Metal Jacketing
Complete Systems Providing Mechanical and Weather Protection
ITW Insulation Systems provides high-performance metal jacketing, mechanical insulation, and vapor retainer products, designed to meet specifications for a wide range of commercial, industrial pipe, tank, and equipment projects.

METAL JACKETING
ITW Insulation Systems offers a complete metal jacketing system to fit every need, globally supplying high quality aluminum and stainless steel jacketing. All of these metals provide excellent mechanical and weather protection on insulated piping, tanks, and equipment, and are laminated with Polyfilm Moisture Barrier (PFMB) which provides the optimum resistance to corrosion.

These metals are suitable for heavy industrial applications in refineries, petrochemical, gas, LNG, and power plants; light industrial applications like refrigeration and pharmaceutical; and commercial work such as chilled water, roof tops, and ducting.

The most common gauges of aluminum specified and used for rolled jacketing (smooth, stucco embossed or corrugated) are 0.016", 0.020", 0.024", 0.032", and 0.040" thickness.

Aluminum and stainless steel jacketing from ITW Insulation Systems comply with the requirements of ASTM C1729 and C1767, respectively.

All aluminum pressed 45° and 90° elbows are polyfilm lined and ITW also offers a wide range of accessories and tools, used in the insulation industry.

Our full line of metal jacketing includes:

ROLLS/COILS:
• Aluminum (smooth, stucco embossed, or 3/16" corrugated)
• Painted Aluminum
• Stainless Steel (T-304 and T-316)

SHEETS:
• 4" X 1" Box Rib (100 X 25 mm)
• Deep Corrugated
  - 1 1/4" x 1/4" (32 x 6 mm)
  - 2 1/2" x 5/8" (64 x 16 mm)

ELBOWS:
• Ell-Jacs™ Plus - Aluminum Elbows with PFMB
• Multi-fit Elbows
• Stainless Steel Elbows

ACCESSORIES:
• Fastening Devices
• Stainless Steel Banding
• Stainless Steel Wing Seals
• Stainless Steel Tie Wire
• Stainless Steel Screws
• Springs and Expansion Springs

All of our aluminum and stainless steel jacketing is laminated with polyfilm, a co-extrusion of polyethylene and Surlyn®. This three-layer, 3 mil thick film is heat laminated across the width of the metal jacketing and offers additional protection from galvanic and crevice/pitting corrosion.
POLYFILM IS MANUFACTURED FROM 3 LAYERS OF FILM:
1 mil high-density polyethylene, 1 mil Surlyn® and 1 mil low-density polyethylene, with each layer carefully selected to yield optimum performance. This multilayer film is factory heat laminated to the interior side of ITW’s aluminum and stainless steel jacketing using carefully controlled pressure and temperature.

Use of three-layer, 3 mil thick PFMB avoids the pinholes prevalent in the poor performing polykraft moisture barrier.

POLYFILM SUPERIORITY:
ITW Insulation Systems has over 25 years of success with using Polyfilm as a moisture barrier on metal jacketing over insulation.

ITW Insulation Systems fully changed from Polykraft to PFMB due to the superior performance and water resistance of the multilayer Polyfilm.

POLYFILM ADVANTAGES:
• Long term durability and resistance to a wide range of environmental contaminants
• Metal jacketing with PFMB has an ASTM E84 flame/smoke performance of ≤25/50
• Minimal water absorption compared to kraft paper
• Will not deteriorate, discolor or shred when exposed to water
• Provides abrasion resistance during installation
• Aluminum jacketing with PFMB complies with ASTM C1729, Class A
• Stainless steel jacketing with PFMB complies with ASTM C1767, Class A

WHY POLYFILM
ITW Insulation Systems recommends a three-layer, 3 mil thick factory heat laminated Polyfilm Moisture Barrier, instead of Polykraft for all metal jacketing sheets, rolls and elbows.

SIMPLE, LOW COST, AND EFFECTIVE RESISTANCE TO METAL JACKET AND PIPE CORROSION:
Provides a barrier to crevice or pitting corrosion on the inner jacket surface in cold and hot pipe/tank applications.
Provides a barrier to galvanic corrosion of jacket or pipe in hot applications.

Polyfilm is very important in all applications but is essential in applications in which the metal jacketing comes in contact with dissimilar metals, i.e. wire mesh that is used around mineral wool blankets or tie wire used to hold pipe sections in place.

METAL JACKETING AND WATER DON’T MIX:
Polyfilm is especially suited for service in which the underside of the aluminum jacketing may come in contact with excessive amounts of moisture for extended periods of time.

When water is present and touching the metal jacket, corrosion can and does occur. This can happen in all applications (hot, cold, rooftop, industrial, commercial, etc.) and with all insulation types.

PHYSICAL CHARACTERISTICS OF POLYFILM
• Water Vapor Transmission Rate (WVTR) per ASTM F1249 = 0.048 g/100 in 2-day at 73°F.
• Maximum Long-Term Exposure Temperature = 180°F (82°C). Insulation systems are generally designed to keep the jacket temperature from exceeding 140°F.

Crevice/pitting corrosion that occurred when Polykraft moisture barrier, was used.
PFMB is a minimal investment or “insurance” to protect valuable metal jacketing, pipe, tank, and the insulation system

<table>
<thead>
<tr>
<th>POLYFILM</th>
<th>POLYKRAFT</th>
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<tbody>
<tr>
<td>Co-extruded 3-layer film with 3 mils thickness</td>
<td>Plastic film is a single layer</td>
</tr>
<tr>
<td>Very few pinholes, better moisture barrier properties</td>
<td>Pinholes allow moisture to contact the metal</td>
</tr>
<tr>
<td>No water absorption, no possibility of moisture contact with metal</td>
<td>Exposed surface of Polykraft is paper, which readily absorbs water</td>
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**METAL JACKETING CORRODES... UNLESS POLYFILM IS USED**

<table>
<thead>
<tr>
<th>Bare 3000 series aluminum</th>
<th>3000 series aluminum with Polyfilm - no corrosion</th>
<th>Aluzinc coated steel with Polyfilm - no corrosion</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bare aluzinc coated steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bare galvanized steel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bare aluminized steel</td>
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**PHYSICAL CHARACTERISTICS OF POLYFILM**

- Meets requirements of ASTM metal jacketing standards for ≤5 pinholes
- Three-layer film with total thickness of 3 mils (0.08 mm)
- Water Vapor Transmission Rate (WVTR) per ASTM F1249 = 0.048 g/100 in 2-day at 73°F
- Auto ignition temperature >600°F (316°C)
  Kraft paper is approximately 450°F (233°C)

**POLYFILM CAN HELP PROTECT PIPE FROM GALVANIC CORROSION**

<table>
<thead>
<tr>
<th>Pipe under bare T-304 Jacket</th>
<th>Tested</th>
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<tbody>
<tr>
<td>Corrosive Pits</td>
<td></td>
</tr>
<tr>
<td>Not Tested</td>
<td></td>
</tr>
<tr>
<td>Bad pipe corrosion with BARE T-304 Jacket</td>
<td>Tested</td>
</tr>
<tr>
<td>No pipe corrosion with PFMB lined T-304 Jacket</td>
<td>Not Tested</td>
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