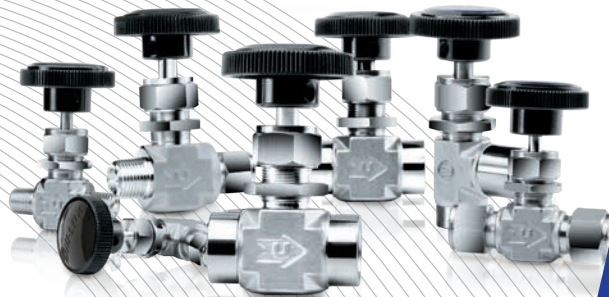




# INTEGRAL BONNET FORGED NEEDLE VALVES

**VN5 Series**

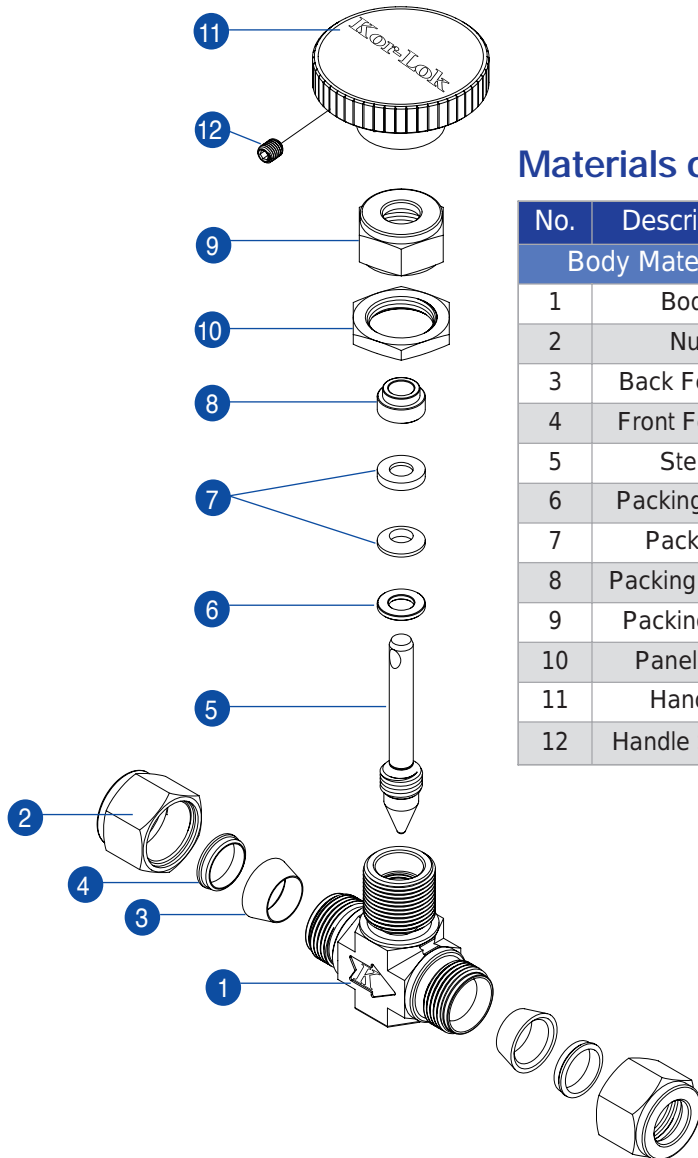
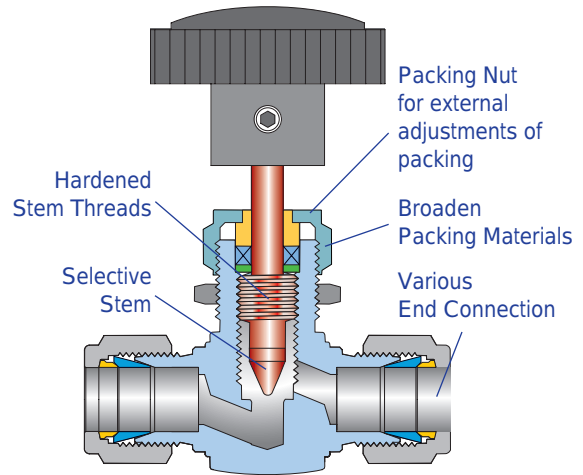
[www.korlokusa.com](http://www.korlokusa.com)



