

# Super G Lubricated- Non-Lubricated Plug Valve



## Exclusive Features:

- Built and tested in accordance with API 6A, API 6D & B16.34
- Lubricated and non-lubricated in same valve. Use it either way.
- Metal-to-metal seating; zero leakage
- Top entry, field repairable—no special tools or training required
- Pressure Balanced Plus™—low torque
- Full port or regular port
- Fire safe to API 6FA—certified by "DNV" Det Norske Veritas.
- Valve position indicator
- Blowout-proof plug—integral plug and stem
- Construction to NACE MRO175 standard
- Wrench, bar or worm gear operated—actuator compatible
- Renewable plug, seats and trim parts—fully interchangeable without lapping, special fitting or machining
- Round ports—low turbulence/pressure drop
- Equipped with a lock open/close position indicator

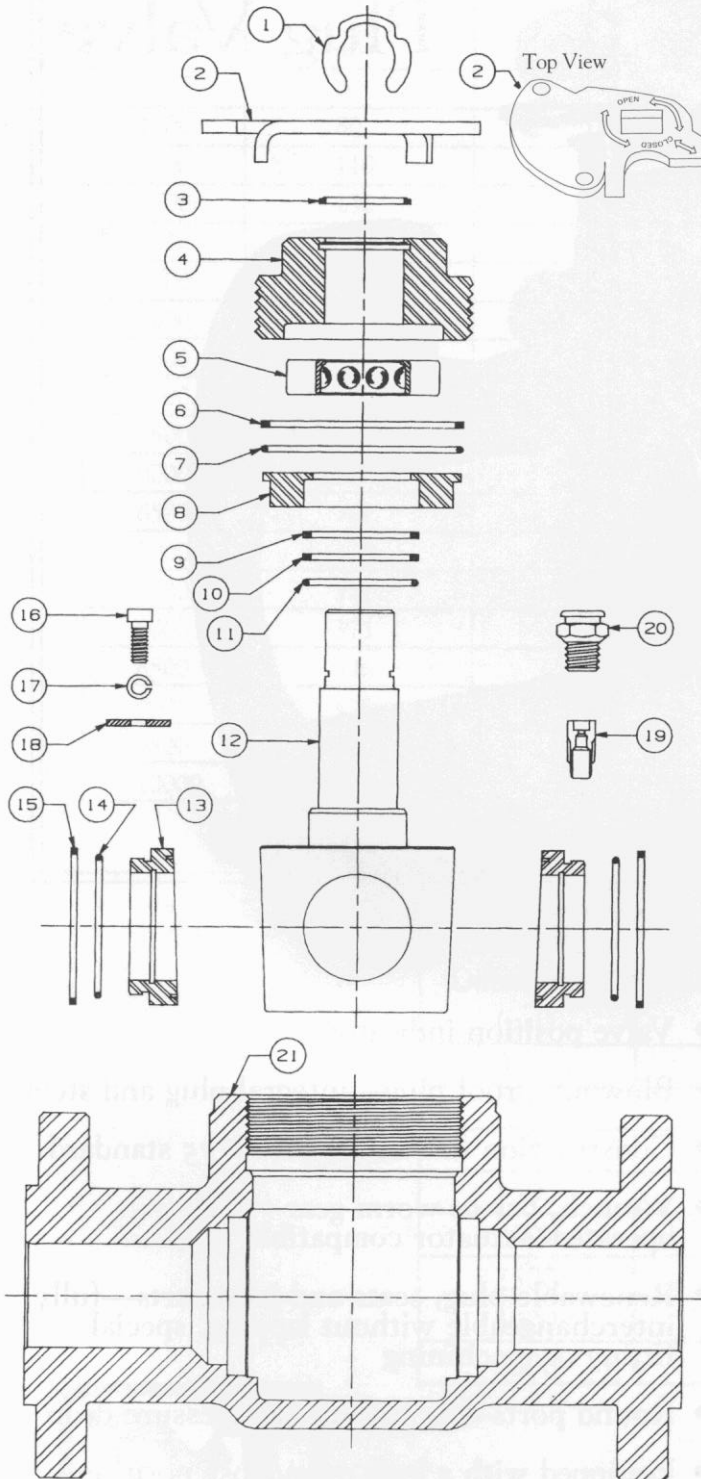


TEXSTEAM



Flow Control

# Parts List



When ordering parts, please furnish item number and part name as given below, plus valve model, size and working pressure.

