To maintain the integrity of process measurement instrumentation, protection from the effects of the industrial and the natural environment, both on and offshore, is vital. Anderson Greenwood Instrumentation Product’s enclosure systems are designed to provide a barrier against the effects of climate, dust and dirt, accidental damage, corrosion and tampering. The system uses specially designed manifolds which allow direct instrument mounting. This eliminates the need for extra bracketing, cuts installation costs and reduces potential leak points.
Markets Served

- Oil and gas offshore platforms
- Oil and gas onshore terminals
- Chemical and petrochemical plants
- Steel plants
- Water treatment
- Power generation
- Food and beverage processing
- Paper mills
- OEMs
- Gas metering skid manufacturers

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Purpose and Applications

The Anderson Greenwood Instrumentation Products enclosure system is much more than a range of enclosures, it is the total solution for the protection of instrumentation on-site.

It includes a range of equipment developed to help combat a wide variety of factors which might impair the efficiency and operation of process instrumentation, such as extremes of temperature, the ingress of dirt, dust and moisture, corrosion, accidental damage and tampering.

Options include electrical or steam heating, ventilation or integral insulation for protection from the world’s climactic extremes, such as Siberia, where the temperature can fall as low as -76°F [-60°C], or the Middle East, where it can reach 104°F [+40°C].

Anderson Greenwood Instrumentation Products has also developed a range of two-, three- and five-valve manifolds which mount directly to an external service plate. This enables all process and vent connections to be made from outside the enclosure. These manifolds also allow direct instrument mounting from inside the enclosure. The versatility of the system enables a wide variety of enclosure and manifold combinations to be offered to meet customers’ specifications.

Purpose
Enclosure systems protect instrumentation from:

- The effects of cold temperature.
- Water deluge.
- Physical damage.
- Environmental conditions.
- Dirt, dust and sand.

Applications
Enclosure systems are used to protect:

- Process instrument manifolds and transmitters.
- Solenoid valves.
- General field instrumentation.
- Remote chemical sealed instruments.

Anderson Greenwood Instrumentation Products Enclosure Systems offer the ultimate in protection for vital field instrumentation, with over 100,000 units installed worldwide. Fifty years of experience has made Anderson Greenwood Instrumentation Products the number one choice for standard or purpose designed enclosure systems.
Features and Benefits

- **Enclosure Body and Lid** are manufactured from tough glass filled sheet molded polyester for maximum resistance to extreme temperatures and environmental conditions.
- **Viewing Window** (optional) allows inspection of indicating instruments without opening the enclosure.
- **Sealing Strip** which ensures the enclosure is completely weatherproof to IP66, preventing ingress of moisture, dust and outside atmosphere.
- **Toggle Latches** provide tight closure of the enclosure lid and body, working in conjunction with the sealing strip.

**Insulation** (optional) is provided as a 3/4-inch [20 mm] thick layer of molded isocyanurate foam enabling instruments to be protected down to external temperatures of -94°F [-70°C].

- **Enclosure Manifolds** are purpose designed to mount in the base or back of the enclosure. The manifold mounts integrally with the enclosure mounting plate, removing the requirement for internal mounting brackets or pipe stands.

- **Impulse Pipework** – Both process and vent connections are made on the outside of the enclosure, via the mounting plate, directly into the manifold, removing the need for internal pipework, compression fittings and bulkheads.

- **2-inch NB [50 mm] Mounting Collar** enables easy mounting directly onto a pipe stand. The mounting collar is supplied with a fixing bolt to lock the enclosure to the pipe stand.

- **Heating Systems**, with either steam or electric, can be custom designed and installed to suit particular heating requirements. Precise enclosure temperature can be maintained with a wide range of heating accessories.

- **Fasteners and Fittings** are provided in 316 stainless steel as standard to prevent corrosion in harsh environments, i.e. hinges, toggle latches and propstays.

- **Anti-static** enclosures are available to suit specific applications.

- **Manifold Mounting** – EM enclosure manifolds are located as standard in the front of the enclosure base. EM manifolds can be positioned in the back of the enclosure in either a high or low position, to allow instruments to be mounted either above the manifold (for liquid applications) or below the manifold (for gas applications).

Whether they are positioned in the base or back of the enclosure, EM manifolds are bolted to a steel plate to provide a rigid location for direct instrument mounting and to allow all process connections to be made from outside the enclosure.
Anderson Greenwood Instrumentation Products enclosure systems are available in a wide range of sizes to protect single, or multiple instrument applications. Produced from fire retardant GRP the enclosures feature a neoprene sealing strip and stainless steel toggle latches to keep the enclosure tightly sealed in all environment conditions.

With a choice of specifications offered as standard, Anderson Greenwood Instrumentation Products enclosure systems can be fitted with a variety of accessories and options in addition to the range of two-, three-, and five-valve enclosure manifolds. Designed and fitted out to customer’s specifications Anderson Greenwood Instrumentation Products enclosure systems provide the complete solution.

Technical Specifications

Materials
Enclosures are manufactured from glass reinforced polyester sheet moulding compound for rigidity and strength. Enclosures are provided as standard in beige. Black and other colors available as options.

Fire retardant
All enclosures are fire retardant to BS 5734 Part 1 Method 4 (for moulding compounds).

Weatherproofing
All enclosures are fitted with 316 stainless steel toggle latches and a closed cell neoprene sealing strip retained in a recessed channel in the lid of the enclosure ensuring weatherproof rating to IP66.

Brackets
All enclosure systems are supplied as standard with epoxy coated carbon steel base plates and brackets for mounting to 2-inch NB pipe stand. Stainless steel base plates and brackets are also available.

Insulation
Standard insulated GRP enclosures are manufactured with pre-molded [20 mm] thick isocyanurate foam.

All insulated systems offer instrument protection at external temperatures down to -94°F [-70°C].

Anti-static
Enclosure systems are available in materials suitable for hazardous areas, to protect fully certified equipment from the risk of static build-up. These models comply with BS5501: Part 1 (section 11, paragraph 6) Ref: electrostatic charges; and CENELEC EN 50014, available in black as standard.
L Type Enclosures

5L Enclosure
The 5L enclosure is ideal for protecting single instrument installations, such as static pressure and differential pressure transmitters, pressure switches and indicators, indicating controllers and solenoid valves. Part of a range designed to extend the life of expensive equipment from accidental damage and in all climate conditions the enclosures feature 316 stainless steel toggle latches to ensure a tight fitting lid and help prevent the ingress of dirt and moisture. Propstays, also in 316 stainless steel, hold the lid securely in place when open.

Product Features
• **The Enclosure** is designed to extend instrumentation life.
• **EM Manifold** the EM manifold/enclosure system enables ease of instrument installation and provides external process and vent connections.
• **Toggle Latches** ensure tight-fitting lid.
• **Propstay** holds lid secure when open.
• **Enclosure Heating** offers a variety of solutions for plant temperature problems.
• **Baseplate and 2-inch NB pipe collar** standard attachments in epoxy coated carbon steel.
• **Insulated Enclosures** give protection down to -94°F [-70°C].
• **Weatherproof** to IP66.

Note
Approximate weight: 26.5 lb [12.0 kg].

Dimensions, inches [mm]

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>13.0 [330]</td>
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<td>6.7 [170]</td>
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<tr>
<td>11.6 [295]</td>
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</tr>
</tbody>
</table>

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15L Enclosure

The 15L enclosure is particularly suitable for large case transmitters, chart recorders and controllers or multiple instrument applications. Part of a range designed to extend the life of expensive equipment from accidental damage and in all climate conditions the enclosures feature 316 stainless steel toggle latches to ensure a tight fitting lid and help prevent the ingress of dirt and moisture. Propstays, also in 316 stainless steel, hold the lid securely in place when open.

