



# PRODUCT CATALOG



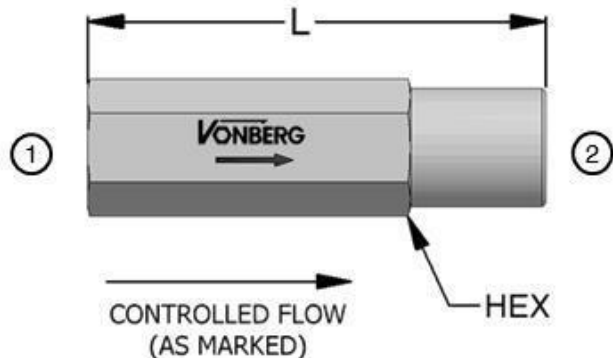
**Vonberg Valve, inc.**  
*Hydraulic Valve Specialists*

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phone 847/ 259-3800 • fax 847/259-3997 • email: [info@vonberg.com](mailto:info@vonberg.com)

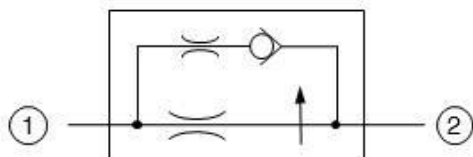
# FLOW REGULATING VALVES



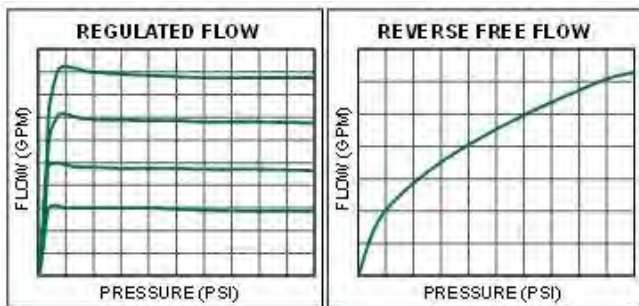
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, PRESSURE-COMPENSATED, NONADJUSTABLE FLOW REGULATOR WITH FEMALE NPTF PORTS, INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- IN THE CONTROLLED DIRECTION THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AT 150% OF CONTROLLED FLOW.

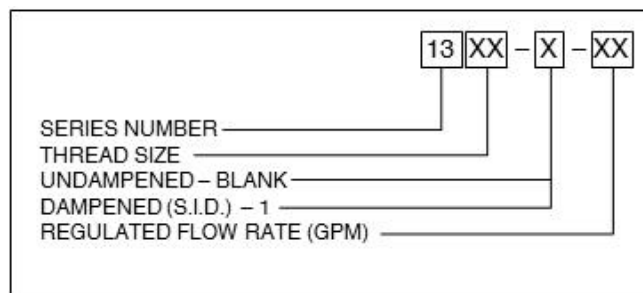
### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- ALUMINUM BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION

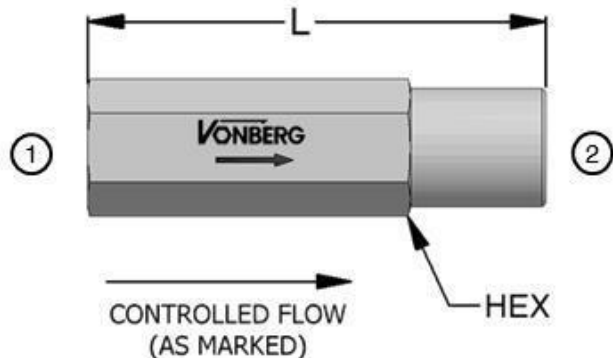


| Model | INLET/OUTLET      | FLOW RANGE      | L    | HEX   |
|-------|-------------------|-----------------|------|-------|
| 1302  | 1/4-18 NPTF       | 0.25 TO 6.0 GPM | 3.50 | 0.938 |
| 1303  | 3/8-18 NPTF       | 0.5 TO 8.0 GPM  | 3.38 | 0.875 |
| 1304  | 1/2-14 NPTF       | 0.5 TO 15.0 GPM | 4.00 | 1.125 |
| 1306  | 3/4-14 NPTF       | 1.0 TO 30.0 GPM | 4.75 | 1.375 |
| 1308  | 1-11 1/2 NPTF     | 2.0 TO 50.0 GPM | 5.50 | 1.625 |
| 1312  | 1 1/2-11 1/2 NPTF | 5.0 TO 75.0 GPM | 6.29 | 2.250 |

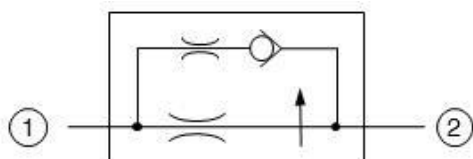
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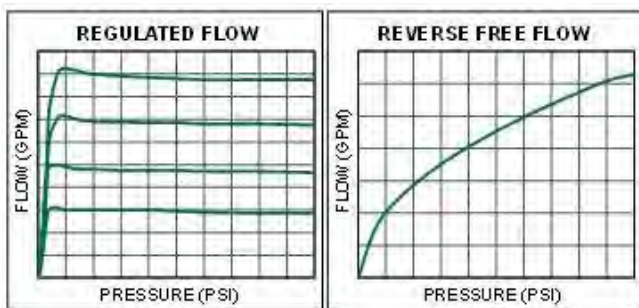
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, PRESSURE-COMPENSATED, NONADJUSTABLE FLOW REGULATOR WITH FEMALE NPTF PORTS, INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- IN THE CONTROLLED DIRECTION THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED PRODUCING A PRESSURE DIFFERENTIAL OF 60 PSI MAX. AT 150% OF CONTROLLED FLOW.

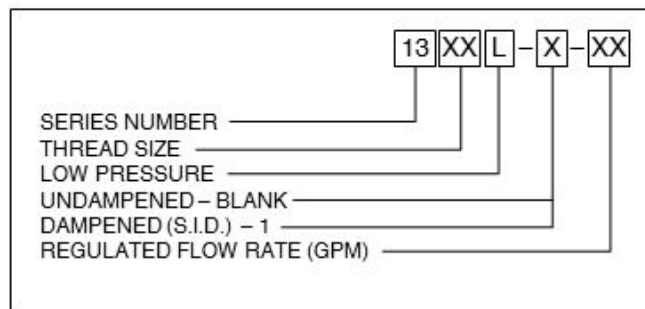
### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- ALUMINUM BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 25 PSI TO 3000 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION

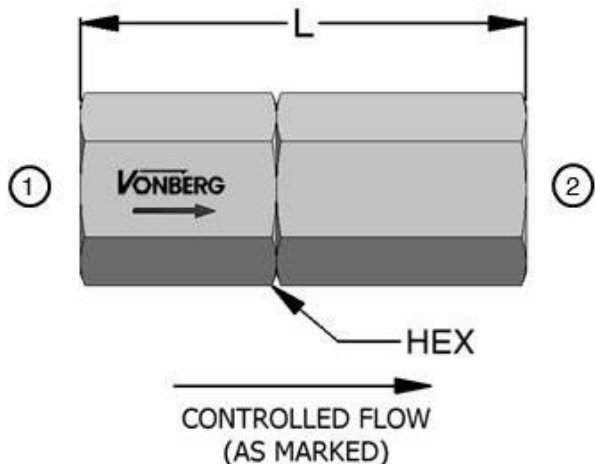


| Model | INLET/OUTLET      | FLOW RANGE      | L    | HEX   |
|-------|-------------------|-----------------|------|-------|
| 1302L | 1/4-18 NPTF       | 0.2 TO 2.0 GPM  | 3.50 | 0.938 |
| 1303L | 3/8-18 NPTF       | 0.2 TO 3.0 GPM  | 3.38 | 0.875 |
| 1304L | 1/2-14 NPTF       | 0.5 TO 6.0 GPM  | 4.00 | 1.125 |
| 1306L | 3/4-14 NPTF       | 1.0 TO 10.0 GPM | 4.75 | 1.375 |
| 1308L | 1-11 1/2 NPTF     | 2.0 TO 20.0 GPM | 5.50 | 1.625 |
| 1312L | 1 1/2-11 1/2 NPTF | 2.0 TO 40.0 GPM | 6.29 | 2.250 |

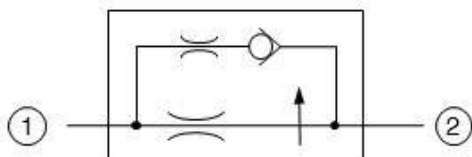
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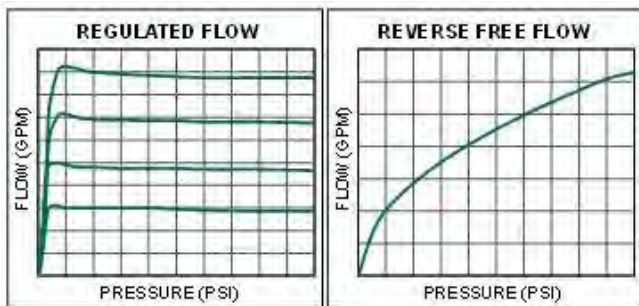
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, PRESSURE-COMPENSATED, NONADJUSTABLE FLOW REGULATOR WITH FEMALE NPTF PORTS, INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- IN THE CONTROLLED DIRECTION THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AT 150% OF CONTROLLED FLOW.

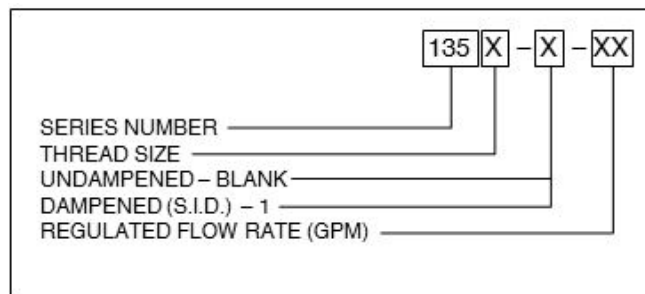
### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
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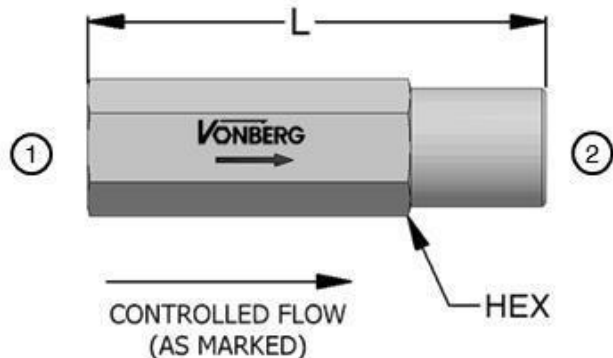
| Model | INLET/OUTLET | FLOW RANGE      | L    | HEX   |
|-------|--------------|-----------------|------|-------|
| 1352  | 1/4-18 NPTF  | 0.25 TO 4.0 GPM | 2.25 | 0.938 |
| 1353  | 3/8-18 NPTF  | 0.25 TO 5.0 GPM | 2.50 | 0.938 |
| 1354  | 1/2-14 NPTF  | 0.5 TO 10.0 GPM | 2.88 | 1.062 |

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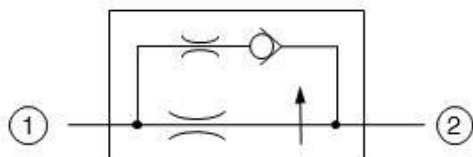
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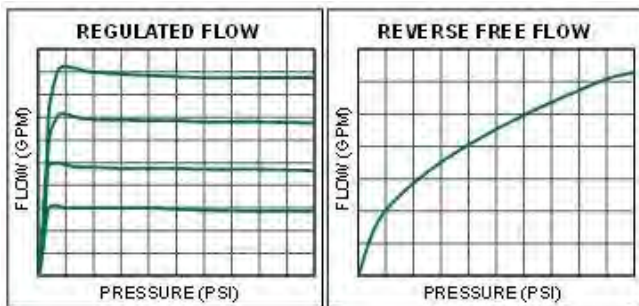
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, PRESSURE-COMPENSATED, NONADJUSTABLE FLOW REGULATOR WITH FEMALE SAE PORTS, INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- IN THE CONTROLLED DIRECTION THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE THROUGHOUT A SPECIFIED PRESSURE RANGE.
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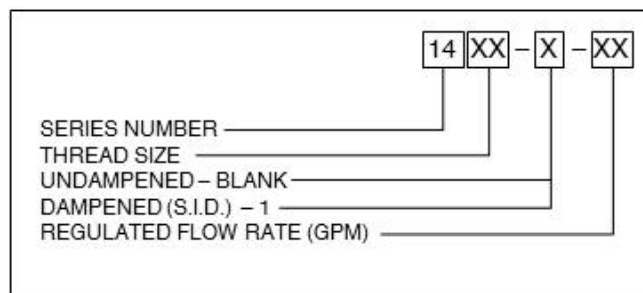
### FEATURES

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- ALUMINUM BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
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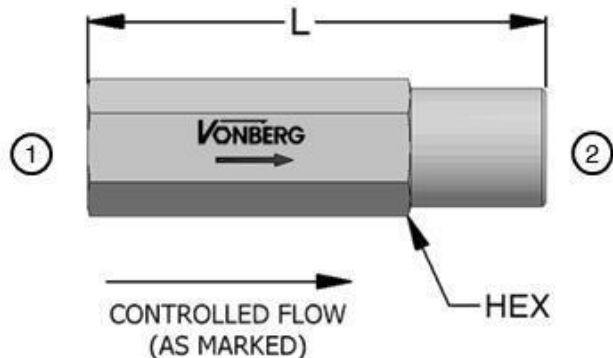


| Model | INLET/OUTLET | THREAD    | FLOW RANGE      | L    | HEX   |
|-------|--------------|-----------|-----------------|------|-------|
| 1406  | -06 SAE      | 9/16-18   | 0.25 TO 8.0 GPM | 3.00 | 0.750 |
| 1408  | -08 SAE      | 3/4-16    | 0.5 TO 15.0 GPM | 4.00 | 1.000 |
| 1410  | -10 SAE      | 7/8-14    | 0.5 TO 15.0 GPM | 4.00 | 1.125 |
| 1412  | -12 SAE      | 1 1/16-12 | 1.0 TO 30.0 GPM | 4.75 | 1.375 |
| 1416  | -16 SAE      | 1 5/16-12 | 2.0 TO 50.0 GPM | 5.50 | 1.625 |
| 1424  | -24 SAE      | 1 7/8-12  | 5.0 TO 75.0 GPM | 5.50 | 2.250 |

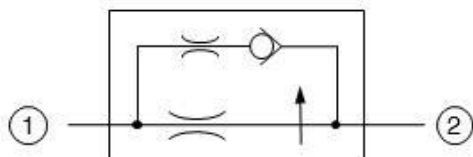
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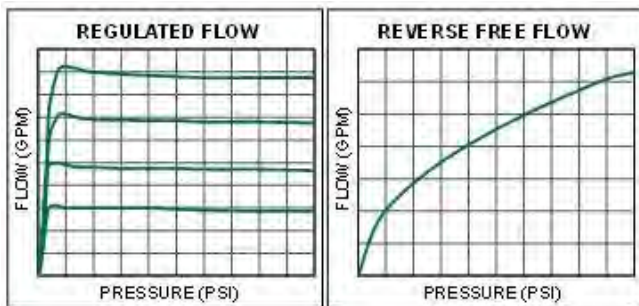
### PRODUCT



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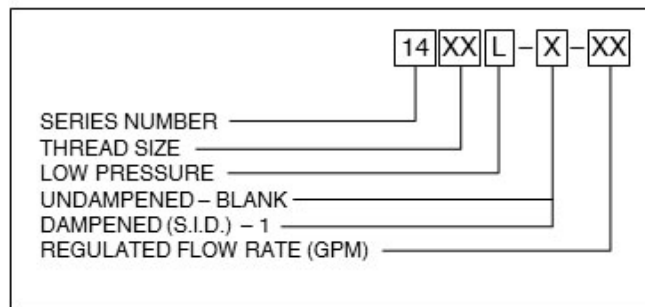
### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- ALUMINUM BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 25 PSI TO 3000 PSI              |
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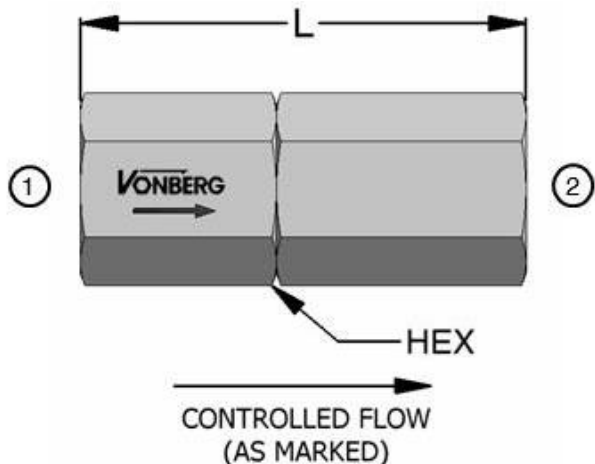


| Model | INLET/OUTLET | THREAD    | FLOW RANGE      | L    | HEX   |
|-------|--------------|-----------|-----------------|------|-------|
| 1406L | #6 SAE       | 9/16-18   | 0.2 TO 2.0 GPM  | 3.00 | 0.750 |
| 1408L | #8 SAE       | 3/4-16    | 0.2 TO 3.0 GPM  | 4.00 | 1.000 |
| 1410L | #10 SAE      | 7/8-14    | 0.5 TO 6.0 GPM  | 4.00 | 1.125 |
| 1412L | #12 SAE      | 1 1/16-12 | 1.0 TO 10.0 GPM | 4.75 | 1.375 |
| 1416L | #16 SAE      | 1 5/16-12 | 2.0 TO 20.0 GPM | 5.50 | 1.625 |
| 1424L | #24 SAE      | 1 7/8-12  | 2.0 TO 40.0 GPM | 5.50 | 2.250 |

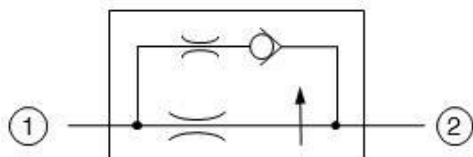
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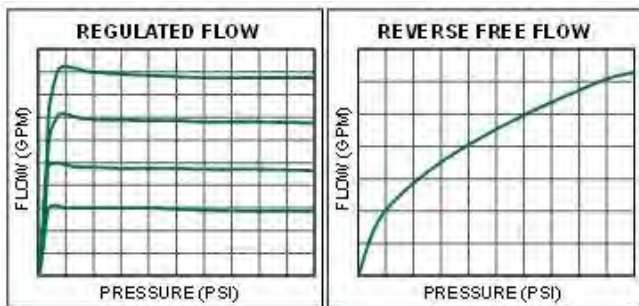
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, PRESSURE-COMPENSATED, NONADJUSTABLE FLOW REGULATOR WITH FEMALE SAE PORTS, INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- IN THE CONTROLLED DIRECTION THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE THROUGHOUT A SPECIFIED PRESSURE RANGE.
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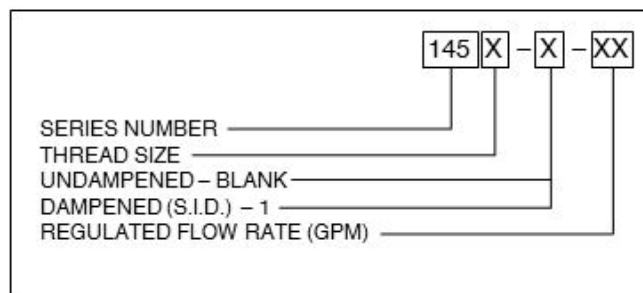
### FEATURES

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- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

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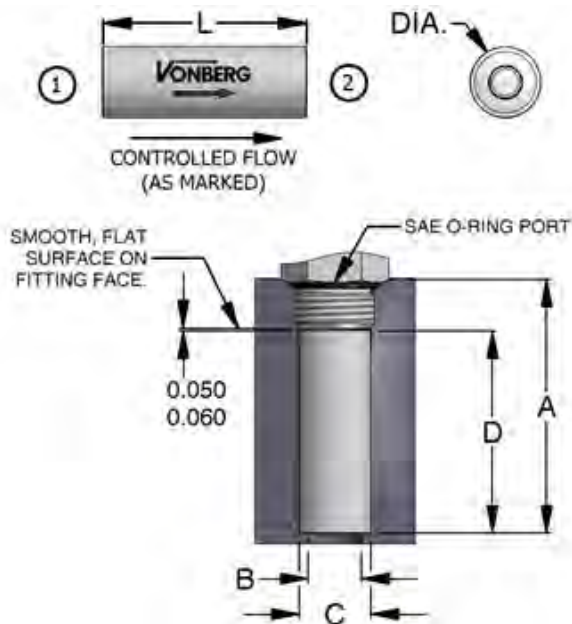
| Model | INLET/OUTLET      | FLOW RANGE      | L    | HEX   |
|-------|-------------------|-----------------|------|-------|
| 1454  | -04 SAE - 7/16-20 | 0.25 TO 4.0 GPM | 2.25 | 0.750 |
| 1456  | -06 SAE - 9/16-18 | 0.25 TO 5.0 GPM | 2.50 | 0.938 |
| 1458  | -08 SAE - 3/4-16  | 0.5 TO 10.0 GPM | 2.88 | 1.062 |

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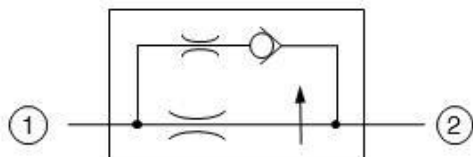
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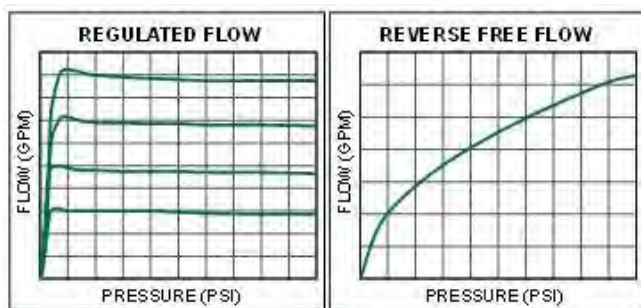
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, SLIP-IN CARTRIDGE, PRESSURE-COMPENSATED, NONADJUSTABLE FLOW REGULATOR INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- IN THE CONTROLLED DIRECTION THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AT 150% OF CONTROLLED FLOW.
- BORE DEPTHS ASSUME THE USE OF A STD. O-RING BOSS CONNECTOR WITH THREAD LENGTHS BASED ON SAE J514.
- CARTRIDGE BODY SEATS ON SMOOTH, FLAT SURFACE OF FITTING IN THE REGULATED FLOW DIRECTION.

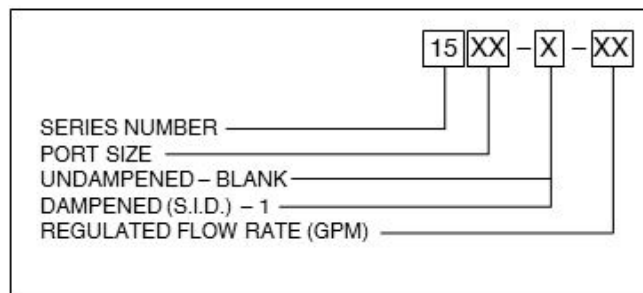
### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- ALUMINUM BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION



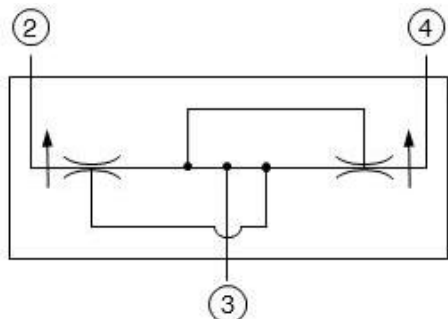
| Model | VALVE DIA. | FLOW RANGE      | L    | A           | B (MAX.) | C             | D           |
|-------|------------|-----------------|------|-------------|----------|---------------|-------------|
| 1508  | 0.670      | 0.25 TO 8.0 GPM | 1.90 | 2.40 / 2.41 | 0.500    | 0.672 / 0.677 | 1.96 / 1.97 |
| 1510  | 0.795      | 0.5 TO 15.0 GPM | 2.03 | 2.59 / 2.60 | 0.625    | 0.797 / 0.802 | 2.09 / 2.10 |
| 1512  | 0.970      | 1.0 TO 30.0 GPM | 2.78 | 3.43 / 3.44 | 0.812    | 0.972 / 0.977 | 2.84 / 2.85 |
| 1514  | 1.095      | 1.0 TO 30.0 GPM | 3.00 | 3.65 / 3.66 | 0.812    | 1.097 / 1.102 | 3.06 / 3.07 |
| 1516  | 1.220      | 2.0 TO 50.0 GPM | 3.19 | 3.84 / 3.85 | 0.937    | 1.222 / 1.227 | 3.24 / 3.25 |
| 1524  | 1.783      | 5.0 TO 75.0 GPM | 3.25 | 3.90 / 3.91 | 1.437    | 1.787 / 1.792 | 3.31 / 3.32 |

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### PRODUCT



### SCHEMATIC



### DESCRIPTION

A CARTRIDGE STYLE FLOW DIVIDER, INTENDED FOR SUPPLYING EQUAL FLOWS TO MULTIPLE CIRCUITS WITH A COMMON SUPPLY. A CARTRIDGE STYLE FLOW COMBINER, INTENDED FOR COMBINING EQUAL FLOWS FROM MULTIPLE CIRCUITS INTO A COMMON LINE.

### OPERATION

- FLOW FROM (3) IS DIVIDED EQUALLY BETWEEN (2) AND (4) WITHIN THE FLOW TOLERANCE.
- FLOWS FROM (2) AND (4) ARE COMBINED INTO (3) WITHIN THE FLOW TOLERANCE.

### FEATURES

- STEEL BODY, STEEL SPOOLS
- LOW INTERNAL LEAKAGE
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                                       |                                 |
|---------------------------------------|---------------------------------|
| PRESSURE RANGE                        | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE                     | 250°F TO -40°F                  |
| FLOW TOLERANCE                        | +/- 10% (+/- 15% UNDER 1.5 GPM) |
| MAX. PRESSURE DIFFERENTIAL "2" TO "4" | 500 PSI                         |

### ORDERING INFORMATION

23 XX - X - XX

SERIES NUMBER \_\_\_\_\_

PORT SIZE \_\_\_\_\_

FLOW RANGE AT (3) (GPM) \_\_\_\_\_

1 = 1 - 3

2 = 3 - 6

3 = 6 - 10

4 = 10 - 15

5 = 15 - 25

6 = 25 - 40

FLOW RATIO (2) : (4)

25 = 25:75

33 = 33:67

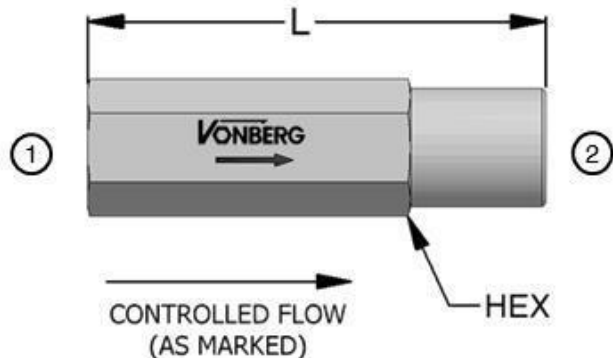
50 = 50:50

| Model | THREAD   | FLOW RANGE      | CAVITY | L1   | L2   | HEX  | A             | B             | C             | TORQUE    |
|-------|----------|-----------------|--------|------|------|------|---------------|---------------|---------------|-----------|
| 2310  | 7/8 - 14 | 1.0 TO 12.0 GPM | 10-4   | 2.46 | 0.33 | 1.00 | 0.621 / 0.622 | 0.683 / 0.684 | 0.746 / 0.747 | 25 ft-lbs |

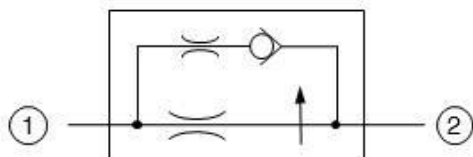
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Page last updated: February 06, 2015

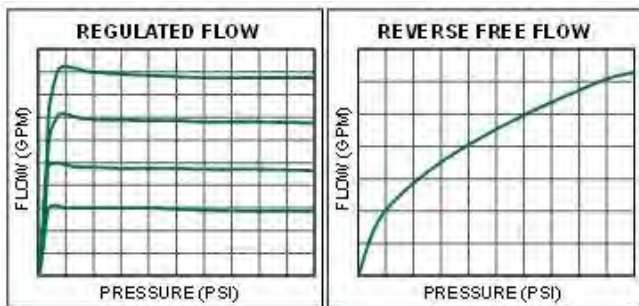
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, PRESSURE-COMPENSATED, NONADJUSTABLE FLOW REGULATOR WITH FEMALE NPTF PORTS, INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- IN THE CONTROLLED DIRECTION THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AT 150% OF CONTROLLED FLOW.

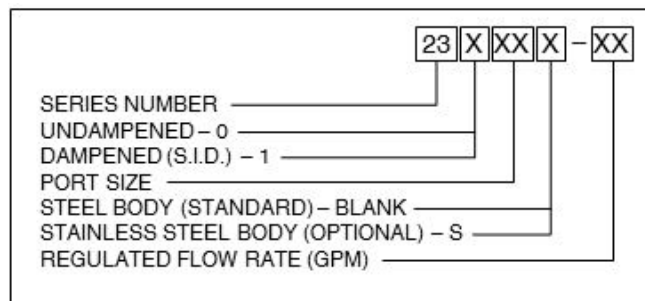
### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 5000 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION



| Model | INLET/OUTLET      | FLOW RANGE      | L    | HEX   |
|-------|-------------------|-----------------|------|-------|
| 23002 | 1/4-18 NPTF       | 0.25 TO 6.0 GPM | 3.50 | 0.938 |
| 23003 | 3/8-18 NPTF       | 0.5 TO 8.0 GPM  | 3.38 | 0.875 |
| 23004 | 1/2-14 NPTF       | 0.5 TO 15.0 GPM | 4.00 | 1.125 |
| 23006 | 3/4-14 NPTF       | 1.0 TO 30.0 GPM | 4.75 | 1.375 |
| 23008 | 1-11 1/2 NPTF     | 2.0 TO 50.0 GPM | 5.50 | 1.625 |
| 23012 | 1 1/2-11 1/2 NPTF | 5.0 TO 75.0 GPM | 6.29 | 2.250 |

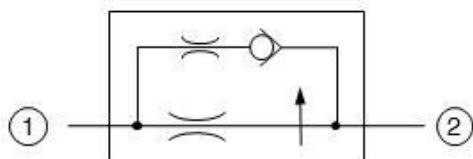
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Page last updated: February 06, 2015

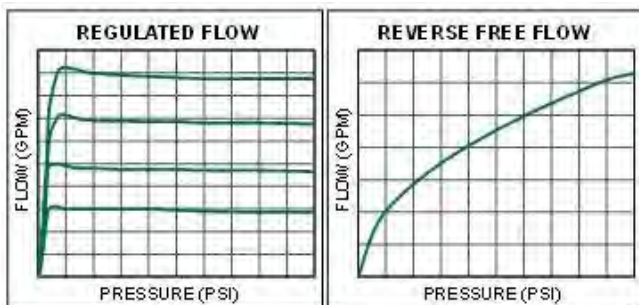
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A NON-ADJUSTABLE, CARTRIDGE STYLE, PRESSURE-COMPENSATED, FLOW REGULATOR INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE FROM (1) TO (2) THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AT 150% OF CONTROLLED FLOW.

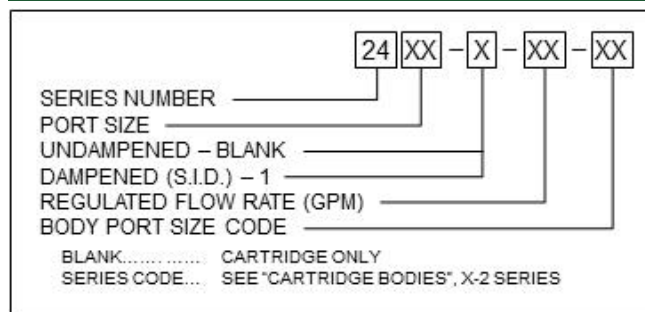
### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- INDUSTRY COMMON CAVITY.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION



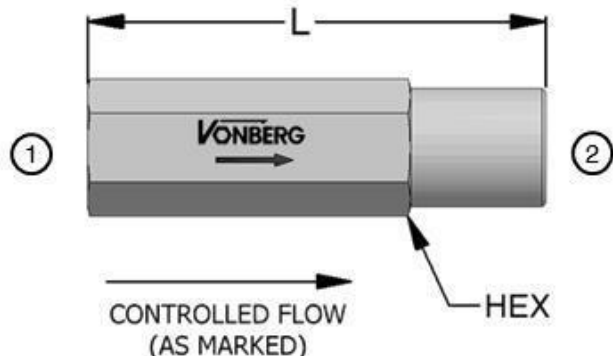
| Model | THREAD      | FLOW RANGE      | CAVITY | L1   | L2   | HEX  | A             | TORQUE    |
|-------|-------------|-----------------|--------|------|------|------|---------------|-----------|
| 2404  | 7/16 - 20   | 0.4 TO 2.0 GPM  | VC04-2 | 0.94 | 0.55 | 0.56 | 0.277 / 0.278 | 10 ft-lbs |
| 2406  | 9/16 - 18   | 0.4 TO 4.0 GPM  | FC06-2 | 0.84 | 0.53 | 0.69 | 0.467 / 0.468 | 15 ft-lbs |
| 2408  | 3/4 - 16    | 0.4 TO 8.0 GPM  | VC08-2 | 1.10 | 0.85 | 0.88 | 0.495 / 0.497 | 20 ft-lbs |
| 2410  | 7/8 - 14    | 0.5 TO 10.0 GPM | VC10-2 | 1.25 | 0.80 | 1.00 | 0.621 / 0.623 | 25 ft-lbs |
| 2412  | 1 1/16 - 12 | 2.0 TO 20.0 GPM | VC12-2 | 1.81 | 1.35 | 1.25 | 0.870 / 0.873 | 40 ft-lbs |
| 2416  | 1 5/16 - 12 | 2.0 TO 30.0 GPM | VC16-2 | 1.75 | 1.35 | 1.50 | 1.121 / 1.123 | 60 ft-lbs |

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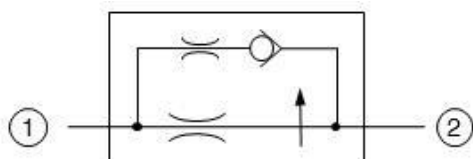
Page last updated: February 06, 2015



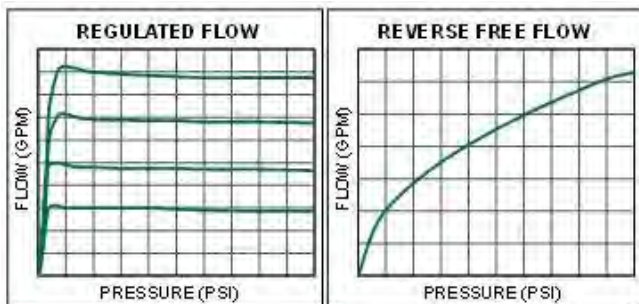
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, PRESSURE-COMPENSATED, NONADJUSTABLE FLOW REGULATOR WITH FEMALE SAE PORTS, INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- IN THE CONTROLLED DIRECTION THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AT 150% OF CONTROLLED FLOW.

### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 5000 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION

24 X XX X - XX

SERIES NUMBER \_\_\_\_\_

UNDAMPENED - 0 \_\_\_\_\_

DAMPENED (S.I.D.) - 1 \_\_\_\_\_

PORT SIZE \_\_\_\_\_

STEEL BODY (STANDARD) - BLANK \_\_\_\_\_

STAINLESS STEEL BODY (OPTIONAL) - S \_\_\_\_\_

REGULATED FLOW RATE (GPM) \_\_\_\_\_

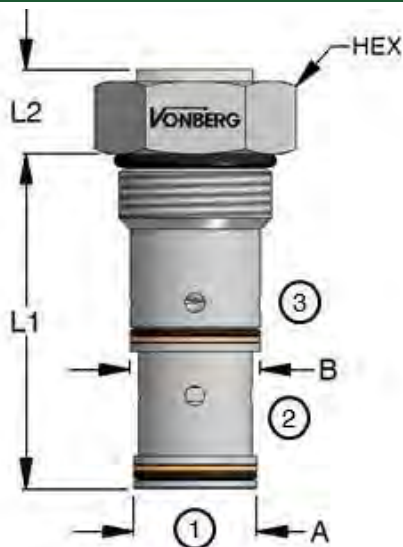
| Model | INLET/OUTLET | THREAD    | FLOW RANGE      | L    | HEX   |
|-------|--------------|-----------|-----------------|------|-------|
| 24006 | -06 SAE      | 9/16-18   | 0.25 TO 8.0 GPM | 3.00 | 0.750 |
| 24008 | -08 SAE      | 3/4-16    | 0.5 TO 15.0 GPM | 4.00 | 1.000 |
| 24010 | -10 SAE      | 7/8-14    | 0.5 TO 15.0 GPM | 4.00 | 1.125 |
| 24012 | -12 SAE      | 1 1/16-12 | 1.0 TO 30.0 GPM | 4.75 | 1.375 |
| 24016 | -16 SAE      | 1 5/16-12 | 2.0 TO 50.0 GPM | 5.50 | 1.625 |
| 24024 | -24 SAE      | 1 7/8-12  | 5.0 TO 75.0 GPM | 5.50 | 2.250 |

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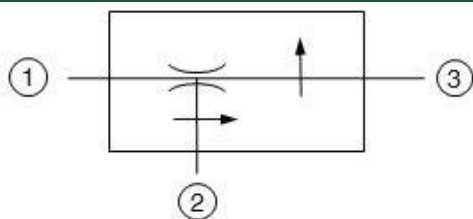
Page last updated: February 06, 2015



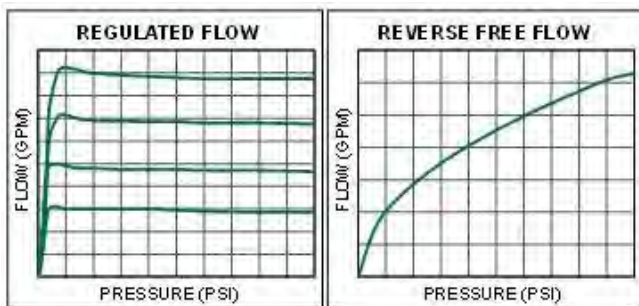
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A NONADJUSTABLE, CARTRIDGE STYLE, PRESSURE-COMPENSATED, PRIORITY FLOW REGULATOR INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE FROM (1) TO (3) THROUGHOUT A SPECIFIED PRESSURE RANGE.
- WHEN INLET FLOW EXCEEDS THE PRIORITY SETTING, THE SURPLUS FLOW IS DIVERTED TO (2), THE BYPASS.

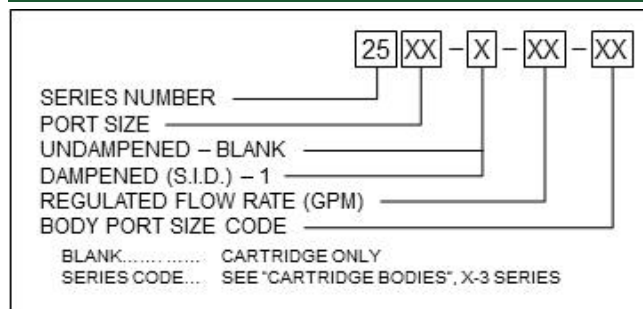
### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- INDUSTRY COMMON CAVITY.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION

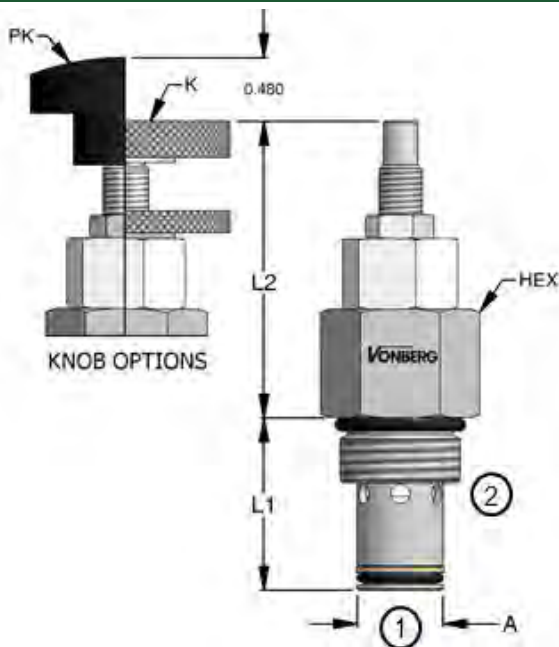


| MODEL | THREAD      | FLOW RANGE      | CAVITY | L1   | L2   | HEX <sup>1</sup> | A             | B             | TORQUE    |
|-------|-------------|-----------------|--------|------|------|------------------|---------------|---------------|-----------|
| 2508  | 3/4 - 16    | 0.4 TO 5.0 GPM  | 8-3    | 1.60 | 0.65 | 0.88             | 0.558 / 0.560 | 0.621 / 0.623 | 20 ft-lbs |
| 2510  | 7/8 - 14    | 0.5 TO 8.0 GPM  | 10-3   | 1.79 | 0.42 | 1.00             | 0.621 / 0.623 | 0.683 / 0.685 | 25 ft-lbs |
| 2512  | 1 1/16 - 12 | 1.0 TO 15.0 GPM | 12-3   | 2.63 | 1.00 | 1.25             | 0.870 / 0.873 | 0.933 / 0.935 | 40 ft-lbs |
| 2516  | 1 5/16 - 12 | 2.0 TO 25.0 GPM | 16-3   | 2.88 | 0.75 | 1.50             | 1.058 / 1.060 | 1.121 / 1.123 | 60 ft-lbs |

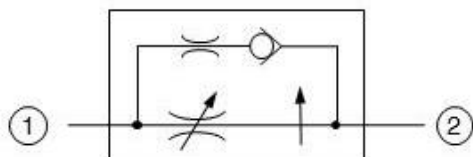
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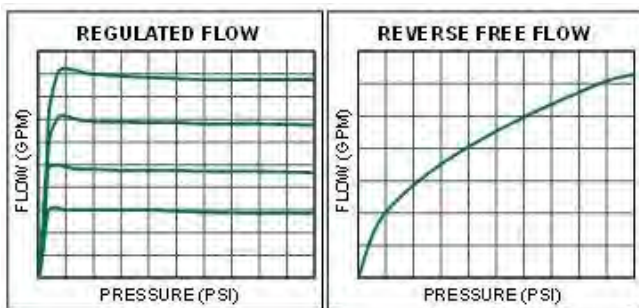
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A FULLY ADJUSTABLE, CARTRIDGE STYLE, PRESSURE-COMPENSATED, FLOW REGULATOR INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE FROM (1) TO (2) THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED, PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AND 150% OF CONTROLLED FLOW.
- COUNTERCLOCKWISE ADJUSTMENT TO INCREASE FLOW.

### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- INDUSTRY COMMON CAVITY.
- FULLY ADJUSTABLE

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 120 PSI TO 3500 PSI             |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION

26 XX X - X - XX - XX

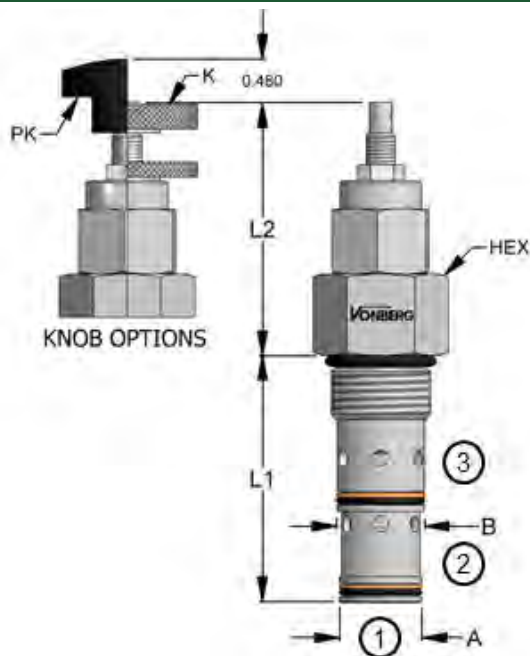
SERIES NUMBER  
 PORT SIZE  
 ADJUSTING SCREW  
 BLANK... 1/8" SOCKET HEX\*\* WITH LOCK NUT  
 K..... 1.50" DIA. ADJ. KNOB WITH LOCKING KNOB\*\*  
 PK..... 1.375" DIA. PLASTIC ADJ. KNOB WITH LOCK NUT  
 UNDAMPENED - BLANK  
 DAMPENED (S.I.D.) - 1  
 PRESET FLOW RATE (OPTIONAL) (GPM)  
 BODY PORT SIZE CODE  
 BLANK..... CARTRIDGE ONLY  
 SERIES CODE... SEE "CARTRIDGE BODIES", X-2 SERIES

\*\* 5/64 HEX, 0.88 DIA. KNOB FOR MODEL 2606

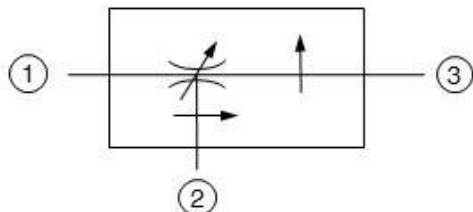
| Model | THREAD      | FLOW RANGE      | CAVITY | L1   | L2 (MAX.) | HEX  | A             | TORQUE    |
|-------|-------------|-----------------|--------|------|-----------|------|---------------|-----------|
| 2606  | 9/16 - 18   | 0.4 TO 4.0 GPM  | FC06-2 | 0.84 | 1.08      | 0.69 | 0.467 / 0.468 | 15 ft-lbs |
| 2608  | 3/4 - 16    | 0.4 TO 8.0 GPM  | VC08-2 | 1.10 | 2.20      | 0.88 | 0.495 / 0.497 | 20 ft-lbs |
| 2610  | 7/8 - 14    | 0.5 TO 10.0 GPM | VC10-2 | 1.25 | 2.25      | 1.00 | 0.621 / 0.623 | 25 ft-lbs |
| 2612  | 1 1/16 - 12 | 2.0 TO 20.0 GPM | VC12-2 | 1.81 | 2.75      | 1.25 | 0.870 / 0.873 | 40 ft-lbs |
| 2616  | 1 5/16 - 12 | 2.0 TO 30.0 GPM | VC16-2 | 1.75 | 2.75      | 1.50 | 1.121 / 1.123 | 60 ft-lbs |

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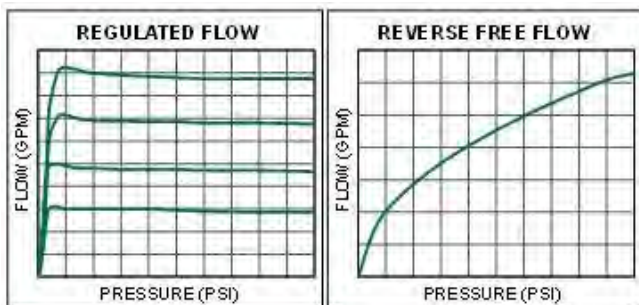
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A FULLY ADJUSTABLE, CARTRIDGE STYLE, PRESSURE-COMPENSATED, PRIORITY FLOW REGULATOR INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE FROM (1) TO (3) THROUGHOUT A SPECIFIED PRESSURE RANGE.
- WHEN INLET FLOW EXCEEDS THE PRIORITY SETTING, THE SURPLUS FLOW IS DIVERTED TO (2), THE BYPASS.
- COUNTERCLOCKWISE ADJUSTMENT TO INCREASE FLOW.

### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- INDUSTRY COMMON CAVITY.
- FULLY ADJUSTABLE

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

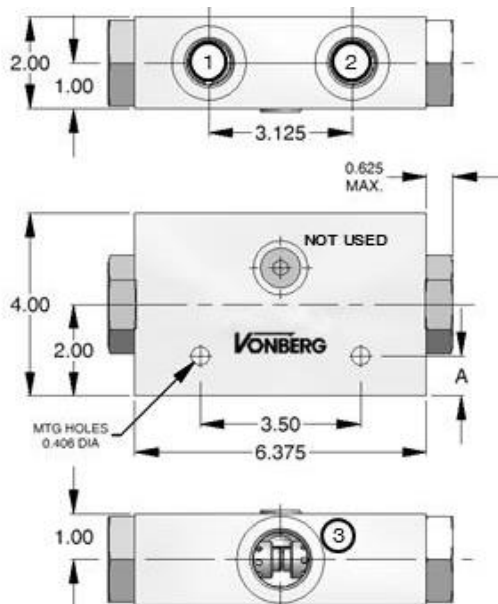
### ORDERING INFORMATION

SERIES NUMBER 27XXX - X - XX - XX  
 PORT SIZE \_\_\_\_\_  
 ADJUSTING SCREW \_\_\_\_\_  
 BLANK..... 1/8" SOCKET HEX WITH LOCK NUT  
 K..... 1.50" DIA. ADJ. KNOB WITH LOCKING KNOB\*\*  
 PK..... 1.375" DIA. PLASTIC ADJ. KNOB WITH LOCK NUT  
 UNDAMPENED - BLANK \_\_\_\_\_  
 DAMPENED (S.I.D.) - 1 \_\_\_\_\_  
 PRESET FLOW RATE (OPTIONAL) (GPM) \_\_\_\_\_  
 BODY PORT SIZE CODE \_\_\_\_\_  
 BLANK..... CARTRIDGE ONLY  
 SERIES CODE.... SEE "CARTRIDGE BODIES", X-3 SERIES

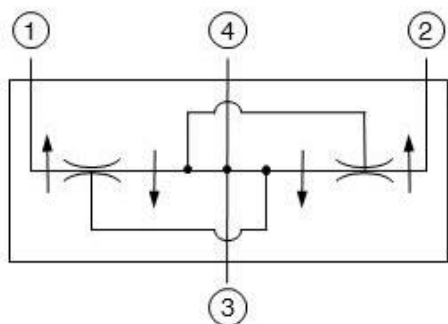
| MODEL | THREAD      | FLOW RANGE      | CAVITY | L1   | L2 (MAX.) | HEX  | A             | B             | TORQUE    |
|-------|-------------|-----------------|--------|------|-----------|------|---------------|---------------|-----------|
| 2708  | 3/4 - 16    | 0.4 TO 5.0 GPM  | 8-3    | 1.60 | 1.95      | 0.88 | 0.558 / 0.560 | 0.621 / 0.623 | 20 ft-lbs |
| 2710  | 7/8 - 14    | 0.5 TO 8.0 GPM  | 10-3   | 1.79 | 1.72      | 1.00 | 0.621 / 0.623 | 0.683 / 0.685 | 25 ft-lbs |
| 2712  | 1 1/16 - 12 | 1.0 TO 15.0 GPM | 12-3   | 2.63 | 2.30      | 1.25 | 0.870 / 0.873 | 0.933 / 0.935 | 40 ft-lbs |
| 2716  | 1 5/16 - 12 | 2.0 TO 25.0 GPM | 16-3   | 2.88 | 2.05      | 1.50 | 1.058 / 1.060 | 1.121 / 1.123 | 60 ft-lbs |

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### PRODUCT



### SCHEMATIC



### DESCRIPTION

AN IN-LINE SPOOL TYPE FLOW DIVIDER, INTENDED FOR SUPPLYING FLOWS TO MULTIPLE CIRCUITS WITH A COMMON SUPPLY, OR FOR COMBINING FLOWS FROM MULTIPLE CIRCUITS INTO A COMMON LINE.

### OPERATION

- FLOW FROM (3) IS DIVIDED EQUALLY BETWEEN (1) AND (2) WITHIN THE FLOW TOLERANCE.
- FLOWS FROM (1) AND (2) ARE COMBINED INTO (3) WITHIN THE FLOW TOLERANCE.

### FEATURES

- ALUMINUM BODY, STEEL SPOOLS
- PRESSURE COMPENSATED
- HYDRAULIC FLUIDS - GENERAL.
- BUNA-N 90 DURO O-RINGS
- TAMPER RESISTANT
- ALTERNATE DIVIDE RATIOS AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                                       |                     |
|---------------------------------------|---------------------|
| PRESSURE RANGE                        | 250 PSI TO 4500 PSI |
| TEMPERATURE RANGE                     | 250°F TO -40°F      |
| FLOW TOLERANCE                        | +/- 10%             |
| MAX. PRESSURE DIFFERENTIAL "1" TO "2" | 100 PSI             |
| DIVIDE / COMBINE RATIO                | 50:50               |

### ORDERING INFORMATION

|                    |     |   |   |   |   |    |
|--------------------|-----|---|---|---|---|----|
|                    | 270 | X | 1 | - | 2 | XX |
| SERIES NUMBER      |     |   |   |   |   |    |
| MAX FLOW INDICATOR |     |   |   |   |   |    |
| 5..... 25 - 50 GPM |     |   |   |   |   |    |
| 6..... 30 - 60 GPM |     |   |   |   |   |    |
| SAE PORT "3" SIZE  |     |   |   |   |   |    |

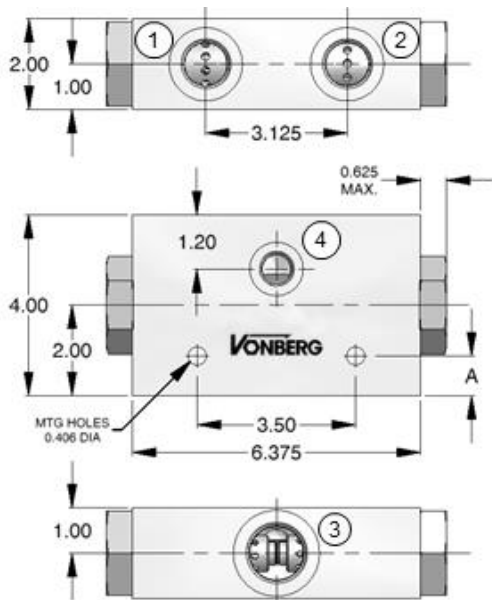
| Model     | PORTS 1 & 2         | PORT 3              | FLOW RANGE       | A     |
|-----------|---------------------|---------------------|------------------|-------|
| 27051-216 | -12 SAE - 1 1/16-12 | -16 SAE - 1 5/16-12 | 25.0 TO 50.0 GPM | 0.875 |
| 27051-220 | -16 SAE - 1 5/16-12 | -20 SAE - 1 5/8-12  | 30.0 TO 60.0 GPM | 0.375 |
| 27061-220 | -16 SAE - 1 5/16-12 | -20 SAE - 1 5/8-12  | 30.0 TO 60.0 GPM | 0.375 |

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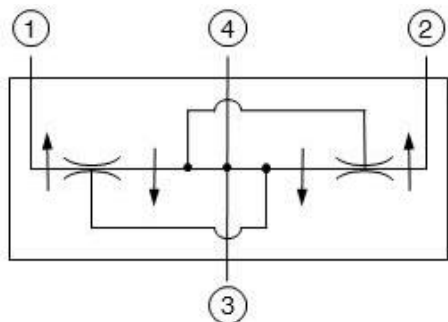
Page last updated: February 06, 2015



### PRODUCT



### SCHEMATIC



### DESCRIPTION

AN IN-LINE SPOOL TYPE FLOW DIVIDER, INTENDED FOR SUPPLYING FLOWS TO MULTIPLE CIRCUITS WITH A COMMON SUPPLY, OR FOR COMBINING FLOWS FROM MULTIPLE CIRCUITS INTO A COMMON LINE.

