VOSS

VOSS coat

Corrosion resistance in perfection

Conceived and thought through.

www.voss.net

Since 2007 pioneer

A pioneer in zinc-nickel since 2007. And still leading the field.

EU Directive No. 2000/53/EC on end-of-life vehicles was amended in 2007, resulting in a partial ban on the use of hexavalent chromium in vehicle materials and components. The corrosion protection through yellow chromatising which we previously employed was terminated as a result. Available alternatives, namely zinc as a basic layer with thick layer passivation, are far from adequate in terms of their technological properties and meeting VOSS standards. Indeed, they represent a deterioration in quality. This was - and is - unacceptable to us, as VOSS strives at all times to improve the customer benefits inherent in its products and solutions.

The solution: the VOSS zinc-nickel surface. Its relevant properties surpass those of yellow chromatising. Particularly impressive is the 10 times greater corrosion protection.
It represented an innovative boost in 2007 for the entire hydraulic coupling technology market. The steel is covered by three layers, namely a basic zinc-nickel layer, a passivation layer and a sealing layer, which offer an optimum level of corrosion protection.
We established our own plating competence centre in 2009 in which we produce and perfect our surface.

Other peoples' options are standard with us.

Our surface sets the market standard for corrosion resistance in every area and is utilised consistently in our entire product range - and that since 2007. Maximum availability on a global scale. For you this means maximum process reliability for your application. Unmixed. Without confusion. For applications in hydraulic presses, plant engineering, construction and agricultural machinery, materials handling and plastic injection machines as well as machine tools.

Comparison of the salt spray chamber test after 720h.

VOSS Zink-Nickel

Zinc + passivation + sealer

VOSS coat: the brand for corrosion protection.

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Our surface is much more than a coating. That's why we have branded it: VOSS coat. VOSS coat stands for perfected corrosion protection, technology, sustainability and putting people at the heart of things.

VOSS coat is the product of continuous optimising (e.g. of coefficients of friction, layer thickness distribution and visual appearance). These result from many years of experience in production processes and customer use and are advanced further through our own research and development. Only VOSS unites all these competencies under a single roof, with our own VOSS coat competence centre and test plating facility. This enables us to ensure that our corrosion protection meets your highest standards. For measurable progress.

Corrosion resistance in Perfection

Technology: self-advancement for that cutting edge.

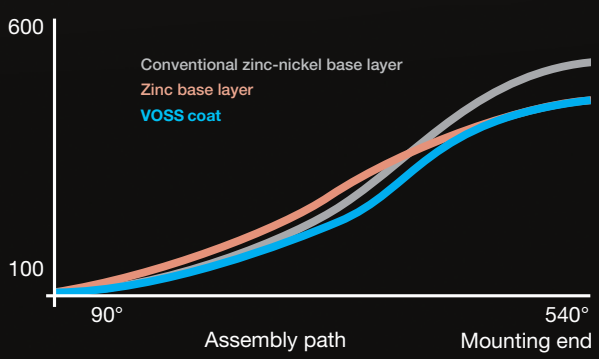
VOSS coat is the product of years of in-house engineering and consideration of all those factors which contribute to greater customer benefit. The result is not only extremely good corrosion protection, but also user-friendly handling under practical conditions.

100% quality control

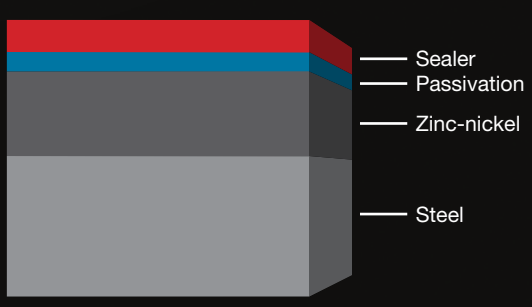
1,000 hours of corrosion resistance during productive use following handling and fitting.
Externally tested with random articles from the current production run, tested after fitting. This is the only way to take into consideration micro-damage sustained during fitting and make a serious service life prognosis at the customer's facility. Under laboratory conditions, the service life exceeds 2,000 hours with non-fitted parts. The first signs of red rust only exhibit themselves after this period, while white bloom only appears in the form of a light grey tinge. In addition, for our own quality control, parts are sampled from 100% of all batches.

Cutting ring assembly test (size S30)
Optimum mounting torques by VOSS coat.