Product Features

- **The Enclosure** is designed to extend instrumentation life.
- **EM Manifold** the EM manifold/enclosure system enables ease of instrument installation and provides external process and vent connections.
- **Toggle Latches** ensure tight-fitting lid.
- **Propstay** holds lid secure when open.
- **Enclosure Heating** offers a variety of solutions for plant temperature problems.
- **Baseplate and 2-inch NB pipe collar** standard attachments in epoxy coated carbon steel.
- **Insulated Enclosures** give protection down to -94°F [-70°C].
- **Weatherproof** to IP66.

### Dimensions, inches [mm]

- Width: 19.7 [500]
- Height: 23.6 [600]
- Depth: 19.5 [495]
- Lid depth: 15.4 [390]
- Lid width: 6.7 [170]
- Lid height: 13.8 [350]
- Propstay: 6.4 [162]

**Note**

Approximate weight: 44.1 lb [20.0 kg].
**L Type Enclosures**

**24L Enclosure**

Designed for multi-instrument assemblies, the 24L is suitable for multiple transmitters, control systems, analyzers, and large diaphragm type low pressure transmitters. Part of a range designed to extend the life of expensive equipment from accidental damage and in all climate conditions, the enclosures feature 316 stainless steel toggle latches to ensure a tight fitting lid and help prevent the ingress of dirt and moisture. Propstays, also in 316 stainless steel, hold the lid securely in place when open.

**Product Features**

- **The Enclosure** is designed to extend instrumentation life.
- **EM Manifold** the EM manifold/enclosure system enables ease of instrument installation and provides external process and vent connections.
- **Toggle Latches** ensure tight-fitting lid.
- **Dual Propstays** hold lid secure when open.
- **Enclosure Heating** offers a variety of solutions for plant temperature problems.
- **Baseplate and dual 2-inch NB pipe collar** standard attachments in epoxy coated carbon steel.
- **Insulated Enclosures** give protection down to -94°F [-70°C].
- **Weatherproof** to IP66.

**Dimensions, inches [mm]**

```
Dimensions, inches [mm]

<table>
<thead>
<tr>
<th>Dimension</th>
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<th>Millimeters</th>
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<td>13.8</td>
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<td>6.4</td>
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<tr>
<td>13.4</td>
<td>340</td>
<td></td>
</tr>
</tbody>
</table>
```

**Note**

Approximate weight: 72.8 lb [33.0 kg].
Features and Benefits

Enclosure Manifolds feature the Anderson Greenwood Instrumentation Products ‘A’ Series needle valve for Isolate, Equalize and Vent functions.

- **Rolled stem threads** for low operating torque and long cycle life. Stem threads are located above the spindle packing and are completely isolated from the process.
- **Stem packing** with graphite or PTFE for bubble-tight sealing.
- **Dust cap** protects spindle threads from contamination and are color coded to identify packing material.
- **Free swivel ball end stem** for repetitive bubble-tight shutoff.
- **Back seat design** provides secondary stem sealing and prevents stem blowout.
- **Adjustable gland follower and locknut** allows easy access to adjust the packing gland.
- **Handle assembly** utilizes locking bolt and will not vibrate or work loose.
- **0.2-inch [5 mm] bore.**
- **Pressure rating** up to 6,000 psig [413 barg] as standard, 10,000 psig [690 barg] option.
- **Temperature rating** -71°F to 1000°F [-57°C to +537°C].

Pressure and Temperature Ratings
### Technical Specification – Enclosure Manifolds

#### Standard Materials

<table>
<thead>
<tr>
<th>Valve</th>
<th>Body</th>
<th>Bonnet</th>
<th>Stem</th>
<th>Ball Seat</th>
<th>Non-Wetted Parts</th>
</tr>
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<tbody>
<tr>
<td>CS</td>
<td>220 M07</td>
<td>220 M07</td>
<td>303 SS</td>
<td>17.4 PH</td>
<td>CS</td>
</tr>
<tr>
<td>SS</td>
<td>316 S11</td>
<td>316 SS</td>
<td>316 SS</td>
<td>316 SS</td>
<td>Austenitic SS</td>
</tr>
<tr>
<td>SG¹</td>
<td>316 S11</td>
<td>316 SS</td>
<td>Alloy 400</td>
<td>Alloy K500</td>
<td>Austenitic SS</td>
</tr>
<tr>
<td>SG³²</td>
<td>Hastelloy® C276</td>
<td>Hastelloy® C276</td>
<td>Hastelloy® C276</td>
<td>Elgiloy®</td>
<td>Austenitic SS</td>
</tr>
</tbody>
</table>

#### Connections

**Process**
EM style manifolds are threaded 1/2-inch NPT female to ANSI/ASME B1.20.1.
EMF style manifolds are flanged and complete with 7/16-inch UNF tapped holes to accept a bolted kidney flange.

**Instrument**
Flanged for direct mounting to pressure and differential pressure transmitters.

#### Valve Bonnet Identification

**Dust Cap Coding**
The valve bonnet dust caps are color coded to identify the gland packing/stem.
- **White**: Standard bonnet assembly PTFE packing
- **Green**: Sour Gas service PTFE packing
- **Blue**: High pressure service PTFE packing

**Function Ring Label**
Each valve bonnet is identified with a colored stainless steel ring label.
- **Blue**: Isolate
- **Green**: Equalize
- **Red**: Vent

#### Valve Packings and Seal Rings

The instrument connection is flanged for direct mounted instruments. PTFE seal rings are supplied as standard with the standard PTFE packed bonnet.

- **Maximum Pressure**: 6000 psig [413 barg]
- **Maximum Temperature**: 500°F [260 barg]

Graphite seal rings are supplied with graphite gland packings for high temperature service.

- **Maximum Pressure**: 6000 psig [413 barg]
- **Maximum Temperature**: 1000°F [537°C]

Metal O-rings are also available on request.

#### Special Materials

For severe service, manifolds are available in the following exotic materials:
- Duplex UNS S31803
- Hastelloy® C276
- Incoloy® 825
- Titanium 6MO UNS S31254

Please consult factory for availability.

#### Material Traceability

Standard material traceability to EN10204-3.1.B, 50049-3.1.b, manifold body only.

---

**Notes**

1. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156-3 Corrigendum 2 (for Chloride conditions ≤ 50 mg/l [ppm]) and NACE MR0103-2005.
2. SG³ (Sour Gas) meets the requirements of NACE MR0175/ISO 15156-3 Corrigendum 2 (for Chloride conditions > 50 mg/l [ppm]).
3. When mounting Rosemount 3051/3095 transmitters with coplanar flange, longer bolts are required. Please see ordering code for details.
4. Incoloy® and Monel® are registered trademarks of Special Metals Corporation.
5. Hastelloy® is a registered trademark of Haynes International.
6. Elgiloy® is a registered trademark of Elgiloy Specialty Metals.
EM 2 Manifold

A direct instrument mounting two-valve block and bleed manifold with 1/2-inch NPT female process connections to ANSI/ASME B1.20.1. Instrument connection is flanged for direct mounting. The manifold allows for isolating, calibrating and venting functions in a single compact unit and is suitable for static and gauge pressure applications.

- Threaded 1/4-inch NPT female vent port, plugged as standard.
- Ball end stem for bubble-tight shutoff and long life.
- Process and vent connections located in manifold base for easy installation.
- Safety back seating to prevent stem blow out or accidental removal.
- Stem mirror finished and rolled threads for smooth valve operation.
- Liquid and vapor service.
- Pressure up to 6000 psig [413 barg].
- Temperature up to 1000°F [537°C].
- Optional integral steam heating ports.
- Standard stem packing PTFE.
- Optional high temperature graphite stem packing.
- ATEX Certification - product certified to Ex II 1G g/c T1-T6 according to the ATEX directive 94/9/EC for equipment intended for use in potentially explosive atmospheres (explosion groups II) as detailed in EN 13463-1:2001.