### OPERATION

- FLOW FROM (3) IS DIVIDED EQUALLY BETWEEN (1) AND (2) WITHIN THE FLOW TOLERANCE.
- FLOWS FROM (1) AND (2) ARE COMBINED INTO (3) WITHIN THE FLOW TOLERANCE.
- -08 SAE GAGE PORT AT (4)

### FEATURES

- ALUMINUM BODY, STEEL INTERNALS
- PRESSURE COMPENSATED
- HYDRAULIC FLUIDS - GENERAL.
- BUNA-N 90 DURO O-RINGS
- TAMPER RESISTANT
- ALTERNATE DIVIDE RATIOS AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                                       |                     |
|---------------------------------------|---------------------|
| PRESSURE RANGE                        | 250 PSI TO 4500 PSI |
| TEMPERATURE RANGE                     | 250°F TO -40°F      |
| FLOW TOLERANCE                        | +/- 10%             |
| MAX. PRESSURE DIFFERENTIAL "1" TO "2" | 100 PSI             |
| DIVIDE / COMBINE RATIO                | 50:50               |

### ORDERING INFORMATION

27903

SERIES NUMBER \_\_\_\_\_

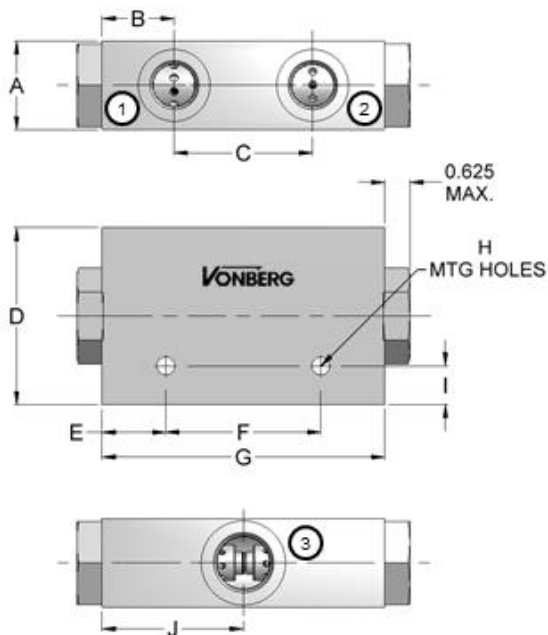
| Model | PORTS 1 & 2         | PORT 3              | PORT 4           | FLOW RANGE       | A     |
|-------|---------------------|---------------------|------------------|------------------|-------|
| 27903 | -12 SAE - 1 1/16-12 | -16 SAE - 1 5/16-12 | -08 SAE - 3/4-16 | 10.0 TO 30.0 GPM | 0.975 |

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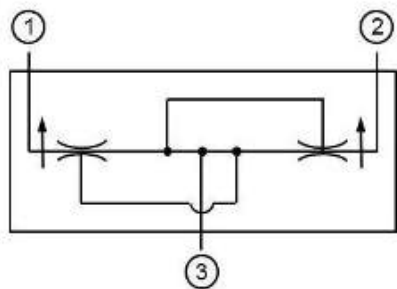
Page last updated: February 06, 2015



### PRODUCT



### SCHEMATIC



### DESCRIPTION

AN IN-LINE SPOOL TYPE FLOW DIVIDER, INTENDED FOR SUPPLYING FLOWS TO MULTIPLE CIRCUITS WITH A COMMON SUPPLY, OR FOR COMBINING FLOWS FROM MULTIPLE CIRCUITS INTO A COMMON LINE.

### OPERATION

- FLOW FROM (3) IS DIVIDED EQUALLY BETWEEN (1) AND (2) WITHIN THE FLOW TOLERANCE.
- FLOWS FROM (1) AND (2) ARE COMBINED INTO (3) WITHIN THE FLOW TOLERANCE.

### FEATURES

- ALUMINUM BODY, STEEL SPOOLS
- PRESSURE COMPENSATED
- HYDRAULIC FLUIDS - GENERAL.
- BUNA-N 90 DURO O-RINGS
- TAMPER RESISTANT
- ALTERNATE DIVIDE RATIOS AND PORT SIZES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                                       |                     |
|---------------------------------------|---------------------|
| PRESSURE RANGE                        | 250 PSI TO 3500 PSI |
| TEMPERATURE RANGE                     | 250°F TO -40°F      |
| FLOW TOLERANCE                        | +/- 10%             |
| MAX. PRESSURE DIFFERENTIAL "1" TO "2" | 150 PSI             |
| DIVIDE / COMBINE RATIO                | 50:50               |

### ORDERING INFORMATION

27 | X | X | 0 | - | 2 | XX

SERIES NUMBER \_\_\_\_\_

BLOCK SIZE INDICATOR \_\_\_\_\_

|            | FLOW INDICATOR |   |   |   |   |
|------------|----------------|---|---|---|---|
|            | 2              | 3 | 4 | 5 | 6 |
| 0 - SMALL  |                |   |   |   |   |
| 1 - MEDIUM |                |   |   |   |   |
| 2 - LARGE  |                |   |   |   |   |

FLOW RANGE INDICATOR \_\_\_\_\_

2..... 1 – 5 GPM      5..... 31 – 45 GPM  
 3..... 6 – 15 GPM    6..... 46 – 60 GPM  
 4..... 16 – 30 GPM

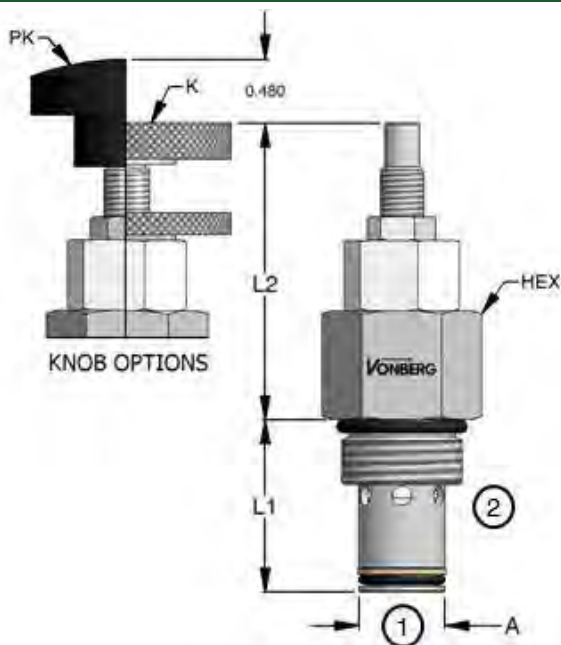
SAE PORT "3" SIZE \_\_\_\_\_

| Model     | PORTS 1 & 2         | PORT 3              | TOTAL FLOW RANGE | A    | B    | C    | D    | E    | F    | G    | H    | I    | J    |
|-----------|---------------------|---------------------|------------------|------|------|------|------|------|------|------|------|------|------|
| 270X0-208 | -06 SAE - 9/16-18   | -08 SAE - 3/4-16    | 2.0 TO 15.0 GPM  | 1.50 | 1.25 | 2.00 | 2.50 | 0.34 | 3.81 | 4.50 | 0.28 | 0.38 | 2.25 |
| 270X0-210 | -08 SAE - 3/4-16    | -10 SAE - 7/8-14    | 2.0 TO 20.0 GPM  | 1.50 | 1.25 | 2.00 | 2.50 | 0.34 | 3.81 | 4.50 | 0.28 | 0.38 | 2.25 |
| 271X0-212 | -10 SAE - 7/8-14    | -12 SAE - 1 1/16-12 | 5.0 TO 30.0 GPM  | 1.50 | 1.25 | 2.00 | 3.00 | 0.34 | 3.81 | 4.50 | 0.28 | 0.38 | 2.25 |
| 272X0-216 | -12 SAE - 1 1/16-12 | -16 SAE - 1 5/16-12 | 30.0 TO 50.0 GPM | 2.00 | 1.62 | 2.12 | 4.00 | 1.44 | 3.50 | 6.38 | 0.41 | 0.38 | 3.14 |
| 272X0-220 | -16 SAE - 1 5/16-12 | -20 SAE - 1 5/8-12  | 30.0 TO 60.0 GPM | 2.00 | 1.62 | 2.12 | 4.00 | 1.44 | 3.50 | 6.38 | 0.41 | 0.38 | 3.14 |

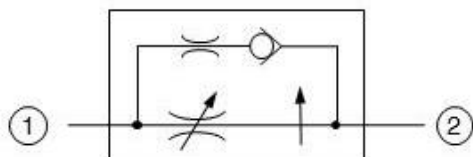
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Page last updated: February 11, 2015

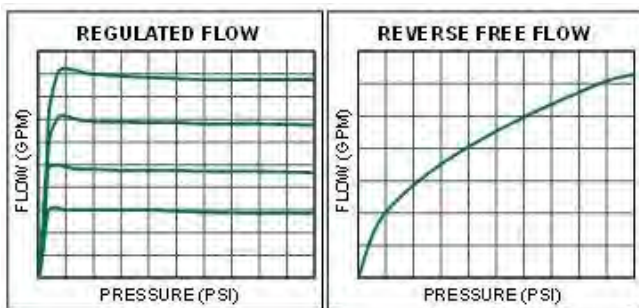
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A PARTIALLY ADJUSTABLE, CARTRIDGE STYLE, PRESSURE-COMPENSATED, FLOW REGULATOR INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE FROM (1) TO (2) THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED, PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AT 150% OF CONTROLLED FLOW.
- COUNTERCLOCKWISE ADJUSTMENT TO INCREASE FLOW.

### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- INDUSTRY COMMON CAVITY.
- PARTIALLY ADJUSTABLE

### SPECIFICATIONS

|                       |                                 |
|-----------------------|---------------------------------|
| PRESSURE RANGE        | 120 PSI TO 3500 PSI             |
| TEMPERATURE RANGE     | 250°F TO -40°F                  |
| FLOW TOLERANCE        | +/- 10% (+/- 15% UNDER 1.5 GPM) |
| FLOW ADJUSTMENT RANGE | +/- 25% OF NOMINAL FLOW         |

### ORDERING INFORMATION

28 XX X - X - XX - XX

SERIES NUMBER  
 PORT SIZE  
 ADJUSTING SCREW  
 BLANK... 1/8" SOCKET HEX\*\* WITH LOCK NUT  
 K..... 1.50" DIA. ADJ. KNOB WITH LOCKING KNOB\*\*  
 PK..... 1.375" DIA. PLASTIC ADJ. KNOB WITH LOCK NUT

UNDAMPENED - BLANK  
 DAMPENED (S.I.D.) - 1  
 NOMINAL FLOW RATE (GPM)  
 BODY PORT SIZE CODE  
 BLANK..... CARTRIDGE ONLY  
 SERIES CODE... SEE "CARTRIDGE BODIES", X-2 SERIES

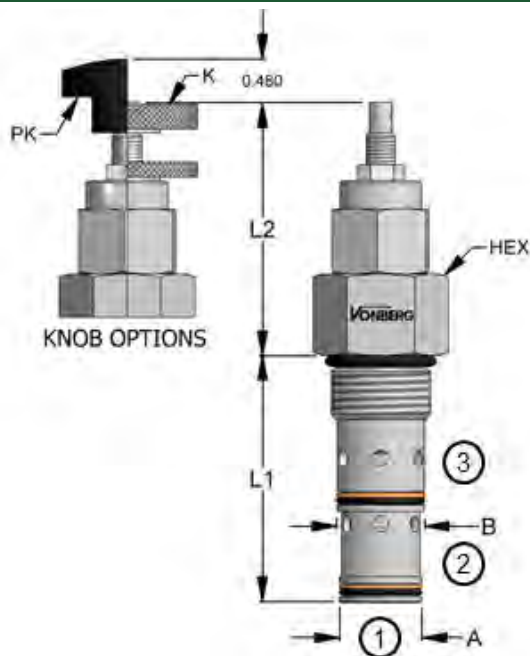
\*\* 5/64 HEX, 0.88 DIA. KNOB FOR MODEL 2806

| Model | THREAD      | FLOW RANGE      | CAVITY | L1   | L2 (MAX.) | HEX  | A             | TORQUE    |
|-------|-------------|-----------------|--------|------|-----------|------|---------------|-----------|
| 2808  | 3/4 - 16    | 0.4 TO 6.0 GPM  | 8-2    | 1.10 | 2.20      | 0.88 | 0.495 / 0.497 | 20 ft-lbs |
| 2810  | 7/8 - 14    | 0.5 TO 8.0 GPM  | 10-2   | 1.25 | 2.25      | 1.00 | 0.621 / 0.623 | 25 ft-lbs |
| 2812  | 1 1/16 - 12 | 2.0 TO 15.0 GPM | 12-2   | 1.81 | 2.75      | 1.25 | 0.870 / 0.873 | 40 ft-lbs |
| 2816  | 1 5/16 - 12 | 2.0 TO 25.0 GPM | 16-2   | 1.75 | 2.75      | 1.50 | 1.121 / 1.123 | 60 ft-lbs |

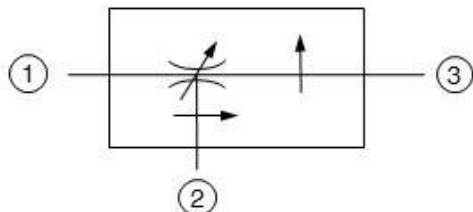
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Page last updated: February 06, 2015

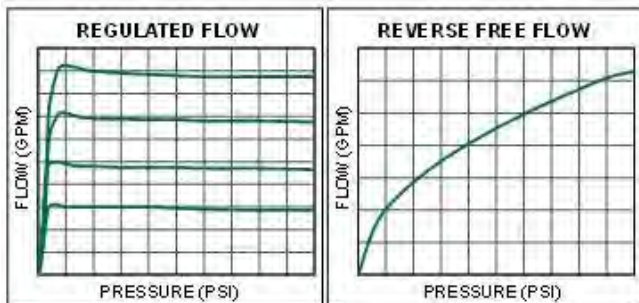
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A FULLY ADJUSTABLE, CARTRIDGE STYLE, PRESSURE-COMPENSATED, PRIORITY FLOW REGULATOR INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE FROM (1) TO (3) THROUGHOUT A SPECIFIED PRESSURE RANGE.
- WHEN INLET FLOW EXCEEDS THE PRIORITY SETTING, THE SURPLUS FLOW IS DIVERTED TO (2), THE BYPASS.
- COUNTERCLOCKWISE ADJUSTMENT TO INCREASE FLOW.

### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- INDUSTRY COMMON CAVITY.
- PARTIALLY ADJUSTABLE.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

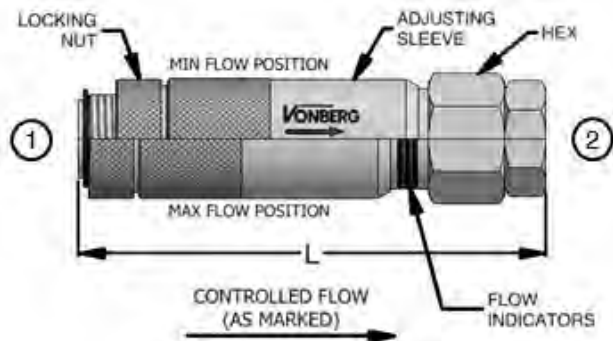
### ORDERING INFORMATION

SERIES NUMBER 29XXX - X - XX - XX  
 PORT SIZE \_\_\_\_\_  
 ADJUSTING SCREW \_\_\_\_\_  
 BLANK..... 1/8" SOCKET HEX WITH LOCK NUT  
 K..... 1.50" DIA. ADJ. KNOB WITH LOCKING KNOB\*\*  
 PK..... 1.375" DIA. PLASTIC ADJ. KNOB WITH LOCK NUT  
 UNDAMPENED - BLANK \_\_\_\_\_  
 DAMPENED (S.I.D.) - 1 \_\_\_\_\_  
 PRESET FLOW RATE (OPTIONAL) (GPM) \_\_\_\_\_  
 BODY PORT SIZE CODE \_\_\_\_\_  
 BLANK..... CARTRIDGE ONLY  
 SERIES CODE.... SEE "CARTRIDGE BODIES", X-3 SERIES

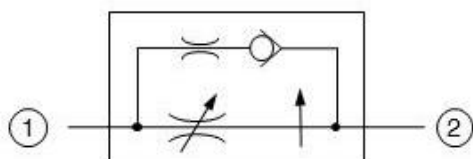
| MODEL | THREAD      | FLOW RANGE      | CAVITY | L1   | L2 (MAX.) | HEX  | A             | B             | TORQUE    |
|-------|-------------|-----------------|--------|------|-----------|------|---------------|---------------|-----------|
| 2908  | 3/4 - 16    | 0.4 TO 5.0 GPM  | 8-3    | 1.60 | 1.95      | 0.88 | 0.558 / 0.560 | 0.621 / 0.623 | 20 ft-lbs |
| 2910  | 7/8 - 14    | 0.5 TO 8.0 GPM  | 10-3   | 1.79 | 1.72      | 1.00 | 0.621 / 0.623 | 0.683 / 0.685 | 25 ft-lbs |
| 2912  | 1 1/16 - 12 | 1.0 TO 15.0 GPM | 12-3   | 2.63 | 2.30      | 1.25 | 0.870 / 0.873 | 0.933 / 0.935 | 40 ft-lbs |
| 2916  | 1 5/16 - 12 | 2.0 TO 25.0 GPM | 16-3   | 2.88 | 2.05      | 1.50 | 1.058 / 1.060 | 1.121 / 1.123 | 60 ft-lbs |

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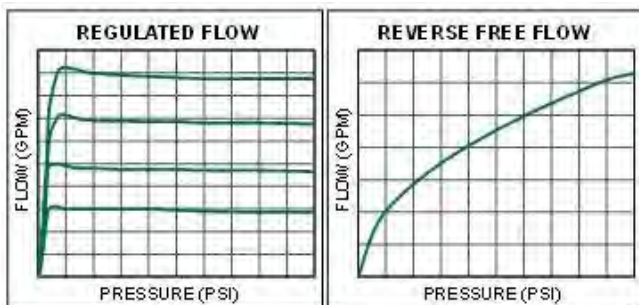
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A FULLY ADJUSTABLE, CARTRIDGE STYLE, PRESSURE-COMPENSATED, FLOW REGULATOR INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE FROM (1) TO (2) THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AT 150% OF CONTROLLED FLOW.
- COUNTERCLOCKWISE ADJUSTMENT TO INCREASE FLOW.

### FEATURES

- UNIQUE AXIAL ROTATION FOR FULL ADJUSTABILITY.
- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- ALUMINUM AND STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION

3100 X - X

SERIES NUMBER \_\_\_\_\_

PORT SIZE \_\_\_\_\_

UNDAMPENED - BLANK \_\_\_\_\_

DAMPENED (S.I.D.) - 1 \_\_\_\_\_

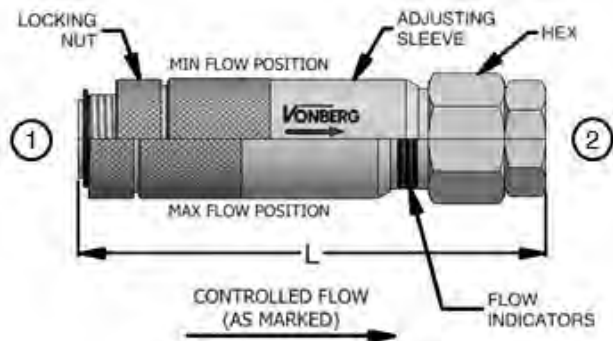
| Model | INLET/OUTLET     | FLOW RANGE     | L    | HEX   |
|-------|------------------|----------------|------|-------|
| 31002 | 1/4-18 NPTF PORT | 0.2 TO 6.0 GPM | 4.66 | 1.125 |

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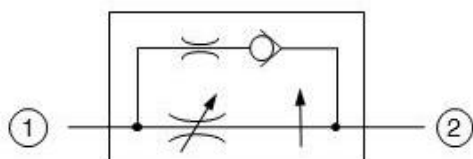
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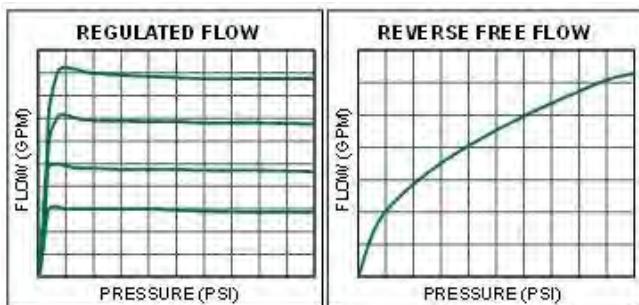
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A FULLY ADJUSTABLE, CARTRIDGE STYLE, PRESSURE-COMPENSATED, FLOW REGULATOR INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE FROM (1) TO (2) THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AT 150% OF CONTROLLED FLOW.
- COUNTERCLOCKWISE ADJUSTMENT TO INCREASE FLOW.

### FEATURES

- UNIQUE AXIAL ROTATION FOR FULL ADJUSTABILITY.
- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- ALUMINUM AND STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION

3200 X - X

SERIES NUMBER \_\_\_\_\_

PORT SIZE \_\_\_\_\_

UNDAMPENED - BLANK \_\_\_\_\_

DAMPENED (S.I.D.) - 1 \_\_\_\_\_

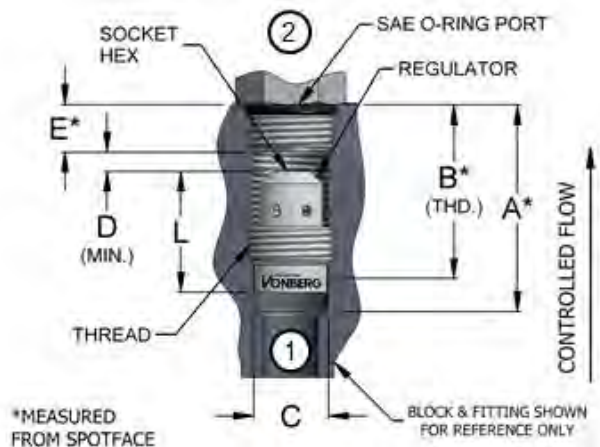
| Model | INLET/OUTLET | FLOW RANGE      | L    | HEX   |
|-------|--------------|-----------------|------|-------|
| 32004 | -04 SAE PORT | 0.2 TO 5.0 GPM  | 4.75 | 1.125 |
| 32006 | -06 SAE PORT | 0.5 TO 6.0 GPM  | 3.85 | 1.000 |
| 32008 | -08 SAE PORT | 1.0 TO 12.0 GPM | 4.50 | 1.250 |

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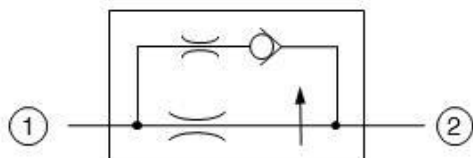
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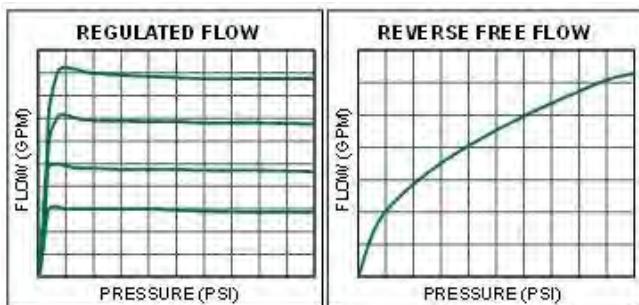
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A NON-ADJUSTABLE, THREADED INSERTABLE IN-LINE, PRESSURE-COMPENSATED, FLOW REGULATOR INTENDED FOR FIXED DISPLACEMENT HYDRAULIC CIRCUIT APPLICATIONS.

### OPERATION

- THIS REGULATOR WILL MAINTAIN A CONSTANT FLOW RATE FROM (1) TO (2) THROUGHOUT A SPECIFIED PRESSURE RANGE.
- REVERSE FLOW PASSES THROUGH THE CONTROLLING ORIFICE AND IS UNCONTROLLED PRODUCING A PRESSURE DIFFERENTIAL OF 120 PSI MAX. AT 150% OF CONTROLLED FLOW.

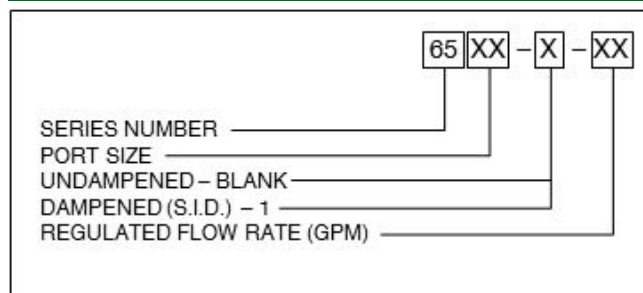
### FEATURES

- **S.I.D.** SURGES INTERNALLY DAMPENED FEATURE IS OPTIONAL FOR LOAD LOWERING APPLICATIONS.
- STEEL BODY, STEEL INTERNALS.
- HYDRAULIC FLUIDS - GENERAL.
- NO INTERNAL PACKINGS

### SPECIFICATIONS

|                   |                                 |
|-------------------|---------------------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI              |
| TEMPERATURE RANGE | 250°F TO -40°F                  |
| FLOW TOLERANCE    | +/- 10% (+/- 15% UNDER 1.5 GPM) |

### ORDERING INFORMATION



| Model | THREAD      | FLOW RANGE      | L     | A    | B    | C             | D    | E     | HEX   | TORQUE    |
|-------|-------------|-----------------|-------|------|------|---------------|------|-------|-------|-----------|
| 6506  | 9/16 - 18   | 0.25 TO 2.5 GPM | 0.875 | 1.50 | 1.22 | 0.502 - 0.515 | 0.10 | 0.391 | 0.187 | 5 ft-lbs  |
| 6508  | 3/4 - 16    | 0.5 TO 5.0 GPM  | 1.100 | 1.90 | 1.46 | 0.682 - 0.696 | 0.18 | 0.438 | 0.250 | 8 ft-lbs  |
| 6510  | 7/8 - 14    | 0.5 TO 15.0 GPM | 1.100 | 2.12 | 1.58 | 0.798 - 0.814 | 0.25 | 0.500 | 0.250 | 12 ft-lbs |
| 6512  | 1 1/16 - 12 | 1.0 TO 20.0 GPM | 1.780 | 3.00 | 2.24 | 0.972 - 0.990 | 0.31 | 0.594 | 0.312 | 18 ft-lbs |
| 6516  | 1 5/16 - 12 | 1.0 TO 25.0 GPM | 1.875 | 3.25 | 2.42 | 1.222 - 1.240 | 0.38 | 0.594 | 0.375 | 30 ft-lbs |

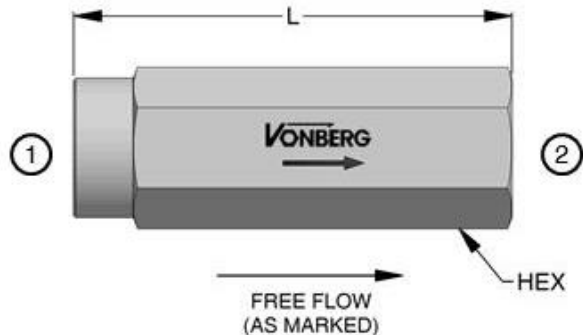
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Page last updated: April 20, 2015

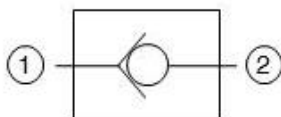
# DIRECTIONAL VALVES



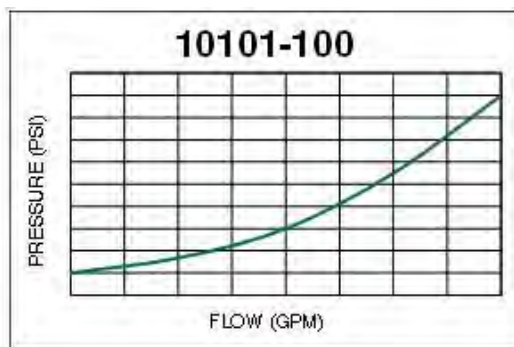
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, BALL TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

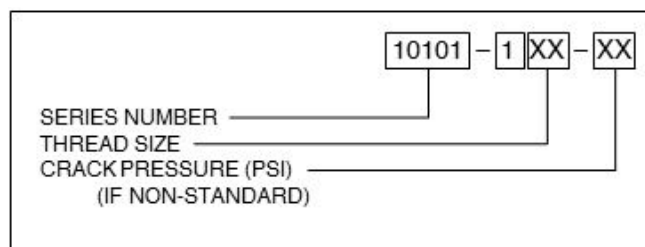
### FEATURES

- STEEL BODY AND CHROME BALL.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

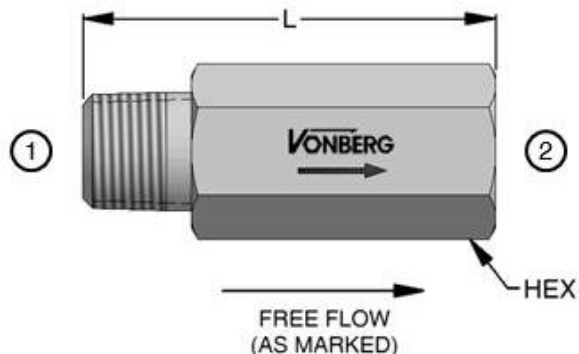


| MODEL     | INLET / OUTLET | FLOW CAPACITY | L    | HEX  |
|-----------|----------------|---------------|------|------|
| 10101-102 | 1/4-18 NPTF    | 3.0 GPM       | 2.40 | 0.75 |
| 10101-103 | 3/8-18 NPTF    | 6.0 GPM       | 2.75 | 0.88 |
| 10101-104 | 1/2-14 NPTF    | 10.0 GPM      | 3.50 | 1.13 |

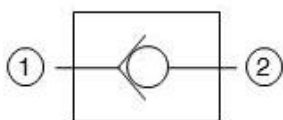
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Page last updated: February 09, 2015

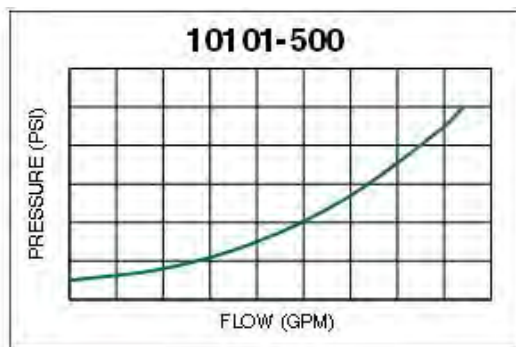
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, BALL TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

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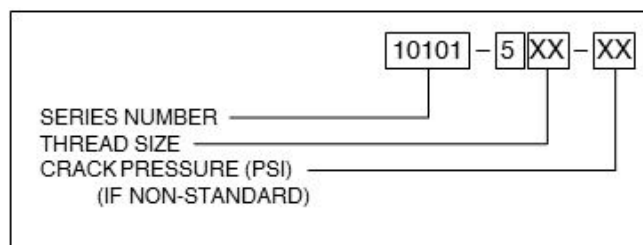
### FEATURES

- STEEL BODY AND CHROME BALL.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



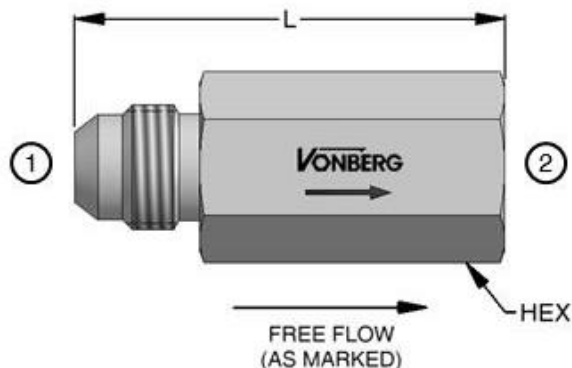
| MODEL     | INLET 1          | OUTLET 2         | FLOW CAPACITY | L    | HEX  |
|-----------|------------------|------------------|---------------|------|------|
| 10101-502 | 1/4-18 NPTF BOSS | 1/4-18 NPTF PORT | 3.0 GPM       | 1.94 | 0.75 |
| 10101-503 | 3/8-18 NPTF BOSS | 3/8-18 NPTF PORT | 6.0 GPM       | 2.38 | 0.88 |
| 10101-504 | 1/2-14 NPTF BOSS | 1/2-14 NPTF PORT | 10.0 GPM      | 3.00 | 1.13 |

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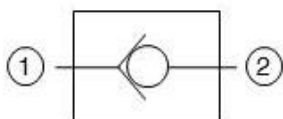
Page last updated: February 09, 2015



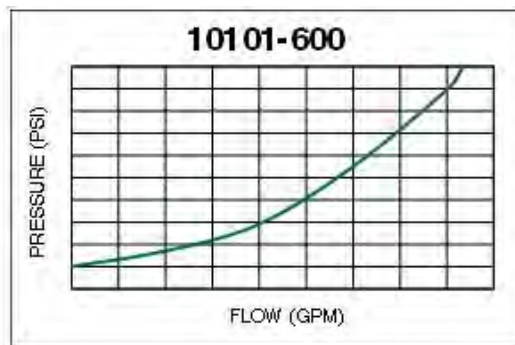
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, BALL TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

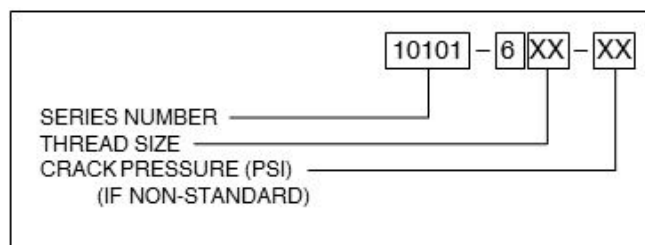
### FEATURES

- STEEL BODY AND CHROME BALL.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

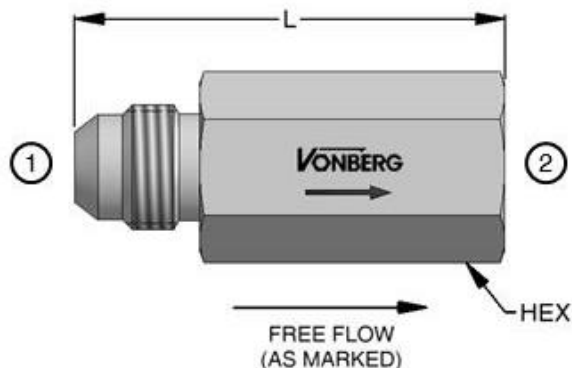


| MODEL     | INLET 1           | OUTLET 2         | FLOW CAPACITY | L    | T     | HEX  |
|-----------|-------------------|------------------|---------------|------|-------|------|
| 10101-606 | -06 JIC - 9/16-18 | 1/4-18 NPTF PORT | 3.0 GPM       | 1.94 | 0.562 | 0.75 |
| 10101-608 | - 08 JIC - 3/4-16 | 3/8-18 NPTF PORT | 6.0 GPM       | 2.38 | 0.656 | 0.88 |

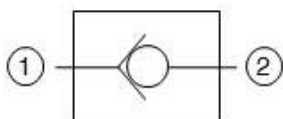
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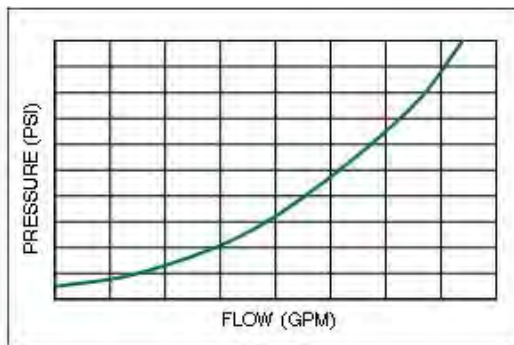
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, BALL TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
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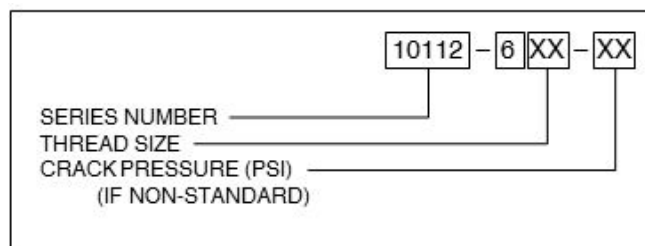
### FEATURES

- STEEL BODY AND CHROME BALL.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



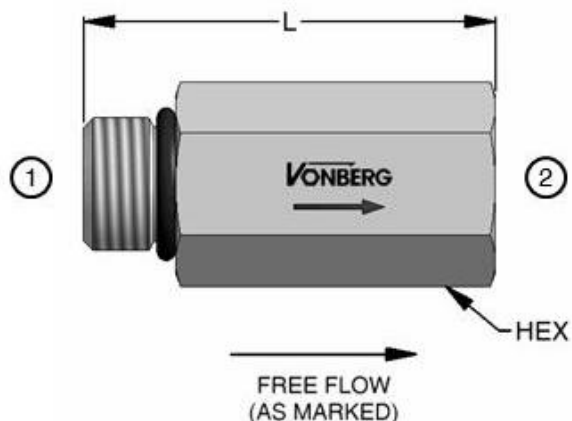
| MODEL     | INLET 1 | OUTLET 2     | THREAD  | FLOW CAPACITY | L    | HEX   |
|-----------|---------|--------------|---------|---------------|------|-------|
| 10112-604 | -04 JIC | -04 SAE PORT | 7/16-20 | 2.0 GPM       | 1.93 | 0.625 |
| 10112-606 | -06 JIC | -06 SAE PORT | 9/16-18 | 4.0 GPM       | 1.94 | 0.750 |
| 10112-608 | -08 JIC | -08 SAE PORT | 3/4-16  | 6.0 GPM       | 2.56 | 0.938 |
| 10112-610 | -10 JIC | -10 SAE PORT | 7/8-14  | 10.0 GPM      | 2.82 | 1.000 |

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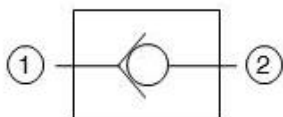
Page last updated: February 09, 2015



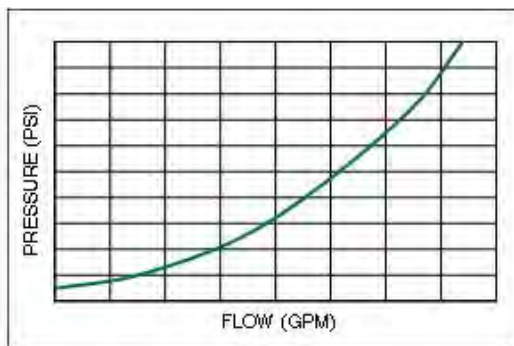
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, BALL TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
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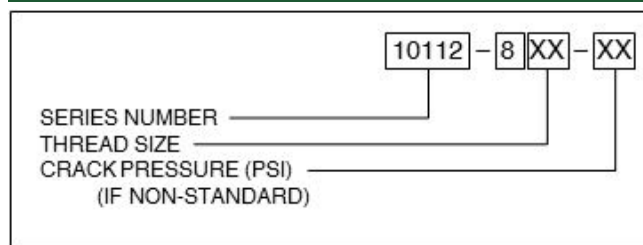
### FEATURES

- STEEL BODY AND CHROME BALL.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

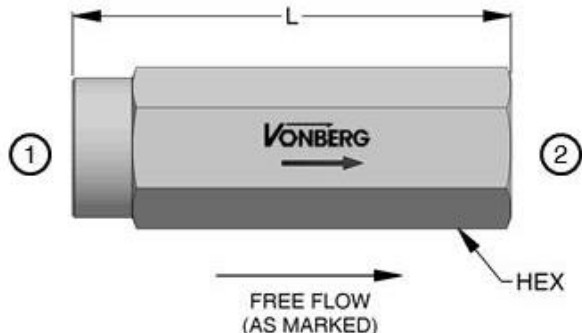


| MODEL     | INLET 1 | OUTLET 2     | THREAD  | FLOW CAPACITY | L    | HEX   |
|-----------|---------|--------------|---------|---------------|------|-------|
| 10112-804 | -04 SAE | -04 SAE PORT | 7/16-20 | 2.0 GPM       | 1.72 | 0.625 |
| 10112-806 | -06 SAE | -06 SAE PORT | 9/16-18 | 4.0 GPM       | 1.75 | 0.750 |
| 10112-808 | -08 SAE | -08 SAE PORT | 3/4-16  | 6.0 GPM       | 2.31 | 0.938 |
| 10112-810 | -10 SAE | -10 SAE PORT | 7/8-14  | 10.0 GPM      | 2.56 | 1.000 |

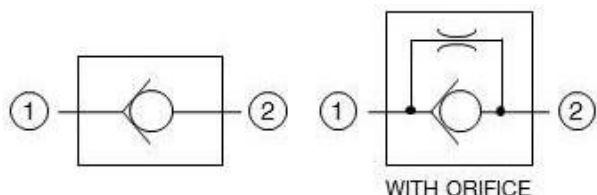
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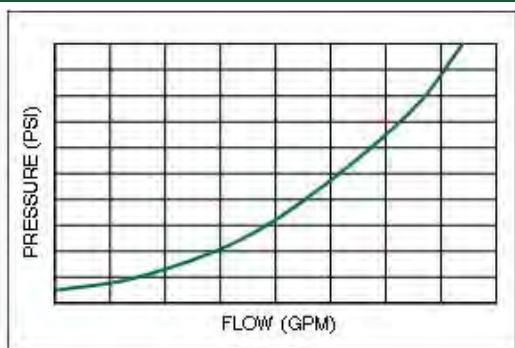
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

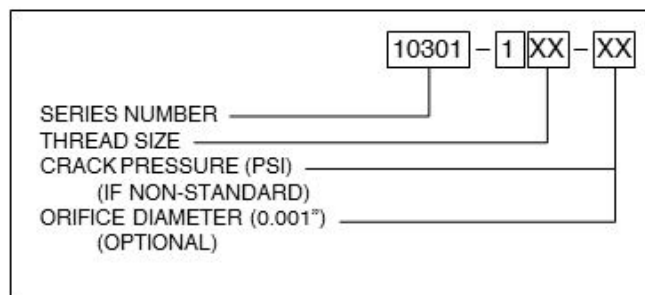
### FEATURES

- ALUMINUM BODY AND STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



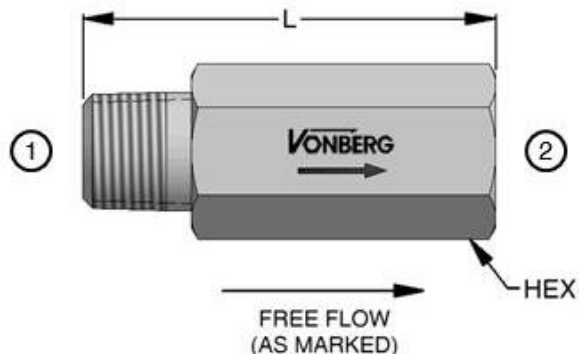
| MODEL     | INLET / OUTLET      | FLOW CAPACITY | L    | HEX   |
|-----------|---------------------|---------------|------|-------|
| 10301-101 | 1/8-27 NPTF         | 2.0 GPM       | 1.80 | 0.562 |
| 10301-102 | 1/4-18 NPTF         | 5.0 GPM       | 2.40 | 0.750 |
| 10301-103 | 3/8-18 NPTF         | 10.0 GPM      | 2.75 | 0.875 |
| 10301-104 | 1/2-14 NPTF         | 20.0 GPM      | 3.50 | 1.125 |
| 10301-106 | 3/4-14 NPTF         | 40.0 GPM      | 4.00 | 1.375 |
| 10301-108 | 1 - 11 1/2 NPTF     | 50.0 GPM      | 4.78 | 1.625 |
| 10301-110 | 1 1/4 - 11 1/2 NPTF | 60.0 GPM      | 4.90 | 2.000 |
| 10301-112 | 1 1/2 - 11 1/2 NPTF | 80.0 GPM      | 7.00 | 2.250 |

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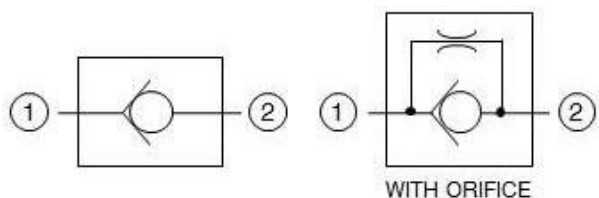
Page last updated: February 09, 2015



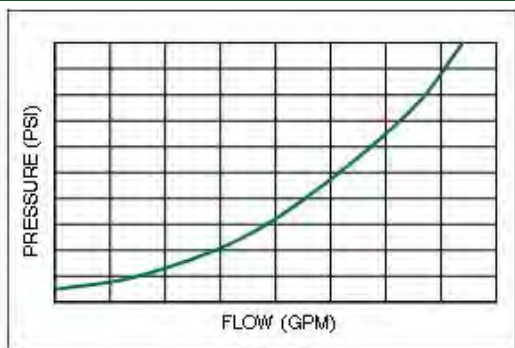
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

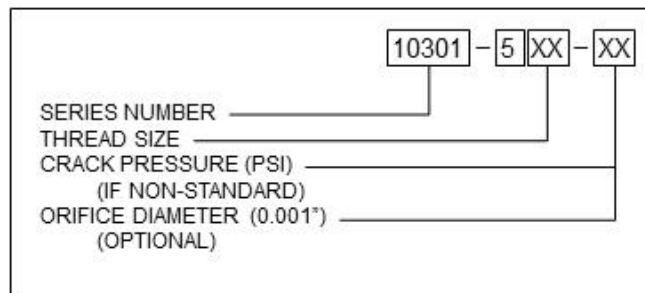
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- LOW PRESSURE DROP
- NO INTERNAL PACKINGS.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

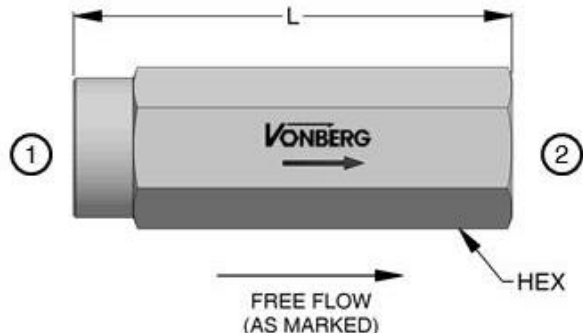


| MODEL     | INLET 1            | OUTLET 2           | FLOW CAPACITY | L    | HEX  |
|-----------|--------------------|--------------------|---------------|------|------|
| 10301-502 | 1/4-18 NPTF BOSS   | 1/4-18 NPTF PORT   | 5.0 GPM       | 1.94 | 0.75 |
| 10301-503 | 3/8-18 NPTF BOSS   | 3/8-18 NPTF PORT   | 10.0 GPM      | 2.38 | 0.88 |
| 10301-504 | 1/2-14 NPTF BOSS   | 1/2-14 NPTF PORT   | 20.0 GPM      | 3.00 | 1.13 |
| 10301-506 | 3/4-14 NPTF BOSS   | 3/4-14 NPTF PORT   | 40.0 GPM      | 3.65 | 1.38 |
| 10301-508 | 1-11 1/2 NPTF BOSS | 1-11 1/2 NPTF PORT | 50.0 GPM      | 4.40 | 1.63 |

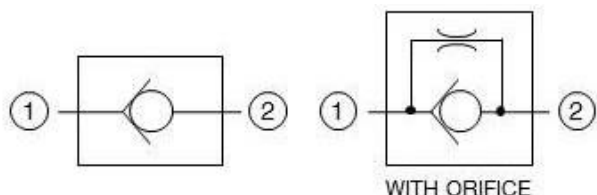
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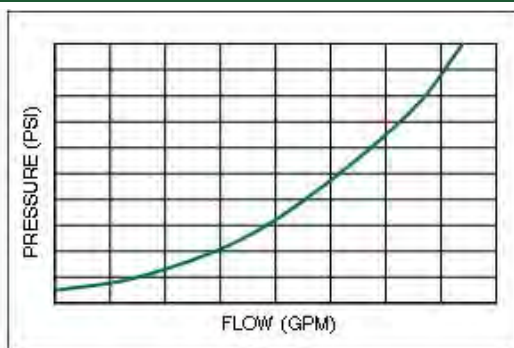
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

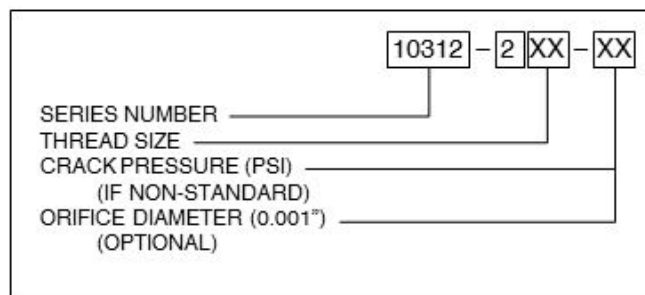
### FEATURES

- ALUMINUM BODY AND STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

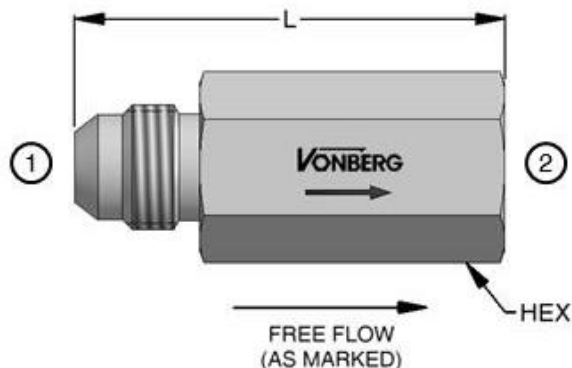


| MODEL     | INLET / OUTLET | THREAD    | FLOW CAPACITY | L    | HEX   |
|-----------|----------------|-----------|---------------|------|-------|
| 10312-204 | -04 SAE        | 7/16-20   | 5.0 GPM       | 2.05 | 0.625 |
| 10312-206 | -06 SAE        | 9/16-18   | 10.0 GPM      | 2.15 | 0.750 |
| 10312-208 | -08 SAE        | 3/4-16    | 20.0 GPM      | 2.90 | 0.937 |
| 10312-210 | -10 SAE        | 7/8-14    | 30.0 GPM      | 3.40 | 1.125 |
| 10312-212 | -12 SAE        | 1 1/16-12 | 40.0 GPM      | 3.90 | 1.375 |
| 10312-216 | -16 SAE        | 1 5/16-12 | 50.0 GPM      | 4.78 | 1.625 |
| 10312-220 | -20 SAE        | 1 5/8-12  | 60.0 GPM      | 4.78 | 2.000 |

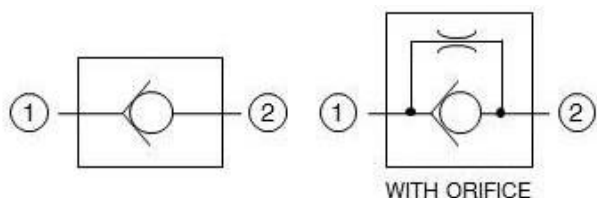
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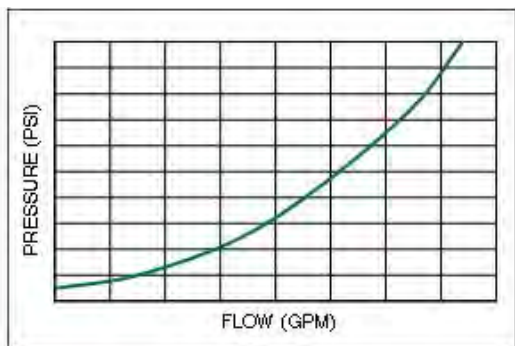
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

