

Valve Product Solutions



Needle Valves

Manifold Valves

2-Valve Static Pressure
& Liquid Level

3-Valve Differential Pressure

5-Valve Natural Gas

Accessories

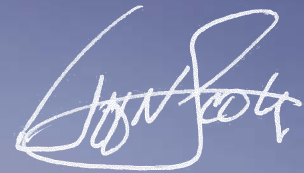


At NOSHOK, we pride ourselves on being innovators in the industry by continually offering the latest technology and measurement solutions, and providing the best customer support in the marketplace.

Established in 1967, NOSHOK was one of the first companies to offer liquid filled pressure gauges. We also took a bold step by backing our quality gauges with an extended 3-year warranty. That unwavering standard of quality has endured for over 45 years, and as we have expanded our product offering we continue to provide industry-leading warranties. NOSHOK also leads the industry as one of the first companies to offer corrosion-resistant zinc nickel plating standard on our carbon steel valves.

We have the capacity to put together special requirements which are so often hard to find. If you do not find what you need in this catalog, chances are we can still put a solution together.

NOSHOK is committed to providing excellence on every level. Thank you for choosing NOSHOK products.



Jeff N. Scott
President



NOSHOK Corporate Headquarters
Your Single Source Instrumentation Company

NOSHOK is a member and actively supports:



NOSHOK is an ISO 9001:2008 registered company.

WARRANTY INFORMATION

NOSHOK's **Three Year Warranty** applies to all needle and manifold valves. **NOSHOK guarantees all products** to be free from defects in material and workmanship, to remain within catalogued accuracy specifications, and to operate within the catalogued performance specifications. These products must be operated within the catalogued environmental and application parameters. Determination of failure will be made by NOSHOK, Inc.'s equipment and personnel or a certified test facility specializing in this type of evaluation.

THE NOSHOK ADVANTAGE

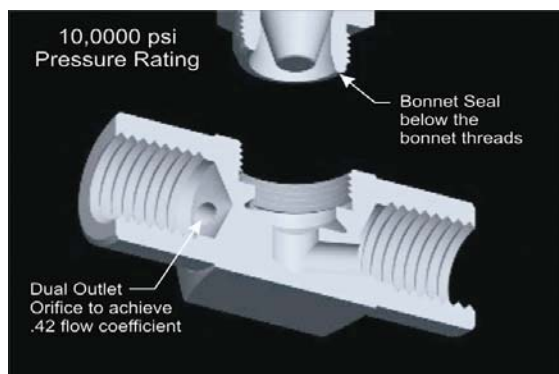
NOSHOK VALVES PATENTED FOR SUPERIOR DESIGN

NOSHOK has been awarded a patent for our innovative valve design, which features a unique body-to-bonnet, metal-to-metal seal that significantly increases the pressure range of the valve without compromising the flow coefficient. This design also helps maintain the integrity of the bonnet threads by segregating them from the process media. (Patent No. US 7,758,014)

The body seal incorporates a dovetail undercut below the seal that improves the metal-to-metal contact forces as pressures increase, as well as a dual outlet orifice to maximize fluid flow. These novel design features increase the pressure limits of the valve to 10,000 psi, which is significantly higher than similar sized miniature needle valves.

NOSHOK valves are built for maximum durability and performance in the toughest applications. They are also available with zinc-nickel plating, which provides one of the highest levels of corrosion resistance available on the market today. All NOSHOK valves are 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability.

NOSHOK valves that incorporate this patented design include our 100 Series hard seat mini valves, 800/850 Series bleed valves, all 2-valve block and bleed valves along with 5-valve manifolds. Watch the video on this patented valve design by scanning the QR code below.



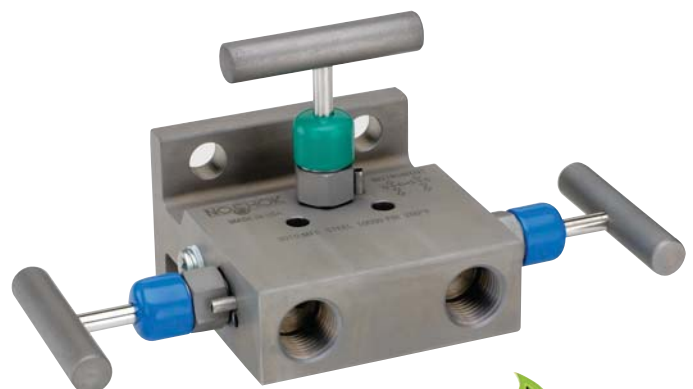
SUPERIOR CORROSION-RESISTANT ZINC-NICKEL PLATING ON ALL CARBON STEEL NOSHOK VALVES

A significant number of high profile international aerospace and automotive companies have made the switch to zinc-nickel plating for their components over the last decade, so we decided to put this plating to the test for ourselves.

In a certified test by an independent lab, two samples were subjected to 1,000+ hours of exposure to a 5% salt spray (fog) environment in a test chamber operated and maintained in accordance with ASTM B-117-07a. **The zinc-nickel plated sample showed no visible corrosion on the part after 1,000+ hours of exposure.** Internal tests yielded the same results after being submerged for 3,500 hours in a 10% salt solution. The zinc-nickel plated valves far outperformed the electroless nickel and cobalt plated valves in terms of corrosion resistance. Because of these impressive results, all carbon steel NOSHOK needle and manifold valves now utilize this material as standard plating to withstand and endure in the harshest environments.

Improvements in corrosion protection have become increasingly important for outdoor applications, where traditional platings have limited performance capabilities. In addition to its excellent corrosion resistance (higher than any other sacrificial alloy), zinc-nickel plating provides increased deposit hardness which results in extended wear resistance and longer service life – an ideal quality for most industrial applications. It is also WEEE and RoHS compliant.

Note: Colors may vary due to normal process variation and will not affect the performance of the valve.



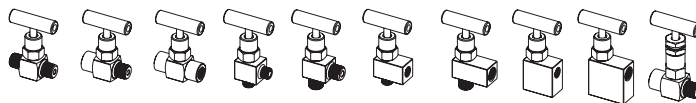
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Needle/Manifold Valve Warranties; Patented Design; ZnNi Plating 3

NEEDLE VALVES

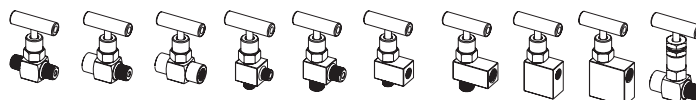
Mini, Hard Seat:

100 SERIES 6-13



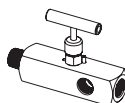
Mini, Soft Tip:

150 SERIES 14-21



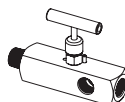
Multiport, Hard Seat:

200 SERIES 22-25



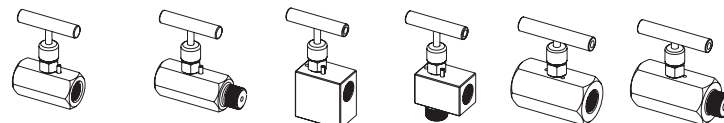
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300 SERIES 26-29



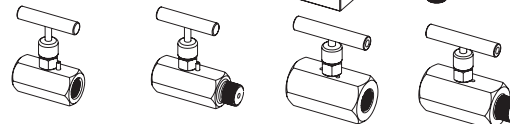
Standard, Hard Seat:

400 SERIES 30-35



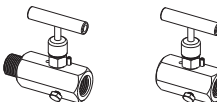
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500 SERIES 36-39



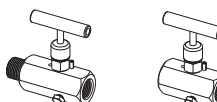
Block & Bleed, Hard Seat:

600 SERIES 40-43



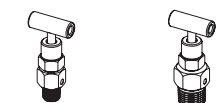
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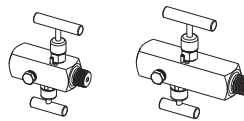
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800/850 SERIES 48-51



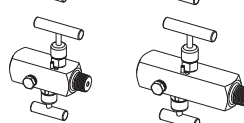
2-Valve Block & Bleed, Hard Seat:

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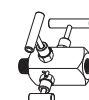
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NEEDLE VALVE OPTIONS

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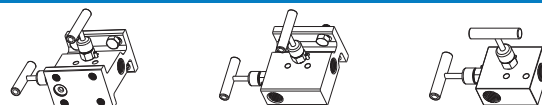
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Grafoil® is a registered trademark of Graftech, Inc.™

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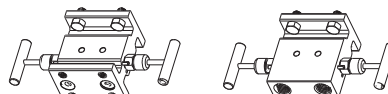
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Liquid Level, Hard & Soft Seat:

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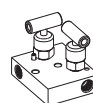
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Static Pressure Mini Block & Bleed, Hard Seat &

Soft Tip (0.141" Orifice):

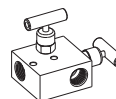
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Static Pressure Block & Bleed, Hard Seat &

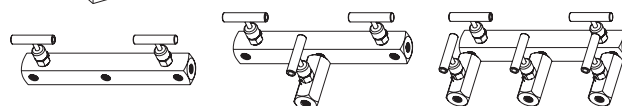
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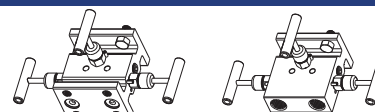
2180 SERIES 90-93



MANIFOLD VALVES, 3-VALVE

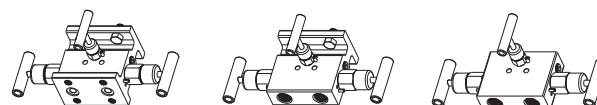
Differential Pressure, Hard & Soft Seat:

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Differential Pressure, Soft Seat (0.375" Orifice):

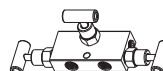
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Differential Pressure Mini, Hard Seat &

Soft Tip (0.141" Orifice):

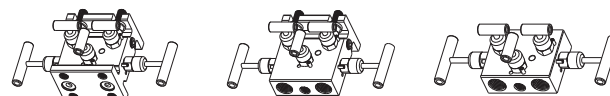
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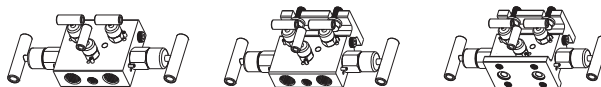
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In keeping with and for purpose of product and/or manufacturing process improvements, NOSHOK, Inc. reserves the right to make design changes without prior notice.

100 SERIES



- Compact size valve built for maximum durability and robust performance in the toughest applications
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- Hard seat valves have a maximum pressure of 10,000 psi for stainless steel and steel models; 6,000 psi for brass
- Available in zinc-nickel plated steel, electropolished stainless steel, and brass
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- Patented body-to-bonnet, metal-to-metal seal is designed to significantly increase the pressure range of the valve (**U.S. Patent 7,758,014**)

SPECIFICATIONS	
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel, 360 brass
Connections	1/8" NPT, 1/4" NPT, 7/16"-20 UNF-2B, 9/16"-18 UNF-2B Male-male, Male-female, Female-female, in-line and angled configurations
Pressure ratings	Brass: 6,000 psi @ 200 °F Steel: 10,000 psi @ 200 °F Stainless steel: 10,000 psi @ 200 °F
Orifice size	0.172"
Flow coefficient	C_v 0.42
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION						
SERIES	1	100 Series, hard seat				
CONNECTION	01	1/8" NPT	42	7/16"- 20 UNF-2B*		
SIZES	02	1/4" NPT	43	9/16"- 18 UNF-2B*		
VALVE TYPES	MMB	Male-Male, Brass	MFC	Male-Female, Steel	MFS	Male-Female, Stainless Steel
	MFB	Male-Female, Brass	EMFC	Extended Male-Female, Steel	EMFS	Extended Male-Female, Stainless Steel
	FFB	Female-Female, Brass	FFC	Female-Female, Steel	FFS	Female-Female, Stainless Steel
	EFFB	Extended Female-Female, Brass	EFFC	Extended Female-Female, Steel	EFFS	Extended Female-Female, Stainless Steel
	MMAB	Male-Male Angle, Brass	MMAC	Male-Male Angle, Steel	MMAS	Male-Male Angle, Stainless Steel
	MFAB	Male-Female Angle, Brass	MFAC	Male-Female Angle, Steel	MFAS	Male-Female Angle, Stainless Steel
	FFAB	Female-Female Angle, Brass	FFAC	Female-Female Angle, Steel	FFAS	Female-Female Angle, Stainless Steel
	MMC	Male-Male, Steel	MMS	Male-Male, Stainless Steel		

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Available only on EFFB, EFFC and EFFS valve types.

EXAMPLE

Series 100 hard seat
 Connection size 1/4" NPT
 Valve type Female-female, steel

102 - FFC

To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 102-MFC-HL3)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options				
PACKINGS	P1	PTFE	P2	Grafoil®
STEM TIPS	T1	Non-rotating (316 stainless standard)	T6	Ball (carbide)
	T5	Ball (440C stainless)	T7	Ball (ceramic)
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)
PANEL MOUNTINGS	PM1	Panel mount (1 nut)	PM2	Panel mount (2 nuts)
HANDLES	HL2	2-1/2" "T"	HL4	1-3/8" Phenolic
	HL3	1" Round knurled	HL5	1-3/4" Phenolic

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

Please note that the standard o-ring in all the NOSHOK mini valves is FKM and the standard handles are brass round knurled (HL3) handles, steel mini "T" handles (HL1), and 316SS mini "T" handles (HL1).

The handle material will always match the material of the valve, unless otherwise specified. For example, the round knurled (HL3) on a 102-FFB will be brass. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

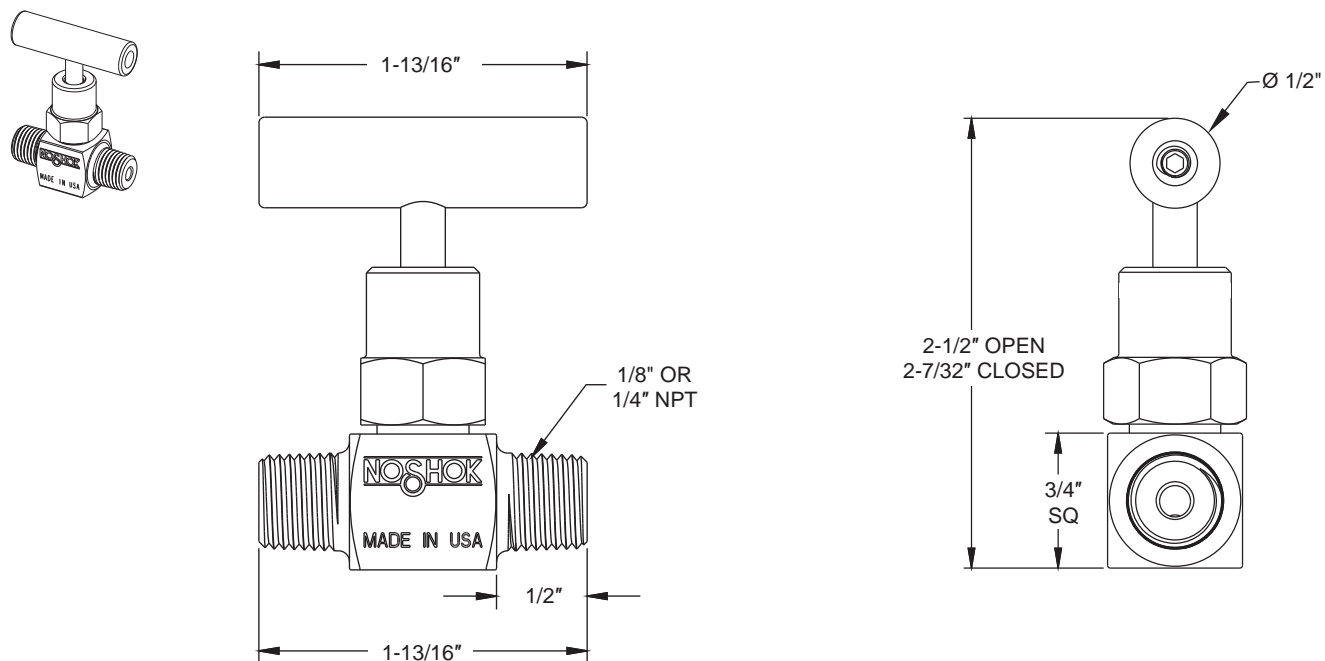
EXAMPLE with Additional Options

Series 100 hard seat
 Connection size 1/4" NPT
 Valve type Female-female, steel
 Packing PTFE
 Stem tip Non-rotating
 Panel mount Panel mount (2 nuts)
 Handle 1-3/8" Phenolic

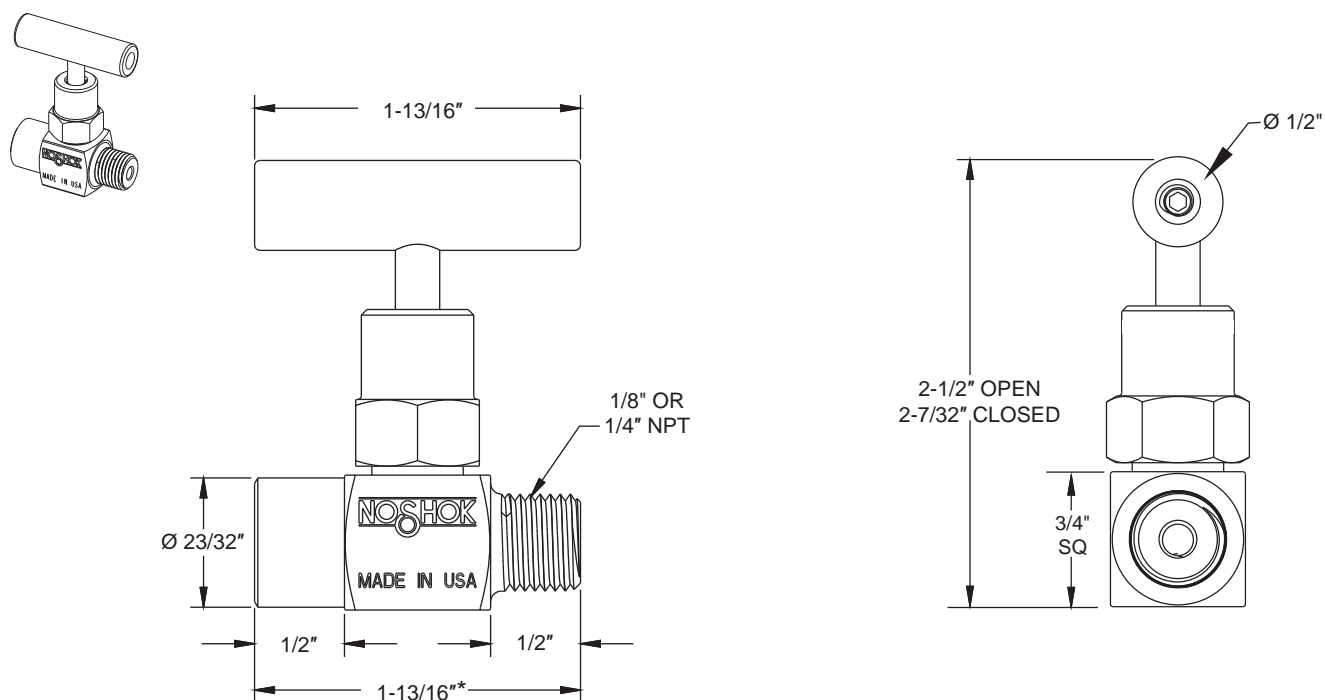
102 - FFC - P1 - T1 - PM2 - HL4

Dimensions

Male-Male

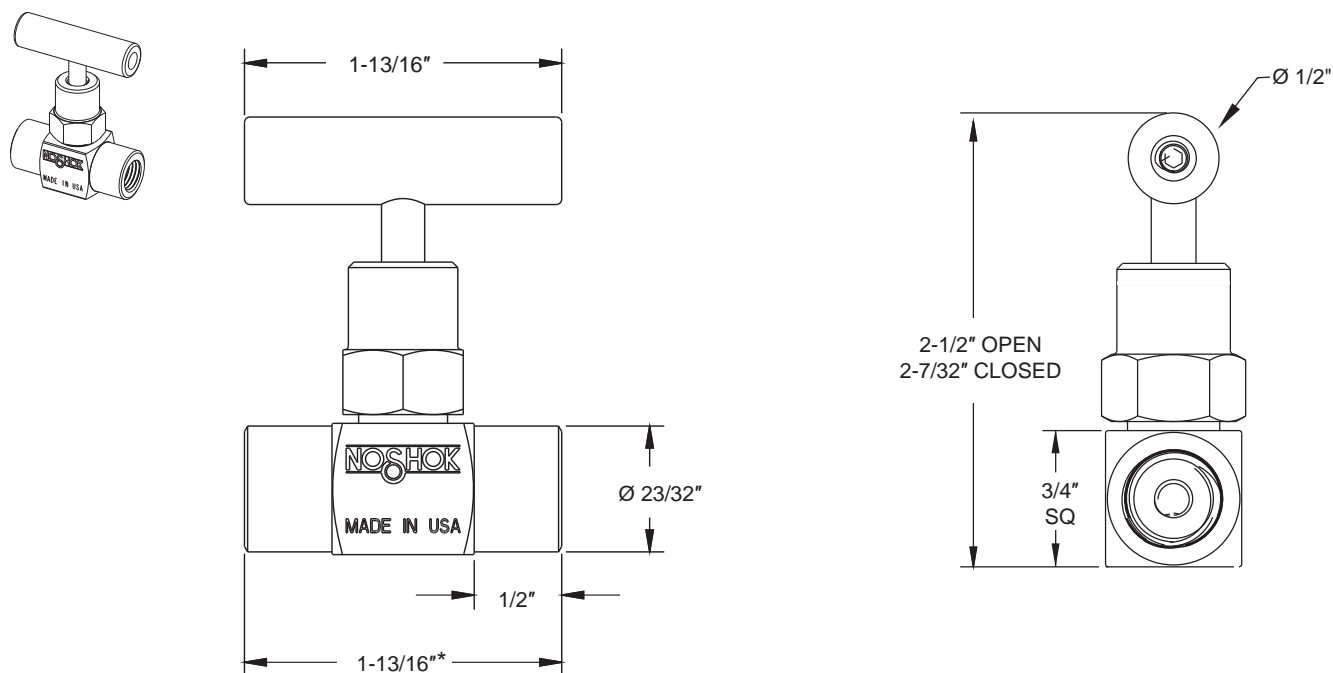


Male-Female



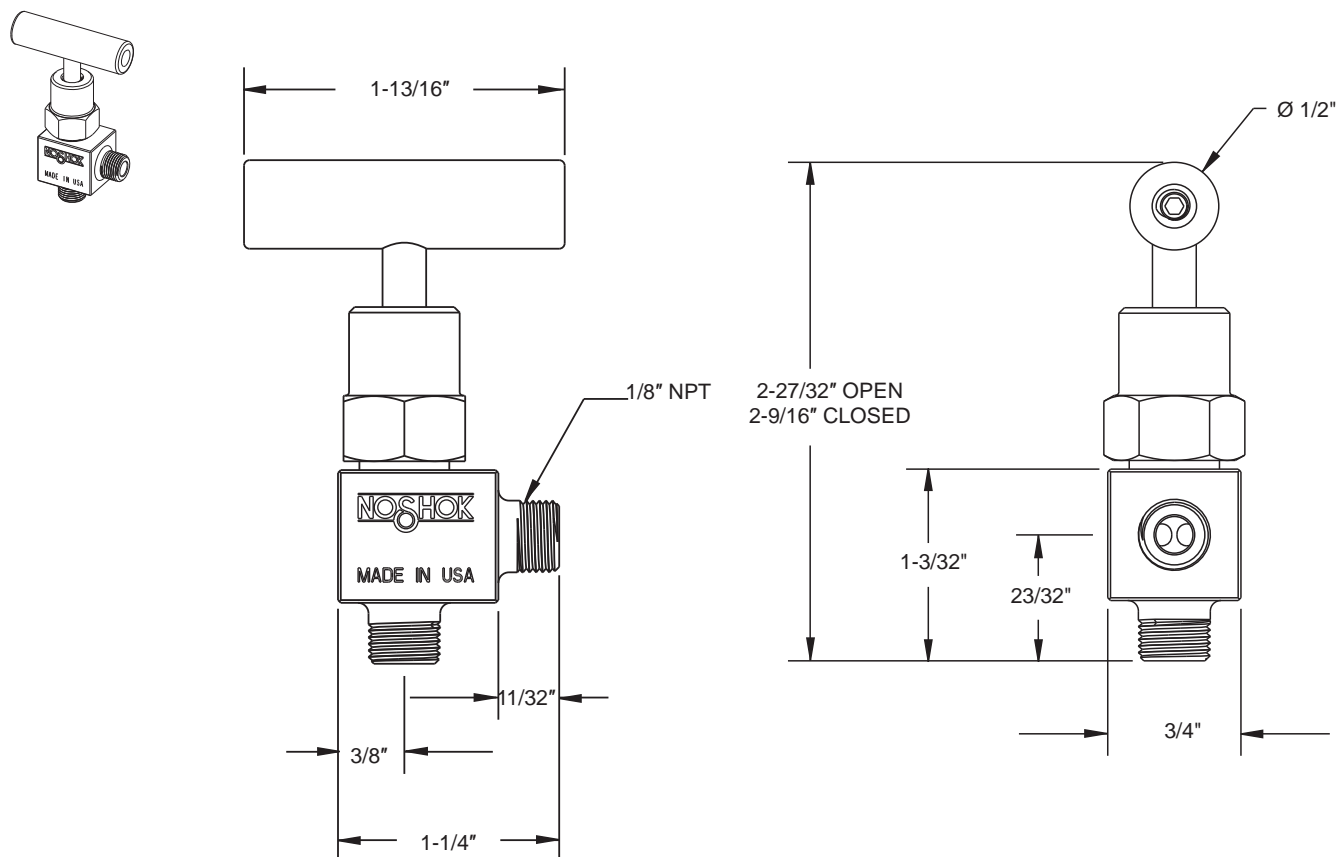
*Dimension on extended version is 2-1/4"

Female-Female



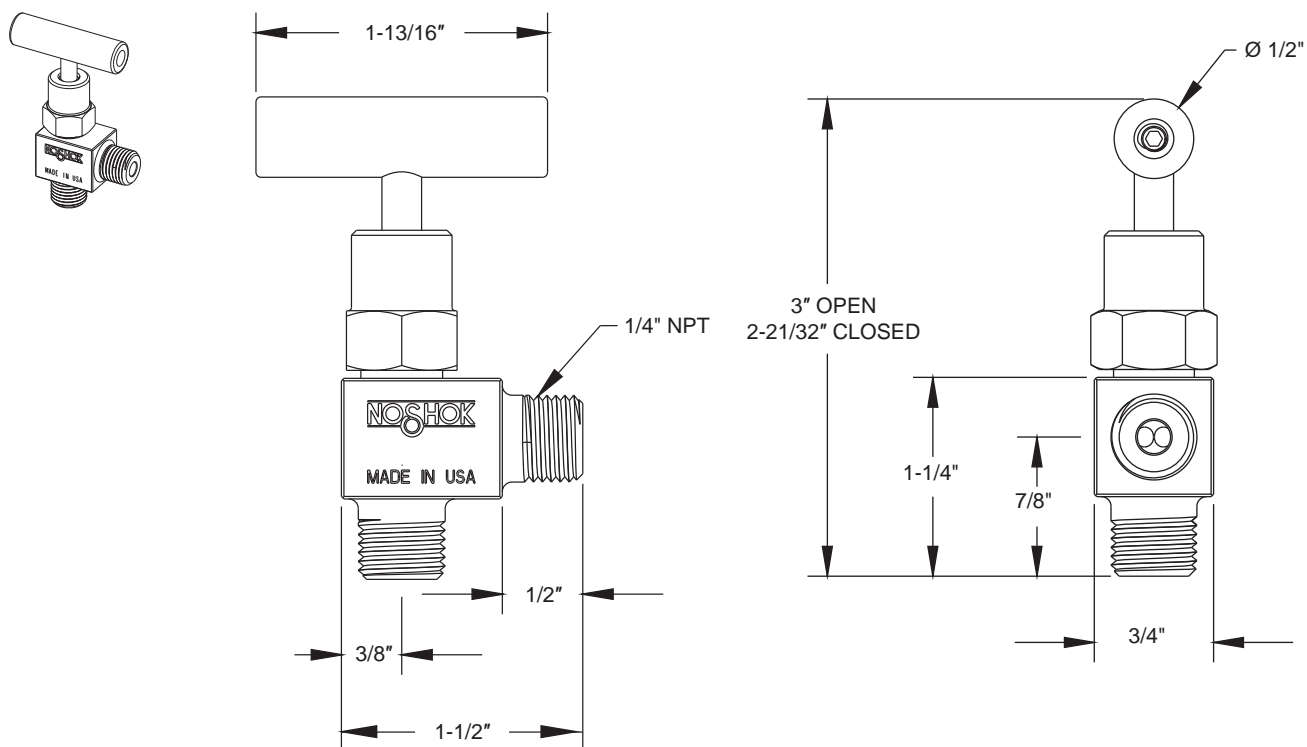
*Dimension on extended version is 2-1/4"

1/8" Male-Male Angle

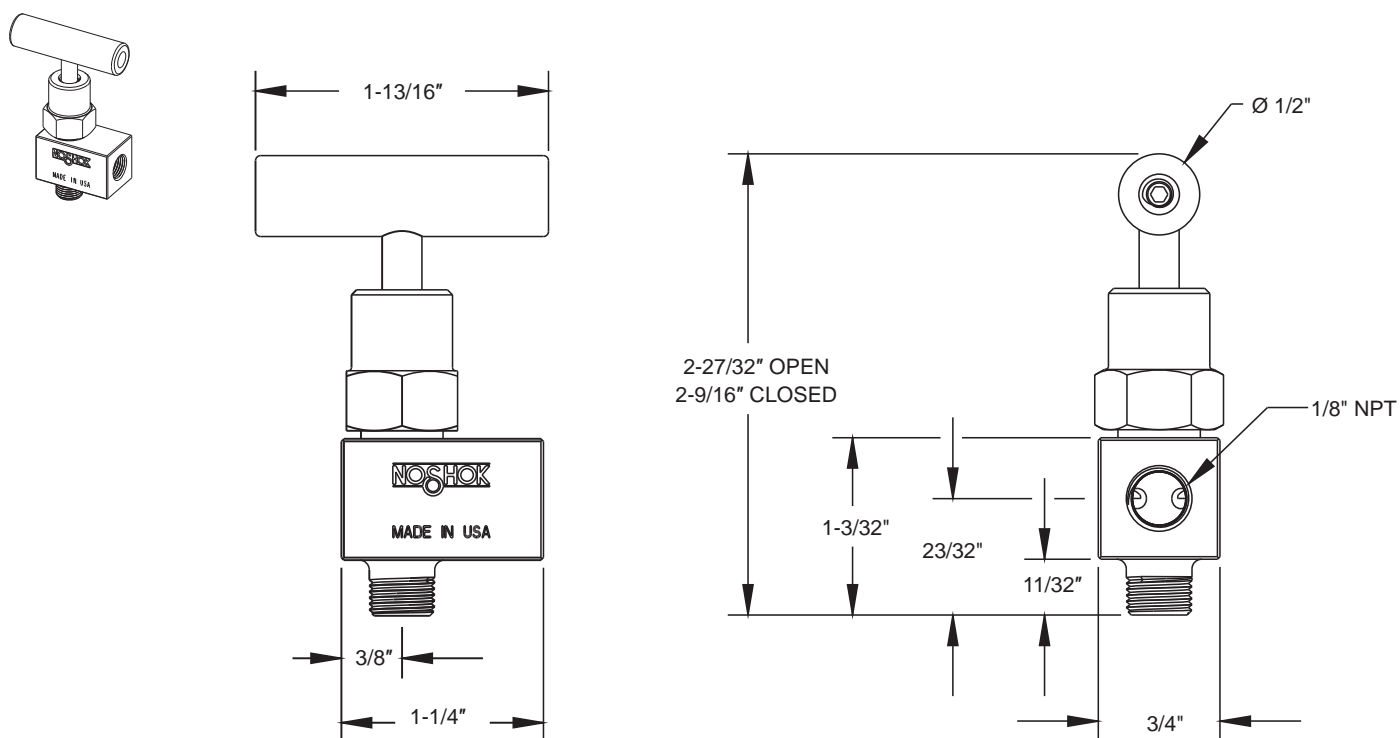


Dimensions

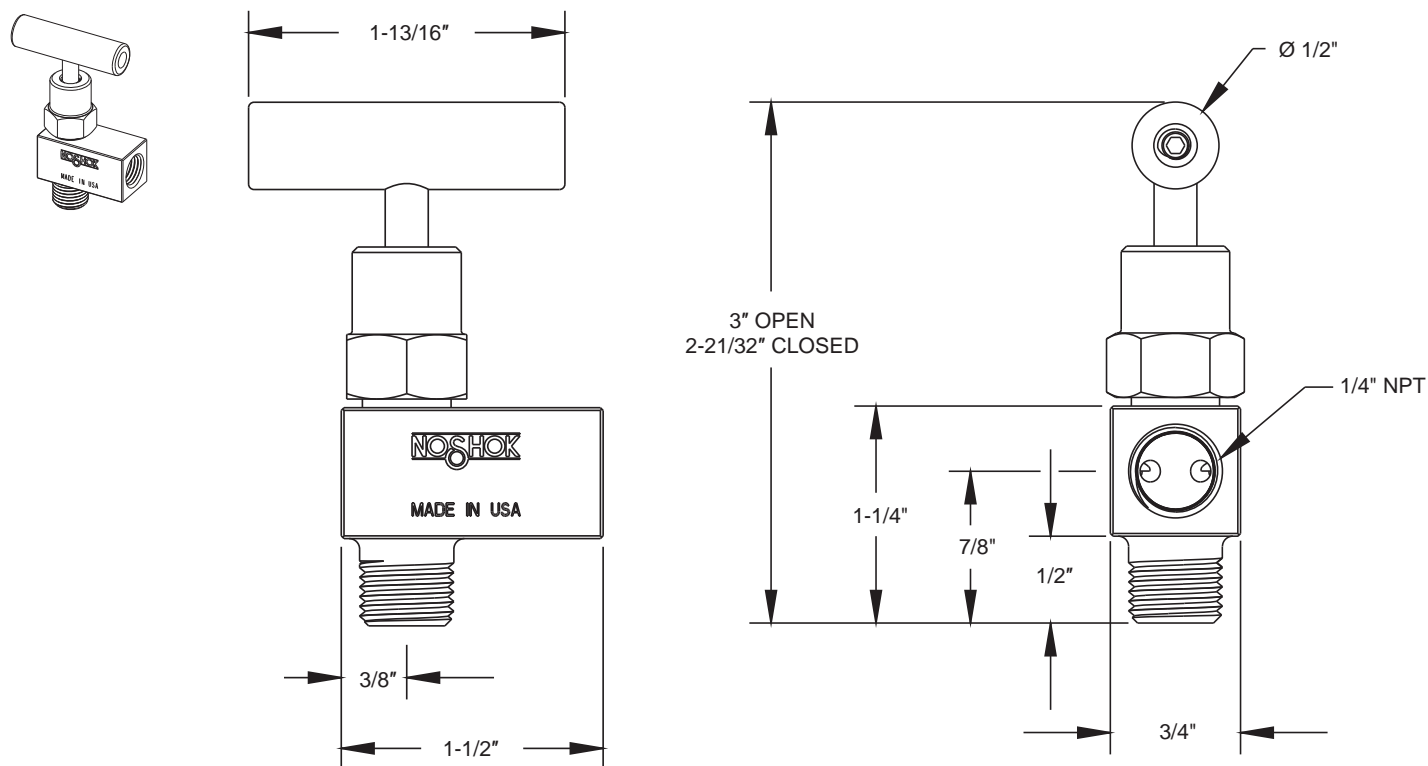
1/4" Male-Male Angle



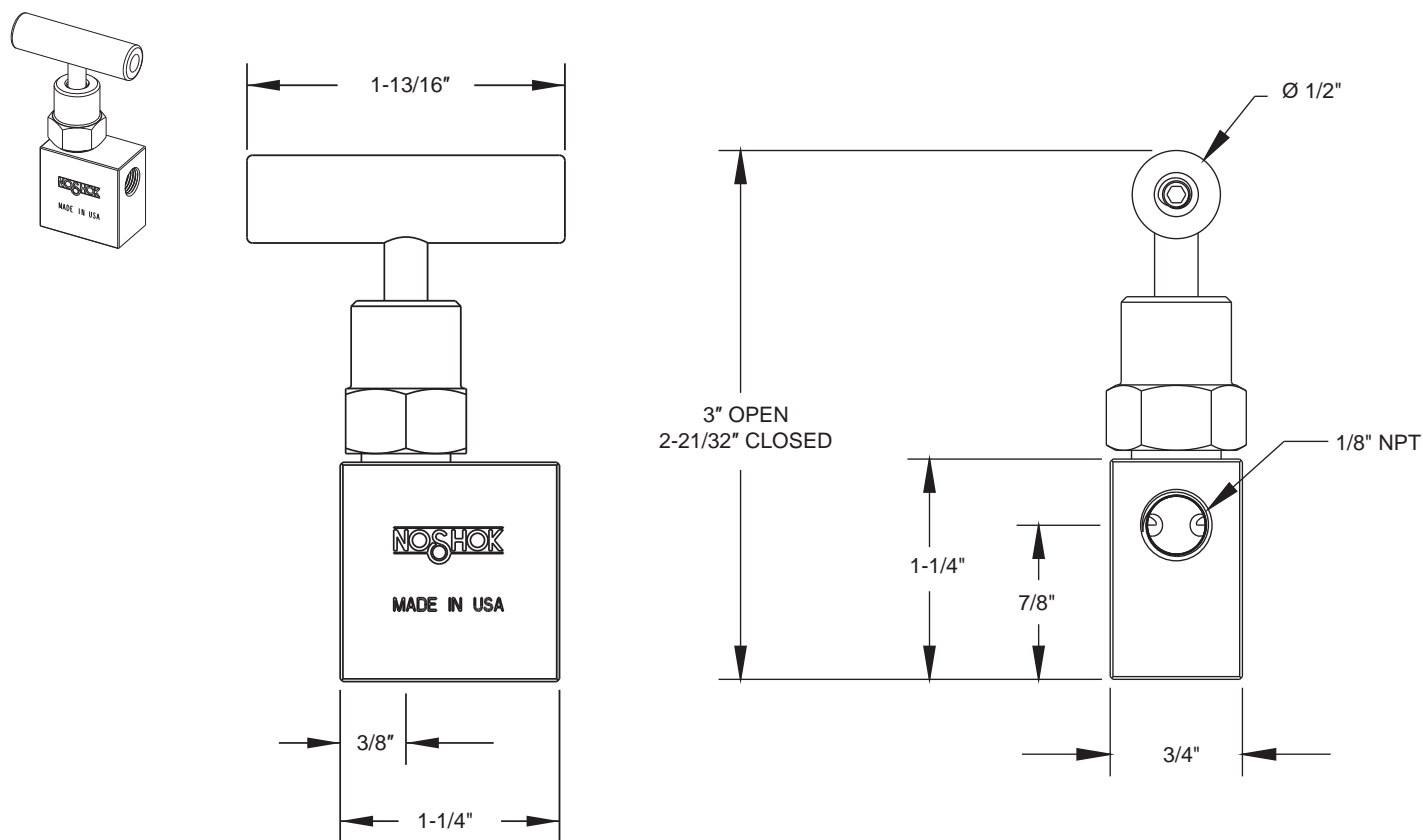
1/8" Male-Female Angle



1/4" Male-Female Angle

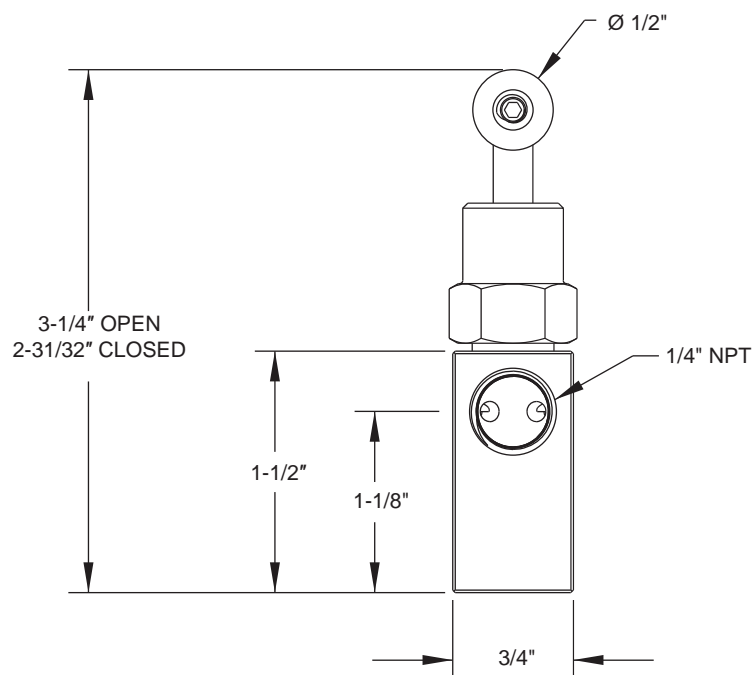
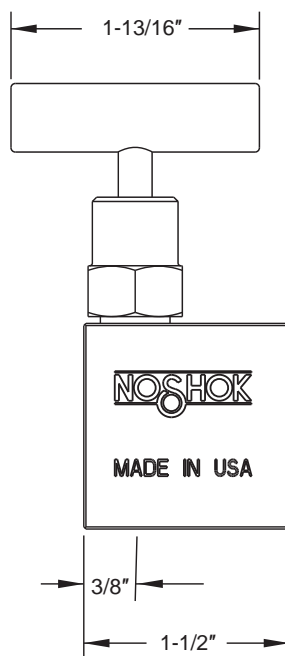
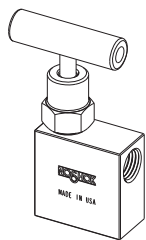


1/8" Female-Female Angle



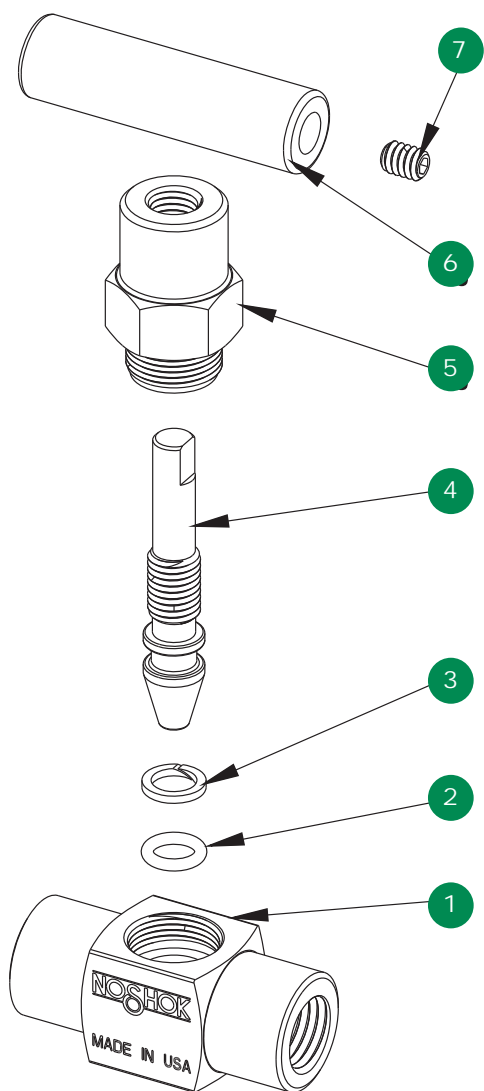
Dimensions

1/4" Female-Female Angle



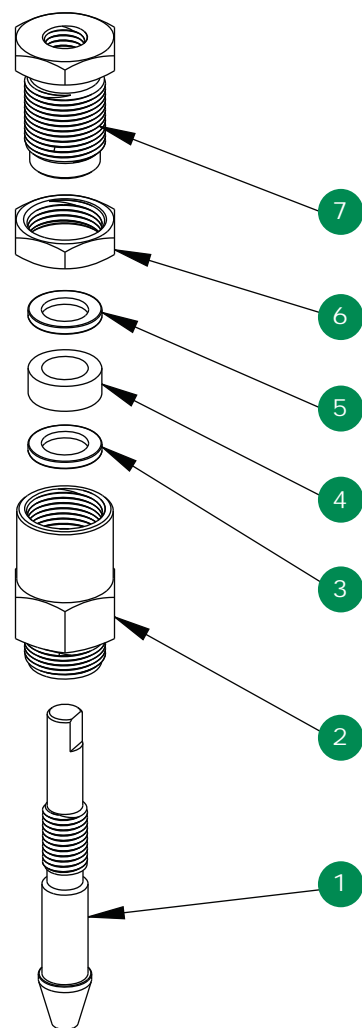
For panel mount, packing,
& stem tip dimensions,
see pgs. 64-67.

Mini, Hard Seat



- 1 Mini valve body
- 2 FKM o-ring
- 3 PTFE back-up ring
- 4 Mini valve stem
- 5 Mini valve bonnet
- 6 Mini valve "T" handle
- 7 Set screw

Option With Packing



- 1 Mini valve packing stem
- 2 Mini valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

150 SERIES



- Compact size valve built for maximum durability and robust performance in the toughest applications
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- Soft tip valves feature a patented Delrin® non-rotating soft tip stem, and a back-up metal-to-metal seal (**U.S. Patent 6,820,857**)
- Maximum pressure of 6,000 psi
- Available in zinc-nickel plated steel, electropolished stainless steel, and brass
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- Patented body-to-bonnet, metal-to-metal seal is designed to significantly increase the pressure range of the valve (**U.S. Patent 7,758,014**)

SPECIFICATIONS	
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel, 360 brass
Connections	1/8" NPT, 1/4" NPT, 7/16"-20 UNF-2B, 9/16"-18 UNF-2B Male-male, Male-female, Female-female, in-line and angled configurations
Pressure ratings	6,000 psi @ 200 °F
Orifice size	0.172"
Flow coefficient	C _v 0.42
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION						
SERIES	1 150 Series, soft tip					
CONNECTION	51	1/8" NPT	92	7/16"- 20 UNF-2B*		
SIZES	52	1/4" NPT	93	9/16"- 18 UNF-2B*		
VALVE TYPES	MMB	Male-Male, Brass	MFC	Male-Female, Steel	MFS	Male-Female, Stainless Steel
	MFB	Male-Female, Brass	EMFC	Extended Male-Female, Steel	EMFS	Extended Male-Female, Stainless Steel
	FFB	Female-Female, Brass	FFC	Female-Female, Steel	FFS	Female-Female, Stainless Steel
	EFFB	Extended Female-Female, Brass	EFFC	Extended Female-Female, Steel	EFFS	Extended Female-Female, Stainless Steel
	MMAB	Male-Male Angle, Brass	MMAC	Male-Male Angle, Steel	MMAS	Male-Male Angle, Stainless Steel
	MFAB	Male-Female Angle, Brass	MFAC	Male-Female Angle, Steel	MFAS	Male-Female Angle, Stainless Steel
	FFAB	Female-Female Angle, Brass	FFAC	Female-Female Angle, Steel	FFAS	Female-Female Angle, Stainless Steel
	MMC	Male-Male, Steel	MMS	Male-Male, Stainless Steel		

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Available only on EFFB, EFFC and EFFS valve types.

EXAMPLE

Series150 soft tip
 Connection size1/4" NPT
 Valve typeFemale-female, steel

152 - FFC

To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 152-MFC-HL3)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options						
PACKINGS	P1	PTFE				
STEM TIPS	T3	PTCFE	T10	Regulating Delrin®	T12	Regulating PEEK
	T4	PEEK	T11	Regulating PTCFE		
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)	NB1	NBR
PANEL MOUNTINGS	PM1	Panel mount (1 nut)	PM2	Panel mount (2 nuts)		
HANDLES	HL3	1" Round knurled				

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

Please note that the standard o-ring in all the NOSHOK mini valves is FKM and the standard handles are brass round knurled handles (HL3), steel mini "T" handles (HL1), and 316SS mini "T" handles (HL1).