Item	No. Req'd.	Description	Material
1	1	Collar retaining ring	Steel, nickel plated
2	1	Locking collar Position indicator	Steel, nickel plated
3	1	Dirt excluder	Buna-N
4	1	Adjusting nut	ASTM A-487-4C
5	1	Thrust bearing	Alloy steel
③①	6	Packing ring	Grafoil
③①	7	Body o-ring	Buna-N standard Viton optional
③①	8	Packing plate	AISI 1018 steel
③①	9	Stem packing	Grafoil
③①	10	Back up ring	Teflon
③①	11	Stem o-ring	Buna-N standard Viton optional
②③	12	Plug	1018 steel chrome plated
③	13	Seat	Nickel alloy ASTM B-584
③	14	Seat o-ring	Buna-N standard Viton optional
③	15	Spacer ring	Alloy Steel, nickel plated
	16	Stop screw	304 SS
	17	Lock washer	Steel, cad plated
	18	Lock plate	Steel, cad plated
②	19	Lube check	Stainless steel
②	20	Button head fitting	Alloy steel
	21	Body	ASTM A-487-4C
①	1	Packing plate assy. parts	—
②	1	Plug assembly parts	—
③	1	Repair kit	—

Conversion kit required all parts less body

# Accessories/Repair Kits

## Stem Wrenches

Valve Size	Part No.	Weight
1 1/2" FO	GB-1742	12 lbs.
2" RO	GB-1742	12 lbs.
2" FO	GB-1743	15 lbs.
2 1/2" RO	GB-1743	15 lbs.
2 1/2" FO	GB-1744	18 lbs.
3" RO	GB-1744	18 lbs.
3" FO	GB-1745	20 lbs.
4" RO	GB-1745	20 lbs.
4" FO	GB-1745	20 lbs.
6" RO	GB-1745	20 lbs.

## Wrench Heads (Operate with bar or rod)

Valve Size	Part No.
1 1/2" FO	GA-3247
2" RO	GA-3247
2" FO	GA-3248
2 1/2" RO	GA-3248
2 1/2" FO	GA-3249
3" RO	GA-3249
3" FO	GA-3250
4" RO	GA-3250
4" FO	NA } Use Gear
6" RO	NA } Operator

## Adjusting Nut Wrenches

Valve Size	Part No.
1 1/2" FO	GB-1728
2" RO	GB-1728
2" FO	GB-1729
2 1/2" RO	GB-1729
2 1/2" FO	GB-1730
3" RO	GB-1730
3" FO	GB-1731
4" RO	GB-1731
4" FO	GB-1772
6" RO	GB-1772

## Conversion Kits

Size	Kit Part Number (Applicable for either threaded or flanged valves)	
	API 1000-1500-2000 ANSI 400-600	API 3000-5000 ANSI 900-1500-2500
1 1/2" FO	GA-3118*-0	GA-3118*-1
2" RO	GA-3118*-0	GA-3118*-1
2" FO	GA-3119*-0	GA-3119*-1
2 1/2" RO	GA-3119*-0	GA-3119*-1
2 1/2" FO	GA-3120*-0	GA-3120*-1
3" RO	GA-3120*-0	GA-3120*-1
3" FO	GA-3121*-0	GA-3121*-1
4" RO	GA-3121*-0	GA-3121*-1

Conversion Kits contain all parts needed to convert standard G-Series valves to Super G valves.

