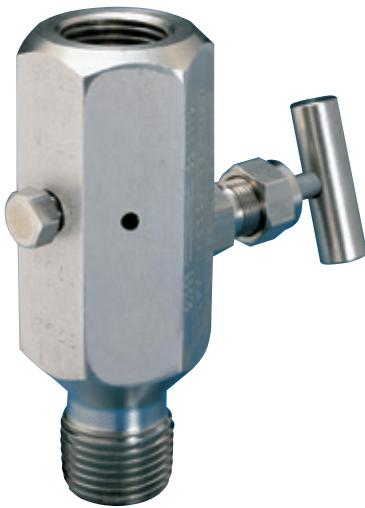


ANDERSON GREENWOOD SERIES M9 BLOCK AND BLEED GAUGE VALVES

A valve with an interchangeable hard or soft seat and an integral bleed plug specifically designed to facilitate safe, compact, economical gauge installation and operation



GENERAL APPLICATION

M9 block and bleed valves are suitable for isolation and venting of static pressure gauge and instrument installations.

TECHNICAL DATA

Materials:	CS, SS, Monel®, Hastelloy®
Seats:	Metal and soft
Connections:	½" to ¾" (15 to 19 mm) NPT, welded also available
Pressure (max):	6,000 psig (414 barg)
Temperature (max):	1000°F (538°C)

FEATURES

- Packing below threads prevents lubricant washout, thread corrosion, process contamination and eliminates galling.
- Easily adjustable packing decreases replacement downtime and increases valve life.
- Metal-to-metal seated bleed plug enables safe pressure venting without breaking threaded connections.
- Safety back seating prevents stem blowout or removal during operation 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.
- One-piece handle design prevents loss due to vibration or during maintenance.
- Soft or metal seat for bubble-tight shutoff is field-replaceable for easy maintenance.
- Extended valve life: damaged soft seat can be removed, leaving a metal seated valve.

ANDERSON GREENWOOD SERIES M9 BLOCK AND BLEED GAUGE VALVES

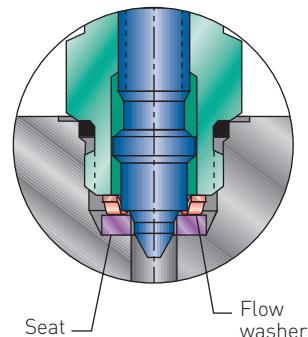
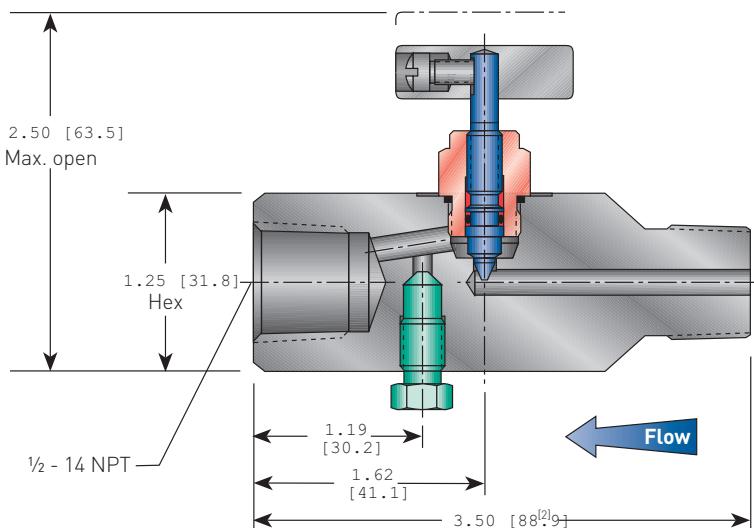
BONNET ASSEMBLY OPTIONS

The M9 features the mini-valve bonnet assembly, with a compact design and a one-piece rotating stem which is 'V' tipped with a shoulder for use as a metal or soft seated valve. The stem threads are rolled and lubricated to prevent galling and reduce operating torque.

