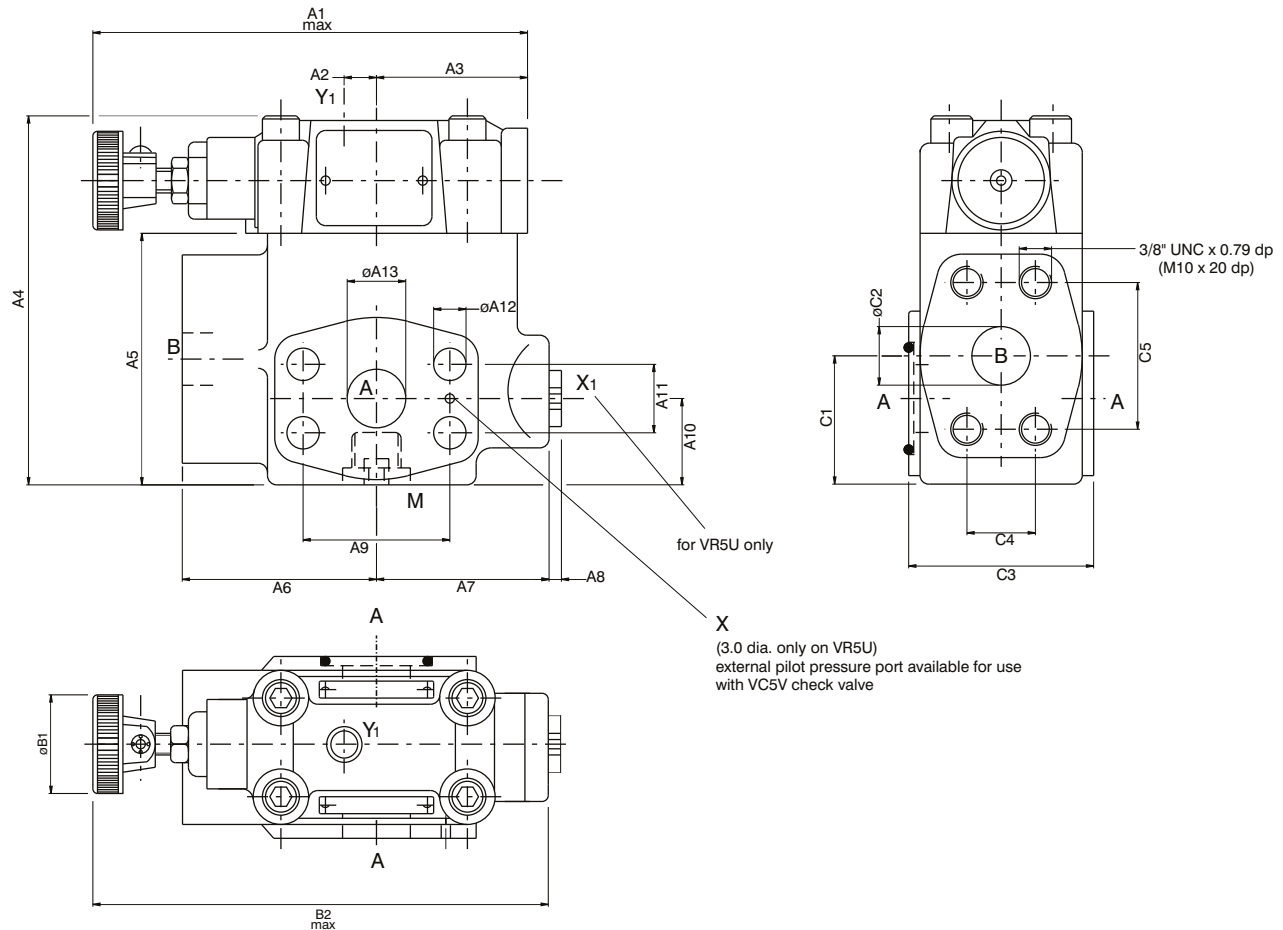
Pressure Differential Characteristics for VR5U Unloader Valve

The differential between Unloading and Onloading is typical 15%. When system pressure (for instance accumulator) drops 15% below the pilot setting, the valve closes and pump feeds the system again.



