



corrender

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Hot-dip galvanized steel strip:
A new perspective

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voestalpine Steel Division
www.voestalpine.com/corrender

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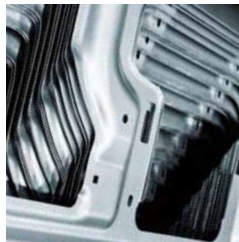


corrender
Now also in
exposed quality

A powerful protective layer

Hot-dip galvanized steel strip: A new perspective

The increasing significance of zinc-magnesium-aluminum coatings is undisputed in the automotive industry. Substantially improved corrosion protection and numerous processing advantages boost efficiency and product quality. Extensive laboratory tests, large-scale trials, industrial-scale applications, and customer references have confirmed this.



More efficient processing

- Less scrap, higher throughput rates
- Up to 80% fewer cleaning downtimes
- Unchanged further processing



Higher product quality

- Improved cathodic corrosion protection
- Improved flange protection
- Improved cosmetic corrosion protection
- Improved paint appearance



Advantages in all autobody applications

- Numerous applications
- Savings potential
- Ideally suited to composite applications



corrender by voestalpine

- Wide range of products
- Now also in exposed quality
- Your reliable expert for converting to corrender

For further information please visit www.voestalpine.com/corrender



More efficient processing

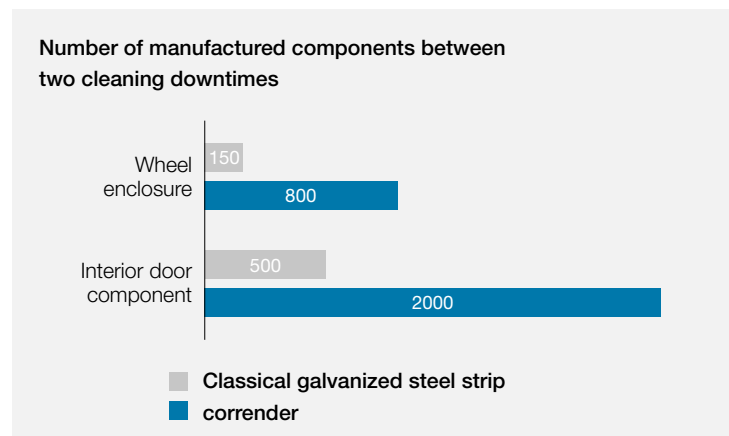
Less scrap, higher throughput rates

corrender is compatible with most existing processes and, thanks to improved tribological properties, offers numerous processing advantages and cost savings.

Compared to conventionally galvanized steel strip, corrender offers a larger process window in the press shop. This reduces scrap and increases throughput rates for more complex components in particular.

Up to 80% fewer cleaning downtimes

Low zinc abrasion improves the surface quality and minimizes post-processing steps. Low adhesive tool wear (galling) reduces the time required for tool cleaning.



Results from industrial-scale press-shop trials

Unchanged further processing

corrender is just as well suited to joining as conventionally galvanized steel strip and performs better in laser welding. No adaptations to the phosphating and painting process are required.

Higher product quality

Convincing advantages



Using corrender not only optimizes processing, it also results in increased performance and quality of finished products.



Improved cathodic corrosion protection

The corrosion protection of corrender is significantly higher than that of conventionally galvanized steel strip. Tests by automotive manufacturers confirm corrender's improved protective effect compared to Z, ZE and ZE-P coatings. Due to corrender's excellent electrolytic protection, cut edges display very good protection even with reduced coating weight.

Improved flange protection

The application of corrender in the flange results in up to 50% higher corrosion protection (VDA Test 621-415 and 233-102).

