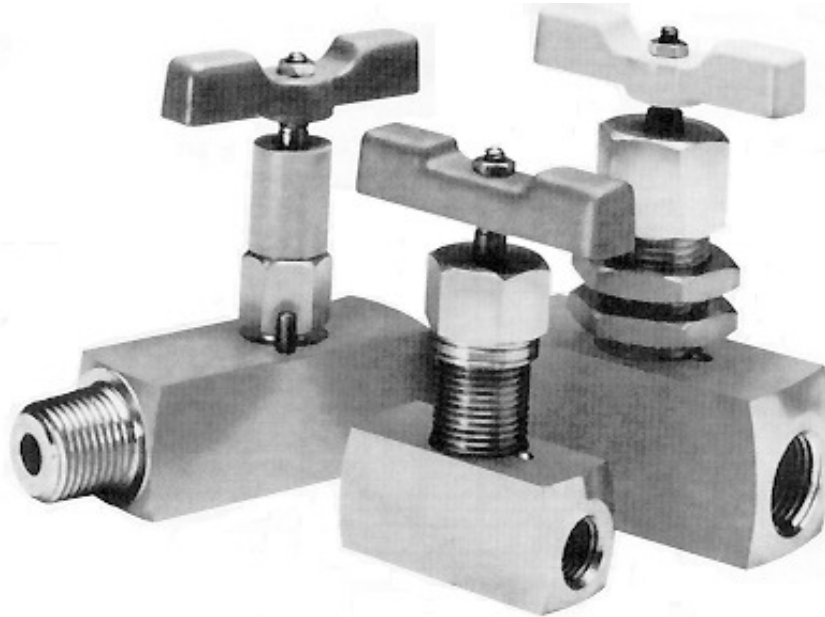




# Kerotest/Marsh Needle Valves

## Series "N"



### Kerotest/Marsh "N" Series Needle Valves

are used in processing plants, oil and gas production, hydraulic and pneumatic equipment, testing labs – anywhere the flow of fluid must be carefully regulated. All models are machined from quality bar stock for reliable performance. Connections range from 1/8" to 1" NPT in choice of globe or angle patterns. A panel mounting kit is available for the three hard seat models.

These fine products are available from Kerotest Manufacturing Corp. Call or fax today for additional details.

#### Panel Mounting Kit

Each kit contains two stainless steel mounting nuts. Order by valve size from the part number table below.

Value Size	Kit Number
1/8 "	9-1483-1S3
1/4 "	
3/8 "	9-1477-1S3
1/2 "	
3/4 "	9-1484-1S3
1 "	

#### Flow Rate

Use the following equations to determine the flow rate of a fluid through a fully-open valve:

#### LIQUID:

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

$Q_L$  = Flow in GPM

$\Delta P$  = Differential pressure across the valve in psi

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

#### GAS:

$$Q_g = 61C_V \sqrt{\frac{P_2 \Delta P}{g}}$$

$Q_g$  = Flow in CFH ( at STP )

$P_2$  = Outlet pressure ( psi )

$g$  = Specific gravity of gas ( for air,  $g = 1$  )

#### PATTERNS

Series "N" Needle Valves are available in the following configurations.

**FFG** - Double female, globe pattern.

**MFG** - Male/female, globe pattern.

**FFA** - Double female, angle pattern.

**MFA** - Male/female, angle pattern.

- Choice Of Six Valve Series For Applications Up To 10,000 PSI
- Connection Sizes From 1/8 " To 1" NPT In Either Globe Or Angle Patterns
- Optional Panel Mount Adapter Kit Available For Selected Needle Valves
- Hard Seat And Soft Seat Designs
- Rugged Barstock Construction
- Field Proven For Over 50 Years

### Kerotest Manufacturing Corp.

5500 Second Avenue

Pittsburgh, PA 15207

412-521-7698 • Fax : 412-521-5990

www.kerotest.com

# Kerotest/Marsh Needle Valves

## Hard Seat Needle Valves

### Alloy Steel

#### Application

An economical valve for regulating pressures up to 10,000 psi. Suitable for air, water, oil and other fluids with low-level corrosiveness.

#### Operating Specifications

**Maximum Operating Pressure –**

10,000 PSI ( 70,000 kPa )

**Minimum Burst Pressure –**

20,000 PSI ( 140,000 kPa )

**Temperature Limits –**

-20° to 800° F ( -28° to 426° C ) for Grafflex\* packed valves

500° F for Teflon packed valves

**Flow Coefficients –**

( C<sub>v</sub> ) See part number table

#### Design Features

**Body and Bonnet Material:** AISI 1045 alloy steel

**Stem Material:** 416 stainless steel, hardened

**Packing:** Teflon, Grafflex ( optional )

**Handle:** Two-prong. Cast aluminum for 1/8" through 1/2" sizes. Malleable iron for 3/4" and 1" sizes.

**Connection:** National Pipe Thread, meeting specifications of Federal Standard H-28.

**Finish:** Clear zinc plating.

**Assembly:** Bonnet on all globe valves 1/2" and under is threaded into body and staked to prevent turning.

Body and insert for angle valves fused into single unit by a welding process.