VR5V06-VR5U06-VR5S06 ( 3/4" )

Weight : 7.91 lbs (3.6 kg)



PC

| Dimensions |        |        | Dimensions |        |        | Dimensions |        |        |
|------------|--------|--------|------------|--------|--------|------------|--------|--------|
|            | in     | mm     |            | in     | mm     |            | in     | mm     |
| A1         | 5.55   | 141.0  | B1         | ø 1.26 | ø 32.0 | C1         | 1.64   | 41.6   |
| A2         | 0.41   | 10.5   | B2         | 5.827  | 148.0  | C2         | ø 0.75 | ø 19.0 |
| A3         | 1.93   | 49.0   |            |        |        | C3         | 2.362  | 60.0   |
| A4         | 4.69   | 119.2  |            |        |        | C4         | 0.874  | 22.2   |
| A5         | 3.213  | 81.6   |            |        |        | C5         | 1.874  | 47.6   |
| A6         | 2.48   | 63.0   |            |        |        |            |        |        |
| A7         | 2.205  | 56.0   |            |        |        |            |        |        |
| A8         | 0.16   | 4.0    |            |        |        |            |        |        |
| A9         | 1.874  | 47.6   |            |        |        |            |        |        |
| A10        | 1.102  | 28.0   |            |        |        |            |        |        |
| A11        | 0.874  | 22.2   |            |        |        |            |        |        |
| A12        | ø 0.41 | ø 10.5 |            |        |        |            |        |        |
| A13        | ø 0.75 | ø 19.0 |            |        |        |            |        |        |

| Ports          | Function                      | Port Sizes                     | VR5V | VR5U | VR5S |
|----------------|-------------------------------|--------------------------------|------|------|------|
| A(2)           | Pressure                      | 3/4" ( SAE - 61 )              | ●    | ●    | ●    |
| B              | Tank <sup>2)</sup>            | 3/4" ( SAE - 61 )              | ●    | ●    | ●    |
| X <sub>i</sub> | Ext. Pilot port <sup>1)</sup> | 1/4" NPTF or G 1/4" or SAE - 4 |      | ●    |      |
| Y <sub>1</sub> | Ext. Drain                    | 1/4" NPTF or G1/4" or SAE - 4  | ●    | ●    | ●    |
| M              | Pressure gauge                | 1/4" NPTF or G 1/4" or SAE - 4 | ●    | ●    | ●    |

