

## ANDERSON GREENWOOD OS&Y GAUGE VALVES

### SERIES M5K/M5AK/M5YK

Root isolation valves with outside screw and yoke, bolted bonnet construction for pressures up to 6,000 psi (414 barg)



#### GENERAL APPLICATION

M5K series gauge valves are designed for use with gauge mountings and other pressure instruments in refineries and chemical plants. The M5YK can also be used as a root/primary isolation valve in differential pressure transmitter installations.

#### TECHNICAL DATA

Materials:	CS, SS and other exotic materials
Seats:	Metal, soft, Monel
Connections	
Inlet:	1/2", 3/4", 1" NPT or welded
Outlet:	1/2" NPT
Pressure (max.):	6000 psig (414 barg)
Temperature (max.):	1000°F (538°C)

#### FEATURES

- True 4-bolt bonnet design provides easy access to the packing gland. Stem threads are completely isolated from the process.
- Protective stem bellows and cap protects against atmospheric contamination, increases valve life and helps contain stem lubricant, reducing thread galling.
- Compact design minimizes space requirements. Lower valve weight improves connection strength and reduces induced bending moments.
- Multi-port outlet means fewer fittings, fewer leak points and reduced installation cost.
- Standard CF8M investment cast yoke resists corrosion, increasing valve life.
- Single-piece yoke design eliminates stem binding.
- Widely compatible graphite or PTFE flange gasket ring minimizes bonnet-to-body gasket deterioration.
- Free-swivelling ball end stem design (M5K, M5YK) or non-rotating plug design (M5AK) provide bubble-tight valve closure without metal seat galling and low seating torque.
- Integral hard back seat (M5K, M5YK) protects against stem blowout and provides alternate sealing for longer packing life.
- Optional replaceable soft seat design (M5K, M5AK) provides bubble-tight seat with a fully roddable, bi-directional flow.

# ANDERSON GREENWOOD OS&Y GAUGE VALVES

## SERIES M5K/M5AK/M5YK

---

### PRODUCT OVERVIEW

---

#### **M5K Gauge valve**

The M5K gauge valve is a multi-ported root/primary instrument isolation valve, designed for use with gauge mountings and other pressure instruments in refineries and chemical plants. The M5K facilitates installation of multiple measurement devices without additional penetrations of the main piping.

The M5K is available in metal seat design with integral seat or with various replaceable, roddable soft seats (1/4" [6.4 mm] diameter orifice).

#### **M5AK Gauge valve**

The M5AK gauge valve is a multi-ported root/primary instrument isolation valve, designed for use with gauge mounting and other instrument ties in refineries and chemical plants. Additional penetrations of the main piping are not required.

The M5AK is available with a variety of replaceable, roddable, metal or soft seats, with 3/8" [9.5 mm] diameter orifice. The unique metal seat design offers bubble-tight shutoff with straight-through flow characteristics.

#### **M5YK Gauge valve**

The M5YK gauge valve is a versatile, dual outlet valve for use in gauge mounting or as root/primary isolation valve in differential pressure transmitter installations. In-line construction of body and OS&Y bonnet allows installation and replacement of valves in orifice taps without removal of bonnet assembly.

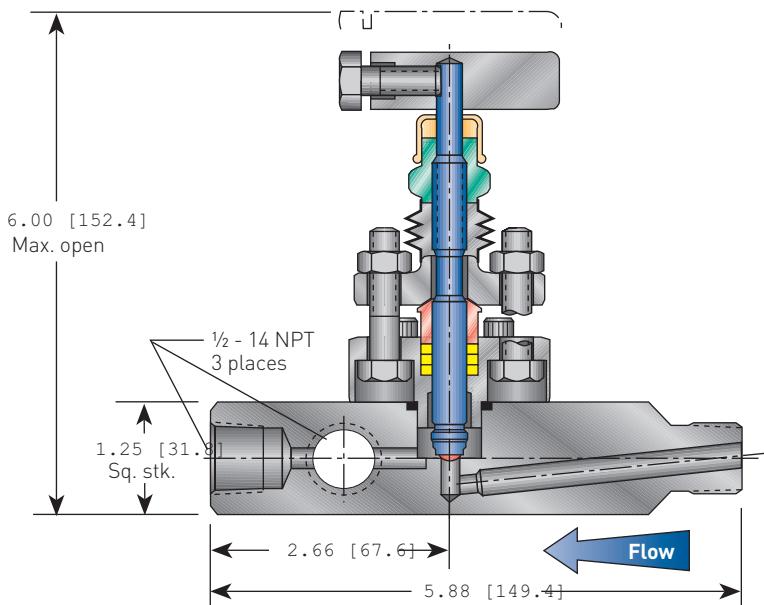
The valve is designed for safety, service and economy. The long-necked inlet provides room for insulation and the dual 1/2" NPT outlet ports provide an extra outlet for bleeder or sampling valves.

The M5YK is standard with 1/4" [6.4 mm] integral seat. Available with seat insert and stem ball of selected metals to match process requirements.

