

DESCRIPTION

ITW Insulation Systems' Polyfilm lined Aluminum Elbow Covers are made in two precision formed matching halves to cover and weatherproof insulated 45° and 90° pipe elbows. These elbow covers are called Ell-Jacs™ Plus by ITW Insulation Systems.

Like ITW Aluminum Jacketing, Ell-Jacs™ Plus are a premier protective outer surface for insulation systems on pipe and are an excellent performing and critical accessory to complement the aluminum jacketing. Ell-Jacs™ Plus protect the insulation and underlying pipe from physical damage, UV exposure, corrosive atmospheres, and water. They also reduce the time and labor needed to install the metal jacketing system.

Ell-Jacs™ Plus have a 3 mil (76 micron) three-layer Polyfilm Moisture Barrier (PFMB) that is factory heat laminated to the interior surface. When coupled with the ultrapure 1100 alloy used in these elbows, this moisture barrier reduces pitting/crevice and galvanic corrosion potential of the interior surface of the elbow cover and the underlying pipe.

Ell-Jacs™ Plus have a factory applied and baked on finish of highly durable hard film clear acrylic or polyester paint on the exterior surface to help resist external corrosion and to raise the emittance. The special paint used on the exterior surface of Ell-Jacs™ Plus is chalk and fade resistant. It exhibits better resistance to oxidation and to the effects of various corrosive environments than bare aluminum jacketing. This painted surface also resists water, scratching, and fingerprint staining.

See the [ITW Polyfilm Technical Data Sheet](#) for more information on this material.

ADVANTAGES

Ell-Jacs™ Plus provide key advantages over aluminum elbows with a painted moisture barrier:

- PFMB on the interior surface reduces corrosion propensity – three layers of film in the PFMB eliminate pinholes
- Allows for the presence of PFMB on all parts of the metal jacketing system
- Increased spacing between fingers/ribs, for easier banding in the middle of the elbow
- PFMB has a very low water vapor transmission rate, further reducing corrosion potential
- Tough and strong PFMB film to resist damage during handling and installation. Painted moisture barrier is more easily scratched
- Clear exterior coating helps resist unsightly metal scratches



INNOVATIVE PRODUCT

Using ITW's innovation process, our team has developed an improved product that will enhance the performance of the overall insulation system.

Ell-Jacs™ Plus will benefit the facility owner and specifier, as the optimum performing PFMB is now available for the first time as a complete system without having to utilize gore sections on the elbows.

COMPOSITION

Ell-Jacs™ Plus are made from the commercially pure (>99% aluminum) and highly corrosion resistant 1100 aluminum alloy.

The performance of even commercially pure aluminum can be improved by alloying with small percentages of one or more other elements such as silicon, iron, copper, manganese, and zinc. ITW Insulation Systems carefully screens all potential aluminum coil suppliers to assure our products have the highest quality, are corrosion resistant, and comply with all relevant standards.

Composition of Aluminum 1100 Alloy (max %)

Alloy	Si + Fe	Cu	Mn	Zn
1100	0.95	0.05-0.20	0.05	0.1

See the [ITW PFMB vs. Polykraft or Paint Data Sheet](#) for more detailed information regarding key benefits of PFMB compared to painted moisture barrier.

SIZE SELECTION AND INSTALLATION

For details on Ell-Jacs™ Plus sizes, their fit on insulation, and installation, see the ITW data sheet on Aluminum Elbow Sizes and Installation.

FIT

Ell-Jacs™ Plus are available to fit:

- 45° and 90° pipe elbows
- Long and short radius pipe elbows
- Butt weld, socket weld, and screwed elbows
- Insulated pipe from ½" to 12" NPS¹

¹Ell-Jacs™ Plus are available as quad sections for some insulation thicknesses at NPS > 12". Not all combinations of NPS and insulation thickness are available. See your ITW sales representative for details.

THICKNESS

Ell-Jacs™ Plus are 0.024" (0.6 mm) in thickness to allow the elbows to be formed in the press. This thickness has proven acceptable in a vast number of installations and is adequate since elbows do not get the same abuse as straight jacketing and do not get walked on or ladders leaned on them.

RECOMMENDED USES

Ell-Jacs™ Plus are recommended for use anywhere aluminum jacketing is used on the associated straight sections of pipe but are especially critical when the straight pipe aluminum jacketing uses PFMB.



LIMITATIONS ON USE

Ell-Jacs™ Plus are not appropriate for the following applications:

- For applications where a maximum resistance to fire is required, ITW stainless steel elbow covers should be used
- Where maximum resistance to exterior surface corrosion is required, ITW stainless steel elbow covers should be used

EMITTANCE OF ALUMINUM ELBOWS

Ell-Jacs™ Plus have an outer surface emittance as measured by ASTM C1371 and specified by ASTM C1729 of:

- Standard clear coated = 0.5
- Bare aluminum (oxidized in service) for comparison = 0.1

FLAMMABILITY

Ell-Jacs™ Plus have been tested for flammability via the commonly used ASTM E84 test method. The results are shown below.

ASTM E84 Flame Spread Index = 0

ASTM E84 Smoke Developed Index = 5

(Tested with exterior metal surface exposed to the flame)

SURFACE FINISHES

Due to the pressing process during elbow formation, Ell-Jacs™ Plus have a smooth (mill) finish.

COMPLIANCE TO STANDARDS

Ell-Jacs™ Plus from ITW Insulation Systems comply with the applicable requirements of ASTM C1729 (Aluminum Jacketing Material Standard), Type III, Grade 3, Class A, which includes the strength and chemical composition requirements for compliance to ASTM B209 (Aluminum Alloy Standard).

SEALING OF JOINTS

For best insulation system performance and resistance to water infiltration, ITW recommends that all joints in Ell-Jacs™ Plus be sealed with an appropriate joint sealant. This should be applied between the overlapping pieces of metal in the joint and not as a caulking bead on the exterior lip of the joint.