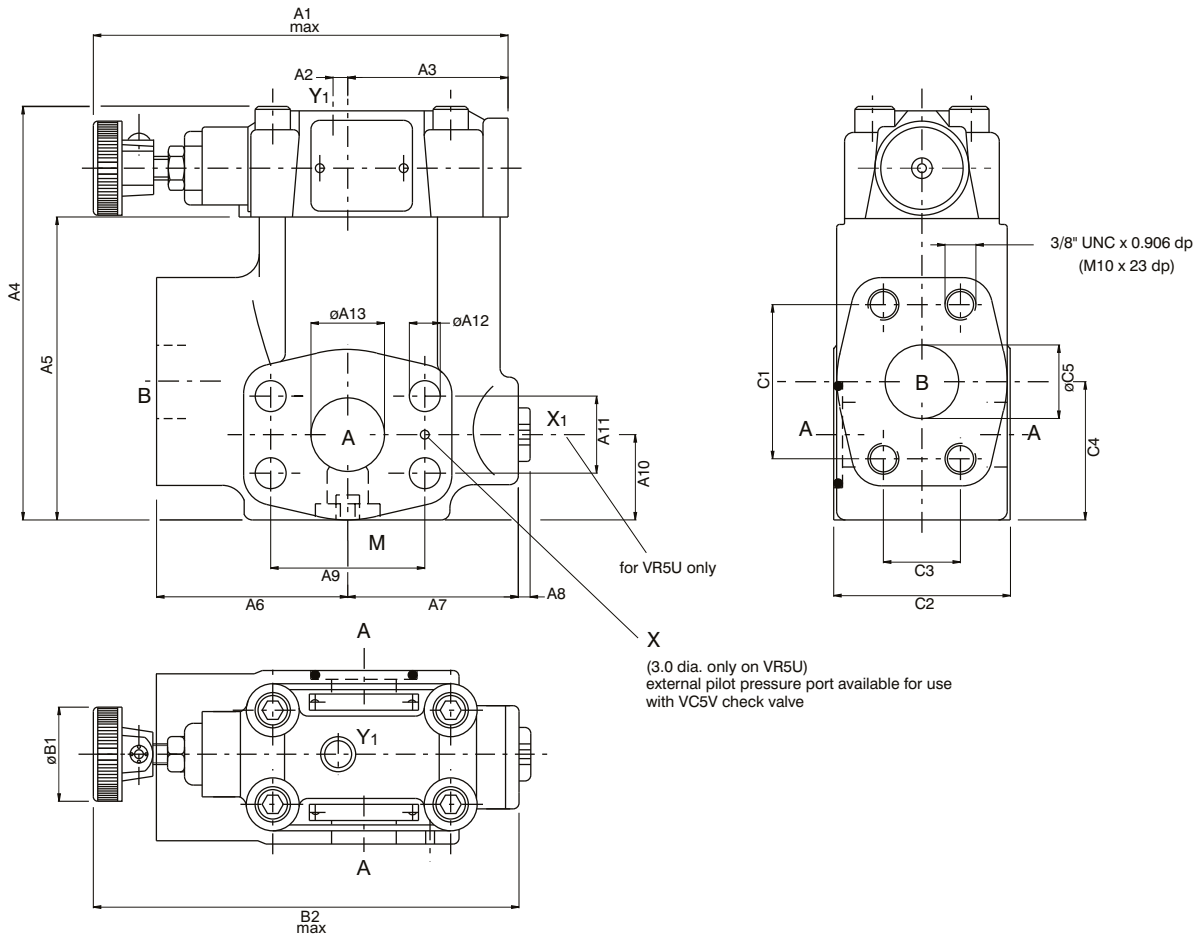
- 1) Closed when supplied
- 2) Secondary port on VR5S

Note : VR5\*06 pressure controls are mounted directly on 3/4" - SAE 61 Ports of VELJAN Vane Pumps ( "B" Cartridge)

**VR5V08-VR5U08-VR5S08 ( 1" )**

Weight : 10.1 lbs (4.6 kg)

PC



| Dimensions |         |        |
|------------|---------|--------|
|            | in      | mm     |
| A1         | 5.55    | 141.0  |
| A2         | 0.2     | 5.0    |
| A3         | 2.146   | 54.5   |
| A4         | 5.53    | 140.6  |
| A5         | 4.055   | 103.0  |
| A6         | 2.56    | 65.0   |
| A7         | 2.283   | 58.0   |
| A8         | 0.16    | 4.0    |
| A9         | 2.063   | 52.4   |
| A10        | 1.14    | 29.0   |
| A11        | 1.032   | 26.2   |
| A12        | ø 0.41  | ø 10.5 |
| A13        | ø 0.984 | ø 25.0 |

| Dimensions |       |        |
|------------|-------|--------|
|            | in    | mm     |
| B1         | ø1.26 | ø 32.0 |
| B2         | 5.7   | 145.0  |

| Dimensions |        |        |
|------------|--------|--------|
|            | in     | mm     |
| C1         | 2.063  | 52.4   |
| C2         | 2.362  | 60.0   |
| C3         | 1.032  | 26.2   |
| C4         | 1.85   | 47.0   |
| C5         | ø 0.98 | ø 25.0 |

| Ports          | Function                      | Port Sizes                     | VR5V | VR5U | VR5S |
|----------------|-------------------------------|--------------------------------|------|------|------|
| A(2x)          | Pressure                      | 1" ( SAE - 61 )                | ●    | ●    | ●    |
| B              | Tank <sup>2)</sup>            | 1" ( SAE - 61 )                | ●    | ●    | ●    |
| X <sub>i</sub> | Ext. Pilot port <sup>1)</sup> | 1/4" NPTF or G 1/4" or SAE - 4 |      | ●    |      |
| Y <sub>i</sub> | Ext. Drain                    | 1/4" NPTF or G 1/4" or SAE - 4 | ●    | ●    | ●    |
| M              | Pressure gauge                | 1/4" NPTF or G 1/4" or SAE - 4 | ●    | ●    | ●    |

