

# Hy-Lok GB Series

## Union Bonnet Valves

Catalog No. H-102NV  
Feb. 2003

### 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

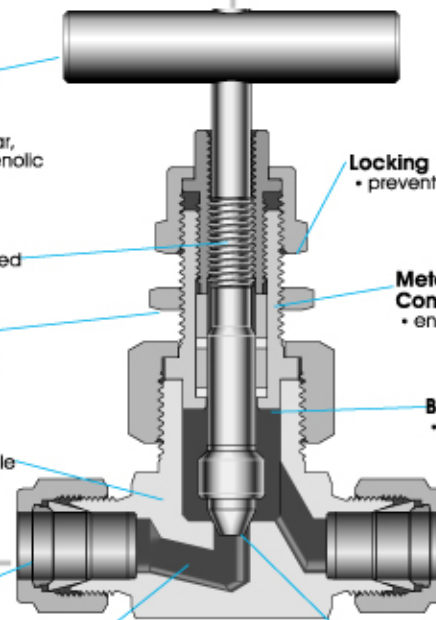
- Include Hy-Lok tube fittings, male/female NPT threads, male/female ISO threads, and socket weld ends.

### Variety of Orifice Sizes

- Include 4.0mm (GB1 series), 6.4mm(GB2 series), 11.0mm (GB3 series).

## 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.**



### Locking Nut

- prevents packing bolt from loosening.

### Metal Seal Bonnet - to - Body Construction

- ensures safety.

### Back Seating

- provides anti-blow out of stem.

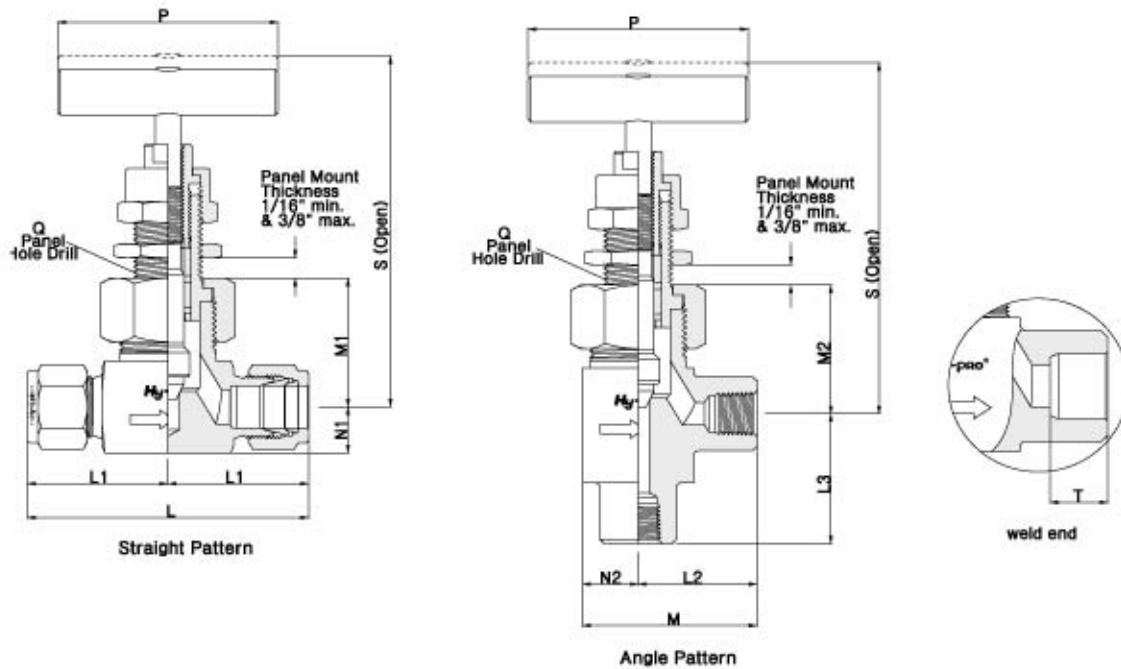
### Variety of Stem Tips

- include non-rotating Vee(standard) non-rotating ball, non-rotating soft seat, and regulating tip.(optional)



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## 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			32.6												
	F - 4N -			1/4" Female NPT		52.4	26.2		23.0													
	M - 4N -			1/4" Male NPT		50.8	25.4	25.4		25.4		32.6										
	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												
	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												
	F - 6N -			3/8" Female NPT								37.3										
	H - 10M -			10mm Hy - Lok		73.0	36.5	33.3	39.7	46.1												
	H - 6T -			3/8" Hy - Lok				32.5	42.9	45.3												
	H - 12M -			12mm Hy - Lok		77.8	38.9	35.7	42.1	48.4	34.1											
	H - 8T -			1/2" Hy - Lok				34.9	47.6													
	SW - 4P -			1/4" Pipe Weld																		9.6
	SW - 6T -			3/8" Tube Weld		57.2	28.6	25.4	28.6	38.1												8.0
	SW - 8T -			1/2" Tube Weld					25.4													9.6
																						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					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																		
	H - 8T -			1/2" Hy - Lok																		
	H - 12T -			3/4" Hy - Lok		100.0	50.0	43.7	53.2	61.1	46.0										121.5	123.1
	H - 16T -			1" Hy - Lok																		
	SW - 8P -			1/2" Pipe Weld								47.6		22.0							123.1	-
	SW - 8T -			1/2" Tube Weld		79.4	39.7	33.3	39.7	50.8											126.2	9.6
	SW - 12T -			3/4" Tube Weld								46.0									121.5	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 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.

