Sapa Surface Treatments
Anodising and powder coating
Anodising

Anodising is the strongest surface finish available for aluminium profiles. This is an electrolytic process that builds up the surface oxide layer. This layer strengthens the surface and makes it resistant to mechanical wear, UV light and harsh environments. Anodising gives lasting colour and sheen, with an oxide layer that is 20 microns thick for outdoor use. (Layer thickness class AA20).

The most common form of anodising is natural anodising. The process normally has four stages:

- preparation
- anodising itself
- colouring (where required)
- sealing.

**Anodising.** Once the metal surface has been given the necessary mechanical or chemical treatment, and has been thoroughly cleaned, it is ready for the electrolytic process. A DC supply is connected to the profile, which forms the anode (hence anodising). An electrolytic cell is formed. The electrolyte generally consists of dilute sulphuric acid at room temperature. The oxide layer that is formed contains a large number of pores with diameters ranging between 0.02 and 0.1 microns. To create a protective surface layer these pores have to be sealed. Sealing is achieved by treatment in deionised water at a temperature of 95–100°C. This converts the aluminium oxide to hydroxide, which expands and seals the pores. The oxide layer that is formed by natural anodising is transparent. The natural anodised profile is supplied as standard with a matt finish.

**Colouring.** Natural anodised but unsealed aluminium is coloured with organic or inorganic dyes. The oxide layer is sealed after colouring.

**Electrolytically coloured Hx.** Like the basic colouring process, colouring takes place in a separate stage, after anodising. Alternating current is used to deposit the pigment, which consists of a tin salt, at the bottom of the pores. The colour scale extends from sepia to black. Colours with the designations Hx-5 to Hx-50, have excellent colour-fastness.

**Quality assurance.** Aluminium profiles that are given a natural anodised or Hx finish are treated in accordance with SS-EN ISO 7599:2010. This standard defines the durability of the finish with regard to sealing, abrasion, corrosion, sheen and fading. The standard also specifies requirements for inspection and the test methods that must be used.
Colour range

The printed patterns/colours may not be reproduced accurately here. Please contact Architect Support for samples.
Painting

Powder coating is clearly the painting method of choice today and offers an almost unlimited choice of colours from the RAL and NCS-S colour scales. Powder coating is carried out using polyester powder, to a layer thickness of around 60 microns.

**Preparation.** To ensure the desired quality of painted surface it is important that preparation, application and subsequent curing of the paint are done correctly. Preparation is critical to achieve maximum adhesion and durability. This usually consists of degreasing and pickling the surface, followed by a chemical treatment (chromating). The final stage of preparation is to wash the profiles in deionised water. All painting requires high standards of preparation.

<table>
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<th>Process stages in preparing for powder coating</th>
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<td>1. Alkaline wash.</td>
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**Painting.** The prepared profile is coated with polyester powder. The powder, which is applied to the profile by electrostatic or friction charging, is then cured in an oven at 180° C. The powder is applied and cured without any need for solvents. The ventilation air from the powder application process is filtered by an efficient filtration system. Powder that misses the profile is recycled and returned to the spray gun.

**Maintenance – cleaning.** Do not use detergents or materials such as Scotch-Brite that contain abrasives! These are likely to damage the surface. The best cleaning method is to use a sponge and clean water. A mild detergent may however be used.
Paint colour range. Sapa works with many popular paint types: textured, metallic and clear coatings, in addition to the standard powder coating. Polyester powder is used for powder coating. There are effectively no limits on colour choice for painting. We can offer all the colours covered by the NCS-S and RAL colour scales.
Any colour you want

Sapa offers the widest range of surface finishes in Scandinavia. Our aluminium profiles for facades, roof glazing, windows, doors and solar shading can be anodised or painted. There is a wide choice of colours for anodising and an almost unlimited choice for painting. The appearance and surface quality of extruded aluminium profiles is perfectly satisfactory for many applications without any surface finish. Thanks to the good corrosion resistance of aluminium there is rarely any need to add a surface finish to protect it from corrosion. But surface finishes are often given to our building system products to achieve the desired colour and appearance.
Powder coated solar protection
Hydro Building Systems Lithuania UAB

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We reserve the right to make changes in the product range and design without prior notice. We reserve the right for any printing or typographical errors. Sapa, December 2018.