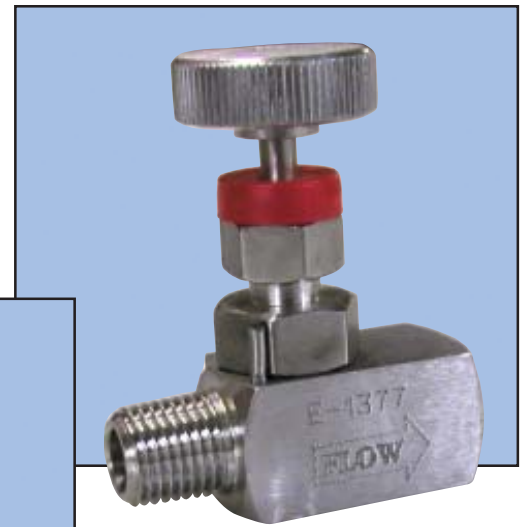


# Needle/Globe & Instrument Valves



## Hex Valve

A division of Richards Industries  
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## HN29 Series — Needle Valve

- A new addition to complement our Series HN39 and HN49 valves, is the Series HN29. This new needle valve is targeted for the gas sampling, OEM, and reseller market.

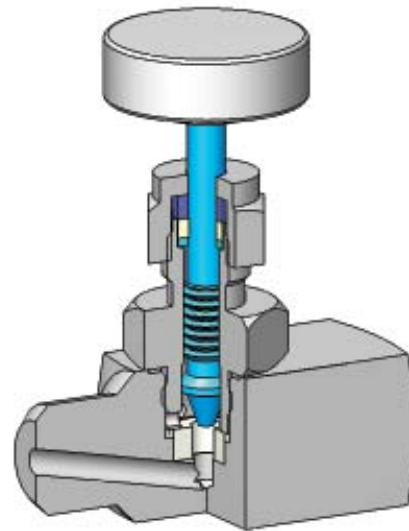
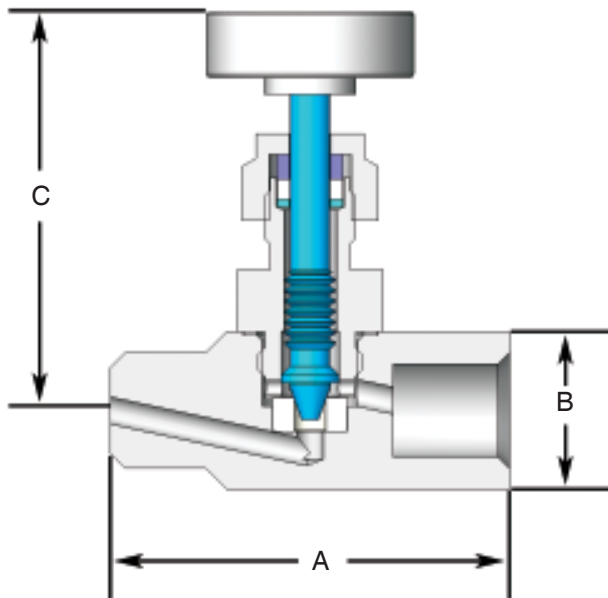
All stainless steel valves are rated to 3000 psig @ 100°F with soft seats, Teflon packing and 1" diameter round knurled handles. Valves are available in 1/4" sizes.

All carbon steel valves are rated to 6000 psig @ 100°F with hard seats and 3000 psig @ 100°F with soft seats (Delrin), Teflon packing and either "T" handles or 1" diameter round knurled handles.

Valves are available in 1/4" and 1/2" sizes.



