



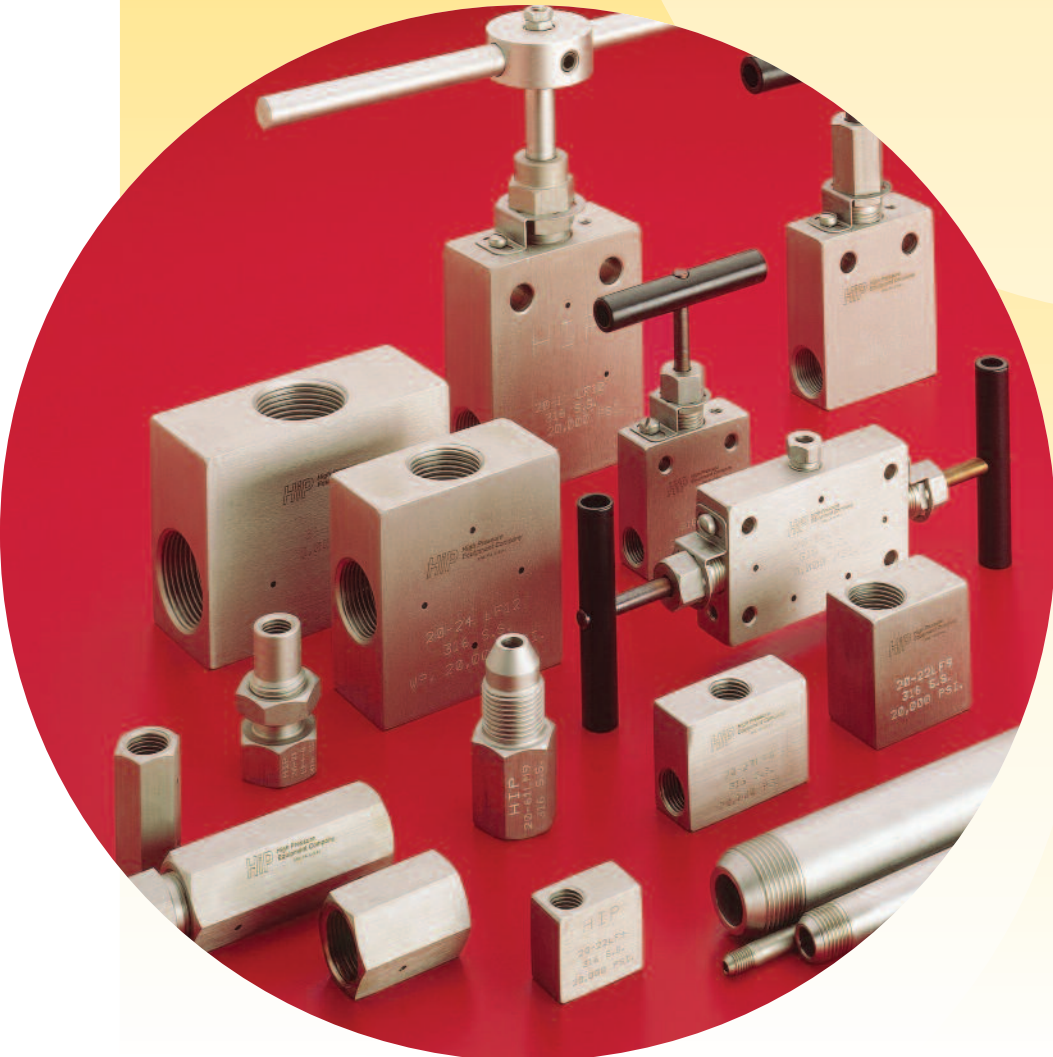
# High Pressure Equipment

## **NPT Valves, Fittings and Tubing** **10,000 and 15,000 psi service**

High Pressure Equipment Company has developed line of NPT valves and fittings designed to assure safe and easy plumbing through 15,000 psi. These pipe connection valves, fittings, line filters, check valves, safety heads and rupture discs, tubing and nipples are engineered to the highest standards of repeatable quality. The reliable performance of these products has made HiP one of the world's leading suppliers of elevated pressure components.

NPT valves are available in both two-way straight and two-way angle body configurations, and for sizes including 1/8", 1/4", 3/8", 1/2", 3/4" and 1" pipe connections. A line of fittings is available to facilitate adapting to Taper Seal, Medium or High Pressure pipe systems.

