MSD and MSC Manifolds for Steam Distribution and Condensate Collection

Description
A range of forged carbon steel compact manifolds with integral piston type stop valves for steam distribution and condensate collection duty. Manifolds can be used for either steam distribution duty or condensate collection duty depending on the way they are installed.

Operation
In operation the piston valve should be either fully open or fully closed: It is not intended for throttling duties.
As the piston valve has such a large sealing area it is not necessary to use a valve key to ensure dead tight shut-off. Please note that manifolds without piston valves fitted are also available.

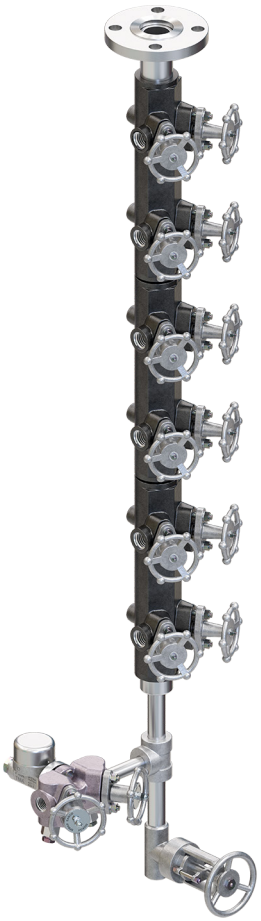
Standards
This product complies with ASME B31.3 (Normal and Cat. M Fluid Service).

Documentation and inspection
3.1 MTRs, PMI, and NDE available upon request.
Note: All certification/inspection requirements must be stated at the time of order placement.
Additional Charges associated with the Documentation.

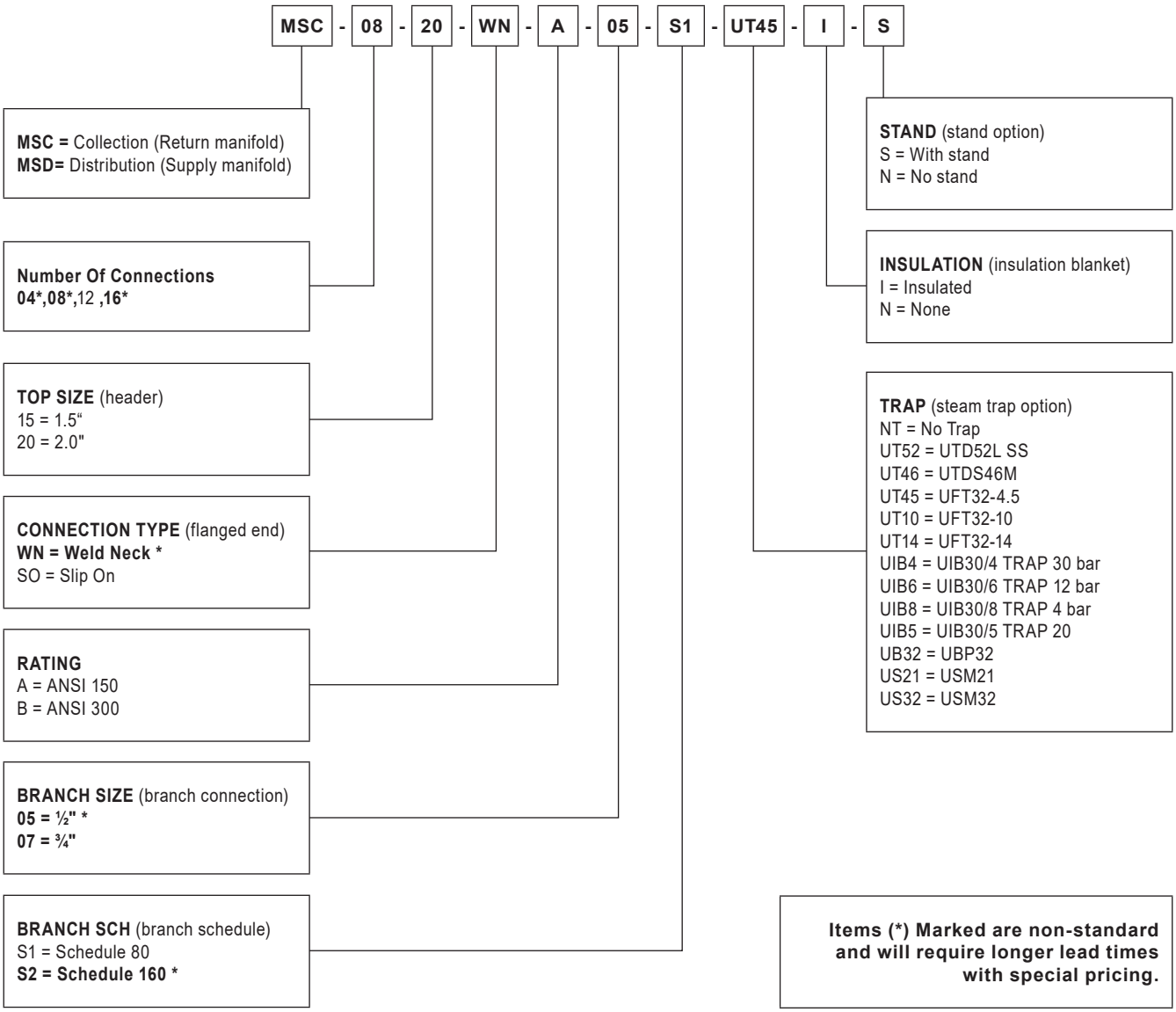
Model	**MSD and MSC Manifolds for Steam Distribution and Condensate Collection**
Number of connections	4, 8, 12, 16
Connection	**Collection** Condensate Outlet 1½", 2" ANSI 150 and ANSI 300 Condensate Inlet ½" and ¾" NPT Drain ¾" NPT
	Distribution Steam Inlet 1½", 2" ANSI 150 and ANSI 300 Steam Outlet ½" and ¾" NPT Condensate Outlet ¾" NPT Drain ¾" NPT
Construction	Carbon Steel ASTM A106 Gr. B Forged Steel A105 Cl.3000 PC4000 Stainless Steel Connectors. Refer to individual trap TI Sheets for material of construction information TI-P017-12-US – UTD52 TI-P187-03 – UTDS46M. TI-P146-05 – UFT32 TI-P113-01 – UIB30 TI-P625-11 – USM32
Options	Custom options available on request. Consult Spirax Sarco to arrange any additional requirements not shown here.