### Dimensions

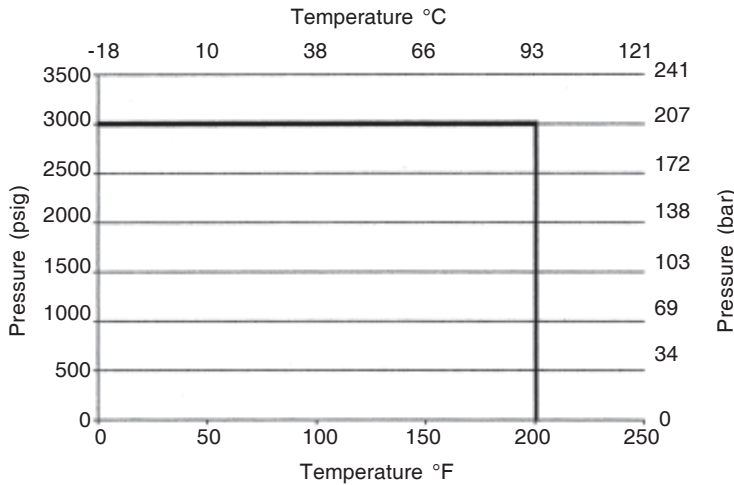


Connection	A	B	C	Weight	Orifice
1/4" F	1.89 (48)	0.75 (19)	2.00 (51)	1.0 (0,5)	0.13 (3,3)
1/4" M	1.89 (48)	0.75 (19)	2.00 (51)	1.0 (0,5)	0.13 (3,3)
1/4" MxF	1.89 (48)	0.75 (19)	2.00 (51)	1.0 (0,5)	0.13 (3,3)
1/2" F	2.68 (68)	1.26 (32)	3.74 (95)	1.5 (0,7)	0.20 (5,0)
1/2" MxF	2.68 (68)	1.26 (32)	3.74 (95)	1.5 (0,7)	0.20 (5,0)

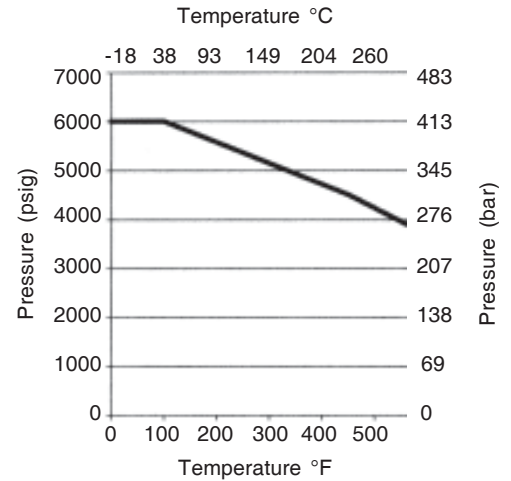
# HN29 Series — Needle Valve

## Pressure/Temperature Charts

### Soft Seats



### Hard Seats



## Ordering Schematic

Model		Description
HN29	—	2F

Model	
HN29	Standard

Connection Type, Size, Body, Material, Seat	
2F	1/4", FNPT, Straight, Stainless, Soft Seat
2F-R	1/4" FNPT, Straight, Stainless, Soft Seat, Round Handle
2FA	1/4", FNPT, Angle, Stainless, Soft Seat
2M	1/4", MNPT, Straight, Stainless, Soft Seat
22MF	1/4", FNPTxMNPT, Straight, Stainless, Soft Seat
22MF-R	1/4", FNPTxMNPT, Straight, Stainless, Soft Seat, Round Handle
22AMF	1/4", FNPTxMNPT, Angle, Stainless, Soft Seat
4F	1/2", FNPT, Straight, Carbon, Hard Seat
44MF	1/2", FNPTxMNPT, Straight, Carbon, Hard Seat
2S-2F	1/4", FNPT, Straight, Carbon, Soft Seat
2S-22MF	1/4", MNPTxFNPT, Straight, Stainless, Soft Seat
2S-22MF-R	1/4", MNPTxFNPT, Straight, Stainless, Soft Seat, Round Handle
2S-4F	1/2", FNPT, Straight, Stainless, Soft Seat
2S-44MF	1/2", MNPTxFNPT, Straight, Stainless, Soft Seat

Minimum quantities required:

1/4" – 10 per box

1/2" – 5 per box



# HN39 Series — Instrument Valve

■ The **HN39** Instrument Valves are compact and economical high-pressure instrument valves.

Panel manufacturers can use the standard panel nut to secure valves to instrument panel.

Stem tip is non-rotating, standard.

## Product Availability

All valves are available with integral hard seats, 316 stainless steel body and trim and Teflon®/Grafoil packing. Valves are furnished with a panel mount nut.