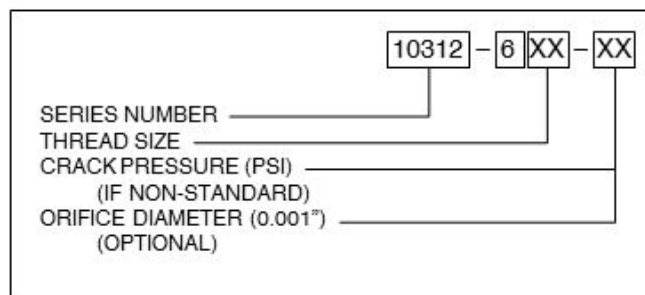
### FEATURES

- ALUMINUM BODY AND STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

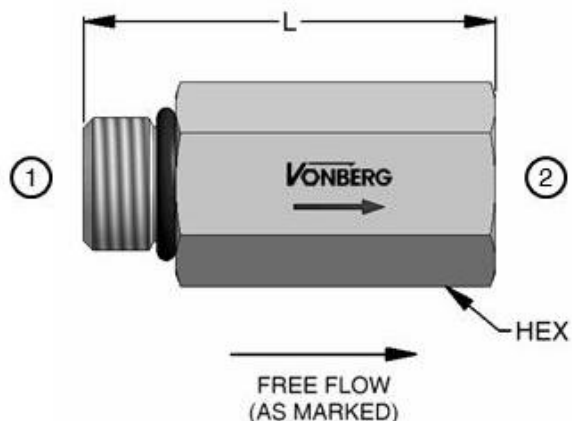


| MODEL     | INLET 1 | OUTLET 2     | THREAD    | FLOW CAPACITY | L    | HEX   |
|-----------|---------|--------------|-----------|---------------|------|-------|
| 10312-604 | -04 JIC | -04 SAE PORT | 7/16-20   | 3.0 GPM       | 1.93 | 0.625 |
| 10312-606 | -06 JIC | -06 SAE PORT | 9/16-18   | 10.0 GPM      | 1.94 | 0.750 |
| 10312-608 | -08 JIC | -08 SAE PORT | 3/4-16    | 20.0 GPM      | 2.72 | 0.938 |
| 10312-610 | -10 JIC | -10 SAE PORT | 7/8-14    | 30.0 GPM      | 3.25 | 1.125 |
| 10312-612 | -12 JIC | -12 SAE PORT | 1 1/16-12 | 40.0 GPM      | 3.75 | 1.250 |
| 10312-616 | -16 JIC | -16 SAE PORT | 1 5/16-12 | 50.0 GPM      | 4.50 | 1.625 |

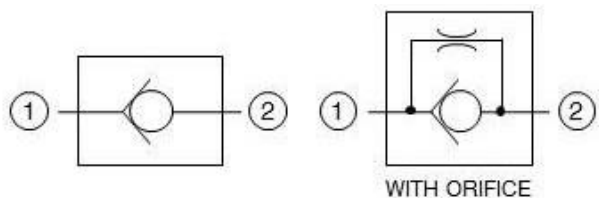
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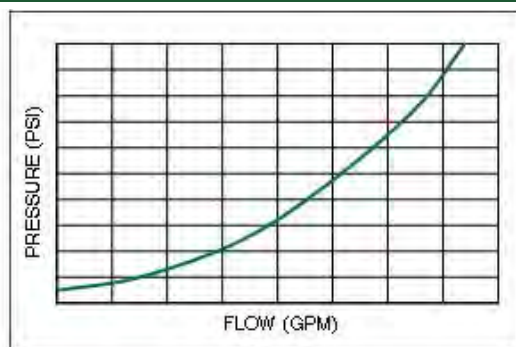
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

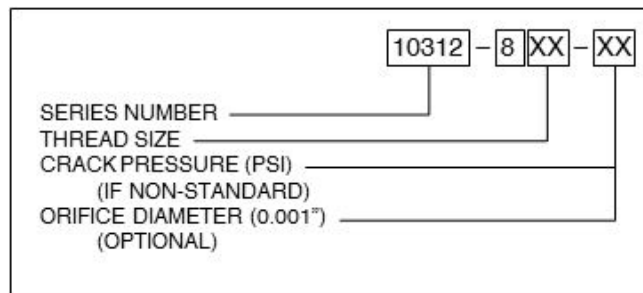
### FEATURES

- ALUMINUM BODY AND STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



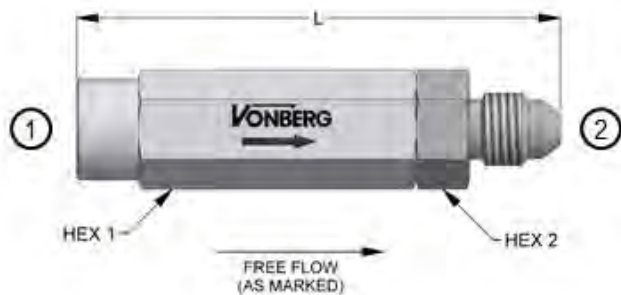
| MODEL     | INLET 1 | OUTLET 2     | THREAD    | FLOW CAPACITY | L    | HEX   |
|-----------|---------|--------------|-----------|---------------|------|-------|
| 10312-804 | -04 SAE | -04 SAE PORT | 7/16-20   | 3.0 GPM       | 1.74 | 0.625 |
| 10312-806 | -06 SAE | -06 SAE PORT | 9/16-18   | 10.0 GPM      | 1.78 | 0.750 |
| 10312-808 | -08 SAE | -08 SAE PORT | 3/4-16    | 20.0 GPM      | 2.50 | 0.938 |
| 10312-810 | -10 SAE | -10 SAE PORT | 7/8-14    | 30.0 GPM      | 3.00 | 1.125 |
| 10312-812 | -12 SAE | -12 SAE PORT | 1 1/16-12 | 40.0 GPM      | 3.48 | 1.250 |
| 10312-816 | -16 SAE | -16 SAE PORT | 1 5/16-12 | 50.0 GPM      | 4.18 | 1.625 |

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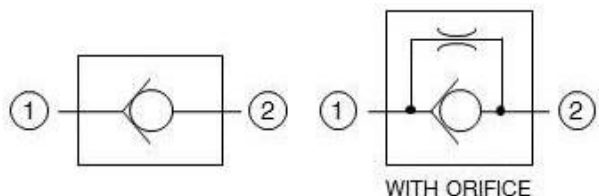
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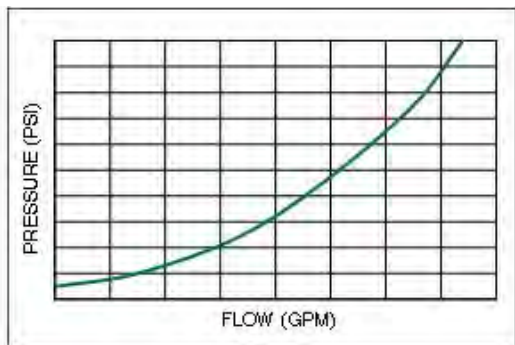
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

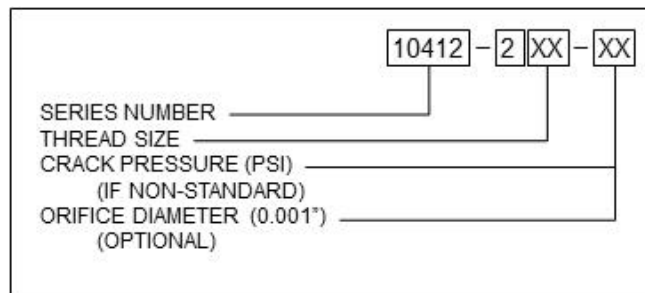
### FEATURES

- ALUMINUM / STEEL BODY AND STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

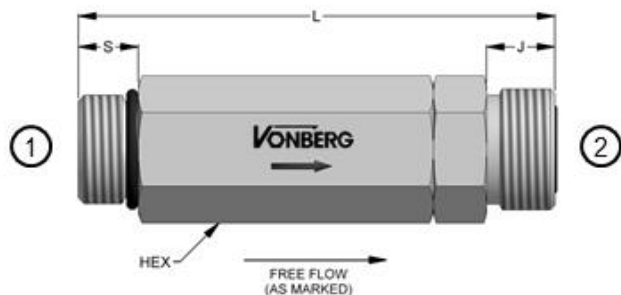


| MODEL     | INLET 1 | OUTLET 2 | THREAD    | FLOW CAPACITY | L    | HEX 1 | HEX 2 |
|-----------|---------|----------|-----------|---------------|------|-------|-------|
| 10412-204 | -04 SAE | -04 JIC  | 7/16-20   | 5.0 GPM       | 2.90 | 0.63  | 0.56  |
| 10412-206 | -06 SAE | -06 JIC  | 9/16-18   | 10.0 GPM      | 3.06 | 0.75  | 0.69  |
| 10412-208 | -08 SAE | -08 JIC  | 3/4-16    | 20.0 GPM      | 3.94 | 0.94  | 0.88  |
| 10412-210 | -10 SAE | -10 JIC  | 7/8-14    | 30.0 GPM      | 4.61 | 1.13  | 1.00  |
| 10412-212 | -12 SAE | -12 JIC  | 1 1/16-12 | 40.0 GPM      | 5.28 | 1.38  | 1.25  |
| 10412-216 | -16 SAE | -16 JIC  | 1 5/16-12 | 50.0 GPM      | 6.23 | 1.63  | 1.50  |

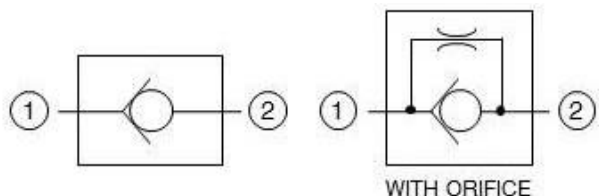
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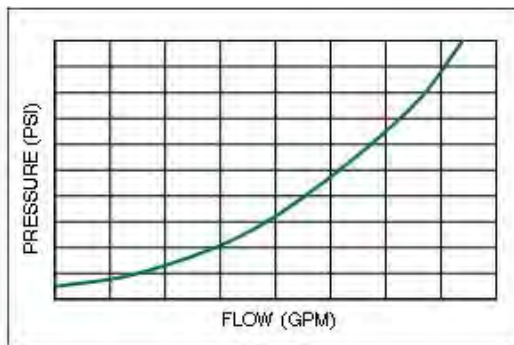
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

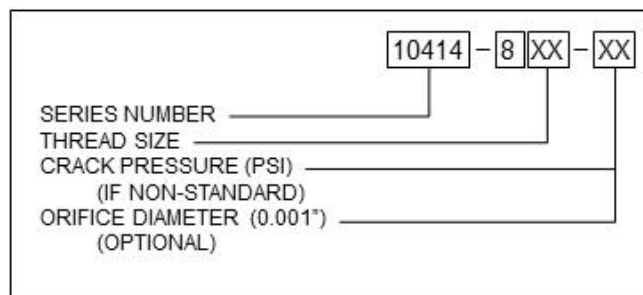
### FEATURES

- ALUMINUM / STEEL BODY AND STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

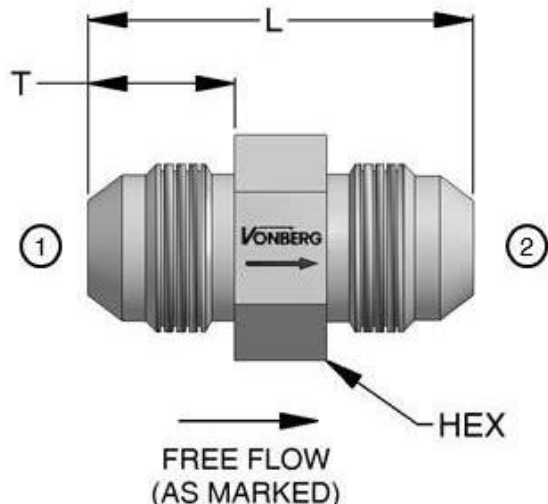


| MODEL     | INLET 1             | OUTLET 2            | FLOW CAPACITY | L    | J    | S    | HEX  |
|-----------|---------------------|---------------------|---------------|------|------|------|------|
| 10414-804 | -04 SAE - 7/16-20   | -04 ORS - 9/16-18   | 3.0 GPM       | 2.44 | 0.38 | 0.36 | 0.63 |
| 10414-806 | -06 SAE - 9/16-18   | -06 ORS - 11/16-16  | 6.0 GPM       | 2.56 | 0.44 | 0.39 | 0.75 |
| 10414-808 | -08 SAE - 3/4-16    | -08 ORS - 13/16-16  | 20.0 GPM      | 3.39 | 0.50 | 0.44 | 0.88 |
| 10414-810 | -10 SAE - 7/8-14    | -10 ORS - 1-14      | 30.0 GPM      | 4.07 | 0.61 | 0.50 | 1.13 |
| 10414-812 | -12 SAE - 1 1/16-12 | -12 ORS - 1 3/16-12 | 40.0 GPM      | 4.67 | 0.67 | 0.60 | 1.25 |
| 10414-816 | -16 SAE - 1 5/16-12 | -16 ORS - 1 7/16-12 | 50.0 GPM      | 5.43 | 0.69 | 0.60 | 1.63 |

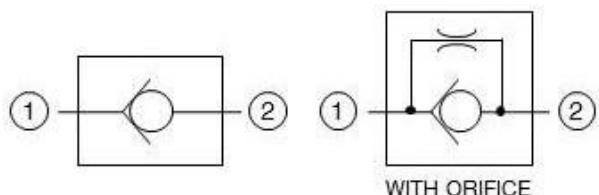
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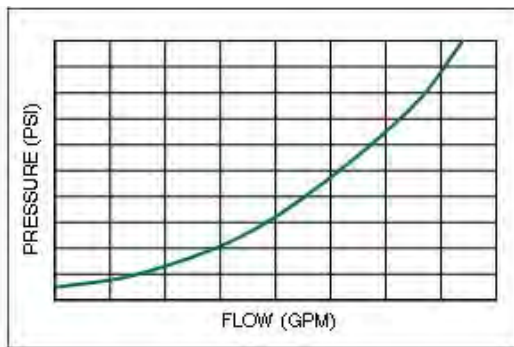
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

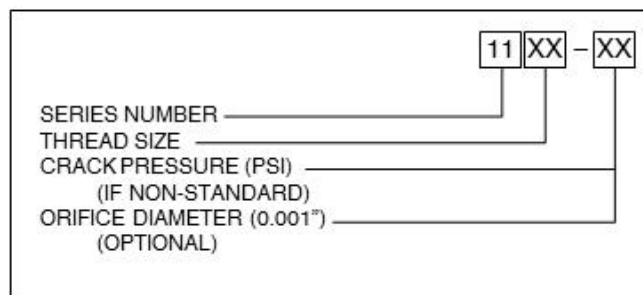
### FEATURES

- STEEL BODY AND POPPET.
- FULLY ENCAPSULATED SPRING.
- NO SNAP-RING.
- LOW INTERNAL LEAKAGE, 5 DPM.
- HIGH FLOW CAPACITY.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



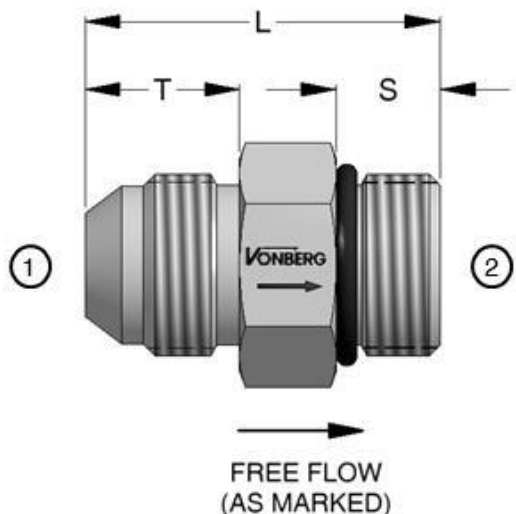
| MODEL | INLET/OUTLET | THREAD    | L    | T     | HEX   |
|-------|--------------|-----------|------|-------|-------|
| 1104  | -04 JIC      | 7/16-20   | 1.45 | 0.550 | 0.562 |
| 1106  | -06 JIC      | 9/16-18   | 1.45 | 0.555 | 0.750 |
| 1108  | -08 JIC      | 3/4-16    | 1.82 | 0.655 | 0.875 |
| 1110  | -10 JIC      | 7/8-14    | 2.00 | 0.760 | 1.000 |
| 1112  | -12 JIC      | 1 1/16-12 | 2.45 | 0.860 | 1.250 |
| 1116  | -16 JIC      | 1 5/16-12 | 2.60 | 0.910 | 1.500 |
| 1120  | -20 JIC      | 1 5/8-12  | 2.75 | 0.960 | 1.875 |

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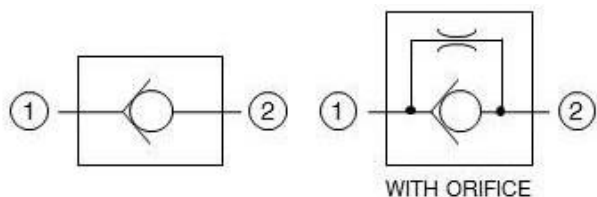
Page last updated: March 19, 2015



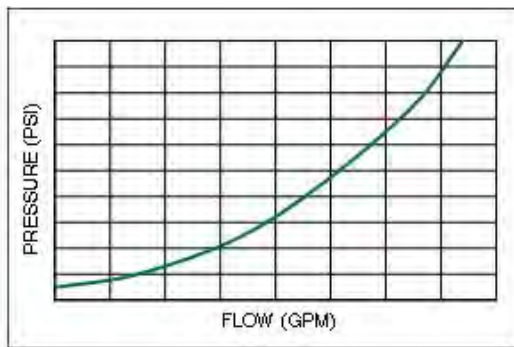
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

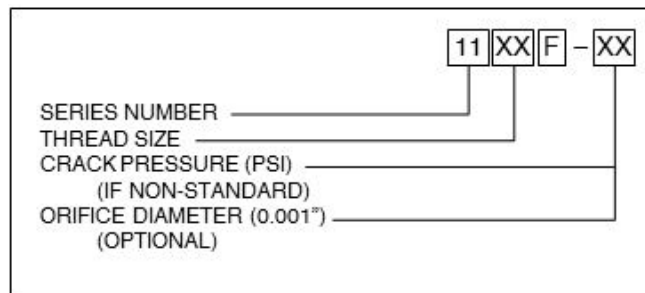
### FEATURES

- STEEL BODY AND POPPET.
- FULLY ENCAPSULATED SPRING.
- NO SNAP-RING.
- LOW INTERNAL LEAKAGE, 5 DPM.
- HIGH FLOW CAPACITY.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



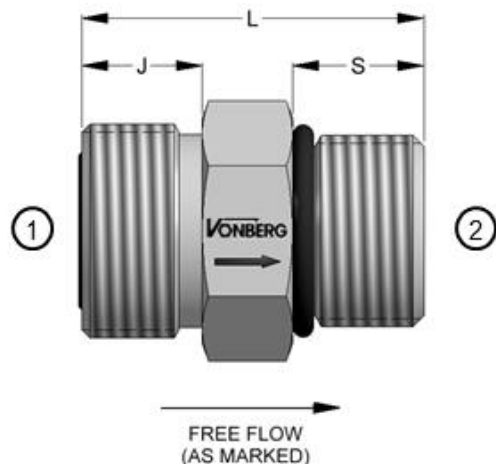
| MODEL | INLET 1 | OUTLET 2 | THREAD    | L    | T     | S     | HEX   |
|-------|---------|----------|-----------|------|-------|-------|-------|
| 1104F | -04 JIC | -04 SAE  | 7/16-20   | 1.23 | 0.550 | 0.360 | 0.562 |
| 1106F | -06 JIC | -06 SAE  | 9/16-18   | 1.28 | 0.555 | 0.390 | 0.750 |
| 1108F | -08 JIC | -08 SAE  | 3/4-16    | 1.60 | 0.655 | 0.440 | 0.875 |
| 1110F | -10 JIC | -10 SAE  | 7/8-14    | 1.93 | 0.760 | 0.500 | 1.000 |
| 1112F | -12 JIC | -12 SAE  | 1 1/16-12 | 2.18 | 0.860 | 0.594 | 1.250 |
| 1116F | -16 JIC | -16 SAE  | 1 5/16-12 | 2.50 | 0.910 | 0.594 | 1.500 |
| 1120F | -20 JIC | -20 SAE  | 1 5/8-12  | 2.57 | 0.960 | 0.594 | 1.875 |

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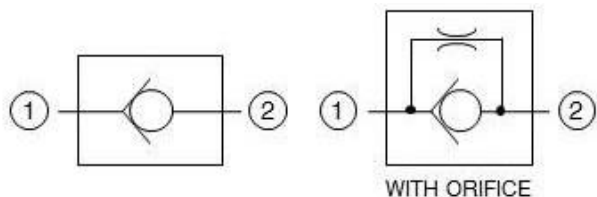
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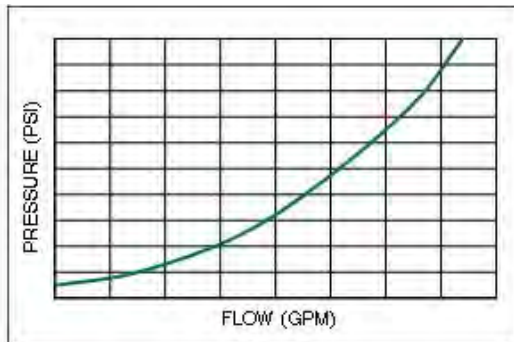
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

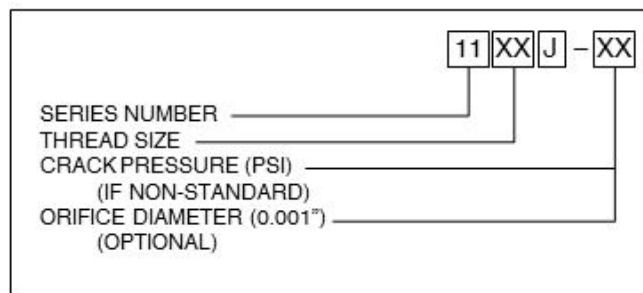
### FEATURES

- STEEL BODY AND POPPET.
- FULLY ENCAPSULATED SPRING.
- NO SNAP-RING.
- LOW INTERNAL LEAKAGE, 5 DPM.
- HIGH FLOW CAPACITY.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

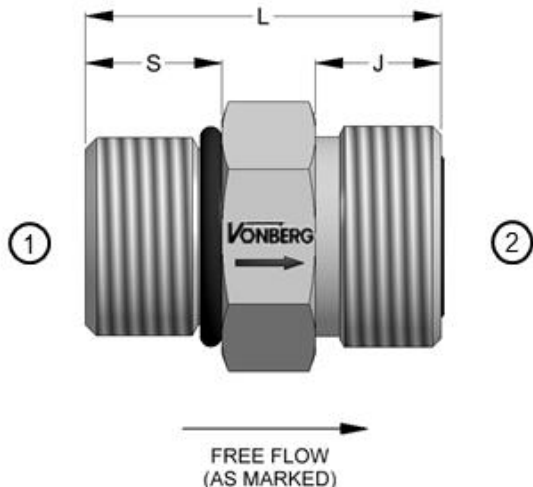


| MODEL | INLET 1             | OUTLET 2            | L    | J    | S    | HEX   |
|-------|---------------------|---------------------|------|------|------|-------|
| 1104J | -04 ORS - 9/16-18   | -04 SAE - 7/16-20   | 1.07 | 0.38 | 0.43 | 0.625 |
| 1106J | -06 ORS - 11/16-16  | -06 SAE - 9/16-18   | 1.16 | 0.44 | 0.47 | 0.750 |
| 1108J | -08 ORS - 13/16-16  | -08 SAE - 3/4-16    | 1.40 | 0.50 | 0.55 | 0.875 |
| 1110J | -10 ORS - 1-14      | -10 SAE - 7/8-14    | 1.65 | 0.61 | 0.63 | 1.125 |
| 1112J | -12 ORS - 1 3/16-12 | -12 SAE - 1 1/16-12 | 1.90 | 0.67 | 0.73 | 1.250 |

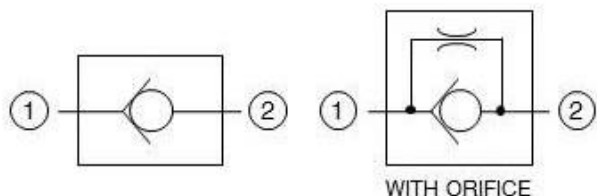
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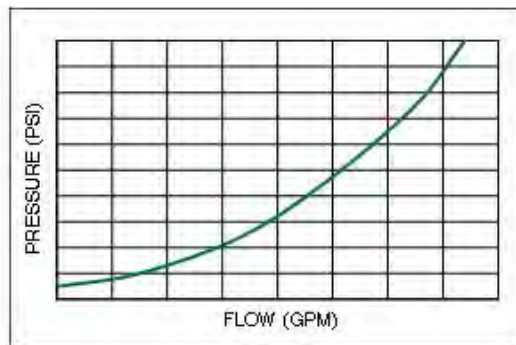
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

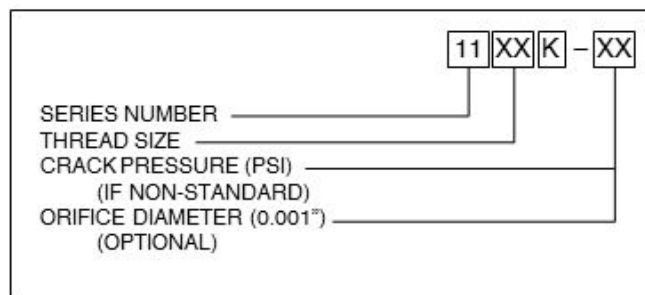
### FEATURES

- STEEL BODY AND POPPET.
- FULLY ENCAPSULATED SPRING.
- NO SNAP-RING.
- LOW INTERNAL LEAKAGE, 5 DPM.
- HIGH FLOW CAPACITY.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

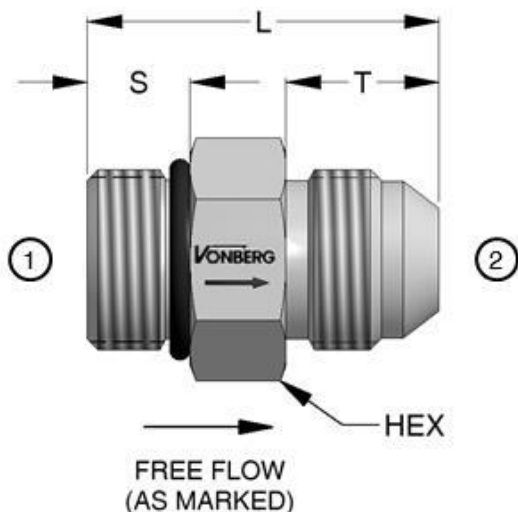


| MODEL | INLET 1             | OUTLET 2            | L    | J    | S    | HEX   |
|-------|---------------------|---------------------|------|------|------|-------|
| 1104K | -04 SAE - 7/16-20   | -04 ORS - 9/16-18   | 1.07 | 0.38 | 0.43 | 0.625 |
| 1106K | -06 SAE - 9/16-18   | -06 ORS - 11/16-16  | 1.16 | 0.44 | 0.47 | 0.750 |
| 1108K | -08 SAE - 3/4-16    | -08 ORS - 13/16-16  | 1.40 | 0.50 | 0.55 | 0.875 |
| 1110K | -10 SAE - 7/8-14    | -10 ORS - 1-14      | 1.65 | 0.61 | 0.63 | 1.125 |
| 1112K | -12 SAE - 1 1/16-12 | -12 ORS - 1 3/16-12 | 1.90 | 0.67 | 0.73 | 1.250 |
| 1116K | -16 SAE - 1 5/16-12 | -16 ORS - 1 7/16-12 | 2.00 | 0.69 | 0.73 | 1.500 |

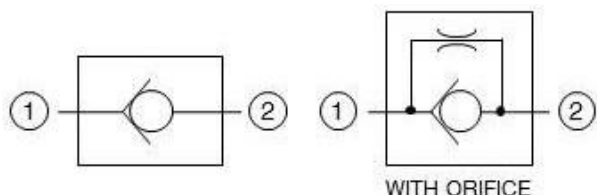
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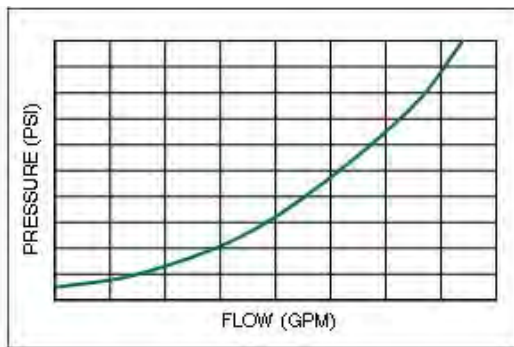
## PRODUCT



## SCHEMATIC



## TYPICAL PERFORMANCE



## DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

## OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

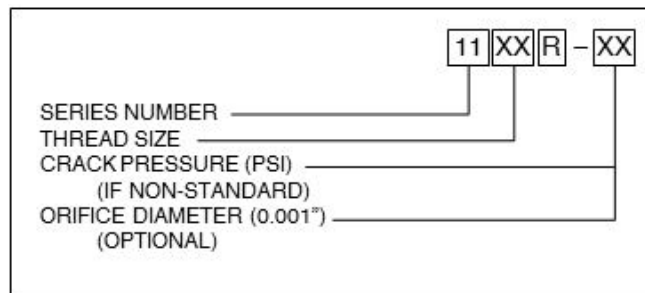
## FEATURES

- STEEL BODY AND POPPET.
- FULLY ENCAPSULATED SPRING.
- NO SNAP-RING.
- LOW INTERNAL LEAKAGE, 5 DPM.
- HIGH FLOW CAPACITY.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

## SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

## ORDERING INFORMATION

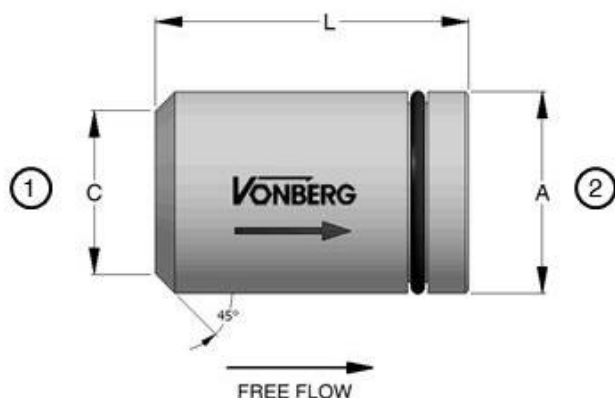


| MODEL | INLET 1 | OUTLET 2 | THREAD       | L    | T     | S     | HEX   |
|-------|---------|----------|--------------|------|-------|-------|-------|
| 1104R | -04 SAE | -04 JIC  | 7/16-20 UNF  | 1.26 | 0.550 | 0.360 | 0.562 |
| 1106R | -06 SAE | -06 JIC  | 9/16-18 UNF  | 1.28 | 0.555 | 0.390 | 0.750 |
| 1108R | -08 SAE | -08 JIC  | 3/4-16 UNF   | 1.60 | 0.655 | 0.440 | 0.875 |
| 1110R | -10 SAE | -10 JIC  | 7/8-14 UNF   | 1.86 | 0.760 | 0.500 | 1.000 |
| 1112R | -12 SAE | -12 JIC  | 1 1/16-12 UN | 2.18 | 0.860 | 0.594 | 1.250 |
| 1116R | -16 SAE | -16 JIC  | 1 5/16-12 UN | 2.50 | 0.910 | 0.594 | 1.500 |
| 1120R | -20 SAE | -20 JIC  | 1 5/8-12 UN  | 2.57 | 0.960 | 0.594 | 1.875 |

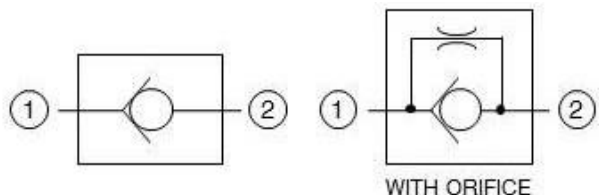
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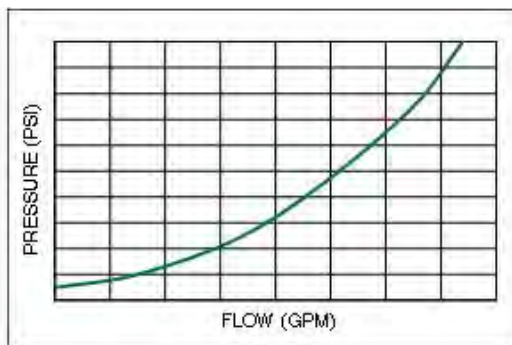
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

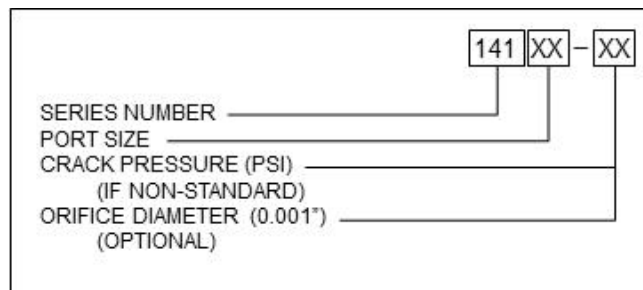
### FEATURES

- STEEL BODY AND HARDENED POPPET.
- METAL TO METAL SEAT
- LOW PRESSURE DROP.
- EXTERNAL O-RING INCLUDED (EXCEPT MODEL 14101).
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.
- \*MODEL 14101 REQUIRES AN EXTERNAL SEAL #008 AT INLET CHAMFER.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



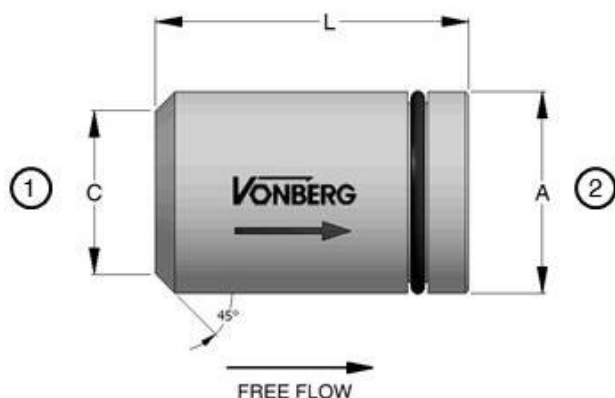
| MODEL  | FLOW RANGE      | A             | C     | L             | REC. BORE DIA.  | ASSEMBLED GAP |
|--------|-----------------|---------------|-------|---------------|-----------------|---------------|
| 14101* | 0.1 TO 1.0 GPM  | 0.306 / 0.311 | 0.172 | 0.620 / 0.630 | 0.3125 / 0.3145 | 0.015 / 0.025 |
| 14103  | 1.0 TO 5.0 GPM  | 0.494 / 0.499 | 0.420 | 0.835 / 0.845 | 0.5000 / 0.5020 | 0.015 / 0.025 |
| 14106  | 2.0 TO 10.0 GPM | 0.650 / 0.655 | 0.500 | 1.215 / 1.225 | 0.6562 / 0.6582 | 0.015 / 0.025 |
| 14108  | 5.0 TO 20.0 GPM | 0.806 / 0.811 | 0.640 | 1.490 / 1.500 | 0.8125 / 0.8145 | 0.015 / 0.025 |

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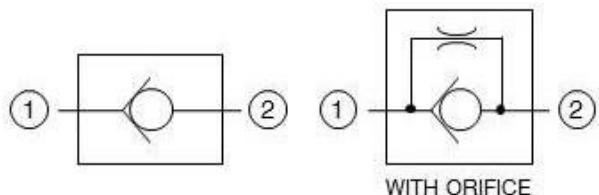
Page last updated: February 09, 2015



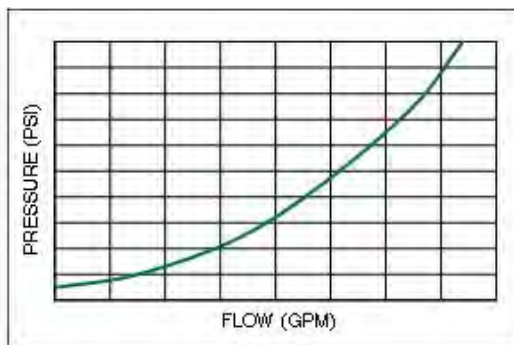
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

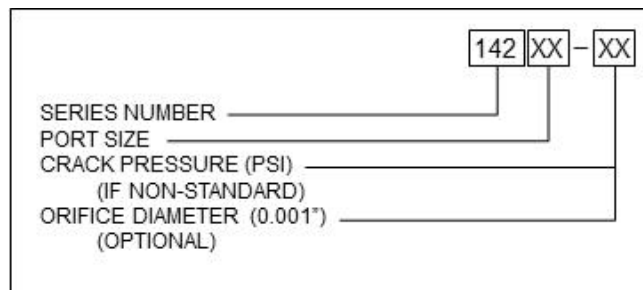
### FEATURES

- BRASS BODY.
- SOFT SEAT.
- LOW PRESSURE DROP.
- EXTERNAL O-RING INCLUDED (EXCEPT MODEL 14203).
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.
- \*MODEL 14203 REQUIRES AN EXTERNAL SEAL #012 AT INLET CHAMFER.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

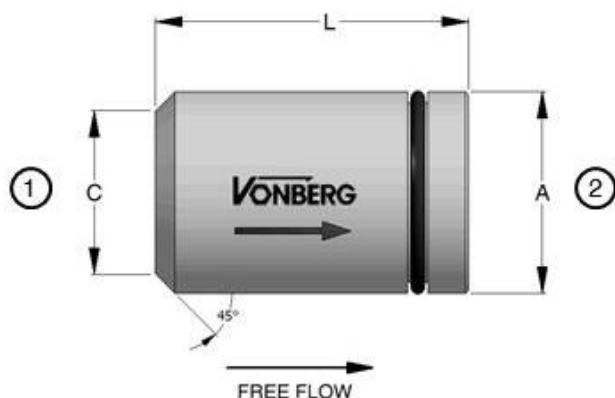


| MODEL  | FLOW RANGE      | A             | C     | L             | REC. BORE DIA.  | ASSEMBLED GAP |
|--------|-----------------|---------------|-------|---------------|-----------------|---------------|
| 14203* | 0.5 TO 3.0 GPM  | 0.494 / 0.499 | 0.312 | 0.835 / 0.845 | 0.5000 / 0.5020 | 0.015 / 0.025 |
| 14206  | 1.0 TO 5.0 GPM  | 0.650 / 0.655 | 0.469 | 1.215 / 1.225 | 0.6562 / 0.6582 | 0.015 / 0.025 |
| 14208  | 2.0 TO 10.0 GPM | 0.806 / 0.811 | 0.625 | 1.490 / 1.500 | 0.8125 / 0.8145 | 0.015 / 0.025 |
| 14210  | 5.0 TO 20.0 GPM | 0.994 / 0.999 | 0.812 | 1.545 / 1.555 | 1.0000 / 1.0020 | 0.015 / 0.025 |
| 14212  | 5.0 TO 30.0 GPM | 1.212 / 1.217 | 1.031 | 1.930 / 1.940 | 1.2188 / 1.2208 | 0.015 / 0.025 |
| 14216  | 5.0 TO 50.0 GPM | 1.681 / 1.686 | 1.406 | 2.615 / 2.625 | 1.6875 / 1.6895 | 0.015 / 0.025 |

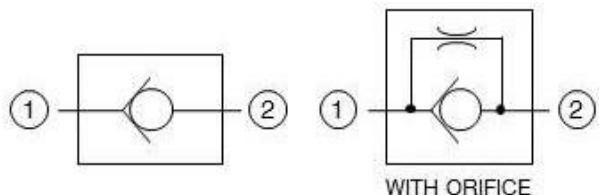
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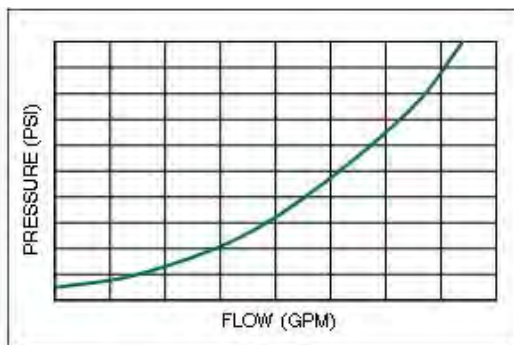
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

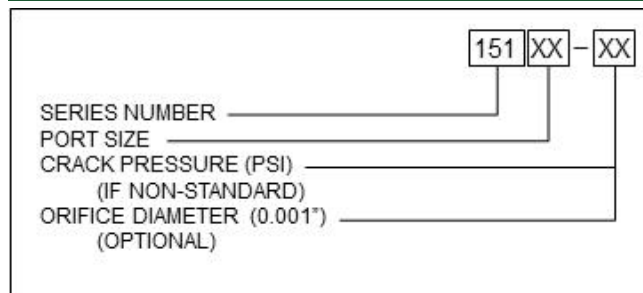
### FEATURES

- STEEL BODY AND HARDENED POPPET.
- METAL TO METAL SEAT
- LOW PRESSURE DROP.
- URETHANE O-RING INCLUDED.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

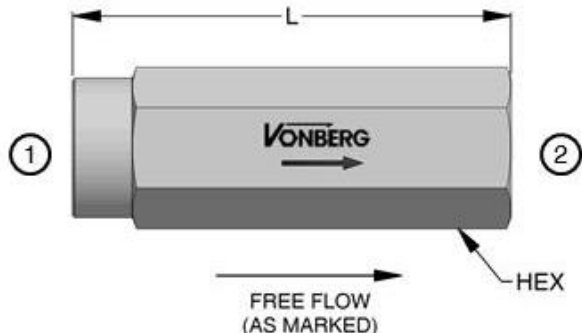


| MODEL | FLOW RANGE      | A             | C     | L             | REC. BORE DIA.  | ASSEMBLED GAP |
|-------|-----------------|---------------|-------|---------------|-----------------|---------------|
| 15103 | 1.0 TO 5.0 GPM  | 0.494 / 0.499 | 0.420 | 0.835 / 0.845 | 0.5000 / 0.5020 | 0.015 / 0.025 |
| 15106 | 2.0 TO 10.0 GPM | 0.650 / 0.655 | 0.500 | 1.215 / 1.225 | 0.6562 / 0.6582 | 0.015 / 0.025 |
| 15108 | 5.0 TO 20.0 GPM | 0.806 / 0.811 | 0.640 | 1.490 / 1.500 | 0.8125 / 0.8145 | 0.015 / 0.025 |

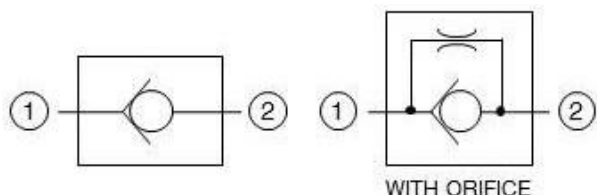
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Page last updated: March 10, 2015

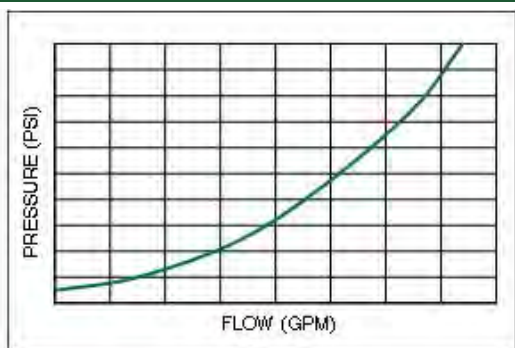
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

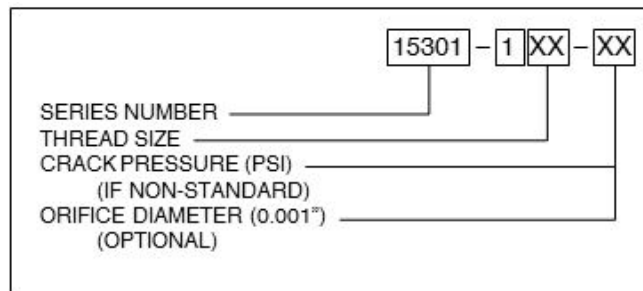
### FEATURES

- STEEL BODY
- HARDENED STEEL POPPET
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

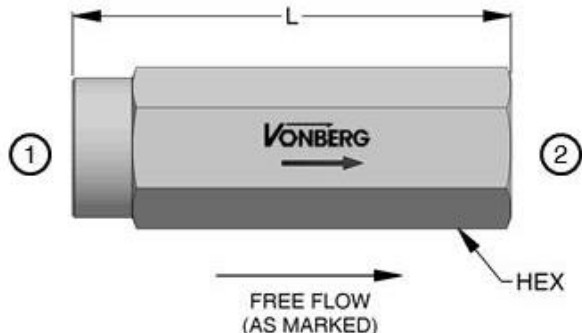


| MODEL     | INLET / OUTLET      | FLOW CAPACITY | L    | HEX   |
|-----------|---------------------|---------------|------|-------|
| 15301-101 | 1/8-27 NPTF         | 2.0 GPM       | 1.80 | 0.562 |
| 15301-102 | 1/4-18 NPTF         | 5.0 GPM       | 2.40 | 0.750 |
| 15301-103 | 3/8-18 NPTF         | 10.0 GPM      | 2.75 | 0.875 |
| 15301-104 | 1/2-14 NPTF         | 20.0 GPM      | 3.50 | 1.125 |
| 15301-106 | 3/4-14 NPTF         | 40.0 GPM      | 4.00 | 1.375 |
| 15301-108 | 1 - 11 1/2 NPTF     | 50.0 GPM      | 4.78 | 1.625 |
| 15301-110 | 1 1/4 - 11 1/2 NPTF | 60.0 GPM      | 4.90 | 2.000 |
| 15301-112 | 1 1/2 - 11 1/2 NPTF | 80.0 GPM      | 7.00 | 2.250 |

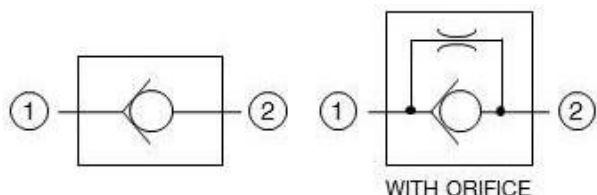
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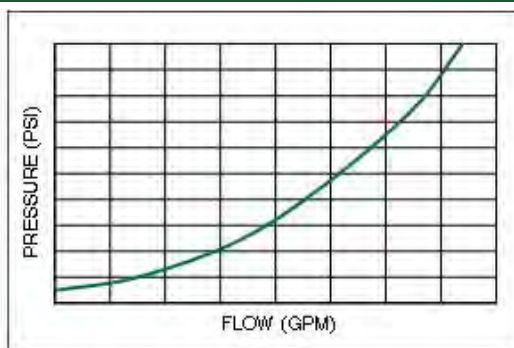
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

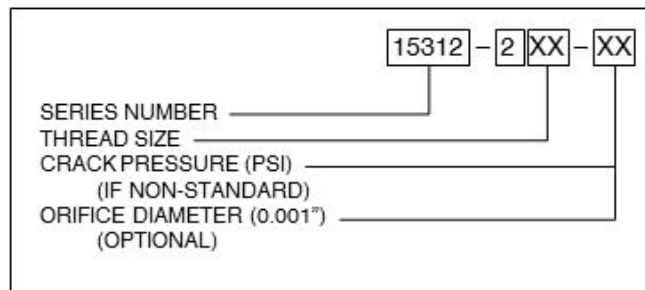
### FEATURES

- STEEL BODY.
- HARDENED STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



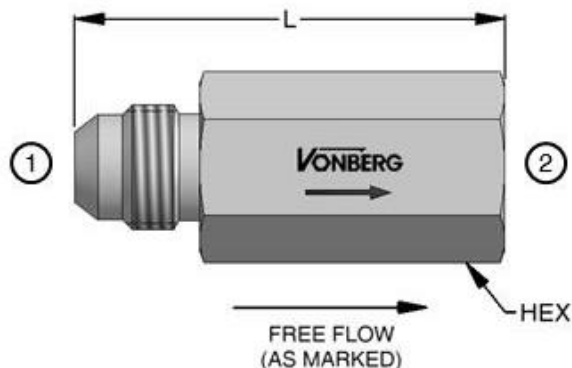
| MODEL     | INLET / OUTLET | THREAD    | FLOW CAPACITY | L    | HEX   |
|-----------|----------------|-----------|---------------|------|-------|
| 15312-204 | -04 SAE        | 7/16-20   | 5.0 GPM       | 2.05 | 0.625 |
| 15312-206 | -06 SAE        | 9/16-18   | 10.0 GPM      | 2.15 | 0.750 |
| 15312-208 | -08 SAE        | 3/4-16    | 20.0 GPM      | 2.90 | 0.937 |
| 15312-210 | -10 SAE        | 7/8-14    | 30.0 GPM      | 3.40 | 1.125 |
| 15312-212 | -12 SAE        | 1 1/16-12 | 40.0 GPM      | 3.90 | 1.375 |
| 15312-216 | -16 SAE        | 1 5/16-12 | 50.0 GPM      | 4.78 | 1.625 |
| 15312-220 | -20 SAE        | 1 5/8-12  | 60.0 GPM      | 4.78 | 2.000 |

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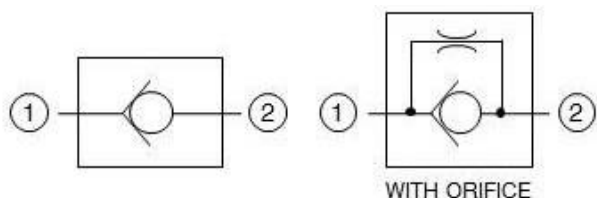
Page last updated: February 13, 2015



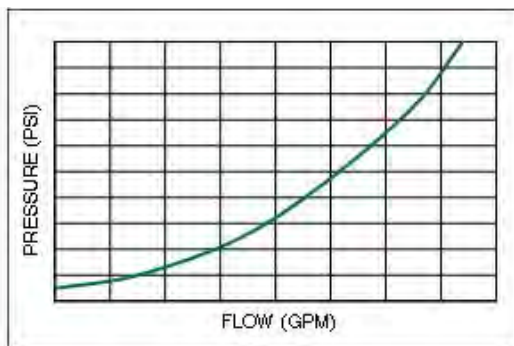
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

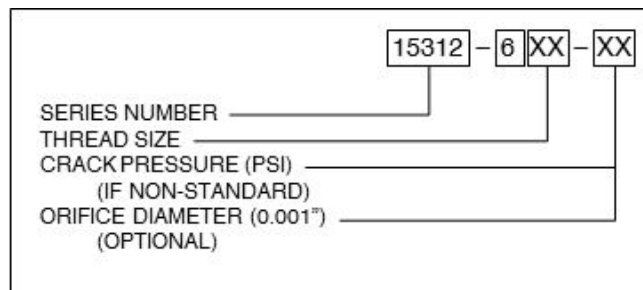
### FEATURES

- STEEL BODY.
- HARDENED STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

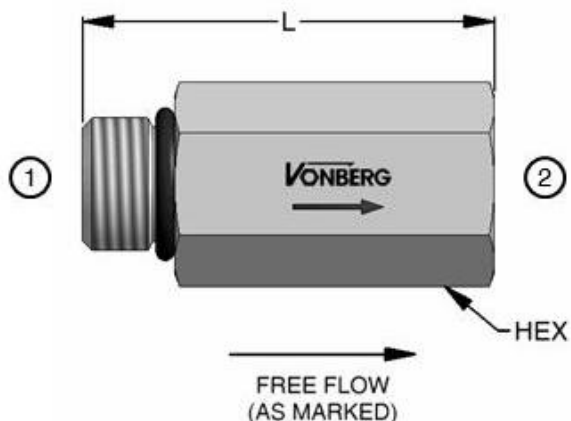


| MODEL     | INLET 1 | OUTLET 2     | THREAD    | FLOW CAPACITY | L    | HEX   |
|-----------|---------|--------------|-----------|---------------|------|-------|
| 15312-604 | -04 JIC | -04 SAE PORT | 7/16-20   | 3.0 GPM       | 1.93 | 0.625 |
| 15312-606 | -06 JIC | -06 SAE PORT | 9/16-18   | 10.0 GPM      | 1.94 | 0.750 |
| 15312-608 | -08 JIC | -08 SAE PORT | 3/4-16    | 20.0 GPM      | 2.72 | 0.938 |
| 15312-610 | -10 JIC | -10 SAE PORT | 7/8-14    | 30.0 GPM      | 3.25 | 1.125 |
| 15312-612 | -12 JIC | -12 SAE PORT | 1 1/16-12 | 40.0 GPM      | 3.75 | 1.250 |
| 15312-616 | -16 JIC | -16 SAE PORT | 1 5/16-12 | 50.0 GPM      | 4.50 | 1.625 |

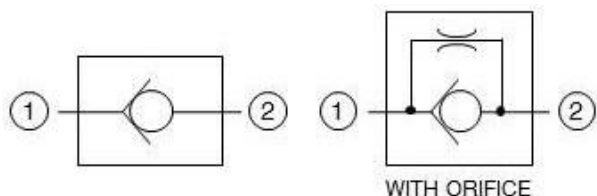
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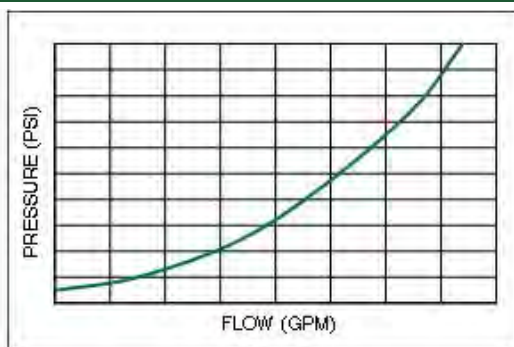
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

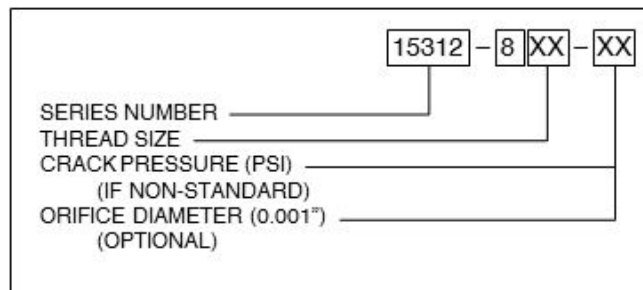
### FEATURES

- STEEL BODY.
- HARDENED STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



| MODEL     | INLET 1 | OUTLET 2     | THREAD    | FLOW CAPACITY | L    | HEX   |
|-----------|---------|--------------|-----------|---------------|------|-------|
| 15312-804 | -04 SAE | -04 SAE PORT | 7/16-20   | 3.0 GPM       | 1.74 | 0.625 |
| 15312-806 | -06 SAE | -06 SAE PORT | 9/16-18   | 10.0 GPM      | 1.78 | 0.750 |
| 15312-808 | -08 SAE | -08 SAE PORT | 3/4-16    | 20.0 GPM      | 2.50 | 0.938 |
| 15312-810 | -10 SAE | -10 SAE PORT | 7/8-14    | 30.0 GPM      | 3.00 | 1.125 |
| 15312-812 | -12 SAE | -12 SAE PORT | 1 1/16-12 | 40.0 GPM      | 3.48 | 1.250 |
| 15312-816 | -16 SAE | -16 SAE PORT | 1 5/16-12 | 50.0 GPM      | 4.18 | 1.625 |

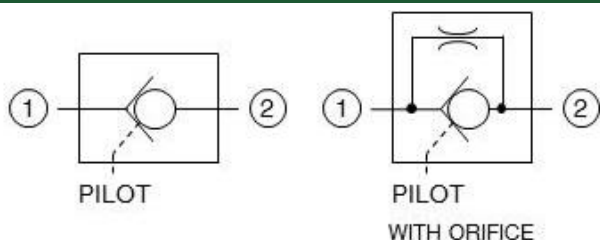
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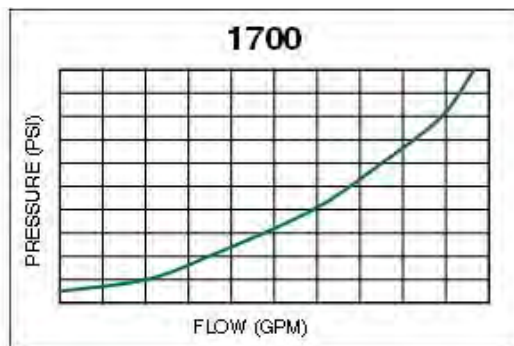
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, POPPET TYPE PILOT TO OPEN CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 30 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.
- THE CARTRIDGE HAS A STANDARD 4:1 PILOT RATIO TO ALLOW FLOW FROM (2) TO (1).