The mini-valve bonnet comes in three designs:

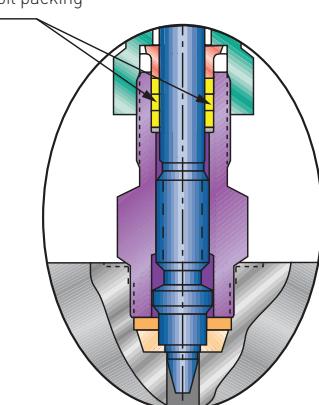
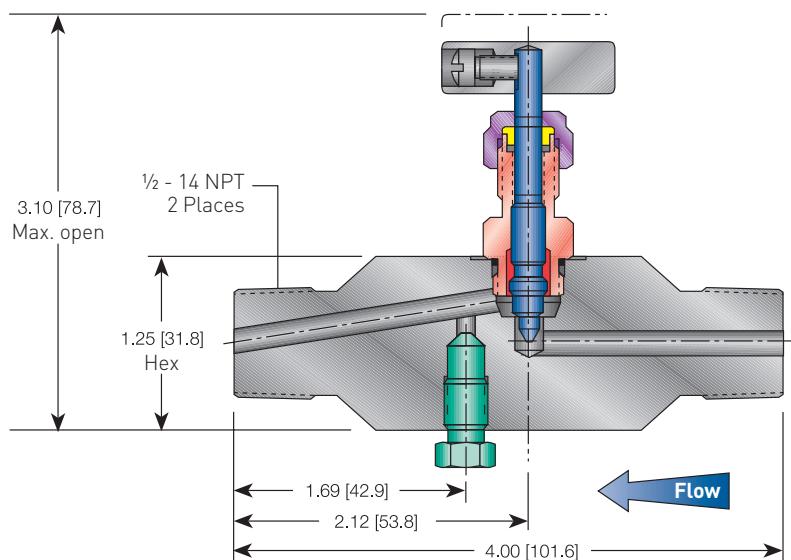
- An adjustable PTFE stem packed bonnet which is suitable for panel mounting via external bonnet threads.
- O-ring bonnet assemblies which use a FKM O-ring seal below the stem thread.
- A graphite-packed bonnet suitable for temperatures of up to 1000°F (538°C) which is available for SS valves only.

M9RIS - 44 DIMENSIONS WITH O-RING BONNET^[1], INCHES [mm]



OPTIONAL SOFT SEAT

M9VIS - 4M DIMENSIONS WITH PTFE BONNET^[1], INCHES [mm]

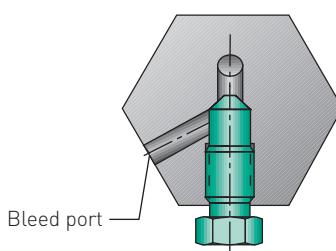


GRAFOIL PACKED BONNET

NOTES

1. Bonnets interchangeable between all body configurations.
2. 4.00-inch [101.6 mm] for -44C, -46C.
3. M9()-4 body length 2.88-inch [73 mm].
4. For Hastelloy® and SG3 call factory for dimensions and weights.
5. Hastelloy® is a registered trademark of Haynes International.

SECTION THROUGH BLEED PLUG



ANDERSON GREENWOOD SERIES M9 BLOCK AND BLEED GAUGE VALVES

STANDARD MATERIALS

Metal seat

Valve ^[1]	Body	Bonnet	Stem	Packing	Bleed plug	Seat
CS ^[2]	A108 CS	A108 CS	A581-303 SS	PTFE or FKM O-ring	A108 CS	Integral
SS	A479-316 SS	A479-316 SS	A276-316 SS	PTFE, FKM O-ring or Grafoil [®]	A276-316 SS	Integral
SG ^[3]	A479-316 SS	A479-316 SS	Monel [®] 400	PTFE	A279-316 SS	Integral
Monel [®]	Monel [®] R405	Monel [®] R405	Monel [®] R405	PTFE or Grafoil [®]	Monel [®] R405	Integral
SG3 ^[8]	Hastelloy [®] C-276	Hastelloy [®] C-276	Hastelloy [®] C-276	PTFE or Grafoil [®]	Hastelloy [®] C-276	Integral