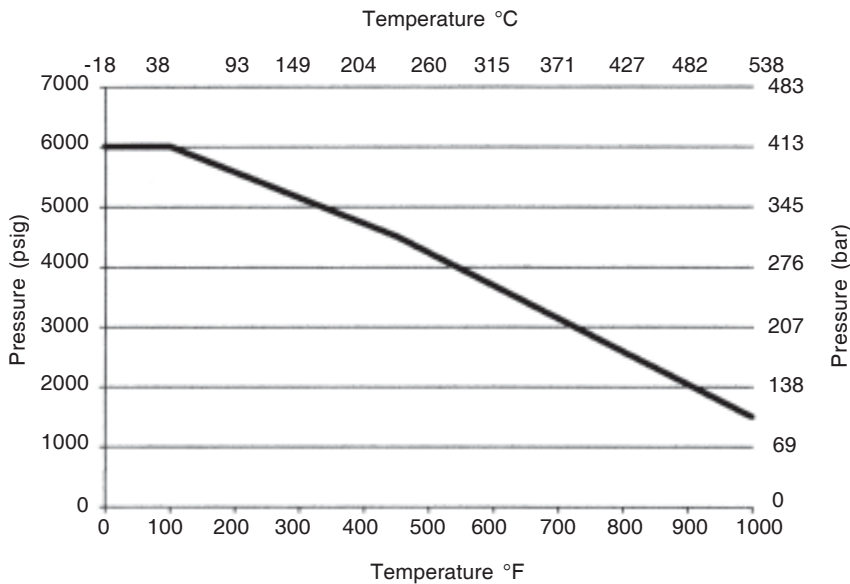


## Ratings (Metal Seated)

Stainless Steel: 6000 PSIG @ 100°F (414 bar @ 38°C)

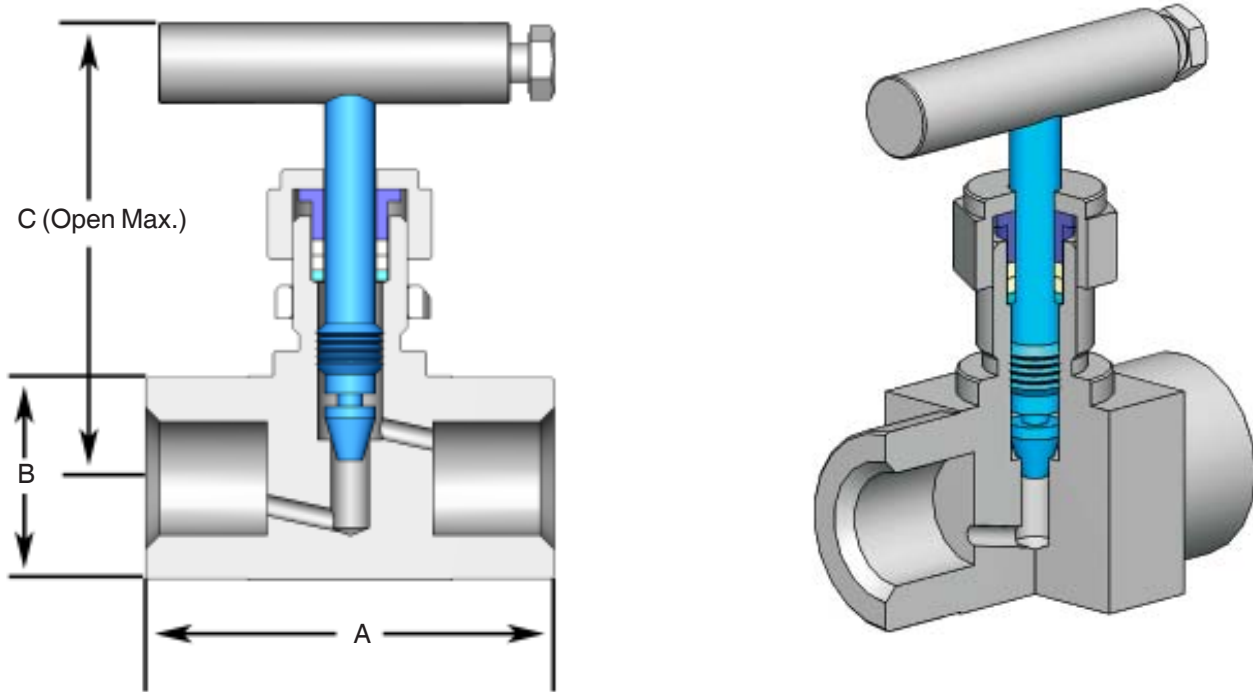
- 450°F (232,2°C) limit for Teflon-packed valves
- 1000°F (537,8°C) limit for Grafoil-packed valves