\* Registered trademark of DuPont.

Two-prong handle

Zero clearance washers and nongalling Grafflex packing ( optional ). Standard packing is Teflon.

Outside threaded bonnet. One model serves either in-line or panel-mounting applications.

Roll-formed stem threads for longer life

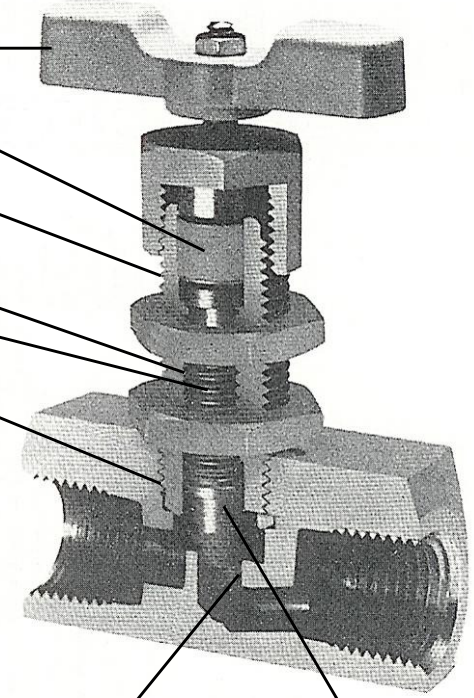
Valve pictured with optional panel mount nuts installed

Bonnet screwed into body and staked for added security

Pattern	NPT Size	Part No.	C <sub>v</sub>
FFG	1/8"	N1511	0.4
	1/4"	N1512	0.4
	3/8"	N1513	0.9
	1/2"	N1514	1.1
	3/4"	N1516	2.3
MFG	1/4"	N1532	0.4
	1/2"	N1534	1.2
FFA	1/8"	N1551	0.7
	1/4"	N1552	0.8
	3/8"	N1553	1.6
	1/2"	N1554	1.5
	3/4"	N1556	4.4
MFA	1/4"	N1572	0.6
	1/2"	N1574	1.5

Metal-to-metal seat

Integral back-seated stem standard on globe patterns. Exclusive safety feature prevents accidental removal of stem



## Hard Seat Needle Valves

### 316 Stainless Steel

#### Application

Designed for applications where caustic liquids and corrosive media are common.

#### Operating Specifications

**Maximum Operating Pressure –**

10,000 PSI ( 70,000 kPa )

**Minimum Burst Pressure –**

20,000 PSI ( 140,000 kPa )

**Temperature Limits –**

-100° to 800° F ( -73° to 426° C ) for Grafflex packed valves

500° F for Teflon packed valves

**Flow Coefficients –**

( C<sub>v</sub> ) See part number table

#### Design Features

**Body and Bonnet Material:** 316 Stainless Steel

**Stem Material:** 17-4 PH Stainless Steel

**Packing:** Teflon, Grafflex ( optional )

**Handle:** Two-prong. Stainless Steel for 1/8" through 1/2" sizes. Malleable iron for 3/4" and 1" sizes.

**Connection:** National Pipe Thread, meeting specifications of Federal Standard H-28.

**Finish:** Stainless steel is passivated ( surface contamination removed ).

**Assembly:** Bonnet is threaded into body and staked to prevent turning.

Two-prong handle

Stem Seal Packing Nut

Zero clearance washers and nongalling Grafflex packing ( optional ). Standard packing is Teflon.

Outside threaded bonnet. One model serves either in-line or panel-mounting applications.

Roll-formed stem threads for longer life

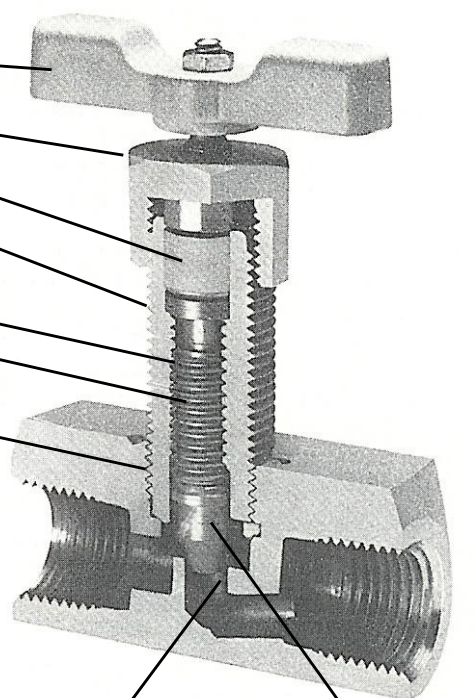
Precision machined thread for perfect concentricity, easier operation

