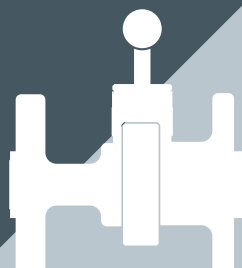


ASTAVA

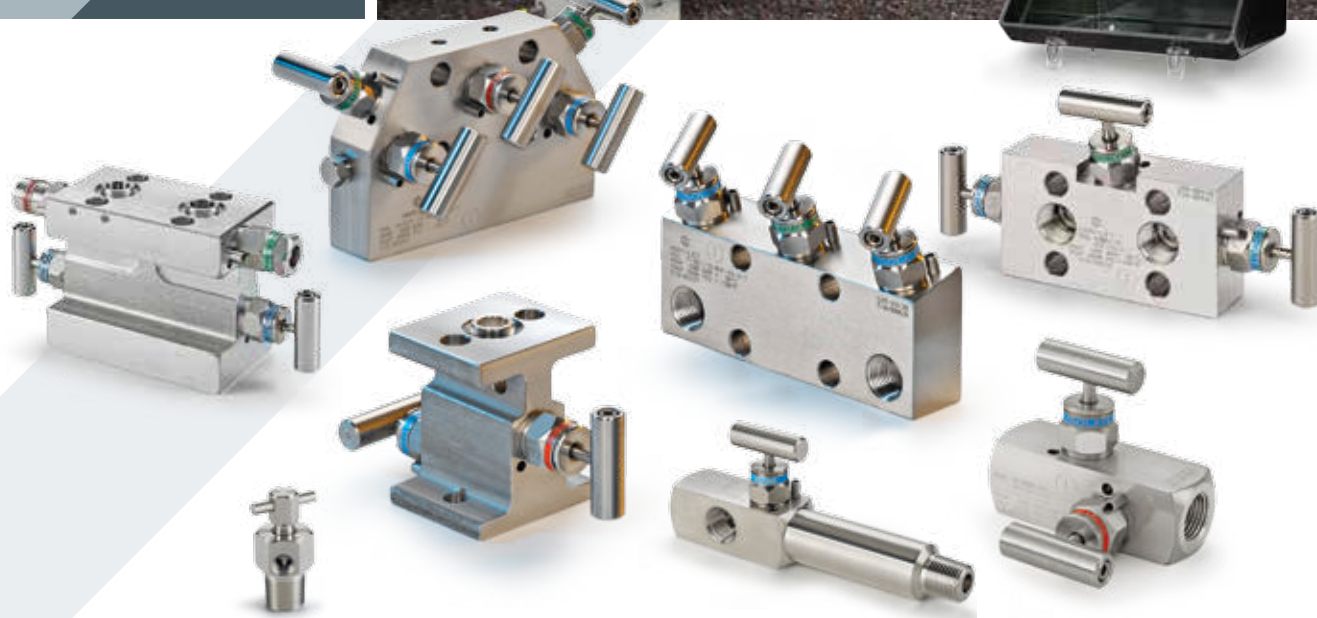
HAM-LET ASTAVA

MANIFOLDS | INSTRUMENT ENCLOSURES



1|2|3|4|5

WAY MANIFOLDS



MANIFOLDS

OVERVIEW

HAM-LET ASTAVA offers a broad line of 1,2,3,4,5 instrument manifolds, all are available in a wide range of materials and are fully compatible with the requirements of the Oil & Gas, Petro-Chemical and Chemical industries.

Beside this standard range of products, HAM-LET ASTAVA has over 3,500 different types of valves and manifolds available.

HAM-LET ASTAVA draws from a strong engineering heritage, as well as seasoned business management, we offer a broad range of products – valves and manifolds suitable for gas and liquid services - as well as full-service solutions, that include custom engineering, design and manufacture of Instrument enclosures, modular mounting systems, hook-ups and interlocking solutions for critical conditions and temperatures.

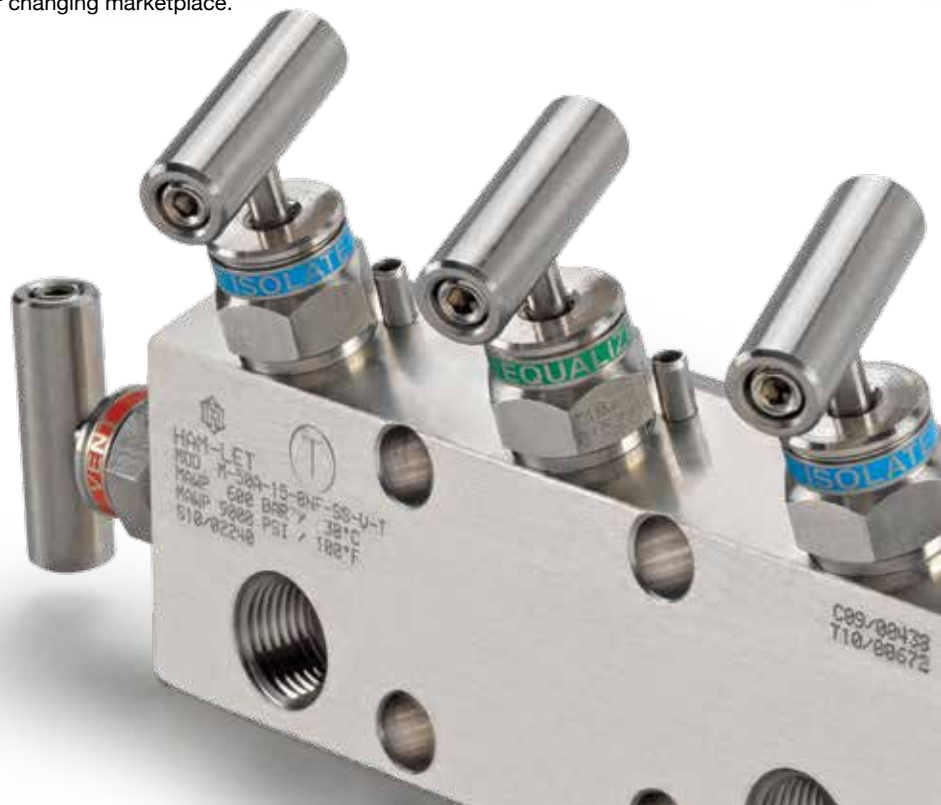
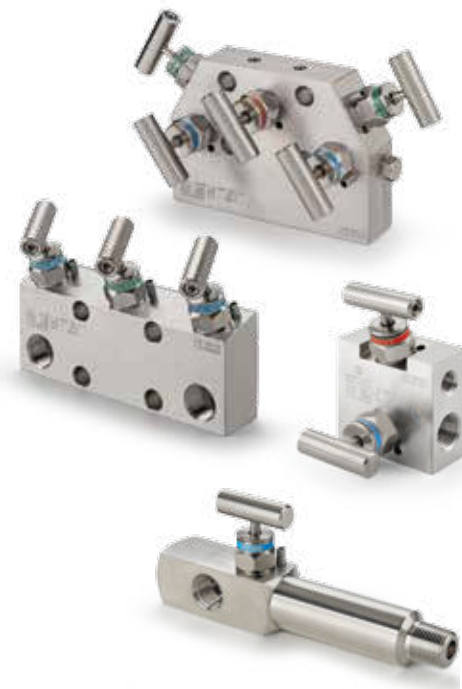


As a customer-focused company, HAM-LET ASTAVA provides high-quality products and engineering solutions that address our customers' business and technical requirements.

For the HAM-LET ASTAVA line, we can offer scalability to design:

- Choice of materials from AISI 316 to special alloy solutions for highly toxic areas
- Connections, Pressure and Temperature ratings varieties
- Bonnet assemblies offer different stem, seal and material selections
- Option for standard packing, O-Ring sealing and fugitive emissions bonnets
- Extensive range of valve configurations and flow schemes
- Fully equipped instrument enclosures

With over 50 years of designing and manufacturing reliable products and solutions, HAM-LET ASTAVA has acquired an outstanding reputation for quality and customer service. We are always inspired by the need to evolve and stay ahead of the ever changing marketplace.



MANIFOLD FEATURES AND BENEFITS

The following unique features of the HAM-LET ASTAVA Line of Instrument Manifolds enable tailoring our high-quality products to the exact requirement of the customer and application:

NACE MR-01-75

All Manifolds comply to NACE MR-01-75 as standard.

FULL TRACEABILITY

All products are fully traceable to its components.

WIDE VARIETY OF SEALING MATERIALS

PTFE; Grafoil®; Fluorocarbon FKM; NBR; EPDM; Silicon; perfluorelastomer – provides wide coverage of applications.

CERAMIC STEM BALL TIP Al_2O_3

Superior hardness prevents deformation of the sealing tip and wear, significantly increasing the lifetime of the product for isolation purposes.



BONNET SELECTIONS

O-ring stem-seal bonnet

1. No packing adjustment
2. Extremely low operating torque
3. Compact design
4. Long life cycle
5. Sealing below stem thread
6. Metal-to-Metal bonnet option

Packing stem-seal bonnet

1. Wide chemical compatibility range
2. High temperature option (Grafoil®)
3. Low operating torque
4. Sealing below stem thread

STEM MATERIAL

ST. ST. 316 Ti with chromium carbide diffusion coating

1. Long life cycle
2. Prevent galling

Features

- Blowout-proof stem
- Integrated back seat on stem for a secondary seal in the fully opened position
- Safety stop pin – prevents the bonnet from detaching the body due to vibration
- Stem seals below stem threads
- A choice of O-ring materials
- Oxygen clean per ASTM G-93 as an option
- 100% Factory Tested Compliance with MSS-SP-99
- Direct mount flange design per IEC61518 / DIN19213 (MAWP 6000 psig)
- Working pressure range up to 690 bar (10,000 psig)
- Working Temperature range up to 550°C (1022°F)

BONNET AND STEM CONCEPT

The special sealing design applied in all HAM-LET ASTAVA Instrument Manifolds features a non-rotating ceramic ball tip.

The chemical composition of a ceramic ball tip is superior in hardness and functionality to a metal ball tip, eliminating sealing tip deformation and significantly increasing the life time of the product.

The stem threads are rolled and an integrated back seat design is applied to the packing type of bonnet. Applying a Stainless Steel 316 Ti stem with a chromium carbide diffusion coating results in maximum operation cycles and minimal risk of stem galling. Both packing and O-ring bonnets are designed with sealing below stem threads for maximum protection of the stem threads.

For maximum safety, the bonnet design prevents stem blowout, and a locking pin prevents unintentional disassembling of the bonnet.

HAM-LET'S VALVE BONNETS HAVE COLOR CODED RING LABELS FOR SERVICE IDENTIFICATION:

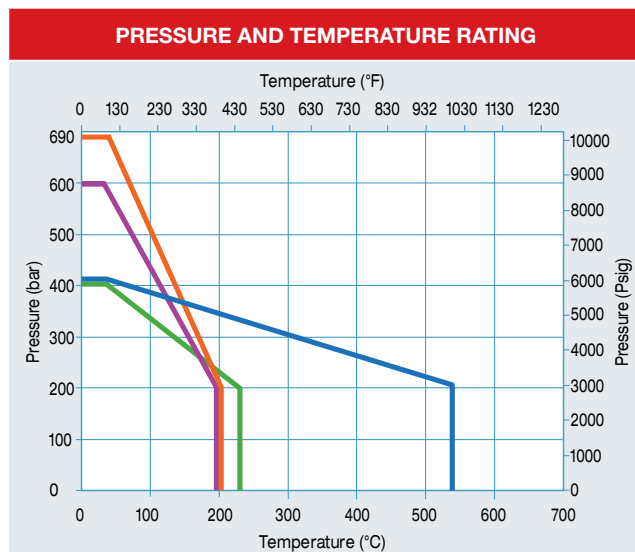


Red:
Vent Valves

Blue:
Isolate Valves

Green:
Equalize Valves

For severe-service applications, HAM-LET ASTAVA Manifolds can be configured with a metal-to-metal seal below the bonnet thread. A dust-ring is attached to the bonnet thread or tack-weld on the locking pin for extreme vibrating conditions.