- 1) Closed when supplied
- 2) Secondary port on VR5S

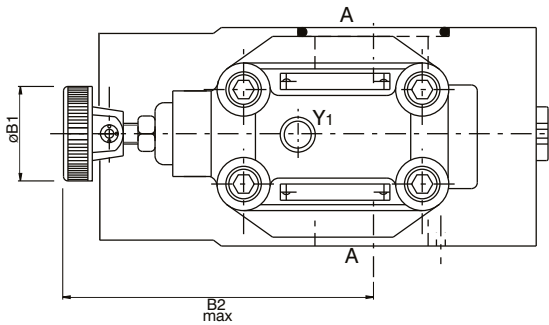
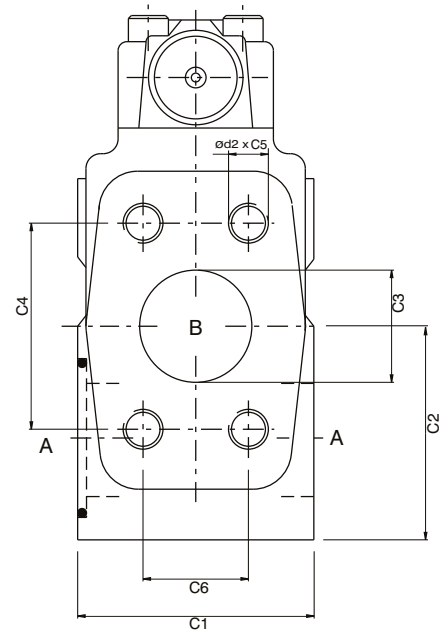
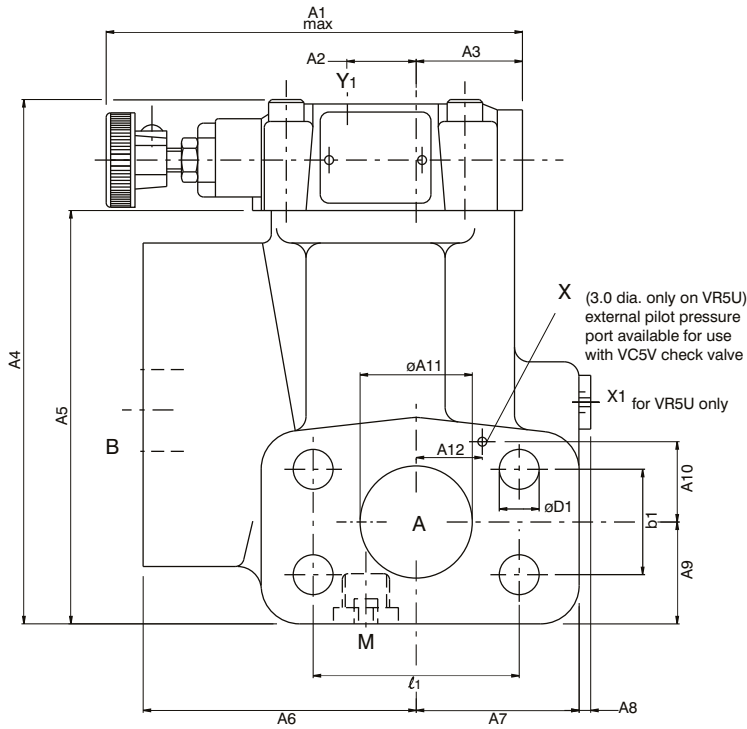
Note : VR5\*08 pressure controls mounted directly on 1" - SAE 61 Ports of VELJAN Vane Pumps ( "C" Cartridge)



VR5V12-VR5U12 ( 1 1/2" )

Weight : 17.58 lbs (8.0 kg)

PC



|                     |    | C4    | C5    | C6    | ød1   | ød2           |
|---------------------|----|-------|-------|-------|-------|---------------|
| VR5* 12<br>3 SAE 61 | in | 2.748 | 1.063 | 1.405 | 0.531 | 1/2" - 13 UNC |
|                     | mm | 69.8  | 27    | 35.7  | 13.5  |               |
| VR5V 12<br>6 SAE 62 | in | 3.126 | 1.3   | 1.437 | 0.67  | 5/8" - 11 UNC |
|                     | mm | 79.4  | 33    | 36.5  | 17    |               |