Improved cosmetic corrosion performance (significantly reduced creepage)

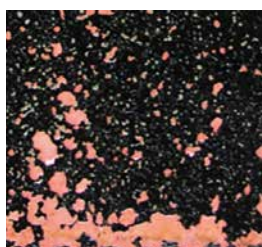


conventionally galvanized
steel strip Z100

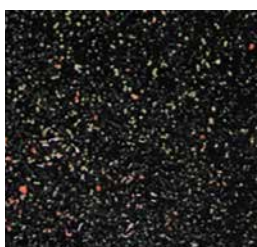


corrender ZM90

Creepage at the scratch,
KTL-coated sample, VDA Test
621-415 after 10 weeks



conventionally galvanized
steel strip Z100



corrender ZM90

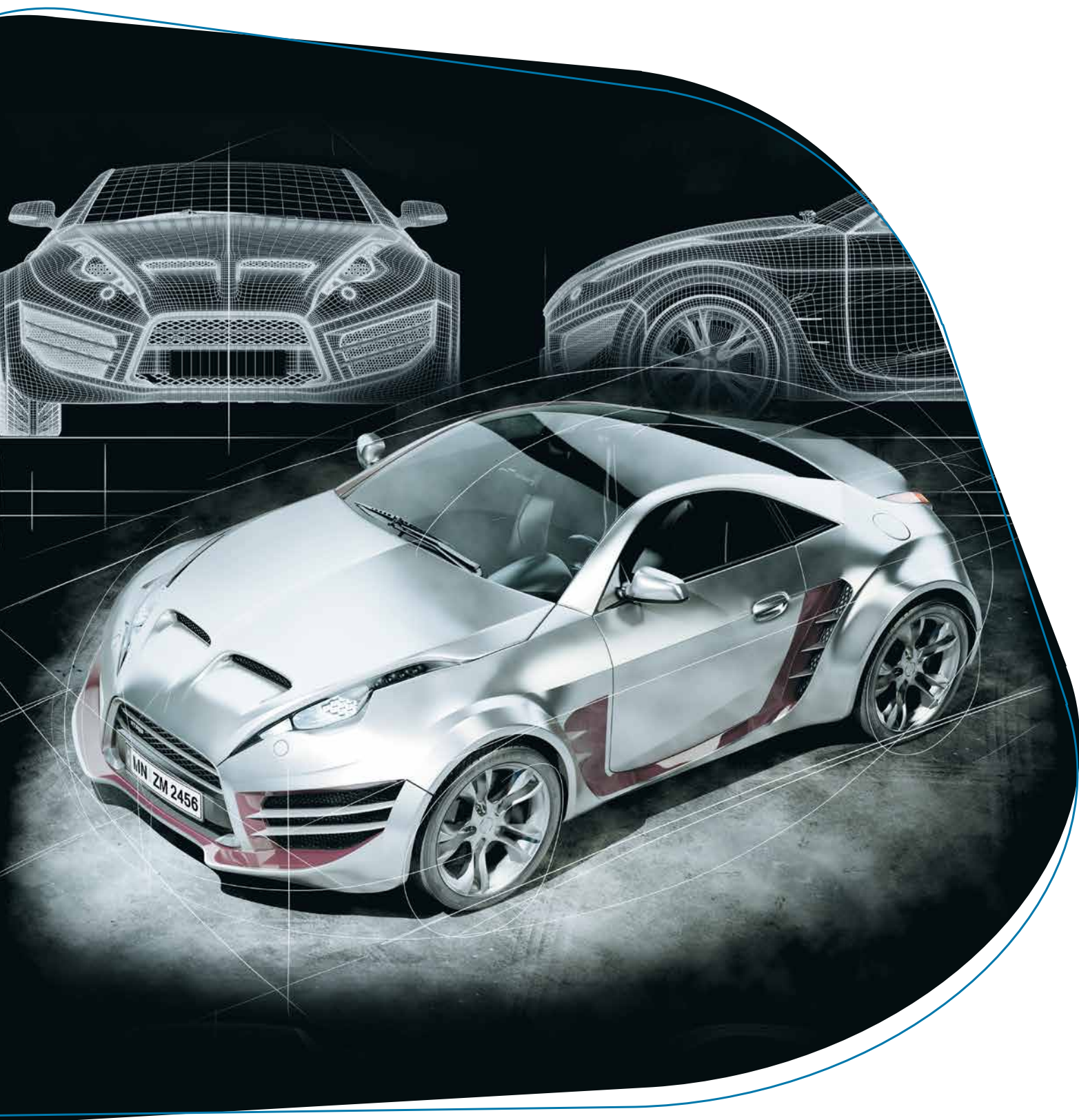
Stone chipping, KTL-coated
sample, DIN EN ISO 1199-7
after 10 cycles

Improved paint appearance

texplus[®]

Customer reports confirm better paint appearance in formed condition compared to conventionally galvanized steel strip. corrender is also available with **texplus** upon request.