MSC = Collection (Return manifold)

MSD= Distribution (Supply manifold)



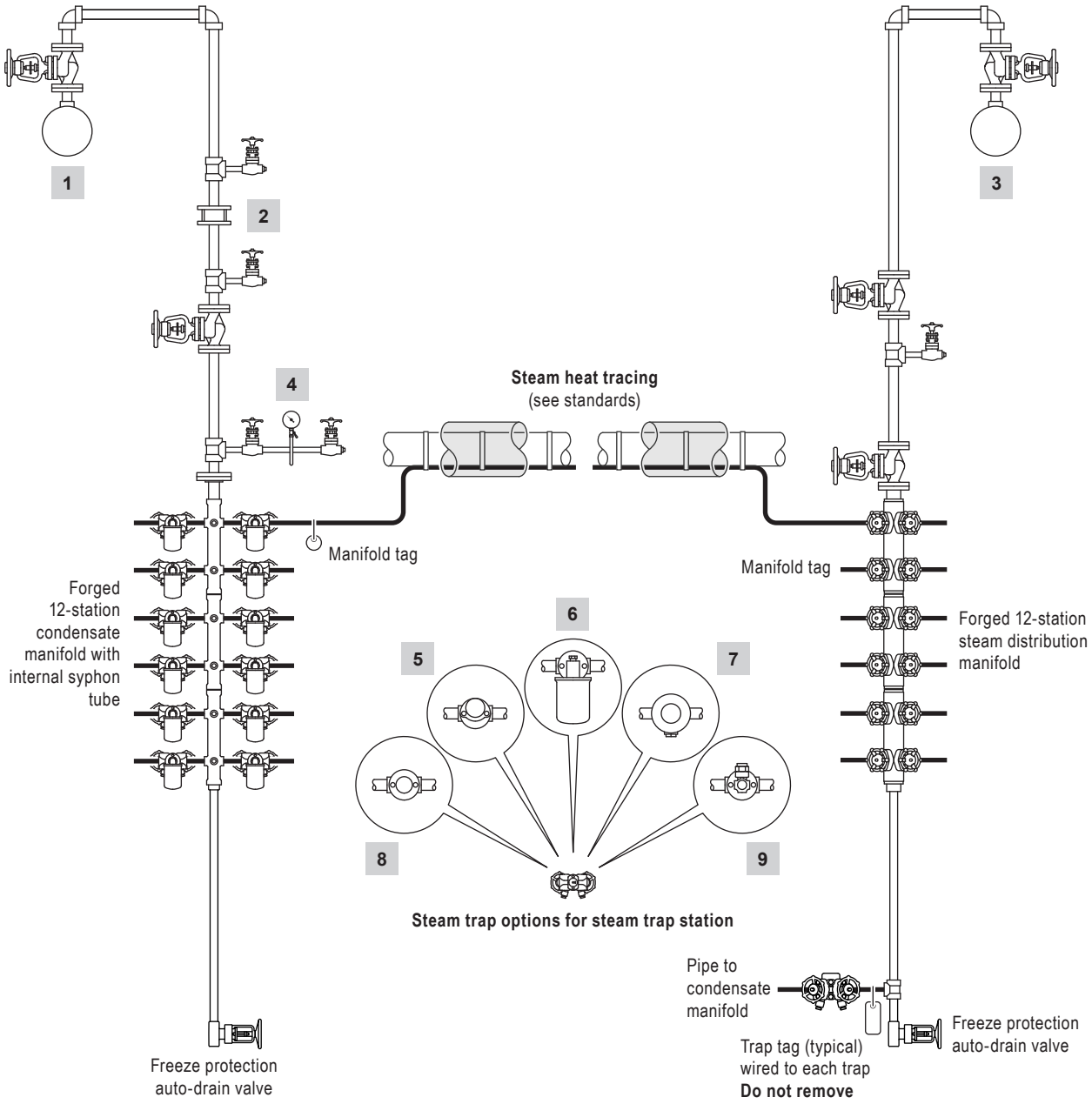
Ordering/Nomenclature Details



Examples

- MSC-08-20-WN-A-05-S1-UT45-I-S → Collection manifold; 8 stations, 2" RF Weld Neck Flange, 150#, ½" Sch 80 branches, UFT32-4.5 Traps traps, insulated, with stand.
- MSD-12-15-SO-B-07-S2-UIB6-N-N → Distribution manifold; 12 stations, 1.5" Slip On Flange, 300#, ¾" Sch 160 branches, UIB30/6 trap 12 bar, no insulation, no stand.
- MSC-12-15-WN-B-05-S2-NT-I-N → Collection manifold; 12 station, 1.5" RF Weld Neck Flange, 300#, ½" Sch 160 branches, no trap, insulated, no stand.