Kor-Lok USA

### Features

- Pressure rating up to 5000psig (340bar) @38°C (100°F)
- Temperature rating from -53°C(-65°F) to 232°C (450°F) with standard PTFE packing, up to 315°C(600°F) with PEEK packing
- Compact forged body with straight and angle pattern for design of miniaturized fluid systems
- Hardened stem threads and forged body for long cycle life
- Integral bonnet design to eliminate unintentional stem back-out
- Panel mounting without packing disruption
- Wide choices of port sizes and end connections



### Materials of Construction

| No. | Description   | Materials               |       |                  |
|-----|---------------|-------------------------|-------|------------------|
|     |               | Body Material           | 316SS | Brass            |
| 1   | Body          | 316SS                   | Brass | Alloy 400        |
| 2   | Nut           | 316SS                   | Brass | Alloy 400        |
| 3   | Back Ferrule  | 316SS                   | Brass | Alloy 400        |
| 4   | Front Ferrule | 316SS                   | Brass | Alloy 400        |
| 5   | Stem          | 316SS                   |       | Alloy R-405/B164 |
| 6   | Packing Ring  | 316SS                   | Brass | Alloy R-405/B164 |
| 7   | Packing       | PTFE                    |       |                  |
| 8   | Packing Gland | 316SS                   | Brass | Alloy R-405/B164 |
| 9   | Packing Nut   | 316SS                   | Brass | Alloy R-405/B164 |
| 10  | Panel Nut     | 316SS                   | Brass | 316SS            |
| 11  | Handle        | Nylon with brass insert |       |                  |
| 12  | Handle Screw  | 304SS                   |       |                  |

## Application

Regulation and shut-off of fluids and gases for wide range of purposes. General purpose needle valve.

Sampling systems, laboratories, corrosive and high pressure service, valves - pressure gauge and cylinder, panel board instrumentation.

## Sour Environment Services

Kor-Lok valves are comply with NACE MR-0175/ISO 115156 for sour oilfield application or NACE MR-0103 for petroleum refining operations.

To order, add-N to the end of part number.

## Cleaning

Kor-Lok valves are free from machine oils, loose particles and grease throughout the close cleaning process.

## How To Order

Kor-Lok VN5 series needle valves are ordered by part number as shown as below.

## Testing

Every valve is 100% factory tested with air and nitrogen at 1000psig(69bar) for leakage at the seat and packing. Each test is performed to a maximum allowable leak rate of 0.1scc/min.

## Important Notification

Proper installation, materials compatibility, operation and maintenance of these valves are the responsibility of the user. The total system design must be taken into consideration to ensure optimal performance and safety.

The packing adjustment may be required during the valve's service life.

**Example :** The following part number, **VN52U-04T-SS** is designated for VN5 series needle valve with both 1/4" Kor-Lok tube fitting, 316SS, round handle.



| Valve Type |                  |
|------------|------------------|
| N5         | Straight Pattern |
| N5A        | Angle Pattern    |

| Connection Type |                          |
|-----------------|--------------------------|
| U               | Kor-Lok Tube Fitting     |
| F               | Female NPT or ISO7/1(PT) |
| M               | Male NPT or ISO7/1(PT)   |
| WS-*T           | Socket Weld -Tube        |
| WS-*P           | Socket Weld - Pipe       |

| Body Materials |           |
|----------------|-----------|
| SS             | 316SS     |
| BS             | Brass     |
| MO             | Alloy 400 |

Other alloys are available upon request.