For further information please visit www.voestalpine.com/texplus



Advantages in all autobody applications

Now also in exposed quality

corrender performs excellently in all autobody applications.
Thanks to the new protective coating's versatility and effectiveness,
all autobody components profit from improvements.

Numerous applications

corrender can be used in the entire autobody, regardless of whether components require high strength or high surface qualities (exposed panels).

- **Components subject to high degrees of forming**

Improved processability based on substantially enhanced tribological properties

- **Components subject to highly corrosive environments**

Improved corrosion protection based on improved coating

- **Structural parts and internals**

Less abrasion coupled with more production efficiency

- **Exposed panel requiring highest surface quality**

Reduced scrap due to less abrasion and excellent paint appearance after forming

Savings potential

Due to corrender's improved corrosion protection it is often possible to reduce the metallic coating compared to conventionally galvanized steel strip and therefore achieve an overall cost reduction for the entire autobody.

Ideally suited to composite applications

corrender joins well with other materials common in autobody construction. Customer reports confirm that corrender leads to improved results both when joining steel and aluminum, and when joining conventionally galvanized steel strip and corrender.

corrender

Now also in
exposed quality

corrender by voestalpine

The expert for zinc-magnesium-aluminum coatings



Our expertise is based on many years of serial production (since 2007) of zinc-magnesium-aluminum coatings, extensive laboratory tests, and large-scale trials. This allows us to offer competent in-depth consultation and a wide range of products.

Wide range of products

corrender is available with coating weights from ZM 70 g/m² to 310 g/m², and in all automotive steel grades. This includes mild steels, bake-hardening steels and high-strength steels.

- Mild steels (CR1 – CR5)
- Microalloyed steels (CR210LA – CR420LA)
- High-strength IF steels (CR180IF – CR240IF)
- Bake-hardening steels (CR180BH – CR240BH)
- ahss classic (DP, CP, TRIP)
- other automotive grades available upon request

Now too in exposed quality

At voestalpine, we are committed to meeting the highest quality requirements, even with such recent product innovations as corrender. Due to many years of experience, voestalpine is capable of supplying corrender with the highest surface quality for use in exposed panels. As a close partner to renowned customers in the automotive industry, it was important that voestalpine worked in collaboration with customers to define this significant milestone of exposed quality.

Your reliable expert for converting to corrender

With our modern hot-dip galvanizing lines, voestalpine is at your side during conversion to and run-up of zinc-magnesium-aluminum coatings. Any dimensions possible with conventionally galvanized steel strip are also available with corrender.

Official VDEh statement

In 2013, a working group of the VDEh published its findings in a publication called Zinc-magnesium-aluminium coatings for automotive industry. The results clearly demonstrate that the ZM products of European manufacturers are comparable in their performance in standard tests of the automotive industry. corrender can therefore be combined freely with ZM coatings of other manufacturers. The following companies collaborated on this publication: ArcelorMittal, Ruuki, Salzgitter, Tata Steel, ThyssenKrupp Steel Europe, voestalpine, and Wuppermann.

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If you're reading this, your successful future has already begun.

Together with us, you are always one step ahead because we offer more than optimized products made of high-quality material.

- If you are looking for customized solutions, we will be pleased to work with you on the creation of new products and services.
- If you are looking for new ideas on materials, technologies and services, we want to help you find them.
- If you are looking for a fair and reliable partner, you are at the right place. We know that we can only be successful together with our customers when they benefit as much as we do from our partnership.
- Our customers take advantage of the most widely used technology: Two thirds of the steel produced worldwide is made using the LD process, and we're rather proud of that.

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