Steam tracing systems extend beyond the piping vessels and equipment

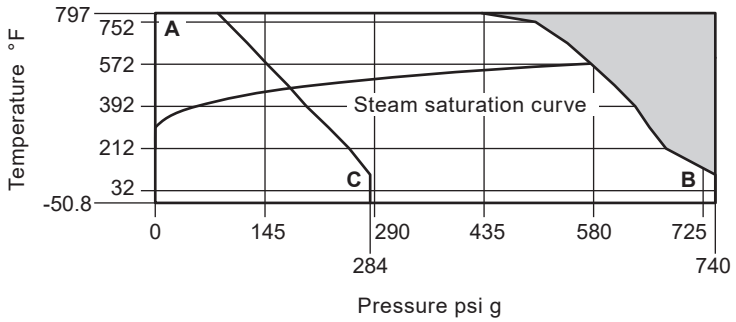


1	Condensate return main
2	Wafer type check valve
3	Steam main

4	Pressure gauge
5	Balanced pressure thermostatic
6	Inverted bucket

7	Float and thermostatic
8	Bimetallic thermostatic
9	Thermodynamic

Pressure/temperature limits

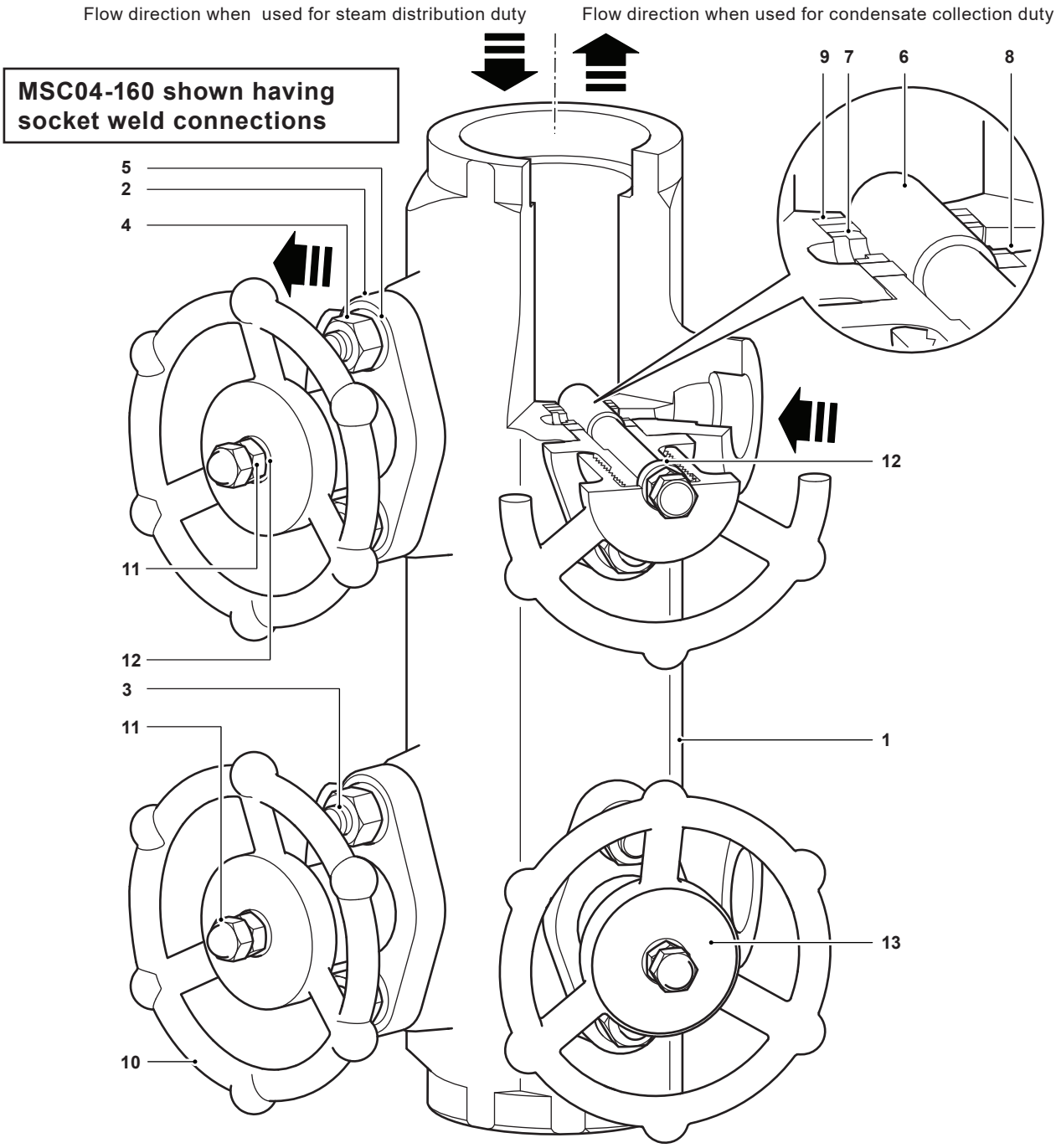


The product **must not** be used in this region.

A - B Flanged ASME Class 300, screwed and socket weld.

A - C Flanged ASME Class 150.

PMA	Maximum allowable pressure		740 psi g @ 100 °F
TMA	Maximum allowable temperature		797 °F @ 406 psi g
PMO	Maximum operating pressure for saturated steam service	ASME 150	203 psi g
		ASME 300	602 psi g
TMO	Maximum operating temperature	ASME 150	797 °F @ 80 psi g
		ASME 300	797 °F @ 406 psi g
Designed for a maximum cold hydraulic test pressure of		Class 150	450 psi g
		Class 300	1080 psi g



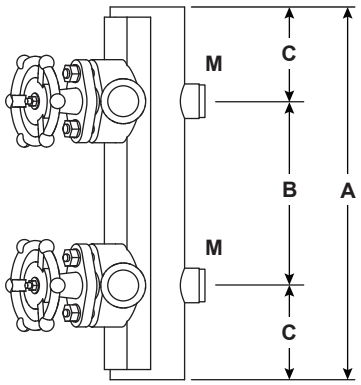
No.	Part	Material	
1	Body	Carbon steel	ASTM A105N / LF2
2	Bonnet	Carbon steel (Zinc plated)	ASTM A105N/LF2
3	Studs	Steel (plated)	ASTM A193 B7
4	Nuts	Steel (plated)	ASTM A194 2H
5	Washers	Stainless steel	
6	Piston	Stainless steel	AISI 410 : 1.4006
7	Lantern bush	Stainless steel	ASTM A276 : AISI 431

No.	Part	Material	
8	Upper ring	Graphite and stainless steel	
9	Lower ring	Graphite and stainless steel	
10	Handwheel	Carbon steel (Zinc plated)	EN 10213 : 1.0619N
11	Handwheel nuts	Stainless steel	
12	Nitronic 60 washer	Stainless steel	
13	Nameplates	Stainless steel	

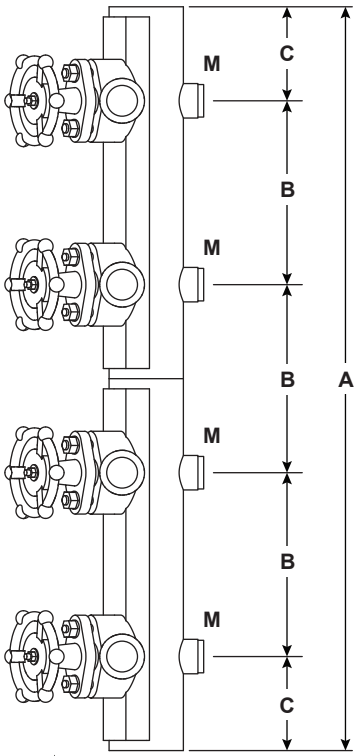
Note : There is one nameplate on the handwheel and two on the body, though not shown on the illustration.

Dimensions/weights (approximate) in mm (inches) and kg (lbs)

