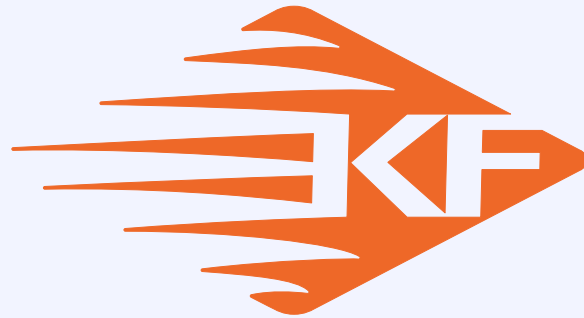


KF Needle & Gauge Valves



KF Industries



Superior Fluid Control Products
A Brand of **CIRCOR** Energy Products, Inc.

KF O-Ring & Packed Stem Style Needle Valves

KF Needle Valves combine rugged construction, dependability and leak-free performance at high and low pressures. These valves offer exceptional regulating properties and high flow capacities in the full open position.

Valves are available with metal-to-metal or a replaceable nylon seat. Materials of construction include Carbon Steel with 316 Stainless Steel Stem and is optionally available in all 316 Stainless Steel.

General Design Features

O-Ring Style

- 1/4" - 1/2" NPT, Soft Seat Pressures Up To 6000 PSI At 200°F, Metal Seated Valves With Standard Buna N Stem Seal Rated Up To 10,000 PSI At 200° & Optional Viton® Stem Seal Assemblies Up To 400°F
- NACE Conformance Available

Packed Stem Style

- 1/4"-1" NPT, Hard & Soft Seat
- Stainless Steel Stem & Teflon® or Grafoil® Packing
- Standard Teflon® Packing Is Rated Up To 10,000 PSI At 200°F, Optional HT (Grafoil®) Packing For Temperatures Up To 1000°F
- NACE Conformance Available

Special Features

- Oversized Extra Heavy Body Resists Abuse & Provides Protection Against Corrosion & Erosion
- Precision Machined Seat Pocket & Bonnet Retaining Threads Assure Perfect Alignment & Sealing At Bonnet /Body Connection & Stem /Seat Interface
- Bonnet Locking Pin Secures The Bonnet & Body Against Accidental Disassembly
- 316 Stainless Steel Stem With A Precision Ground Conical Seating Tip

- Permanently Lubricated Threads With High Quality Anti-seize Compound Increase Service Life By Preventing Galling & Freeze Up.
- Fourteen Pitch Threads Provide Uncompromised Load Bearing Capacity While Maintaining Flow
- Soft Seat Valves Include A One Piece Replaceable Nylon Seat With Retaining Lug To Provide Protection Against Seat Failures Caused By Seat Rotation



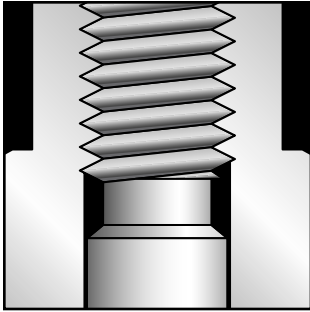
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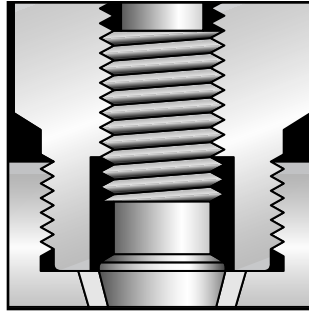


KF O-Ring & Packed Stem Style Needle Valve Design Features

O-Ring Style

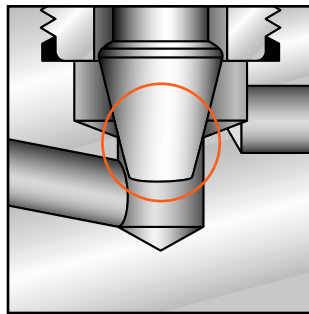
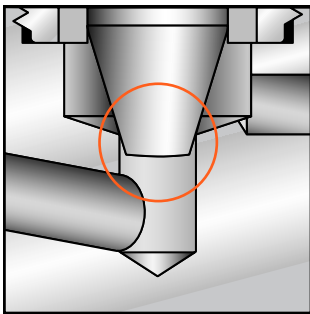


Packed Bonnet Style



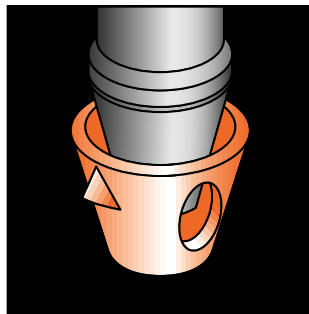
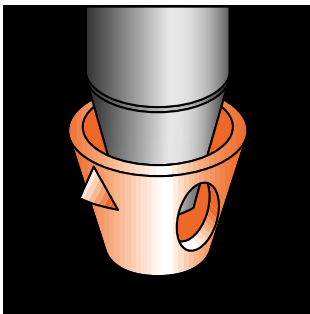
Back Seat Stem Design