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# NPT Valves

## Pipe Connection Valves

### Female NPT/10,000 psi

**1/8" • 1/4" • 3/8" • 1/2" NPT**

**Non-rotating slotted stems** are standard for on-off service and insure long life on valve seats. Regulating tip stems are available for all valves at no additional cost.

**Materials** include high tensile Type 316 stainless steel for valve bodies, and hardened 17-4PH stainless steel for lower section stems.

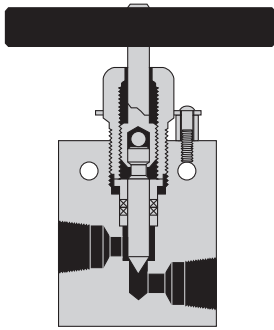
**Packing** is Teflon (450°F) standard with optional Viton (350°F), BUNA-N (200°F) and Grafoil (650°F) available at no additional cost.

**Air operators** for remote control operation are available for all valves. (See Air Operator section of catalog).

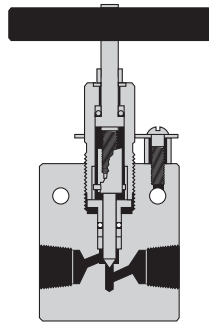
**Extreme temperatures** can be accommodated by using extended stuffing boxes (See Valve Options, page 22).



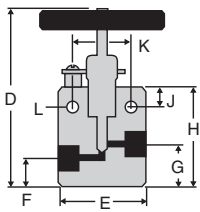
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NFD (1/2")

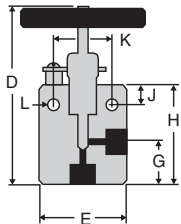


NFA (1/8"), NFB (1/4") and NFC (3/8")



## Two Way Straight Valves

Pipe Size	Catalog No.*	psi	Conn.	Orifice	Cv	D	E	F	G	H	J	K	L	Thickness
1/8" NPT	10-11NFA	10,000	NFA	1/8"	0.15	4 3/4"	2"	7/8"	7/8"	2 7/16"	1/2"	1 3/8"	7/32"	1"
1/4" NPT	10-11NFB	10,000	NFB	1/8"	0.15	4 3/4"	2"	7/8"	7/8"	2 7/16"	1/2"	1 3/8"	7/32"	1"
3/8" NPT	10-11NFC	10,000	NFC	1/8"	0.15	4 3/4"	2"	7/8"	7/8"	2 7/16"	1/2"	1 3/8"	7/32"	1"
1/2" NPT	10-11NFD	10,000	NFD	5/16"	1.12	5 5/8"	2 5/8"	3/4"	1 3/8"	3 1/8"	1/2"	1 5/8"	5/16"	1 1/2"



## Two Way Angle Valves

Pipe Size	Catalog No.*	psi	Conn.	Orifice	Cv	D	E	F	G	H	J	K	L	Thickness
1/8" NPT	10-12NFA	10,000	NFA	1/8"	0.225	4 3/4"	2"	—	1"	2 7/16"	1/2"	1 3/8"	7/32"	1"
1/4" NPT	10-12NFB	10,000	NFB	1/8"	0.225	4 3/4"	2"	—	1"	2 7/16"	1/2"	1 3/8"	7/32"	1"
3/8" NPT	10-12NFC	10,000	NFC	1/8"	0.225	4 3/4"	2"	—	1"	2 7/16"	1/2"	1 3/8"	7/32"	1"
1/2" NPT	10-12NFD	10,000	NFD	5/16"	0.18	5 3/4"	2 5/8"	—	1 1/2"	3 1/4"	1/2"	1 5/8"	5/16"	1 1/2"

\* For valves requiring high temperature Grafoil packing in the 1/8" NPT, or 1/4" NPT or 3/8" NPT sizes, add suffix "-W" to catalog number. (Example 10-11NFB-W.)

## Pipe Connection Valves

### Female NPT/10,000 and 15,000 psi

**1/8" • 1/4" • 3/8" • 1/2" NPT • 3/4" NPT • 1" NPT**

**Non-rotating slotted stems** are standard for on-off service and insure long life on valve seats. Regulating tip stems are available for all valves at no additional cost.