Mounted directly on the "E" cartridge of VELJAN vane pumps.

|     | Dimensions |        |
|-----|------------|--------|
|     | in         | mm     |
| A1  | 5.55       | 141.0  |
| A2  | 0.917      | 23.3   |
| A3  | 1.417      | 36.0   |
| A4  | 6.99       | 177.6  |
| A5  | 5.512      | 140.0  |
| A6  | 3.642      | 92.5   |
| A7  | 2.173      | 55.2   |
| A8  | 0.164      | 4.0    |
| A9  | 1.34       | 34.0   |
| A10 | 1.07       | 27.2   |
| A11 | ø 1.496    | ø 38.0 |
| A12 | 0.88       | 22.4   |

|    | Dimensions |        |
|----|------------|--------|
|    | in         | mm     |
| B1 | ø 1.26     | ø 32.0 |
| B2 | 4.41       | 112.0  |

|    | Dimensions |        |
|----|------------|--------|
|    | in         | mm     |
| C1 | 3.15       | 80.0   |
| C2 | 2.874      | 73.0   |
| C3 | ø 1.496    | ø 38.0 |

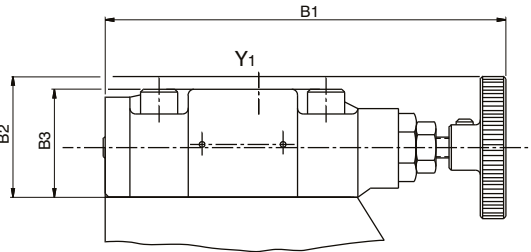
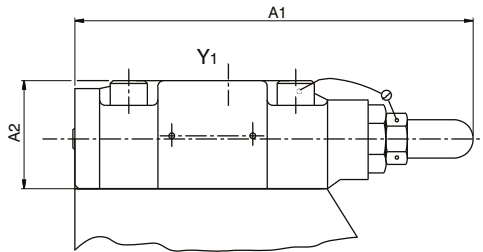
| Ports          | Function                      | Port Sizes                     | VR5V | VR5U |
|----------------|-------------------------------|--------------------------------|------|------|
| A(2x)          | Pressure                      | 1 1/2" ( SAE - 61/62 )         | ●    | ●    |
| B              | Tank                          | 1 1/2" ( SAE - 61/62 )         | ●    | ●    |
| X <sub>1</sub> | Ext. Pilot port <sup>1)</sup> | 1/4" NPTF or G 1/4" or SAE - 4 |      | ●    |
| Y <sub>1</sub> | Ext. Drain                    | 1/4" NPTF or G 1/4" or SAE - 4 | ●    | ●    |
| M              | Pressure gauge                | 1/4" NPTF or G 1/4" or SAE - 4 | ●    | ●    |

1) Closed when supplied

**OPTIONAL CONTROL**

**Type of control - Code 3**  
Acron nut with lead seal

**Type of control - Code 2**  
Hand knob 50mm dia  
(not for version with vent valve VV01)

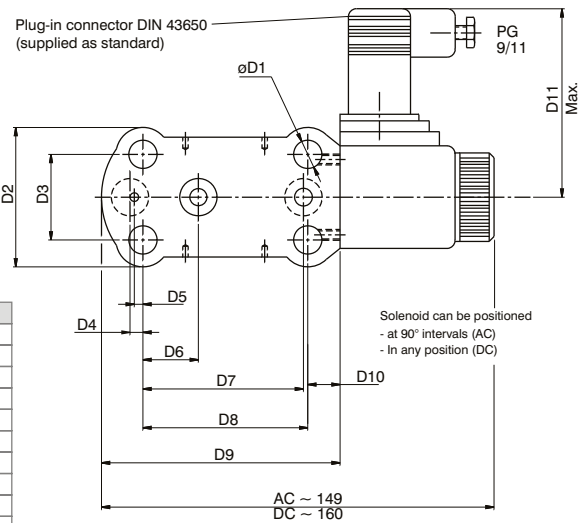
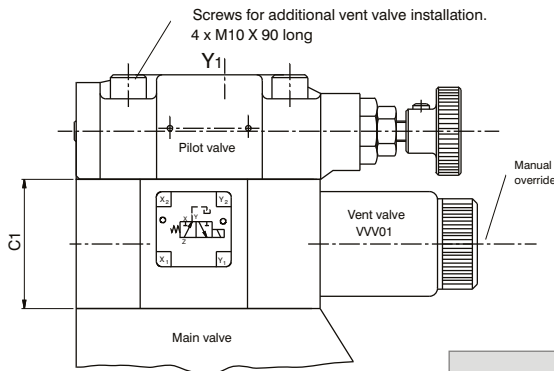