The handle material will always match the material of the valve, unless otherwise specified. For example, the round knurled (HL3) on a 152-FFB will be brass. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

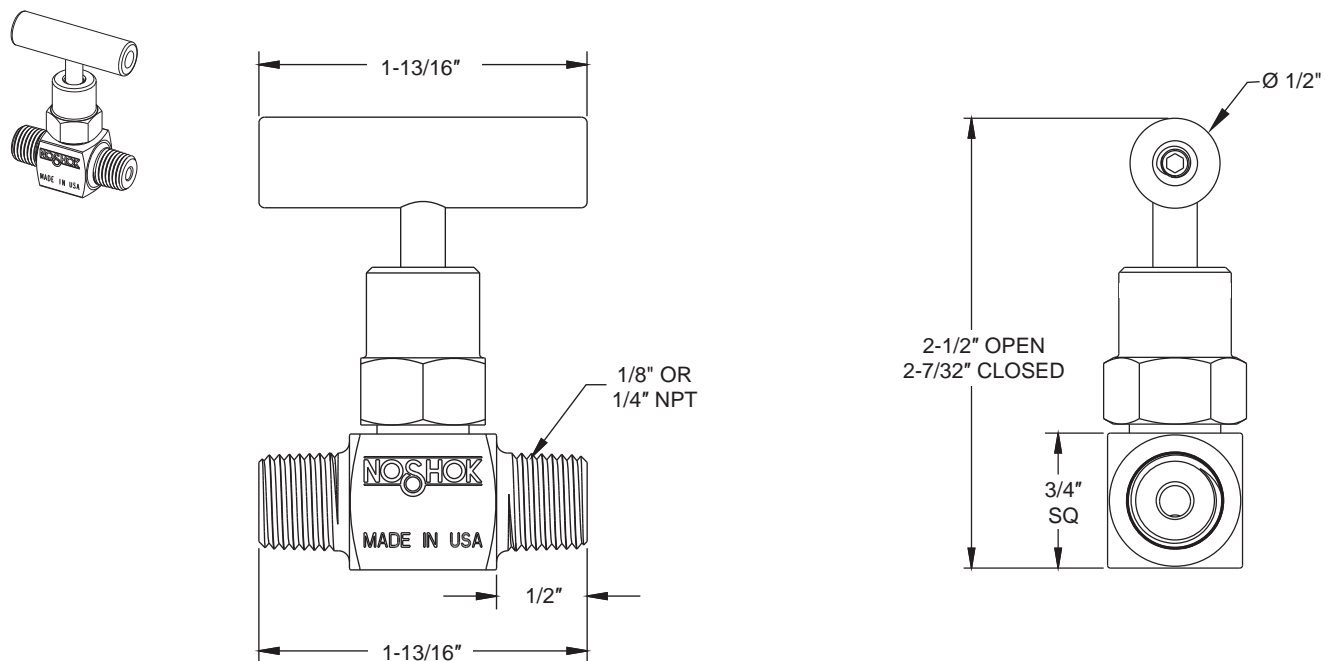
EXAMPLE with Additional Options

Series150 soft tip
 Connection size1/4" NPT
 Valve typeFemale-female, steel
 PackingPTFE
 Stem tip PTCFE
 Panel mountPanel mount (2 nuts)
 Handle 1" Round knurled

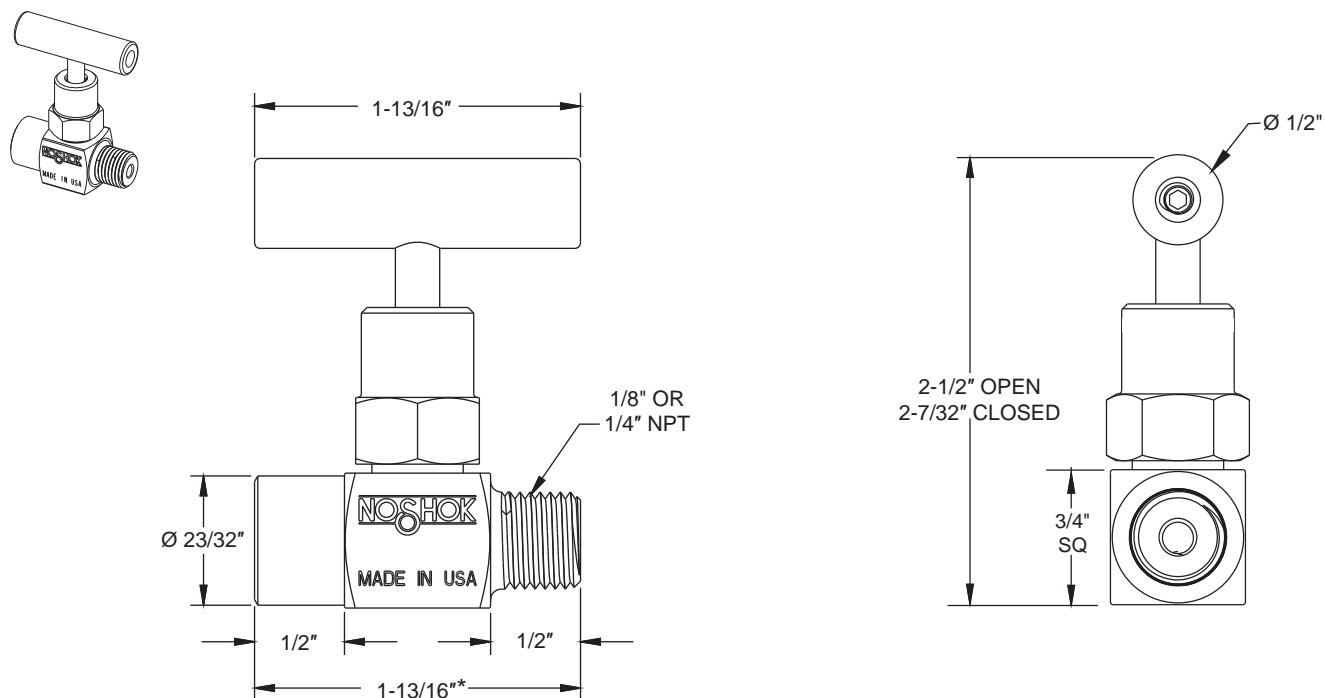
152 - FFC - P1 - T3 - PM2 - HL3

Dimensions

Male-Male

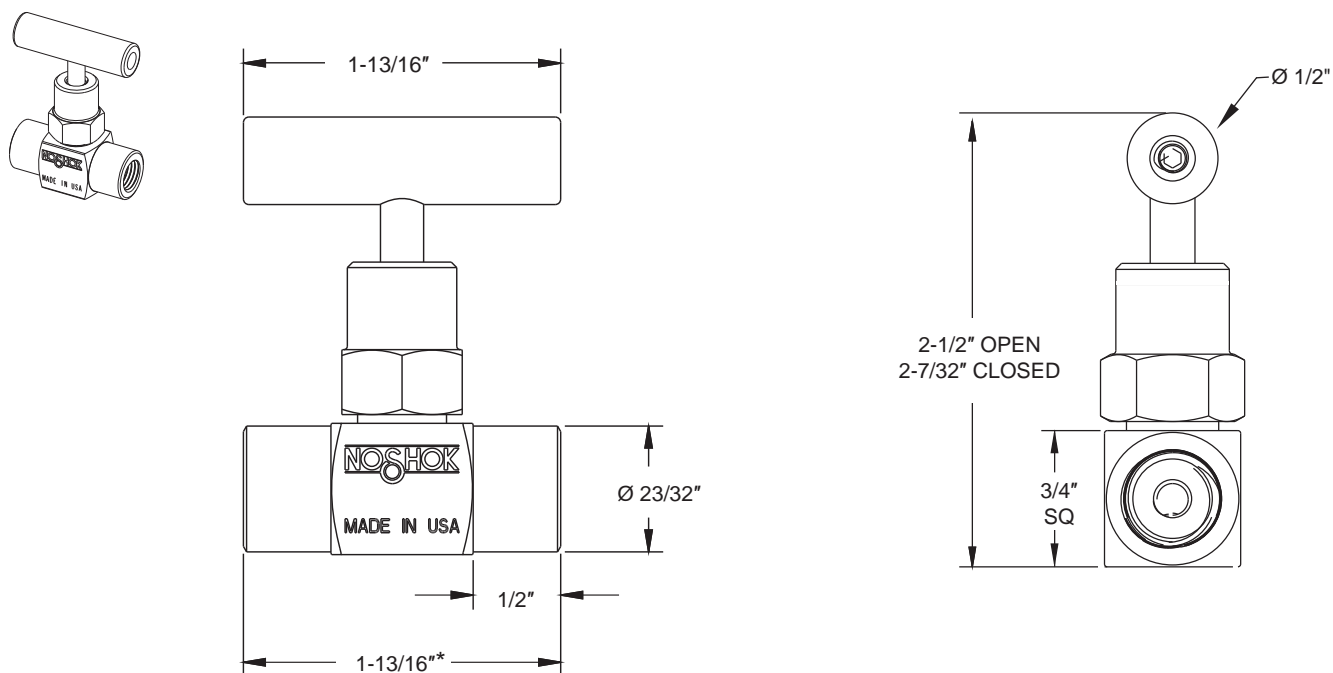


Male-Female



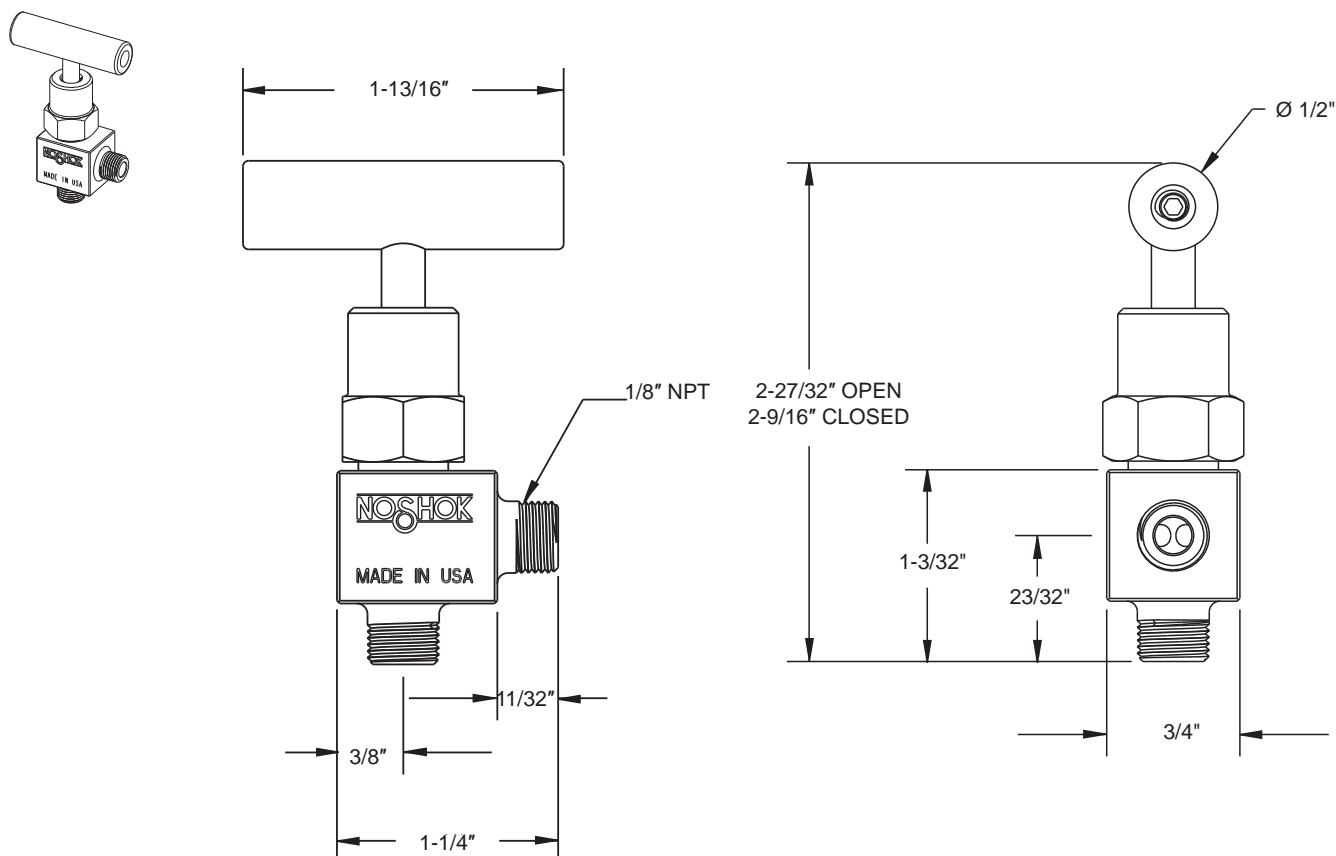
*Dimension on extended version is 2-1/4"

Female-Female



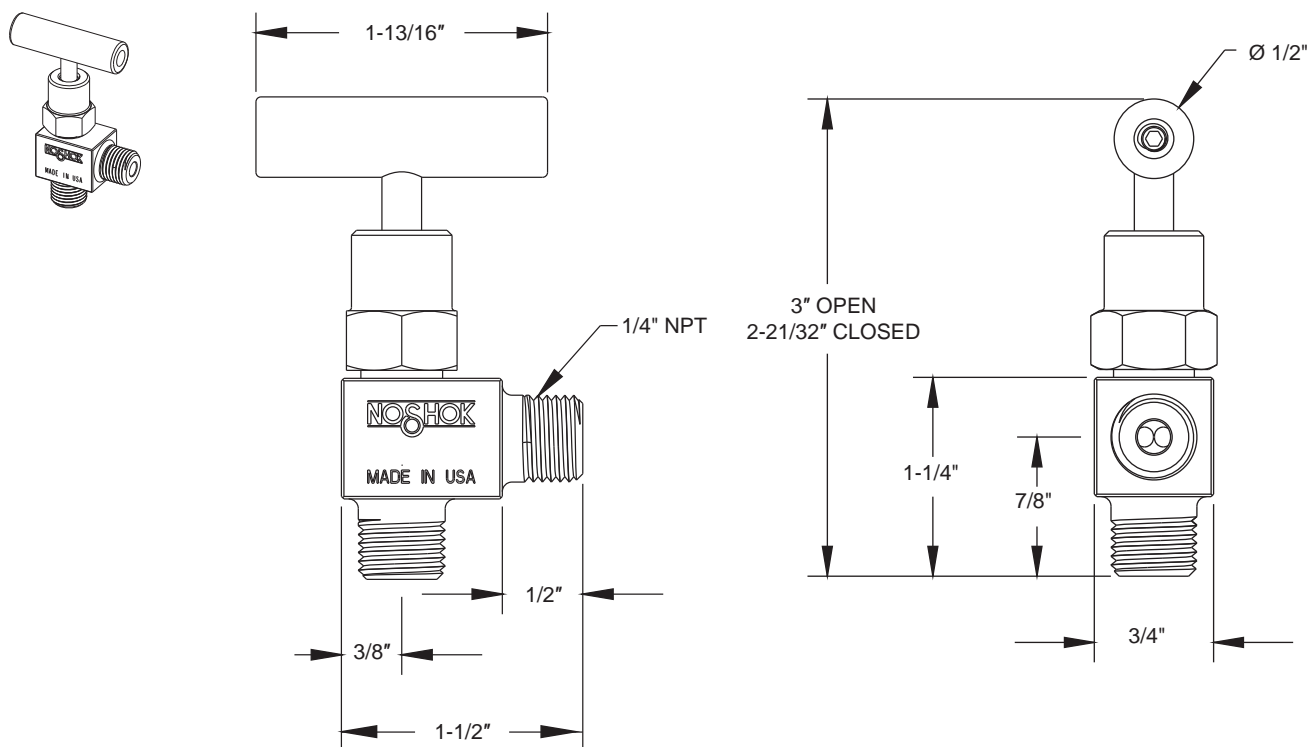
*Dimension on extended version is 2-1/4"

1/8" Male-Male Angle

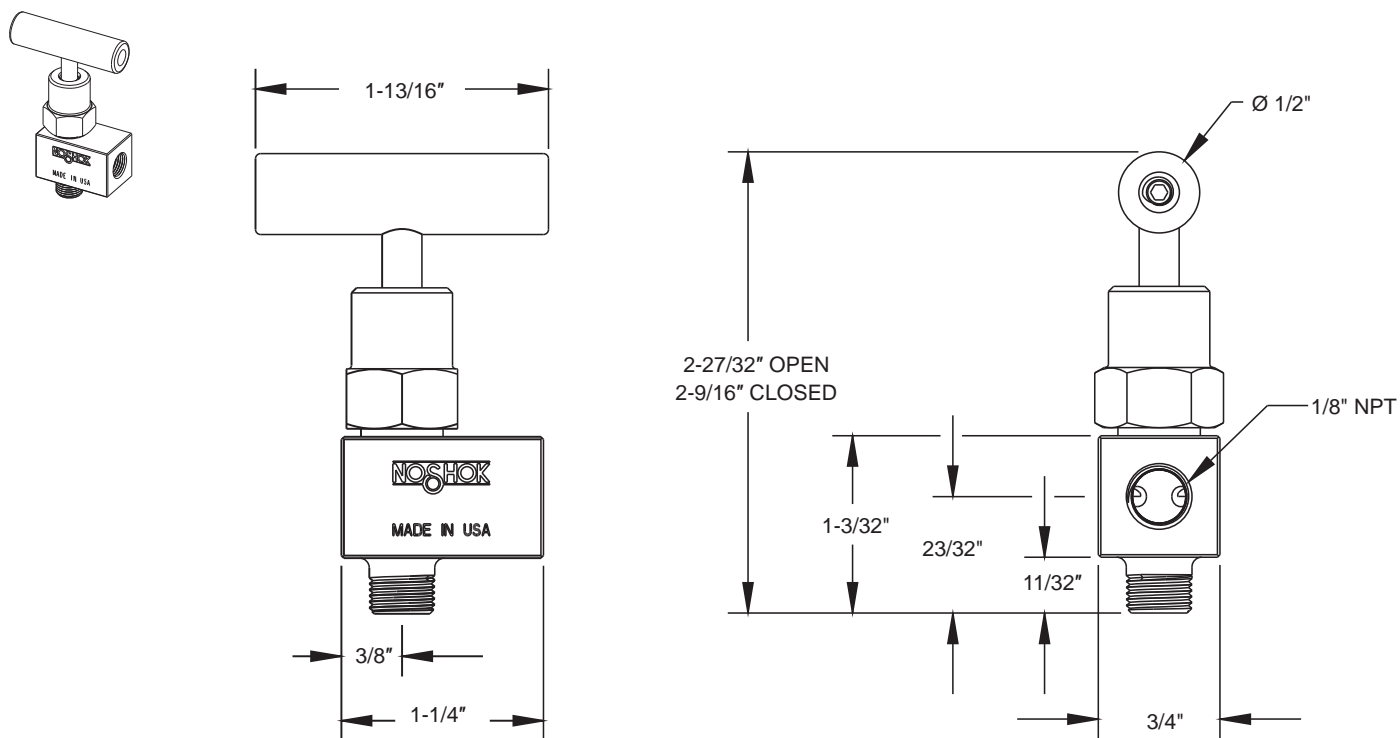


Dimensions

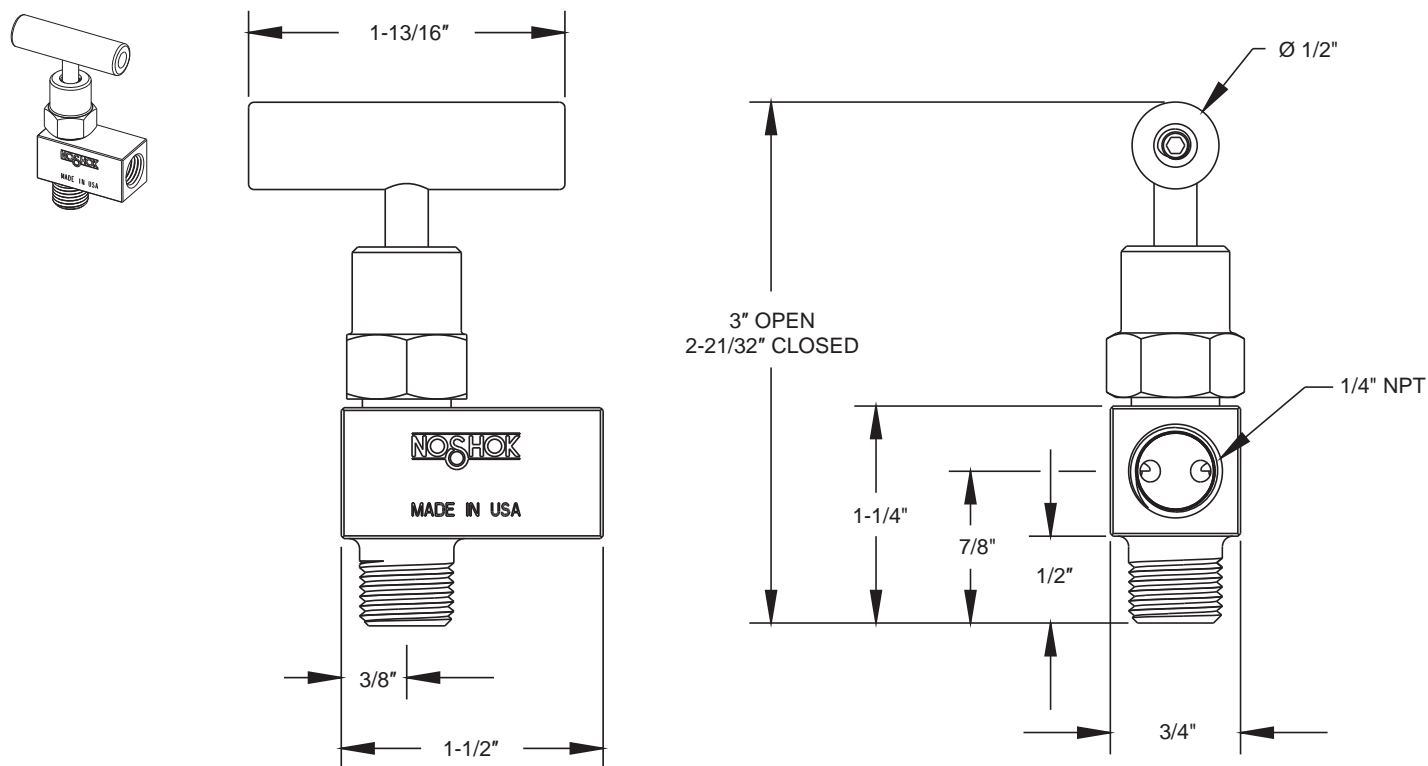
1/4" Male-Male Angle



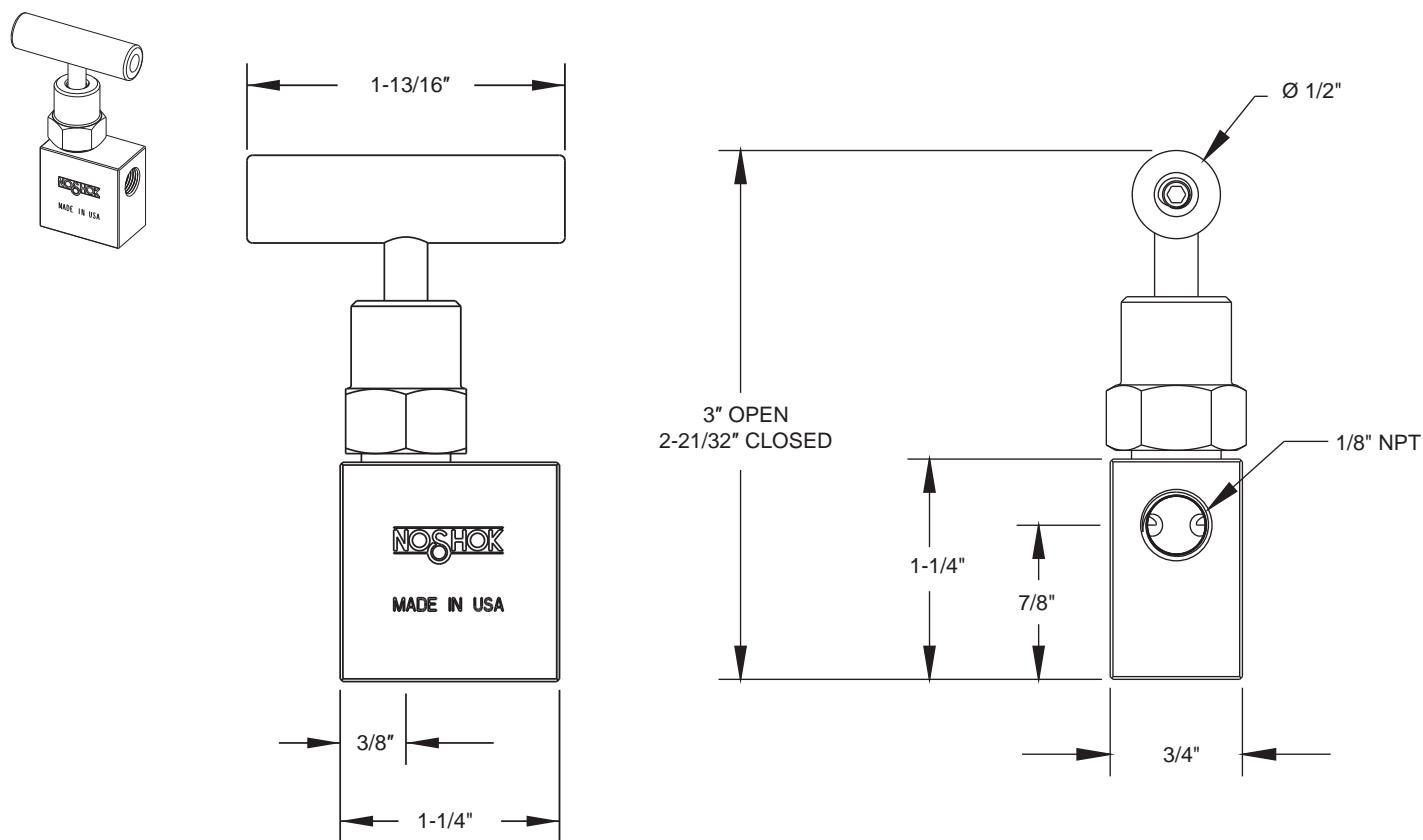
1/8" Male-Female Angle



1/4" Male-Female Angle

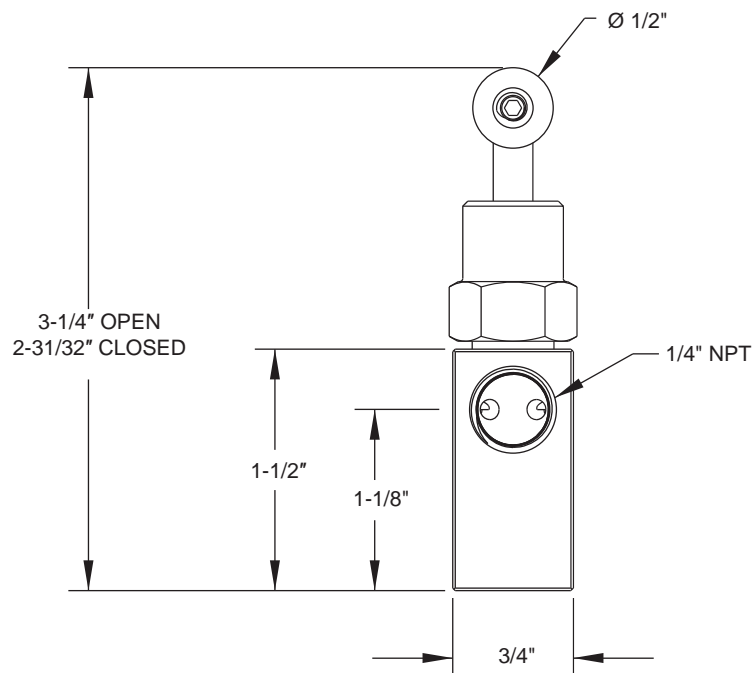
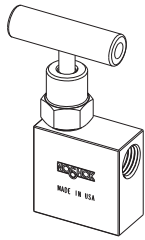


1/8" Female-Female Angle



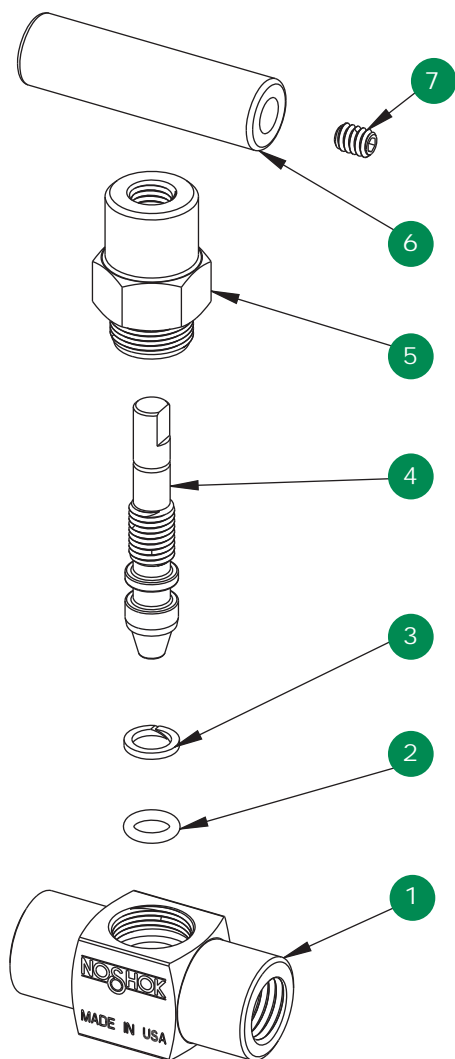
Dimensions

1/4" Female-Female Angle



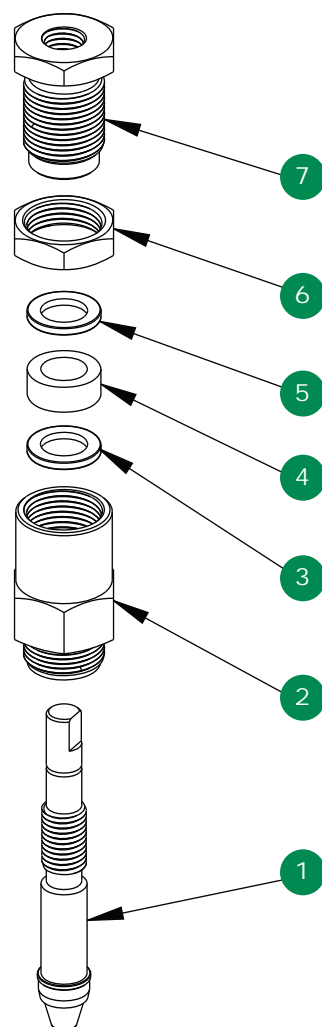
For panel mount, packing,
& stem tip dimensions,
see pgs. 64-67.

Mini, Soft Tip



- 1 Mini valve body
- 2 FKM o-ring
- 3 PTFE back-up ring
- 4 Soft tip stem
- 5 Mini valve bonnet
- 6 Mini valve "T" handle
- 7 Set screw

Option With Packing



- 1 Soft tip packing stem
- 2 Mini valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

Multiport, Hard Seat

200 SERIES



- Multiport design reduces the number of gauge and other instrument connections to permanent piping installations, decreasing possible leak paths
- Optional bleed plugs further allow pressure to be bled off without disturbing the permanent piping installation
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 10,000 psi pressure rating @ 200 °F
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust cap for bonnet and stem (non-packing)

SPECIFICATIONS	
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connections	1/2" NPT to 3/4" NPT Male-female
Pressure rating	10,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	C_v 0.44
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION				
SERIES	2	200 Series, hard seat		
CONNECTION SIZES	04	1/2" NPT	0604	3/4" NPT male - 1/2" NPT female
VALVE TYPES	MFC	Male-Female, Steel	MFS	Male-Female, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

204 - MFC

Series.....200 hard seat
 Connection size..... 1/2" NPT
 Valve type.....Male-female, steel

To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 204-MFC-BP)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options						
PLUGS	PG	Plug [†]	BP	Bleed plug [†]		
PACKINGS	P1	PTFE	P2	Grafoil®		
STEM TIPS	T1	Non-rotating (316 stainless)	T6	Ball (carbide)	T8	Ball (Monel)
	T5	Ball (440C stainless)	T7	Ball (ceramic)	T9	Regulating hard
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)	NB1	NBR
PANEL MOUNTINGS	PM1	Panel mount (1 nut)	PM2	Panel mount (2 nuts)		
HANDLES	HL1	1-13/16" Mini "T"	HL4	1-3/8" Phenolic	HL5	1-3/4" Phenolic

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

[†] The plug material will always match the material of the valve. All plugs can also be ordered separately, see pg. 64-65.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 204-MFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests

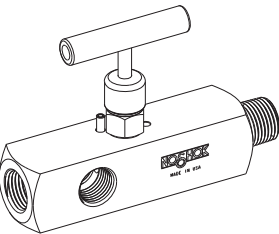
EXAMPLE with Additional Options

204 - MFC - PG - T5 - EM1

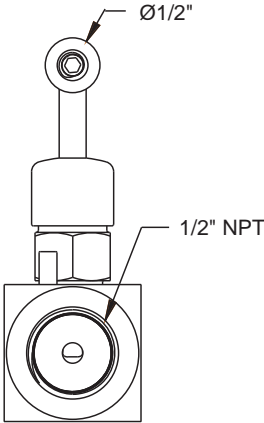
Series.....200 hard seat
 Connection size..... 1/2" NPT
 Valve type.....Male-female, steel
 Plug..... Steel
 Stem tip Ball (440C stainless)
 O-ring..... EPDM

Dimensions

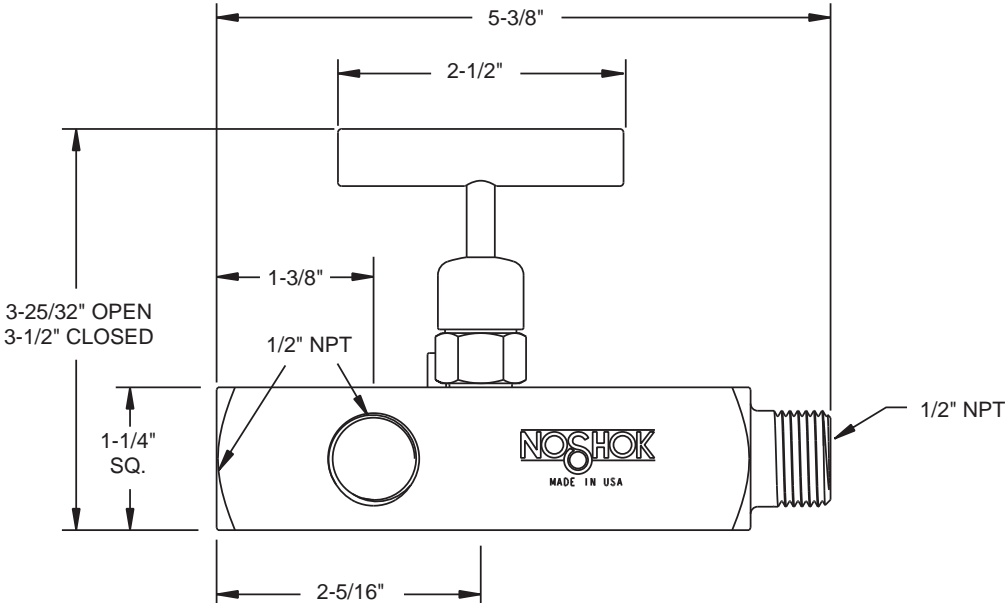
Male-Female



Front View

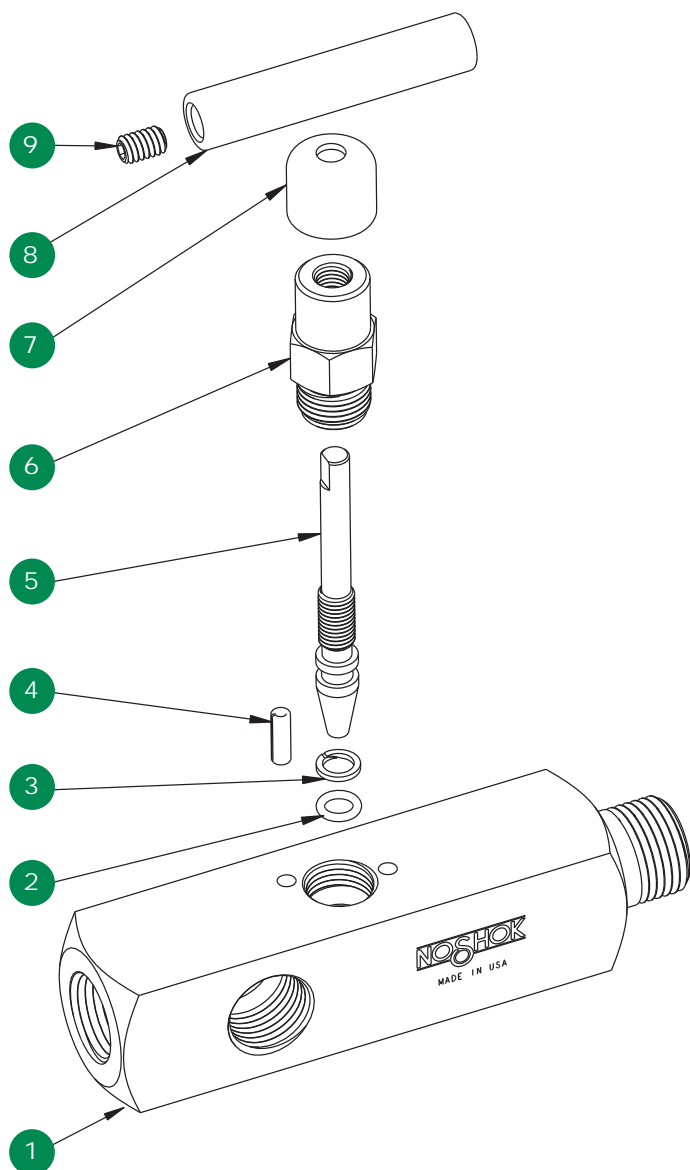


Side View



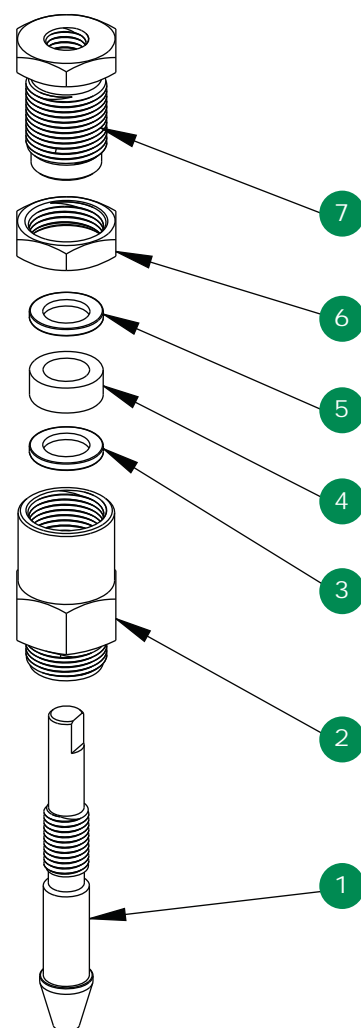
For panel mount, packing,
& stem tip dimensions,
see pgs. 64-67.

Multiport, Hard Seat



- 1 Valve body
- 2 FKM o-ring
- 3 PTFE back-up ring
- 4 Slotted spring pin
- 5 Valve stem
- 6 Valve bonnet
- 7 Dust cap
- 8 Valve "T" handle
- 9 Set screw

Option With Packing



- 1 Valve packing stem
- 2 Valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

Multiport, Soft Seat

300 SERIES



- Multiport design reduces the number of gauge and other instrument connections to permanent piping installations, decreasing possible leak paths
- Optional bleed plugs further allow pressure to be bled off without disturbing the permanent piping installation
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 6,000 psi pressure rating @ 200 °F
- Replaceable Delrin® seat and straight through porting for bidirectional, high capacity flow and easy roddable cleaning
- PCTFE or PEEK soft seat optional
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust cap for bonnet and stem (non-packing)

SPECIFICATIONS	
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connections	1/2" NPT to 3/4" NPT Male-female Straight through porting for bidirectional, high capacity flow
Pressure rating	6,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	C _v 0.64
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	3	300 Series, soft seat	
CONNECTION SIZES	04	1/2" NPT	0604 3/4" NPT male - 1/2" NPT female
VALVE TYPES	MFC	Male-Female, Steel	MFS Male-Female, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

304 - MFC

Series.....300 soft seat

Connection size.....1/2" NPT

Valve type.....Male-female, steel

To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 304-MFC-HL5)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options					
PLUGS	PG	Plug [†]	BP	Bleed Plug [†]	
SOFT SEATS	PK1	PEEK	KF1	PCTFE	
PACKINGS	P1	PTFE			
STEM TIPS	T1	Non-rotating (316 stainless)			
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)	NB1 NBR
PANEL MOUNTINGS	PM1	Panel mount (1 nut)	PM2	Panel mount (2 nuts)	
HANDLES	HL4	1-3/8" Phenolic	HL5	1-3/4" Phenolic	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

[†] The plug material will always match the material of the valve. All plugs can also be ordered separately, see pg. 64-65.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 304-MFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests

EXAMPLE with Additional Options

304 - MFC - PG - PK1 - P1 - HL5

Series.....300 soft seat

Connection size.....1/2" NPT

Valve type.....Male-female, steel

Plug.....Steel

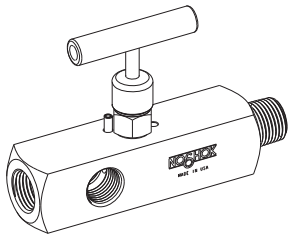
Soft seatPEEK

Packing.....PTFE

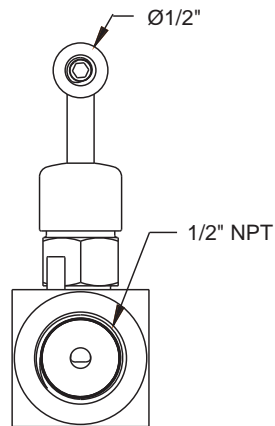
Handle1-3/4" Phenolic

Dimensions

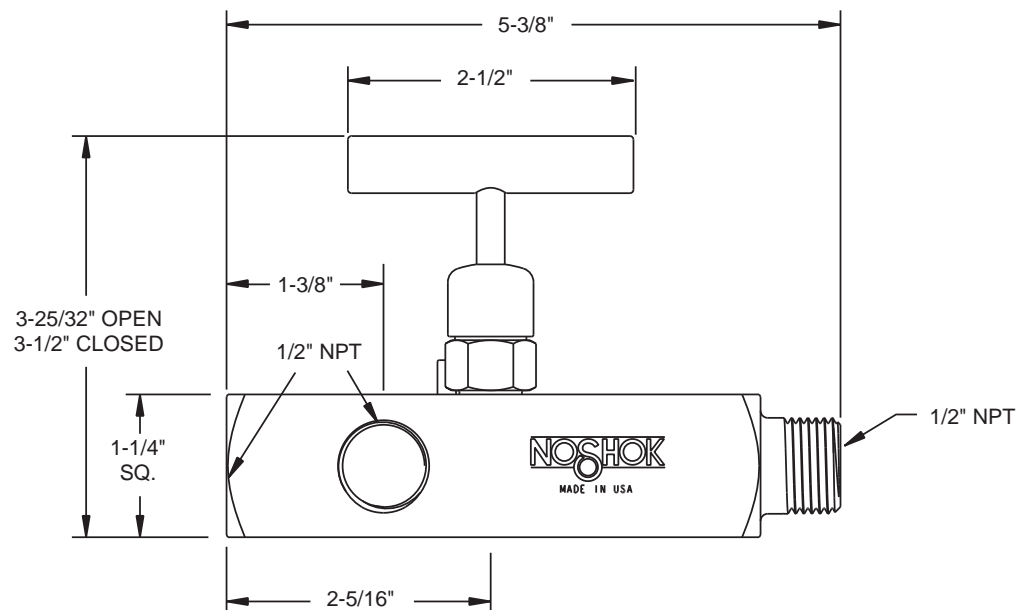
Male-Female



Front View

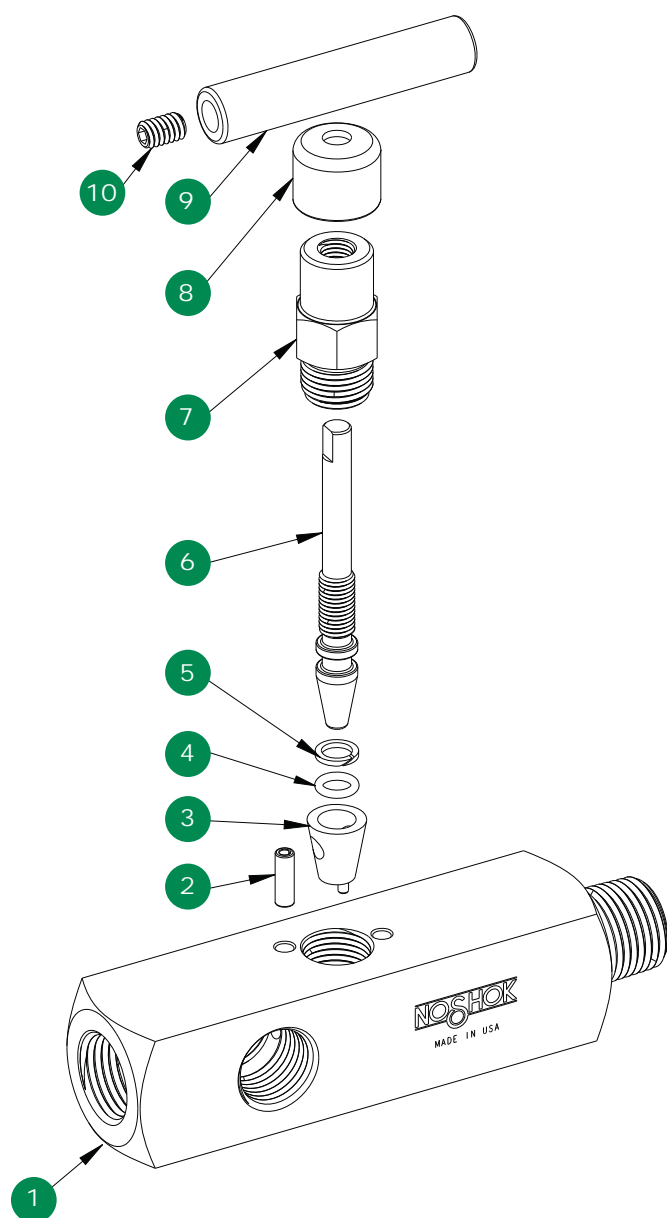


Side View



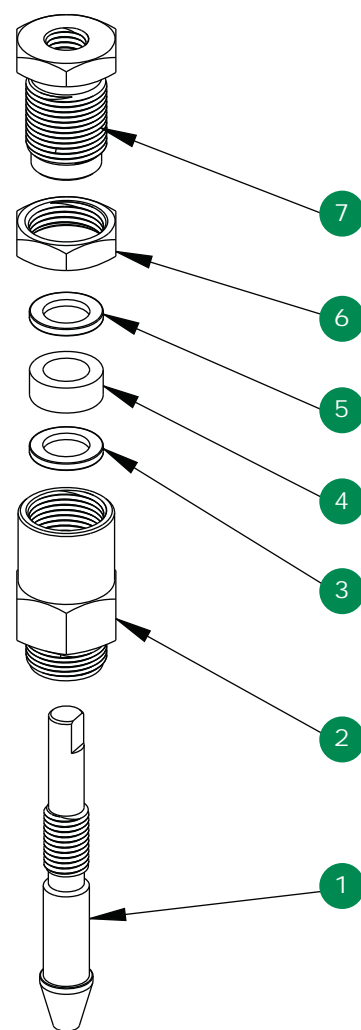
For panel mount, packing,
& stem tip dimensions,
see pgs. 64-67.

Multiport, Soft Seat



- 1 Valve body
- 2 Slotted spring pin
- 3 Delrin® seat
- 4 FKM o-ring
- 5 PTFE back-up ring
- 6 Valve stem
- 7 Valve bonnet
- 8 Dust cap
- 9 Valve "T" handle
- 10 Set screw

Option With Packing



- 1 Valve packing stem
- 2 Valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

400 SERIES



- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 10,000 psi pressure rating @ 200 °F
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional (certain NPT sizes only)
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust cap for bonnet and stem (non-packing)

SPECIFICATIONS	
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connections	1/4", 3/8", 1/2", 3/4", 1", 1-1/4" & 1-1/2" NPT 7/16"-20 UNF (#4 SAE, J1926) Male-female, Female-female, in-line and angled configurations
Pressure rating	10,000 psi @ 200 °F
Orifice sizes	1/4" - 1/2" NPT: 0.187" 3/4" - 1-1/2" NPT: 0.438"
Flow coefficient	1/4" - 1/2" NPT: C_v 0.44 3/4" - 1-1/2" NPT: C_v 2.70
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional for 1/4", 3/8" & 1/2" NPT only
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION				
SERIES	4	400 Series, hard seat		
CONNECTION SIZES	02	1/4" NPT	06	3/4" NPT
	03	3/8" NPT	08	1" NPT
	04	1/2" NPT	10	1-1/4" NPT
VALVE TYPES	12	1-1/2" NPT	42	7/16"-20 UNF (#4 SAE, J1926)
	MFC	Male-Female, Steel	MFS	Male-Female, Stainless Steel
	FFC	Female-Female, Steel	FFS	Female-Female, Stainless Steel
	MFAC	Male-Female Angle, Steel	MFAS	Male-Female Angle, Stainless Steel
	FFAC	Female-Female Angle, Steel	FFAS	Female-Female Angle, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

404 - FFC

Series..... 400 hard seat
 Connection size..... 1/2" NPT
 Valve type..... Female-female, steel

To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 404-FFC-PM2)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

NOTE 3: Packing options are NOT available on 3/4" NPT through 1-1/2" NPT valves.

ORDERING INFORMATION - Additional Options				
PACKINGS†	P1	PTFE	P2	Grafoil®
STEM TIPS	T1	Non-rotating (316 stainless)	T6	Ball (carbide)
	T5	Ball (440C stainless)	T7	Ball (ceramic)
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)
PANEL MOUNTINGS	NB1	NBR	PM1	Panel mount (1 nut)
	PM2	Panel mount (2 nuts)	HL4	1-3/8" Phenolic
HANDLES	HL5	1-3/4" Phenolic	HL9	2-3/8" Phenolic**

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

† For 1/4", 3/8" and 1/2" NPT only.

* Other o-ring materials available on request.