Back seat stem design helps prevent fire feeding leakage. High strength stem threads provide extended life and low torque operation



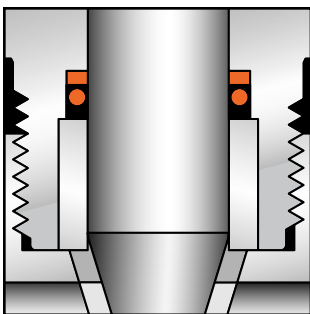
Metal-to-Metal Stem Seating

Positive metal-to-metal stem seating arrangement in all metal seat valves assure drop-tight sealing up to 10,000 PSI.



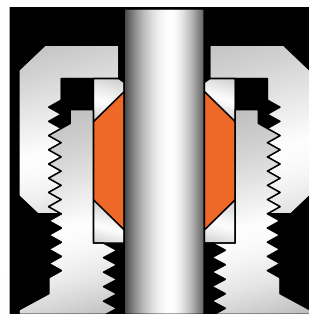
Replaceable Seat

Tough nylon, replaceable seat in all soft seat valves is secured by an anti-rotation lug.



O-Ring Style Stem Seal

Abrasion resistant, 90 Durometer O-ring stem seal and backup ring isolates corrosive flow media from critical stem thread area.



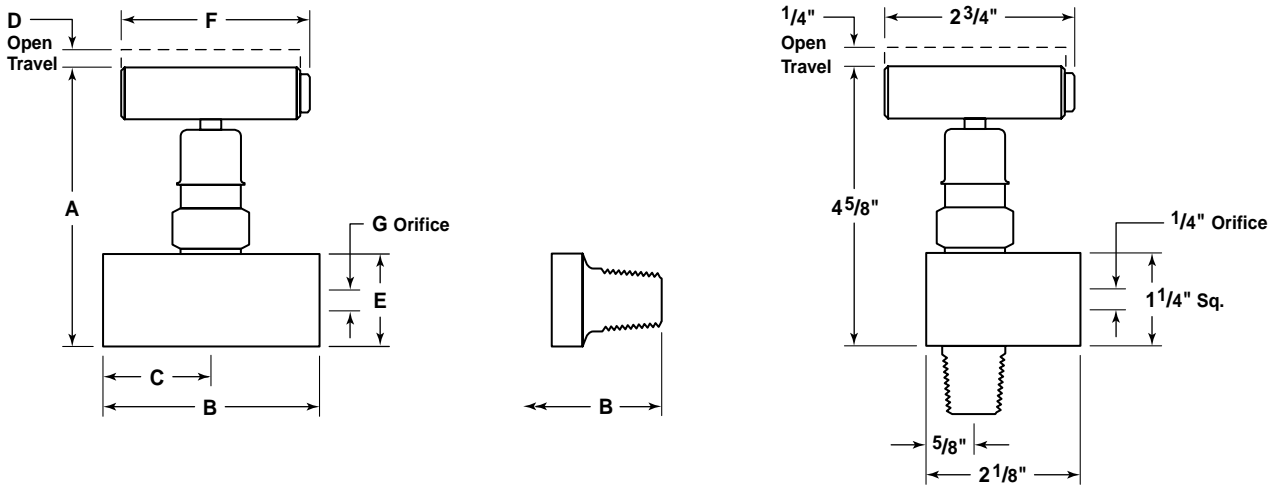
Adjustable Teflon®/Grafoil® Packed Stem Style Seal

Inert Teflon® stem packing and micro-finish stem offer sealing dependability. Adjustable packing nut insures continuous sealing protection



KF O-Ring Style Needle Valves

Dimensional Data (in., mm) & Assembly Part Numbers



Dimensional Data (in, mm)

Series 23 & 24 Metal Seated & Series 25 & 26 Soft Seated Valves

Size NPT (in.)	Connection	Dimension (in., mm)														Weight	
		A		B		C		D		E		F		G		lbs.	kg
1/4	FNPT x FNPT	3 5/8	92.1	2 7/8	73.0	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1.65	0.75
	MNPT x FNPT	3 5/8	92.1	3 1/4	82.6	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1.53	0.70
1/2	FNPT x FNPT	3 5/8	92.1	2 7/8	73.0	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1.65	0.75
	MNPT x FNPT	3 5/8	92.1	3 3/8	85.7	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1.53	0.70
	FNPT x MNPT	3 5/8	92.1	2 7/8	73.0	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1.65	0.75