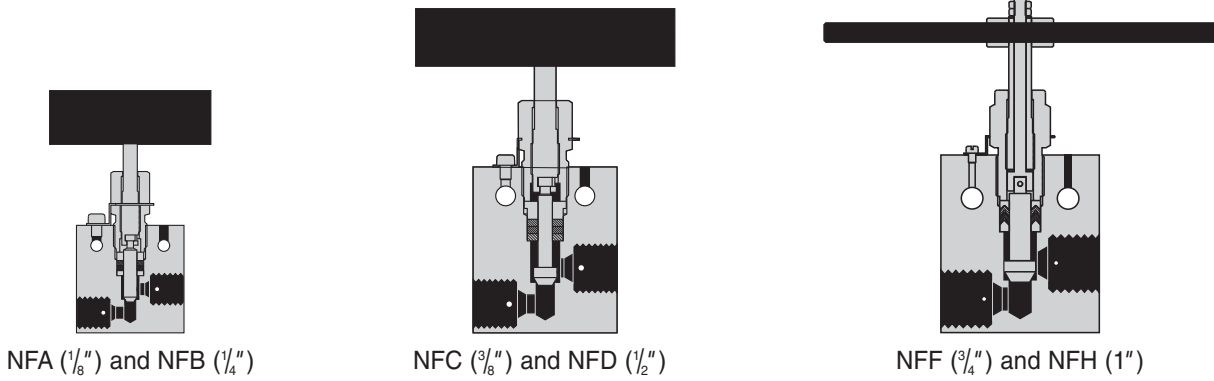
**Materials** include high tensile Type 316 stainless steel for valve bodies, and hardened 17-4PH stainless steel for lower section stems.

**Packing** is Teflon (450°F) standard with optional Viton (350°F), BUNA-N (200°F) and Grafoil (650°F) available at no additional cost.

**Air operators** for remote control operation are available for all valves. (See Air Operator section of catalog).

**Extreme temperatures** can be accommodated by using extended stuffing boxes (See Valve Options, page 22).

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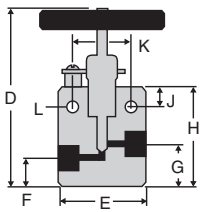


NFA (1/8") and NFB (1/4")

NFC (3/8") and NFD (1/2")

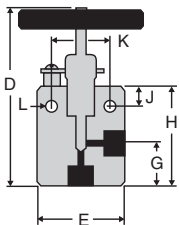
NFF (3/4") and NFH (1")

## Two Way Straight Valves



Pipe Size	Catalog No.*	psi	Conn.	Orifice	Cv	D	E	F	G	H	J	K	L	Thickness
1/8" NPT	15F-11NFA	15,000	NFA	.203	0.45	4 3/8"	2"	3/8"	13/16"	2"	3/8"	1 1/4"	7/32"	3/4"
1/4" NPT	15F-11NFB	15,000	NFB	.203	0.45	4 3/8"	2"	3/8"	13/16"	2"	3/8"	1 1/4"	7/32"	3/4"
3/8" NPT	15F-11NFC	15,000	NFC	.312	1.12	6 1/8"	2 1/2"	1/2"	1 1/8"	2 7/8"	1/2"	1 3/8"	11/32"	1"
1/2" NPT	15F-11NFD	15,000	NFD	.312	1.12	6 3/8"	2 5/8"	3/4"	1 3/8"	3 1/8"	1/2"	1 3/8"	11/32"	1 1/2"
3/4" NPT	10F-11NFF	10,000	NFF	.687	5.91	8 1/2"	4 1/8"	7/8"	1 13/16"	4 5/8"	1 1/8"	2 1/2"	9/16"	1 3/4"
1" NPT	10F-11NFH	10,000	NFH	.687	5.91	8 1/2"	4 1/8"	7/8"	1 13/16"	4 5/8"	1 1/8"	2 1/2"	9/16"	1 3/4"