Mounting torques (Nm)



Surface section of VOSS coat



Optimum installation torques, not too low and not too high.
Excessive and inadequate fitting is avoided in this manner, and this applies to every tube coupling, thanks to absolutely consistent quality. Our own research, development and production have enabled the continuous improvement of VOSS coat's coefficients of friction. These are now comparable to the best zinc surfaces and considerably lower than those of other zinc-nickel coatings.

Maximum process reliability, thanks to the latest in-house plating facility and online sensors and analysis.
Designed exclusively for tube couplings – a unique solution. This is where we develop our plating processes further, with the chemical part taking place in the test plating facility and production runs in the engineering department. Adaptations are realised in test series with 12-program parameters for each of our 6,600 articles – ensuring optimum processes for every geometry and size. We have developed the racks and baskets with which the articles are transported into the plant, and these are subject to continuous improvement. Such a high degree of specialisation cannot be obtained through outsourcing. In addition, it goes without saying that the EU Chemical Directive is observed (REACH conformity).

1000 hours

Individual plant control programs: each of our 6,600 articles are realised with 12-program parameters.

The VOSS test plating facility: here we continuing to develop VOSS coat.

Sustainability: autonomous application only, right from the bottom up.

Our parent plant has been home to our 5,000 m2 VOSS coat competence centre since 2009. The plant facility is a two-storey structure to ensure optimum working conditions. All movements of goods and loading of the rack and drum plant are realised on the ground floor. A lifting system then conveys these to the upper floor. The actual galvanised coating process is realised here fully automatically – no employees need be present. We can control all processing steps here and optimise these to suit our own needs. Uncompromisingly. Sustainably.

5.00

VOSS coat-competence-center

Process chemistry - a solid base for VOSS coat. Automatic in-process chemical dosage to baths ensures conformity to even the tightest process tolerances.

The design of the overall plant technology helps to prevent thread damage.

The entire operation of the system is in the basement. All process steps and parameters are visualized in real time.

All bath parameters are monitored continuously. Re-dosing is fully automated.

Energy-efficient production:
Elaborate energy optimising measures taken during construction (e.g. heat recovery) enables us to save more than 490 MWh of energy annually, equivalent to the annual electricity consumption of approx. 160 housing units.

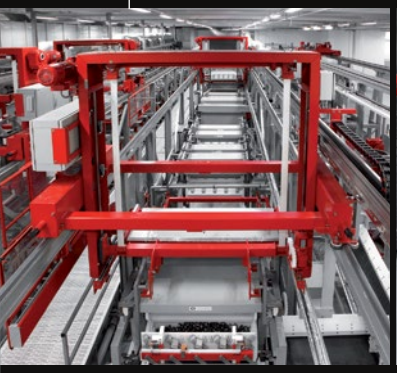
Reduction of emissions (air, water, noise):
Exhaust air is suctioned directly over the baths and cleaned by an air washer. Air pollution limits are undershot by more than 250 times as a result.
The same applies to the responsible management of water: only service water is used instead of valuable drinking water. Waste water is cleaned thoroughly and pH neutralised in our own treatment plant.
When it comes to noise emissions, our plating facility meets the strictest regulations regarding noise protection in mixed residential and industrial areas.

Reduction of environmentally damaging potential:
Use of environmentally friendlier materials free of cyanide and cobalt.

Raw materials efficiency and recycling:
The service life of the baths is optimised to low resource consumption through online analysis. Residual metal are reprocessed and returned to the raw materials cycle.

Process optimization ensures that the actual period during which products are located inside the drum is much less than with other electroplating systems. This additionally protects the material.

Customized after-treatment is possible thanks to flexible plant control.



After the coating process, each batch is quality controlled to a high standard. The coating thickness and the chemical composition are checked and documented during this procedure.

Waste air is extracted directly above the baths and cleaned by an air washer. The available heat energy is recovered.