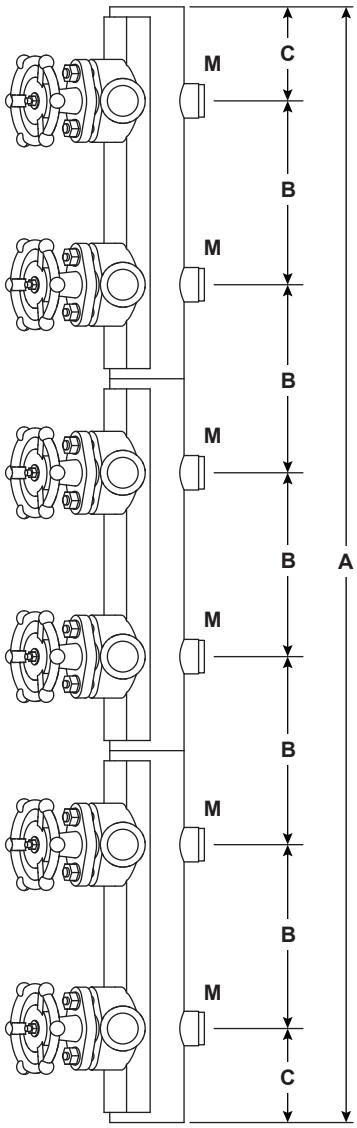
MSC04-160 and 125

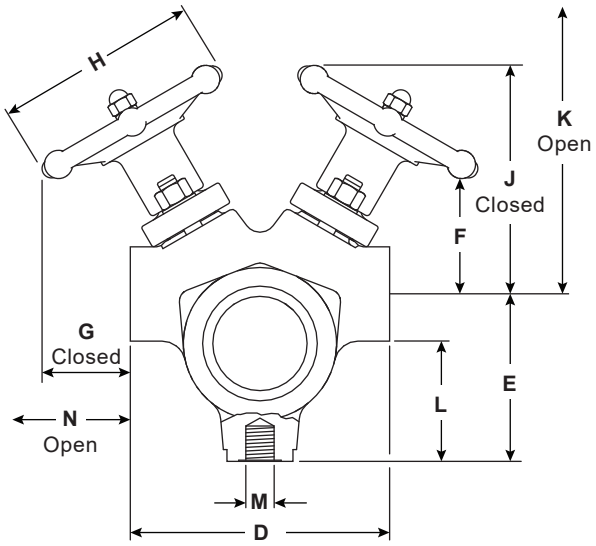


MSC08-160 and 125



MSC12-160 and 125

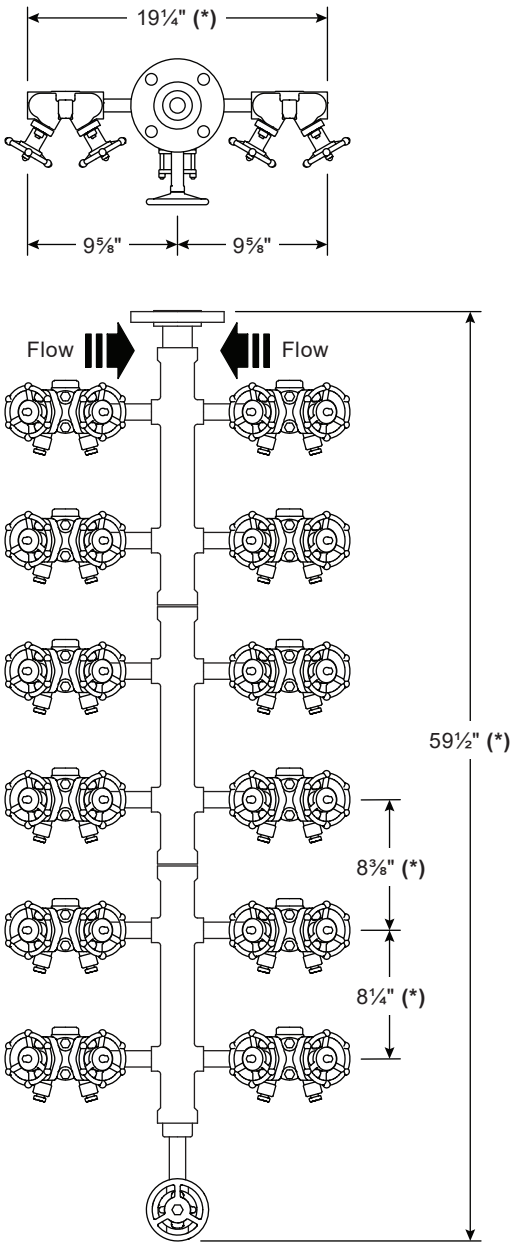




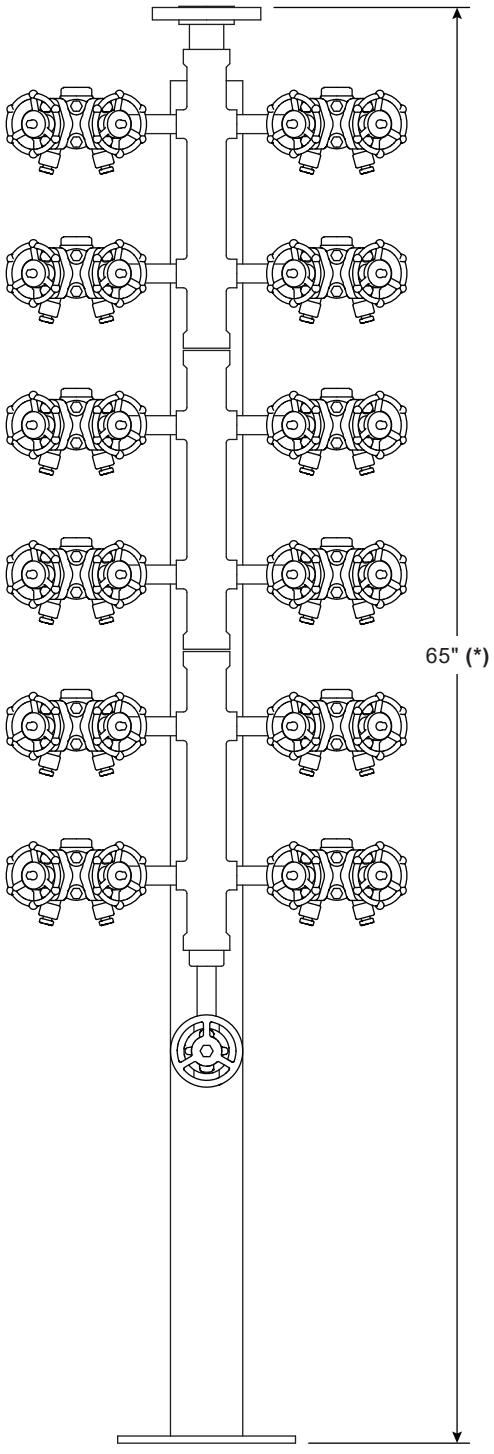
	Type	A	B	C	D	E	F	G	H	J	K	L	M	N	Weight
160 mm pitch version	MSC04-160	12.8	6.30	3.25	4.33	2.80	1.89	1.48	2.95	4.02	4.72	1.97	M12	1.77	22.05
	MSC08-160	25.4													44.09
	MSC12-160	38.2													66.14
210 mm pitch version	MSC04-210	16.5	8.27	4.13											
	MSC08-210	33.2													
	MSC12-210	50													

MSC = Condensate (Collection manifold)

(*) All Dimension Details are shown for reference only.
During Post order detail drawing will be submitted for approval.



