

JV “KTM-2000” Ltd

Anodized aluminum in modern architecture

Minsk 08/2016



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Where aluminum is used today:

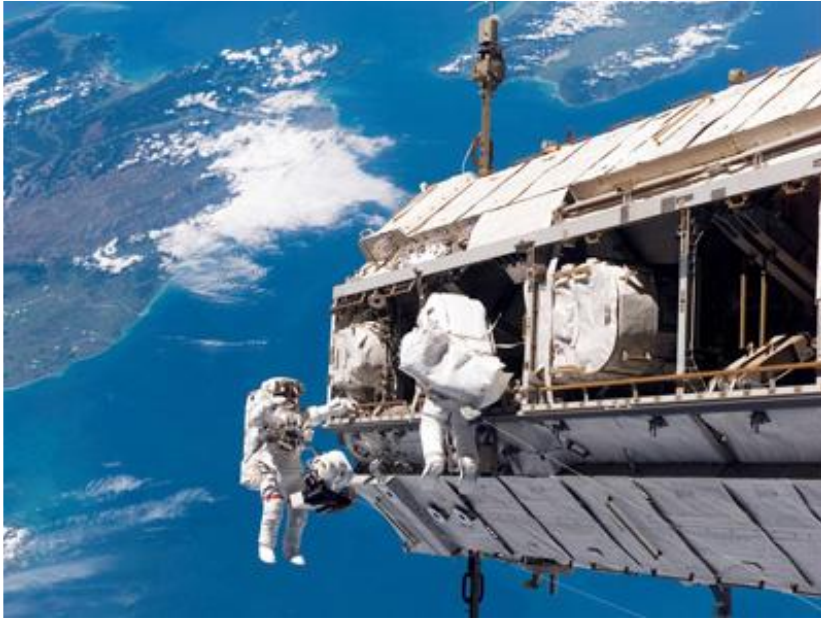
- Architecture and construction
- Engineering, metalworking
- Aviation and space
- Transport terrestrial and maritime
- Mining equipment
- Military equipment
- Medicine
- Optics
- And many other spheres...



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Usage of aluminum



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Usage of aluminum



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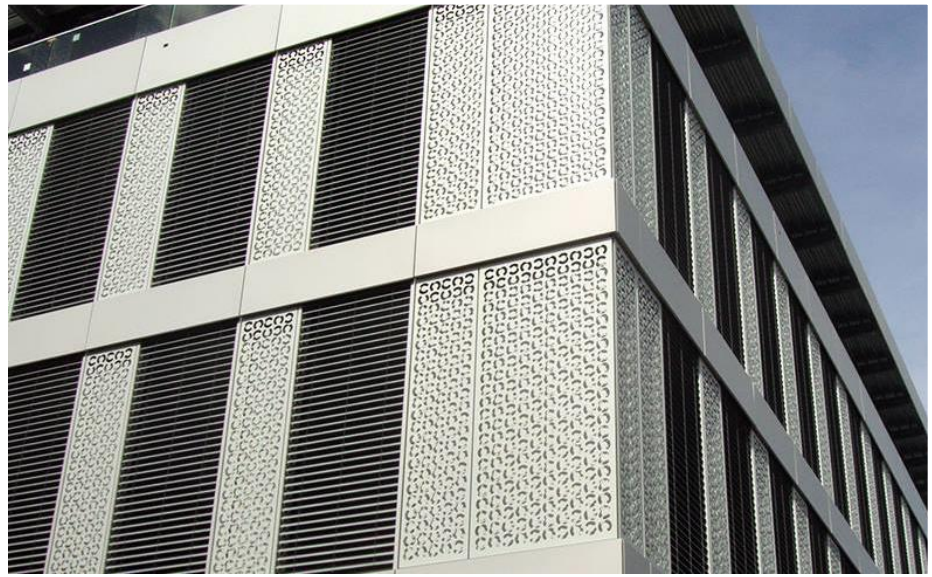
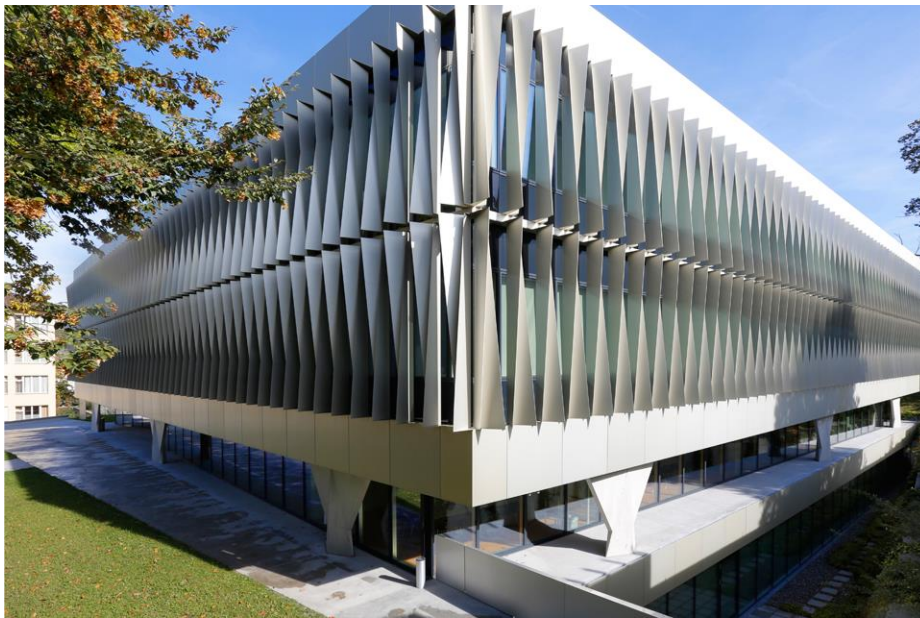
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Classical anodizing ClassicELOX™ (IT)

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Classical anodizing ClassicELOX™ (CH)

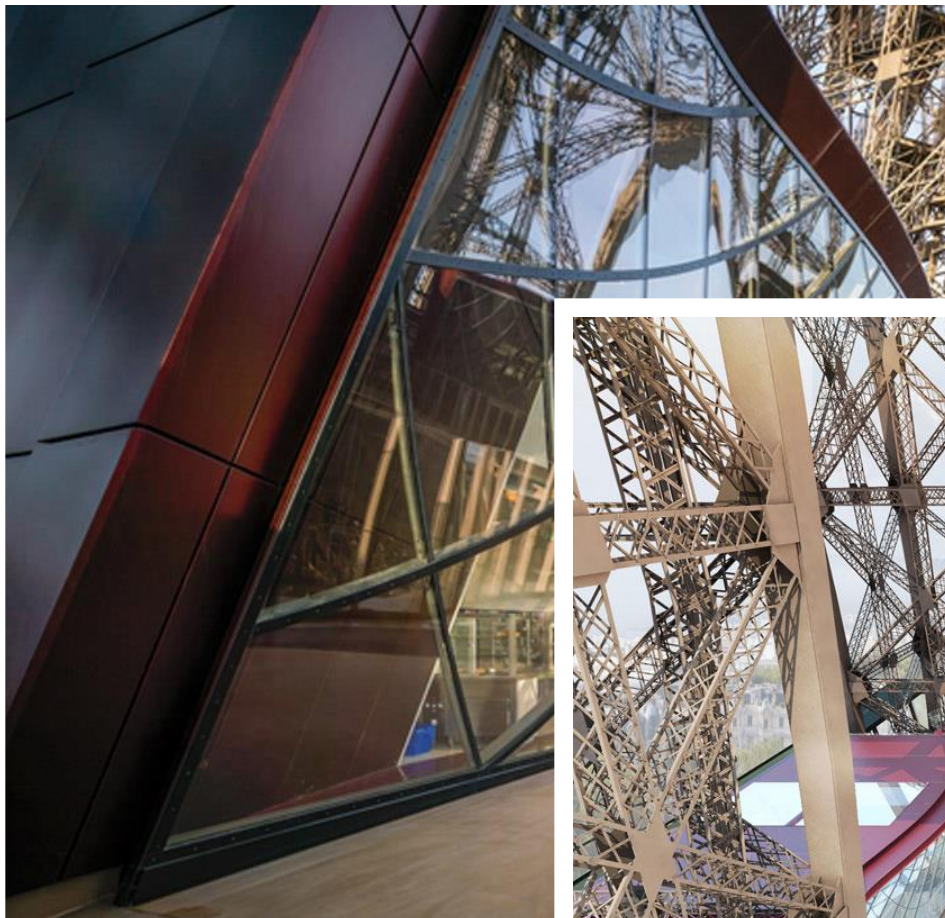
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Classical anodizing ClassicELOX™ (UK)