Valve Schematic

Dimensions, inches [mm]

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Inch</th>
<th>Millimeter</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.43</td>
<td>138</td>
<td>410</td>
</tr>
<tr>
<td>4.61</td>
<td>117</td>
<td>117</td>
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<tr>
<td>3.31</td>
<td>84</td>
<td>84</td>
</tr>
<tr>
<td>2.83</td>
<td>72</td>
<td>72</td>
</tr>
<tr>
<td>1.625</td>
<td>41</td>
<td>41</td>
</tr>
<tr>
<td>4.13</td>
<td>105</td>
<td>105</td>
</tr>
<tr>
<td>2.83</td>
<td>72</td>
<td>72</td>
</tr>
</tbody>
</table>

Note

Approximate weight: 5.5 lb [2.5 kg].
EM Manifolds Product Range

EM2F Manifold
A direct mounting two-valve Block and Bleed Manifold with flanged process connection and flanged instrument connection. The EM2F allows process connections to be made with process/kidney flange which is bolted onto the manifold. The manifold is suitable for static and gauge pressure applications which allow isolating, calibrating and venting functions in a single compact unit. The unit is also supplied as standard with 1/4-inch NPT female process tappings allowing the additional use of tube fittings for remote mounted process lines and instruments.

- Threaded 1/4-inch NPT female vent port, plugged as standard.
- Ball end stem for bubble-tight shutoff and long life.
- Process and vent connections located in manifold base for easy installation.
- Safety back seating to prevent stem blow out or accidental removal.
- Stem mirror finished and rolled threads for smooth valve operation.
- Liquid and vapor service.
- Pressure up to 6000 psig [413 barg].
- Temperature up to 1000°F [537°C].
- Standard stem packing PTFE.
- Optional high temperature graphite stem packing.
- Optional integral steam heating ports.
- Integral process/kidney flange breakaway joint for easy maintenance.
- Reduced leak paths.
- Process/kidney flange connection options include:
  - Female threaded connections.
  - Socket weld connections.
  - Butt weld connections.
- ATEX Certification - product certified to Ex II 1G g/c T1-T6 according to the ATEX directive 94/9/EC for equipment intended for use in potentially explosive atmospheres (explosion groups II) as detailed in EN 13463-1:2001.

Note
Approximate weight: 6.6 lb [3.0 kg].
EM3 Manifold

A direct mounting double isolate and equalize three-valve manifold with ½-inch NPT female process connections to ANSI/ASME B1.20.1 and flanged instrument connections suitable for direct mounting to a differential pressure transmitter with standard 2 1/8-inch [54 mm] centers. The manifold is suitable for differential pressure applications which allow isolating and equalizing functions in a single compact unit.

- Ball end stem for bubble-tight shutoff and long life.
- Process connections located in manifold base for easy installation.
- Safety back seating to prevent stem blow out or accidental removal.
- Stem mirror finished and rolled threads for smooth valve operation.
- Liquid and vapor service.
- Pressure up to 6000 psig [413 barg].
- Temperature up to 1000°F [537°C].
- Optional integral steam heating ports.
- Standard stem packing PTFE.
- Optional high temperature graphite stem packing.
- ATEX Certification - product certified to Ex II 1G g/c T1-T6 according to the ATEX directive 94/9/EC for equipment intended for use in potentially explosive atmospheres (explosion groups II) as detailed in EN 13463-1:2001.

Dimensions, inches [mm]

Valve Schematic

Note

Approximate weight: 9.9 lb [4.5 kg].
EM Manifolds Product Range

EM3F Manifold

A direct mounting three-valve double isolate and equalize manifold with flanged process connections and flanged instrument connections to suit standard 2\(\frac{1}{8}\)-inch [54 mm] centers. The EM3F allows process connections to be made with process/kidney flanges which are bolted on to the manifold. The manifold is suitable for differential pressure applications which allow isolating and equalizing functions in a single compact unit. The unit is also supplied as standard with 1/4-inch NPT female process tappings allowing the additional use of tube fittings for remote mounted process lines and instruments.

- Ball end stem for bubble-tight shutoff and long life.
- Process connections located in manifold base for easy installation.
- Safety back seating to prevent stem blow out or accidental removal.
- Stem mirror finished and rolled threads for smooth valve operation.
- Liquid and vapor service.
- Pressure up to 6000 psig [413 barg].
- Temperature up to 1000°F [537°C].
- Optional integral steam heating port.
- Standard stem packing PTFE.
- Optional high temperature graphite stem packing.
- Integral process/kidney flange breakaway joint for easy maintenance.
- Reduced leak paths.
- Process/kidney flange connection options include:
  - Female threaded connections.
  - Socket weld connections.
  - Butt weld connections.
- ATEX Certification - product certified to Ex II 1G g/c T1-T6 according to the ATEX directive 94/9/EC for equipment intended for use in potentially explosive atmospheres (explosion groups II) as detailed in EN 13463-1:2001.

Dimensions, inches [mm]

- 10.63 [270] Open
- 5.51 [140]
- 1.625 [41]
- 2.125 [54]
- 3.31 [84]
- 4.61 [117]
- 4.13 [105] Open
- 2.91 [74]
- 5.51 [140]
- ø 1.625 [41]
- 2 x 7/16-inch UNF Kidney Flange Mounting Holes
- 2 x 1/4-inch NPT Process
- 2 x M10 Mounting Holes
- 4.13 [105] Open
- 5.51 [140]
- 4.61 [117]
- 3.31 [84]
- 4.13 [105]
- 2.91 [74]

Note

Approximate weight: 11.0 lb [5.0 kg].
EM Manifolds Product Range

EM5 Manifold
A direct mounting five-valve double isolate, equalize and double vent manifold with 1/2-inch NPT female process connections to ANSI/ASME B1.20.1 and flanged instrument connections suitable for direct mounting to a differential pressure transmitter with standard 2 1/8-inch [54 mm] centers. The manifold is suitable for differential pressure applications which allow isolating, equalizing and venting functions in a single compact unit.

- Threaded 1/4-inch NPT female vent ports, plugged as standard.
- Ball end stem for bubble-tight shutoff and long life.
- Process and vent connections located in manifold base for easy installation.
- Safety back seating to prevent stem blow out or accidental removal.
- Stem mirror finished and rolled threads for smooth valve operation.
- Liquid and vapor service.
- Pressure up to 6000 psig [413 barg].
- Temperature up to 1000°F [537°C].
- Optional integral steam heating ports.
- Standard stem packing PTFE.
- Optional high temperature graphite stem packing.
- ATEX Certification - product certified to Ex II 1G g/c T1-T6 according to the ATEX directive 94/9/EC for equipment intended for use in potentially explosive atmospheres (explosion groups II) as detailed in EN 13463-1:2001.

Valve Schematic

Dimensions, inches [mm]

Note
Approximate weight: 11.0 lb [5.0 kg]
EM Manifolds Product Range

EM5F Manifold
A direct mounting five-valve double isolate, equalize and double vent manifold with flanged process connections and flanged instrumentation connections to suit standard 2\(\frac{1}{8}\)-inch [54 mm] centers. The EM5F allows process connections to be made with process/kidney flanges which are bolted onto the manifold. The manifold is suitable for differential pressure applications which allow isolating, equalizing and venting facilities in a single compact unit. The unit is also supplied as standard with 1/4-inch NPT female process tappings allowing the additional use of tube fittings for remote mounted process lines and instruments.

- Threaded 1/4-inch NPT female vent ports, plugged as standard.
- Ball end stem for bubble-tight shutoff and long life.
- Process and vent connections located in manifold base for easy installation.
- Safety back seating to prevent stem blow out or accidental removal.
- Stem mirror finished and rolled threads for smooth valve operation.
- Liquid and vapor service.
- Pressure up to 6000 psig [413 barg].
- Temperature up to 1000°F [537°C].
- Optional integral steam heating ports.
- Standard stem packing PTFE.
- Optional high temperature graphite stem packing.
- Integral process/kidney flange breakaway joint for easy maintenance.
- Reduced leak paths.
- Process kidney flange connection options include:
  - Female threaded connections.
  - Socket weld connections.
  - Butt weld connections.
- ATEX Certification - product certified to Ex II 1G g/c T1-T6 according to the ATEX directive 94/9/EC for equipment intended for use in potentially explosive atmospheres (explosion groups II) as detailed in EN 13463-1:2001.