| Dimensions |      |       |
|------------|------|-------|
|            | in   | mm    |
| A1         | 5.51 | 140.0 |
| A2         | 0.49 | 38.0  |

| Dimensions |      |       |
|------------|------|-------|
|            | in   | mm    |
| B1         | 5.55 | 141.0 |
| B2         | 1.67 | 42.5  |
| B3         | 1.49 | 38.0  |

**Version with Vent Valve VV01**

Weight (VV01) : 3.73 lbs (1.7 kg)



| Dimensions |      |      |
|------------|------|------|
|            | in   | mm   |
| C1         | 1.85 | 47.0 |

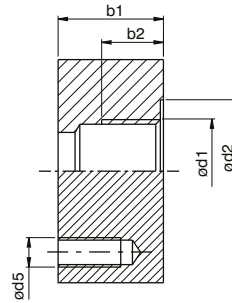
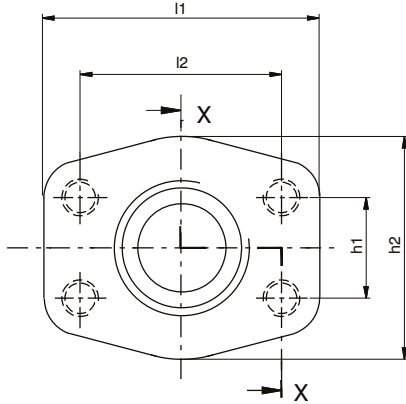
| Dimensions |        |        |
|------------|--------|--------|
|            | in     | mm     |
| D1         | ø 0.41 | ø 10.5 |
| D2         | 2.03   | 51.8   |
| D3         | 1.25   | 31.8   |
| D4         | 0.18   | 4.8    |
| D5         | 0.12   | 3.2    |
| D6         | 0.81   | 20.6   |
| D7         | 2.31   | 58.7   |
| D8         | 2.37   | 60.3   |
| D9         | 3.49   | 88.7   |
| D10        | 0.51   | 13.0   |
| D11        | 2.75   | 70.0   |

| Code           | Pressure Relief Valve VR5V |                | Pressure Unloading Valve VR5U |                | Sequence Valve VR5S |
|----------------|----------------------------|----------------|-------------------------------|----------------|---------------------|
|                | Internal Drain             | External Drain | Internal Drain                | External Drain | External Drain      |
| 11<br>or<br>12 |                            |                |                               |                |                     |
| 09<br>or<br>10 |                            |                |                               |                |                     |

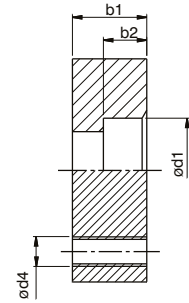
### SAE - Flanges

Inlet flange (only for pipe mounting)

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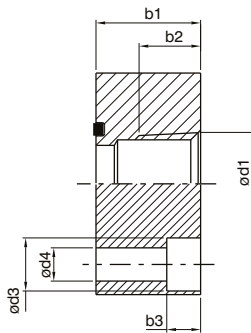
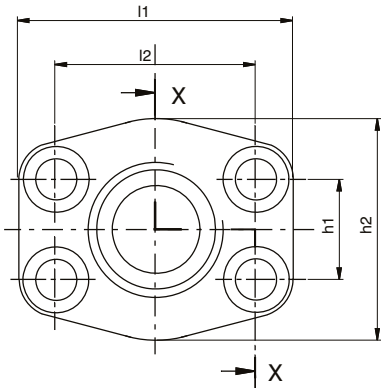


