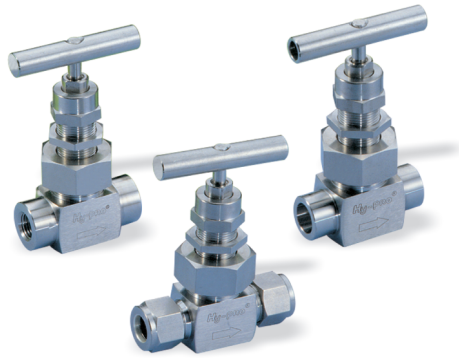
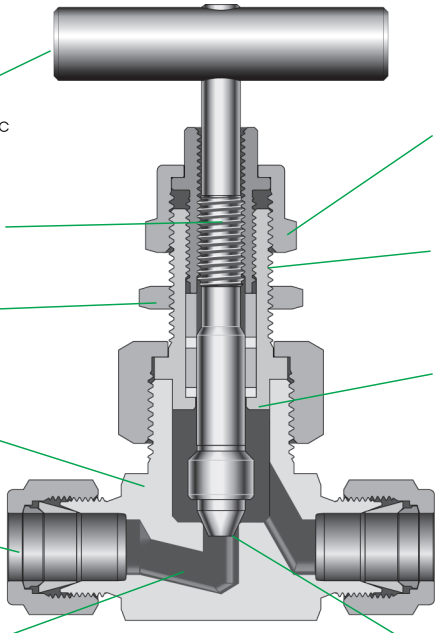
Hy-Lok GB Series

Union Bonnet Valves



Catalog No. H-102NV
Apr. 2006



Handle
• is available in black aluminum bar, stainless steel bar, and black phenolic knob.

Stem Threads
• are rolled and hard chrome-plated for maximum service life.

Panel Mounting Nut
• allows easy mounting. (standard)

Rugged Body
• is available with straight and angle pattern.

Variety of End Connections
• include Hy-Lok tube fittings, male / female NPT threads, male / female ISO threads, and socket weld Ends.

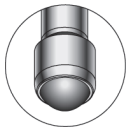
Variety of Orifice Sizes
• include 4.0mm (GB1 series), 6.4mm(GB2 series), 11.0mm (GB3 series).

Locking Nut
• prevents packing bolt from loosening.

Metal Seal Bonnet-to-Body Construction
• ensures safety.

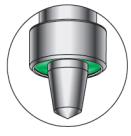
Back Seating
• provides anti-blow out of stem

Variety of Stem Tips
• include non-rotating Vee(standard) non-rotating ball, soft seat, regulating soft seat and non-rotating regulating tip.(optional)

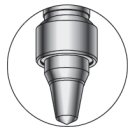


Ball Tip

Soft Seat Tip



Regulating Soft Seat Tip

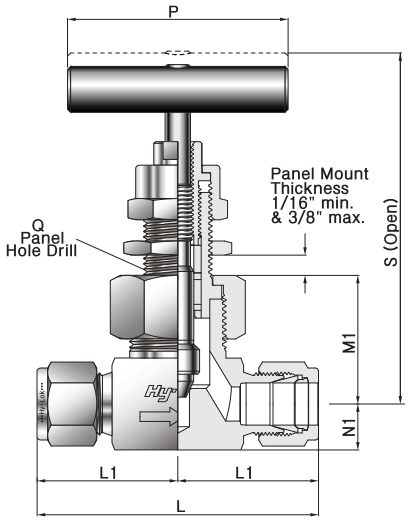


Regulating Tip

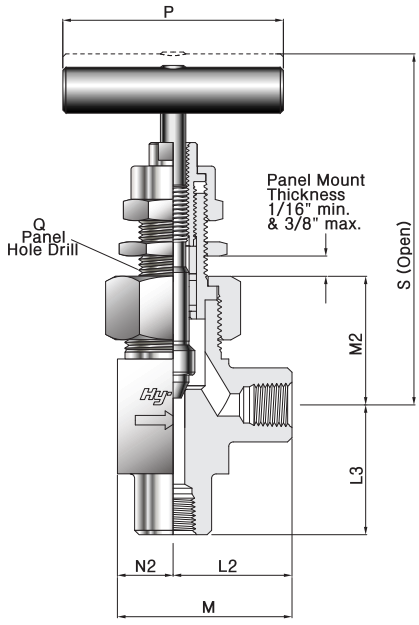
Features

- **Pressure rating** up to 6000psig (410bar) @ 100°F(38°C)
- **Temperature rating** from -65°F to 450°F(-54°C to 232°C) with standard PTFE packing and up to 1200°F (648°C) with optional Grafoil packing
- **Body materials** available in 316 stainless steel, carbon steel, and alloy 400
- **100% factory tested.**