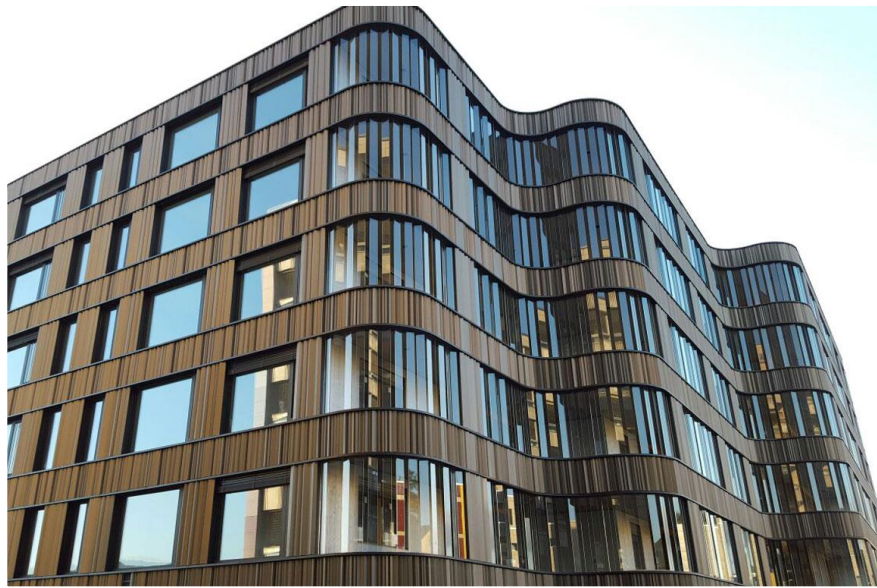
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Color anodizing ColorELOX™ (Sandalor™) (F)

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Color anodizing ColorELOX™ (Sandolor™) (D)

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Color anodizing ColorELOX™ (Sandolor™) (D)

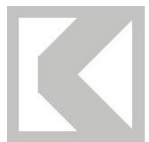
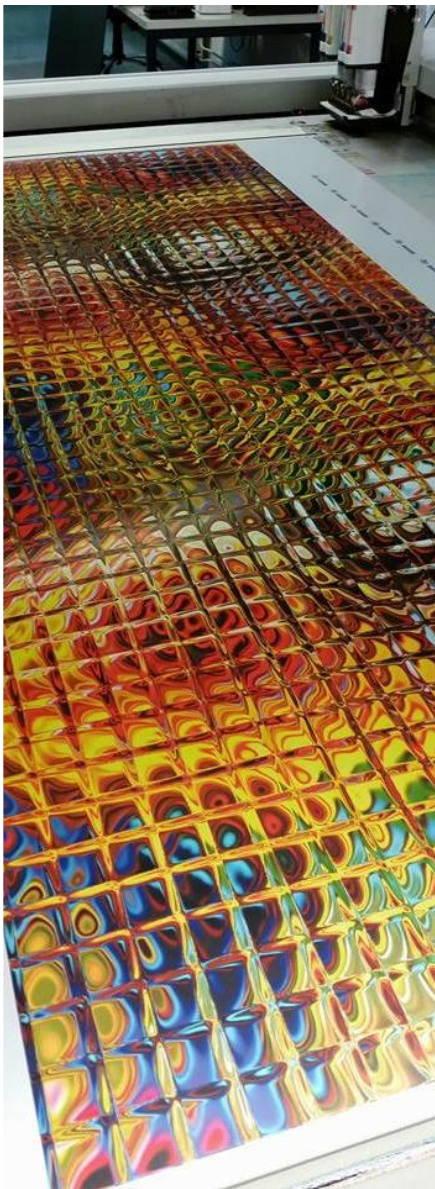
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Color anodizing ColorELOX™ (Sandolor™) (N)

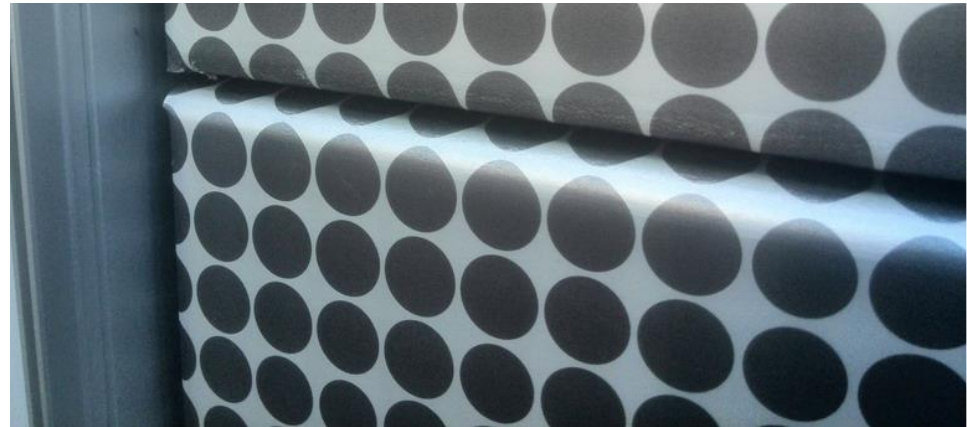
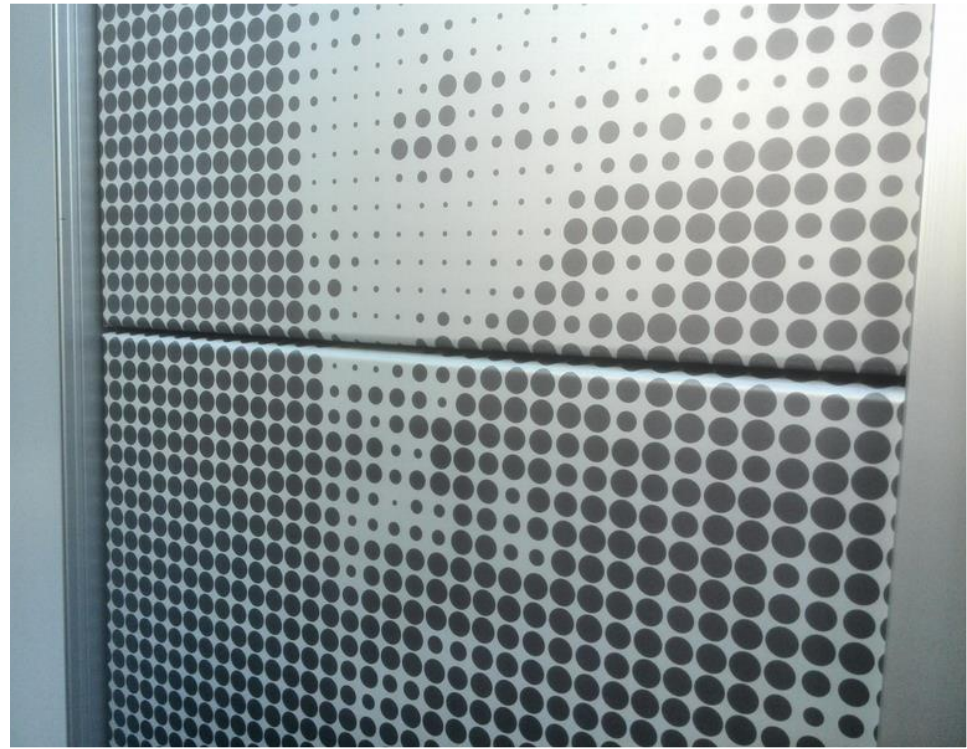
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Digital anodizing of aluminum DigitELOX™ (CH)

