

## NEEDLE VALVE

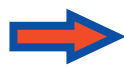
### 1/8" Bore Globe Style Mini-Valve

The mini valve is built using bar stock construction and a robust stem. Phoenix's stem and seat design assures a bubble tight seal. Bonnets are pinned for security. The globe pattern provides maximum shut-off, with a variety of stem tips, materials and configurations to meet most customer requirements. Phoenix mini bonnets feature packing below the threads to prevent process contamination. All Phoenix valves are built and tested in accordance with MSS-SP105.

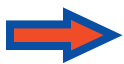


### Standard Features

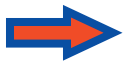
Hydrotested at 150% of rated pressure (shell test). Nitrogen gas tested to 2000 psi.



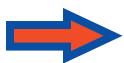
Seat tightness (zero leakage) verified to 110% of rated pressure. Nitrogen gas tested to 2000 psi.



Packing below stem threads



Metal body-to-bonnet seals are in compression, not tension



Stem threads are rolled, not cut



8 RMS stem finish



Unique mini soft seat design



V-Style Teflon™ packing



Pressure component materials sourced from the US, Canada or Europe



### Benefits

Complies with ASME B31.1 & B31.3 shell testing procedures as standard. Ensures structural integrity of valve

Complies with ASME B31.1 & B31.3 seat testing procedures as standard. Ensures zero leakage at seats for proper calibration

Prevents corrosion of critical stem threads

Mitigates risk of stress cracking

Higher quality stem for longer service life

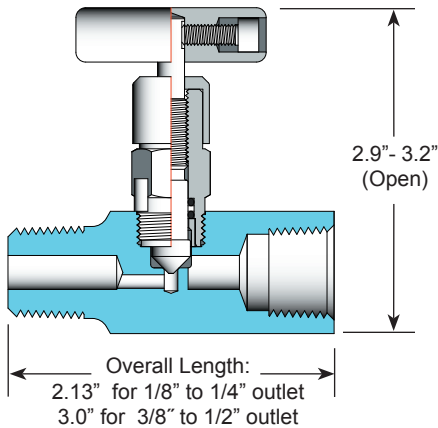
Extended packing life

Allows pressure up to 6000 psi

30-40% less operational torque and less frequent packing adjustments than traditional Teflon™ packed valves

Reliable material traceability, MTR's provided with every order on pressure containing components.

## O-Ring Bonnet Assembly

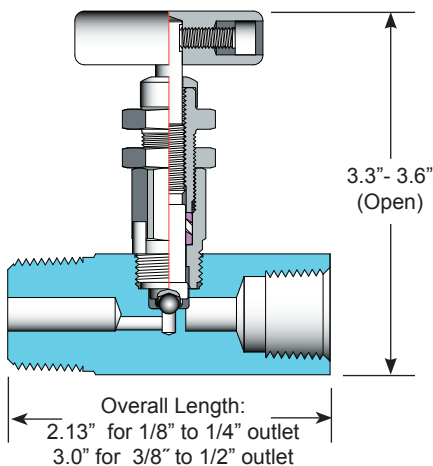


### Specifications:

Type: **P2N6M**, Mini-Valve, Globe Pattern  
 Rating: Up to 6000 psi @ 100°F (41370 kPa @ 38°C)  
 Stem: Needle tip, Ball tip or Flat tip  
 Packing: Viton™ or Aflas™ O-ring  
 Seat: Integral, Peek™, Delrin™ or Kel-F™  
 Handle: Removable  
 Bore Size: 1/8"  
 Inlet Connections: 1/8" to 3/4" NPT, SW or FT  
 Outlet Connections: 1/8" to 1/2" NPT, SW or FT  
 Bonnet Lock: Pin or Plate  
 Body Stock: .875" sq to 1.125" sq  
 Weight: 0.6 - 1.3 lbs  
 Special Service: O<sub>2</sub> or CL cleaning available\*

\*Other specifications or services may be available.