| Connection Type                        |      |      |      |      |       |       |       |
|--|------|------|------|------|-------|-------|-------|
| Fractional(Inch) Tube O.D. Designation |      |      |      |      |       |       |       |
| Tube O.D.                              | inch | 1/8  | 1/4  | 3/8  | 1/2   | 3/4   | 1     |
|  | mm   | 3.17 | 6.35 | 9.52 | 12.70 | 19.05 | 25.40 |
| Designator                             |      | 02T  | 04T  | 06T  | 08T   | 12T   | 16T   |

| Metric Tube O.D. Designation |    |      |      |      |      |      |
|------------------------------|----|------|------|------|------|------|
| Tube O.D.                    | mm | 6    | 8    | 10   | 12   | 16   |
| Designator                   |    | M06T | M08T | M10T | M12T | M16T |

| Pipe Size Designation (NPT or ISO7/1-PT) |       |       |       |       |
|--|-------|-------|-------|-------|
| Pipe Size                                | 1/8   | 1/4   | 3/8   | 1/2   |
| Designator                               | 02N/R | 04N/R | 06N/R | 08N/R |

| Weld Size Designation |     |     |     |
|-----------------------|-----|-----|-----|
| Tube Size             | 1/4 | 3/8 | 1/2 |
| Designator            | 04T | 06T | 08T |
| Pipe Size             | 1/4 | 3/8 | 1/2 |
| Designator            | 04P | 06P | 08P |

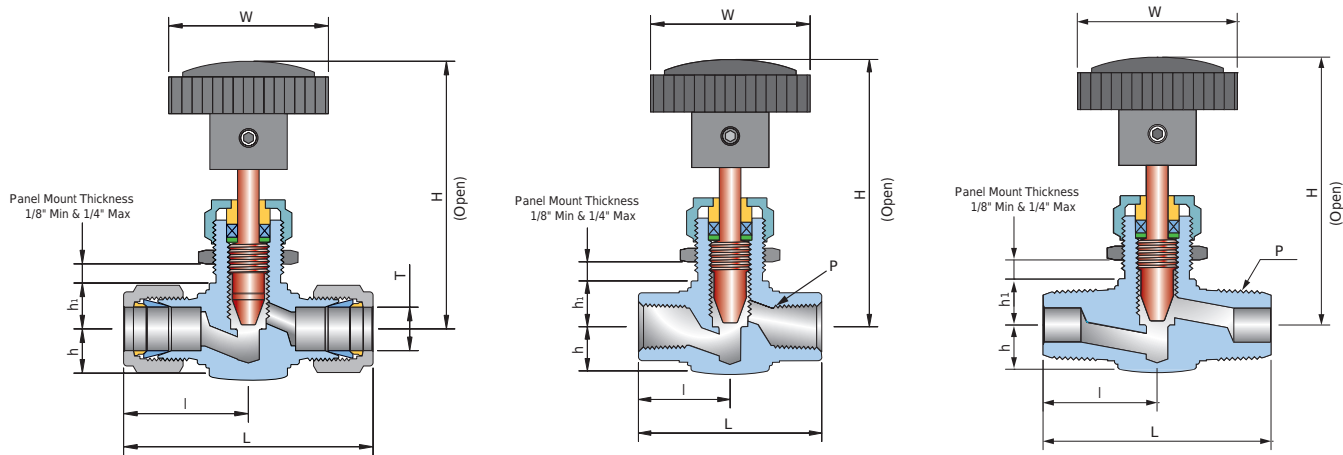
| Stem Type |                 |
|-----------|-----------------|
| None      | Veel Stem       |
| R         | Regulating Stem |
| S         | Soft-seat Stem  |

| Packing Materials |      |
|-------------------|------|
| None              | PTFE |
| PK                | PEEK |

| Handle Type |                    |
|-------------|--------------------|
| None        | Nylon Round Handle |
| B           | Bar Handle         |

## VN5 series

(Straight Pattern, Both Kor-Lok Tube Fittings or Both Female or Male Threads)