MSC = Collection manifold without stand option

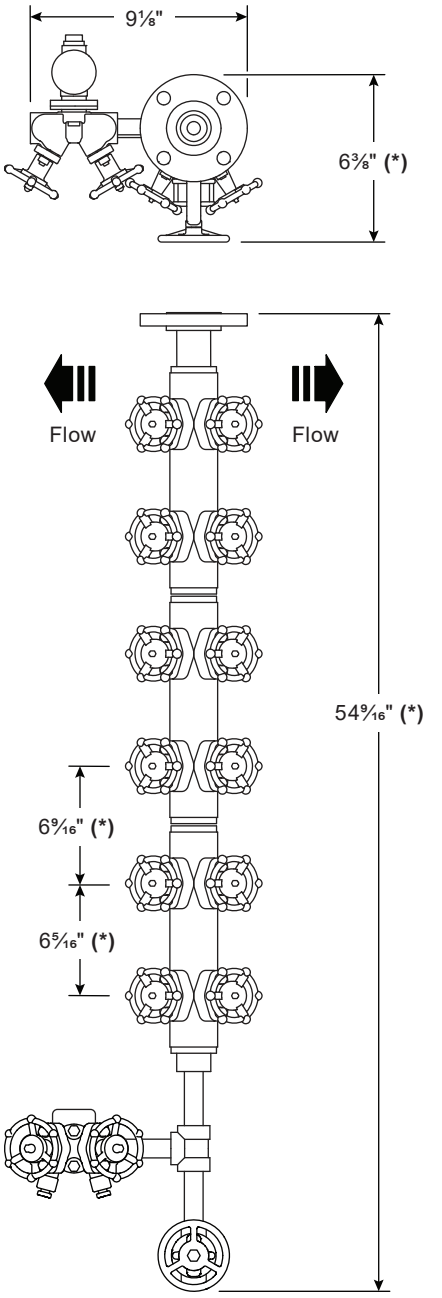


MSC = Collection manifold with stand option

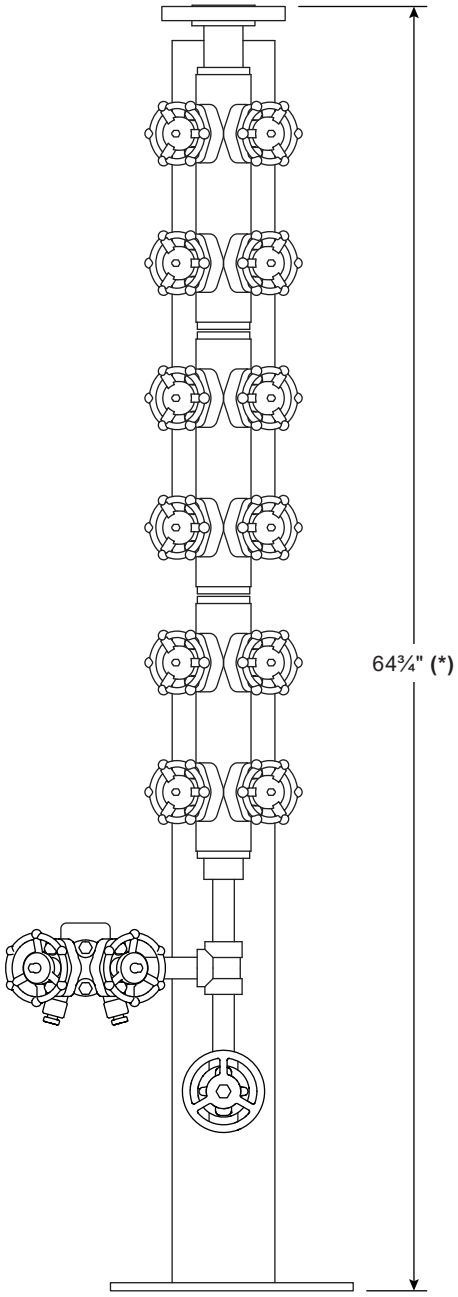
Notes:
Max. Pressure and temperature ratings Subject to change based on traps installed.
Install plastic plugs in all threaded Connections for shipping.
Flange bolt holes to straddle the centerline.

MSD = Distribution (Supply manifold)

(*) All Dimension Details are shown for reference only.
During Post order detail drawing will be submitted for approval.



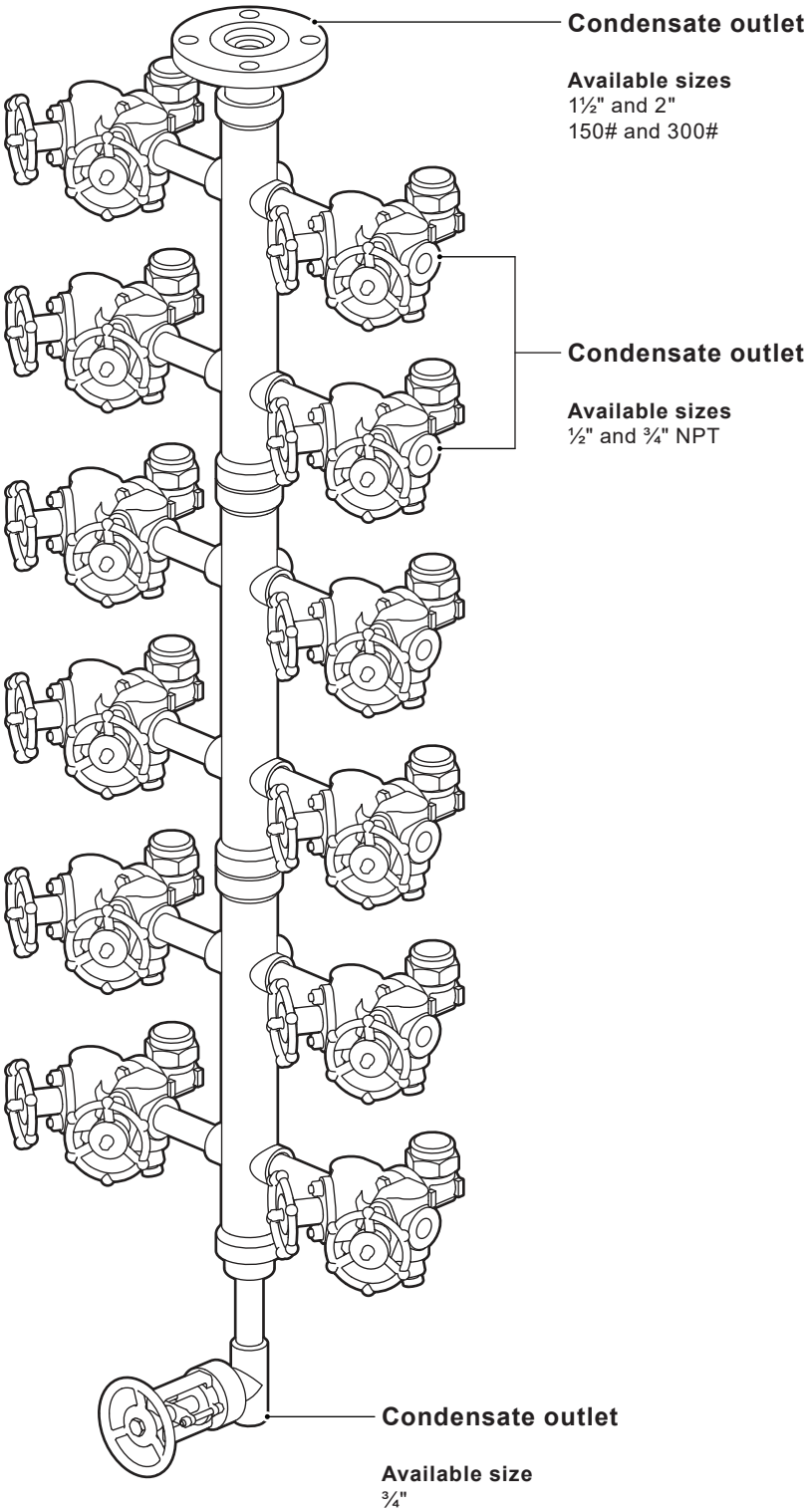
MSD = Distribution manifold without stand option