Packing Material	Grafoil®	Down to -60°C (-76°F)
	PTFE	Down to -60°C (-76°F)
O-Ring Material	Fluorocarbon FKM	Down to -20°C (-4°F)
	NBR	Down to -34°C (-29°F)
	Perfluor	Down to -40°C (-40°F)
	EPDM	Down to -45°C (-49°F)
10,000 psi (690 bar)		Available upon request



HANDLE OPTIONS

The standard handle of the HAM-LET ASTAVA Line of Instrument Manifolds is a Stainless Steel T-bar. For high pressure applications of 10,000 psi (690 bar) an extended T-bar or hand wheel can be applied. Anti-tamper bonnet and key* lock options assure that the manifold is operated by qualified personnel only.

*Not included in order of Anti-Tampered bonnet manifold. This key should be separately ordered.

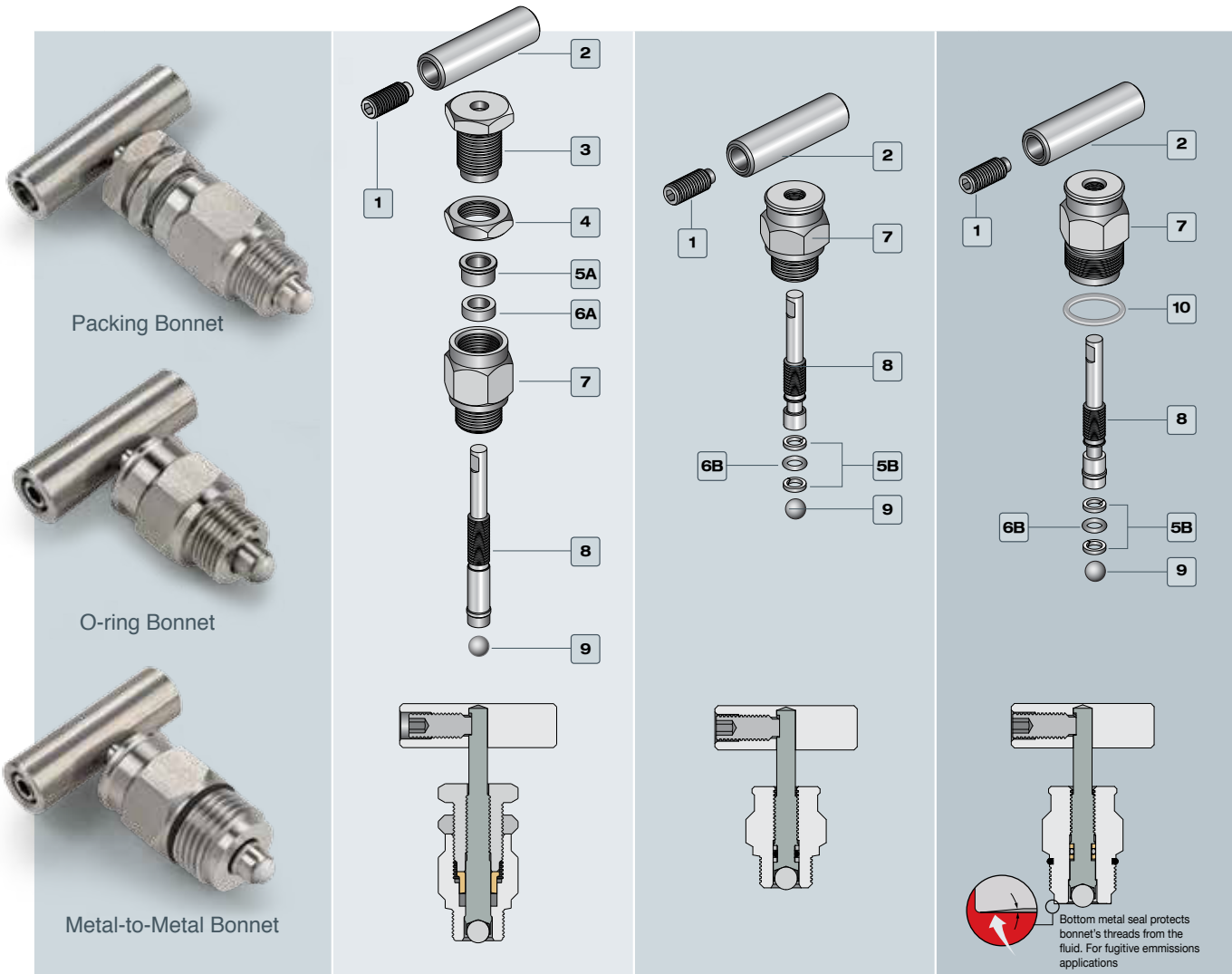
CLEANING

All HAM-LET instrument manifolds are cleaned in accordance with ASTAVA cleaning procedure WIQ-016. Oxygen clean is available in accordance with ASTM G-93.

TESTING

All HAM-LET instrument manifolds are factory tested with Nitrogen at 800 psig (55 bar) based on MSS-SP-99. Seats have a maximum allowable leak rate of 0.1 std cm³ /min. The Hydrostatic and Helium leak test is available upon request.

MATERIAL OF CONSTRUCTION

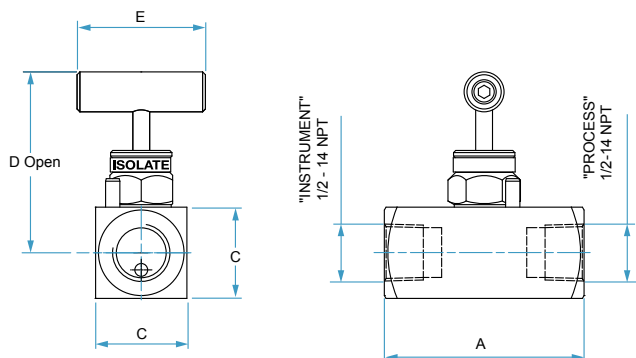


		Packing Bonnet		O-ring Bonnet		Metal-to-Metal Bonnet	
No	Part	Qty.	Material	Qty.	Material	Qty.	Material
1	Set Screw	1	St.St. 304	1	St.St. 304	1	St.St. 304
2	Bar Handle	1	St.St. 316L	1	St.St. 316L	1	St.St. 316L
3	Gland	1	St.St. 316L	-	-	-	-
4	Locking Nut	1	St.St. 316L	-	-	-	-
5A	Pressure ring	1	St.St. 316L	-	-	-	-
5B	Back-up ring	-	-	2	Virgin PTFE	2	Virgin PTFE
6A	Stem Packing	1	Virgin PTFE	-	-	-	-
6B	Stem O-ring	-	-	1	Fluorocarbon FKM	1	Fluorocarbon FKM
7	Bonnet	1	St.St. 316L	1	St.St. 316L	1	St.St. 316L
8	Stem	1	St.St. 316Ti Chrome-Carbide diffusion coated	1	St.St. 316Ti Chrome-Carbide diffusion coated	1	St.St. 316Ti Chrome-Carbide diffusion coated
9	Ball	1	Ceramic (Al ₂ O ₃)	1	Ceramic (Al ₂ O ₃)	1	Ceramic (Al ₂ O ₃)
10	Dust Protector	-	-	-	-	1	Fluorocarbon FKM

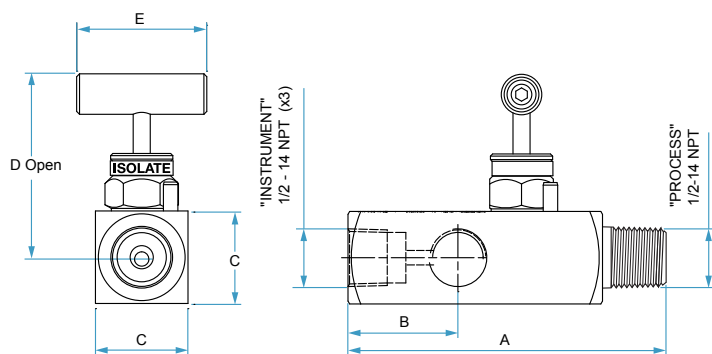
STANDARD CONFIGURATION DIMENSIONS 1 WAY MANIFOLDS

Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions									
	Process	Instrument	Vent / Bleed		A		B		C		D		E	
					mm	in	mm	in	mm	in	mm	in	mm	in
Remote Mount	1/2" FNPT	1/2" FNPT	-	M-10S-10-8N-SS-V-T	70.0	2.76	-	-	32.0	1.26	63.0	2.48	45.0	1.77
	1/2" FNPT	1/2" FNPT	-	M-10S-10-8N-SS-TT	70.0	2.76	-	-	32.0	1.26	79.0	3.11	50.0	1.97
	1/2" MNPT	1/2" FNPT	1/2" FNPT	M-11S-85-8N-SS-V-T	110.0	4.33	38.0	1.50	32.0	1.26	63.0	2.48	45.0	1.77
	1/2" MNPT	1/2" FNPT	1/2" FNPT	M-11S-85-8N-SS-TT	110.0	4.33	38.0	1.50	32.0	1.26	79.0	3.11	50.0	1.97

NEEDLE VALVE M-10S-10-8N-SS-V-T



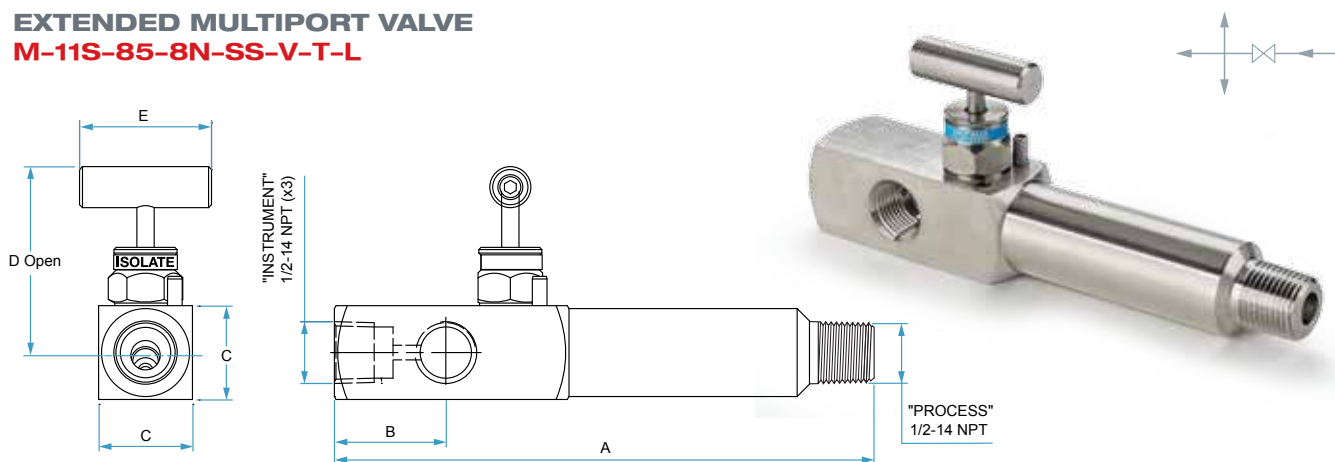
MULTIPOINT VALVE M-11S-85-8N-SS-V-T



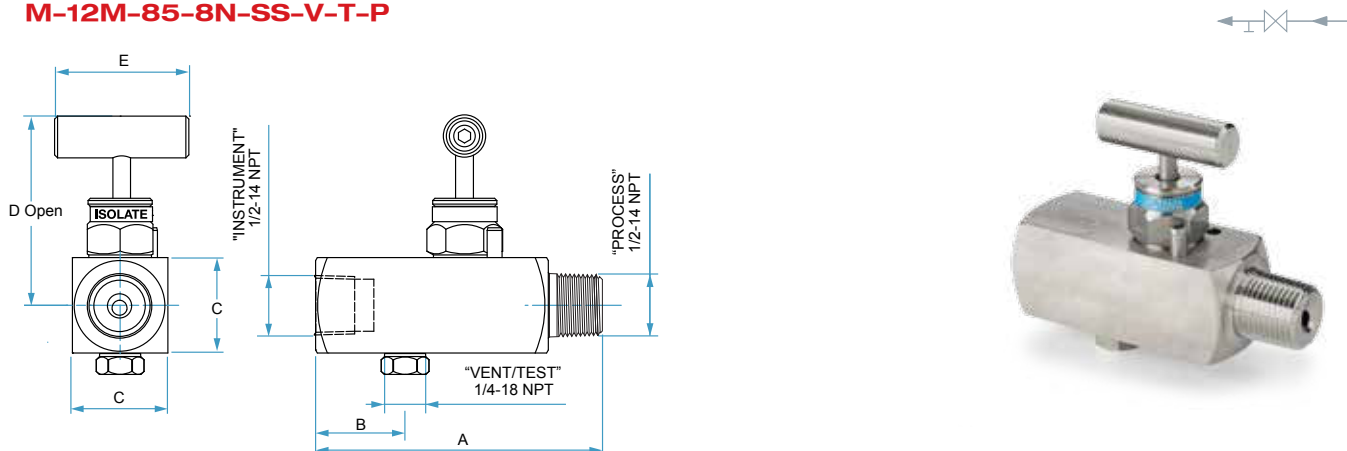
STANDARD CONFIGURATION DIMENSIONS 1 WAY MANIFOLDS

Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions									
					A		B		C		D		E	
	Process	Instrument	Vent / Bleed		mm	in	mm	in	mm	in	mm	in	mm	in
Remote Mount	1/2" MNPT	1/2" FNPT	1/2" FNPT	M-11S-85-8N-SS-V-T-L	184.0	7.24	38.0	1.50	32.0	1.26	63.0	2.48	45.0	1.77
	1/2" MNPT	1/2" FNPT	1/2" FNPT	M-11S-85-8N-SS-T-TL	184.0	7.24	38.0	1.50	32.0	1.26	79.0	3.11	50.0	1.97
	1/2" MNPT	1/2" FNPT	1/4" FNPT	M-12M-85-8N-SS-V-T-P	100.0	3.54	30.0	1.18	32.0	1.26	63.0	2.48	45.0	1.77
	1/2" MNPT	1/2" FNPT	1/4" FNPT	M-12M-85-8N-SS-T-T-P	100.0	3.54	30.0	1.18	32.0	1.26	79.0	3.11	50.0	1.97

EXTENDED MULTI-PORT VALVE M-11S-85-8N-SS-V-T-L



GAUGE VALVE M-12M-85-8N-SS-V-T-P



ORDERING INFORMATION 1 WAY MANIFOLDS

Family		End Connection		Type End Connection		Body Material		Packing		Option	
M-1	1 Way Manifold	00	Female Integral Let-Lok®	N	NPT	SS	SS 316	T	PTFE	OC	Oxygen Clean
Flow Scheme		10	Female to Female	G	BSPP	M	Alloy 400	G	Grafoil®	HYD	Hydrostatic pressure test
0S	Straight	80	Male to Male	R	BSPT	D	Duplex 1.4462	V	Fluorocarbon FKM	K	10,000 psi (690 bar)
1S	Straight	85	Male to Female	L	Female integral Let-Lok®	HC	Alloy C-276	EP	EPDM	L	Extended Inlet
2M	Angle Square	75	Female to Male			T	Titanium	BU	NBR	B	Bleed valve
(See table A)		Size				SD	SuperDuplex	KZ	Perfluorelastomer	P	Blind plug
		4	1/4"			A6	Alloy 625	Handle			
		6	3/8"			A8	Alloy 825	T	T bar		
		8	1/2"					AT	Anti Tamper*		
								LD	Locking device*		

* Key should be separately ordered

TABLE A: FLOW SCHEMATIC AND VALVE POSITION

Designator	Flow Schematic	Sketch
0S		
1S		
2M		

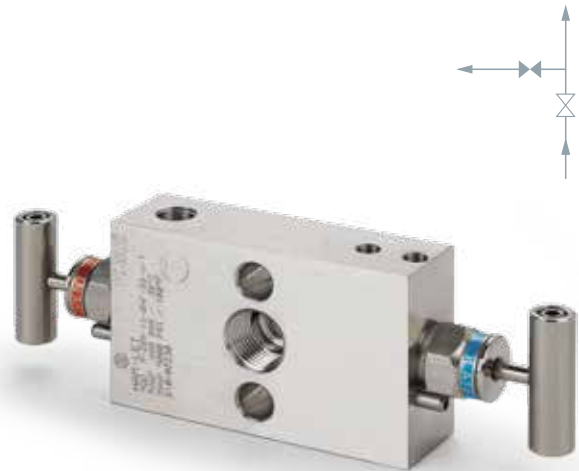
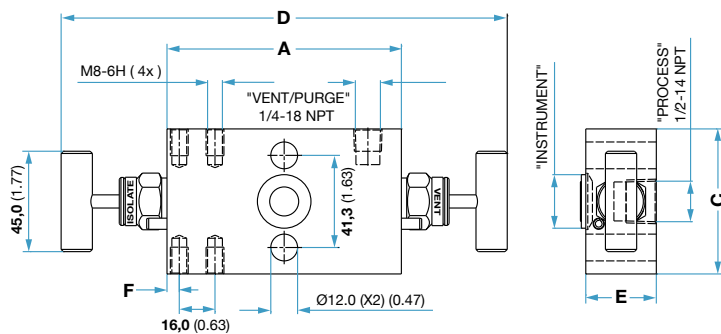
Warning!
The system designer and user have the sole responsibility for selecting products suitable for their special application requirements, ensuring their safe and trouble-free installation, operation, and maintenance. Application details, material compatibility and product ratings should all be considered for each selected product. Improper selection, installation or use of products can cause property damage or personal injury.

STANDARD CONFIGURATION DIMENSIONS 2 WAY DIRECT MOUNT

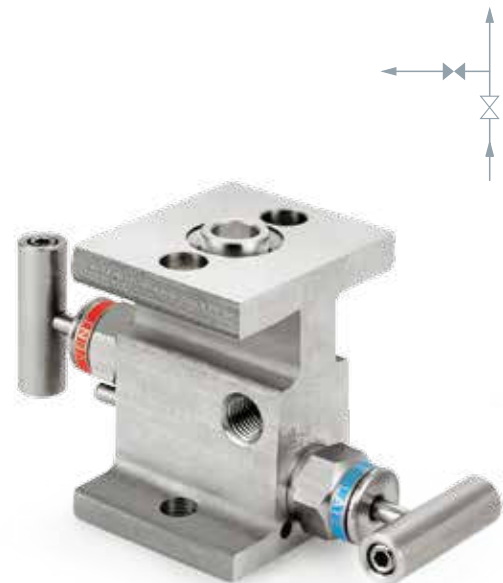
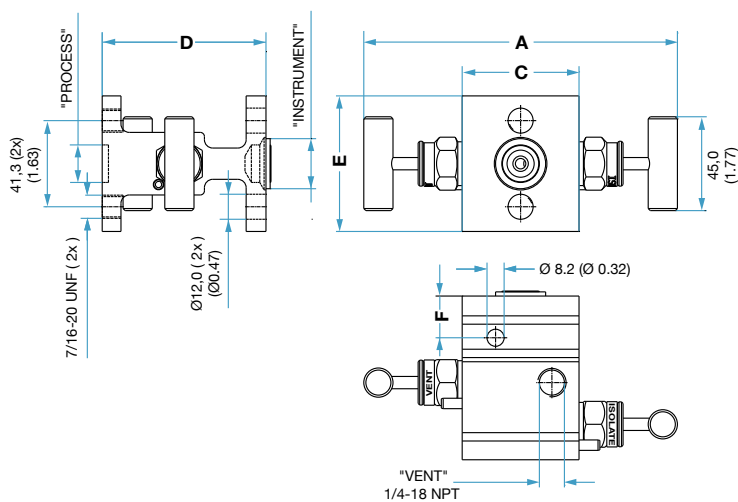
Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions											
					A		B		C		D		E		F	
	Process	Instrument	Vent / Bleed		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Direct Mount	1/2" FNPT	*Flange	1/4" FNPT	M-20S-15-8NF-SS-V-T	85	3.35	-	-	65.0	2.56	182	7.17	32.0	1.26	5.0	0.20
	*Flange	*Flange	1/4" FNPT	M-20H-90-FF-SS-V-T	153	6.02	-	-	56.0	2.20	78	3.07	65.0	2.56	20.0	0.79

* Flange Standard per IEC 61518-A

M-20S-15-8NF-SS-V-T



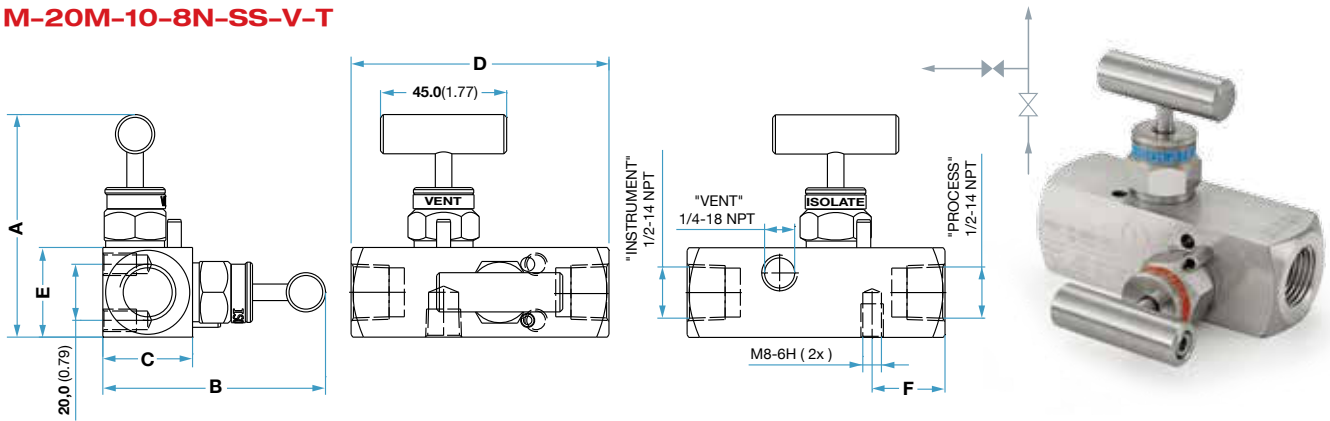
M-20H-90-FF-SS-V-T



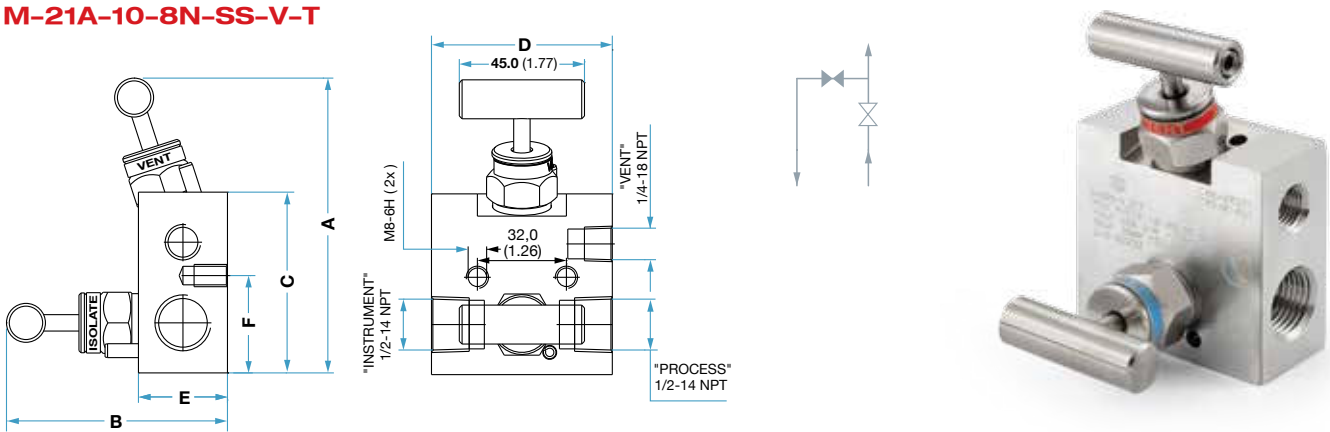
STANDARD CONFIGURATION DIMENSIONS 2 WAY REMOTE MOUNT

Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions											
	Process	Instrument	Vent / Bleed		A		B		C		D		E		F	
					mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Remote Mount	1/2" FNPT	1/2" FNPT	1/4" FNPT	M-20M-10-8N-SS-V-T	79	3.11	79.0	3.11	32.0	1.26	92.0	3.62	32	1.26	26	1.02
	1/2" FNPT	1/2" FNPT	1/4" FNPT	M-21A-10-8N-SS-V-T	107	4.21	79.4	3.13	65.0	2.56	65.0	2.56	32	1.26	35	1.38
	1/2" FNPT	1/2" FNPT	1/4" FNPT	M-21S-10-8N-SS-V-T	156	6.14	-	-	65.0	2.56	59.0	2.32	32	1.26	18	0.71

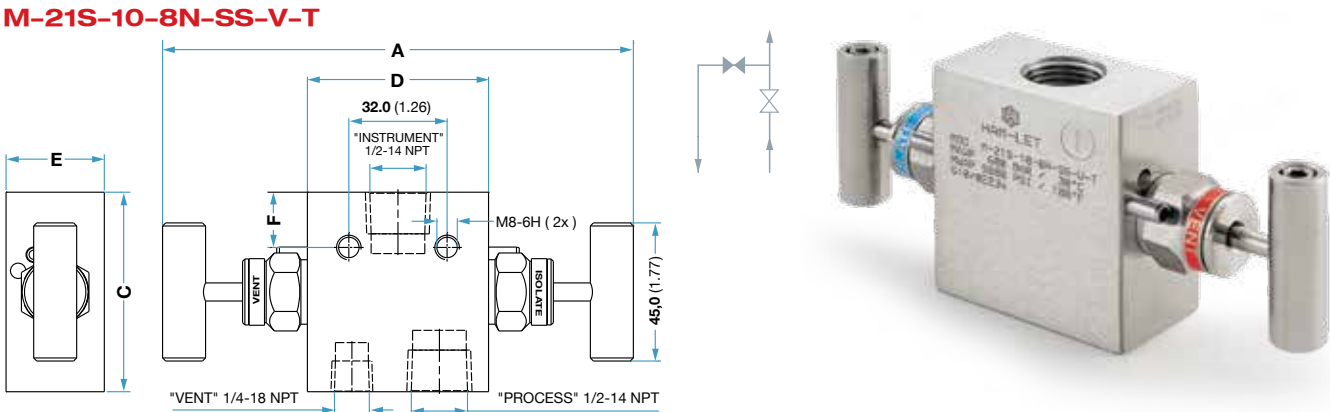
M-20M-10-8N-SS-V-T



M-21A-10-8N-SS-V-T



M-21S-10-8N-SS-V-T



ORDERING INFORMATION 2 WAY MANIFOLDS

M-2		0M		10		8		N		SS		T		LD		OC		
Family		End Connection		Type End Connection		Body Material		Packing		Option		Handle						
M-2	2 Way Manifold	00	Female integral Let-Lok*	FF	Flange*	SS	SS 316	T	PTFE	OC	Oxygen Clean	T	T bar					
Flow Scheme	0M	10	Female to Female	N	NPT	M	Alloy 400	G	Grafoil®	HYD	Hydrostatic pressure test	AT	Anti Tamper*					
	0I	80	Male to Male*	G	BSPP	D	Duplex 1.4462	V	Fluorocarbon FKM	K	10,000 psi (690 bar)	LD	Locking device*					
	0H	85	Male to Female*	R	BSPT	HC	Alloy C-276	EP	EPDM	V	Vent port 1/2"							
	0S	15	Female to Flange	NF	NPT to Flange*	T	Titanium	BU	NBR	B	Bleed valve							
	1S	90	Flange to Flange	RF	BSPT to Flange*	SD	SuperDuplex	KZ	Perfluorelastomer	P	Blind plug							
	1A			GF	BSPP to Flange*													
			L	Female integral Let-Lok*														
		Size																
		4	1/4"	* Flange Standard per IEC 61518-A														
		6	3/8"															
		8	1/2"															

* M-20M & M-20I Only

(See table A)

* Key should be separately ordered

TABLE A: FLOW SCHEMATIC AND VALVE POSITION

Designator	Flow Schematic	Sketch
0M		
0I		
0H		
0S		
1S		
1A		

Warning!

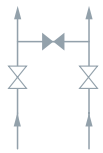
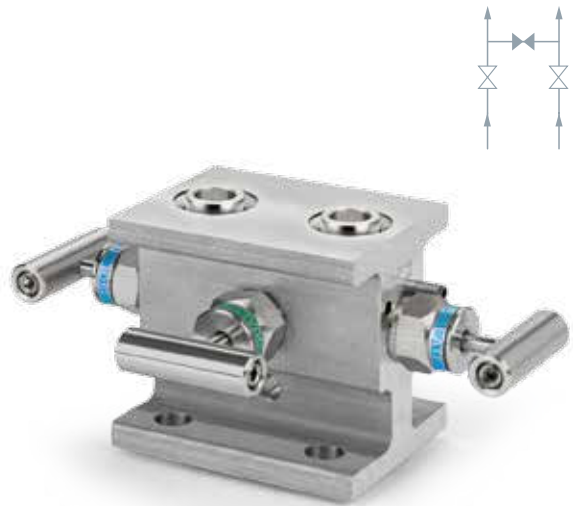
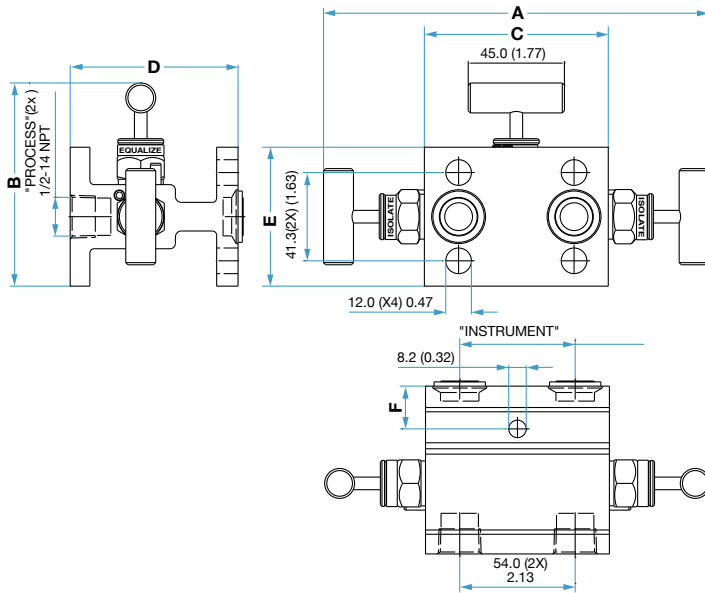
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STANDARD CONFIGURATION DIMENSIONS 3 WAY DIRECT MOUNT

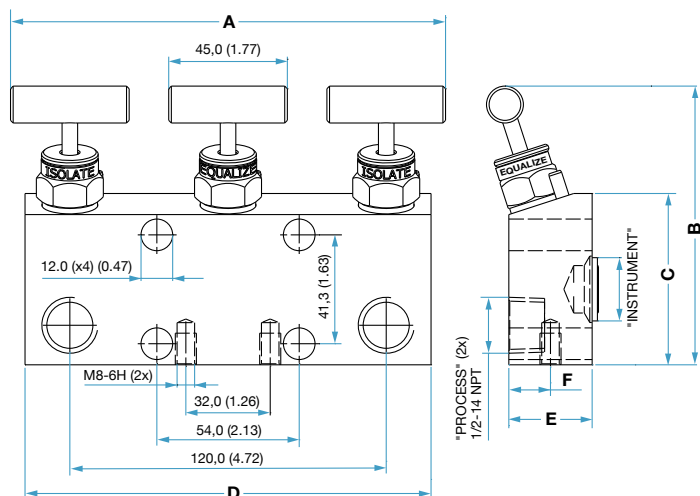
Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions											
					A		B		C		D		E		F	
	Process	Instrument	Vent / Bleed		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Direct Mount	1/2" FNPT	*Flange	-	M-30H-15-8NF-SS-V-T	181.0	7.13	95.0	3.74	86.0	3.39	79.0	3.11	66.0	2.60	20.0	0.79
	1/2" FNPT	*Flange	-	M-30I-15-8NF-SS-V-T	161.0	6.34	107.0	4.21	65.0	2.56	150.0	5.91	32.0	1.26	16.0	0.63

M-30H-15-8NF-SS-V-T

* Flange Standard per IEC 61518-A



M-30I-15-8NF-SS-V-T

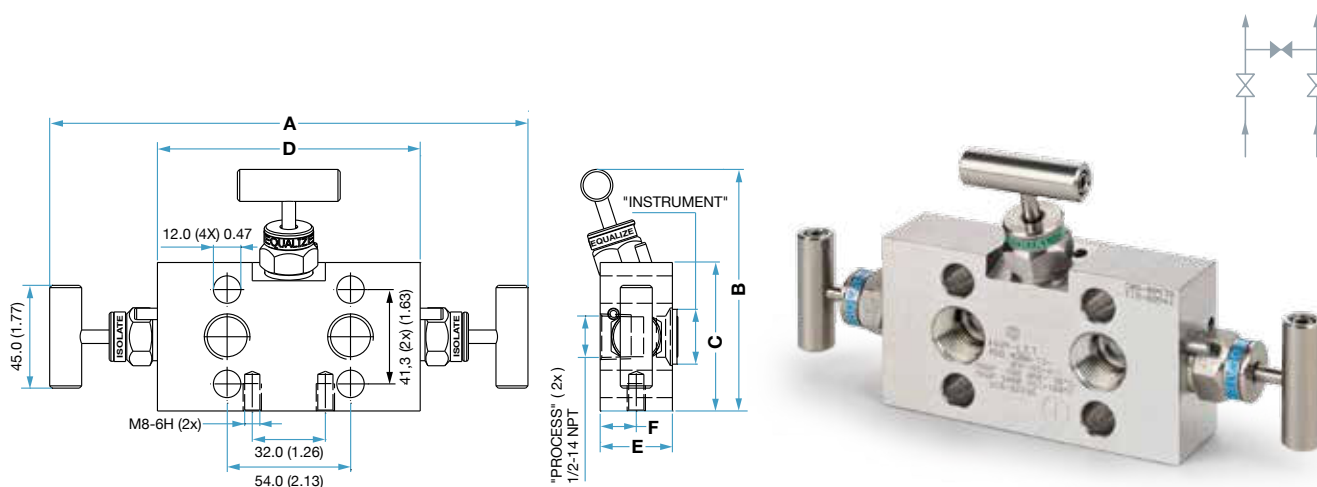


STANDARD CONFIGURATION DIMENSIONS 3 WAY DIRECT MOUNT

Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions											
					A		B		C		D		E		F	
	Process	Instrument	Vent / Bleed		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Direct Mount	1/2" FNPT	*Flange	-	M-30A-15-8NF-SS-V-T	210.0	8.27	106.0	4.17	65.0	2.56	115.0	4.53	32.0	1.26	16.0	0.63
	*Flange	*Flange	-	M-30H-90-FF-SS-V-T	181.0	7.13	95.0	3.74	86.0	3.39	79.0	3.11	66.0	2.60	-	-

