



# ALUMINIUM IN INDUSTRY

SURFACE TREATMENT



# FOR INDUSTRY

SURFACE CONVERSION PROCEDURES



BWB carries out a very wide range of surface finishing procedures for industrial components in order to satisfy a variety of requirements regarding function, aesthetics and corrosion protection – in the automotive industry, for aerospace, medical technology and the consumer goods sector.



### Aluminium anodising

Anodising is an electrochemical process: the surface of the aluminium structural component is converted into aluminium oxide. This oxide layer is solidly attached to the substrate, and an accurate topographical copy of the original structure is created.

The multitude of anodising procedures offered by BWB make it possible to produce surfaces with very different properties and layer thicknesses.

- Anodising / electrolytic oxidation (GS)
- Hard anodising / hard electrolytic oxidation (GSX) with and without PTFE coating
- Chromic acid anodising (CAA)
- Tartaric sulphuric anodising (TSA)
- Ematal anodising / Hard ematal anodising
- Bilateral anodising
- Colouration (Sanodal)

### Aluminium chromating

Chemical conversion coatings (hexavalent chromium or RoHS-compliant) are suitable for use as bonding agents for additional coatings and adherent surfaces, or as minimum protection against corrosion in dry conditions. Depending on the process, the coatings are yellowish or transparent.

- Chromating (hexavalent chromium)
- Chromating (trivalent chromium or chromium-free / RoHS-compliant)

# PRE- AND POST-TREATMENTS

FOR ANODISING - ALL FROM A SINGLE SOURCE



A clean surface on the work piece is a precondition for an even and stable surface finish. BWB offers competent advice, for optimal fulfilment of the customer's wishes and ideas.



### **Mechanical pre-treatments**

In order to achieve special effects and for the correction of irregularities in a surface, we recommend mechanical pre-treatment. The surface finish ranges from matt to fully polished, depending on the selected procedure:

- Grinding /grinding-brushing
- Brushing /scotching
- Polishing
- Glass bead blasting
- Vibratory grinding /rotofinishing

### **Chemical pre-treatments**

Contamination or residues of processing oils must be removed in a chemical pre-treatment. In addition, a chemical pre-treatment enables an even matt or polished surface finish. To this end, the BWB Group offers the following pre-treatment procedures:

- Degreasing
- Etching /matt etching
- Chemical polishing
- Electrolytic polishing

### **Sealing**

With electrochemically produced oxide layers, the pores of the oxide layer are closed in a subsequent operation. The well-sealed oxide layer is enormously important for a top-quality surface on the work piece (Haptics/corrosion resistance)

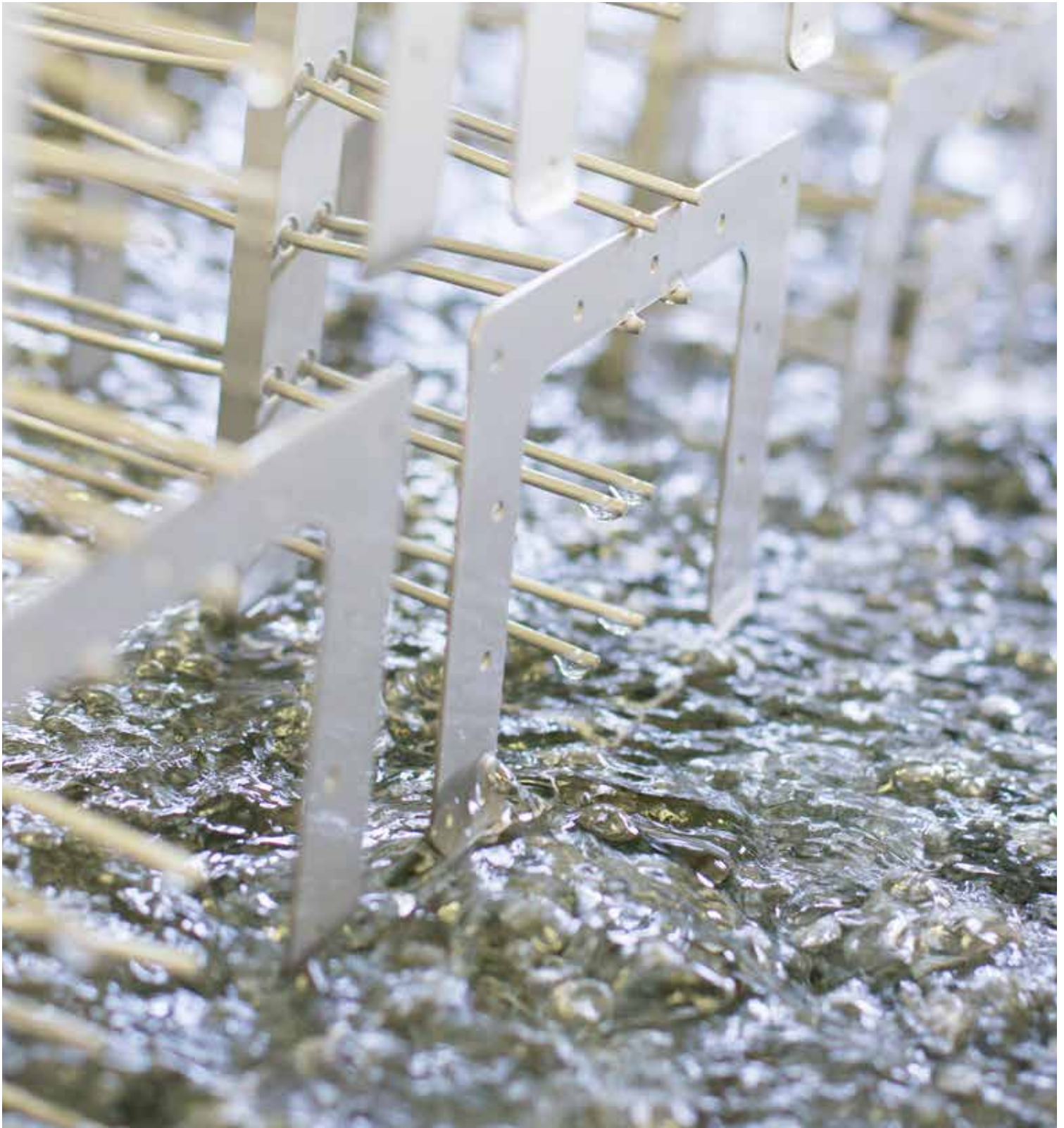
- Sealing (hot water sealing)
- Sodium dichromate/nickel acetate sealing