Soft seat

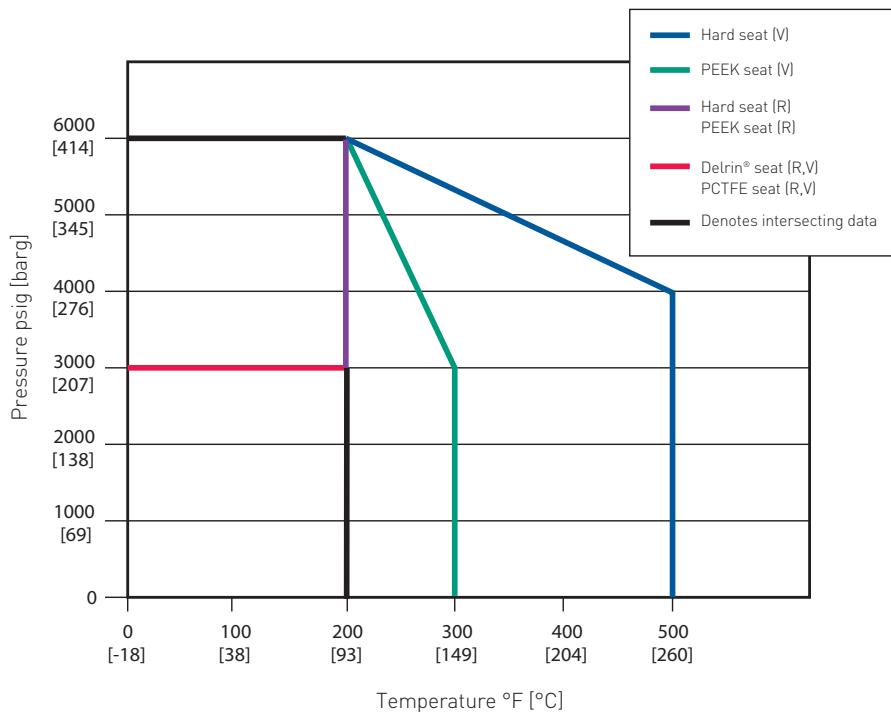
Valve ^[1]	Body	Bonnet	Stem	Packing	Flow washer	Bleed plug	Seat ^[4]
CS ^[2]	A108 CS	A108 CS	A581-303 SS	PTFE or FKM O-ring	316 SS	A108 CS	Delrin [®]
SS	A479-316 SS	A479-316 SS	A276-316 SS	PTFE or FKM O-ring	316 SS	A276-316 SS	PCTFE ^[5]
SG ^[3]	A479-316 SS	A479-316 SS	Monel [®] 400	PTFE	316 SS	A276-316 SS	PCTFE ^[5]
SG3 ^[8]	Hastelloy [®] C-276	Hastelloy [®] C-276	Hastelloy [®] C-276	PTFE	Hastelloy [®] C-276	Hastelloy [®] C-276	PCTFE ^[5]

NOTES

1. Approximate valve weight 1.2 lb [.54 kg]. Orifice size .136-inch [3.5 mm] diameter. Valve C_v hard seat .25 maximum. Valve C_v soft seat .24 maximum.
2. CS is zinc cobalt plated to prevent corrosion (except male plain end is black oxide coated).
3. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions < 50 mg/l (ppm)) and NACE MR0103-2005.
4. PEEK available.
5. PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F[®].
6. Delrin[®] is a registered trademark of E.I. duPont de Nemours and Company.
7. Monel[®] is a registered trademark of the Special Metals Corporation.
8. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l (ppm)).

ANDERSON GREENWOOD SERIES M9 BLOCK AND BLEED GAUGE VALVES

PRESSURE VS. TEMPERATURE



(V) = with PTFE bonnet assembly

(R) = with O-ring bonnet assembly

(H) = with GRAFOIL® bonnet assembly (1000°F [538°C])

