



TRUMP TOWER - PANAMÁ





Tecnoglass operates a state of the art aluminum extrusion plant since June/2007. It allows us to offer a wide variety of shapes and forms for the door and window industry. Profiles of multiple specifications, assorted colours and excellent quality are ready to become a solution.

# RAW MATERIALS

At Alutions we use top of the line materials, billets of alloy 6063, 6061 and 6005 imported from Venalum and Alcoa.

We have a furnace with the capacity of 8 ton. That produces pure aluminum billets that comply with all international quality standards and assures our competitiveness, efficiency and responsibility with the environment and our clients.

# PRODUCTS EXTRUSION



In this process, a piece of preheated billet is pushed thru a die in a thermocomformed process adopting its new configuration, thus receiving the name "Aluminum Profile". The design of the extrusion die, or perforation in the matrix, is done according to the customer's, whether geometrical, symmetrical or asymmetrical. The extrusions can be solid, hollow or combined with previously established dimensions that would be otherwise impossible to obtain. The aluminum is extruded hot to increase the metal's plasticity and cut costs. Conventional extrusion is a "hot" work process; therefore, most profiles must receive thermal treatment in order to increase their resistance (temper).

This is why we are capable of applying thermal treatment to any 6 Series obtaining the temper and mechanical properties requested by the customer, according to his or her needs.

For the extrusion process we have a press of over 500 aluminum tons/month and 7" diameter, and another one of over 200 tons./month and 4<sup>3</sup>/<sub>4</sub>" diameter. All of which provides us with a highly competitive capacity as far as production is concerned.

# PRODUCTS PAINT

This process consists in applying a liquid coat of electrostatic paint on previously treated profiles. The pieces are painted using discs that create a uniform and continuous coat, later they receive thermal treatment defining the final properties. Electrostatic paint is an emulsion or an homogeneous blend of non-mixing liquids that basically consists of:

- A **pigment** that defines the colour.
- A **resin** that gives mobility to it.
- One or more **solvents** that improve its diffusion.
- Additional **additives** that grant proper characteristics.

The chemical pre-treatment of the profiles in paint is done using an acid de-greaser and an electrostatic gripping solution, also a series of rinses that prepare the profile surface for the application of the paint. We have a paint capacity of 900 processed monthly tons, and all the infrastructure required to paint any kind of reference, in lengths up to 7.3m.

Many of the finishes applied at our plant are PPG Certified.

Name	Code PPG(R)
Acrinar Arcadia Silver	UCFX10003W
Esp White	UC67122
Duranar Bone White	UC43350
Polycron LG Bronze	UC107473
Polycron III Kf-200	UC97603
Duranar Hateras White	UC105261
Duranar Sanibel Sand	UC105189
Duranar Caribbean Creme	UC105191
Polycron Bronze	UC98316
Duranar Bermuda Bronze	UC105262
Duranar Bocatone	UC105190
Duranar Bugle Gray	UC85339
Polycron III Signal White	UC98884

# PRODUCTS PAINT

### Advantages

- 10-20 years durability, depending on the finish.
- More homogeneous, as far as tonality is concerned.
- Broader color spectrum.
- Maintenance free
- Excellent brightness, adherence and weather resistance.
- Easier to manufacture.
- Flexible and resistant.

Main quality tests for this finish:

### AMMA Specifications Trial

Analysis Type		AMMA Rule Applied
Mechanical	IMPACT	AMMA 2605
Chemical	ADHERENCE	AMMA 2605
Mechanical	ADHERENCE	AMMA 2605
Chemical	CURED	AMMA 2605
Mechanical	HARDNESS	ASTM D3363
Mechanical	MICRAGE	ASTM D1400
Photometric	BRIGHTNESS	ASTM D523
Photometric	COLOR	ASTM D244

# PRODUCTS

# ANODIZING

The anodizing process provides an artificial protection to the aluminum with its own corrosion.