\*When ordering Conversion Kits, specify plug material A-Aluminum Bronze C-Hard Chrome Plated Steel

Example: GA-3118C-0

Existing G Series valves can be converted to a Super G with a cost effective, easy-to-install kit.

## Repair Kits

Size	Kit Part Number (Applicable for either threaded or flanged valves)	
	API 1000-1500-2000 ANSI 400-600	API 3000-5000 ANSI 900-1500-2500
1 1/2" FO	GA-3113*-0	GA-3113*-1
2" RO	GA-3113*-0	GA-3113*-1
2" FO	GA-3114*-0	GA-3114*-1
2 1/2" RO	GA-3114*-0	GA-3114*-1
2 1/2" FO	GA-3115*-0	GA-3115*-1
3" RO	GA-3115*-0	GA-3115*-1
3" FO	GA-3116*-0	GA-3116*-1
4" RO	GA-3116*-0	GA-3116*-1
4" FO	GA-3256*-0	GA-3256*-1
6" RO	GA-3256*-0	GA-3256*-1

Repair Kits include the plug, seats, all soft parts and packing plate.

\*When ordering Repair Kits, specify plug material A-Aluminum Bronze C-Hard Chrome Plated Steel

Example: GA-3113C-0

## Sealant

For General Oilfield and Hydrocarbon Service-50° +500°F

Part No.	Description
GA-3125-01	1 lb. cartridges (box of 10)
GA-3125-05	10 pound pail
GA-3125-12	K stick 1 1/2" x 10" (box of 10)
GA-3125-16	J stick 1 1/2" x 8" (box of 12)
GA-3125-40	40 pound pail

