



MSD & SMSD Manifolds for Steam Distribution

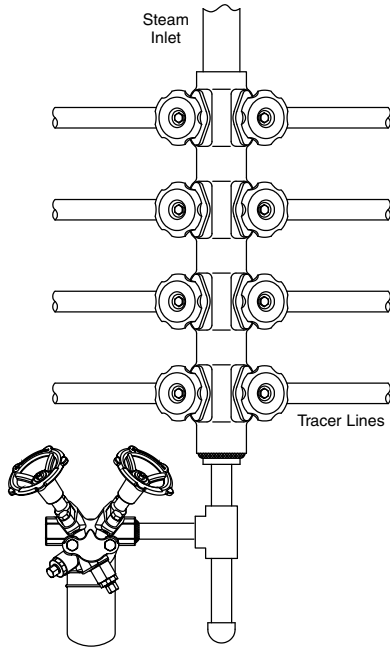
As Steam Distribution Assemblies (MSD/SMSD), the manifolds place all steam supply valves in one location. Standardizing components and centralizing their location simplifies installation while providing cost savings. You also save because routine maintenance is faster. Insulation can also be provided...and can be a major savings in most installations.

Cost Savings

- Reduced design specification costs
- Prefabrication vs. field assembly for easy installation
- Reduced shipping and field handling costs
- Lower long-term maintenance and operating costs
- **3-years guarantee**

