

## Primary Isolation Valves

ISO 10497 rated, ANSI Class 2500 instrument primary (root) valves with a 3/8" (9.5 mm) or optional 5/8" (16 mm) straight through roddable bore for pressures to 6000 psig (414 barg)

### General Application

M50 and H70 valves are suited for severe service, instrument primary (root) type installations requiring rugged durability, reliability and safety. Both are intended to replace gate and globe valves found in traditional installations.

### TECHNICAL DATA

#### Materials

CS, 316 SS, Monel®, Hastelloy®

#### Seats:

Metal or soft

#### Connections

##### Inlet:

1/2" to 1" NPT

##### Outlet:

1/2" to 3/4" NPT

#### Orifice sizes:

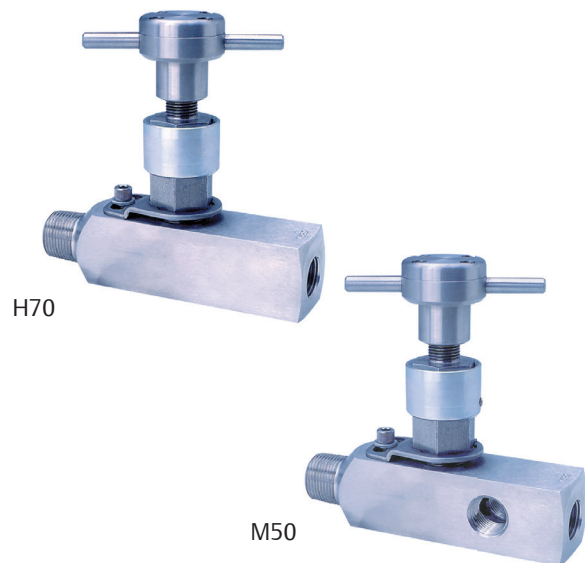
3/8" (9.5 mm); 5/8" (16mm) optional

#### Pressure (max):

6000 psig (414 barg)

#### Temperature (max):

1000°F (538°C)