** For 3/4" NPT to 1-1/2" NPT only.

The standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 404-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

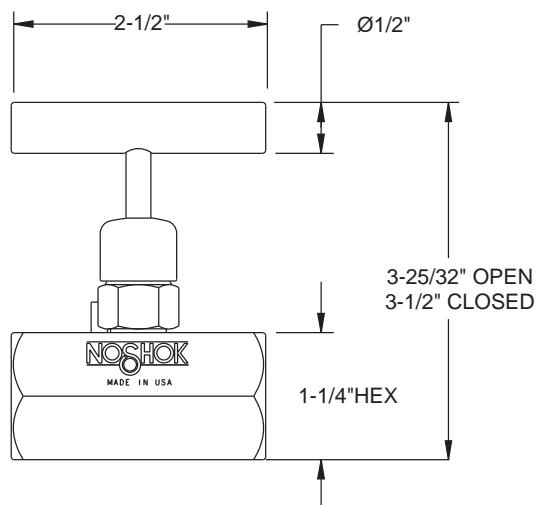
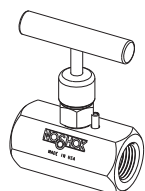
EXAMPLE with Additional Options

404 - FFC - P1 - T1 - PM2 - HL5

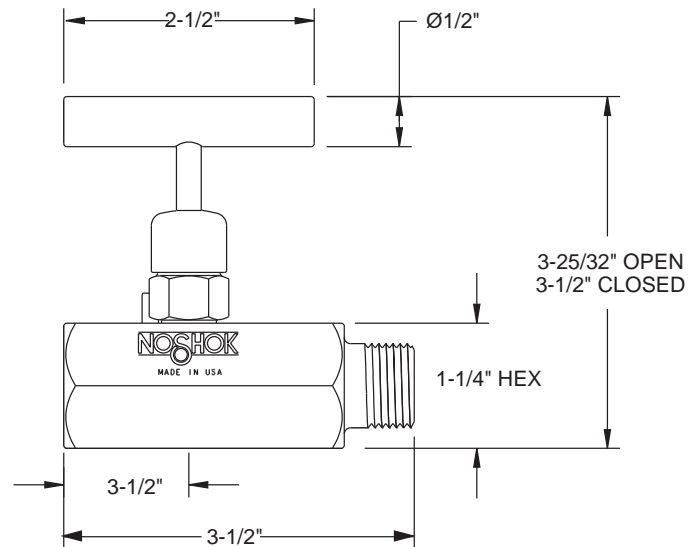
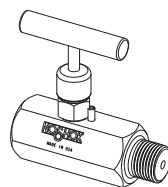
Series..... 400 hard seat
 Connection size..... 1/2" NPT
 Valve type..... Female-female, steel
 Packing..... PTFE
 Stem tip Non-rotating
 Panel mount Panel mount (2 nuts)
 Handle 1-3/4" Phenolic

Dimensions

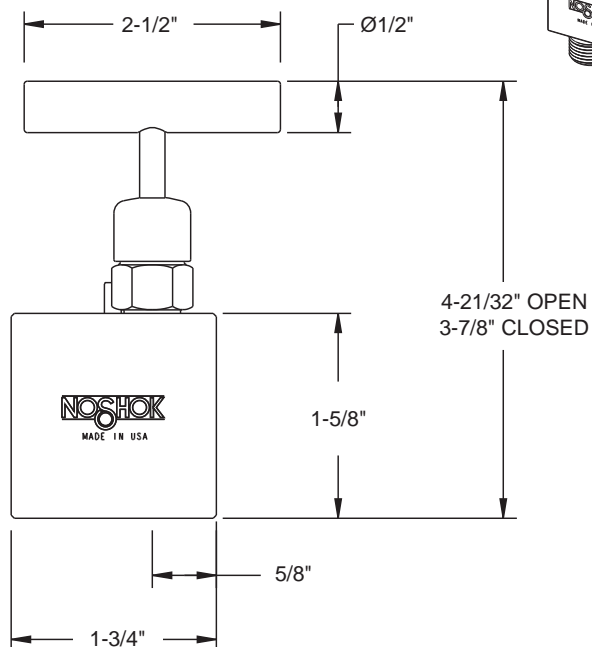
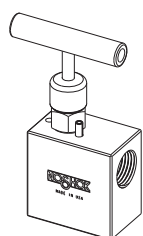
1/4" -1/2" Female-Female



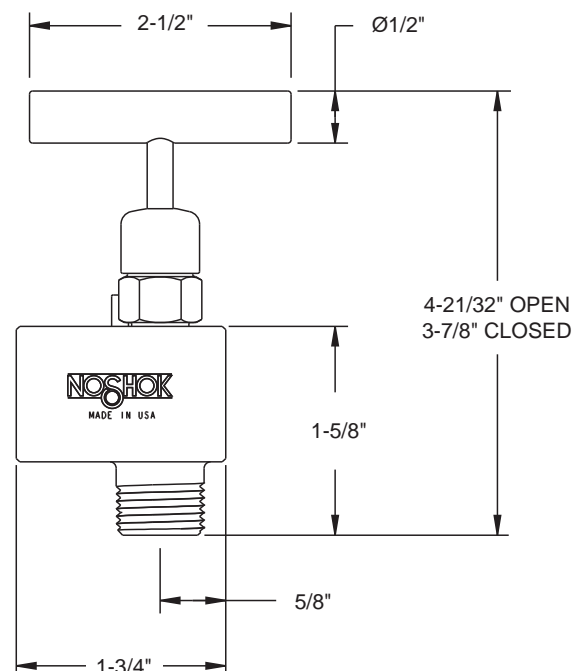
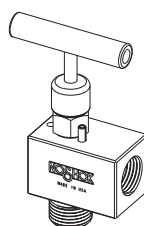
1/4" -1/2" Male-Female



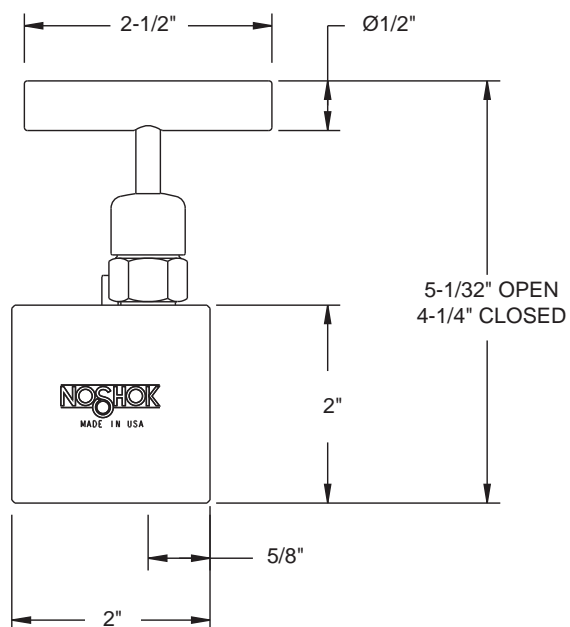
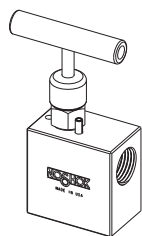
1/4" Female-Female Angle



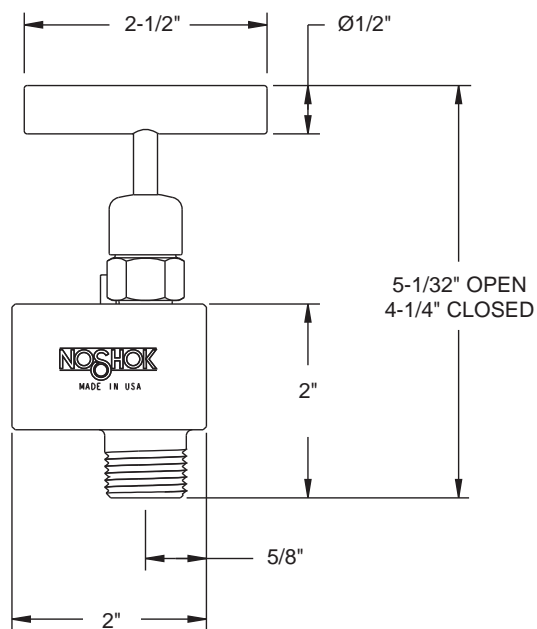
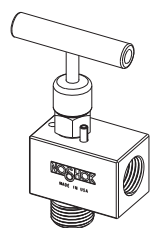
1/4" Male-Female Angle



1/2" Female-Female Angle

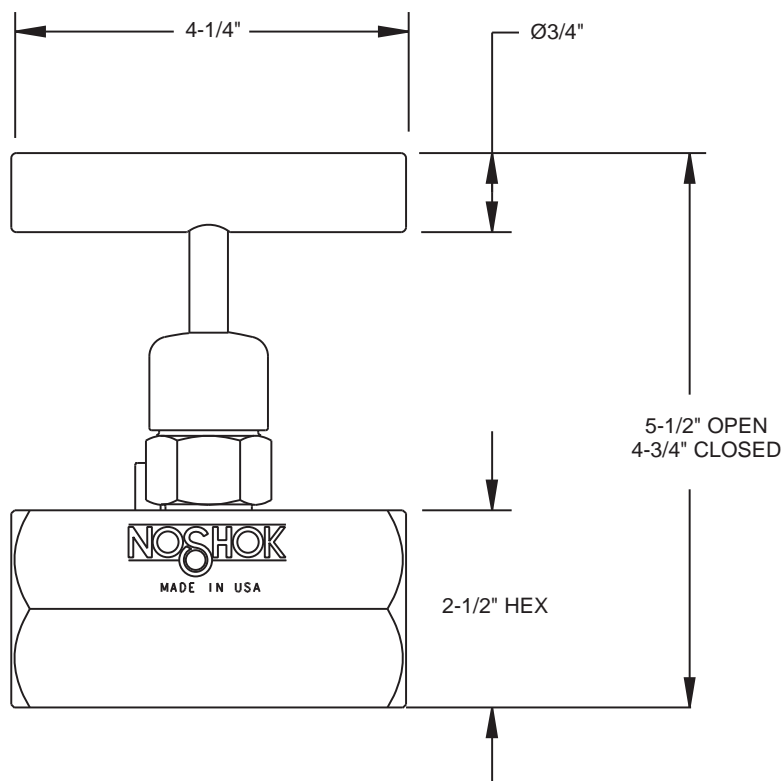
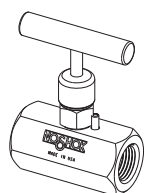


1/2" Male-Female Angle

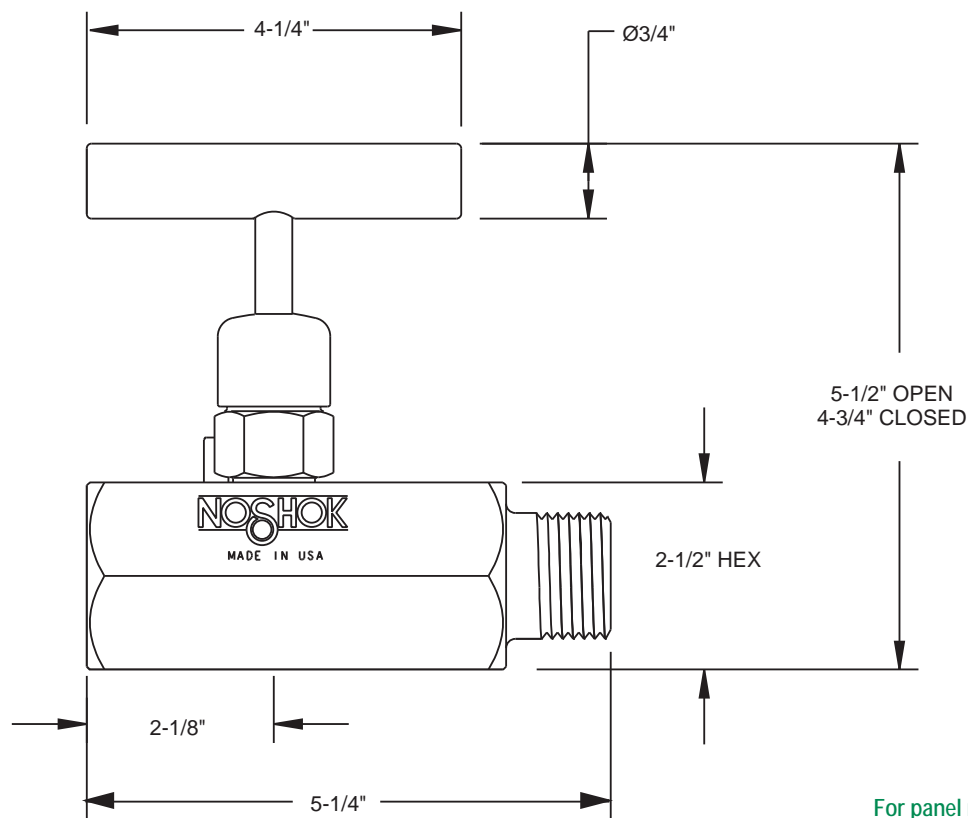
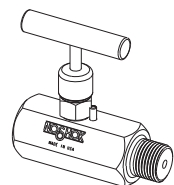


Dimensions

3/4" - 1-1/2" Female-Female

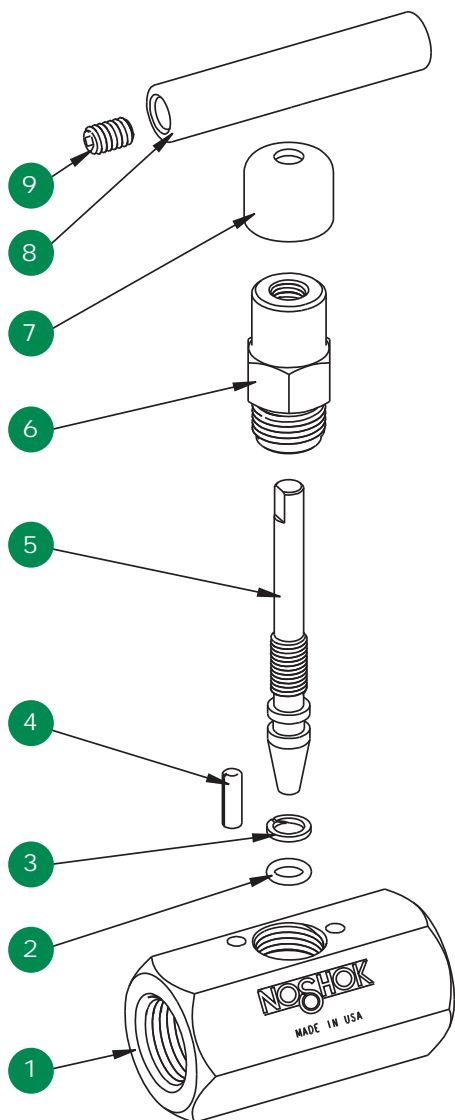


3/4" - 1-1/2" Male-Female



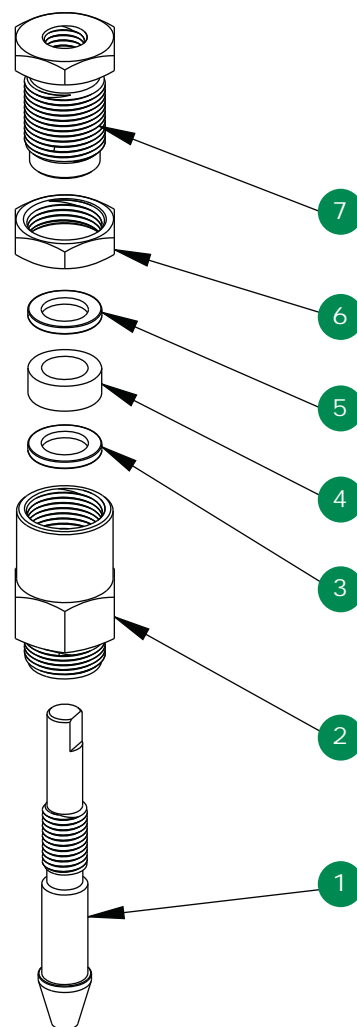
For panel mount, packing,
& stem tip dimensions,
see pgs. 64-67.

Standard, Hard Seat



- 1 Valve body
- 2 FKM o-ring
- 3 PTFE back-up ring
- 4 Slotted spring pin
- 5 Valve stem
- 6 Valve bonnet
- 7 Dust cap
- 8 Valve "T" handle
- 9 Set screw

Option With Packing



- 1 Valve packing stem
- 2 Valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

500 SERIES



- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 6,000 psi pressure rating @ 200 °F
- Replaceable Delrin® seat and straight through porting for bidirectional, high capacity flow and easy roddable cleaning
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE packing optional (certain NPT sizes only)
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust cap for bonnet and stem (non-packing)

SPECIFICATIONS

Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connections	1/4", 3/8", 1/2", 3/4", 1", 1-1/4" & 1-1/2" NPT Male-female & Female-female configurations
Pressure rating	6,000 psi @ 200 °F
Orifice sizes	1/4" - 1/2" NPT: 0.187" 3/4" - 1-1/2" NPT: 0.438"
Flow coefficient	1/4" - 1/2" NPT: C_v 0.76 3/4" - 1-1/2" NPT: C_v 4.0
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE packing optional for 1/4", 3/8" & 1/2" NPT only
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION				
SERIES	5 500 Series, soft seat			
CONNECTION SIZES	02 1/4" NPT 03 3/8" NPT	04 1/2" NPT 06 3/4" NPT	08 1" NPT 10 1-1/4" NPT	12 1-1/2" NPT 0402 1/2" NPT male - 1/4" NPT female
VALVE TYPES	MFC Male-Female, Steel FFC Female-Female, Steel	MFS Male-Female, Stainless Steel FFS Female-Female, Stainless Steel		

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

504 - FFC

Series.....500 soft seat
 Connection size1/2" NPT
 Valve type.....Female-female, steel

To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 504-FFC-HL5)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options				
SOFT SEATS	PK1	PEEK	KF1	PCTFE
PACKINGS [†]	P1	PTFE		
STEM TIPS	T1	Non-rotating (316 stainless)		
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent) NB1 NBR
PANEL MOUNTINGS	PM1	Panel mount (1 nut)	PM2	Panel mount (2 nuts)
HANDLES	HL4	1-3/8" Phenolic	HL5	1-3/4" Phenolic HL9 2-3/8" Phenolic**

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

† For 1/4", 3/8" and 1/2" NPT only.

* Other o-ring materials available on request.

** For 3/4" NPT to 1-1/2" NPT only.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 504-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

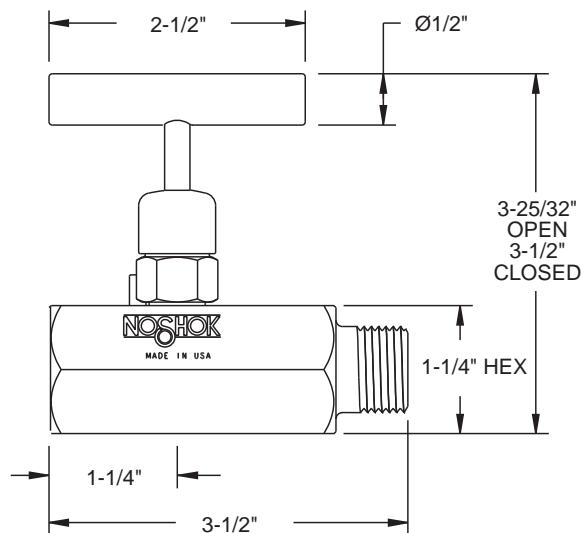
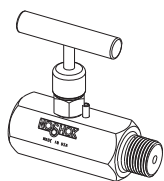
EXAMPLE with Additional Options

504 - FFC - PK1 - T1 - KZ1 - PM2 - HL5

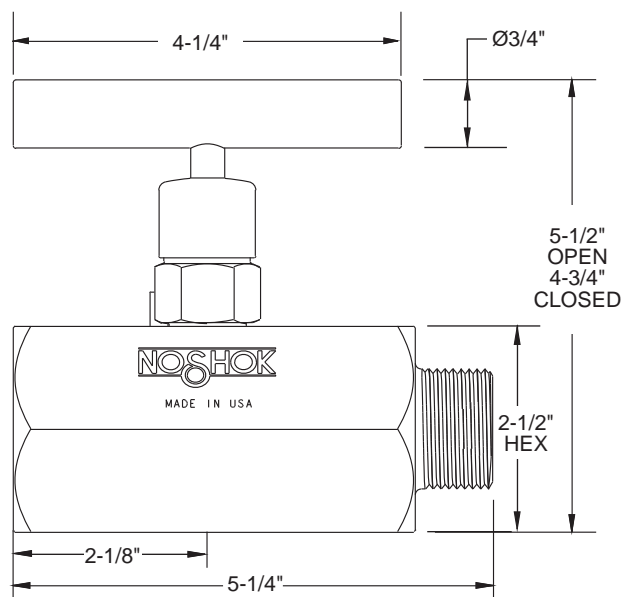
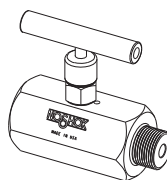
Series.....500 soft seat
 Connection size1/2" NPT
 Valve type.....Female-female, steel
 Soft seatPEEK
 Stem tip Non-rotating
 O-ring.....FFKM (Kalrez® 3018 or equivalent)
 Panel mount.....Panel mount (2 nuts)
 Handle 1-3/4" Phenolic

Dimensions

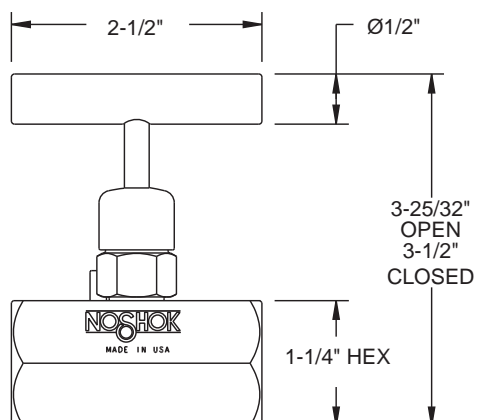
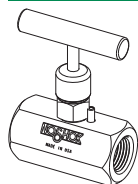
1/4" - 1/2" Male-Female



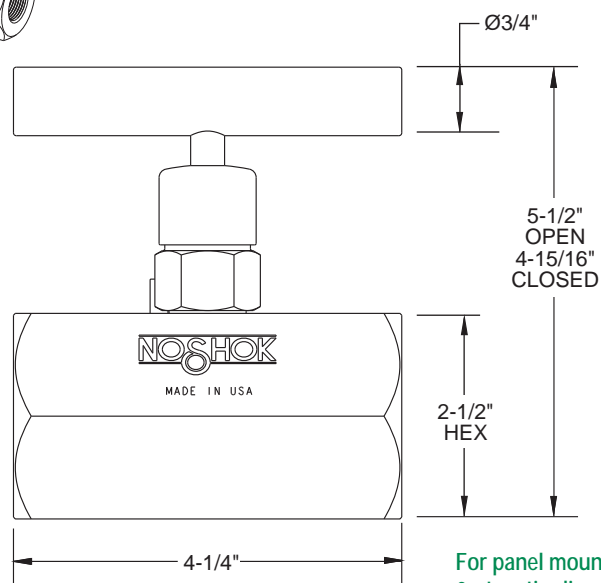
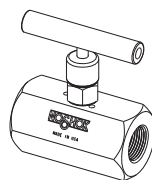
3/4" - 1-1/2" Male-Female



1/4" - 1/2" Female-Female

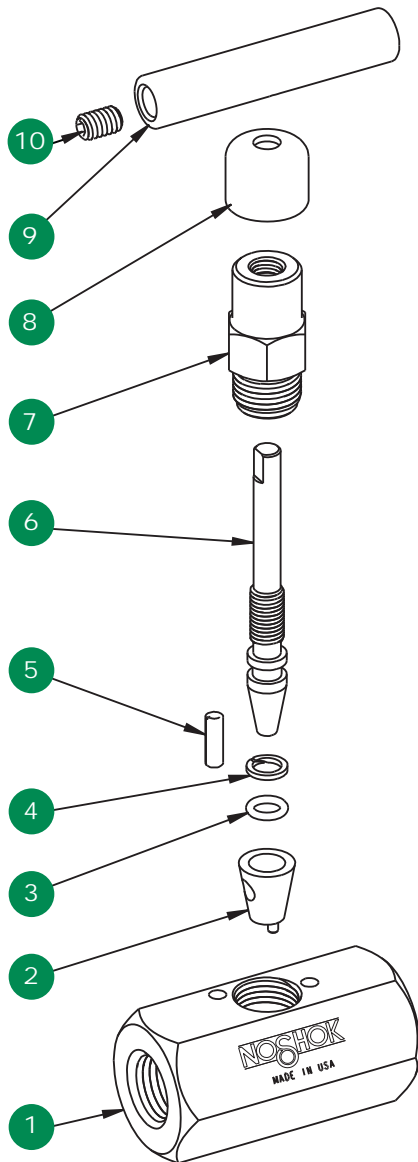


3/4" - 1-1/2" Female-Female



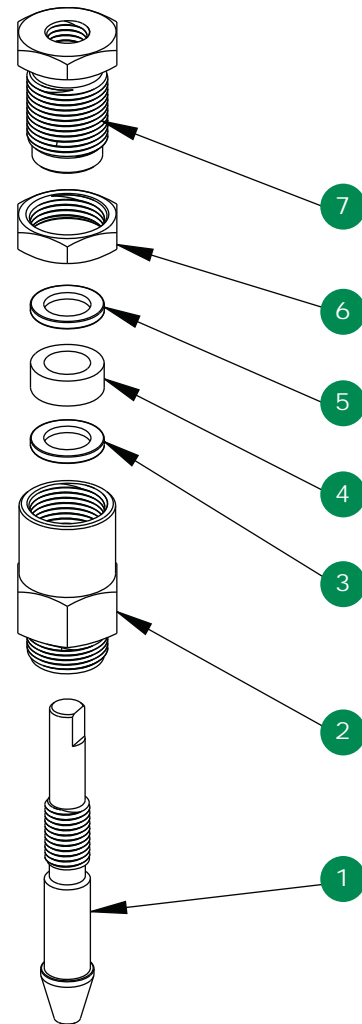
For panel mount, packing, & stem tip dimensions, see pgs. 64-67.

Standard, Soft Seat



- 1 Valve body
- 2 Delrin® seat
- 3 FKM o-ring
- 4 PTFE back-up ring
- 5 Slotted spring pin
- 6 Valve stem
- 7 Valve bonnet
- 8 Dust cap
- 9 Valve "T" handle
- 10 Set screw

Option With Packing



- 1 Valve packing stem
- 2 Valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

Block & Bleed, Hard Seat

600 SERIES



- Block & bleed design allows pressure to be bled off without disturbing the permanent piping installation, allowing quick and easy removal or replacement of instruments
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 10,000 psi pressure rating @ 200 °F
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust cap for bonnet and stem (non-packing)
- 0.090" bleed hole located on the bottom is controlled by a 1/4"-20 UNF-2A bleed screw

SPECIFICATIONS	
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connections	1/4" & 1/2" NPT Male-female & Female-female configurations
Pressure rating	10,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	C_v 0.44
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	6	600 Series, hard seat	
CONNECTION SIZES	02	1/4" NPT	04 1/2" NPT
VALVE TYPES	MFC	Male-Female, Steel	MFS Male-Female, Stainless Steel
	FFC	Female-Female, Steel	FFS Female-Female, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

602 - FFC

Series.....600 hard seat

Connection size.....1/4" NPT

Valve type.....Female-female, steel

To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 602-FFC-P2)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options			
PACKINGS	P1	PTFE	P2 Grafoil®
STEM TIPS	T1	Non-rotating (316 stainless)	T6 Ball (carbide)
	T5	Ball (440C stainless)	T7 Ball (ceramic)
O-RINGS*	EM1	EPDM	KZ1 FFKM (Kalrez® 3018 or equivalent)
			NB1 NBR
PANEL MOUNTINGS	PM1	Panel mount (1 nut)	PM2 Panel mount (2 nuts)
HANDLES	HL4	1-3/8" Phenolic	HL5 1-3/4" Phenolic

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 602-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

6 02 - FFC - P1 - T1 - PM2 - HL5

Series.....600 hard seat

Connection size.....1/4" NPT

Valve type.....Female-female, steel

Packing.....PTFE

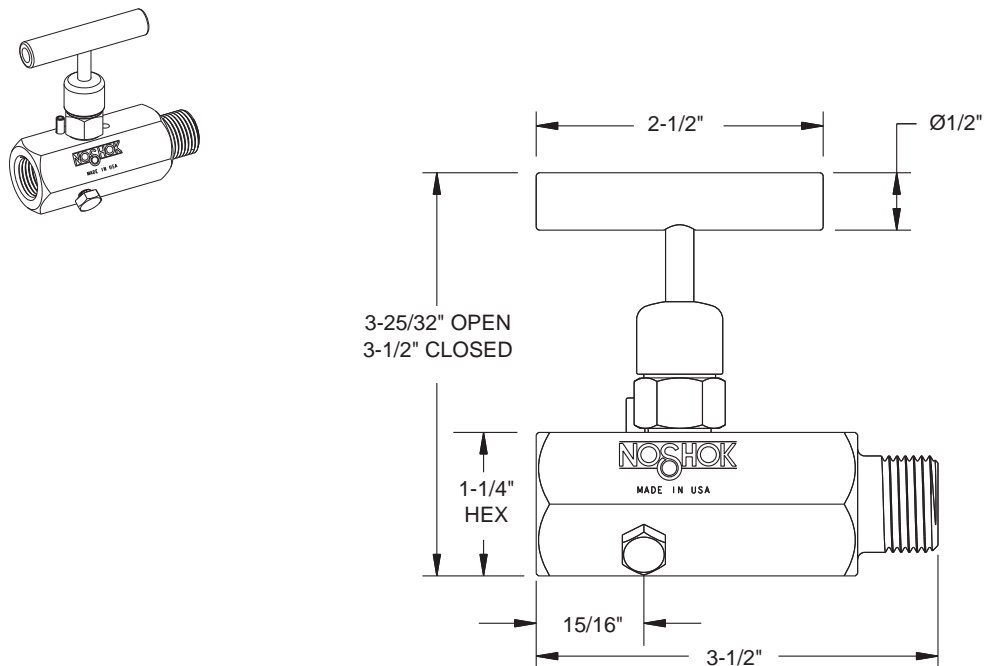
Stem tip.....Non-rotating

Panel mount.....Panel mount (2 nuts)

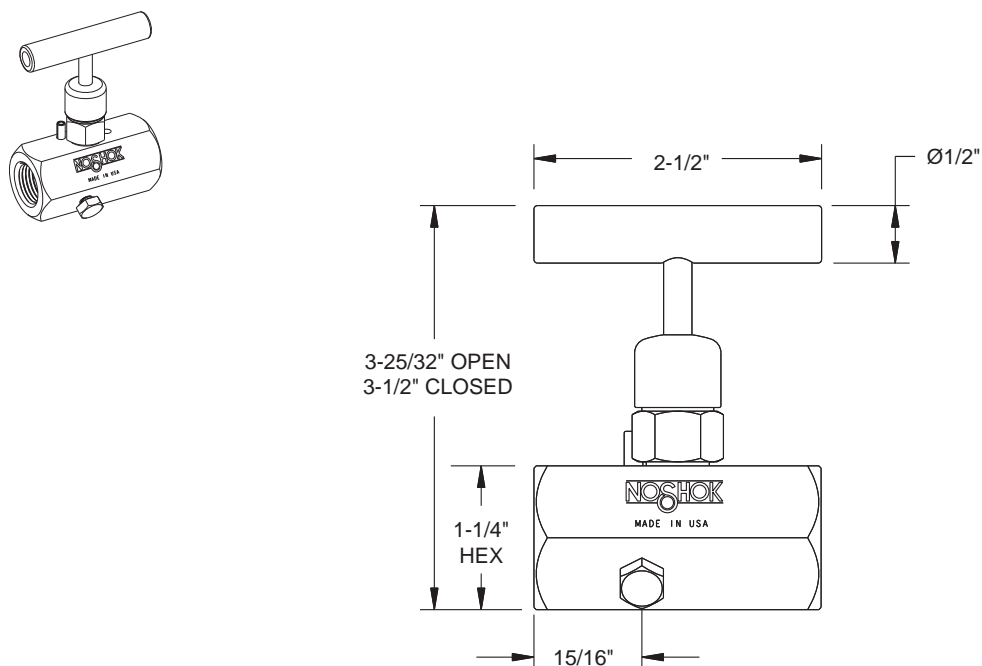
Handle.....1-3/4" Phenolic

Dimensions

Male-Female

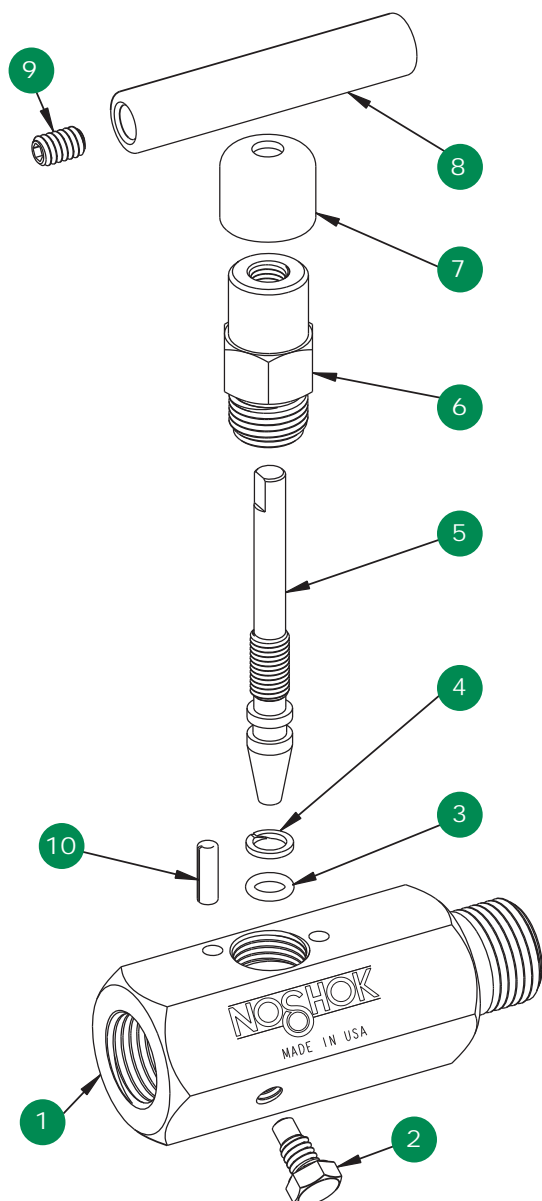


Female-Female



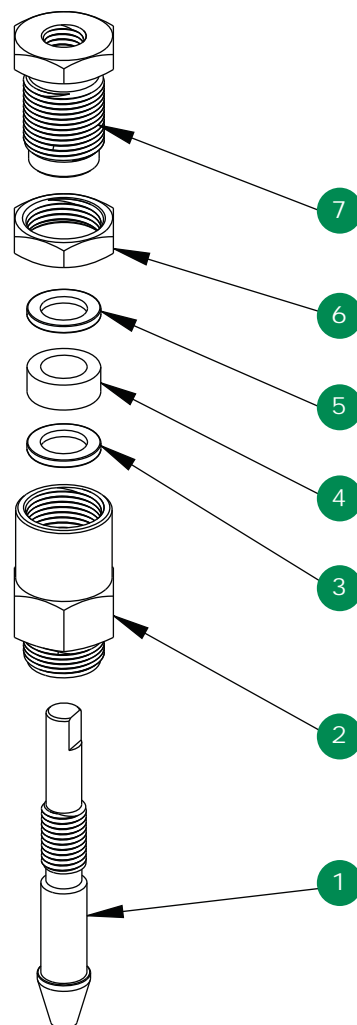
For panel mount, packing,
& stem tip dimensions,
see pgs. 64-67.

Block & Bleed, Hard Seat



- 1 Valve body
- 2 Bleed screw
- 3 FKM o-ring
- 4 PTFE back-up ring
- 5 Valve stem
- 6 Valve bonnet
- 7 Dust cap
- 8 Valve "T" handle
- 9 Set screw
- 10 Slotted spring pin

Option With Packing



- 1 Valve packing stem
- 2 Valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

Block & Bleed, Soft Seat

700 SERIES



- Block & bleed design allows pressure to be bled off without disturbing the permanent piping installation, allowing quick and easy removal or replacement of instruments
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 6,000 psi pressure rating @ 200 °F
- Replaceable Delrin® seat and straight through porting for bidirectional, high capacity flow and easy roddable cleaning
- PCTFE or PEEK soft seat optional
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust cap for bonnet and stem (non-packing)
- 0.090" bleed hole located on the bottom is controlled by a 1/4"-20 UNF-2A bleed screw

SPECIFICATIONS	
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connections	1/4" & 1/2" NPT Male-female & Female-female configurations
Pressure rating	6,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	C_v 0.76
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	7	700 Series, soft seat	
CONNECTION SIZES	02	1/4" NPT	04 1/2" NPT
VALVE TYPES	MFC	Male-Female, Steel	MFS Male-Female, Stainless Steel
	FFC	Female-Female, Steel	FFS Female-Female, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

702 - FFC

Series.....700 soft seat

Connection size.....1/4" NPT

Valve type.....Female-female, steel

To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 702-FFC-HL5)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options			
SOFT SEATS	PK1	PEEK	KF1 PCTFE
PACKINGS	P1	PTFE	
STEM TIPS	T1	Non-rotating (316 stainless)	
O-RINGS*	EM1	EPDM	KZ1 FFKM (Kalrez® 3018 or equivalent) NB1 NBR
PANEL MOUNTINGS	PM1	Panel mount (1 nut)	PM2 Panel mount (2 nuts)
HANDLES	HL4	1-3/8" Phenolic	HL5 1-3/4" Phenolic

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 702-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

7 02 - FFC - PK1 - T1 - EM1 - PM2 - HL5

Series.....700 soft seat

Connection size.....1/4" NPT

Valve type.....Female-female, steel

Soft seat.....PEEK

Stem tip.....Non-rotating

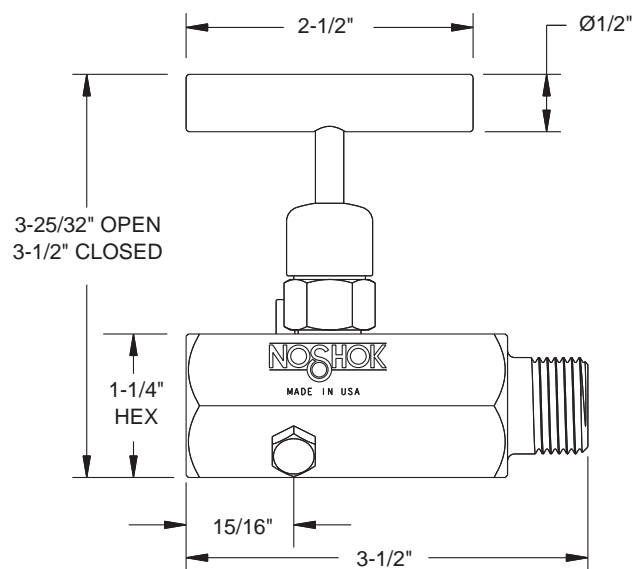
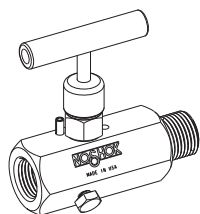
O-ring.....EPDM

Panel mount.....Panel mount (2 nuts)

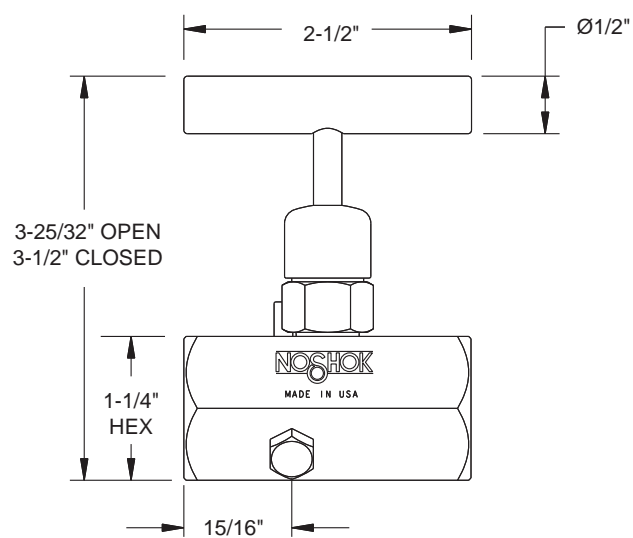
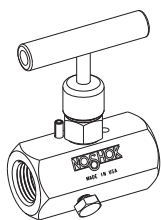
Handle.....1-3/4" Phenolic

Dimensions

Male-Female

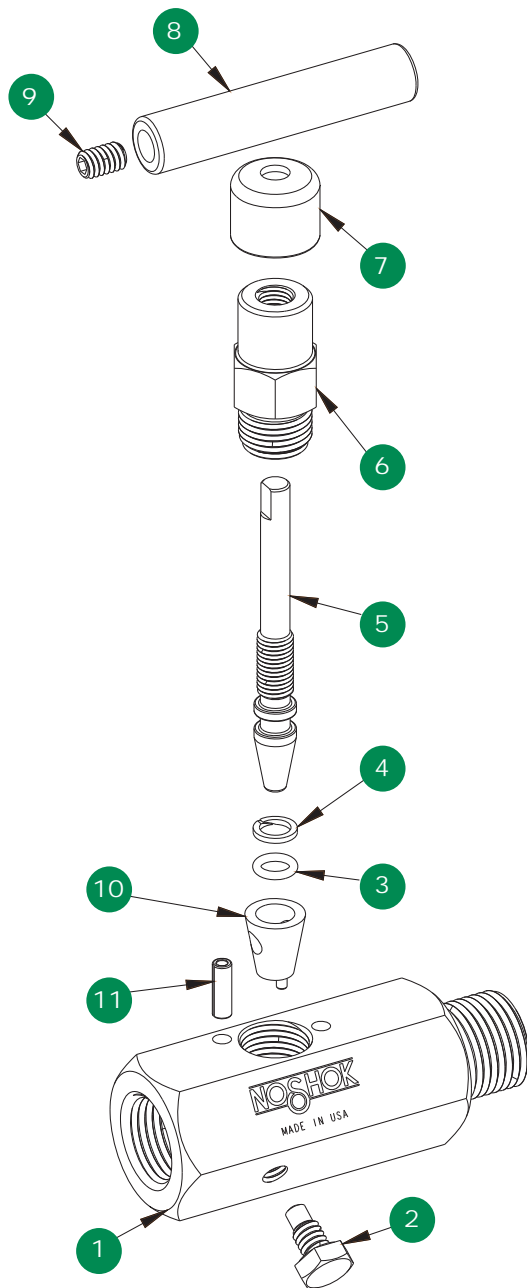


Female-Female



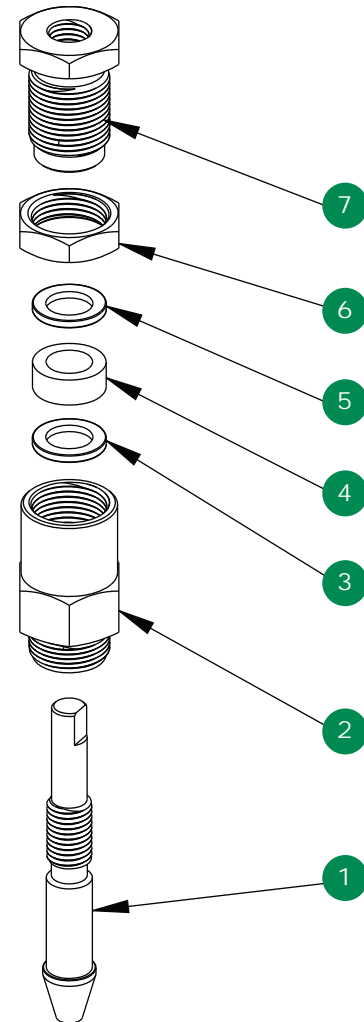
For panel mount, packing,
& stem tip dimensions,
see pgs. 64-67.

Block & Bleed, Soft Seat



- 1 Valve body
- 2 Bleed screw
- 3 FKM o-ring
- 4 PTFE back-up ring
- 5 Valve stem
- 6 Valve bonnet
- 7 Dust cap
- 8 Valve "T" handle
- 9 Set screw
- 10 Delrin® seat
- 11 Slotted spring pin

Option With Packing



- 1 Valve packing stem
- 2 Valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

Bleed, Hard Seat & Soft Tip

800/850 SERIES



- Bleed valves provide a convenient means to relieve process pressures trapped between a shut off valve and the instrument
- Uses the same bonnet assemblies of the 100/150 Series mini valves with an integrated single threaded body for insertion in vent port
- Soft tip valves feature a patented Delrin® non-rotating soft tip stem, and a back-up metal-to-metal seal (**U.S. Patent 6,820,857**)
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 10,000 psi hard seat pressure rating @ 200 °F
- Available in zinc-nickel plated steel, electropolished stainless steel, and brass
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® (800 Series only) packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- 0.159" bleed port
- Patented body-to-bonnet, metal-to-metal seal is designed to significantly increase the pressure range of the valve (**U.S. Patent 7,758,014**)

SPECIFICATIONS	
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel, 360 brass
Connections	1/4" & 1/2" NPT
Hard seat pressure ratings	Brass: 6,000 psi @ 200 °F Steel: 10,000 psi @ 200 °F Stainless steel: 10,000 psi @ 200 °F
Soft tip pressure ratings	Brass: 3,000 psi @ 200 °F Steel: 6,000 psi @ 200 °F Stainless steel: 6,000 psi @ 200 °F
Bleed port	0.159"
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® (800 Series only) packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION				
SERIES	8 800/850 Series, hard seat/soft tip			
CONNECTION SIZES	02	Hard seat 1/4" NPT	52	Delrin® soft tip 1/4" NPT
	04	Hard seat 1/2" NPT	54	Delrin® soft tip 1/2" NPT
VALVE TYPES	MC	Male, Steel	MS	Male, Stainless Steel
			MB	Male, Brass

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

8 02 - MC

Series.....800/850 hard seat/soft tip
 Connection size..... Hard seat 1/4" NPT
 Valve type..... Male, steel

To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 802-MC-EM1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options				
PACKINGS	P1	PTFE	P2	Grafoil®***
STEM TIPS	T1	Non-rotating (316 stainless)	T4	PEEK***
	T2	Delrin® (Acetal)***	T5	Ball (440C stainless)**
	T3	PTCFE***	T6	Ball (carbide)**
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)
			NB1	NBR
HANDLES	HL2	2-1/2" "T"***	HL4	1-3/8" Phenolic**
	HL3	1" Round knurled	HL5	1-3/4" Phenolic**

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

** For 800 Series only.

*** For 850 Series only.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are 1" round knurled handles (HL3) on brass, and 1-3/8" mini "T" handles (HL7) on stainless steel and steel.

The handle material will always match the material of the valve, unless otherwise specified. For example, the mini "T" handle (HL7) on the 802-MC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

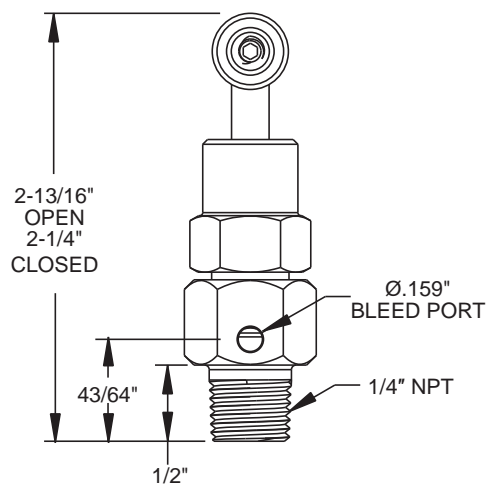
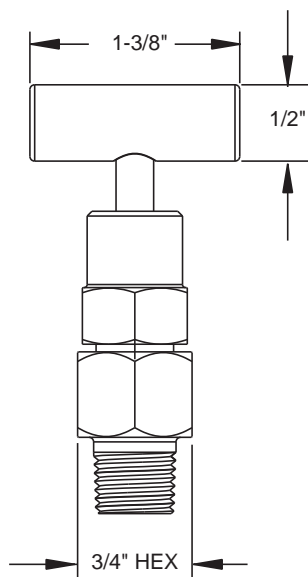
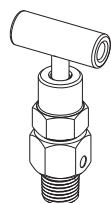
EXAMPLE with Additional Options

8 02 - MC - P1 - T1 - HL5

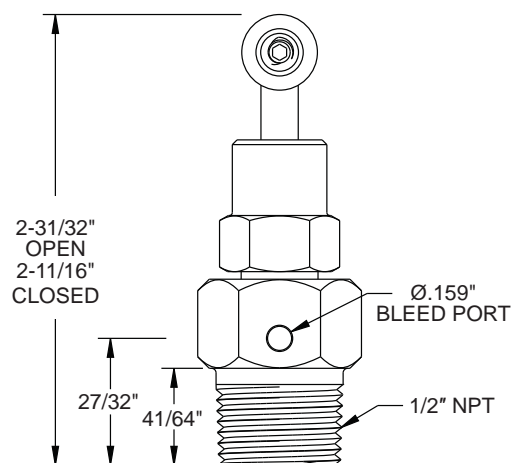
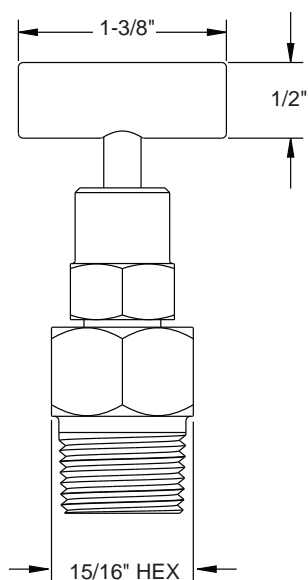
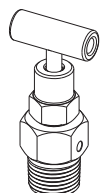
Series.....800/850 hard seat/soft tip
 Connection size..... Hard seat 1/4" NPT
 Valve type..... Male, steel
 Packing..... PTFE
 Stem tip Non-rotating
 Handle 1-3/4" Phenolic

Dimensions

1/4" Bleed Valve

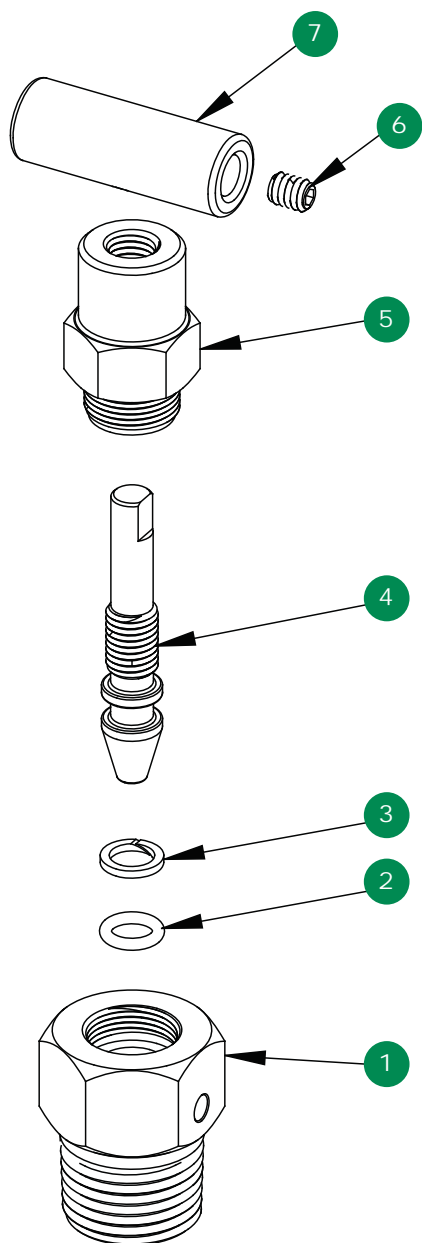


1/2" Bleed Valve



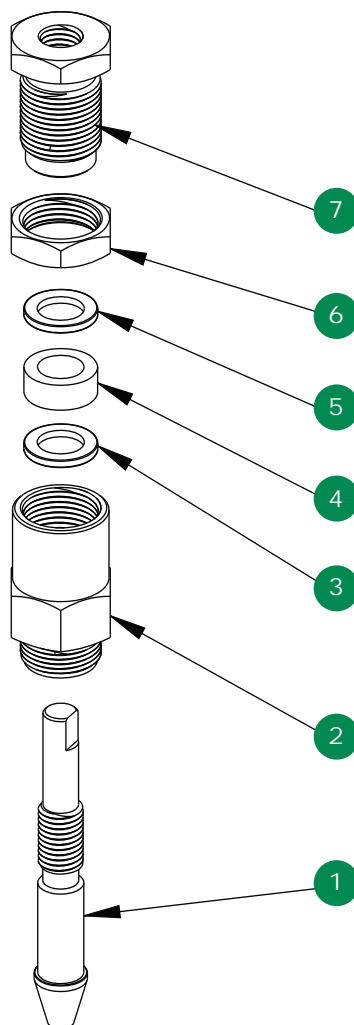
For panel mount, packing,
& stem tip dimensions,
see pgs. 64-67.

Bleed, Hard Seat



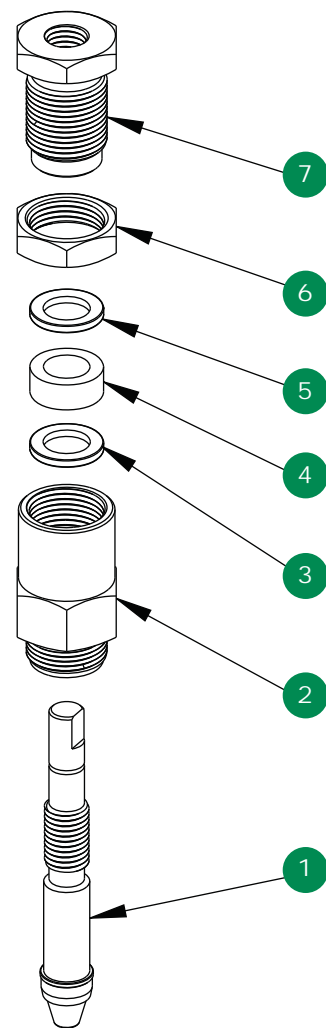
- 1 Valve body
- 2 FKM o-ring
- 3 PTFE back-up ring
- 4 Mini valve stem
- 5 Mini valve bonnet
- 6 Set screw
- 7 Mini "T" handle

Option With Packing, Hard Seat



- 1 Mini valve packing stem
- 2 Mini valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

Option With Packing, Soft Tip



- 1 Soft tip packing stem
- 2 Mini valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

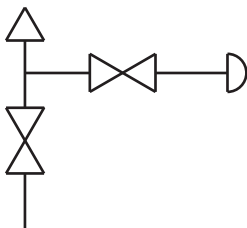
Block & Bleed, Hard Seat

2070 SERIES



- Combines isolating and venting in a single valve, eliminating the need for tubing and fittings
- Block valve isolates the downstream process fluids, and the bleed valve exhausts upstream fluids enabling instruments to be removed without disturbing the permanent piping installation
- The 1/4" NPT vent plug is located 90° to the left and may be removed and replaced with exhaust piping to direct the fluids to a safe location
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 10,000 psi hard seat pressure rating @ 200 °F
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust cap for bonnet and stem (non-packing)

Flow Schematic



SPECIFICATIONS

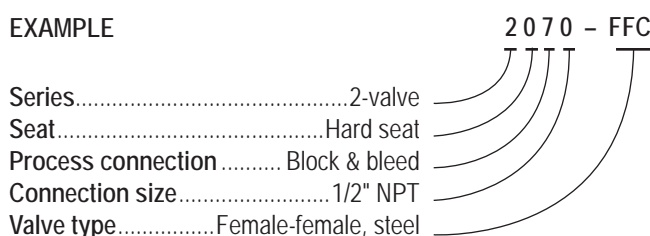
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connection	1/2" & 1/4" NPT Male-female & Female-female configurations available, right venting optional
Pressure rating	10,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	C _v 0.44
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Length	4" standard and 5-3/8" extended length available
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	2	2-valve	
SEAT	0	Hard seat	
PROCESS CONNECTION	7	Block & bleed	
CONNECTION SIZES	0	1/2" NPT	2 1/4" NPT
VALVE TYPES	MFC	Male-Female, Steel	FMC Female-Male, Steel
	MFCR	Male-Female, Steel, Right Vent	EFMC Extended Female-Male, Steel
	EMFC	Extended Male-Female, Steel	FMS Female-Male, Stainless Steel
	MFS	Male-Female, Stainless Steel	EFMS Extended Female-Male, Stainless Steel
	MFSR	Male-Female, Stainless Steel, Right Vent	FFC Female-Female, Steel
	EMFS	Extended Male-Female, Stainless Steel	FFCR Female-Female, Steel, Right Vent
			EFFC Extended Female-Female, Steel
			FFS Female-Female, Stainless Steel
			FFSR Female-Female, Stainless Steel, Right Vent
			EFFS Extended Female-Female, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 2070-FFC-HL5)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options			
PACKINGS	P1 PTFE	P2 Grafoil®	
STEM TIPS	T1 Non-rotating (316 stainless) T5 Ball (440C stainless)	T6 Ball (carbide) T7 Ball (ceramic)	T8 Ball (Monel) T9 Regulating hard
O-RINGS*	EM1 EPDM	KZ1 FFKM (Kalrez® 3018 or equivalent)	NB1 NBR
HANDLES	HL1 1-13/16" Mini "T" HL2 2-1/2" "T"	HL3 1" Round knurled HL4 1-3/8" Phenolic	HL5 1-3/4" Phenolic

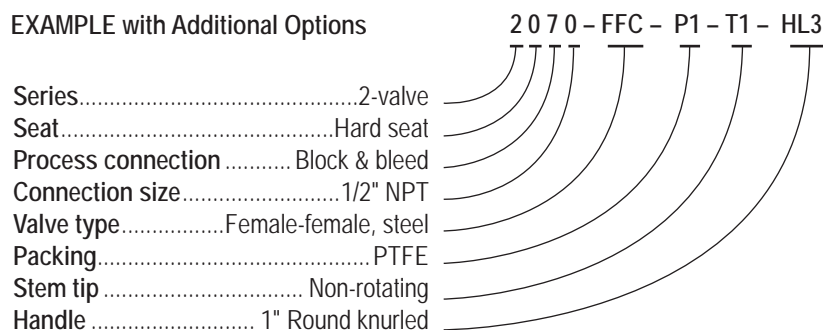
Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are block "T" handles (HL2) and bleed mini "T" handles (HL1).

