

# Corrosion protection with lower CO<sub>2</sub> footprint

**The galvanizing and coating of components using the duplex process is extremely energy-intensive. In order to achieve greater environmental compatibility and significantly reduce CO<sub>2</sub> emissions, a Swiss galvanizing plant is switching to fast-reacting polyester powder.**

According to its own information, the company Verzinkerei Wollerau was the first galvanizing plant in Switzerland with its own powder coating facility and was an early adopter of the combination of hotdip galvanizing with powder coating using the duplex process. The experts of the powder coating manufacturer KARL Bubenhofer AG (KABE Farben) accompanied this development from the very beginning. In 1996, the two companies jointly launched an initial test phase for the development of powder coatings for outgassing substrates - a very progressive endeavour at the time.



The combination of hot-dip galvanizing and powder coating using the duplex process ensures a particularly high level of corrosion protection.

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The quality offered by the duplex process and the fact that Verzinkerei Wollerau can fulfil the high customer requirements, is reflected in the high application percentage of around 90%. At the site, up to 70% are galvanised and coated for constructions, followed by furniture, vehicle parts, municipal vehicles and special applications. Parts up to 7 metres long can be processed in the zinc bath. After galvanizing, they are given a special fine coating, which ensures a particularly attractive and smooth surface. The metallic appearance of the steel parts remains just as distinctive during hotdip galvanizing as its surface structure. Over the past few years, the family owned company has continuously improved its ecological footprint by installing solar roofs and a filter system. With its own photovoltaic system,

the company already covers 60% of its electricity needs itself. In addition, the exhaust air scrubber, put into operation three years ago did improve the eco-balance. It cleans up to 63,000 cubic metres of air per hour, which is polluted by chemicals during the pre-treatment required for galvanizing.

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## Improving the CO<sub>2</sub> footprint

However, the Verzinkerei Wollerau galvanizing plant is not only committed to sustainability for its location. Also in the selection of materials the improvement of the CO<sub>2</sub> footprint plays an important role. KABE Farben is currently supporting the company in converting the entire RAL colour range as well as NCS and Pearl Metallic colours to the Polyflex PES-165-NT-GU system. The galvanizing plant expects this changeover to result in faster stoving times and further energy savings. The fast-reactive polyester powder Polyflex PES-165-NT-GU is suitable for outdoor use and has good degassing properties. It produces silky-glossy surfaces with an attractive flow, excellent light and weather resistance and very good hiding power. Thanks to its high reactivity, the powder can be cured at temperatures as low as 160 °C, with a curing time of 10 minutes.

## Rearranging lacquer and primer

The galvanizing plant is also currently changing its primer to the Polyflex EP-20-Korroflexprimer-NT-GU system developed by KABE Farben with DBS 918 340 (Deutsche Bahn Standard), Qualisteelcoat and GSB 906B (primer on galvanized steel) approval. This silk-matt priming powder based on epoxy resin has very good degassing properties, shows very good levelling, good covering properties and very good intercoat adhesion when overcoated with a powder topcoat. The recommended curing temperature is 160 °C and the curing time is 15 minutes. After a successful changeover, an automatic powder coating system was put into operation which is another milestone in the company's 60-year history, according to Managing Director Remo Lutta.



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For higher corrosion protection requirements and design applications, the zinc coating is additionally protected by a powder coating.



**KARL BUBENHOFER AG**