

An Easy Introduction to In-House Coating Removal

A modular system allows coating removal machines to be adapted to individual users' requirements and modules to be added to existing machines. The reliable technology, easy operation and affordable costs make in-house coating removal a feasible prospect.

Thorsten Lutz, Gabriele Rabold

Chemical coating removal in immersion tanks or spray systems is the gentlest and easiest method of stripping paint from components. The machines that perform this task must be designed for tough environments, easy to operate and largely maintenance-free.

The simple operation of immersion tank systems and the opportunities for automating the dipping process allow solutions to be developed that make it possible for many companies to move their coating removal processes in-house and to integrate them into their overall value chain. The benefits include a faster response to defects, improved quality that is more easily influenced and lower overall costs.

Immersion stripping causes no damage to the workpieces, which are evenly wetted

and evenly heated. The process has no impact on the material properties or shape of the parts, which can be the case with thermal coating removal or blasting, for example. In addition, immersion stripping and spray coating removal are more suitable for applications where the paint or the coating is removed in larger particles or where components with a large number of corners, edges and cavities need to be stripped.

An enclosed system ready for immediate use

The modular coating removal system from Smito-Technic uses immersion tanks with a capacity of 600 or 1000 litres. The smallest unit is a TB400 immer-

sion tank with an insulated cover. The system is enclosed and ready for use after it has been filled with a suitable chemical solution and reached the process temperature.

The only difference between the stripping and rinsing tanks is their size. They are otherwise identical in design. Both are double-walled and take the form of a tank inside a tank. The outer tank functions as a safety container which meets the requirements of the German Federal Water Act. The stripping tanks are heated indirectly and the contents are constantly agitated. The effective insulation and carefully designed heating system ensure that the chemical solution is brought gently up to temperature and that the energy consumption is kept to a minimum.



The multi-tank machine consists of a paint stripping tank, a rinsing tank, a transport portal, parts holders and trolleys.



The modular coating removal system is based on immersion tanks. The smallest unit consists of a basic tank combined with an insulated cover.



Users are satisfied with the immersion stripping machines. Udo Kammler (left) and Denis Reger (right), the managing directors of Waku GmbH, said: "Bringing coating removal in-house has taken us to a new dimension, because we can now be so much more flexible."

Sensors monitor the level of liquid in the tank, the target and actual temperature of the chemical solution and the functioning of the agitator and the heater. All the information is recorded and evaluated by a control system (supplied by Siemens). The parts of the machine which come into contact with the chemical solution are made either from stainless steel or PTFE and can operate at temperatures up to 120°C.

In order to improve safety levels even further, the system can be expanded to include, for example, a lifting unit which allows parts to be removed easily from the tank or trolleys with sliding parts holders that can be used to move the parts around within the factory. A suitable extraction hood with a waste air fan is also available for the lifting unit. All the additional units can easily be integrated into the basic unit.

If one tank is not sufficient, several can be combined to create a multi-tank machine with up to ten tanks. The parts holders, which are supplied with an integrated cover, are transported using a portal that can be moved over each tank. This can be done manually with very little effort by the operator or fully automatically by the combination of motors and sensors in the machine.

The modular structure of the system makes it possible to create completely enclosed machines with integrated automatic parts transport functions and built-in extractors. The multi-tank machines allow different chemical solutions to be used in one machine and make it possible to incorporate additional processes, such as

rinsing or passivating. By working closely with users, it is possible to design machines to meet their specific needs.

Impressive parts handling and paint stripping

The immersion tank machines from Smito-Technic are employed in a wide variety of sectors and industries. They are primarily used to strip parts that have been wrongly coated, painting equipment such as hooks and hangers, wheels and rims, bicycle frames and vehicle components. They can also be used to remove release coatings. Very little effort is involved in operating the machines and, therefore, stripping the parts is simple.

Smito-Technic has asked its users about the cost-effectiveness of using immersion tanks for coating removal. The majority of users have their machines in constant operation, although many machines are shut down at weekends. Because of their robust design, maintenance is rarely needed. The excellent insulation keeps the electricity costs for running the machines to a minimum.

One significant cost involved in operating immersion tanks is the paint stripper. The machines are not designed for a specific chemical, which means that users can opt for different solutions. The basic principle is that the best results can be achieved by using the paint stripper designed for the specific application. In practice, many users prefer multi-purpose products that are suitable for parts made from steel, aluminium and other non-ferrous metals.

Many chemical companies offer a selection of suitable coating removal products and will provide help with bath maintenance and with the return of the used chemicals. The costs of maintaining the bath are generally low. Some users are able to remove the coating from 300 sets of wheels using one tankful. All the users of the immersion tanks confirm that buying a machine for in-house coating removal has paid off. Their expectations have been met by the easy parts handling system and the good paint stripping results.

Fast return on investment

The flexible coating removal system can be adapted to meet each user's needs. Its robust design and components made from stainless steel and Teflon in the areas which come into contact with the chemicals allow almost any common paint stripping solution to be used. This gives users the opportunity to choose from the wide range of products available and to opt for the best chemical solution for their requirements.

The modular design of the individual units makes it possible to extend an existing machine at any time. The reliable technology and the ease of use make in-house coating removal an attractive prospect. The cost of a small machine is affordable and it will pay for itself quickly. As the user's requirements increase, so the machine can be expanded. //

Authors

Thorsten Lutz

Gabriele Rabold

Smito-Technic GmbH, Tübingen, Germany

Tel. +49 7071 8805 60

info@smito-technic.de

www.smito-technic.de