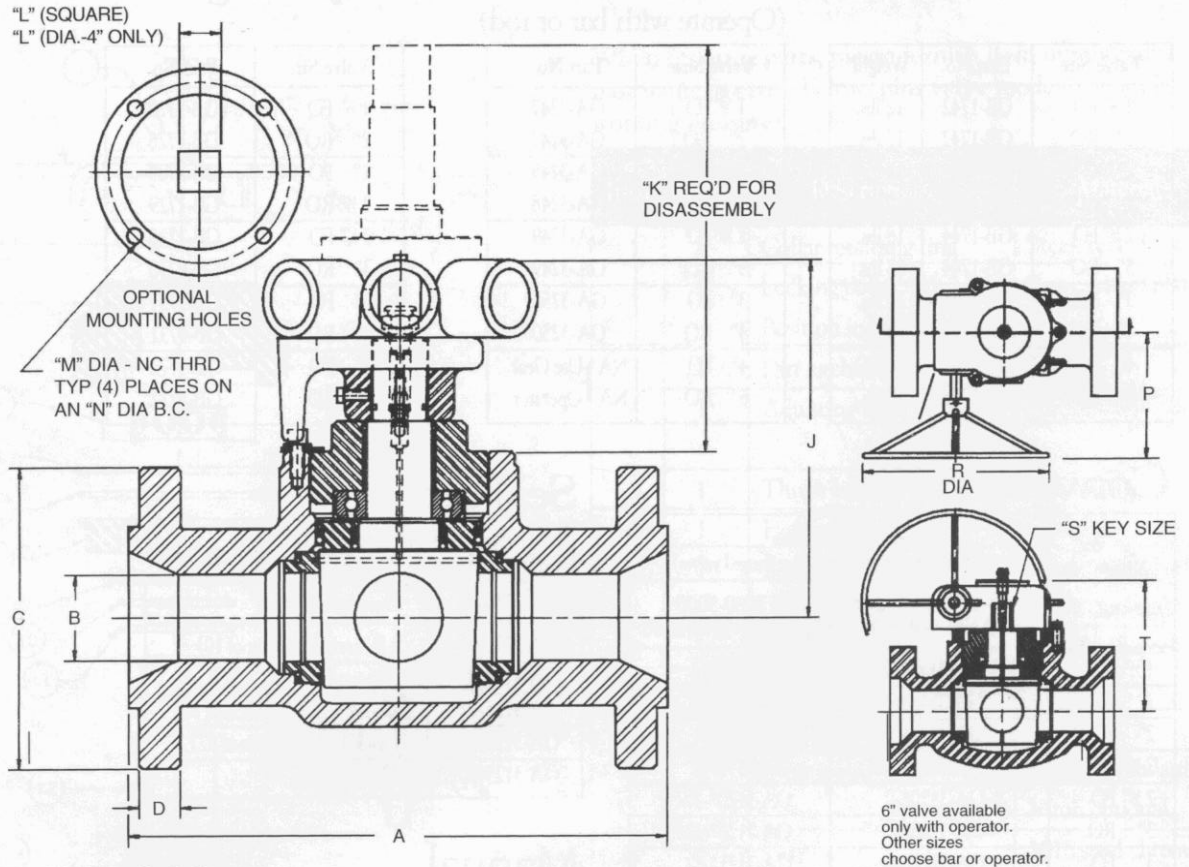
## Manual Worm Gear Operators

Valve Size	Part No.	Weight
2" FO	GA-3251	35 lbs.
2 1/2" RO	GA-3251	35 lbs.
2 1/2" FO	GA-3252	65 lbs.
3" RO	GA-3252	65 lbs.
3" FO	GA-3253	65 lbs.
4" RO	GA-3253	65 lbs.
4" FO	GA-3254	65 lbs.
•6" RO (low pressure)	GA-3254	65 lbs.
•6" RO (high pressure)	GA-3263	85 lbs.

•Low Pressure-ANSI-400, 600, API-1000-1500-2000

•High Pressure-ANSI-900-1500-2500, API-3000-5000

# Dimensions and Weights Regular Port Valve



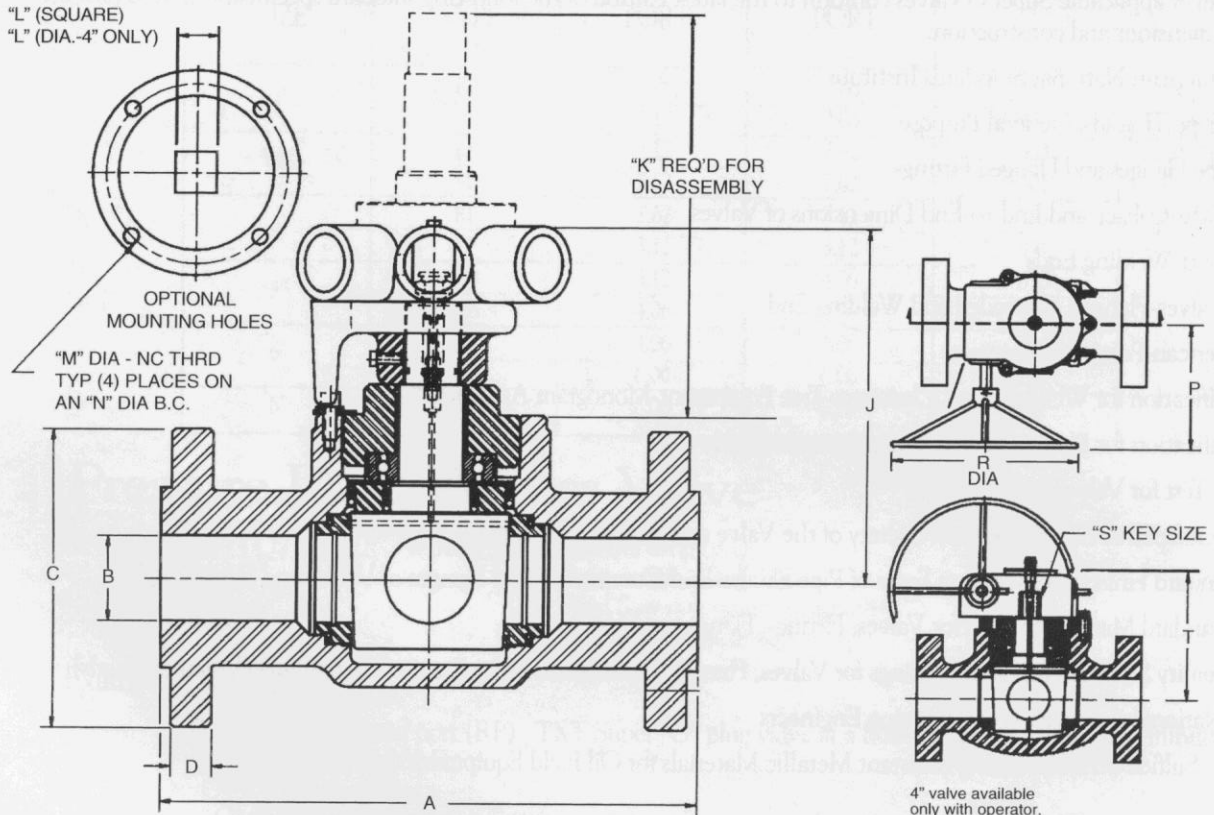
6" valve available only with operator. Other sizes choose bar or operator.