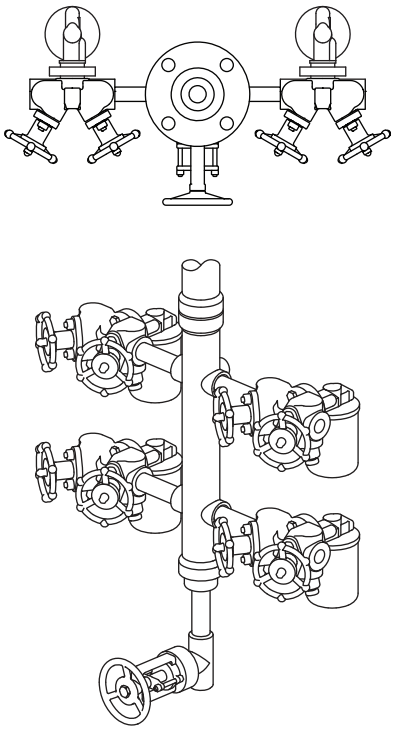
MSD = Distribution manifold with stand option

Notes:
Max. Pressure and temperature ratings Subject to change based on traps installed.
Install plastic plugs in all threaded Connections for shipping.
Flange bolt holes to straddle the centerline.

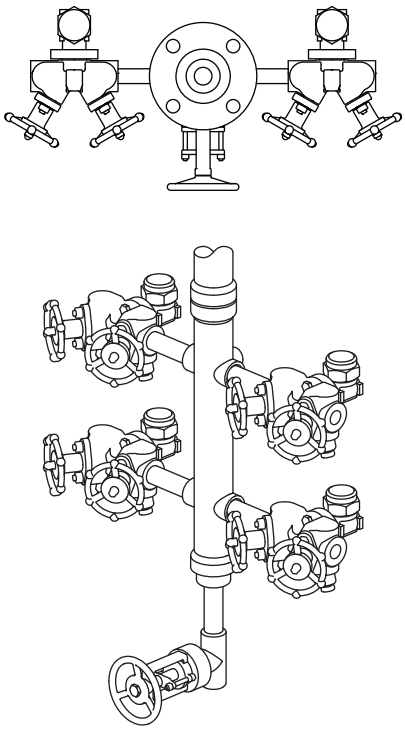
MSC = Condensate (Collection manifold)



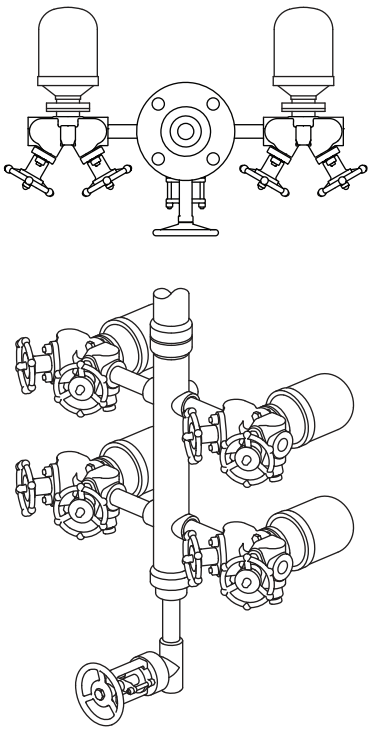
Manifold Assembly with Different Type Traps



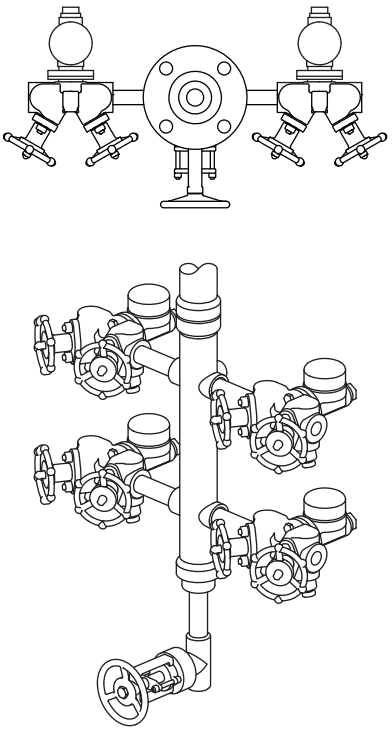
UIB option
Includes UIB40/4, UIB30/5, UIB30/6 and UIB30/8



