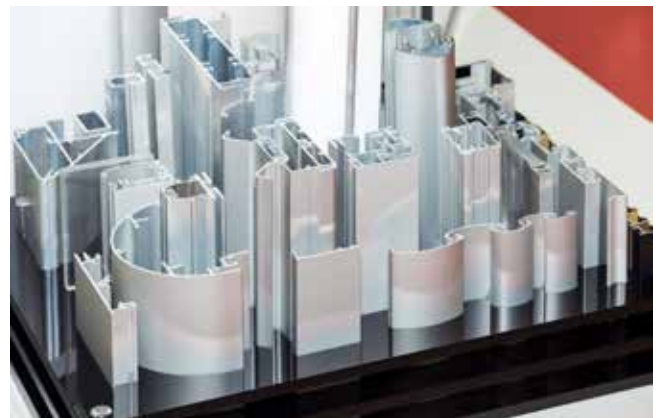
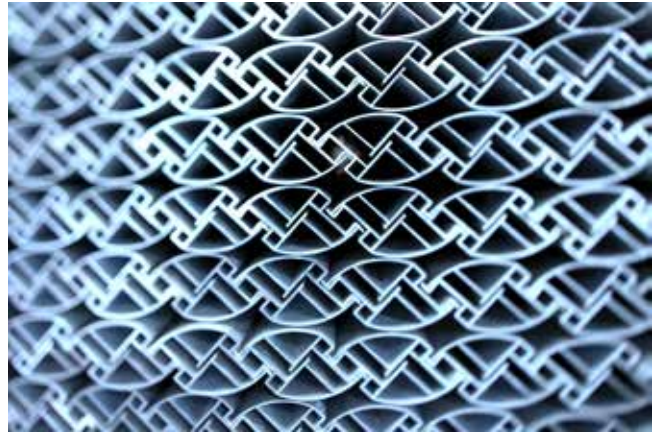


Extruded aluminium

Flexible to create whatever profile you need

We offer comprehensive solutions and a professional service in all the projects we work on. We use processes that adapt to your idea and generate the solutions that your product requires.

- We receive a physical sample, prototype, or drawing of the profile required by the client.
- Based on the client's sample, we conduct a feasibility analysis to review commercial tolerances and specific product requirements.
- We produce a project quote for the client's review and approval.
- As soon as we receive confirmation, we create the dies according to the conditions stipulated with the client.
- The mould or die for the product is created, along with operating instructions for the internal equipment.
- Before delivering a sample to the client, we conduct quality control and durability tests and verify the functional conditions and specified measurements.
- Finally, when the client approves the test profile, we begin serial production of the aluminium profiles.



Extrusion aluminium:

The extrusion process takes advantage of the plasticity of metals when they are in a solid state at temperatures close to their melting point.

The process consists of inserting a metal in the form of a billet into a hollow cylinder called a "container". A die is placed at one end of the cylinder and a plunger is used to apply the necessary pressure at the other end and force the metal to flow through the die.

The process uses billets of up to 7 metres of a chosen alloy.

Prior to being placed in the press, the dies are prepared and checked in the die workshop and placed in individual ovens (a nitrogen atmosphere is used to prevent oxidation) at the temperature programmed for each type of die in order to ensure the least possible thermal imbalance when the billet starts to pass through.

The billets are heated in gas or induction furnaces to a temperature of 450-500 °C, then cut to lengths of up to 1,000 mm to be fed into the press at high pressure (between 1,100-6,500 t). Each preheated billet is forced through a die with an opening the shape of the cross-section of the profile to be obtained.

At INTERPRO, we have three presses with diameters of 4", 5", 6", 7", 8", 9", 10", and 12", allowing us to extrude a wide variety of profile sizes.



Heat treatment:

Treatment states	
F	Raw manufacturing (limits of the mechanical characteristics not specified).
O	Annealed. Heat treatment to soften followed by cooling at a controlled speed.
T1	Cooling from the formation temperature and natural ageing.
T4	Treatment to dissolve, tempering after removal from the press and natural ageing.
T5	Tempering treatment after removal from the press and natural ageing.
T6*	Treatment to dissolve, tempering after removal from the press and artificial ageing.

