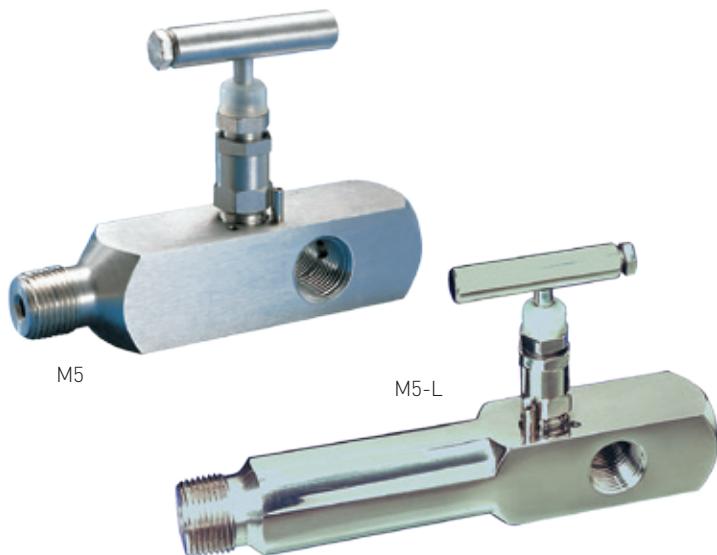


## ANDERSON GREENWOOD SERIES M5/M51 MULTI-PORT GAUGE VALVES

Compact, lightweight multi-port valves for pressures up to 6,000 psig (414 barg) or 10,000 psig (690 barg)



### GENERAL APPLICATION

M5 valves allow the versatile positioning of gauges or pressure switches without requiring additional penetration of the main piping. The M51 is a metal seat version for high-pressure applications.

### TECHNICAL DATA

Materials:	CS, SS, Monel
Seats:	Metal and soft
Connections:	½" to ¾" NPT; welded also available
Pressure (max.)	
M5:	6,000 psig (414 barg)
M51:	10,000 psig (690 barg)
Temperature (max.)	
M5:	1000°F (538°C)
M51:	500°F (260°C)

### FEATURES

- Cost savings through minimized components and process penetrations for multiple instrument installations with reduced possible leak points.
- Compact design minimizes space requirements; low weight improves connection strength and reduces gauge whip.
- Long body option allows up to 4" (102 mm) pipe insulation.
- Replaceable soft seat and can operate in dirty service with repetitive bubble-tight shutoff.
- Repairable metal seat can be resurfaced without removing the valve from the line.
- Ball end stem eliminates seat galling, provides bubble-tight shutoff and long life. Hardened, non-rotating ball ensures perfect alignment closure.
- Packing below threads prevents lubricant washout, thread corrosion, process contamination and eliminates galling.
- Easily adjustable packing decreases replacement downtime and increases valve life.
- Safety back seating prevents stem blowout or accidental removal and provides a metal-to-metal secondary stem seal while in the fully open position.
- ENC plated 316 SS prevents galling or freezing of stem threads.
- Rolled stem, bonnet and male NPT threads provide additional strength.
- Mirror stem finish in the packing area enables smooth operation and extends packing life.
- Metal-to-metal body-to-bonnet seal in constant compression prevents bonnet thread corrosion, eliminates possible tensile breakage and gives a reliable seal point.

# ANDERSON GREENWOOD SERIES M5/M51 MULTI-PORT GAUGE VALVES

## PRODUCT OVERVIEW

The standard configuration has a male or female inlet and three 1/2" FNPT outlet ports. All valves with male inlet connections are available threaded or prepared for welding (socket weld or butt weld) and with either standard or extended length inlet.

## BONNET ASSEMBLY OPTIONS

The M5 offers the option of a metal seat or a rod-assembly with replaceable seats, providing easy cleanout.

The M51 is only available with a metal seated bonnet assembly for 10000 psig (690 barg) service.

All stem threads are rolled and lubricated to prevent galling and reduce operating torque. The stem seal is a patented PTFE packing which is adjustable in service. All bonnets are assembled with a bonnet locking pin to prevent accidental removal while in service and a protective dust cap is fitted to contain stem lubricant and prevent the influx of contaminants.