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Digital anodizing of aluminum DigitELOX™ (CH)

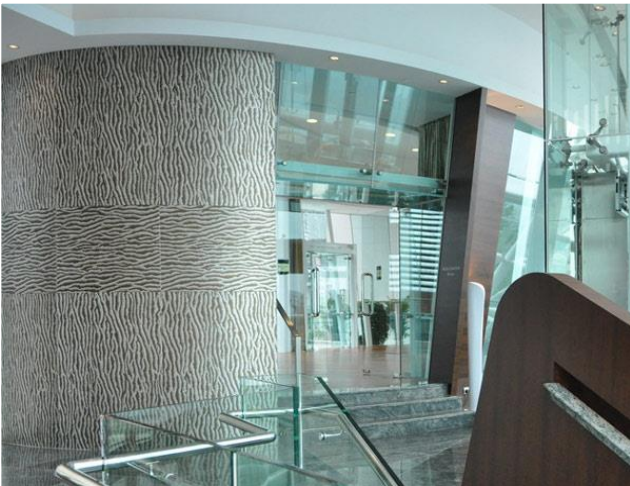
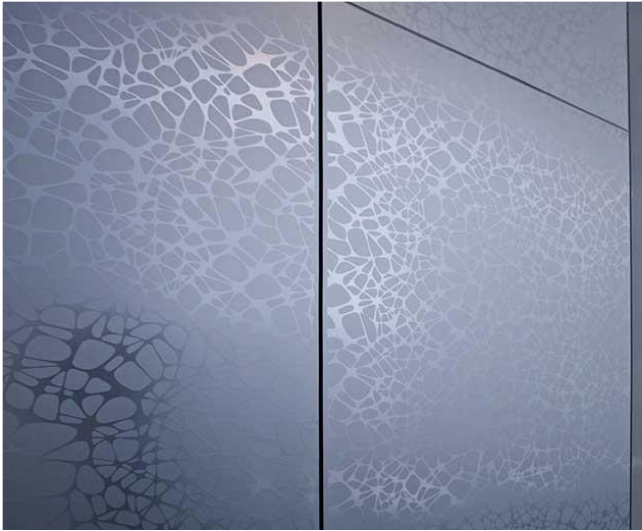
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Digital anodizing of aluminum DigitELOX™ (B)

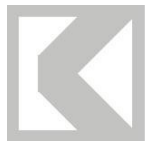
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Artistic anodizing of aluminum ArtELOX™

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Artistic anodizing of aluminum ArtELOX™

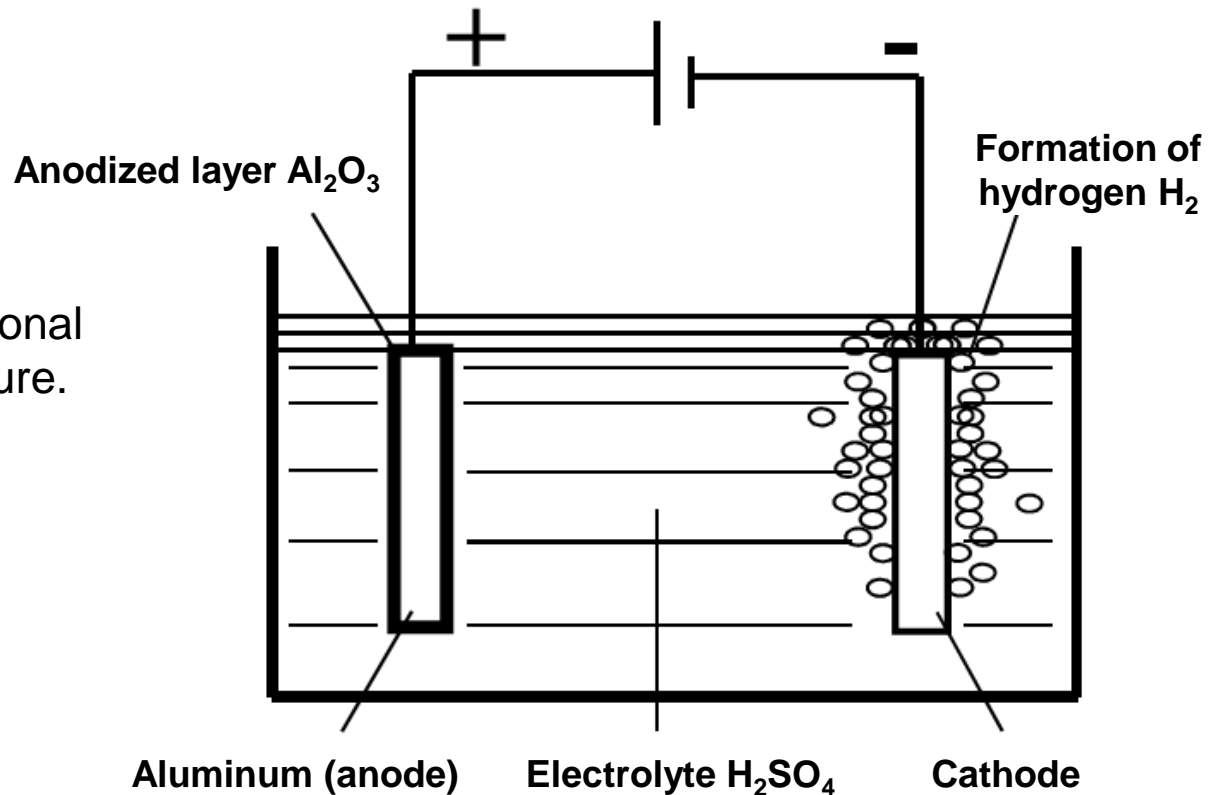
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What is anodizing?

(classical process An. Ox. nv./ ClassicELOX™)

This is galvanic process, which most commonly occurs in aqueous electrolyte solutions (acidic or alkaline).

During the process of electrolysis surface of aluminum (anode) saturates with oxygen and converts into aluminum oxide with hexagonal (honeycomb) porous structure.



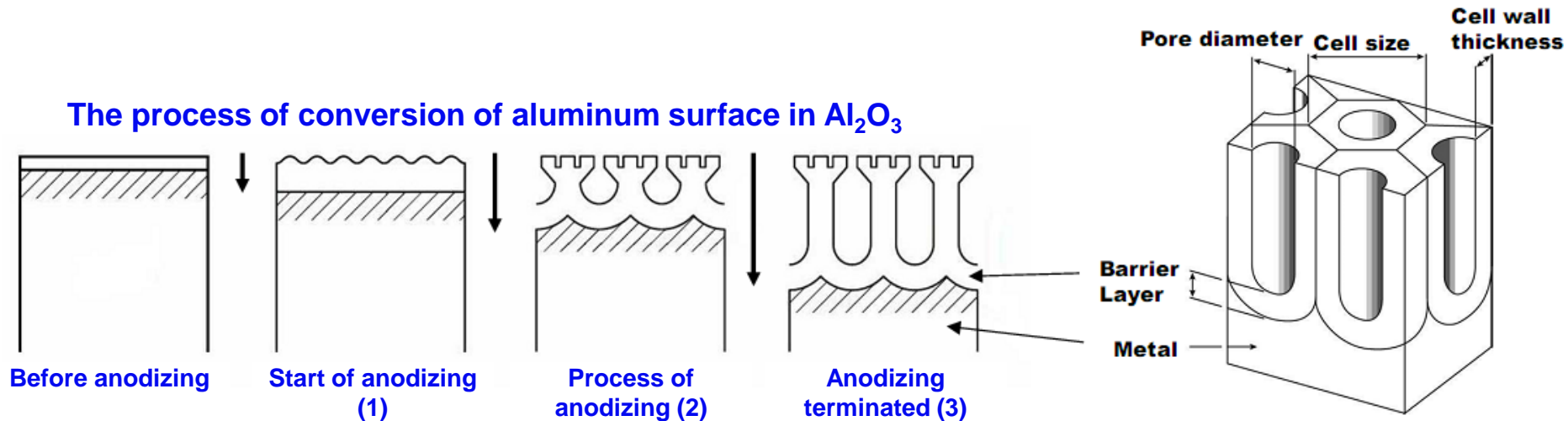
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What is anodizing?