### Ordering Information & Dimensions

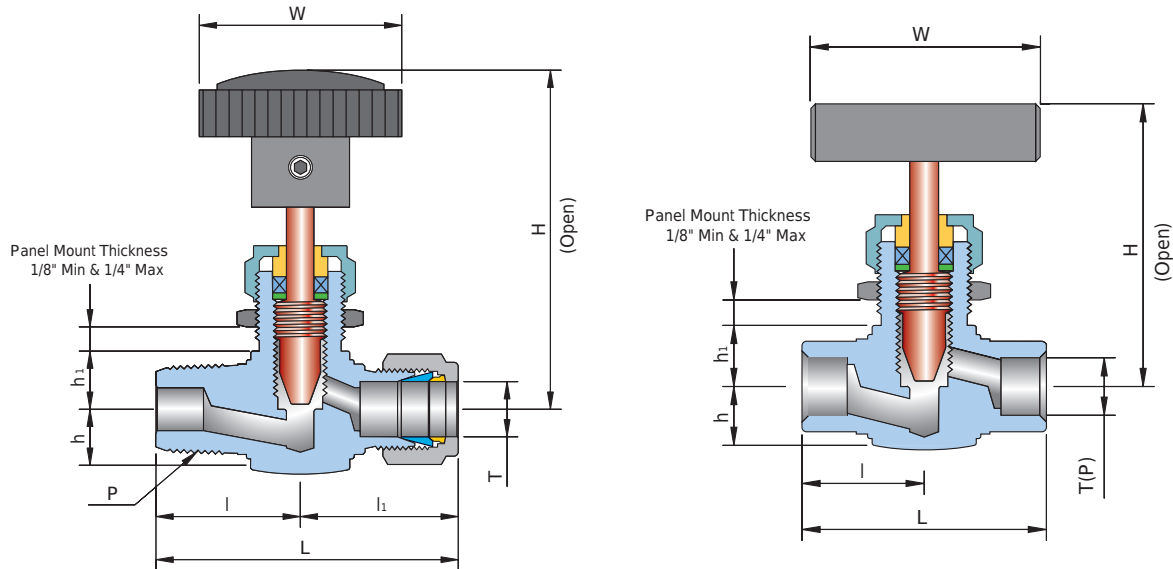
| Part Number | End Connection |                                 | Orifice | CV   | Dimensions (mm) |      |      |                |                      |      | Panel Hole Drill Size |
|-------------|----------------|---------------------------------|---------|------|-----------------|------|------|----------------|----------------------|------|-----------------------|
|             | Inlet          | Outlet                          |         |      | L               | I    | h    | h <sub>1</sub> | Round Handle H(open) | W    |                       |
| VN51        | U-02T-         | 1/8" Kor-Lok                    | 2.0     | 0.09 | 49.3            | 24.9 | 11.2 | 7.9            | 57.9                 | 25.4 | 11.9                  |
|             | U-M03T-        | 3mm Kor-Lok                     |         |      | 49.3            | 24.9 |      |                |                      |      | 12.2                  |
|             | F-02N-         | 1/8" Female NPT                 |         |      | 47.8            | 23.9 |      |                |                      |      | 11.9                  |
|             | M-02N-         | 1/8" Male NPT                   |         |      | 38.1            | 19.1 |      |                |                      |      |                       |
| VN52        | U-04T-         | 1/4" Kor-Lok                    | 4.4     | 0.37 | 56.3            | 28.2 | 9.5  | 9.5            | 65.9                 | 34.7 | 13.5                  |
|             | U-M06T-        | 6mm Kor-Lok                     |         |      | 56.8            | 28.4 |      |                |                      |      |                       |
|             | U-M08T-        | 8mm Kor-Lok                     |         |      | 59.0            | 29.5 |      |                |                      |      |                       |
|             | F-02N-         | 1/8" Female NPT                 |         |      | 42.0            | 21.0 |      |                |                      |      |                       |
|             | M-02N-         | 1/8" Male NPT                   |         |      | 41.2            | 20.6 |      |                |                      |      |                       |
|             | M-04N-         | 1/4" Male NPT                   |         |      | 50.0            | 25.5 |      |                |                      |      |                       |
| VN53        | U-06T-         | 3/8" Kor-Lok                    | 6.3     | 0.73 | 67.8            | 33.9 | 12.5 | 13.5           | 80.6                 | 46.7 | 20.0                  |