Bonnet screwed into body and staked for added security

Pattern	NPT Size	Part No.	C <sub>v</sub>
FFG	1/8"	N1311	0.4
	1/4"	N1312	0.4
	3/8"	N1313	0.9
	1/2"	N1314	1.1
	3/4"	N1316	2.3
MFG	1/4"	N1332	0.4
	1/2"	N1334	1.2
FFA	1/8"	N1351	0.7
	1/4"	N1352	0.8
	3/8"	N1353	1.6
	1/2"	N1354	1.5
	3/4"	N1356	4.4
MFA	1/4"	N1372	0.6
	1/2"	N1374	1.5

Metal-to-metal seat

Integral back-seated stem standard on globe patterns. Exclusive safety feature prevents accidental removal of stem



## Kerotest/Marsh Needle Valves

### Hard Seat Needle Valves

#### 316 Stainless Steel NACE

##### Application

Meets NACE standard MR-01-75 for resistance to sulfide stress cracking. All 316 SST parts are RC 22 or less, meeting safety requirements in petroleum and gas production, pipeline, service, and offshore drilling where sour fluid environments can cause sulfide stress cracking.

##### Operating Specifications

###### Maximum Operating Pressure –

10,000 PSI ( 70,000 kPa )

###### Minimum Burst Pressure –

20,000 PSI ( 140,000 kPa )

###### Temperature Limits –

-100° to 800° F ( -73° to 426° C ) for Grafflex\* packed valves

500° F for Teflon packed valves

###### Flow Coefficients –

( C<sub>v</sub> ) See part number table

##### Design Features

**Body and Bonnet Material:** 316 stainless steel, annealed to meet requirements of NACE standard MR-01-75.

**Stem Material:** 17-4PH stainless steel, heat treated to meet requirements of NACE standard MR-01-75.

**Packing:** Teflon, Grafflex ( optional )

**Handle:** Two-prong. Stainless steel for 1/8" through 1/2" sizes. Malleable iron for 3/4" and 1" sizes.

**Connection:** National Pipe Thread, meeting specifications of Federal Standard H-28.

**Finish:** Stainless steel is passivated (surface contamination removed).

**Assembly:** Bonnet is threaded into body and locked into place with a bonnet-locking pin.

\* Registered trademark of DuPont.

Zero clearance washers and nongalling Grafflex packing ( optional ). Standard packing is Teflon.

Outside threaded bonnet. One model serves either in-line or panel-mounting applications.

Roll-formed stem threads for longer life

Precision machined 17-4PH SST stem for perfect concentricity and easier operation. Heat-treated to prevent sulfide stress cracking.

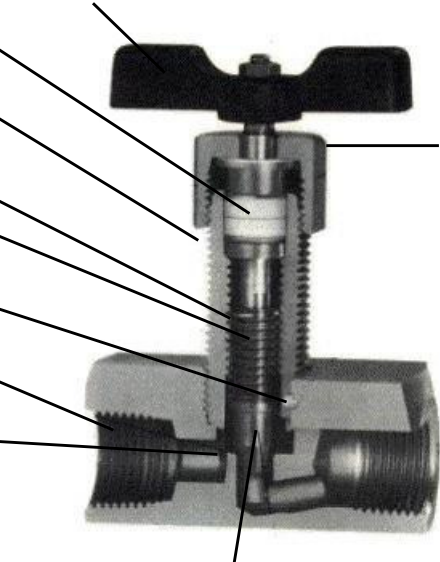
Bonnet locking pin prevents accidental loosening of bonnet

316 SST annealed body and bonnet prevent sulfide stress cracking in sour fluid environments

Metal-to-metal seat

Two-prong handle

Packing Nut



Integral back-seated stem standard on globe patterns. Exclusive safety feature prevents accidental removal of stem and eliminates possibility of stem blowout

Pattern	NPT Size	Part No.	C <sub>v</sub>
FFG	1/8"	N1311N	0.4
	1/4"	N1312N	0.4
	3/8"	N1313N	0.9
	1/2"	N1314N	1.1
	3/4"	N1316N	2.3
MFG	1"	N1318N	3.5
	1/4"	N1332N	0.4
	1/2"	N1334N	1.2
FFA	1/8"	N1351N	0.7
	1/4"	N1352N	0.8
	3/8"	N1353N	1.6
	1/2"	N1354N	1.5
	3/4"	N1356N	4.4
MFA	1"	N1358N	6.2
	1/4"	N1372N	0.6
	1/2"	N1374N	1.5

### Soft Seat Needle Valves

#### 316 Stainless Steel and Alloy Steel, Standard Port

##### Application

Recommended where bubble-tight seal and shutoff of liquids or gases are required. The design includes a replaceable Delrin\* sleeve insert for added life value.