B.S.P.P Flange

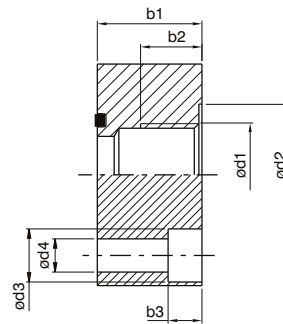


Socket weld

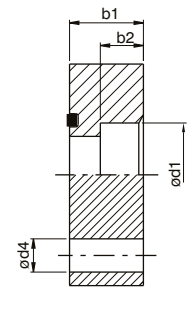
Outlet and tank port flange



N.P.T.F flange



B.S.P.P flange



Socket weld

| Port sizes<br>d1                 | Inlet flange<br>(without screws)<br>only for<br>pipe mounting | Outlet flange<br>(without screws) | Tank port flange<br>(with screws) |      |      |      |      |      |      |      |      |      |      |           |      |
|----------------------------------|---|-----------------------------------|-----------------------------------|------|------|------|------|------|------|------|------|------|------|-----------|------|
|                                  | Order no.   | Order no.                         | Order no.                         | l1   | l2   | b1   | b2   | b3   | h1   | h2   | ø d2 | ø d1 | ø d4 | ø d5      |      |
| 3/4" B.S.P.P                     | VS16-86520  | VS16-86529                        | VS14-66933                        | 67.0 | 47.6 | 34.0 | 15.9 | 12.0 | 22.0 | 52.0 | 40.0 | 16.5 | 10.5 | 3/8" UNC  |      |
| 3/4" N.P.T.F.                    | -   | VS16-86530                        | VS14-66925                        |      |      | 19.0 | 12.0 | -    |      |      | -    |      |      |           |      |
| 3/4" Socket weld                 | VS16-86519  | VS16-86528                        | VS14-66941                        |      |      | 19.0 | 12.0 | -    |      |      | -    |      |      |           |      |
| 1" B.S.P.P                       | VS16-86523  | VS16-86532                        | VS14-66934                        | 72.0 | 52.4 | 34.0 | 20.0 | 12.0 | 26.2 | 58.0 | 46.0 | 16.5 | 10.5 | 3/8" UNC  |      |
| 1" N.P.T.F.                      | -   | VS16-86533                        | VS14-66926                        |      |      | 19.0 | 12.0 | -    |      |      | -    |      |      |           |      |
| 1" Socket weld                   | VS16-86522  | VS16-86531-                       | VS14-66942                        |      |      | 24.0 | 14.0 | -    |      |      | -    |      |      |           |      |
| 1 1/4" B.S.P.P                   | VS16-86526  | VS16-86535                        | VS14-66935                        | 80.0 | 58.7 | 39.0 | 22.0 | 15.0 | 30.2 | 73.0 | 54.0 | 17.5 | 12.5 | 7/16" UNC |      |
| 1 1/4" N.P.T.F.                  | -   | VS16-86536                        | VS14-66927                        |      |      | 20.6 | 14.0 |      |      |      | -    |      |      |           | -    |
| 1 1/4" Socket weld               | VS16-86525  | VS16-86534-                       | VS14-66943                        |      |      | 24.0 | 14.0 | -    |      |      | -    |      |      |           |      |
| 1 1/2" B.S.P.P                   | VS26-52364  | VS26-52215                        | VS14-66936                        | 94.0 | 69.8 | 39.0 | 24.0 | 15.0 | 35.7 | 82.0 | 60.0 | 20.0 | 14.5 | 1/2" UNC  |      |
| 1 1/2" Socket weld               | VS26-52366  | VS26-52217                        | VS14-66944                        |      |      | 26.0 | 16.0 | -    |      |      | -    |      |      |           |      |
| 1 1/2" B.S.P.P <sup>1)</sup>     | V464-01147  | V464-01141                        | V464-01004                        |      |      | 50.0 | 28.0 | 20.0 |      |      | 36.5 |      |      |           | 94.0 |
| 1 1/2" Socket weld <sup>1)</sup> | V464-01149  | V464-01143                        | V464-01146                        |      |      |      |      |      |      |      |      |      |      |           |      |

<sup>1)</sup> SAE 62