**Dimensions, inches [mm]**

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Inches</th>
<th>Millimeters</th>
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<tbody>
<tr>
<td>1.625 [41]</td>
<td>2.13 [54]</td>
<td>5.1 [130]</td>
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<tr>
<td>10.63 [270]</td>
<td>Open</td>
<td>3.31 [84]</td>
</tr>
<tr>
<td>5.51 [140]</td>
<td>2 x 1/4-inch NPT Vent</td>
<td>2 x 1/4-inch NPT Process</td>
</tr>
<tr>
<td>2 x 7/16-inch UNF</td>
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<td></td>
</tr>
</tbody>
</table>

**Note**
Approximate weight: 12.1 lb [5.5 kg].
Enclosure Manifold Accessories

Manifold Adaptors
Manifold adaptors are available to enable instruments with screwed process ports to be connected to EM manifolds. There are three adaptors available:

- MA - Horizontal adaptor - 1/2-inch connection.
- VMA - Vertical adaptor - 1/2-inch NPT female connection (EM2 only).
- MMA - Horizontal adaptor - 1/2-inch NPT male connection.

Materials
Manifold accessories are available in stainless steel, carbon steel and Monel®. Please specify when ordering.

EM Manifold Options

AT - Anti-Tamper Bonnet
Valve bonnets are available with a removable T-bar key to prevent unauthorized operation of valves.

K - Key for Anti-Tamper Bonnet
Valves are available with lockable anti-tamper bonnets which can be supplied for padlocking providing added security.

PD - Padlock for LAT
Valves are available with an integral steam heating port (1/2-inch NPT female).

ISH - Integral Steam Heating Ports
Valves are available with an optional integral steam heating port (1/2-inch NPT female).

Optional Ball End Stems
- CB Ceramic Ball
- ST Stellite Ball
These specially hardened materials are suitable for particularly corrosive or erosive duties.

R3V - Bolt Installation Kit for Rosemount 3051 C/3095 (with Coplanar® flange)

EM 3/5 - Steam Heating

Notes
1. Carbon steel valves are not available for Sour Gas Service.
2. SG (Sour Gas) meets the requirements of NACE MR0175/ISO 15156-3 Corrigendum 2 (for Chloride conditions ≤ 50 mg/l [ppm]) and NACE MR0103-2005.
3. SG3 (Sour Gas) meets the requirements of NACE MR0175/ISO 15156-3 Corrigendum 2 (for Chloride conditions > 50 mg/l [ppm]).
4. Coplanar® is a registered trademark of Rosemount, Inc.
Process/Kidney Flanges
Concentric kidney flanges are available for bolting to the process side of EMF flanged manifolds. Suitable for use in a close couple instrument loop, kidney flanges also provide the ideal solution to welded connection requirements, allowing the process/kidney flange to be welded to the process piping whilst keeping the flexibility to remove the manifold by releasing the bolts. Each kidney flange is supplied with two 7/16-inch UNF HT Steel mounting bolts, washers and a PTFE gasket.

Graphite gaskets are available for applications over 500°F [260°C].

Blind flanges are also available.

Maximum Pressure Rating
6000 psig [413 barg]

Ordering Information

<table>
<thead>
<tr>
<th>Connection</th>
<th>CS</th>
<th>SS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/2&quot; NPT F</td>
<td>KFC-4</td>
<td>KFS-4</td>
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<tr>
<td>1/2&quot; NPT M</td>
<td>KFC-44</td>
<td>KFS-44</td>
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<tr>
<td>1/2&quot; Butt Weld</td>
<td>KFC-4BW</td>
<td>KFS-4BW</td>
</tr>
<tr>
<td>1/2&quot; Socket Weld</td>
<td>KFC-4B</td>
<td>KFS-4B</td>
</tr>
</tbody>
</table>

Notes
1. For stainless steel bolts, please suffix part number:
   -SSB [ASTM A193 B8M CL2] maximum pressure 6000 psig [413 barg];
   -SSC [ASTM A193 B8M] maximum pressure 4500 psig [306 barg],
   e.g. KFS-4-SSB.
2. For Butt Weld end, please specify pipe schedule, e.g. KFS-4BW080.
Complete Heating Systems
A complete range of electrical heaters are available, suitable for a variety of plant conditions.

Four main types offer a variety of configurations with a choice of thermostats, hazardous or non-hazardous area heaters, and plastic junction boxes. All heating circuits are pre-assembled to the required power rating.

Product Features
- Purpose designed heating systems to plant and environmental conditions.
- Choice of hazardous or non-hazardous area heaters.
- Hazardous area heaters with ATEX specification approval.
- Heater output from 50W to 500W.
- Choice of heaters, self limiting or fixed output.
- Choice of junction boxes.
- Choice of thermostats, fixed or adjustable.
- Heaters are installed to take up the minimum space inside the enclosure.
- Insulated enclosures available to reduce system heat loss, and heater wattage.

Accessories – Electrical Heating

Heating System Configurations

**Type A:** Tape or finned panel heater with plastic junction box and pre-set thermostat.
Suitable for Hazardous Areas.

**Type D:** Tape or finned panel heater with plastic junction box.
Suitable for Hazardous Areas.

**Type E:** Tape or finned panel heater with flame proof plastic junction box and fitted adjustable thermostat, with liquid filled capillary sensor.
Suitable for Hazardous Areas, where precise control is required.

**Type F:** Direct mounting manifold heater with plastic junction box.
Suitable for Hazardous Areas.

**Type G:** Adjustable Heater with adjustable thermostat.
Suitable for Non-Hazardous Areas.
Accessories – Electrical Heating

### Hazardous Areas

**FHA - Self Limiting Finned Panel Heater - EExd Rated**

The FHA Heater is produced from a self-limiting semi-conductor heater element, so the heater may be used without a thermostat. The heater is provided with a finned aluminum body to ensure maximum thermal efficiency. The FHA Heater also varies its output as ambient temperature rises, making it more efficient than conventional heaters. The FHA Heater is available in 70, 200 and 400 Watt units, and features a 3 core wire armored cable.

**THS - Self Limiting Tape Panel Heater - EExe Rated**

The THS Heater is produced from self-limiting heating tape wound onto a stainless steel heat sink mounting assembly. Due to the intrinsic self-regulating properties of the tape, the heater may be used without a thermostat, eliminating the possibility of over heating. The tapes polymer construction ensures high reliability in harsh or corrosive environments, unlike conventional heaters which draw the same power regardless of ambient temperature. The THS Heater varies its power output and is therefore more energy efficient. As temperatures rise the electrical resistance of the core material increases, reducing current flow. The THS is available in 50, 100 and 200 Watt units, and features a 3 core silicon cable.

**MH - Direct Mounting Manifold Heater - EExm Rated**

The MH Heater is designed to directly mount onto the enclosure manifold, which becomes the heat sink. The MH Heater ensures constant manifold temperatures with power consumption of only 50 or 80 Watts. Self-limiting temperature control is provided via an integral thermal switching device which reduces current flow as the temperature rises, ensuring over-heating does not occur, and low running costs. The MH Heater is fitted to the EM manifolds with bolts. The unit features a 3-core silicon cable.

### Non-Hazardous Areas

**EH - Industrial Heater**

A compact air heater can be used for frost protection and is suitable for use on all non-hazardous areas. This heater has a resistance wire type element which is suitable for use with 240V AC or 110V AC. Available in a choice of power ratings: 60, 80 and 100 Watt. The heaters can be supplied for site fitting or factory fitted and wired to an adjustable 32°F to 86°F [0°C to 30°C] air sensing thermostat.