##### Operating Specifications

###### Maximum Operating Pressure –

6,000 PSI ( 42,000 kPa )

###### Minimum Burst Pressure –

12,000 PSI ( 84,000 kPa )

###### Temperature Limits –

-to 200° F ( 93° C )

###### Flow Coefficients –

( C<sub>v</sub> ) See part number table

##### Design Features

**Body and Bonnet Material:** 316 stainless steel or AISI 1045 alloy steel

**Stem Material:** 316 stainless steel with stainless body, 303 stainless steel with alloy steel body

**Bonnet Cap (Protective Cover):** Polyethylene, red.

**Packing:** Vitron\* O-ring and Teflon backup ring (nylon backup ring for 1" size)

**Handle:** Two-prong. Stainless Steel for 1/4" through 1/2" sizes. Malleable iron for 1" stainless steel. Cast aluminum for alloy 1/4" through 1/2" sizes. Malleable iron for alloy 1" size.

Two-prong handle

Roll-formed stem threads for longer life

Precision machined thread for perfect concentricity, easier operation

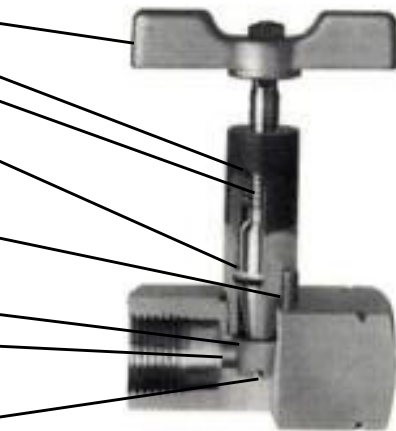
Stem seal packing uses Vitron\* O-ring and Teflon\* backup ring

Bonnet-pin lock prevents accidental removal of bonnet

Replacement Delrin\* sleeve insert extends valve life

Straight-through flow decreases turbulence, improves flow characteristics

Stainless steel roll-pin prevents misalignment of the sleeve



\*Vitron, Teflon, and Delrin are registered trademarks of DuPont

**Connection:** National Pipe Thread, meeting specifications of Federal Standard H-28.

**Finish:** Stainless steel is passivated ( surface contamination removed ), Alloy steel has a zinc plated finish.

**Assembly:** Bonnet-pin lock is standard for all soft-seat needle valves.

Pattern	NPT Size	Part Number		C <sub>v</sub>
		316 SST	Alloy	
FFG	1/4"	N5312	N5512	0.6
	1/2"	N5314	N5514	0.7
	1"	N5318	N5518	14.5
MFG	1/4"	N5332	N5532	0.8
	1/2"	N5334	N5534	0.9
	1/4" x 1/2"	N5335	N5535	0.8
MFA	1/4"	—	N5572	0.7
	1/2"	—	N5574	0.7





# Kerotest/Marsh Needle Valves

## Minature Needle Valves

### 316 Stainless Steel and Alloy Steel

#### Application

Ideal for limited space applications such as test stand circuitry, mobile equipment, etc. Body length less than 2". Maximum height with valve open is 2-1/2".

#### Operating Specifications

##### Maximum Operating Pressure –

6,000 PSI ( 42,000 kPa )

##### Minimum Burst Pressure –

12,000 PSI ( 84,000 kPa )

##### Temperature Limits –

-20° to 200° F ( 93° C )