(Classical process An. Ox. nv / ClassicELOX™)

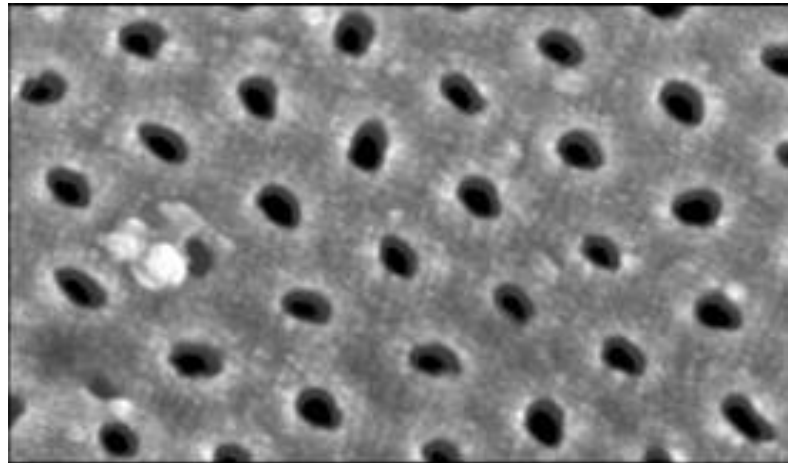
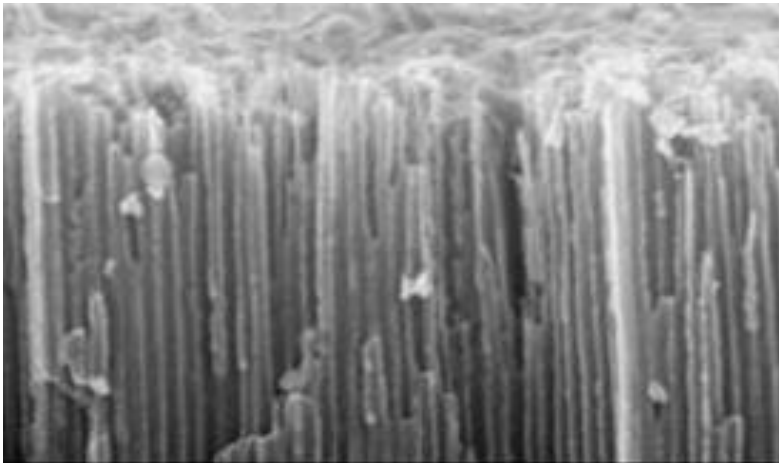
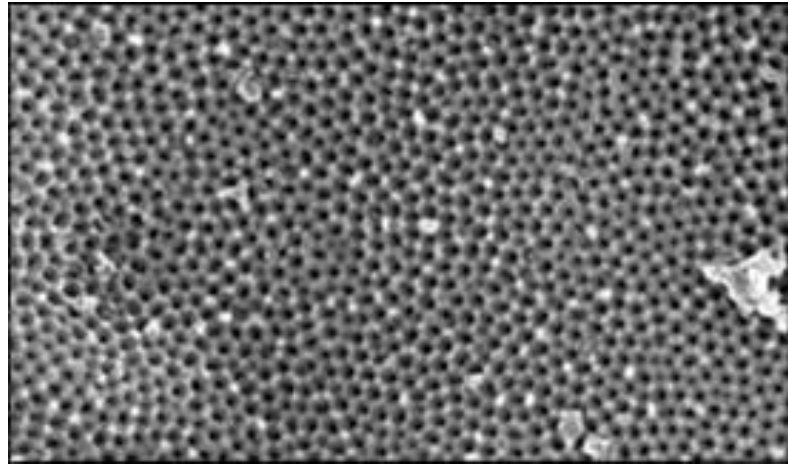
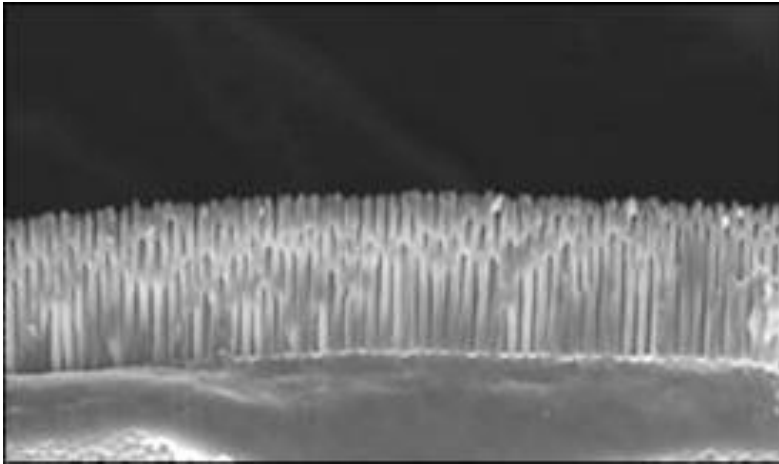
Unlike all other galvanic processes, anodizing is the process of transformation of aluminum surface during which conversion of the surface layers of aluminum in the aluminum oxide happens. The depth of this transformation is directly proportional to the applied electric current.



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Photo of anodized layer under microscope



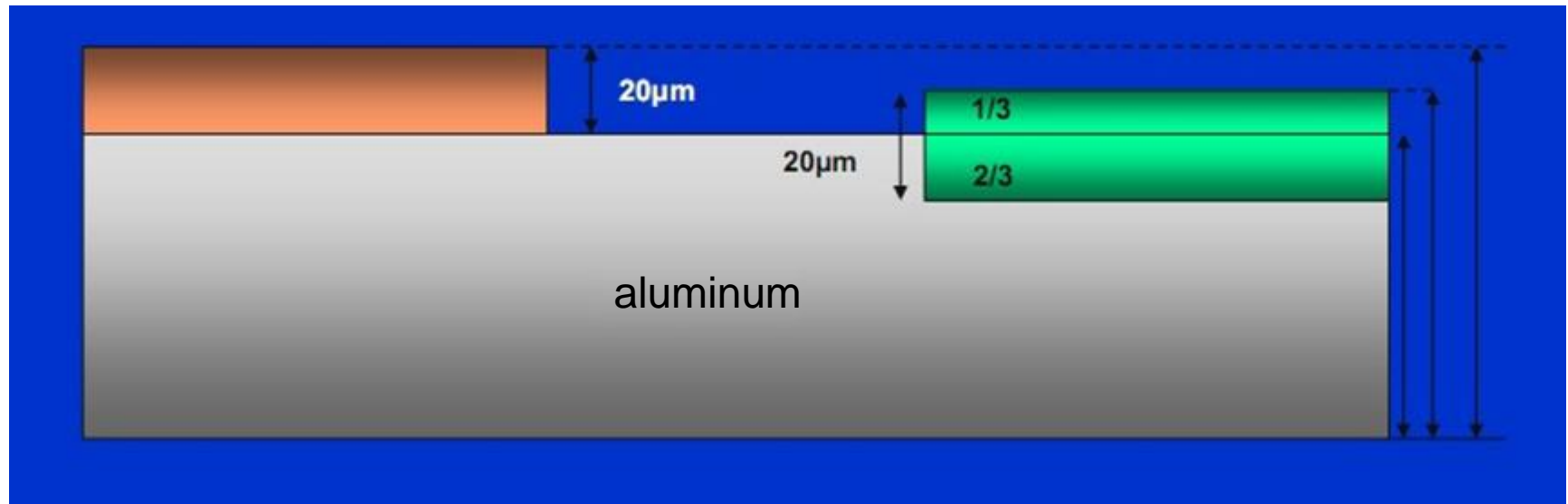
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Difference between anodizing and other galvanic or powder coatings

Galvanic or powder coating

Anodizing coating



Anodized layer is integrated into aluminum and is a single whole with aluminum, it is impossible to separate it (lifetime warranty). Precisely because of this, he has the unique anti-corrosion properties.