## Pressure vs. Temperature



# HN39 Series — Instrument Valve

## Model Numbers & Dimensions



Model	Inlet x Outlet		Dimensions			Weight	Orifice Size
	Size	End Connection	A	B	C		
HN39M- 1	1/8"	MNPT	2.00" (51)	0.88" (221)	2.63" (67)	1.0 (0,5)	0.12" (3)
HN39M- 2	1/4"	MNPT	2.00" (51)	0.88" (221)	2.63" (67)	1.0 (0,5)	0.18" (5)
HN39M- 3	3/8"	MNPT	2.50" (64)	1.25" (32)	3.50" (89)	1.7 (0,8)	0.24" (6)
HN39M- 4	1/2"	MNPT	2.50" (64)	1.25" (32)	3.50" (89)	1.7 (0,8)	0.24" (6)
HN39M- 6	3/4"	MNPT	2.63" (67)	1.38" (35)	3.75" (95)	2.1 (1,0)	0.39" (10)
HN39F- 1	1/8"	FNPT	2.00" (51)	0.88" (22)	2.63" (67)	1.0 (0,5)	0.12" (3)
HN39F- 2	1/4"	FNPT	2.00" (51)	0.88" (22)	2.63" (67)	1.0 (0,5)	0.18" (5)
HN39F- 3	3/8"	FNPT	2.50" (64)	1.25" (32)	3.50" (89)	1.7 (0,8)	0.24" (6)
HN39F- 4	1/2"	FNPT	2.50" (64)	1.25" (32)	3.50" (89)	1.7 (0,8)	0.24" (6)
HN39F- 6	3/4"	FNPT	2.63" (67)	1.38" (35)	3.75" (95)	2.1 (1,0)	0.39" (10)
HN39T- 1	1/8"	Tube End	2.00" (51)	0.88" (22)	2.63" (67)	1.1 (0,5)	0.12" (3)
HN39T- 2	1/4"	Tube End	2.00" (51)	0.88" (22)	2.63" (67)	1.1 (0,5)	0.18" (5)
HN39T- 3	3/8"	Tube End	2.00" (51)	1.25" (312)	3.50" (89)	1.7 (0,8)	0.24" (6)
HN39T- 4	1/2"	Tube End	2.00" (51)	1.25" (32)	3.50" (89)	1.7 (0,8)	0.24" (6)
HN39T- 6	3/4"	Tube End	2.50" (64)	1.38" (35)	3.75" (95)	2.1 (1,0)	0.39" (10)
HN39MF- 1	1/8"	MNPT x FNPT	2.00" (51)	0.88" (22)	2.63" (67)	1.0 (0,5)	0.12" (3)
HN39MF- 2	1/4"	MNPT x FNPT	2.00" (51)	0.88" (22)	2.63" (67)	1.0 (0,5)	0.18" (5)
HN39MF- 3	3/8"	MNPT x FNPT	2.50" (64)	1.25" (32)	3.50" (89)	1.7 (0,8)	0.24" (6)
HN39MF- 4	1/2"	MNPT x FNPT	2.50" (64)	1.25" (32)	3.50" (89)	1.7 (0,8)	0.24" (6)
HN39MF- 6	3/4"	MNPT x FNPT	2.63" (67)	1.38" (35)	3.75" (95)	2.1 (1,0)	0.39" (10)

# HN39 Series — Instrument Valve

## Ordering Schematic

Model	Connection Type	—	Size	Options
HN39	F		4	G

Model	
HN39	Standard

Connection Type	
M	MNPT x MNPT
F	FNPT x FNPT
T	Tube End x Tube End
MF	MNPT x FNPT
FM	FNPTx MNPT

Size	
1	1/8" (NPT)
2	1/4" (NPT)
3	3/8" (NPT)
4	1/2" (NPT)
6	3/4" (NPT)
6mm	6mm (Tube End)
8mm	8mm (Tube End)
10mm	10mm (Tube End)
14mm	14mm (Tube End)
18mm	18mm (Tube End)
25mm	25mm (Tube End)

Option	
G	Grafoil Packing
R	Round Handle
B	BSPP Ends
T	BSPT Ends

Standard packing is TFE. Add "-G" for grafoil.