Assembly Part Numbers

Series 23 & 24 Metal Seated & Series 25 & 26 Soft Seated Valves

Size NPT (in.)	Connection	Assembly Part Numbers					
		Series 23 & 24 Metal Seated Valve Assemblies			Series 25 & 26 Soft Seated Valve Assemblies		
		Carbon Steel	316SS	316SS NACE	Carbon Steel	316SS	316SS NACE
1/4	FNPT x FNPT	23-14	N24-14	N24-14	25-14	N26-14	N26-14
	MNPT x FNPT	23-145	N24-145	N24-145	25-145	N26-145	N26-145
1/2	FNPT x FNPT	23-12	N24-12	N24-12	25-12	N26-12	N26-12
	MNPT x FNPT	23-125	24-125	N24-125	25-125	26-125	N26-125
	FNPT x MNPT	—	—	—	25-12345	N26-12345	N26-12345

Dimensional Data & Assembly Part Numbers

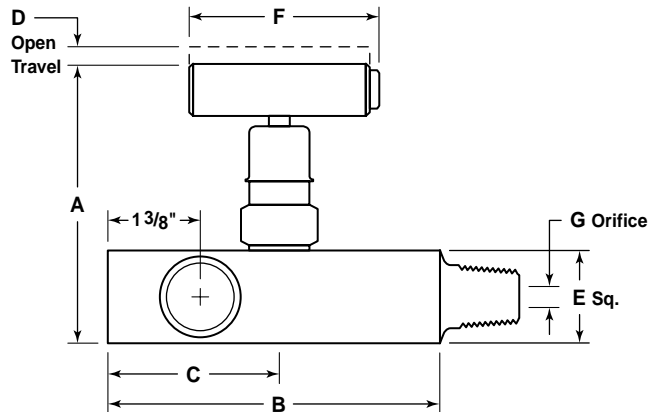
Series 23 & 24 Metal Seated Angle Valves

Size NPT (in.)	Connection	Assembly Part Numbers			Weight	
		Series 23 & 24 Metal Seated Valve Assemblies Carbon Steel	316SS	316SS NACE	lbs.	kg
1/2	1/2	23-125A	N24-125A	N24-125A	1.53	0.69



KF O-Ring Style Gauge Valves

Dimensional Data (in., mm) & Assembly Part Numbers



Dimensional Data (in, mm)

Series 21 & 22 Metal Seated & Series 27 & 28 Soft Seated Valves

Size NPT (in.)	Connection	Dimension (in., mm)														Weight	
		A		B		C		D		E		F		G		lbs.	kg
1/2	3 FNPT x 1 MNPT	3 5/8	92.1	5 5/8	142.9	2 3/8	60.3	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	2.3	1.04
	3 FNPT x 1 MNPT	3 5/8	92.1	7 1/4	184.2	2 3/8	60.3	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	2.93	1.33
1/2 F x 3/4 M	3 FNPT x 1 MNPT	3 5/8	92.1	5 5/8	142.9	2 3/8	60.3	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	2.3	1.04

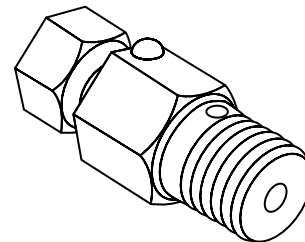
Assembly Part Numbers

Series 21 & 22 Metal Seated & Series 27 & 28 Soft Seated Valves

Size NPT (in.)	Connection	Assembly Part Numbers					
		Series 21 & 22 Metal Seated Valve Assemblies			Series 27 & 28 Soft Seated Valve Assemblies		
		Carbon Steel	316SS	316SS NACE	Carbon Steel	316SS	316SS NACE
1/2	3 FNPT x 1 MNPT	21-125	N22-125	N22-125	27-125	28-125	N28-125
	3 FNPT x 1 MNPT	21-125L	N22-125L	N22-125L	—	—	—
1/2 F x 3/4 M	3 FNPT x 1 MNPT	21-12345	N22-12345	N22-12345	27-12345	N28-12345	N28-12345