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Existing problems of alternative coatings



Corrosion on polymeric or other coatings

reasons: unlike anodizing any polymeric coating is an independent layer, which can be separated from the metal due to poor surface preparation, low-quality coating, deformations damages, ...



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Existing problems of alternative coatings



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Plant «KTM»



Anodizing of aluminum alloys
and production of articles from aluminum



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General characteristics of the company

- **Factory “KTM” – Logoysk, Belarus**
 - 4'000 sq.m. of own production area;
 - quantity of staff – 75 person;
 - production facilities – 720 tons of aluminum alloys per year
- **Production of thresholds for floor coverings**
more than 1'000'000 meters/year of profiles, thresholds, joint profiles
- **Galvanics**
anodizing of different parts from aluminum alloys:
facade elements, sheets, profiles and ready products.
Possibilities of anodizing- more than 300'000 sq.meters per year
- **15 years of perfect reputation**



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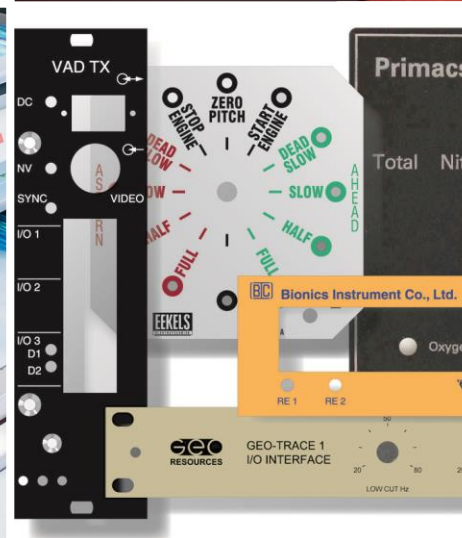
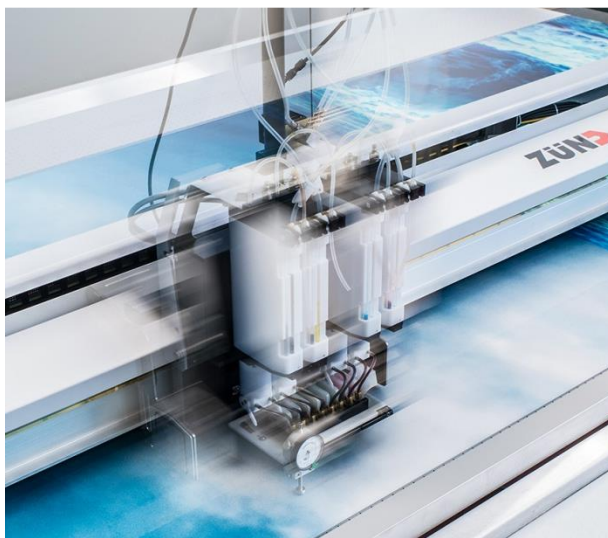
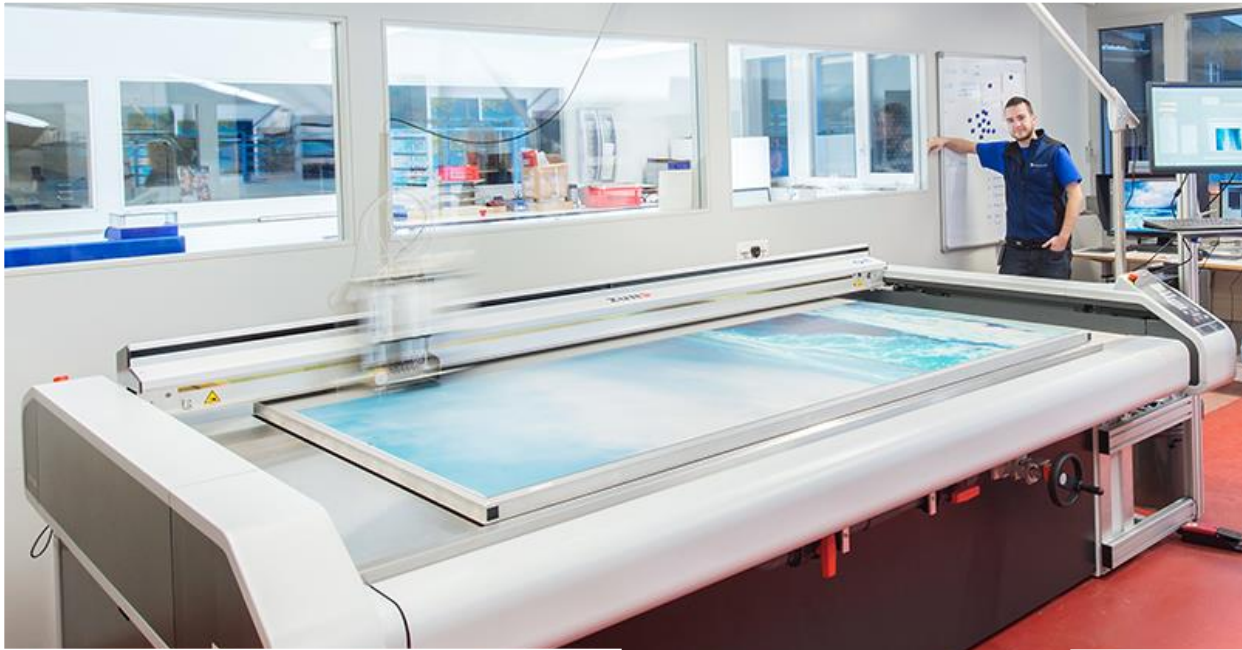
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Automatic galvanic line KTM (An. Ox.)

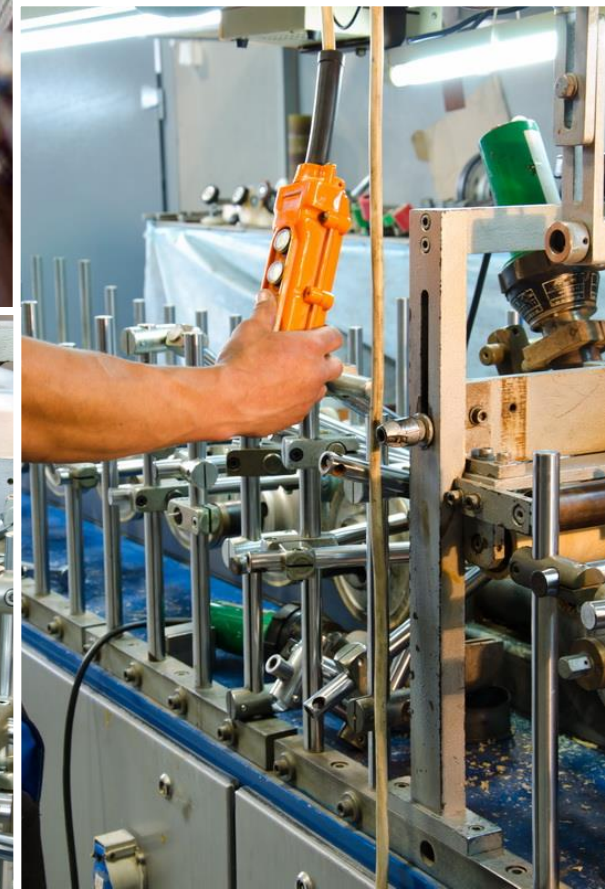
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Workshop of digital anodizing DigitELOX