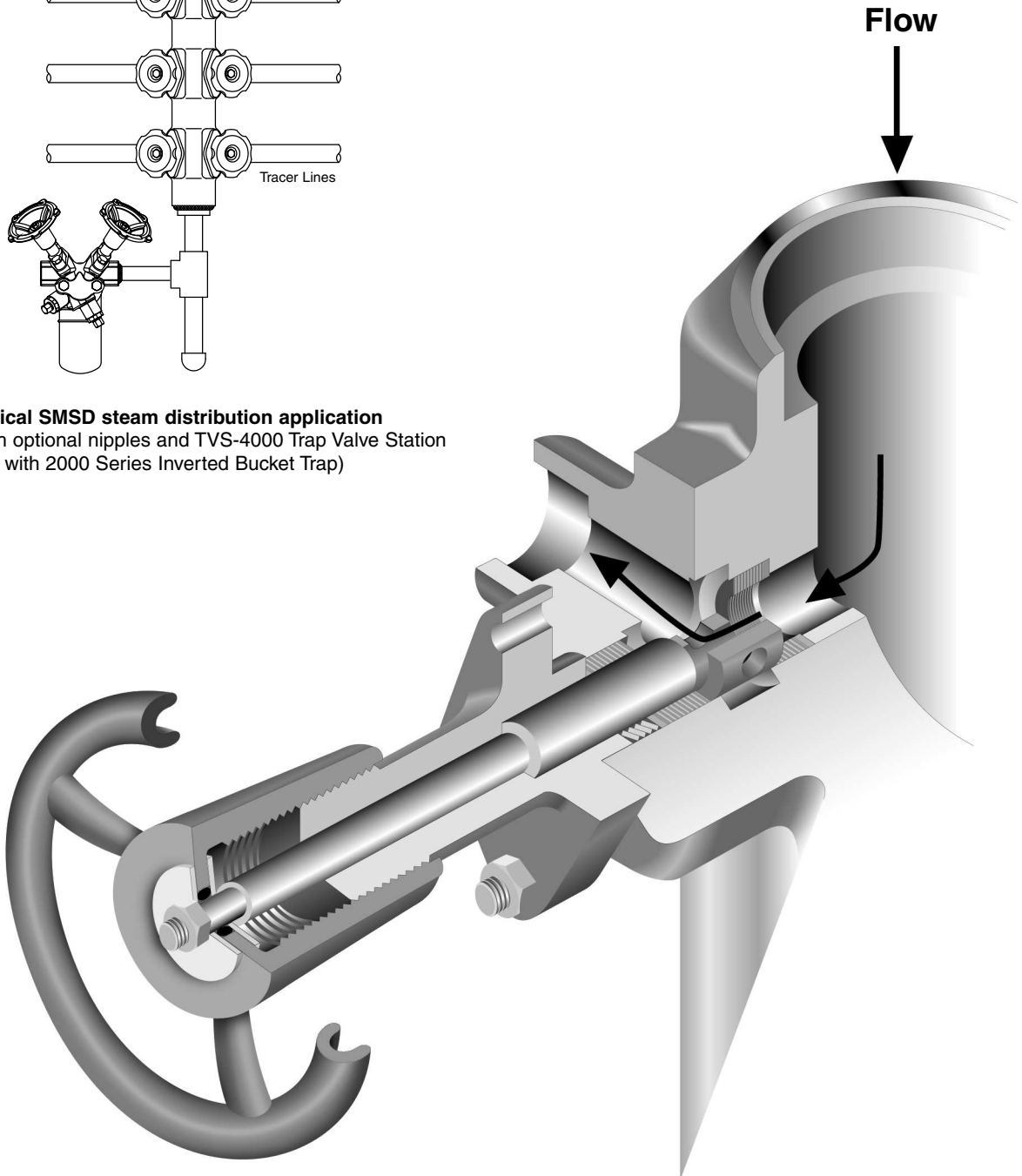
Design Flexibility

- Dimensional consistency
- Space savings
- Insulation package available



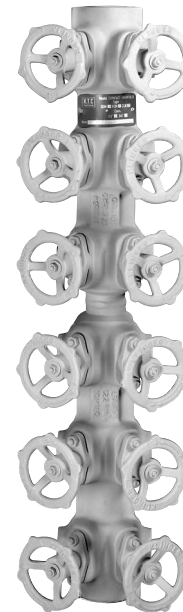
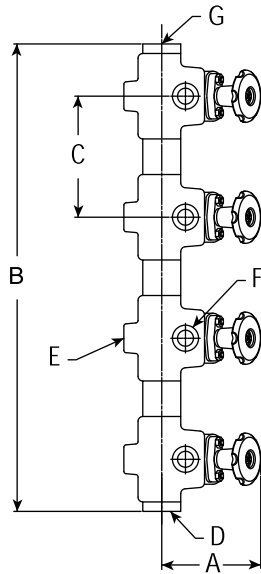
Typical SMSD steam distribution application

(shown with optional nipples and TVS-4000 Trap Valve Station with 2000 Series Inverted Bucket Trap)



Steam Tracing Equipment

MSD & SMSD Manifolds for Steam Distribution



| Name | Material |
|---------------------|---|
| Manifold Body | ASTM A105 Forged Steel |
| Handwheel | Ductile Iron |
| Bonnet | ASTM A105 Forged Steel |
| Spring Washer | Stainless Steel |
| Bolts and Nuts | Bolts: ASTM A193 grade B7 Nuts: ASTM A194 grade 2H |
| Piston & Stem | 17% Chrome Stainless Steel |
| Valve Sealing Rings | Expanded Graphite & Stainless Steel |
| Bushing, Valve | Stainless Steel |

Options

Top Inlet:

- Socketweld
- Flanged DIN or ANSI
- Gate valve 1 1/2" SW or Flanged
- Armstrong RP-2000 double sealed valve 1 1/2" SW or Flanged

Drain:

- 1/2" or 3/4" SW reducer
- TCMS piston valve
- TVS-4000 with 2011 steam trap (horizontal or vertical piping)

Insulation:

- Armstrong Insulation Jacket
- Modular or 1 piece versions
- Insulation jackets could be installed without removing the handwheels

Table STE-183-2. MSD and SMSD Steam Distribution Manifolds (dimensions in mm)

| Model | MSD Series | | | SMSD Series | | |
|---|--|--------|--------|--|---------|---------|
| | MSD-04 | MSD-08 | MSD-12 | SMSD-04 | SMSD-08 | SMSD-12 |
| Number of tracers | 4 | 8 | 12 | 4 | 8 | 12 |
| "A" Open Position | 118 | 118 | 118 | 118 | 118 | 118 |
| "B" Manifold Height (SW) | 272 | 596 | 920 | 240 | 480 | 720 |
| "C" \varnothing to \varnothing | 162 | 162 | 162 | 120 | 120 | 120 |
| "D" Drain Connection | 1 1/2" SW | | | 1 1/2" SW | | |
| "E" Number of Holes for Mounting (1/2 - 13 UNC) | 2 | 4 | 6 | 2 | 4 | 6 |
| "G" Inlet | 1 1/2" SW | | | 1 1/2" SW | | |
| "F" Outlet to tracer | 1/2" and 3/4" – Socketweld and Screwed NPT | | | 1/2" and 3/4" – Socketweld and Screwed NPT | | |
| Weight in kg (SW) | 10 | 21 | 30 | 9 | 18 | 27 |
| Maximum Operating Pressure | 32 bar @ 400°C | | | | | |