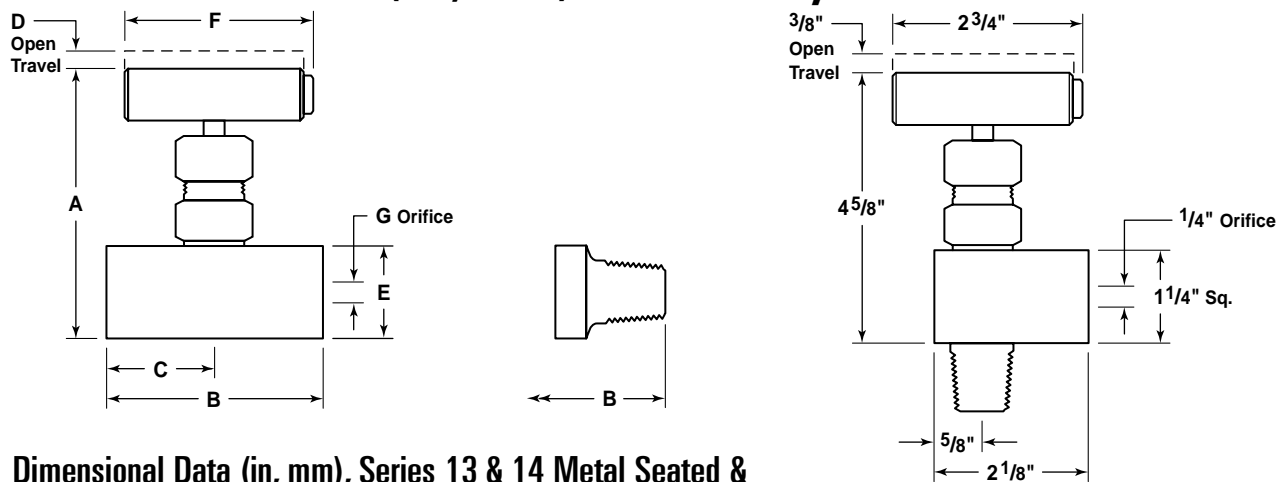
Bleed Valves

Size NPT (in.)	Assembly Part Numbers			Weight	
	Carbon Steel	316SS	316SS NACE	lbs.	kg
1/2	366	367	368	0.25	0.11



KF Packed Stem Style Needle Valves

Dimensional Data (in., mm) & Assembly Part Numbers



Dimensional Data (in., mm), Series 13 & 14 Metal Seated & Series 15 & 16 Soft Seated Valves

Size NPT (in.)	Connection	Dimension (in., mm)																		Weight	
		A		B Metal Seat		B Soft Seat		C		D		E		F		G Metal Seat		G Soft Seat			
		in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
1/4	FNPT x FNPT	3 5/8	92.1	2 7/8	73.0	2 7/8	73.0	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1/4	6.4	1.65	0.75
	MNPT x FNPT	3 5/8	92.1	3 1/4	82.6	3 1/4	82.6	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1/4	6.4	1.53	0.70
1/2	FNPT x FNPT	3 5/8	92.1	2 7/8	73.0	2 7/8	73.0	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1/4	6.4	1.65	0.75
	MNPT x FNPT	3 5/8	92.1	3 3/8	85.7	3 3/8	85.7	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1/4	6.4	1.53	0.70
	FNPT x MNPT	3 5/8	92.1	2 7/8	73.0	2 7/8	73.0	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1/4	6.4	1.65	0.75
	MNPT x FNPT	3 5/8	92.1	3 3/8	85.7	3 3/8	85.7	1 7/16	36.5	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	1/4	6.4	1.53	0.70
3/4	FNPT x FNPT	5 3/8	136.5	4 1/4	108.0	4 1/4	108.0	2 1/8	54.0	1/2	12.7	2	50.8	4 1/4	108.0	3/8	9.5	7/16	11.1	6.0	2.72
	MNPT x FNPT	5 3/8	136.5	5 1/2	139.7	5 1/2	139.7	2 1/8	54.0	1/2	12.7	2	50.8	4 1/4	108.0	3/8	9.5	7/16	11.1	6.4	2.90
1	FNPT x FNPT	5 3/8	136.5	4 1/4	108.0	5 1/4	133.4	2 1/8	54.0	1/2	12.7	2	50.8	4 1/4	108.0	3/8	9.5	7/16	11.1	6.0	2.72
	MNPT x FNPT	5 3/8	136.5	5 1/2	139.7	5 1/2	139.7	2 1/8	54.0	1/2	12.7	2	50.8	4 1/4	108.0	3/8	9.5	7/16	11.1	6.4	2.90

Assembly Part Numbers, Series 13 & 14 Metal Seated & Series 15 & 16 Soft Seated Valves

Size NPT (in.)	Connection	Assembly Part Numbers					
		Series 13 & 14 Metal Seated Valve Assemblies			Series 15 & 16 Soft Seated Valve Assemblies		
		Carbon Steel	316SS	316SS NACE	Carbon Steel	316SS	316SS NACE
1/4	FNPT x FNPT	13-14HT	N14-14HT	N14-14HT	15-14	N16-14	N16-14
	MNPT x FNPT	13-145HT	N14-145HT	N14-145HT	15-145	N16-145	N16-145
1/2	FNPT x FNPT	13-12HT	N14-12HT	N14-12HT	15-12	N16-12	N16-12
	MNPT x FNPT	13-125HT	N14-125HT	N14-125HT	15-125	N16-125	N16-125
	FNPT x MNPT	—	N14-12BHT	N14-12BHT	—	—	—
	MNPT x FNPT	13-125BHT	N14-125BHT	N14-125BHT	—	—	—
3/4	FNPT x FNPT	13-34HT	N14-34HT	N14-34HT	POA*	POA*	POA*
	MNPT x FNPT	13-345HT	N14-345HT	N14-345HT	POA*	POA*	POA*
1	FNPT x FNPT	13-10HT	N14-10HT	N14-10HT	POA*	POA*	POA*
	MNPT x FNPT	13-105HT	N14-105HT	N14-105HT	POA*	POA*	POA*

*POA Minimum purchase required.