## Two Way Angle Valves



Pipe Size	Catalog No.*	psi	Conn.	Orifice	Cv	D	E	F	G	H	J	K	L	Thickness
1/8" NPT	15F-12NFA	15,000	NFA	.203	0.675	4 13/16"	2"	—	1 1/4"	2 7/16"	3/8"	1 1/4"	7/32"	3/4"
1/4" NPT	15F-12NFB	15,000	NFB	.203	0.675	4 13/16"	2"	—	1 1/4"	2 7/16"	3/8"	1 1/4"	7/32"	3/4"
3/8" NPT	15F-12NFC	15,000	NFC	.312	1.68	6 1/2"	2 1/2"	—	1 1/2"	3 1/4"	1/2"	1 3/8"	11/32"	1"
1/2" NPT	15F-12NFD	15,000	NFD	.312	1.68	6 1/2"	2 5/8"	—	1 1/2"	3 1/4"	1/2"	1 3/8"	11/32"	1 1/2"
3/4" NPT	10F-12NFF	10,000	NFF	.687	8.865	9"	4 1/8"	—	2 5/16"	5 1/8"	1 1/8"	2 1/2"	9/16"	1 3/4"
1" NPT	10F-12NFH	10,000	NFH	.687	8.865	9"	4 1/8"	—	2 5/16"	5 1/8"	1 1/8"	2 1/2"	9/16"	1 3/4"

\* For valves requiring high temperature packing in the 1/8" NPT, or 1/4" NPT or 3/8" NPT sizes, add suffix "-W" to catalog number. (Example 10-11NFB-W.)

# NPT Valve Options

## Extreme Temperature Valves

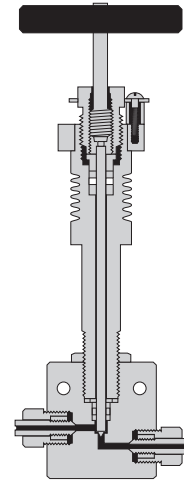
The Extreme Temperature Extension provides a means to move the packing area (stuffing box) away from the hot or cold zone of a valve. Fins are provided around the packing area to dissipate heat or cold with this option.

**Size range.** Extreme temperature extensions are available for all NPT valves.

**Materials and features.** Standard packing is Grafoil and Teflon. Nonrotating tip stems prevent galling at the seats and minimize torque requirements for positive shut off.

**When ordering,** simply add the suffix “-HT” or “-LT” to the standard valve catalog number (example: 15F-11NFA-HT).

Temperature ratings of valves with this option, for low temperature (-LT) is -423°F (-252°C) and for high temperature (-HT) is 1200°F (649°C)



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## Micro Control Metering Valves

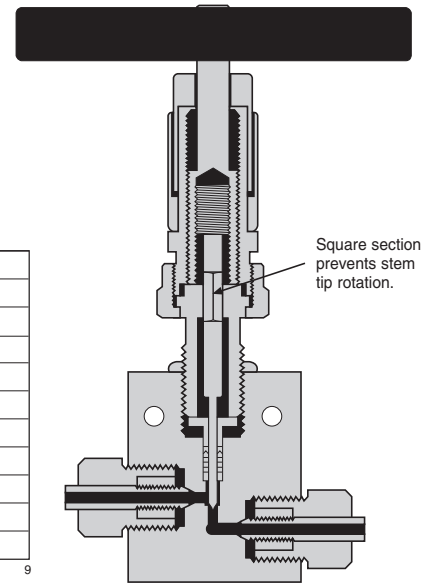
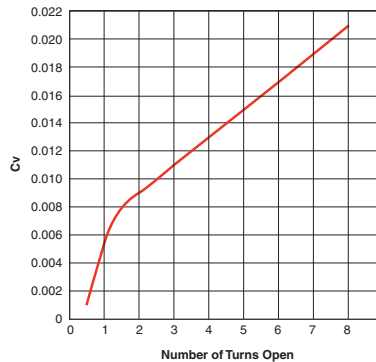
The Micro Control Metering Valve assembly is available for 1/8", 1/4" NPT valves in this section. This unique stem design operates on the principle of a right-hand threaded component operating in an opposite direction of motion to a left-hand threaded component.

As the pitch sizes of these threads are different from each other, a very fine and precise stem travel is made possible. This provides exceptional control that is not possible with ordinary fine pitched stem designs.

Each complete revolution of the stem provides 0.005" stem travel. The vernier indicator allows readings in increments of one-tenth of a revolution (0.0005" stem travel).

**The non-rotating lower section stem** is ground to a 9 degree included angle to insure maximum control. **While this valve may be turned to the fully off (closed) position, it is always preferable to provide a separate on-off valve in the system to protect the precise control of the metering valve.**

**When ordering,** simply specify the valve catalog number from the valve series and add the suffix “-V” (example: 15F-11NFB-V)



## Special Materials

A large number of the valves and fittings shown within this catalog section are frequently furnished in special materials to meet the requirements of specific applications. One of the most commonly requested “special” materials is Hastelloy C-276.