**Notes**

1. 400W non-hazardous area heater is also available - Type FHA-400 please see page 20 for dimensions.

2. All heaters are supplied as standard with 240 volt AC power supply. 110 volt AC is also available, please specify where required.
Accessories – Thermostats and Junction Boxes

FFT Thermostat - EExd Rated
The FFT is a fixed flameproof thermal switch for monitoring temperatures, suitable for hazardous areas. It is explosion protected and suitable for use inside enclosures, to control temperatures or as a monitor for an alarm. Standard units are supplied set at 68°F [20°C].

The thermostat can be supplied either on its own or fitted to a PJB1 junction box. The FFT can be supplied with an ATEX certificate of conformity.

BST Thermostat/Junction Box - EExde Rated
The BST is an adjustable surface temperature thermostat junction box suitable for use in hazardous areas. Mounted in a plastic junction box, outside the enclosure, the thermostat has a flexible conduit with liquid filled capillary and bulb which is located in the enclosure system through a gland plate or grommet. Standard units are supplied with the following setting range 32°F to 122°F [0°C to 50°C]. The BST can be supplied with an ATEX EExd certificate.

PJB Plastic Junction Box - EExe
The PJB is a flame-retardant plastic junction box suitable for hazardous area installations and uses Exe terminals. It is available in two sizes, either as a mini-terminal box PJB2 with two entries, or as a larger three port box PJB1, which is available fitted with FFT thermostat and heater connections. The boxes are explosion protected to EExe and ATEX certified. They have a threaded lid and include a terminal rail and earthing studs.

IT - Thermostat - Non-Hazardous
The IT is an adjustable air sensing thermostat in a plastic junction box suitable for non-hazardous areas. Setting range 32°F to 86°F [0°C to 30°C].
## Accessories – Technical Specifications

### Heaters

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Power Output (watts)</th>
<th>Power Supply (volts AC)</th>
<th>Heater Type</th>
<th>Electrical Approval</th>
<th>Dimensions, inches [mm]</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>THS-50</td>
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<td>Tape</td>
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<td>Tape</td>
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<td>240</td>
<td>Tape</td>
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<td>MH-B2</td>
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<td>240</td>
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<td>MH-B3</td>
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<td>FHA-200</td>
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<td>FHA-400</td>
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<td>Finned</td>
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<td>240</td>
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<td>EH5</td>
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<td>240</td>
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### Thermostats

<table>
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<tr>
<th>Model No.</th>
<th>Range</th>
<th>Switching Tolerance on Set Temperature</th>
<th>Electrical Approval</th>
<th>Dimensions, inches [mm]</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Width</td>
</tr>
<tr>
<td>BST</td>
<td>Adjustable Surface Thermostat 32°F to 122°F [0° to + 50°C]</td>
<td>30°F to 34.7°F [-1° to + 1 1/2°C]</td>
<td>ATEX EEexe T6</td>
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<tr>
<td>IT</td>
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<td>–</td>
<td>2.76 [70]</td>
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### Junction Boxes

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<th>Electrical Approval</th>
<th>Dimensions, inches [mm]</th>
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<tbody>
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<td></td>
<td></td>
<td>Width</td>
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<td>ATEX EEexe II T6</td>
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<tr>
<td>PJB2</td>
<td>ATEX EEexe II T6</td>
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</table>
Ordering Information

To order individual components please use the model numbers on page 20.
To order combinations please use the coding below.

Heater Type

<table>
<thead>
<tr>
<th>TS</th>
<th>Tape Heater</th>
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</thead>
<tbody>
<tr>
<td>FS</td>
<td>Finned Heater</td>
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<tr>
<td>MH</td>
<td>Manifold Heater</td>
</tr>
<tr>
<td>E3</td>
<td>Industrial Heaters 60 Watt</td>
</tr>
<tr>
<td>E4</td>
<td>Industrial Heaters 80 Watt</td>
</tr>
<tr>
<td>E5</td>
<td>Industrial Heaters 100 Watt</td>
</tr>
</tbody>
</table>

Configuration

<table>
<thead>
<tr>
<th>A</th>
<th>PJB1 Junction Box fitted with FFT Thermostat</th>
</tr>
</thead>
<tbody>
<tr>
<td>D</td>
<td>PJB2 Junction Box</td>
</tr>
<tr>
<td>E</td>
<td>BST Thermostat/Junction Box</td>
</tr>
<tr>
<td>F</td>
<td>PJB2 Junction Box</td>
</tr>
<tr>
<td>G</td>
<td>IT Thermostat (Non-Hazardous)</td>
</tr>
</tbody>
</table>

Heater Size

| 0   | FHA - 400, EH - 400                      |
| 4   | THS - 50                                 |
| 5   | THS - 100, FHA - 70                      |
| 6   | THS - 200                                |
| 7   | FHA - 200                                |
| 8   | MH - B2 (50W)                            |
| 9   | MH - B3 (80W)                            |
Accessories – Steam Heating

Where steam is available on site, enclosure systems can be heated directly through the EM manifold block or if necessary via a separate copper or stainless steel steam coil.

Steam Heating Integral with Manifolds

The EM manifolds can be manufactured with an optional integral steam channel which allows efficient heating of the process through the manifold. This type of heating is ideal for maintaining high process temperatures as it provides heat in the manifold and transmitter body where it is most effective.

The EM3 and EM5 have optional steam entry and exit connections located in the base of the manifold adjacent to the process connections. The EM2 has optional steam entry and exit connections located in the sides of the manifold and require a steam coil, standard in copper or stainless steel, which terminates in bulkhead fittings.

Connections

All steam connections are threaded 1/4-inch NPT as standard.

Performance

Typical performance of an integral steam heated manifold in an insulated and uninsulated enclosure for a number of steam pressures is shown in the graph.

This graph is based on independent laboratory tests in simulated outdoor conditions.

Please consult the factory for specific details.

EM 3/5 - Steam Heating

Steam Coils

Coils are standard in stainless steel or copper and terminate in a bulkhead fitting. Head output can be boosted by passing the steam coil through a heat exchanger block.

Ordering Information

Coil Size | Copper | Stainless Steel
---|---|---
1/4" | XS.Cu.25 | XS.S.25
3/8" | XS.Cu.38 | XS.S.38

Accessories – Steam Heating

Steam Heating Integral with Manifolds

The EM manifolds can be manufactured with an optional integral steam channel which allows efficient heating of the process through the manifold. This type of heating is ideal for maintaining high process temperatures as it provides heat in the manifold and transmitter body where it is most effective.

The EM3 and EM5 have optional steam entry and exit connections located in the base of the manifold adjacent to the process connections. The EM2 has optional steam entry and exit connections located in the sides of the manifold and require a steam coil, standard in copper or stainless steel, which terminates in bulkhead fittings.

Connections

All steam connections are threaded 1/4-inch NPT as standard.

Performance

Typical performance of an integral steam heated manifold in an insulated and uninsulated enclosure for a number of steam pressures is shown in the graph.

This graph is based on independent laboratory tests in simulated outdoor conditions.

Please consult the factory for specific details.

EM 3/5 - Steam Heating

Steam Coils

Coils are standard in stainless steel or copper and terminate in a bulkhead fitting. Head output can be boosted by passing the steam coil through a heat exchanger block.

Ordering Information

Coil Size | Copper | Stainless Steel
---|---|---
1/4" | XS.Cu.25 | XS.S.25
3/8" | XS.Cu.38 | XS.S.38

Accessories – Steam Heating

Steam Heating Integral with Manifolds

The EM manifolds can be manufactured with an optional integral steam channel which allows efficient heating of the process through the manifold. This type of heating is ideal for maintaining high process temperatures as it provides heat in the manifold and transmitter body where it is most effective.