### **Selective anodising**

If a certain surface of the component is not to be treated, it will be masked before the finishing process according to the preference of the client. In some cases selective anodising may also be necessary to ensure a flawless finish. Selective anodising is achieved with appropriate techniques such as lacquer or mechanical masks.



# THE ADVANTAGES OF ANODISING



The BWB anodising procedures (electrolytic oxidation) combine the advantages of the electrochemically produced aluminium oxide layer with the technical properties of aluminium applications in industry.



#### **Corrosion resistance**

Anodising produces a resilient and corrosion-resistant protective layer. This enables value to be retained over decades.

#### **Coating characteristics**

Coating characteristics are developed for a very wide range of application areas by means of special procedures or procedural parameters.

- Hardness
- Electrical insulation
- Thermal insulation
- Dimensional accuracy
- Sliding characteristic
- Wear resistance
- Corrosion resistance
- Gloss level
- Mattness
- Chemical resistance
- Abrasion resistance

#### **Investment in the future**

The mechanical strength of anodised aluminium is very high. Even during slightly abrasive cleaning of the anodised aluminium component, the surface is not damaged.

Anodised aluminium components retain their functional properties, decorative appearance and metallic nature for years.

#### **Ecology**

Comprehensive evaluation of economic and ecological aspects speaks in favour of the use of anodised aluminium as a material in industry.



# YOUR PARTNER

COMPETENT, RELIABLE, EXPERIENCED







As a construction engineer, designer or product manager, your requirements vary with regard to surfaces. Whether for purely functional aspects, aesthetic criteria, or both combined: BWB offers you comprehensive advice on material, colour, machining and structural design.

#### **Material selection and structural design**

Selecting and obtaining the right aluminium alloy is a decisive factor for optimal coating characteristics. Bringing BWB experts into the project at an early stage guarantees a more successful implementation of surface finishing. This enables typical peculiarities of the respective procedures to be accounted for in the structural design and integrated into the project in good time.

The bath sizes limit the dimensions of the work pieces to be finished. The BWB sales team will gladly advise you. Special attention is also paid to welded structures.

#### **Treatment procedures**

BWB offers various surface finishing procedures. We analyse your requirements with regard to the components and suggest suitable procedures, as well as appropriate pre-treatments.

#### **Special effects**

The interplay between mechanical and chemical pre-treatments and the different anodising procedures enables various special effects to be achieved. The BWB advisors are happy to help you.

#### **Sampling**

The colour chart on the next page can be used for initial colour selection. For specific component sampling, it is advisable to define not only the mechanical and chemical pre-treatment, but also the anodising and colouration with the designated original aluminium alloy.