The M5 gauge valve is available with a Grafoil bonnet for high temperature applications.

## SOFT-SEATED BONNET ASSEMBLY

The soft-seated bonnet assembly has a one-piece rotating stem and plug. In addition to the adjustable PTFE packing gland, the bonnet is available with a FKM O-ring with PTFE back-up ring.

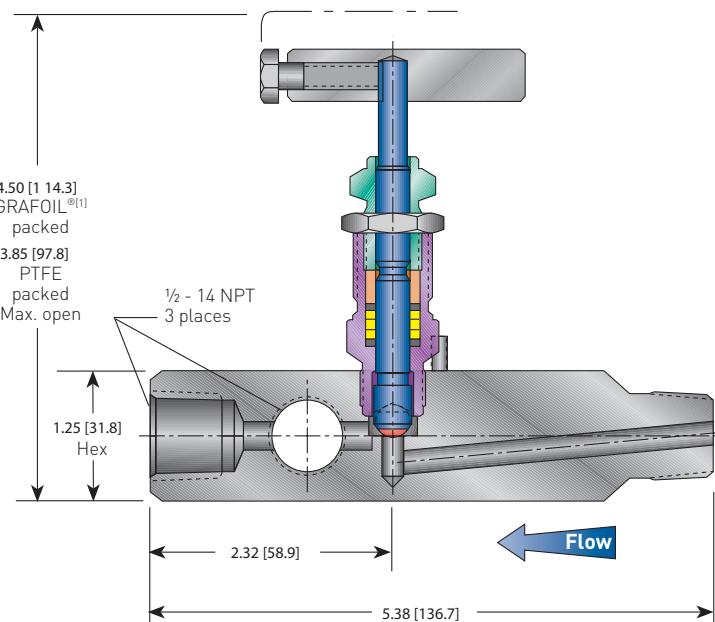
## METAL-SEATED BONNET ASSEMBLY

The metal-seated bonnet assembly has a rotating stem with free swivel ball-type seat for long service life. The specially hardened ball seat is ideal for both gas and liquid service.

The high pressure M51 bonnet assembly uses a strengthened stem and bonnet which is fitted with a larger size T-bar handle.

The M5's high-temperature bonnet assembly utilizes a similarly designed stem and bonnet, incorporating adjustable graphite and back-up pressure rings to ensure a leak-free stem seal.

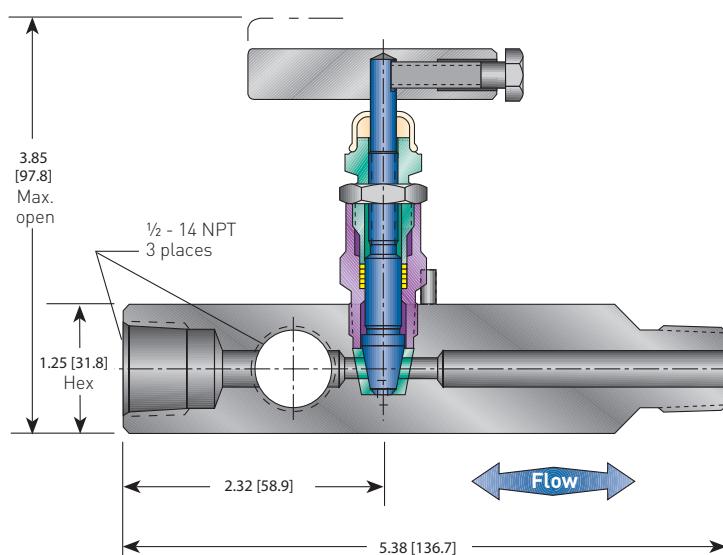
## M5 AND M51 METAL SEAT DIMENSIONS, INCHES [mm]



### NOTES

1. M5 metal seat only.
2. Approximate valve weight:  
Standard 2.5 lb [1.1 kg].  
Long 3.0 lb [1.4 kg].  
Orifice size: 0.187 inch [4.8 mm] diameter. Valve C<sub>v</sub> 0.523 maximum.  
Long body length 7.25 inch [184.2 mm] for 4 inch [102.0 mm] insulation.
3. For Hastelloy® and SG3 call factory for dimensions and weights.