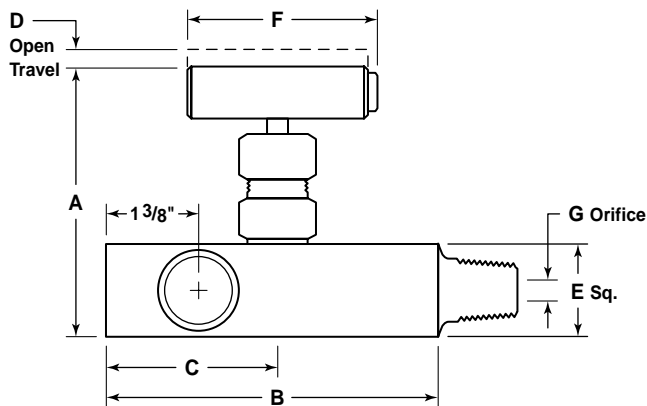
Dimensional Data & Assembly Part Numbers, Series 13 & 14 Metal Seated Angle Valves

Size NPT (in.)	Connection	Assembly Part Numbers			Weight	
		Series 13 & 14 Metal Seated Valve Assemblies				
		Carbon Steel	316SS	316SS NACE	lbs.	kg
1/2	1/2	13-125A	N14-125AHT	N14-125AHT	1.53	0.69



KF Packed Stem Style Gauge Valves

Dimensional Data (in., mm) & Assembly Part Numbers



Dimensional Data (in., mm)

Series 11 & 12 Metal Seated & Series 17 & 18 Soft Seated Valves

Size NPT (in.)	Connection	Dimension (in., mm)														Weight	
		A		B		C		D		E		F		G		lbs.	kg
1/2	3 FNPT x 1 MNPT	3 5/8	92.1	5 5/8	142.9	2 3/8	60.3	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	2.3	1.04
	3 FNPT x 1 MNPT	3 5/8	92.1	7 1/4	184.2	2 3/8	60.3	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	2.93	1.33
1/2 F x 3/4 M	3 FNPT x 1 MNPT	3 5/8	92.1	5 5/8	142.9	2 3/8	60.3	3/8	9.5	1 1/8	28.6	2 3/4	69.9	1/4	6.4	2.3	1.04

Assembly Part Numbers

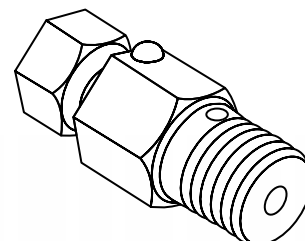
Series 11 & 12 Metal Seated & Series 17 & 18 Soft Seated Valves

Size NPT (in.)	Connection	Assembly Part Numbers					
		Series 11 & 12 Metal Seated Valve Assemblies			Series 17 & 18 Soft Seated Valve Assemblies		
		Carbon Steel	316SS	316SS NACE	Carbon Steel	316SS	316SS NACE
1/2	3 FNPT x 1 MNPT	11-125HT	N12-125HT	N12-125HT	17-125	18-125	N18-125
	3 FNPT x 1 MNPT	11-125LHT	N12-125LHT	N12-125LHT	POA*	POA*	POA*
1/2 F x 3/4 M	3 FNPT x 1 MNPT	11-12345HT	N12-12345HT	N12-12345HT	POA*	N18-12345	N18-12345

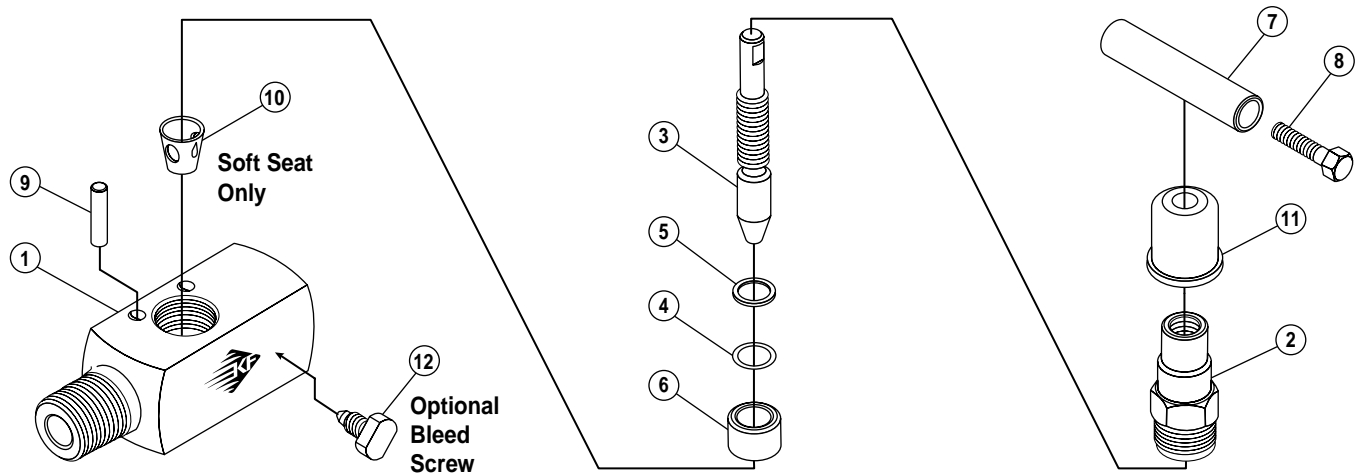
*POA Minimum purchase required.