The EM3 and EM5 have optional steam entry and exit connections located in the base of the manifold adjacent to the process connections. The EM2 has optional steam entry and exit connections located in the sides of the manifold and require a steam coil, standard in copper or stainless steel, which terminates in bulkhead fittings.

Connections

All steam connections are threaded 1/4-inch NPT as standard.

Performance

Typical performance of an integral steam heated manifold in an insulated and uninsulated enclosure for a number of steam pressures is shown in the graph.

This graph is based on independent laboratory tests in simulated outdoor conditions.

Please consult the factory for specific details.

EM 3/5 - Steam Heating

Steam Coils

Coils are standard in stainless steel or copper and terminate in a bulkhead fitting. Head output can be boosted by passing the steam coil through a heat exchanger block.

Ordering Information

Coil Size | Copper | Stainless Steel
---|---|---
1/4" | XS.Cu.25 | XS.S.25
3/8" | XS.Cu.38 | XS.S.38
BS - 316 Stainless Steel Baseplate
W - Windows

Windows for all enclosures are circular and made from toughened low heat loss glass with a windscreen type rubber seal.

L-Locks

To prevent unauthorized access, stainless steel padlock brackets and brass padlocks can be fitted to the enclosure upon request.

UD - ‘U’ drain in base of enclosure
LH - 316 Stainless Steel Lifting handle on enclosure lid (Two on 24L)

Instrument Services

GPB - Gland Plate 7.9 x 3.0-inch [200 x 77 mm]

GRP Gland Plate is available either factory fitted or with a drilling template for site fitting. Supplied either blank, pre-drilled or fitted with grommets, electrical glands or bulkhead fittings to customers’ requirements. Available on the full range of enclosures.

SGP - Split Gland Plates

Made from austenitic stainless steel, the split gland plate allows exit of a sealed capillary on instruments having remote sensing devices. Made to individual specification and available on the full range of enclosures.

Ventilation

Enclosures can be supplied with louvers or ventilators to allow ‘breathing’ when the enclosures are closed. A single unit will prevent the build-up of air pressure or excessive heat. When fitted in pairs the vents give through ventilation to prevent condensation inside the enclosure or the build up of toxic gases.

LR - Louvers

Made from austenitic stainless steel, the standard size is 5.9 x 3.9-inch [150 x 100 mm], available on the full range of enclosures.

VR - Ventilators

GRP weir type ventilator measures 2.75 x 3.15-inch [70 mm high x 80 mm wide] and is fitted in a round hole measuring 1.10-inch [28 mm] diameter. Available on the full range of enclosures.

CG - Cable Glands

Cable Glands are available in nylon plastic or brass as required. Glands for use in hazardous areas are also available.

G - Grommets

Made from ethylene propylene, grommets are available for all enclosures. Please consult the factory for other sizes.

Grommets

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Grommet Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>G1</td>
<td>5-7 mm</td>
</tr>
<tr>
<td>G2</td>
<td>7-10 mm</td>
</tr>
<tr>
<td>G3</td>
<td>10-14 mm</td>
</tr>
<tr>
<td>G4</td>
<td>14-20 mm</td>
</tr>
<tr>
<td>G5</td>
<td>20-26 mm</td>
</tr>
<tr>
<td>G6</td>
<td>26-35 mm</td>
</tr>
</tbody>
</table>
Accessories – Internal Mounting

Special Bracketing
Special Bracketing is available designed and fabricated by Anderson Greenwood Instrumentation Products to allow non-standard instruments or other equipment to be mounted inside an enclosure.

Note
1. All brackets are also available in 316 stainless steel as an option.
   Add S to model no., e.g. VMPS.

Dimensions, inches [mm]

<table>
<thead>
<tr>
<th>Model</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>Wt. No.</th>
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<th>[kg]</th>
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<td>14.1</td>
<td>–</td>
<td>13.2</td>
<td></td>
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</table>
**Accessories – Enclosure Mounting**

**PS - Pipestands**
All enclosures are supplied as standard with baseplates and collar with pinch bolt to suit 2-inch NB pipestands. The standard enclosure pipestand is 39.40-inch [1 m] high.

All Instrument Shades are supplied as standard with vertical mounting brackets to suit 2-inch NB pipestands. The standard shade pipestand is 59.0-inch [1.5 m].

The 5L/5S and 15L/15S require a single pipestand, the 24L/24S require twin pipestands.

The PS is made from 2-inch NB Sch 80 epoxy coated carbon steel.

**WMS - Wall Mounting Straps**
All enclosures and shades can be supplied with either vertical or horizontal wall mounting straps. The WMS are made from epoxy coated carbon steel.

<table>
<thead>
<tr>
<th>Model No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
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**WMSV**

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<th>D</th>
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<th>F</th>
<th>G</th>
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<td>2.63</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>8.8 [4]</td>
</tr>
<tr>
<td>24L</td>
<td>23.62</td>
<td>25.60</td>
<td>2.63</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>8.8 [4]</td>
</tr>
</tbody>
</table>

**WMSH**

<table>
<thead>
<tr>
<th>Model No.</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
<th>G</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>5L</td>
<td>13.00</td>
<td>9.85</td>
<td>2.08</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>4.4 [2]</td>
</tr>
<tr>
<td>15L</td>
<td>23.62</td>
<td>14.17</td>
<td>3.07</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>8.8 [4]</td>
</tr>
<tr>
<td>24L</td>
<td>35.43</td>
<td>14.17</td>
<td>3.07</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>8.8 [4]</td>
</tr>
</tbody>
</table>

**Note**
1. All pipestands and wall straps are also available in 316 stainless steel as an option.
   Add S to model no., e.g. WMSVS
**Instrument Shades**

Anderson Greenwood Instrumentation Products Instrument Shades are available in three sizes to provide cover from industrial to desert conditions offering protection against rain, snow, direct sunlight, and falling objects for most instrument installations.

**Dimensions, inches [mm]**

<table>
<thead>
<tr>
<th>Size</th>
<th>Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>14.6 [370]</td>
<td>7.3 [185]</td>
</tr>
<tr>
<td>17.5 [445]</td>
<td>2.4 [60]</td>
</tr>
</tbody>
</table>

**Note**

Approximate weight: 22.0 lb [10.0 kg]

**5S**

A standard shade for single instrument applications such as differential pressure or pressure transmitters, pressure switches and controllers. It can also help to minimize the effects of instrument drift by reducing instrument surface temperature in direct sunlight.

- Glass reinforced polyester dough moulding compound rigid construction.
- Standard color: white.
- Austenitic steel fastener and fittings.
- Suitable for environments from -94°F to +176°F [-70°C to +80°C].
- Reflective white protects shade from UV rays.
- Carbon steel back plate and bracket as standard epoxy coated.
- Fire Retardant.
- Anti-static option.
### Instrument Shades

#### 15S

Medium sized shade suitable for protecting chart recorders, dual transmitters or large transmitters. It can also help to minimize the effects of instrument drift by reducing instrument surface temperature in direct sunlight.

- Glass reinforced polyester dough moulding compound rigid construction.
- Standard color: white.
- Austenitic steel fastener and fittings.
- Suitable for environments from \(-94^\circ F\) to \(+176^\circ F\) \([-70^\circ C\) to \(+80^\circ C]\).
- Reflective white protects shade from UV rays.
- Carbon steel back plate and bracket as standard, epoxy coated.
- Fire retardant.
- Anti-static option.

#### 24S

Larger shade used to safeguard multiple instrument applications and small analyzers. It can also help to minimize the effects of instrument drift by reducing instrument surface temperature in direct sunlight.

- Glass reinforced polyester dough moulding compound rigid construction.
- Standard color: white.
- Austenitic steel fastener and fittings.
- Suitable for environments from \(-94^\circ F\) to \(+176^\circ F\) \([-70^\circ C\) to \(+80^\circ C]\).
- Reflective white protects shade from UV rays.
- Carbon steel back plate and bracket as standard, epoxy coated.
- Fire retardant.
- Anti-static option.