|             | U-08T-         | 1/2" Kor-Lok                    |         |      | 73.2            | 36.6 |      |                |                      |      |                       |
|             | U-M10T-        | 10mm Kor-Lok                    |         |      | 67.4            | 33.7 |      |                |                      |      |                       |
|             | U-M12T-        | 12mm Kor-Lok                    |         |      | 73.4            | 36.7 |      |                |                      |      |                       |
|             | F-04N-         | 1/4" Female NPT                 |         |      | 54.0            | 27.0 |      |                |                      |      |                       |
|             | M-06N-         | 3/8" Male NPT                   |         |      | 53.0            | 26.5 |      |                |                      |      |                       |
|             | MF-04N-        | 1/4" Male NPT   1/4" Female NPT |         |      | 55.6            | 26.5 |      |                |                      |      |                       |
| VN54        | U-08T-         | 1/2" Kor-Lok                    | 7.2     | 1.80 | 83.2            | 41.6 | 17.0 | 17.0           | 97.0                 | 55.5 | 23.0                  |
|             | U-12T-         | 3/4" Kor-Lok                    |         |      | 83.2            | 41.6 |      |                |                      |      |                       |
|             | F-06N-         | 3/8" Female NPT                 |         |      | 65.0            | 30.0 |      |                |                      |      |                       |
|             | F-08N-         | 1/2" Female NPT                 |         |      | 65.0            | 32.5 |      |                |                      |      |                       |
|             | M-08N-         | 1/2" Male NPT                   |         |      | 66.0            | 33.0 |      |                |                      |      |                       |
|             | MF-08N-        | 1/2" Male NPT   1/2" Female NPT |         |      | 66.0            | 33.0 |      |                |                      |      |                       |
| VN55        | U-16T-         | 1" Kor-Lok                      | 12.7    | 3.20 | 99.2            | 49.6 | 20.0 | 20.0           | 86.7*                | 85*  | 29.0                  |
|             | F-12N-         | 3/4" Female NPT                 |         |      | 75.0            | 37.5 |      |                | 87.2*                |      |                       |
|             | F-16N-         | 1" Female NPT                   |         |      | 89.0            | 44.5 |      |                |                      |      |                       |