# ANDERSON GREENWOOD OS&Y GAUGE VALVES

## SERIES M5K

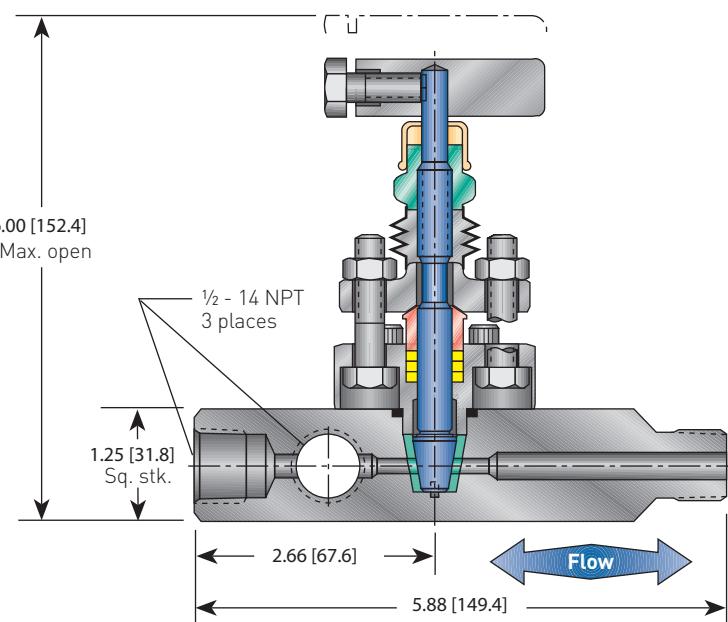
### M5K METAL SEAT DIMENSIONS, INCHES [mm]



#### NOTES

1. Approximate valve weight:  
Standard 3.5 lb [1.6 kg]  
Long 4.0 lb [1.8 kg]  
3/16-inch [4.8 mm] diameter orifice  
Valve  $C_v$  0.52 maximum
2. For Hastelloy® and SG3 call factory for dimensions and weights.

### M5K SOFT SEAT DIMENSIONS, INCHES [mm]



#### NOTES

1. Approximate valve weight:  
Standard 3.5 lb [1.6 kg]  
Long 4.0 lb [1.8 kg]  
3/16-inch [4.8 mm] diameter orifice  
Valve  $C_v$  1.4 maximum
2. For Hastelloy® and SG3 call factory for dimensions and weights.

# ANDERSON GREENWOOD OS&Y GAUGE VALVES

## SERIES M5K

### M5K STANDARD MATERIALS

Metal seat					
Valve	Body	Stem	Ball	Yoke	Bolt
CS <sup>[1]</sup>	A105 CS	A581-303 SS	17-4 PH	A351-CF8M	A286
316 SS	A479-316 SS	A276-316 SS	A276-316 SS	A351-CF8M	A286
316L SS	A479-316L SS	A276-316 SS	A276-316 SS	A351-CF8M	A286
SG <sup>[2]</sup>	A479-316 SS	Monel® 400	Monel® K500	A351-CF8M	A286
SG3 <sup>[4]</sup>	Hastelloy® C-276	Hastelloy® C-276	Elgiloy®	A494-CW12MW	A286

Soft seat					
Valve	Body	Stem	Yoke	Bolt	Seat
CS <sup>[1]</sup>	A105 CS	A582-303 SS	A351-CF8M	A286	Delrin®
316 SS	A479-316 SS	A276-316 SS	A351-CF8M	A286	Delrin®
316L SS	A479-316L SS	A276-316 SS	A351-CF8M	A286	Delrin®
SG <sup>[2]</sup>	A479-316 SS	Monel® R405	A351-CF8M	A286	Delrin®
SG3 <sup>[4]</sup>	Hastelloy® C-276	Hastelloy® C-276	A494-CW12MW	A286	Delrin®

### M5K PRESSURE AND TEMPERATURE RATINGS

Metal seated					
Valve	Packing	Pressure and temperature rating			
CS <sup>[1]</sup>	GRAFOIL®	6000 psig at 200°F [414 barg at 93°C] 1500 psig at 850°F [103 barg at 454°C]			
316 SS, SG <sup>[2]</sup> , SG3 <sup>[4]</sup>	GRAFOIL®	6000 psig at 200°F [414 barg at 93°C] 1500 psig at 1000°F [103 barg at 538°C]			
316L SS	GRAFOIL®	5000 psig at 200°F [345 barg at 93°C] 1500 psig at 850°F [103 barg at 454°C]			
CS, 316 SS, SG3 <sup>[4]</sup>	PTFE	6000 psig at 200°F [414 barg at 66°C] 4000 psig at 500°F [276 barg at 260°C]			

Soft seated				
Valve	Packing	Seat material	Pressure and temperature rating	
CS <sup>[1]</sup>	PTFE or GRAFOIL®	Delrin® and PCTFE <sup>[3]</sup>	6000 psig at 200°F [414 barg at 93°C]	
316 SS	PTFE or GRAFOIL®	PEEK	6000 psig at 200°F [414 barg at 93°C]	2000 psig at 400°F [138 barg at 93°C]
316L SS	PTFE or GRAFOIL®	PTFE	1000 psig at 150°F [69 barg at 66°C]	200 psig at 500°F [14 barg at 260°C]
SG3 <sup>[4]</sup>	PTFE or GRAFOIL®	PEEK	6000 psig at 200°F [414 barg at 93°C]	2000 psig at 400°F [138 barg at 93°C]
SG3 <sup>[4]</sup>	PTFE or GRAFOIL®	PTFE	1000 psig at 150°F [69 barg at 66°C]	200 psig at 500°F [14 barg at 260°C]