Bleed Valves

Size NPT (in.)	Assembly Part Numbers			Weight	
	Carbon Steel	316SS	316SS NACE	lbs.	kg
1/2	366	367	368	0.25	0.11



KF O-Ring Style Needle Valves, Parts & Materials



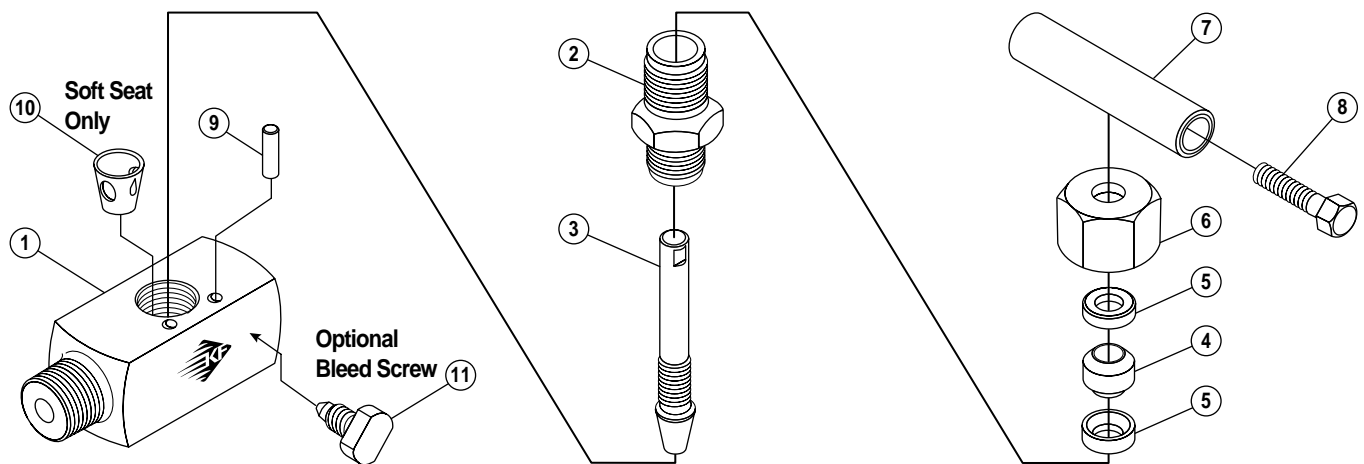
Parts List & Materials

Part No.	Description	Materials		
		Carbon Steel	316 Stainless Steel	NACE*
1	Body	Carbon Steel AISI 1215 or 12L14	316 Stainless Steel (or CF8M)	
2	Bonnet	Carbon Steel AISI 1215 or 12L14	316 Stainless Steel	
3	Stem	316 Stainless Steel		
4	Stem Seal	Buna N		
5	Stem Seal Backup Ring	Buna N		
6	Sleeve	Carbon Steel AISI 1215 or 12L14	316 Stainless Steel	
7	Handle	Carbon Steel AISI 1215 or 12L14	303 Stainless Steel	
8	Handle Screw	Carbon Steel	18-18 Stainless Steel	
9	Bonnet Locking Pin	Spring Steel	18-18 Stainless Steel	
10	Seat (Soft Seat Only)	Nylon		
11	Boot	Polyethylene		
12	Bleed Screw (Optional)	316 Stainless Steel		

*NACE valves, sour gas assembly. Valves are manufactured of 316SS. All parts RC 22 or less meet NACE MRO175 standards. Working pressures same as standard valves.