##### Flow Coefficients –

( C<sub>v</sub> ) See part number table

#### Design Features

**Body and Bonnet Material:** 316 stainless steel or AISI 1045 alloy steel

**Stem Material:** 17-4PH stainless steel with stainless steel body, 416 stainless steel with alloy steel body

##### Bonnet Cap (Protective Cover):

Polyethylene, black

**Handle:** Zinc plated steel, easy grip T-handle

**Connection:** National Pipe Thread, meeting specifications of Federal Standard H-28.

**Finish:** Stainless steel is passivated. Alloy steel has a clear zinc finish.

Easy grip T-handle

Roll-formed stem threads for longer life

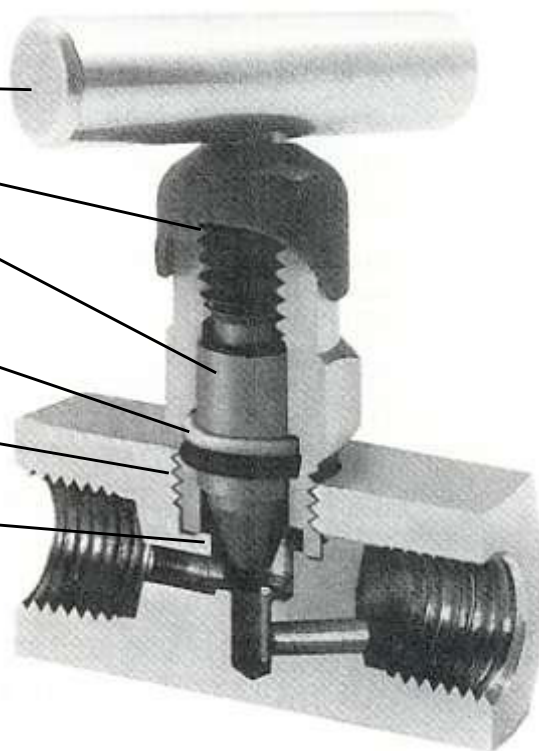
Precision machined stem for perfect concentricity and easier operation.

Stem seal packing uses Viron\* O-ring and Teflon\* backup ring

Bonnet threaded into body, secured with Loctite

Metal-to-metal seat

\*Registered trademark of DuPont



Pattern	NPT Size	Part No.		C <sub>v</sub>
		316 SST	Alloy	
FFG	1/8"	N0311	N0511	0.25
	1/4"	N0312	N0512	0.25
MFG	1/4"	N0332	N0532	0.25

## Block/Bleed Terminal Needle Valves

### 316 Stainless Steel and Alloy Steel

#### Application

These valves provide extra pressure outlets, permit line samplings, isolate gauges, provide a bypass, and eliminate extra connections and parts on a gauge leg, thereby reducing cost and increasing dependability.

#### Operating Specifications

##### Maximum Operating Pressure –

10,000 PSI ( 70,000 kPa )

##### Minimum Burst Pressure –

30,000 PSI ( 140,000 kPa )

##### Temperature Limits –

SST: -100° to 800° F ( -73° to 426° C )

Alloy: -20° to 800° F ( -28° to 426° C )

Packing

500° F for Teflon packed valves

##### Flow Coefficients –

( C<sub>v</sub> ) See part number table

#### Design Features

**Body and Bonnet Material:** 316 stainless steel or AISI 1045

**Stem Material:** 416 stainless steel for alloy steel body, 17-4PH for 316 stainless steel body

**Packing:** Teflon, Grafflex (optional)

**Handle:** Two-prong. Stainless steel for stainless steel. Cast aluminum for alloy.

**Connection:** National Pipe Thread, meeting specifications of Federal Standard H-28. Side ports are 1/2" NPT.

**Finish:** Clear Zinc plate for alloy steel. Stainless steel is passivated.

**Assembly:** Bonnet is threaded into body and staked in place to prevent turning.

Two-prong handle

Zero clearance washers and nongalling Grafflex\* packing (optional). Standard packing is Teflon\*.

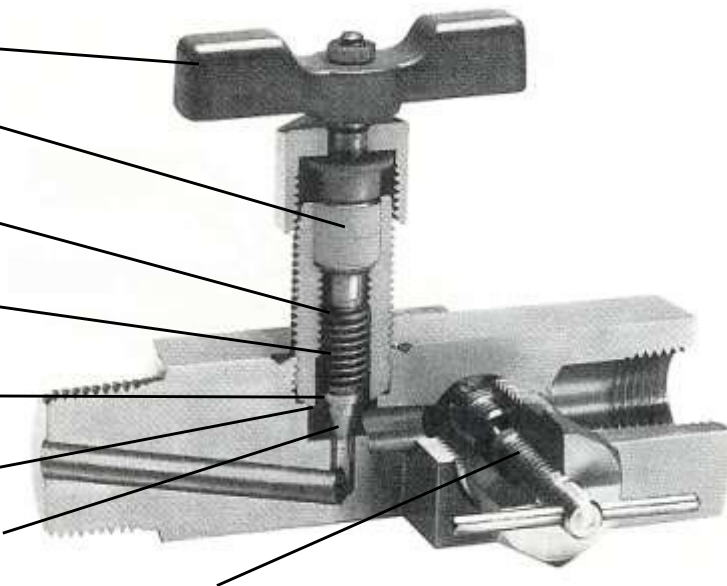
Roll-formed stem threads for longer life

Precision machined thread for perfect concentricity, easier operation

Integral back-seated stem helps prevent accidental removal

Metal-to-metal seat

Hardened 416 stainless steel or 17-4PH SST needle, back-seated



Carbon steel or 316 SST port plug

\*Grafflex and Teflon are registered trademarks of DuPont

Pattern	NPT Size	Part Number		C <sub>v</sub>
		316 SST	Alloy	
Bleed	1/2"	N8534	N7534	0.9
Bleed	3/4" x 1/2"	N8536	N7536	0.8