## M5 SOFT SEAT DIMENSIONS, INCHES [mm]



### NOTE

1. Approximate valve weight:  
Standard 2.5 lb [1.1 kg].  
Orifice size: 0.187 inch [4.8 mm] diameter. Valve C<sub>v</sub> 0.83 maximum.
2. For Hastelloy® and SG3 call factory for dimensions and weights.

# ANDERSON GREENWOOD SERIES M5/M51 MULTI-PORT GAUGE VALVES

## STANDARD MATERIALS

M5 Metal seat					
Valve	Body	Bonnet	Stem	Ball	Packing
CS <sup>[1]</sup>	A105 CS	A105 CS	A581 303 SS	17-4 PH	GRAFOIL®, Low emission graphite
CS <sup>[1]</sup>	A105 CS	A108 CS	A581 303 SS	17-4 PH	PTFE
SS	A479 316 SS	A479 316 SS	A276 316 SS	316 SS	GRAFOIL®, Low emission graphite
SS	A479 316 SS	A479 316 SS	A276 316 SS	316 SS	PTFE
Monel®	Monel® R405	Monel® R405	Monel® 400	Monel® K500	PTFE
SG <sup>[2]</sup>	A479 316 SS	A479 316 SS	Monel® 400	Monel® K500	GRAFOIL®, Low emission graphite
SG <sup>[2]</sup>	A479 316 SS	A479 316 SS	Monel® 400	Monel® K500	PTFE
SG3 <sup>[5]</sup>	Hastelloy® C-276	Hastelloy® C-276	Hastelloy® C-276	Elgiloy®	GRAFOIL®, Low emission graphite
SG3 <sup>[5]</sup>	Hastelloy® C-276	Hastelloy® C-276	Hastelloy® C-276	Elgiloy®	PTFE

M51 Metal seat				
Valve	Body	Bonnet	Stem	Ball
SS	A479 316 SS	A479 316 SS	A276 316 SS	A151 316 SS
SG <sup>[2]</sup>	A479 316 SS	A479 316 SS	Monel® 400	Monel® K500
SG3 <sup>[5]</sup>	Hastelloy® C-276	Hastelloy® C-276	Hastelloy® C-276	Elgiloy®

M5 Soft seat					
Valve	Body	Bonnet	Stem	Packing	Seat
CS <sup>[1]</sup>	A108 CS	A108 CS	A581 303 SS	PTFE	Delrin®
SS	A479 316 SS	A479 316 SS	A276 316 SS	PTFE	Delrin®
Monel®	Monel® R405	Monel® R405	Monel® 400	PTFE	PCTFE <sup>[4]</sup>
SG <sup>[2]</sup>	A479 316 SS	A479 316 SS	Monel® 400	PTFE	Delrin®
SG3 <sup>[5]</sup>	Hastelloy® C-276	Hastelloy® C-276	Hastelloy® C-276	PTFE	Delrin®

## NOTES

1. CS is zinc-cobalt plated to prevent corrosion.
2. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions < 50 mg/l (ppm)) and NACE MR0103-2005.
3. PEEK and PTFE also available.
4. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
5. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l (ppm)).
6. Elgiloy® is a registered trademark of Elgiloy Specialty Metals.