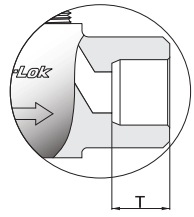
HY-LOK CORPORATION



Straight Pattern



Angle Pattern



weld end

Table of Dimensions

Basic Part No.			Orifice	Cv	End Connections	Dimensions												
					Inlet / Outlet	L	L1	L2	L3	M	M1	M2	N1	N2	P	Q	S Straight	S Angle	T
GB1	F	- 2N -	4.0	0.35	1/8" Female NPT	50.8	25.4	23.0	25.4	32.6	27.8	32.6	9.6	9.6	45	15.1	77.8	82.6	-
	F	- 4N -			1/4" Female NPT	52.4	26.2												
	M	- 4N -			1/4" Male NPT	50.8	25.4	25.4		35.0									
	MF	- 4N -			1/4" Male NPT / 1/4" Female NPT	52.4	26.2	23.0		32.6									
	H	- 6M -			6mm Hy - Lok	61.9	31.0	29.4	37.3	38.9		27.8						77.8	
	H	- 4T -			1/4" Hy - Lok														
	SW	- 4T -			1/4" Tube Weld	46.0	23.0	22.3	30.2	31.8									7.2
	H	- 8M -			8mm Hy - Lok	61.9	31.0	29.4	37.3	38.9									-
GB2	F	- 4N -	6.4	0.86	1/4" Female NPT	57.2	28.6	25.4	28.6	38.1	34.1	37.3	12.7	12.7	64	19.9	93.7	96.9	-
	F	- 6N -			3/8" Female NPT														
	H	- 10M -			10mm Hy - Lok	73.0	36.5	33.3	39.7	46.1		34.2						93.7	
	H	- 6T -			3/8" Hy - Lok			32.5	42.9	45.3		31.0						90.5	
	H	- 12M -			12mm Hy - Lok	77.8	38.9	35.7	42.1	48.4		34.2						93.7	
	H	- 8T -			1/2" Hy - Lok			34.9		47.6									
	SW	- 4P -			1/4" Pipe Weld	57.2	28.6	25.4	28.6	38.1		37.3						93.7	9.6
	SW	- 6T -			3/8" Tube Weld														8.0
	SW	- 8T -			1/2" Tube Weld				25.4			35.7						95.3	9.6
GB3	F	- 8N -	11.0	2.2	1/2" Female NPT	79.4	39.7	33.3	39.7	50.8	46.1	50.8	15.9	17.5	89	26.2	121.5	126.2	-
	F	- 12N -			3/4" Female NPT	82.6	41.3	-	-	-	48.4	-	19.9	-			123.9	-	
	F	- 16N -			1" Female NPT	92.1	46.0	-	-	-	54.0	-	25.4	-			129.4	-	
	MF	- 8N -			1/2" Male NPT / 1/2" Female NPT	79.4	39.7	33.3	39.7	50.8	46.0	50.8	15.9	17.5			121.5	126.2	
	MF	- 12N -			3/4" Male NPT / 3/4" Female NPT	82.6	41.3	-	-	-	48.4	-	19.9	-			123.9	-	
	MF	- 16N -			1" Male NPT / 1" Female NPT	92.1	46.0	-	-	-	54.0	-	25.4	-			129.4	-	
	H	- 12M -			12mm Hy - Lok	100.0	50.0	-	-	-	46.0	-	15.9	-			121.5	-	
	H	- 8T -			1/2" Hy - Lok			43.7	53.2	61.1		47.6		17.5				123.1	
	H	- 12T -			3/4" Hy - Lok														
	H	- 16T -			1" Hy - Lok			-	-	-	47.6	-	17.5	-			123.1	-	9.6
	SW	- 8P-			1/2" Pipe Weld	79.4	39.7	33.3	39.7	50.8		50.8		17.5				126.2	9.6
	SW	- 8T -			1/2" Tube Weld				42.9		46.0	47.6	15.9				121.5	123.1	9.6
	SW	- 12T -			3/4" Tube Weld			-	-	-		-		-				-	11.1

All dimensions in millimeters. Dimensions shown with Hy-Lok nuts in finger-tight position, where applicable.