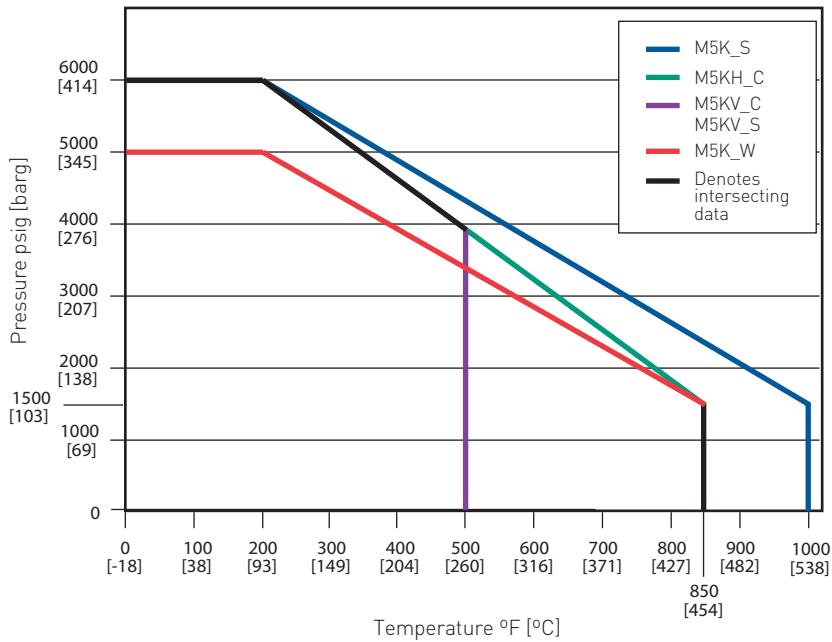
### NOTES

1. CS is zinc chromate plated to prevent corrosion (except male plain end is black oxide coated).
2. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions < 50 mg/l (ppm)) and NACE MR0103-2005.
3. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
4. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l (ppm)). If accessories are added, consult factory for materials.
5. Temperature (min.) -70°F (-57°C).

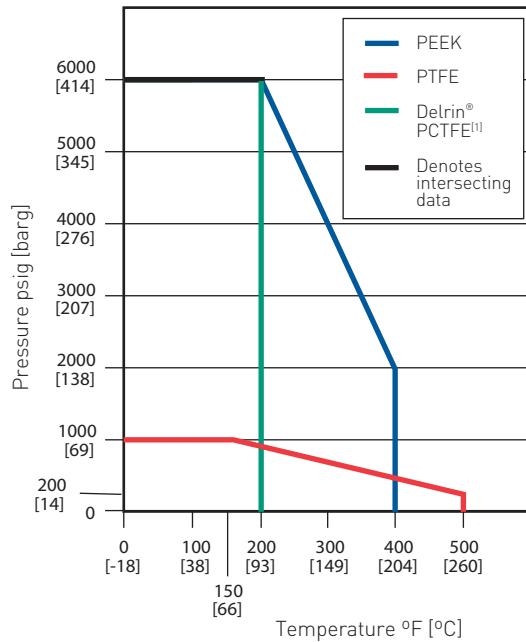
# ANDERSON GREENWOOD OS&Y GAUGE VALVES

## SERIES M5K

### PRESSURE VS. TEMPERATURE - M5K METAL SEAT



### PRESSURE VS. TEMPERATURE - M5K SOFT SEAT



#### NOTE

1. PCTFE [Polychlorotrifluoroethylene] is the exact equivalent of Kel-F®.

#### PRESSURE AND TEMPERATURE

Max. temperature	CS	1500 psig at 850°F [103 barg at 454°C]
	SS	1500 psig at 1000°F [103 barg at 538°C]
Max. pressure	316L SS	5000 psig at 200°F [345 barg at 93°C]

#### NOTE

Temperature (min.) -70°F (-57°C).