## Regular Port Valve

Size	Pressure Class		A			B	C	D	J	K	L	M	N	P	R	S	T	FLG. WT. (lbs.)	THRD. WT. (lbs.)										
	ANSI	API	RF	RJ	SE/BW																								
2"	400/600	2000	11.50	11.63	7.50	1.75	6.50	1.25	7.06	7.00	-	-	-	-	-	-	-	54	28										
	900	3000	14.50	14.63	8.75	1.75	8.50	1.75	7.56	7.25	-	-	-	-	-	-	-	98	35										
	1500	5000	14.50	14.63	8.75	1.75	8.50	1.75	7.56	7.25	-	-	-	-	-	-	-	98	35										
	2500	-	17.75	17.88	-	1.75	9.25	2.25	7.56	7.25	-	-	-	-	-	-	-	146	-										
2 1/2"	400/600	2000	13.00	13.12	10.25	2.12	7.50	1.38	8.63	8.25	1.24	3/8-16	5.00	9.63	12	.25 sq	8.56	114	48										
	900	3000	16.50	16.62	10.25	2.12	8.62	1.88	8.63	8.25	1.24	3/8-16	5.00	9.63	12	.25 sq	8.56	153	50										
	1500	5000	16.50	16.62	10.25	2.12	9.25	1.88	8.63	8.25	1.24	3/8-16	5.00	9.63	12	.25 sq	8.56	185	50										
	2500	-	20.00	20.12	-	2.12	9.25	2.50	8.63	8.25	1.24	3/8-16	5.00	9.63	12	.25 sq	8.56	225	-										
3"	400/600	2000	14.00	14.12	11.63	2.62	8.25	1.50	9.25	9.13	1.50	1/2-13	6.00	10.94	18	.50 sq	9.53	182	74										
	900	3000	15.00	15.12	11.63	2.62	9.50	1.75	9.25	9.13	1.50	1/2-13	6.00	10.94	18	.50 sq	9.53	210	82										
	1500	5000	18.50	18.62	11.63	2.62	10.50	2.13	9.25	9.13	1.50	1/2-13	6.00	10.94	18	.50 sq	9.53	272	82										
	2500	-	22.75	22.88	-	2.62	12.00	2.88	9.25	9.13	1.50	1/2-13	6.00	10.94	18	.50 sq	9.53	320	-										
4"	400	-	16.00	16.12	-	3.12	10.00	1.63	10.13	10.50	1.75	1/2-13	6.88	10.94	30	.50 sq	10.41	240	-										
	600	2000	17.00	17.12	12.00	3.12	10.75	1.75	10.13	10.50	1.75	1/2-13	6.88	10.94	30	.50 sq	10.41	261	115										
	900	3000	18.00	18.12	12.00	3.12	11.50	2.00	10.13	10.50	1.75	1/2-13	6.88	10.94	30	.50 sq	10.41	271	115										
	1500	5000	21.50	21.62	12.00	3.12	12.25	2.38	10.13	10.50	1.75	1/2-13	6.88	10.94	30	.50 sq	10.41	314	120										
	2500	-	26.50	26.88	-	3.12	14.00	3.25	10.13	10.50	1.75	1/2-13	6.88	10.94	30	.50 sq	10.41	474	-										
6"	300	-	15.87	-	-	4.06	12.5	1.38	-	14.81	2.97	3/4-10	13.00	13.81	30	.75 sq	12.06	420	-										
	600	2000	22.00	22.12	18.50	4.06	14.00	2.19	-	14.81	2.97	3/4-10	13.00	14.91	30	.75 sq	12.06	571	-										
	900	3000	24.00	24.12	-	4.06	15.00	2.50	-	14.81	2.97	3/4-10	13.00	16.75	36	.75 sq	12.06	700	-										
	1500	5000	27.75	28.00	-	4.06	15.50	3.62	-	14.81	2.97	3/4-10	13.00	16.75	36	.75 sq	12.06	715	-										
8"	600	-	26.00	26.12	-	6.06	16.50	2.19	Consult Texsteam											-	-								
	900	-	-	-	-	-	-	-												-	-	-	-	-	-	-	-	-	-
	1500	-	32.75	33.12	-	6.06	19.00	3.62												-	-	-	-	-	-	-	-	-	-