### FEATURES

- STEEL BODY AND POPPET.
- INDUSTRY COMMON CAVITY.
- LOW INTERNAL LEAKAGE, 5 DPM.
- SPECIAL PILOT RATIOS AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 30 PSI           |

### ORDERING INFORMATION

SERIES NUMBER 17  
 PORT SIZE XX  
 PILOT PISTON TYPE X  
 BODY PORT SIZE CODE XX  
 BLANK..... UNSEALED  
 P..... O-RING SEALED  
 BLANK..... CARTRIDGE ONLY  
 SERIES CODE..... SEE "CARTRIDGE BODIES", X-3 SERIES

| MODEL | THREAD      | RATED FLOW | CAVITY | L1   | L2   | HEX  | A             | B             | TORQUE    |
|-------|-------------|------------|--------|------|------|------|---------------|---------------|-----------|
| 1706  | 9/16 - 18   | 3.0 GPM    | FC06-3 | 1.23 | 0.27 | 0.69 | 0.438 / 0.439 | 0.467 / 0.468 | 15 ft-lbs |
| 1708  | 3/4 - 16    | 6.0 GPM    | VC08-3 | 1.63 | 0.37 | 0.88 | 0.558 / 0.560 | 0.621 / 0.623 | 20 ft-lbs |
| 1710  | 7/8 - 14    | 10.0 GPM   | VC10-3 | 1.82 | 0.43 | 1.00 | 0.621 / 0.623 | 0.683 / 0.685 | 25 ft-lbs |
| 1712  | 1 1/16 - 12 | 20.0 GPM   | VC12-3 | 2.63 | 0.52 | 1.25 | 0.870 / 0.873 | 0.933 / 0.935 | 40 ft-lbs |
| 1716  | 1 5/16 - 12 | 30.0 GPM   | VC16-3 | 2.88 | 0.63 | 1.50 | 1.058 / 1.060 | 1.121 / 1.123 | 60 ft-lbs |

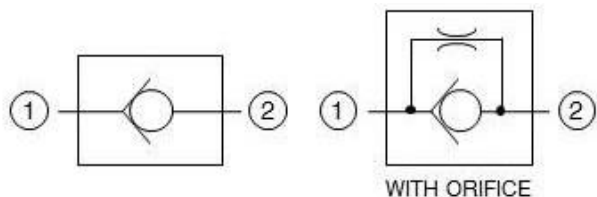
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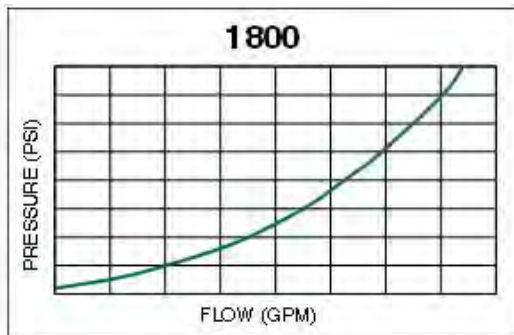
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, POPPET TYPE, STANDARD FLOW CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

### FEATURES

- STEEL BODY AND POPPET.
- INDUSTRY COMMON CAVITY.
- LOW INTERNAL LEAKAGE, 5 DPM.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

SERIES NUMBER 18  
 PORT SIZE XX  
 CRACK PRESSURE (PSI) XX  
 (IF NON-STANDARD)  
 ORIFICE DIAMETER (0.001") XX  
 (OPTIONAL)  
 BODY PORT SIZE CODE \_\_\_\_\_  
 BLANK..... CARTRIDGE ONLY  
 SERIES CODE... SEE "CARTRIDGE BODIES", X-2 SERIES

| MODEL | THREAD      | RATED FLOW | CAVITY | L1   | L2   | HEX  | A             | TORQUE    |
|-------|-------------|------------|--------|------|------|------|---------------|-----------|
| 1804  | 7/16 - 20   | 2.0 GPM    | VC04-2 | 0.94 | 0.52 | 0.56 | 0.277 / 0.278 | 10 ft-lbs |
| 1806  | 9/16 - 18   | 4.0 GPM    | FC06-2 | 0.84 | 0.52 | 0.69 | 0.467 / 0.468 | 15 ft-lbs |
| 1808  | 3/4 - 16    | 6.0 GPM    | VC08-2 | 1.10 | 0.36 | 0.88 | 0.495 / 0.497 | 20 ft-lbs |
| 1810  | 7/8 - 14    | 10.0 GPM   | VC10-2 | 1.25 | 0.40 | 1.00 | 0.621 / 0.623 | 25 ft-lbs |
| 1812  | 1 1/16 - 12 | 20.0 GPM   | VC12-2 | 1.81 | 0.49 | 1.25 | 0.870 / 0.873 | 40 ft-lbs |
| 1816  | 1 5/16 - 12 | 30.0 GPM   | VC16-2 | 1.75 | 0.55 | 1.50 | 1.121 / 1.123 | 60 ft-lbs |

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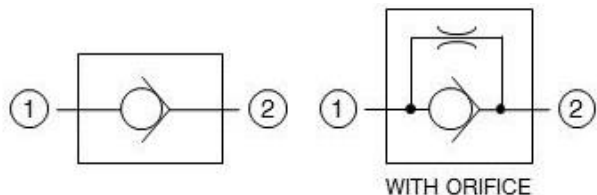
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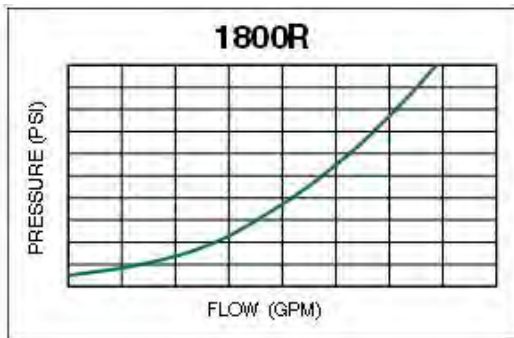
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, POPPET TYPE, REVERSE FLOW CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (2) TO (1) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 25 PSI.
- FLOW FROM (1) TO (2) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

### FEATURES

- STEEL BODY AND POPPET.
- INDUSTRY COMMON CAVITY.
- LOW INTERNAL LEAKAGE, 5 DPM.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 25 PSI           |

### ORDERING INFORMATION

18 XX R - XX - XX

SERIES NUMBER \_\_\_\_\_

PORT SIZE \_\_\_\_\_

CRACK PRESSURE (PSI) \_\_\_\_\_  
(IF NON-STANDARD)

ORIFICE DIAMETER (0.001") \_\_\_\_\_  
(OPTIONAL)

BODY PORT SIZE CODE \_\_\_\_\_

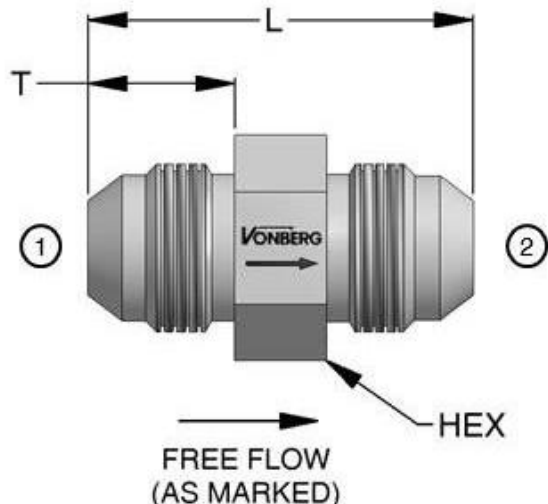
BLANK..... CARTRIDGE ONLY  
 SERIES CODE... SEE "CARTRIDGE BODIES", X-2 SERIES

| MODEL | THREAD      | RATED FLOW | CAVITY | L1   | L2   | HEX  | A             | TORQUE    |
|-------|-------------|------------|--------|------|------|------|---------------|-----------|
| 1804R | 7/16 - 20   | 2.0 GPM    | 4-2    | 0.94 | 0.52 | 0.56 | 0.277 / 0.278 | 10 ft-lbs |
| 1806R | 9/16 - 18   | 4.0 GPM    | 6-2    | 0.84 | 0.52 | 0.69 | 0.467 / 0.468 | 15 ft-lbs |
| 1808R | 3/4 - 16    | 6.0 GPM    | 8-2    | 1.10 | 0.36 | 0.88 | 0.495 / 0.497 | 20 ft-lbs |
| 1810R | 7/8 - 14    | 10.0 GPM   | 10-2   | 1.25 | 0.40 | 1.00 | 0.621 / 0.623 | 25 ft-lbs |
| 1812R | 1 1/16 - 12 | 20.0 GPM   | 12-2   | 1.81 | 0.49 | 1.25 | 0.870 / 0.873 | 40 ft-lbs |
| 1816R | 1 5/16 - 12 | 30.0 GPM   | 16-2   | 1.75 | 0.55 | 1.50 | 1.121 / 1.123 | 60 ft-lbs |

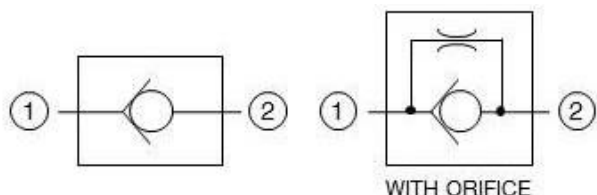
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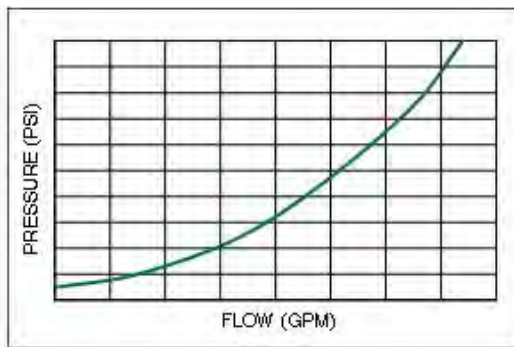
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE WITH MALE JIC CONNECTIONS INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

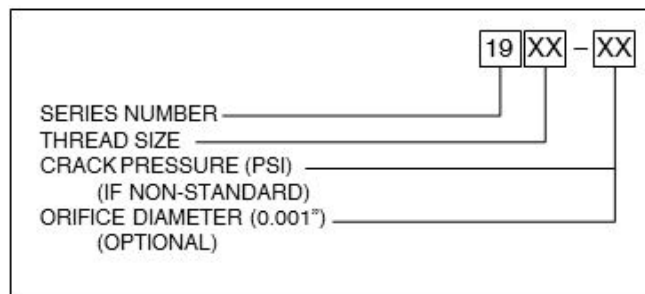
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

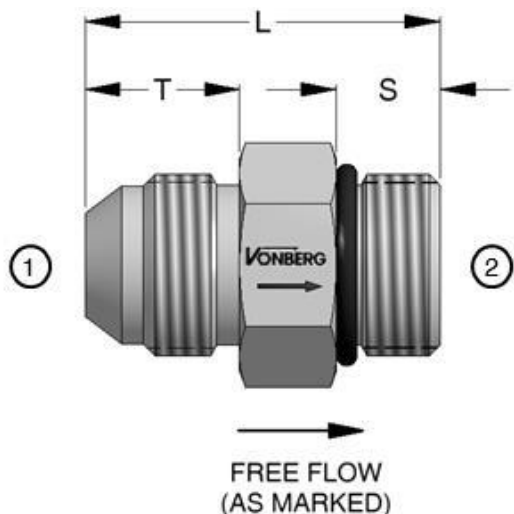


| MODEL | INLET / OUTLET | THREAD    | CAPACITY | L    | T     | HEX   |
|-------|----------------|-----------|----------|------|-------|-------|
| 1904  | -04 JIC        | 7/16-20   | 2 GPM    | 1.42 | 0.540 | 0.562 |
| 1906  | -06 JIC        | 9/16-18   | 4 GPM    | 1.60 | 0.540 | 0.750 |
| 1908  | -08 JIC        | 3/4-16    | 8 GPM    | 1.68 | 0.655 | 0.875 |
| 1910  | -10 JIC        | 7/8-14    | 12 GPM   | 1.88 | 0.760 | 1.000 |
| 1912  | -12 JIC        | 1 1/16-12 | 15 GPM   | 2.12 | 0.860 | 1.250 |
| 1916  | -16 JIC        | 1 5/16-12 | 40 GPM   | 2.55 | 0.880 | 1.500 |
| 1920  | -20 JIC        | 1 5/8-12  | 50 GPM   | 3.15 | 0.950 | 1.875 |
| 1924  | -24 JIC        | 1 7/8-12  | 80 GPM   | 3.50 | 0.950 | 2.125 |

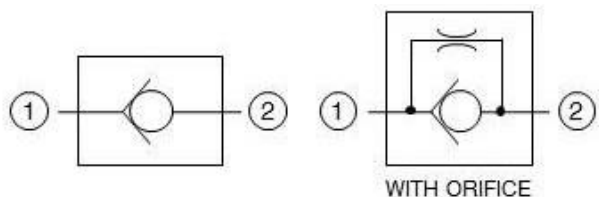
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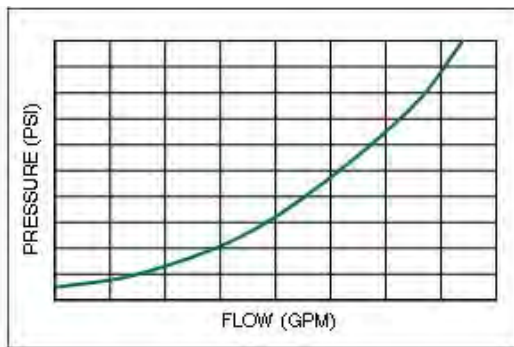
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

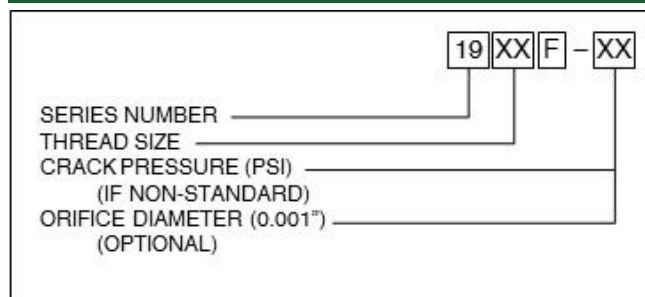
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

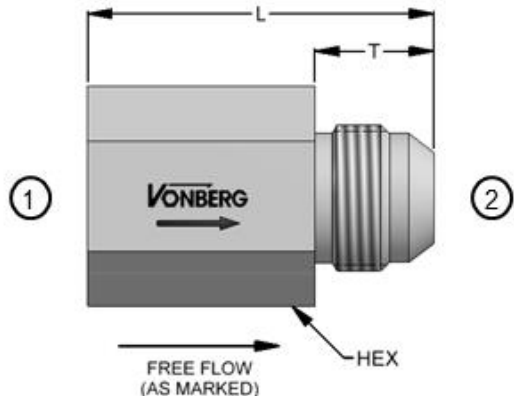


| MODEL | INLET 1 | OUTLET 2 | THREAD    | CAPACITY | L    | T     | S     | HEX   |
|-------|---------|----------|-----------|----------|------|-------|-------|-------|
| 1904F | -04 JIC | -04 SAE  | 7/16-20   | 2 GPM    | 1.23 | 0.540 | 0.360 | 0.562 |
| 1906F | -06 JIC | -06 SAE  | 9/16-18   | 4 GPM    | 1.45 | 0.540 | 0.390 | 0.750 |
| 1908F | -08 JIC | -08 SAE  | 3/4-16    | 8 GPM    | 1.47 | 0.655 | 0.440 | 0.875 |
| 1910F | -10 JIC | -10 SAE  | 7/8-14    | 12 GPM   | 1.62 | 0.760 | 0.500 | 1.000 |
| 1912F | -12 JIC | -12 SAE  | 1 1/16-12 | 30 GPM   | 2.00 | 0.860 | 0.594 | 1.250 |
| 1916F | -16 JIC | -16 SAE  | 1 5/16-12 | 40 GPM   | 2.27 | 0.910 | 0.594 | 1.500 |
| 1920F | -20 JIC | -20 SAE  | 1 5/8-12  | 50 GPM   | 2.75 | 0.960 | 0.594 | 1.875 |
| 1924F | -24 JIC | -24 SAE  | 1 7/8-12  | 80 GPM   | 3.50 | 1.080 | 0.594 | 2.125 |

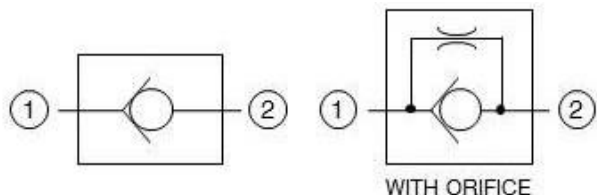
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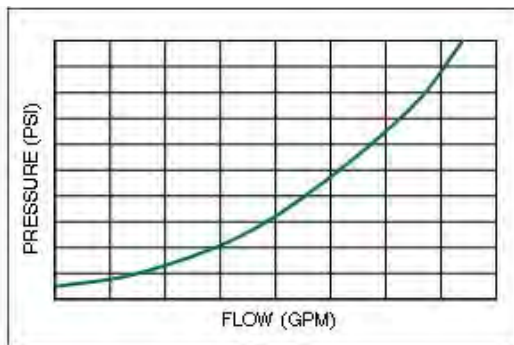
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

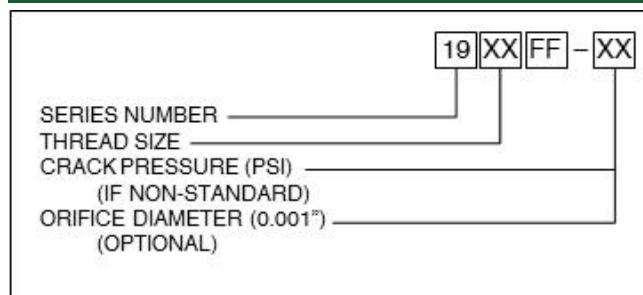
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



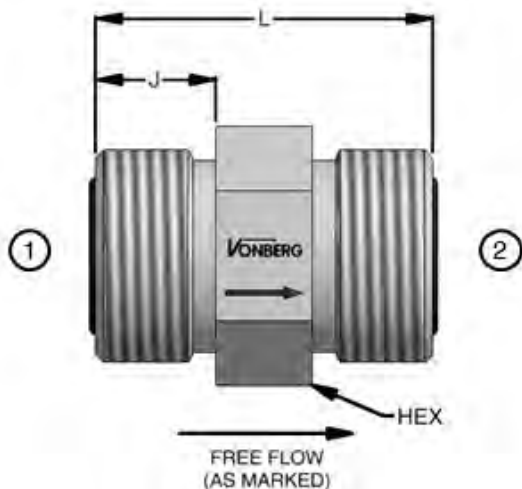
| MODEL  | INLET 1      | OUTLET 2 | THREAD    | CAPACITY | L    | T     | HEX   |
|--------|--------------|----------|-----------|----------|------|-------|-------|
| 1904FF | -04 JIC PORT | -04 JIC  | 7/16-20   | 2 GPM    | 1.72 | 0.530 | 0.625 |
| 1906FF | -06 JIC PORT | -06 JIC  | 9/16-18   | 4 GPM    | 1.94 | 0.545 | 0.750 |
| 1908FF | -08 JIC PORT | -08 JIC  | 3/4-16    | 8 GPM    | 1.88 | 0.635 | 0.938 |
| 1910FF | -10 JIC PORT | -10 JIC  | 7/8-14    | 12 GPM   | 2.38 | 0.760 | 1.125 |
| 1912FF | -12 JIC PORT | -12 JIC  | 1 1/16-12 | 20 GPM   | 2.50 | 0.860 | 1.375 |
| 1916FF | -16 JIC PORT | -16 JIC  | 1 5/16-12 | 40 GPM   | 3.19 | 0.880 | 1.625 |
| 1920FF | -20 JIC PORT | -20 JIC  | 1 5/8-12  | 50 GPM   | 4.00 | 0.950 | 2.000 |

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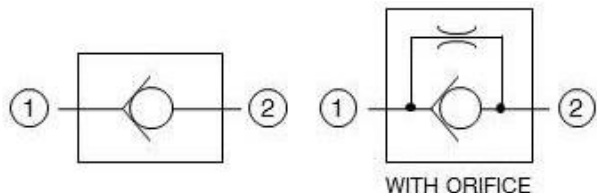
Page last updated: February 13, 2015



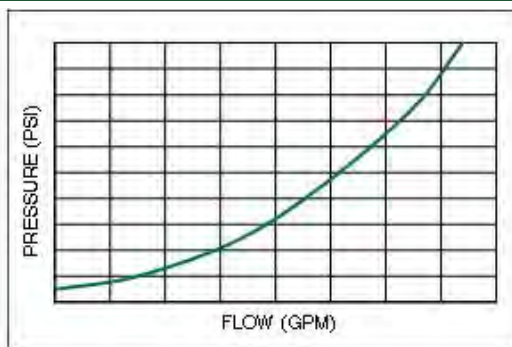
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE WITH MALE ORS CONNECTIONS INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

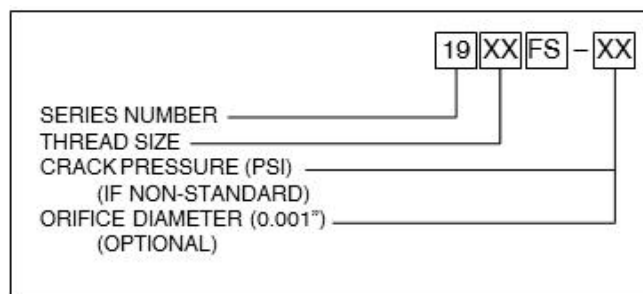
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



| MODEL  | INLET / OUTLET | THREAD     | CAPACITY | L     | J     | HEX   |
|--------|----------------|------------|----------|-------|-------|-------|
| 1904FS | -04 ORS        | 9/16-18    | 2 GPM    | 1.140 | 0.385 | 0.625 |
| 1906FS | -06 ORS        | 11/16-16   | 4 GPM    | 1.250 | 0.440 | 0.750 |
| 1908FS | -08 ORS        | 13/16-16   | 8 GPM    | 1.375 | 0.500 | 0.875 |
| 1910FS | -10 ORS        | 1-14       | 12 GPM   | 1.700 | 0.610 | 1.062 |
| 1912FS | -12 ORS        | 1 3/16-12  | 15 GPM   | 1.875 | 0.670 | 1.250 |
| 1916FS | -16 ORS        | 1 7/16-12  | 40 GPM   | 2.125 | 0.690 | 1.500 |
| 1920FS | -20 ORS        | 1 11/16-12 | 50 GPM   | 2.450 | 0.690 | 1.750 |

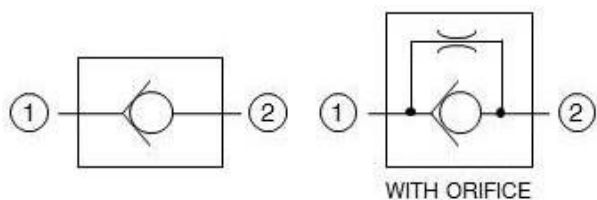
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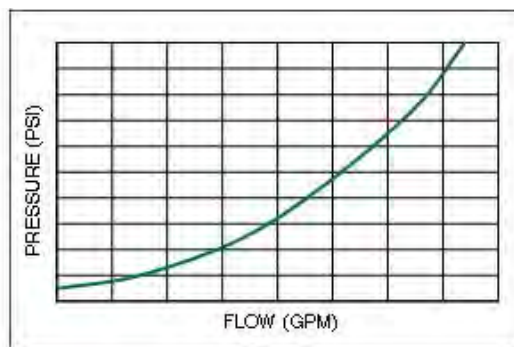
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

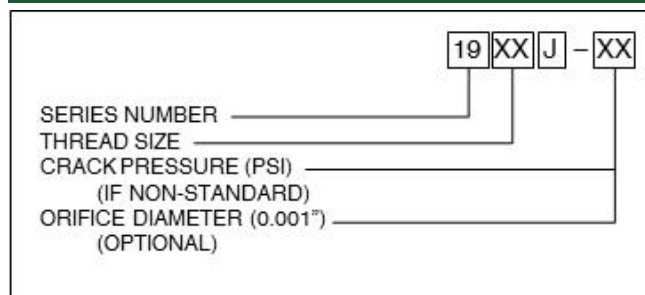
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



| MODEL | INLET 1              | OUTLET 2            | CAPACITY | L    | J    | S    | HEX   |
|-------|----------------------|---------------------|----------|------|------|------|-------|
| 1904J | -04 ORS - 9/16-18    | -04 SAE - 7/16-20   | 2 GPM    | 1.06 | 0.38 | 0.43 | 0.625 |
| 1906J | -06 ORS - 11/16-16   | -06 SAE - 9/16-18   | 4 GPM    | 1.42 | 0.44 | 0.47 | 0.750 |
| 1908J | -08 ORS - 13/16-16   | -08 SAE - 3/4-16    | 8 GPM    | 1.42 | 0.50 | 0.55 | 0.875 |
| 1910J | -10 ORS - 1-14       | -10 SAE - 7/8-14    | 12 GPM   | 1.62 | 0.61 | 0.63 | 1.125 |
| 1912J | -12 ORS - 1 3/16-12  | -12 SAE - 1 1/16-12 | 30 GPM   | 2.00 | 0.67 | 0.73 | 1.250 |
| 1916J | -16 ORS - 1 7/16-12  | -16 SAE - 1 5/16-12 | 40 GPM   | 2.27 | 0.69 | 0.73 | 1.500 |
| 1920J | -20 ORS - 1 11/16-12 | -20 SAE - 1 5/8-12  | 50 GPM   | 2.40 | 0.69 | 0.73 | 1.875 |

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### PRODUCT



### DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
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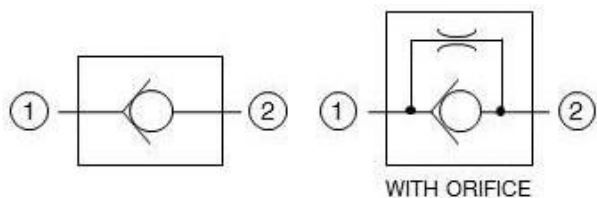
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

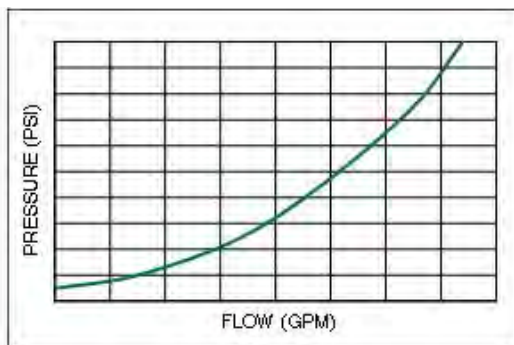
### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 5000 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

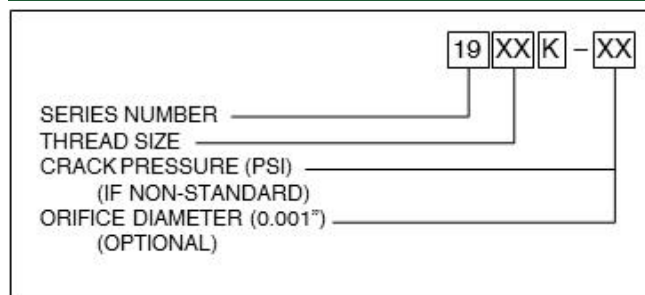
### SCHEMATIC



### TYPICAL PERFORMANCE



### ORDERING INFORMATION

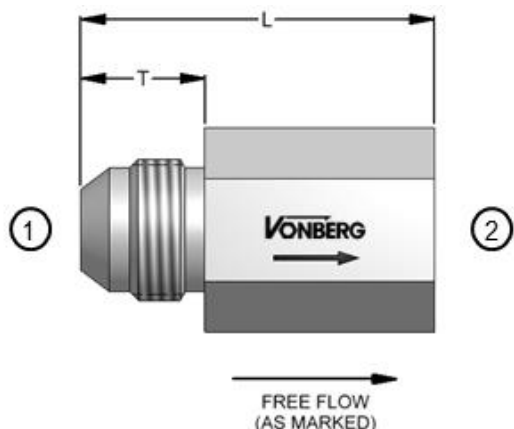


| MODEL | INLET 1             | OUTLET 2             | CAPACITY | L    | J    | S    | HEX   |
|-------|---------------------|----------------------|----------|------|------|------|-------|
| 1904K | -04 SAE - 7/16-20   | -04 ORS - 9/16-18    | 2 GPM    | 1.07 | 0.38 | 0.43 | 0.625 |
| 1906K | -06 SAE - 9/16-18   | -06 ORS - 11/16-16   | 4 GPM    | 1.42 | 0.44 | 0.47 | 0.750 |
| 1908K | -08 SAE - 3/4-16    | -08 ORS - 13/16-16   | 8 GPM    | 1.42 | 0.50 | 0.55 | 0.875 |
| 1910K | -10 SAE - 7/8-14    | -10 ORS - 1-14       | 12 GPM   | 1.62 | 0.61 | 0.63 | 1.125 |
| 1912K | -12 SAE - 1 1/16-12 | -12 ORS - 1 3/16-12  | 30 GPM   | 2.00 | 0.67 | 0.73 | 1.250 |
| 1916K | -16 SAE - 1 5/16-12 | -16 ORS - 1 7/16-12  | 40 GPM   | 2.27 | 0.69 | 0.73 | 1.500 |
| 1920K | -20 SAE - 1 5/8-12  | -20 ORS - 1 11/16-12 | 50 GPM   | 2.45 | 0.69 | 0.73 | 1.875 |

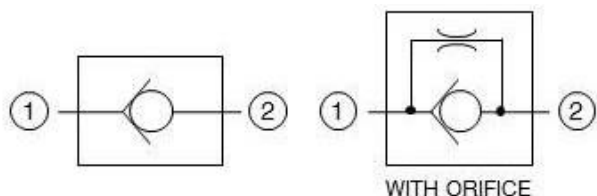
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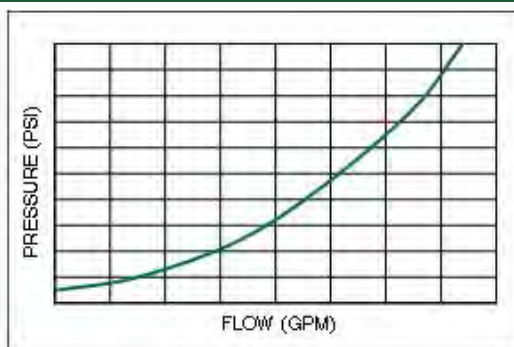
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

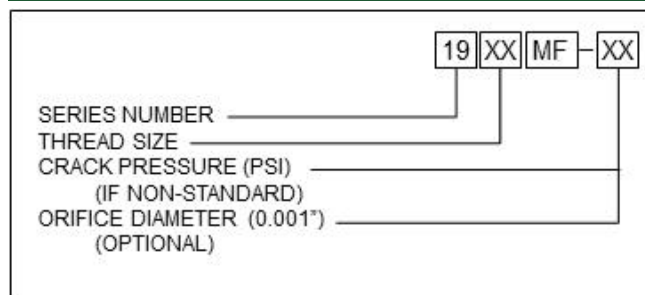
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



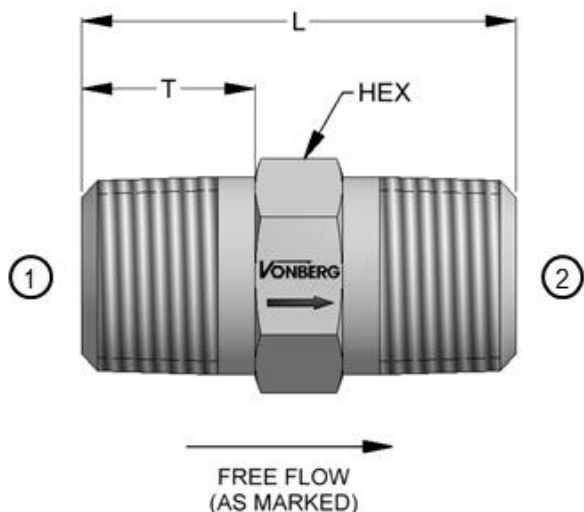
| MODEL  | INLET 1 | OUTLET 2     | THREAD    | CAPACITY | L    | T     | HEX   |
|--------|---------|--------------|-----------|----------|------|-------|-------|
| 1904MF | -04 JIC | -04 JIC PORT | 7/16-20   | 2 GPM    | 1.72 | 0.530 | 0.625 |
| 1906MF | -06 JIC | -06 JIC PORT | 9/16-18   | 4 GPM    | 1.94 | 0.545 | 0.750 |
| 1908MF | -08 JIC | -08 JIC PORT | 3/4-16    | 8 GPM    | 1.88 | 0.635 | 0.938 |
| 1910MF | -10 JIC | -10 JIC PORT | 7/8-14    | 12 GPM   | 2.38 | 0.760 | 1.125 |
| 1912MF | -12 JIC | -12 JIC PORT | 1 1/16-12 | 25 GPM   | 2.50 | 0.860 | 1.375 |
| 1916MF | -16 JIC | -16 JIC PORT | 1 5/16-12 | 40 GPM   | 3.19 | 0.880 | 1.625 |
| 1920MF | -20 JIC | -20 JIC PORT | 1 5/8-12  | 50 GPM   | 4.00 | 0.950 | 2.000 |

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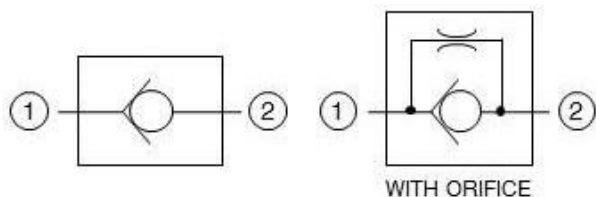
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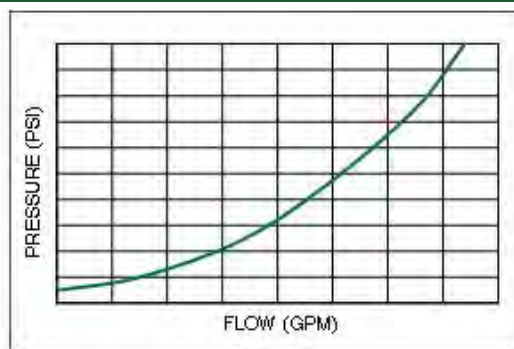
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE WITH MALE NPTF CONNECTIONS INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

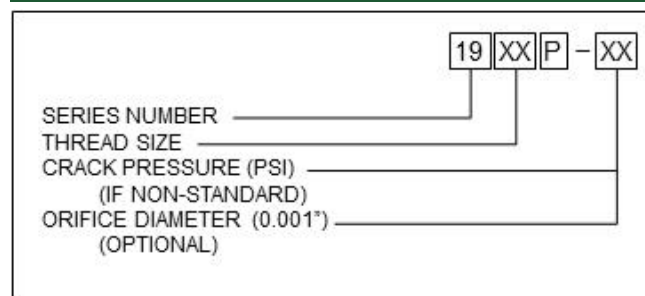
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

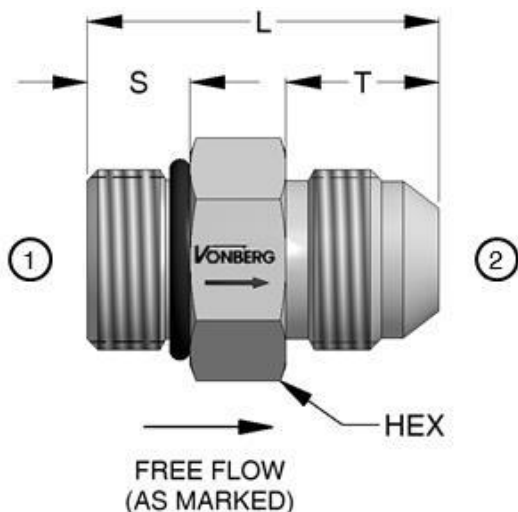


| MODEL | INLET / OUTLET | FLOW CAPACITY | L    | T    | HEX  |
|-------|----------------|---------------|------|------|------|
| 1901P | 1/8-27 NPTF    | 2 GPM         | 1.00 | 0.38 | 0.50 |
| 1902P | 1/4-18 NPTF    | 4 GPM         | 1.38 | 0.56 | 0.63 |
| 1903P | 3/8-18 NPTF    | 8 GPM         | 1.45 | 0.56 | 0.75 |
| 1904P | 1/2-14 NPTF    | 12 GPM        | 1.88 | 0.75 | 0.88 |
| 1906P | 3/4-14 NPTF    | 25 GPM        | 1.96 | 0.75 | 1.13 |
| 1908P | 1-11 1/2 NPTF  | 40 GPM        | 2.34 | 0.94 | 1.38 |

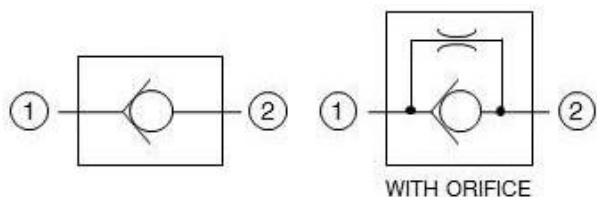
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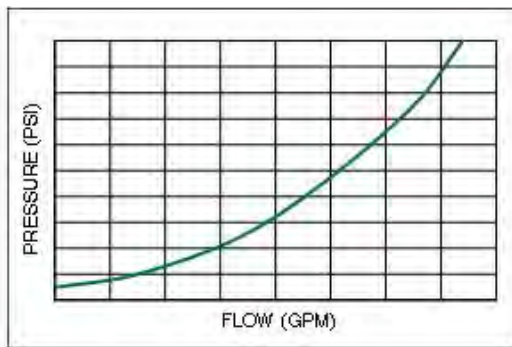
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

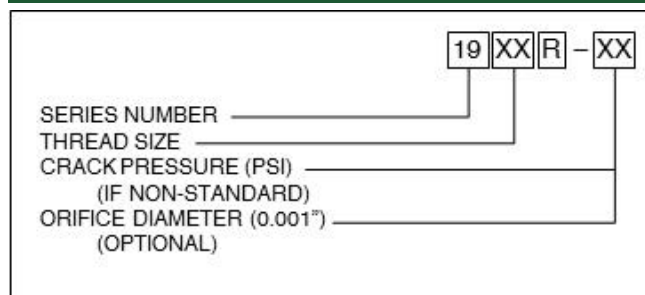
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

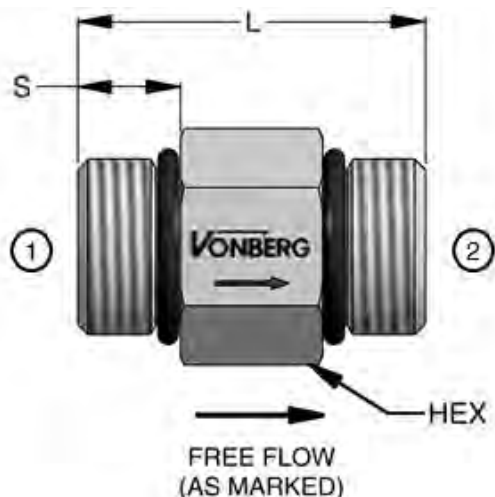


| MODEL | INLET 1 | OUTLET 2 | THREAD    | CAPACITY | L    | T     | S     | HEX   |
|-------|---------|----------|-----------|----------|------|-------|-------|-------|
| 1904R | -04 SAE | -04 JIC  | 7/16-20   | 2 GPM    | 1.23 | 0.540 | 0.360 | 0.562 |
| 1906R | -06 SAE | -06 JIC  | 9/16-18   | 4 GPM    | 1.45 | 0.540 | 0.390 | 0.750 |
| 1908R | -08 SAE | -08JIC   | 3/4-16    | 8 GPM    | 1.47 | 0.655 | 0.440 | 0.875 |
| 1910R | -10 SAE | -10 JIC  | 7/8-14    | 12 GPM   | 1.62 | 0.760 | 0.500 | 1.000 |
| 1912R | -12 SAE | -12 JIC  | 1 1/16-12 | 30 GPM   | 2.00 | 0.860 | 0.594 | 1.250 |
| 1916R | -16 SAE | -16 JIC  | 1 5/16-12 | 40 GPM   | 2.27 | 0.910 | 0.594 | 1.500 |
| 1920R | -20 SAE | -20 JIC  | 1 5/8-12  | 50 GPM   | 2.75 | 0.960 | 0.594 | 1.875 |
| 1924R | -24 SAE | -24 JIC  | 1 7/8-12  | 80 GPM   | 3.50 | 1.080 | 0.594 | 2.125 |

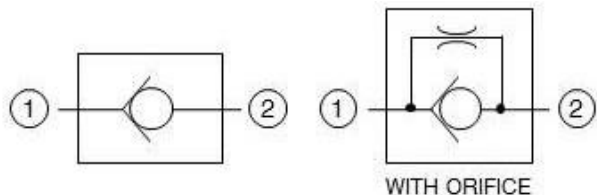
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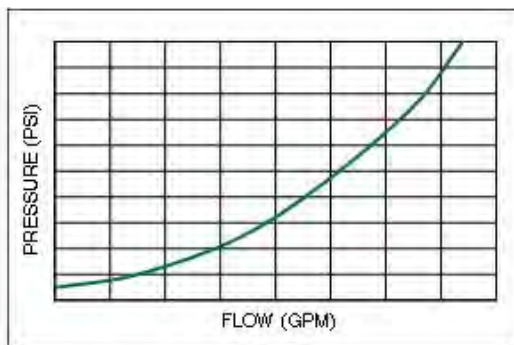
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

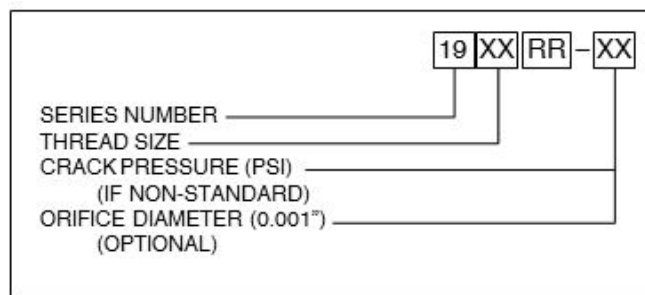
### FEATURES

- STEEL BODY AND POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



| MODEL  | INLET / OUTLET | THREAD    | CAPACITY | L    | S     | HEX   |
|--------|----------------|-----------|----------|------|-------|-------|
| 1904RR | -04 SAE        | 7/16-20   | 2 GPM    | 1.14 | 0.360 | 0.562 |
| 1906RR | -06 SAE        | 9/16-18   | 4 GPM    | 1.45 | 0.390 | 0.750 |
| 1908RR | -08 SAE        | 3/4-16    | 8 GPM    | 1.47 | 0.440 | 0.875 |
| 1910RR | -10 SAE        | 7/8-14    | 12 GPM   | 1.62 | 0.500 | 1.000 |
| 1912RR | -12 SAE        | 1 1/16-12 | 15 GPM   | 2.00 | 0.595 | 1.250 |
| 1916RR | -16 SAE        | 1 5/16-12 | 40 GPM   | 2.27 | 0.595 | 1.500 |
| 1920RR | -20 SAE        | 1 5/8-12  | 50 GPM   | 2.75 | 0.595 | 1.875 |

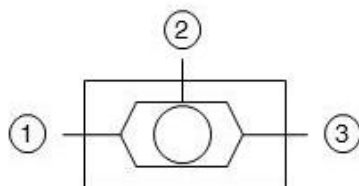
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### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, BALL TYPE SHUTTLE VALVE FOR USE IN CIRCUITS WHERE THE PRIORITY OF FLOW DIRECTION IS GRANTED TO THE GREATER OF TWO INLETS.

### OPERATION

- FLOW FROM (1) OR (3) TO (2) IS ALLOWED.
- FLOW FROM (1) TO (3) AND (3) TO (1) IS BLOCKED.

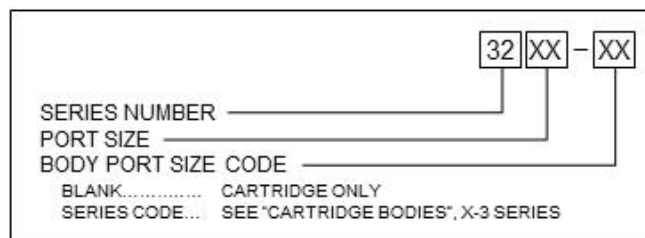
### FEATURES

- STEEL BODY AND CHROME BALL.
- HARDENED STEEL SEATS.
- INDUSTRY COMMON CAVITY.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                    |                       |
|--------------------|-----------------------|
| OPERATING PRESSURE | 3500 PSI              |
| TEMPERATURE RANGE  | 250° F TO -40° F      |
| INTERNAL LEAKAGE   | 5 DPM @ 3500 PSI MAX. |

### ORDERING INFORMATION



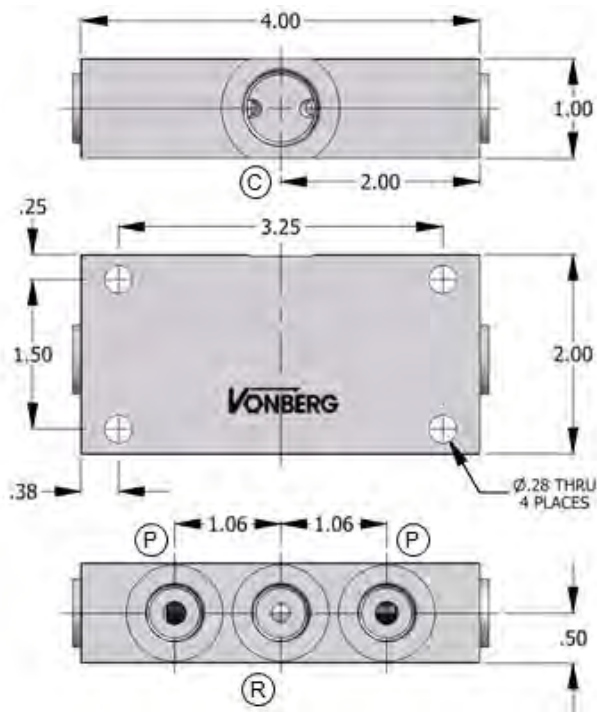
| MODEL | THREAD   | RATED FLOW | CAVITY | L1   | L2   | HEX  | A             | B             |
|-------|----------|------------|--------|------|------|------|---------------|---------------|
| 3204  | 7/16-20  | 1.5 GPM    | C04-3  | 1.24 | 0.30 | 0.56 | 0.308 / 0.310 | 0.340 / 0.342 |
| 3208  | 3/4 - 16 | 5.0 GPM    | VC08-3 | 1.67 | 0.31 | 0.88 | 0.558 / 0.560 | 0.621 / 0.623 |
| 3210  | 7/8-14   | 8.0 GPM    | VC10-3 | 1.85 | 0.31 | 1.00 | 0.621 / 0.623 | 0.683 / 0.685 |

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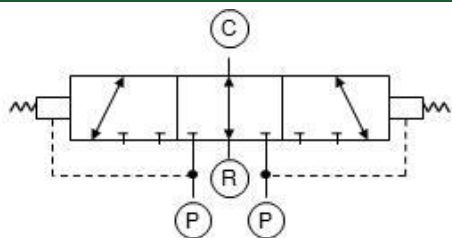
Page last updated: February 09, 2015



### PRODUCT



### SCHEMATIC



### DESCRIPTION

AN IN-LINE STYLE, SPOOL TYPE SHUTTLE VALVE FOR USE IN SPRING APPLIED BRAKE CIRCUITS.

### OPERATION

- IN THE NORMALLY CENTERED POSITION, FLOW FROM (C) TO (R) IS ALLOWED.
- SHIFT PRESSURE IS REQUIRED, EACH DIRECTION (SEE TABLE)
- IN THE SHUTTLED POSITION, FLOW FROM (P) TO (C) IS ALLOWED.

### FEATURES

- SPRING BIAS NORMALLY CENTERED.
- ALUMINUM BODY AND SPOOL.
- NO INTERNAL PACKINGS.
- HIGHER SHIFT PRESSURE AVAILABLE UPON REQUEST.
- HYDRAULIC OILS - GENERAL.

### SPECIFICATIONS

|                    |                  |
|--------------------|------------------|
| OPERATING PRESSURE | 3500 PSI         |
| TEMPERATURE RANGE  | 250° F TO -40° F |

### ORDERING INFORMATION

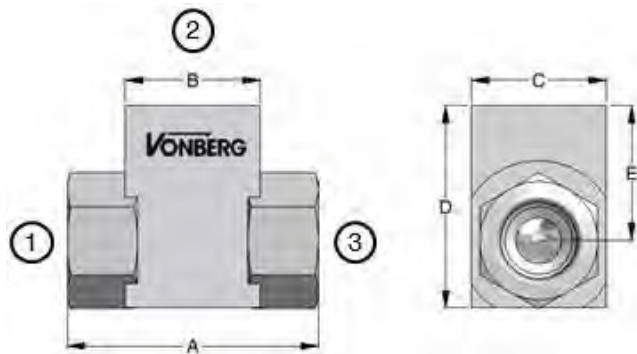
|                   |          |    |   |
|-------------------|----------|----|---|
| SERIES NUMBER     | 601      | XX | X |
| SHIFT PRESSURE ID |          |    |   |
| BODY MATERIAL     |          |    |   |
| BLANK.....        | ALUMINUM |    |   |
| S.....            | STEEL    |    |   |

| MODEL | PORT SIZE (C)    | PORT SIZE (P, R)  | CRACK (P-C)   | HOLD (P-C)      |
|-------|------------------|-------------------|---------------|-----------------|
| 60101 | -08 SAE - 3/4-16 | -06 SAE - 9/16-18 | 12 PSI (MIN.) | 22.5 PSI (MIN.) |
| 60112 | -08 SAE - 3/4-16 | -06 SAE - 9/16-18 | 50 PSI (MIN.) | 80 PSI (MIN.)   |

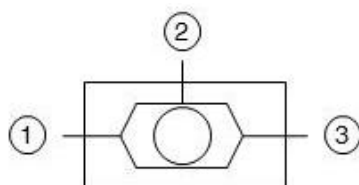
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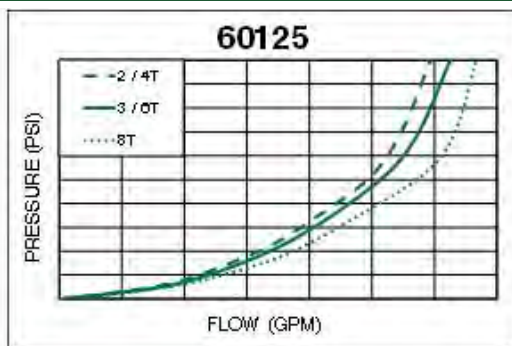
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, BALL TYPE SHUTTLE VALVE FOR USE IN CIRCUITS WHERE THE PRIORITY OF FLOW DIRECTION IS GRANTED TO THE GREATER OF TWO INLETS.

### OPERATION

- FLOW FROM (1) OR (3) TO (2) IS ALLOWED.
- FLOW FROM (1) TO (3) AND (3) TO (1) IS BLOCKED.