# ANDERSON GREENWOOD OS&Y GAUGE VALVES

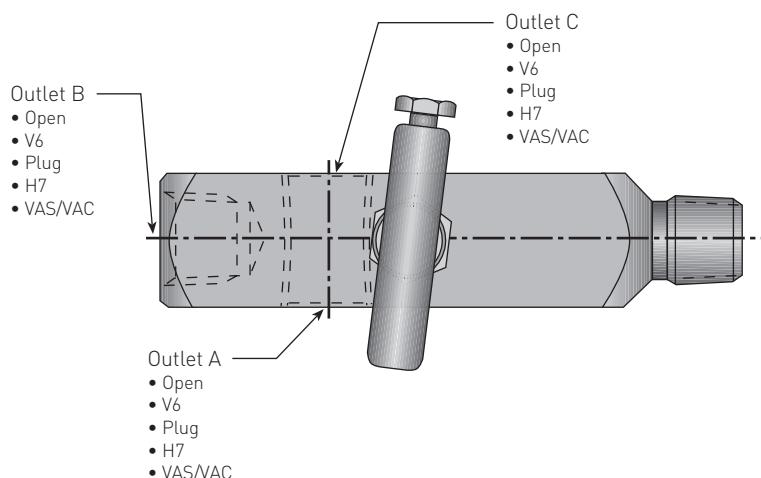
## SERIES M5K

### SELECTION GUIDE - M5K METAL SEAT

Example:	M5K	H	I	S	-44LC	-SG
<b>Packing</b>						
<b>H</b>	GRAFOIL®					
<b>V</b>	PTFE					
<b>Seat<sup>[1]</sup></b>						
<b>I</b>	Integral (standard)					
<b>Body material<sup>[2]</sup></b>						
<b>C</b>	CS, A105 <sup>[3]</sup>					
<b>S</b>	SS, A479-316					
<b>W</b>	SS, A479-316L					
<b>Connections (inlet/outlet)<sup>[4]</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>HD</b>	Hydrostatic testing (100%) (MSS-SP-61)					
<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					

### NOTES

1. ¾<sub>16</sub> inch [4.8 mm] diameter orifice.
2. Call factory for optional materials.
3. CS is zinc chromate plated to prevent corrosion (except male plain end is black oxide coated).
4. Call factory for optional connection sizes.



# ANDERSON GREENWOOD OS&Y GAUGE VALVES

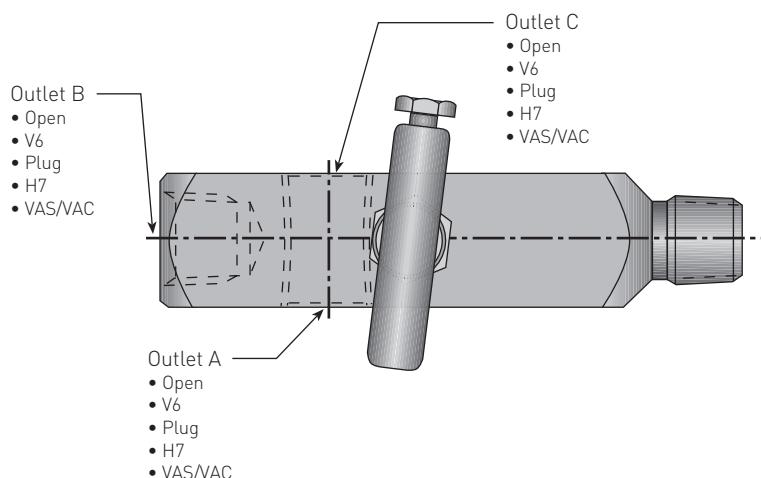
## SERIES M5K

### SELECTION GUIDE - M5K SOFT SEAT

Example:	M5K	V	D	S	-44LC	-SG
<b>Packing</b>						
<b>H</b>	GRAFOIL®					
<b>V</b>	PTFE					
<b>Seat<sup>[1]</sup></b>						
<b>V</b>	PTFE					
<b>K</b>	PCTFE <sup>[2]</sup>					
<b>E</b>	PEEK					
<b>D</b>	Delrin®					
<b>Body material<sup>[3]</sup></b>						
<b>C</b>	CS, A105 <sup>[4]</sup>					
<b>S</b>	SS, A479-316					
<b>W</b>	SS, A479-316L					
<b>Connections (inlet/outlet)<sup>[5]</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>HD</b>	Hydrostatic testing (100%) (MSS-SP-61)					
<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					

### NOTES

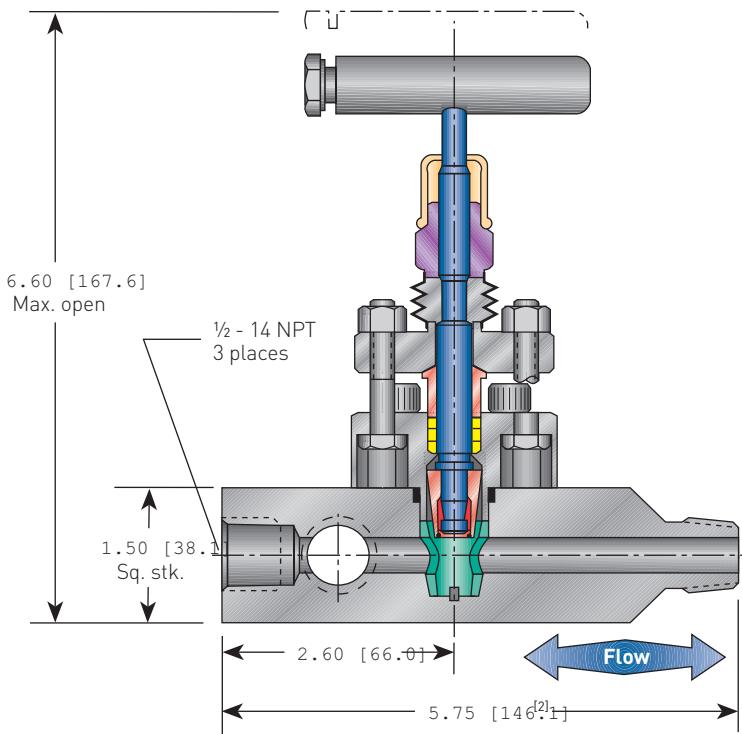
1. ¼-inch [6.4 mm] diameter orifice.
2. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
3. Call factory for optional materials.
4. CS is zinc chromate plated to prevent corrosion (except Male plain end is black oxide coated).
5. Call factory for optional connection sizes.