# Dimensions and Weights Full Port Valve



4" valve available  
only with operator.  
Other sizes  
choose bar or operator.

## Full Port Valve

Size	Pressure Class		A			B	C	D	J	K	L	M	N	P	R	S	T	FLG. WT. (lbs.)	THRD. WT. (lbs.)
	ANSI	API	RF	RJ	SE/BW														
2"	300	-	11.12	-	-	2.13	6.50	.875	8.63	8.25	1.24	1/4-16	5.00	9.63	12	.25 sq	8.56	105	-
	400/600	2000	13.00	13.12	10.25	2.13	6.50	1.25	8.63	8.25	1.24	1/4-16	5.00	9.63	12	.25 sq	8.56	117	57
	900	3000	15.00	15.12	10.25	2.13	8.50	1.75	8.63	8.25	1.24	1/4-16	5.00	9.63	12	.25 sq	8.56	145	57
	1500	5000	15.38	15.50	10.25	2.13	8.50	1.75	8.63	8.25	1.24	1/4-16	5.00	9.63	12	.25 sq	8.56	155	57
	2500	-	17.75	17.88	-	2.13	9.25	2.00	8.63	8.25	1.24	1/4-16	5.00	9.63	12	.25 sq	8.56	175	-
2 1/2"	400/600	2000	15.00	15.12	11.63	2.63	7.50	1.38	9.25	9.13	1.50	1/2-13	6.00	10.94	18	.50 sq	9.53	183	90
	900	3000	17.00	17.12	11.63	2.63	9.63	1.88	9.25	9.13	1.50	1/2-13	6.00	10.94	18	.50 sq	9.53	215	90
	1500	5000	17.88	18.00	11.63	2.63	9.63	1.88	9.25	9.13	1.50	1/2-13	6.00	10.94	18	.50 sq	9.53	255	90
	2500	-	20.00	20.12	-	2.63	10.50	2.25	9.25	9.13	1.50	1/2-13	6.00	10.94	18	.50 sq	9.53	285	-
3"	300	-	15.25	-	-	3.13	8.25	1.12	8.81	10.50	1.75	-	-	-	-	-	-	215	-
	600	2000	17.50	17.62	12.00	3.13	8.25	1.50	10.13	10.50	1.75	1/2-13	6.88	10.94	30	.50 sq	10.41	245	121
	900	3000	18.50	18.62	12.00	3.13	9.50	1.75	10.13	10.50	1.75	1/2-13	6.88	10.94	30	.50 sq	10.41	272	126
	1500	5000	20.63	20.75	12.00	3.13	10.50	2.13	10.13	10.50	1.75	1/2-13	6.88	10.94	30	.50 sq	10.41	320	126
	2500	-	22.75	22.88	-	3.13	12.00	2.63	10.13	10.50	1.75	1/2-13	6.88	10.94	30	.50 sq	10.41	355	-
4"	300	-	18.00	-	-	4.06	10.00	1.25	11.93	14.81	1.75	-	-	-	-	-	-	350	-
	600	2000	20.00	20.12	-	4.06	11.50	1.81	-	14.81	2.97	3/4-10	13.00	14.91	30	.75 sq	12.06	439	-
	900	3000	22.00	22.12	-	4.06	11.50	1.94	-	14.81	2.97	3/4-10	13.00	16.75	36	.75 sq	12.06	570	-
	1500	5000	24.62	24.75	-	4.06	12.25	2.19	-	14.81	2.97	3/4-10	13.00	16.75	36	.75 sq	12.06	619	-
6"	600	-	26.00	26.12	-	6.06	14.00	1.88	Consult Texsteam										
	900	-	24.00	24.12	-	6.06	15.00	2.19											
	1500	-	27.75	28.00	-	6.06	15.50	3.25											