UTD52L Option
Includes UTD52H, UTD52L-HP

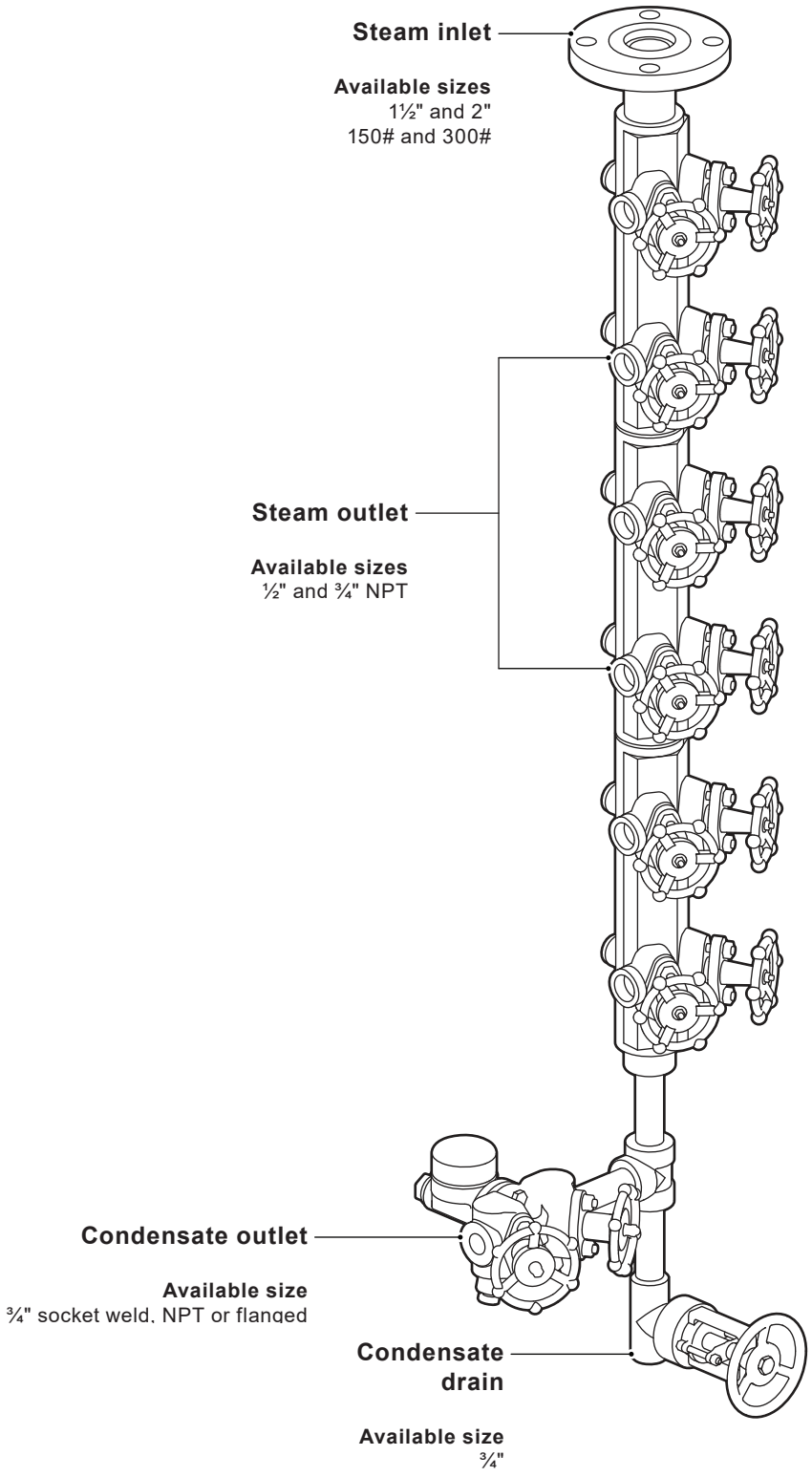


UFT32 Option
Includes UFT32-4.5, UFT32-10, UFT32-14, UFT32P-4.5, UFT32P-10 and UFT32P-14

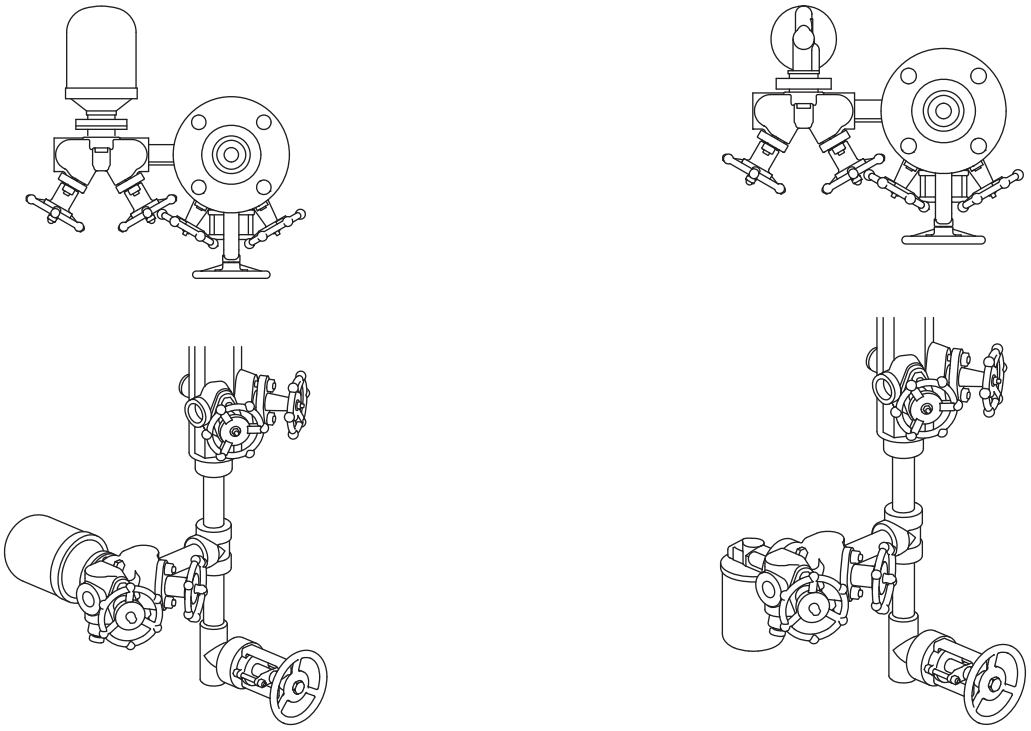


UTDS46M Option

MSD = Distribution (Supply manifold)

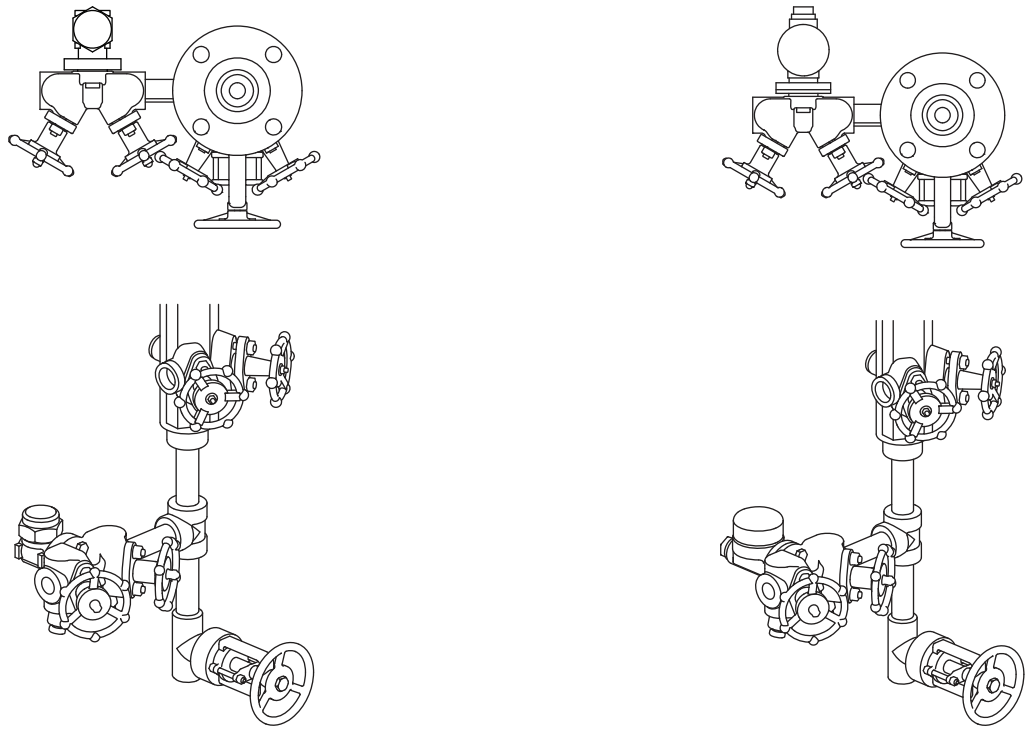


Manifold Assembly with Different Type Traps



UFT32 Option
Includes UFT32-4.5, UFT32-10, UFT32-14, UFT32P-4.5, UFT32P-10 and UFT32P-14