If more than one option is required, separate option codes with - (dash). See examples:

HN39F-4-P-G  
HN39B-2-R-G

# HN41 Series — Instrument Valve

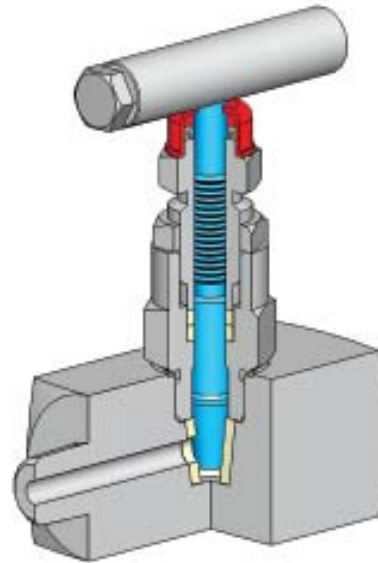
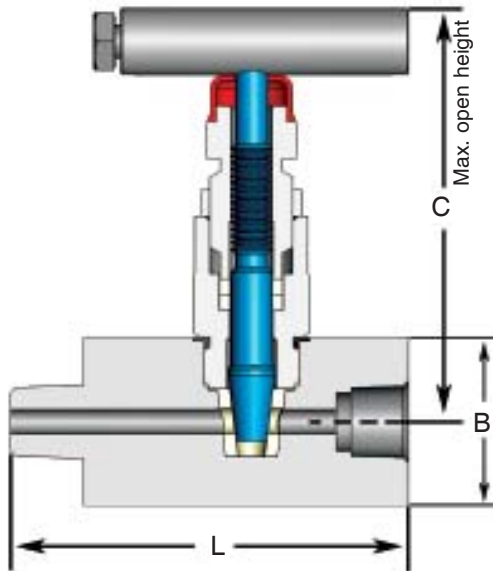
- The HN41 Series is a straight-thru design with a Delrin seat, which provides bi-directional flow and the ability to “rod-out” the valve for cleaning.

These valves are specifically targeted for the oil and gas industry and are available only in 316 Stainless Steel per NACE MR-01-75.

Valves are rated at 6000 psig @ 200°F (413,7 bar @ 93,3°C)

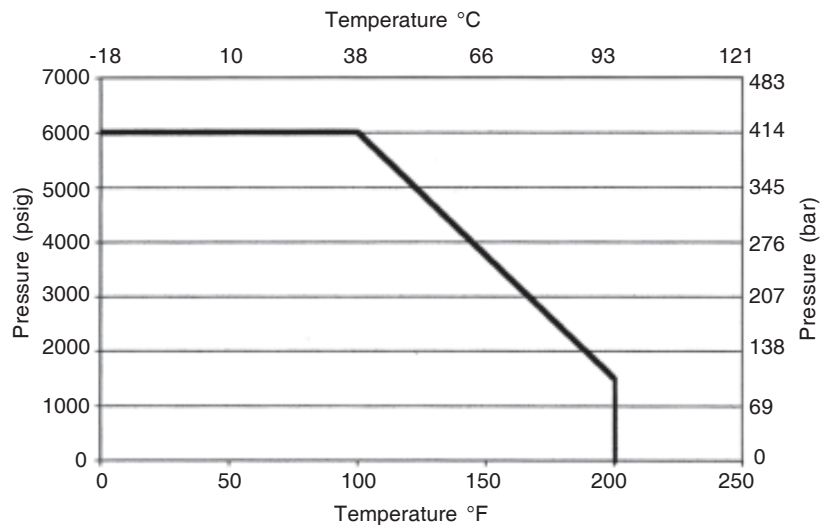


## Dimensions



Inlet	Outlet	B	L	C	Orifice
1/2"	1/2"	2.05	2.99	4.33	0.37
NPT (F)	NPT (F)	(52)	(76)	(110)	(9.50)
1/2"	1/2"	1.65	3.50	4.33	0.37
NPT (M)	NPT (F)	(42)	(89)	(110)	(9.50)

## Pressure/Temperature Chart



# HN41 Series — Instrument Valve

## Ordering Schematic

Model		Seat – Soft	Body	Connections	Stem/Tip	Seat Material	Packing
HN41	—	2	D	2FM	2	C	2

Model	
HN41	Standard

Seat - Soft	
2	Seat

Body	
D	316 SS NACE

Connections (Bidirectional)	
2F	1/4" FNPT x 1/4" FNPT
2FM	1/4" FNPT x 1/4" MNPT
24FM	1/4" FNPT x 1/2" MNPT
4F	1/2" FNPT x 1/2" FNPT
4FM	1/2" FNPT x 1/2" MNPT

Stem/Tip	
2	Seat

Seat Material	
C	Delrin

Packing	
2	Teflon



## HN49 Series — Needle Valve

- The **HN49** is a heavy duty needle valve that features an industrial strength stem and bonnet, and enhanced packing arrangement, all designed to handle the tough conditions of high pressure and high temperature services.