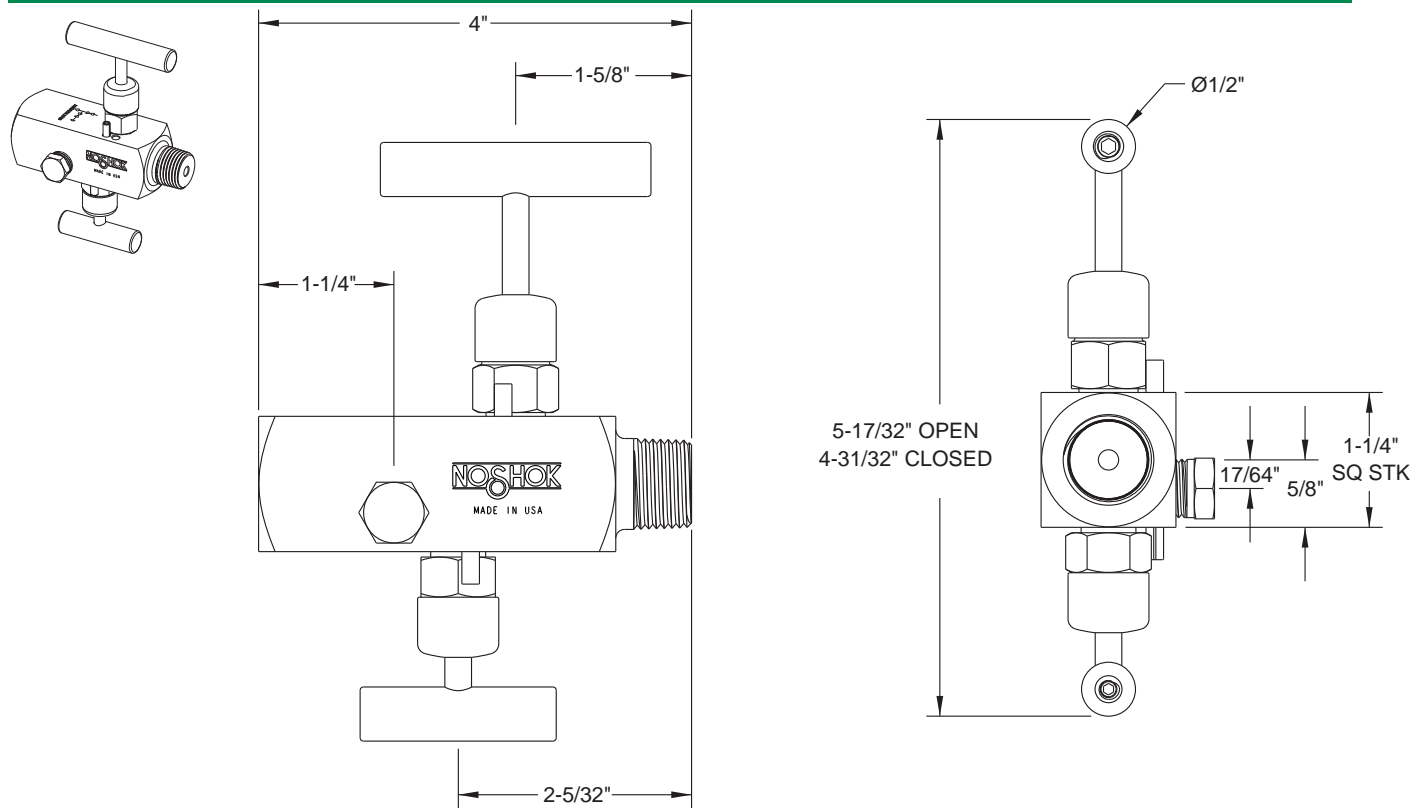
The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 2070-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

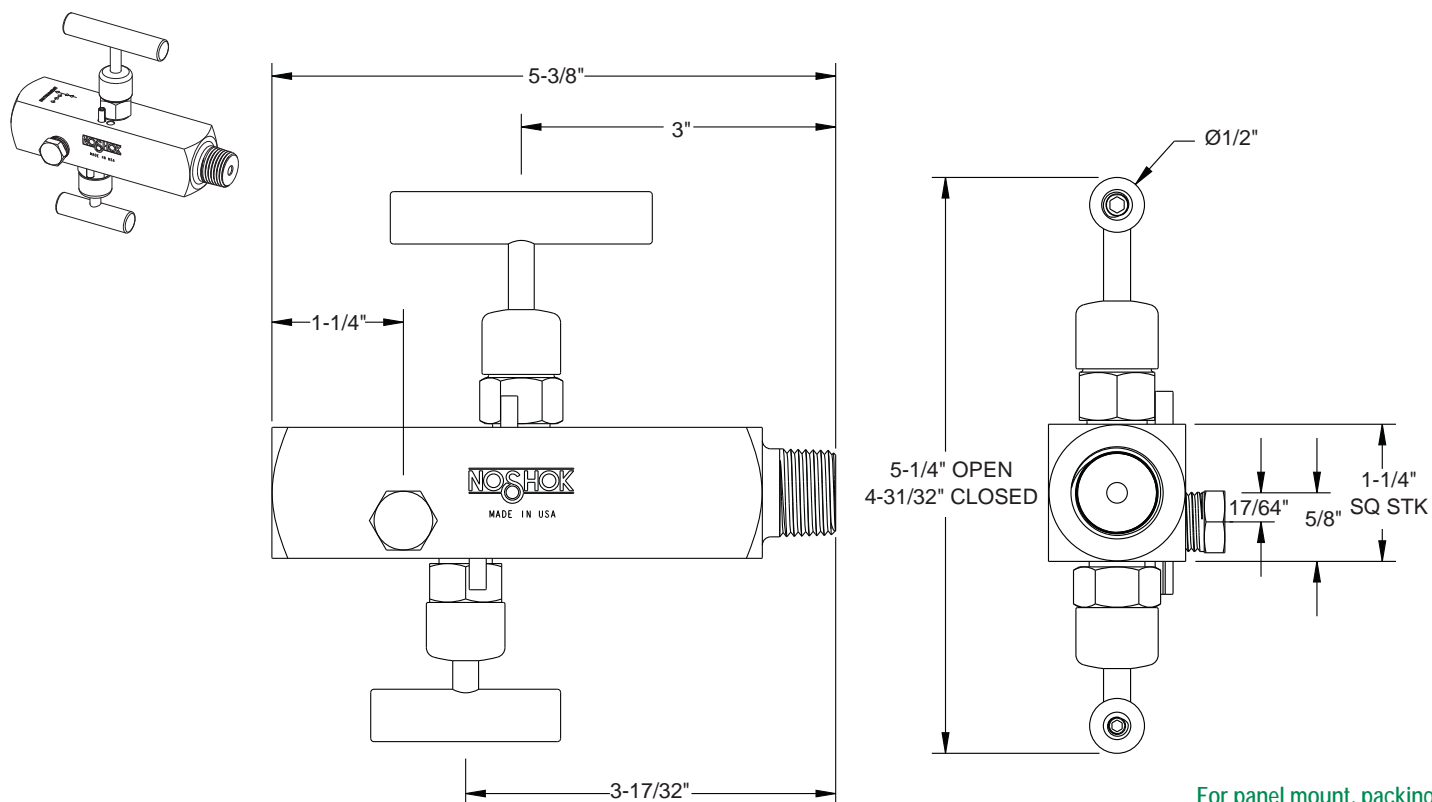


Dimensions

Male-Female

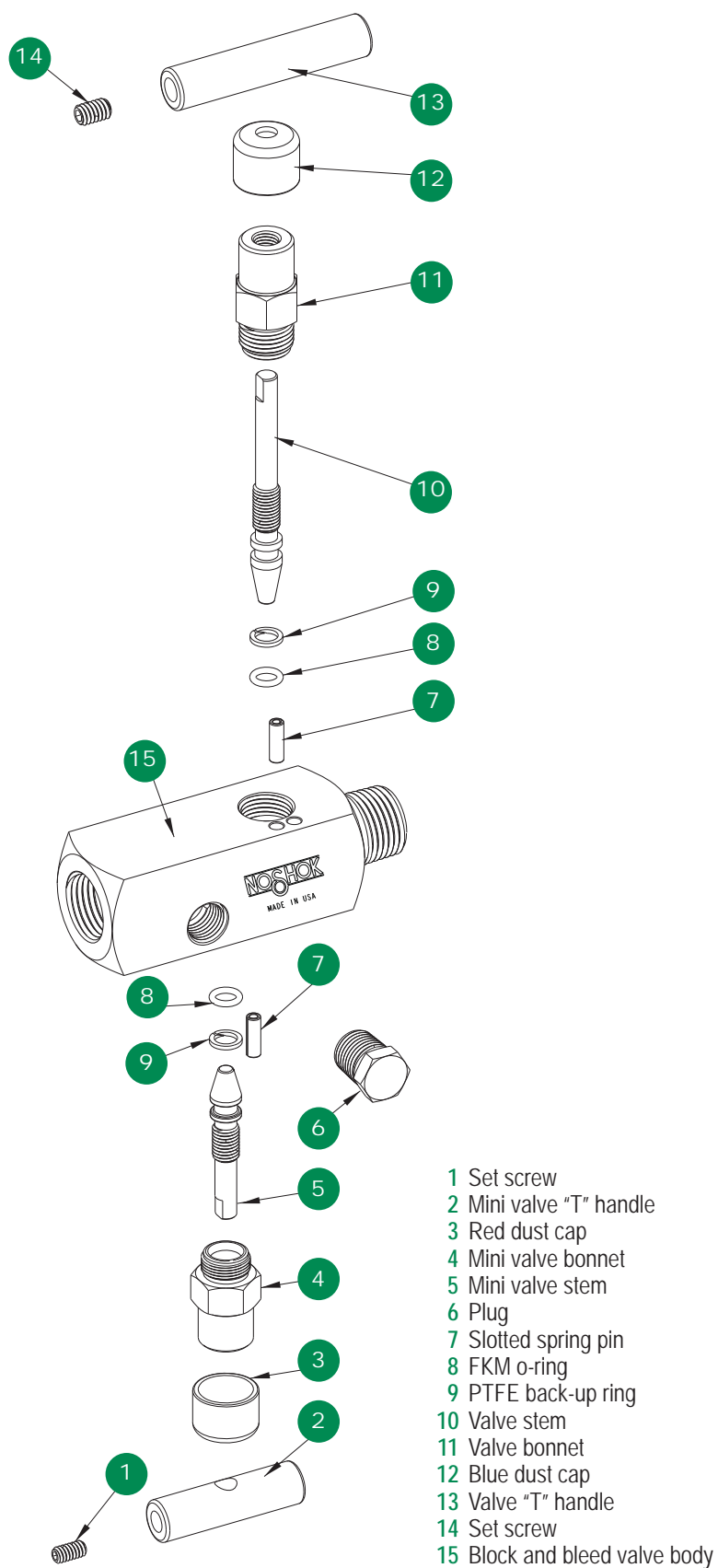


Extended Male-Female

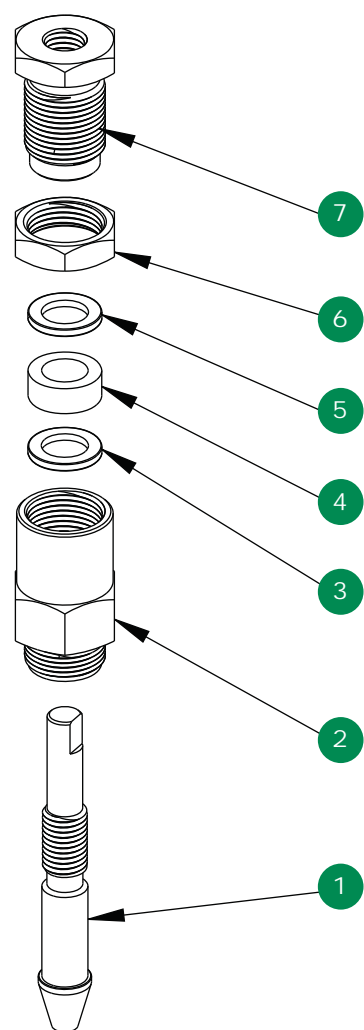


For panel mount, packing,
& stem tip dimensions,
see pgs. 64-67.

Block & Bleed, Hard Seat



Option With Packing



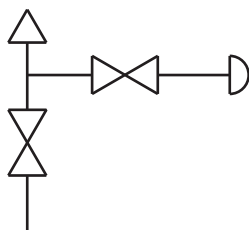
Block & Bleed, Soft Seat

2170 SERIES



- Combines isolating and venting in a single valve, eliminating the need for tubing and fittings
- Block valve isolates the downstream process fluids and the bleed valve exhausts upstream fluids enabling instruments to be removed without disturbing the permanent piping installation
- The 1/4" NPT vent plug is located 90° to the left and may be removed and replaced with exhaust piping to direct the fluids to a safe location
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 6,000 psi pressure rating @ 200 °F
- Replaceable Delrin® seat, and straight through porting for bidirectional, high capacity flow and easy roddable cleaning
- PCTFE or PEEK soft seat optional
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust cap for bonnet and stem (non-packing)

Flow Schematic



SPECIFICATIONS

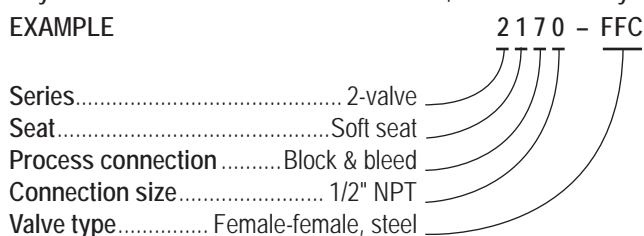
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connection	1/2" & 1/4" NPT Male-female & Female-female configurations available, right venting optional
Pressure rating	6,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	C _v 0.76
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE packing optional
Length	4" standard and 5-3/8" extended length available
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	2	2-valve	
SEAT	1	Soft seat	
PROCESS CONNECTION	7	Block & bleed	
CONNECTION SIZES	0	1/2" NPT	2 1/4" NPT
VALVE TYPES	MFC	Male-Female, Steel	FMC Female-Male, Steel
	MFCR	Male-Female, Steel, Right Vent	EFMC Extended Female-Male, Steel
	EMFC	Extended Male-Female, Steel	FMS Female-Male, Stainless Steel
	MFS	Male-Female, Stainless Steel	EFMS Extended Female-Male, Stainless Steel
	MFSR	Male-Female, Stainless Steel, Right Vent	FFC Female-Female, Steel
	EMFS	Extended Male-Female, Stainless Steel	FFCR Female-Female, Steel, Right Vent
			EFFC Extended Female-Female, Steel
			FFS Female-Female, Stainless Steel
			FFSR Female-Female, Stainless Steel, Right Vent
			EFFS Extended Female-Female, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 2170-FFC-PK1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options			
SOFT SEATS	PK1 PEEK	KF1 PCTFE	
PACKINGS	P1 PTFE		
STEM TIPS	T1 Non-rotating (316 stainless)		
O-RINGS*	EM1 EPDM	KZ1 FFKM (Kalrez® 3018 or equivalent)	NB1 NBR
HANDLES	HL1 1-13/16" Mini "T" HL2 2-1/2" "T"	HL3 1" Round knurled HL4 1-3/8" Phenolic	HL5 1-3/4" Phenolic

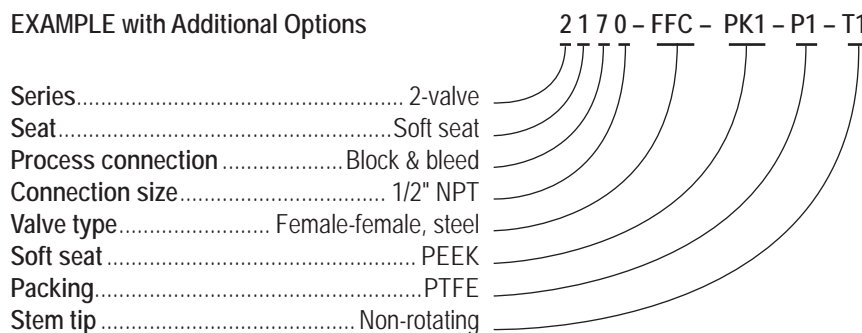
Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are block "T" handles (HL2) and bleed mini "T" handles (HL1).

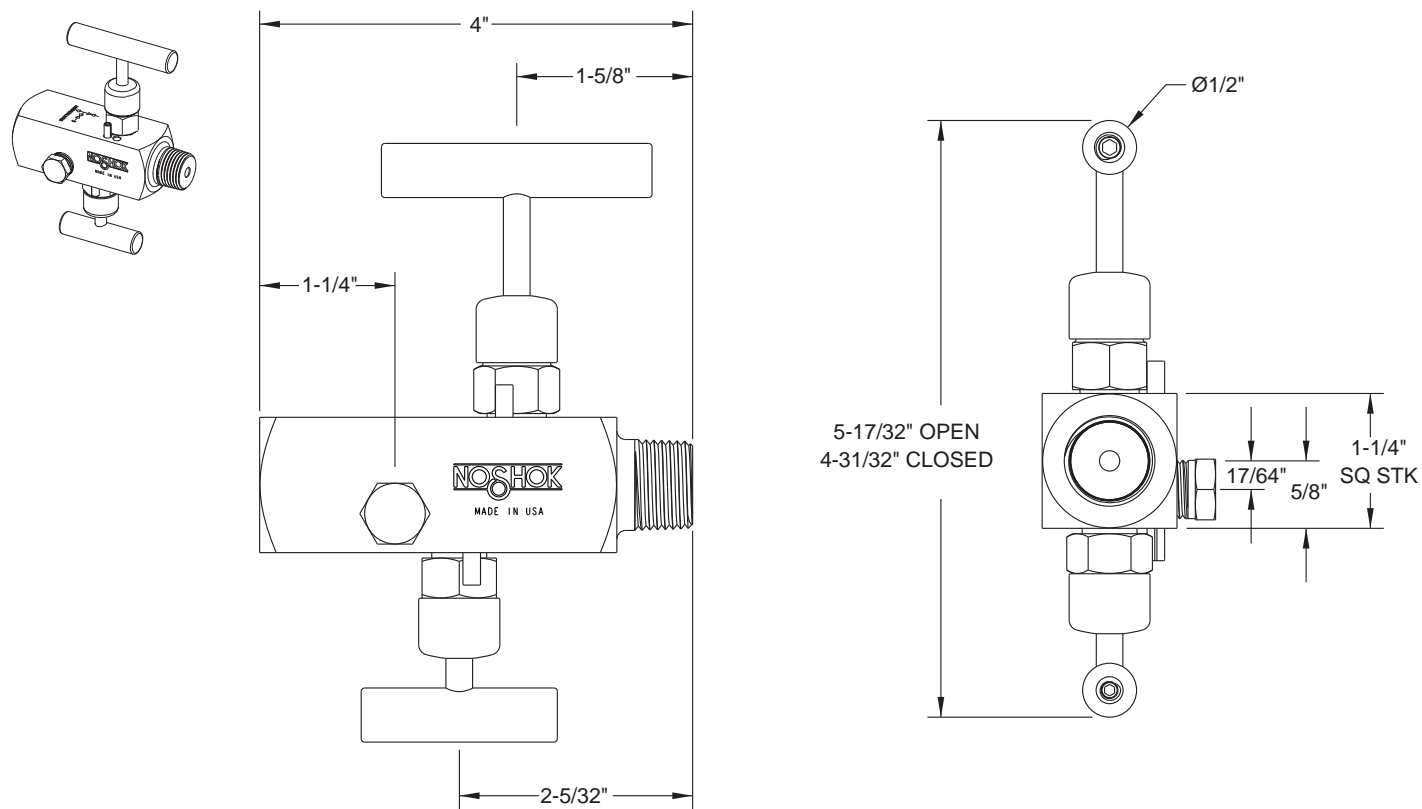
The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 2170-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

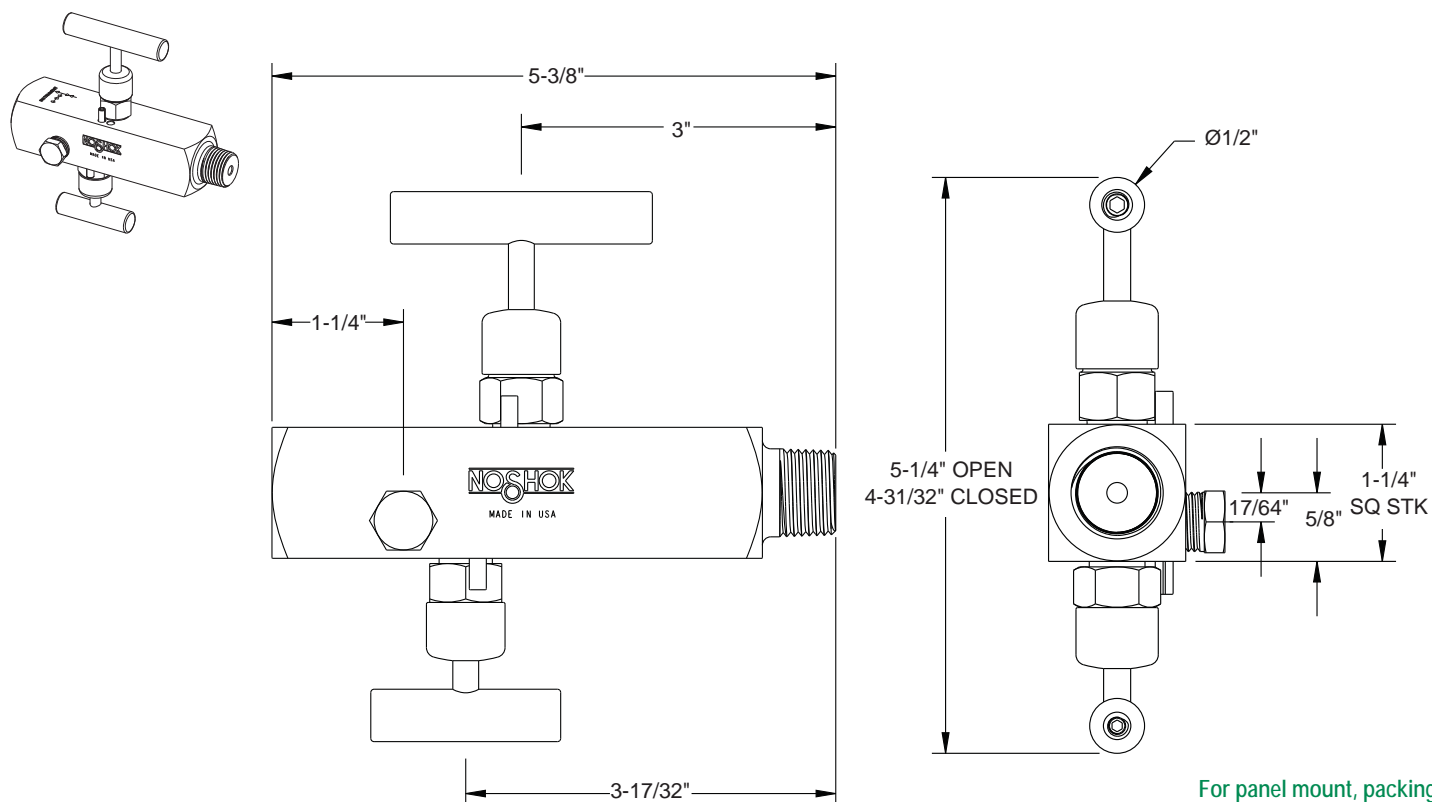


Dimensions

Male-Female



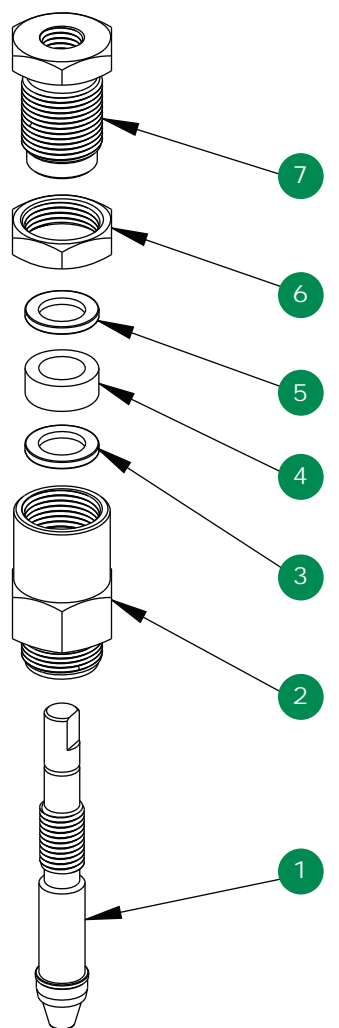
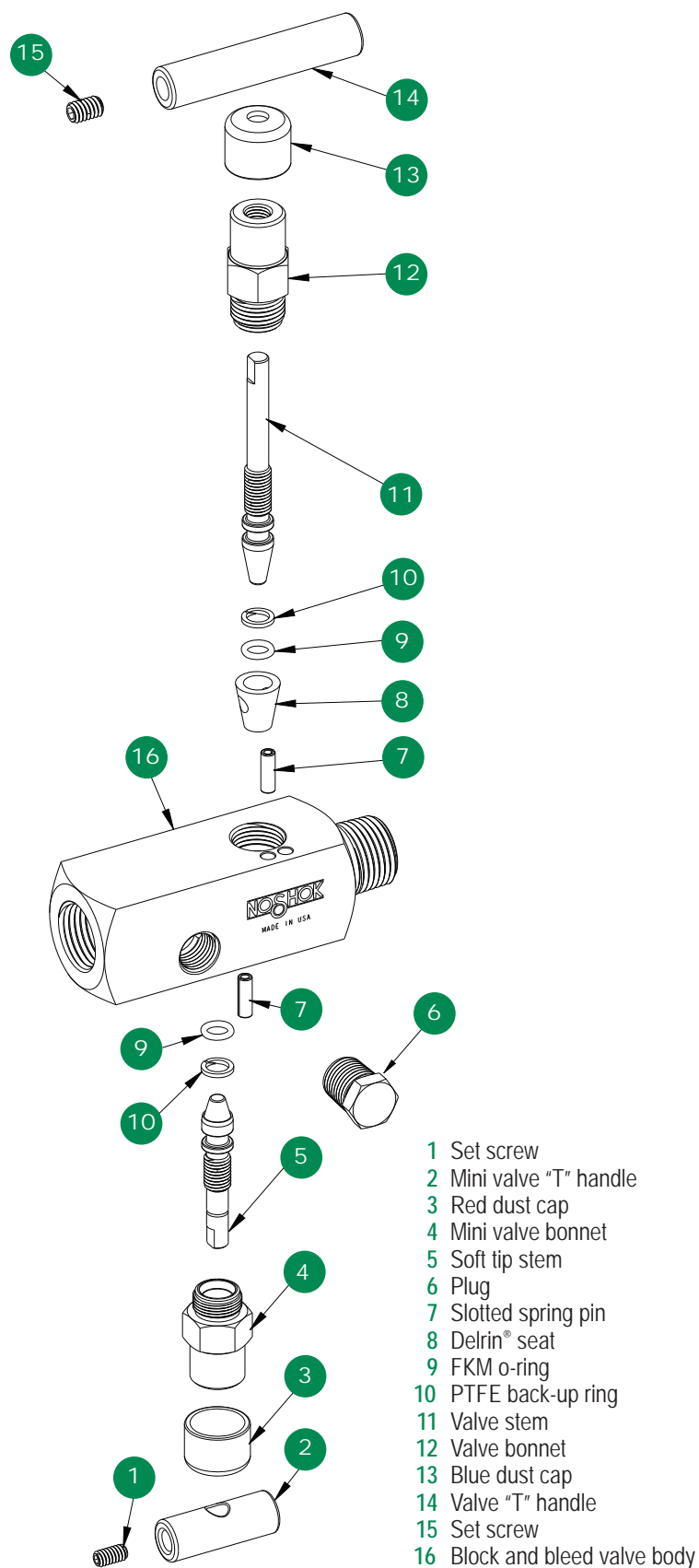
Extended Male-Female



For panel mount, packing,
& stem tip dimensions,
see pgs. 64-67.

Block & Bleed, Soft Seat

Option With Packing



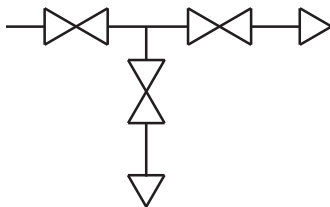
Double Block & Bleed, Hard Seat

3070 SERIES



- Combines isolating and venting in a single valve, eliminating the need for tubing and fittings
- Block valve isolates the downstream process fluids, and the bleed valve exhausts upstream fluids enabling instruments to be removed without disturbing the permanent piping installation on the bottom
- The 1/4" NPT vent plug is located 90° to the left and may be removed and replaced with exhaust piping to direct the fluids to a safe location
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 10,000 psi hard seat pressure rating @ 200 °F
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust cap for bonnet and stem (non-packing)

Flow Schematic



SPECIFICATIONS

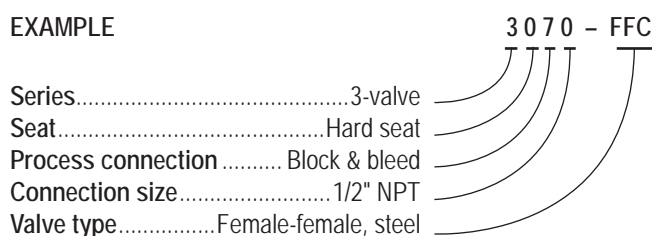
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connection	1/2" & 1/4" NPT Male-female & Female-female configurations available, right venting optional
Pressure rating	10,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	C _v 0.44
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Length	4" standard and 5-3/8" extended length available
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	3	3-valve	
SEAT	0	Hard seat	
PROCESS CONNECTION	7	Block & bleed	
CONNECTION SIZES	0	1/2" NPT	2 1/4" NPT
VALVE TYPES	MFC	Male-Female, Steel	FMC Female-Male, Steel
	MFCR	Male-Female, Steel, Right Vent	EFMC Extended Female-Male, Steel
	EMFC	Extended Male-Female, Steel	FMS Female-Male, Stainless Steel
	MFS	Male-Female, Stainless Steel	EFMS Extended Female-Male, Stainless Steel
	MFSR	Male-Female, Stainless Steel, Right Vent	FFC Female-Female, Steel
	EMFS	Extended Male-Female, Stainless Steel	FFCR Female-Female, Steel, Right Vent
			EFFC Extended Female-Female, Steel
			FFS Female-Female, Stainless Steel
			FFSR Female-Female, Stainless Steel, Right Vent
			EFFS Extended Female-Female, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these needle valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 3070-FFC-HL5)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options			
PACKINGS	P1 PTFE	P2 Grafoil®	
STEM TIPS	T1 Non-rotating (316 stainless) T5 Ball (440C stainless)	T6 Ball (carbide) T7 Ball (ceramic)	T8 Ball (Monel) T9 Regulating hard
O-RINGS*	EM1 EPDM	KZ1 FFKM (Kalrez® 3018 or equivalent)	NB1 NBR
HANDLES	HL1 1-13/16" Mini "T" HL2 2-1/2" "T"	HL3 1" Round knurled HL4 1-3/8" Phenolic	HL5 1-3/4" Phenolic

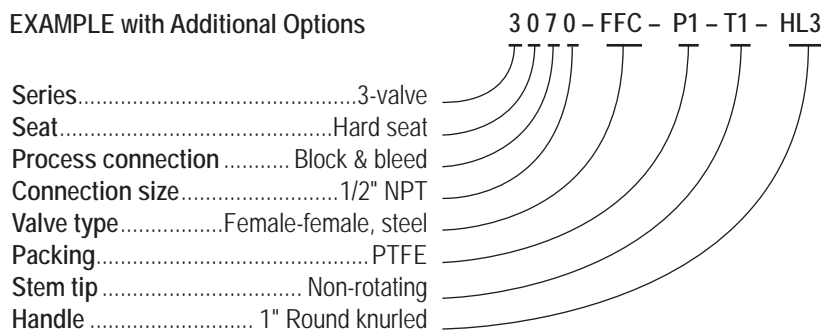
Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are block "T" handles (HL2) and bleed mini "T" handles (HL1).

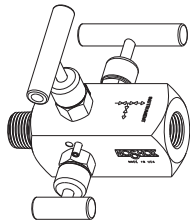
The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 3070-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

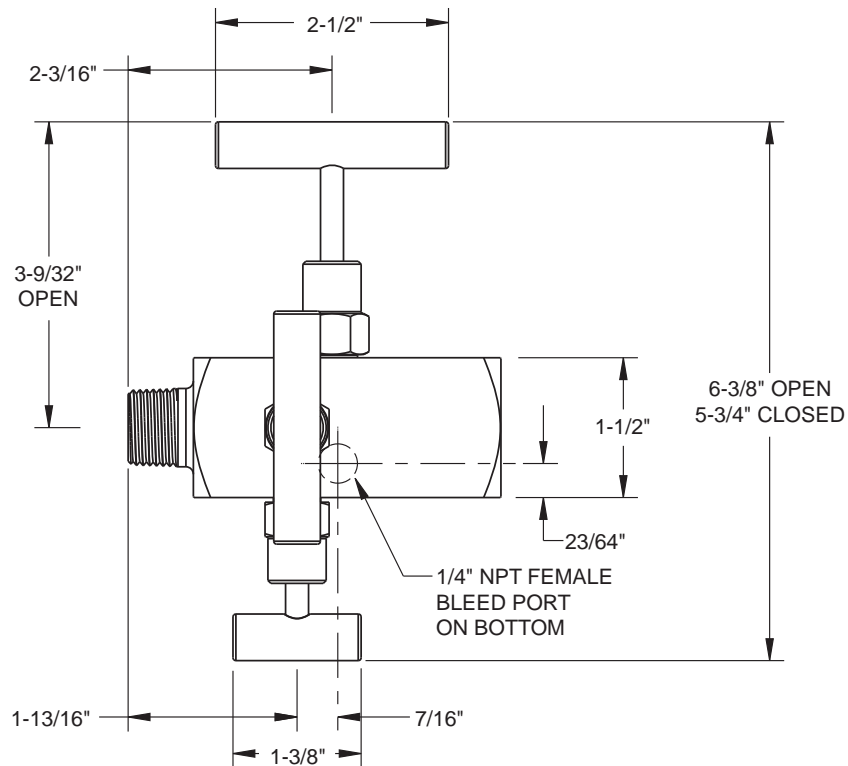


Dimensions

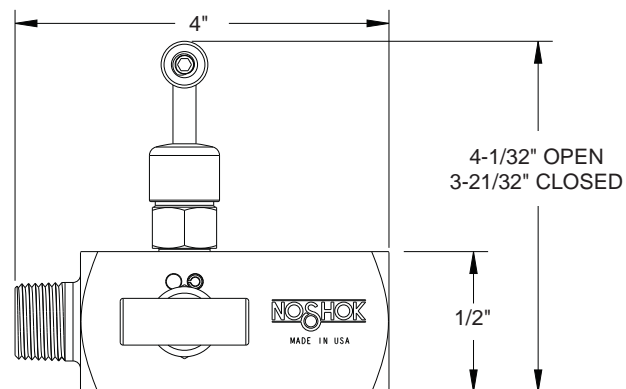
Male-Female



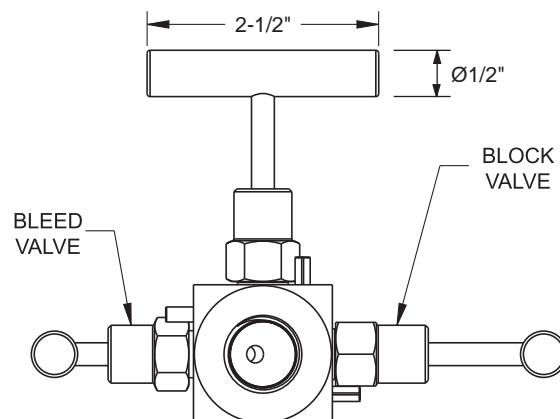
Top View



Front View



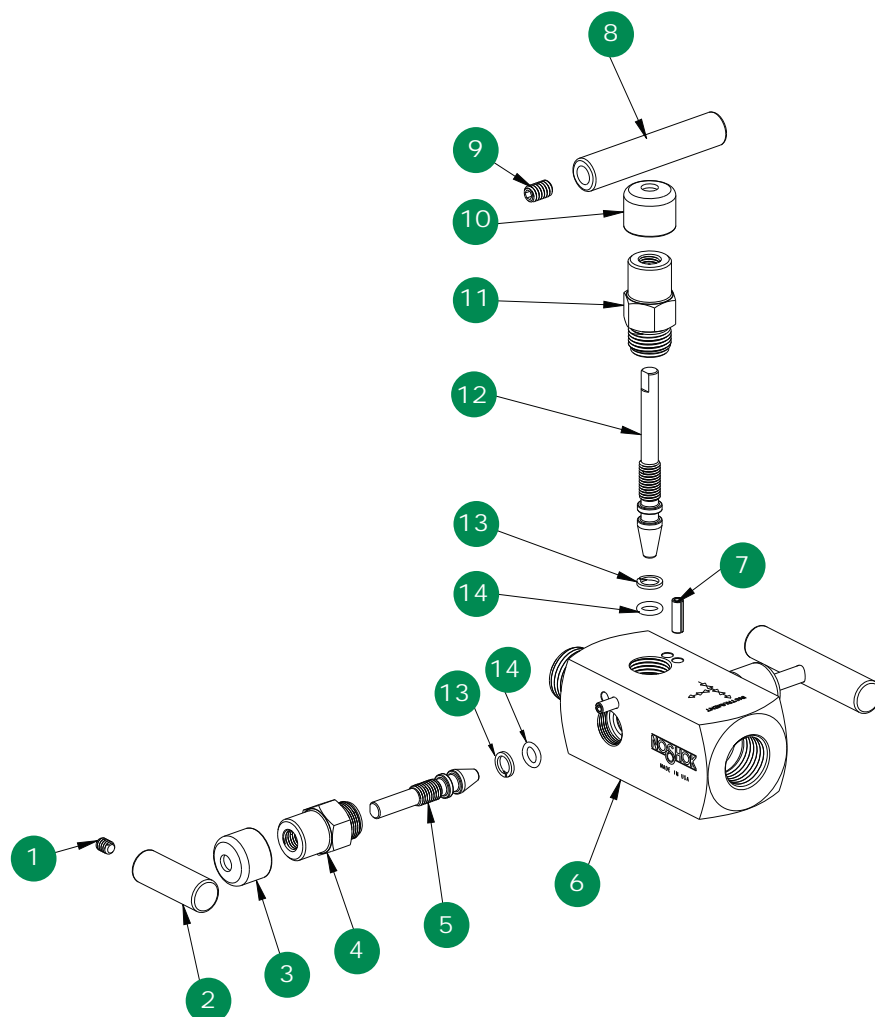
Side View



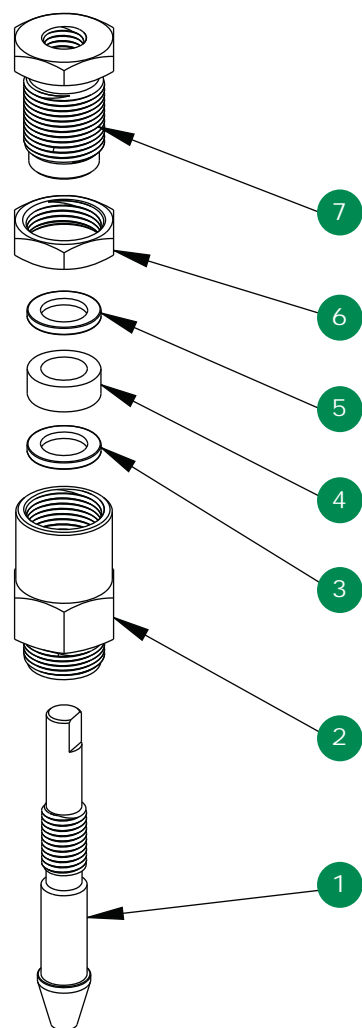
For panel mount, packing, & stem tip dimensions, see pgs. 64-67.

Double Block & Bleed, Hard Seat

Option With Packing



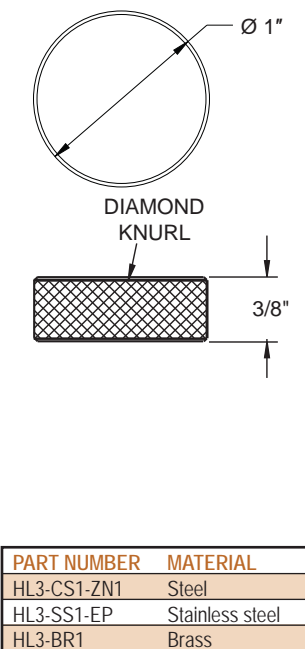
- 1 Set screw
- 2 Mini valve "T" handle
- 3 Red dust cap
- 4 Mini valve bonnet
- 5 Mini valve stem
- 6 Valve body
- 7 Slotted spring pin
- 8 Valve "T" handle
- 9 Set screw
- 10 Blue dust cap
- 11 Valve bonnet
- 12 Valve stem
- 13 PTFE back-up ring
- 14 FKM o-ring



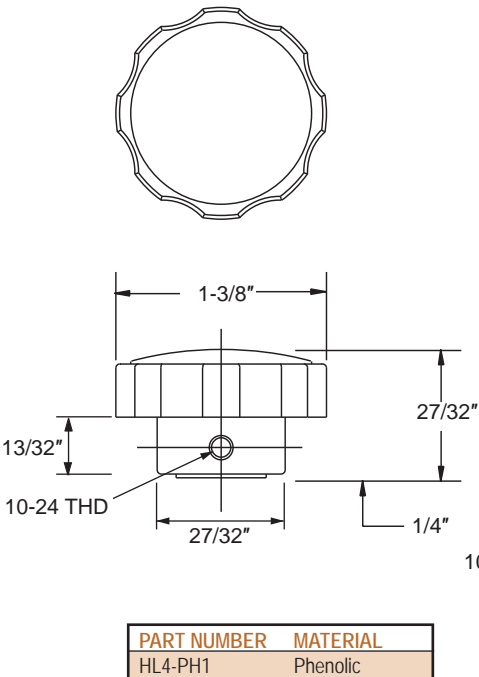
- 1 Mini valve packing stem and valve packing stem
- 2 Mini valve packing bonnet and valve packing bonnet
- 3 Packing washer
- 4 Packing
- 5 Packing washer
- 6 Jam nut
- 7 Packing adjustment screw

Needle Valve Options

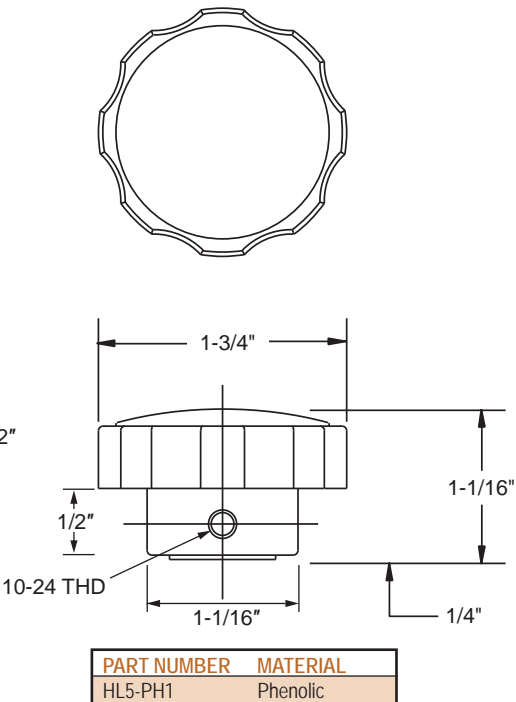
Knurled Handle HL3



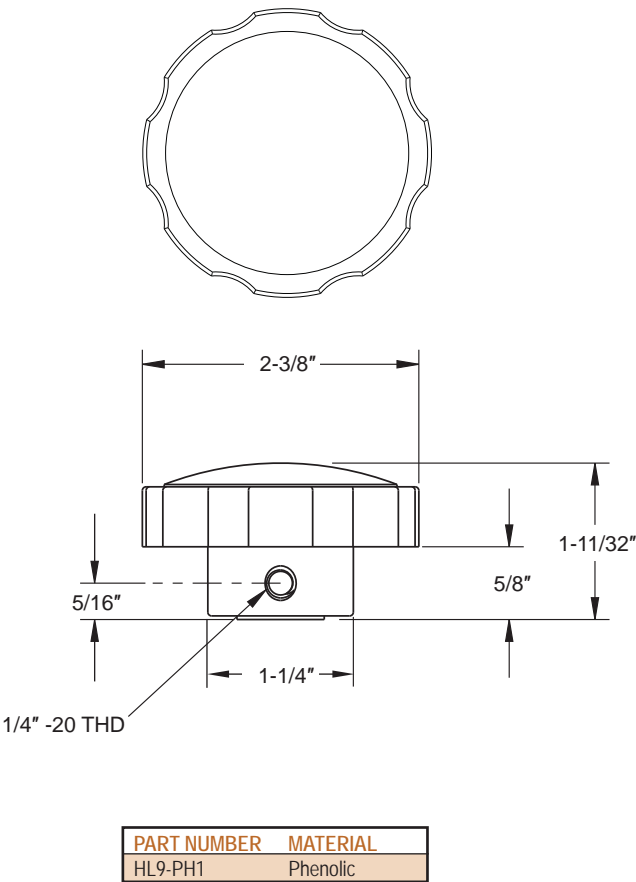
Phenolic Handle HL4



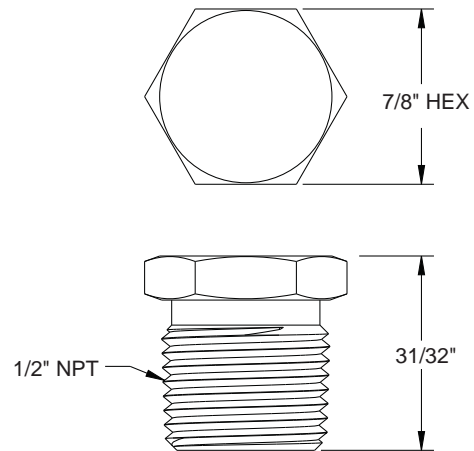
Phenolic Handle HL5



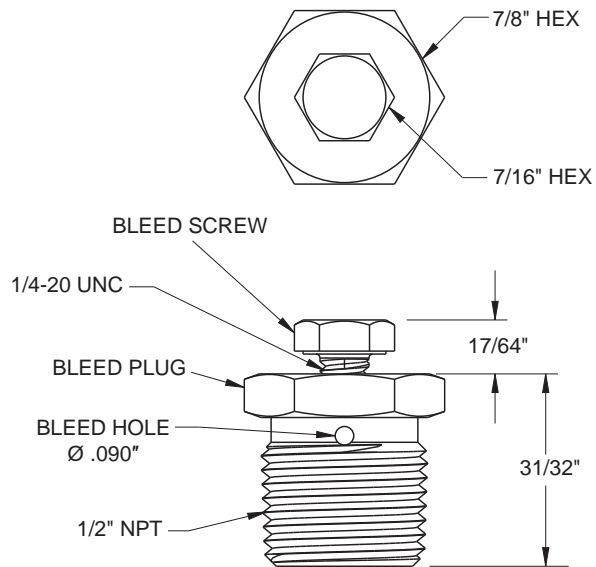
Phenolic Handle HL9



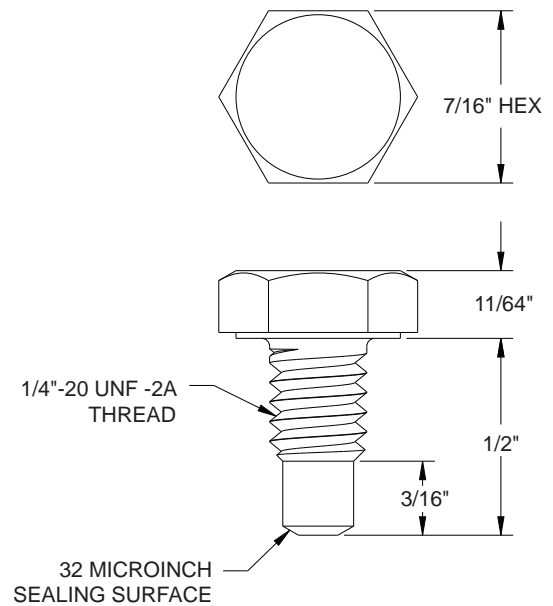
Plug



Bleed Plug

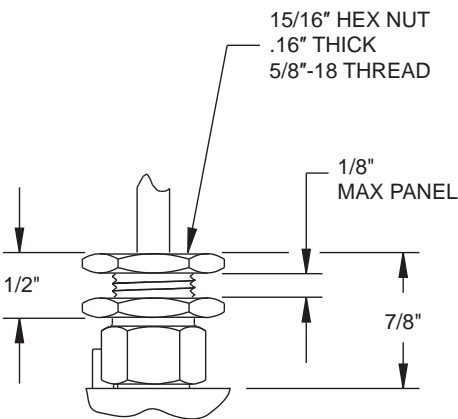


Bleed Screw

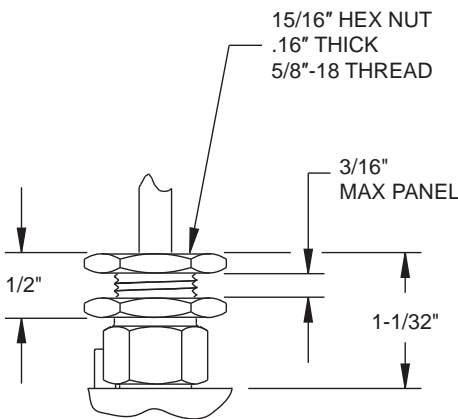


Needle Valve Options

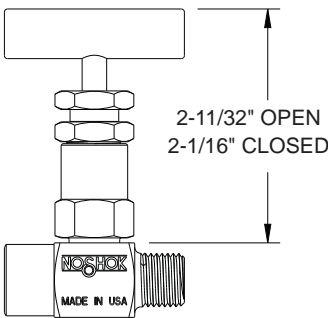
Panel Mount Detail, Mini Valves



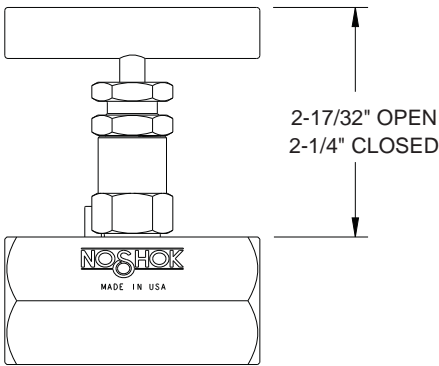
Panel Mount Detail, Needle Valves



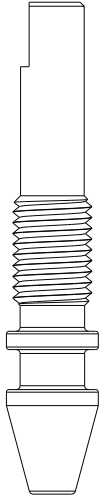
Packing, Mini Valves



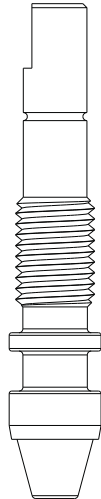
Packing, Needle Valves



Stem Tip Options



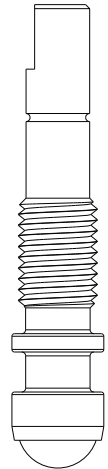
STANDARD
CONE TIP



NON-ROTATING
CONE TIP



NON-ROTATING
REGULATING TIP



NON-ROTATING
BALL TIP

NOTE: A non-rotating tip (ball) can rotate independently of the stem. The term non-rotating describes the motion of the tip (ball) in relation to a rotating stem. As the stem rotates to close a valve, the tip (ball) stops rotating when it makes contact with the sealing orifice of the body.

Block & Bleed, Hard Seat & Soft Seat

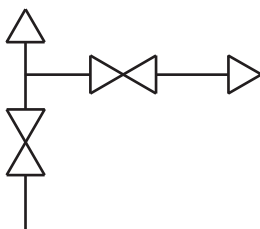
2000/2100 SERIES



Note: Packing option shown.

- Combines isolating and venting in a single valve, eliminating the need for tubing and fittings
- Block valve isolates the downstream process fluids and the bleed valve exhausts upstream fluids enabling static pressure transmitters, switches or gauges to be removed without disturbing the permanent piping installation
- Block valve is located on the left side and the bleed valve is located on top in a 90° orientation, venting is to the right
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 2000 Series hard seat valves have 10,000 psi pressure rating @ 200 °F
- 2100 Series soft seat valves have 6,000 psi pressure rating @ 200 °F
- 2100 Series valve also features a replaceable Delrin® seat, and straight through porting for bidirectional, high capacity flow and easy roddable cleaning
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- Stem and bonnet threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust caps for bonnets and stems (non-packing)
- Zinc-nickel plated high tensile strength 4140 steel mounting bolts included for flanged connections

Flow Schematic



SPECIFICATIONS

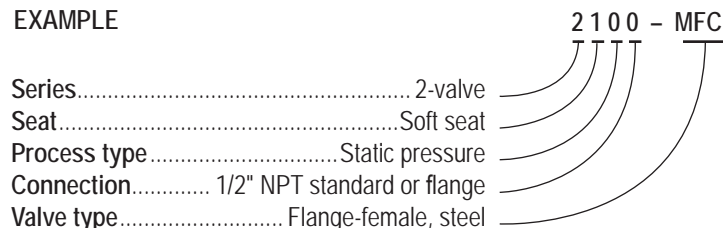
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connection	1/2" NPT, 1/4" NPT, NPT-flange, Flange-flange, NPT-NPT configurations available
Pressure ratings	Hard seat: 10,000 psi @ 200 °F Soft seat: 6,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	Hard seat: C_v 0.44 Soft seat: C_v 0.76
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION					
SERIES	2	2-valve			
SEATS	0	Hard seat		1	Soft seat
PROCESS TYPE	0	Static pressure			
CONNECTIONS	0	1/2" NPT standard or flange		2	1/4" NPT
VALVE TYPES	MFC	Flange-Female, Steel		MFS	Flange-Female, Stainless Steel
	FFC	Female-Female, Steel		FFS	Female-Female, Stainless Steel
				MMC	Flange-Flange, Steel
				MMS	Flange-Flange, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 2100-MFC-P1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

NOTE 3: T1 Hard non-rotating (316 SS standard) stem tip is the only option available on the 2100 Series soft seat version.