# ANDERSON GREENWOOD OS&Y GAUGE VALVES

## SERIES M5AK

### M5AK METAL AND SOFT SEAT DIMENSIONS, INCHES [mm]



#### NOTES

1. Approximate valve weight:  
Standard 4.0 lb [1.8 kg]  
Long 4.5 lb [2.0 kg]  
9/16-inch [9.5] diameter orifice  
Valve C<sub>v</sub> 3.0 maximum
2. Long body length 7.75-inch [196.8 mm]  
4-inch insulation

#### STANDARD MATERIALS

##### Metal seat

Valve	Body	Stem	Yoke	Bolt
CS <sup>[1]</sup>	A105 CS	A581-303 SS	A351-CF8M	A574
316 SS	A479-316 SS	A276-316 SS	A351-CF8M	A574
316L SS	A479-316L SS	A276-316 SS	A351-CF8M	A574
SG <sup>[2]</sup>	A479-316 SS	Monel® R405	A351-CF8M	A574

##### Soft seat

Valve	Body	Stem	Yoke	Bolt	Seat <sup>[3]</sup>
CS <sup>[1]</sup>	A105 CS	A581-303 SS	A351-CF8M	A574	Delrin®
316 SS	A479-316 SS	A276-316 SS	A351-CF8M	A574	Delrin®
316L SS	A479-316L SS	A276-316 SS	A351-CF8M	A574	Delrin®
SG <sup>[2]</sup>	A479-316 SS	Monel® R405	A351-CF8M	A574	Delrin®

#### NOTES

1. CS is zinc cromate plated to prevent corrosion (except male plain end is black oxide coated).
2. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions < 50 mg/l [ppm]) and NACE MR0103-2005.
3. PTFE, PCTFE and PEEK are available.

# ANDERSON GREENWOOD OS&Y GAUGE VALVES

## SERIES M5AK

### M5AK PRESSURE AND TEMPERATURE RATINGS

Metal seat		PTFE packed	GRAFOIL® packed
Valve			
CS <sup>[1]</sup>		1500 psig at 500°F [103 barg at 260°C]	1500 psig at 850°F [103 barg at 454°C]
316 SS		1500 psig at 500°F [103 barg at 260°C]	1500 psig at 850°F [103 barg at 454°C]
316L SS		1500 psig at 500°F [103 barg at 260°C]	1500 psig at 850°F [103 barg at 454°C]
SG <sup>[2]</sup>		1500 psig at 500°F [103 barg at 260°C]	1500 psig at 850°F [103 barg at 454°C]

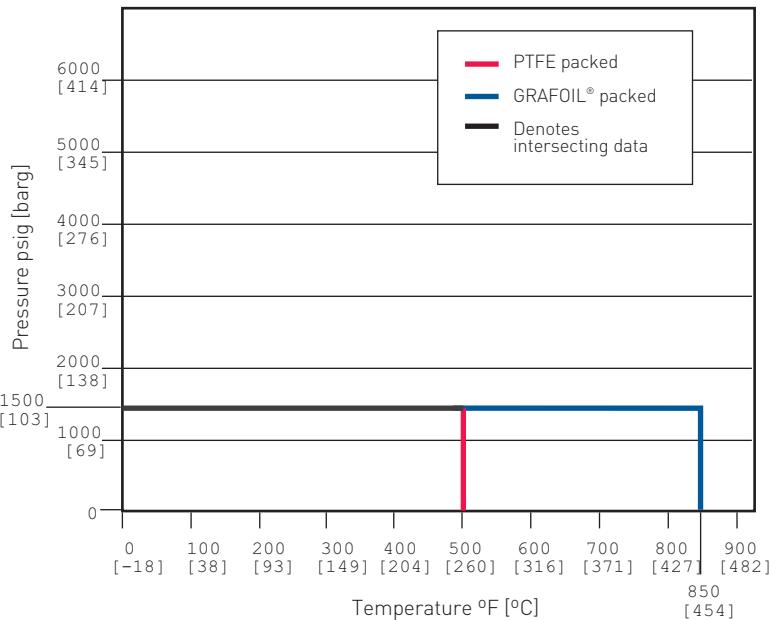
  

Soft seat				
Valve	Delrin®	PCTFE <sup>[3]</sup>	PEEK	PTFE
CS <sup>[1]</sup>	6000 psig at 200°F [414 barg at 93°C]	5000 psig at 200°F [345 barg at 93°C]	6000 psig at 200°F [414 barg at 93°C]	1000 psig at 150°F [69 barg at 66°C]
316 SS,			2000 psig at 400°F [138 barg at 204°C]	200 psig at 500°F [14 barg at 260°C]
SG <sup>[2]</sup>				
316L SS	5000 psig at 200°F [345 barg at 93°C]	5000 psig at 200°F [345 barg at 93°C]	5000 psig at 200°F [345 barg at 93°C]	1000 psig at 150°F [69 barg at 66°C]
			2000 psig at 400°F [138 barg at 204°C]	200 psig at 500°F [14 barg at 260°C]