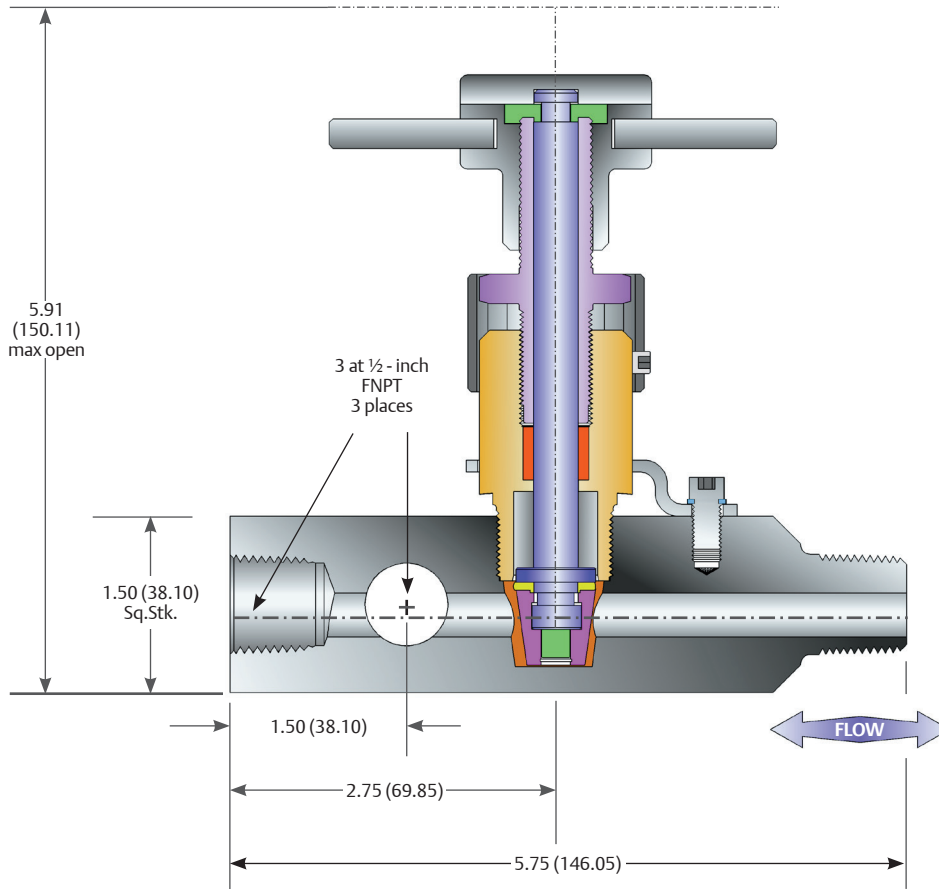
### Features

- Compact design requires minimum space for operation and installation; low weight increases connection strength and reduces gauge whip.
- In-line replaceable soft or metal seats eliminate the need for valve removal.
- Straight through bore allows rodding out.
- Non-rotating stem design eliminates packing wear and seat galling, extending valve life.
- ISO 10497 rated primary block provides assured reliability in severe service applications.
- Metal-to-metal body-to-bonnet seal in constant compression prevents bonnet thread corrosion, eliminates possible tensile breakage and gives a reliable seal point.
- Safety back seating prevents stem blowout or accidental removal while in operation and provides a metal-to-metal secondary stem seal while in the full open position.
- Bonnet lock plate prevents accidental separation from body yet easy maintenance and repair.
- M50's multi-port gauge connections allow versatile positioning of gauges or pressure switches without additional penetration of the main piping.

# M50 SERIES

## Primary Isolation Valves

### General Dimensions



#### NOTE

1. Long body length 7.75 inch (198.8 mm). Extra long body length 8.80 inch (223.5 mm).

### Standard Materials - Metal and Soft Seats

Valve <sup>[1]</sup>	Body	Stem	Bonnet
CS	A105 CS2	303 SS	A105 CS
316 SS	A479-316 SS	A479-316 SS	A479-316 SS
316L3 SS	A479-316L SS	A479-316L SS	A479-316L SS
Monel®	Monel® 400	Monel® R405	Monel® R405
Hastelloy®	Hastelloy® C276	Hastelloy® C276	Hastelloy® C276

#### NOTES

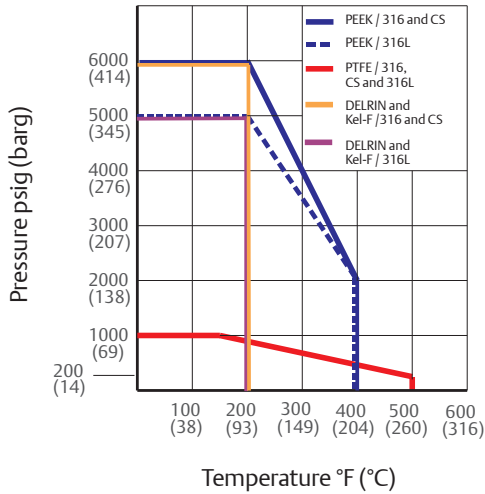
1. Approximate valve weight: 4.2 lb (1.9 kg).
2. CS zinc TCP plated to prevent corrosion.
3. All 316L SS valves meet the requirements of NACE MR-01-75, latest revision. (If chlorides are less than 50ppm in process)
4. Monel® is a registered trademark of the International Nickel Company.
5. Hastelloy® is a registered trademark of Haynes International, Inc.



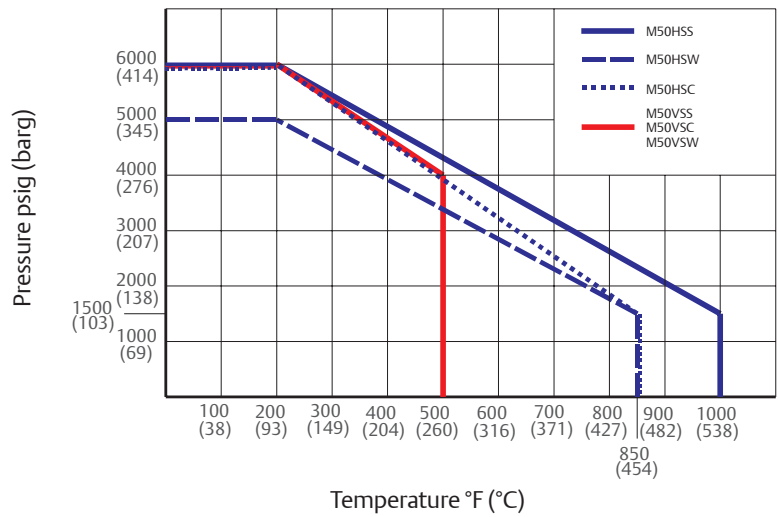
Primary Isolation Valves

Pressure vs. Temperature

Pressure vs. Temperature - Soft Seat



Pressure vs. Temperature - Hard Seat



Pressure and Temperature Ratings

Hard seat/PTFE seal	6000 psig at 200°F (414 barg at 93°C) 4000 psig at 500°F max. (276 barg at 204°C)
Hard seat/GRAFOIL® seal	6000 psig at 200°F (414 barg at 93°C)
CS	1500 psig at 850°F (103 barg at 454°C)
316 SS	3030 psig at 1000°F (209 barg at 538°C)
Soft seat/either seal	6000 psig at 200°F (414 barg at 93°C)