With a multitude of configurations available, you'll find a model to meet your varying needs. The **HN49** is produced in 1/4", 3/8", 1/2", 3/4", and 1" sizes, and can be provided with male or female threaded connections, male or female socket weld ends, or tube nut connections. For corrosive or other volatile applications, the **HN49** can be specified in a variety of materials including **Monel®**, **Alloy 20**, **Titanium**, and **Hastelloy®**.

Refer to Page 11 for information concerning the 10,000# bonnet.



### Features

- **Backseated Bonnets with Packing Below the Stem Threads**

To eliminate potential thread contamination by the process media, the packing is located below the stem threads. Backseating minimizes fugitive emissions with a metal-to-metal backseat that also prevents accidental removal or stem blow-out in operation.

- **Wide selection of Packing Materials**

Choose fully packed (TFE-Chevron or high temperature graphite) bonnets, or o-rings seals.

- **NRT Non-Rotating Tip Stem**

Provides tight repeatable shutoff without the galling or cross-scoring that occurs on ball type stems. Because the NRT conical stem tip stops rotating when it contacts the seat, further torque turns the stem, but not the tip, protecting the stem tip from damage.

Repeated closures improve the mating between the seat and the stem tip, unlike wear that will occur over time with a ball stem tip.

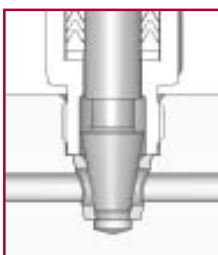
- **Ratings (Metal Seated)**

Stainless Steel: 6980 PSIG @ 100°F  
( 481,2 bar @ 37,8°C); 3525 PSIG @ 1000°F  
(243,0 bar @ 537,8°C)

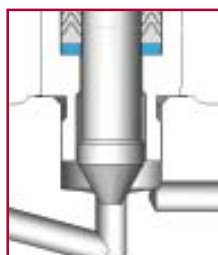
Carbon Steel: 6580 PSIG @ 100°F  
(453,7 bar @ 37,8°C); 4300 PSIG @ 650°F  
(301,3 bar @ 37,8°C)

