



R-Trade Kaputechnika Kft  
H-8103 Várpalota, Radnóti út 60.  
Tel: 88/ 475 238, Fax: 88/ 475 165  
Mobil: 06 30 9360 183  
E-mail: redele@gmail.com

## **R-TRADE KAPUTECHNIKA KFT'S SUCCESSFUL PROJECTS IN THE SUBJECT OF THERMAL METAL SPRAYING (TSS)**

### **THE APPLICATION OF CORROSION PROTECTION COATINGS WITH ALUMINUM COATING (TSA) TECHNOLOGY**

High quality corrosion protection of steel structures  
according to our partner's



thermal zinc/aluminium spraying technology, with the  
application of Thermal Flame Spray.

György Redele

#### **SELECTED PROJECTS:**

**MÁV RAILWAY BRIDGES**

**SIEMENS WIND TURBINE TRANSPORT FRAMES**

**MILITARY VEHICLE UNDER-CARRIAGES**

**HIGH VALUE OLD TIMER UNDER-CARRIAGES**

**GOLDHOFER TRUCK UNDER CARRIAGES**

**“KOSSUTH SQUARE” RENOVATION PROJECT**

**CANTILEVER GATE IN ROSENHEIM**

**CANTILEVER GATE FOR LIDL HUNGARY**

**WASTE GAS SUCTION FANS**

**CORRODED METAL COMPONENTS REPAIR**

**VIKING DRILLING MUD RESERVOIR REPAIR**

**TOURIST TRAIN FRAMES**

## MÁV RAILWAY BRIDGES

Besides countless smaller jobs, in 2013, **for the first time in Hungary**, commissioned by MÁV Hungarian State Railways, **we performed** the corrosion protection of the HEB 550 main support beams **of 360 ton steel structure bridges**, utilizing our 28 kg/hour metal spraying capacity. We treated the main support beams with sufficient aluminum metal coating, using our **Thermal Spray System technology**, which provides protection that is resistant to the highly corrosive C5 environment. The bridges were constructed in Pilisvörösvár and Óbuda.

The department of MÁV Hungarian State Railways that manages the corrosion protection of bridges, specified the Thermal Spray Aluminum (TSA) method, in their regulations, as the **most sufficient method** for the corrosion protection of steel structures in highly corrosive environments, in the presence of chlorides (**C5 industrial and Im2 sea saline water**). In its "Railway bridge regulations", MÁV defined TSA as mandatory, applied from 2012 (MÁV P-6002/2012: Corrosion protection quality assurance of steel structure railway bridges).

The photos show the main steel support beams of the Óbuda and Pilisvörösvár railway bridges.

The TSA aluminium spraying was performed by our Company, providing anti-corrosion coating with the application of equipment by the world renowned British Metallisation Ltd.



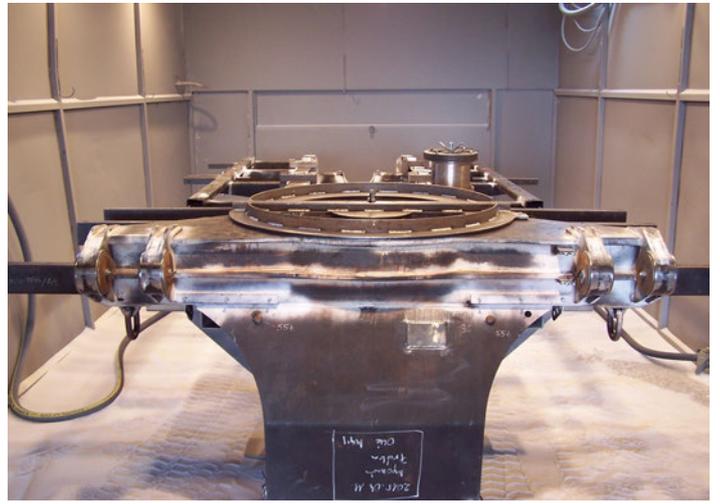
## SIEMENS WIND TURBINE TRANSPORT FRAMES

Our Company was commissioned to deliver anti-corrosion coating for **Wind Turbine Transport Frames from SIEMENS**, using TSA technology. The frames are manufactured in Hungary. The frame manufacturer will deliver 12 pieces of 30t steel structures. All the critical surfaces will be treated to prevent corrosion during sea transport.



