

New Galvanizing Plant 4.0 by EKOMOR in Belgium

EKOMOR Co., based in Frydek-Mistek, Czech Republic, is a long-term experienced supplier of the technologies for metal surface treatment. In last months EKOMOR commissioned to its Belgian customer the new up-to-date hot-dip galvanizing plant, equipped with high degree of automation – Galvanizing Plant 4.0.

Hot-dip galvanizing is a time-proven technology for the surface protection against corrosion. Thanks to the long-term experiences with this technology is it a traditional process widely used in the construction branch of the manufacture of steel construction parts. As a new trend in the field we observe a growing demand from the customers towards the higher degree of the automation of the process. The worldwide trend towards digitization and internetization – so called INDUSTRY 4.0 - affected thus the traditional branch of hot-dip galvanizing.

The contract to deliver a new galvanizing plant for the demanding Belgian customer – Vergo Galva company – was for EKOMOR a new challenge and breakthrough to the challenging market of the West Europe. The contract was obtained after tough tender, in which participated also established Italian and German competitors. The customer made his final decision mainly on the basis of the very good references and high quality of the EKOMOR’s supplies.

Belgian company VERGO GALVA, based in the Flemish part of Belgium, is a manufacturer of the wide line of the steel parts of metal cable support systems – cable trays, ladders, trunks and other supporting elements. Hot-dip galvanizing plant is therefore the integral part of their manufacture technology, producing the final surface treatment as a protection against corrosion. Two years ago the company decided to modernize this technology fundamentally by the construction of a totally new plant in the area of the company.



Zinc furnace with housing

The aim was to get the up-to-date plant, which will fulfill all very strict requirements of the Belgian law regulations for the environment protection, which will have high capacity, which will enable to reach high quality of the surface of products. The customer gave special importance to the high level of the automation, and saving manpower.

SPECIFICATIONS OF THE PLANT:

The designers from EKOMOR designed the new galvanizing plant having following specifications:

Capacity:	10 000 kg /hour
Inner dimensions of the kettle:	7.0 x 1.7 x 3.7m
Furnace heating:	natural gas, flat-flame burner
Chemical pre-treatment:	degreasing in alkaline agent pickling in 16% HCl
Flux:	rinsing standard type, plant equipped by the regeneration of the flux
Drying:	economically heated by the heat recovered from the furnace’s flue
Passivation:	as an optional step after galvanizing and cooling,



Chemical pre-treatment in the housing

ENVIRONMENT PROTECTION IN THE FIRST PLACE:

Project of the construction of new galvanizing plant had to comply to all strict requirements of Belgian environmental law regulations, stated mainly in the technical standards of VLAREM II set. These requirements was even intensified by the fact, that the plant is located very close to the residential quarter of the city.

The whole part of the chemical pre-treatment is covered in the housing, it is equipped by the efficient exhausting system and the exhausted fumes with the content of acid vapors is then cleaned. For the cleaning of the fumes is used the absorption device from the EKOMOR’s product line. This device thanks to its design reaches very high degree of efficiency and reliability of the process. Proper function of this system was finally proven by the measuring and analyzing of

the HCl content in the air exiting from the chimney. The composition of this air fulfilled amply the strict Belgian standard.

The dust collection system was also very carefully checked by the Belgian inspectors. Thanks to the hose-filter equipment was also this parameter fulfilled.

ADVANCED AUTOMATION SYSTEM

One of the basic requirements from the customer was the high level of the process automation to reach the high capacity of the plant using lower number of operators. For EKOMOR this meant, that the designers had to design as a crucial part the automatic transport system for the transporting of the semi-products through the line, and then they had to make a multiplied optimization of the times and functions of all particular parts of the entire transport system. In cooperation with the sub-supplier a complete computer-supported simulation of the process was made. Using the advanced optimization methods the parameters of capacity, technology, economy and maintenance were optimized.

High capacity of the line requires also its high reliability. Each failure and interruption of the production would mean high losses for the customer. To reach high level of reliability and automation the plant is equipped by the high amount of the automation elements. The supplied line contains several hundreds of sensors, it is controlled by the control-system with distributed remote units, all interconnected by the data-network. Operators can use visualization of most processes and conditions of the line. The control system can be checked and supervised remotely and the parameters can be entered

by the connection through the phone mobile network and using Internet technology.

EKOMOR

EKOMOR company is active since 1993. It designs solutions for metal surface treatment, provides engineering, fabrication and delivery of the lines for surface treatment. The main branches of the company are deliveries of the complete hot-dip galvanizing plants, pickling lines of the wide range of the steel grades and of other metals, industrial waste water treatment equipment for the waste water from chemical industrial processes, equipment for the cleaning of the exhausted fumes from industrial chemical processes. EKOMOR works also on its own R&D projects, mainly in the field of new technologies for the regeneration of the used acids.

VERGO GALVA

VERGO GALVA Co. based in Kruishoutem in the Flemish part of Belgium, is a part of the VERGOKAN Group. This group is one of the largest European producers of the cable support parts – trays, ladders, trunks and others. The group has the companies in Belgium, and one daughter company in Russia. The products produced by this group are widely used also in the Czech Republic.

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