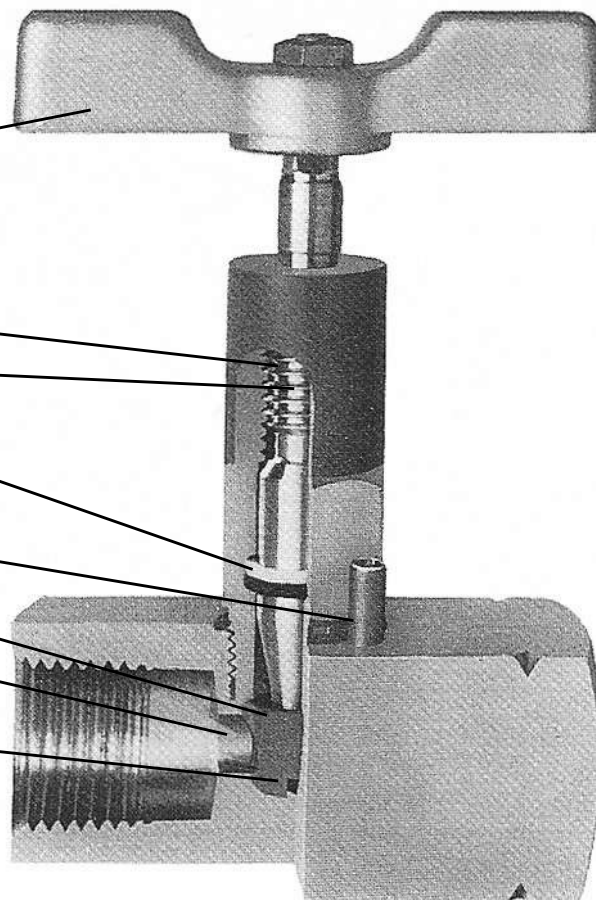
# Kerotest/Marsh Needle Valves

## Soft Seat Needle Valves

### 316 Stainless Steel and Alloy Steel, Full Port

Large bore size (0.257") permits cleanout with rod. The full-port, straight-through design reduces pressure drop across valve, decreases turbulence, and improves flow characteristics. Recommended for applications where bubble-tight seat is required, such as gas transmission, metering, and flow recorders. Pressure rating to 6,000 psi.

- Two-prong handle
- Roll-formed stem threads for longer life
- Precision-machined thread to perfect concentricity, easier operation
- Stem seal packing uses Viton\* O-ring and Teflon\* backup ring
- Bonnet-pin lock prevents accidental removal of bonnet
- Replaceable Delrin\* sleeve insert extends valve life
- Large-bore straight-through flow allows passage to be rod cleanable
- Stainless steel roll pin prevents misalignment of the sleeve
- Bubble-tight shutoff of liquids or gases to 6,000 psi



### Design Features

**Body and Bonnet Material:** 316 stainless steel or AISI 1045 alloy steel

**Stem Material:** 316 stainless steel with stainless steel body, 303 stainless steel with alloy steel body

**Bonnet Cap (Protective Cover):** Polyethylene, beige

**Pressure Limits:** 6,000 psi (42,000 kPa)

**Temperature Limits:** -20° to 200° F (93° C)

**Packing:** Viton\* O-ring and Teflon\* backup ring

**Handle:** Two-prong. Stainless steel for stainless steel. Cast aluminum for alloy steel.

**Connection:** National Pipe Thread, meeting specifications of Federal Standard H-28.

**Finish:** Stainless steel is passivated. Alloy steel has a clear zinc finish.

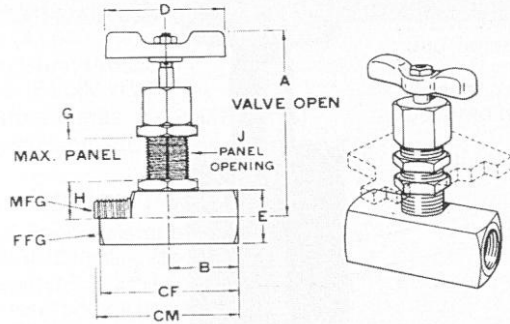
**Assembly:** The bonnet-pin lock is standard for all large-bore soft-seat needle valves.