Technical Data

Materials of Construction

Description		Grade / ASTM Specification		
		Valve Body Materials		
		SS 316	Carbon Steel	Alloy 400
Handle		Stainless Steel	Aluminum	Stainless Steel
Lock Nut		SS 316 / A479	12L14 / A108	Alloy R-405 / B164
Packing Bolt		SS316 / A479		
Packing Gland		SS 316 / A479		Alloy R-405 / B164
Packing Support *		Glass Filled PTFE		
Packing *		PTFE		
Bonnet *		SS 316 / A479	12L14 / A108	Alloy R 405 / B164
Stem *	Vee Tip	SS 316 / A479		Alloy R-405 / B164
	Ball Tip			
	Soft Tip			
	Regulating			
Body *		SS 316 / A479	12L14 / A108	Alloy 400 / B164

Note : "*"marked are wetted parts.
Nickel anti-seize lubricant for PTFE packed valves and fluorinated grease for PEEK and Grafoil packed valves.

Temperature and Pressure Rating

Body Material	Stem Tip	Temperature Rating	Pressure Rating @ -65°F ~ 100°F (-54°C ~ 38°C)
316 Stainless Steel	NR Vee,NR Ball Regulating	-65°F ~ 450°F (-54°C ~ 232°C)	6000 psig
	NR Soft seat (Kel-F)	-65°F ~ 200°F (-54°C ~ 93°C)	
Carbon Steel	NR Vee, NR Ball, Regulating	-20°F ~ 350°F (-29°C ~ 176°C)	6000 psig
	NR Soft Seat (Kel-F)	-20°F ~ 200°F (-29°C ~ 93°C)	
Alloy 400 (monel)	NR Vee, NR Ball, Regulating	-65°F ~ 450°F (-54°C ~ 232°C)	5000 psig
	NR Soft Seat (Kel-F)	-65°F ~ 200°F (-54°C ~ 93°C)	

- NR stands for non-rotating.
- The above ratings are for a standard valve with PTFE packing. For optional packing materials, refer to the table shown below.
- Extreme temperature fluctuations may require packing adjustment.

Temperature vs Working Pressure

Temperature	Pressure (psig) @ Temperature Rating			
	ANSI Group	2.2	NA	3.4
	Materials	SS316	Carbon Steel †	Alloy 400
	ANSI Class	2500	NA	2500
-65°F(-54°C) 100°F (38°C)		6000	6000	5000
200°F (93°C)		5160	5420	4400
300°F (148°C)		4660	5320	4120
350°F (176°C)		4470	5230	4050
400°F (204°C)		4280	-	3980
450°F (232°C)		4130	-	3970

† Rated at a low temperature of -20°F(-29°C)
- To determine kPa, multiply psig by 6.89 and bar by 0.0689.
- When valves with Hy-Lok fitting end connections are connected to tubing, the working pressure of tubing must be considered in the calculation of total system working pressure.

Packing and Body Materials vs Temperature and Pressure Rating

Packing Material	Body Material	Temperature	Pressure @ Temp Rating
PTFE (Standard)	316 Stainless Steel	-65°F ~ 450°F (-54°C ~ 232°C)	4130 psig
	Alloy 400 *		3970 psig
PEEK †	316 Stainless Steel	-65°F ~ 600°F (-54°C ~ 315°C)	3760 psig
	Alloy 400 *	-65°F ~ 500°F (-54°C ~ 260°C)	3960 psig
Grafoil	316 Stainless Steel	-65°F ~ 1200°F (-54°C ~ 648°C)	1715 psig
	Carbon Steel	-20°F ~ 350°F (-29°C ~ 176°C)	5230 psig
	Alloy 400 *	-65°F ~ 500°F (-54°C ~ 260°C)	3960 psig

* Not applicable over 500°F(260 C°).
† PEEK is not recommedned for service with aromatic heat transfer fluids or concentrated sulfuric and nitric acids. Other limitations may apply.

Sour Gas Servive

- is provied to meet NACE Standard MR-01-75.