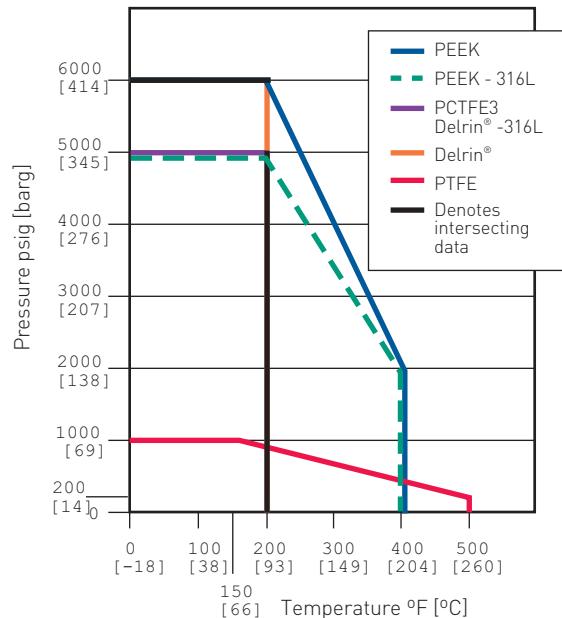
### NOTES

1. CS is zinc chromate plated to prevent corrosion (except male plain end is black oxide coated).
2. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions < 50 mg/l (ppm)) and NACE MR0103-2005.
3. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
4. Temperature (min.) -70°F (-57°C).

### PRESSURE VS. TEMPERATURE - METAL SEAT



### PRESSURE VS. TEMPERATURE - SOFT SEAT



# ANDERSON GREENWOOD OS&Y GAUGE VALVES

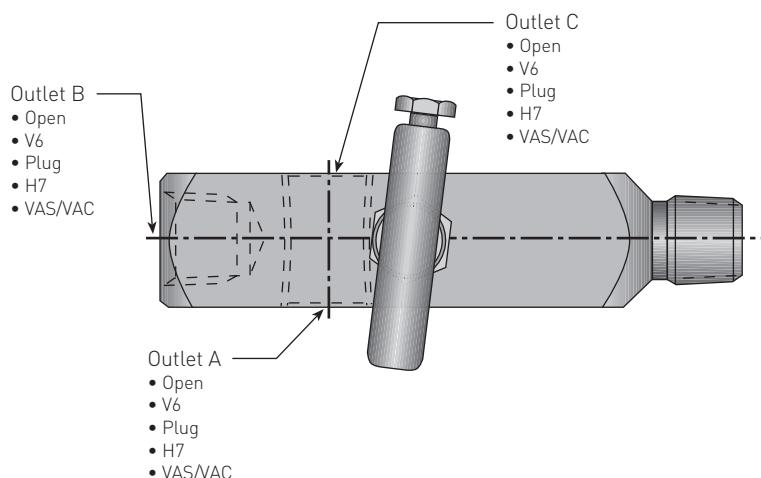
## SERIES M5AK

### SELECTION GUIDE - M5AK METAL SEAT

Example:	M5AK	H	S	S	-44C	-SG
<b>Packing</b>						
<b>H</b>	GRAFOIL®					
<b>V</b>	PTFE					
<b>Seat</b>						
<b>S</b>	316 SS					
<b>M</b>	Monel®					
<b>Body material<sup>[1]</sup></b>						
<b>C</b>	CS, A105					
<b>S</b>	SS, A479-316					
<b>W</b>	SS, A479-316L					
<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 (inlet) (CS is black oxide coated)					
<b>Length</b>						
<b>L</b>	Long body for 4" insulation					
<b>Options</b>						
<b>HD</b>	Hydrostatic testing (100%) (MSS-SP-61)					
<b>MS</b>	Monel stem					
<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					