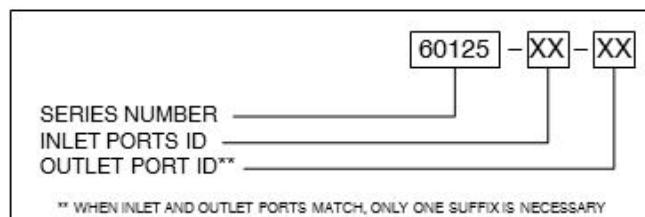
### FEATURES

- ALUMINUM BODY AND CHROME BALL.
- HARDENED STEEL SEATS
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                    |                       |
|--------------------|-----------------------|
| OPERATING PRESSURE | 3500 PSI              |
| TEMPERATURE RANGE  | 250° F TO -40° F      |
| INTERNAL LEAKAGE   | 5 DPM @ 3500 PSI MAX. |

### ORDERING INFORMATION

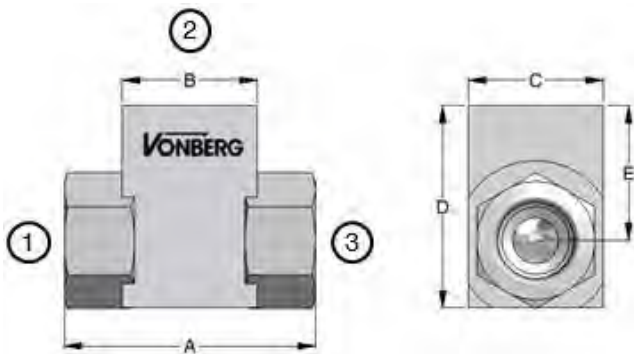


| MODEL    | PORT SIZE         | A    | B    | C    | D    | E    |
|----------|-------------------|------|------|------|------|------|
| 60125-2  | 1/4-18 NPTF       | 2.22 | 1.00 | 1.00 | 1.50 | 1.00 |
| 60125-3  | 3/8-18 NPTF       | 2.22 | 1.00 | 1.00 | 1.50 | 1.00 |
| 60125-4T | -04 SAE - 7/16-20 | 1.86 | 1.00 | 1.00 | 1.50 | 1.00 |
| 60125-6T | -06 SAE - 9/16-18 | 1.86 | 1.00 | 1.00 | 1.50 | 1.00 |
| 60125-8T | -08 SAE - 3/4-16  | 2.82 | 1.00 | 1.00 | 1.50 | 1.00 |

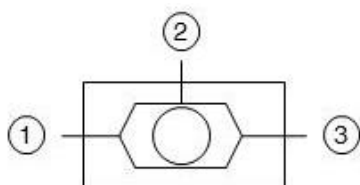
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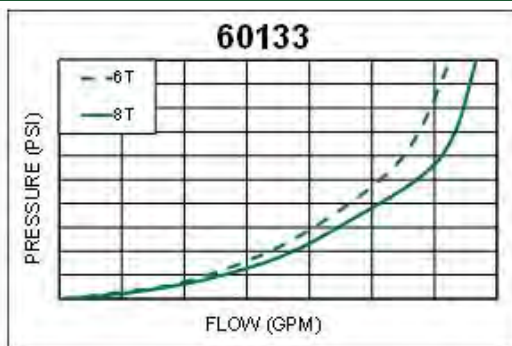
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, BALL TYPE SHUTTLE VALVE FOR USE IN CIRCUITS WHERE THE PRIORITY OF FLOW DIRECTION IS GRANTED TO THE GREATER OF TWO INLETS.

### OPERATION

- FLOW FROM (1) OR (3) TO (2) IS ALLOWED.
- FLOW FROM (1) TO (3) AND (3) TO (1) IS BLOCKED.

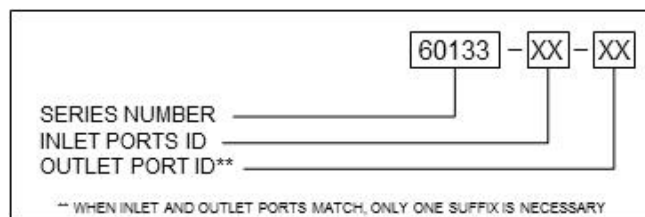
### FEATURES

- ALUMINUM BODY AND CHROME BALL.
- HARDENED STEEL SEATS
- LOW PRESSURE DROP.
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                    |                       |
|--------------------|-----------------------|
| OPERATING PRESSURE | 3500 PSI              |
| TEMPERATURE RANGE  | 250° F TO -40° F      |
| INTERNAL LEAKAGE   | 5 DPM @ 3500 PSI MAX. |

### ORDERING INFORMATION



| MODEL    | PORT SIZE         | A    | B    | C    | D    | E    |
|----------|-------------------|------|------|------|------|------|
| 60133-6T | -06 SAE - 9/16-18 | 1.94 | 1.00 | 1.00 | 1.50 | 1.00 |
| 60133-8T | -08 SAE - 3/4-16  | 2.70 | 1.00 | 1.00 | 1.75 | 1.25 |

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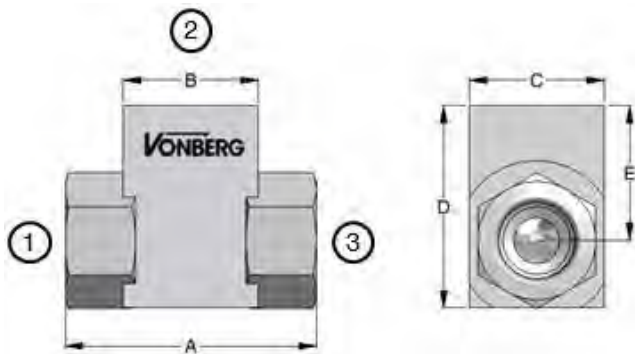
Page last updated: February 09, 2015



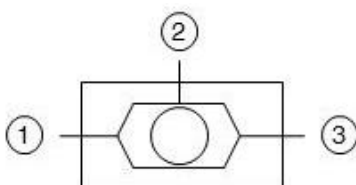
**Vonberg Valve, inc.**  
 Hydraulic Valve Specialists

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 phone: 847/259-3800 • fax 847/259-3997 • email: info@vonberg.com

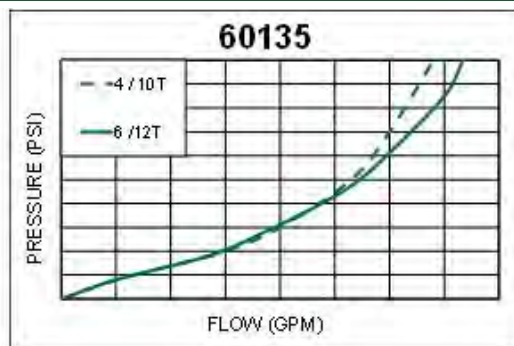
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, BALL TYPE SHUTTLE VALVE FOR USE IN CIRCUITS WHERE THE PRIORITY OF FLOW DIRECTION IS GRANTED TO THE GREATER OF TWO INLETS.

### OPERATION

- FLOW FROM (1) OR (3) TO (2) IS ALLOWED.
- FLOW FROM (1) TO (3) AND (3) TO (1) IS BLOCKED.

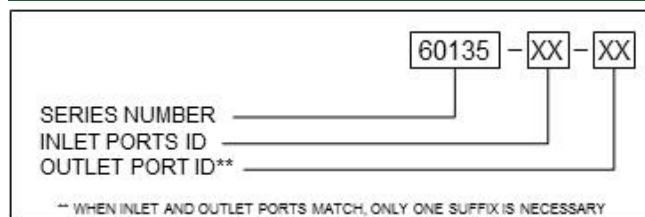
### FEATURES

- ALUMINUM BODY AND CHROME BALL.
- HARDENED STEEL SEATS
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                    |                       |
|--------------------|-----------------------|
| OPERATING PRESSURE | 3500 PSI              |
| TEMPERATURE RANGE  | 250° F TO -40° F      |
| INTERNAL LEAKAGE   | 5 DPM @ 3500 PSI MAX. |

### ORDERING INFORMATION



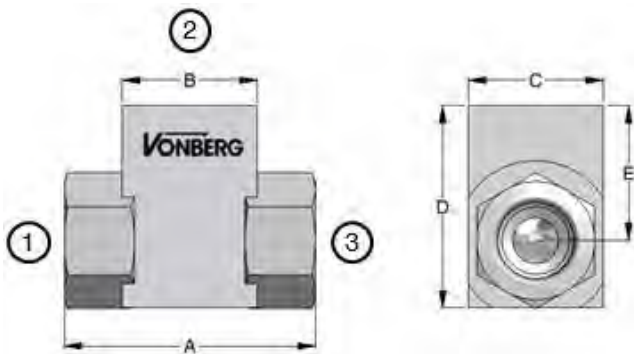
| PORT ID.  | PORT SIZE           | A    | B    | C    | D    | E    |
|-----------|---------------------|------|------|------|------|------|
| 60135-4   | 1/2-14 NPTF         | 4.00 | 1.75 | 1.75 | 2.50 | 1.60 |
| 60135-6   | 3/4-16 NPTF         | 4.00 | 1.75 | 1.75 | 2.50 | 1.60 |
| 60135-10T | -10 SAE - 7/8-14    | 4.00 | 1.75 | 1.75 | 2.50 | 1.60 |
| 60135-12T | -12 SAE - 1 1/16-12 | 4.00 | 1.75 | 1.75 | 2.50 | 1.60 |

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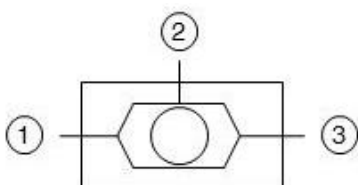
Page last updated: February 09, 2015



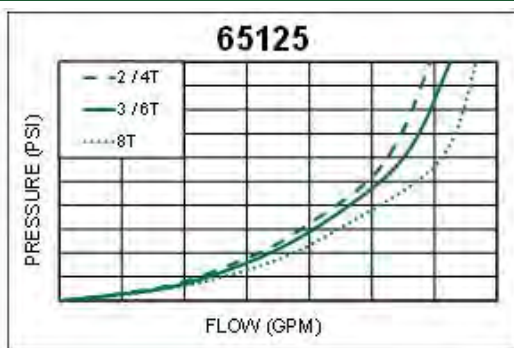
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, BALL TYPE SHUTTLE VALVE FOR USE IN CIRCUITS WHERE THE PRIORITY OF FLOW DIRECTION IS GRANTED TO THE GREATER OF TWO INLETS.

### OPERATION

- FLOW FROM (1) OR (3) TO (2) IS ALLOWED.
- FLOW FROM (1) TO (3) AND (3) TO (1) IS BLOCKED.

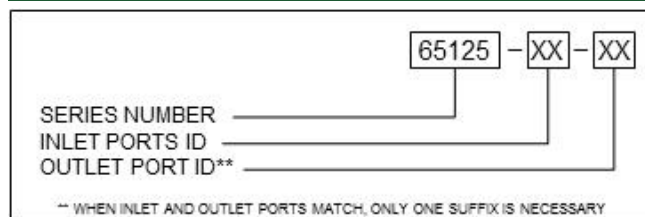
### FEATURES

- STEEL BODY AND CHROME BALL.
- HARDENED STEEL SEATS
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                    |                       |
|--------------------|-----------------------|
| OPERATING PRESSURE | 5000 PSI              |
| TEMPERATURE RANGE  | 250° F TO -40° F      |
| INTERNAL LEAKAGE   | 5 DPM @ 3500 PSI MAX. |

### ORDERING INFORMATION

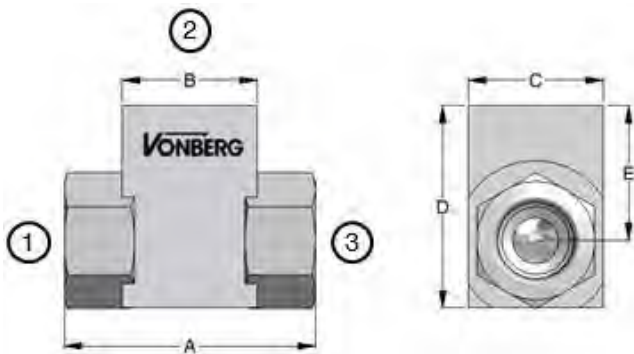


| PORT ID. | PORT SIZE         | A    | B    | C    | D    | E    |
|----------|-------------------|------|------|------|------|------|
| 65125-2  | 1/4-18 NPTF       | 2.58 | 1.25 | 1.00 | 1.50 | 1.00 |
| 65125-3  | 3/8-18 NPTF       | 2.78 | 1.25 | 1.00 | 1.50 | 1.00 |
| 65125-4T | -04 SAE - 7/16-20 | 2.58 | 1.25 | 1.00 | 1.50 | 1.00 |
| 65125-6T | -06 SAE - 9/16-18 | 2.58 | 1.25 | 1.00 | 1.50 | 1.00 |
| 65125-8T | -08 SAE - 3/4-16  | 2.82 | 1.25 | 1.00 | 1.50 | 1.00 |

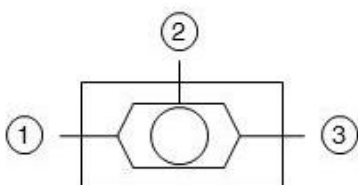
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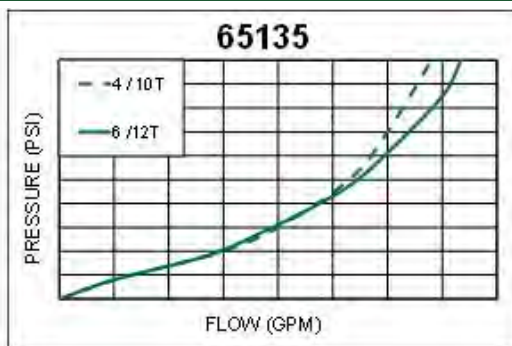
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, BALL TYPE SHUTTLE VALVE FOR USE IN CIRCUITS WHERE THE PRIORITY OF FLOW DIRECTION IS GRANTED TO THE GREATER OF TWO INLETS.

### OPERATION

- FLOW FROM (1) OR (3) TO (2) IS ALLOWED.
- FLOW FROM (1) TO (3) AND (3) TO (1) IS BLOCKED.

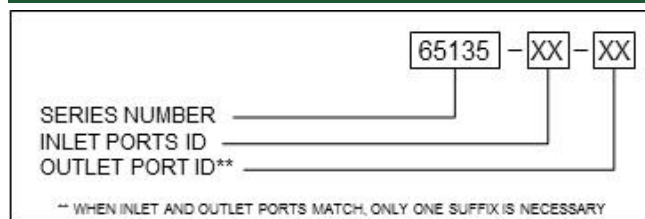
### FEATURES

- STEEL BODY AND CHROME BALL.
- HARDENED STEEL SEATS
- NO INTERNAL PACKINGS.

### SPECIFICATIONS

|                    |                       |
|--------------------|-----------------------|
| OPERATING PRESSURE | 5000 PSI              |
| TEMPERATURE RANGE  | 250° F TO -40° F      |
| INTERNAL LEAKAGE   | 5 DPM @ 3500 PSI MAX. |

### ORDERING INFORMATION

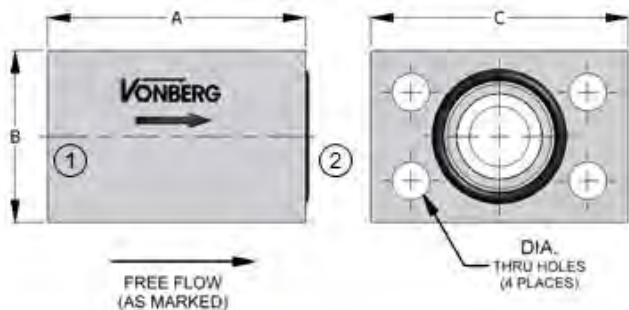


| PORT ID.  | PORT SIZE           | A    | B    | C    | D    | E    |
|-----------|---------------------|------|------|------|------|------|
| 65135-4   | 1/2-14 NPTF         | 4.24 | 1.88 | 2.00 | 2.50 | 1.60 |
| 65135-6   | 3/4-16 NPTF         | 4.24 | 1.88 | 2.00 | 2.50 | 1.60 |
| 65135-10T | -10 SAE - 7/8-14    | 4.24 | 1.88 | 2.00 | 2.50 | 1.60 |
| 65135-12T | -12 SAE - 1 1/16-12 | 4.24 | 1.88 | 2.00 | 2.50 | 1.60 |

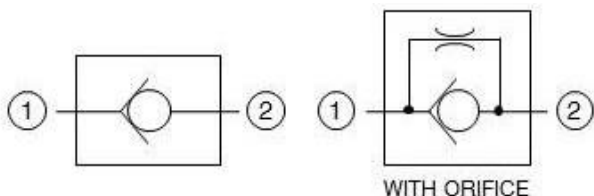
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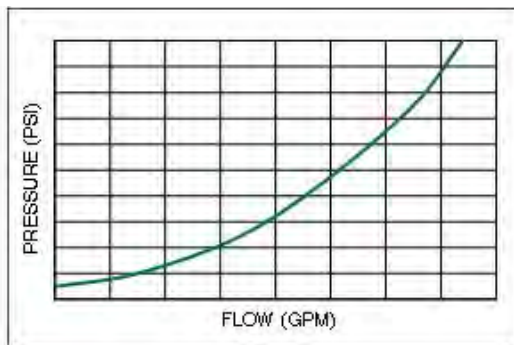
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

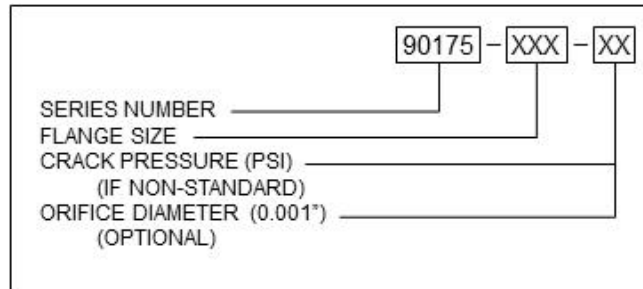
### FEATURES

- ALUMINUM BODY AND STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- BOLT PATTERN FOR SAE STANDARD PRESSURE (CODE 61).
- HYDRAULIC OILS - GENERAL.
- INCLUDES O-RING.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION

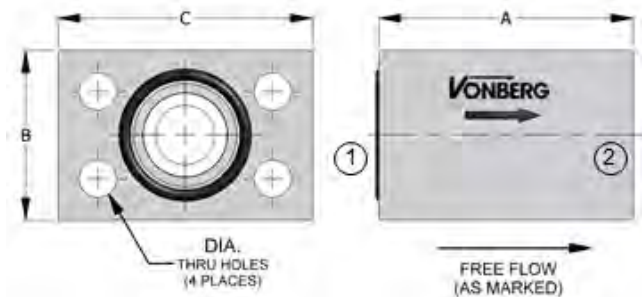


| MODEL     | SAE FLANGE SIZE | FLOW CAPACITY | A    | B    | C    | DIA. |
|-----------|-----------------|---------------|------|------|------|------|
| 90175-100 | 1.00            | 35 GPM        | 300  | 2.00 | 3.00 | 0.44 |
| 90175-125 | 1.25            | 60 GPM        | 3.00 | 2.50 | 3.25 | 0.47 |
| 90175-150 | 1.50            | 95 GPM        | 4.00 | 2.50 | 4.00 | 0.56 |
| 90175-200 | 2.00            | 130 GPM       | 4.00 | 3.00 | 4.00 | 0.56 |

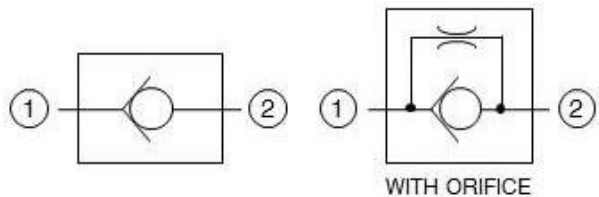
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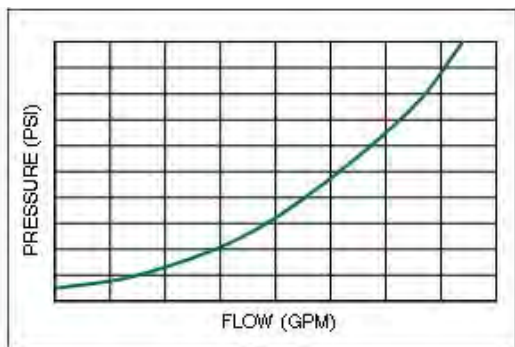
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE STYLE, POPPET TYPE CHECK VALVE INTENDED FOR BLOCKING FLUID FLOW.

### OPERATION

- FLOW FROM (1) TO (2) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 3-5 PSI.
- FLOW FROM (2) TO (1) IS BLOCKED WITH A SPRING BIAS TO ASSIST IN STATIC AND LOW LOAD CONDITIONS.

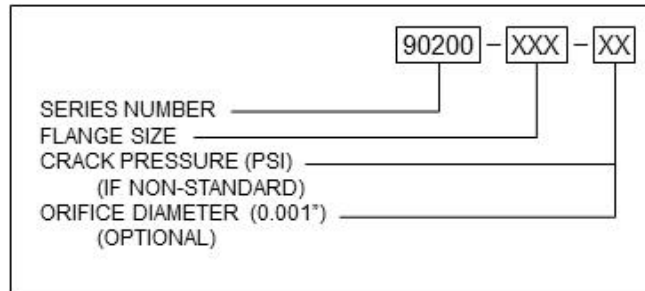
### FEATURES

- ALUMINUM BODY AND STEEL POPPET.
- LOW INTERNAL LEAKAGE, 5 DPM.
- NO INTERNAL PACKINGS.
- LOW PRESSURE DROP.
- BOLT PATTERN FOR SAE STANDARD PRESSURE (CODE 61).
- HYDRAULIC OILS - GENERAL.
- INCLUDES O-RING.
- SPECIAL CRACK PRESSURES AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                         |                  |
|-------------------------|------------------|
| OPERATING PRESSURE      | 3500 PSI         |
| TEMPERATURE RANGE       | 250° F TO -40° F |
| STANDARD CRACK PRESSURE | 3-5 PSI          |

### ORDERING INFORMATION



| MODEL     | SAE FLANGE SIZE | FLOW CAPACITY | A    | B    | C    | DIA. |
|-----------|-----------------|---------------|------|------|------|------|
| 90200-100 | 1.00            | 35 GPM        | 3.00 | 2.00 | 3.00 | 0.44 |
| 90200-125 | 1.25            | 60 GPM        | 3.00 | 2.50 | 3.25 | 0.47 |
| 90200-150 | 1.50            | 95 GPM        | 4.00 | 2.50 | 4.00 | 0.56 |
| 90200-200 | 2.00            | 130 GPM       | 4.00 | 3.00 | 4.00 | 0.56 |

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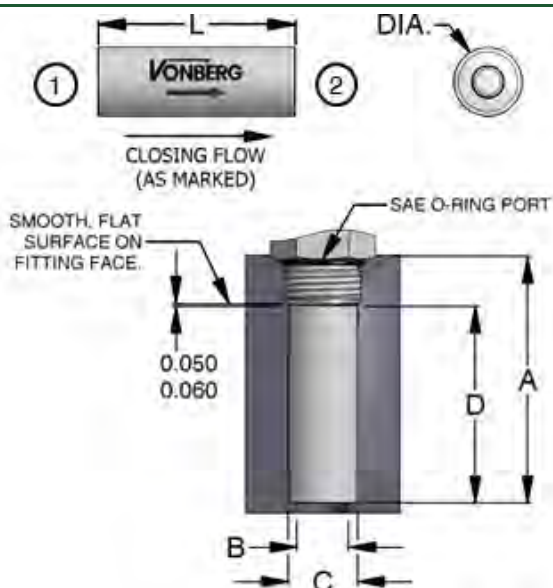
Page last updated: February 13, 2015



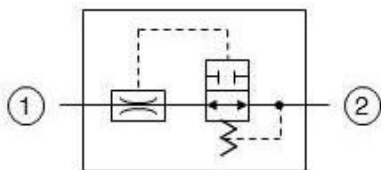
# SAFETY VALVES



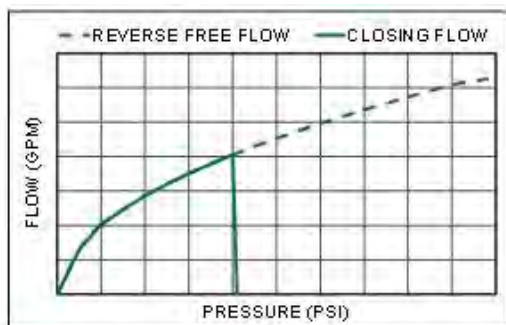
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, SLIP-IN CARTRIDGE STYLE VELOCITY FUSE THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BORE DEPTHS ASSUME THE USE OF A STANDARD O-RING COSS CONNECTOR WITH THREAD LENGTHS BASED ON SAE J514.
- VALVE BODY IS LEFT WITH APPROX. 0.060" OF SLACK IN THE CAVITY TO PREVENT DAMAGING VALVE.
- VALVE BODY SEATS ON SMOOTH, FLAT SURFACE OF FITTING IN THE CLOSING FLOW DIRECTION.

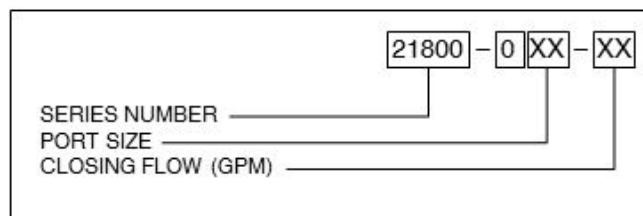
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

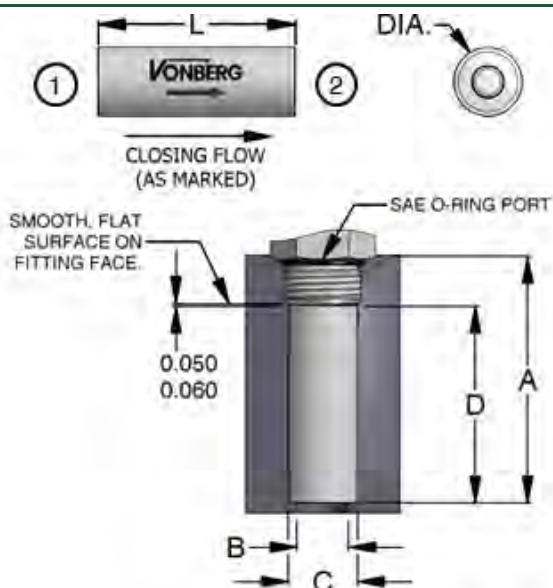
### ORDERING INFORMATION



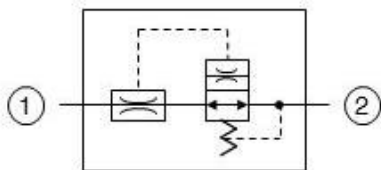
| Model     | DIA.  | L    | FLOW RANGE      | A           | B (MAX.) | C             | D           |
|-----------|-------|------|-----------------|-------------|----------|---------------|-------------|
| 21800-006 | 0.506 | 1.70 | 0.5 TO 10.0 GPM | 2.15 / 2.16 | 0.375    | 0.510 / 0.515 | 1.76 / 1.77 |
| 21800-008 | 0.670 | 1.88 | 0.5 TO 25.0 GPM | 2.38 / 2.39 | 0.500    | 0.672 / 0.677 | 1.94 / 1.95 |
| 21800-010 | 0.795 | 1.90 | 2.0 TO 40.0 GPM | 2.46 / 2.47 | 0.625    | 0.797 / 0.802 | 1.96 / 1.97 |
| 21800-012 | 0.970 | 1.90 | 2.0 TO 40.0 GPM | 2.56 / 2.57 | 0.812    | 0.972 / 0.977 | 1.96 / 1.97 |
| 21800-014 | 1.095 | 2.14 | 2.0 TO 50.0 GPM | 2.80 / 2.81 | 0.812    | 1.097 / 1.102 | 2.20 / 2.21 |
| 21800-016 | 1.220 | 2.14 | 2.0 TO 50.0 GPM | 2.80 / 2.81 | 0.937    | 1.222 / 1.227 | 2.20 / 2.21 |
| 21800-024 | 1.783 | 3.25 | 5.0 TO 80.0 GPM | 3.91 / 3.92 | 1.437    | 1.787 / 1.792 | 3.31 / 3.32 |

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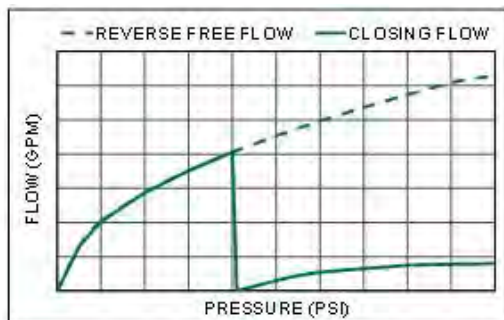
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, SLIP-IN CARTRIDGE STYLE FLOW LIMITER THAT PREVENTS FREE FALL IN THE EVENT OF A LINE FAILURE, BUT ALLOWS A METERED FLOW AFTER CLOSING.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3500 PSI.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BORE DEPTHS ASSUME THE USE OF A STANDARD O-RING BOSS CONNECTOR WITH THREAD LENGTHS BASED ON SAE J514.
- VALVE BODY IS LEFT WITH APPROX. 0.060" OF SLACK IN THE CAVITY TO PREVENT DAMAGING VALVE.
- VALVE BODY SEATS ON SMOOTH, FLAT SURFACE OF FITTING IN THE CLOSING FLOW DIRECTION.

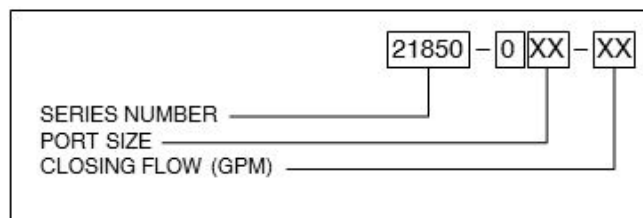
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

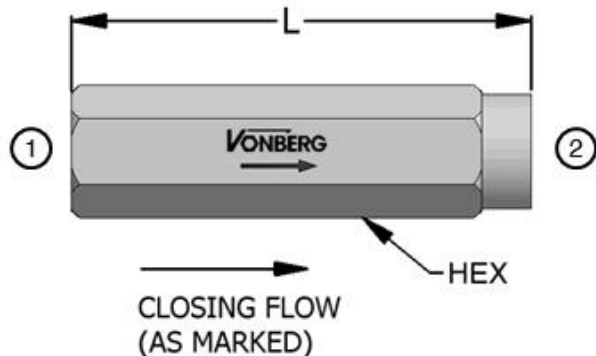
### ORDERING INFORMATION



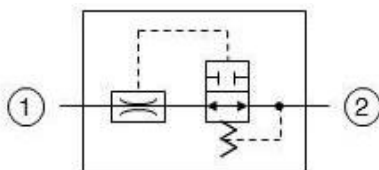
| Model     | DIA.  | L    | FLOW RANGE      | A           | B (MAX.) | C             | D           |
|-----------|-------|------|-----------------|-------------|----------|---------------|-------------|
| 21850-006 | 0.506 | 1.70 | 0.5 TO 10.0 GPM | 2.15 / 2.16 | 0.375    | 0.510 / 0.515 | 1.76 / 1.77 |
| 21850-008 | 0.670 | 1.88 | 0.5 TO 25.0 GPM | 2.38 / 2.39 | 0.500    | 0.672 / 0.677 | 1.94 / 1.95 |
| 21850-010 | 0.795 | 1.90 | 2.0 TO 40.0 GPM | 2.46 / 2.47 | 0.625    | 0.797 / 0.802 | 1.96 / 1.97 |
| 21850-012 | 0.970 | 1.90 | 2.0 TO 40.0 GPM | 2.56 / 2.57 | 0.812    | 0.972 / 0.977 | 1.96 / 1.97 |
| 21850-014 | 1.095 | 2.14 | 2.0 TO 50.0 GPM | 2.80 / 2.81 | 0.812    | 1.097 / 1.102 | 2.20 / 2.21 |
| 21850-016 | 1.220 | 2.14 | 2.0 TO 50.0 GPM | 2.80 / 2.81 | 0.937    | 1.222 / 1.227 | 2.20 / 2.21 |
| 21850-024 | 1.783 | 3.25 | 5.0 TO 80.0 GPM | 3.91 / 3.92 | 1.437    | 1.787 / 1.792 | 3.31 / 3.32 |

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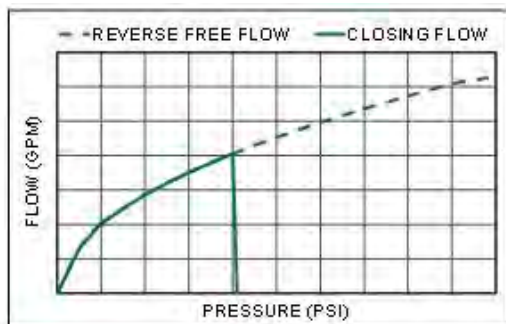
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH FEMALE NPTF PORTS THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

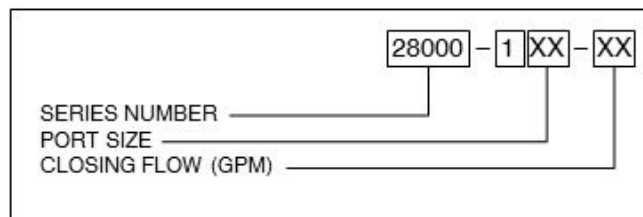
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION



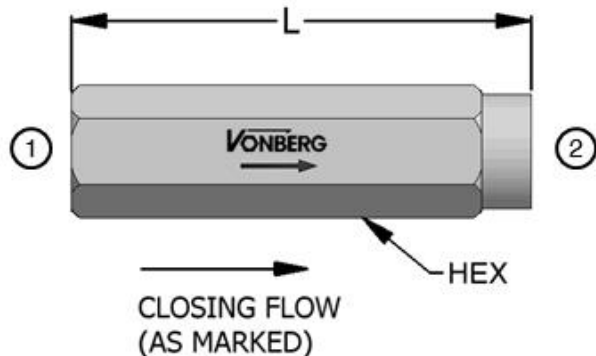
| Model     | INLET / OUTLET | FLOW RANGE      | L    | HEX   |
|-----------|----------------|-----------------|------|-------|
| 28000-102 | 1/4-18 NPTF    | 0.5 TO 10.0 GPM | 3.18 | 0.750 |
| 28000-103 | 3/8-18 NPTF    | 0.5 TO 25.0 GPM | 3.50 | 0.875 |
| 28000-104 | 1/2-14 NPTF    | 2.0 TO 40.0 GPM | 3.85 | 1.125 |
| 28000-106 | 3/4-14 NPTF    | 2.0 TO 50.0 GPM | 4.20 | 1.375 |

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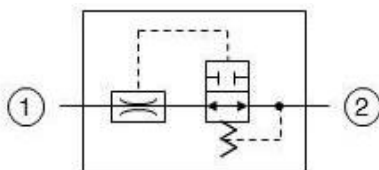
Page last updated: February 19, 2015



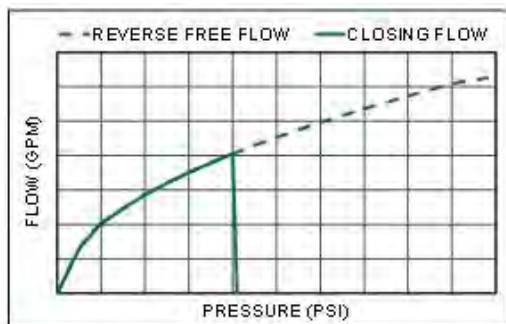
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH FEMALE SAE PORTS THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

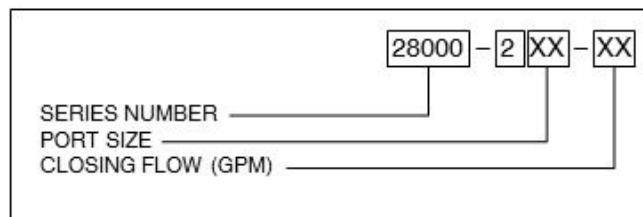
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

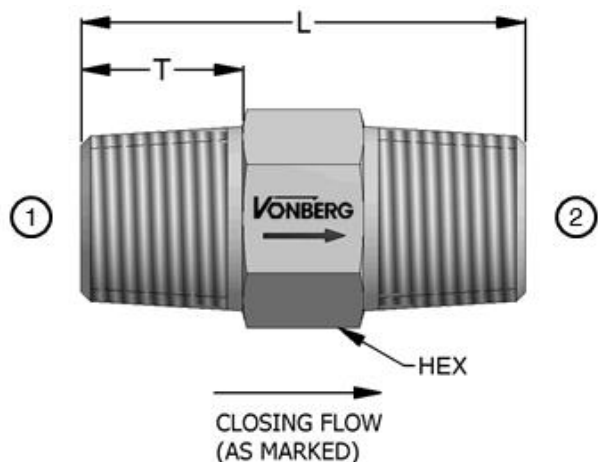


| Model     | INLET / OUTLET | THREAD    | FLOW RANGE      | L    | HEX   |
|-----------|----------------|-----------|-----------------|------|-------|
| 28000-204 | -04 SAE        | 7/16-20   | 0.1 TO 4.0 GPM  | 2.75 | 0.625 |
| 28000-206 | -06 SAE        | 9/16-18   | 0.5 TO 10.0 GPM | 3.00 | 0.750 |
| 28000-208 | -08 SAE        | 3/4-16    | 0.5 TO 25.0 GPM | 3.38 | 0.938 |
| 28000-210 | -10 SAE        | 7/8-14    | 2.0 TO 40.0 GPM | 3.75 | 1.125 |
| 28000-212 | -12 SAE        | 1 1/16-12 | 2.0 TO 50.0 GPM | 4.25 | 1.375 |

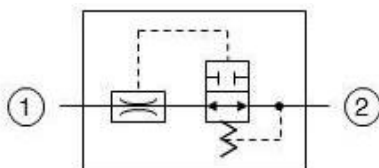
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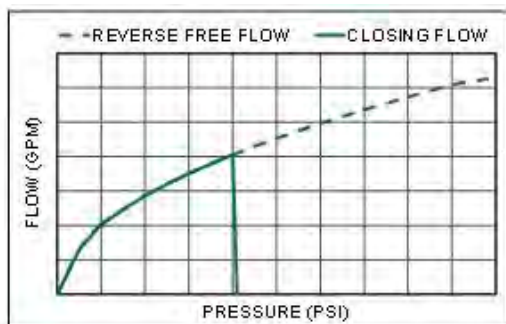
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH MALE NPTF CONNECTIONS THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

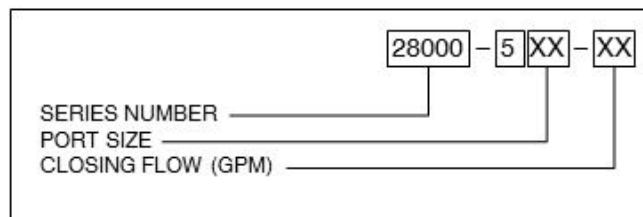
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

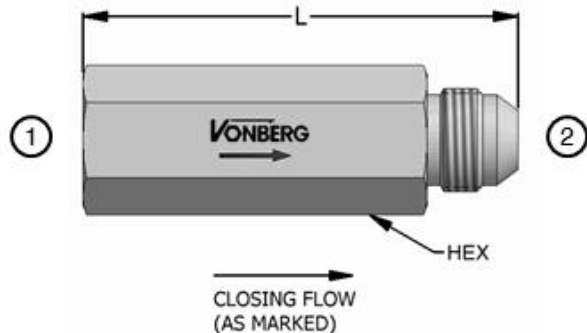


| Model     | INLET/OUTLET      | FLOW RANGE      | L    | T     | HEX   |
|-----------|-------------------|-----------------|------|-------|-------|
| 28000-502 | 1/4-18 NPTF       | 0.1 TO 4.0 GPM  | 2.05 | 0.563 | 0.625 |
| 28000-503 | 3/8-18 NPTF       | 0.5 TO 10.0 GPM | 1.75 | 0.600 | 0.750 |
| 28000-504 | 1/2-14 NPTF       | 1.0 TO 25.0 GPM | 2.06 | 0.750 | 0.875 |
| 28000-506 | 3/4-14 NPTF       | 2.0 TO 40.0 GPM | 2.00 | 0.750 | 1.125 |
| 28000-508 | 1-11 1/2 NPTF     | 2.0 TO 50.0 GPM | 2.34 | 0.920 | 1.375 |
| 28000-512 | 1 1/2-11 1/2 NPTF | 2.0 TO 80.0 GPM | 4.75 | 1.000 | 2.000 |

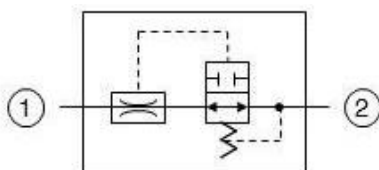
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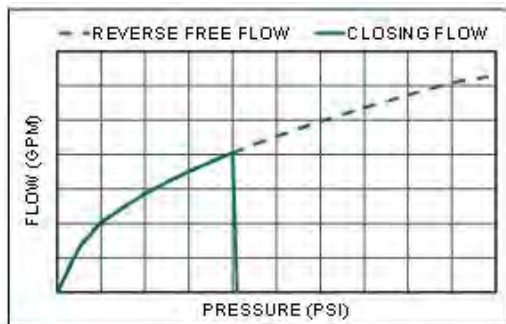
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A FEMALE NPTF PORT INLET AND A MALE JIC OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

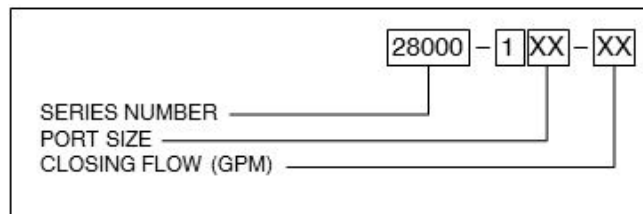
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

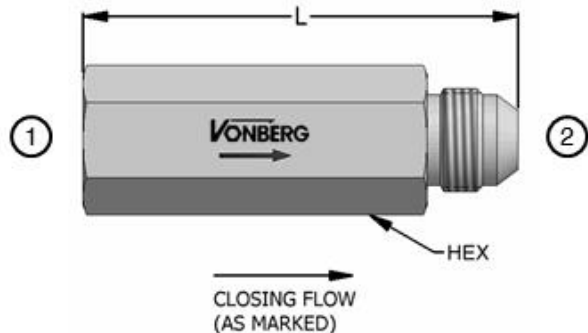


| Model     | INLET 1     | OUTLET 2          | FLOW RANGE      | L    | HEX   |
|-----------|-------------|-------------------|-----------------|------|-------|
| 28001-102 | 1/4-18 NPTF | -04 JIC - 7/16-20 | 0.1 TO 4.0 GPM  | 2.78 | 0.750 |
| 28001-103 | 3/8-18 NPTF | -06 JIC - 9/16-18 | 1.0 TO 25.0 GPM | 3.10 | 0.875 |
| 28001-104 | 1/2-14 NPTF | -08 JIC - 3/4-16  | 2.0 TO 40.0 GPM | 3.30 | 1.125 |

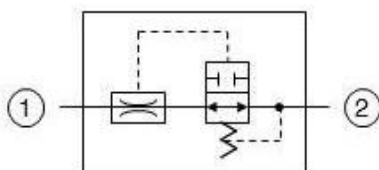
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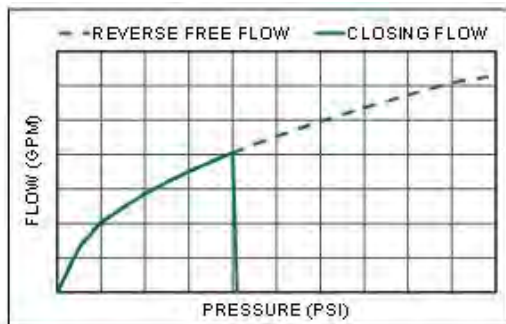
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A FEMALE SAE O-RING INLET AND A MALE JIC OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

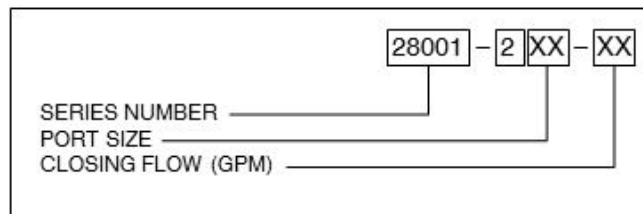
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION



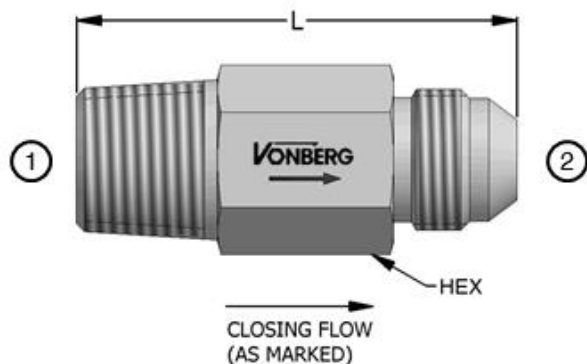
| Model     | INLET 1             | OUTLET 2            | FLOW RANGE      | L    | HEX   |
|-----------|---------------------|---------------------|-----------------|------|-------|
| 28001-204 | -04 SAE - 7/16-20   | -04 JIC - 7/16-20   | 0.1 TO 4.0 GPM  | 2.65 | 0.625 |
| 28001-206 | -06 SAE - 9/16-18   | -06 JIC - 9/16-18   | 0.5 TO 10.0 GPM | 2.90 | 0.750 |
| 28001-208 | -08 SAE - 3/4-16    | -08 JIC - 3/4-16    | 1.0 TO 25.0 GPM | 3.15 | 0.938 |
| 28001-210 | -10 SAE - 7/8-14    | -10 JIC - 7/8-14    | 2.0 TO 40.0 GPM | 3.40 | 1.125 |
| 28001-212 | -12 SAE - 1 1/16-12 | -12 JIC - 1 1/16-12 | 2.0 TO 50.0 GPM | 3.95 | 1.375 |

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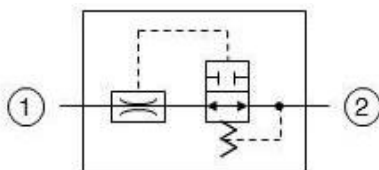
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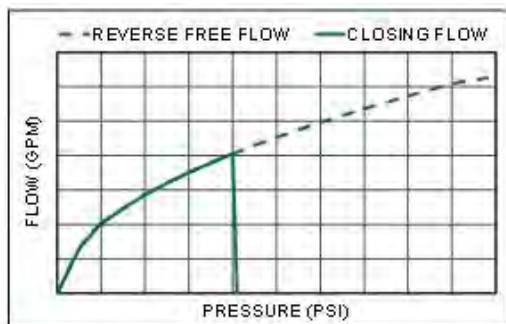
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A MALE NPTF INLET AND A MALE JIC OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

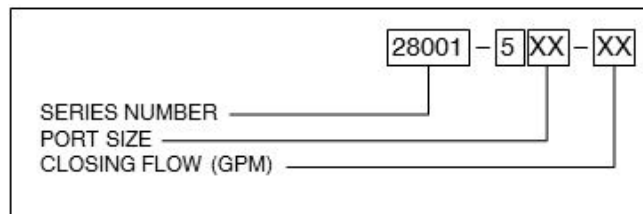
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

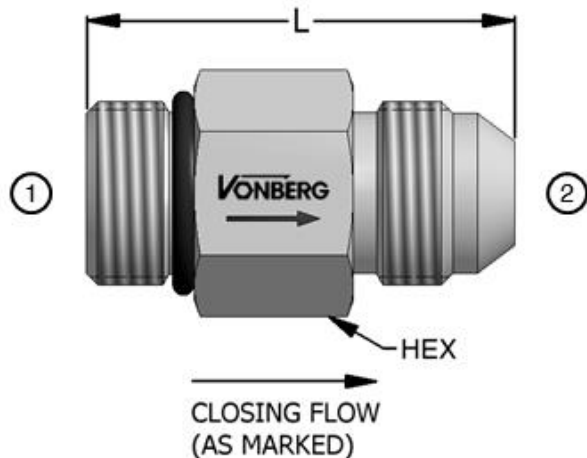


| Model     | INLET 1           | OUTLET 2           | FLOW RANGE      | L    | HEX   |
|-----------|-------------------|--------------------|-----------------|------|-------|
| 28001-502 | 1/4-18 NPTF       | -04 JIC - 7/16-20  | 0.1 TO 4.0 GPM  | 2.30 | 0.625 |
| 28001-503 | 3/8-18 NPTF       | -06 JIC - 9/16-18  | 0.5 TO 10.0 GPM | 2.30 | 0.750 |
| 28001-504 | 1/2-14 NPTF       | -08 JIC - 3/4-16   | 1.0 TO 25.0 GPM | 2.34 | 0.875 |
| 28001-506 | 3/4-14 NPTF       | -12 JIC - 1 1/6-12 | 2.0 TO 40.0 GPM | 2.75 | 1.250 |
| 28001-508 | 1-11 1/2 NPTF     | -16 JIC - 1 5/6-12 | 2.0 TO 50.0 GPM | 3.25 | 1.375 |
| 28001-512 | 1 1/2-11 1/2 NPTF | -24 JIC - 1 7/8-12 | 5.0 TO 80.0 GPM | 4.85 | 2.000 |

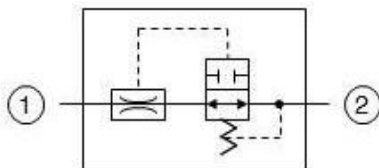
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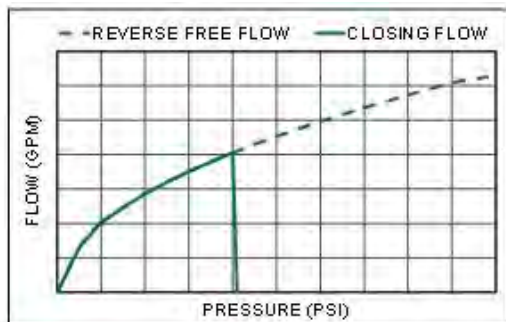
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A MALE SAE O-RING INLET AND A MALE JIC OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

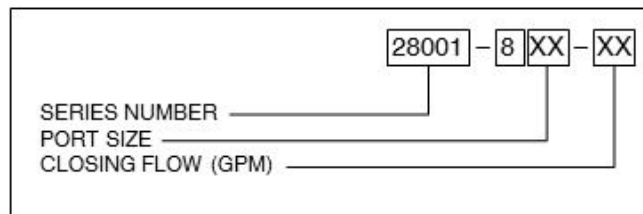
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

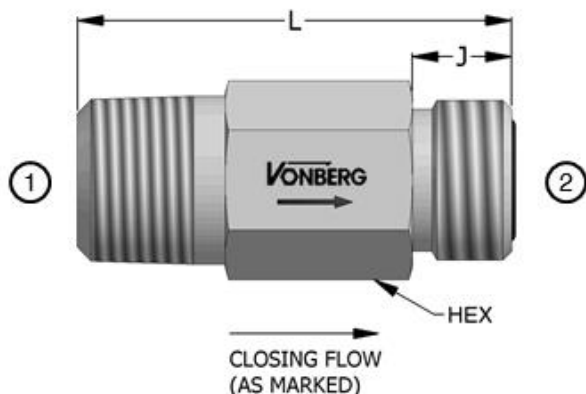


| Model     | INLET 1             | OUTLET 2            | FLOW RANGE      | L    | HEX   |
|-----------|---------------------|---------------------|-----------------|------|-------|
| 28001-804 | -04 SAE - 7/16-20   | -04 JIC - 7/16-20   | 0.1 TO 4.0 GPM  | 3.06 | 0.625 |
| 28001-806 | -06 SAE - 9/16-18   | -06 JIC - 9/16-18   | 0.1 TO 4.0 GPM  | 1.61 | 0.750 |
| 28001-808 | -08 SAE - 3/4-16    | -08 JIC - 3/4-16    | 0.5 TO 10.0 GPM | 1.75 | 0.875 |
| 28001-810 | -10 SAE - 7/8-14    | -10 JIC - 7/8-14    | 1.0 TO 25.0 GPM | 2.06 | 1.000 |
| 28001-812 | -12 SAE - 1 1/16-12 | -12 JIC - 1 1/16-12 | 2.0 TO 40.0 GPM | 1.97 | 1.250 |
| 28001-816 | -16 SAE - 1 5/16-12 | -16 JIC - 1 5/16-12 | 2.0 TO 50.0 GPM | 2.50 | 1.500 |
| 28001-824 | -24 SAE - 1 7/8-12  | -24 JIC - 1 7/8-12  | 5.0 TO 80.0 GPM | 4.47 | 2.125 |

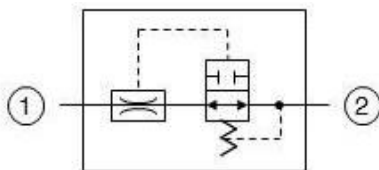
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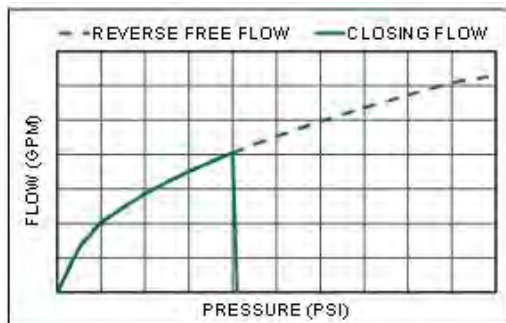
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A MALE NPTF INLET AND A MALE ORS OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

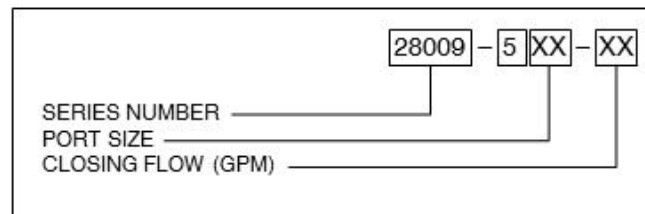
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