\* Dimensions for bar handle. Round handle for these sizes are not available.  
 ISO7/1 Tapered Threads (PT) are available for all fractional sizes of VN5 series valves.  
 Add "R" as a suffix instead of "N".

Dimensions are for reference only and are subject to change without prior notice.

## VN5 series

(Straight Pattern, Male/Kor-Lok Tube Fitting or Both Tube or Pipe Socket Welds)



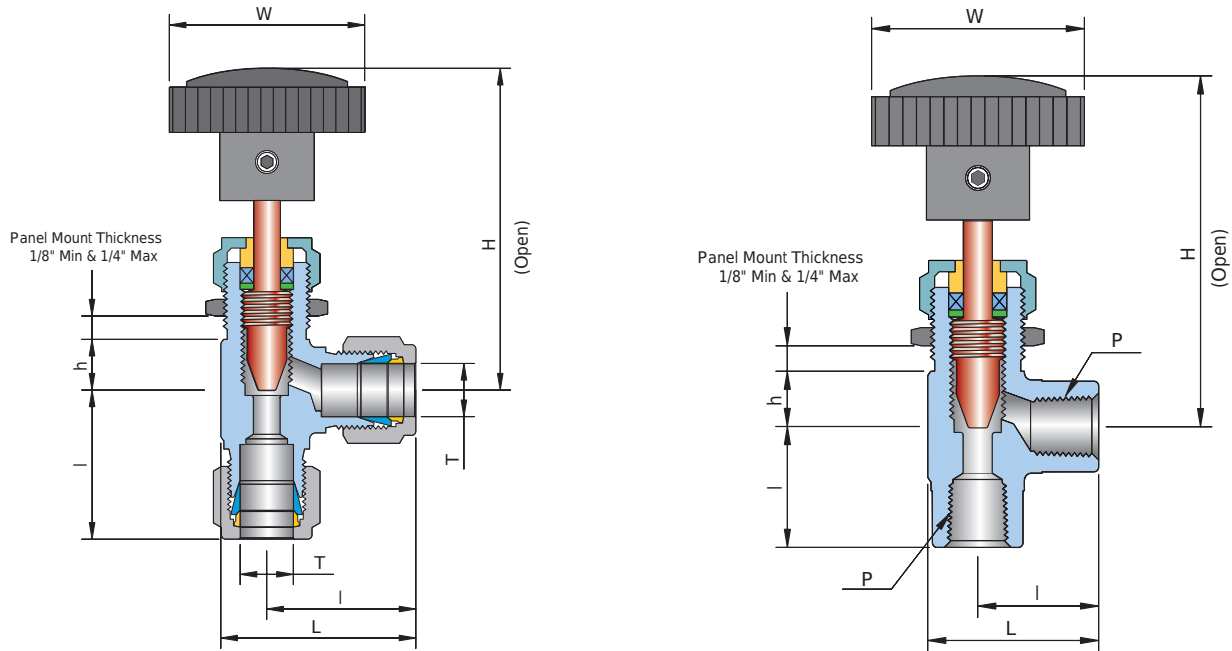
### Ordering Information & Dimensions

| Part Number | End Connection |               | Orifice      | CV  | Dimensions (mm) |      |      |                |              |      | Panel Hole Drill Size |      |
|-------------|----------------|---------------|--------------|-----|-----------------|------|------|----------------|--------------|------|-----------------------|------|
|             | Inlet          | Outlet        |              |     | L               | l    | h    | h <sub>1</sub> | Round Handle |      |                       |      |
|             |                |               |              |     |                 |      |      | H(open)        | W            |      |                       |      |
| VN52        | MU-04N02T-     | 1/4" Male NPT | 1/8" Kor-Lok | 2.0 | 0.09            | 51.3 | 25.0 | 9.5            | 9.5          | 54.3 | 32.0                  | 13.5 |
|             | MU-04N04T-     | 1/4" Male NPT | 1/4" Kor-Lok | 4.4 | 0.37            | 53.3 | 25.0 |                |              |      |                       |      |
|             | WS-04T         | 1/4" Tube     |              |     |                 | 42.0 | 21.0 |                |              |      |                       |      |
| VN53        | MU-04N06T-     | 1/4" Male NPT | 3/8" Kor-Lok | 6.3 | 0.73            | 60.4 | 26.5 | 12.5           | 13.5         | 67.5 | 50.6                  | 20.0 |
|             | MU-06N06T-     | 3/8" Male NPT | 3/8" Kor-Lok |     |                 | 60.4 | 26.5 |                |              |      |                       |      |
|             | MU-06N08T-     | 3/8" Male NPT | 1/2" Kor-Lok |     |                 | 63.1 | 26.5 |                |              |      |                       |      |
|             | WS-06T         | 3/8" Tube     |              |     |                 | 54.0 | 27.0 |                |              |      |                       |      |
|             | WS-08T         | 1/2" Tube     |              |     |                 | 54.0 | 27.0 |                |              |      |                       |      |
|             | WS-04P         | 1/4" Pipe     |              |     |                 | 54.0 | 27.0 |                |              |      |                       |      |
| VN54        | WS-06P         | 3/8" Pipe     |              | 7.2 | 1.80            | 60.0 | 30.0 | 17.0           | 17.0         | 83.8 | 62.5                  | 23.0 |
|             | WS-08P         | 1/2" Pipe     |              |     |                 | 65.0 | 32.5 |                |              |      |                       |      |

Male ISO7/1 Tapered Threads (PT) are available for all fractional sizes of VN5 series valves. Add "R" as a suffix instead of "N".