- 450°F (232,2°C) limit for Teflon

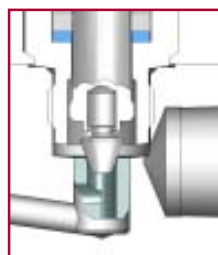
### Stem/Tip Configuration



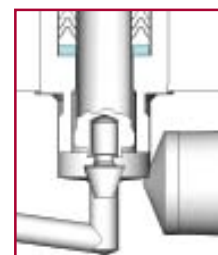
Soft Seat Roddable



Needle



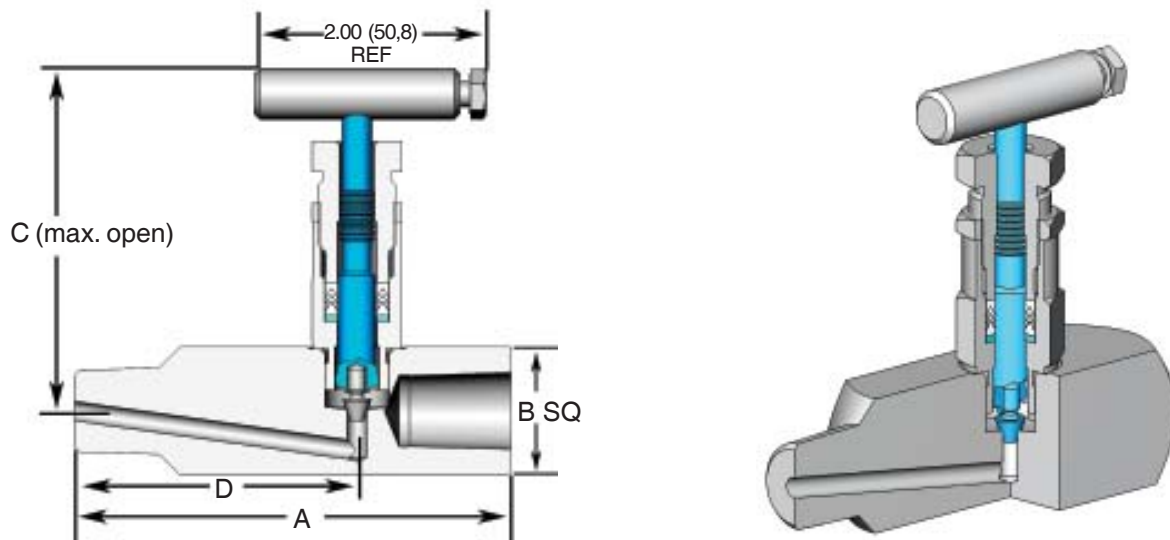
Hard Seat Insert



NRT

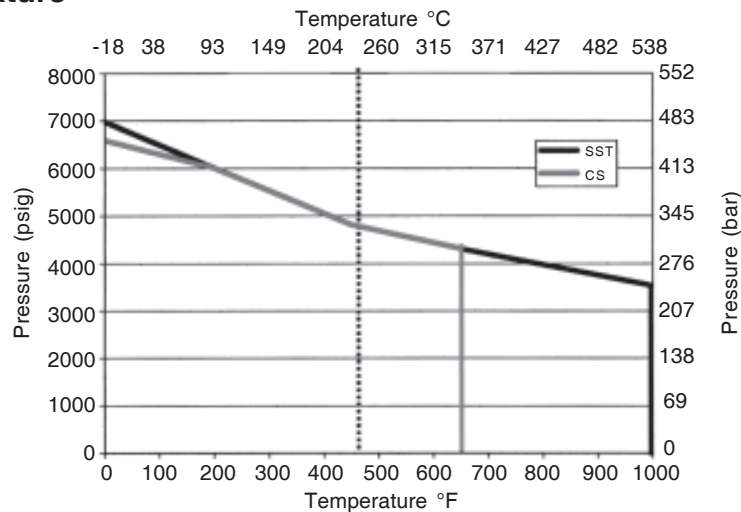
# HN49 Series — Needle Valve

## Dimensions



HN491 Hard Seat						
Inlet x Outlet	A	B	C	D	Wt	Orifice
1/4"M x 1/4"F	2.50" (64)	1.25" (32)	3.39" (86)	1.50" (38)	1.25 (32)	0.19" (5)
1/4"F x 1/4"F	2.00" (51)	1.25" (32)	3.39" (86)	1.13" (29)	1.25 (32)	0.19" (5)
1/2"M x 1/2"F	3.25" (83)	1.25" (32)	3.52" (89)	1.75" (45)	1.25 (32)	0.19" (5)
1/2"F x 1/2"F	3.25" (83)	1.25" (32)	3.52" (89)	1.75" (45)	1.25 (32)	0.19" (5)
1/2"TN x 1/2"TN	3.00" (76)	1.25" (32)	3.52" (89)	1.58" (40)	1.25 (32)	0.19" (5)
3/4"M x 3/4"F	3.00" (76)	1.50" (38)	3.77" (96)	1.56" (40)	1.75 (45)	0.19" (5)
3/4"F x 3/4"F	3.00" (76)	1.75" (45)	3.77" (96)	1.50" (38)	1.75 (45)	0.19" (5)
1"M x 1"F	4.00" (102)	2.00" (51)	4.02" (102)	2.25" (57)	4.30 (109)	0.19" (5)
1"F x 1"F	3.50" (89)	2.00" (51)	4.02" (102)	1.75" (45)	3.50 (89)	0.19" (5)

## Pressure vs. Temperature



# HN49 Series — Needle Valve

## Ordering Schematic

Model	Seat	Body Mat'l	Inlet Size	Inlet Type	Outlet Size	Outlet Type	Stem/Tip	Seat Mat'l	Packing
HN49	1	U	3	1	3	1	4	1	2

Model	
HN49	Standard

Seat	
1	Hard
2	Soft
F	Hard / O-Ring
G	Soft / O-Ring
O	10K Bonnet
Q	3/8" Orifice Soft Seat
T	3/8" Orifice Hard Seat

Body Material	
S	Carbon Steel
U	Stainless Steel
C	Carbon Steel, NACE
D	Stainless Steel, NACE
M	Monel
G	Hastelloy B
H	Hastelloy C
X	Alloy 20
Other Materials Available Upon Request	