Testing

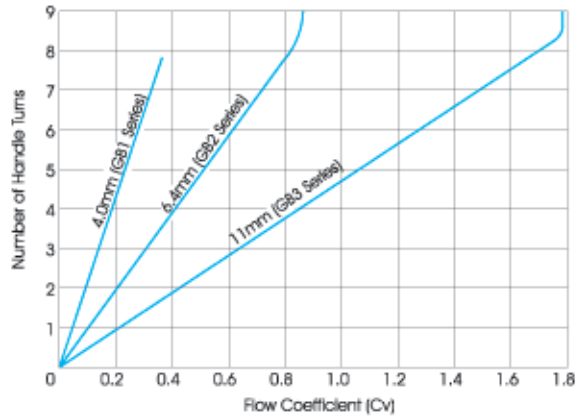
- Each valve is tested with nitrogen @ 1000psig(69bar) to a max leak rate of 0.1SCCM.
- Hydrostatic shell test is performed at 1.5 times the working pressure.
- Optional tests are available upon request.

Handles

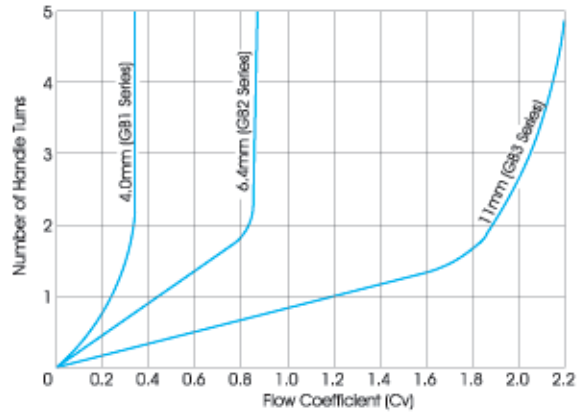
- Standards are black aluminum bar for carbon steel body and stainless steel bar for SS316 and Alloy 400 body.
- Black phenolic knob handle is available as an option for GB1, GB2 series.

Flow Coefficient (Cv) vs Number of Handle Turns

Regulating Tip Stem



Non Rotating Vee & Ball Tip & Soft Seat Stem



Ordering Information

GB2 | MH | A | 4N6T | PK | R | K | SOG | S316

Series Designator by Orifice Size
- GB1 : 4.0mm Orifice
- GB2 : 6.4mm Orifice
- GB3 : 11.0mm Orifice

Body Pattern Designator*
- Nil : Straight Pattern (Standard)
- A : Angle Pattern

End Connection Designator
- F : Both Ends Female Pipe Thread
- M : Both Ends Male Pipe Thread
- MF : Male & Female Pipe Thread
- H : Both Ends Hy-Lok Tube Fittings
- SW : Both Ends Socket Weld Ends
- MH : Male Pipe Thread & Hy-Lok Tube Fittings

Size Designator

- NPT (ISO/BSP)

Thread(in.)	1/8	1/4	3/8	1/2	3/4	1
Designator	2N(R)	4N(R)	6N(R)	8N(R)	12N(R)	16N(R)

- Tube

Fractional Tube	O.D.(in.)	1/8	1/4	3/8	1/2	3/4	1
	Designator	2T	4T	6T	8T	12T	16T
Metric Tube	O.D.(mm)	3	6	10	12	20	25
	Designator	3M	6M	10M	12M	20M	25M

Note * : No designator is required for standard, e.g. GB2MH-4N6T-S316.

Packing Material Designator*
- Nil : PTFE(Standard)
- PK : PEEK
- G : Grafoil

Stem Tip Designator*
- Nil : Non-Rotating Vee (Standard)
- R : Regulating
- S : Non-Rotating Soft Seat with Kel-F
- B : Non-Rotating Ball

Handle Designator*
- Nil : Standard
- K : Black Phenolic Knob Available only for GB1, and GB2 with soft seat stem

Sour Gas Designator*
- Nil : Without(Standard)
- SOG : NACE MR-01-75

Material Designator
- S316 : 316 Stainless Steel
- STEL : Carbon Steel
- MONE : Alloy 400(Monel)

SAFETY in VALVE SELECTION

Proper installation, materials compatibility, operation and maintenance of these valves are the responsibility of the user. The total system design must be taken into consideration to ensure optimal performance and safety.

■ QUALITY SYSTEM CERTIFICATES

ISO 9001
CERTIFICATE NO.GQC 212

ASME SECT III (MO)
CERTIFICATE NO. QSC 584

■ TYPE APPROVALS (for Hy-Lok Tube Fittings)

American Bureau Shipping
CERTIFICATE NO.00-BK50288-X

Lloyd's Register
CERTIFICATE NO.01/10075

GERMANISCHER LLOYD
CERTIFICATE NO.57798-91 HH

DET NORSKE VERITAS
CERTIFICATE NO.P-9100