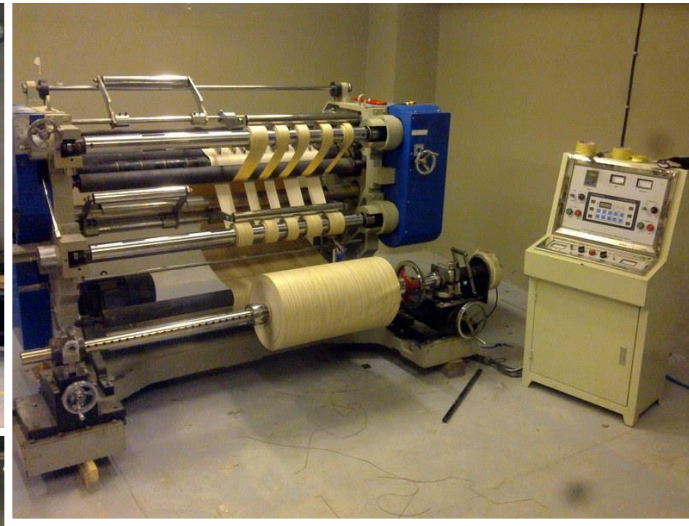
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Packing and lamination lines

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Workshops of mechanical treatment and cutting

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Optimization of the processes



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Training and development of staff, introduction of REFA

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Optimization of the processes



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Education of engineers, cooperation with Clariant and Omya, CH

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Certification, control and audit



International certificates Qualanod, Sandalor

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Promotion of new technologies



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Exhibitions, forums on architecture and construction

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International partnership



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Main sales markets of the company

❖ Export of the company:

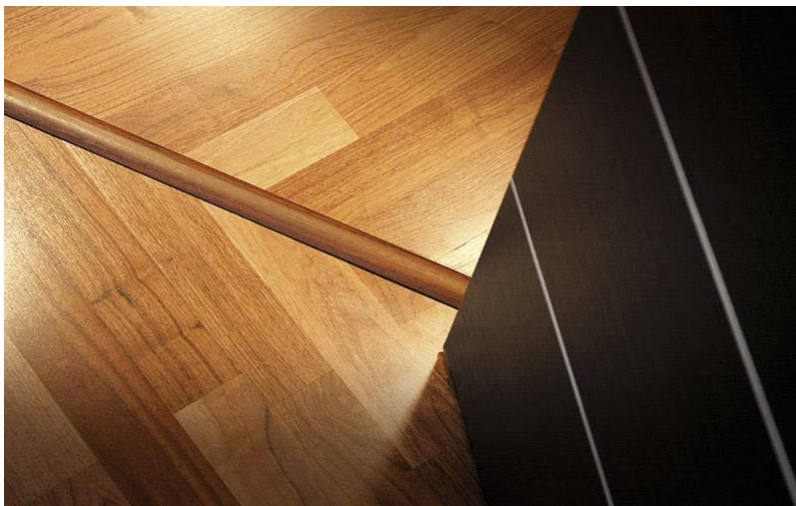
- Russia, Kazakhstan
- Moldova, Transnistria, Ukraine
- Armenia, Georgia
- Lithuania, Latvia, Estonia
- Serbia
- **Slovakia**
- (Hungary, Romania, Bulgaria, Czech Republic, Austria)
- **DigitELOX:**
- England, Holland, India, Switzerland,
- Norway, Sweden, Denmark, Germany, Israel



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Our products

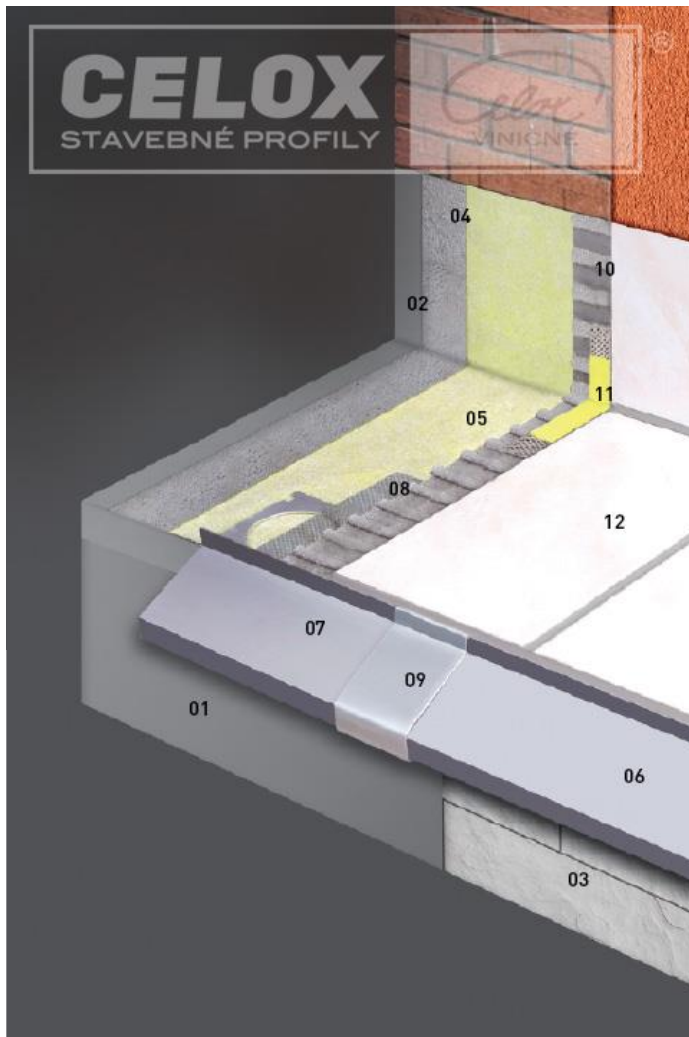
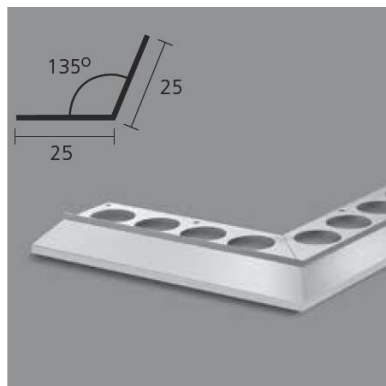
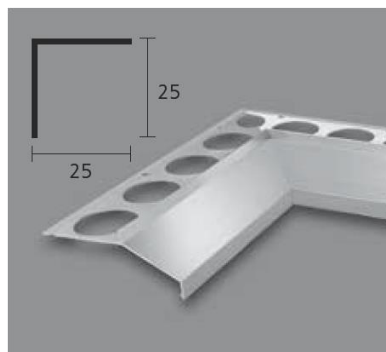


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Finishing and decorative profiles (thresholds)

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Special systems of profiles



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Our projects



Hotel Marriott 5* in Minsk/ 10'000 sq. meters, 60 ton 2014-15



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Our projects



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Hotel Marriott 5* in Minsk/ 10'000 sq. meters, 60 ton 2014-15

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Our projects



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Hotel Marriott 5* in Minsk/ 10'000 sq. meters, 60 ton 2014-15