Note: 6" Full Port ANSI 900 and ANSI 1500 have the same Face-to-Face as Regular Port.

# Design Standards

Wherever applicable Super G valves conform to the latest edition of the following standard specifications as to pressure ratings, dimensions and construction:

ANSI- American National Standards Institute

B1.20.1- Pipe Threads, General Purpose

B16.5- Pipe Flanges and Flanged Fittings

B16.10- Face-to-Face and End-to-End Dimensions of Valves

B16.25- Butt-Welding Ends

B16.34- Valves-Flanged, Threaded and Welding End

API- American Petroleum Institute

6A- Specification for Wellhead and Christmas Tree Equipment-Monogram Available

6D- Specification for Pipeline Valves-Monogram Available

6FA- Fire Test for Valves

MSS- Manufacture's Standardization Society of the Valve and Fittings Industry

SP-6- Standard Finishes for Contact Faces of Pipe Flanges and Connecting End Flanges of Valves and Fittings

SP-25- Standard Marking System for Valves, Fittings, Flanges and Unions

SP-55- Quality Standard for Steel Castings for Valves, Flanges, Fittings and other Piping Components (Visual Methods)

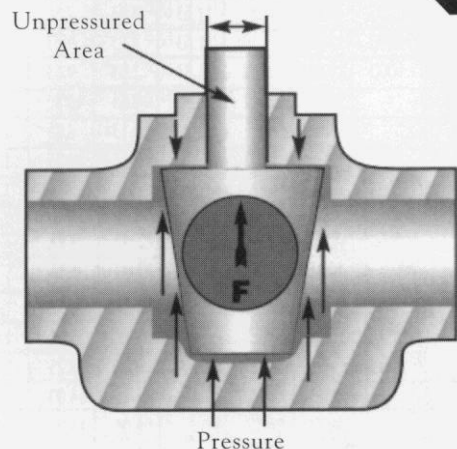
NACE- National Association of Corrosion Engineers

MRO175- Sulfide Stress Cracking Resistant Metallic Materials for Oil Field Equipment

## Comparison Chart: Super G vs. Conventional Plug Valve

Performance Features	Super G	Plug Valve
Top entry—field repairable	Yes	No
Integral plug and stem	Yes	No
Fire safe (API 6FA)	Yes	Yes
Removable seats	Yes	No
Part interchangeability	Yes	No
Tight shut-off without sealant	Yes	No
Metal-to-metal seats	Yes	Yes
Lubricated	Yes	Yes
Low pressure drop	Yes	No
Low turbulence	Yes	No
Full open	Yes	No
NACE standard	Yes	No
Abrasive/erosive service	Yes	Yes
CO <sub>2</sub> service	Yes	No
H <sub>2</sub> S service	Yes	Yes

**Super G**  
Solves Wedging Problems



Unpressured area at stem results in lifting force "F" which prevents wedging of plug.