## Packed Bonnet Assembly

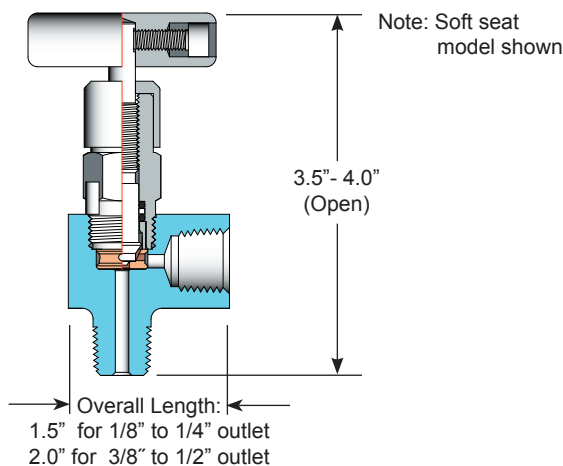


### Specifications:

Type: **P2N6M**, Mini-Valve, Globe Pattern  
 Rating: Up to 6000 psi @ 100°F (41370 kPa @ 38°C)  
 Stem: Needle tip, Ball tip or Flat tip  
 Packing: Teflon™ or Grafoil™  
 Seat: Integral, Peek™, Delrin™ or Kel-F™  
 Handle: Removable  
 Bore Size: 1/8"  
 Inlet Connections: 1/8" to 3/4" NPT, SW or FT  
 Outlet Connections: 1/8" to 1/2" NPT, SW or FT  
 Bonnet Lock: Pin or Plate  
 Body Stock: .875" sq to 1.125" sq  
 Weight: 0.7 - 1.4 lbs  
 Special Service: O<sub>2</sub> or CL cleaning available\*

\*Other specifications or services may be available.

## Angle Body Assembly



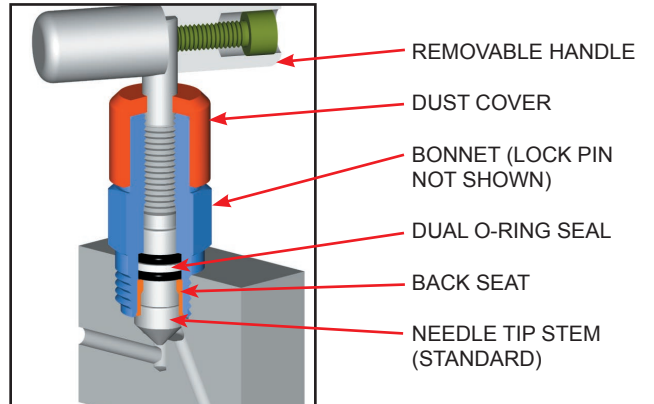
### Specifications:

Type: **P2NA6M**, Mini-Valve, Globe Pattern  
 Rating: Up to 6000 psi @ 100°F (41370 kPa @ 38°C)  
 Stem: Needle tip, Ball tip or Flat tip  
 Packing: Viton™, Teflon™ or Grafoil™  
 Seat: Integral, Peek™, Delrin™ or Kel-F™  
 Handle: Removable  
 Bore Size: 1/8"  
 Inlet Connections: 1/8" to 3/4" NPT, SW or FT  
 Outlet Connections: 1/8" to 1/2" NPT, SW or FT  
 Bonnet Lock: Pin or Plate  
 Body Stock: 1.5" x .875" or 2.0" x 1.25" Flat Bar  
 Weight: 0.7 - 1.4 lbs  
 Special Service: O<sub>2</sub> or CL cleaning available\*

\*Other specifications or services may be available.

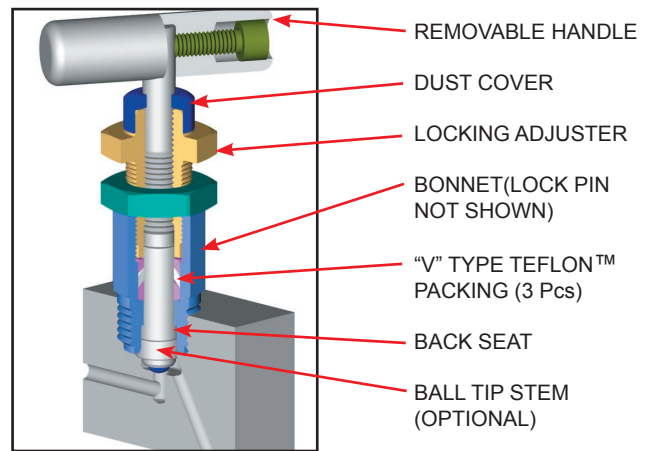
## O-Ring Bonnet Assembly

Standard Materials					
Valve	Body	Bonnet	Stem	Ball	Packing
CS	ASTM A108CS	ASTM A108CS	ASTM A582 303SS	SEE OPTION CODES ON PAGE 4	Dual Viton™ O-ring with Teflon™ backup ring
SC	ASTM A105CS	ASTM A182 316SS	ASTM A182 316SS		
316SS	ASTM A182 316SS	ASTM A182 316SS	ASTM A182 316SS		