## PRESSURE AND TEMPERATURE RATINGS

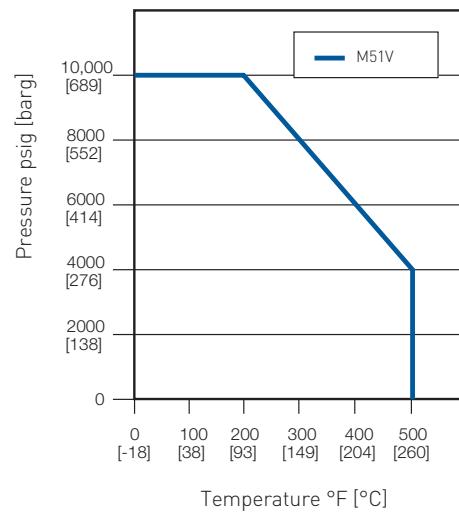
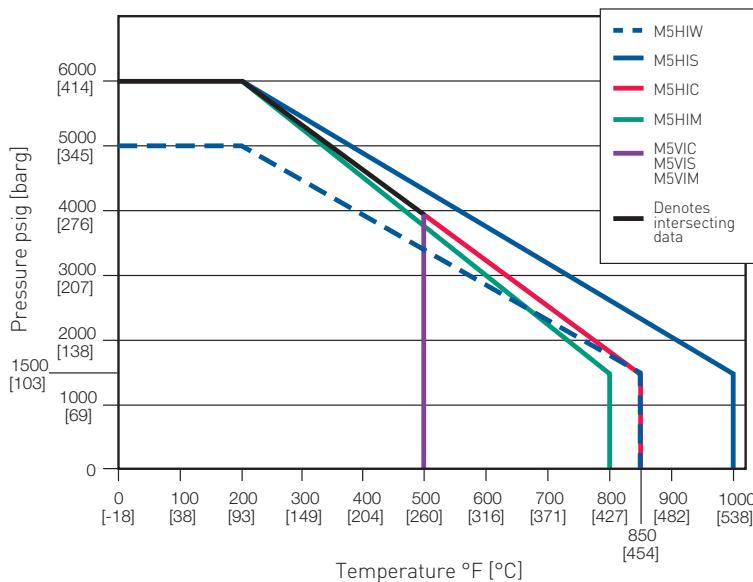
Valve	Packing	Ratings
<b>M5 Metal seat</b>		
CS	GRAFOIL®, Low emission graphite	6000 psig at 200°F [414 barg at 93°C] 1500 psig at 850°F [103 barg at 454°C]
SS, SG, SG3	GRAFOIL®, Low emission graphite	6000 psig at 200°F [414 barg at 93°C] 1500 psig at 1000°F [103 barg at 454°C]
CS, SS, Monel®, SG, SG3	PTFE	6000 psig at 200°F [414 barg at 93°C] 4000 psig at 500°F [276 barg at 260°C]
<b>M51 Metal seat</b>		
CS, SS, SG, SG3	PTFE	10,000 psig at 200°F [689 barg at 93°C] 4000 psig at 500°F [276 barg at 260°C]
<b>M5 Soft seat</b>		
CS, SS, Monel®, SG, SG3	PTFE	6000 psig at 200°F [414 barg at 93°C]

## NOTES

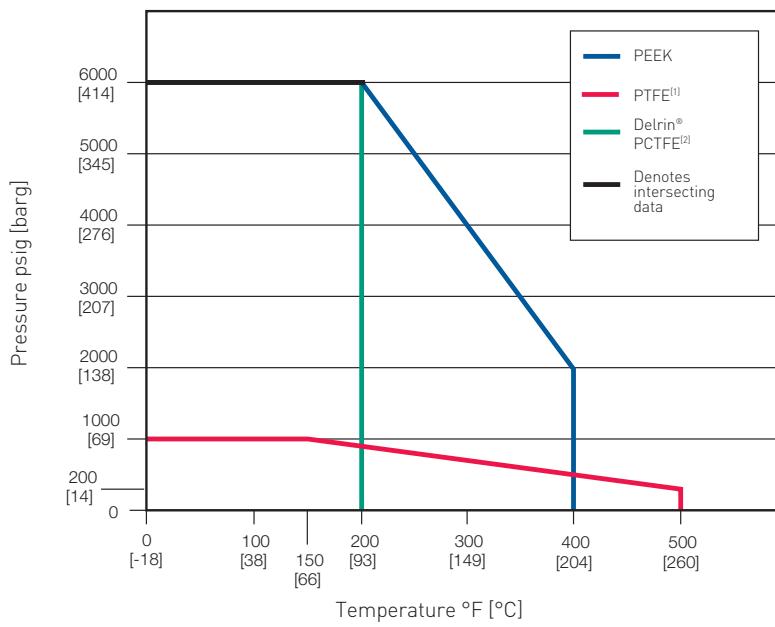
1. Temperature [min.] M5/M51 PTFE or Grafoil packing: -70°F (-57°C).
2. M51 in 316L material maximum pressure rating: 9000 psi at 200°F; 4000 psi at 500°F.