Pressure and Temperature Ratings - B31.1 Metal Seat GRAFOIL® Packing

Body material	Pressure and temperature ratings
316 SS, A479-316	6000 psig at 100°F (414 barg at 38°C) 3030 psig at 1000°F (209 barg at 538°C)
CS, A105	6170 psig at 100°F (426 barg at 38°C) 3430 psig at 800°F (237 barg at 426°C)

NOTES

1. All B31.1 products are ASME Class 2500.
2. Minimum Temperature -70°F (-57°C), PEEK and Delrin® -40°F (-40°C)

# M50 SERIES

## Primary Isolation Valves

### Selection Guide - 6000 psig (414 barg), ISO 10497 Rated

M50		V	S	S	46C	
BASIC SERIES	PACKING	SEAT	BODY MATERIALS	CONNECTIONS (INLET/OUTLET)		
<b>Orifice size</b>						
<b>M50</b>	3/8 inch (9.5 mm) bore	<b>H</b> GRAFOIL® bonnet	<b>S</b> SS, A479-316/A479L - 316 SSL	<b>S</b> SS, A479-316/A479L-316SSL	<b>44</b>	½ inch MNPT x 3 at ½ inch FNPT
		<b>V</b> PTFE bonnet	<b>M</b> Monel®	<b>C</b> CS, A105	<b>46</b>	¾ inch MNPT x 3 at ½ inch FNPT
			<b>D</b> Delrin®	<b>M</b> Monel®	<b>48</b>	1 inch MNPT x 3 at ½ inch FNPT
			<b>E</b> PEEK	<b>J</b> Hastelloy®	<b>66</b>	¾ inch MNPT x 3 at ¾ inch FNPT
			<b>K</b> PCTFE (Polychlorotrifluoroethylene exact equivalent of Kel-F®)	<b>W</b> A479L - 316SSL	<b>44C</b>	½ inch MSW x 3 at ½ inch FNPT
			<b>46C</b>	¾ inch MSW x 3 at ½ inch FNPT		
				<b>48C</b>	1 inch MSW x 3 at ½ inch FNPT	
				<b>66C</b>	¾ inch MSW x 3 at ¾ inch FNPT	
				<b>C</b>	Male plain end (CS is black oxide coated)	
				<b>L</b>	Long body extension (4 inch insulation)	
				<b>LL</b>	Extra long body extension (6 inch insulation)	

#### OPTIONS

<b>OC00</b>	Cleaned for oxygen service
<b>GUS</b>	Removable gusset (support bracket) option
<b>XP</b>	For B31.1 applications GRAFOIL® bonnet packing, metal seat, bonnet lock and HYDRO to MSS-SP61
<b>PM100</b>	Positive Material Identification