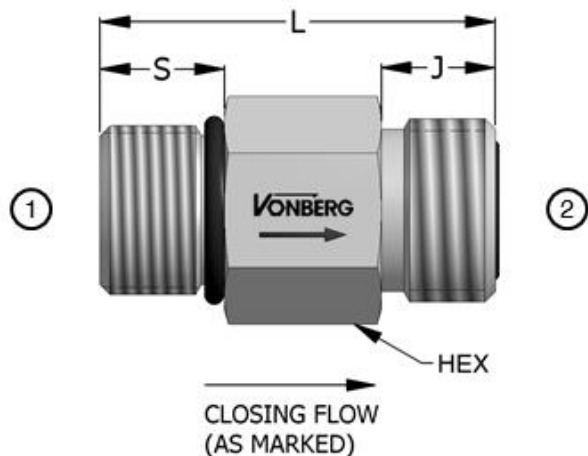


| Model     | INLET 1           | OUTLET 2            | FLOW RANGE      | L    | HEX   | J     |
|-----------|-------------------|---------------------|-----------------|------|-------|-------|
| 28009-502 | 1/4-18 NPTF       | -04 ORS - 9/16-18   | 0.1 TO 4.0 GPM  | 2.30 | 0.625 | 0.386 |
| 28009-503 | 3/8-18 NPTF       | -06 ORS - 11/16-16  | 0.5 TO 10.0 GPM | 2.10 | 0.750 | 0.441 |
| 28009-504 | 1/2-14 NPTF       | -08 ORS - 13/16-16  | 1.0 TO 25.0 GPM | 2.34 | 0.875 | 0.504 |
| 28009-506 | 3/4-14 NPTF       | -12 ORS - 1 3/16-12 | 2.0 TO 40.0 GPM | 2.75 | 1.250 | 0.670 |
| 28009-508 | 1-11 1/2 NPTF     | -16 ORS - 1 7/16-12 | 2.0 TO 50.0 GPM | 3.25 | 1.375 | 0.689 |
| 28009-512 | 1 1/2-11 1/2 NPTF | -24 ORS - 2-12      | 5.0 TO 80.0 GPM | 4.85 | 2.125 | 0.689 |

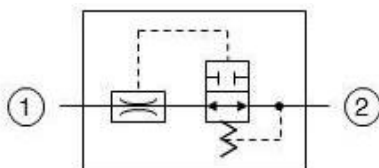
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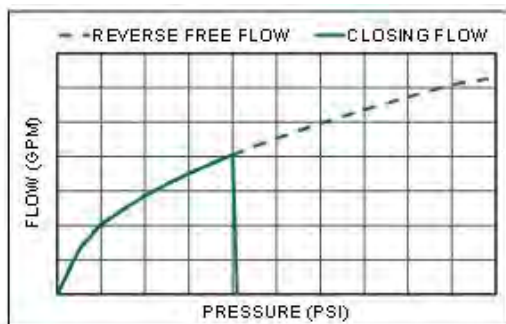
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A MALE SAE INLET AND A MALE ORS OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

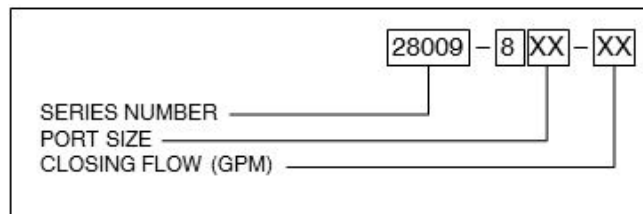
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 5000 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION



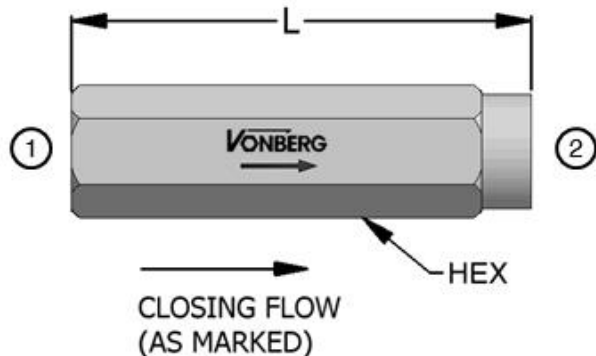
| Model     | INLET 1             | OUTLET 2            | FLOW RANGE      | L    | HEX   | S     | J     |
|-----------|---------------------|---------------------|-----------------|------|-------|-------|-------|
| 28009-806 | -06 SAE - 9/16-18   | -06 ORS - 11/16-16  | 0.1 TO 4.0 GPM  | 1.60 | 0.750 | 0.472 | 0.441 |
| 28009-808 | -08 SAE - 3/4-16    | -08 ORS - 13/16-16  | 0.5 TO 10.0 GPM | 1.75 | 0.875 | 0.551 | 0.504 |
| 28009-810 | -10 SAE - 7/8-14    | -10 ORS - 1-14      | 1.0 TO 25.0 GPM | 1.90 | 1.125 | 0.630 | 0.610 |
| 28009-812 | -12 SAE - 1 1/16-12 | -12 ORS - 1 3/16-12 | 2.0 TO 40.0 GPM | 2.00 | 1.250 | 0.728 | 0.670 |
| 28009-816 | -16 SAE - 1 5/16-12 | -16 ORS - 1 7/16-12 | 2.0 TO 50.0 GPM | 2.40 | 1.500 | 0.728 | .0689 |
| 28009-824 | -24 SAE - 1 7/8-12  | -24 ORS - 2-12      | 5.0 TO 80.0 GPM | 3.25 | 2.125 | 0.728 | 0.689 |

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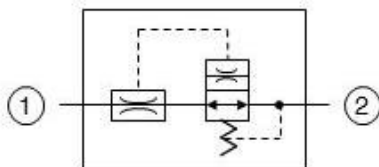
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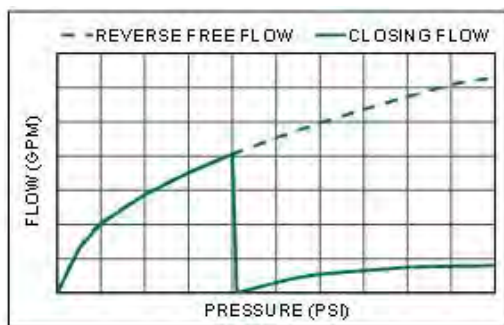
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH FEMALE NPTF PORTS THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3000 PSI

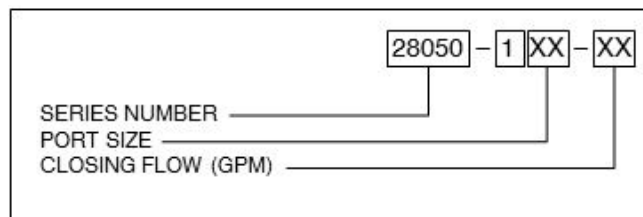
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

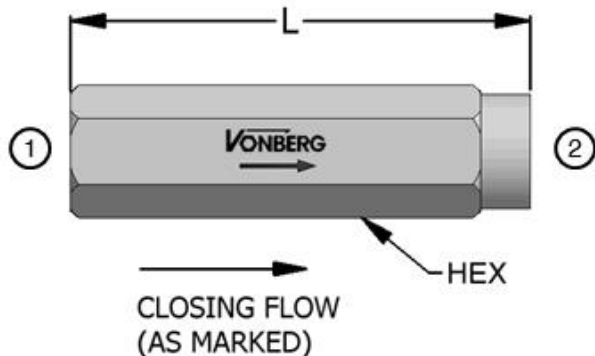


| Model     | INLET / OUTLET | FLOW RANGE      | L    | HEX   |
|-----------|----------------|-----------------|------|-------|
| 28050-102 | 1/4-18 NPTF    | 0.5 TO 10.0 GPM | 3.18 | 0.750 |
| 28050-103 | 3/8-18 NPTF    | 0.5 TO 25.0 GPM | 3.50 | 0.875 |
| 28050-104 | 1/2-14 NPTF    | 2.0 TO 40.0 GPM | 3.85 | 1.125 |
| 28050-106 | 3/4-14 NPTF    | 2.0 TO 50.0 GPM | 4.20 | 1.375 |

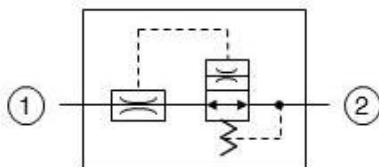
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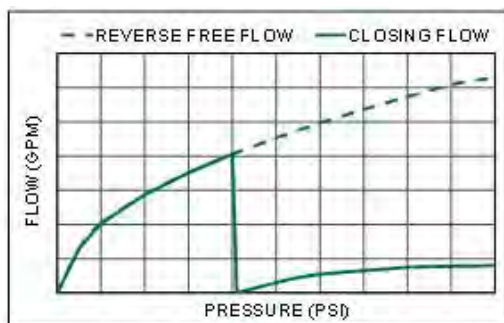
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH FEMALE SAE PORTS THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3000 PSI

### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

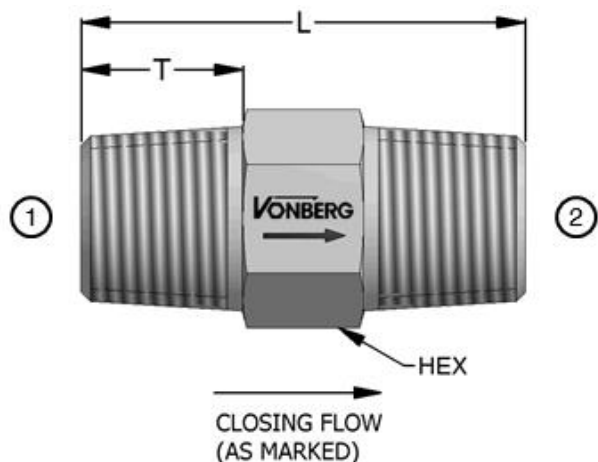
|               |   |           |    |                    |    |
|---------------|---|-----------|----|--------------------|----|
| 28050         | - | 2         | XX | -                  | XX |
| SERIES NUMBER |   | PORT SIZE |    | CLOSING FLOW (GPM) |    |

| Model     | INLET / OUTLET | FLOW RANGE      | L    | HEX   |
|-----------|----------------|-----------------|------|-------|
| 28050-204 | -04 SAE        | 0.1 TO 4.0 GPM  | 2.75 | 0.625 |
| 28050-206 | -06 SAE        | 0.5 TO 10.0 GPM | 3.00 | 0.750 |
| 28050-208 | -08 SAE        | 0.5 TO 25.0 GPM | 3.38 | 0.938 |
| 28050-210 | -10 SAE        | 2.0 TO 40.0 GPM | 3.75 | 1.125 |
| 28050-212 | -12 SAE        | 2.0 TO 50.0 GPM | 4.25 | 1.375 |

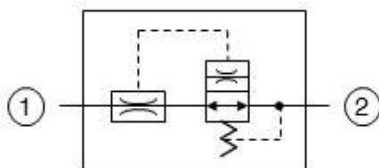
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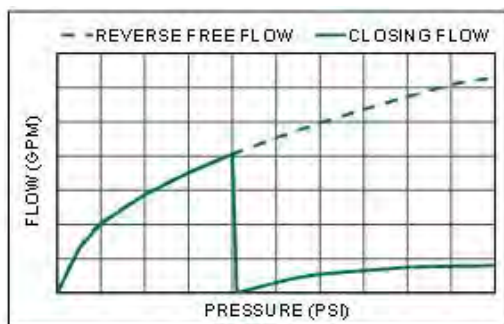
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE FLOW LIMITER WITH MALE NPTF CONNECTIONS THAT PREVENTS FREE FALL IN THE EVENT OF A LINE FAILURE, BUT ALLOWS A METERED FLOW AFTER CLOSING.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3500 PSI.

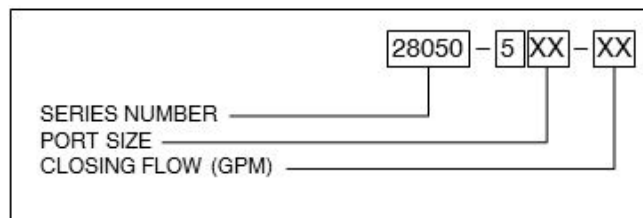
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

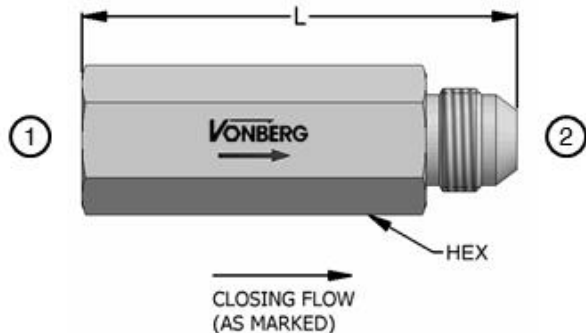


| Model     | INLET / OUTLET    | FLOW RANGE      | L    | T    | HEX  |
|-----------|-------------------|-----------------|------|------|------|
| 28050-502 | 1/4-18 NPTF       | 0.1 TO 4.0 GPM  | 1.75 | 0.56 | 0.63 |
| 28050-503 | 3/8-18 NPTF       | 0.5 TO 10.0 GPM | 1.75 | 0.60 | 0.75 |
| 28050-504 | 1/2-14 NPTF       | 0.5 TO 25.0 GPM | 2.06 | 0.75 | 0.88 |
| 28050-506 | 3/4-14 NPTF       | 2.0 TO 40.0 GPM | 2.00 | 0.75 | 1.13 |
| 28050-508 | 1-11 1/2 NPTF     | 2.0 TO 50.0 GPM | 2.34 | 0.92 | 1.38 |
| 28050-512 | 1 1/2-11 1/2 NPTF | 2.0 TO 80.0 GPM | 4.75 | 1.00 | 2.00 |

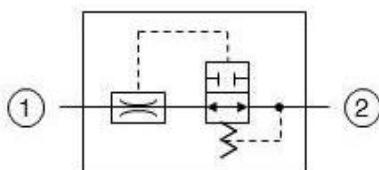
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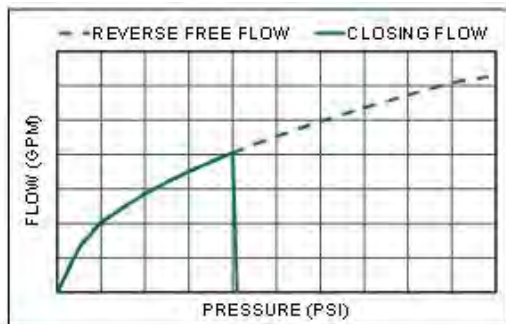
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE FLOW LIMITER WITH A FEMALE NPTF PORT INLET AND A MALE JIC OUTLET THAT PREVENTS FREE FALL IN THE EVENT OF A LINE FAILURE, BUT ALLOWS A METERED FLOW AFTER CLOSING.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3500 PSI.

### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION



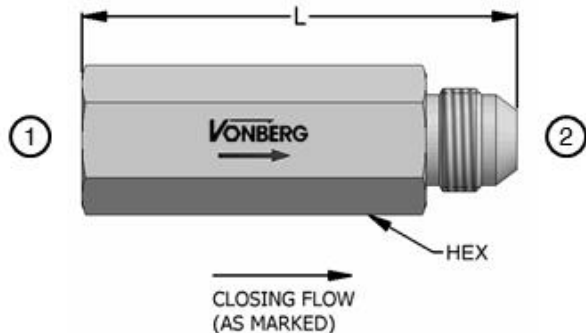
| Model     | INLET 1     | OUTLET 2          | FLOW RANGE      | L    | HEX   |
|-----------|-------------|-------------------|-----------------|------|-------|
| 28051-102 | 1/4-18 NPTF | -04 JIC - 7/16-20 | 0.1 TO 4.0 GPM  | 2.78 | 0.750 |
| 28051-103 | 3/8-18 NPTF | -06 JIC - 9/16-18 | 1.0 TO 25.0 GPM | 3.10 | 0.875 |
| 28051-104 | 1/2-14 NPTF | -08 JIC - 3/4-16  | 2.0 TO 40.0 GPM | 3.30 | 1.125 |

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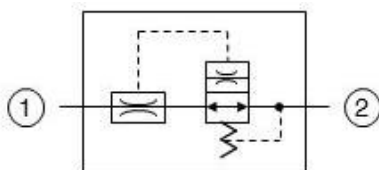
Page last updated: February 18, 2015



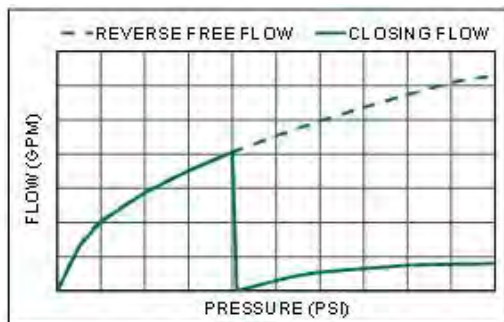
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE FLOW LIMITER WITH A FEMALE SAE O-RING PORT INLET AND A MALE JIC OUTLET THAT PREVENTS FREE FALL IN THE EVENT OF A LINE FAILURE, BUT ALLOWS A METERED FLOW AFTER CLOSING.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3500 PSI.

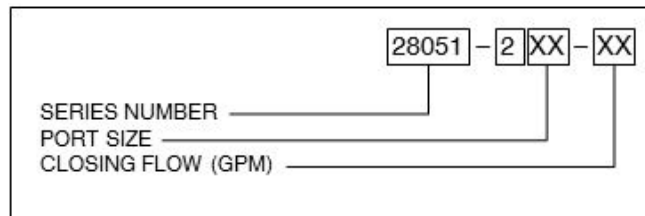
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

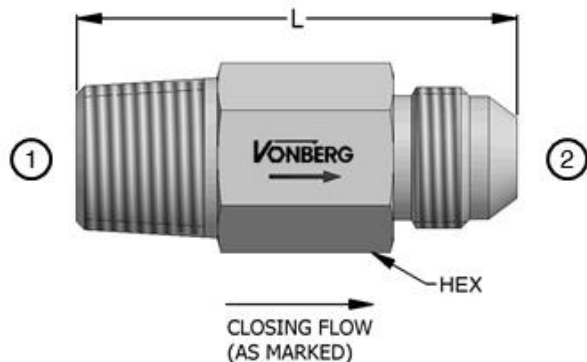


| Model     | INLET 1             | OUTLET 2            | FLOW RANGE      | L    | HEX  |
|-----------|---------------------|---------------------|-----------------|------|------|
| 28051-204 | -04 SAE - 7/16-20   | -04 JIC - 7/16-20   | 0.1 TO 4.0 GPM  | 2.40 | 0.63 |
| 28051-206 | -06 SAE - 9/16-18   | -06 JIC - 9/16-18   | 0.5 TO 10.0 GPM | 2.90 | 0.75 |
| 28051-208 | -08 SAE - 3/4-16    | -08 JIC - 3/4-16    | 1.0 TO 25.0 GPM | 3.15 | 0.94 |
| 28051-210 | -10 SAE - 7/8-14    | -10 JIC - 7/8-14    | 2.0 TO 40.0 GPM | 3.40 | 1.13 |
| 28051-212 | -12 SAE - 1 1/16-12 | -12 JIC - 1 1/16-12 | 2.0 TO 50.0 GPM | 3.95 | 1.38 |

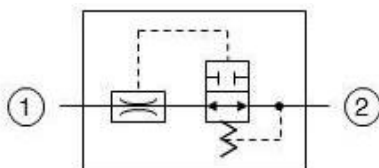
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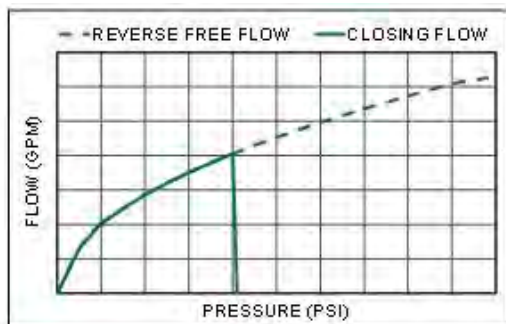
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE FLOW LIMITER WITH A MALE NPTF INLET AND A MALE JIC OUTLET THAT PROVIDES PREVENTS FREE FALL IN THE EVENT OF A LINE FAILURE, BUT ALLOWS A METERED FLOW AFTER CLOSING.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3500 PSI.

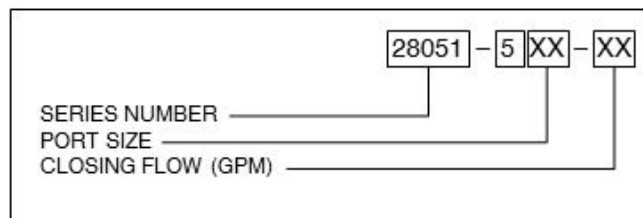
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

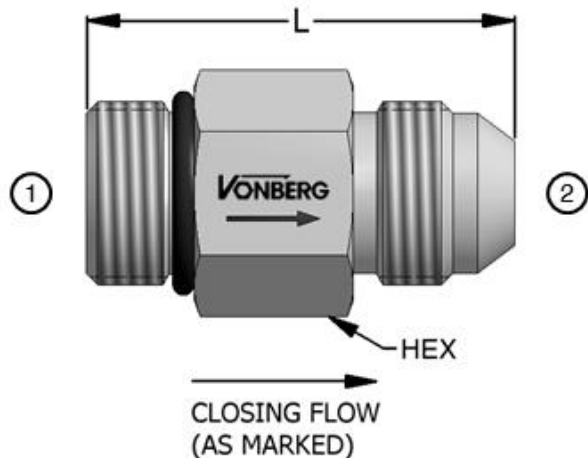


| Model     | INLET 1           | OUTLET 2           | FLOW RANGE      | L    | HEX   |
|-----------|-------------------|--------------------|-----------------|------|-------|
| 28051-502 | 1/4-18 NPTF       | -04 JIC - 7/16-20  | 0.1 TO 4.0 GPM  | 2.30 | 0.625 |
| 28051-503 | 3/8-18 NPTF       | -06 JIC - 9/16-18  | 0.5 TO 10.0 GPM | 2.30 | 0.750 |
| 28051-504 | 1/2-14 NPTF       | -08 JIC - 3/4-16   | 1.0 TO 25.0 GPM | 2.34 | 0.875 |
| 28051-506 | 3/4-14 NPTF       | -12 JIC - 1 1/8-12 | 2.0 TO 40.0 GPM | 2.75 | 1.250 |
| 28051-508 | 1-11 1/2 NPTF     | -16 JIC - 1 5/8-12 | 2.0 TO 50.0 GPM | 3.25 | 1.375 |
| 28051-512 | 1 1/2-11 1/2 NPTF | -24 JIC - 1 7/8-12 | 5.0 TO 80.0 GPM | 4.85 | 2.000 |

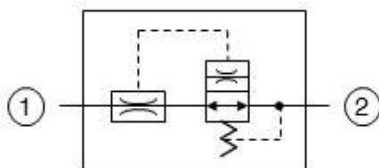
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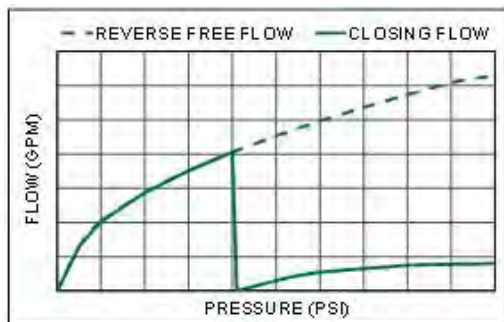
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE FLOW LIMITER WITH A MALE SAE O-RING INLET AND A MALE JIC OUTLET THAT PREVENTS FREE FALL IN THE EVENT OF A LINE FAILURE, BUT ALLOWS A METERED FLOW AFTER CLOSING.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3500 PSI.

### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

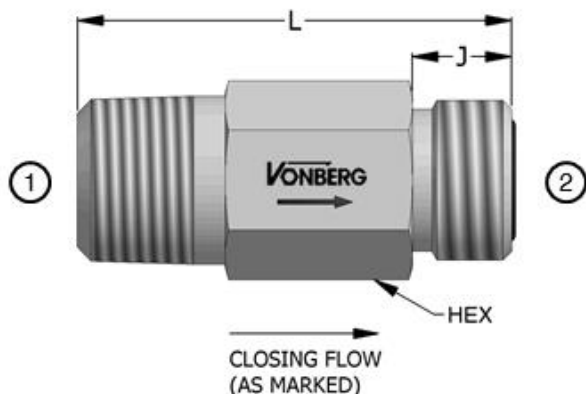


| Model     | INLET 1             | OUTLET 2            | FLOW RANGE      | L    | HEX   |
|-----------|---------------------|---------------------|-----------------|------|-------|
| 28051-804 | -04 SAE - 7/16-20   | -04 JIC - 7/16-20   | 0.1 TO 4.0 GPM  | 3.06 | 0.625 |
| 28051-806 | -06 SAE - 9/16-18   | -06 JIC - 9/16-18   | 0.1 TO 4.0 GPM  | 1.61 | 0.750 |
| 28051-808 | -08 SAE - 3/4-16    | -08 JIC - 3/4-16    | 0.5 TO 10.0 GPM | 1.75 | 0.875 |
| 28051-810 | -10 SAE - 7/8-14    | -10 JIC - 7/8-14    | 1.0 TO 25.0 GPM | 2.06 | 1.000 |
| 28051-812 | -12 SAE - 1 1/16-12 | -12 JIC - 1 1/16-12 | 2.0 TO 40.0 GPM | 1.97 | 1.250 |
| 28051-816 | -16 SAE - 1 5/16-12 | -16 JIC - 1 5/16-12 | 2.0 TO 50.0 GPM | 2.50 | 1.500 |
| 28051-824 | -24 SAE - 1 7/8-12  | -24 JIC - 1 7/8-12  | 2.0 TO 80.0 GPM | 4.47 | 2.125 |

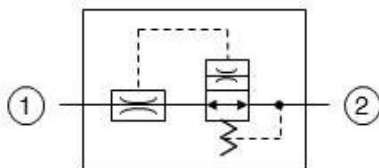
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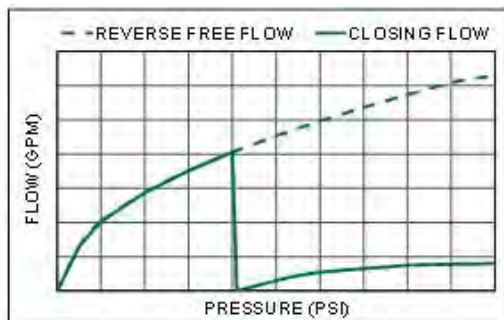
## PRODUCT



## SCHEMATIC



## TYPICAL PERFORMANCE



## DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A MALE NPTF INLET AND A MALE ORS OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

## OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3000 PSI.

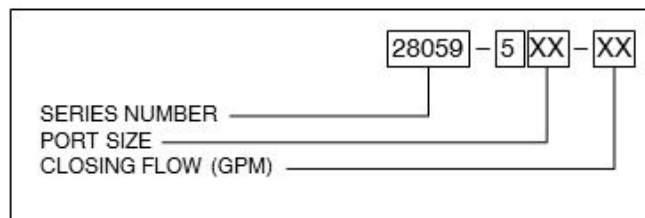
## FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

## SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

## ORDERING INFORMATION

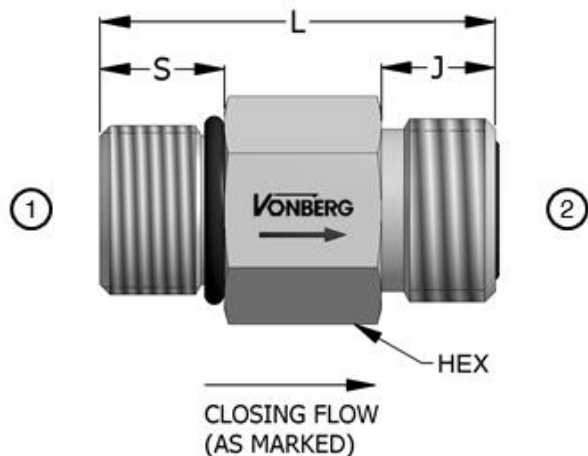


| Model     | INLET 1           | OUTLET 2            | FLOW RANGE      | L    | HEX   | J     |
|-----------|-------------------|---------------------|-----------------|------|-------|-------|
| 28059-502 | 1/4-18 NPTF       | -04 ORS - 9/16-18   | 0.1 TO 4.0 GPM  | 2.30 | 0.625 | 0.389 |
| 28059-503 | 3/8-18 NPTF       | -06 ORS - 11/16-16  | 0.5 TO 10.0 GPM | 2.10 | 0.750 | 0.441 |
| 28059-504 | 1/2-14 NPTF       | -08 ORS - 13/16-16  | 1.0 TO 25.0 GPM | 2.34 | 0.875 | 0.504 |
| 28059-506 | 3/4-14 NPTF       | -12 ORS - 1 3/16-12 | 2.0 TO 40.0 GPM | 2.75 | 1.250 | 0.670 |
| 28059-508 | 1-11 1/2 NPTF     | -16 ORS - 1 7/16-12 | 2.0 TO 50.0 GPM | 3.25 | 1.375 | 0.689 |
| 28059-512 | 1 1/2-11 1/2 NPTF | -24 ORS - 2-12      | 5.0 TO 80.0 GPM | 4.85 | 2.125 | 0.689 |

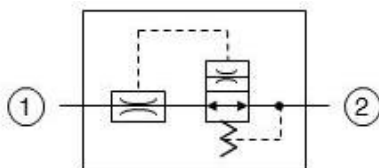
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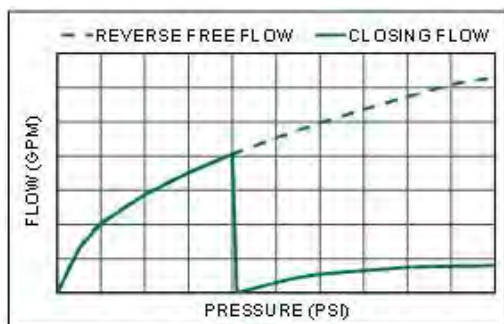
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A MALE SAE INLET AND A MALE ORS OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3000 PSI.

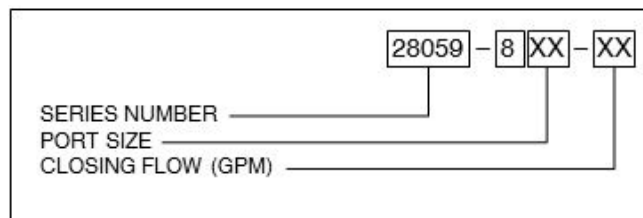
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 5000 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION



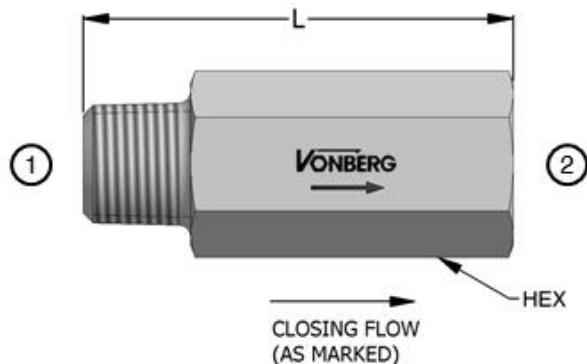
| Model     | INLET 1             | OUTLET 2            | FLOW RANGE      | L    | HEX   | S     | J     |
|-----------|---------------------|---------------------|-----------------|------|-------|-------|-------|
| 28059-806 | -06 SAE - 9/16-18   | -06 ORS - 11/16-16  | 0.1 TO 4.0 GPM  | 1.60 | 0.750 | 0.472 | 0.441 |
| 28059-808 | -08 SAE - 3/4-16    | -08 ORS - 13/16-16  | 0.5 TO 10.0 GPM | 1.75 | 0.875 | 0.551 | 0.504 |
| 28059-810 | -10 SAE - 7/8-14    | -10 ORS - 1-14      | 1.0 TO 25.0 GPM | 1.90 | 1.125 | 0.630 | 0.610 |
| 28059-812 | -12 SAE - 1 1/16-12 | -12 ORS - 1 3/16-12 | 2.0 TO 40.0 GPM | 2.00 | 1.250 | 0.728 | 0.670 |
| 28059-816 | -16 SAE - 1 5/16-12 | -16 ORS - 1 7/16-12 | 2.0 TO 50.0 GPM | 2.40 | 1.500 | 0.728 | 0.689 |
| 28059-824 | -24 SAE - 1 7/8-12  | -24 ORS - 2-12      | 5.0 TO 80.0 GPM | 3.25 | 2.125 | 0.728 | 0.689 |

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Page last updated: February 18, 2015



### PRODUCT



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A MALE NPTF INLET AND A FEMALE NPTF OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

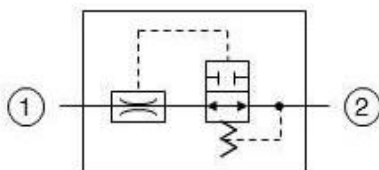
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

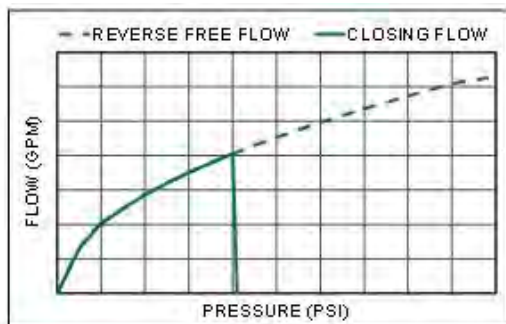
### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

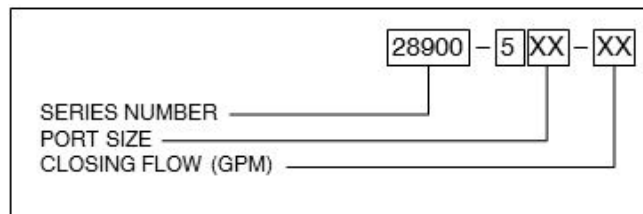
### SCHEMATIC



### TYPICAL PERFORMANCE



### ORDERING INFORMATION

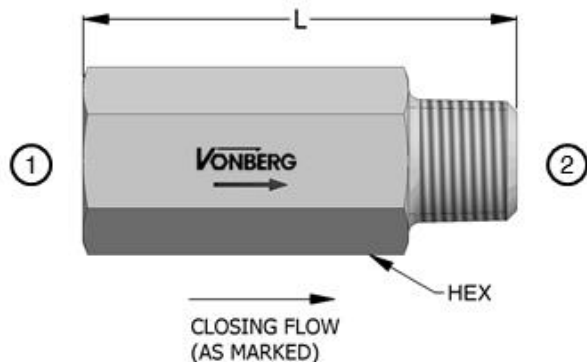


| Model     | INLET 1       | OUTLET 2           | FLOW RANGE      | L    | HEX  |
|-----------|---------------|--------------------|-----------------|------|------|
| 28900-502 | 1/4-18 NPTF   | 1/4-18 NPTF PORT   | 0.1 TO 4.0 GPM  | 2.70 | 0.75 |
| 28900-503 | 3/8-18 NPTF   | 3/8-18 NPTF PORT   | 0.5 TO 10.0 GPM | 2.70 | 0.88 |
| 28900-504 | 1/2-14 NPTF   | 1/2-14 NPTF PORT   | 1.0 TO 25.0 GPM | 3.00 | 1.13 |
| 28900-506 | 3/4-14 NPTF   | 3/4-14 NPTF PORT   | 2.0 TO 40.0 GPM | 3.20 | 1.38 |
| 28900-508 | 1-11 1/2 NPTF | 1-11 1/2 NPTF PORT | 2.0 TO 50.0 GPM | 3.80 | 1.63 |

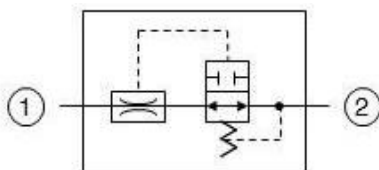
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Page last updated: February 19, 2015

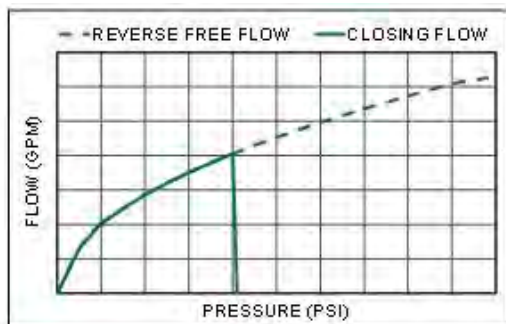
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A FEMALE NPTF INLET AND A MALE NPTF OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

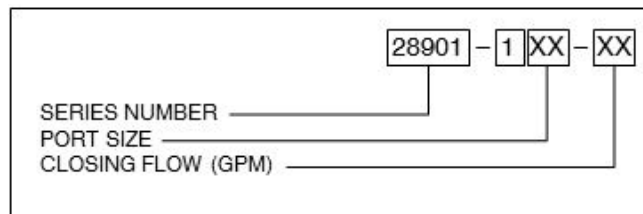
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

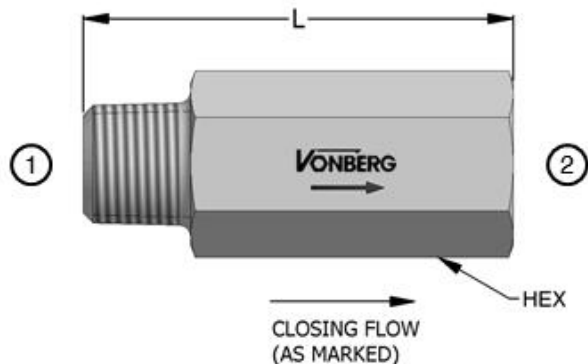


| Model     | INLET 1          | OUTLET 2    | FLOW RANGE      | L    | HEX   |
|-----------|------------------|-------------|-----------------|------|-------|
| 28901-102 | 1/4-18 NPTF PORT | 1/4-18 NPTF | 0.5 TO 10.0 GPM | 2.85 | 0.750 |
| 28901-103 | 3/8-18 NPTF PORT | 3/8-18 NPTF | 1.0 TO 25.0 GPM | 3.25 | 0.785 |
| 28901-104 | 1/2-14 NPTF PORT | 1/2-14 NPTF | 2.0 TO 40.0 GPM | 3.30 | 1.125 |
| 28901-106 | 3/4-14 NPTF PORT | 3/4-14 NPTF | 2.0 TO 50.0 GPM | 3.65 | 1.375 |

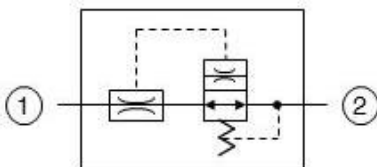
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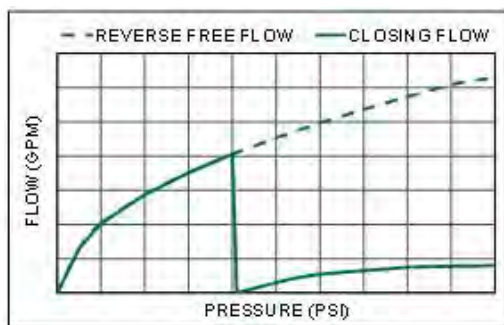
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A MALE NPTF INLET AND A FEMALE NPTF OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3000 PSI.

### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

28950 - 5 XX - XX

SERIES NUMBER \_\_\_\_\_

PORT SIZE \_\_\_\_\_

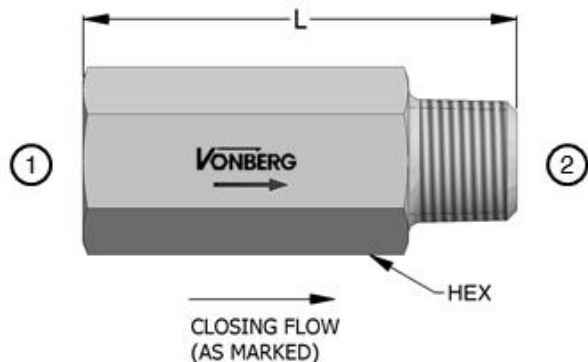
CLOSING FLOW (GPM) \_\_\_\_\_

| Model     | INLET 1       | OUTLET 2           | FLOW RANGE      | L    | HEX   |
|-----------|---------------|--------------------|-----------------|------|-------|
| 28950-502 | 1/4-18 NPTF   | 1/4-18 NPTF PORT   | 0.1 TO 4.0 GPM  | 2.70 | 0.750 |
| 28950-503 | 3/8-18 NPTF   | 3/8-18 NPTF PORT   | 0.5 TO 10.0 GPM | 2.70 | 0.875 |
| 28950-504 | 1/2-14 NPTF   | 1/2-14 NPTF PORT   | 1.0 TO 25.0 GPM | 3.00 | 1.125 |
| 28950-506 | 3/4-14 NPTF   | 3/4-14 NPTF PORT   | 2.0 TO 40.0 GPM | 3.20 | 1.375 |
| 28950-508 | 1-11 1/2 NPTF | 1-11 1/2 NPTF PORT | 2.0 TO 50.0 GPM | 3.80 | 1.625 |

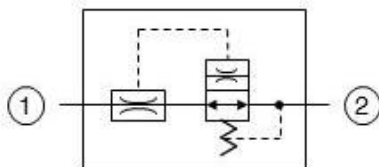
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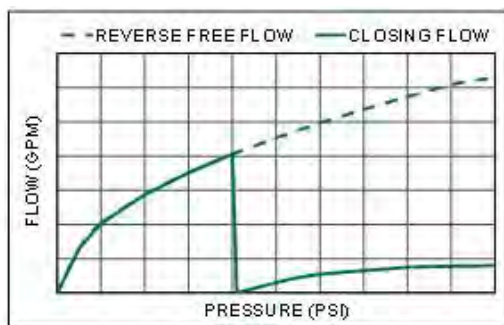
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE VELOCITY FUSE WITH A FEMALE NPTF INLET AND A MALE NPTF OUTLET THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3000 PSI.

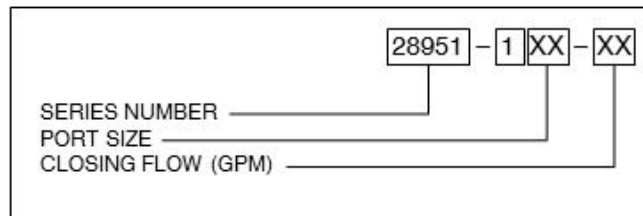
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION



| Model     | INLET 1          | OUTLET 2    | FLOW RANGE      | L    | HEX   |
|-----------|------------------|-------------|-----------------|------|-------|
| 28951-102 | 1/4-18 NPTF PORT | 1/4-18 NPTF | 0.5 TO 10.0 GPM | 2.85 | 0.750 |
| 28951-103 | 3/8-18 NPTF PORT | 3/8-18 NPTF | 1.0 TO 25.0 GPM | 3.25 | 0.875 |
| 28951-104 | 1/2-14 NPTF PORT | 1/2-14 NPTF | 2.0 TO 40.0 GPM | 3.30 | 1.125 |
| 28951-106 | 3/4-14 NPTF PORT | 3/4-14 NPTF | 2.0 TO 50.0 GPM | 3.65 | 1.375 |

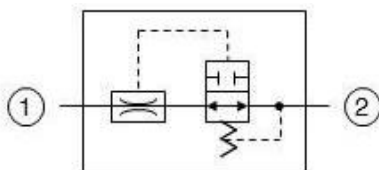
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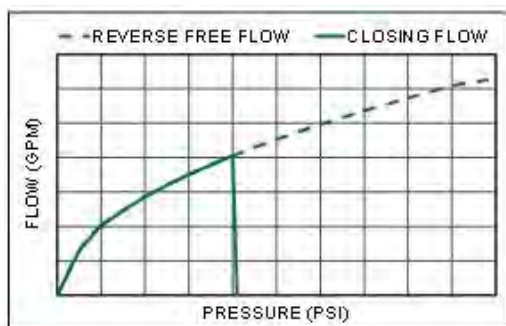
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE VELOCITY FUSE THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

### FEATURES

- STEEL COMPONENTS.
- INDUSTRY COMMON CAVITY.
- RAPID RESPONSE.
- POSITIVE CLOSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

81 XX - XX - XX

SERIES NUMBER \_\_\_\_\_

PORT SIZE \_\_\_\_\_

CLOSING FLOW (GPM) \_\_\_\_\_

BODY PORT SIZE CODE \_\_\_\_\_

BLANK..... CARTRIDGE ONLY

SERIES CODE... SEE "CARTRIDGE BODIES", X-2 SERIES

| MODEL | THREAD      | FLOW RANGE      | CAVITY | L1   | L2   | HEX  | A             | TORQUE    |
|-------|-------------|-----------------|--------|------|------|------|---------------|-----------|
| 8104  | 7/16 - 20   | 0.2 TO 2.0 GPM  | 4-2    | 0.94 | 0.55 | 0.56 | 0.277 / 0.278 | 10 ft-lbs |
| 8106  | 9/16 - 18   | 0.5 TO 3.0 GPM  | 6-2    | 0.84 | 0.53 | 0.69 | 0.467 / 0.468 | 15 ft-lbs |
| 8108  | 3/4 - 16    | 0.2 TO 5.0 GPM  | 8-2    | 1.10 | 0.50 | 0.88 | 0.495 / 0.497 | 20 ft-lbs |
| 8110  | 7/8 - 14    | 0.5 TO 8.0 GPM  | 10-2   | 1.25 | 0.75 | 1.00 | 0.621 / 0.623 | 25 ft-lbs |
| 8112  | 1 1/16 - 12 | 1.0 TO 15.0 GPM | 12-2   | 1.81 | 0.75 | 1.25 | 0.870 / 0.873 | 40 ft-lbs |
| 8116  | 1 5/16 - 12 | 2.0 TO 25.0 GPM | 16-2   | 1.75 | 0.75 | 1.50 | 1.121 / 1.123 | 60 ft-lbs |

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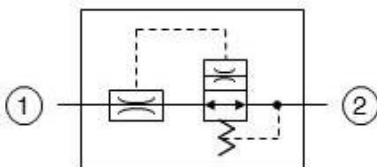
Page last updated: February 19, 2015



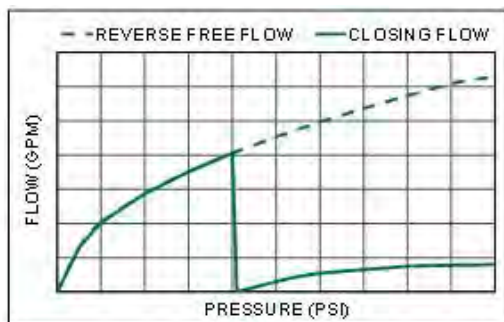
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE FLOW LIMITER THAT PREVENTS FREE FALL IN THE EVENT OF A LINE FAILURE, BUT ALLOWS A METERED FLOW AFTER CLOSING.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3000 PSI.

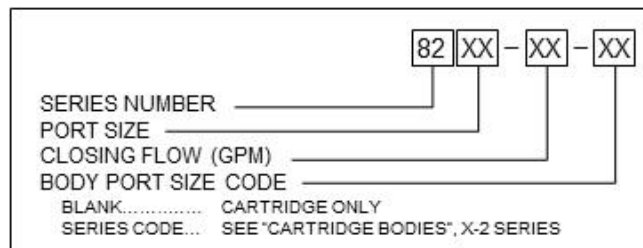
### FEATURES

- STEEL COMPONENTS.
- INDUSTRY COMMON CAVITY.
- RAPID RESPONSE.
- POSITIVE CLOSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

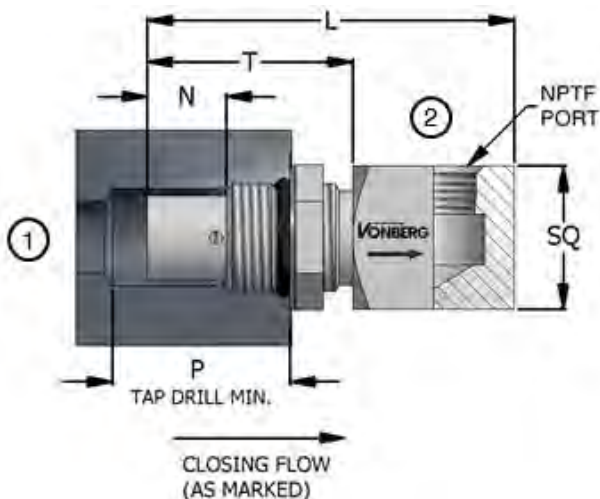


| MODEL | THREAD      | FLOW RANGE      | CAVITY | L1   | L2   | HEX  | A             | TORQUE    |
|-------|-------------|-----------------|--------|------|------|------|---------------|-----------|
| 8204  | 7/16 - 20   | 0.2 TO 2.0 GPM  | 4-2    | 0.94 | 0.55 | 0.56 | 0.277 / 0.278 | 10 ft-lbs |
| 8206  | 9/16 - 18   | 0.5 TO 3.0 GPM  | 6-2    | 0.84 | 0.53 | 0.69 | 0.467 / 0.468 | 15 ft-lbs |
| 8208  | 3/4 - 16    | 0.2 TO 5.0 GPM  | 8-2    | 1.10 | 0.50 | 0.88 | 0.495 / 0.497 | 20 ft-lbs |
| 8210  | 7/8 - 14    | 0.5 TO 8.0 GPM  | 10-2   | 1.25 | 0.75 | 1.00 | 0.621 / 0.623 | 25 ft-lbs |
| 8212  | 1 1/16 - 12 | 1.0 TO 15.0 GPM | 12-2   | 1.81 | 0.75 | 1.25 | 0.870 / 0.873 | 40 ft-lbs |
| 8216  | 1 5/16 - 12 | 2.0 TO 25.0 GPM | 16-2   | 1.75 | 0.75 | 1.50 | 1.121 / 1.123 | 60 ft-lbs |

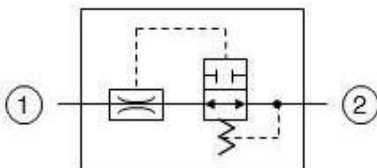
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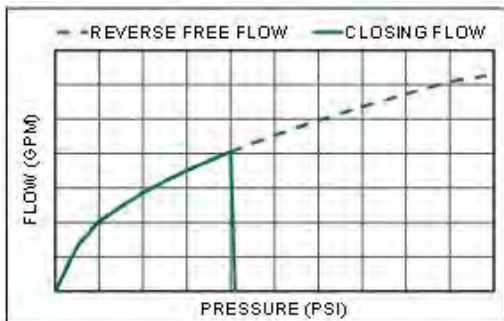
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, 90deg SWIVEL ELBOW VELOCITY FUSE WITH AN NPTF OUTLET PORT THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

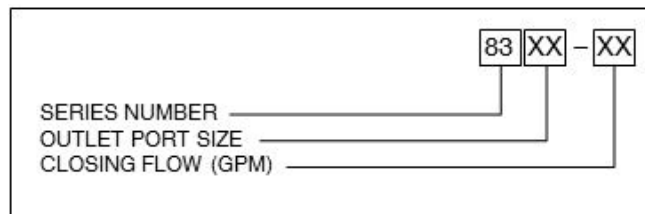
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- POSITIVE CLOSE
- SWIVEL DESIGN FOR EASY ALIGNMENT.
- 90&deg ELBOW FOR LOW PROFILE APPLICATIONS.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

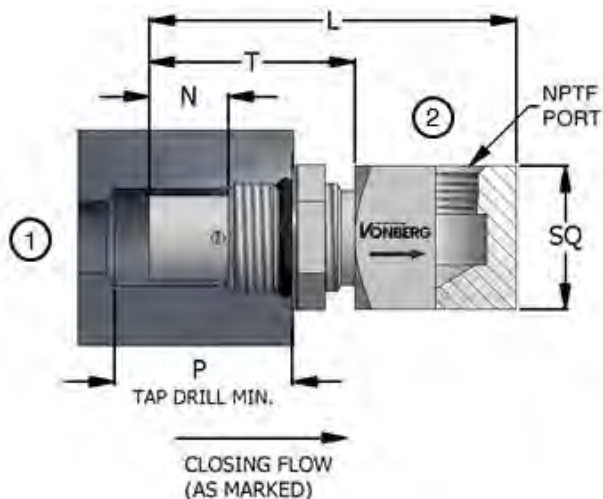


| Model | PORT 1              | PORT 2      | FLOW RANGE      | L     | T     | N     | P (MIN) | SQ    |
|-------|---------------------|-------------|-----------------|-------|-------|-------|---------|-------|
| 8302  | -06 SAE - 9/16-18   | 1/4-18 NPTF | 0.2 TO 8.0 GPM  | 2.125 | 1.160 | 0.390 | 1.000   | 0.875 |
| 8303  | -08 SAE - 3/4-16    | 3/8-18 NPTF | 0.5 TO 15.0 GPM | 2.555 | 1.430 | 0.550 | 1.250   | 1.000 |
| 8304  | -10 SAE - 7/8-14    | 1/2-14 NPTF | 1.0 TO 25.0 GPM | 3.230 | 1.870 | 0.850 | 1.688   | 1.125 |
| 8306  | -12 SAE - 1 1/16-12 | 3/4-14 NPTF | 2.0 TO 40.0 GPM | 3.625 | 2.065 | 0.905 | 1.980   | 1.375 |

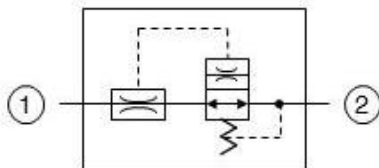
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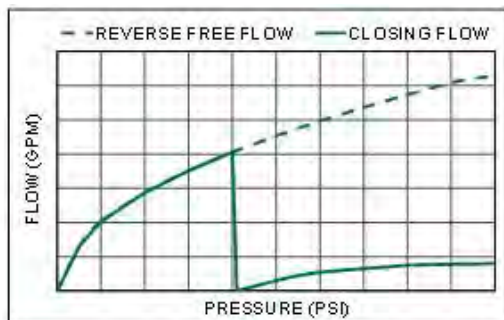
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, 90deg SWIVEL ELBOW FLOW LIMITER WITH AN NPTF OUTLET PORT THAT PROVIDES PARTIAL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE. ALLOWS RESTRICTED FLOW AFTER CLOSING.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3000 PSI.