ORDERING INFORMATION - Additional Options					
SOFT SEATS	PK1	PEEK	KF1	PCTFE	
PACKINGS	P1	PTFE	P2	Grafoil***	
STEM TIPS	T1	Non-rotating (316 stainless)	T6	Ball (carbide)**	T8 Ball (Monel)**
	T5	Ball (440C stainless)**	T7	Ball (ceramic)**	T9 Regulating hard**
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)	NB1 NBR
HANDLES	HL1	1-13/16" Mini "T"	HL4	1-3/8" Phenolic	
	HL3	1" Round knurled	HL5	1-3/4" Phenolic	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

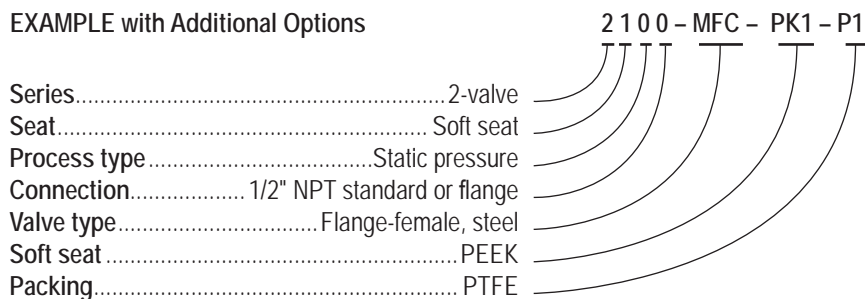
* Other o-ring materials available on request.

** For 2000 Series only.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

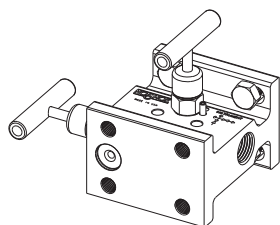
The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 2100-MFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

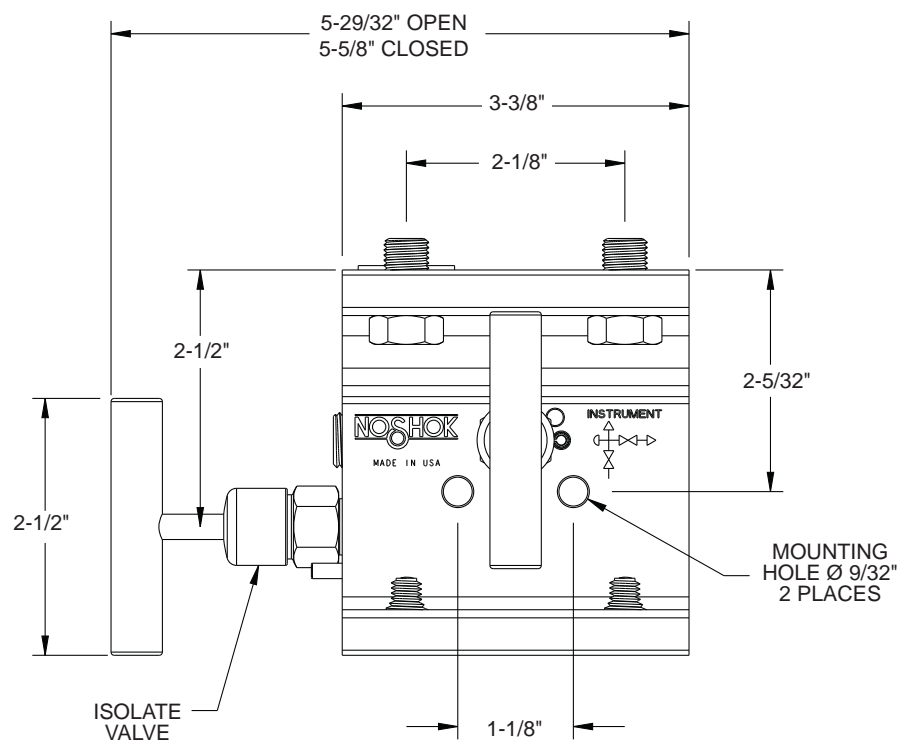


Dimensions

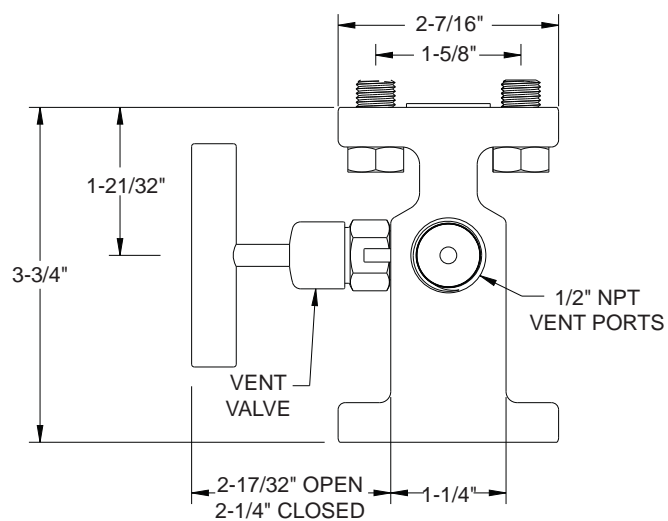
Flange-Flange



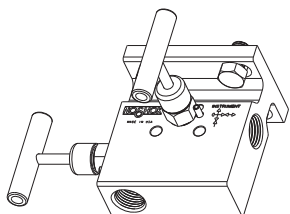
Top View



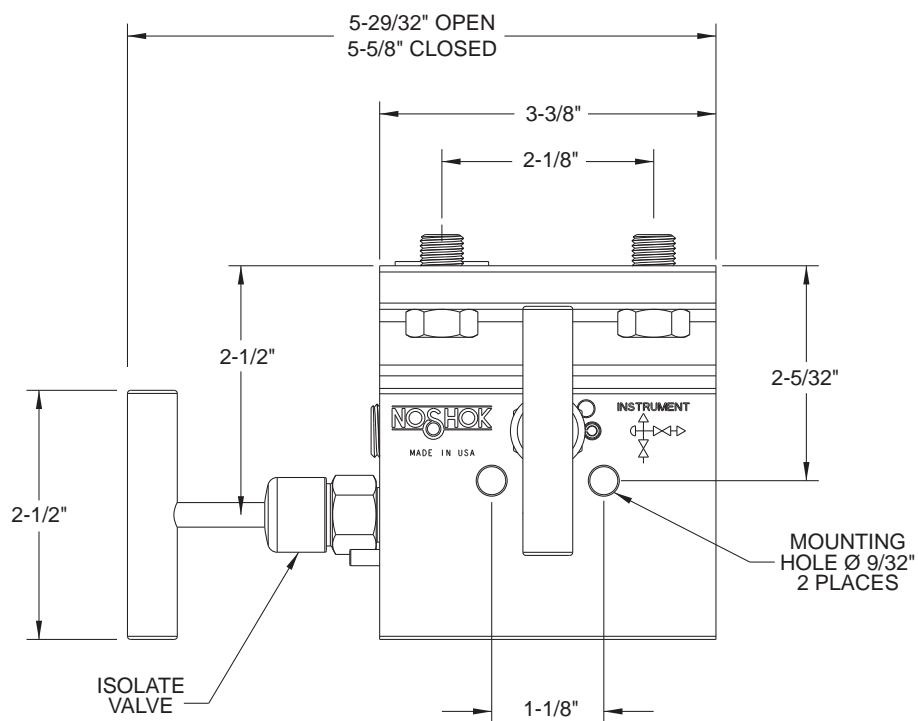
Side View



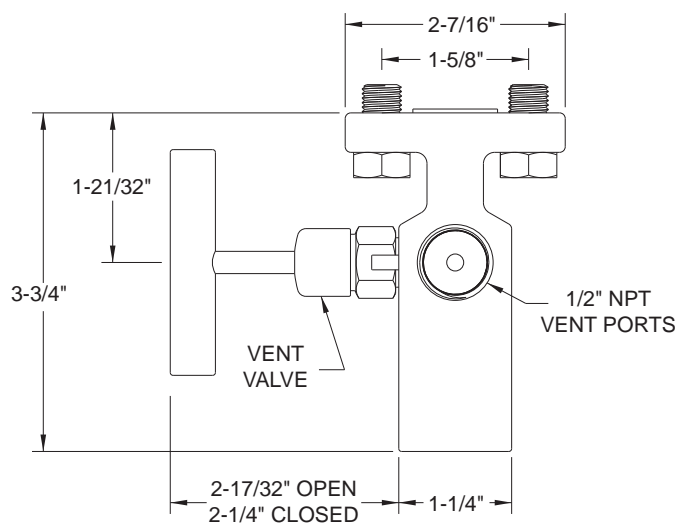
Flange-Female



Top View

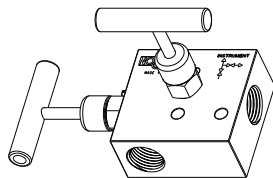


Side View

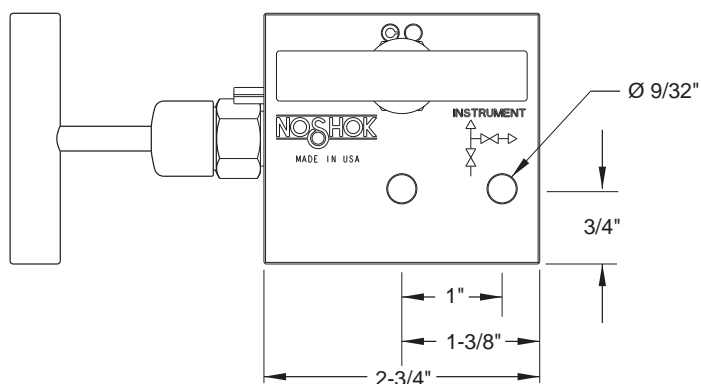


Dimensions

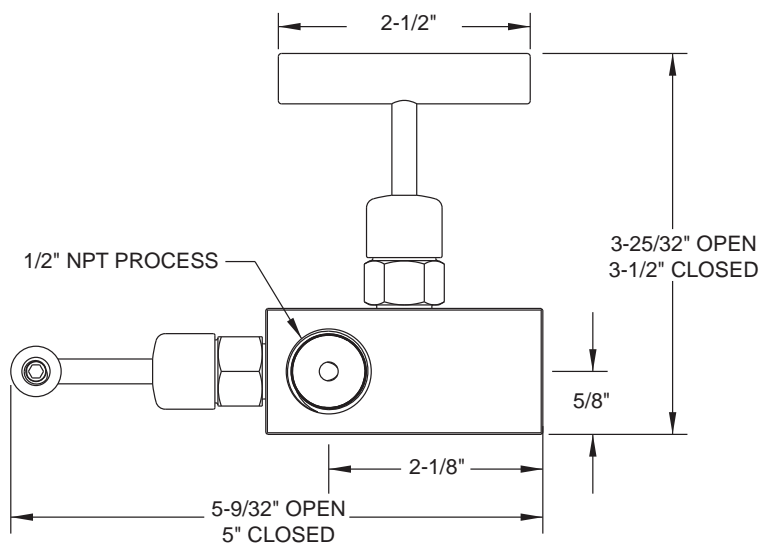
Female-Female



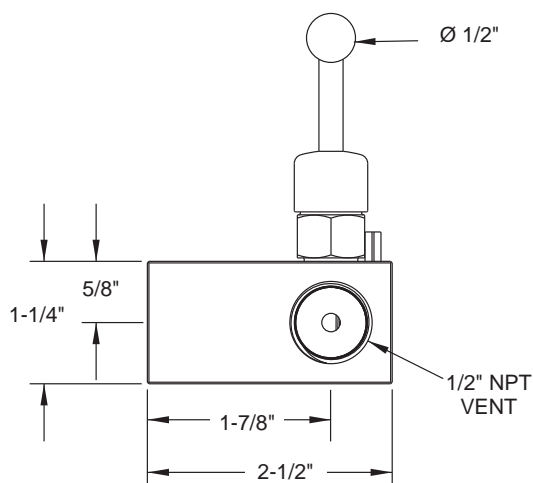
Top View



Front View

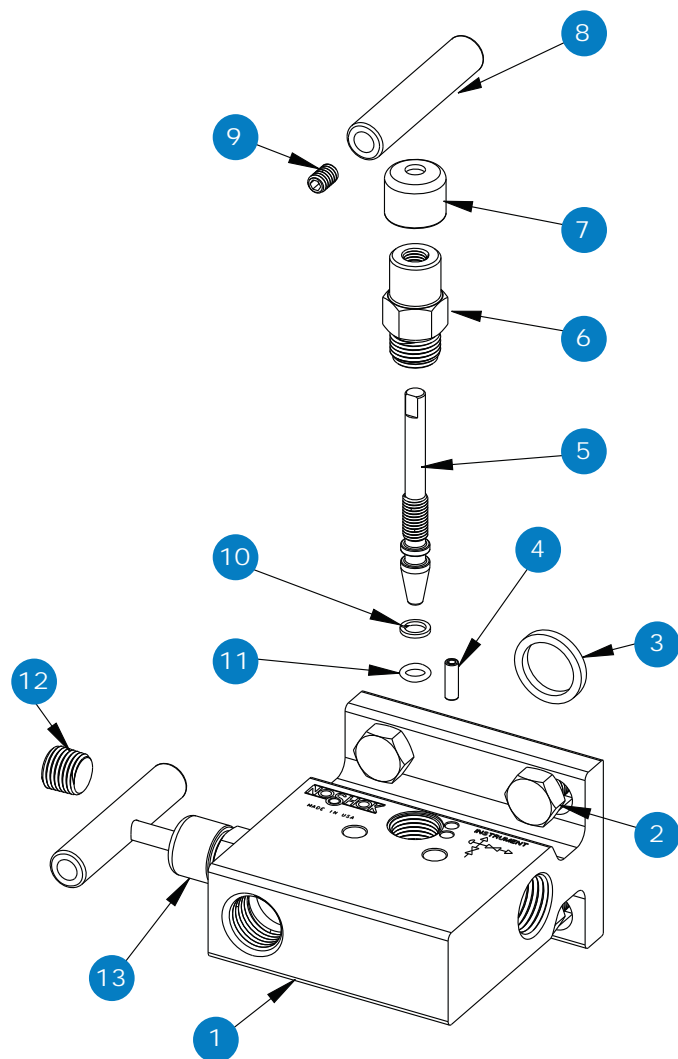


Side View



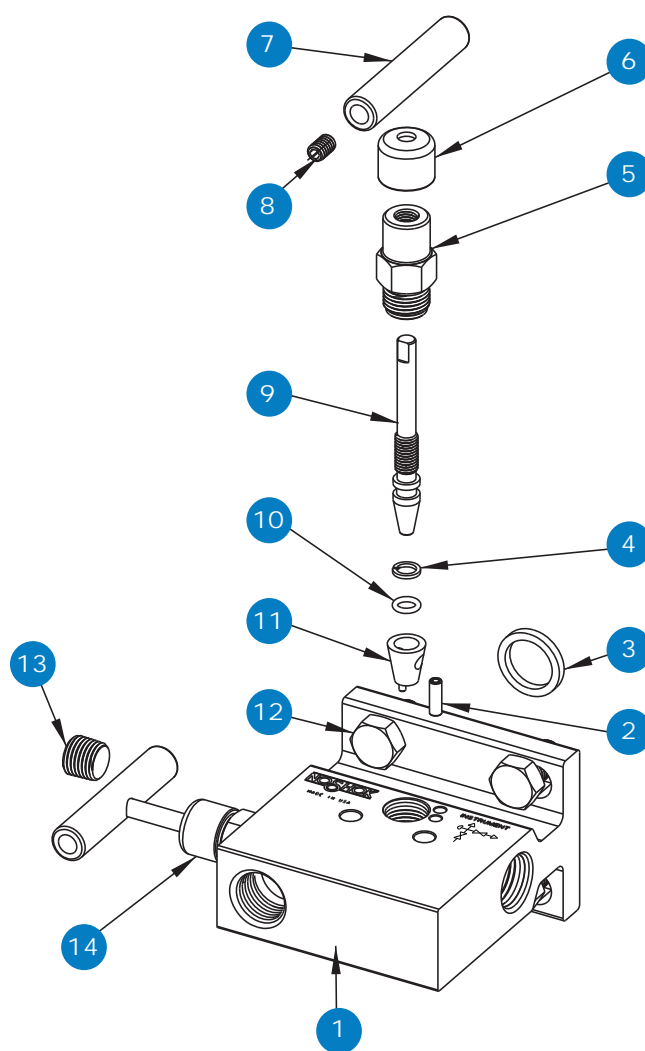
For panel mount and packing dimensions, see pgs. 64-65.

Hard Seat



- 1 Valve body
- 2 Head bolt
- 3 Gasket ring
- 4 Slotted spring pin
- 5 Valve stem
- 6 Valve bonnet
- 7 Red dust cap
- 8 Valve "T" handle
- 9 Set screw
- 10 PTFE back-up ring
- 11 FKM o-ring
- 12 Plug
- 13 Blue dust cap

Soft Seat



- 1 Valve body
- 2 Slotted spring pin
- 3 Gasket ring
- 4 PTFE back-up ring
- 5 Valve bonnet
- 6 Red dust cap
- 7 Valve "T" handle
- 8 Set screw
- 9 Valve stem
- 10 FKM o-ring
- 11 Delrin® seat
- 12 Head bolt
- 13 Plug
- 14 Blue dust cap

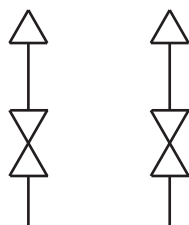
Hard & Soft Seat

2020/2120 SERIES



- Designed for use with differential pressure transmitters in liquid level applications
- Available in either single flange or double flange connection for direct installation
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 2020 Series hard seat valves have 10,000 psi pressure rating @ 200 °F
- 2120 Series soft seat valves have 6,000 psi pressure rating @ 200 °F
- 2120 Series valves also feature a replaceable Delrin® seat, and straight through porting for bidirectional, high capacity flow and easy roddable cleaning
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust caps for bonnets and stems (non-packing)

Flow Schematic



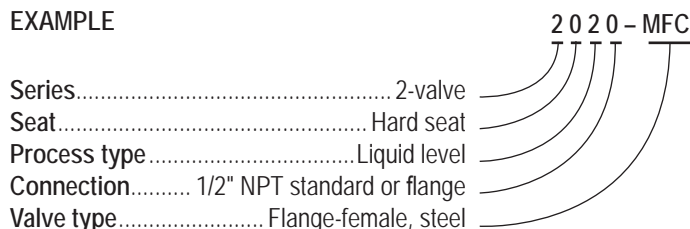
SPECIFICATIONS	
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connections	Flange-flange, 1/2" NPT-flange
Pressure ratings	Hard seat: 10,000 psi @ 200 °F Soft seat: 6,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	Hard seat: C_v 0.44 Soft seat: C_v 0.76
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	2 2-valve		
SEATS	0 Hard seat	1	Soft seat
PROCESS TYPE	2 Liquid level		
CONNECTIONS	0 1/2" NPT standard or flange		
VALVE TYPES	MFC Flange-Female, Steel	MFS Flange-Female, Stainless Steel	
	MMC Flange-Flange, Steel	MMS Flange-Flange, Stainless Steel	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 2020-MFC-P1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

NOTE 3: The standard o-ring in all the NOSHOK manifold valves is FKM and T1 hard non-rotating (316SS) stem tip is the only option available on the 2120 Series soft seat version.

ORDERING INFORMATION - Additional Options					
SOFT SEATS	PK1	PEEK***	KF1	PCTFE***	
PACKINGS	P1	PTFE	P2	Grafoil***	
STEM TIPS	T1	Non-rotating (316 stainless)	T6	Ball (carbide)**	T8 Ball (Monel)**
	T5	Ball (440C stainless)**	T7	Ball (ceramic)**	T9 Regulating hard**
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)	NB1 NBR
HANDLES	HL1	1-13/16" Mini "T"	HL4	1-3/8" Phenolic	
	HL3	1" Round knurled	HL5	1-3/4" Phenolic	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

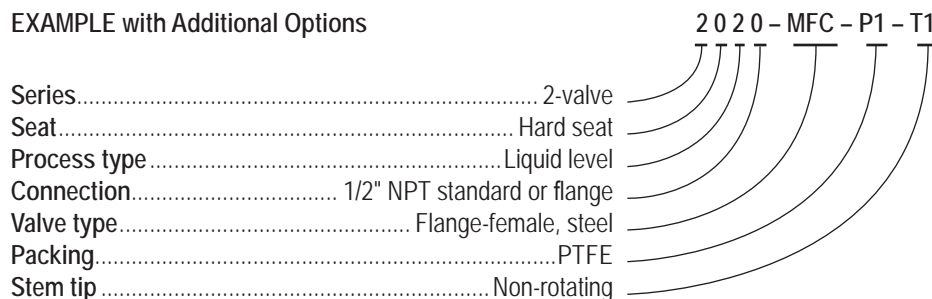
** For 2020 Series only.

*** For 2120 Series only.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

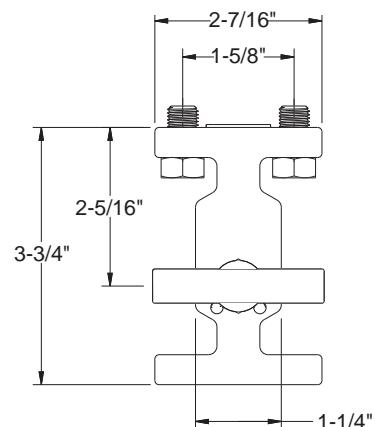
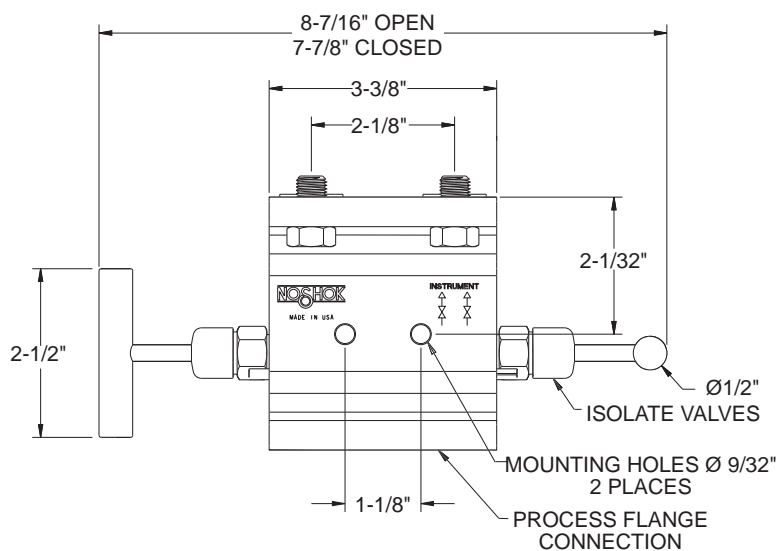
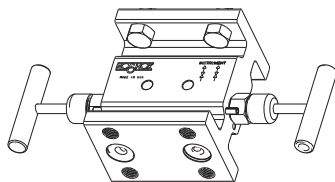
The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 2020-MFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

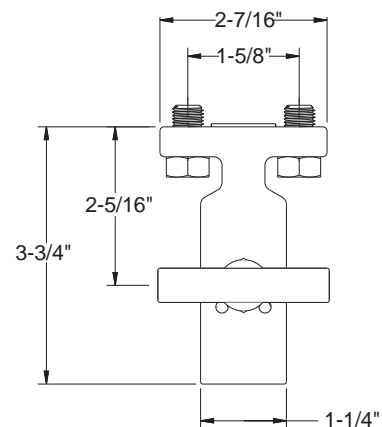
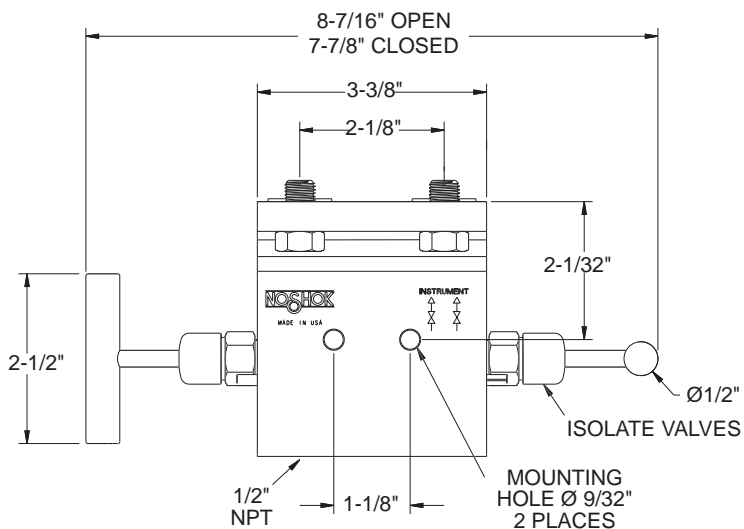
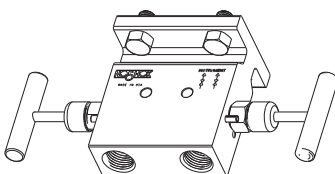


Dimensions

Flange-Flange

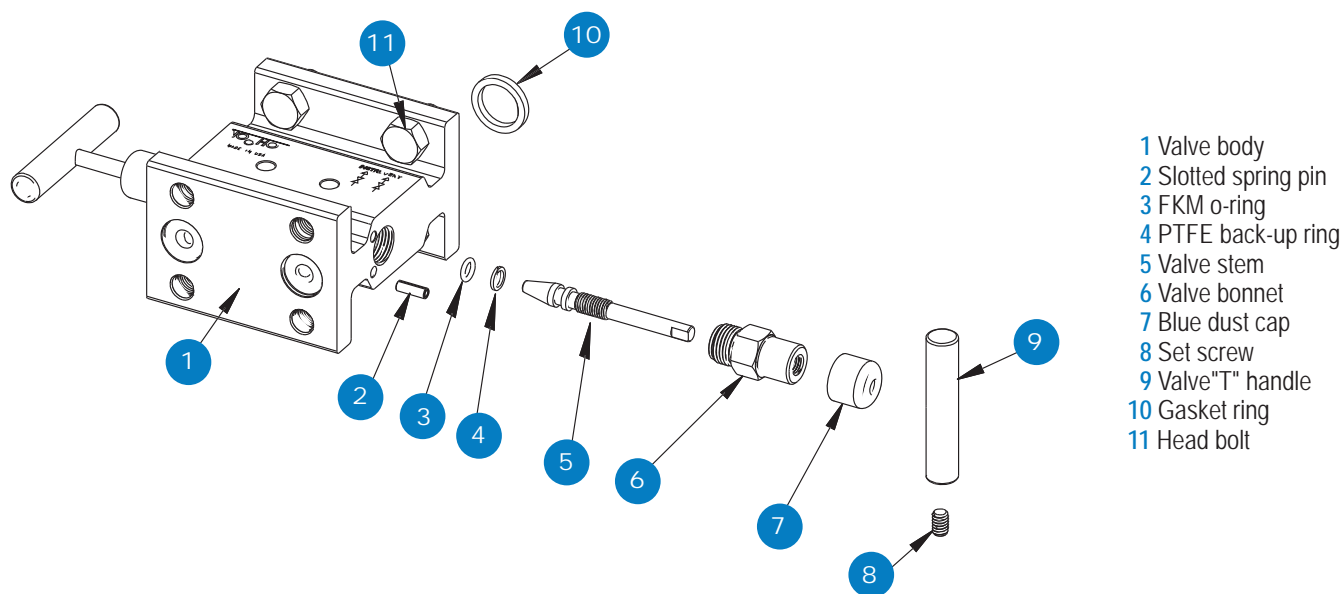


Flange-Female

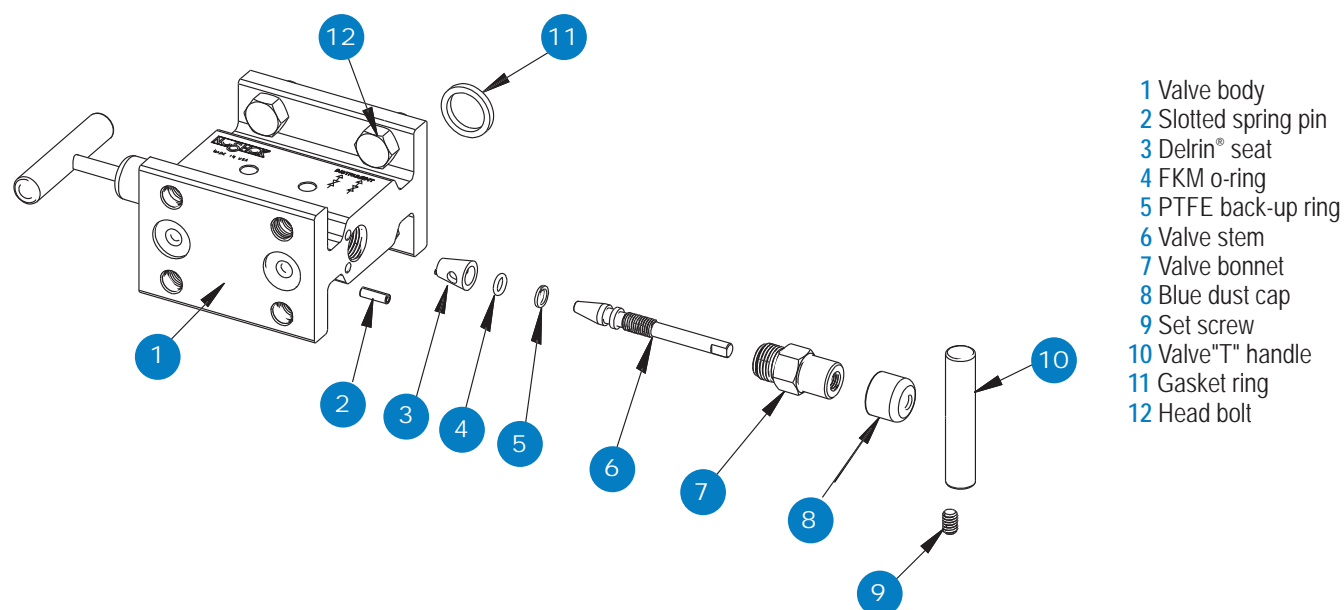


For panel mount and packing dimensions, see pgs. 64-65.

Hard Seat



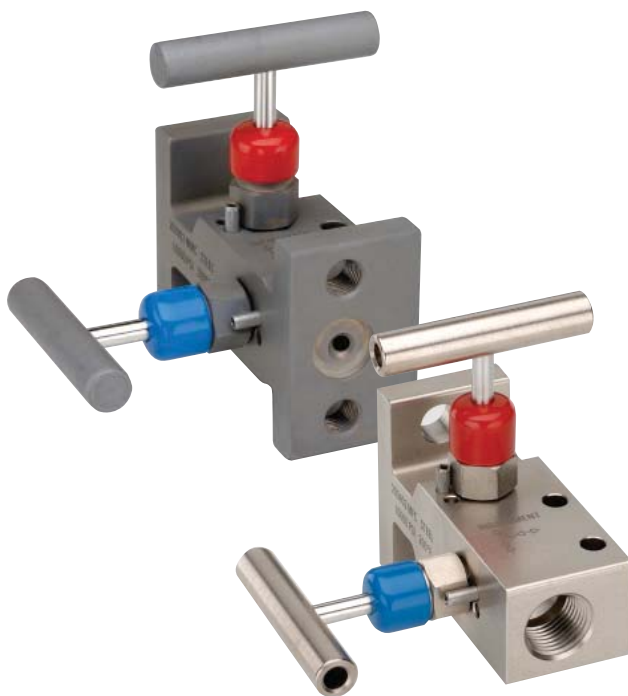
Soft Seat



Narrow Block & Bleed, Hard Seat & Soft Seat

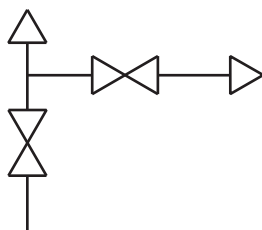
200002/210002 SERIES

200402/210402 SERIES



- Combines isolating and venting in a single valve, eliminating the need for tubing and fittings
- Block valve isolates the downstream process fluids and the bleed valve exhausts upstream fluids enabling static pressure transmitters, switches or gauges to be removed without disturbing the permanent piping installation
- Block valve is located on the left side and the bleed valve is located on top in a 90° orientation, venting is to the right
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 200002/200402 Series hard seat valves have 10,000 psi pressure rating @200 °F
- 210002/210402 Series soft seat valves have 6,000 psi pressure rating @200 °F
- 210002/210402 Series valves also feature a replaceable Delrin® seat, and straight through porting for bidirectional, high capacity flow and easy roddable cleaning
- PTFE or PEEK soft seat optional
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- Stem and bonnet threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust caps for bonnets and stems (non-packing)

Flow Schematic



SPECIFICATIONS

Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connection	200002/210002 Series: Flange-flange, 1/4" NPT vent 200402/210402 Series: 1/2" NPT-flange, 1/4" NPT vent 200202/210202 Series: 1/4" NPT-flange, 1/4" NPT vent Left venting optional
Pressure ratings	Hard seat: 10,000 psi @ 200 °F Soft seat: 6,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	Hard seat: C_v 0.44 Soft seat: C_v 0.76
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	2 2-valve		
SEATS	0 Hard seat	1 Soft seat	
PROCESS TYPE	0 Static pressure		
CONNECTIONS	0 Flange-flange	2 1/4" NPT-flange	4 1/2" NPT-flange (standard)
VENT	02 1/4" NPT		
VALVE TYPES	MFC Flange-Female, Steel	MMS Flange-Flange, Stainless Steel	MMCL Flange-Flange, Steel, Left Vent
	MFS Flange-Female, Stainless Steel	MFCL Flange-Female, Steel, Left Vent	MMSL Flange-Flange, Stainless Steel, Left Vent
	MMC Flange-Flange, Steel	MFSL Flange - Female, Stainless Steel, Left Vent	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 200402-MFC-P1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

NOTE 3: T1 Hard non-rotating (316 stainless standard) stem tip is the only option available on the 210002/210402 Series soft seat version.

ORDERING INFORMATION - Additional Options			
PACKINGS	P1 PTFE	P2 Grafoil**	
STEM TIPS	T1 Non-rotating (316 stainless)	T6 Ball (carbide)**	T8 Ball (Monel)**
	T5 Ball (440C stainless)**	T7 Ball (ceramic)**	T9 Regulating hard**
O-RINGS*	EM1 EPDM	KZ1 FFKM (Kalrez® 3018 or equivalent)	NB1 NBR
HANDLES	HL1 1-13/16" Mini "T"	HL4 1-3/8" Phenolic	
	HL3 1" Round knurled	HL5 1-3/4" Phenolic	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

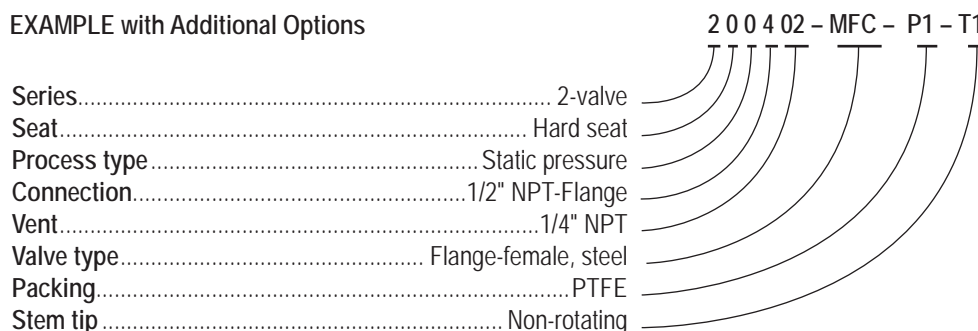
* Other o-ring materials available on request.

** For hard seat only.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

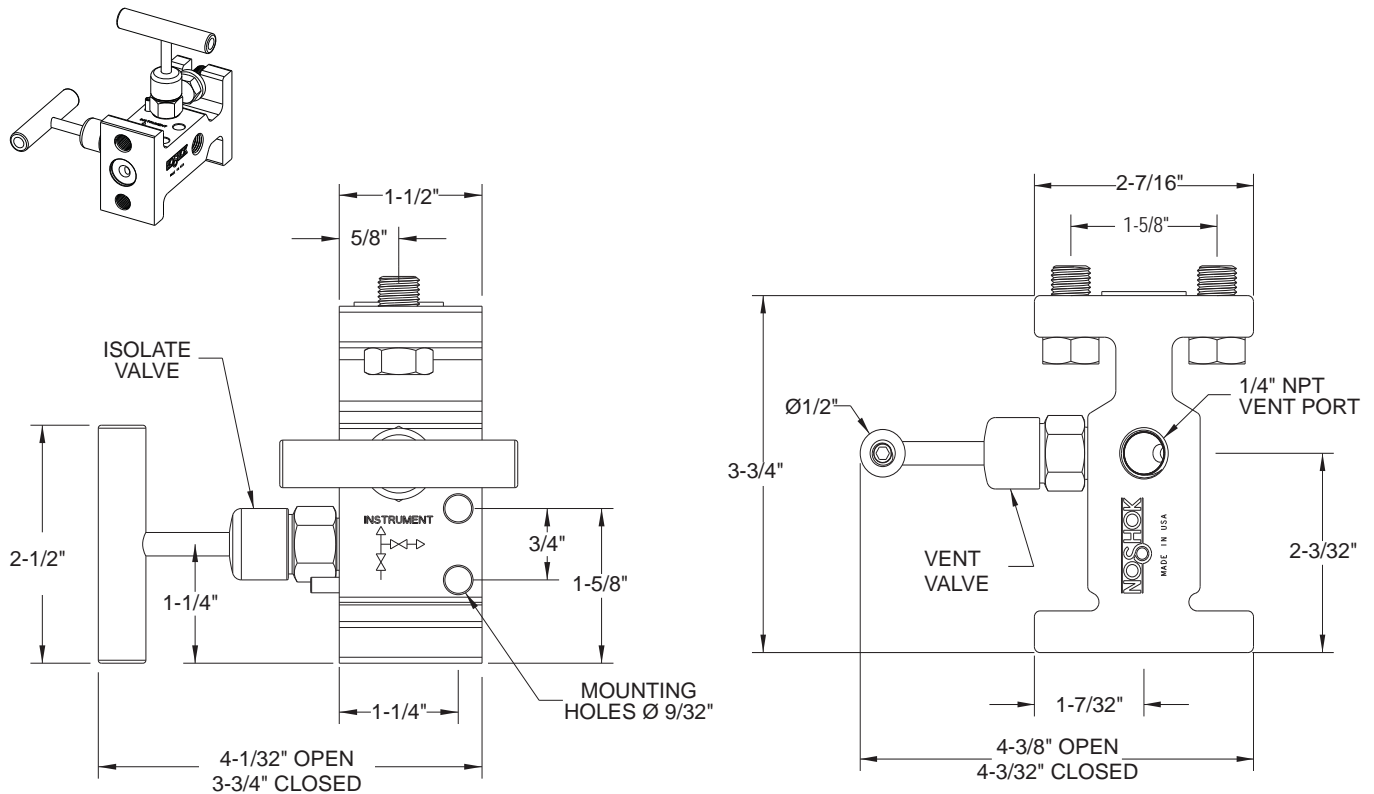
The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 200402-MFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

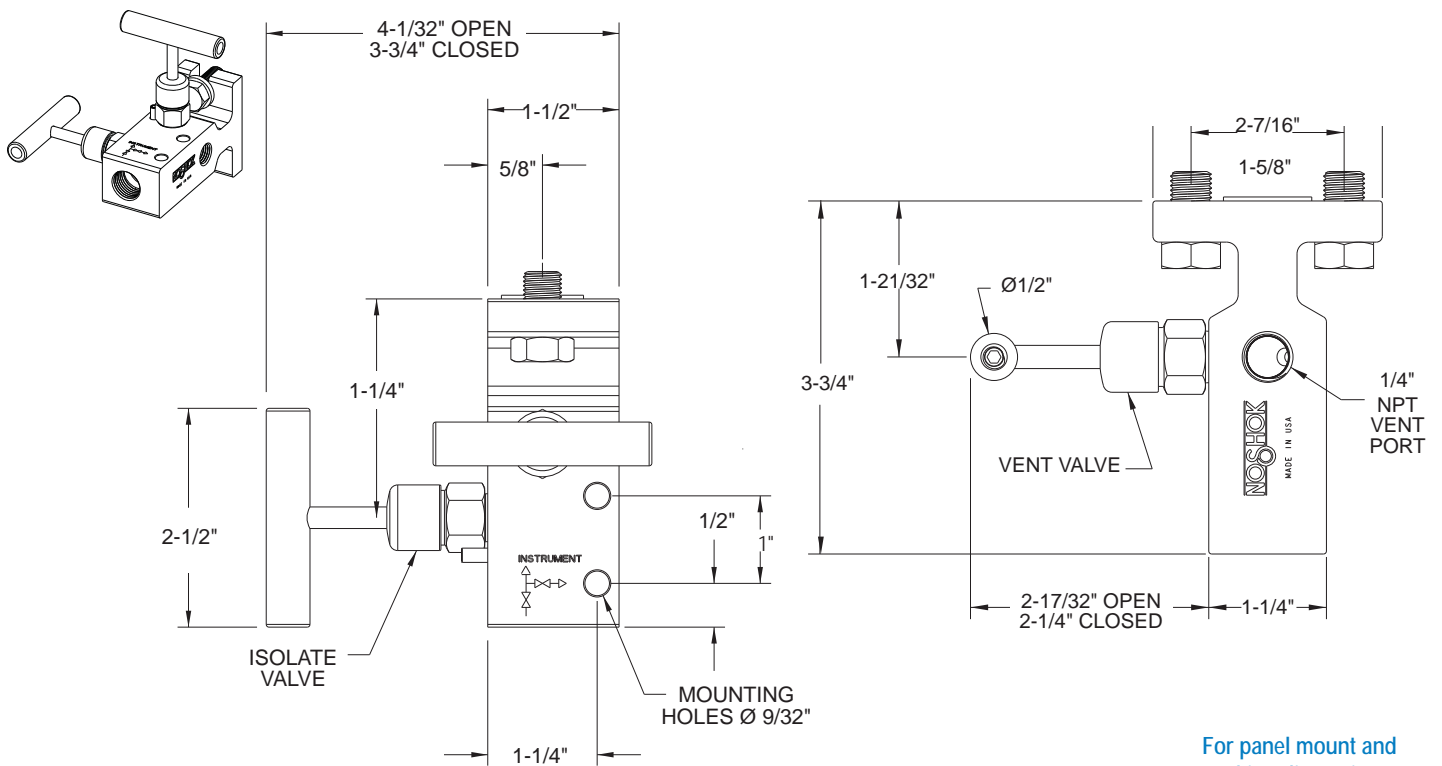


Dimensions

Flange-Flange

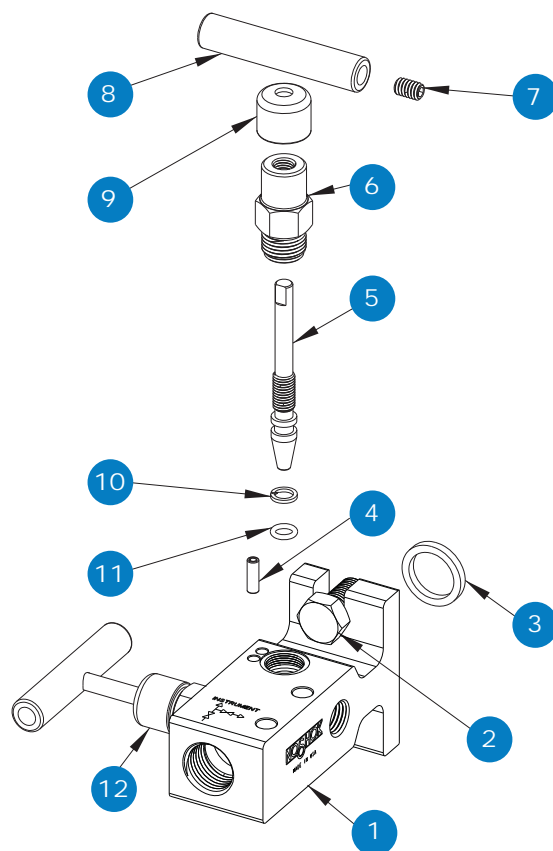


Flange-Female



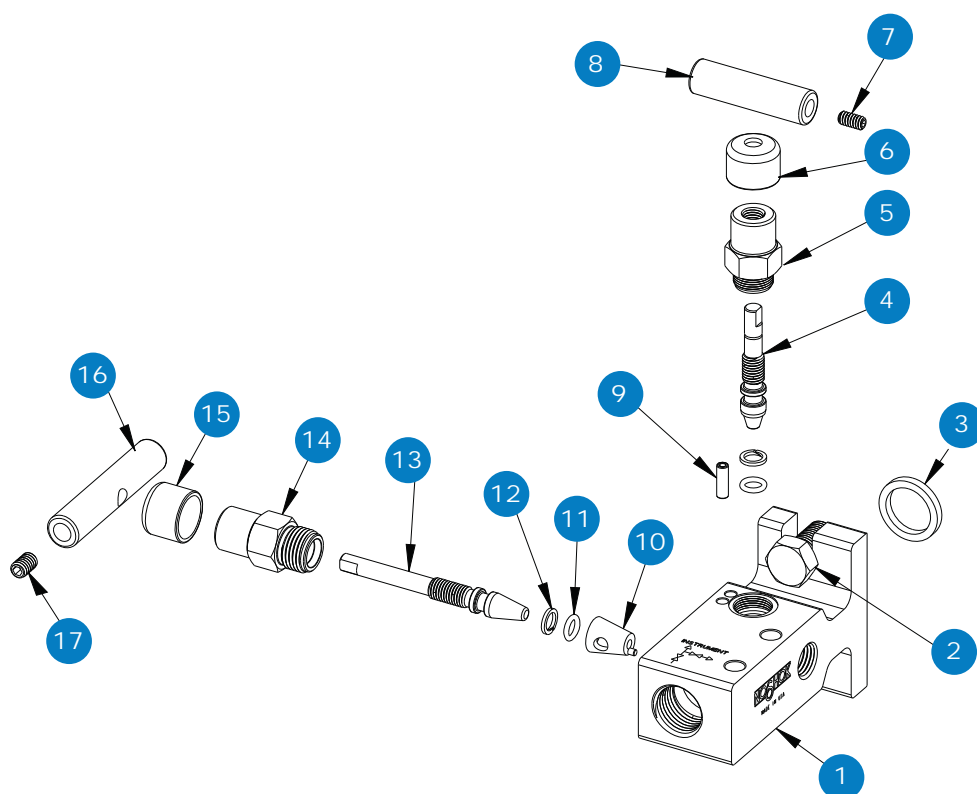
For panel mount and packing dimensions, see pgs. 64-65.

Hard Seat



- 1 Valve body
- 2 Head bolt
- 3 Gasket ring
- 4 Slotted spring pin
- 5 Valve stem
- 6 Valve bonnet
- 7 Set screw
- 8 Valve "T" handle
- 9 Red dust cap
- 10 PTFE back-up ring
- 11 FKM o-ring
- 12 Blue dust cap

Soft Seat



- 1 Valve body
- 2 Head bolt
- 3 Gasket ring
- 4 Soft tip valve stem
- 5 Valve bonnet
- 6 Red dust cap
- 7 Set screw
- 8 Valve "T" handle
- 9 Slotted spring pin
- 10 Delrin® seat
- 11 FKM o-ring
- 12 PTFE back-up ring
- 13 Valve stem
- 14 Valve bonnet
- 15 Blue dust cap
- 16 Valve "T" handle
- 17 Set screw

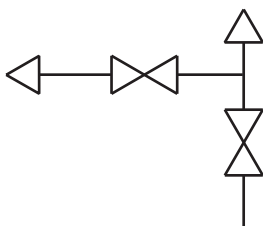
Mini Block & Bleed, Hard Seat & Soft Tip (0.141" Orifice)

2602/2702 SERIES



- Combines isolating and venting in a single valve, eliminating the need for tubing and fittings
- Block valve isolates the downstream process fluids and the bleed valve exhausts upstream fluids enabling static pressure transmitters, switches or gauges to be removed without disturbing the permanent piping installation
- Valves are located on the top to fit into compact spaces and two holes are provided for mounting, venting is to the left
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- Soft tip valves feature a patented Delrin® non-rotating soft tip stem, and a back-up metal-to-metal seal (**U.S. Patent 6,820,857**)
- 2602 Series hard seat valves have 10,000 psi pressure rating @ 200 °F
- 2702 Series soft tip valves have 6,000 psi pressure rating @ 200 °F
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- Stem and bonnet threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust caps for bonnets and stems (non-packing)
- Patented body-to-bonnet, metal-to-metal seal is designed to significantly increase the pressure range of the valve (**U.S. Patent 7,758,014**)

Flow Schematic



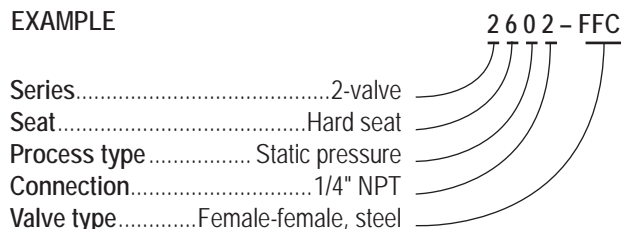
SPECIFICATIONS	
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connections	1/4" NPT, 1/8" NPT, right venting optional
Pressure ratings	Hard seat: 10,000 psi @ 200 °F Soft tip: 6,000 psi @ 200 °F
Orifice size	0.141"
Flow coefficient	Hard seat: C_v 0.38 Soft tip: C_v 0.38
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	2 2-valve		
SEATS	6 Hard seat	7	Soft tip
PROCESS TYPE	0 Static pressure		
CONNECTIONS	1 1/8" NPT	2	1/4" NPT
VALVE TYPES	FFC Female-Female, Steel FFS Female-Female, Stainless Steel	FFCR Female-Female, Steel, Right Vent FFSR Female-Female, Stainless Steel, Right Vent	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 2602-FFC-P1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

ORDERING INFORMATION - Additional Options				
PACKINGS	P1 PTFE	P2 Grafoil***		
STEM TIPS	T1 Non-rotating (316 stainless) T2 Delrin® (Acetal)*** T3 PTCFE***	T4 PEEK*** T5 Ball (440C stainless)** T6 Ball (carbide)**	T7 Ball (ceramic)** T8 Ball (Monel)** T9 Regulating hard**	T10 Regulating Delrin®*** T11 Regulating PTCFE*** T12 Regulating PEEK***
O-RINGS*	EM1 EPDM	KZ1 FFKM (Kalrez® 3018 or equivalent)	NB1	NBR
HANDLES	HL3 1" Round knurled			

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

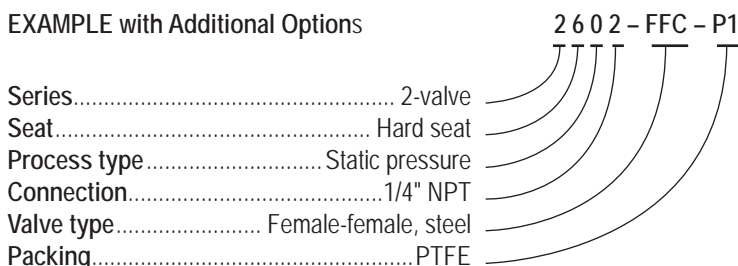
** Hard seat only.

*** Soft tip only.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are isolation mini "T" handles (HL7) and equalizing (HL7) mini "T" handles.

The handle material will always match the material of the valve, unless otherwise specified. For example, the mini "T" handle (HL7) on the 2602-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options



Technical drawing of the front view of a pressure washer. The drawing shows a rectangular body with a handle on the right, a trigger gun on the left, and a spray lance at the bottom. Dimensions are provided in inches.