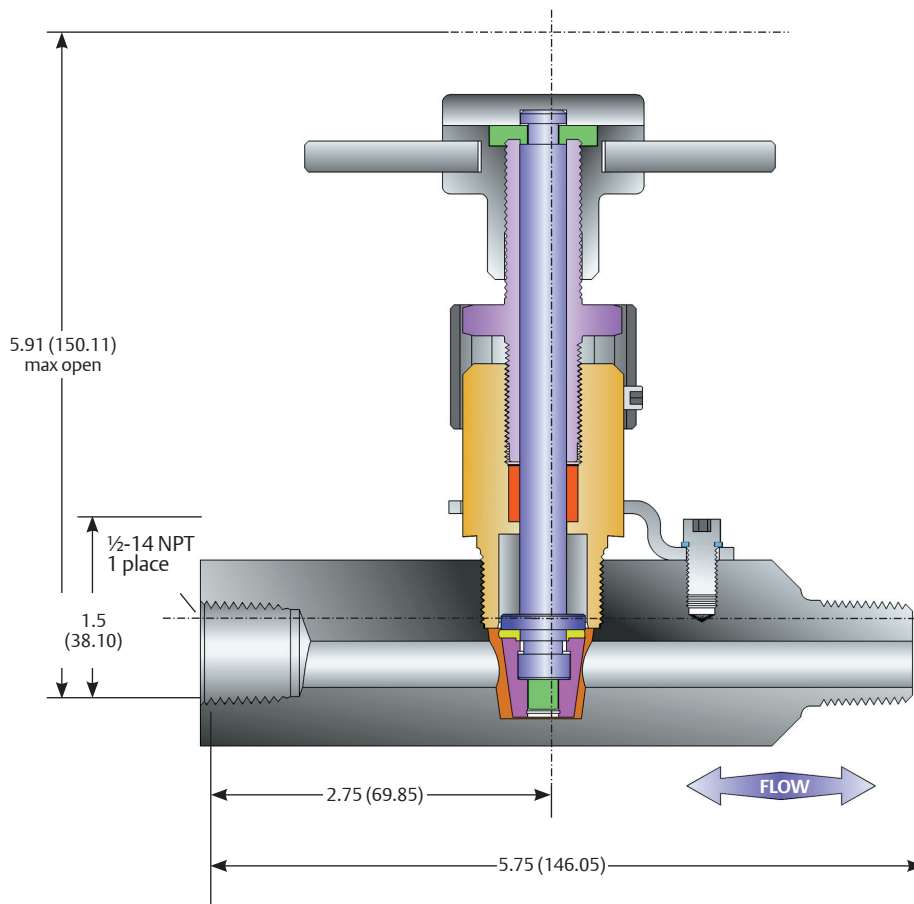
#### NOTE

1. Delrin® is a registered trademark of E.I. duPont de Nemours Company.
2. Bonnet Lock Standard



Primary Isolation Valves

General Dimensions



NOTE

1. Long body length 7.75 inch (198.8 mm). Extra long body length 8.80 inch (223.5 mm).

Standard Materials - Metal and Soft Seats

Valve <sup>1)</sup>	Body	Stem	Bonnet
CS	A105 CS	303 SS	A105 CS
316 SS	A479-316 SS	A479-316 SS	A479-316 SS
316L SS	A479-316L SS	A479-316L SS	A479-316L SS
Monel®	Monel® 400	Monel® R405	Monel® R405
Hastelloy®	Hastelloy® C276	Hastelloy® C276	Hastelloy® C276

NOTES

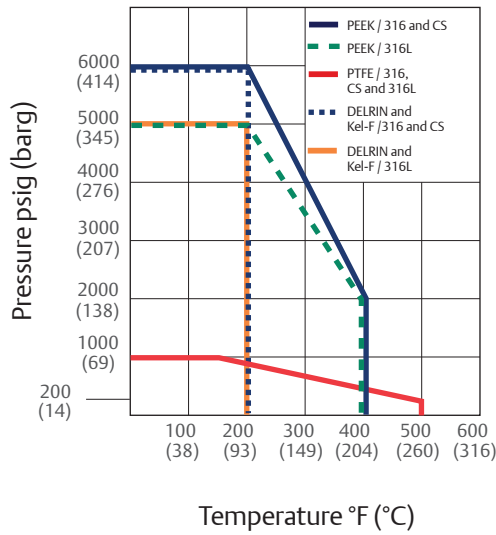
1. Approximate valve weight: 4.2 lb (1.9 kg).
2. CS zinc TCP plated to prevent corrosion.
3. All 316L SS valves meet the requirements of NACE MR-01-75, latest revision (if chlorides are less than 50 ppm.)