\*Viton, Teflon, and Delrin are registered trademarks of DuPont

Pattern and Connection Size		In-Line		
		316 SST	Alloy	C <sub>v</sub>
FFG	1/4" NPT	N6312	N6512	1.4
FFG	1/2" NPT	N6314	N6514	1.4
MFG	1/4" NPT	N6332	N6532	1.4
MFG	1/2" NPT	N6334	N6534	1.4
MFG	1/4" x 1/2" NPT	N6335	N6535	1.4

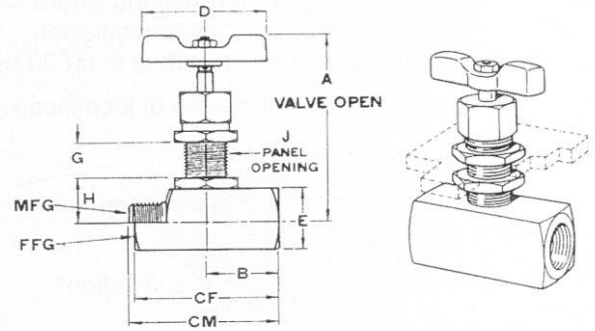
# Kerotest/Marsh Needle Valves

## Hard Seat Alloy Steel FFG and MFG



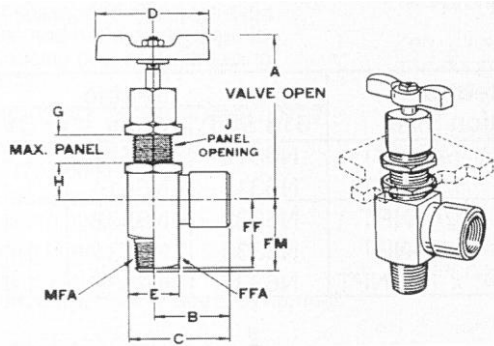
Dimension	Nominal Size ( In inches )					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
A	3-1/16	3-1/16	3-3/4	3-3/4	5-3/16	5-13/16
B	1-1/32	1-1/32	1-7/16	1-7/16	1-13/16	2-1/32
CF	2-1/16	2-1/16	2-7/8	2-7/8	3-5/8	3-5/8
CM	2-1/16	2-7/32	2-7/8	3	3-5/8	-
D	2-1/2	2-1/2	2-1/2	2-1/2	4-1/4	4-1/4
E	1	1	1-3/8	1-3/8	1-1/2	2
G	9/16	9/16	27/32	27/32	27/32	27/32
H	21/32	21/32	15/16	15/16	1-5/32	1-13/32
J	25/32	25/32	29/32	29/32	1-7/32	1-7/32
Orifice	3/16	3/16	5/16	5/16	7/16	7/16

## Hard Seat 316 Stainless Steel and NACE MFG and FFG



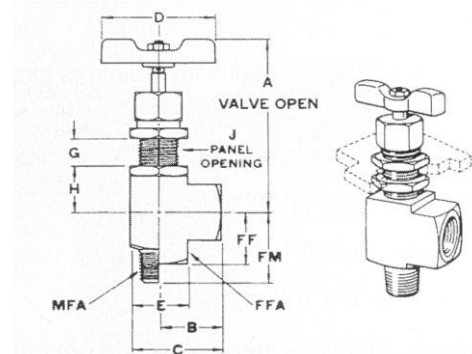
Dimension	Nominal Size ( In inches )					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
A	3-1/16	3-1/16	3-3/4	3-3/4	5-1/4	5-7/8
B	1-1/32	1-1/32	1-7/16	1-7/16	1-13/16	2-1/32
CF	2-1/16	2-1/16	2-7/8	2-7/8	3-5/8	3-5/8
CM	2-1/16	2-7/32	2-7/8	3	3-5/8	-
D	2-1/2	2-1/2	2-1/2	2-1/2	4-1/4	4-1/4
E	1	1	1-3/8	1-3/8	1-1/2	2
G	9/16	9/16	27/32	27/32	27/32	27/32
H	21/32	21/32	15/16	15/16	1-5/32	1-13/32
J	25/32	25/32	29/32	29/32	1-7/32	1-7/32
Orifice	3/16	3/16	5/16	5/16	7/16	7/16

## FFA and MFA



Dimension	Nominal Size ( In inches )					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
A	2-29/32	2-29/32	3-15/32	3-15/32	4-5/32	5-9/32
B	1	1	1-21/32	1-21/32	2	2-7/16
C	1-7/16	1-7/16	1-21/32	2-7/32	2-3/4	3-7/16
D	2-1/2	2-1/2	2-1/2	2-1/2	4-1/4	4-1/4
E	7/8	7/8	1-1/8	1-1/4	1-1/2	2
FF	1	1	1-17/32	1-17/32	2	2-3/32
FM	1	1-7/32	1-17/32	1-19/32	2	2-3/32
G	3/8	3/8	3/4	3/4	27/32	27/32
H	5/8	5/8	13/16	13/16	1-1/16	1-11/32
J	25/32	25/32	29/32	29/32	1-7/32	1-7/32
Orifice	3/16	3/16	5/16	5/16	7/16	7/16