**Tubing collars and glands** for High Pressure coned-and-threaded connections are “non-wetted” parts which do not normally come into contact with the fluid or gas. Thus these items are supplied in 316 stainless steel unless otherwise specified.

**Packing material** in all special material valves is Teflon unless otherwise specified.

**Other materials.** In addition to Hastelloy C-276, valves and fittings can be furnished in Monel, Inconel and titanium. Consult factory for price and delivery.

## Packing Options

### NPT Hand Valves

#### 10,000 psi Series

Material	Part Number		
	NFA/NFB/NFC	NFD	NFF - NFH
Teflon*	B-181	B-185	208741 Set
Grafoil	B-1417	B-1359	—
Buna-N	B-102	—	—
Viton	B-849	—	—
Silicone	B-147	—	—

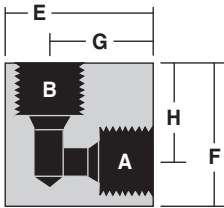
#### 15,000 psi Series

Material	Part Number	
	NFA/NFB	NFC/NFD
Teflon*	B-1392 Set	207341 Set
Grafoil	B-1391 Set	B-1386 Set
Polypak	B-1388 (1)	B-1387 (1)

## Elbows/Tees/Crosses

A complete range of elbows, tees, and crosses is available for all of the tubing connection sizes. Material is high tensile 316 stainless steel.

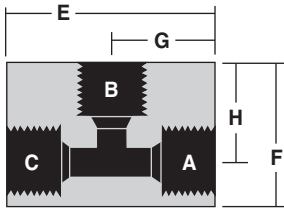
### NPT Elbows



Catalog No.	Pressure Rating psi	Connections	A-B	E	F	G	H	Thickness
15-22NFA	15,000	1/8" FNPT	NFA	1 1/2"	1 1/2"	1"	1"	3/4"
15-22NFB	15,000	1/4" FNPT	NFB	1 1/2"	1 1/2"	1"	1"	1"
15-22NFC	15,000	3/8" FNPT	NFC	1 1/2"	1 1/2"	1"	1"	1"
15-22NFD	15,000	1/2" FNPT	NFD	2 5/8"	1 7/8"	1 7/8"	1 1/8"	1 1/2"
10-22NFF	10,000	3/4" FNPT	NFF	2 5/8"	2 5/16"	1 5/16"	1 3/8"	1 1/2"
10-22NFH	10,000	1" FNPT	NFH	3"	3"	2 1/16"	2 1/16"	1 3/4"

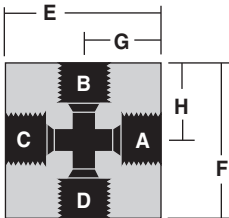
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### NPT Tees



Catalog No.	Pressure Rating psi	Connections	A-B	E	F	G	H	Thickness
15-23NFA	15,000	1/8" FNPT	NFA	1 1/2"	1 1/4"	3/4"	3/4"	3/4"
15-23NFB	15,000	1/4" FNPT	NFB	2"	1 1/2"	1"	1"	1"
15-23NFC	15,000	3/8" FNPT	NFC	2"	1 1/2"	1"	1"	1"
15-23NFD	15,000	1/2" FNPT	NFD	2 5/8"	2 1/8"	1 5/16"	1 3/8"	1 1/2"
10-23NFF	10,000	3/4" FNPT	NFF	2 5/8"	2 1/8"	1 5/16"	1 3/8"	1 1/2"
10-23NFH	10,000	1" FNPT	NFH	4 1/8"	3"	2 1/16"	2 1/16"	1 3/4"

### NPT Crosses

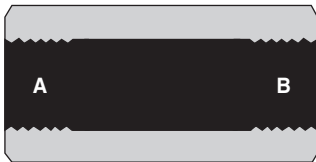


Catalog No.	Pressure Rating psi	Connections	A-B	E	F	G	H	Thickness
15-24NFA	15,000	1/8" FNPT	NFA	1 1/2"	1 1/2"	3/4"	3/4"	3/4"
15-24NFB	15,000	1/4" FNPT	NFB	2"	2"	1"	1"	1"
15-24NFC	15,000	3/8" FNPT	NFC	2"	2"	1"	1"	1"
15-24NFD	15,000	1/2" FNPT	NFD	2 5/8"	2 3/4"	1 5/16"	1 3/8"	1 1/2"
10-24NFF	10,000	3/4" FNPT	NFF	2 5/8"	2 3/4"	1 5/16"	1 3/8"	1 1/2"
10-24NFH	10,000	1" FNPT	NFH	4 1/8"	4 1/8"	2 1/16"	2 1/16"	1 3/4"

# NPT Valves

## NPT Straight Couplings

Standard material is high tensile 316 stainless steel.

