

Polystone® P homopolymer

# Project Report

Tank for a cathodic dip coating line made of Polystone® P homopolymer

 Chemical processing industry





In operation: Equipped tank after installation in the BMW Motorrad factory hall.

## Tank for a cathodic dip coating line made of Polystone® P homopolymer

Anyone who produces plants for surface treatment will see the world somewhat differently. Martin Zikmunda knows that too. If he sees a motorcycle from BMW, he is not only impressed by the combination of speed and sound – but above all the design. More precisely, the paint. As Sales Director at KOVOFINIŠ s.r.o. the engineer knows very well how much know-how is necessary to reliably produce high-quality surfaces in series production.

Since its foundation in 1951 the company from Leděč nad Sázavou, Czech Republic, has developed into one of the leading manufacturers of equipment for surface treatment. Martin Zikmunda supplies customers throughout Europe – such as BMW Motorrad in Berlin, Spandau.

After 40 years of service, BMW Motorrad decided to replace the cathodic dip coating line at the plant in Spandau, Germany, with a new one. KOVOFINIŠ was awarded the contract for the design and construction of the plant, which has a tank with a capacity of 26 m<sup>3</sup>.

### Cathodic dip coating

For the quality and longevity of motorcycles, the **process is crucial**. The complete bodyshell is primed using the **electrochemical process**. It protects the bodies from corrosion and serves as the base for applying the paint. To apply the primer layer, the body shell is immersed in an electrically conductive paint. This allows complete painting of all surfaces, cavities and edges.

### New construction method

The system is designed to last for several decades. Designers must make **many decisions** and take **into account several factors**. “When planning, we take into account influences such as the dipping varnish, the dimension and static. We want to produce the right plant for each and every customer. And by the right plant we mean the best,” says Zikmunda. The team is always looking for ways to **improve the design** for its customers. For this new project, the developers of KOVOFINIŠ chose a completely new tank construction method.

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We love to continuously further develop the ambitious surface treatment technology. For this, the materials and application know-how of Röchling offer us many opportunities.

Martin Zikmunda, Sales Director at KOVOFINIŠ s.r.o.

### Tank made entirely of plastic

“Normally a tank for a cathodic dip line is made of steel with a laminate lining. This is time-consuming as the installation of the laminate lining must be done after the steel tank is built. For the first time in our history we wanted to construct the tank completely of a thermoplastic. Because thermoplastics can be welded, we saw the opportunity to construct the plant faster,” says Zikmunda.

“We introduced our concept to BMW. After approval, we were excited to implement the project. But a faster production,” Zikmunda added, “has no value if the system would have to make a compromise on performance and reliability. So, when we came up with the idea, we were looking for a material that would be suitable for permanent contact with the chemical medium and that would be very easy to weld.”

As KOVOFINIŠ regularly uses materials from Röchling Industrial for various projects, such as electroplating plants, wastewater treatment plants and storage tanks, they asked for a consultation with Jan Michalíček – the engineer taking care of projects at the Röchling site in Planá nad Lužnicí, Czech Republic. As a technical marketing employee, Jan is pleased to be the contact person for application questions.

In a personal meeting on site at KOVOFINIŠ, he familiarized himself with the requirements. “Together, we discussed the influencing factors and the construction. Based on that, we recommended our material Polystone® P homopolymer,” explains Michalíček. “For the new design of the cathodic dip line, the polypropylene is particularly well suited.”

In one single piece: Moving the cathaphoretic tank made of Polystone® P homopolymer to the BMW Motorrad manufacturing facility.



# Together, we discussed the influencing factors and the construction. Based on that, we recommended our material Polystone® P homopolymer.

Jan Michalíček, Technical Marketing at Röchling Industrial in Planá nad Lužnicí, Czech Republic



## Easy to weld

After a closer look at the material's properties and project examples, where the material is already successfully in use, KOVOFINIŠ agreed. Zikmunda commented: "The material has a very high resistance to chemical media, has a high temperature resistance and is very easy to process. But the biggest advantage is that it is very easy to weld. This enabled us to save a lot of time during construction."

KOVOFINIŠ took advantage of the new possibilities for the construction of the tank and also manufactured the associated fittings and components, such as pipes, as well as a plant for wastewater treatment from the material. Zikmunda: "We were very fast and flexible with the new design. And because the material is very easy to clean too, it also offers advantages in operation as it is easy to maintain. And if the customer desires further components, such as valves, at a later date, this is very easy to realize thanks to the easy processability of the material."



Made of Polystone® P homopolymer:  
Reactors, tanks and filter

## Individual design

For the design and layout, the planners from KOVOFINIŠ and BMW Motorrad used, among others, the tank calculation program RITA - Röchling's Integrated Tank Building Assistant - from Röchling Industrial. Because the tank was made entirely of polypropylene, KOVOFINIŠ developed a new reinforcement. A leak check was carried out before the completed tank was transported in one piece from Ledeč nad Sázavou to Spandau, where KOVOFINIŠ were also responsible for the installation on site.

Zikmunda is pleased that the new construction method was realized as planned: "We love to continuously further develop the ambitious surface treatment technology. For this, the materials and application know-how of Röchling offer us many opportunities."

## Plastics for Chemical Processing Industry

Röchling plastics have been in use for decades in the chemical processing industry as materials for installations and tanks. Röchling provides its customers with a complete product range, from sheet material, round rods and tubes to different welding rods, and assists them in the selection of the right materials with expert advice. In addition, Röchling has extensive databases and many years of experience regarding chemical resistance and the successful use of thermoplastics and composites. The most important areas of use include tanks for the storage of liquids, galvanizing systems, steel pickling systems, water treatment plants, exhaust air cleaning plants and ventilation systems.

[www.roechling-industrial.com](http://www.roechling-industrial.com)

# Project overview

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## Initial situation

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Construction of a cathodic dip coating line for motorcycle bodies at BMW Motorrad in Spandau, Berlin, Germany



## Requirements

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- High resistance to chemicals used in the process
- High temperature resistance
- Very good weldability
- Very easy to process



## Material used

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Polystone® P homopolymer



## Result

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Reliable tank for a cathodic dip coating line. Polystone® P homopolymer saved a lot of time during construction because of the easy processing and weldability.



## Project partner

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### **KOVOFINIŠ s.r.o.**

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[www.kovofinis.cz](http://www.kovofinis.cz)

KOVOFINIŠ has successfully executed projects all over the globe and has become one of the top surface treatment equipment suppliers in Europe. Their main products are surface treatment equipment and industrial waste water treatment plants. In addition to cataphoretic lines, KOVOFINIŠ produces galvanic lines, paint shops, sewage treatment plants, pumping tanks, reactors, belt filters, sand filters and storage tanks, all made of polypropylene.

### **Röchling Engineering Plastics, s.r.o.**

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