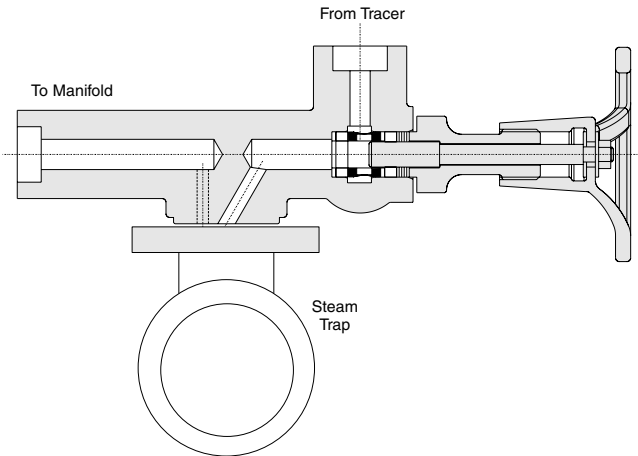
All MSD and SMSD models are CE Marked according to the PED (97/23/EC). For TVS and traps, please check the specific page.

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.



CCA-160 Condensate Collection Assembly with TVS-3150

Steam Tracing Equipment



Armstrong combines its Trap Valve Stations (TVS) concept with MSD manifolds into a package called the CCA-160 Condensate Collection Assembly. This prepackaged assembly offers many great benefits – cost savings in assembly, design flexibility and reduced purchasing and design time. The CCA-160 with TVS-3150 and 2000 Series Inverted Bucket Traps is **guaranteed for 3 years**.

Cost Savings

This preassembled concept offers tremendous savings by reducing multiple component purchases that cause additional purchase order monitoring and shipping costs. Other savings include far less labor time required for field assembly.

This modular forged steel body design provides quick assembly/delivery, reducing overall project costs.

- Eliminates multiple component purchases
- Reduced design specification costs
- Prefabrication vs. field assembly for easy installation
- Reduced shipping and field handling costs
- Lower long-term maintenance and operating costs
- 3-years guarantee

TVS-3150 Concept

Armstrong Traps Valve Stations (TVS) concept gives compact alternative to traditional trap installations including 4 valves and a strainer. The universal connector allows easy installation and replacement of traps using any of the existing operating principles. Armstrong TVS-3150 includes:

- Inlet valve to isolate the trap
- Blowdown valve
- Test valve for visual trap checking
- Outlet valve is located on the manifold

System Design Flexibility

Armstrong can meet virtually any design parameter with your choice of socketweld or threaded connections. Inverted bucket, bimetallic, thermostatic bellow, thermostatic wafer or disc steam traps can be provided. If you require a specific piping arrangement, Armstrong can offer the flexibility to meet your specifications.

- All existing steam trap types could be used
- Dimensional consistency
- Space savings
- Insulation jacket available

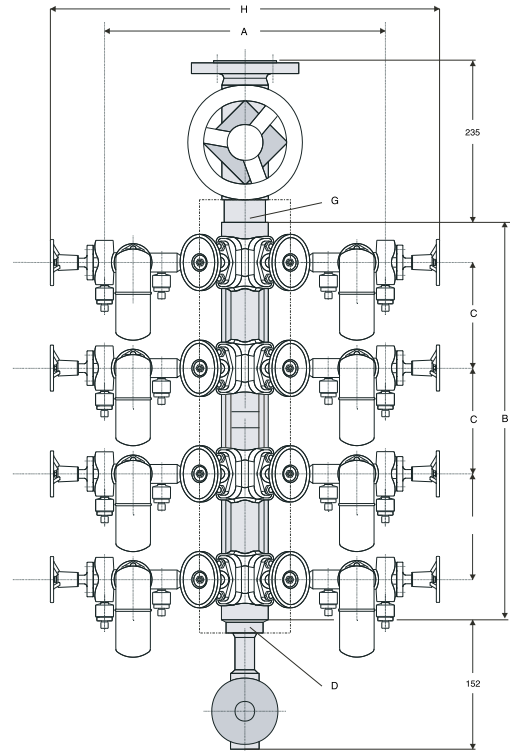
Removable Insulation Jackets

A removable insulation jackets are available for all steam and condensate manifolds.