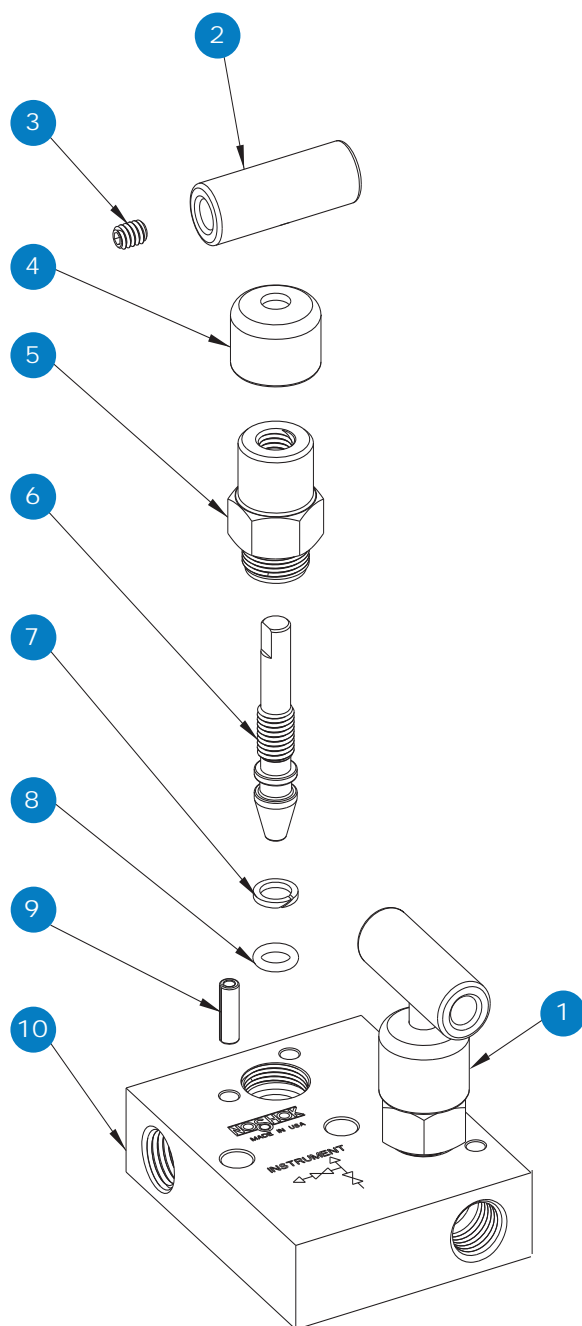
Overall dimensions:

- Overall width: 2-1/4"
- Overall height: 2-13/16"

Component dimensions and positions:

- Handle width: 1-1/8"
- Trigger gun diameter: Ø.266"
- Distance from top of body to trigger gun: 1-13/32"
- Distance from trigger gun to bottom of body: 29/32"
- Distance from top of body to bottom of body: 2-9/32"
- Distance from left edge of body to center of trigger gun: 1"
- Distance from center of trigger gun to right edge of body: 1"

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- 1 Blue dust cap
- 2 Mini valve "T" handle
- 3 Set screw
- 4 Red dust cap
- 5 Mini valve bonnet
- 6 Soft tip stem or mini valve stem
- 7 PTFE back-up ring
- 8 FKM o-ring
- 9 Slotted spring pin
- 10 Valve body

Block & Bleed, Hard & Soft Tip (0.156" Orifice)

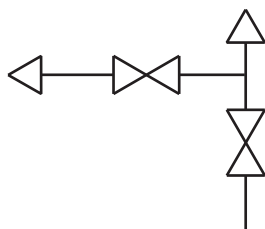
2603/2703 SERIES 2604/2704 SERIES



Note: Packing option shown.
HL2 handles shown,
HL1 is standard.

- Combines isolating and venting in a single valve, eliminating the need for tubing and fittings
- Block valve isolates the downstream process fluids and the bleed valve exhausts upstream fluids enabling static pressure transmitters, switches or gauges to be removed without disturbing the permanent piping installation
- Block valve is located on the right and the bleed valve is located on top in a 90° orientation, venting is to the left
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- Soft tip valves feature a patented Delrin® non-rotating soft tip stem, and a back-up metal-to-metal seal (**U.S. Patent 6,820,857**)
- 2603/2604 Series hard seat valves have 10,000 psi pressure rating @ 200 °F
- 2703/2704 Series soft tip valves have 6,000 psi pressure rating @ 200 °F
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust caps for bonnets and stems (non-packing)
- Patented body-to-bonnet, metal-to-metal seal is designed to significantly increase the pressure range of the valve (**U.S. Patent 7,758,014**)

Flow Schematic



SPECIFICATIONS

Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connections	2603/2703 Series: 3/8" NPT 2604/2704 Series: 1/2" NPT, right venting optional
Pressure ratings	Hard seat: 10,000 psi @ 200 °F Soft tip: 6,000 psi @ 200 °F
Orifice size	0.156"
Flow coefficient	C _v 0.44
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	2 2-valve		
SEATS	6 Hard seat	7	Soft tip
PROCESS TYPE	0 Static pressure		
CONNECTIONS	3 3/8" NPT	4	1/2" NPT
VALVE TYPES	FFC Female-Female, Steel FFS Female-Female, Stainless Steel	FFCR Female-Female, Steel, Right Vent FFSR Female-Female, Stainless Steel, Right Vent	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

2 7 0 4 - FFC

Series.....2-valve
Seat..... Soft tip
Process type..... Static pressure
Connection..... 1/2" NPT
Valve type.....Female-female, steel

To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 2704-FFC-P1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

NOTE 3: The standard o-ring in all the NOSHOK manifold valves is FKM.

ORDERING INFORMATION - Additional Options				
PACKINGS	P1 PTFE	P2 Grafoil [®] ***		
STEM TIPS	T1 Non-rotating (316 stainless)** T2 Delrin [®] (Acetal)*** T3 PTCFE***	T4 PEEK*** T5 Ball (440C stainless)** T6 Ball (carbide)**	T7 Ball (ceramic)** T8 Ball (Monel)** T9 Regulating hard**	T10 Regulating Delrin [®] *** T11 Regulating PTCFE*** T12 Regulating PEEK***
O-RINGS*	EM1 EPDM	KZ1 FFKM (Kalrez [®] 3018 or equivalent)	NB1	NBR
HANDLES	HL2 2-1/2" "T" HL3 1" Round knurled	HL4 1-3/8" Phenolic HL5 1-3/4" Phenolic		

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

** Hard seat only.

*** Soft tip only.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are mini "T" handles (HL1).

The handle material will always match the material of the valve, unless otherwise specified. For example, the mini "T" handle (HL1) on the 2704-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

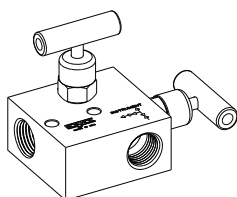
EXAMPLE with Additional Options

2 7 0 4 - FFC - P1

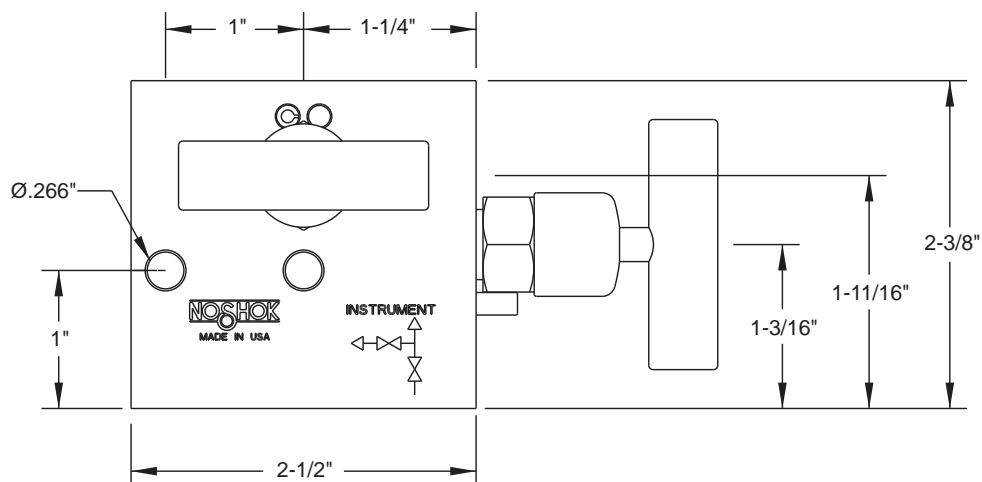
Series.....2-valve
Seat..... Soft tip
Process type..... Static pressure
Connection..... 1/2" NPT
Valve type..... Female-female, steel
Packing.....PTFE

Dimensions

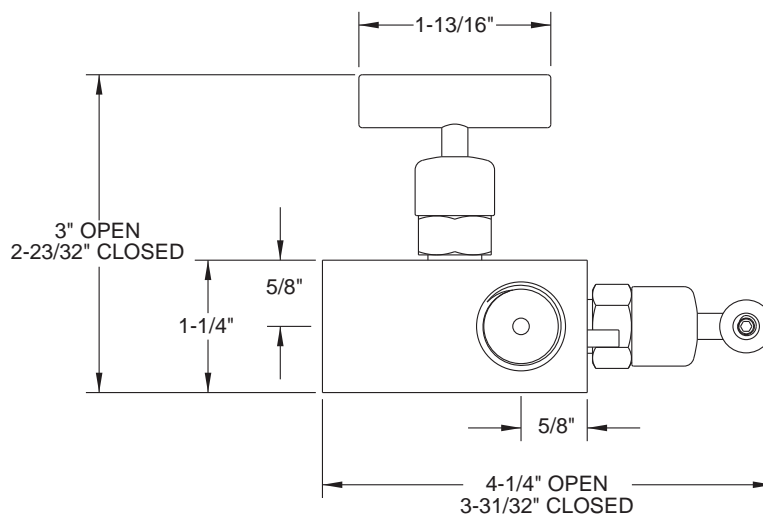
Female-Female



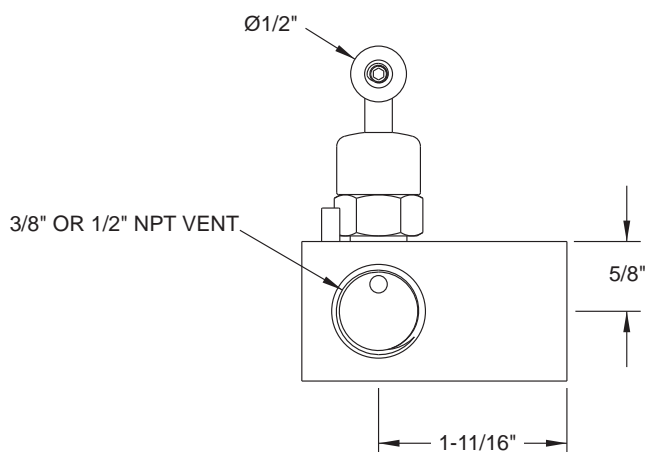
Top View



Front View

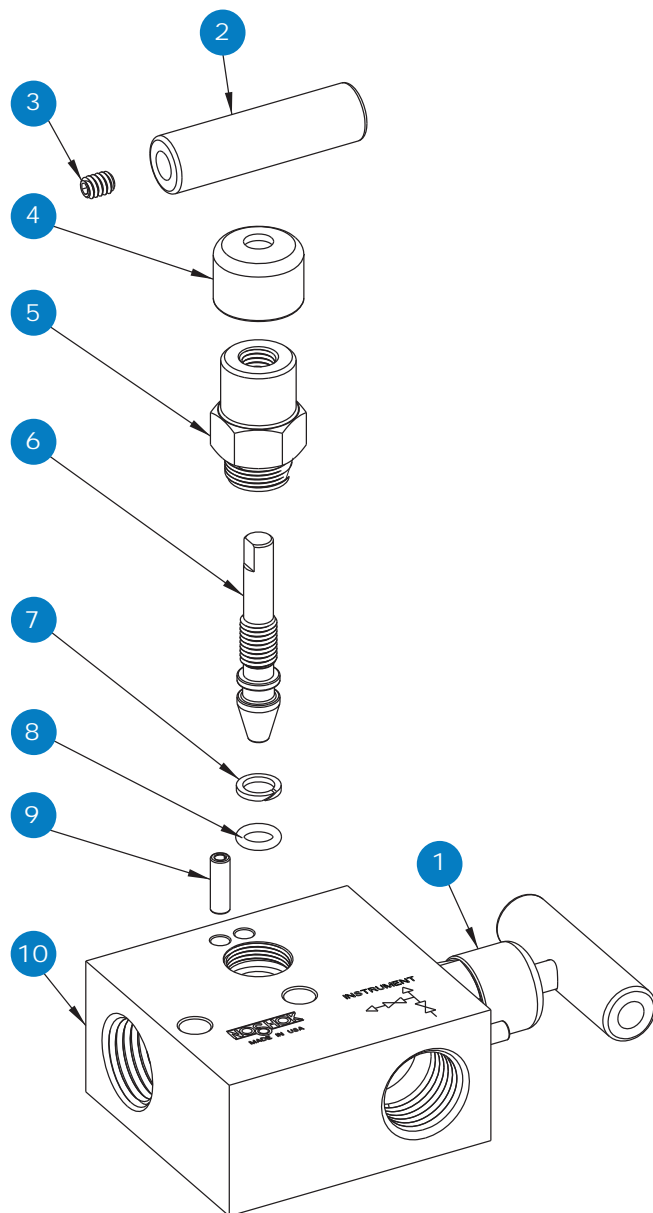


Side View



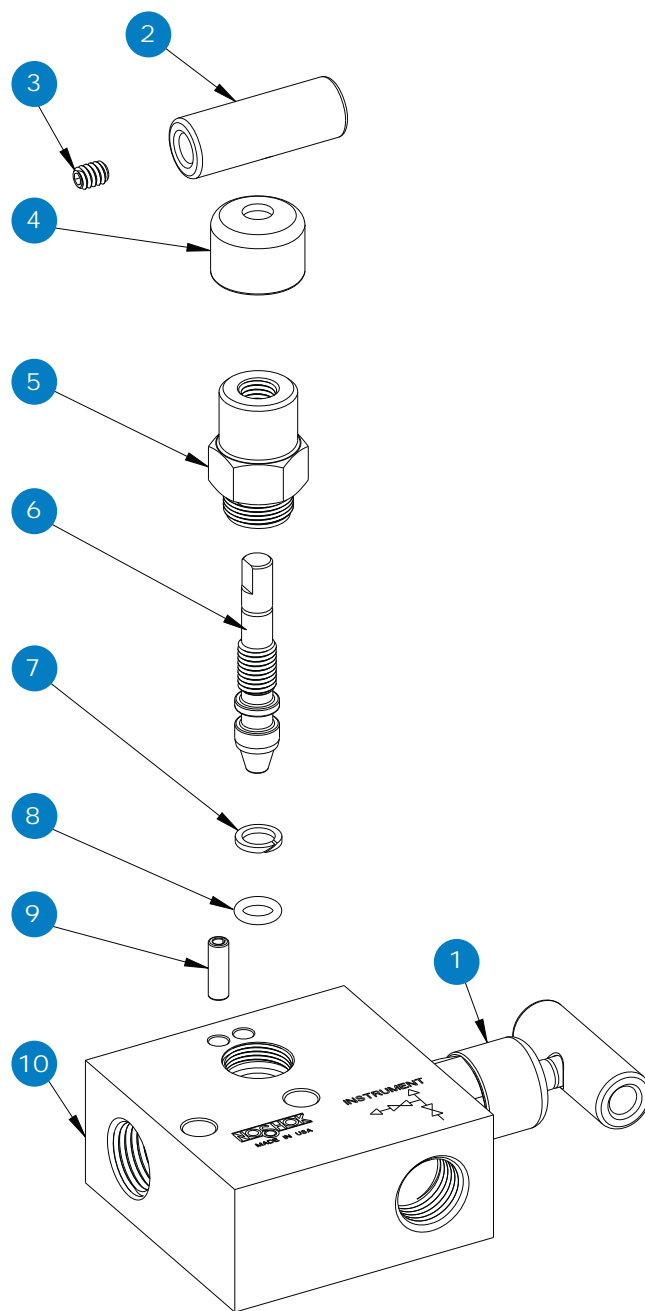
For panel mount and packing dimensions, see pgs. 64-65.

Hard Seat



- 1 Blue dust cap
- 2 Mini valve "T" handle
- 3 Set screw
- 4 Red dust cap
- 5 Mini valve bonnet
- 6 Mini valve stem
- 7 PTFE back-up ring
- 8 FKM o-ring
- 9 Slotted spring pin
- 10 Valve body

Soft Tip



- 1 Blue dust cap
- 2 Mini valve "T" handle
- 3 Set screw
- 4 Red dust cap
- 5 Mini valve bonnet
- 6 Soft tip stem
- 7 PTFE back-up ring
- 8 FKM o-ring
- 9 Slotted spring pin
- 10 Valve body

Meter Manifold, Soft Seat

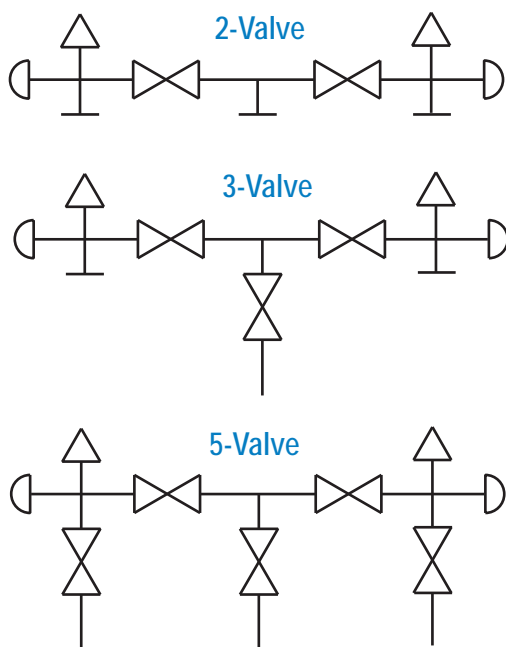
2180 SERIES



Optional 3 and 5 valve configurations also shown.
Additional needle valves sold separately.

- Designed for use with orifice meters
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 6,000 psi pressure rating @ 200 °F
- Replaceable Delrin® seat and straight through porting for bidirectional, high capacity flow and easy roddable cleaning
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust caps for bonnets and stems (non-packing)

Flow Schematics



SPECIFICATIONS

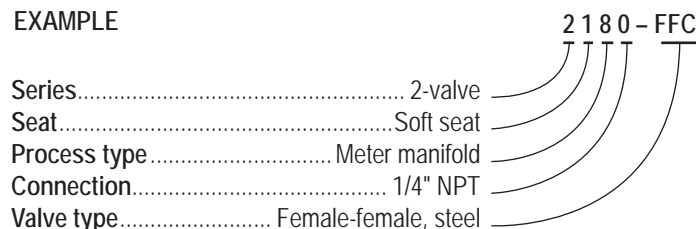
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connection	1/4" NPT
Pressure rating	6,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	C _v 0.76
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION	
SERIES	2 2-valve
SEAT	1 Soft seat
PROCESS TYPE	8 Meter manifold
CONNECTION	0 1/4" NPT
VALVE TYPES	FFC Female-Female, Steel FFS Female-Female, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 2180-FFC-P1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

NOTE 3: The standard o-ring in all the NOSHOK manifold valves is FKM.

ORDERING INFORMATION - Additional Options	
PACKINGS	P1 PTFE
STEM TIPS	T1 Non-rotating (316 stainless)
O-RINGS*	EM1 EPDM KZ1 FFKM (Kalrez® 3018 or equivalent) NB1 NBR
HANDLES	HL3 1" Round knurled HL4 1-3/8" Phenolic HL5 1-3/4" Phenolic

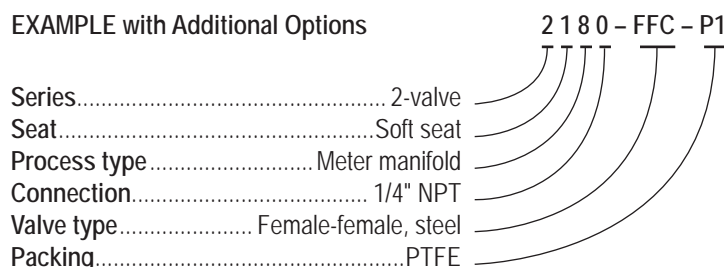
Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

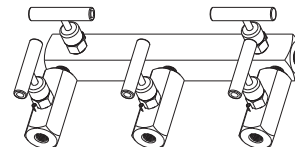
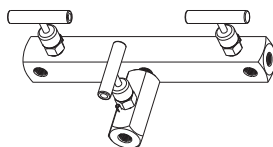
The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 2180-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

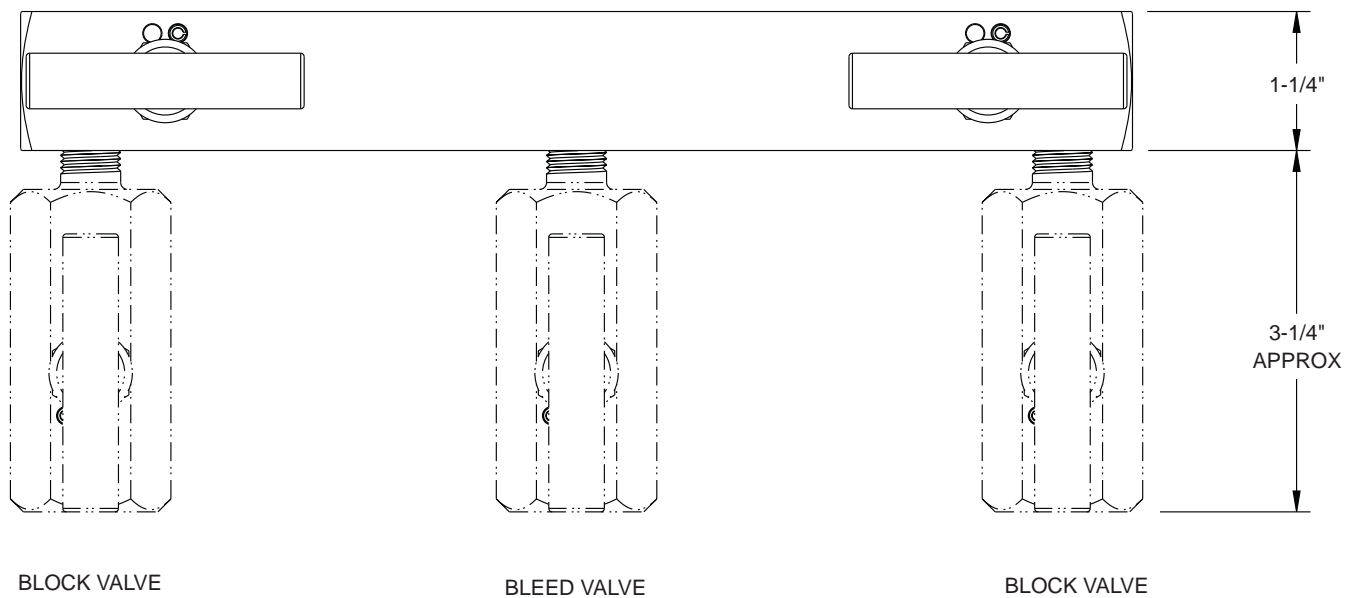


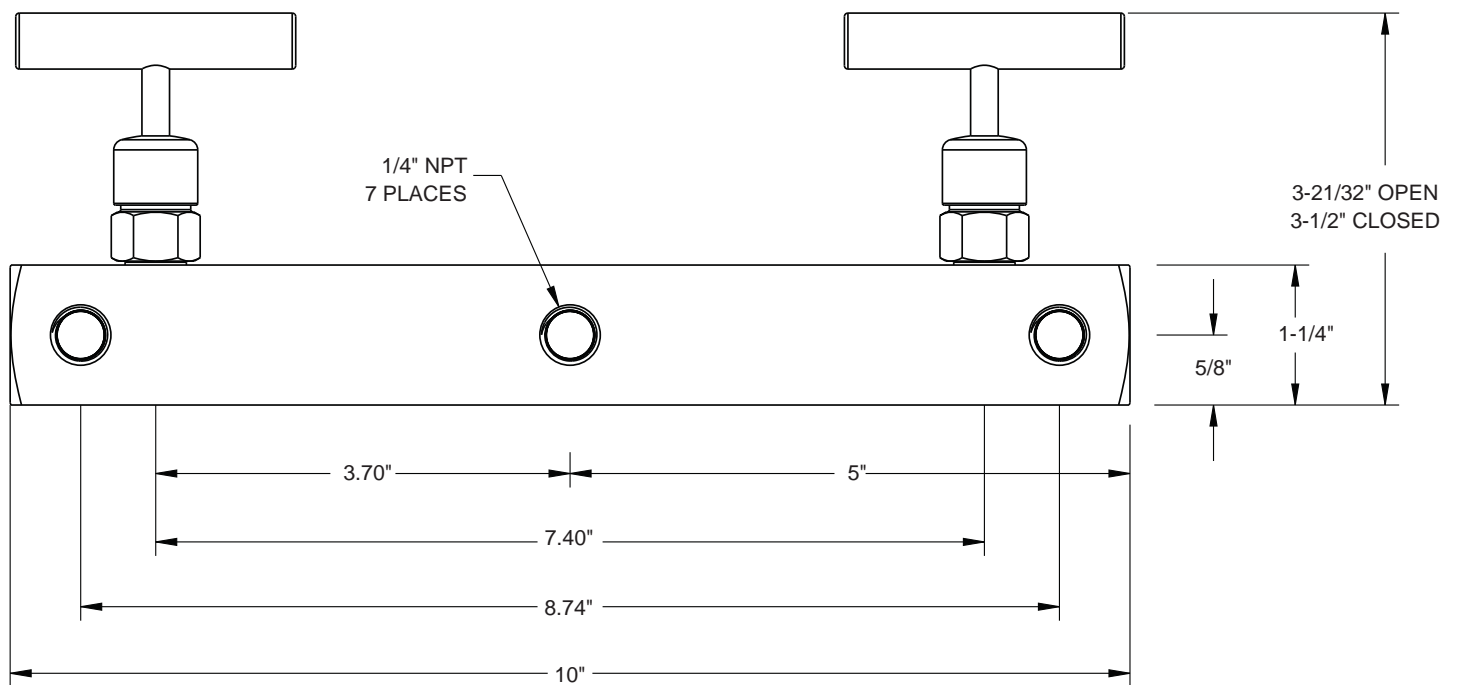
Dimensions

Female-Female



Optional 3 and 5 valve configurations also shown.
Additional needle valves sold separately.

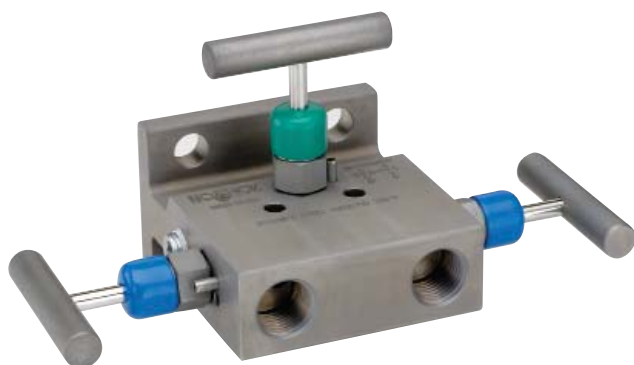




For panel mount and
packing dimensions,
see pgs. 64-65.

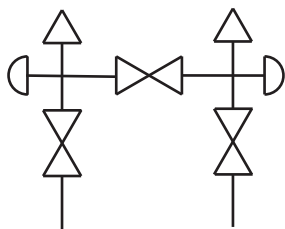
Hard Seat & Soft Seat

3010/3110 SERIES



- Available in block, single flange, or double flange connection for remote or direct installation
- Designed for use with differential pressure transmitters incorporating two isolation valves and an equalizing valve in differential pressure measurement
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 3010 Series hard seat valves have 10,000 psi pressure rating @ 200 °F
- 3110 Series soft seat valves have 6,000 psi pressure rating @ 200 °F
- 3110 Series soft seat valves also feature a replaceable Delrin® seat, and straight through porting for bidirectional, high capacity flow and easy roddable cleaning
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust caps for bonnets and stems (non-packing)

Flow Schematic



SPECIFICATIONS

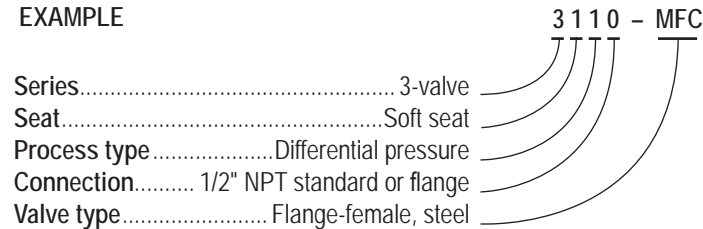
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connection	Flange-flange, 1/2" NPT-flange, 1/2" NPT-1/2" NPT
Pressure ratings	Hard seat: 10,000 psi @ 200 °F Soft seat: 6,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	Hard seat: C_v 0.44 Soft seat: C_v 0.76
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION						
SERIES	3	3-valve				
SEATS	0	Hard seat		1	Soft seat	
PROCESS TYPE	1	Differential pressure				
CONNECTION	0	1/2" NPT standard or flange				
VALVE TYPES	MFC	Flange-Female, Steel	MFS	Flange-Female, Stainless Steel	MMC	Flange-Flange, Steel
	FFC	Female-Female, Steel	FFS	Female-Female, Stainless Steel	MMS	Flange-Flange, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 3110-MFC-P1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

NOTE 3: The standard o-ring in all the NOSHOK manifold valves is FKM and T1 hard non-rotating (316SS standard) stem tip is the only option available on the 3110 Series soft seat version.

ORDERING INFORMATION - Additional Options						
SOFT SEATS***	PK1	PEEK	KF1	PCTFE		
PACKINGS	P1	PTFE	P2	Grafoil®**		
STEM TIPS	T1	Non-rotating (316 stainless)	T6	Ball (carbide)**	T8	Ball (Monel)**
	T5	Ball (440C stainless)**	T7	Ball (ceramic)**	T9	Regulating hard**
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)	NB1	NBR
HANDLES	HL1	1-13/16" Mini "T"	HL4	1-3/8" Phenolic		
	HL3	1" Round knurled	HL5	1-3/4" Phenolic		

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

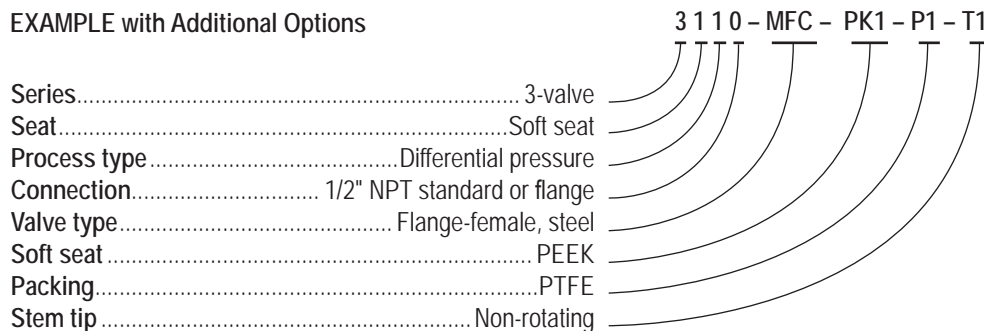
* Other o-ring materials available on request.

** For 3010 only.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are "T" handles (HL2).

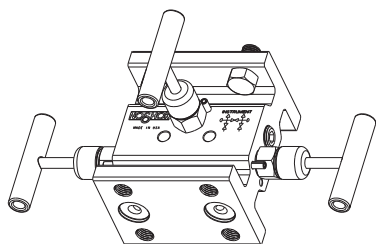
The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle (HL2) on the 3110-MFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

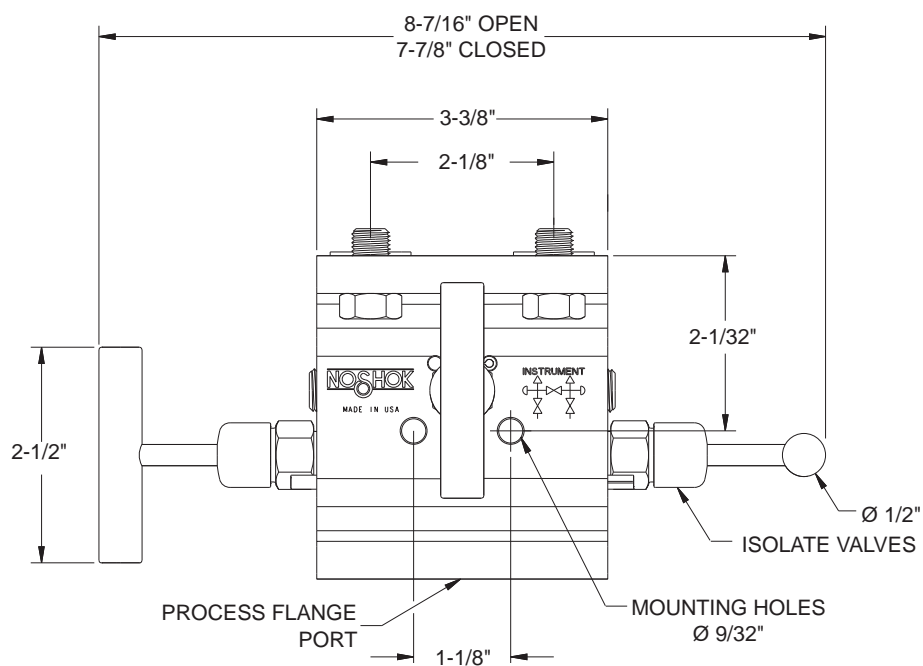


Dimensions

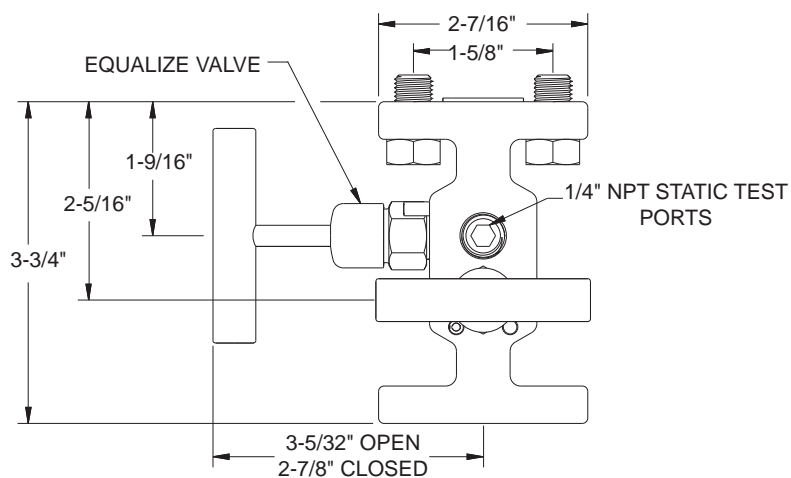
Flange-Flange



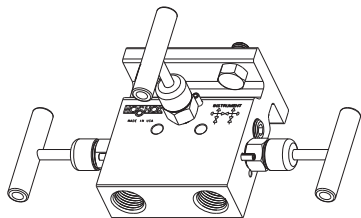
Top View



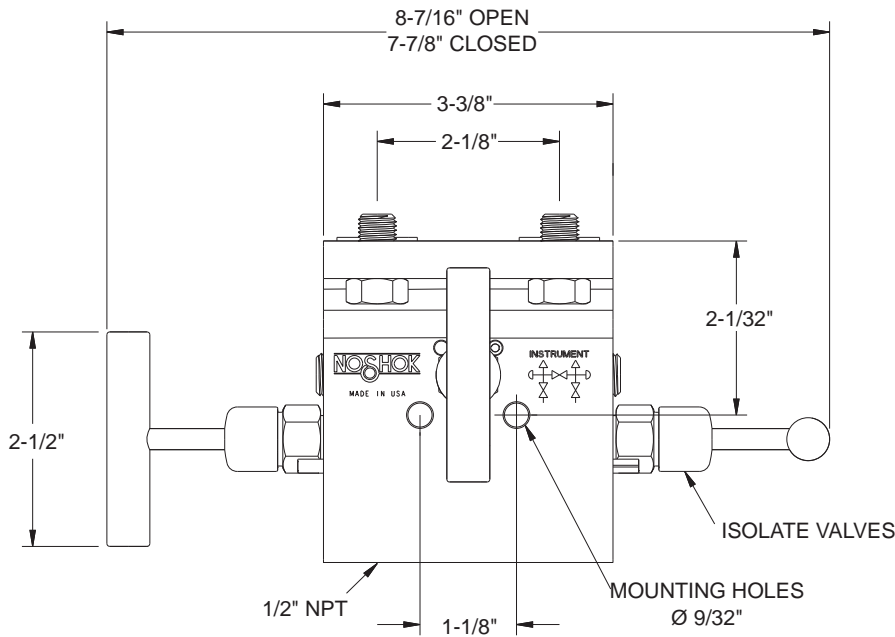
Side View



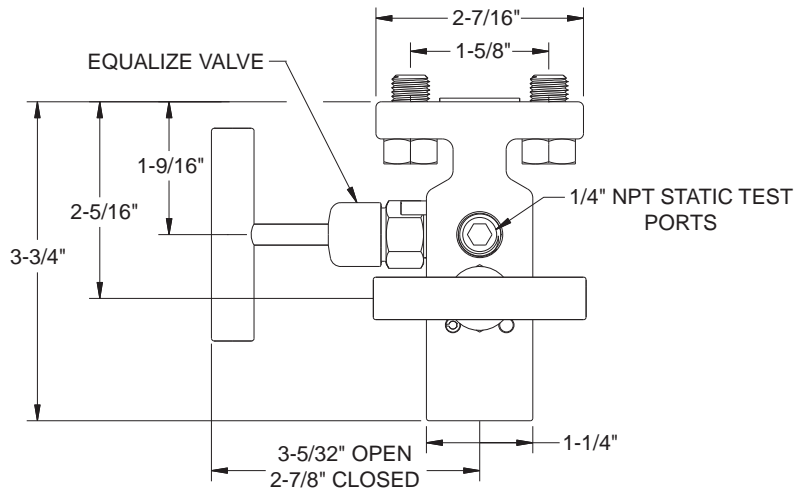
Flange-Female



Top View

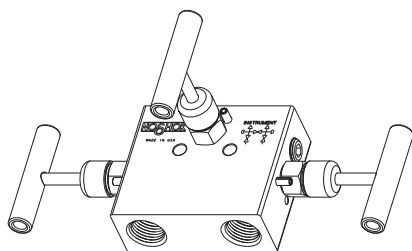


Side View

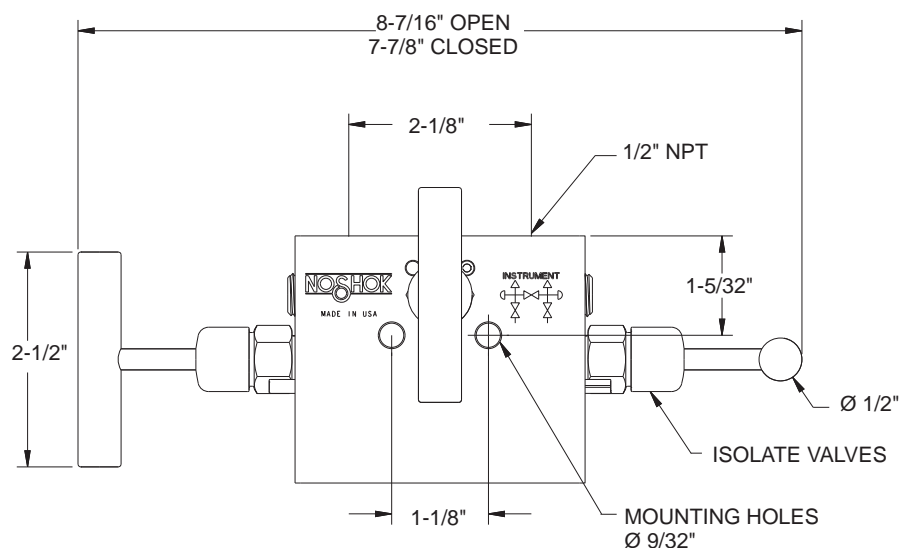


Dimensions

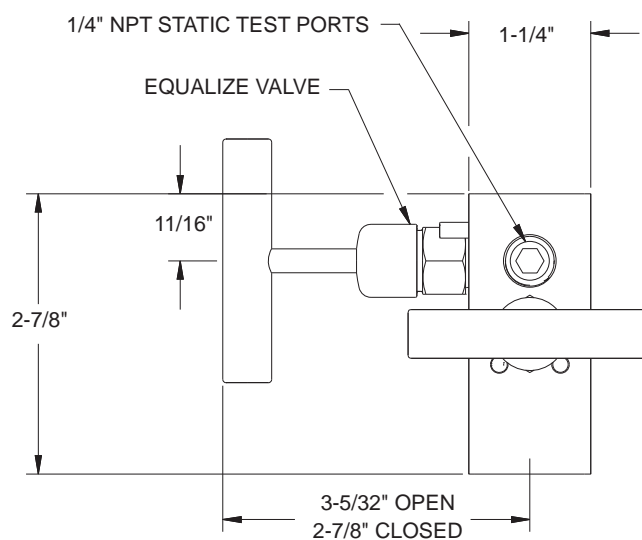
Female-Female



Top View



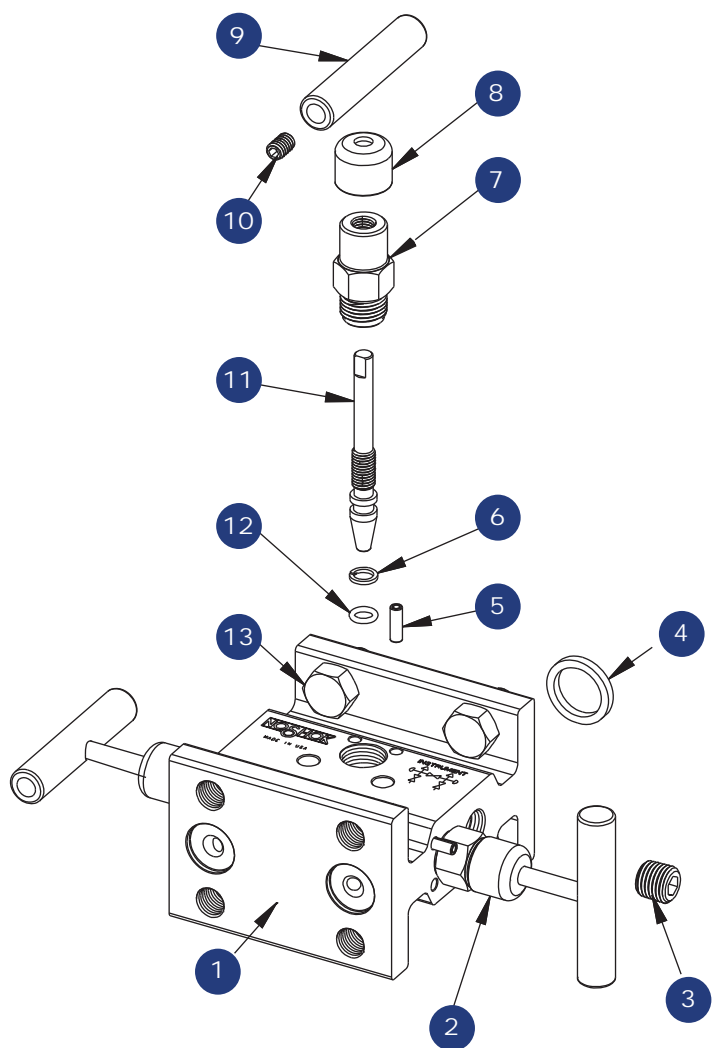
Side View



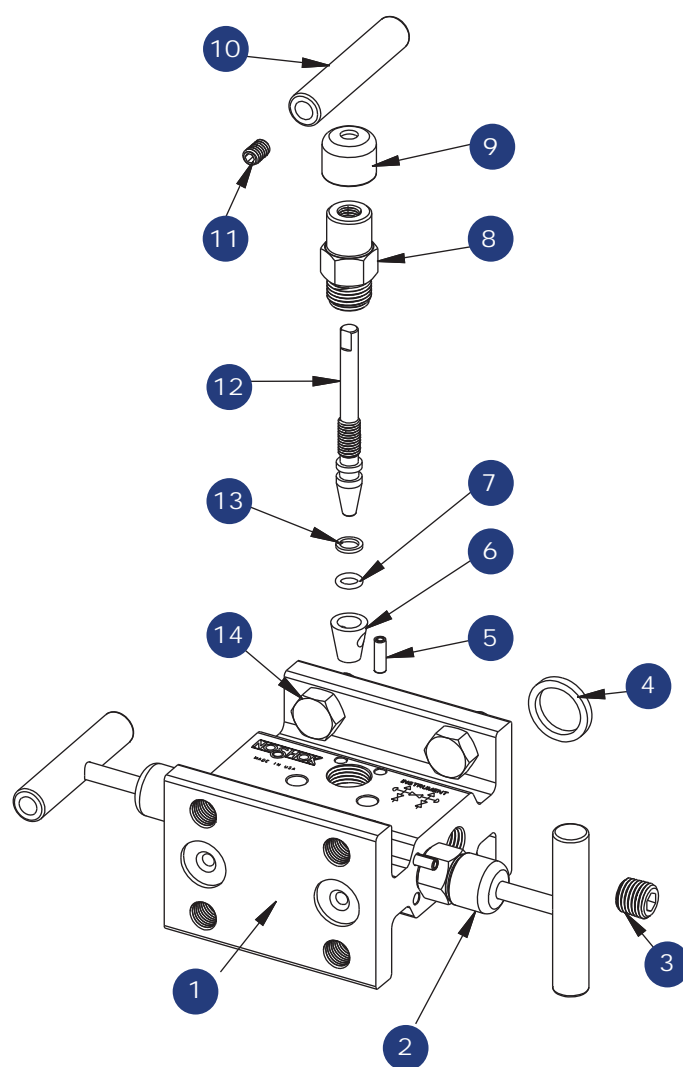
For panel mount and packing dimensions, see pgs. 64-65.

Hard Seat

Soft Seat



- 1 Valve body
- 2 Blue dust cap
- 3 Plug
- 4 Gasket ring
- 5 Slotted spring pin
- 6 PTFE back-up ring
- 7 Valve bonnet
- 8 Green dust cap
- 9 Valve "T" handle
- 10 Set screw
- 11 Valve stem
- 12 FKM o-ring
- 13 Head bolt



- 1 Valve body
- 2 Blue dust cap
- 3 Plug
- 4 Gasket ring
- 5 Slotted spring pin
- 6 Delrin® seat
- 7 FKM o-ring
- 8 Valve bonnet
- 9 Green dust cap
- 10 Valve "T" handle
- 11 Set screw
- 12 Valve stem
- 13 PTFE back-up ring
- 14 Head bolt

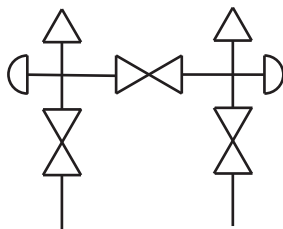
Soft Seat (0.375" Orifice)

3510 SERIES



- Designed for use with differential pressure transmitters incorporating two isolation valves and an equalizing valve in differential pressure measurement
- Available in block, single flange, or double flange connection for remote or direct installation
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- Soft seat design has 6,000 psi pressure rating @ 200 °F
- Features a replaceable Delrin® seat, and straight through porting for bidirectional, high capacity flow and easy roddable cleaning
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust caps for bonnets and stems
- Non-rotating stem tip standard on isolation valves

Flow Schematic



SPECIFICATIONS

Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connection	Flange-flange, 1/2" NPT-flange, 1/2" NPT-1/2" NPT
Pressure ratings	6,000 psi @ 200 °F
Orifice size	0.375"
Flow coefficient	C _v 3.0
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION						
SERIES	3	3-valve				
SEAT	5	Soft seat, 0.375" orifice				
PROCESS TYPE	1	Differential pressure				
CONNECTION	0	1/2" NPT standard or flange				
VALVE TYPES	MFC	Flange-Female, Steel	MFS	Flange-Female, Stainless Steel	MMC	Flange-Flange, Steel
	FFC	Female-Female, Steel	FFS	Female-Female, Stainless Steel	MMS	Flange-Flange, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

Series.....3-valve
 Seat.....Soft seat
 Process type.....Differential pressure
 Connection.....1/2" NPT standard or flange
 Valve type.....Flange-female, steel

3 5 1 0 - MFC

To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as follows:

ORDERING INFORMATION - Additional Options					
SOFT SEATS	PK1	PEEK	KF1	PCTFE	
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)	
	NB1	NBR			
HANDLES	HL3	1" Round knurled	HL4	1-3/8" Phenolic	HL5 1-3/4" Phenolic

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are isolation "T" handles (HL8) and equalizing "T" handles (HL2).