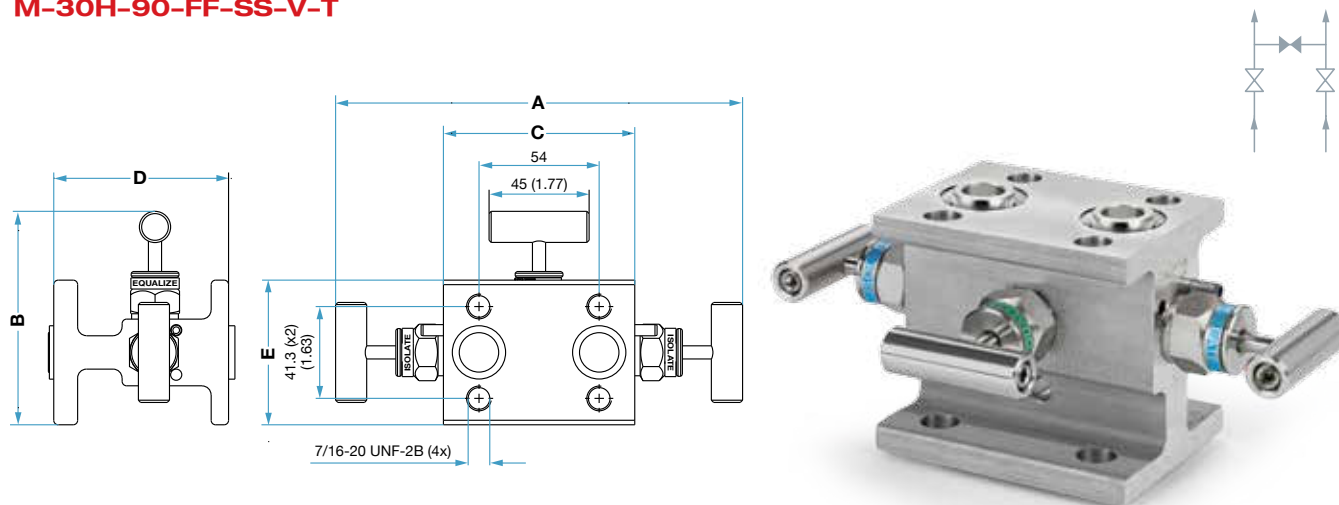
* Flange Standard per IEC 61518-A

M-30A-15-8NF-SS-V-T



* Optimal vent / test ports

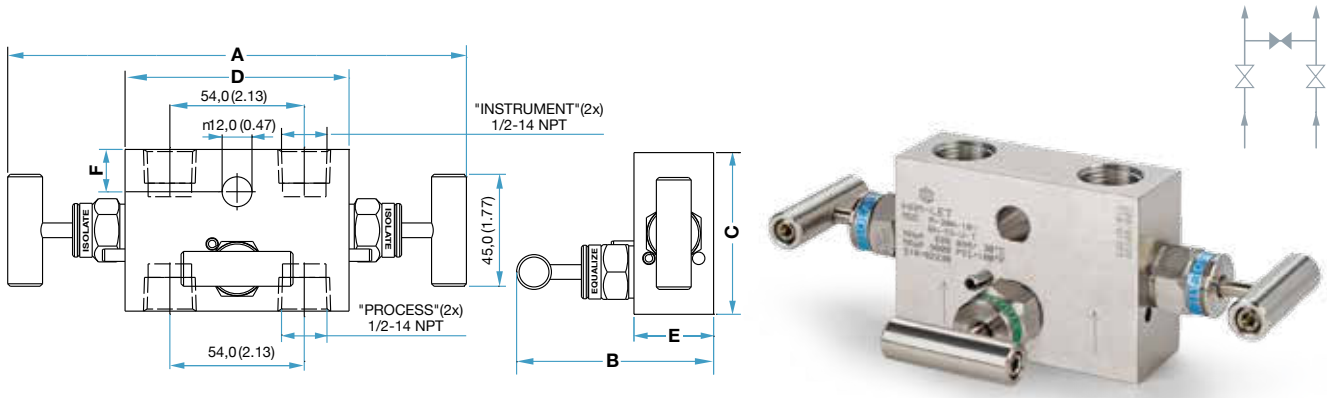
M-30H-90-FF-SS-V-T



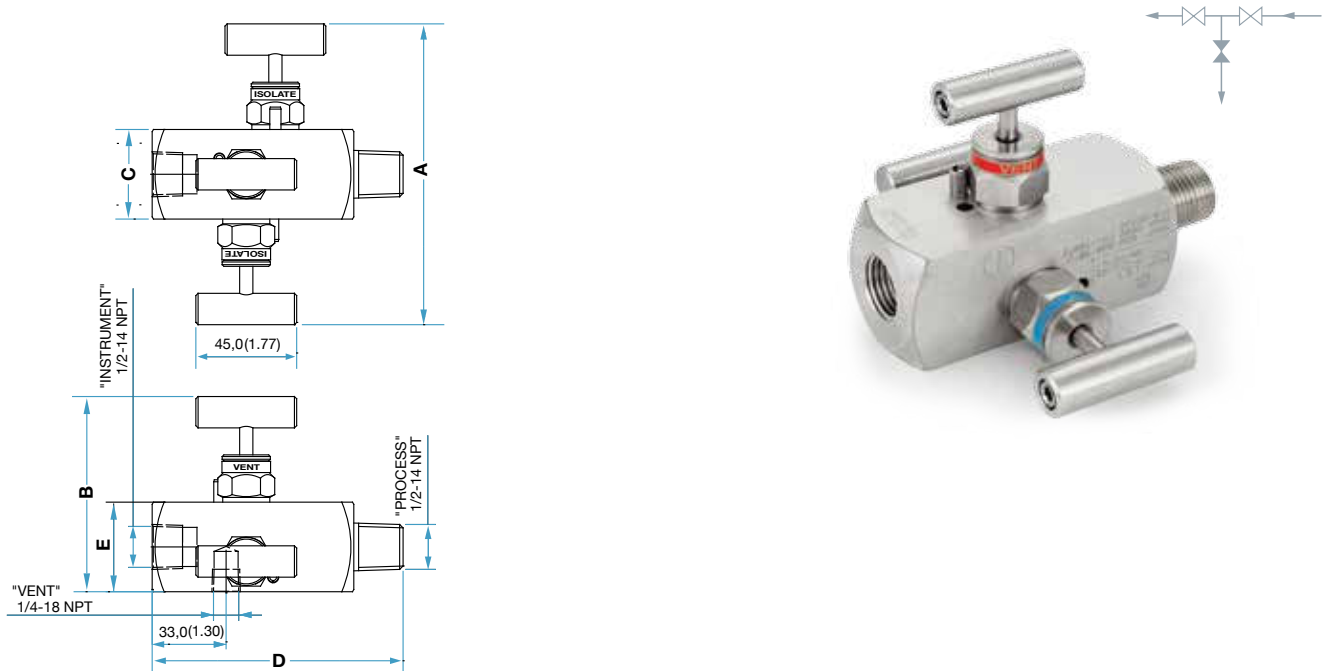
STANDARD CONFIGURATION DIMENSIONS 3 WAY REMOTE MOUNT

Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions											
					A		B		C		D		E		F	
	Process	Instrument	Vent / Bleed		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Remote Mount	1/2" FNPT	1/2" FNPT	-	M30S-10-8N-SS-V-T	185.0	7.28	79.0	3.11	65.0	2.56	90.0	3.54	32.0	1.26	17.0	0.67
	1/2" MNPT	1/2" FNPT	1/4" FNPT	M32M-85-8N-SS-V-T	135.0	5.31	87.0	3.43	40.0	1.57	112.0	4.41	40.0	1.57	-	-

M-30S-10-8N-SS-V-T



M-32M-85-8N-SS-V-T-K



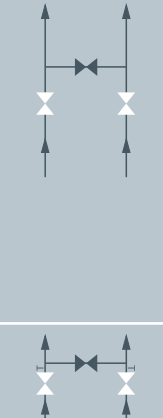
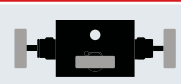
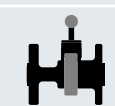
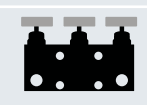
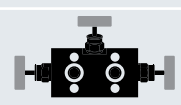
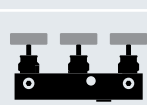


ORDERING INFORMATION

3 WAY MANIFOLDS

Family		End Connection		Type End Connection		Body Material		Packing		Option			
M-3	3 Way Manifold	00	Female integral Let-Lok®	FF	Flange*	SS	SS 316	T	PTFE	OC	Oxygen Clean		
Flow Scheme		10	Female to Female	N	NPT	M	Alloy 400	G	Grafoil®	HYD	Hydrostatic pressure test		
		80	Male to Male*	G	BSPP	D	Duplex 1.4462	V	Fluorocarbon FKM	K	10,000 psi (690 bar)		
		85	Male to Female*	R	BSPT	HC	Alloy C-276	EP	EPDM	V	Vent port 1/2"		
		15	Female to Flange	NF	NPT to Flange*	T	Titanium	BU	NBR	P	Blind plug		
		90	Flange to Flange	RF	BSPT to Flange*	SD	SuperDuplex	KZ	Perfluorelastomer	Handle			
Size		GF	BSPP to Flange*	L	Female integral Let-Lok*	T	T bar						
Flow Scheme		4	1/4"	* Flange Standard per IEC 61518-A								AT	Anti Tamper*
		6	3/8"									LD	Locking device*
		8	1/2"									* Key should be separately ordered	
Family		M-3	3 Way Manifold										
Flow Scheme		0A	Angle Flat	* M-32M Only		* Key should be separately ordered		* Key should be separately ordered		* Key should be separately ordered			
Flow Scheme		0S	Straight										
Flow Scheme		0I	In-line										
Flow Scheme		0H	H- Type										
Flow Scheme		1I	In - line										
Flow Scheme		2M	Angle Square										

(See table A)

TABLE A: FLOW SCHEMATIC AND VALVE POSITION

Designator	Flow Schematic	Valves Position	Sketch
0S		S	
0H		H	
0I		I	
0A		A	
1I		I	
2M		M	

Warning!

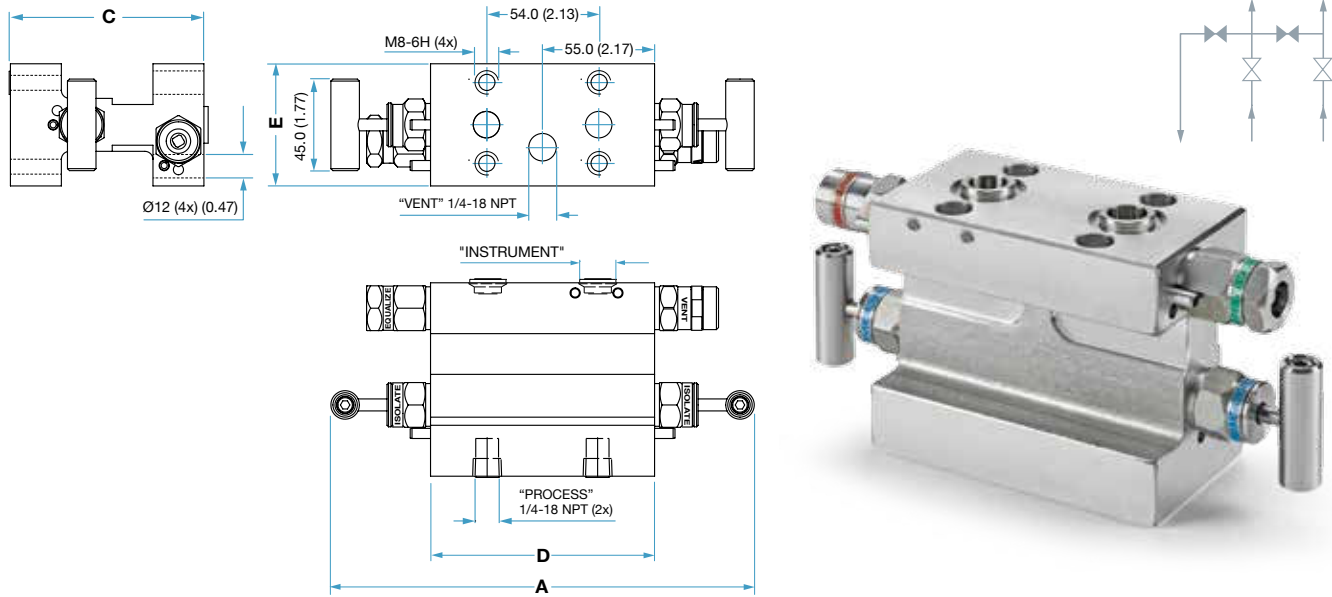
The system designer and user have the sole responsibility for selecting products suitable for their special application requirements, ensuring their safe and trouble-free installation, operation, and maintenance. Application details, material compatibility and product ratings should all be considered for each selected product. Improper selection, installation or use of products can cause property damage or personal injury.