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Our projects



BNTU 15 building in Minsk/ 3'700 sq. meters, 20 ton 2015



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Our projects

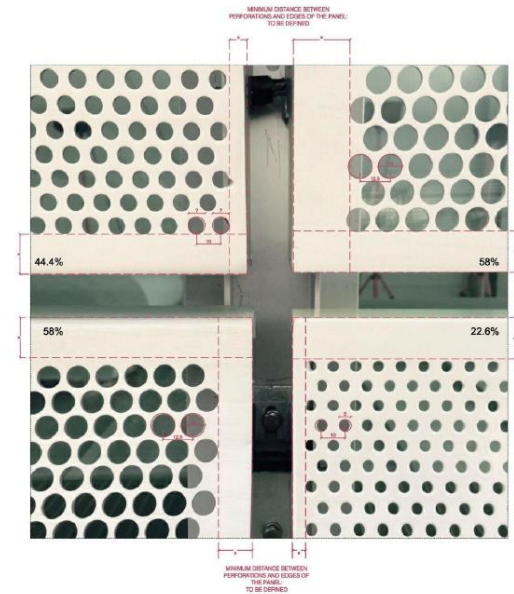
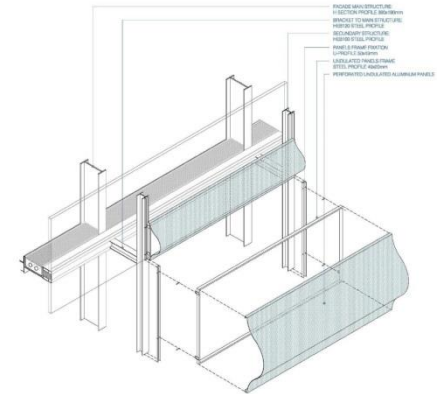
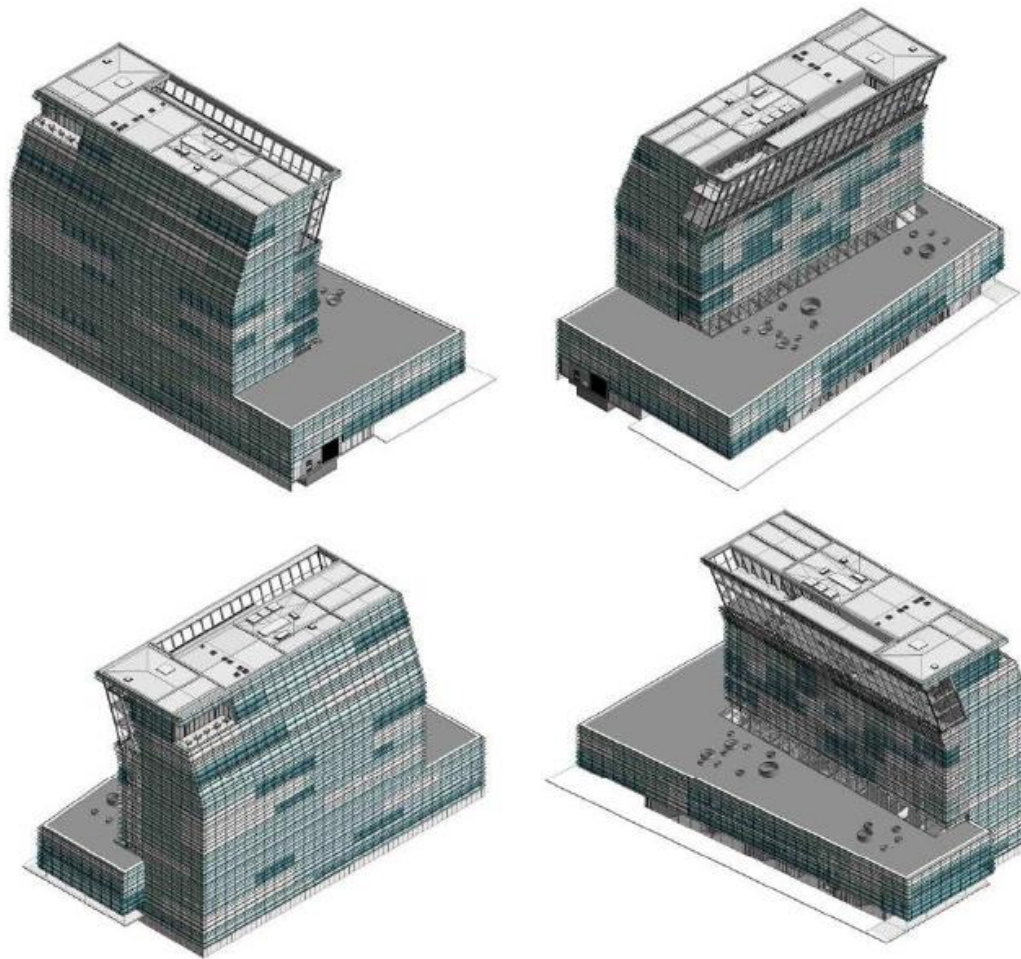


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Audi-Center in Tyuman/ 1'200 sq. meters, 10 ton 2014

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New projects



Museum in Oslo/ Norway 2017-18

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New projects

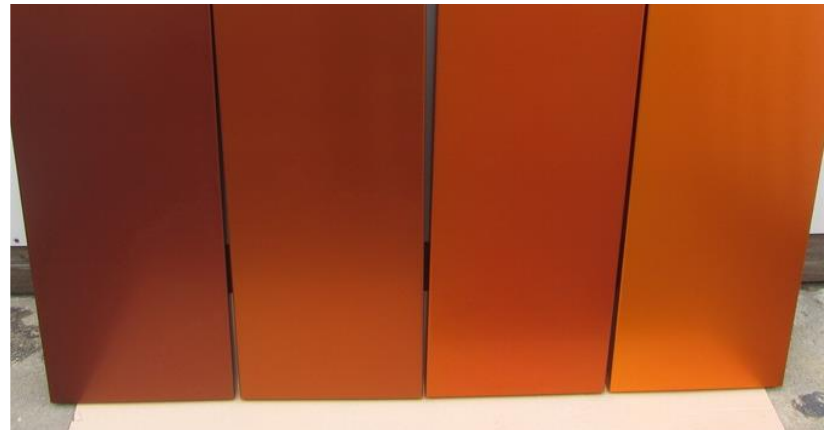
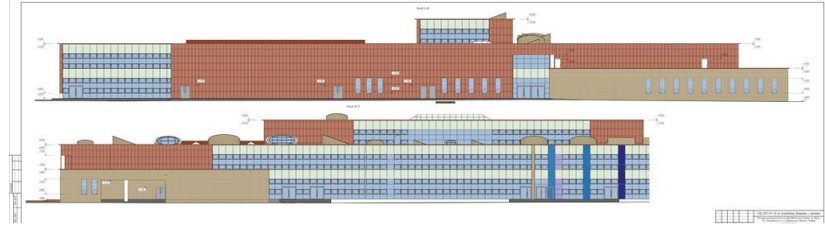


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Reconstructions Litexpo Vilnius / Lithuania 2017

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New projects



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Primary school in Barviha/ Russia 2016-17

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New projects



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Micro city "In the Forest" Moscow/ Russia 2017-18