Inlet Size	
1	1/4"
2	3/8"
3	1/2"
4	3/4"
5	1"
A	1/2" single ferrule integral tube nut
B	1/2" double ferrule integral tube nut

Metric sizes available, consult factory

Inlet Type	
1	MNPT
2	MSW
3	FNPT
4	FSW
A	Tube Nut
E	TSW
Other Types Available Upon Request	

Outlet Size	
1	1/4"
2	3/8"
3	1/2"
4	3/4"
5	1"
A	1/2" single ferrule integral tube nut
B	1/2" double ferrule integral tube nut

Metric sizes available, consult factory

Outlet Type	
1	FNPT
2	FSW
8	Tube Nut
R	1 Plug
E	TSW
Other Types Upon Request	

Stem/Tip Material	
2	316 SS Needle/Plug
4	316 SS NRT
5	316 SS/Stellite
A	Monel
B	Monel/Monel
N	Hastelloy C
D	Hastelloy C/Hastelloy C
G	Alloy 20
H	Alloy 20

Seat Material	
1	Integral (hard)
3	Stellite Insert
4	PPS (soft)
5	Kel-F (soft)
6	TFE (soft)
9	PEEK (soft)

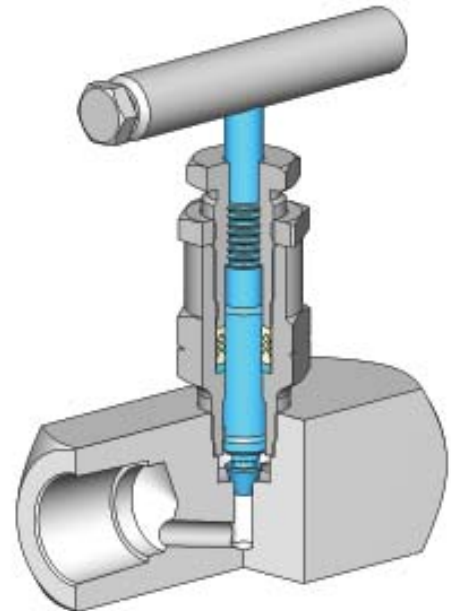
Packing	
2	TFE-Chevron
3	Graphite/Grafoil/Graphite
6	Viton-O-Ring

# 10,000# Bonnet Assembly

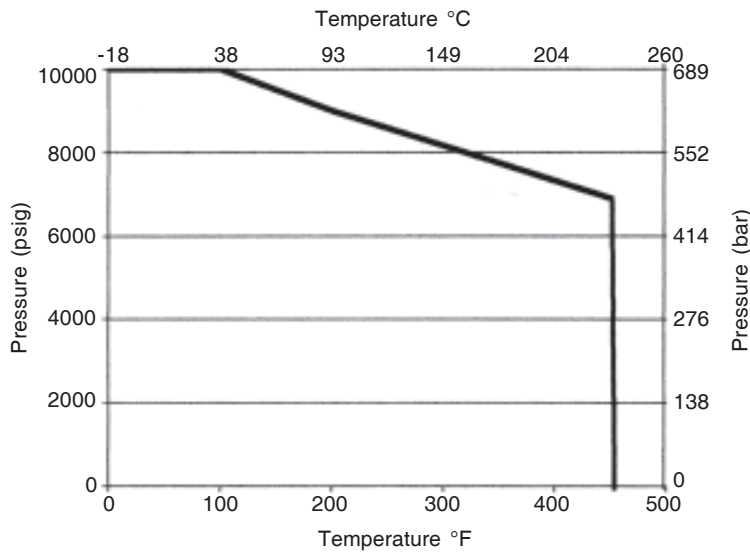
The 10,000# bonnet assembly was added to the Hex product line to meet the very high-pressure requirements in oil and gas production, specifically on offshore drilling platforms.

The 10,000# bonnet assembly is used in our HN49 Series Instrument Valves and be rated at: 10,000 psig @ 100° F (689,5 bar @ 37,8° C); 6900 psig @ 450° F (475,7 bar @ 232,2° C).

Note that the bonnet is only available with Teflon packing.



## Pressure/Temperature Chart



## Ordering Schematic

Model		_____ 412
HN490U	—	F

Model	
HN490U	10,000 Designator

Size & Connection Type	
_____	Size & Connection Type

The 10,000# bonnet is not interchangeable with other Hex bonnets, as the sealing between the bonnet and body are different.