- Inexpensive
- Quick to install
- Removable for maintenance
- Reusable after maintenance
- Weatherproof
- Formed to cover all manifold elements
- Strong, durable cover
- Available to fit all manifold sizes

| Table STE-184-1. CCA-160 List of Materials | |
|--|-------------------------------------|
| Name | Material |
| Manifold Body | ASTM A105 Forged Steel |
| Handwheel | Ductile Iron |
| Bonnet | ASTM A105 Forged Steel |
| Spring Washer | Stainless Steel |
| Bolts and Nuts | Bolts: ASTM A193 grade B7 |
| | Nuts: ASTM A194 grade 2H |
| Piston & Stem | 17% Chrome Stainless Steel |
| Valve Sealing Rings | Expanded Graphite & Stainless Steel |
| Bushing, Valve | Stainless Steel |

CCA-160 Condensate Collection Assembly with TVS-3150



Steam Tracing Equipment

CCA-160 with 12 x TVS-3150 stations (less Blowdown and Test Valves), CD-3300 Traps and Insulation Jacket

CCA-160 with 8 x TVS-3150 stations with Blowdown and Test Valves, 2010 Traps and Insulation Jacket

Options

Top Outlet:

- Socketweld
- Flanged DIN or ANSI
- Gate valve 1 1/2" SW or Flanged
- Armstrong RP-2000 double sealed valve 1 1/2" SW or Flanged

Drain:

- 1/2" or 3/4" SW reducer
- TCMS piston valve

Insulation:

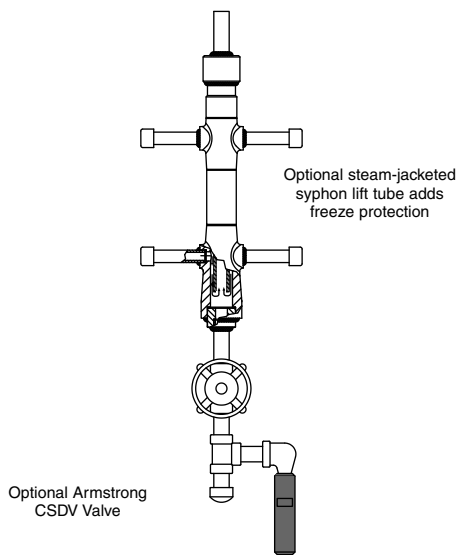
- Armstrong Insulation Jacket
- Modular or 1 piece versions
- Insulation jackets could be installed without removing the handwheels

Table STE-185-1. CCA-160 with TVS-3150 (dimensions in mm)

| Model | CCA-160 with TVS-3150 (dimensions in mm) | | |
|--|--|------------|------------|
| | CCA-160-04 | CCA-160-08 | CCA-160-12 |
| Number of tracers | 4 | 8 | 12 |
| "A" \varnothing TVS Inlet to \varnothing TVS Inlet | 484 | 484 | 484 |
| "B" Manifold Height (SW) | 272 | 596 | 920 |
| "C" \varnothing to \varnothing | 162 | 162 | 162 |
| "D" Drain Connection | 1 1/2" SW | | |
| "H" Total Width | 680 | 680 | 680 |
| "G" Outlet | 1 1/2" SW | | |
| "F" TVS Connection | 1/2" and 3/4" – SW and Screwed NPT | | |
| Weight in kg (without traps) | 21 | 42 | 61 |
| Maximum Operating Pressure | 32 bar @ 400°C | | |

All CCA-160 models are CE Marked according to the PED (97/23/EC).
TVS-3150 complies with the Article 3.3 of the same directive.
For traps, please check the specific page.

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.



CCA-203-04 with TVS-4000

(shown with optional nipples, drain valve and TVS-4000 with 2000 Series Inverted Bucket all stainless steel steam traps)

Armstrong combines its Trap Valve Stations (TVS) with manifolds into a package called the CCA-203 Condensate Collection Assembly. This prepackaged assembly offers many great benefits – cost savings in assembly, design flexibility and reduced purchasing and design time. The CCA-203 with TVS-4000 and 2000 Series Inverted Bucket Traps is **guaranteed for 3 years**.

Cost Savings

This preassembled concept offers tremendous savings by reducing multiple component purchases that cause additional purchase order monitoring and shipping costs. Other savings include far less labor time required for field assembly.

This modular forged steel body design provides quick assembly/delivery, reducing overall project costs.

- Eliminates multiple component purchases
- Reduced design specification costs
- Prefabrication vs. field assembly for easy installation
- Reduced shipping and field handling costs
- Lower long-term maintenance and operating costs
- 3-years guarantee

Design Flexibility

Armstrong can meet virtually any design parameter with your choice of socketweld or threaded connections. Inverted bucket, bimetallic, thermostatic bellow, thermostatic wafer or disc steam traps can be provided. If you require a specific piping arrangement, Armstrong can offer the flexibility to meet your specifications.