PRESSURE AND TEMPERATURE RATINGS

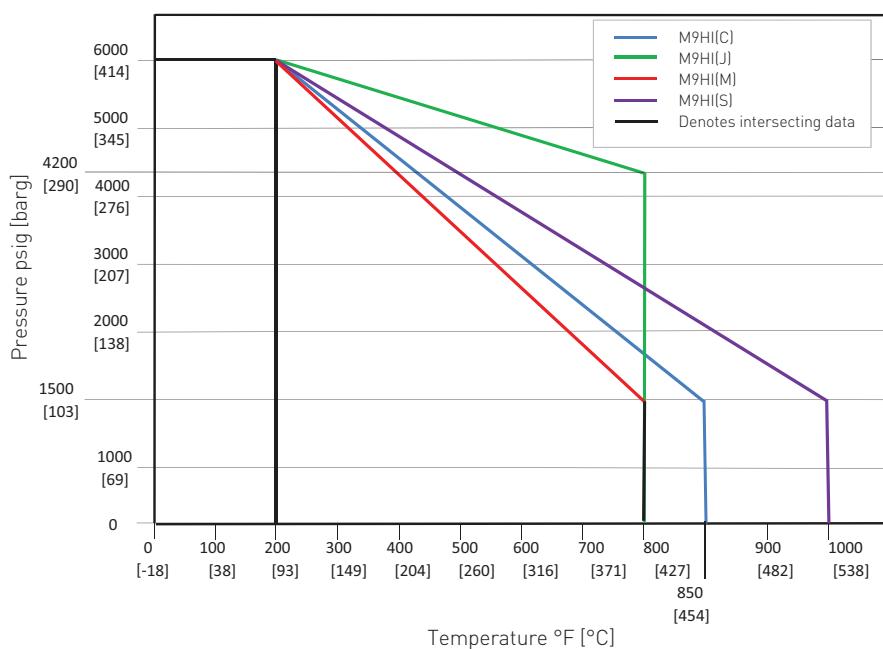
Ratings with PTFE bonnet

Hard seat	6000 psig at 200°F [414 barg at 93°C]
	4000 psig at 500°F [276 barg at 260°C]
Delrin® and PCTFE ^[5]	3000 psig at 200°F [207 barg at 93°C]
PEEK seat	6000 psig at 200°F [414 barg at 93°C]
	3000 psig at 300°F [207 barg at 149°C]

Ratings with O-ring bonnet

Hard seat	6000 psig at 200°F [414 barg at 93°C]
Delrin® and PCTFE ^[5]	3000 psig at 200°F [207 barg at 93°C]
PEEK seat	6000 psig at 200°F [414 barg at 93°C]

PRESSURE VS. TEMPERATURE



Ratings with GRAFOIL® bonnet (hard seat)

Carbon steel	6000 psig at 200°F (414 barg at 93°C)
	1500 psig at 850°F (103 barg at 454°C)
Stainless steel	6000 psig at 200°F (414 barg at 93°C)
	1500 psig at 1000°F (103 barg at 538°C)
Hastelloy	6000 psig at 200°F (414 barg at 93°C)
	4200 psig at 800°F (290 barg at 427°C)
Monel	6000 psig at 200°F (414 barg at 93°C)
	1500 psig at 800°F (103 barg at 427°C)

ANDERSON GREENWOOD SERIES M9 BLOCK AND BLEED GAUGE VALVES

SELECTION GUIDE

Example:	M9	V	I	S	-44	C	-SG
Packing							
V	PTFE bonnet (standard for 316 SS)						
R	O-ring bonnet						
H	GRAFOIL® (1000°F [538°C] max)						
Seat							
I	Integral						
D	Delrin® (standard)						
E	PEEK						
K	PCTFE*						
Body materials							
C	Carbon steel						
S	316 SS						
M	Monel®						
J	Hastelloy®						
Connections							
4	½-inch FNPT (outlet) x ½-inch FNPT (inlet)						
4M	½-inch MNPT (outlet) x ½-inch MNPT (inlet)						
44	½-inch FNPT (outlet) x ½-inch MNPT (inlet)						
46	½-inch FNPT (outlet) x ¾-inch MNPT (inlet)						
Connection style							
C	Male plain end (CS is black oxide coated)						
Options							
CL00	Chlorine cleaning						
HD	Hydrostatic testing (100%) (MSS-SP-61)						
MS	Monel® stem						
OC00	Oxygen cleaning (316 SS only)						
PHB	Phenolic black handle						
PHG	Phenolic green handle						
PHR	Phenolic red handle						
PM	Panel mount (PTFE packed only)						
SG	Sour Gas meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions < 50 mg/l (ppm)) and NACE MR0103-2005 (SS only)						
SG3	Sour Gas meets the requirements of NACE MR0175/ISO 15156 (for chloride conditions > 50 mg/l (ppm))						

* PCTFE (Polychlorotrifluoroethylene) is the exact equivalent of Kel-F®.