---

**Note**

Approximate weight: 35.2 lb [16.0 kg]

**Note**

Approximate weight: 48.4 lb [22.0 kg]
Ordering Information

Example: 15L.AS.I.W.EM5HIS-4-SG.TSA5

Field 1: Enclosure Type
- 5L Small Enclosure
- 15L Medium Enclosure
- 24L Large Enclosure

Field 2: Enclosure Options
- AS Anti-static
- I Insulated
- W Window
- BS 316 Stainless Steel Baseplate

Field 3: Manifold Type
- EM2 Flange x Thread two-valve manifold
- EM3 Flange x Thread three-valve manifold
- EM5 Flange x Thread five-valve manifold
- EM2F Flange x Flange two-valve manifold
- EM3F Flange x Flange three-valve manifold
- EM5F Flange x Flange five-valve manifold

Field 4: Manifold Options
- AT Anti Tamper Bonnet
- K Key for Anti Tamper
- LAT Lockable Anti Tamper Bonnet
- PD Padlock for LAT
- ISH Steam Heating Channel
- CB Ceramic Ball Tip
- ST Stellite Ball Tip
- R3V Bolt Kit For Rosemount 3051C Transmitter
- HB High Back Mounted in Enclosure
- LB Low Back Mounted in Enclosure
- AL Low Temperature Service
- SG NACE MR0175 latest revision
- OC Degreased for Oxygen Service
- BL Bonnet Locking Collar
- SSB High Tensile Stainless Steel Bolts (ASTM A193 B8M.CL2)
- SSC Stainless Steel Bolts (ASTM A193 B8M)
- MA 1/2 NPT Female Manifold Adaptor
- VMA 1/2 NPT Female Vertical Manifold Adaptor (EM2 only)
- MMA 1/2 NPT male Manifold Adaptor
- MS Manifold Spacer 316 Stainless Steel
- MS×90° Manifold Spacer 90°, 316 Stainless Steel
- SP Special Requirements (Please Specify)

Field 6: Accessory Option
- 15L AS.I.W. EM5HIS-4 SG TSA5

Note
1. These codes may be used together e.g.: AS.I Anti-static, Insulated.
## Ordering Information

### Field 5 Heating Options

#### Combinations - Hazardous Areas

<table>
<thead>
<tr>
<th>Code</th>
<th>Heater Wattage</th>
<th>Type</th>
<th>Junction Box</th>
<th>Thermostat</th>
</tr>
</thead>
<tbody>
<tr>
<td>TSA4</td>
<td>50</td>
<td>Tape</td>
<td>PJB1</td>
<td>FFT (Fixed)</td>
</tr>
<tr>
<td>TSA5</td>
<td>100</td>
<td>Tape</td>
<td>PJB1</td>
<td>FFT (Fixed)</td>
</tr>
<tr>
<td>TSA6</td>
<td>200</td>
<td>Tape</td>
<td>PJB1</td>
<td>FFT (Fixed)</td>
</tr>
<tr>
<td>TSD4</td>
<td>50</td>
<td>Tape</td>
<td>PJB2</td>
<td>(None)</td>
</tr>
<tr>
<td>TSD5</td>
<td>100</td>
<td>Tape</td>
<td>PJB2</td>
<td>(None)</td>
</tr>
<tr>
<td>TSD6</td>
<td>200</td>
<td>Tape</td>
<td>PJB2</td>
<td>(None)</td>
</tr>
<tr>
<td>TSE4</td>
<td>50</td>
<td>Tape</td>
<td>BST</td>
<td>Adjustable</td>
</tr>
<tr>
<td>TSE5</td>
<td>100</td>
<td>Tape</td>
<td>BST</td>
<td>Adjustable</td>
</tr>
<tr>
<td>TSE6</td>
<td>200</td>
<td>Tape</td>
<td>BST</td>
<td>Adjustable</td>
</tr>
<tr>
<td>FSA5</td>
<td>70</td>
<td>Finned</td>
<td>PJB1</td>
<td>FFT</td>
</tr>
<tr>
<td>FSA7</td>
<td>200</td>
<td>Finned</td>
<td>PJB1</td>
<td>FFT</td>
</tr>
<tr>
<td>FSO5</td>
<td>400</td>
<td>Finned</td>
<td>PJB2</td>
<td>FFT</td>
</tr>
<tr>
<td>FSD5</td>
<td>100</td>
<td>Finned</td>
<td>PJB2</td>
<td>(None)</td>
</tr>
<tr>
<td>FSD7</td>
<td>200</td>
<td>Finned</td>
<td>PJB2</td>
<td>(None)</td>
</tr>
<tr>
<td>FSDO</td>
<td>400</td>
<td>Finned</td>
<td>PJB2</td>
<td>(None)</td>
</tr>
<tr>
<td>FSE5</td>
<td>70</td>
<td>Finned</td>
<td>BST</td>
<td>Adjustable</td>
</tr>
<tr>
<td>FSE7</td>
<td>200</td>
<td>Finned</td>
<td>BST</td>
<td>Adjustable</td>
</tr>
<tr>
<td>FSEO</td>
<td>400</td>
<td>Finned</td>
<td>BST</td>
<td>Adjustable</td>
</tr>
<tr>
<td>MHF8</td>
<td>50</td>
<td>Direct (EM Manifold)</td>
<td>PJB2</td>
<td>(None)</td>
</tr>
<tr>
<td>MHF9</td>
<td>80</td>
<td>Direct (EM Manifold)</td>
<td>PJB2</td>
<td>(None)</td>
</tr>
</tbody>
</table>

#### Combinations - Non-Hazardous Areas

<table>
<thead>
<tr>
<th>Code</th>
<th>Wattage</th>
<th>Type</th>
<th>Thermostat</th>
</tr>
</thead>
<tbody>
<tr>
<td>E3G</td>
<td>60</td>
<td>Industrial</td>
<td>Adjustable</td>
</tr>
<tr>
<td>E4G</td>
<td>80</td>
<td>Industrial</td>
<td>Adjustable</td>
</tr>
<tr>
<td>E5G</td>
<td>100</td>
<td>Industrial</td>
<td>Adjustable</td>
</tr>
<tr>
<td>FSGO</td>
<td>400</td>
<td>Finned</td>
<td>Adjustable</td>
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</table>

#### Individual Components - Hazardous Areas

<table>
<thead>
<tr>
<th>Code</th>
<th>Heater Wattage</th>
<th>Type</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>THS-50</td>
<td>50</td>
<td>Tape</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>THS-100</td>
<td>100</td>
<td>Tape</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>THS-200</td>
<td>200</td>
<td>Tape</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>FHA-70</td>
<td>70</td>
<td>Finned</td>
<td>Aluminum</td>
</tr>
<tr>
<td>FHA-200</td>
<td>200</td>
<td>Finned</td>
<td>Aluminum</td>
</tr>
<tr>
<td>FHA-400</td>
<td>400</td>
<td>Finned</td>
<td>Aluminum</td>
</tr>
<tr>
<td>MH-B2</td>
<td>50</td>
<td>Direct Heater (EM Manifold)</td>
<td>Aluminum</td>
</tr>
<tr>
<td>MH-B3</td>
<td>80</td>
<td>Direct Heater (EM Manifold)</td>
<td>Aluminum</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Junction Box</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>PJB1/FFT</td>
<td>Plastic Junction Box with Fixed Thermostat</td>
</tr>
<tr>
<td>PJB2</td>
<td>Plastic Junction Box</td>
</tr>
<tr>
<td>BST</td>
<td>Plastic Junction Box with Adjustable Thermostat</td>
</tr>
</tbody>
</table>