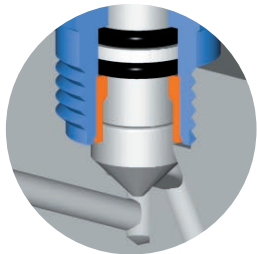
## Packed Bonnet Assembly

Standard Materials					
Valve	Body	Bonnet	Stem	Ball	Packing
CS	ASTM A108CS	ASTM A108CS	ASTM A582 303SS	SEE OPTION CODES ON PAGE 4	Teflon™ and Grafoil™
SC	ASTM A105CS	ASTM A182 316SS	ASTM A182 316SS		
316SS	ASTM A182 316SS	ASTM A182 316SS	ASTM A182 316SS		

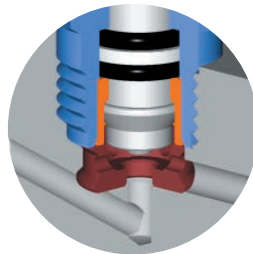


NOTE: Optional low torque Grafoil™ available (G4 Packing Code)

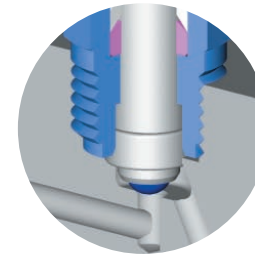
## Stem and Seat Configurations



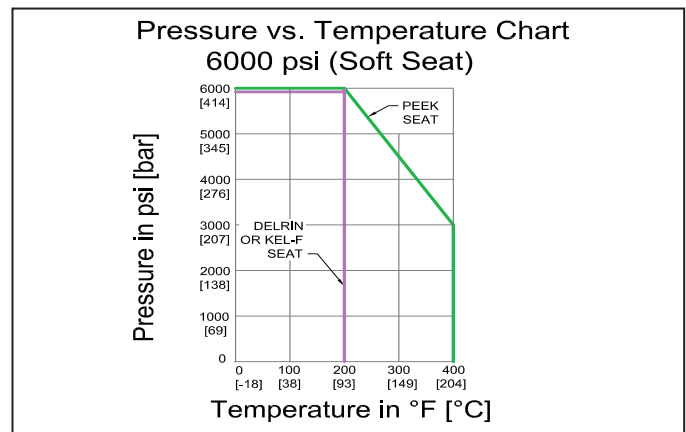
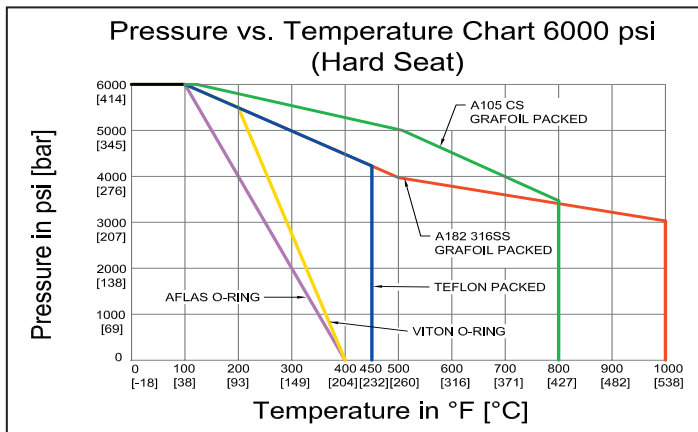
Mini Needle Tip (Standard)



Mini Soft Seat Unique Flat Tip Design Rated Up to 6000 psi (Optional)



Mini Ball Tip (Optional)



Note: Body material specifications based on ASME B16.34 - 2009. Packing material ratings based on manufacturer's specifications. Approximations only. Phoenix does not represent these values as finite. They are provided only as representative values.

Phoenix	Orifice Size	Type	Inlet Size	Inlet Type	Outlet Size	Outlet Type	Material	Packing	Seat	Stem Tip	Option Codes	Description
P	2=1/8"	N6M	2=1/8"	F=FNPT	2=1/8"	F=FNPT	SS=ASTM A182 316/316L	A=Aflas™	Integral (leave blank)	Needle Tip Standard (leave blank)	LB	Bonnet Lock
		NA6M (Angle Body)	4=1/4"	M=MNPT	4=1/4"	M=MNPT	SC=ASTM A105 CS**	V=Viton™ (FKM)	D=Delrin™	B=316SS Ball Tip	CC	Chlorine Clean
			6=3/8"	MS*=Male Socket weld	6=3/8"	MS*=Male Socket weld	CS=ASTM A108 CS**	T=Teflon™ (PTFE)	P=Peek™	BC=Ceramic Ball Tip	OC	Oxygen Clean
			8=1/2"	FS*=Female Socket weld	8=1/2"	FS*=Female Socket weld	C5=ASTM A350 LF2	G=Grafoil™	K=Kel-F™	BM=Monel™ Ball Tip	TG	SS Tag
			12=3/4"	FT=Female Tube Fitting		FT=Female Tube Fitting	N4=Monel™ 400	G4=Low Torque Grafoil™			SGL	Sour Gas ISO NACE Latest Rev.
							N6=Inconel™ 625				RA (R)(B)	Round Handle Aluminum (Red)(Blue)
							N8=Inconel™ 825				RC	Round Handle C.S.
							N2=Hastelloy™ C276				RS	Round Handle S.S.
EXAMPLE: P2N6M4M4FCSVD = 1/8" Orifice, 1/4" MNPT Inlet, 1/4" FNPT Outlet, A108 CS Body, FKM Packing, Delrin™ Seat, Needle Tip Stem												
<b>P</b>	<b>2</b>	<b>N6M</b>	<b>4</b>	<b>M</b>	<b>4</b>	<b>F</b>	<b>CS</b>	<b>V</b>	<b>D</b>		PM	Panel Mount
											N4	Monel™ 400 Stem
											N5	Monel™ 500 Stem
											N6	Inconel™ 625 Stem
											N8	Inconel™ 825 Stem
											N2	Hastelloy™ C276 Stem