KF Packed Stem Style Needle Valves, Parts & Materials



Parts List & Materials

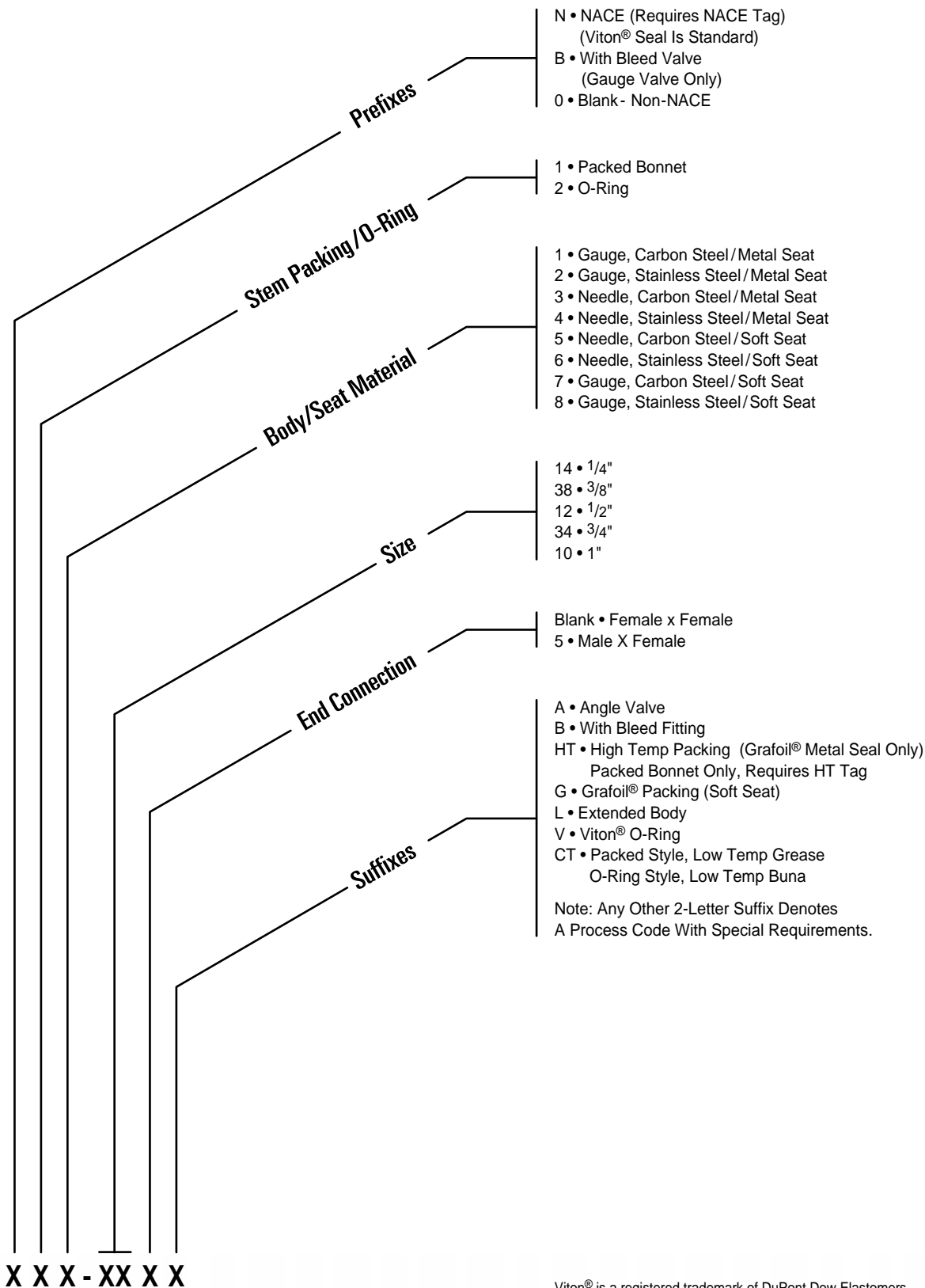
Part No.	Description	Materials		
		Carbon Steel	316 Stainless Steel	NACE*
1	Body	Carbon Steel AISI 1215 or 12L14	316 Stainless Steel (or CF8M)	
2	Bonnet	Carbon Steel AISI 1215 or 12L14	316 Stainless Steel	
3	Stem 1/4" & 1/2" 3/4" & 1"	303 Stainless Steel	316 Stainless Steel	
			Teflon® or Grafoil®	
4	Packing		316 Stainless Steel	
5	Retainer	Carbon Steel AISI 1215 or 12L14	316 Stainless Steel	
6	Packing Nut	Carbon Steel AISI 1215 or 12L14	316 Stainless Steel	
7	Handle	Carbon Steel AISI 1215 or 12L14	316 Stainless Steel	
8	Handle Bolt	Carbon Steel	316 Stainless Steel	
9	Locking Pin	Carbon Steel	316 Stainless Steel	
10	Seat (Soft Seat Only)		Nylon	
11	Bleed Screw (Optional)		316 Stainless Steel	

*NACE valves, sour gas assembly. Valves are manufactured of 316SS. All parts RC 22 or less meet NACE MR0175 standards. Working pressures same as standard valves.