#### Individual Components - Non-Hazardous Areas

<table>
<thead>
<tr>
<th>Code</th>
<th>Wattage</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>EH3</td>
<td>60</td>
<td>60 Watt Industrial Heater</td>
</tr>
<tr>
<td>EH4</td>
<td>80</td>
<td>80 Watt Industrial Heater</td>
</tr>
<tr>
<td>EH5</td>
<td>100</td>
<td>100 Watt Industrial Heater</td>
</tr>
<tr>
<td>EH-400</td>
<td>400</td>
<td>400 Watt Finned Heater</td>
</tr>
<tr>
<td>IT</td>
<td></td>
<td>Plastic Junction Box with Adjustable Thermostat</td>
</tr>
</tbody>
</table>

#### Individual Components - Steam Coils (With Tube Fittings)

<table>
<thead>
<tr>
<th>Code</th>
<th>Size</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>XSCCU25</td>
<td>1/4&quot; OD</td>
<td>Copper</td>
</tr>
<tr>
<td>XSCCU38</td>
<td>3/8&quot; OD</td>
<td>Copper</td>
</tr>
<tr>
<td>XSS25</td>
<td>1/4&quot; OD</td>
<td>Stainless Steel</td>
</tr>
<tr>
<td>XSS38</td>
<td>3/8&quot; OD</td>
<td>Stainless Steel</td>
</tr>
</tbody>
</table>
### Field 6 Accessory Options

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WMSV</td>
<td>Wall mounting straps vertical - carbon steel</td>
</tr>
<tr>
<td>WMSH</td>
<td>Wall mounting straps horizontal - carbon steel</td>
</tr>
<tr>
<td>WMSVS</td>
<td>Wall mounting straps vertical - stainless steel</td>
</tr>
<tr>
<td>WMSHS</td>
<td>Wall mounting straps horizontal - stainless steel</td>
</tr>
<tr>
<td>L</td>
<td>Padlock bracket including padlock</td>
</tr>
<tr>
<td>UD</td>
<td>'U'-drain in base of enclosure</td>
</tr>
<tr>
<td>LH</td>
<td>Lifting handle on enclosure lid</td>
</tr>
<tr>
<td>GPB</td>
<td>GRP gland plate [200 mm x 77 mm]</td>
</tr>
<tr>
<td>SGP</td>
<td>Split gland plate (inc. split G2 grommet)</td>
</tr>
<tr>
<td>LR</td>
<td>Stainless steel louvre [150 mm x 100 mm]</td>
</tr>
<tr>
<td>VR</td>
<td>GRP ventilator</td>
</tr>
<tr>
<td>G1</td>
<td>Rubber grommet [5 - 7 mm] diameter</td>
</tr>
<tr>
<td>G2</td>
<td>Rubber grommet [7 - 10 mm] diameter</td>
</tr>
<tr>
<td>G3</td>
<td>Rubber grommet [10 - 14 mm] diameter</td>
</tr>
<tr>
<td>G4</td>
<td>Rubber grommet [14 - 20 mm] diameter</td>
</tr>
<tr>
<td>G5</td>
<td>Rubber grommet [20 - 26 mm] diameter</td>
</tr>
<tr>
<td>G6</td>
<td>Rubber grommet [26 - 35 mm] diameter</td>
</tr>
<tr>
<td>M20B</td>
<td>M20 brass cable gland [8 - 10 mm] diameter</td>
</tr>
<tr>
<td>M20N</td>
<td>M20 nylon cable gland [8 - 10 mm] diameter</td>
</tr>
<tr>
<td>PG11B</td>
<td>PG11 brass cable gland [6 - 9 mm] diameter</td>
</tr>
<tr>
<td>PG11N</td>
<td>PG11 nylon cable gland [6 - 9 mm] diameter</td>
</tr>
<tr>
<td>PG135B</td>
<td>PG13.5 brass cable gland [8 - 12 mm] diameter</td>
</tr>
<tr>
<td>PG135N</td>
<td>PG13.5 nylon cable gland [8 - 12 mm] diameter</td>
</tr>
<tr>
<td>PG16B</td>
<td>PG16 brass cable gland [11 - 14 mm] diameter</td>
</tr>
<tr>
<td>PG16N</td>
<td>PG16 nylon cable gland [11 - 14 mm] diameter</td>
</tr>
<tr>
<td>PG21B</td>
<td>PG21 brass cable gland [14 - 16 mm] diameter</td>
</tr>
<tr>
<td>PG21N</td>
<td>PG21 nylon cable gland [14 - 16 mm] diameter</td>
</tr>
<tr>
<td>IPS</td>
<td>2-inch NB internal pipestand - carbon steel</td>
</tr>
<tr>
<td>IPSS</td>
<td>2-inch NB internal pipestand - 316 stainless steel</td>
</tr>
<tr>
<td>VMP</td>
<td>Vertical mounting plate - carbon steel</td>
</tr>
<tr>
<td>VMPS</td>
<td>Vertical mounting plate - 316 stainless steel</td>
</tr>
<tr>
<td>BMP</td>
<td>Back mounting plate - carbon steel</td>
</tr>
<tr>
<td>BMPS</td>
<td>Back mounting plate - 316 stainless steel</td>
</tr>
<tr>
<td>PS1M</td>
<td>2-inch NB pipestand 39-inch [1 m] - carbon steel</td>
</tr>
<tr>
<td>PS15M</td>
<td>2-inch NB pipestand 59-inch [1.5 m] - carbon steel</td>
</tr>
<tr>
<td>PS1MS</td>
<td>2-inch NB pipestand 39-inch [1 m] - 316 stainless steel</td>
</tr>
<tr>
<td>PS15MS</td>
<td>2-inch NB pipestand 59-inch [1.5 m] - 316 stainless steel</td>
</tr>
<tr>
<td>PS1M-T</td>
<td>2-inch NB pipestand 39-inch [1 m] - carbon steel (twin for 24L)</td>
</tr>
<tr>
<td>PS15M-T</td>
<td>2-inch NB pipestand 59-inch [1.5 m] - carbon steel (twin for 24S)</td>
</tr>
<tr>
<td>PS1MS-T</td>
<td>2-inch NB pipestand 39-inch [1 m] stainless steel (twin for 24L)</td>
</tr>
<tr>
<td>PS15MS-T</td>
<td>2-inch NB pipestand 59-inch [1.5 m] - stainless steel (twin for 24S)</td>
</tr>
<tr>
<td>TT</td>
<td>Tag traffolyte</td>
</tr>
<tr>
<td>TS</td>
<td>Tag stainless steel</td>
</tr>
</tbody>
</table>
Full Systems Capability
Designed and engineered to combine ease of on-site installation with efficient and reliable in-service operation, Anderson Greenwood Instrumentation Product’s instrument protection systems provide the complete solution.

Design Service
Anderson Greenwood Instrumentation Products have a dedicated design team with the specialist knowledge and skill to layout instrument systems with the optimum use of space within each enclosure.

- Complete Enclosure design service based on customer applications, process conditions, instruments to be installed and heating requirements.
- Pre-production drawings for customer review and approval
- As built drawings for final documentation

Anderson Greenwood Instrumentation Products has a wealth of experience gained from over 30 years of ‘fitting out’ instrumentation, a service which reduces on-site installation time and costs, and ensures each enclosure reaches its destination safely.

Full Assembly and Instrument Fitting
Anderson Greenwood Instrumentation Products fit customer’s free-issue instruments into a range of enclosures, and supply the complete package fully assembled direct to the customer’s site. When each instrument package is delivered to site already factory assembled, all process connections can be made simply and easily through a service plate in the back or base of the enclosure. Extra drilling on site is therefore no longer needed.

- Installation (and pressure testing\(^1\)) of free-issued customer instruments or equipment.
- Installation (and pressure testing\(^2\)) of tube, fittings and manifolds.
- Tagging of all enclosures and instruments in accordance with customer tag list.

**Note**

1. Anderson Greenwood can provide pressure testing of installed components; please contact factory for details.
ANDERSON GREENWOOD
INSTRUMENTATION PRODUCTS

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www.tycoflowcontrol.com