### NOTES

1. Call factory for optional materials.
2. Call factory for optional connection sizes.



# ANDERSON GREENWOOD OS&Y GAUGE VALVES

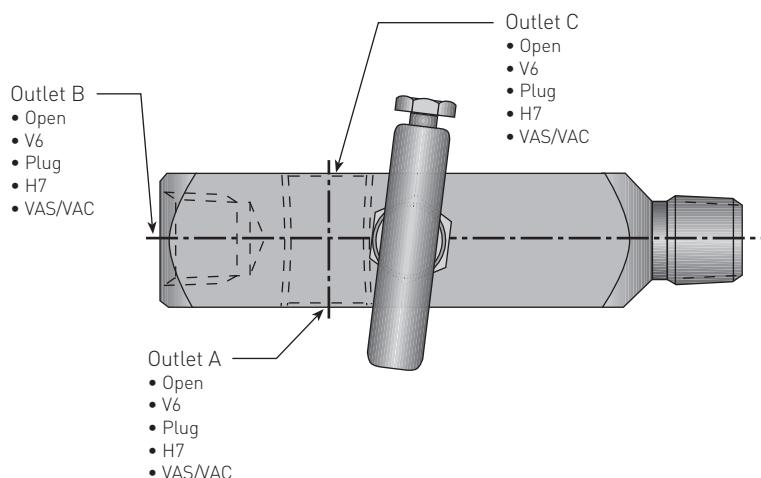
## SERIES M5AK

### SELECTION GUIDE - M5AK SOFT SEAT

Example:	M5AK	V	V	S	-44C	-SG
<b>Packing</b>						
<b>H</b>	GRAFOIL®					
<b>V</b>	PTFE					
<b>Seat</b>						
<b>V</b>	PTFE					
<b>D</b>	Delrin®					
<b>E</b>	PEEK					
<b>K</b>	PCTFE <sup>[1]</sup>					
<b>Body material<sup>[2]</sup></b>						
<b>C</b>	CS, A105					
<b>S</b>	SS, A479-316					
<b>W</b>	SS, A479-316L					
<b>Connections (inlet/outlet)<sup>[3]</sup></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 (inlet) (CS is black oxide coated)					
<b>Length</b>						
<b>L</b>	Long body 4" insulation					
<b>Options</b>						
<b>HD</b>	Hydrostatic testing (100%) (MSS-SP-61)					
<b>MS</b>	Monel stem					
<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					

### NOTES

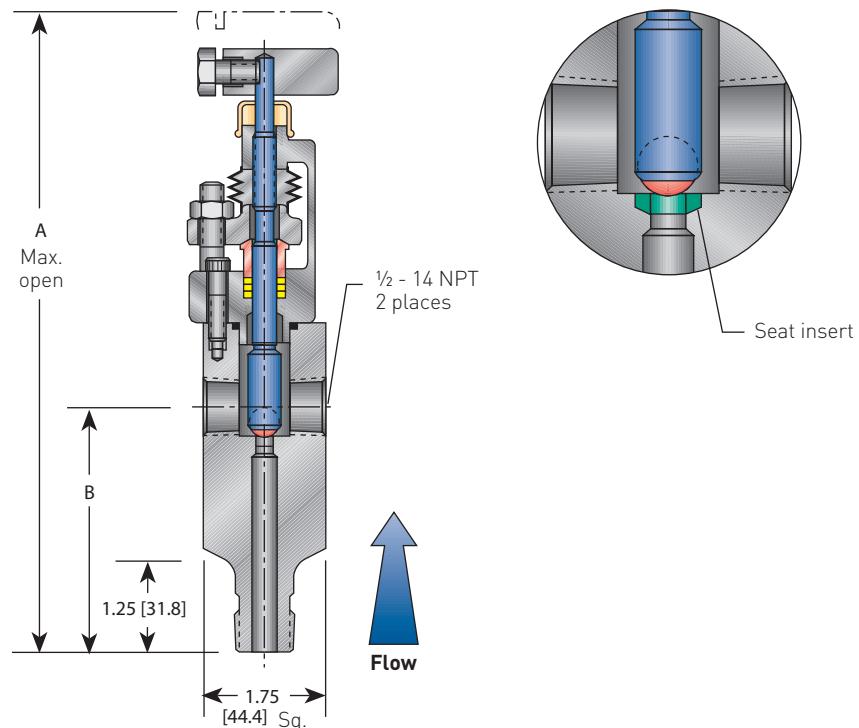
1. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.
2. Call factory for optional materials.
3. Call factory for optional connection sizes.



# ANDERSON GREENWOOD OS&Y GAUGE VALVES

## SERIES M5YK

### M5YK DIMENSIONS, INCHES [mm]



### DIMENSIONS, INCHES [mm]

Body type	A	B	Weight lb [kg]
Standard	9.20 [233.7]	3.50 [88.9]	4.5 [2.0]
Long body	11.70 [297.2]	6.00 [152.4]	7.0 [3.2]

### M5YK STANDARD MATERIALS

Valve <sup>[1]</sup>	Body <sup>[2]</sup>	Stem	Ball	Yoke	Bolt
CS <sup>[3]</sup>	A696-Gr C	A276-316 SS	17-4PH	A351-CF8M	A286
316 SS	A479-316 SS	A276-316 SS	A276-316 SS	A351-CF8M	A286
316L SS	A479-316L SS	A276-316 SS	A276-316 SS	A351-CF8M	A286
SG <sup>[4]</sup>	A479-316 SS	Monel® R405	Monel® K500	A351-CF8M	A286
SG3 <sup>[5][6]</sup>	Hastelloy® C-276	Hastelloy® C-276	Elgiloy®	A474-CW12MW	A286

### NOTES

1. Orifice size  $\frac{1}{4}$ -inch [6.4 mm].  
Valve  $C_v$  1.4 maximum.
2. Call factory for optional materials.
3. CS is zinc chromate plated to prevent corrosion.
4. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 [for chloride conditions  $< 50 \text{ mg/l (ppm)}$ ] and NACE MR0103-2005.
5. For Hastelloy® and SG3 call factory for dimensions and weights.
6. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 [for chloride conditions  $> 50 \text{ mg/l (ppm)}$ ]. If accessories are added, consult factory for materials.