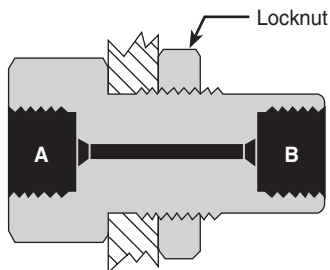


Catalog No.	Pressure Rating psi	Connections	A-B	Length	Hex
15-21NFA	15,000	1/8" FNPT	NFA	1 1/4"	3/4"
15-21NFB	15,000	1/4" FNPT	NFB	1 3/4"	1"
15-21NFC	15,000	3/8" FNPT	NFC	1 3/8"	1"
15-21NFD	15,000	1/2" FNPT	NFD	1 7/8"	1 3/8"
10-21NFF	10,000	3/4" FNPT	NFF	2 1/2"	1 3/8"
10-21NFH	10,000	1" FNPT	NFH	2 1/2"	1 3/4"

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## NPT Bulkhead Couplings

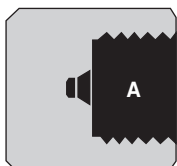
Bulkhead couplings are designed specifically for passing a tubing connection through a panel or steel barricade. These couplings include a locknut as shown. Material is high tensile 316 stainless steel.



Catalog No.	Pressure Rating psi	Connections	Panel Hole	A-B	Length	Hex	Outside Thread	Max Panel Thickness
15-21NFA-B	15,000	1/8" FNPT	15/16"	NFA	2 1/8"	1"	7/8" - 14	7/16"
15-21NFB-B	15,000	1/4" FNPT	15/16"	NFB	2 1/8"	1"	7/8" - 14	1 3/8"
15-21NFC-B	15,000	3/8" FNPT	1 1/8"	NFC	2 3/8"	1 3/8"	1 1/16" - 12	17/32"
15-21NFD-B	15,000	1/2" FNPT	1 7/16"	NFD	2 3/8"	1 1/2"	1 3/8" - 12	1 5/8"
10-21NFF-B	10,000	3/4" FNPT	1 11/16"	NFF	2 5/8"	1 7/8"	1 5/8" - 12	1 11/16"
10-21NFH-B	10,000	1" FNPT	1 15/16"	NFH	3 1/2"	2 1/8"	1 7/8" - 12	1 15/16"

## NPT Caps

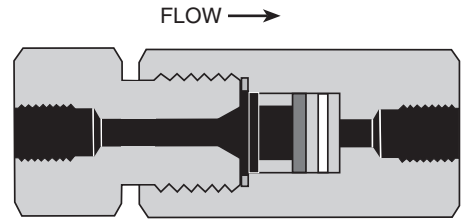
Tubing end caps are offered for use in sealing off tubing ends either for temporary use or permanent use such as on small volume reservoirs. Standard material is high tensile 316 stainless steel.



Catalog No.	Pressure Rating psi	Pipe Size	A	Length	Hex
15-21NFA-C	15,000	1/8"	NFA	3/4"	3/4"
15-21NFB-C	15,000	1/4"	NFB	1"	1"
15-21NFC-C	15,000	3/8"	NFC	1 1/4"	1"
15-21NFD-C	15,000	1/2"	NFD	1 1/2"	1 3/8"
10-21NFF-C	10,000	3/4"	NFF	1 3/4"	1 3/8"
10-21NFH-C	10,000	1"	NFH	1 3/4"	1 3/4"

## NPT Line Filters

The line filters as shown utilize sintered stainless steel filter discs 4 pc./set. Porosities are available as per the chart to the right. If not otherwise specified, 100 micron filter discs are supplied. (One micron = 0.001 millimeters). Material of body, caps and cover is hightensile 316 stainless steel.