Dimensions are for reference only and are subject to change without prior notice.

## VN5A series (Angle Pattern, Both Kor-Lok Tube Fittings or Both Female Threads)



### Ordering Information & Dimensions

| Part Number | End Connection |                 | Orifice | CV   | Dimensions (mm) |      |      |                         |      | Panel Hole Drill Size |
|-------------|----------------|-----------------|---------|------|-----------------|------|------|-------------------------|------|-----------------------|
|             | Inlet          | Outlet          |         |      | L               | l    | h    | Round Handle<br>H(open) | W    |                       |
| VN52A       | U-04T-         | 1/4" Kor-Lok    | 4.4     | 0.37 | 38.9            | 30.2 | 10.1 | 61.1                    | 34.7 | 13.5                  |
|             | U-M06T-        | 6mm Kor-Lok     |         |      | 39.1            | 30.5 |      |                         |      |                       |
|             | U-M08T-        | 8mm Kor-Lok     |         |      | 39.3            | 30.7 |      |                         |      |                       |
|             | F-02N-         | 1/8" Female NPT |         |      | 29.6            | 21.0 |      |                         |      |                       |
| VN53A       | U-06T-         | 3/8" Kor-Lok    | 6.3     | 0.73 | 44.2            | 33.1 | 12.2 | 78.4                    | 46.7 | 20.0                  |
|             | U-08T-         | 1/2" Kor-Lok    |         |      | 46.9            | 35.8 |      |                         |      |                       |
|             | U-M10T-        | 10mm Kor-Lok    |         |      | 44.8            | 33.7 |      |                         |      |                       |
|             | U-M12T-        | 12mm Kor-Lok    |         |      | 46.9            | 35.8 |      |                         |      |                       |
|             | F-04N-         | 1/4" Female NPT |         |      | 37.0            | 26.0 |      |                         |      |                       |
| VN54A       | F-06N-         | 3/8" Female NPT | 7.2     | 1.80 | 53.5            | 39.7 | 15.9 | 92.2                    | 55.5 | 23.0                  |
|             | F-08N-         | 1/2" Female NPT |         |      |                 |      |      |                         |      |                       |

Female ISO7/1 Tapered Threads (PT) are available for all fractional sizes of VN5 series valves.  
Add "R" as a suffix instead of "N".

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### Pressure - Temperature Ratings by Packing Materials