## MILITARY VEHICLE UNDER-CARRIAGES

For our military-industry clients we treated military vehicle under-carriages with TSA technology. We delivered 250-300µm thick aluminium coating for extreme corrosion requirements.



## HIGH VALUE OLD-TIMER UNDER-CARRIAGES

In the course of the renovation of extremely high value **Old-timer automobiles** one of the **most reliable undercarriage renovation method is TSA** thermic aluminum spraying, as well as the subsequent application of the 2 K epoxy synthetic resin base pore-sealing foundation layer. Our partners involved in veteran car renovation are also aware of this fact, and they order the **renovation of the Ferrari Dino sport cars' special undercarriage from us** as well.

When it comes to renovating extremely high value **Old-Timer automobiles** one of the **most reliable methods for under-carriage renovation is TSA**, Thermal Spray Aluminium. A layer of 2 K epoxy synthetic resin base, pore-sealing foundation is applied subsequently, right after the TSA treatment. Our partners involved in veteran car renovation are also aware of this fact, and they order the **renovation of the Ferrari Dino sport cars' special under-carriage** from us.



## GOLDHOFER TRUCK UNDER-CARRIAGES

There are well-known truck under-carriage manufacturers among our clients, like the German **GOLDHOFER**, with strict quality assurance requirements.



## “KOSSUTH SQUARE” RENOVATION PROJECT

As a part of the "Kossuth Square" renovation project, the renovation of the **cast iron railing** on the Hungarian Parliament's Danube side, manufactured in Antal Oetl's iron-smelter at the end of the 19th Century, highly corroded by today, was realized using our TSA technology as well.

The renovation was performed by our Company, commissioned by KÉSZ ZRT., in the course of which the railing components were treated with **aluminum metal coating** by applying the Thermal Sprayed Aluminium method (TSA), in order to achieve increased corrosion-free lifespan.



## CANTILEVER GATE IN ROSENHEIM

Our Company manufactures Cantilever Gates, treated with TSA, that does not require subsequent surface treatment.

On the pictures: Cantilever gate near Rosenheim with aluminium coating + FunderMax outdoor plates cladding. It never needs to be painted again.



## CANTILEVER GATE FOR LIDL HUNGARY

The unique size, extremely long Cantilever Gate at the Logistics Center of LIDL Hungary, in Székesfehérvár was manufactured and treated by our Company.

The facility's **Cantilever Gate**, with the **length of 24.0 meters**, treated with TSA aluminum spraying, is our most recent, large scale, cantilever gate project, which is a good example of the corrosion protection methods that satisfy high aesthetic requirements and can be applied in the case of large sized welded steel structures.

This cantilever gate currently holds the record in Hungary with its 24 meter length and its high aesthetic value.