STANDARD CONFIGURATION DIMENSIONS 4 WAY REMOTE MOUNT

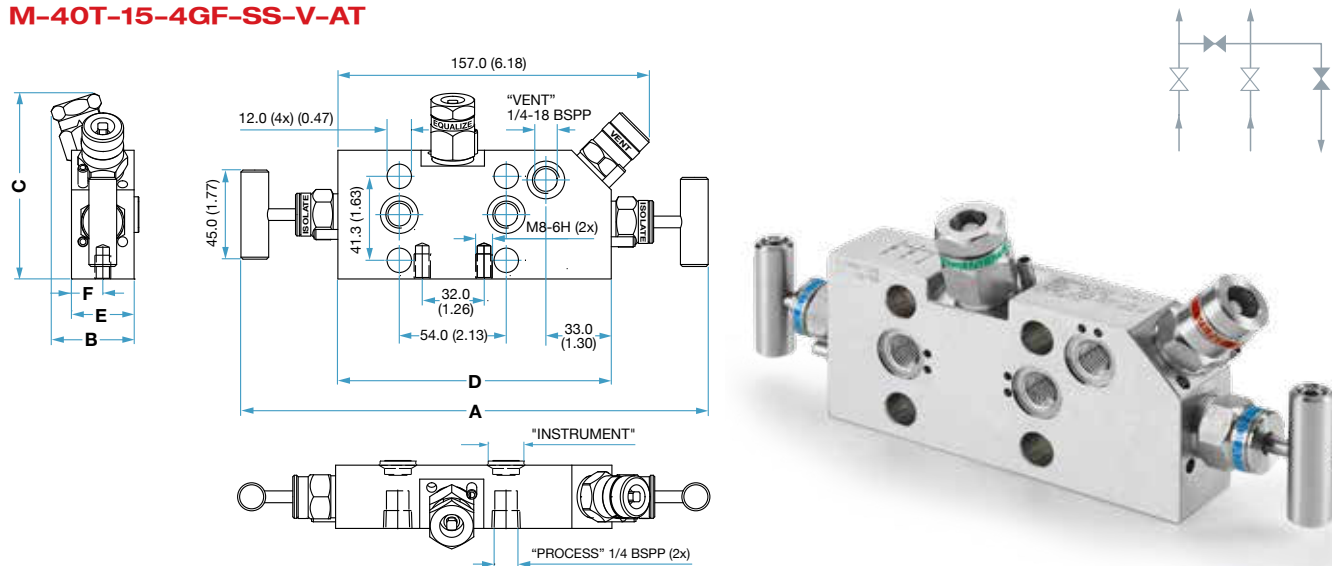
Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions											
					A		B		C		D		E		F	
	Process	Instrument	Vent / Bleed		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Direct Mount	1/4" FNPT	*Flange	1/4" FNPT	M-40H-15-4NF-SS-V-AT	208.0	8.18	-	-	95.0	3.74	110.0	4.33	60.0	2.36	-	-
	1/4" BSPP	*Flange	1/4" BSPP	M-40T-15-4GF-SS-V-AT	236.0	6.29	42.0	1.65	94.0	3.69	138.0	5.43	32.0	1.24	16.0	0.63

* Flange Standard per IEC 61518-A

M-40H-15-4NF-SS-V-AT



M-40T-15-4GF-SS-V-AT

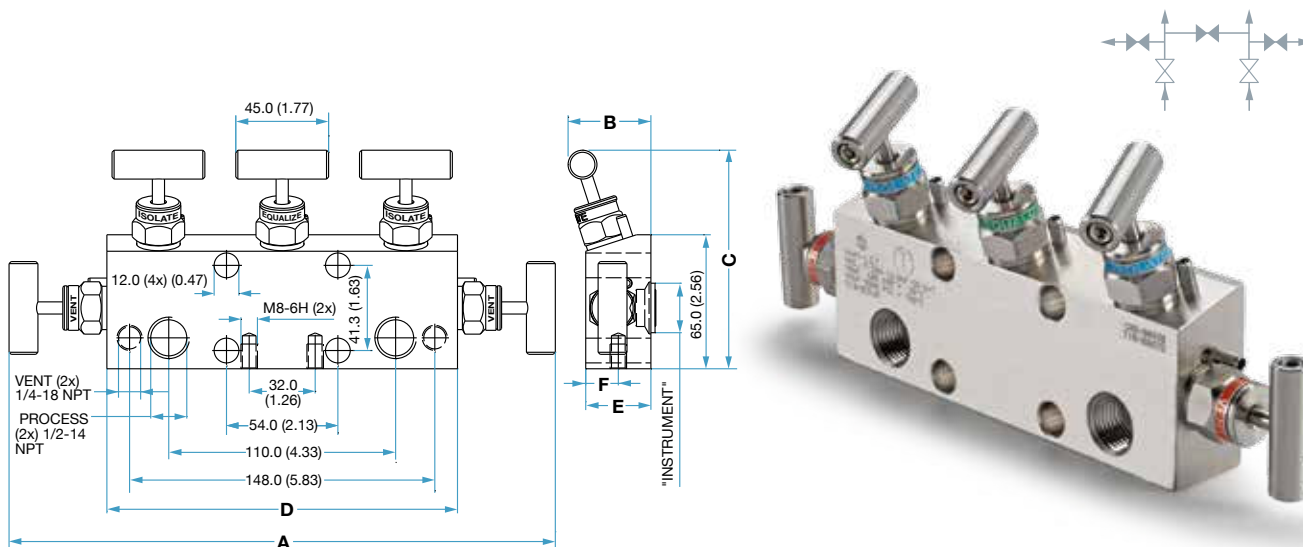


STANDARD CONFIGURATION DIMENSIONS 5 WAY DIRECT MOUNT

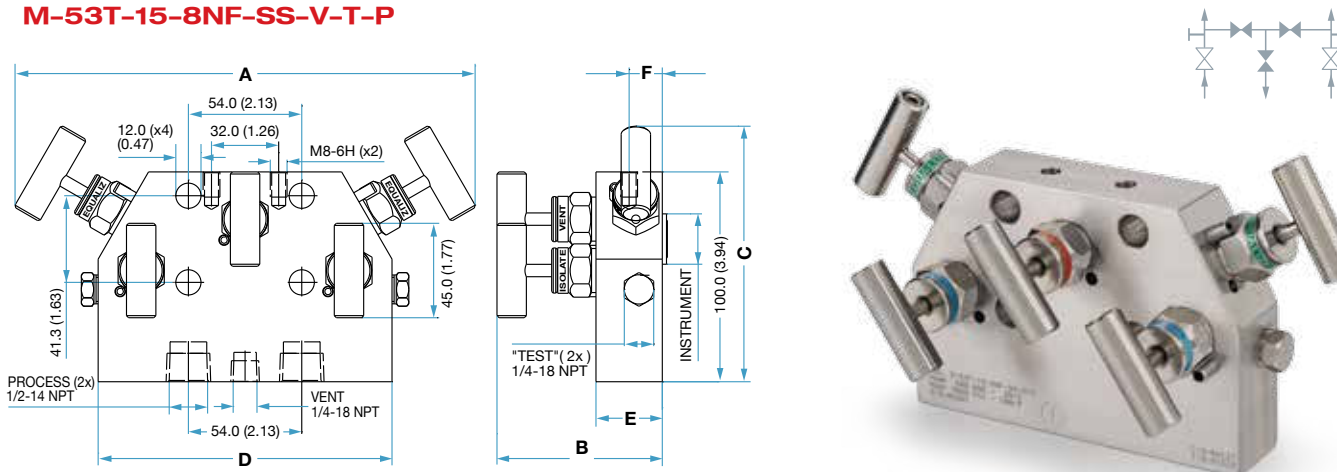
Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions											
					A		B		C		D		E		F	
	Process	Instrument	Vent / Bleed		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Direct Mount	1/2" FNPT	*Flange	1/4" FNPT	M-50A-15-8NF-SS-V-T	265.0	10.43	41.0	1.61	106.0	4.17	170.0	6.69	32.0	1.26	16.0	0.63
	1/2" FNPT	*Flange	1/4" FNPT	M-53T-15-8NF-SS-V-T	220.0	8.66	79.0	3.11	122.0	4.80	140.0	5.51	32.0	1.26	16.0	0.63

* Flange Standard per IEC 61518-A

M-50A-15-8NF-SS-V-T



M-53T-15-8NF-SS-V-T-P

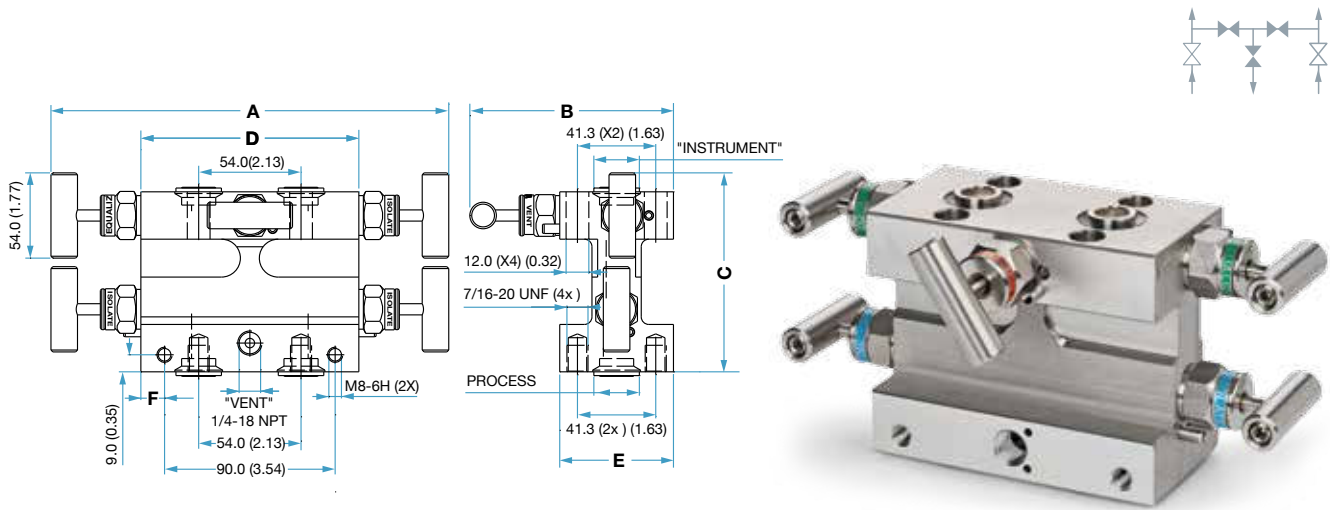


STANDARD CONFIGURATION DIMENSIONS 5 WAY DIRECT MOUNT

Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions											
					A		B		C		D		E		F	
	Process	Instrument	Vent / Bleed		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Direct Mount	*Flange	*Flange	1/4" FNPT	M-54H-90-FF-SS-V-T	210.0	8.27	108.0	4.25	105.0	4.13	115.0	4.53	60.0	2.36	12.5	0.49

