Metal Jacketing
Complete Systems Providing Mechanical and Weather Protection
ITW Insulation Systems provides high-performance mechanical pipe insulation, vapor barrier and metal jacketing products designed to meet specifications for a wide range of commercial and industrial pipe 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 are laminated with Polyfilm Moisture Barrier (PFMB), providing excellent mechanical and weather protection on insulated piping, tanks and equipment. These metals are suitable for industrial applications that currently exist in refineries, petrochemical, gas, LNG and power plants, as well as for commercial work, such as chilled water, roof tops and ducting.

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

Polyfilm lined aluminum pressed elbows are available in 90° along with a wide range of accessories and tools, used mainly in the insulation industry. Our full line of metal jacketing includes:

- **ROLLS/COILS:**
  - Aluminum (smooth or stucco embossed)
  - Stainless Steel (T-304 and T-316)

- **SHEETS:**
  - 4" X 1" Box Rib (100 X 25 mm)
  - Deep Corrugated
    - 3/16" corrugation
    - 1 1/4" x 1/4" (32 x 6mm)
    - 2 1/2" x 1/8" (64 x 16 mm)

- **ELBOWS:**
  - Ell-Jacs™ Plus - Aluminum Elbows with PFMB
  - Multi-R 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

Polyfilm lined aluminum pressed elbows are available in 90° along with a wide range of accessories and tools, used mainly in the insulation industry.

**PHYSICAL CHARACTERISTICS OF POLYFILM**

- **Water Vapor Transmission Rate (WVTR)**
  - .19 grams per 100 square inches (.985 sq meters) per day.
- **Maximum Long-Term Exposure Temperature**
  - 180°F (82°C). Insulation systems are generally designed to keep the surface temperature of the insulation from exceeding 140°F.

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

**ACCESSORIES:**

- Fastening Devices
- Stainless Steel Banding
- Stainless Steel Wing Seals
- Stainless Steel Tie Wire
- Stainless Steel Screws
- Springs and Expansion Springs

**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 highly recommended 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.

**METAL JACKETING 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 laminated to the interior side of ITW’s aluminum and stainless steel jacketing using precise pressure and heat.

Polyfilm is manufactured from three-layer PFMB film avoids the pinholes prevalent in standard 1 mil single layer Polykraft.

**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.

**SUPERIORITY:**

PFMB avoids pinholes prevalent in standard 1 mil single layer Polykraft.

**ALL OF OUR ALUMINUM AND STAINLESS STEEL JACKETING IS LAMINATED WITH POLYFILM, A CO-EXTRUSION OF POLYETHYLENE AND SURYL®**

This 3 mil thick film is heat laminated across the width of the metal jacketing and offers additional protection from galvanic and crevice corrosion.

**CUTICLE CORROSION**

Crevice corrosion that occurred when Polykraft moisture barrier, was used.

**POLYFILM IS MANUFACTURED FROM 3 LAYERS OF FILM:**

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- Metal jacketing with PFMB has an ASTM E84 flame/smoke performance of ≤25/50.
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- Aluminum jacketing with PFMB complies with ASTM C1729, Class A.
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**ELBOWS:**
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- 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

**PHYSICAL CHARACTERISTICS OF POLYFILM**

Water Vapor Transmission Rate (WVTR) = .19 grams per 100 square inches (.485 sq meters) per day.

Maximum Long-Term Exposure Temperature = 160°F (72°C). Insulation systems are generally designed to keep the surface temperature of the insulation from exceeding 140°F.

**WHY POLYFILM**

ITW Insulation Systems recommends a 3 mil 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:**

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**POLYFILM IS MANUFACTURED FROM 3 LAYERS OF FILM:**

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Use of 3 mil thick three-layer PFMB film avoids the pinholes prevalent in standard 1 mil single layer Polykraft.

**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

**SUPERIORITY:**

ITW Insulation Systems is manufactured from a co-extrusion of polyethylene and Surlyn®. This 3 mil thick film is heat laminated across the width of the metal jacketing and offers additional protection from galvanic and crevice corrosion.

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

<table>
<thead>
<tr>
<th>POLYFILM</th>
<th>POLYKRAFT</th>
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</thead>
<tbody>
<tr>
<td>Co-extruded 3-layer film with 3 mils thickness</td>
<td>Plastic film is a single layer</td>
</tr>
<tr>
<td>No 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>
</tr>
</tbody>
</table>

**METAL JACKETING CORRODES... UNLESS POLYFILM IS USED**

- Bare 3000 series aluminum
- Bare aluzinc coated steel
- Bare galvanized steel
- Bare aluminized steel

**PHYSICAL CHARACTERISTICS OF POLYFILM**

- Zero pinholes
- Three-layer film with total thickness of 3 mils (0.08 mm)
- Water Vapor Transmission Rate (WVTR) ≤ .21 grams per 100 square inches (.065 sq meters) per day
- Auto ignition temperature of about 600°F (316°C).
  Kraft paper is approximately 450°F (233°C)

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

- Not Tested
  - Corrosive Pits
  - Bad pipe corrosion with bare T-304 Jacket
  - Tested
  - Tested
  - PFMB lined T-304 Jacket