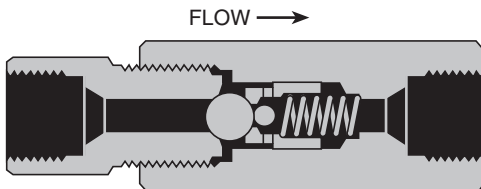


Catalog No.	Pressure Rating psi	Connections	A-B	Length	Hex	Micron Size Filter Available					
						0.5	2	5	10	40	100
15-51NFA	15,000	1/8" FNPT	NFA	3 3/16"	1 3/8"	●	●	●	●	●	●
15-51NFB	15,000	1/4" FNPT	NFB	4 3/16"	1 3/8"	●	●	●	●	●	●
15-51NFC	15,000	3/8" FNPT	NFC	4 3/16"	1 3/8"	●	●	●	●	●	●
15-51NFD	15,000	1/2" FNPT	NFD	4 3/16"	1 3/8"	●	●	●	●	●	●

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## NPT Ball Check Valves

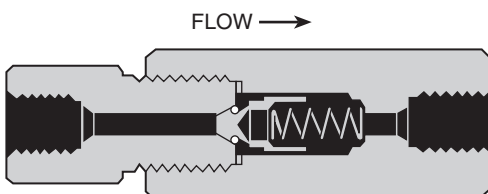
Ball type check valves insure flow in one direction only. Material for body, caps and cover is high tensile 316 stainless steel.



Catalog No.	Pressure Rating psi	Connections	A-B	Length	Hex
15-41NFA	15,000	1/8" FNPT	NFA	4 5/32"	1"
15-41NFB	15,000	1/4" FNPT	NFB	4 5/32"	1"
15-41NFC	15,000	3/8" FNPT	NFC	4 5/32"	1"
15-41NFD	15,000	1/2" FNPT	NFD	4 9/16"	1 3/8"
10-41NFF	10,000	3/4" FNPT	NFF	5 5/16"	1 3/8"
10-41NFH	10,000	1" FNPT	NFH	7 1/8"	2 1/2"

## NPT Softseat Check Valves

Soft seat check valves insure flow in one direction only and can be mounted in any position. These are highly reliable for both gas and liquid service. Standard O-ring (soft seat) material for the sealing surface is Buna-N (nitrile) for 1/8" - 1/2" size with other materials including Teflon and Viton available on request. Temperature is limited by the choice of O-ring material. Material of all other parts is high tensile 316 stainless steel.

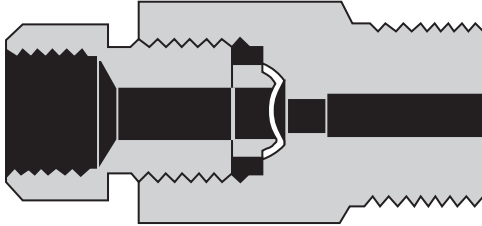


Catalog No.	Pressure Rating psi	Connections	A-B	Length	Hex
15-41NFA-T	15,000	1/8" FNPT	NFA	4 5/32"	1"
15-41NFB-T	15,000	1/4" FNPT	NFB	4 5/32"	1"
15-41NFC-T	15,000	3/8" FNPT	NFC	4 5/32"	1"
15-41NFD-T	15,000	1/2" FNPT	NFD	4 9/16"	1 3/8"
10-41NFF-T	10,000	3/4" FNPT	NFF	5 5/16"	1 3/8"
10-41NFH-T	10,000	1" FNPT	NFH	7 1/8"	2 1/2"

# NPT Valves

## NPT Safety Heads

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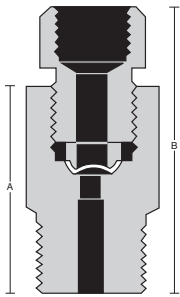
The male inlet design can be inserted directly into the tubing connections of valves and various fittings such as tees and crosses, or located in pressure vessels.

Outlet connections are  $\frac{3}{8}$ " pipe (NPT). This outlet may be connected to a suitable discharge line to vent pressure to a safe location in the event of bursting of the rupture disc. Torque required for sealing rupture discs will range from 40 to 90 foot pounds, depending upon pressure and media being used.

Material of body and hold down nut is high tensile 316 stainless steel.

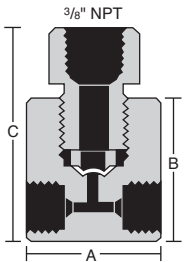
**Note:** Rupture discs are **not** included and must be ordered as a separate item.