M-54H-90-FF-SS-V-T

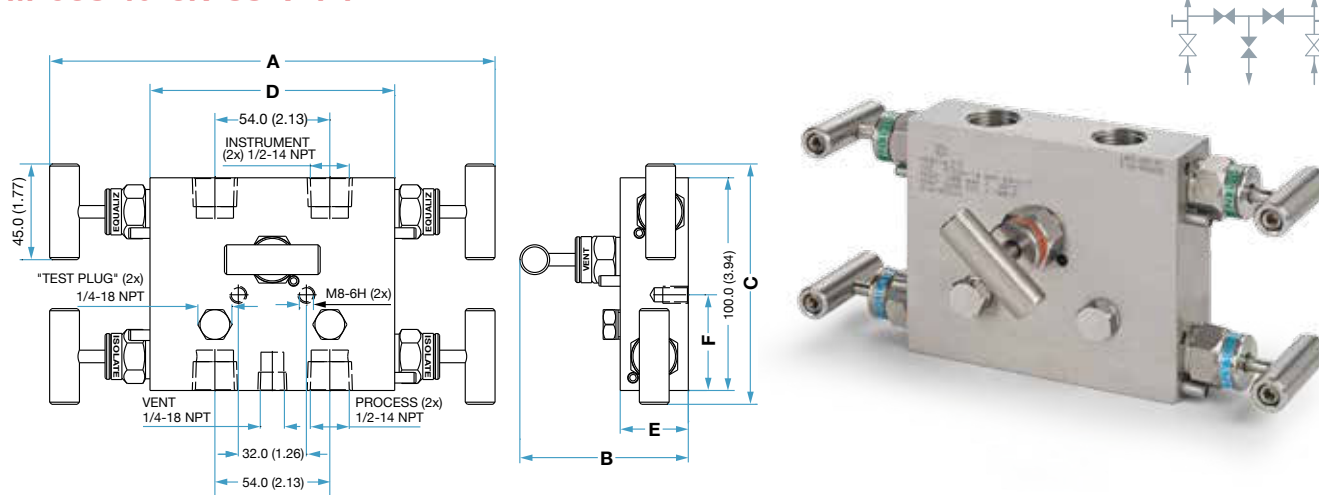
* Flange Standard per IEC 61518-A



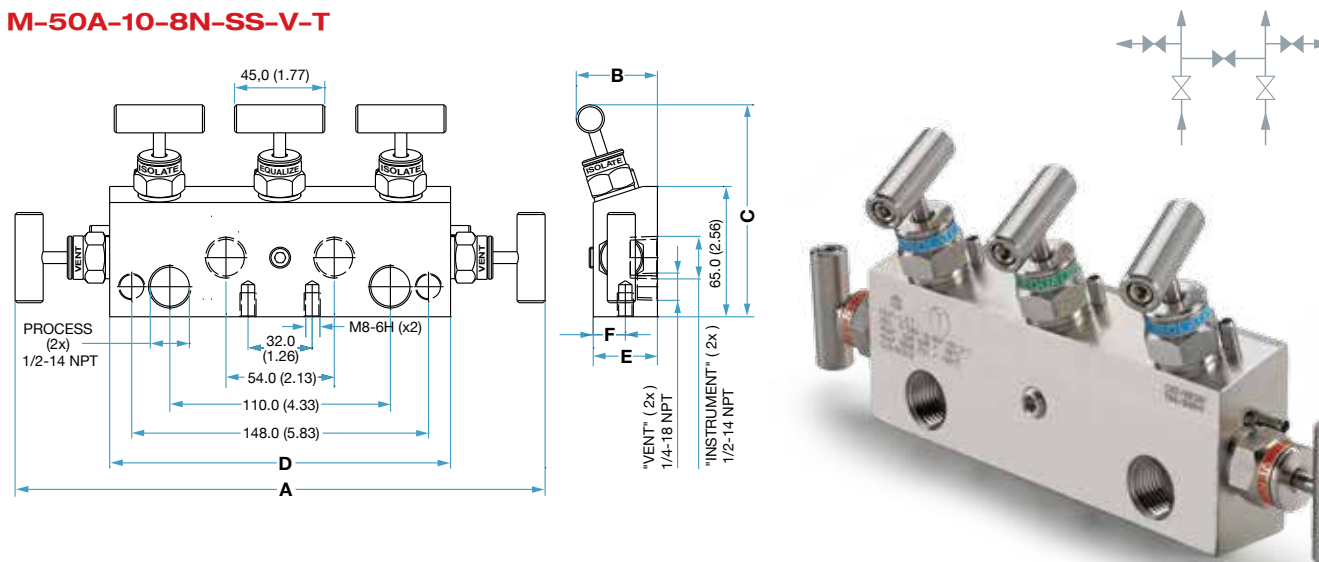
STANDARD CONFIGURATION DIMENSIONS 5 WAY REMOTE MOUNT

Instrument Mount Type	End Connection			HAM-LET Ordering Description	Dimensions											
					A		B		C		D		E		F	
	Process	Instrument	Vent / Bleed		mm	in	mm	in	mm	in	mm	in	mm	in	mm	in
Remote Mount	1/2" FNPT	1/2" FNPT	1/4" FNPT	M-53S-10-8N-SS-V-T	210.0	8.27	80.0	3.15	113.0	4.45	115.0	4.53	32.0	1.26	45.0	1.77
	1/2" FNPT	1/2" FNPT	1/4" FNPT	M-50A-10-8N-SS-V-T	265.0	10.43	41.0	1.61	106.0	4.17	170.0	6.69	32.0	1.26	16.0	0.63

M-53S-10-8N-SS-V-T-P



M-50A-10-8N-SS-V-T



ORDERING INFORMATION 5 WAY MANIFOLDS

M-5		0A		10		8		N		SS		T		LD		OC	
Family		End Connection		Type End Connection		Body Material		Packing		Option							
M-5	5 Way Manifold	10	Female to Female	FF	Flange*	SS	SS 316	T	PTFE	OC	Oxygen Clean						
		15	Female to Flange	N	NPT	M	Alloy 400	G	Grafoil®	HYD	Hydrostatic pressure test						
		90	Flange to Flange	G	BSPP	D	Duplex 1.4462	V	Fluorocarbon FKM	K	10,000 psi (690 bar)						
Flow Scheme		Size		R	BSPT	HC	Alloy C-276	EP	EPDM	V	Vent port 1/2"						
0A	Angle Flat	4	1/4"	NF	NPT to Flange*	T	Titanium	BU	NBR	P	Blind plug						
1A	Angle Flat	6	3/8"	RF	BSPT to Flange*	SD	SuperDuplex	KZ	Perfluorelastomer	Handle							
2T	Taper	8	1/2"	GF	BSPP to Flange*					T	T bar						
3T	Taper			L	Female integral Let-Lok*					AT	Anti Tamper*						
3S	Straight									LD	Locking device*						
4H	H- Type																
4A	Angle Flat																
4I	In-line																

* Flange Standard per IEC 61518-A

TABLE A: FLOW SCHEMATIC AND VALVE POSITION

Designator	Flow Schematic	Sketch
0A		
1A		
2T		
3T		
3S		
4H		
4A		
4I		

(See table A)

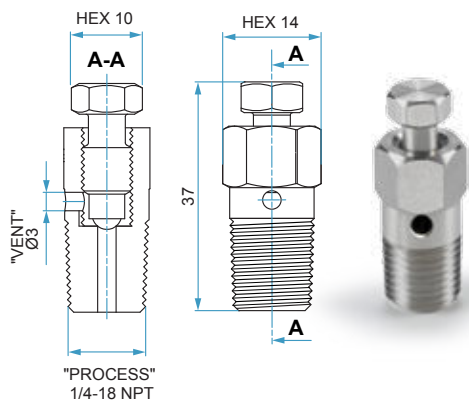
* Key should be separately ordered

Warning!

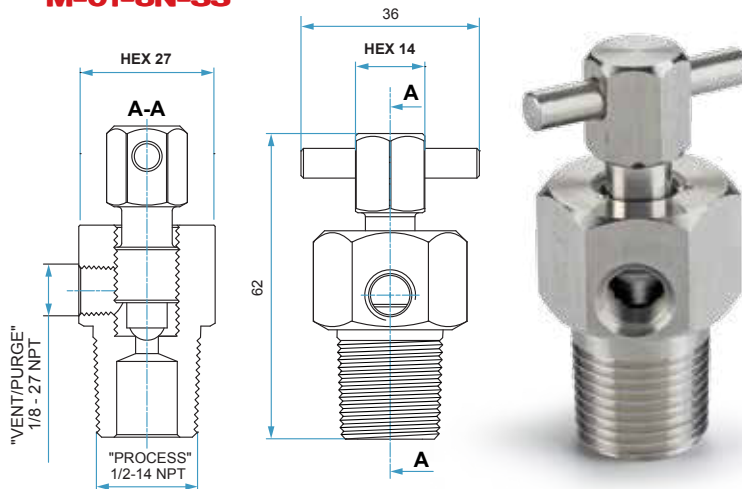
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BLEED VALVE