# H70 SERIES

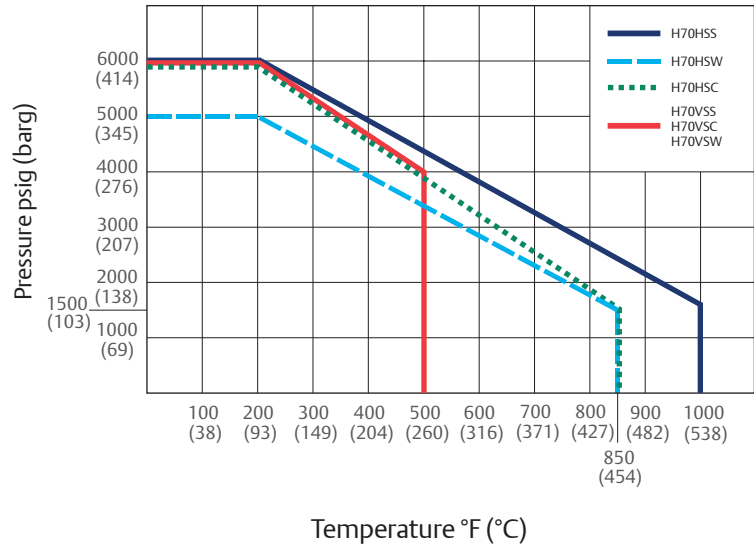
## Primary Isolation Valves

### Pressure and Temperature Ratings

Pressure vs. Temperature - Soft Seat



Pressure vs. Temperature - Hard Seat



### Pressure and Temperature Ratings

Hard seat/PTFE seal	6000 psig at 200°F (414 barg at 93°C) 4000 psig at 500°F Max. (276 barg at 204°C)
Hard seat/GRAFOIL® seal	6000 psig at 200°F (414 barg at 93°C)
CS	1500 psig at 850°F (103 barg at 454°C)
316 SS	1500 psig at 1000°F (103 barg at 538°C)
Soft seat/Either seal	6000 psig at 200°F (414 barg at 93°C)

### Pressure and Temperature Ratings - B31.1 Metal Seat GRAFOIL® Packing

Body material	Pressure and temperature ratings
SS, A479-316	6000 psig at 100°F (414 barg at 38°C) 3030 psig at 1000°F (209 barg at 538°C)
CS, A105	6170 psig at 100°F (426 barg at 38°C) 3430 psig at 800°F (237 barg at 426°C)

#### NOTE

- All B31.1 products are ASME Class 2500.
- Minimum Temperature -70°F (-57°C), Peek and Delrin® -40°F (-40°C)



## Primary Isolation Valves

### Selection Guide - 6000 (414 barg), ISO 10497 Rated

H70		V	S	S	46C	
BASIC SERIES	PACKING	SEAT		BODY MATERIALS	CONNECTIONS (INLET/OUTLET)	
<b>Orifice size</b>						
<b>H70</b>	3/8 inch (9.5 mm) bore	<b>H</b> GRAFOIL® bonnet	<b>S</b> SS, A479-316/A479L - 316 SSL	<b>S</b> SS, A479-316/A479L-316SSL	<b>4</b>	½ inch FNPT x ½ inch FNPT
		<b>V</b> PTFE bonnet	<b>M</b> Monel®	<b>C</b> CS, A105	<b>4C</b>	½ inch FSWP x ½ inch FSWP
			<b>D</b> Delrin®	<b>M</b> Monel®	<b>6</b>	¾ inch FNPT x ¾ inch FNPT
			<b>E</b> PEEK	<b>J</b> Hastelloy®	<b>6C</b>	¾ inch FSWP x ¾ inch FSWP
			<b>K</b> PCTFE (Polychlorotrifluoroethylene exact equivalent of Kel-F®)	<b>W</b> A479L - 316SSL	<b>46</b>	¾ inch MNPT x ½ inch FNPT
					<b>48</b>	1 inch MNPT x ½ inch FNPT
					<b>66</b>	¾ inch MNPT x ¾ inch FNPT
					<b>68</b>	1 inch MNPT x ¾ inch FNPT
					<b>44C</b>	½ inch MSW x ¾ inch FNPT
					<b>46C</b>	¾ inch MSW x ½ inch FNPT
			<b>48C</b>	1 inch MSW x ½ inch FNPT		
			<b>66C</b>	¾ inch MSW x ¾ inch FNPT		
			<b>68C</b>	1 inch MSW x ¾ inch FNPT		
			<b>C</b>	Male plain end (CS is black oxide coated)		
			<b>L</b>	Long body extension (4 inch insulation)		
			<b>LL</b>	Extra long body extension (6 inch insulation)		

#### OPTIONS

<b>OC00</b>	Cleaned for oxygen service
<b>GUS</b>	Removable gusset (support bracket) option
<b>XP</b>	For B31.1 applications GRAFOIL® bonnet packing, metal seat, bonnet lock and HYDRO to MSS-SP61

#### NOTE

- All 316 SS/316 SSL dual rated valves in the Root (primary) valve series are rated to NACE MR-01-75 and do not require the standard 'SG' option denotation for this requirement if Chlorides are less than 50ppm.
- Bonnet Lock standard