Characteristics:

In order to obtain extruded products that are suitable for their intended use, one of the most important aspects is the surface quality of the profile produced. Among other factors, this depends on the choice of alloy, the condition of the die, the extrusion parameters, and the various handling processes.

Some defects can occur during the extrusion process, which should be avoided if the desired surface quality is to be obtained.

The requirements for each profile and the types of faces or surfaces it will have must be defined previously. This is important for everything from the construction of the die to the different ways in which the profiles are treated, such as anodising, lacquering, or decoration.

Information regarding the different faces is also very important in order to define the optimum transport conditions.

Although the surfaces obtained through extrusion do not always require treatment, as the quality obtained may be perfectly valid for the intended use, certain characteristics can be altered with surface treatment:

- Texture.
- Colour.
- Hardness.
- Corrosion resistance.
- Wear resistance.
- Gloss or reflectivity.
- Electrical properties.

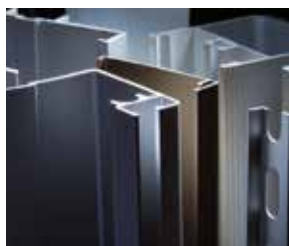


Surface treatments:

After the corresponding pre-treatment, INTERPRO offers the following surface treatments.

- Different mechanical or chemical pre-treatments prior to anodising:
 - Natural anodising.
 - Conventional colour anodising.
 - Colour anodising using interference.

Thickness class	Environments suitable for use
Class 10 = 10 microns	Minimum thickness for indoor environments with no risk of wear.
Class 15 = 15 microns	Normal thickness for environments with risk of wear and for outdoor with dry and clean environments.
Class 20 = 20 microns	Thickness for external industrial environments (atmosphere contaminated with CO ₂ -SO ₂ gases or other pollutants) or marine environments (salt pollution) with no wear.
Class 25 = 25 microns	Espesor para exteriores con ambiente marino e industrial simultáneo, con riesgo de abrasión.



- Various pre-treatments prior to lacquering.
- Lacquers in various colours:
 - Smooth gloss.
 - Smooth matte.
 - Textured.
 - Special.
 - Decorated.



Thermal Break:

Like most metals, aluminium is a good conductor of heat, acting as a thermal "bridge" that facilitates the transfer of heat in and out of buildings.

Aluminium is the most widely used material in the manufacture of windows and façade enclosures because it offers a variety of finishes and systems, requires virtually no maintenance, is highly resistant to air, wind, and water, and is easily recycled. Nevertheless, from a thermal perspective, it is a material that transmits heat very well.

To prevent this, profiles are manufactured with a thermal break, which prevents up to 80% of the energy lost through the carpentry.

This technology involves joining two aluminium profiles with polyamide profiles and a 6.6 rod with 25% fibreglass, whose low conductivity coefficient creates a break in the thermal bridge. The result is an assembled unit where each aluminium profile has a different temperature, thus creating what is called a Thermal Break (TB).

These products also allow for the creation of two-tone profiles, which increase aesthetic possibilities and provide maximum choice in terms of interior and exterior finishes.

The properties of these TB profiles mean they can be used in new fields:

- Parts and doors for cold storage and drying ovens.
- Air conditioning systems.
- Windows for trains and buses.

The TB profile assembly process consists of three stages:

- 1- Knurling the aluminium grooves - a key step in improving shear strength.
- 2- Assembling the polyamide rod profiles in the aluminium grooves.
- 3- Tightening the hammers.



Packaging:

Considerations:

The integration of modern packaging lines into our production systems allows us to deliver material:

1. With each profile individually protected during loading, unloading and transport operations and protected from environmental damage.
2. In a manner, as agreed by the client, that facilitates the operations of unloading, handling, and storage.
3. At the most economical price.

Packaging is carried out according to the system agreed upon with the client, with the following three levels defined in each case:

NE1: Protection of individual profiles or in packaging modules.
NE2: Protective outer wrapping. NE3: Tying and protection of each packaging unit.

What information is required before packaging?

For all types of packaging, the following information is required:

- Maximum width of the packaging unit.
- Maximum height.
- Maximum weight.
- Customer unloading system.
- Visible profile faces.
- Intended application for the profile.
- Defined levels for each packaging unit.
- Materials to be used at each packaging level