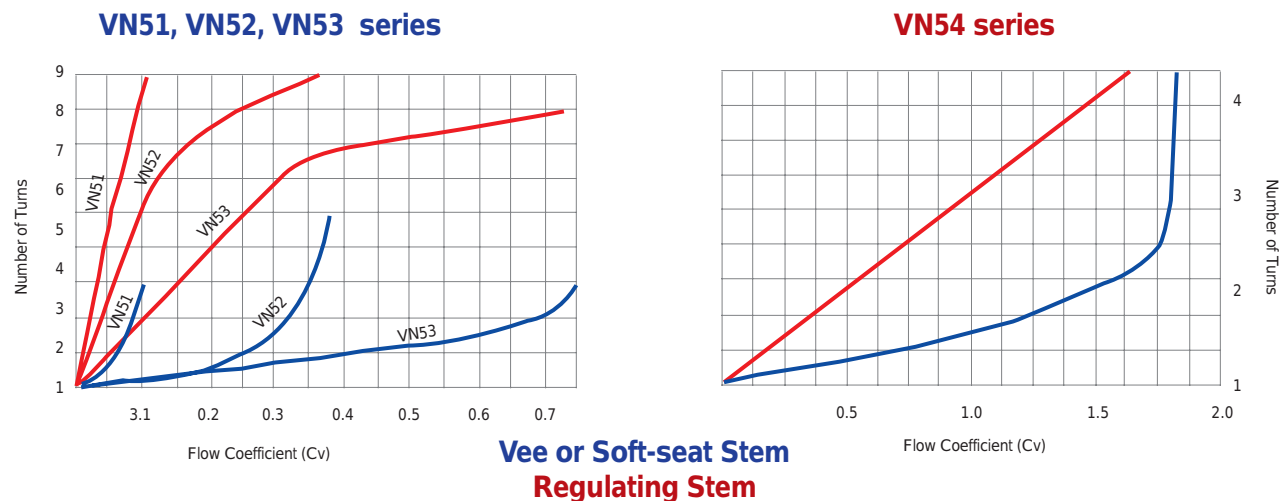
| Body Material | Stem                              | PTFE packing       |         |                 |     | PEEK packing       |         |                 |     |
|---------------|-----------------------------------|--------------------|---------|-----------------|-----|--------------------|---------|-----------------|-----|
|               |                                   | Temperature Rating |         | Pressure Rating |     | Temperature Rating |         | Pressure Rating |     |
|               |                                   | °C                 | °F      | psig            | bar | °C                 | °F      | psig            | bar |
| 316SS         | metal to metal (vee & regulating) | -54~232            | -65~450 | 5000            | 345 | -54~315            | -65~600 | 3130            | 215 |
|               | soft-seat (Kel-F)                 | -54~93             | -65~200 |                 |     | -54~93             | -65~200 |                 |     |
| Brass         | metal to metal (vee & regulating) | -54~204            | -65~400 | 3000            | 207 | -54~204            | -65~400 | 3000            | 207 |
|               | soft-seat (Kel-F)                 | -54~93             | -65~200 |                 |     | -54~93             | -65~200 |                 |     |
| Alloy 400     | metal to metal (vee & regulating) | -54~232            | -65~450 | 3000            | 207 | -54~260            | -65~500 | 2370            | 162 |
|               | soft-seat (Kel-F)                 | -54~93             | -65~200 |                 |     | -54~93             | -65~200 |                 |     |

Packing adjustment to be required for extreme temperature variations  
 For the service with aromatic heat transfer fluids or concentrated sulfuric and nitric acids, PEEK is not recommended.

### Working Pressure at Temperature

| Temperature |     |        |     | Working Pressure |     |       |     |           |     |
|-------------|-----|--------|-----|------------------|-----|-------|-----|-----------|-----|
| °C          |     | °F     |     | psig             | bar | psig  | bar | psig      | bar |
| -54 to      | 38  | -65 to | 100 | 5000             | 345 | 3000  | 207 | 3000      | 207 |
|             | 93  |        | 200 | 4290             | 296 | 2600  | 180 | 2640      | 183 |
|             | 148 |        | 300 | 3870             | 267 | 2210  | 153 | 2470      | 171 |
|             | 176 |        | 350 | 3710             | 256 | 1470  | 102 | 2430      | 168 |
|             | 204 |        | 400 | 3560             | 246 | 740   | 52  | 2390      | 165 |
|             | 232 |        | 450 | 3430             | 237 | -     | -   | 2380      | 165 |
| Materials   |     |        |     | 316SS            |     | Brass |     | Alloy 400 |     |

### Number of Handle Turns - Flow Coefficient (Cv)



### Stem Types

Metal to metal vee stem is standard for pressure tightness even at elevated temperature. Regulating stem and soft-seat stem with KEL-F are available as optional.

The excessive force when closing valve may damage both seat and stem tip, particularly soft-seat stem.



**Vee Stem**  
Pressure tightness at elevated temperature



**Regulating Stem**  
Flow rate control



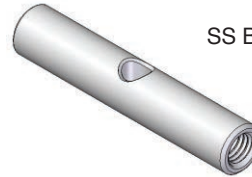
**Soft-seat Stem**  
Repetitive shut-off for gas

### Handle Types

Black nylon round handle is standard.

For the valves with brass body and soft-seat stem, standard round handle is recommended.

Optional stainless steel bar handle is available.



SS Bar Handle



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