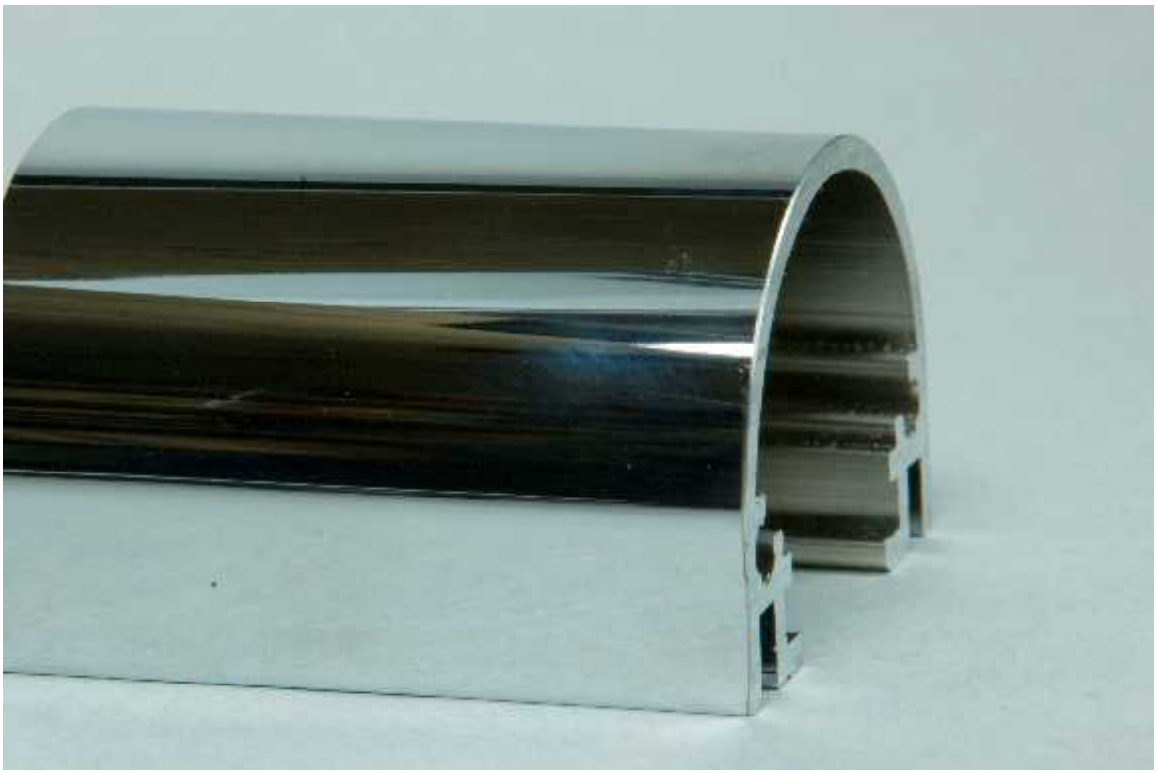
Information regarding Alternatives for Chromium Optic Status 02/2007

High gloss Chromium-like surfaces are frequently requested finished surfaces for architectural applications due to their optical impact and their high-value impression.

Picture 1: High gloss Chromium surface applied to a profile



This surface is currently **not useable** for architectural applications outside:

- Because available high gloss Chromium finish methods do not have the approval of architectural quality groups for outside usage as a result of the (negative) interaction of different metals (corrosion problem).
- Because available profiles quite often have a problem with the high gloss Chromium finish process due to their size and geometry.
- Because the surface texture of industrial extruded profiles does not fulfill even after mechanical pre-treatment the surface requirement for high gloss Chromium finish processes with respect to micro texture and uniformity. This results in clearly visible defects not acceptable.