# ANDERSON GREENWOOD SERIES M5/M51 MULTI-PORT GAUGE VALVES

## PRESSURE VS. TEMPERATURE1 - M5 AND M51 METAL SEAT



## PRESSURE VS. TEMPERATURE - M5 SOFT SEAT



## NOTE

M51 in 316L material maximum pressure rating:  
9000 psi at 200°F; 4000 psi at 500°F.

## NOTES

1. O-ring packed soft seat valve 400°F [204°C] maximum.
2. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
3. Temperature [min.] M5/M51 316SS PTFE or Grafoil packing: -70°F [-57°C].

# ANDERSON GREENWOOD SERIES M5/M51 MULTI-PORT GAUGE VALVES

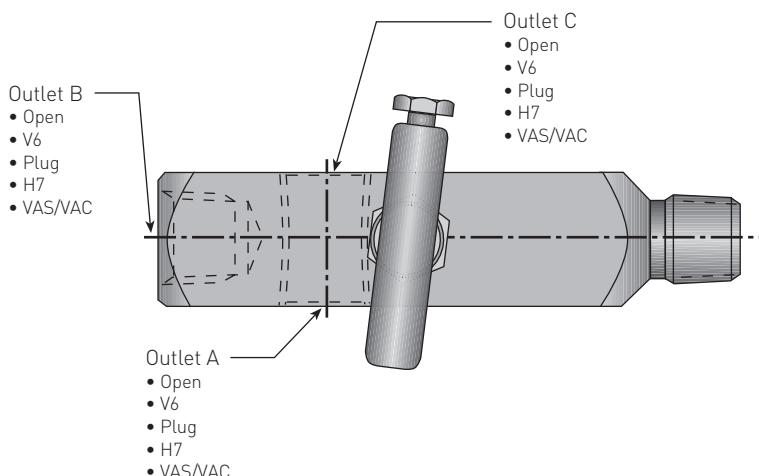
## M5 METAL SEAT SPECIFICATIONS

### SELECTION GUIDE - METAL SEAT

Example:	M5	H	I	S	-44L	-SG
<b>Packing</b>						
<b>H</b>	GRAFOIL®					
<b>R</b>	O-ring					
<b>V</b>	PTFE					
<b>E</b>	Low emission graphite					
<b>Seat</b>						
<b>I</b>	Integral					
<b>Body material<sup>(1)</sup></b>						
<b>C</b>	CS, A105					
<b>S</b>	SS, A479-316					
<b>M</b>	Monel®					
<b>W</b>	316L					
<b>J</b>	Hastelloy®					
<b>Connections (inlet/outlet)<sup>(1)</sup></b>						
<b>44</b>	½-inch MNPT x (3) ½-inch FNPT					
<b>46</b>	¾-inch MNPT x (3) ½-inch FNPT					
<b>Connection style</b>						
<b>C</b>	Male plain end (CS is black oxide coated)					
<b>Length</b>						
<b>L</b>	Long body extension (4-inch insulation)					
<b>Options</b>						
<b>CL00</b>	Chlorine cleaning (CL)					
<b>HD</b>	Hydrostatic testing (100%) (MSS-SP-61)					
<b>LAT</b>	Lockable anti tamper					
<b>MS</b>	Monel stem					
<b>OC00</b>	Oxygen clean (OC)					
<b>OC01</b>	Gaseous oxygen clean (GOC)					
<b>PMI00</b>	PMI body only					
<b>SG</b>	(Sour Gas) NACE edition 2003 /MR0103					
<b>SG3</b>	(Sour Gas) NACE MR0175/ISO 15156-3 (latest edition)					
<b>SS</b>	All 316 SS construction					