# ANDERSON GREENWOOD OS&Y GAUGE VALVES

## SERIES M5YK

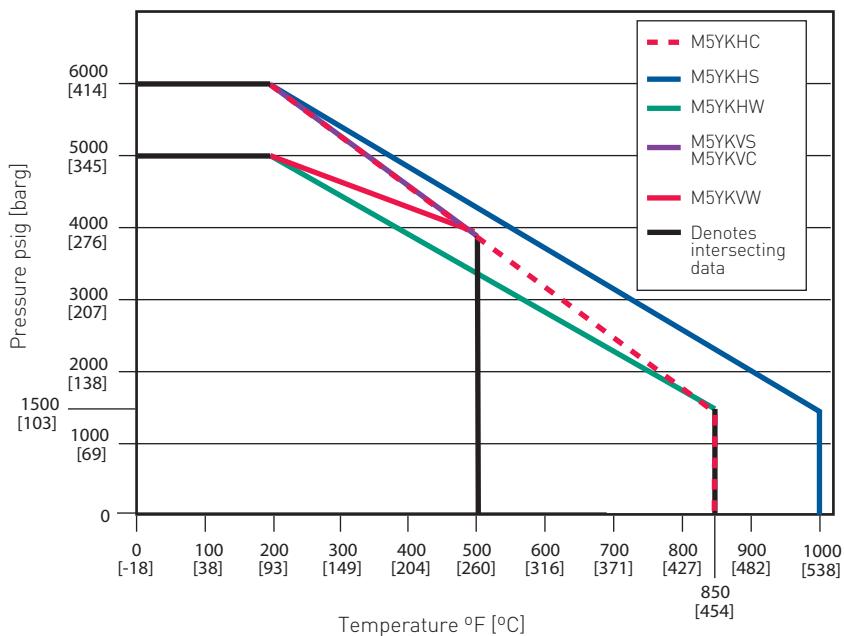
### M5YK PRESSURE AND TEMPERATURE RATINGS

Valve	GRAFOIL® packing	PTFE packing
CS	6000 psig at 200°F [414 barg at 93°C] 1500 psig at 850°F [103 barg at 454°C]	6000 psig at 200°F [414 barg at 93°C] 4000 psig at 500°F [276 barg at 260°C]
316 SS	6000 psig at 200°F [414 barg at 93°C] 1500 psig at 1000°F [103 barg at 538°C]	6000 psig at 200°F [414 barg at 93°C] 4000 psig at 500°F [276 barg at 260°C]
316L SS	5000 psig at 200°F [345 barg at 93°C] 1500 psig at 850°F [103 barg at 454°C]	5000 psig at 200°F [345 barg at 93°C] 4000 psig at 500°F [276 barg at 260°C]
SG <sup>[1]</sup> , SG3 <sup>[2]</sup>	6000 psig at 200°F [414 barg at 93°C] 1500 psig at 1000°F [103 barg at 538°C]	6000 psig at 200°F [414 barg at 93°C] 4000 psig at 500°F [276 barg at 260°C]

### NOTES

1. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions < 50 mg/l (ppm)) and NACE MR0103-2005.
2. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l (ppm)). If accessories are added, consult factory for materials.
3. Temperature (min.) -70°F (-57°C).

### PRESSURE VS. TEMPERATURE



# ANDERSON GREENWOOD OS&Y GAUGE VALVES

## SERIES M5YK

### SELECTION GUIDE - M5YK

Example:	M5YK	H	I	S	-44LC	-SG
<b>Packing</b>						
<b>H</b>	GRAFOIL®					
<b>V</b>	PTFE					
<b>Seat (orifice diameter 1/4-inch [6.4 mm])</b>						
<b>I</b>	Integral (standard)					
<b>S</b>	316 SS insert (available for CS body only)					
<b>M</b>	Monel® insert					
<b>P</b>	Power version					
<b>Body material<sup>(1)</sup></b>						
<b>C<sup>(2)</sup></b>	CS, A696 Gr C (A105)					
<b>S</b>	SS, A479-316					
<b>W</b>	SS, A479-316L					
<b>Connections (inlet/outlet)</b>						
<b>44</b>	1/2-inch MNPT x (2) 1/2-inch FNPT					
<b>46</b>	3/4-inch MNPT x (2) 1/2-inch FNPT					
<b>48</b>	1-inch MNPT x (2) 1/2-inch FNPT					
<b>Connection style</b>						
<b>C</b>	Male plain end (inlet) (CS is black oxide coated)					
<b>Length</b>						
<b>L</b>	Long body extension (4-inch [102 mm] insulation) (not available as -44L)					
<b>Options</b>						
<b>SG</b>	(Sour Gas) NACE edition 2003 /MR0103					
<b>SS</b>	All 316 SS construction					
<b>XP</b>	ASME B31.1					
<b>SG3</b>	(Sour Gas) NACE MR0175/ISO 15156-3 (latest edition)					

### NOTES

1. Call factory for optional materials.
2. A696 Gr C is the bar stock equivalent to A105 carbon steel.