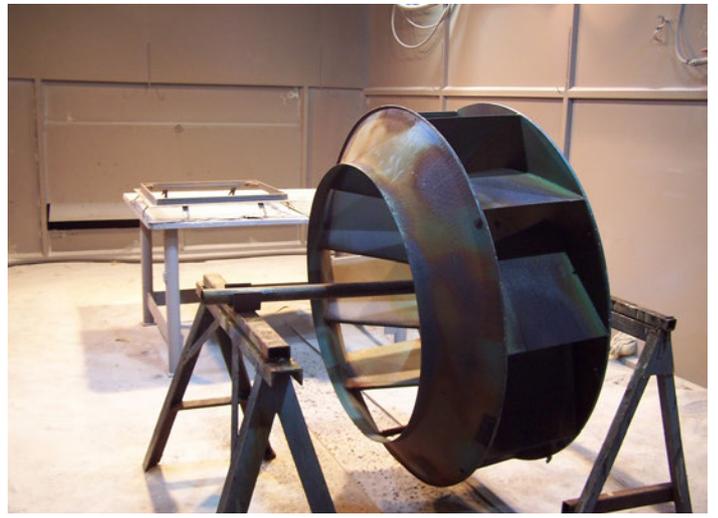


## WASTE GAS SUCTION FANS

The application of TSS/TSA in the chemical industry holds practically inexhaustible potential. In the presence of extraordinarily aggressive acid or base, **high temperature waste gases**, corrosion is virtually unavoidable, and beyond the use of acid and corrosion-proof materials, **the application of aluminum metal spraying** according to EN ISO 17834 is practically **the only reliable corrosion protection technology**.

With the Thermal Spray Aluminium method and for example, the Henelit Hekote Aktivground foundation pore-sealing and the Decklack cover paint, in a base environment as high as to 190 Celsius degrees, and by a treatment with a special aluminum-silicon coating even in an environment of 600 to 800 Celsius degrees (!) we can form effective corrosion protection coating.

For waste gas suction fans operating at high temperature the ideal treatment method is TSA.



## CORRODED METAL PARTS REPAIR

In acidic and ammonium nitrate (nitrogen fertilizer, agricultural factories) corrosive environments, where the application of zinc, as a catalyst increasing the risk of explosion, is advisable to avoid, we have successfully applied **Thermal Spray Aluminium coating** for the corrosion protection of industrial gate components.

The corroded gate components remain fully operational after TSA aluminum treatment.

One of our clients in Hungary, Hörmann Hungária Kft., commissioned us to treat their gate components installed in highly corrosive, C5 environments in a car-wash, road treatment salt storage and manure fermenting facilities.



## VIKING DRILLING MUD RESERVOIR REPAIR

Heavy industries, in particular **mineral oil and natural-gas production**, expect reliable operation from their utilized equipment under extremely aggressive, corrosive conditions. Our Company successfully participates in the **corrosion protection of oil drilling equipment**. We apply increased TSA aluminum thickness and special pore-sealing coating systems. As we did in the case of the treatment of the reservoir tank filled with chemical materials shown on the photos, storing sometimes acid, sometimes base drilling mud.

Drilling mud reservoir's surface treatment was performed by our Company, commissioned by the Texas based company's Hungarian subsidiary, Central European Drilling Ltd.



## TOURIST TRAIN FRAMES

The metal structures of sight-seeing, tourist train lines must often comply with serious anti-corrosive and life-expectancy requirements. Especially, when they are used under the extreme weather conditions of Nordic coastal towns. Because of the exceptional dimensions of the metal frames and the salty, humid, coastal air, hot-dip galvanization cannot be an option here.

The only technically satisfying solution is the one offered by our Thermal Spray Aluminium technology application while, in the same time, the project remains economical.



Based on our knowledge and on what is described above we can state, that for the corrosion protection of steel structures, the Thermal Spray Aluminium method may be utilized in Hungary on an increasing scale, which according to EN ISO 2063 may be one of the most important, sufficient, suitable corrosion protection coating in chloride, sodium-hydroxide, ammonium-nitrate, base environments.

The method is applied worldwide with continuously increasing volume and success, to which, with our British partner, Metallisation Ltd., our company, R-Trade Kaputechnika Kft., also contributes on an increasing level.

Next to its main activities our Company is invested in research and development exploring the bonding characteristics of Thermal Spray Aluminium solutions under different circumstances. We are currently collaborating with one of the major producers of polyurea in Europe to research and develop a signature process for the application of Hot Spray Polyurea on TSA treated surfaces.

Thank You for Your attention:

György Redele  
R-Trade Kaputechnika Kft. CEO  
mechanical engineer in the chemical industry

Metallisation® Thermal Spray Operator  
Thermal Spray System - Surface treatment facility  
Pétfürdő, co-owner