Anodizing is an electrochemical process that creates a protective coat of aluminum rust on the base surface. This process consists in submerging the aluminum in acid (sulphuric acid). When an electric current is applied, oxygen is liberated and reacts with the aluminum anode generating a rust coat that will vary depending the tim the current is applied. In order to close the pores on the aluminum surface, it is soaked in desmineralized water at 96°C.

In this way, the process ends, and the life span of the finish is proportional to the thickness of the coat.

Aluminum rust can reach great hardness, ranging between 7 and 8 in the Mho Scale. It is very stable and resistant to environment corrosion agents.

The coat generated in this electrochemical process is imbedded in the metal and therefore cannot be scraped or peeled off. Our plant has an initial capacity of 240 processed tons. For profiles up to 7m long.



# PRODUCTS

# ANODIZING

#### Advantages:

- Maintenance free.
- Increases the protection against rain, sun and humidity.
- Increases superficial hardness.
- Decorative finish, different tonalities obtained.
- Resistance to wear and tear.
- Rust resistance.

Main quality tests for this finish:

#### AMMA Specifications Trial

Analysis Type		AMMA Rule Applied
Mechanical	ABRASION	AMMA 611 - 98
Chemical	SEAL	ISO 2143 - 1981
Mechanical	MICRAGE	AMMA 611 - 98
Chemical	COAT LOSS	ASTM B 137 - 95
Photometric	COLOUR	AMMA 611 - 98

After the profile has been painted or anodised, is ready to be packed and delivered to the door and window industry.

Alutions by TecnoGlass thus fulfils its mission. Multiple specification profiles in assorted colours are ready to become a solution.





# PRODUCTS

# Powder Coating Wood Grain finish

Ready to comply with the markets needs and demands we started applying sublimation processes for painted aluminum. Wood grain finishes are available now bringing up design flexibility to all projects.

Designed to accurately resemble authentic wood grain.

Powder Coatings enhances our products providing protection against outdoor elements including harmful ultraviolet rays and excellent aesthetic appeal, resulting in a strong protective coating and innovative decoration certifying the products suitability for outdoor use and high resistance to weathering.

#### Finishes Available:

- DS 739 2301/02L EMBERO
- DS 733 2601/01L TEKA
- DS 750 1807/01L NOGAL
- DS 750 2505/01L SAPELLY TEXTURADO.

Limited 5 year warranty agreement for decoral woodgrain finishes.

# PRODUCTS

## Powder Coating Wood Grain finish

### Advantages:

- High UV durability.
- Water and Humidity proof.
- High corrosion resistance.
- Termite and bug resistance.
- No maintenance required.
- Fire retardant.
- Hard to scratch.
- Green and Sustainable.

### Green and Sustainable:

- Does not emit VOC`s.
- Powders are TGIC Free.
- Does not use harmful solvent.
- Avoids cutting trees.
- Uses recycle materials.
- Does not pollute.
- Metal lasts longer than wood.
- Metal can be recycled.



# PRODUCTS

# THERMAL BREAK

Alutions offers two methods:

## **Pour and Debridge (P&DB)**

This Method offers improve thermal performance in a single piece of extrusion. The process consists on filling a pre-extruded cavity in the profile with resin that then hardens, subsequently we cut a small section of aluminum on both sides of the filling zone, dividing the profile in two parts.

When assembly is done, the exterior and interior parts of the system will be isolated by the resin. This thermal barrier enhances the resistance to condensation and offers an alternative for areas of high and low temperatures. Clients will be able to control the interior thermal conditions, and save lots of money on energy.

# PRODUCTS

# THERMAL BREAK

## ISOBAR

This process consists of the union of two aluminum profiles through an Isobar, specially formulated to give a thermal isolation while maintaining the same mechanical properties of the aluminum. Additionally, this type of insulation allows a window to have a color for the exterior and another one for the interior, offering a wide variety of designs. This option also improves condensation resistance and saves money on the energy bills.



**ALUTIONS**  
by TECNOLASS

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