Information for the Coating of Glass Fibre reinforced Profiles (GRP) for Architectural Application Status 09/2013

Besides well known materials such as Aluminium and steel, new materials such as glass fibre reinforced polymers (GRP) are increasingly produced and used as profiles. GRP profiles consist of suitable polymers, e.g. Polyester-Styrene or Polyurethane, to which for performance increase glass based long fibres in different form and amounts are added. The glass fibre content and their structure influence greatly stability, material limits and usage.

Schüco offers fort he application sliding doors (e.g. series ASS 77 PD.SI) a range of GRP based profiles, which contains from glass beads to high complex heavy slide basis profiles.

Due to the properties of the polymer systems used in GRP profiles, usage under weathering conditions (outside exposure) is not recommended without suitable finish since those polymers are prone to optical changes under weathering (polymer reduction by UV radiation & exposure to moisture and emissions). Additionally, the surface texture of mill-finish GRP profiles is determined by the pulltrusion process (pulled profiles) of their making, which results in a rough, porous texture with exposed glass fibres and polymer differences.

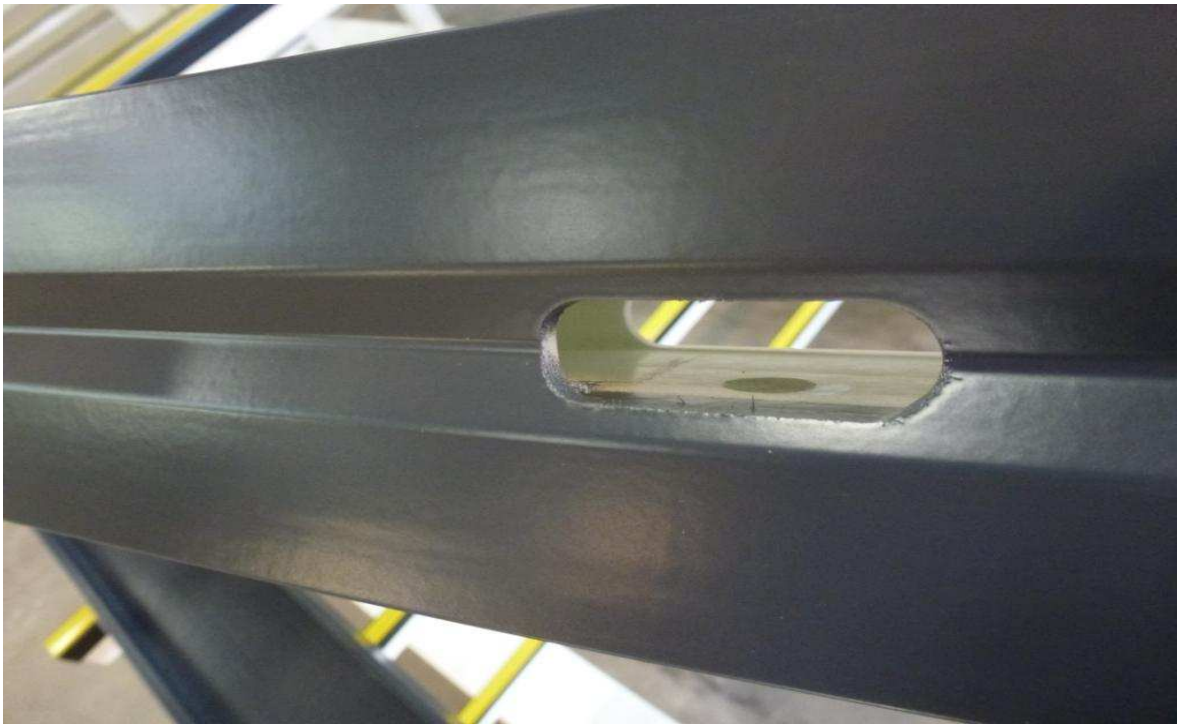
Schüco has created over several years of joint development work with GRP development partners, paint producers and performing coating applicators finish solutions, which

- obey the thermal limits of GRP profiles,
- fulfil or exceed the requirements of AAMA (US quality standards for architectural usage) for the use of GRP materials for architecture,
- are ecological acceptable

- allow surface finishes, which
- - protect the polymer matrix,
- - allow all mechanical treatments for finished GRP profiles
- - are stable against interaction with building typical Schüco products (e.g. sealings, cleaners).

Picture 1 shows a Schüco GRP profile after the finish process.

Picture 1: Schüco finished GRP profile (photo: Schüco)



As indicated in **picture 1**, a finished GRP surface is not comparable to a similar finished Aluminium surface due to the special properties of the GRP matrix. The unique texture of the GRP material is retained but can appear more uniform and optically without disturbance if the Schüco recommendation of a matt fine textured finish is used.

Schüco does not recommend specifically any glossy surface (High or Silk gloss) for the use on Schüco GRP profiles, since this will increasingly bring the GRP self texture out to visibility. The finish step should be performed after the mechanical processing of GRP profiles to prevent the occurrence of paint split-off. During the offered 1-layer finish of GRP profiles, glass fibres may stand up and stay visible – this is not a valid claim.

An optical identity between finished GRP profiles and coated (powder based) or finished (liquid paint based) Schüco Aluminium or steel profiles is not achievable due to the unique GRP surface. Schüco strongly recommend therefore a contrast (colour difference) between GRP based elements and elements produced and finished based on either Aluminium or steel.
For orders for glossy finish or specifically requesting optical uniformity to finished profiles made from different materials (Schüco Aluminium or steel based profiles), Schüco specifically does not provide a optical identity and requires therefore for starting the finish process a written release from optical uniformity from the ordering customer.

Currently, GRP profiles can be finished in RAL colours with a glossiness level of matt and a fine texture (recommended) with the exceptions of Perl- and intensive colours; please note that the GRP finish setting fine texture is not identical to this texture in powder due to the layer thickness difference between powder and liquid paint. **Schüco GRP profiles can not be powder coated nor anodised due to their technical properties.**

PM Finish 09/13