## FFA and MFA

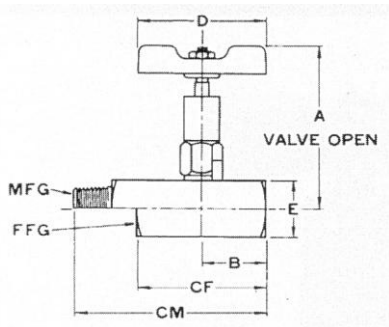


Dimension	Nominal Size ( In inches )					
	1/8"	1/4"	3/8"	1/2"	3/4"	1"
A	3-1/16	3-1/16	3-3/4	3-3/4	4-7/8	5-9/16
B	1-1/32	1-1/32	1-11/32	1-11/32	1-23/32	1-61/64
C	1-15/32	1-15/32	1-31/32	1-31/32	2-15/32	2-61/64
D	2-1/2	2-1/2	2-1/2	2-1/2	4-1/4	4-1/4
E	7/8	7/8	1-1/4	1-1/4	1-1/2	2
FF	1-1/32	1-1/32	1	1-5/32	1-3/4	1-25/32
FM	1-1/32	1-11/32	1	1-19/32	1-3/4	1-25/32
G	3/8	3/8	3/4	3/4	27/32	27/32
H	5/8	5/8	13/16	13/16	1-1/16	1-11/32
J	25/32	25/32	29/32	29/32	1-7/32	1-7/32
Orifice	3/16	3/16	5/16	5/16	7/16	7/16

## Kerotest/Marsh Needle Valves

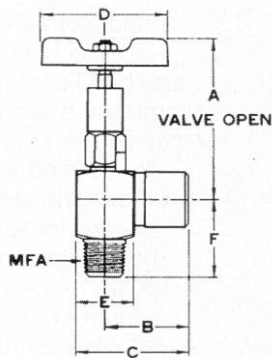
### Soft Seat

Alloy and Stainless Steel  
FFG and MFG



Dimension	Nominal Size (In inches)			
	1/4"	1/2"	1/4" x 1/2"	1"
A	3-21/64	3-21/64	3-21/64	6-3/4
B	1	1-1/4	1	2-1/32
CF	2	2-1/2	-	4-1/16
CM	3-3/8	3-3/4	3-15/32	-
D	2-1/2	2-1/2	2-1/2	4-1/2
E	1-1/8	1-1/8	1-1/8	2-1/4
Orifice	3/16 SP	3/16 SP	3/16 SP	5/8
Orifice	7/32 FP	7/32 FP	7/32 FP	5/8

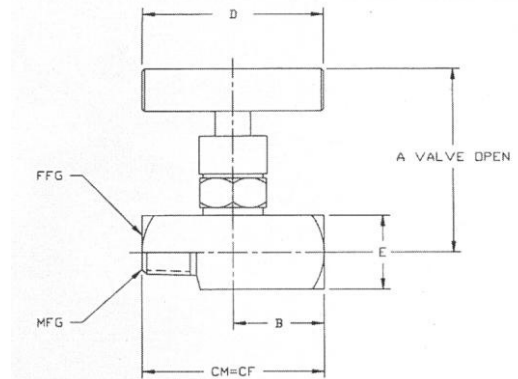
### MFA



Dimension	Nominal Size (In inches)	
	1/4"	1/2"
A	3-1/4	3-1/4
B	1-7/64	1-7/64
C	1-41/64	1-41/64
D	2-1/2	2-1/2
E	1-1/8	1-1/8
F	1-9/16	1-9/16
Orifice	3/16	3/16

### Miniature

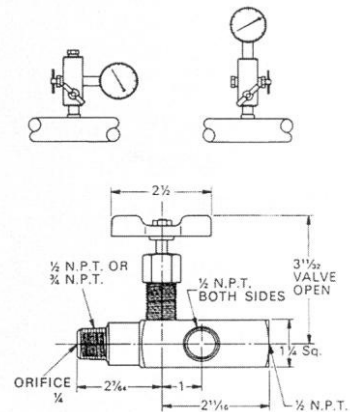
Alloy and Stainless Steel  
FFG and MFG



Dimension	Nominal Size (In inches)	
	1/8"	1/4"
A	2-1/32	2-1/32
B	61/64	61/64
CF	1-29/32	1-29/32
CM	1-29/32	1-29/32
D	1-7/8	1-7/8
E	7/8	7/8
Orifice	1/8	1/8

### Block/Bleed Terminal

Alloy and Stainless Steel



Dimension	Nominal Size (In inches)	
	1/2"	3/4 x 1/2"
A	3-1/2	3-1/2
B	2-11/16	2-11/16
C	2-7/64	2-7/64
D	2-1/2	2-1/2
E	1-1/4	1-1/4
Orifice	1/4	1/4