### NOTE

1. Call factory for optional material, other sizes, or end connections.



# ANDERSON GREENWOOD SERIES M5/M51 MULTI-PORT GAUGE VALVES

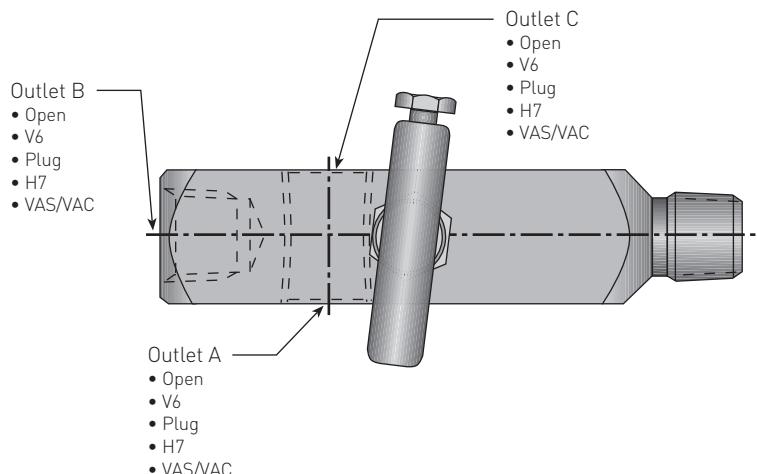
## M5 SOFT SEAT SPECIFICATIONS

### SELECTION GUIDE - SOFT SEAT

Example:	M5	V	D	S	-44L	-SG
<b>Packing</b>						
<b>V</b>	PTFE					
<b>R</b>	FKM O-ring					
<b>E</b>	Low emissions Graphite <sup>[3]</sup>					
<b>Seat</b>						
<b>V</b>	PTFE	<b>E</b>	PEEK			
<b>D</b>	Delrin® (standard)	<b>K</b>	PCTFE <sup>[1]</sup>			
<b>Body material<sup>[2]</sup></b>						
<b>C</b>	CS, A108					
<b>S</b>	SS, A479-316					
<b>M</b>	Monel®					
<b>W</b>	316L					
<b>J</b>	Hastelloy® <sup>[4]</sup>					
<b>Connections (inlet/outlet)<sup>[2]</sup></b>						
<b>44</b>	½-inch MNPT x (3) ½-inch FNPT					
<b>46</b>	¾-inch MNPT x (3) ½-inch FNPT					
<b>Connection style</b>						
<b>C</b>	Male plain end (CS is black oxide coated)					
<b>Length</b>						
<b>L</b>	Long body extension (4-inch insulation)					
<b>Options</b>						
<b>CL00</b>	Chlorine cleaning (CL)					
<b>HD</b>	Hydrostatic testing (100%) (MSS-SP-61)					
<b>LAT</b>	Lockable anti tamper					
<b>MS</b>	Monel stem					
<b>OC00</b>	Oxygen clean (OC)					
<b>OC01</b>	Gaseous oxygen clean (GOC)					
<b>PMI00</b>	PMI body only					
<b>SG</b>	(Sour Gas) NACE edition 2003 /MR0103					
<b>SG3</b>	(Sour Gas) NACE MR0175/ISO 15156-3 (latest edition) – Hastelloy material only					
<b>SS</b>	All 316 SS construction					

### NOTES

1. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
2. Call factory for optional materials, other sizes, or end connections.
3. Temperature limited to seat materials.
4. Bonnet lock not available.



# ANDERSON GREENWOOD SERIES M5/M51 MULTI-PORT GAUGE VALVES

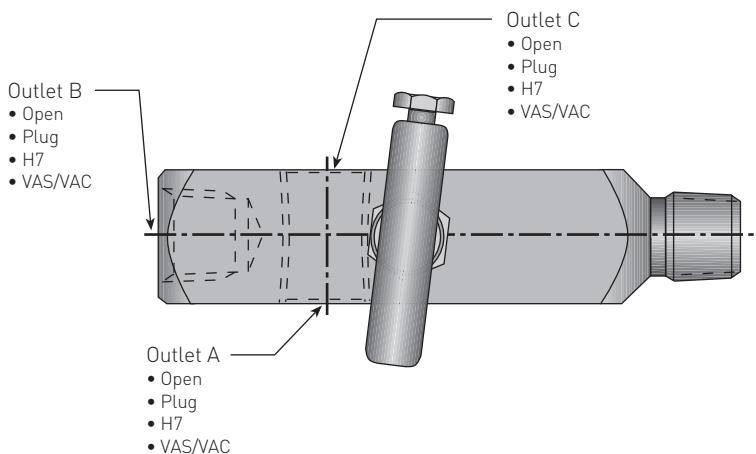
## M5 ASME B31.1 AND B31.3 SPECIFICATIONS MEETS MSS SP-105