1/4" MNPT
M-01-4N-SS

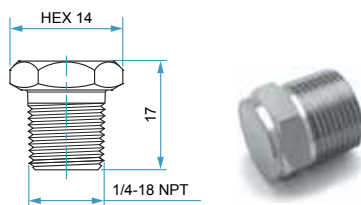


1/2" MNPT
M-01-8N-SS

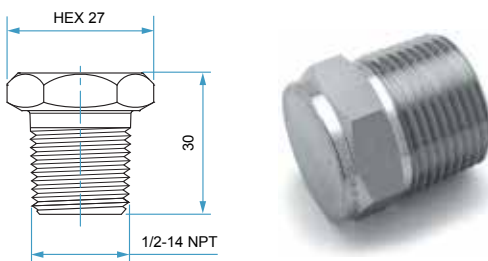


BLIND PLUG

1/4" MNPT
M-02-4N-SS

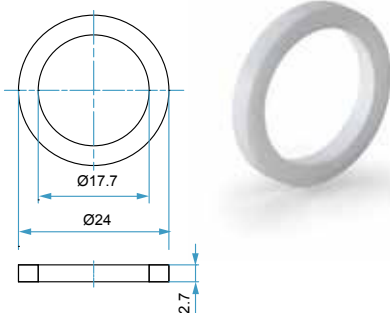


1/2" MNPT
M-02-8N-SS



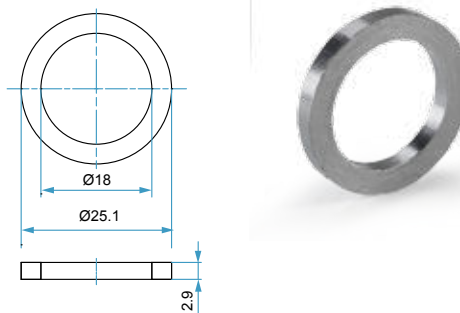
MOUNTING GASKET IEC 61518-A

PTFE
M-03-GK-IECA-T



Kit contains: 2 Gaskets

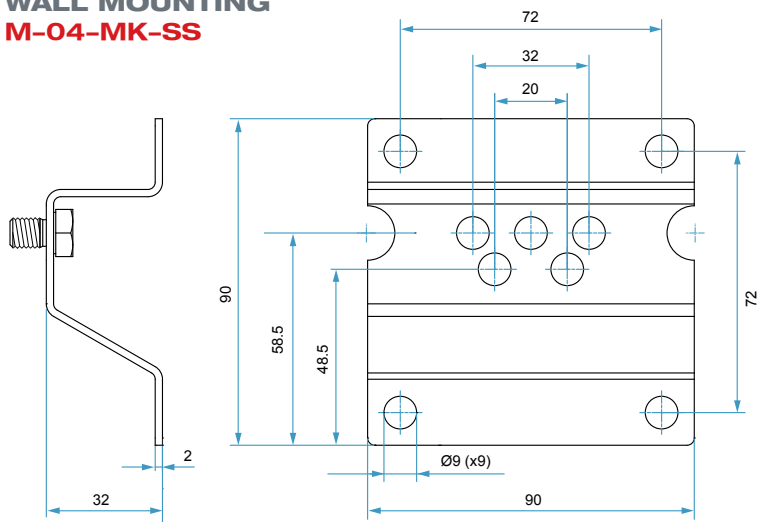
GRAFOIL®
M-03-GK-IECA-G



Kit contains: 2 Gaskets

MOUNTING BRACKET - AISI 316

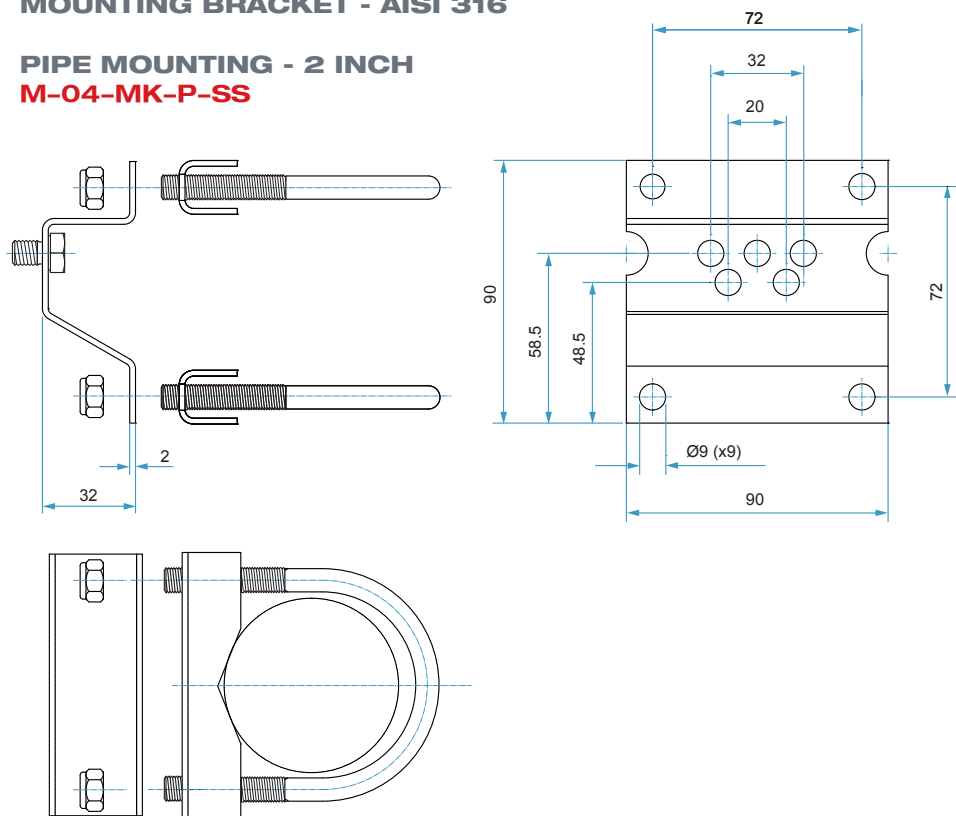
WALL MOUNTING
M-04-MK-SS



Kit contains: Bracket, 2x Bolts M8X12.
Upon order, please make sure that the Manifold is suitable for bracket mounting.

MOUNTING BRACKET - AISI 316

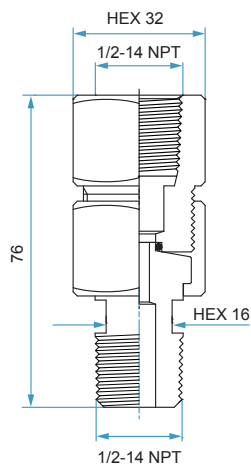
PIPE MOUNTING - 2 INCH
M-04-MK-P-SS



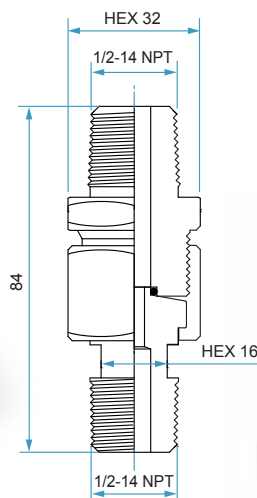
Kit contains: Bracket, 2x Bolts M8X12, 2x Tie rod, 2x Tie rod brackets, 4x Snapnut M8.
Upon order, please make sure that the Manifold is suitable for bracket mounting.

GAUGE CONNECTOR

360° POSITIONING MALE TO FEMALE
M-05-85-8N-SS-V



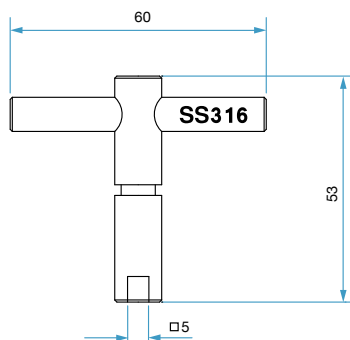
360° POSITIONING MALE TO MALE
M-05-80-8N-SS-V



(Fluorocarbon FKM O-ring)

ANTI TAMPER KEY

5 MM
M-06-KEY-5MM-SS



Not included in order of Anti-Tampered bonnet manifold.
This key should be separately ordered.

© Grafoil – TM UCAR Carbon Company Inc.

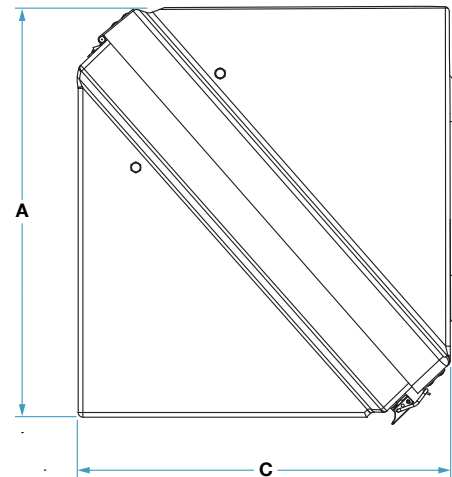
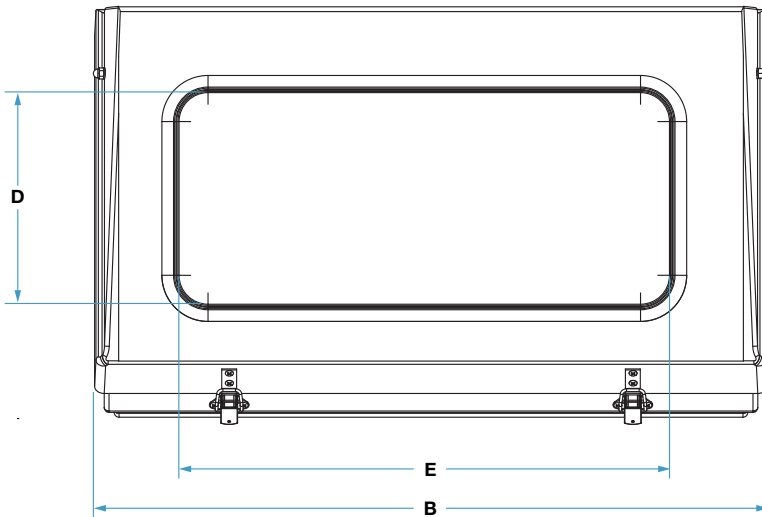
STANDARD CONFIGURATION DIMENSIONS INSTRUMENT ENCLOSURES

Technical Specification:

- Body material: Glass Reinforced Polyester (GRP)
- Toggle clamps, hinges material: Stainless Steel 316
- Sealing: Polychloroprene (CR) closed cell sealing
- Surface resistance: Anti static, EN 50014 compliance (<math><1.10^9</math> Ohm)
- Flame retardant: DIN 4102 Class B2
- Ingress protection: IP 65

Type	Material / Color	Weight (Kg)	Enclosure Dimensions (mm)			Safety Glass Window Dimensions (mm)		
			A	B	C	Type	D	E
4	GRP Black	19	500	500	650	R	290	290
5	GRP Black	14	550	500	500	R	290	290
6	GRP Black	14	430	700	390	L	210	500
7	GRP Black	9	430	430	390	S	210	210
8	GRP Blue	8	400	375	400	S	210	210
9	GRP Black	20	530	700	390	L	210	500
10	GRP Black	19	530	430	390	S	210	210

For other colors, please contact your local HAM-LET representative.



EQUIPPED INSTRUMENT ENCLOSURES

1 Body options:

- Full body GRP enclosures
- Half body GRP enclosures
- Full body AISI 316 enclosures

2 Heating options

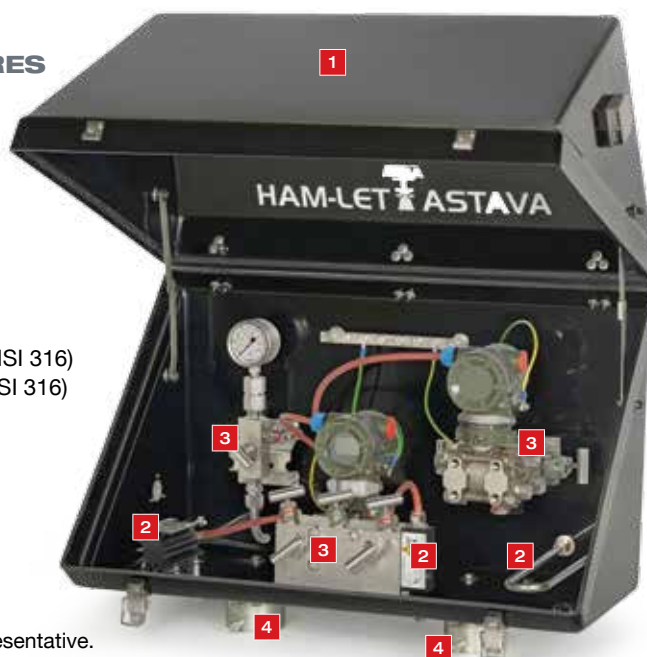
- Steam heater
- Electrical space heater (Black anodized aluminum, AISI 316)
- Electrical block heater (Black anodized aluminum, AISI 316)
- Thermostat (Black anodized aluminum)

3 Manifolds:

- According to customer application

4 Mounting accessories:

- According to ordering information



For mounting accessories, heating options, junction boxes and accessories, please contact your local HAM-LET representative.

ORDERING INFORMATION INSTRUMENT ENCLOSURES

Family		WINDOW (HxW)		INSULATION		SPECIAL LAY OUT		MOUNTING ACCESSORIES	
HA	Enclosure	N	Blind enclosure	N	No Insulation	Blank	No option	00	no options
SIZE (HxWxD)		S	Safety glass window (210x210)	I	Insulation 20 mm polyurethane	C	4x Clasps stainless steel for removable toplid	01	2" mounting bracket outside in galv. carbon steel (HA7,8,10)
4	500x500x650	L	Safety glass window (210x500)					02	2" mounting bracket outside in AISI 316 (HA7,8,10)
5	550x500x500	R	Safety glass window (290x290)					04	2" mounting brackets on backside of cabinet in AISI 316
6	430x700x390	T	Safety glass window (310x540)					05	2" mounting bracket outside in AISI 316 large support plate (HA4, HA5)
7	430x430x390							21	2x 2" mounting bracket outside in galv. carbon steel (C-C can be specified)
8	400x375x400							22	2x 2" mounting bracket outside in AISI 316 (C-C can be specified)
9	530x700x390							A	2" pipe 300mm with two pairs of rails inside carbon steel
10	530x430x390							B	2x 2" Pipe 300mm with two pairs of rails inside carbon steel
								D	2" pipe AISI 316 inside cabinet 300 mm
								E	2" pipe Galv. Carbon steel inside cabinet 300 mm
								F	2x 2" pipe AISI 316 inside cabinet 300 mm

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HAM-LET ASTAVA Manifolds, Rev.04, January 2014