The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle on the 3510-MFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

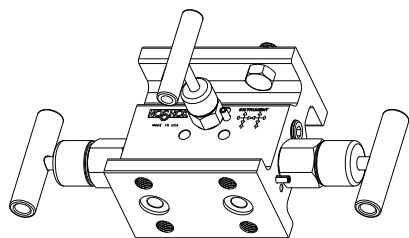
EXAMPLE with Additional Options

Series.....3-valve
 Seat.....Soft seat
 Process type.....Differential pressure
 Connection.....1/2" NPT standard or flange
 Valve type.....Flange-female, steel
 Soft seat.....PEEK
 O-ring.....FFKM

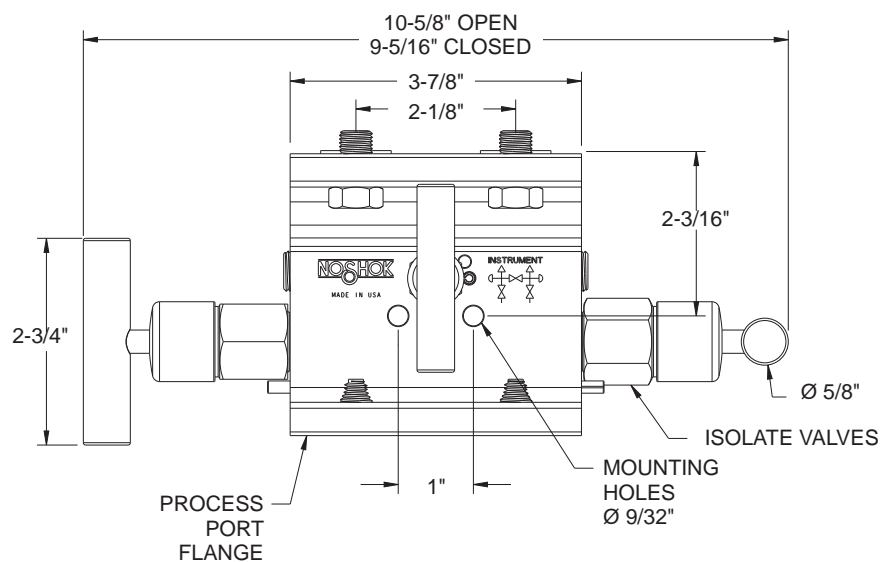
3 5 1 0 - MFC - PK1 - KZ1

Dimensions

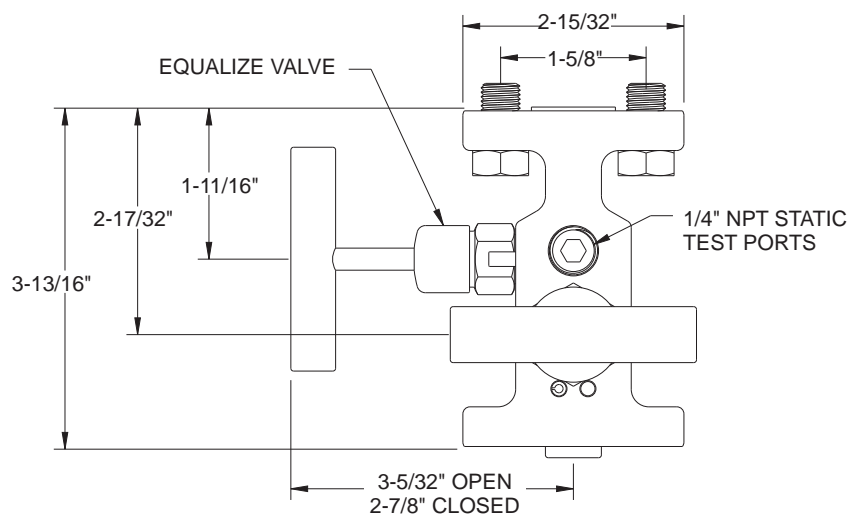
Flange-Flange



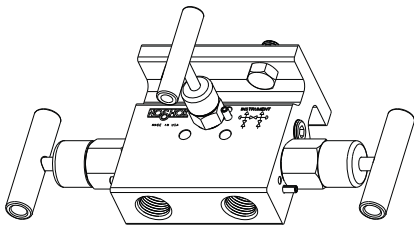
Top View



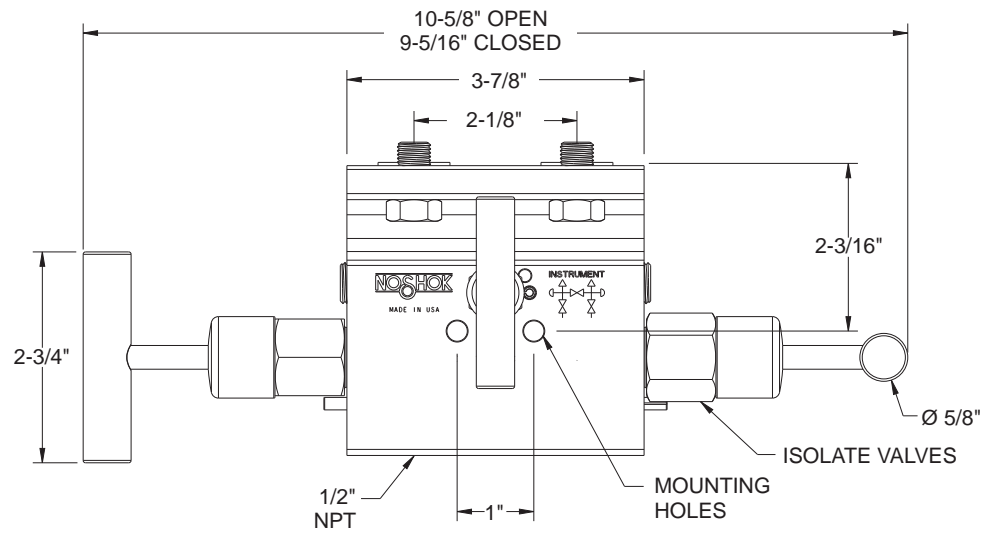
Side View



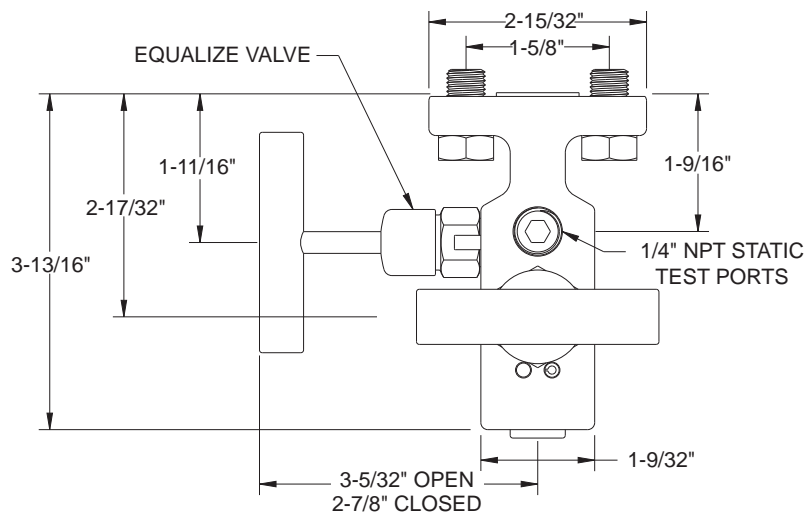
Flange-Female



Top View

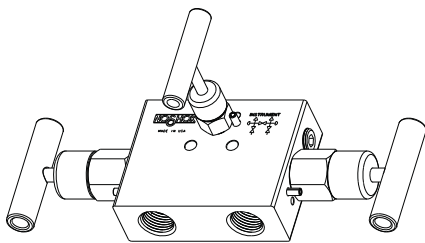


Side View

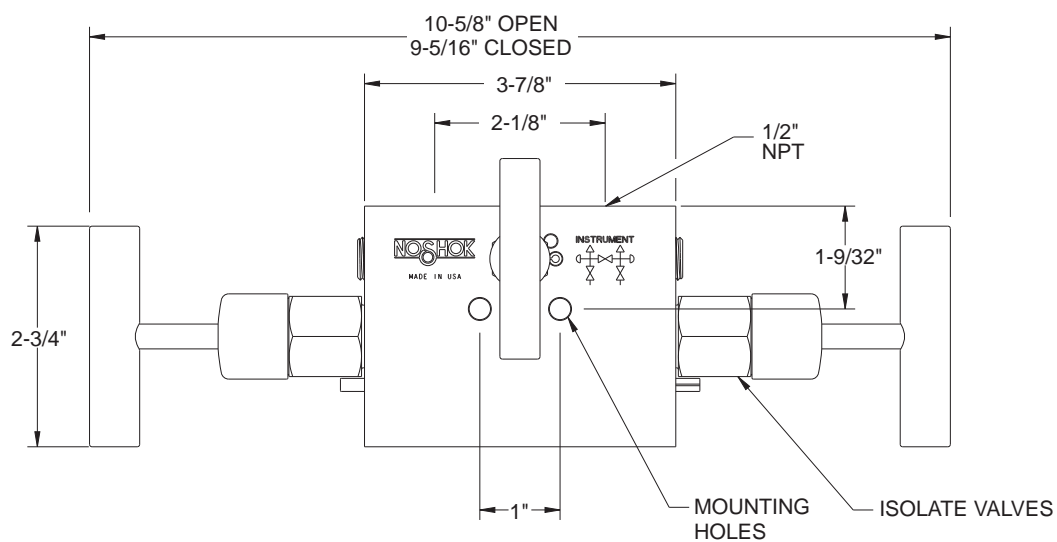


Dimensions

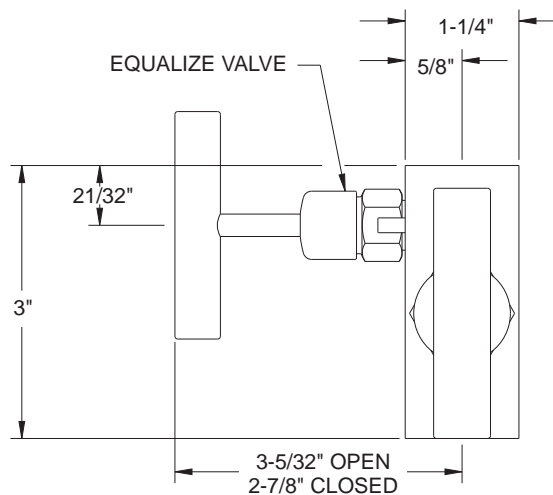
Female-Female



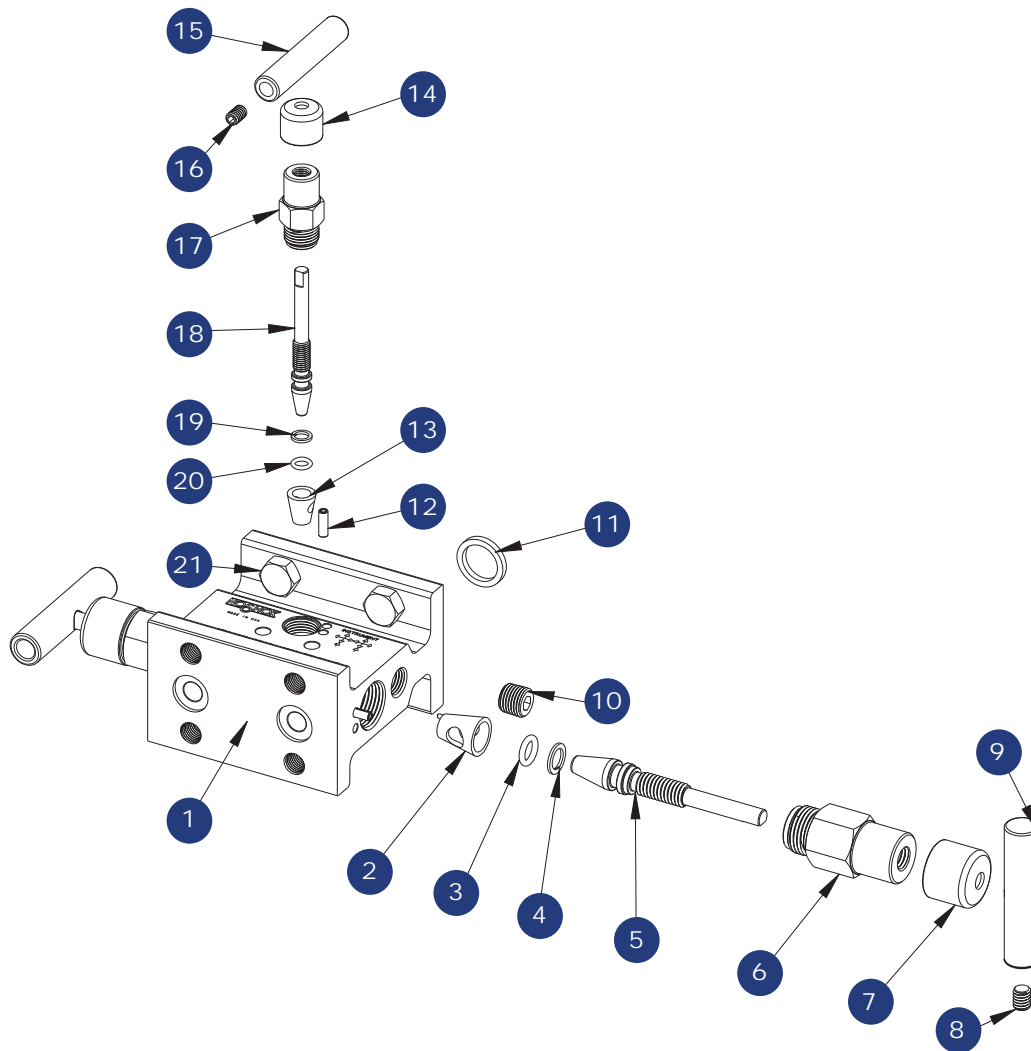
Top View



Side View



For panel mount and packing dimensions, see pgs. 64-65.



- | | |
|------------------------------|-----------------------|
| 1 Valve body | 12 Slotted spring pin |
| 2 Delrin® seat | 13 Delrin® seat |
| 3 FKM o-ring | 14 Green dust cap |
| 4 PTFE back-up ring | 15 Valve "T" handle |
| 5 Non-rotating stem assembly | 16 Set screw |
| 6 Valve bonnet | 17 Valve bonnet |
| 7 Blue dust cap | 18 Valve stem |
| 8 Set screw | 19 PTFE back-up ring |
| 9 Valve "T" handle | 20 FKM o-ring |
| 10 Plug | 21 Head bolt |
| 11 Gasket ring | |

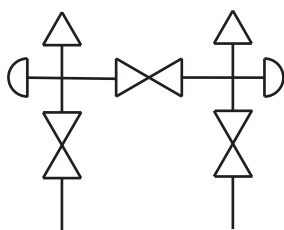
Mini, Hard Seat & Soft Tip (0.141" Orifice)

3610/3710 SERIES



- Compact design is ideal for installations with limited space, such as behind panels or in cabinets
- Designed for use with differential pressure transmitters incorporating two isolation valves and an equalizing valve in differential pressure measurement
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- Soft tip valves feature a patented Delrin® non-rotating soft tip stem, and a back-up metal-to-metal seal (**U.S. Patent 6,820,857**)
- 3610 Series hard seat valves have 10,000 psi pressure rating @ 200 °F
- 3710 Series soft tip valves have 6,000 psi pressure rating @ 200 °F
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Vinyl dust caps for bonnets and stems (non-packing)
- Patented body-to-bonnet, metal-to-metal seal is designed to significantly increase the pressure range of the valve (**U.S. Patent 7,758,014**)

Flow Schematic



SPECIFICATIONS

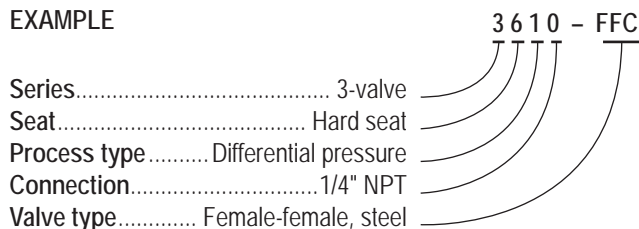
Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connection	1/4" NPT
Pressure ratings	Hard seat: 10,000 psi @ 200 °F Soft tip: 6,000 psi @ 200 °F
Orifice size	0.141"
Flow coefficient	C _v 0.44
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads, PTFE or Grafoil® packing optional
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION			
SERIES	3	3-valve	
SEATS	6	Hard seat	7 Soft tip
PROCESS TYPE	1	Differential pressure	
CONNECTION	0	1/4" NPT	
VALVE TYPES	FFC	Female-Female, Steel	FFS Female-Female, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 3610-FFC-P1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

NOTE 3: The standard o-ring in all the NOSHOK manifold valves is FKM.

ORDERING INFORMATION - Additional Options					
PACKINGS	P1	PTFE	P2	Grafoil ^{***}	
STEM TIPS	T1	Non-rotating (316 stainless)**	T4	PEEK***	T7 Ball (ceramic)**
	T2	Delrin [®] (Acetal)***	T5	Ball (440C stainless)**	T8 Ball (Monel)**
	T3	PTCFE***	T6	Ball (carbide)**	T9 Regulating hard**
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez [®] 3018 or equivalent)	NB1 NBR
HANDLES	HL2	2-1/2" "T"	HL4	1-3/8" Phenolic	
	HL3	1" Round knurled	HL5	1-3/4" Phenolic	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

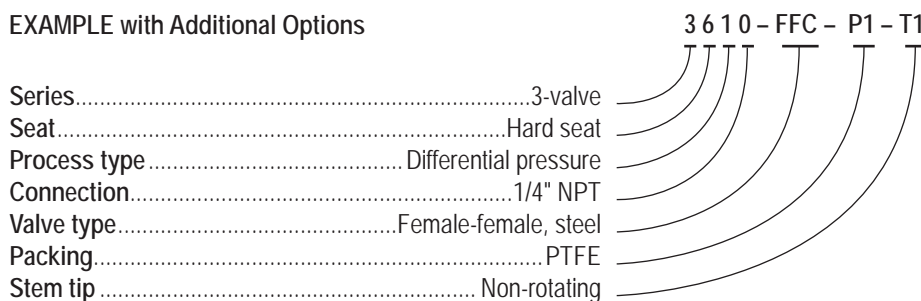
** For 3610 only.

*** For 3710 only.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are mini "T" handles (HL1).

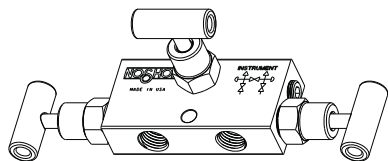
The handle material will always match the material of the valve, unless otherwise specified. For example, the mini "T" handle (HL1) on the 3610-FFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

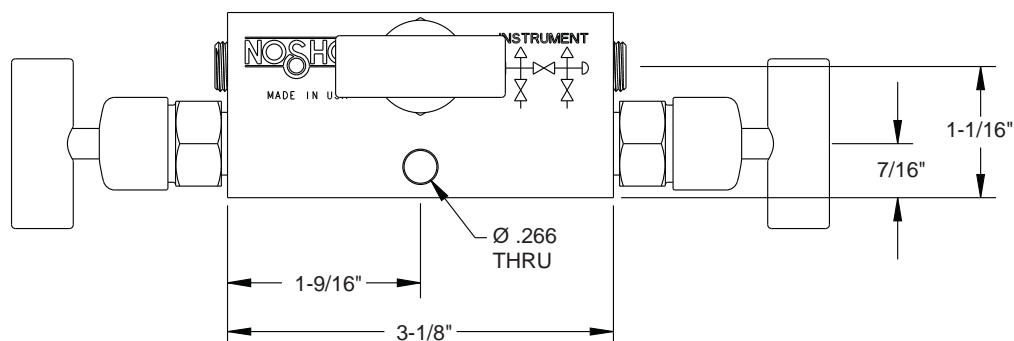


Dimensions

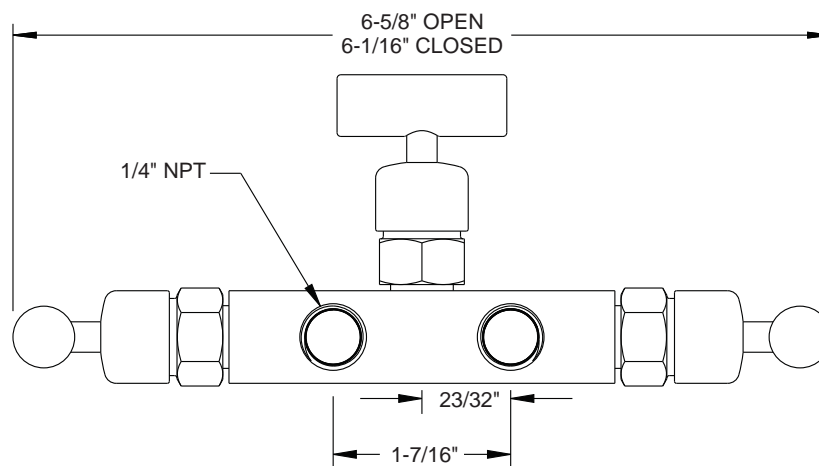
Female-Female



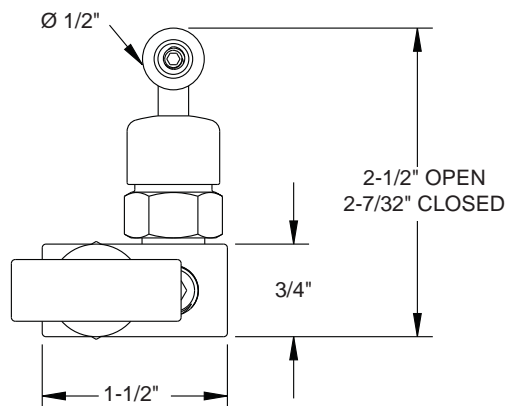
Top View



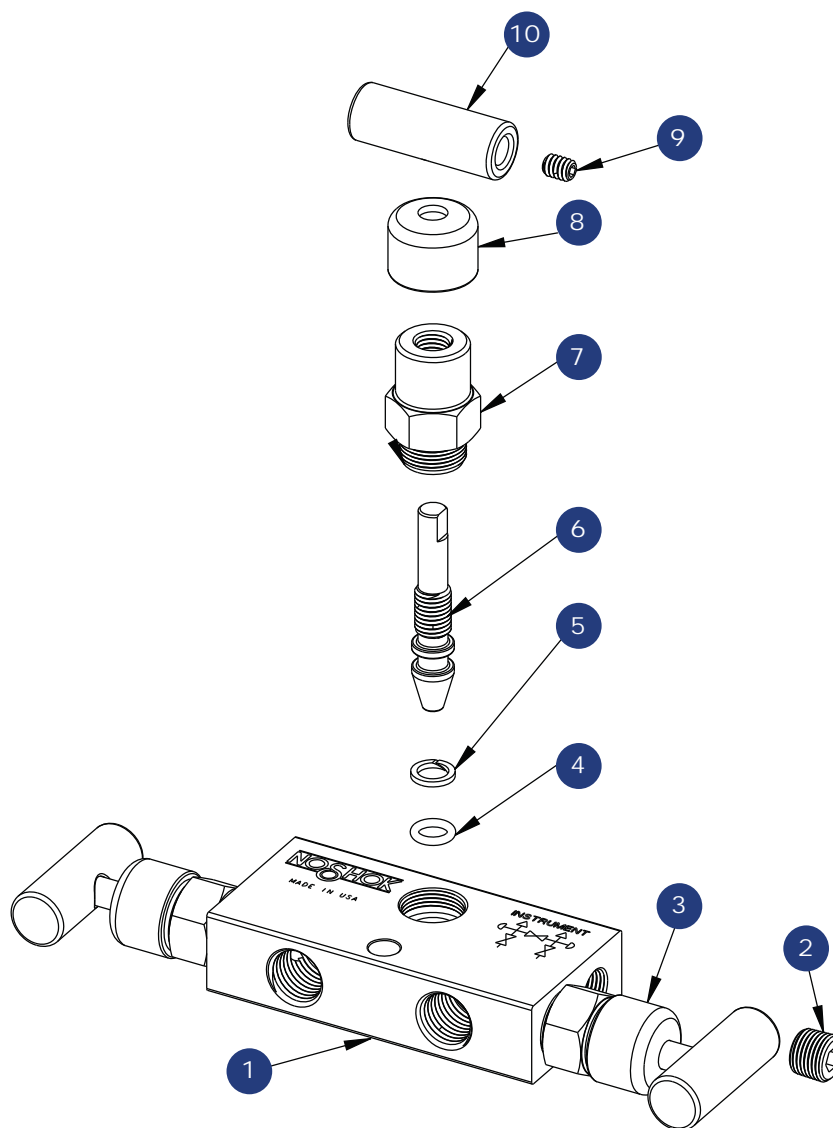
Front View



Side View



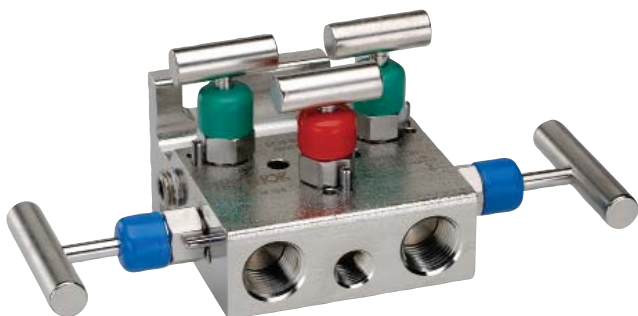
For panel mount and packing dimensions, see pgs. 64-65.



- 1 Valve body
- 2 Plug
- 3 Blue dust cap
- 4 FKM o-ring
- 5 PTFE back-up ring
- 6 Soft tip stem
- 7 Mini valve bonnet
- 9 Set screw
- 8 Green dust cap
- 10 Mini valve "T" handle

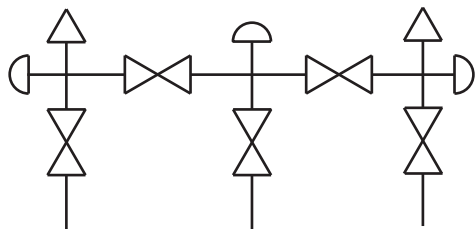
Hard Seat & Soft Seat/Tip

5030/5130 SERIES



- Designed for use with differential pressure transmitters incorporating two isolation valves, two equalizing valves and a vent valve required in natural gas applications
- Soft tip valves feature a patented Delrin® non-rotating soft tip stem, and a back-up metal-to-metal seal (**U.S. Patent 6,820,857**)
- Available in block, single flange, or double flange connection for remote or direct installation
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- 5030 Series hard seat valves have 10,000 psi pressure rating @ 200 °F
- 5130 Series soft seat/tip valves have 6,000 psi pressure rating @ 200 °F
- 5130 Series valves also feature a replaceable Delrin® seat, and straight through porting for bidirectional, high capacity flow and easy roddable cleaning on the block valves
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling; PTFE or Grafoil® packing optional
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust caps for bonnets and stems (non-packing)
- Patented body-to-bonnet, metal-to-metal seal is designed to significantly increase the pressure range of the valve (**U.S. Patent 7,758,014**)

Flow Schematic



SPECIFICATIONS

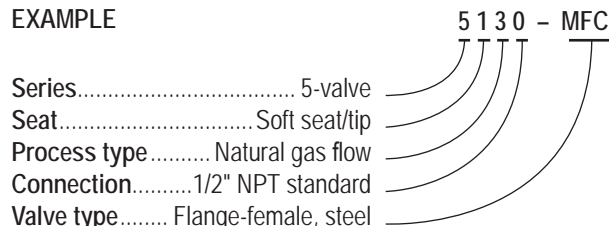
Materials	Zinc-nickel plated carbon steel, electropolished 316 stainless steel
Connection	Flange-flange, 1/2" NPT-flange, 1/2" NPT-1/2" NPT
Pressure ratings	Hard seat: 10,000 psi @ 200° F Soft seat/tip: 6,000 psi @ 200 °F
Orifice size	0.187"
Flow coefficient	Hard seat: C_v 0.44 Soft seat/tip: C_v 0.76
Stem seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads.
Additional features	Two static (test) ports, color coded vinyl bonnet and stem dust cap, patented soft seat/tip stem design on equalizing and vent valves
Options	Panel mountings, o-ring materials, handles, packings, regulating stem and stem tips

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION						
SERIES	5	5-valve				
SEATS	0	Hard seat	1	Soft seat/tip		
PROCESS TYPE	3	Natural gas flow				
CONNECTION	0	1/2" NPT or flange				
VALVE TYPES	MFC	Flange-Female, Steel	MFS	Flange-Female, Stainless Steel	MMC	Flange-Flange, Steel
	FFC	Female-Female, Steel	FFS	Female-Female, Stainless Steel	MMS	Flange-Flange, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE



To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as shown in the diagram below.

NOTE 1: The example shown includes ALL possible additional options. Please include ONLY the options required for your application when building your part number. (EXAMPLE: 5130-MFC-P1)

NOTE 2: When a packing option is selected, an o-ring option is NOT available.

NOTE 3: The standard o-ring in all the NOSHOK manifold valves is FKM and T1 hard non-rotating (316SS standard) stem tip is the only option available for the Isolation valves on the 5130 Series. All other stem tip options are available for the equalize and vent valves.

ORDERING INFORMATION - Additional Options						
SOFT SEATS	PK1	PEEK	KF1	PCTFE		
PACKINGS	P1	PTFE		P2	Grafoil®**	
STEM TIPS	T1	Non-rotating (316 stainless)		T4	PEEK***	
	T2	Delrin® (Acetal)***		T5	Ball (440C stainless)**	
	T3	PTCFE***		T6	Ball (carbide)**	
				T7	Ball (ceramic)**	
				T8	Ball (Monel)**	
				T9	Regulating hard**	
				T10	Regulating Delrin®***	
				T11	Regulating PTCFE***	
				T12	Regulating PEEK***	
O-RINGS*	EM1	EPDM		KZ1	FFKM (Kalrez® 3018 or equivalent)	
				NB1	NBR	
HANDLES	HL1	1-13/16" Mini "T"		HL4	1-3/8" Phenolic	
	HL3	1" Round knurled		HL5	1-3/4" Phenolic	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

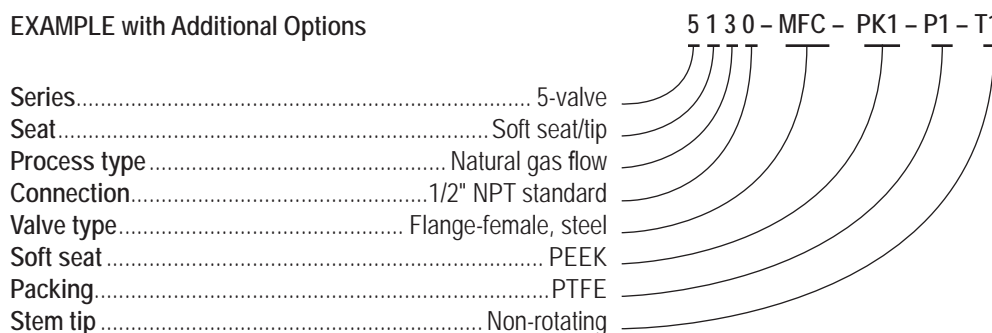
** For 5030 only.

*** For 5130 only.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are isolation "T" handles (HL2) and equalizing & vent mini "T" handles (HL7).

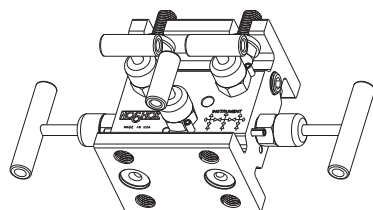
The handle material will always match the material of the valve, unless otherwise specified. For example, handles on the 5130-MFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

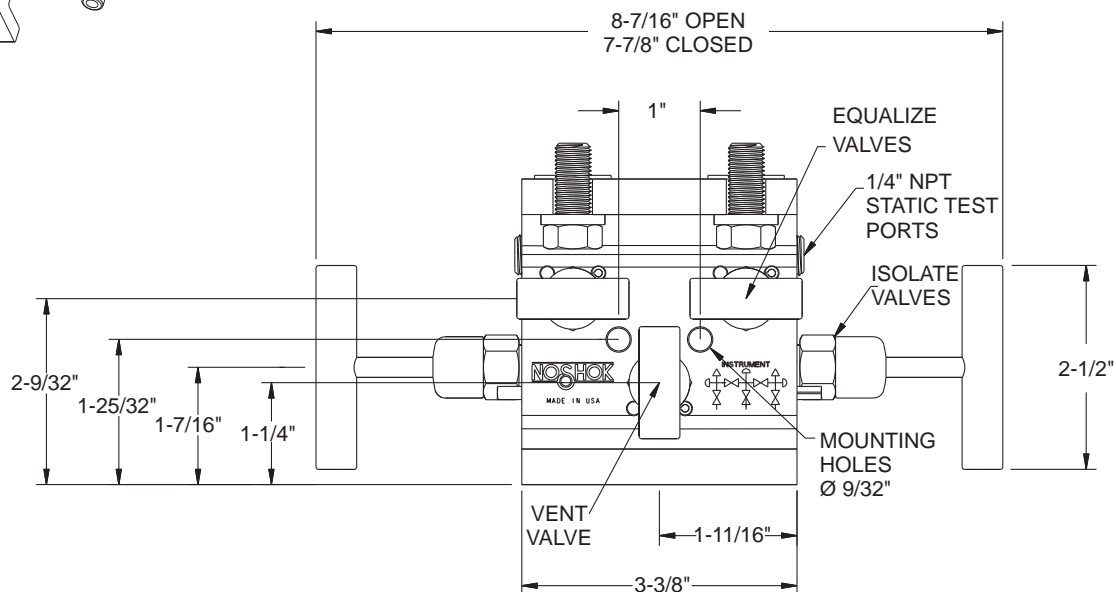


Dimensions

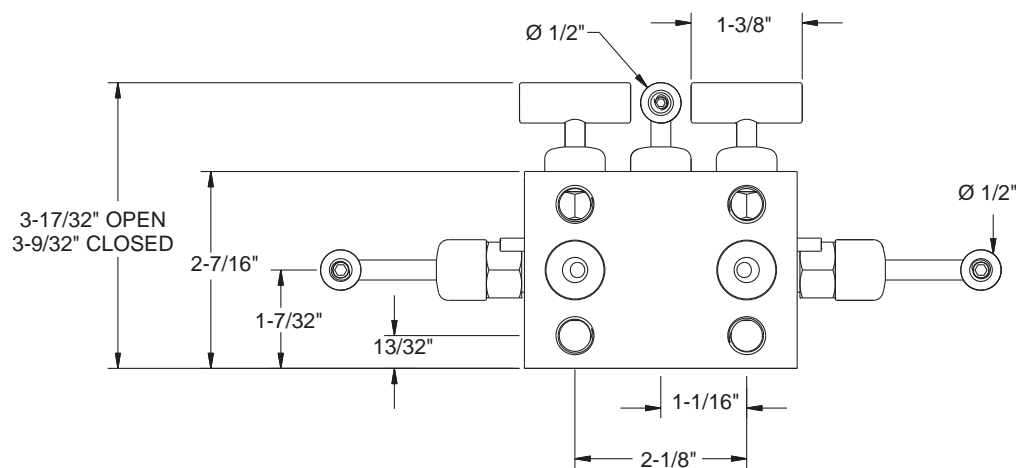
Flange-Flange



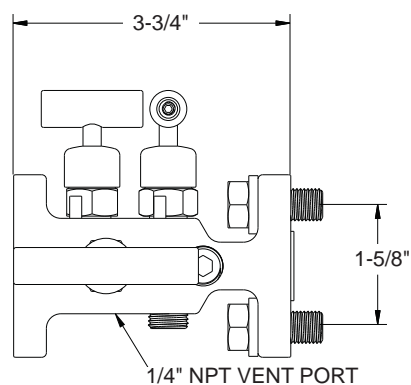
Top View



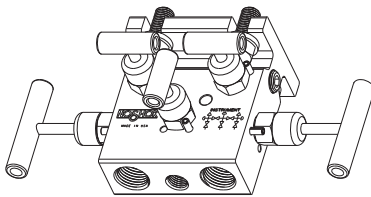
Front View



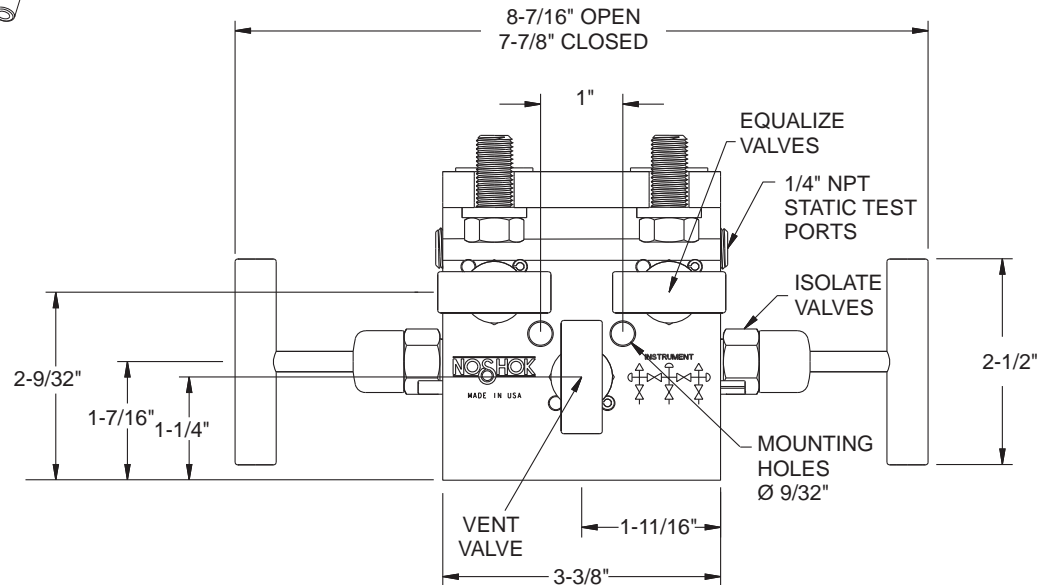
Side View



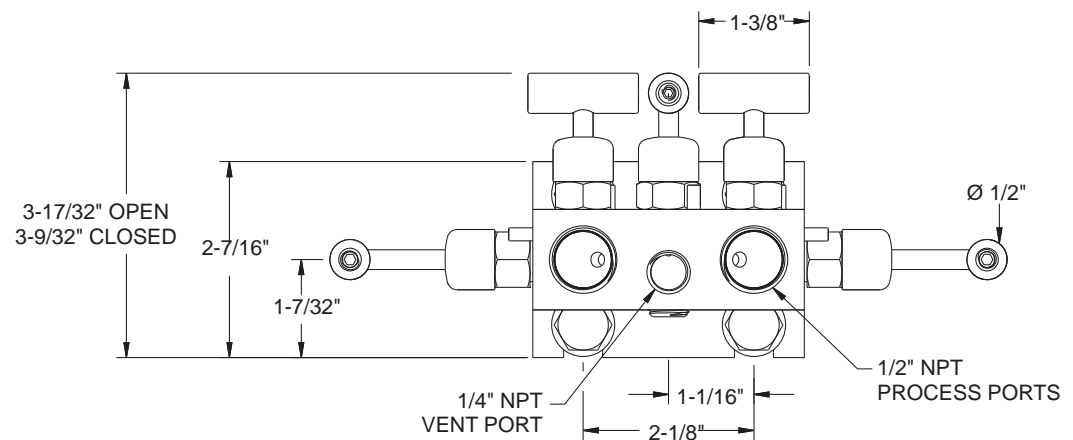
Flange-Female



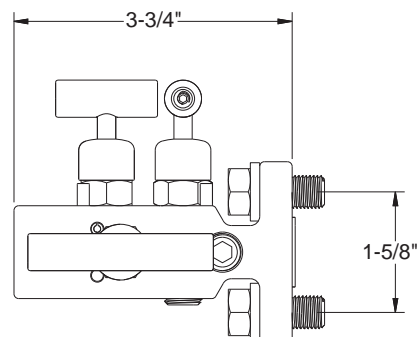
Top View



Front View

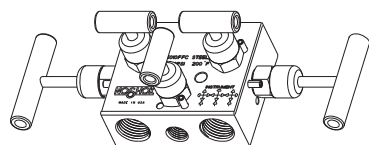


Side View

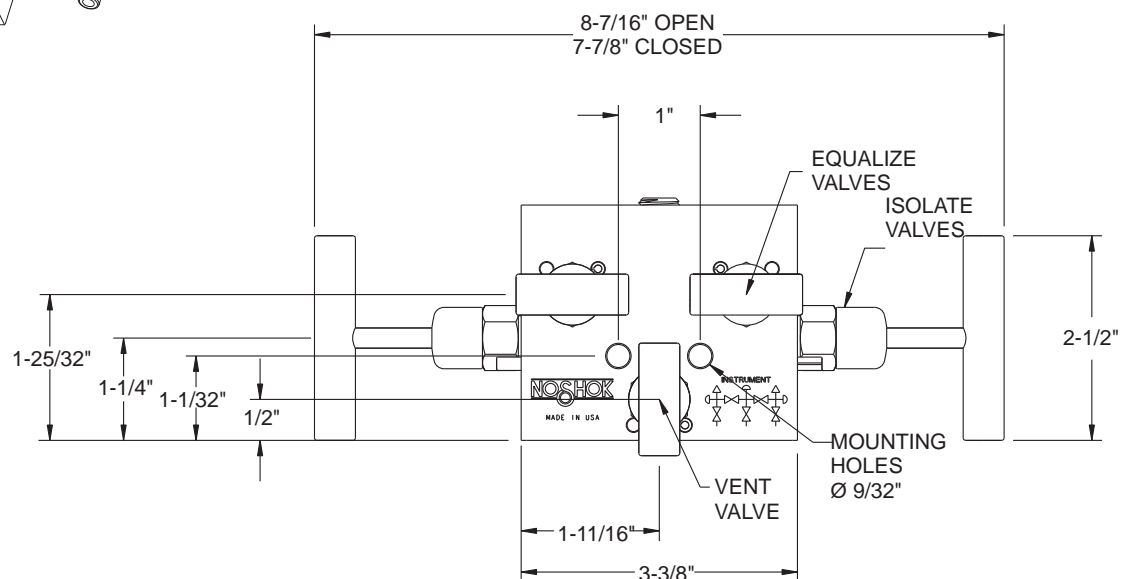


Dimensions

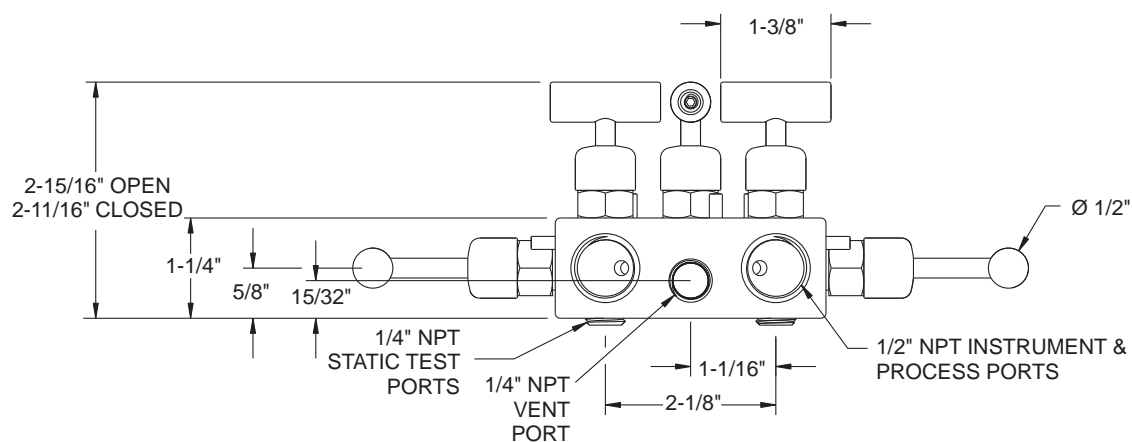
Female-Female



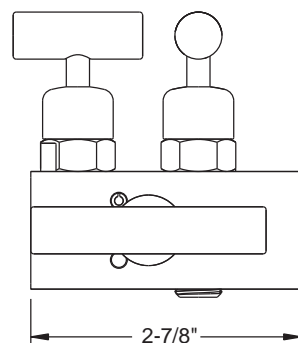
Top View



Front View

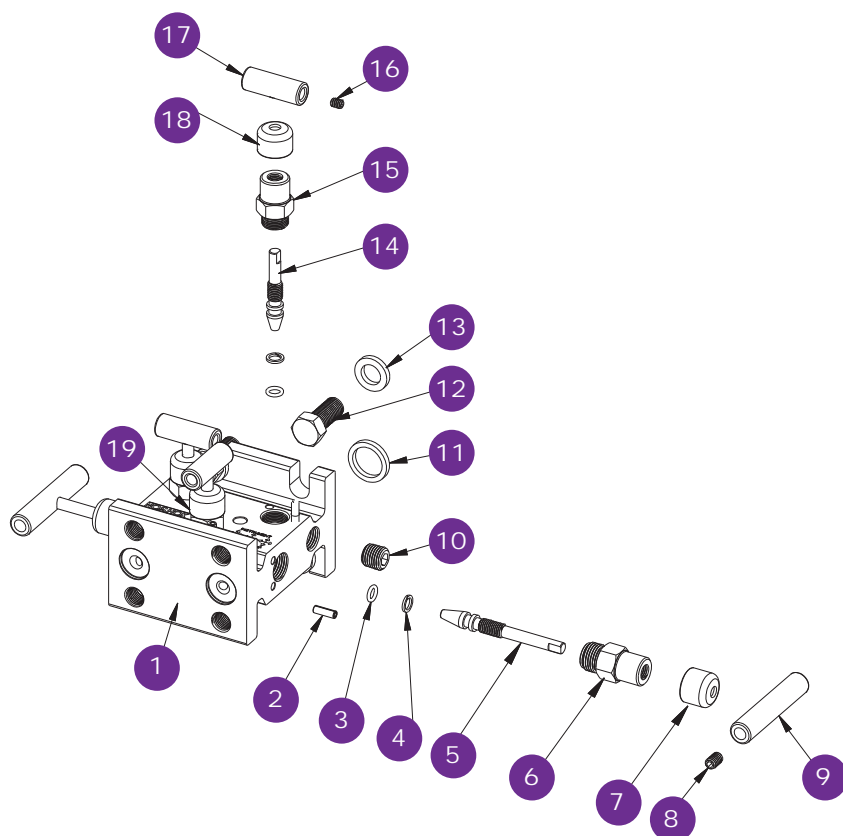


Side View



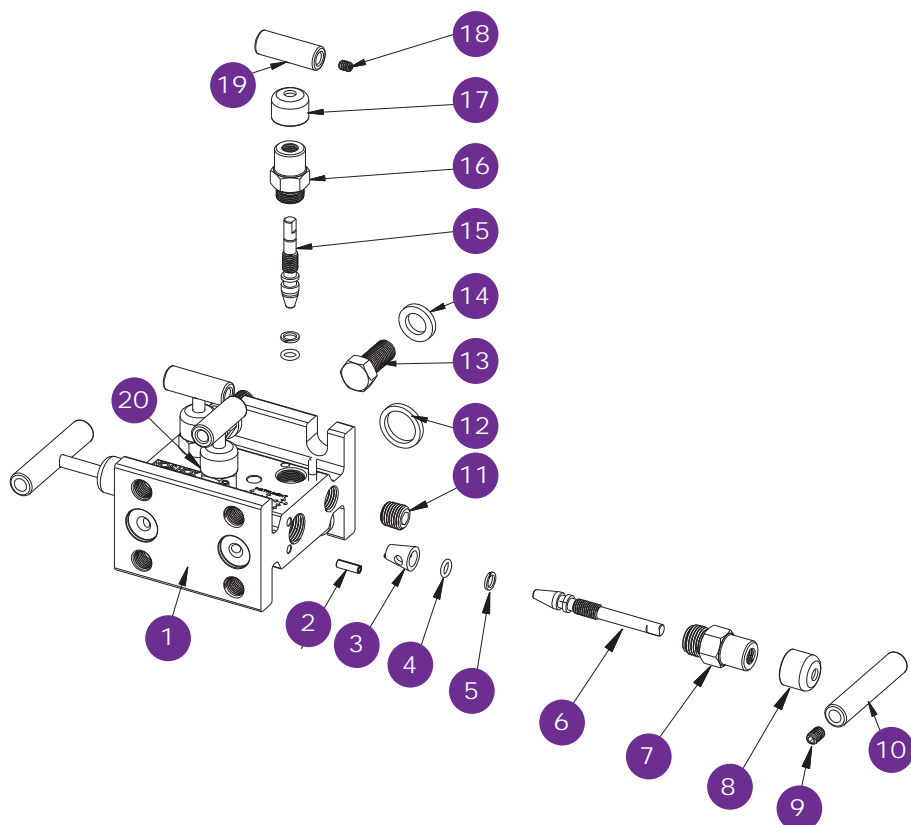
For panel mount and packing dimensions, see pgs. 64-65.

Hard Seat



- 1 Valve body
- 2 Slotted spring pin
- 3 FKM o-ring
- 4 PTFE back-up ring
- 5 Valve stem
- 6 Valve bonnet
- 7 Blue dust cap
- 8 Set screw
- 9 Valve "T" handle
- 10 Plug
- 11 Gasket ring
- 12 Head bolt
- 13 Washer
- 14 Mini valve stem
- 15 Mini valve bonnet
- 16 Set screw
- 17 Mini valve "T" handle
- 18 Green dust cap
- 19 Red dust cap

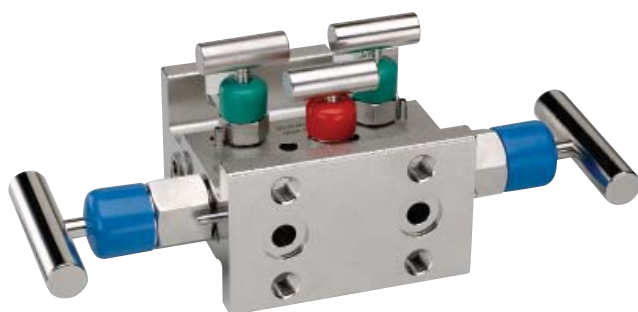
Soft Seat



- 1 Valve body
- 2 Slotted spring pin
- 3 Delrin® seat
- 4 FKM o-ring
- 5 PTFE back-up ring
- 6 Valve stem
- 7 Valve bonnet
- 8 Blue dust cap
- 9 Set screw
- 10 Valve "T" handle
- 11 Plug
- 12 Gasket ring
- 13 Head bolt
- 14 Washer
- 15 Soft tip stem
- 16 Mini valve bonnet
- 17 Green dust cap
- 18 Set screw
- 19 Mini valve "T" handle
- 20 Red dust cap

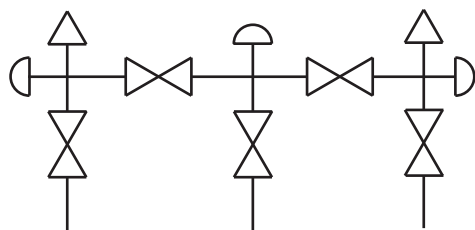
Soft Seat/Tip (0.375" Orifice)

5530 SERIES



- Designed for use with differential pressure transmitters incorporating two isolation valves, two equalizing valves and a vent valve in natural gas applications
- Soft tip valves feature a patented Delrin® non-rotating soft tip stem, and a back-up metal-to-metal seal (**U.S. Patent 6,820,857**)
- Available in block, single flange, or double flange connection for remote or direct installation
- 100% helium leak tested to 1×10^{-4} ml/s for guaranteed performance and reliability
- Soft seat design has 6,000 psi pressure rating @ 200 °F
- Features a replaceable Delrin® seat, and straight through porting for bidirectional, high capacity flow and easy roddable cleaning on the block valves
- Blow-out proof stem provides a secondary stem seal in the full open position
- FKM o-ring seal and PTFE back-up ring below the stem threads to protect from corrosion and galling
- All stems are 316 stainless steel
- All stem threads are rolled for strength and ease of operation
- One-piece bonnet with a metal-to-metal seal to the valve body below the bonnet threads
- Slotted spring pin to prevent accidental loosening
- Vinyl dust caps for bonnets and stems
- Non-rotating stem tip standard on isolation valves

Flow Schematic



SPECIFICATIONS

Materials	Zinc-nickel plated steel, electropolished 316 stainless steel
Connections	Flange-flange 1/2" NPT-flange 1/2" NPT-1/2" NPT
Pressure ratings	6,000 psi @ 200 °F
Orifice size	0.375"
Flow coefficient	C _v 3.0
Steam seal & type	All 316 stainless steel stems with FKM o-ring and PTFE back-up ring below the threads
Additional features	Two static (test) ports, color coded vinyl bonnet and stem dust cap, patented soft tip stem design on equalizing and vent valves

NOTE: All NOSHOK valve products conform to the MSS SP-99 instrument valves standards, and valves supplied with packing also conform to MSS SP-132 compression packing systems for instrument valves standard.

ORDERING INFORMATION						
SERIES	5	5-valve				
SEAT	5	Soft seat/tip 0.375" orifice				
PROCESS TYPE	3	Natural gas flow				
CONNECTION	0	1/2" NPT standard or flange				
VALVE TYPES	MFC	Flange-Female, Steel	MFS	Flange-Female, Stainless Steel	MMC	Flange-Flange, Steel
	FFC	Female-Female, Steel	FFS	Female-Female, Stainless Steel	MMS	Flange-Flange, Stainless Steel

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

EXAMPLE

5530 - MFC

Series..... 5-valve

Seat..... Soft seat/tip

Process type..... Natural gas flow

Connection..... 1/2" NPT standard

Valve type..... Flange-female, steel

To meet all of your specific application requirements, the following additional options are available for these manifold valves. To order all or any of these options, simply add them to the part number as follows:

ORDERING INFORMATION - Additional Options					
SOFT SEATS	PK1	PEEK	KF1	PCTFE	
O-RINGS*	EM1	EPDM	KZ1	FFKM (Kalrez® 3018 or equivalent)	NB1 NBR
HANDLES	HL3	1" Round knurled	HL4	1-3/8" Phenolic	

Please consult your local NOSHOK Distributor or NOSHOK, Inc. for availability and delivery information.

* Other o-ring materials available on request.

Please note that the standard o-ring in all the NOSHOK valves is FKM and the standard handles are isolation "T" handles (HL8) and equalizing "T" handles (HL7).

The handle material will always match the material of the valve, unless otherwise specified. For example, the "T" handle on the 5530-MFC will be steel. When only the standard configuration is needed, no additional designations are necessary. Please consult the factory for special application requests.

EXAMPLE with Additional Options

5530 - MFC - PK1 - KZ1

Series..... 5-valve

Seat..... Soft seat

Process type..... Natural gas

Connection..... 1/2" NPT standard or flange

Valve type..... Flange-female, steel

Soft seat PEEK

O-ring..... FFKM

Technical drawing of the NOSHOK 1000 Series Pressure Transmitter showing dimensions and features.

Dimensions:

- Overall Width: 10-1/2" OPEN, 9-5/16" CLOSED
- Overall Height: 2-1/8"
- Mounting Hole Spacing: 1-5/8"
- Mounting Hole Diameter: Ø 9/32"
- Mounting Hole Spacing (Bottom): 1-3/32"
- Mounting Hole Spacing (Bottom): 1-15/16"
- Mounting Hole Spacing (Bottom): 3-7/8"

Features:

- EQUALIZE VALVES
- 1/4" NPT STATIC TEST PORTS
- ISOLATE VALVES
- VENT VALVE
- MOUNTING HOLES Ø 9/32"

Labels:

- NOSHOK
- MADE IN USA

Technical drawing of the 1/2" 3000 Series Solenoid Valve, showing front and side views with dimensions.