### SELECTION GUIDE - POWER INDUSTRY APPLICATIONS<sup>[1]</sup>

Example:	M5HP	S	-44LC	-XP	-SG
<b>Body material</b>					
<b>C</b>	CS, A105				
<b>S</b>	SS, A479-316				
<b>Connections (inlet/outlet)</b>					
<b>44</b>	1/2-inch MNPT x (3) 1/2-inch FNPT				
<b>46</b>	3/4-inch MNPT x (3) 1/2-inch FNPT				
<b>Connection style</b>					
<b>C</b>	Male plain end (CS is black oxide coated)				
<b>Length</b>					
<b>L</b>	Long body (4-inch insulation)				
<b>Options</b>					
<b>CL00</b>	Chlorine cleaning (CL)				
<b>LAT</b>	Lockable anti tamper				
<b>MS</b>	Monel stem				
<b>OC00</b>	Oxygen clean (OC)				
<b>OC01</b>	Gaseous oxygen clean (GOC)				
<b>PMI00</b>	PMI body only				
<b>SG</b>	[Sour Gas] NACE edition 2003 /MR0103				
<b>SG3</b>	[Sour Gas] NACE MR0175/ISO 15156-3 (latest edition)				
<b>SS</b>	All 316 SS construction				
<b>XP</b>	ASME B31.1				

### NOTE

1. All Power M5 Gauge Valves come standard with GRAFOIL® packing, integral seats, bonnet locks, and are subjected to hydrostatic testing.



# ANDERSON GREENWOOD SERIES M5/M51 MULTI-PORT GAUGE VALVES

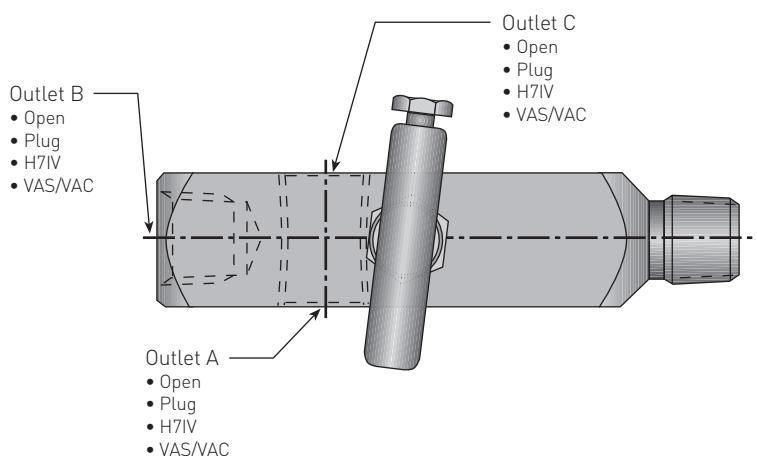
## M51 10,000 PSI SPECIFICATIONS

### SELECTION GUIDE

Example:	M51	V	I	S	-44LC	-SG
<b>Packing</b>						
<b>V</b>	PTFE					
Not available in Grafoil®						
<b>Seat</b>						
<b>I</b>	Integral					
<b>Body material<sup>[1]</sup></b>						
<b>S</b>	SS, A479-316					
<b>J</b>	Hastelloy®					
<b>Connections (inlet/outlet)<sup>[1]</sup></b>						
<b>44</b>	½-inch MNPT x [3] ½-inch FNPT					
<b>46</b>	¾-inch MNPT x [3] ½-inch FNPT					
<b>Connection style</b>						
<b>C</b>	Male plain end (CS is black oxide coated)					
<b>Length</b>						
<b>L</b>	Long body extension (4-inch insulation)					
<b>Options</b>						
<b>CL00</b>	Chlorine cleaning (CL)					
<b>MS</b>	Monel stem					
<b>OC00</b>	Oxygen clean (OC)					
<b>OC01</b>	Gaseous oxygen clean (GOC)					
<b>PMI00</b>	PMI body only					
<b>SG</b>	(Sour Gas) NACE edition 2003 /MR0103					
<b>SG3</b>	(Sour Gas) NACE MR0175/ISO 15156-3 (latest edition)					
<b>SS</b>	All 316 SS construction					

### NOTE

1. Call factory for optional materials, other sizes, or end connections.



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