# ANODISING IN INDUSTRIAL DESIGN

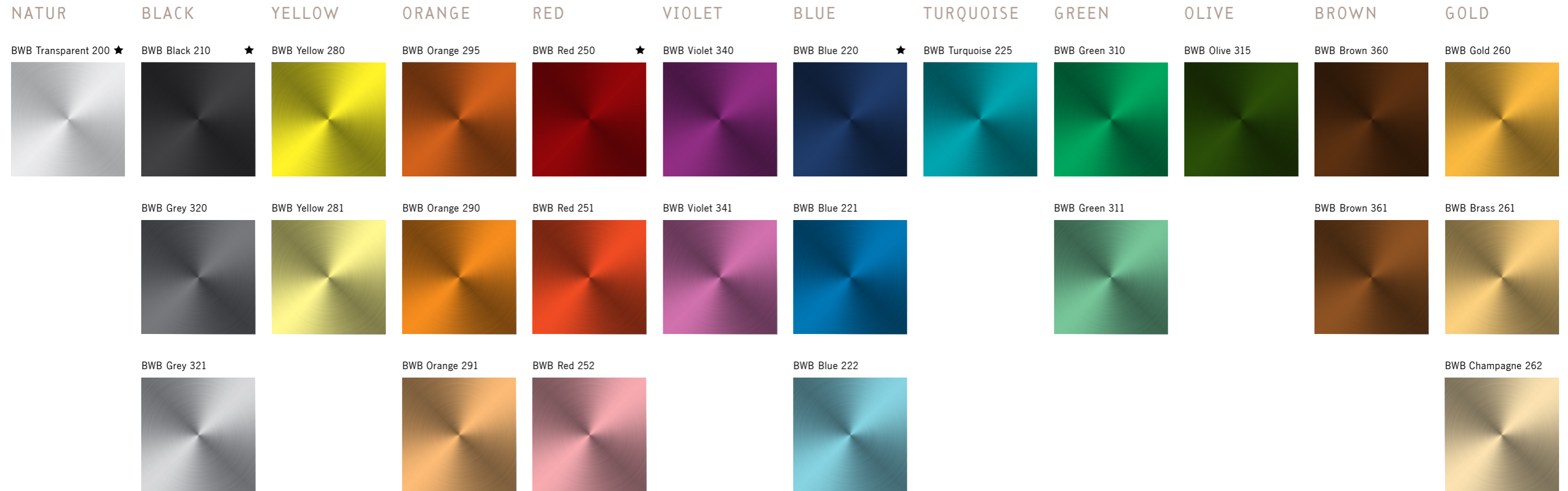
## COLOURS & FINISHES

Do you require a sample or a quotation for your project?  
Our sales team will be happy to help you.

+41 58 861 90 20

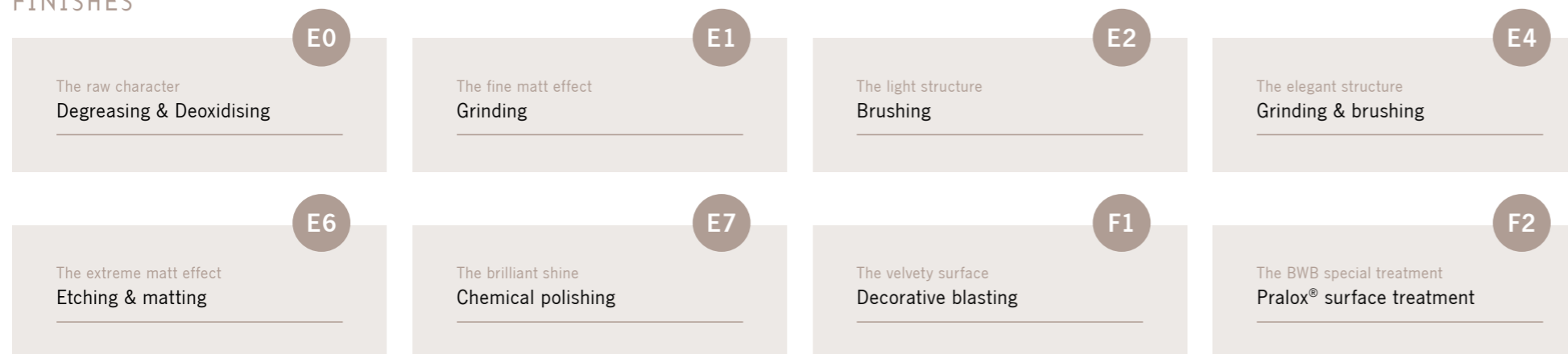
industrie@bwb-group.com

www.bwb-group.com



The standard colours marked with an asterisk (★) are always available.  
All other colours are sampled on a customer-specific basis.

## FINISHES



BWB Surface technology offers you a wide range of colours to choose from. For a correct colour evaluation, we recommend that you have a sample of the original parts and the intended aluminium alloy supplied to us.

**BWB Consulting and Sample Service**  
T +41 58 861 90 20  
industrie@bwb-group.com

« NATURE DOES NOT LIE ON  
THE SURFACE BUT HIDES IN  
THE DEPTH »

PAUL CÉZANNE ( 1839 – 1906 ), FRENCH PAINTER

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