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New projects

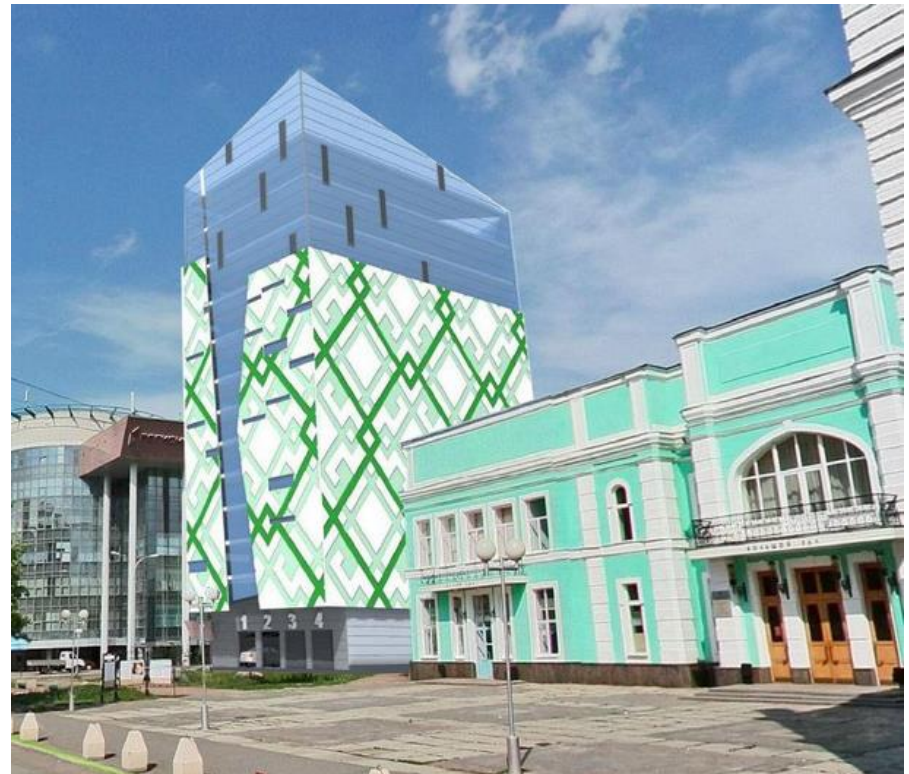


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Office center Moscow / Russia 2017-18

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New projects

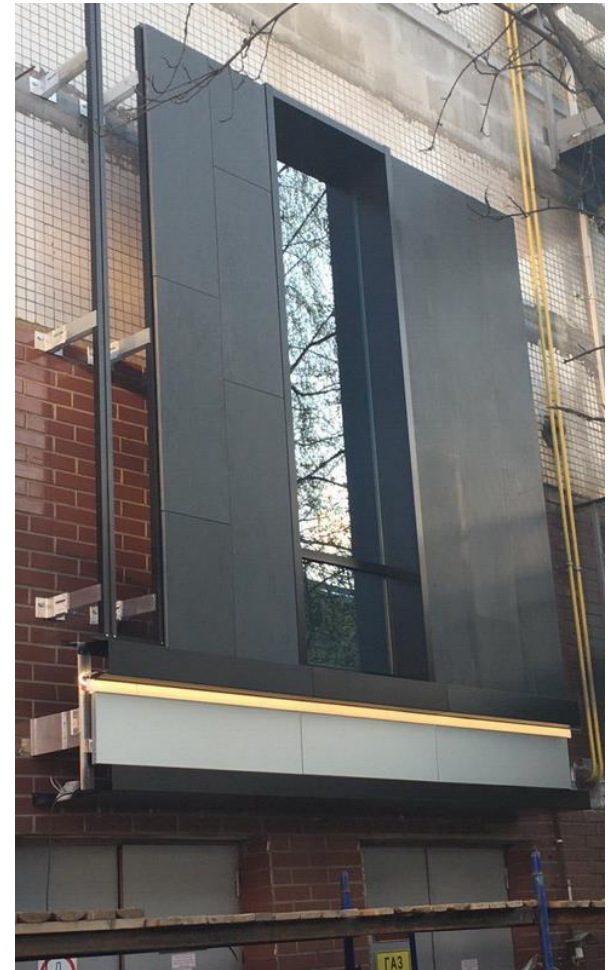
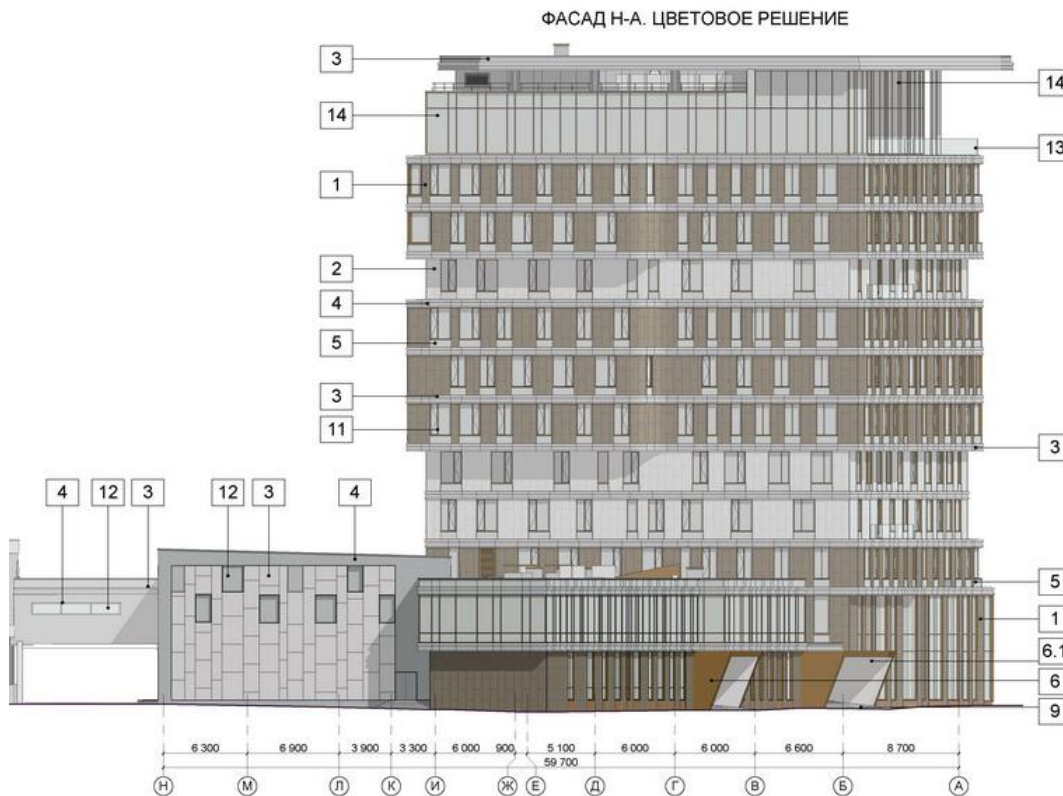


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Mechanized parking Ufa / Russia 2017-18

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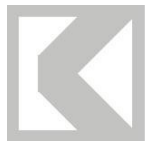
New projects



Complex «STP» Minsk / Belarus 2017

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New projects



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Underground 3rd line Minsk / Belarus 2016-17

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Why anodized aluminum?

properties of aluminum

Aluminum: the 3rd most common element on the Earth 7% (after oxygen 49% and silicon 26%) and the most common metal (iron 5%)

Aluminum has light weight and high strength:

Density: 2.700 kg / m³ (copper 8.900 kg / m³, iron 7.800 kg / m³)

Durability: heat-treated 450-500MPa (raw 80-120MPa)
(steel 600MPa, copper 200MPa)

Melting point: 660 ° C (Cu-1084 ° C, Fe-1538 ° C)

Conductivity: 38.0 * 10⁶ S / m (Cu-59.5 * 10⁶, Fe-9.9 * 10⁶)

Thermal conductivity: 235 W / (m * K) (Cu-400, Fe-80)



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Why anodized aluminum?

- anodized aluminum = gorgeous decorative appearance, its natural metallic sheen creates a "living surface" which constantly interacts with the natural or artificial light playing across its surface
- anodized layer is a part of the aluminum which doesn't peel (lifetime warranty)
- protective coating - high corrosion resistance (20 years of guarantee, in this case, the anode coating is not necessary to restore periodically)
- hardness (3-4 times higher than that of raw aluminum)
- durability, abrasion resistance (in the nature aluminum oxide is corundum, ruby, sapphire)
- it doesn't burn, doesn't stain, it is easily washed from the dirt and graffiti
- weatherproof
- lightfastness (anodizing practically doesn't fade)
- resistance to high and low temperatures (from -100 ° C to 260 ° C)



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Thank you for your attention

Contact information:

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