# Flow Coefficients ( $C_V$ )

VALVE SIZE	BORE TYPE	PLUG PORT	BODY PORT	CV
2"	RP	1.75	2.06	156
	FP	2.12	2.06	341
2 1/2"	RP	2.12	2.62	363
	FP	2.62	2.62	601
3"	RP	2.62	3.12	395
	FP	3.12	3.12	891
4"	RP	3.12	4.06	610
	FP	4.06	4.06	949
6"	RP	4.06	6.06	824
	FP	6.00	6.06	2266
8"	RP	6.06	8.00	2302

## Pressure Drop Across Valve

$$\Delta P = (\rho / 62.4) (Q / C_V)^2$$

Where:  $\Delta P$  = Pressure drop (psi)  
 $\rho$  = Fluid density (lbs/ft<sup>3</sup>)  
 $Q$  = Fluid flow rate (gallons/minute)  
 $C_V$  = Flow coefficient of valve

### Example

Given: Through a 4" reduced port (RP) TXT Super "G" plug valve at a flow rate of 400 gallons per minute.  
 $\rho=60.1$  (lbs/ft<sup>3</sup>) @ 200 F  
 $Q=400$  gallons/minute.  
 $C_v=610$

Find: Pressure drop,  $\Delta P$ , across valve.

Solution:  $\Delta P = (60.1/62.4) X (400/610)^2$   
 $\Delta P = 0.963 X (0.656)^2$   
 $\Delta P = 0.963 X 0.430$   
 $\Delta P = 0.414$  psi

# Maintenance

In-line, top entry, field repairability with integral plug and stem, and removable seats makes the Super G unique among block valves. Routine maintenance, or replacement of plug and seats, can be achieved quickly, simply and without special tools or training.

Seats and plugs are interchangeable thus eliminating special lapping or matching of parts. Removable seats avoid expensive machining of internal body surfaces and system downtime. Bubble-tight, zero leakage sealing is assured.

**Nine simple steps are all that are involved to achieve successful field repair.**

1. Remove wrench/rod mechanism and top adjusting body nut.
2. Withdraw bearing and packing plate assemblies.
3. Withdraw plug assembly.
4. Withdraw seats and rings.
5. Clean body cavities.
6. Install new seats and rings (if required).
7. Install new plug assembly (if required).
8. Install new packing plate assembly and thrust bearing.
9. Refit and adjust top body nut and operator mechanism.



# Average Operating Torque

## 1 1/2" Full Port through 6" Regular Port (ft-lbs)

PSI	2" RP & 1/12" FP	2 1/2" RP & 2" FP	3" RP or 2 1/2" FP	4" RP & 3" FP	6" RP & 4" FP
0	20	50	80	80	120
500	40	100	120	140	275
1000	60	150	180	220	580
1500	80	200	240	300	780
2000	110	250	300	375	980
2500	130	300	350	450	1200
3000	150	350	400	530	1400
3500	175	400	450	610	1620
4000	190	450	520	700	1840
4500	215	500	580	780	2050
5000	240	550	620	850	2250
5500	260	600	680	930	2450
6000	290	650	750	1010	2650
6500	307	700	795	1087	2888
7000	329	750	851	1165	3100
7500	351	800	907	1244	3313
8000	373	850	963	1322	3525
8500	396	900	1018	1401	3738
9000	418	950	1074	1479	3950
9500	440	1000	1130	1558	4163
10000	462	1050	1185	1637	4375

## 6" Full Port and 8" Regular Port

Pressure Differential (psi)	Torque Curve (Linear Regression) (ft-lbs)
0	288
500	1344
1000	2400
1500	3456
2000	4512
2500	5568
3000	6624
3500	7680