\*For socket weld (SW) connections, specify MS or FS  
\*\*For code applications, A108 CS is unacceptable, A105 CS must be selected for CS valves.

## Use with Confidence, Phoenix Precision Products Meet the Following Specifications:

- ✓ ASME B31.1 Power Piping
- ✓ ASME B31.3 Process Piping
- ✓ ASME B16.34 Valves - Flanged, Thread, and Welding End
- ✓ API 598 Valve Inspection and Testing
- ✓ MSS SP-25 Standard Marking Systems for Valves, Fittings and Flange Unions
- ✓ MSS SP-99 Instrument Valves
- ✓ MSS SP-105 Instrument Valves for Code Applications
- ✓ NACE MR0175 for all 316SS valves and A105cs body/ 316SS bonnet (SC Material Code)

## Seal and Seat Material Temperature Rating

Code	Description	MIN. TEMP	MAX. TEMP
A	Aflas™	15°F (-10°C)	400°F (204°C)
V	Viton™	-20°F (-29°C)	400°F (204°C)
T	Teflon™	-65°F (-54°C)	450°F (232°C)
G	Grafoil™ (SS Body) (CS Body)	-70°F (-56°C) -70°F (-56°C)	1000°F (537°C) 800°F (427°C)
D	Delrin™	-40°F (-40°C)	200°F (93°C)
P	Peek™	-40°F (-40°C)	400°F (204°C)
K	Kel-F™	-100°F (-73°C)	200°F (93°C)

Note: Grafoil™ is suitable for services in excess of 1000°F in a non-oxidizing environment.

## For further information please contact:



Phoenix Precision Ltd.  
2620 21st Street N.E.  
Calgary, Alberta T2E 7L3  
Phone:(403) 291-3154  
Fax: (403) 291-3292  
email: phoenix@phoenixprecision.ca  
www.phoenixprecisionvalves.com

## Distributor / Representative:

Phoenix Precision Ltd. (PPL) provides the information herein in good faith but makes no representation as to its comprehensiveness or accuracy. The information contained herein is intended only as a guide to PPL products and services. Individuals using information must exercise independent judgment in evaluating product selection and determining product appropriateness for their particular purpose and system requirements. PPL MAKES NO REPRESENTATIONS OR WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WITH RESPECT TO THE INFORMATION SET FORTH HEREIN OR THE PRODUCT(S) TO WHICH THE INFORMATION REFERS. ACCORDINGLY, PPL WILL NOT BE RESPONSIBLE FOR DAMAGES (OF ANY KIND OR NATURE, INCLUDING INCIDENTAL, INDIRECT, OR CONSEQUENTIAL DAMAGES) RESULTING FROM THE USE OF OR RELIANCE UPON THIS INFORMATION. Patents and Patents Pending in the U.S. and foreign countries. PPL reserves the right to change product designs and specifications without notice.

DELIRIN, TEFLON, VITON and TEFLOX are registered trademarks (hereinafter referred to as TM) of E.I. Du Pont de Nemours and Company Corporation. PEEK is a registered TM of Whitford Worldwide Company and Whitford B.V. KEL-F is a registered TM of M.W. Kellogg Company. GRAFOIL is a registered TM of High Temperature Materials Inc. and Graftech INC. Corporation. AFLAS is a registered TM of Asahi Glass Co. Ltd. Corporation Japan. MONEL and INCONEL are registered TMs of Huntington Alloys Corporation. HASTELLOY is a registered TM of Haynes International, Inc.

© 2013 by Phoenix Precision Ltd. All rights reserved. Material in this brochure or catalogue may not be reproduced in whole or in part, in any form, without written permission from the publisher.