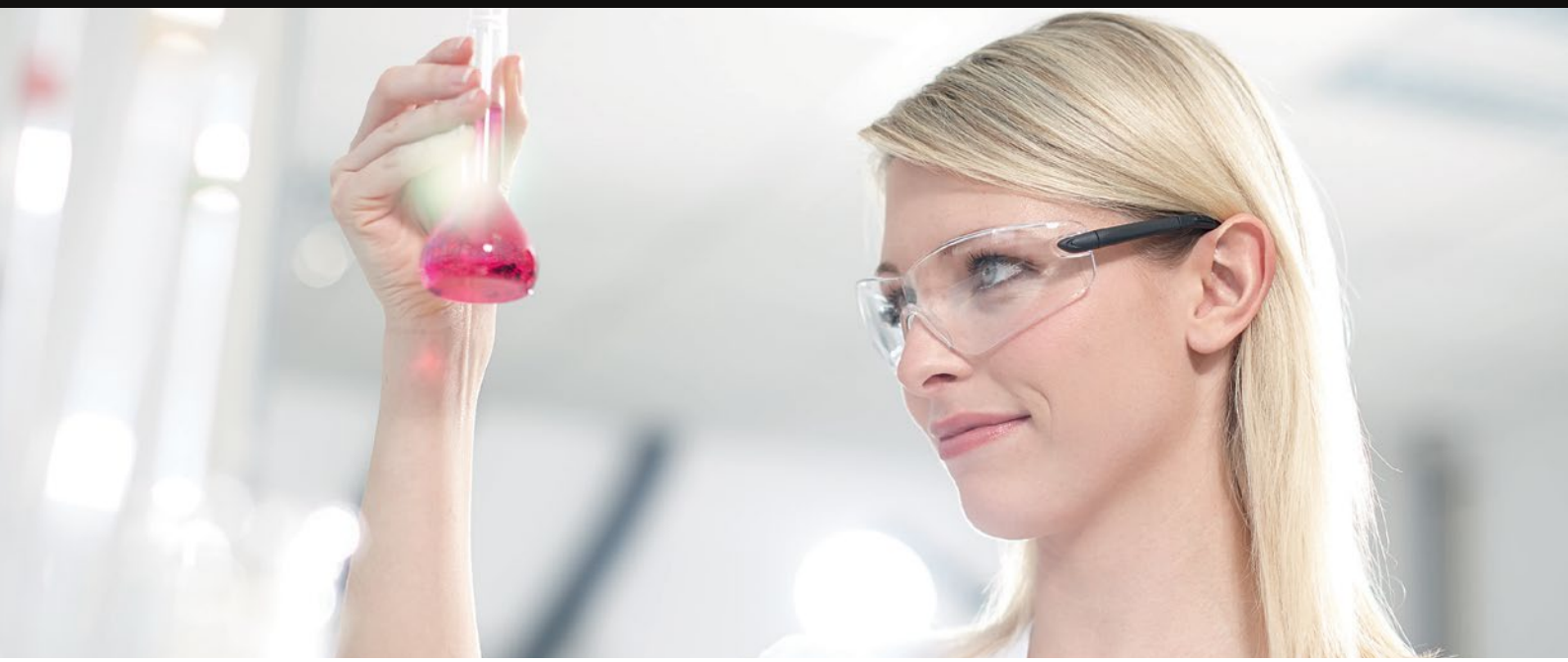
People: the focus of all we do.

Technologies make products better. Sustainability ensures minimum exploitation of resources and efficiency. But only when these are brought together do they serve people. VOSS coat benefits people. Today and tomorrow. Both our employees and our customers.

Optimum working conditions for our employees:
Employees and chemicals are safely separated from each other in the building. As re-dosing of the process baths is realised automatically without human intervention, any contact with chemicals is also avoided for good measure.
Ergonomically optimised workplaces in which, for example, lifting tasks are avoided, prevent fatigue and, consequently, errors.

Process stability for our customers:
A high degree of process stability combined with excellent assembly behaviour means that errors due to excessive or inadequate fitting are practically ruled out. Coating processes specially developed for our products ensure consistently high corrosion protection. Day after day throughout the entire product range.

Nickel release:
Limits for nickel release stipulated in EU Regulation 1907/2006 and relating to objects which come into direct and prolonged contact with skin are undershot by more than 50 times.



VOSS coat: in a class of its own.

455 Mio couplings

Corrosion protection is only as good as the weakest link. It's good if there is none. VOSS coat defines the standard for enhancing corrosion protection in your entire system. Reliability from which your products profit. And an increasing number of customers are impressed.

Reliability:

- **1,000 hours corrosion resistance** under practical conditions.
- **A technological leader among surfaces,** thanks to many years of experience, research and development.
- **Sustainable production** in our own VOSS coat competence centre.
- **455 million couplings** have been delivered since 2007.
- **More than 30% of all users in Germany** choose VOSS coat.
- **High availability and delivery readiness:** lean, rapid supply chains.
- **Image enhancement and a high resale value** for your machinery and plant, thanks to uncompromisingly high-quality components.
- **Enhanced customer satisfaction** due to minimum risk of complaint.
- **Application engineering:** customer specifications can be realised by our own employees (e.g. in the case of prototypes).
- **Assuring the future** through our own research and cooperation with universities and other higher education institutions.

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