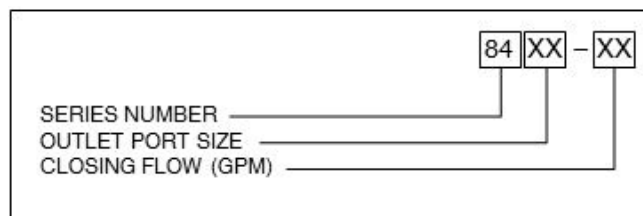
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- POSITIVE CLOSE
- SWIVEL DESIGN FOR EASY ALIGNMENT.
- 90deg ELBOW FOR LOW PROFILE APPLICATIONS.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

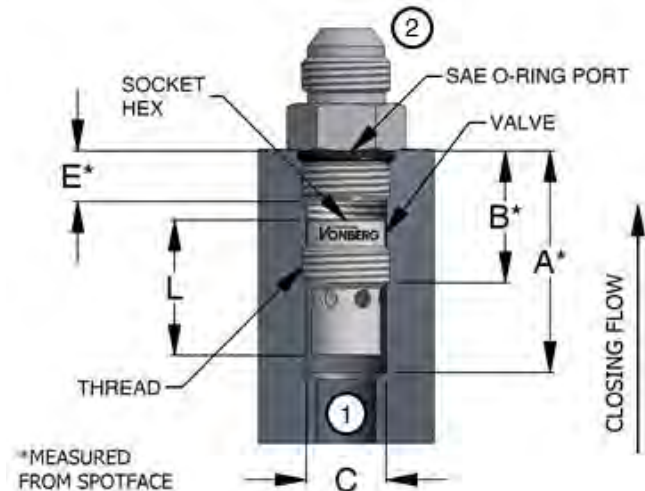


| Model | PORT 1              | PORT 2      | FLOW RANGE      | L     | T     | N     | P (MIN) | SQ    |
|-------|---------------------|-------------|-----------------|-------|-------|-------|---------|-------|
| 8402  | -06 SAE - 9/16-18   | 1/4-18 NPTF | 0.2 TO 8.0 GPM  | 2.125 | 1.160 | 0.390 | 1.000   | 0.875 |
| 8403  | -08 SAE - 3/4-16    | 3/8-18 NPTF | 0.5 TO 15.0 GPM | 2.555 | 1.430 | 0.550 | 1.250   | 1.000 |
| 8404  | -10 SAE - 7/8-14    | 1/2-14 NPTF | 1.0 TO 25.0 GPM | 3.230 | 1.870 | 0.850 | 1.688   | 1.125 |
| 8406  | -12 SAE - 1 1/16-12 | 3/4-14 NPTF | 2.0 TO 40.0 GPM | 3.625 | 2.065 | 0.905 | 1.980   | 1.375 |

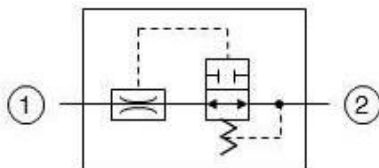
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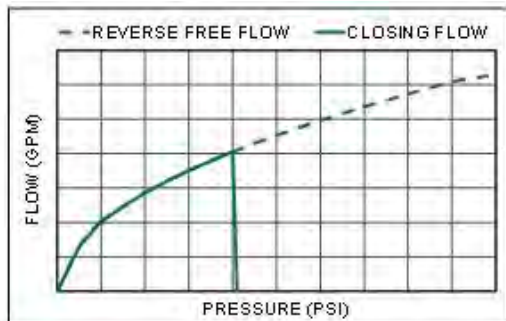
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A IN-LINE, THREADED INSERTABLE VELOCITY FUSE THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

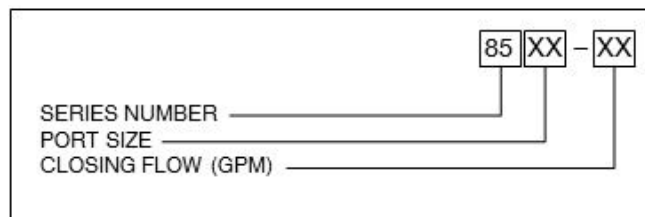
### FEATURES

- STEEL COMPONENTS.
- RAPID RESPONSE.
- POSITIVE CLOSE.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION



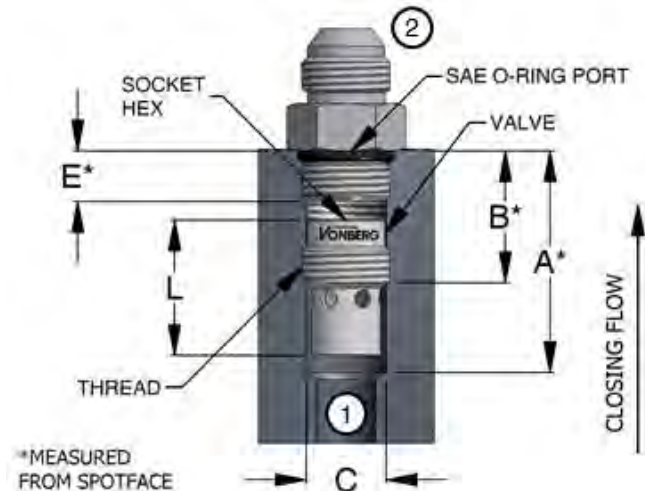
| MODEL | THREAD      | FLOW RANGE      | L    | A    | B    | C             | E     | HEX   | TORQUE    |
|-------|-------------|-----------------|------|------|------|---------------|-------|-------|-----------|
| 8504  | 7/16 - 20   | 0.2 TO 4.0 GPM  | 0.66 | 1.30 | 0.80 | 0.390 - 0.395 | 0.360 | 0.125 | 25 in-lbs |
| 8506  | 9/16 - 18   | 0.2 TO 8.0 GPM  | 0.72 | 1.41 | 0.87 | 0.502 - 0.515 | 0.391 | 0.187 | 5 ft-lbs  |
| 8508  | 3/4 - 16    | 0.5 TO 15.0 GPM | 1.15 | 1.95 | 1.15 | 0.682 - 0.696 | 0.438 | 0.312 | 8 ft-lbs  |
| 8510  | 7/8 - 14    | 1.0 TO 25.0 GPM | 1.25 | 2.15 | 1.05 | 0.798 - 0.814 | 0.500 | 0.375 | 12 ft-lbs |
| 8512  | 1 1/16 - 12 | 2.0 TO 40.0 GPM | 1.50 | 2.50 | 1.30 | 0.972 - 0.990 | 0.594 | 0.438 | 18 ft-lbs |
| 8516  | 1 5/16 - 12 | 5.0 TO 50.0 GPM | 1.50 | 2.67 | 1.30 | 1.222 - 1.240 | 0.594 | 0.500 | 30 ft-lbs |
| 8520  | 1 5/8 - 12  | 5.0 TO 65.0 GPM | 1.85 | 3.05 | 1.30 | 1.535 - 1.553 | 0.594 | 0.625 | 40 ft-lbs |
| 8524  | 1 7/8 - 12  | 5.0 TO 80.0 GPM | 2.13 | 3.38 | 1.37 | 1.785 - 1.803 | 0.594 | 0.687 | 50 ft-lbs |

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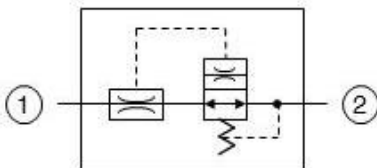
Page last updated: February 19, 2015



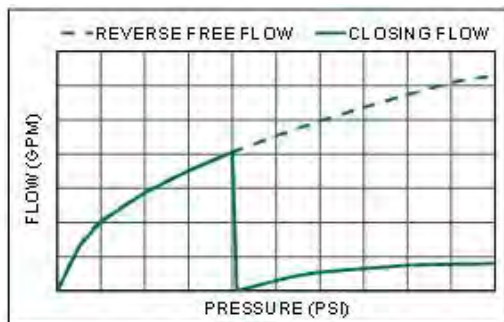
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A IN-LINE, THREADED INSERTABLE VELOCITY FUSE THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3000 PSI.

### FEATURES

- STEEL COMPONENTS.
- RAPID RESPONSE.
- POSITIVE CLOSE.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

SERIES NUMBER 86  
 PORT SIZE XX  
 CLOSING FLOW (GPM) XX

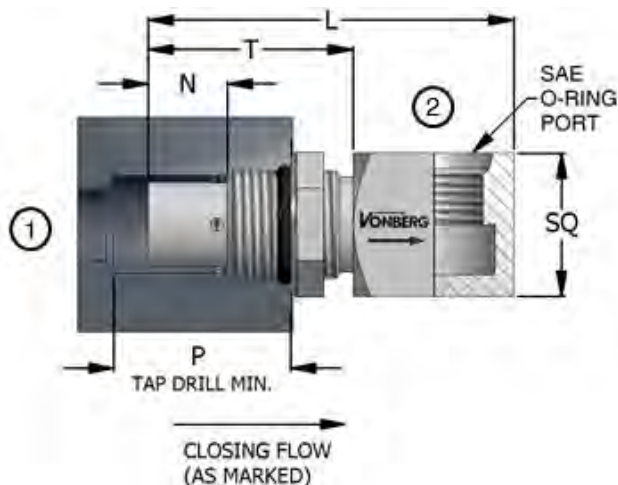
| MODEL | THREAD      | FLOW RANGE      | L    | A    | B    | C             | E     | HEX   | TORQUE    |
|-------|-------------|-----------------|------|------|------|---------------|-------|-------|-----------|
| 8604  | 7/16 - 20   | 0.2 TO 4.0 GPM  | 0.66 | 1.30 | 0.80 | 0.390 - 0.395 | 0.360 | 0.125 | 25 in-lbs |
| 8606  | 9/16 - 18   | 0.2 TO 8.0 GPM  | 0.72 | 1.41 | 0.87 | 0.502 - 0.515 | 0.391 | 0.187 | 5 ft-lbs  |
| 8608  | 3/4 - 16    | 0.5 TO 15.0 GPM | 1.15 | 1.95 | 1.15 | 0.682 - 0.696 | 0.438 | 0.312 | 8 ft-lbs  |
| 8610  | 7/8 - 14    | 1.0 TO 25.0 GPM | 1.25 | 2.15 | 1.05 | 0.798 - 0.814 | 0.500 | 0.375 | 12 ft-lbs |
| 8612  | 1 1/16 - 12 | 2.0 TO 40.0 GPM | 1.50 | 2.50 | 1.30 | 0.972 - 0.990 | 0.594 | 0.438 | 18 ft-lbs |
| 8616  | 1 5/16 - 12 | 5.0 TO 50.0 GPM | 1.50 | 2.67 | 1.30 | 1.222 - 1.240 | 0.594 | 0.500 | 30 ft-lbs |
| 8620  | 1 5/8 - 12  | 5.0 TO 65.0 GPM | 1.85 | 3.05 | 1.30 | 1.535 - 1.553 | 0.594 | 0.625 | 40 ft-lbs |
| 8624  | 1 7/8 - 12  | 5.0 TO 80.0 GPM | 2.13 | 3.38 | 1.37 | 1.785 - 1.803 | 0.594 | 0.687 | 50 ft-lbs |

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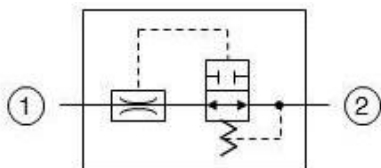
Page last updated: February 18, 2015



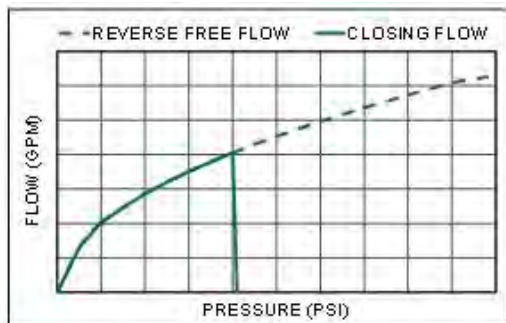
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, 90deg SWIVEL ELBOW VELOCITY FUSE WITH AN SAE O-RING OUTLET PORT THAT PROVIDES FULL-LINE SHUT-OFF IN THE EVENT OF A LINE FAILURE.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS BLOCKED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.

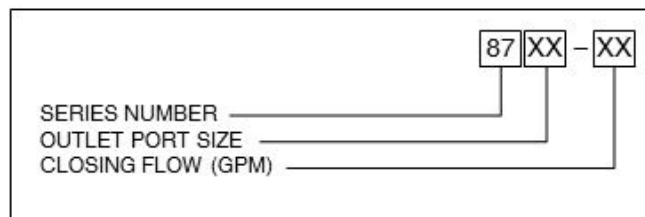
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- POSITIVE CLOSE
- SWIVEL DESIGN FOR EASY ALIGNMENT.
- 90deg ELBOW FOR LOW PROFILE APPLICATIONS.
- SAE O-RING PORT OUTLET FOR LEAK FREE CONNECTIONS.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION

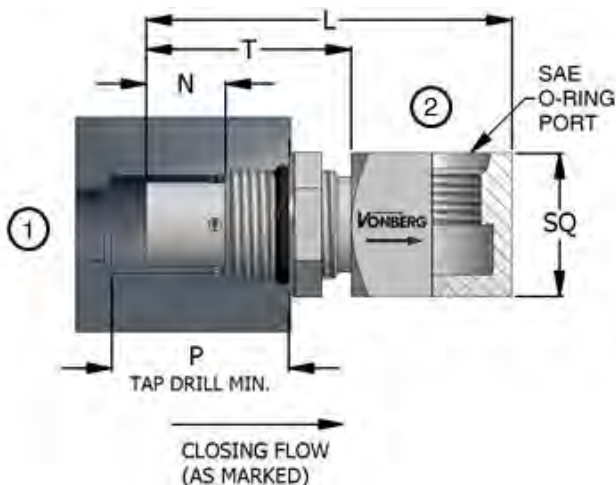


| Model | PORT 1              | PORT 2              | FLOW RANGE      | L     | T     | N     | P (MIN) | SQ    |
|-------|---------------------|---------------------|-----------------|-------|-------|-------|---------|-------|
| 8704  | -04 SAE - 7/16-20   | -04 SAE - 7/16-20   | 0.2 TO 4.0 GPM  | 1.770 | 1.110 | 0.400 | 0.950   | 0.750 |
| 8706  | -06 SAE - 9/16-18   | -06 SAE - 9/16-18   | 0.2 TO 8.0 GPM  | 2.125 | 1.160 | 0.390 | 1.000   | 0.875 |
| 8708  | -08 SAE - 3/4-16    | -08 SAE - 3/4-16    | 0.5 TO 15.0 GPM | 2.555 | 1.430 | 0.550 | 1.250   | 1.000 |
| 8710  | -10 SAE - 7/8-14    | -10 SAE - 7/8-14    | 1.0 TO 25.0 GPM | 3.230 | 1.870 | 0.850 | 1.688   | 1.125 |
| 8712  | -12 SAE - 1 1/16-12 | -12 SAE - 1 1/16-12 | 2.0 TO 40.0 GPM | 3.625 | 2.065 | 0.905 | 1.980   | 1.375 |
| 8716  | -16 SAE - 1 5/16-12 | -16 SAE - 1 5/16-12 | 5.0 TO 50.0 GPM | 3.825 | 2.200 | 0.885 | 2.000   | 1.625 |

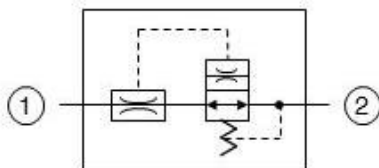
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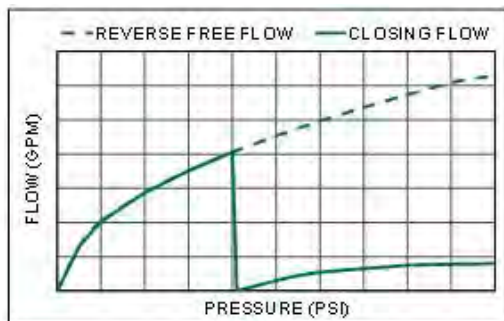
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, 90deg SWIVEL ELBOW FLOW LIMITER WITH AN SAE O-RING OUTLET PORT THAT PREVENTS FREE FALL IN THE EVENT OF A LINE FAILURE, BUT ALLOWS A METERED FLOW AFTER CLOSING.

### OPERATION

- A FLOW BELOW THE SPECIFIED LIMIT IS ALLOWED FROM (1) TO (2).
- FLOW ABOVE THE SPECIFIED LIMIT IS ASSUMED TO BE A LINE FAILURE AND IS LIMITED.
- FLOW FROM (2) TO (1) PASSES THROUGH THE CONTROLLING ORIFICE BUT IS UNCONTROLLED.
- BLEED RATE AFTER CLOSING IS 2.0 - 3.0 GPM AT 3500 PSI.

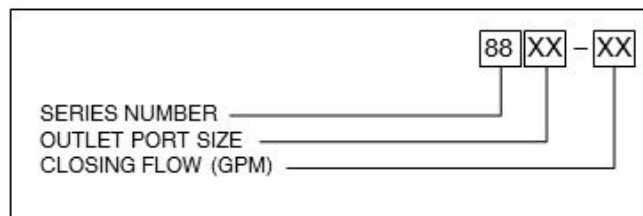
### FEATURES

- STEEL COMPONENTS.
- FAIL SAFE DESIGN.
- RAPID RESPONSE.
- POSITIVE CLOSE
- SWIVEL DESIGN FOR EASY ALIGNMENT.
- 90deg ELBOW FOR LOW PROFILE APPLICATIONS.
- SAE O-RING PORT OUTLET FOR LEAK FREE CONNECTIONS.
- NON-STANDARD BLEED FLOW RATES ARE AVAILABLE UPON REQUEST.

### SPECIFICATIONS

|                        |                  |
|------------------------|------------------|
| OPERATING PRESSURE     | 3500 PSI         |
| TEMPERATURE RANGE      | 250° F TO -40° F |
| REOPENING DIFFERENTIAL | 50 PSI           |
| CLOSING FLOW TOLERANCE | +15% / -0%       |

### ORDERING INFORMATION



| Model | PORT 1              | PORT 2              | FLOW RANGE      | L     | T     | N     | P (MIN) | SQ    |
|-------|---------------------|---------------------|-----------------|-------|-------|-------|---------|-------|
| 8804  | -04 SAE - 7/16-20   | -04 SAE - 7/16-20   | 0.2 TO 4.0 GPM  | 1.770 | 1.110 | 0.400 | 0.950   | 0.750 |
| 8806  | -06 SAE - 9/16-18   | -06 SAE - 9/16-18   | 0.2 TO 8.0 GPM  | 2.125 | 1.160 | 0.390 | 1.000   | 0.875 |
| 8808  | -08 SAE - 3/4-16    | -08 SAE - 3/4-16    | 0.5 TO 15.0 GPM | 2.555 | 1.430 | 0.550 | 1.250   | 1.000 |
| 8810  | -10 SAE - 7/8-14    | -10 SAE - 7/8-14    | 1.0 TO 25.0 GPM | 3.230 | 1.870 | 0.850 | 1.688   | 1.125 |
| 8812  | -12 SAE - 1 1/16-12 | -12 SAE - 1 1/16-12 | 2.0 TO 40.0 GPM | 3.625 | 2.065 | 0.905 | 1.980   | 1.375 |
| 8816  | -16 SAE - 1 5/16-12 | -16 SAE - 1 5/16-12 | 5.0 TO 50.0 GPM | 3.825 | 2.200 | 0.885 | 2.000   | 1.625 |

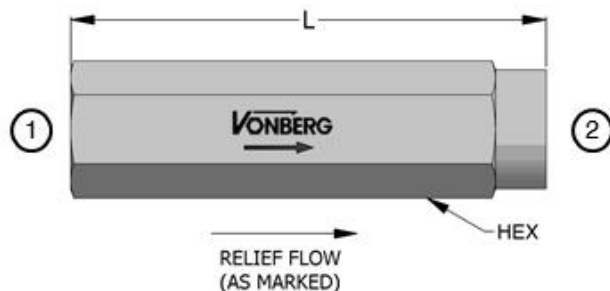
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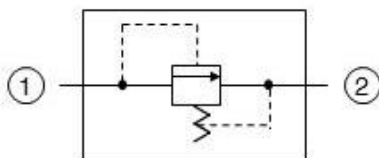
# PRESSURE CONTROLS



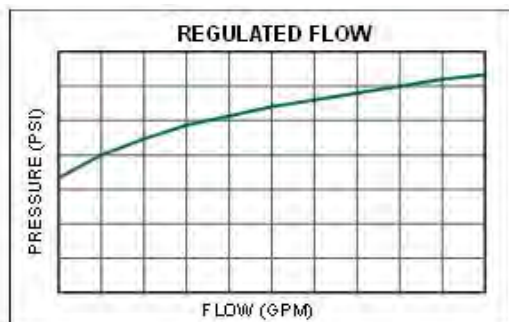
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE THAT LIMITS MAXIMUM SYSTEM PRESSURE OR MAINTAINS A DESIRED PRESSURE WITHIN A CIRCUIT.

### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS ALWAYS BLOCKED.

### FEATURES

- STEEL COMPONENTS.
- CHROME STEEL BALL / HARDENED SEAT.
- LOW INTERNAL LEAKAGE.

### SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 5000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

### ORDERING INFORMATION

4030 X - 10 X - XX

SERIES NUMBER \_\_\_\_\_

PRESSURE RANGE \_\_\_\_\_

1..... 10 – 150 PSI

2..... 180 – 1000 PSI

3..... 800 – 3000 PSI

4..... 3000 – 4000 PSI

5..... 4000 – 5000 PSI

FEMALE NPTF / FEMALE NPTF \_\_\_\_\_

THREAD SIZE \_\_\_\_\_

RELIEF PRESSURE (PSI) \_\_\_\_\_

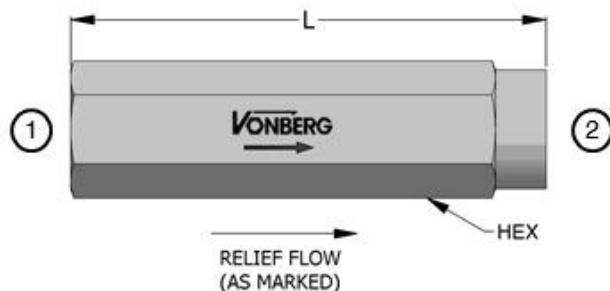
| MODEL     | INLET / OUTLET | L    | HEX   |
|-----------|----------------|------|-------|
| 4030X-102 | 1/4-18 NPTF    | 3.85 | 0.750 |
| 4030X-103 | 3/8-18 NPTF    | 3.65 | 0.875 |
| 4030X-104 | 1/2-14 NPTF    | 4.50 | 1.125 |

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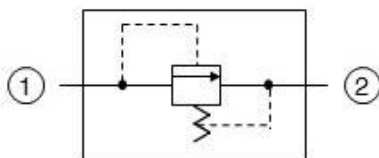
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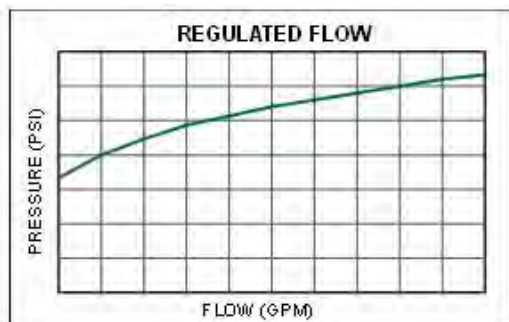
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE THAT LIMITS MAXIMUM SYSTEM PRESSURE OR MAINTAINS A DESIRED PRESSURE WITHIN A CIRCUIT.

### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS ALWAYS BLOCKED.

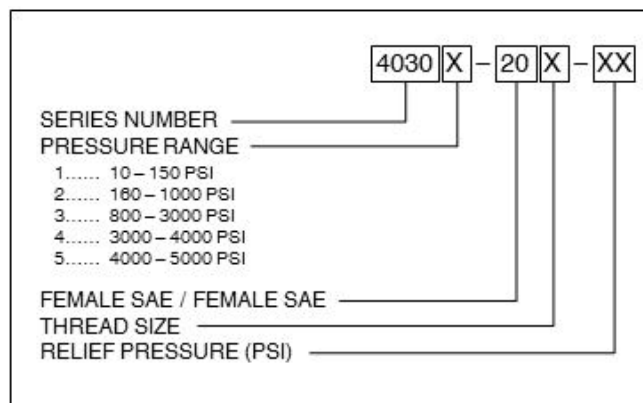
### FEATURES

- STEEL COMPONENTS.
- CHROME STEEL BALL / HARDENED SEAT.
- LOW INTERNAL LEAKAGE.

### SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 5000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

### ORDERING INFORMATION

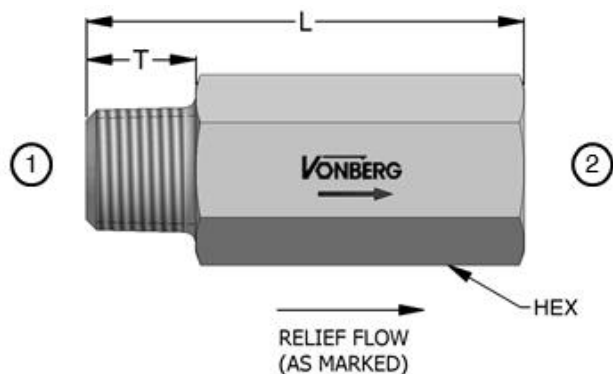


| MODEL     | INLET / OUTLET | THREAD  | L    | HEX  |
|-----------|----------------|---------|------|------|
| 4030X-204 | -04 SAE        | 7/16-20 | 3.20 | 0.63 |
| 4030X-206 | -06 SAE        | 9/16-18 | 3.62 | 0.75 |
| 4030X-208 | -08 SAE        | 3/4-16  | 3.75 | 0.94 |

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### PRODUCT



### DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE THAT LIMITS MAXIMUM SYSTEM PRESSURE OR MAINTAINS A DESIRED PRESSURE WITHIN A CIRCUIT.

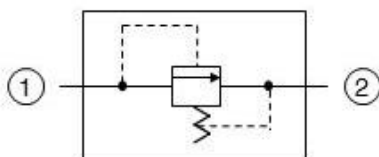
### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS ALWAYS BLOCKED.

### FEATURES

- STEEL COMPONENTS.
- CHROME STEEL BALL / HARDENED SEAT.
- LOW INTERNAL LEAKAGE.

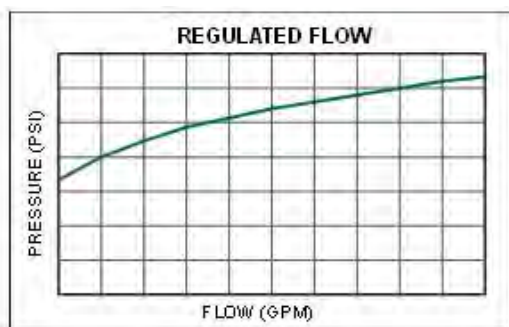
### SCHEMATIC



### SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 5000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

### TYPICAL PERFORMANCE



### ORDERING INFORMATION

4030 X - 50 X - XX

SERIES NUMBER \_\_\_\_\_

PRESSURE RANGE \_\_\_\_\_

1..... 10 – 150 PSI  
 2..... 180 – 1000 PSI  
 3..... 800 – 3000 PSI  
 4..... 3000 – 4000 PSI  
 5..... 4000 – 5000 PSI

MALE NPTF / FEMALE NPTF \_\_\_\_\_

THREAD SIZE \_\_\_\_\_

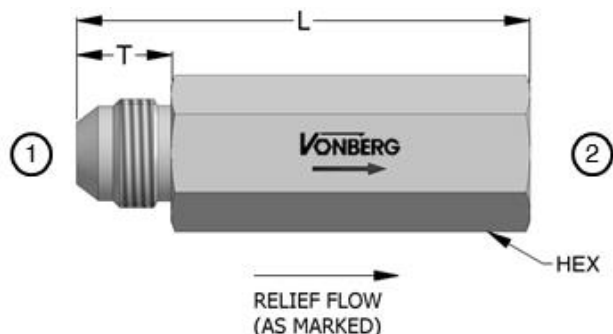
RELIEF PRESSURE (PSI) \_\_\_\_\_

| MODEL     | INLET 1     | OUTLET 2         | L    | T     | HEX   |
|-----------|-------------|------------------|------|-------|-------|
| 4030X-502 | 1/4-18 NPTF | 1/4-18 NPTF PORT | 3.70 | 0.563 | 0.750 |
| 4030X-503 | 3/8-18 NPTF | 3/8-18 NPTF PORT | 2.94 | 0.625 | 0.875 |
| 4030X-504 | 1/2-14 NPTF | 1/2-14 NPTF PORT | 3.50 | 0.750 | 1.125 |

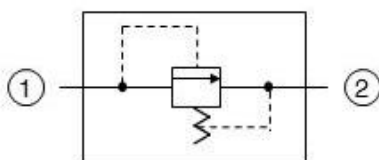
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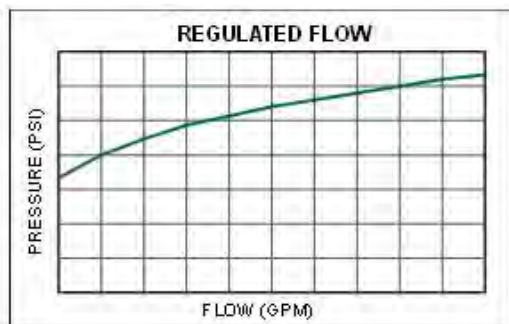
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE WITH THAT LIMITS MAXIMUM SYSTEM PRESSURE OR MAINTAINS A DESIRED PRESSURE WITHIN A CIRCUIT.

### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS ALWAYS BLOCKED.

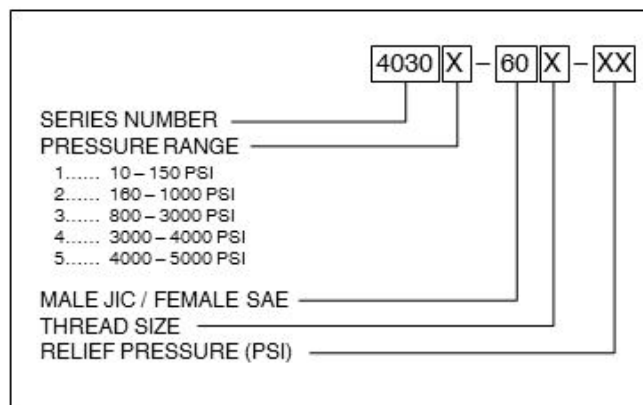
### FEATURES

- STEEL COMPONENTS.
- CHROME BALL / HARDENED SEAT.
- LOW INTERNAL LEAKAGE.

### SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 5000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

### ORDERING INFORMATION

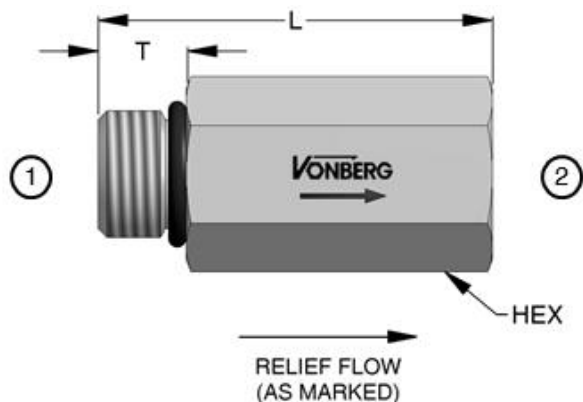


| MODEL     | INLET 1 | OUTLET 2     | THREAD  | L    | T     | HEX   |
|-----------|---------|--------------|---------|------|-------|-------|
| 4030X-604 | -04 JIC | -04 SAE PORT | 7/16-20 | 3.20 | 0.550 | 0.625 |
| 4030X-606 | -06 JIC | -06 SAE PORT | 9/16-18 | 3.56 | 0.560 | 0.750 |
| 4030X-608 | -08 JIC | -08 SAE PORT | 3/4-14  | 3.70 | 0.660 | 0.938 |

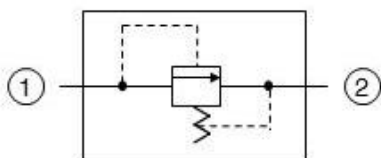
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Page last updated: January 19, 2015

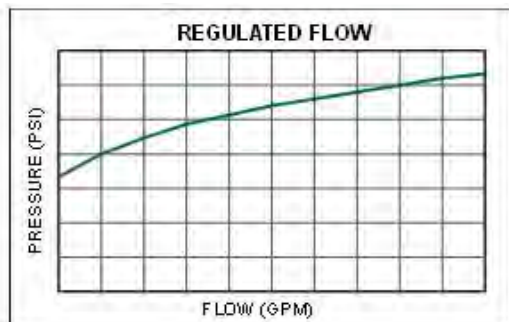
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE WITH THAT LIMITS MAXIMUM SYSTEM PRESSURE OR MAINTAINS A DESIRED PRESSURE WITHIN A CIRCUIT.

### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS ALWAYS BLOCKED.

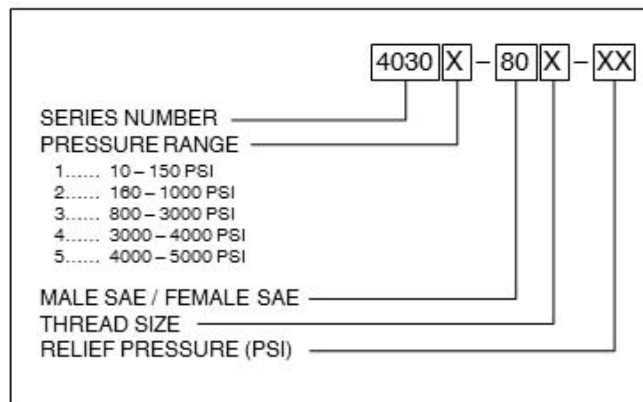
### FEATURES

- STEEL COMPONENTS.
- CHROME BALL / HARDENED SEAT.
- LOW INTERNAL LEAKAGE.

### SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 5000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

### ORDERING INFORMATION

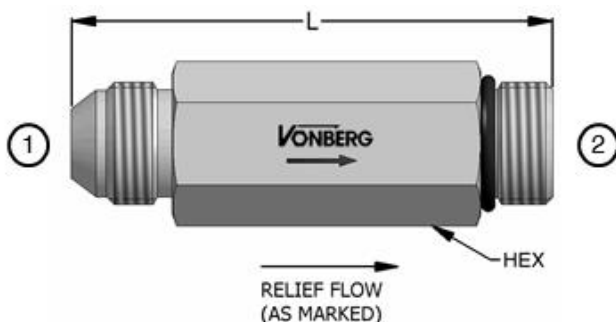


| MODEL     | INLET 1 | OUTLET 2     | THREAD  | L    | T     | HEX   |
|-----------|---------|--------------|---------|------|-------|-------|
| 4030X-804 | -04 SAE | -04 SAE PORT | 7/16-20 | 3.00 | 0.360 | 0.625 |
| 4030X-806 | -06 SAE | -06 SAE PORT | 9/16-18 | 3.40 | 0.390 | 0.750 |
| 4030X-808 | -08 SAE | -08 SAE PORT | 3/4-14  | 3.50 | 0.440 | 0.938 |

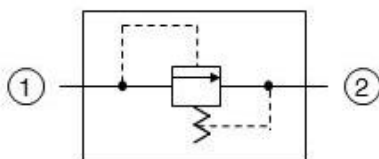
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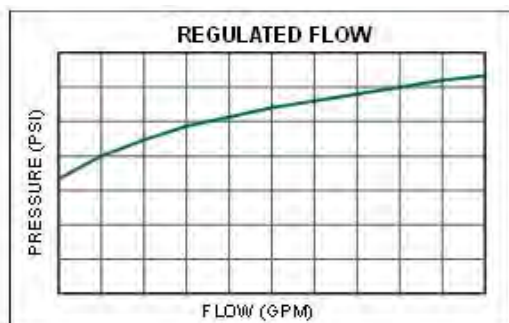
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE WITH THAT LIMITS MAXIMUM SYSTEM PRESSURE OR MAINTAINS A DESIRED PRESSURE WITHIN A CIRCUIT.

### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS ALWAYS BLOCKED.

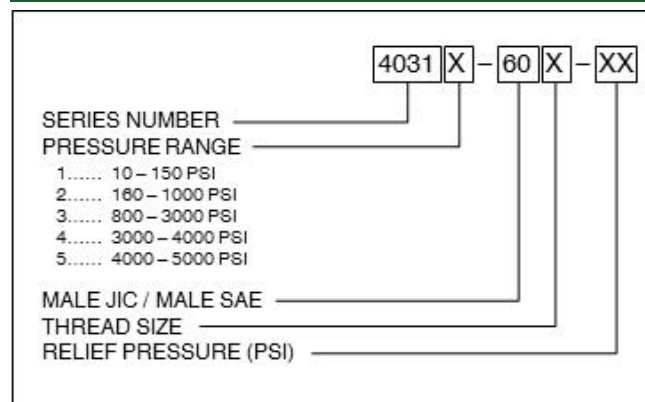
### FEATURES

- STEEL COMPONENTS.
- CHROME BALL / HARDENED SEAT.
- LOW INTERNAL LEAKAGE.

### SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 5000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

### ORDERING INFORMATION



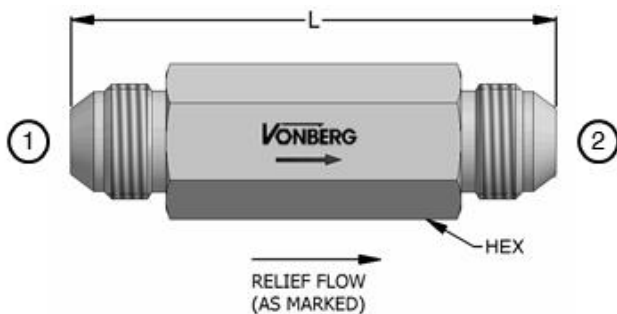
| MODEL     | INLET 1 | OUTLET 2 | THREAD | L    | HEX   |
|-----------|---------|----------|--------|------|-------|
| 40310-608 | -08 JIC | -08 SAE  | 3/4-14 | 2.98 | 0.875 |

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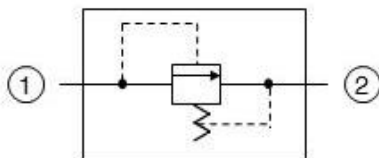
Page last updated: January 19, 2015



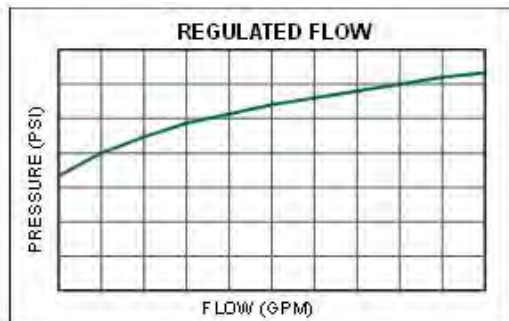
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE WITH MALE JIC CONNECTIONS THAT LIMITS MAXIMUM SYSTEM PRESSURE OR MAINTAINS A DESIRED PRESSURE WITHIN A CIRCUIT.

### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS ALWAYS BLOCKED.

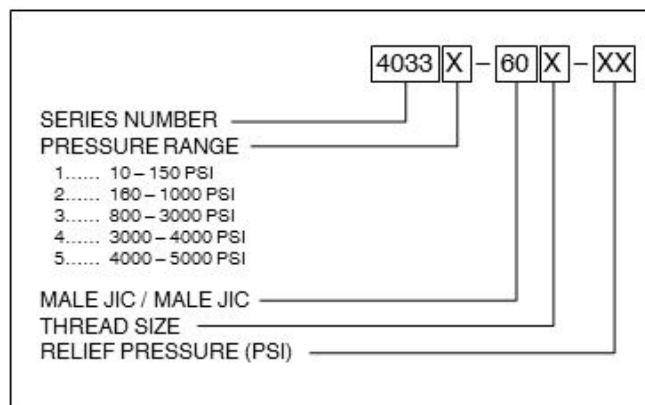
### FEATURES

- STEEL COMPONENTS.
- CHROME BALL / HARDENED SEAT.
- LOW INTERNAL LEAKAGE.

### SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 5000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

### ORDERING INFORMATION

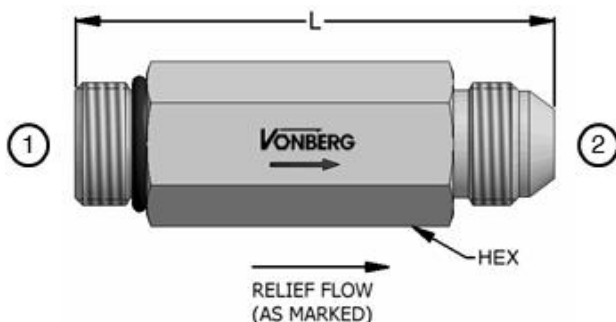


| MODEL     | INLET / OUTLET | THREAD | FLOW CAPACITY | L    | HEX  |
|-----------|----------------|--------|---------------|------|------|
| 4033X-608 | -08 JIC        | 3/4-16 | 15 GPM        | 3.16 | 0.88 |

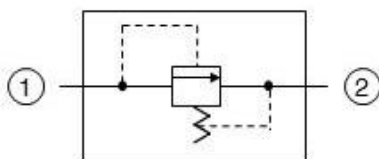
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Page last updated: January 19, 2015

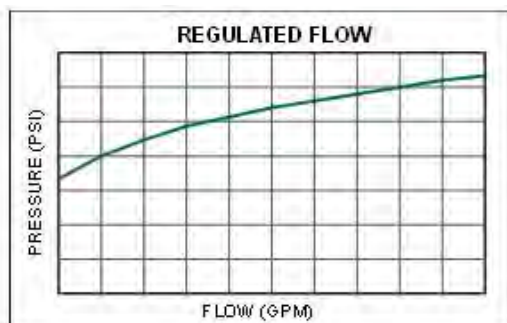
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE WITH THAT LIMITS MAXIMUM SYSTEM PRESSURE OR MAINTAINS A DESIRED PRESSURE WITHIN A CIRCUIT.

### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS ALWAYS BLOCKED.

### FEATURES

- STEEL COMPONENTS.
- CHROME BALL / HARDENED SEAT.
- LOW INTERNAL LEAKAGE.

### SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 5000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

### ORDERING INFORMATION

4033 X - 80 X - XX

SERIES NUMBER \_\_\_\_\_

PRESSURE RANGE \_\_\_\_\_

1..... 10 – 150 PSI

2..... 180 – 1000 PSI

3..... 800 – 3000 PSI

4..... 3000 – 4000 PSI

5..... 4000 – 5000 PSI

MALE SAE / MALE JIC \_\_\_\_\_

THREAD SIZE \_\_\_\_\_

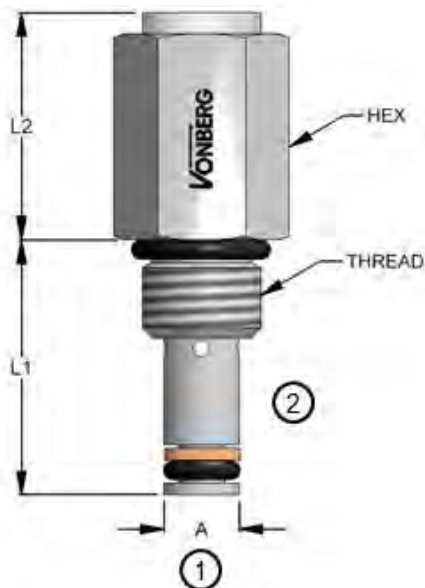
RELIEF PRESSURE (PSI) \_\_\_\_\_

| MODEL     | INLET 1 | OUTLET 2 | THREAD | L    | HEX   |
|-----------|---------|----------|--------|------|-------|
| 4033X-808 | -08 SAE | -08 JIC  | 3/4-14 | 2.94 | 0.875 |

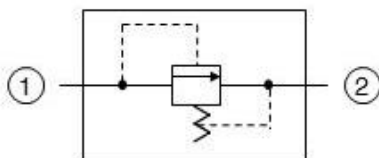
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Page last updated: January 19, 2015

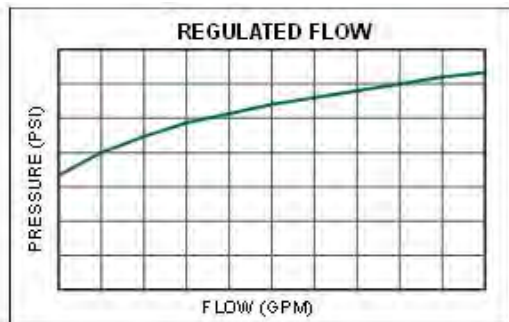
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, DIRECT ACTING RELIEF VALVE THAT LIMITS MAXIMUM SYSTEM PRESSURE OR MAINTAINS A DESIRED PRESSURE WITHIN A CIRCUIT.

### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS ALWAYS BLOCKED.

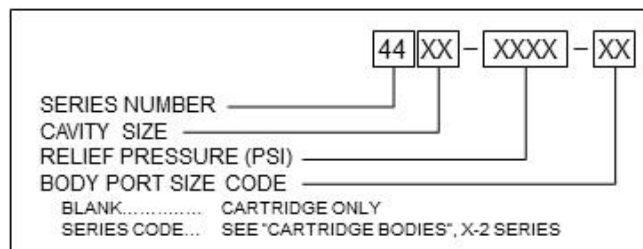
### FEATURES

- STEEL COMPONENTS.
- GUIDED POPPET.
- HARDENED SEAT.
- LOW INTERNAL LEAKAGE.
- QUIET OPERATION.
- INDUSTRY COMMON CAVITY.

### SPECIFICATIONS

|                    |                   |
|--------------------|-------------------|
| OPERATING PRESSURE | 3500 PSI          |
| TEMPERATURE RANGE  | 250°F TO -40°F    |
| RELIEF TOLERANCE   | +/- 10%           |
| PRESSURE RANGE     | 50 PSI - 3500 PSI |

### ORDERING INFORMATION

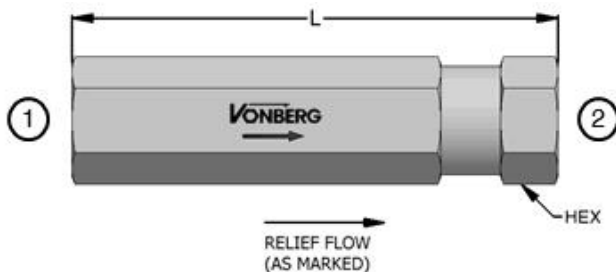


| MODEL | THREAD    | FLOW CAPACITY | CAVITY | L1    | L2   | HEX  | A             | TORQUE    |
|-------|-----------|---------------|--------|-------|------|------|---------------|-----------|
| 4404  | 7/16 - 20 | 1.0 GPM       | VC04-2 | 0.94  | 0.83 | 0.56 | 0.277 / 0.278 | 10 ft-lbs |
| 4410  | 7/8 - 14  | 5.0 GPM       | VC10-2 | 1.250 | 1.65 | 1.00 | 0.621 / 0.623 | 25 ft-lbs |

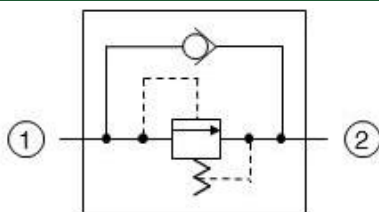
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Page last updated: May 21, 2015

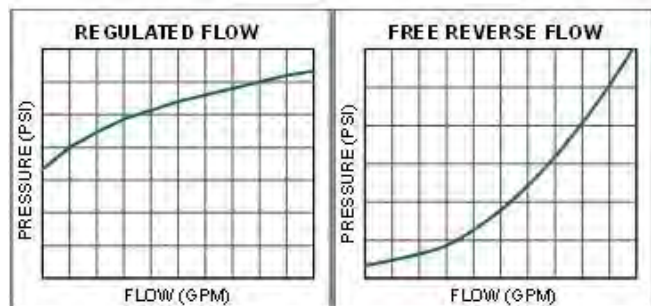
## PRODUCT



## SCHEMATIC



## TYPICAL PERFORMANCE



## DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE WITH FREE REVERSE FLOW THAT LIMITS MAXIMUM SYSTEM PRESSURE OR ALLOWS SEQUENCING OF PRESSURES WITHIN A CIRCUIT.

## OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS UNRESTRICTED WITH A 5-10 PSI CRACK PRESSURE.

## FEATURES

- ALUMINUM BODY, STEEL INTERNALS.
- LOW INTERNAL LEAKAGE.
- INTERNAL PACKING - BUNA N.
- LOW PRESSURE DROP.

## SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 3000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

## ORDERING INFORMATION

49000 - 1 XX - XX

SERIES NUMBER \_\_\_\_\_

THREAD SIZE \_\_\_\_\_

RELIEF PRESSURE (PSI) \_\_\_\_\_  
 10 - 150 (PSI)\*

\* AVAILABLE IN 10 PSI INCREMENTS UP TO A MAXIMUM OF 150 PSI FOR HIGHER PRESSURE APPLICATIONS, SEE 49005 SERIES

| MODEL     | INLET / OUTLET   | FLOW CAPACITY | L    | HEX   |
|-----------|------------------|---------------|------|-------|
| 49000-103 | 3/8-18 NPTF PORT | 15 GPM        | 4.13 | 0.875 |

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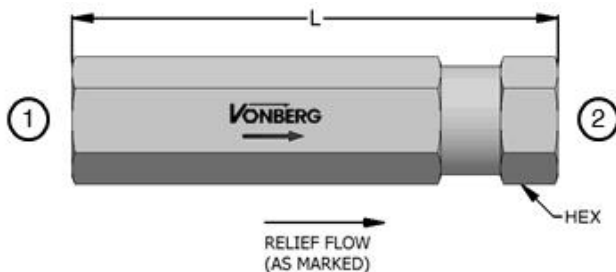
Page last updated: January 19, 2015



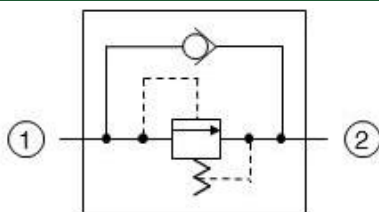
**Vonberg Valve, inc.**  
 Hydraulic Valve Specialists

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 phone: 847/259-3800 • fax 847/259-3997 • email: info@vonberg.com

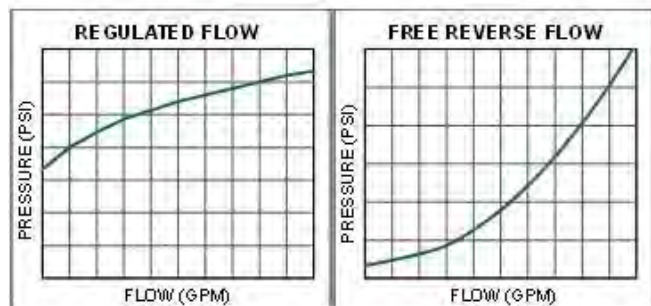
## PRODUCT



## SCHEMATIC



## TYPICAL PERFORMANCE



## DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE WITH FREE REVERSE FLOW THAT LIMITS MAXIMUM SYSTEM PRESSURE OR ALLOWS SEQUENCING OF PRESSURES WITHIN A CIRCUIT.

## OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS UNRESTRICTED WITH A 5-10 PSI CRACK PRESSURE.

## FEATURES

- ALUMINUM BODY, STEEL INTERNALS.
- LOW INTERNAL LEAKAGE.
- INTERNAL PACKING - BUNA N.
- LOW PRESSURE DROP.

## SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 3000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

## ORDERING INFORMATION

49000 - 2 XX - XX

SERIES NUMBER \_\_\_\_\_

THREAD SIZE \_\_\_\_\_

RELIEF PRESSURE (PSI) \_\_\_\_\_

10 - 150 (PSI)\*

\* AVAILABLE IN 10 PSI INCREMENTS UP TO A MAXIMUM OF 150 PSI FOR HIGHER PRESSURE APPLICATIONS, SEE 49005 SERIES

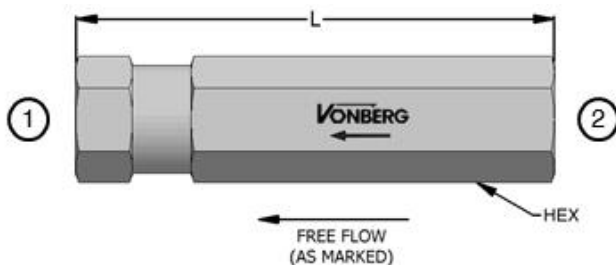
| MODEL     | INLET / OUTLET | THREAD | FLOW CAPACITY | L    | HEX  |
|-----------|----------------|--------|---------------|------|------|
| 49000-208 | -08 SAE PORT   | 3/4-16 | 15 GPM        | 4.13 | 0.88 |

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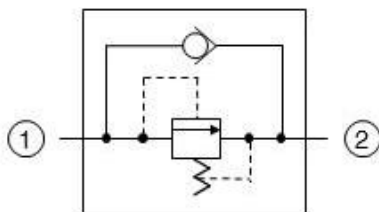
Page last updated: January 19, 2015



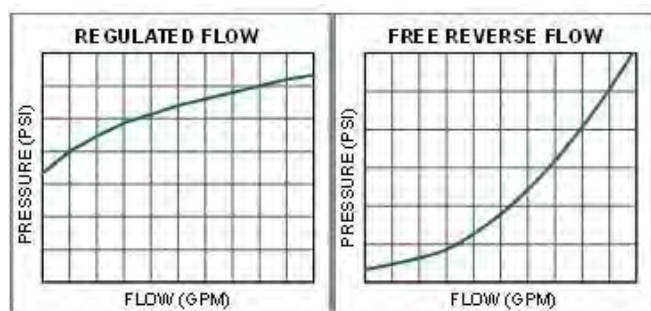
## PRODUCT



## SCHEMATIC



## TYPICAL PERFORMANCE



## DESCRIPTION

AN IN-LINE, DIRECT ACTING RELIEF VALVE WITH FREE REVERSE FLOW THAT LIMITS MAXIMUM SYSTEM PRESSURE OR ALLOWS SEQUENCING OF PRESSURES WITHIN A CIRCUIT.

## OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS UNRESTRICTED WITH A 5-10 PSI CRACK PRESSURE.

## FEATURES

- ALUMINUM BODY, STEEL INTERNALS.
- LOW INTERNAL LEAKAGE.
- INTERNAL PACKING - BUNA N.
- LOW PRESSURE DROP.

## SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 3000 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

## ORDERING INFORMATION

49005 - XXXX

SERIES NUMBER \_\_\_\_\_

RELIEF PRESSURE (PSI) \_\_\_\_\_

100 - 1000 (PSI)\*

\* AVAILABLE IN 50 PSI INCREMENTS 100-500 PSI; 100 PSI INCREMENTS 500+ PSI  
 FOR LOW PRESSURE APPLICATIONS, SEE 49000 SERIES

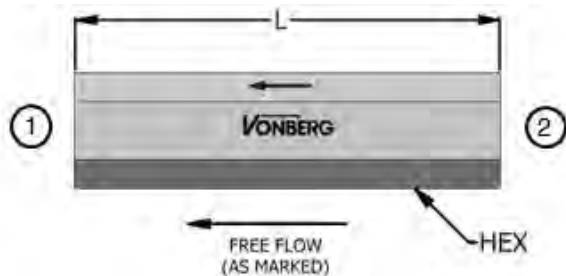
| MODEL | INLET / OUTLET | FLOW RANGE      | L    | HEX  |
|-------|----------------|-----------------|------|------|
| 49005 | 3/8-18 NPTF    | 2.0 TO 12.0 GPM | 4.13 | 0.88 |

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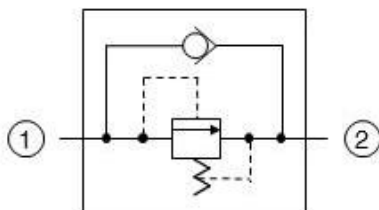
Page last updated: January 19, 2015



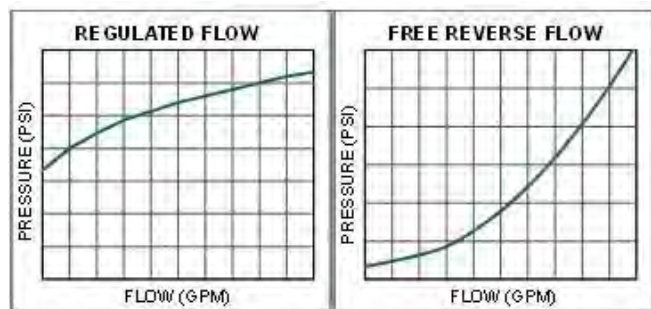
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN IN-LINE, DIFFERENTIAL AREA RELIEF VALVE WITH FREE REVERSE FLOW THAT LIMITS MAXIMUM SYSTEM PRESSURE OR ALLOWS SEQUENCING OF PRESSURES WITHIN A CIRCUIT.

### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS UNRESTRICTED WITH A 5-10 PSI CRACK PRESSURE.

### FEATURES

- ALUMINUM BODY, STEEL INTERNALS.
- LOW INTERNAL LEAKAGE.
- INTERNAL PACKING - BUNA N.
- LOW PRESSURE DROP.

### SPECIFICATIONS

|                    |                                 |
|--------------------|---------------------------------|
| OPERATING PRESSURE | 3000 PSI                        |
| TEMPERATURE RANGE  | 250°F TO -40°F                  |
| RELIEF TOLERANCE   | +/- 10% (+/- 20% BELOW 150 PSI) |

### ORDERING INFORMATION

49023 - XXXX

SERIES NUMBER \_\_\_\_\_

RELIEF PRESSURE (PSI) \_\_\_\_\_

100 - 1250 (PSI)\*

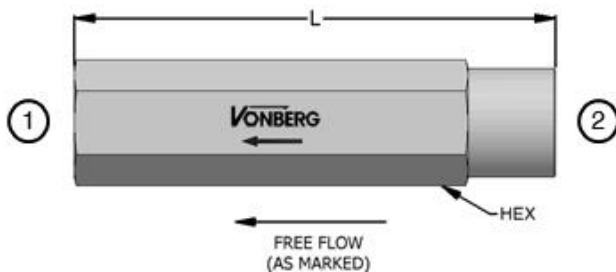
\* AVAILABLE IN 50 PSI INCREMENTS 100-1250 PSI

| MODEL | INLET / OUTLET | THREAD    | FLOW CAPACITY | L    | HEX   |
|-------|----------------|-----------|---------------|------|-------|
| 49023 | -12 SAE PORT   | 1 1/16-12 | 30 GPM        | 5.25 | 1.250 |

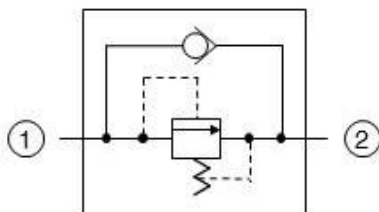
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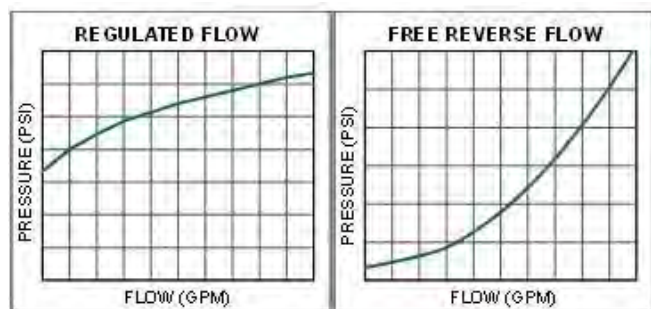
## PRODUCT



## SCHEMATIC



## TYPICAL PERFORMANCE



## DESCRIPTION

AN IN-LINE, DIFFERENTIAL AREA RELIEF VALVE WITH FREE REVERSE FLOW THAT LIMITS MAXIMUM SYSTEM PRESSURE OR ALLOWS SEQUENCING OF PRESSURES WITHIN A CIRCUIT.

## OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS UNRESTRICTED WITH A 5-10 PSI CRACK PRESSURE.

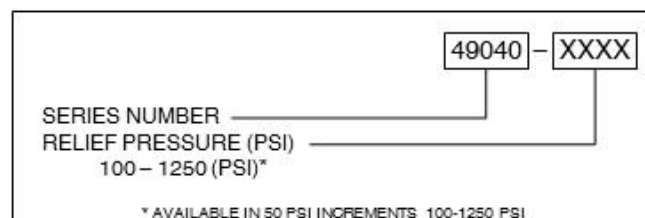
## FEATURES

- ALUMINUM BODY, STEEL INTERNALS.
- LOW INTERNAL LEAKAGE.
- INTERNAL PACKING - BUNA N.
- LOW PRESSURE DROP.

## SPECIFICATIONS

|                    |                                 |
|--------------------|---------------------------------|
| OPERATING PRESSURE | 3000 PSI                        |
| TEMPERATURE RANGE  | 250°F TO -40°F                  |
| RELIEF TOLERANCE   | +/- 10% (+/- 20% BELOW 150 PSI) |

## ORDERING INFORMATION

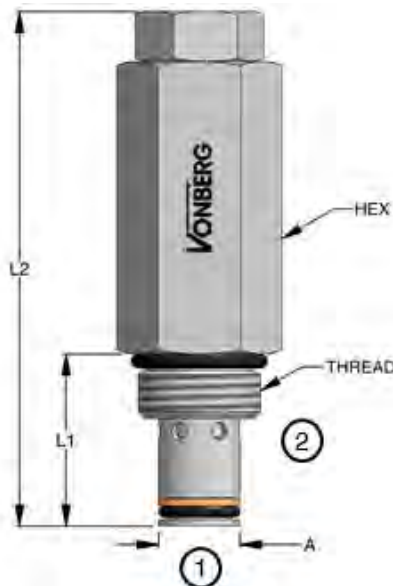


| MODEL | INLET / OUTLET | THREAD | FLOW CAPACITY | L    | HEX  |
|-------|----------------|--------|---------------|------|------|
| 49040 | -08 SAE PORT   | 3/4-16 | 20 GPM        | 4.12 | 0.94 |

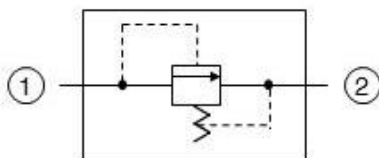
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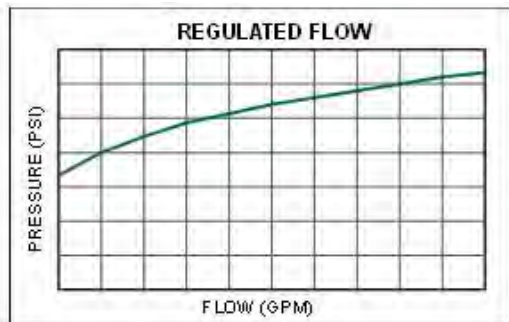
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

AN CARTRIDGE STYLE, DIRECT ACTING RELIEF VALVE THAT LIMITS MAXIMUM SYSTEM PRESSURE OR MAINTAINS A DESIRED PRESSURE WITHIN A CIRCUIT.

### OPERATION

- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE SPECIFIED RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (2) TO (1) IS ALWAYS BLOCKED.

### FEATURES

- STEEL COMPONENTS.
- GUIDED POPPET.
- HARDENED SEAT.
- LOW INTERNAL LEAKAGE.
- QUIET OPERATION.
- INDUSTRY COMMON CAVITY.
- LIMITED ADJUSTABILITY.

### SPECIFICATIONS

|                    |                |
|--------------------|----------------|
| OPERATING PRESSURE | 3500 PSI       |
| TEMPERATURE RANGE  | 250°F TO -40°F |
| RELIEF TOLERANCE   | +/- 10%        |

### ORDERING INFORMATION

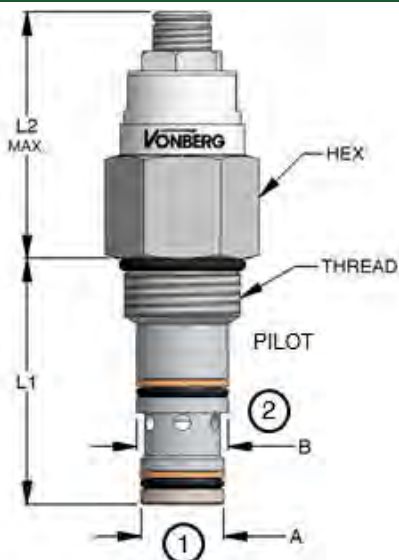
SERIES NUMBER 49045 - XXXX - XX  
 RELIEF PRESSURE (PSI) \_\_\_\_\_  
 100 – 3500 (PSI)\*  
 BODY PORT SIZE CODE \_\_\_\_\_  
 BLANK..... CARTRIDGE ONLY  
 SERIES CODE.... SEE "CARTRIDGE BODIES", X-2 SERIES  
 \* AVAILABLE IN 50 PSI INCREMENTS 100-3500 PSI

| MODEL | THREAD   | FLOW CAPACITY | CAVITY | L1   | L2   | HEX  | A             | TORQUE    |
|-------|----------|---------------|--------|------|------|------|---------------|-----------|
| 49045 | 3/4 - 16 | 6.0 GPM       | 8-2    | 1.00 | 3.09 | 0.88 | 0.495 / 0.497 | 20 ft-lbs |

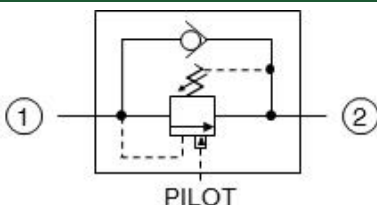
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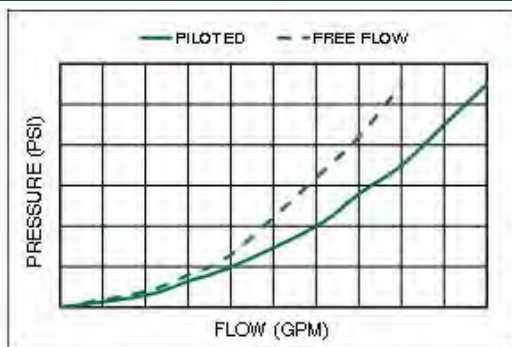
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, THREE PORT, PILOT TO OPEN COUNTERBALANCE VALVE WITH AN INTERNALLY VENTED SPRING CHAMBER AND FREE REVERSE FLOW CHECK, INTENDED FOR MOTION CONTROL AND OVER-CENTER LOAD HOLDING APPLICATIONS.

### OPERATION

- FLOW FROM (2) TO (1) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 25 PSI.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL A PILOT PRESSURE INVERSELY PROPORTIONAL TO THE LOAD PRESSURE IS APPLIED TO THE PILOT PORT.
- BACK PRESSURE AT PORT (2) IS ADDITIVE TO RELIEF SETTING.

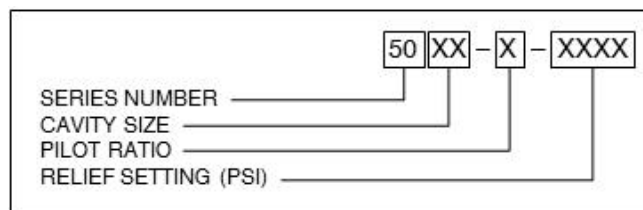
### FEATURES

- ADJUSTABLE WITH LOCKING NUT.
- CLOCKWISE ADJUSTMENT TO INCREASE RELIEF SETTING.
- SEALED PILOT PISTON, LOW INTERNAL LEAKAGE.
- QUIET, STABLE OPERATION.
- INDUSTRY COMMON CAVITY.
- LOW RELIEF HYSTERESIS.
- PILOT RATIOS UP TO 10:1 AVAILABLE (HIGHER PILOT RATIOS MAY REDUCE FLOW CAPACITY)

### SPECIFICATIONS

|                         |                   |
|-------------------------|-------------------|
| OPERATING PRESSURE      | 5000 PSI          |
| TEMPERATURE RANGE       | 250°F TO -40°F    |
| RELIEF TOLERANCE        | +/- 10%           |
| INTERNAL LEAKAGE        | 5 DROPS/MIN. MAX. |
| STANDARD CRACK PRESSURE | 25 PSI            |
| RELIEF ADJUSTMENT RANGE | 500 - 5000 PSI    |

### ORDERING INFORMATION



| MODEL | THREAD      | FLOW CAPACITY | CAVITY  | L1   | L2 (MAX.) | HEX  | A             | B             | TORQUE    |
|-------|-------------|---------------|---------|------|-----------|------|---------------|---------------|-----------|
| 5006  | 9/16 - 18   | 3.0 GPM       | FC06-3  | 1.23 | 1.30      | 0.69 | 0.438 / 0.439 | 0.467 / 0.468 | 15 ft-lbs |
| 5008  | 3/4 - 16    | 7.0 GPM       | VC08-3  | 1.63 | 1.38      | 0.88 | 0.558 / 0.560 | 0.621 / 0.623 | 20 ft-lbs |
| 5010  | 7/8 - 14    | 10.0 GPM      | VC10-3  | 1.85 | 1.78      | 1.00 | 0.621 / 0.623 | 0.683 / 0.685 | 25 ft-lbs |
| 5010S | 7/8 - 14    | 10.0 GPM      | VC10-S3 | 1.85 | 2.00      | 1.00 | 0.683 / 0.685 | 0.746 / 0.748 | 25 ft-lbs |
| 5012  | 1 1/16 - 12 | 25.0 GPM      | C12-3S  | 2.25 | 1.78      | 1.25 | 0.870 / 0.873 | 0.933 / 0.935 | 40 ft-lbs |

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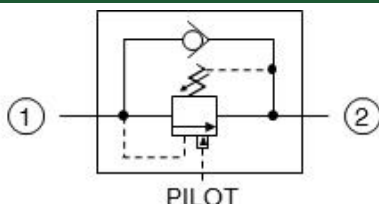
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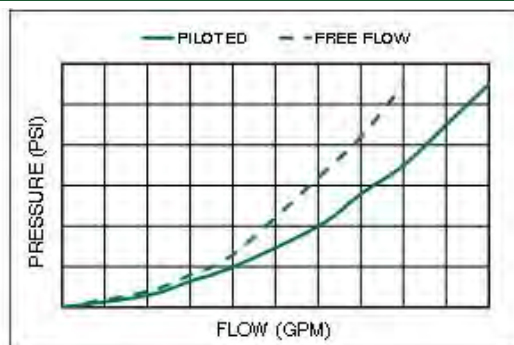
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, THREE PORT, PILOT TO OPEN COUNTERBALANCE VALVE WITH AN INTERNALLY VENTED SPRING CHAMBER AND FREE REVERSE FLOW CHECK, INTENDED FOR MOTION CONTROL AND OVER-CENTER LOAD HOLDING APPLICATIONS.

### OPERATION

- FLOW FROM (2) TO (1) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 25 PSI.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL A PILOT PRESSURE INVERSELY PROPORTIONAL TO THE LOAD PRESSURE IS APPLIED TO THE PILOT PORT.
- BACK PRESSURE AT PORT (2) IS ADDITIVE TO RELIEF SETTING.

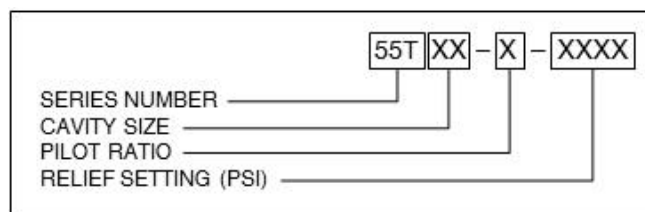
### FEATURES

- ADJUSTABLE WITH LOCKING NUT.
- CLOCKWISE ADJUSTMENT TO INCREASE RELIEF SETTING.
- SEALED PILOT PISTON, LOW INTERNAL LEAKAGE.
- QUIET, STABLE OPERATION.
- LOW RELIEF HYSTERESIS.
- PILOT RATIOS UP TO 10:1 AVAILABLE (HIGHER PILOT RATIOS MAY REDUCE FLOW CAPACITY)

### SPECIFICATIONS

|                         |                   |
|-------------------------|-------------------|
| OPERATING PRESSURE      | 5000 PSI          |
| TEMPERATURE RANGE       | 250°F TO -40°F    |
| RELIEF TOLERANCE        | +/- 10%           |
| INTERNAL LEAKAGE        | 5 DROPS/MIN. MAX. |
| STANDARD CRACK PRESSURE | 25 PSI            |
| RELIEF ADJUSTMENT RANGE | 500 - 5000 PSI    |

### ORDERING INFORMATION



| MODEL  | THREAD    | FLOW CAPACITY | CAVITY | L1   | L2 (MAX.) | HEX   | A                | B                | C                | SD (MAX.) | TORQUE    |
|--------|-----------|---------------|--------|------|-----------|-------|------------------|------------------|------------------|-----------|-----------|
| 55T163 | M16 X 1.5 | 5.0 GPM       | T-163A | 1.22 | 1.80      | 0.750 | 0.512 /<br>0.513 | 0.653 /<br>0.654 | 0.700 /<br>0.701 | 0.650     | 20 ft-lbs |
| 55T11  | M20 X 1.5 | 10.0 GPM      | T-11A  | 1.38 | 2.25      | 0.938 | 0.683 /<br>0.685 | 0.807 /<br>0.809 | 0.855 /<br>0.857 | 0.850     | 30 ft-lbs |
| 55T2   | 1-14      | 25.0 GPM      | T-2A   | 1.38 | 2.50      | 1.125 | 0.871 /<br>0.873 | 1.027 /<br>1.029 | 1.074 /<br>1.076 | 0.870     | 45 ft-lbs |

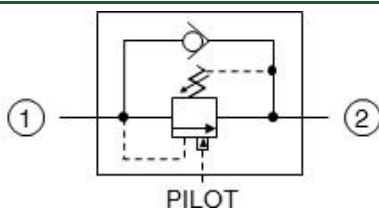
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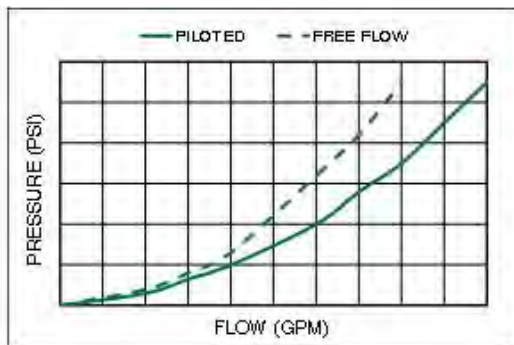
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, THREE PORT, PILOT TO OPEN COUNTERBALANCE VALVE WITH AN INTERNALLY VENTED SPRING CHAMBER AND FREE REVERSE FLOW CHECK, INTENDED FOR MOTION CONTROL AND OVER-CENTER LOAD HOLDING APPLICATIONS.

### OPERATION

- FLOW FROM (2) TO (1) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 25 PSI.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL A PILOT PRESSURE INVERSELY PROPORTIONAL TO THE LOAD PRESSURE IS APPLIED TO THE PILOT PORT.
- BACK PRESSURE AT PORT (2) IS ADDITIVE TO RELIEF SETTING.

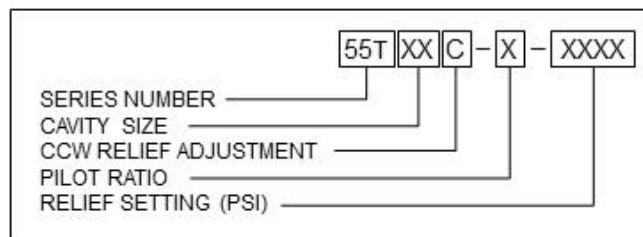
### FEATURES

- ADJUSTABLE WITH LOCKING NUT.
- COUNTERCLOCKWISE ADJUSTMENT TO INCREASE RELIEF SETTING.
- SEALED PILOT PISTON, LOW INTERNAL LEAKAGE.
- QUIET, STABLE OPERATION.
- LOW RELIEF HYSTERESIS.
- PILOT RATIOS UP TO 10:1 AVAILABLE (HIGHER PILOT RATIOS MAY REDUCE FLOW CAPACITY)

### SPECIFICATIONS

|                         |                   |
|-------------------------|-------------------|
| OPERATING PRESSURE      | 5000 PSI          |
| TEMPERATURE RANGE       | 250°F TO -40°F    |
| RELIEF TOLERANCE        | +/- 10%           |
| INTERNAL LEAKAGE        | 5 DROPS/MIN. MAX. |
| STANDARD CRACK PRESSURE | 25 PSI            |
| RELIEF ADJUSTMENT RANGE | 500 - 5000 PSI    |

### ORDERING INFORMATION

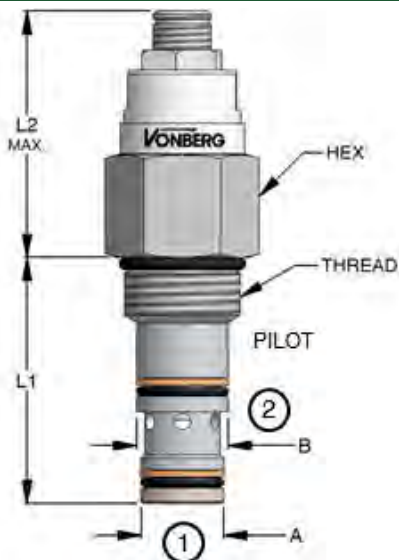


| MODEL  | THREAD    | FLOW CAPACITY | CAVITY | L1   | L2 (MAX.) | HEX   | A                | B                | C                | SD (MAX.) | TORQUE    |
|--------|-----------|---------------|--------|------|-----------|-------|------------------|------------------|------------------|-----------|-----------|
| 55T11C | M20 X 1.5 | 10.0 GPM      | T-11A  | 1.38 | 2.25      | 0.938 | 0.683 /<br>0.685 | 0.807 /<br>0.809 | 0.855 /<br>0.857 | 0.850     | 30 ft-lbs |

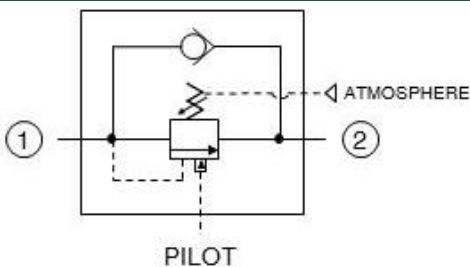
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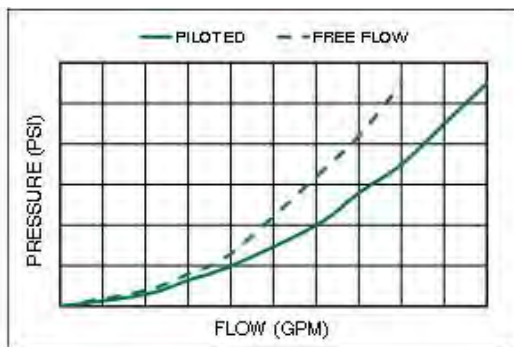
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, THREE PORT, PILOT TO OPEN COUNTERBALANCE VALVE WITH AN ATMOSPHERICALLY VENTED SPRING CHAMBER AND FREE REVERSE FLOW CHECK, INTENDED FOR MOTION CONTROL AND OVER-CENTER LOAD HOLDING APPLICATIONS.

### OPERATION

- FLOW FROM (2) TO (1) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 25 PSI.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL A PILOT PRESSURE INVERSELY PROPORTIONAL TO THE LOAD PRESSURE IS APPLIED TO THE PILOT PORT.
- BACK PRESSURE AT PORT (2) DOES NOT AFFECT RELIEF SETTING.

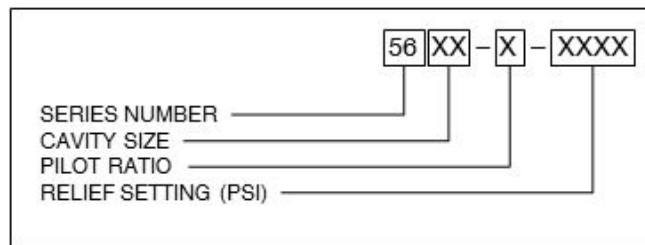
### FEATURES

- ADJUSTABLE WITH LOCKING NUT.
- CLOCKWISE ADJUSTMENT TO INCREASE RELIEF SETTING.
- SEALED PILOT PISTON, LOW INTERNAL LEAKAGE.
- QUIET, STABLE OPERATION.
- INDUSTRY COMMON CAVITY.
- LOW RELIEF HYSTERESIS.
- PILOT RATIOS UP TO 10:1 AVAILABLE (HIGHER PILOT RATIOS MAY REDUCE FLOW CAPACITY)

### SPECIFICATIONS

|                         |                   |
|-------------------------|-------------------|
| OPERATING PRESSURE      | 5000 PSI          |
| TEMPERATURE RANGE       | 250°F TO -40°F    |
| RELIEF TOLERANCE        | +/- 10%           |
| INTERNAL LEAKAGE        | 5 DROPS/MIN. MAX. |
| STANDARD CRACK PRESSURE | 25 PSI            |
| RELIEF ADJUSTMENT RANGE | 500 - 5000 PSI    |

### ORDERING INFORMATION



| MODEL | THREAD   | FLOW CAPACITY | CAVITY | L1   | L2 (MAX.) | HEX  | A             | B             | TORQUE    |
|-------|----------|---------------|--------|------|-----------|------|---------------|---------------|-----------|
| 5610  | 7/8 - 14 | 10.0 GPM      | VC10-3 | 1.85 | 2.00      | 1.00 | 0.621 / 0.623 | 0.683 / 0.685 | 25 ft-lbs |

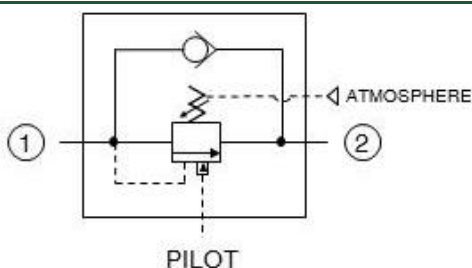
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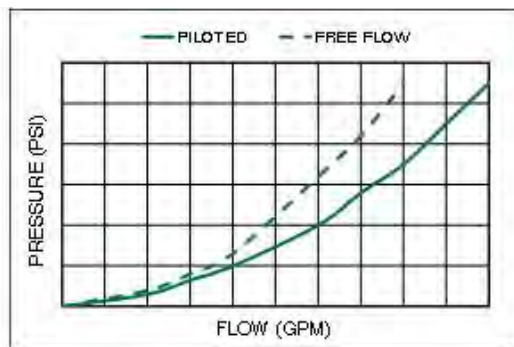
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, THREE PORT, PILOT TO OPEN COUNTERBALANCE VALVE WITH AN ATMOSPHERICALLY VENTED SPRING CHAMBER AND FREE REVERSE FLOW CHECK, INTENDED FOR MOTION CONTROL AND OVER-CENTER LOAD HOLDING APPLICATIONS.

### OPERATION

- FLOW FROM (2) TO (1) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 25 PSI.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL A PILOT PRESSURE INVERSELY PROPORTIONAL TO THE LOAD PRESSURE IS APPLIED TO THE PILOT PORT.
- BACK PRESSURE AT PORT (2) DOES NOT AFFECT RELIEF SETTING.

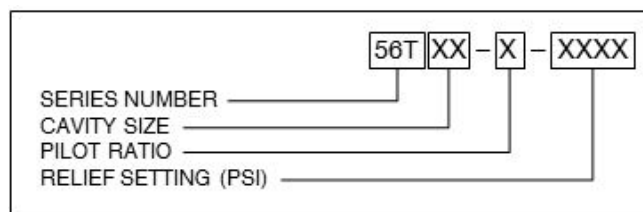
### FEATURES

- ADJUSTABLE WITH LOCKING NUT.
- CLOCKWISE ADJUSTMENT TO INCREASE RELIEF SETTING.
- SEALED PILOT PISTON, LOW INTERNAL LEAKAGE.
- QUIET, STABLE OPERATION.
- LOW RELIEF HYSTERESIS.
- PILOT RATIOS UP TO 10:1 AVAILABLE (HIGHER PILOT RATIOS MAY REDUCE FLOW CAPACITY)

### SPECIFICATIONS

|                         |                   |
|-------------------------|-------------------|
| OPERATING PRESSURE      | 5000 PSI          |
| TEMPERATURE RANGE       | 250°F TO -40°F    |
| RELIEF TOLERANCE        | +/- 10%           |
| INTERNAL LEAKAGE        | 5 DROPS/MIN. MAX. |
| STANDARD CRACK PRESSURE | 25 PSI            |
| RELIEF ADJUSTMENT RANGE | 500 - 5000 PSI    |

### ORDERING INFORMATION



| MODEL | THREAD    | FLOW CAPACITY | CAVITY | L1   | L2 (MAX.) | HEX   | A                | B                | C                | SD (MAX.) | TORQUE    |
|-------|-----------|---------------|--------|------|-----------|-------|------------------|------------------|------------------|-----------|-----------|
| 56T11 | M20 X 1.5 | 10.0 GPM      | T-11A  | 1.38 | 2.45      | 0.938 | 0.683 /<br>0.685 | 0.807 /<br>0.809 | 0.855 /<br>0.857 | 0.850     | 30 ft-lbs |
| 56T2  | 1-14      | 25.0 GPM      | T-2A   | 1.38 | 2.75      | 1.125 | 0.871 /<br>0.873 | 1.027 /<br>1.029 | 1.074 /<br>1.076 | 0.870     | 45 ft-lbs |

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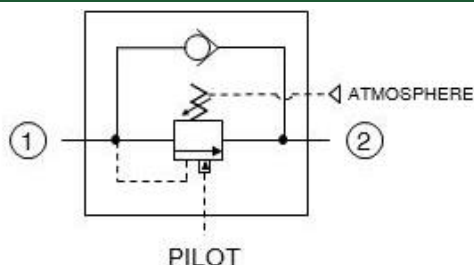
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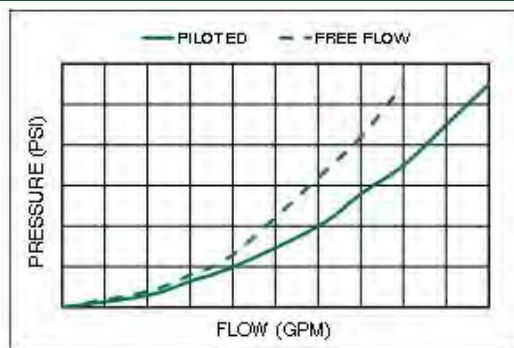
### PRODUCT



### SCHEMATIC



### TYPICAL PERFORMANCE



### DESCRIPTION

A CARTRIDGE STYLE, THREE PORT, PILOT TO OPEN COUNTERBALANCE VALVE WITH AN ATMOSPHERICALLY VENTED SPRING CHAMBER AND FREE REVERSE FLOW CHECK, INTENDED FOR MOTION CONTROL AND OVER-CENTER LOAD HOLDING APPLICATIONS.

### OPERATION

- FLOW FROM (2) TO (1) IS ALLOWED WITH A STANDARD CRACK PRESSURE OF 25 PSI.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL THE RELIEF PRESSURE SETTING HAS BEEN EXCEEDED.
- FLOW FROM (1) TO (2) IS BLOCKED UNTIL A PILOT PRESSURE INVERSELY PROPORTIONAL TO THE LOAD PRESSURE IS APPLIED TO THE PILOT PORT.
- BACK PRESSURE AT PORT (2) DOES NOT AFFECT RELIEF SETTING.

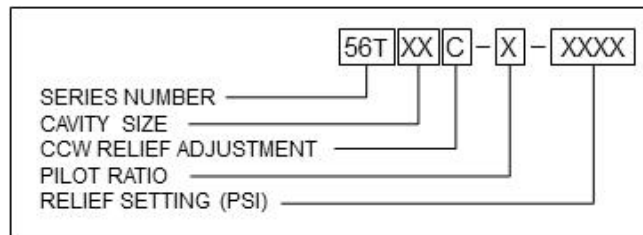
### FEATURES

- ADJUSTABLE WITH LOCKING NUT.
- COUNTERCLOCKWISE ADJUSTMENT TO INCREASE RELIEF SETTING.
- SEALED PILOT PISTON, LOW INTERNAL LEAKAGE.
- QUIET, STABLE OPERATION.
- LOW RELIEF HYSTERESIS.
- PILOT RATIOS UP TO 10:1 AVAILABLE (HIGHER PILOT RATIOS MAY REDUCE FLOW CAPACITY)

### SPECIFICATIONS

|                         |                   |
|-------------------------|-------------------|
| OPERATING PRESSURE      | 5000 PSI          |
| TEMPERATURE RANGE       | 250°F TO -40°F    |
| RELIEF TOLERANCE        | +/- 10%           |
| INTERNAL LEAKAGE        | 5 DROPS/MIN. MAX. |
| STANDARD CRACK PRESSURE | 25 PSI            |
| RELIEF ADJUSTMENT RANGE | 500 - 5000 PSI    |

### ORDERING INFORMATION



| MODEL  | THREAD    | FLOW CAPACITY | CAVITY | L1   | L2 (MAX.) | HEX   | A                | B                | C                | SD (MAX.) | TORQUE    |
|--------|-----------|---------------|--------|------|-----------|-------|------------------|------------------|------------------|-----------|-----------|
| 56T11C | M20 X 1.5 | 10.0 GPM      | T-11A  | 1.38 | 2.45      | 0.938 | 0.683 /<br>0.685 | 0.807 /<br>0.809 | 0.855 /<br>0.857 | 0.850     | 30 ft-lbs |

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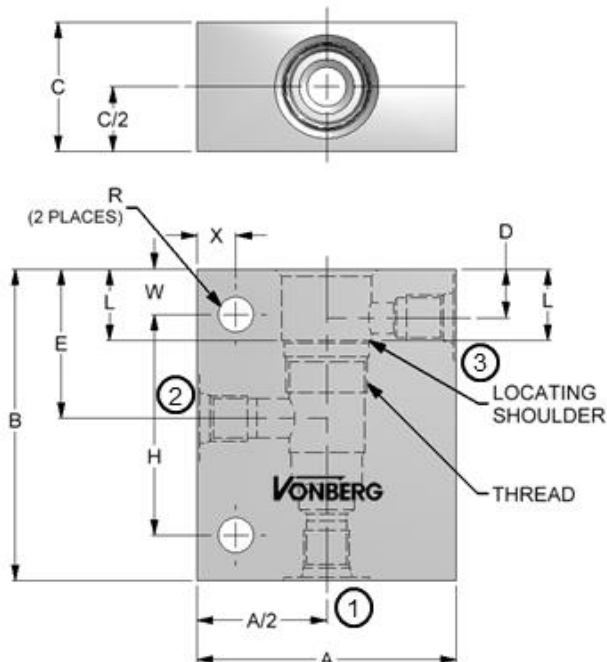
Page last updated: January 19, 2015



# CARTRIDGE BODIES



### PRODUCT



### DESCRIPTION

3 WAY CARTRIDGE BODY FOR T SERIES CAVITIES WITH NPTF PORTS OR O-RING PORTS CONFORMING TO SAE J1926.

### OPERATION

- FLOW DIRECTION IS DEPENDENT ON VALVE TO BE INSTALLED, CONSULT CARTRIDGE VALVE LITERATURE.

### FEATURES

- TO ORDER A CARTRIDGE VALVE IN A BODY AS AN ASSEMBLY, ADD THE PORT DESIGNATOR DIGITS OF THE BODY PART NUMBER TO THE END OF THE CARTRIDGE VALVE NUMBER. EXAMPLE: 55T11-4-3000-8T
- MANY PORT SIZE AND THREAD OPTIONS AVAILABLE.
- STANDARD BODIES ARE ALUMINUM
- CONSULT FACTORY FOR AVAILABILITY OF ALTERNATE MATERIALS.

### SPECIFICATIONS

|                   |                    |
|-------------------|--------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI |
| TEMPERATURE RANGE | 250°F TO -40°F     |

### ORDERING INFORMATION

T XX - XX

MANIFOLD SERIES \_\_\_\_\_  
 FOR INTEGRATED MANIFOLD USE COUNTERBALANCE ASSEMBLY NUMBER WITH PORT DESIGNATOR ONLY

MANIFOLD DESIGNATOR \_\_\_\_\_  
 163..... T-163A CAVITY    11..... T-11A CAVITY  
 2..... T-2A CAVITY

PORT DESIGNATOR \_\_\_\_\_

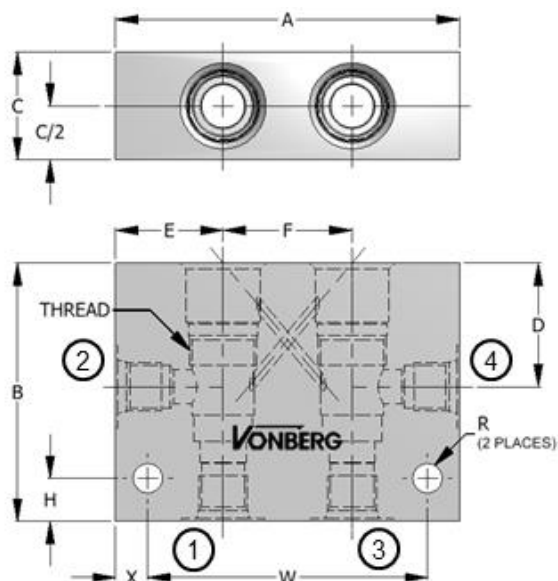
|     | PORTS (1) & (2) | PORT (3) | T163 | T11 | T2 |
|-----|-----------------|----------|------|-----|----|
| 2P  | 1/4 NPTF        |          |      |     |    |
| 3P  | 3/8 NPTF        |          |      |     |    |
| 4P  | 1/2 NPTF        | 1/4 NPTF |      |     |    |
| 6P  | 3/4 NPTF        |          |      |     |    |
| 4T  | -04 SAE         | -04 SAE  |      |     |    |
| 64T | -06 SAE         |          |      |     |    |
| 6T  | -06 SAE         |          |      |     |    |
| 8T  | -08 SAE         | -06 SAE  |      |     |    |
| 10T | -10 SAE         |          |      |     |    |
| 12T | -12 SAE         |          |      |     |    |

| MODEL   | THREAD      | A    | B    | C    | D    | E    | H    | R    | W    | X    | L (MIN.) |
|---------|-------------|------|------|------|------|------|------|------|------|------|----------|
| T163-XX | M16X1.5-6H  | 2.00 | 3.00 | 1.00 | 0.44 | 1.27 | 2.13 | 0.28 | 0.44 | 0.28 | 0.61     |
| T11-XX  | M20X1.5-6H  | 2.50 | 3.00 | 1.25 | 0.47 | 1.44 | 2.13 | 0.34 | 0.44 | 0.38 | 0.69     |
| T2-XX   | 1-14 UNS-2B | 3.00 | 3.25 | 1.50 | 0.59 | 1.50 | 2.25 | 0.42 | 0.50 | 0.50 | 0.72     |

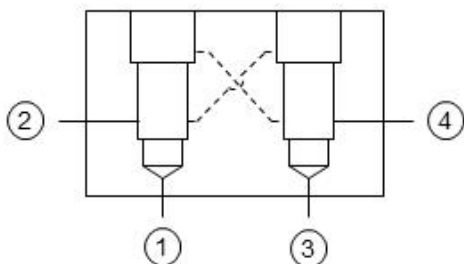
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Page last updated: May 27, 2015

### PRODUCT



### SCHEMATIC



### DESCRIPTION

3 WAY DUAL CARTRIDGE BODY WITH CROSS-PILOTED T SERIES CAVITIES WITH NPTF PORTS OR O-RING PORTS CONFORMING TO SAE J1926.

### OPERATION

- FLOW DIRECTION IS DEPENDENT ON VALVE TO BE INSTALLED, CONSULT CARTRIDGE VALVE LITERATURE.

### FEATURES

- TO ORDER A CARTRIDGE VALVE IN A BODY AS AN ASSEMBLY, ADD THE PORT DESIGNATOR DIGITS OF THE BODY PART NUMBER TO THE END OF THE CARTRIDGE VALVE NUMBER. EXAMPLE: 55T2-3-3000-D6P
- MANY PORT SIZE AND THREAD OPTIONS AVAILABLE.
- STANDARD BODIES ARE ALUMINUM
- CONSULT FACTORY FOR AVAILABILITY OF ALTERNATE MATERIALS.

### SPECIFICATIONS

|                   |                    |
|-------------------|--------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI |
| TEMPERATURE RANGE | 250°F TO -40°F     |

### ORDERING INFORMATION

MANIFOLD SERIES **T XX - D XX**

FOR INTEGRATED MANIFOLD USE COUNTERBALANCE ASSEMBLY NUMBER WITH PORT DESIGNATOR ONLY

MANIFOLD DESIGNATOR

183..... T-183CAVITY 11..... T-11CAVITY  
 2..... T-2A CAVITY

PORT DESIGNATOR

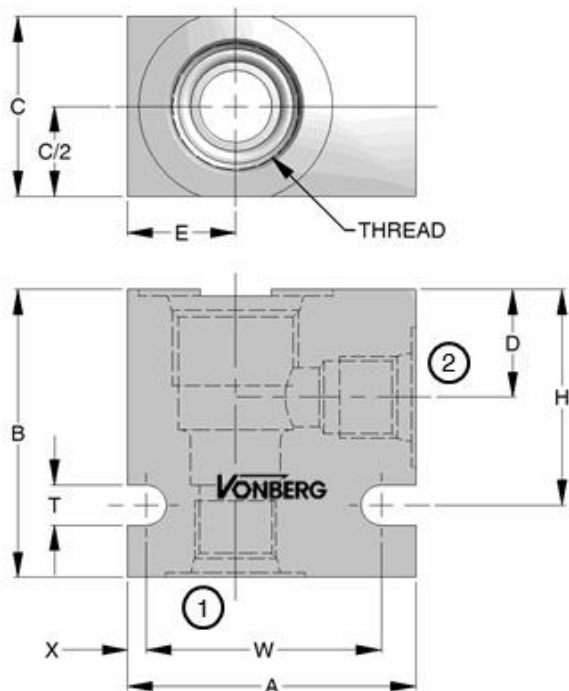
|     | ALL PORTS | T183 | T11 | T2 |
|-----|-----------|------|-----|----|
| 2P  | 1/4 NPTF  |      |     |    |
| 3P  | 3/8 NPTF  |      |     |    |
| 4P  | 1/2 NPTF  |      |     |    |
| 6P  | 3/4 NPTF  |      |     |    |
| 4T  | -04 SAE   |      |     |    |
| 6T  | -06 SAE   |      |     |    |
| 8T  | -08 SAE   |      |     |    |
| 10T | -10 SAE   |      |     |    |
| 12T | -12 SAE   |      |     |    |

| MODEL    | THREAD      | A    | B    | C    | D    | E    | F    | H    | R    | X    | W    |
|----------|-------------|------|------|------|------|------|------|------|------|------|------|
| T163-DXX | M16X1.5-6H  | 3.00 | 3.00 | 1.00 | 1.27 | 0.96 | 1.08 | 0.28 | 0.28 | 0.25 | 2.50 |
| T11-DXX  | M20X1.5-6H  | 4.00 | 3.00 | 1.25 | 1.44 | 1.25 | 1.50 | 0.50 | 0.34 | 0.38 | 3.25 |
| T2-DXX   | 1-14 UNS-2B | 4.50 | 3.25 | 1.50 | 1.50 | 1.50 | 1.50 | 0.50 | 0.34 | 0.50 | 3.50 |

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Page last updated: May 27, 2015

### PRODUCT



### DESCRIPTION

STANDARD 2 WAY CARTRIDGE BODY FOR INDUSTRY COMMON CAVITIES WITH O-RING PORTS CONFORMING TO SAE J1926.

### OPERATION

- FLOW DIRECTION IS DEPENDENT ON VALVE TO BE INSTALLED, CONSULT CARTRIDGE VALVE LITERATURE.

### FEATURES

- TO ORDER A CARTRIDGE VALVE IN A BODY AS AN ASSEMBLY, ADD THE LAST TWO DIGITS OF THE BODY PART NUMBER TO THE END OF THE CARTRIDGE VALVE NUMBER. EXAMPLE: 1810-2P
- MANY PORT SIZE AND THREAD OPTIONS AVAILABLE.
- STANDARD BODIES ARE ALUMINUM
- CONSULT FACTORY FOR AVAILABILITY OF ALTERNATE MATERIALS.

### SPECIFICATIONS

|                   |                    |
|-------------------|--------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI |
| TEMPERATURE RANGE | 250°F TO -40°F     |

### ORDERING INFORMATION

CAVITY SIZE \_\_\_\_\_ X - 2 - XX  
 CAVITY TYPE \_\_\_\_\_  
 (1) & (2) PORT SIZE \_\_\_\_\_

|     | CAVITY SIZE → | 4 | 6 | 8 | 10 | 12 | 16 |
|-----|---------------|---|---|---|----|----|----|
| 2P  | 1/4"          |   |   |   |    |    |    |
| 3P  | 3/8"          |   |   |   |    |    |    |
| 4P  | 1/2"          |   |   |   |    |    |    |
| 6P  | 3/4"          |   |   |   |    |    |    |
| 8P  | 1"            |   |   |   |    |    |    |
| 4T  | -04           |   |   |   |    |    |    |
| 6T  | -06           |   |   |   |    |    |    |
| 8T  | -08           |   |   |   |    |    |    |
| 10T | -10           |   |   |   |    |    |    |
| 12T | -12           |   |   |   |    |    |    |
| 16T | -16           |   |   |   |    |    |    |

| MODEL | THREAD      | A    | B    | C    | D    | E    | H    | T    | W    | X    |
|-------|-------------|------|------|------|------|------|------|------|------|------|
| 4-2   | 7/16 - 20   | 1.50 | 1.50 | 0.75 | 0.55 | 0.60 | 1.25 | 0.20 | 1.25 | 0.13 |
| 6-2   | 9/16 - 18   | 1.75 | 1.75 | 1.00 | 0.55 | 0.70 | 1.25 | 0.28 | 1.38 | 0.19 |
| 8-2   | 3/4 - 16    | 2.00 | 2.00 | 1.00 | 0.60 | 0.75 | 1.50 | 0.28 | 1.63 | 0.13 |
| 10-2  | 7/8 - 14    | 2.00 | 2.00 | 1.25 | 0.75 | 0.75 | 1.50 | 0.28 | 1.63 | 0.13 |
| 12-2  | 1 1/16 - 12 | 3.00 | 3.00 | 2.00 | 1.06 | 1.13 | 2.25 | 0.34 | 2.56 | 0.16 |
| 16-2  | 1 5/16 - 12 | 3.00 | 3.00 | 2.00 | 1.00 | 1.13 | 2.25 | 0.34 | 2.56 | 0.16 |

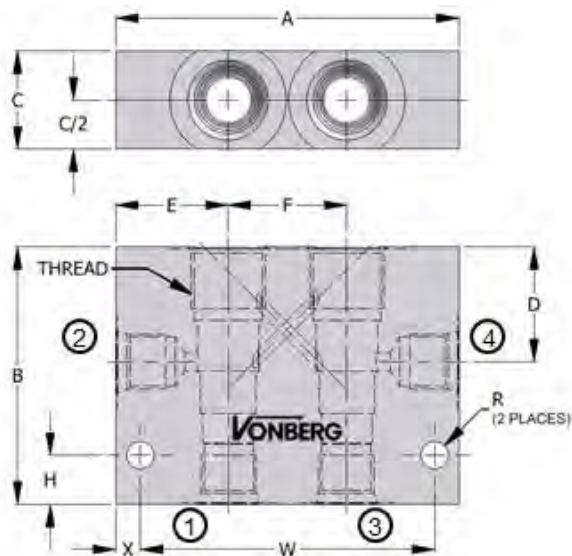
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Page last updated: March 11, 2014

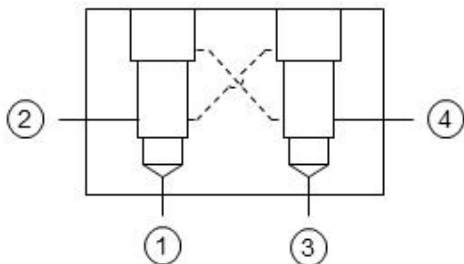




### PRODUCT



### SCHEMATIC



### DESCRIPTION

STANDARD 3 WAY DUAL CARTRIDGE BODY WITH CROSS-PILOTED INDUSTRY COMMON CAVITIES, WITH NPTF PORTS OR O-RING PORTS CONFORMING TO SAE J1926.

### OPERATION

- FLOW DIRECTION IS DEPENDENT ON VALVE TO BE INSTALLED, CONSULT CARTRIDGE VALVE LITERATURE.

### FEATURES

- TO ORDER A CARTRIDGE VALVE IN A BODY AS AN ASSEMBLY, ADD THE PORT DESIGNATOR DIGITS OF THE BODY PART NUMBER TO THE END OF THE CARTRIDGE VALVE NUMBER. EXAMPLE: 5008-3-3000-D8T
- MANY PORT SIZE AND THREAD OPTIONS AVAILABLE.
- STANDARD BODIES ARE ALUMINUM
- CONSULT FACTORY FOR AVAILABILITY OF ALTERNATE MATERIALS.

### SPECIFICATIONS

|                   |                    |
|-------------------|--------------------|
| PRESSURE RANGE    | 50 PSI TO 3500 PSI |
| TEMPERATURE RANGE | 250°F TO -40°F     |

### ORDERING INFORMATION

X - 3 - D - XX

CAVITY SIZE \_\_\_\_\_  
 CAVITY TYPE \_\_\_\_\_  
 PORT DESIGNATOR \_\_\_\_\_

| PORT | SIZE | CAVITY → | 6 | 8 | 10 | 12 | 16 |
|------|------|----------|---|---|----|----|----|
| 2P   | 1/4" | NPTF     |   |   |    |    |    |
| 3P   | 3/8" |          |   |   |    |    |    |
| 4P   | 1/2" |          |   |   |    |    |    |
| 6P   | 3/4" |          |   |   |    |    |    |
| 8P   | 1"   |          |   |   |    |    |    |
| 4T   | -04  | SAE      |   |   |    |    |    |
| 6T   | -06  |          |   |   |    |    |    |
| 8T   | -08  |          |   |   |    |    |    |
| 10T  | -10  |          |   |   |    |    |    |
| 12T  | -12  |          |   |   |    |    |    |
| 16T  | -16  |          |   |   |    |    |    |

| MODEL     | THREAD      | A    | B    | C    | D    | E    | F    | H    | R    | W    | X    |
|-----------|-------------|------|------|------|------|------|------|------|------|------|------|
| 6-3-DXX   | 9/16 - 18   | 3.00 | 2.00 | 1.00 | 0.95 | 1.00 | 1.00 | 0.38 | 0.28 | 2.50 | 0.25 |
| 8-3-DXX   | 3/4 - 16    | 3.50 | 2.62 | 1.00 | 1.17 | 1.15 | 1.20 | 0.50 | 0.28 | 3.00 | 0.25 |
| 8-3S-DXX  | 3/4 - 16    | 3.50 | 2.50 | 1.00 | 1.06 | 1.15 | 1.20 | 0.38 | 0.28 | 3.00 | 0.25 |
| 10-3-DXX  | 7/8 - 14    | 4.00 | 2.62 | 1.25 | 1.36 | 1.33 | 1.34 | 2.12 | 0.34 | 3.00 | 0.50 |
| 10-3S-DXX | 7/8 - 14    | 4.00 | 2.50 | 1.25 | 1.25 | 1.33 | 1.34 | 2.12 | 0.34 | 3.00 | 0.50 |
| 12-3-DXX  | 1 1/16 - 12 | 5.00 | 4.00 | 2.00 | 2.12 | 1.60 | 1.80 | 0.75 | 0.34 | 4.25 | 0.38 |
| 12-3S-DXX | 1 1/16 - 12 | 5.00 | 3.50 | 2.00 | 1.66 | 1.60 | 1.80 | 0.50 | 0.34 | 4.25 | 0.38 |
| 16-3-DXX  | 1 5/16 - 12 | 5.50 | 4.00 | 2.00 | 2.12 | 1.75 | 2.00 | 0.75 | 0.34 | 4.75 | 0.38 |

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