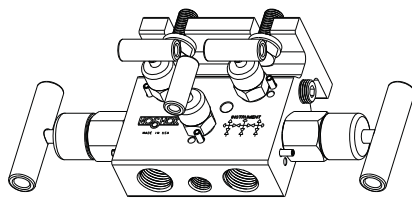
Dimensions:

- Top opening: $\varnothing 1/2"$
- Top mounting bracket width: $1-3/8"$
- Side opening: $\varnothing 5/8"$
- Side mounting bracket width: $2-15/32"$
- Side mounting bracket height: $1-1/4"$
- Front opening: $\varnothing 3/8"$ ORIFICE
- Front mounting bracket width: $1-1/16"$
- Front mounting bracket height: $2-1/8"$
- Overall height (OPEN): $3-19/32"$ OPEN
- Overall height (CLOSED): $3-5/16"$ CLOSED

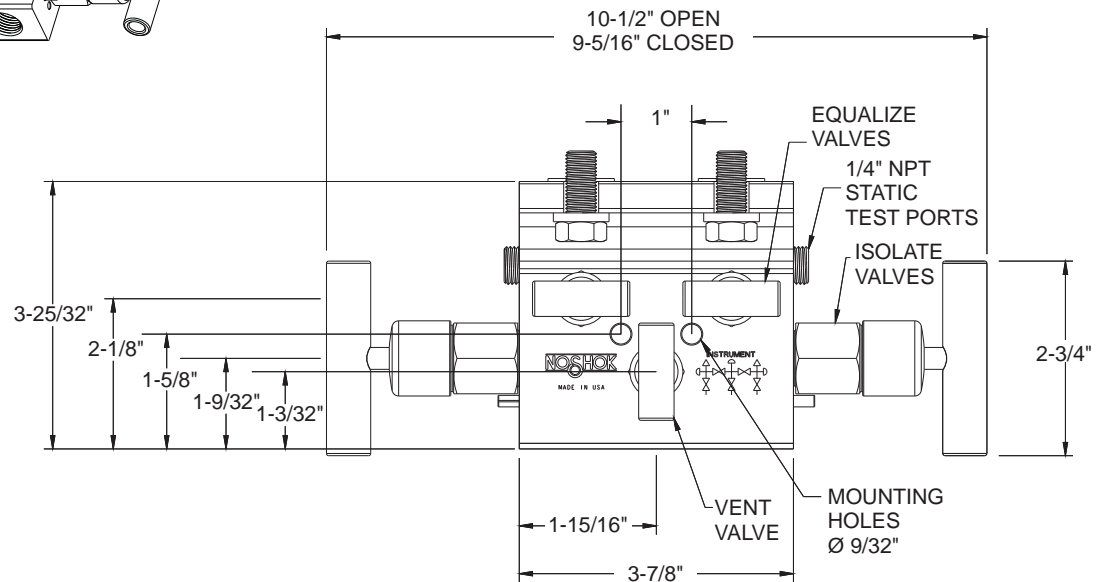
1/4" NPT VENT PORT

1-5/8"

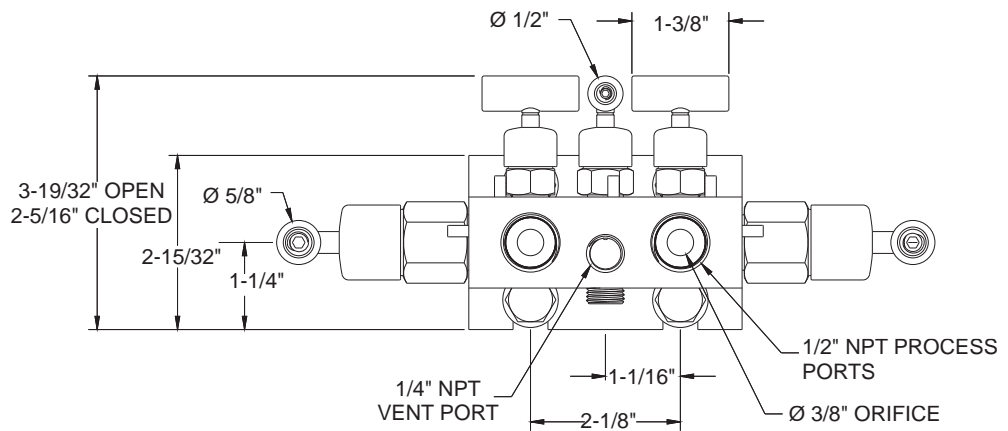
Flange-Female



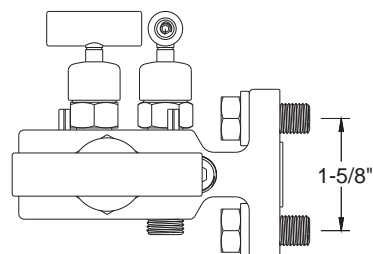
Top View



Front View

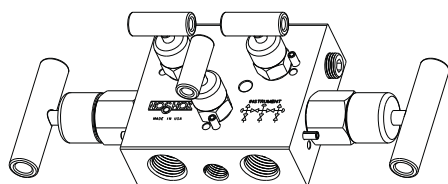


Side View

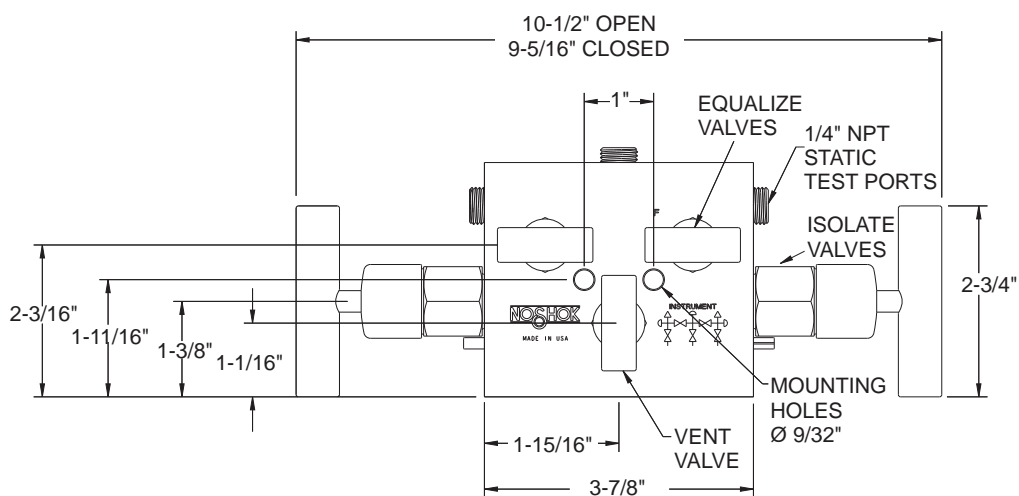


Dimensions

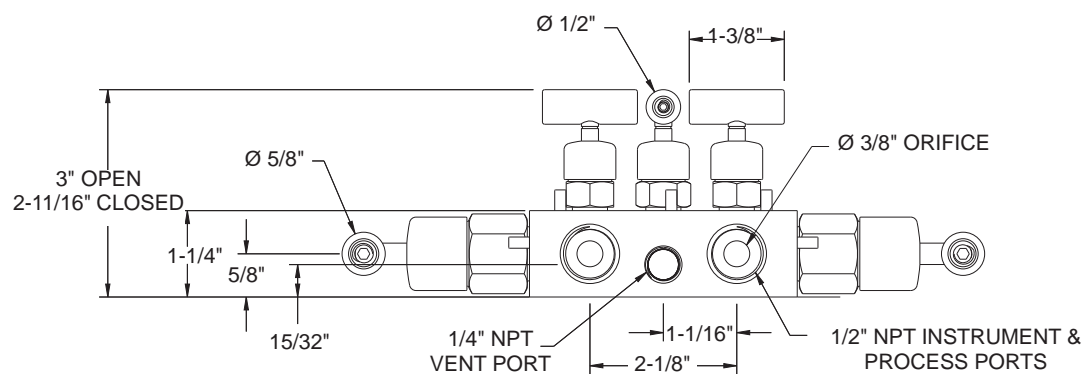
Female-Female



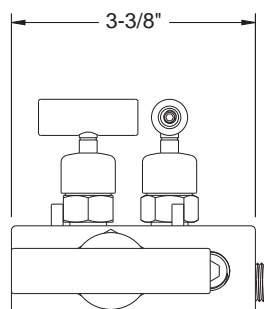
Top View



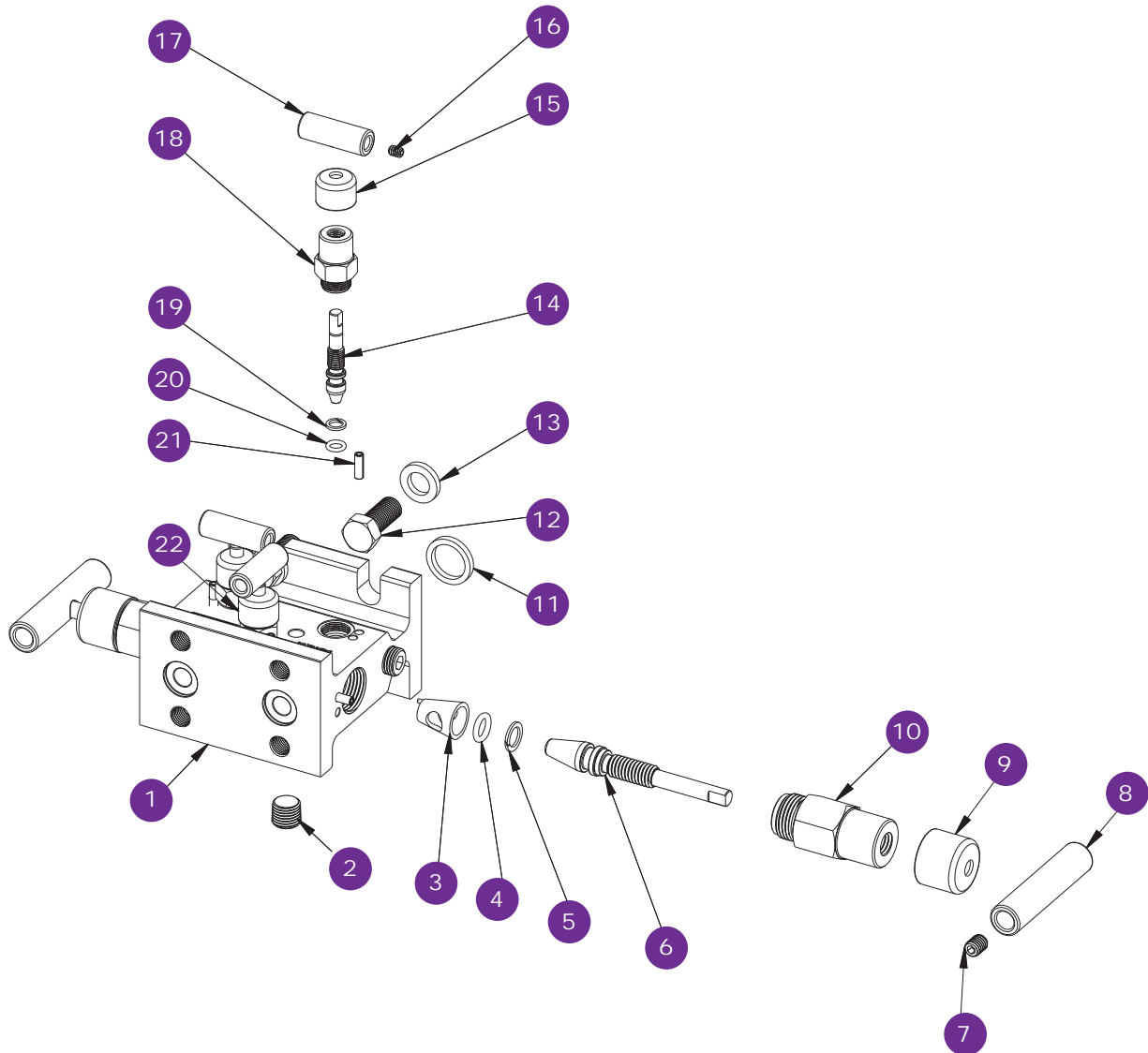
Front View



Side View



For panel mount and packing dimensions, see pgs. 64-65.



- | | |
|---------------------|--------------------------|
| 1 Valve body | 12 Head bolt |
| 2 Plug | 13 Washer |
| 3 Delrin® seat | 14 Soft tip stem |
| 4 FKM o-ring | 15 Green dust cap |
| 5 PTFE back-up ring | 16 Set screw |
| 6 Non-rotating stem | 17 Mini valve "T" handle |
| 7 Set screw | 18 Mini valve bonnet |
| 8 Valve "T" handle | 19 PTFE back-up ring |
| 9 Blue dust cap | 20 FKM o-ring |
| 10 Valve bonnet | 21 Slotted spring pin |
| 11 Gasket ring | 22 Red dust cap |

Manifold Valve Accessories

DIELECTRIC KIT

The dielectric kit is designed to maintain the integrity and reliability of the pipeline and piping system through safety and corrosion protection. Dielectric kits provide a non-conductive barrier between the process piping and the instrument and isolate components from the effects of electrical current. By eliminating metal-to-metal contact, current is halted to prevent corrosion and aid in the cathodic protection of the system.

Specifications

- Material: Delrin®, PVC
- Max operating temp 150 °F
- Dielectric strength exceeds 1/32 air arc gap approximately 2,500 Vdc



FUTBOLS

Futbols (flange adapters) bolt to the process side of a flange-flange manifold to allow connection of process flange taps or process root valves. Futbols also allow flanges to be connected to threaded process piping while maintaining the ease of removal or repair of the manifold if maintenance is required. The futbols provide a 1/16" offset connection from the bolt holes to give connection centers of 2", 2-1/8" or 2-1/4".

Specifications

- Material: zinc-nickel plated steel, 316 stainless steel
- Connections: 1/2" NPT
- Kit Includes : (2) Futbols, (4) hex bolts 7/16"-20, (2) PTFE face seals



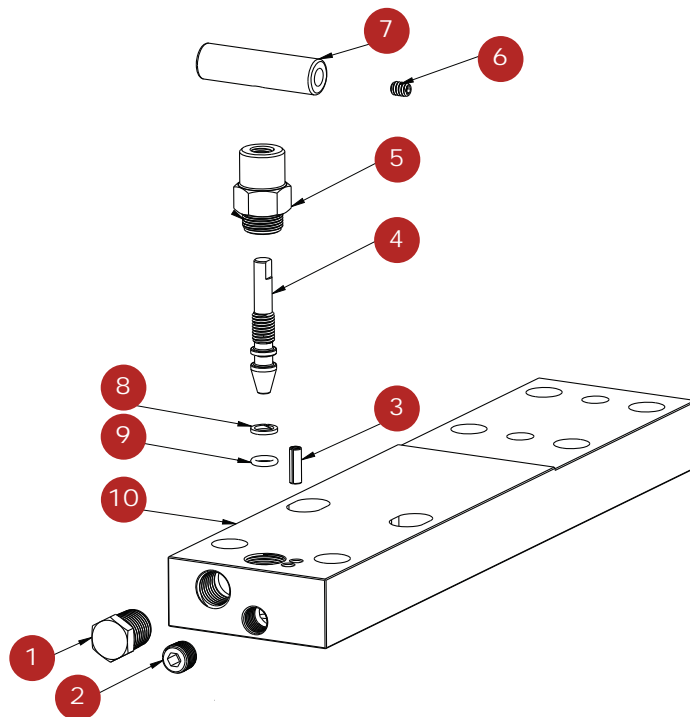
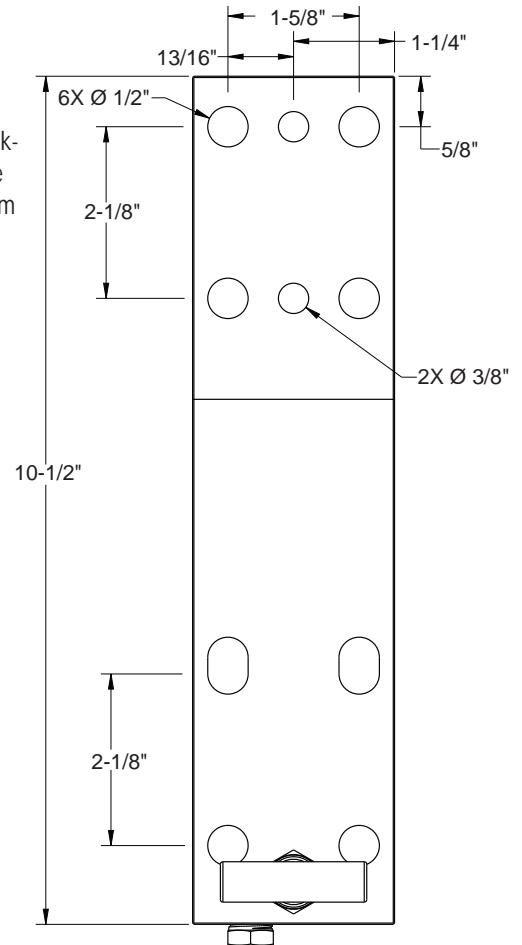
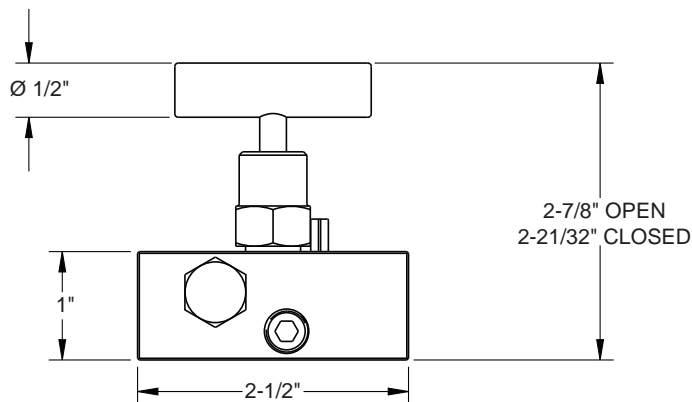
MANIFOLD MOUNTING KIT

The manifold mounting kit is designed for direct or remote mounting to a two inch pipe stand. It can be used with any NOSHOK 2, 3 or 5-valve manifold by mounting a steel or stainless steel bracket directly to the manifold body.



Δ PRESSURE TO STATIC PLATE

Used on gas pipelines, the differential pressure to static adapter plate is used to mount a differential pressure transmitter and a static pressure transmitter to a five valve flange-flange manifold. They are available in zinc-nickel plated steel, electropolished stainless steel. An integral mini style bleed valve is incorporated in the plate and a 1/4" NPT vent plug is provided. The mini style bleed valve is equipped with a FKM o-ring and PTFE back-up ring below the stem threads to protect against corrosion and galling. Stem threads are rolled for greater strength and ease of operation and all NOSHOK valves are 100% helium leak tested for guaranteed reliability. Maximum pressure rating of 10,000 psi for steel & stainless models.



- 1 1/4" NPT hex head pipe plug
- 2 1/8" NPT socket head plug
- 3 Slotted spring pin
- 4 Mini valve stem
- 5 Mini valve bonnet
- 6 Set screw
- 7 Mini valve "T" handle
- 8 PTFE back-up ring
- 9 FKM o-ring
- 10 Differential pressure to static adapter body

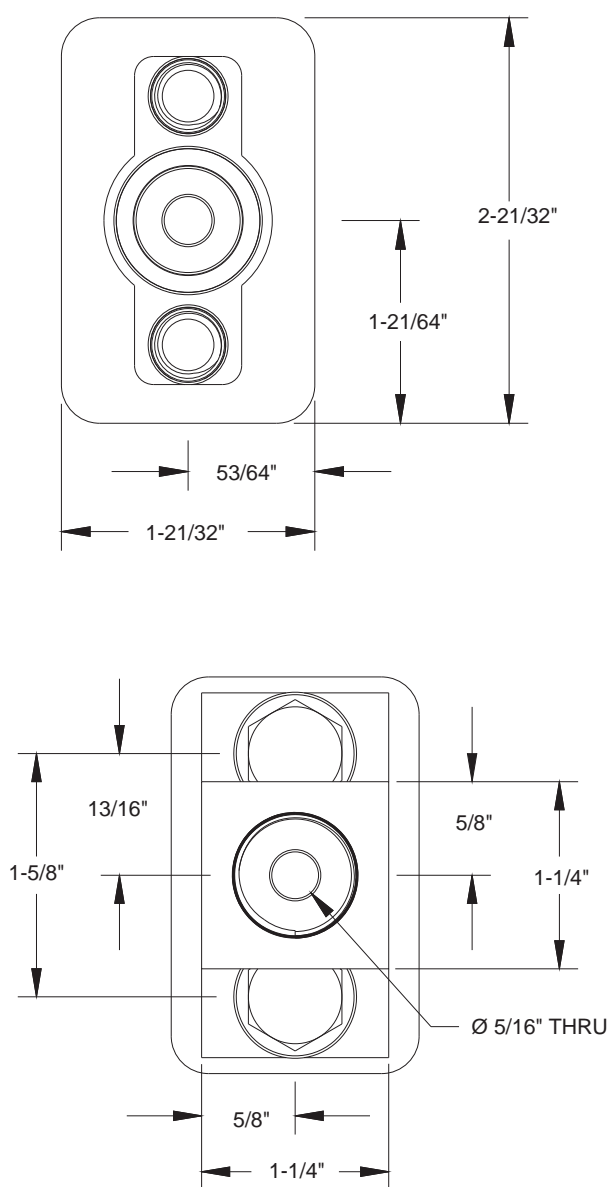
Manifold Valve Accessories

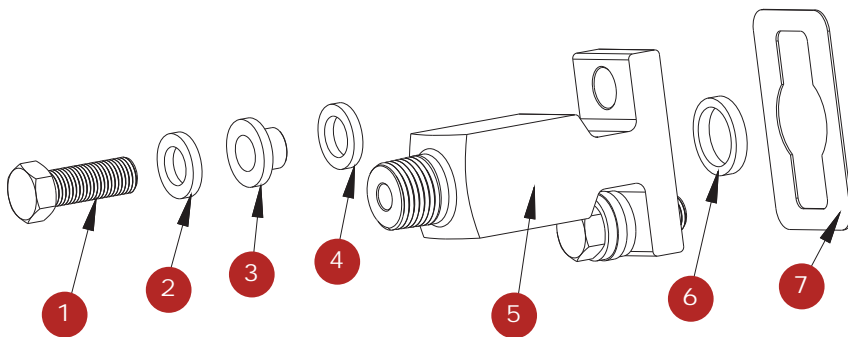
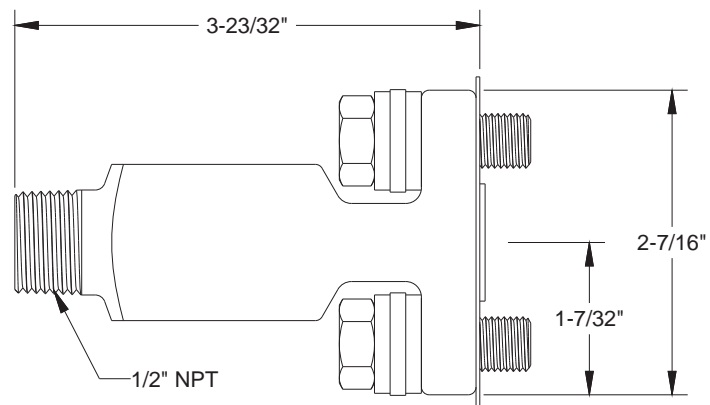
STATIC ADAPTERS

The static adapter is used to join threaded ports to a flange style connection. They are often used to join the NPT port of a static transmitter with a flange mounted connection on a differential pressure to static adapter plate. They are available in zinc-nickel plated steel and electropolished 316 stainless steel.

Specifications

- Material: zinc-nickel plated steel, 316 stainless steel
- Connections: 1/2" NPT male-flange
- Other configurations available

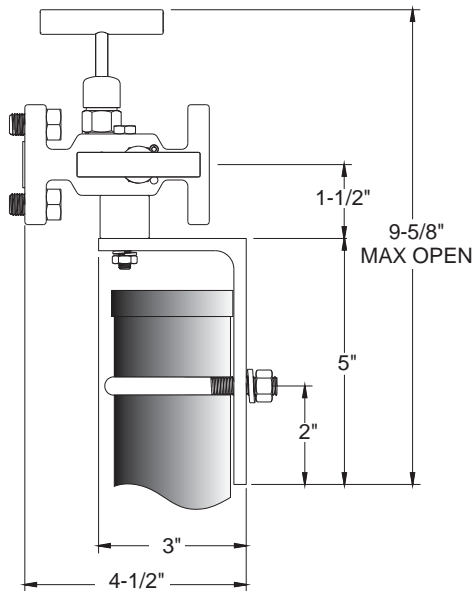




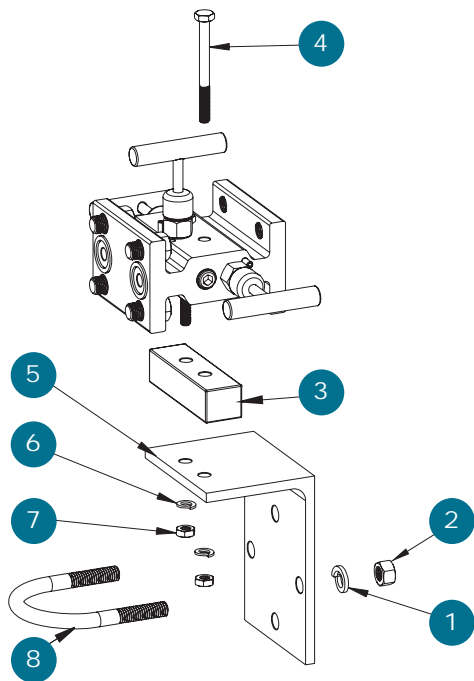
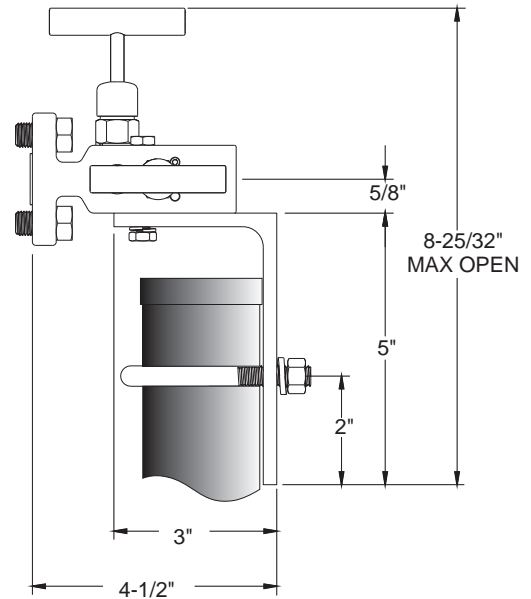
- 1 7/16-20 x 1-1/4" bolt
- 2 7/16" ID flat washer
- 3 Dielectric bushing
- 4 1/2" ID flat washer
- 5 Adapter body
- 6 Gasket ring
- 7 Dielectric shim

Mounting Diagrams for 2000, 3000 & 5000 Series Manifold Valves

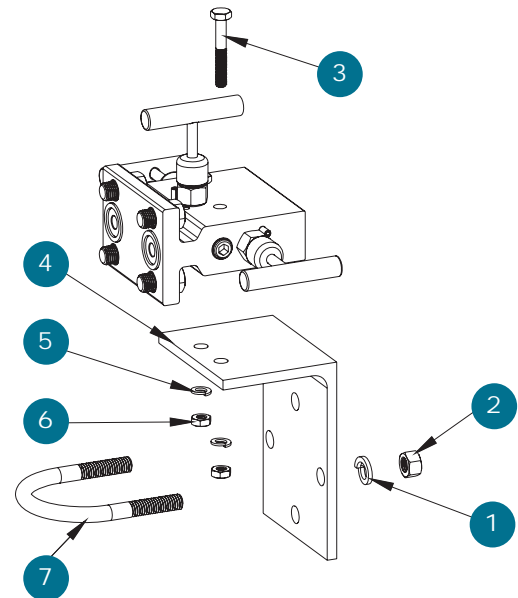
2000 & 3000 Series Mounting Kit
Flange-Flange



2000 & 3000 Series Mounting Kit
Flange-NPT, NPT-NPT

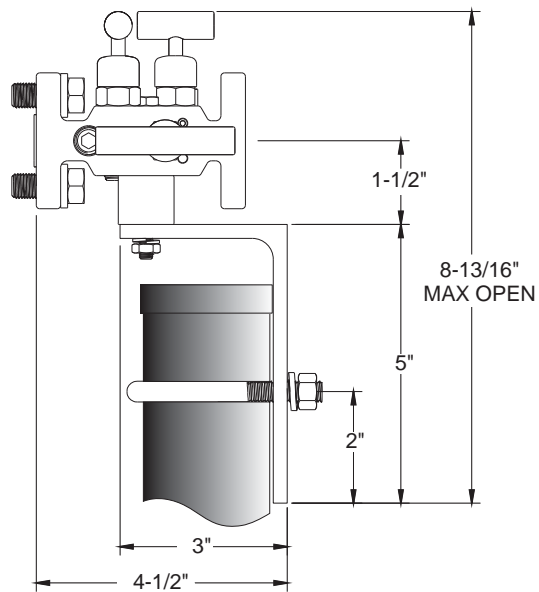


- | | |
|---------------|---------------|
| 1 Lock washer | 5 Bracket |
| 2 Nut | 6 Lock washer |
| 3 Spacer | 7 Nut |
| 4 Bolt | 8 U-bolt |

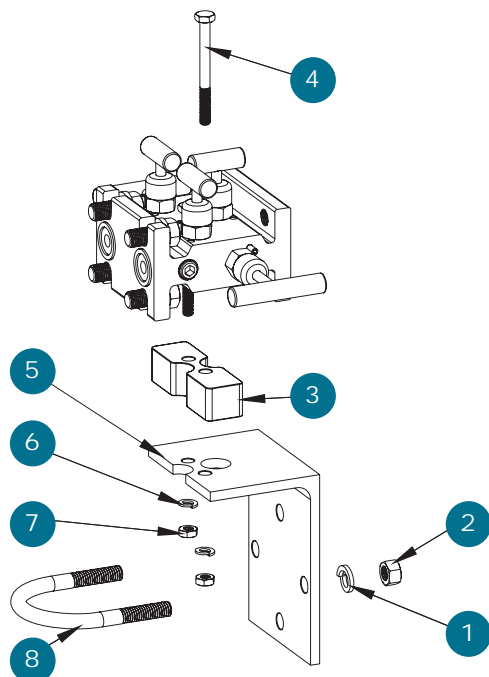
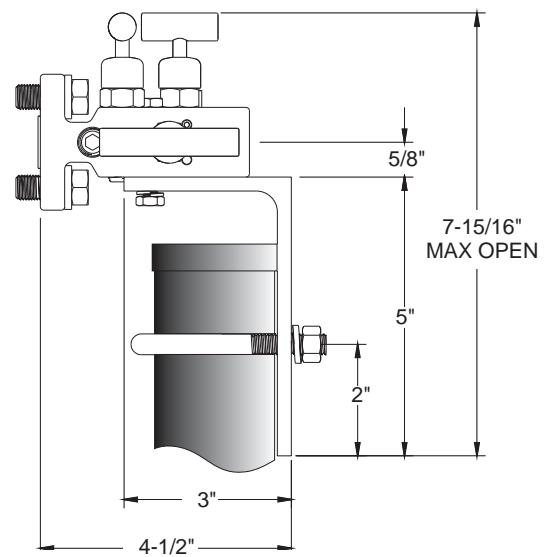


- | | |
|---------------|---------------|
| 1 Lock washer | 5 Lock washer |
| 2 Nut | 6 Nut |
| 3 Bolt | 7 U-bolt |
| 4 Bracket | |

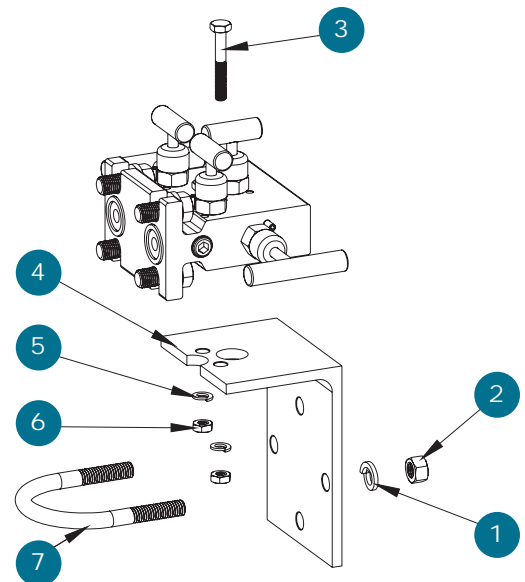
5000 Series Mounting Kit Flange-Flange



5000 Series Mounting Kit Flange-NPT, NPT-NPT



- 1 Lock washer
- 2 Nut
- 3 Bracket
- 4 Bolt
- 5 Bracket
- 6 Lock washer
- 7 Nut
- 8 U-bolt



- 1 Lock washer
- 2 Nut
- 3 Bolt
- 4 Bracket
- 5 Lock washer
- 6 Nut
- 7 U-bolt

NOSHOK Needle Valves Reference Chart

		Mini		Multiport		Standard		Block & Bleed		Bleed		2-Valve Block & Bleed		3-Valve Double Block & Bleed
		Hard Seat	Soft Tip	Hard Seat	Soft Seat	Hard Seat	Soft Seat	Hard Seat	Soft Seat	Hard Seat	Soft Tip	Hard Seat	Soft Seat/Tip	Hard Seat
SERIES		100	150	200	300	400	500	600	700	800	850	2070	2170	3070
Materials	Zinc-nickel plated steel	*	*	*	*	*	*	*	*	*	*	*	*	*
	Electropolished 316 stainless steel	*	*	*	*	*	*	*	*	*	*	*	*	*
	360 brass	*	*							*	*			
Connections	1/8" NPT	*	*											
	1/4" NPT	*	*			*	*	*	*	*	*	*	*	*
	3/8" NPT					*	*							
	7/16"-20 UNF 2B	*	*			*								
	1/2" NPT			*	*	*	*	*	*	*	*	*	*	*
	1/2" NPT male - 1/4" NPT female					*	*							
	9/16"-18 UNF 2B	*	*											
	3/4" NPT					*	*							
	3/4" NPT male - 1/2" NPT female			*	*									
	1" NPT					*	*							
Valve Type	Male-Male	*	*											
	Male-Female	*	*	*	*	*	*	*	*			*	*	*
	Female-Female	*	*			*	*	*	*			*	*	*
	Female-Male											*	*	*
	Male-Male Angle	*	*											
	Male-Female Angle	*	*			*								
	Female-Female Angle					*								
	Male									*	*			
	Male-Female Extended											*	*	*
	Female-Male Extended											*	*	*
	Female-Female Extended											*	*	*
	Flange-Female													
	Flange-Flange													
Pressure Ratings	3,000 psi		*							*	*			
	6,000 psi	*	*		*		*		*	*	*		*	
	10,000 psi	*		*		*		*		*		*		*
Orifice Size	0.141"													
	0.156"													
	0.172"	*	*											
	0.187"			*	*	*	*	*	*			*	*	*
	0.375"													
	0.438"					*	*							
Flow Coefficient (Cv)	0.38													
	0.42	*	*											
	0.44			*		*		*				*		*
	0.64				*									
	0.76					*	*	*	*				*	
	2.70					*								
	3.00													
Stem Seal	4.00					*								
	FKM	*	*	*	*	*	*	*	*	*	*	*	*	*
	PTFE	*	*	*	*	*	*	*	*	*	*	*	*	*
	EPDM	*	*	*	*	*	*	*	*	*	*	*	*	*
	FFKM	*	*	*	*	*	*	*	*	*	*	*	*	*
Packings	NBR	*	*	*	*	*	*	*	*	*	*	*	*	*
	PTFE	*	*	*	*	*	*	*	*	*	*	*	*	*
Soft Seats	Grafoil®	*		*		*		*		*		*		*
	Delrin®				*		*		*				*	
	PEEK				*		*		*				*	
Stem Tips	PCTFE				*		*		*				*	
	Rotating (316 stainless)	*		*	*	*	*	*	*	*	*	*	*	*
	Delrin®		*							*		*	*	
	Non-rotating (316 stainless)	*		*	*	*	*	*	*	*	*	*	*	*
	Ball (440C stainless)	*		*		*		*		*		*		*
	Ball (carbide)	*		*		*		*		*		*		*
	Ball (ceramic)	*		*		*		*		*		*		*
	Ball (Monel)	*		*		*		*		*		*		*
	Regulating hard	*		*		*		*		*		*		*
	PTCFE		*								*			
	PEEK		*								*			
	Regulating Delrin®		*											
	Regulating PTCFE		*											
	Regulating PEEK		*											
Handles	1-13/16" Mini "T" - HL1	*	*	*		*		*		*		*	*	*
	2-1/2" "T" - HL2	*		*	*	*	*	*	*	*	*	*	*	*
	1" Round Knurled - HL3	*	*			*		*		*	*	*	*	*
	1-3/8" Phenolic - HL4	*		*	*	*	*	*	*	*	*	*	*	*
	1-3/4" Phenolic - HL5	*		*	*	*	*	*	*	*	*	*	*	*
	1-3/8" Mini "T" - HL7	*		*		*		*		*	*	*	*	*
	2-3/8" Phenolic - HL9	*		*		*	*	*	*	*	*	*	*	*
Panel Mountings	1 Nut	*	*	*	*	*	*	*	*					
	2 Nuts	*	*	*	*	*	*	*	*					

NOSHOK Manifold Valves Reference Chart (Continued on next page)

		Static Pressure Block & Bleed		Liquid Level		Static Pressure Narrow Block & Bleed				Static Pressure Mini Block & Bleed	
		Hard Seat	Soft Seat	Hard Seat	Soft Seat	Hard Seat	Soft Seat	Hard Seat	Soft Seat	Hard Seat	Soft Tip
SERIES		2000	2100	2020	2120	200002	200402	210002	210402	2602	2702
Materials	Zinc-nickel plated steel	*	*	*	*	*	*	*	*	*	*
	Electropolished 316 stainless steel	*	*	*	*	*	*	*	*	*	*
	360 brass										
Connections	1/8" NPT									*	*
	1/4" NPT	*	*							*	*
	3/8" NPT										
	7/16"-20 UNF 2B										
	1/2" NPT	*	*	*	*	*	*	*	*		
	1/2" NPT male - 1/4" NPT female										
	9/16"-18 UNF 2B										
	3/4" NPT										
	3/4" NPT male - 1/2" NPT female										
	1" NPT										
Valve Type	1-1/4" NPT										
	1-1/2" NPT										
	Male-Male										
	Male-Female										
	Female-Female	*	*							*	*
	Female-Male										
	Male-Male Angle										
	Male-Female Angle										
	Female-Female Angle										
	Male										
Pressure Ratings	Male-Female Extended										
	Female-Male Extended										
	Female-Female Extended										
	Flange-Female	*	*	*	*	*	*	*	*		
	Flange-Flange	*	*	*	*	*	*	*	*		
	3,000 psi										
	6,000 psi		*		*			*	*		*
	10,000 psi	*		*		*	*			*	
	0.141"									*	*
	0.156"										
Orifice Size	0.172"										
	0.187"	*	*	*	*	*	*	*	*		
	0.375"										
	0.438"										
Flow Coefficient (Cv)	0.38									*	*
	0.42										
	0.44	*		*		*	*				
	0.64										
	0.76		*		*			*	*		
	2.70										
	3.00										
Stem Seal	4.00										
	FKM	*	*	*	*	*	*	*	*	*	*
	PTFE	*	*	*	*	*	*	*	*	*	*
	EPDM	*	*	*	*	*	*	*	*	*	*
	FFKM	*	*	*	*	*	*	*	*	*	*
Packings	NBR	*	*	*	*	*	*	*	*	*	*
	PTFE	*	*	*	*	*	*	*	*	*	*
Soft Seats	Grafoil®	*		*		*	*	*	*	*	
	Delrin®		*	*	*			*	*		
	PEEK		*	*	*			*	*		
Stem Tips	PCTFE		*	*	*			*	*		
	Rotating (316 stainless)	*	*	*	*	*	*	*	*	*	
	Delrin®										*
	Non-rotating (316 stainless)		*	*	*	*	*	*	*	*	*
	Ball (440C stainless)	*		*		*	*			*	
	Ball (carbide)	*		*		*	*			*	
	Ball (ceramic)	*		*		*	*			*	
	Ball (Monel)	*		*		*	*			*	
	Regulating hard	*		*		*	*			*	
	PTCFE										*
	PEEK										*
	Regulating Delrin®										*
	Regulating PTCFE										*
	Regulating PEEK										*
Handles	1-13/16" Mini "T" - HL1	*	*	*	*	*	*	*	*		
	2-1/2" "T" - HL2	*	*	*	*	*	*	*	*		
	1" Round Knurled - HL3	*	*	*	*	*	*	*	*	*	*
	1-3/8" Phenolic - HL4	*	*	*	*	*	*	*	*		
	1-3/4" Phenolic - HL5	*	*	*	*	*	*	*	*		
	1-3/8" Mini "T" - HL7									*	*
	2-3/8" Phenolic - HL9										

NOSHOK Manifold Valves Reference Chart

		Static Pressure Block & Bleed				Meter Manifold	Differential Pressure					Natural Gas		
		Hard Seat		Soft Tip		Soft Seat	Hard Seat		Soft Seat		Soft Tip	Hard Seat	Soft Seat/Tip	
SERIES		2603	2604	2703	2704	2180	3010	3610	3110	3510	3710	5030	5130	5530
Materials	Zinc-nickel plated steel	*	*	*	*	*	*	*	*	*	*	*	*	*
	Electropolished 316 stainless steel	*	*	*	*	*	*	*	*	*	*	*	*	*
	360 brass													
Connections	1/8" NPT													
	1/4" NPT					*		*			*			
	3/8" NPT	*		*										
	7/16"-20 UNF 2B													
	1/2" NPT		*		*		*		*	*		*	*	*
	1/2" NPT male - 1/4" NPT female													
	9/16"-18 UNF 2B													
	3/4" NPT													
	3/4" NPT male - 1/2" NPT female													
	1" NPT													
Valve Type	1-1/4" NPT													
	1-1/2" NPT													
	Male-Male													
	Male-Female													
	Female-Female	*	*	*	*	*	*	*	*	*	*	*	*	*
	Female-Male													
	Male-Male Angle													
	Male-Female Angle													
	Female-Female Angle													
	Male													
Pressure Ratings	Male-Female Extended													
	Female-Male Extended													
	Female-Female Extended													
	Flange-Female						*		*	*		*	*	*
	Flange-Flange						*		*	*		*	*	*
	3,000 psi													
	6,000 psi			*	*	*			*	*	*		*	*
	10,000 psi	*	*				*	*				*		
	Orifice Size													
	0.141"							*			*			
Flow Coefficient (Cv)	0.156"	*	*	*	*									
	0.172"													
	0.187"					*	*		*			*	*	
	0.375"									*				*
	0.438"													
	4.00													
Stem Seal	0.38													
	0.42													
	0.44	*	*	*	*		*	*			*	*		
	0.64													
	0.76					*			*				*	
Packings	2.70													
	3.00									*				*
	4.00													
	FKM	*	*	*	*	*	*	*	*	*	*	*	*	*
	PTFE	*	*	*	*	*	*	*	*	*	*	*	*	*
Soft Seats	EPDM	*	*	*	*	*	*	*	*	*	*	*	*	*
	FFKM	*	*	*	*	*	*	*	*	*	*	*	*	*
	NBR	*	*	*	*	*	*	*	*	*	*	*	*	*
	PTFE	*	*	*	*	*	*	*	*	*	*	*	*	*
	Grafoil®	*	*			*	*	*	*	*	*	*	*	*
Stem Tips	Delrin®					*			*	*		*	*	*
	Non-rotating (316 stainless)	*	*			*			*	*		*	*	*
	Ball (440C stainless)	*	*			*			*	*		*	*	*
	Ball (carbide)	*	*			*			*	*		*	*	*
	Ball (ceramic)	*	*			*			*	*		*	*	*
Handles	Ball (Monel)	*	*			*			*	*		*	*	*
	Regulating hard	*	*			*			*	*		*	*	*
	PTCFE			*	*						*		*	
	PEEK			*	*						*		*	
	Regulating Delrin®			*	*						*		*	
	Regulating PTCFE			*	*						*		*	
	Regulating PEEK			*	*						*		*	
	1-13/16" Mini "T" - HL1	*	*	*	*	*	*	*	*	*	*	*	*	*
	2-1/2" "T" - HL2	*	*	*	*	*	*	*	*	*	*	*	*	*
	1" Round Knurled - HL3	*	*	*	*	*	*	*	*	*	*	*	*	*
	1-3/8" Phenolic - HL4	*	*	*	*	*	*	*	*	*	*	*	*	*
	1-3/4" Phenolic - HL5	*	*	*	*	*	*	*	*	*	*	*	*	*
	1-3/8" Mini "T" - HL7											*	*	*
	2-3/8" Phenolic - HL9													

NOSHOK's wide range of needle and manifold valves cover a vast majority of industrial applications, but knowing which needle or manifold valve to select may be a daunting task. As all NOSHOK valves are not created equal, the following are general tips one should consider when deciding which NOSHOK valve is best suited for their application.

1. System Parameters

Knowing the system parameters for which you want to install a NOSHOK valve is critical. What media, gas or liquid, will flow through the system? Is the media corrosive? What is the viscosity? At what temperatures and pressures will the NOSHOK valves be exposed? What is the flow rate at peak efficiency?

2. Function

Does the valve need to meter in-line flow and/or direct media throughout multiple outlets? Will the system need to be bled without disrupting permanent piping installations? Will any other instrumentation be installed to measure system pressure or temperature? Is physical space a concern?

3. Media Compatibility

For those corrosive medias, knowing how they affect certain materials will begin narrowing down the valve options. NOSHOK valve bodies come standard in 360 brass, zinc-nickel plated steel, and electropolished 316 stainless steel. Standard stem o-rings are FKM and PTFE. Delrin® soft tips and seats are also standard on certain models. Other body and sealing materials are available to accommodate any media.

4. Flow

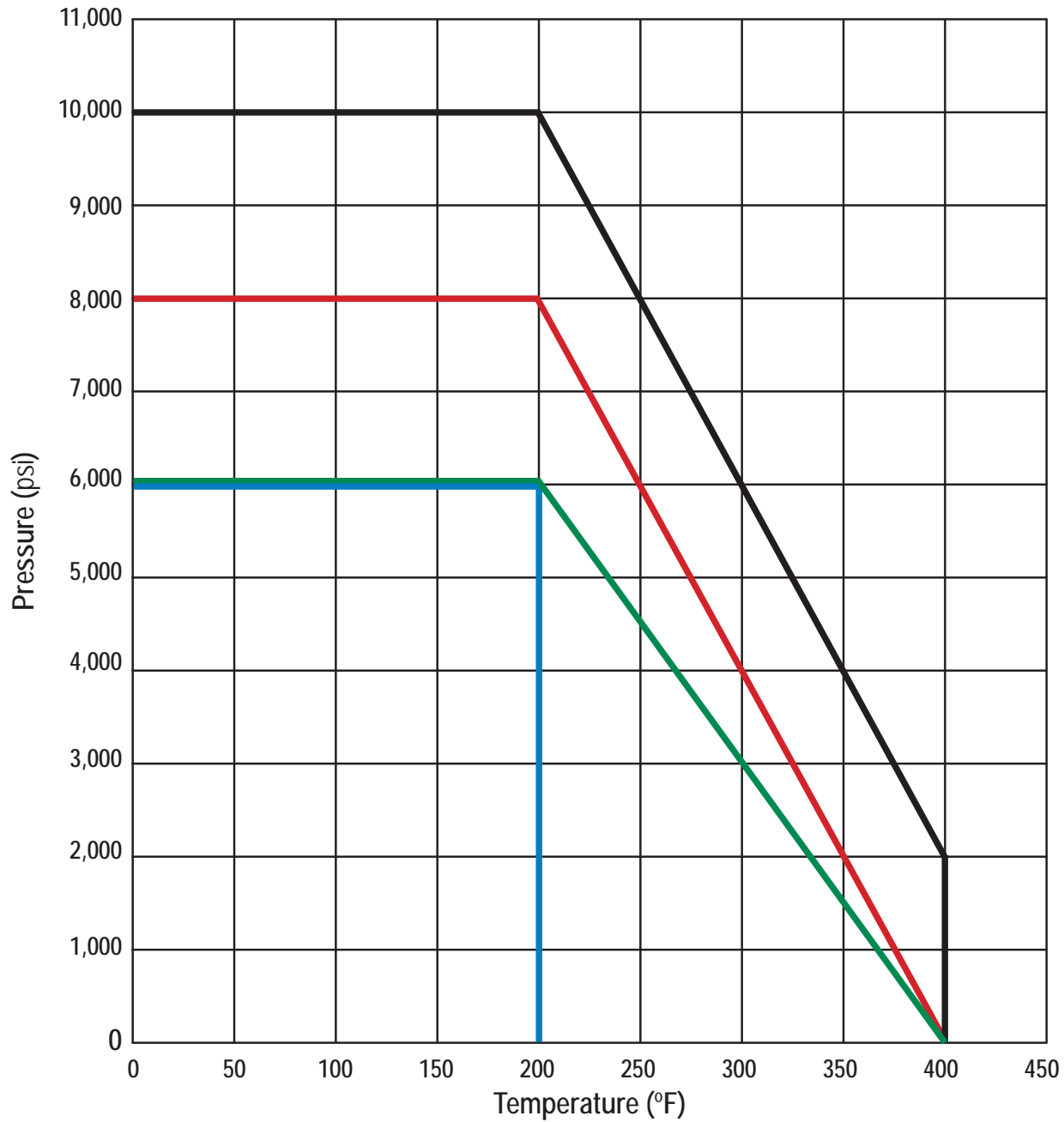
Every NOSHOK valve is rated with a flow coefficient, C_v , which identifies the relationship between rate of flow and the pressure drop across the valve's orifice. Understanding the flow coefficient of your system will aid in deciding the proper size NOSHOK valve required.

5. Installation Configuration

NOSHOK valves come in a variety of shapes and sizes that are guaranteed to fit in almost every system application. Whether a male-male, male-female, female-female, in-line or angled configuration is needed, there is a NOSHOK valve suited for the application.

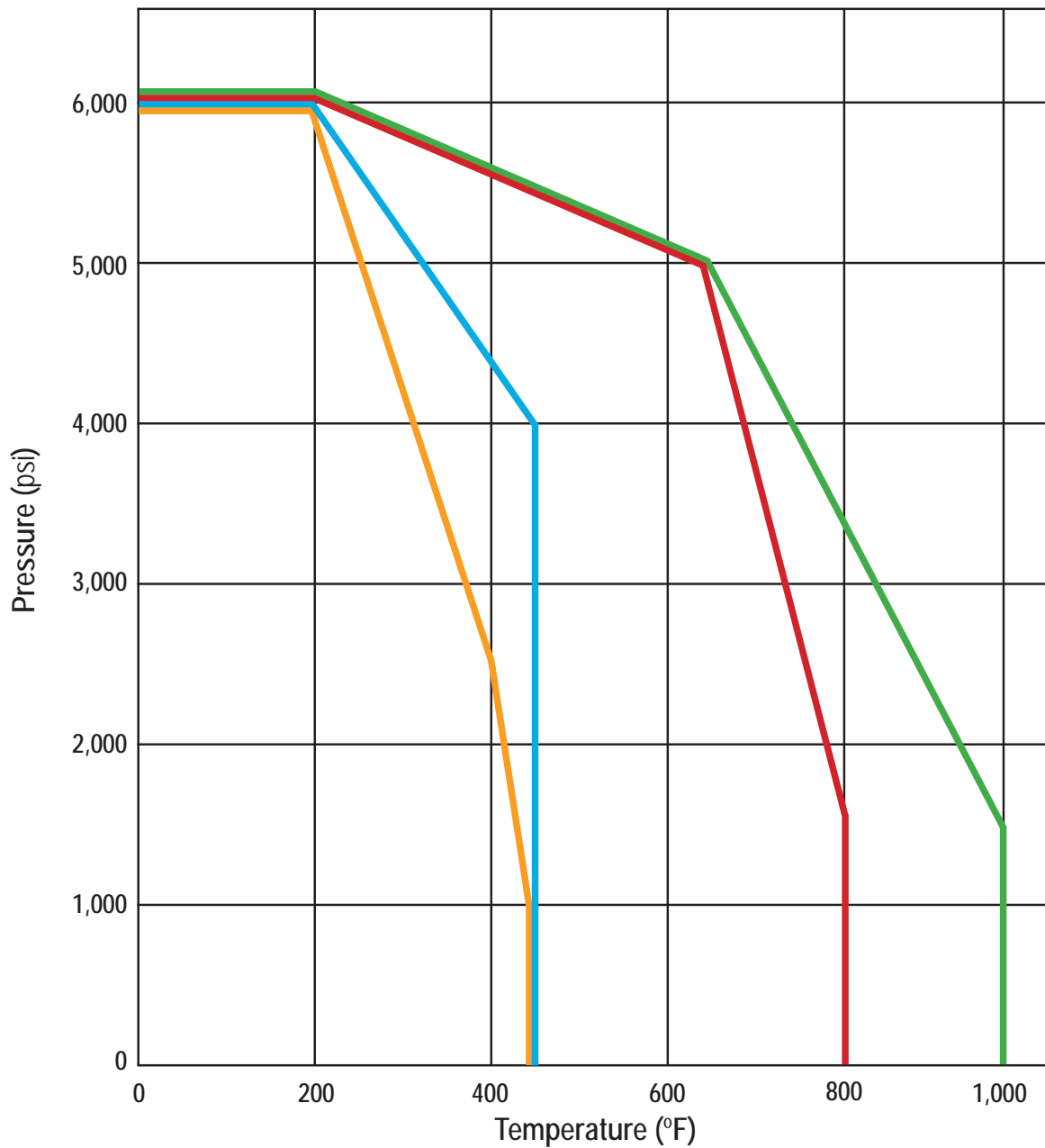
Answering the aforementioned questions will help you select which NOSHOK needle or manifold valve is best for your application. NOSHOK's Customer Support Team is also available at 440.243.0888 should you need further assistance.

Needle Valves Pressure vs. Temperature: FKM O-Ring with Compatible Fluid



- 100, 200, 402-406, 600, 800, 2070, 3070 Series, hard seat, steel and stainless steel
- 150, 300, 500, 700, 850, 2170 Series, soft seat or tip, steel, stainless steel and brass
- 408-412 Series, hard seat, steel and stainless steel
- 100 Series, hard seat, brass

Needle Valves Pressure vs. Temperature: Packing Style with Compatible Fluid



- Steel needle valve with Grafoil® packing
- Steel or stainless steel needle valve with PTFE packing
- Stainless steel needle valve with Grafoil® packing
- Brass Needle Valve with PTFE or Grafoil® packing

NOTES



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Quality Policy

NOSHOK is
committed to providing
a high degree of value and continually
improving processes to improve customer
satisfaction by focusing on customer
requirements for the design, manufacture
and distribution of pressure, temperature,
and force measurement instruments
along with needle and
manifold valves.

All from world class technology.

Combined with real-world stamina.

The highest value with the industry's best warranty.

And all from a company with a 45+ year record of customer satisfaction.

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