UIB Option
Includes UIB30/4, UIB30/5, UIB30/6 and UIB30/8



UTD52L Option
Includes UTD52H, UTD52L-HP

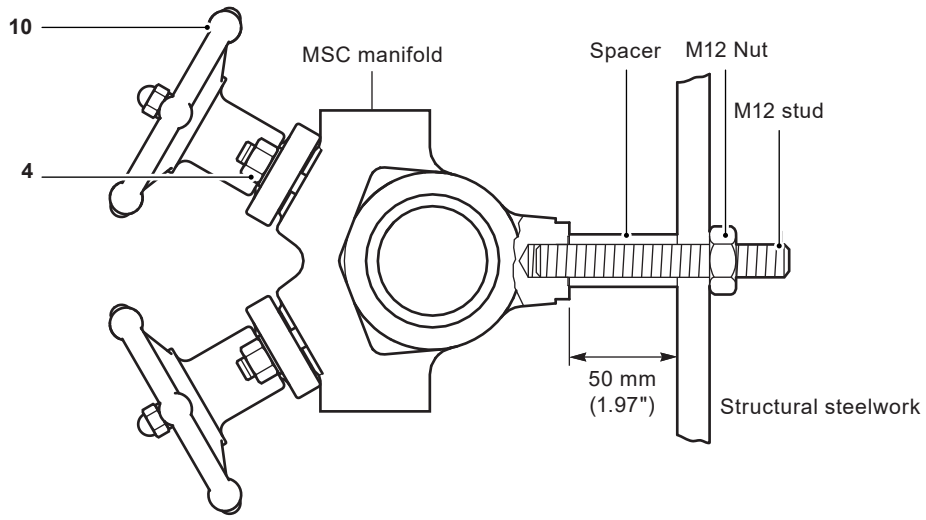
UTDS46M Option

Safety information, installation and maintenance

For full details see the Installation and Maintenance Instructions supplied with the product.

General

These manifolds have been designed for vertical installation. The back is provided with threaded connections M12 for ease of installation by attaching to a supporting structure.



Installation view from above

Mounting kits

The manifold is generally conveniently attached to the structural steelwork supporting the plant.
For ease of insulation it is recommended that spacers are fitted to give the manifold a stand-off of at least 50 mm (1.97").
For convenience the following sets of mounting kit are available:

- A single set comprising 2 off each stud, nut and spacer suitable for installing one MSC04-160 or MSC08-160.
- A single set comprising 4 off each stud, nut and spacer suitable for installing one MSC12-160.
- A multiple set comprising 12 off each stud, nut and spacer suitable for installing 6 x MSC04-160, 6 x MSC08-160 or 3 x MSC12-160.

After installation it is recommended that the manifold is insulated to minimise radiated heat losses and to protect personnel from burn risks. This is most easily done using the optional insulating jacket.

Steam distribution duty

The recommended installation is with the steam inlet connection at the top of the manifold. A trap set should be fitted to the bottom. The discharge from this trap set should ideally be returned. If it is to be discharged to atmosphere we recommend that a diffuser is fitted.

Condensate collection duty

The recommended installation is with the condensate outlet at the top. The bottom of the manifold should be fitted with a stop valve for blowdown purposes. Again, we recommend that a diffuser is fitted (see TI-P117-10).

Spare parts

The spare parts available are detailed below. For ease of replacement an extractor tool is available for removing the sealing rings.

Available spares	
Sealing ring set	**8** and **9**
Piston valve assembly	**2**, **4**, **5**, **6**, **7**, **8**, **9**, **10**, **11** and **12**
Piston valve sub-assembly	**6**, **7**, **8** and **9**
Extractor tool	**See below**
Mounting kit	- A single set comprising 2 off each stud, nut and spacer suitable for installing one MSC04-160 or MSC08-160. - A single set comprising 4 off each stud, nut and spacer suitable for installing one MSC12-160. - A multiple set comprising 12 off each stud, nut and spacer suitable for installing 6 x MSC04-160, 6 x MSC08-160 or 3 x MSC12-160.

How to order spares

Always order spares by using the description given in the column headed 'Available spares' and state the type and size of manifold.

Example: 1 off Sealing ring set for an integral piston valve on a carbon steel manifold MSC04-125 DN15 socket weld.

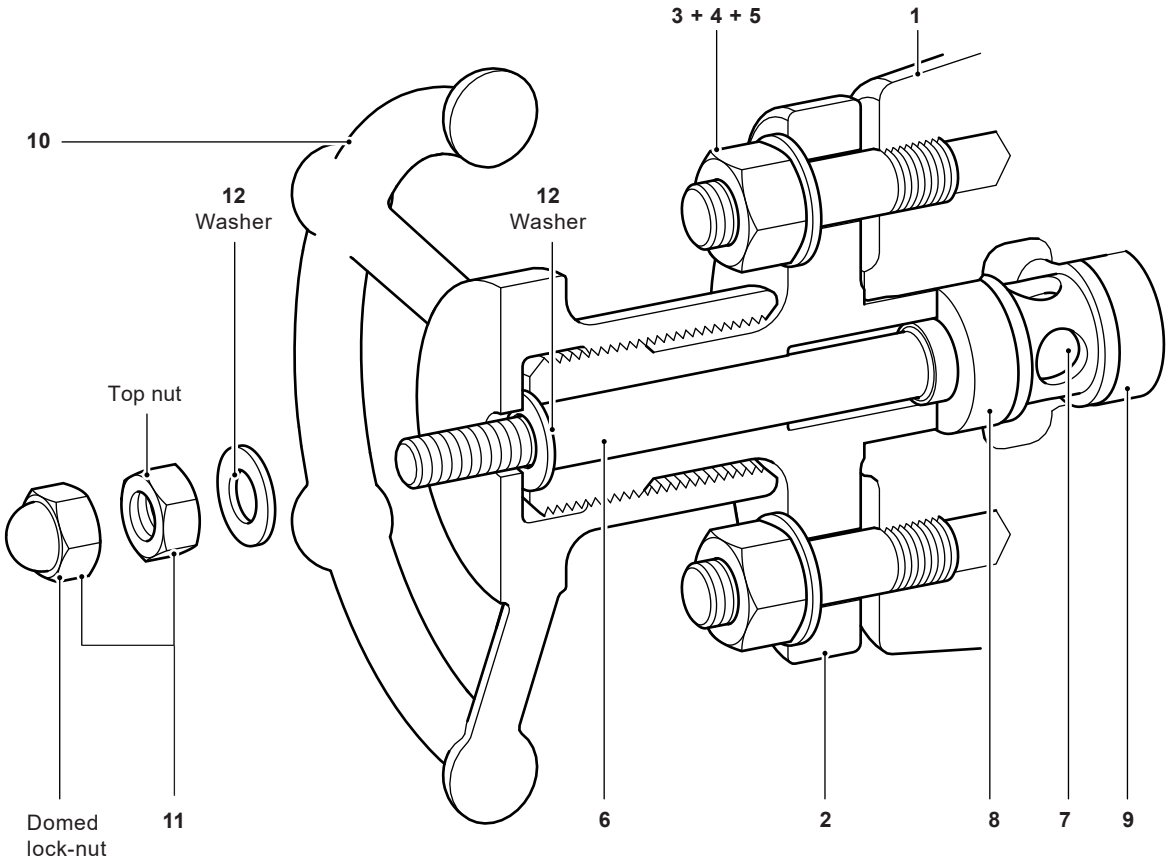


Table 1 Recommended tightening torques

Item	or mm		lbf ft
4	14	5/16" x 18 UNC	8.9
11	10	M6	8.9

Extractor tool