**CE marked safety heads are now available, add -CE to end of standard part number. Consult factory for pricing.**



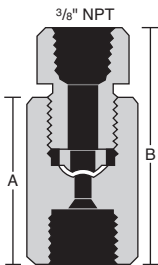
### Male Inlet Safety Heads

Catalog No.	Pressure Rating psi	Male Inlet Connection	A	B	Hex Size
15-61NMA	15,000	$\frac{1}{8}$ " Pipe	$1\frac{7}{8}$ "	$2\frac{7}{8}$ "	1"
15-61NMB	15,000	$\frac{1}{4}$ " Pipe	2"	3"	1"
15-61NMC	15,000	$\frac{3}{8}$ " Pipe	2"	3"	1"
15-61NMD	15,000	$\frac{1}{2}$ " Pipe	2"	3"	1"



### Tee Type Safety Heads

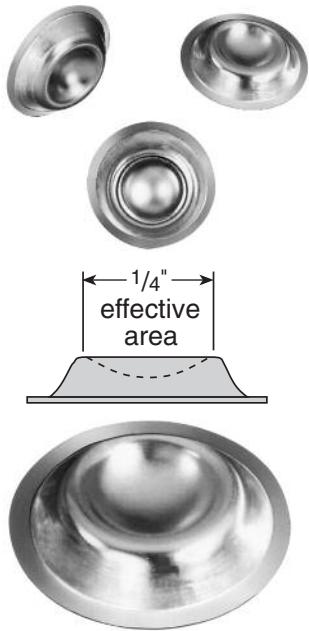
Catalog No.	Pressure Rating psi	Inlet Connection	A	B	Thickness
15-63NFA	15,000	$\frac{1}{8}$ " Pipe	2"	$1\frac{3}{4}$ "	$2\frac{3}{4}$ "
15-63NFB	15,000	$\frac{1}{4}$ " Pipe	2"	$1\frac{3}{4}$ "	$2\frac{3}{4}$ "
15-63NFC	15,000	$\frac{3}{8}$ " Pipe	$2\frac{5}{8}$ "	2"	3"
15-63NFD	15,000	$\frac{1}{2}$ " Pipe	$2\frac{5}{8}$ "	$2\frac{5}{8}$ "	$3\frac{5}{8}$ "



### Female Inlet (Straight) Safety Heads

Catalog No.	Pressure Rating psi	Inlet Connection	A	B	Hex Size
15-61NFA	15,000	$\frac{1}{8}$ " Pipe	2"	3"	1"
15-61NFB	15,000	$\frac{1}{4}$ " Pipe	2"	3"	1"
15-61NFC	15,000	$\frac{3}{8}$ " Pipe	$2\frac{5}{16}$ "	$3\frac{5}{16}$ "	$1\frac{1}{8}$ "
15-61NFD	15,000	$\frac{1}{2}$ " Pipe	$2\frac{5}{16}$ "	$3\frac{5}{16}$ "	$1\frac{1}{8}$ "

**Rupture Discs**  
**1/4" Angled Seat**



**SPECIAL DISCS** are available on special order for pressure ranges not shown below and in numerous materials and coatings. Consult factory for price and delivery.

Standard rupture discs are available from stock in burst pressures as listed in the chart below. All pressures through 15,000 psi are shaded. These discs are 316 stainless steel (except for 1,000 psi which are inconel) and may be used with any of the safety heads shown. Note that these rupture discs are supplied with a range of plus 6% and minus 3% of specified burst pressure. Samples of each batch are then tested and typically the actual average burst pressure is stamped on an accompanying metal tag. There is a +/- 5% burst tolerance applied after the burst pressure has been established. Factors influencing rupture =disc life include corrosion, metal fatigue, and cyclic effects. Periodic replacement is recommended to prevent premature failure.

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**Standard Burst Pressures (in psi at 72°F)**

1,000	3,000	5,000	7,000	9,000	11,000	17,500	25,000	37,500	55,000
1,500	3,500	5,500	7,500	9,500	11,500	18,000	27,000	40,000	60,000
2,000	4,000	6,000	8,000	10,000	12,500	20,000	30,000	45,000	65,000
2,500	4,500	6,500	8,500	10,500	15,000	22,500	35,000	50,000	