- All existing steam trap types could be used
- Dimensional consistency
- Space savings
- Freeze protection option
- Insulation jacket available

Materials

Manifold body: ASTM A105 forged steel
All Stainless Steel 304L available on request

Freeze Protection Package (CCAF) – Optional

A manifold assembly for more efficient condensate return has another benefit – freeze protection. Armstrong's innovative manifold design actually serves as a heat station, heating one or more traps if the steam supply is interrupted or shut off to the traps. The protection is accomplished as long as one trap continues to discharge into the manifold. The manifold's internal syphon tube creates a water seal, which contains the flash steam from the discharge of the live trap. This allows radiant heat to protect shut-off traps from freezing.

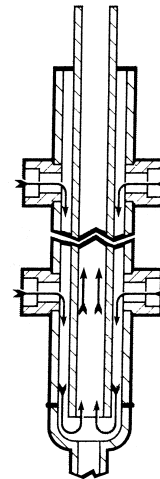
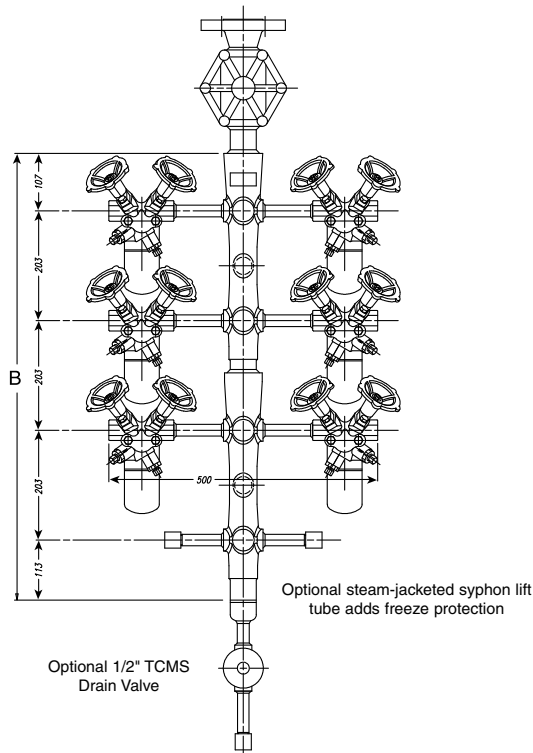
An optional freeze protection valve package senses condensate temperature. When this device opens, it drains condensate from the manifold assembly, thus providing further freeze protection.

Removable Insulation Jackets

A removable insulation jackets are available for all steam and condensate manifolds.

- Inexpensive
- Quick to install
- Removable for maintenance
- Reusable after maintenance
- Weatherproof
- Formed to cover all manifold elements
- Strong, durable cover
- Available to fit all manifold sizes

CCA-203 Condensate Collection Assembly with TVS-4000



Optional Freeze Protection
Improves condensate flow inside of the manifold's body, thus giving better protection against freezing.

CCA-203-08 with 6 x TVS-4000 Trap Valve Station with 2000 Series Inverted Bucket Traps

Table STE-187-1. CCA-203 Condensate Collection Assembly (dimensions in mm)

| Model | CCA-203-04 | CCA-203-06 | CCA-203-08 | CCA-203-10 | CCA-203-12 |
|------------------------------|--|------------|------------|------------|------------|
| Number of tracers | 4 | 6 | 8 | 10 | 12 |
| "B" Manifold Height (SW) | 423 | 626 | 829 | 1 032 | 1 235 |
| Drain Connection | 1 1/2" SW | | | | |
| Manifold Outlet | 1 1/2" SW | | | | |
| TVS Connection | 1/2" and 3/4" – Socketweld and Screwed NPT | | | | |
| Weight in kg (manifold only) | 20 | 30 | 40 | 50 | 60 |
| Maximum Allowable Pressure | 42 bar @ 427°C | | | | |

All CCA-203 models are CE Marked according to the PED (97/23/EC). TVS-4000 complies with the Article 3.3 of the same directive. For traps, please check the specific page.

Options

Top Outlet:

- Socketweld
- Flanged DIN or ANSI
- Gate valve 1 1/2" SW or Flanged
- Armstrong RP-2000 double sealed valve 1 1/2" SW or Flanged

Drain:

- 1/2" or 3/4" SW reducer
- TCMS piston valve

Insulation:

- Armstrong Insulation Jacket
- Modular or 1 piece versions
- Insulation jackets could be installed without removing the handwheels

All dimensions and weights are approximate. Use certified print for exact dimensions. Design and materials are subject to change without notice.