For these reasons, Schüco **does not offer** high gloss Chromium finishes as part of Schüco System Finish. The following alternatives available within the Schüco System Finish portfolio for profiles and sheets (later must be checked prior to

confirmation!) create surfaces with higher gloss based on the treatment of Aluminum or the usage of special pigments. However, the resulting surface impressions are different from the high gloss Chromium finish:

1. **PowColor (Powder Coating):** A Metallic powder in facade quality is used containing a high amount of stabilized Aluminum pigment with a high glossiness degree for both the polymer and the pigment and results in a diffuse mirror effect (compare **Picture 2**). The layer thickness for the applied powder coat of ca. 80µm is not sufficient to cover material surface blemishes. The resulting coated surface will show due to this high glossiness every technically not avoided irregularity (dust inclusions, pigment distribution differences, textures from the raw profile), which become clearly visible due to this treatment. Although stabilized pigments are used, the applied coating has no stability against mortar (direct contact or interaction with mortar-containing water). The use of a protection foil is therefore highly recommended by Schüco.

   Picture 2: Digital Macro photo of the diffuse mirror effect obtained by powder coating.

2. **AnColor (Anodising):** Anodizing as an alternative offers the mechanical pre-treatment E5 (grinding and polishing) together with coloration Nature (EURAS C0; old color term EV1). The resulting surface is smooth and glossy and slight surface blemishes from the profile can be removed

(compare **Picture 3**). This surface is not comparable to a high gloss Chromium surface because of the shiny anodized nature of the resulting Aluminum surface. Like all anodized surfaces, also this E5/EV1 finish is not stable against mortar (direct contact or interaction with mortar-containing water). The use of a protection foil is therefore highly recommended by Schüco.

Picture 3: Digital Macro photo of the diffuse mirror effect obtained by AnColor.

3. **WetColor (Liquid Paint Coating):** Within the product range of Duraflon® a diffuse mirror effect is available based upon stabilized Aluminum pigments. The usage of a base coat is recommended to achieve the required high uniformity. Surfaces blemishes from the profile can not be covered by a liquid paint coating of just ca. 25 to 35 µm total thickness (same as for powder coatings). The advantages of this liquid paint solution come from the increased stability of the polymer (Fluor based polymer) together with the higher brilliance of the applied pigments. The resulting mirror effect is shown in **Picture 4**. Although stabilized pigments are used, the applied coating has no stability against mortar (direct contact or

interaction with mortar containing water). The use of a protection foil is therefore highly recommended by Schüco.

Picture 4: Digital Macro photo of the diffuse mirror effect obtained by WetColor in Duraflon®.

All solutions offered by Schüco exhibit different kinds of mirror effects, however, they do not reach the level of high gloss Chromium effect. Specifically the desired perfect mirror effect is reduced by the less-than-perfect orientation of the applied pigments (powder and liquid paint coatings) or by the cellular structure unique to anodized surfaces.

All presented solutions are **special processes**: The required raw materials (powder, liquid paints) are no stock material and are produced only upon order. This results in increased delivery times in comparison to standard coating processes. The pigments applied to achieve the requested mirror effect are specially developed and additionally stabilized to withstand weathering. This results in an increased finish price as does the mechanical pre-treatment E5.

Further steps such as cuttings of the Aluminum products finished with either of the above three special methods, specifically with the powder and liquid paint solutions, should be done on velvet covered support structures due to the high sensitivity of these coating as a result of the high glossiness and the high

pigment load to prevent scratches. Transportation requires an excellent packaging to prevent irreparable rubbing marks.

For sheets, Schüco must receive drawings including dimensional information (e.g. maximal dimensions, connections point for transport in the lines) in order to check and to confirm that these parts can be finished by the intended method.

Between the photo reproduced surfaces given in this information and real production samples exist technically unavoidable optical differences. The provided pictures are used to illustrate the effect and present not a guaranteed optical master.

Based on the provided pictures a decision for one of the mentioned methods is not possible. Schüco will therefore produce process samples on Aluminum, which should be used as reference for any decision. A free-of-charge sampling based on specific profiles or sheets is not possible due to material and process costs.

PM Finish 02/07