KF O-Ring & Packed Stem Style Gauge & Angle Needle Valves

Part Number Codes



An asterisk (*) instead of a dash denotes special test requirement.

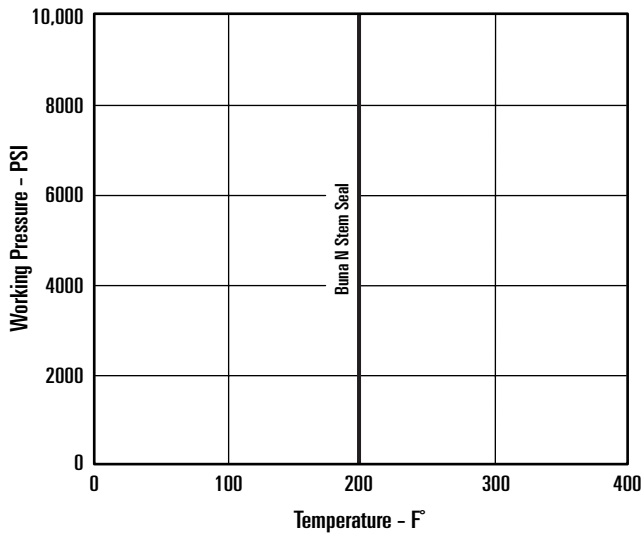
Viton® is a registered trademark of DuPont Dow Elastomers.
Grafoil® is a registered trademark of Union Carbide Corporation.



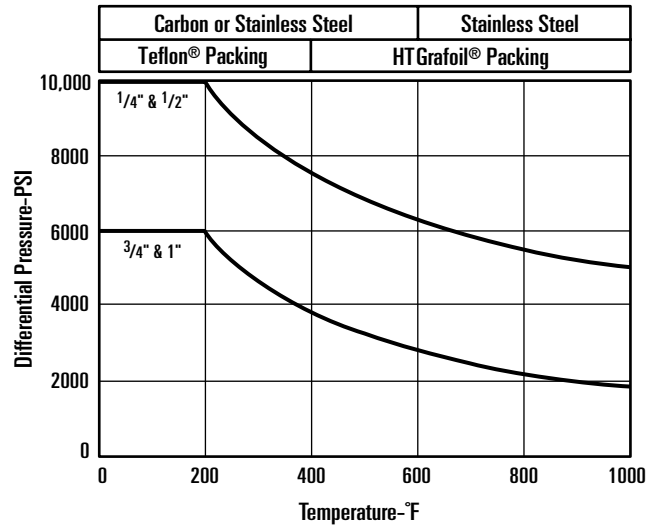
KF O-Ring & Packed Stem Style Needle Valves

Engineering Data

O-Ring Style Hard Seated Needle Valves Maximum Working Pressure vs. Temperature



Packed Stem Style Hard Seated Needle Valves Maximum Working Pressure vs. Temperature



Ratings

Soft Seat- 6,000 PSI at 200°F Max

Hard Seat- See Chart Above

Flow Coefficient (C_v), O-Ring & Packed Stem Style Standard Configuration

Size NPT (in.)	Series			
	13 & 14	15 & 16	23 & 24	25 & 26
1/4	.7	1.8	.7	1.8
1/2	.7	1.8	.7	1.8
3/4	2.3	5.0	—	—
1	2.3	5.0	—	—

Gauge & Angle Configuration

Size NPT (in.)	Series					
	11 & 12	17 & 18	13 & 14	21 & 22	23 & 24	27 & 28
1/4	.7	1.8	—	.7	—	1.8
1/2	—	—	.75	—	.75	—
1/2 Fx 3/4 M	.7	1.8	—	.7	—	1.8

Method of Calculating Flow Coefficient (C_v)

The Flow Coefficient “C_v” of a valve is the flow rate of water (gallons/minute) through a fully opened valve, with a pressure drop of 1 psi across the valve. To find the flow of liquid through valve from the C_v, use the following formulas:

Liquid Flow

$$Q_L = C_v \sqrt{\frac{\Delta P}{G}}$$

Q_L = Flow rate of liquid (gal./min.)

ΔP = Differential pressure across the valve (psi)

G = Specific gravity of liquid (for water, G=1)

Gas Flow

$$Q_g = 61 C_v \sqrt{\frac{P_2 \Delta P}{g}} \quad \text{For non-critical flow} \left\{ \frac{\Delta P}{P_2} < 1.0 \right\}$$

Q_g = Flow rate of gas (CFH at STP)

P₂ = Outlet pressure (psi)

g = Specific gravity of gas (for air, g=1.000)



Worldwide Sales Offices



**KF Industries, a leading brand of CIRCOR Energy Products, Inc.
reaches into every corner of the globe serving the oil & gas and industrial marketplace.**

**Supplying an extensive range of product offerings
through a worldwide network of manufacturer representatives and distributors,
KF Industries is the right choice for all your flow control needs.**

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