### Sour Gas Service

- is provided 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.

### 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.

### Packing and Body Materials vs Temperature and Pressure Rating

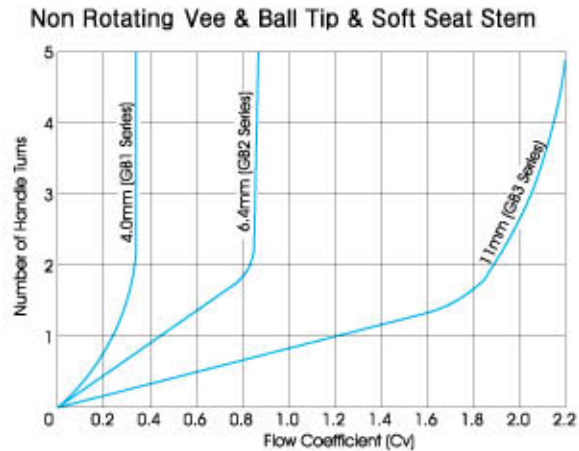
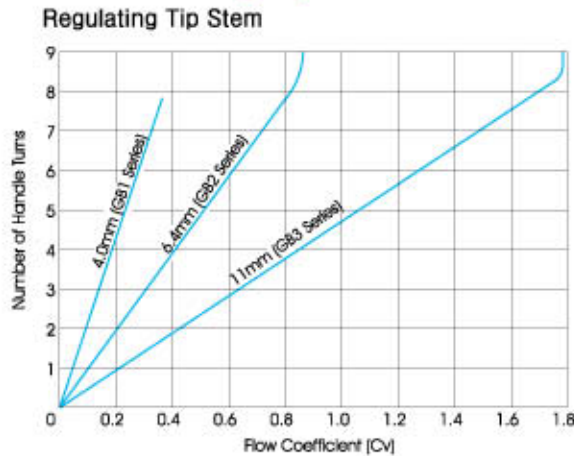
Packing Material	Body Material	Temperature	Pressure @ Temp Rating	
PTFE (Standard)	316 Stainless Steel	-65°F ~ 450°F (-54°C ~ 232°C)	4130 psig	
	Alloy 400*		3970 psig	
PEEK†	316 Stainless Steel	-65°F ~ 600°F (-54°C ~ 315°C)	3760 psig	
	Alloy 400*		3960 psig	
Grafoil	316 Stainless Steel	-65°F ~ 1200°F (-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 recommended for service with aromatic heat transfer fluids or concentrated sulfuric and nitric acids. Other limitations may apply.

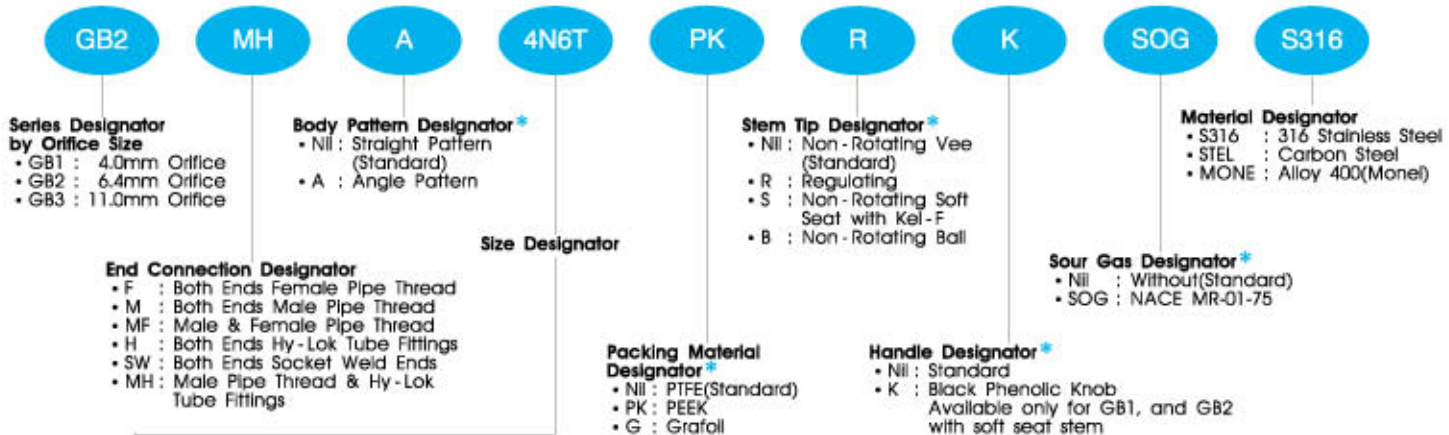
### Handles

- 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



## Ordering Information



• 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.

## 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-BKS0288-X



Lloyd's Register  
CERTIFICATE NO. 01/10075



GERMANISCHER LLOYD  
CERTIFICATE NO. 57798-91 HH



DET NORSKE VERITAS  
CERTIFICATE NO. P-9100



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