



W *TopCor*



WTopCor - Zinc-Magnesium Product

**Best corrosion protection
thanks to zinc-magnesium**



Best corrosion protection
thanks to zinc-magnesium coating

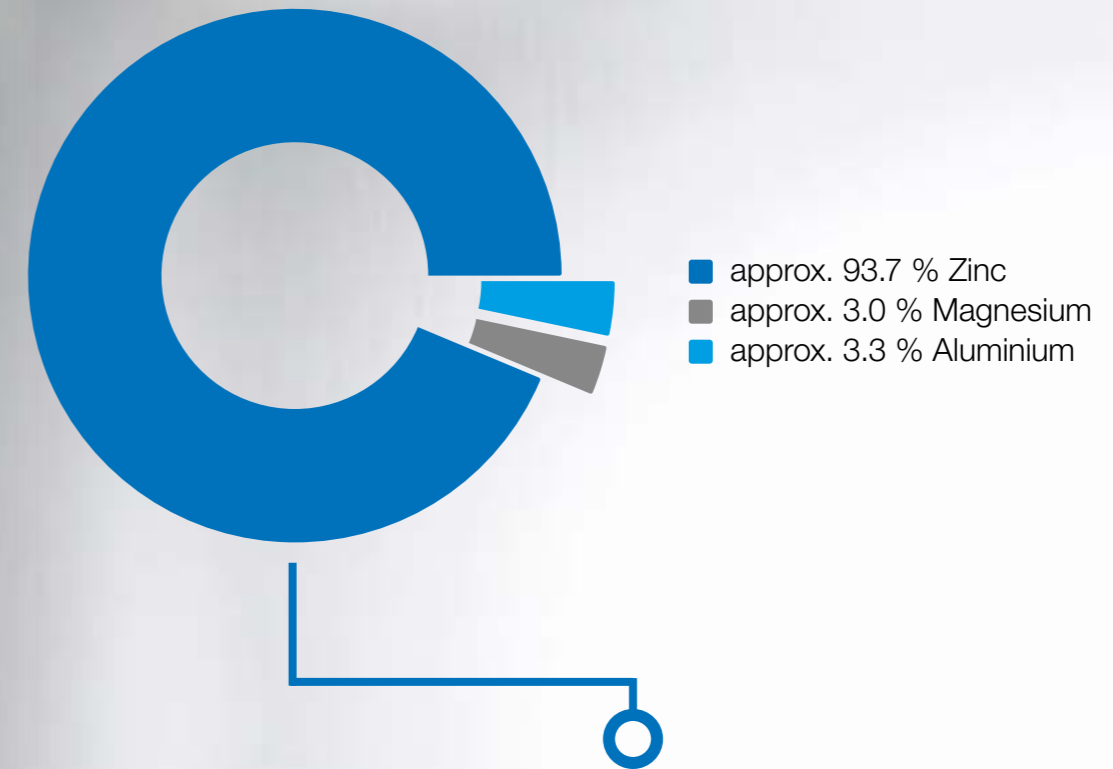
Flat products from Wuppermann

- // Solar & Energy Technology
- // Storage Technology
- // Silo Construction
- // Profile Production
- // Construction
- // Environmental Engineering
- // Automotive
- // Vehicle Restraint Systems



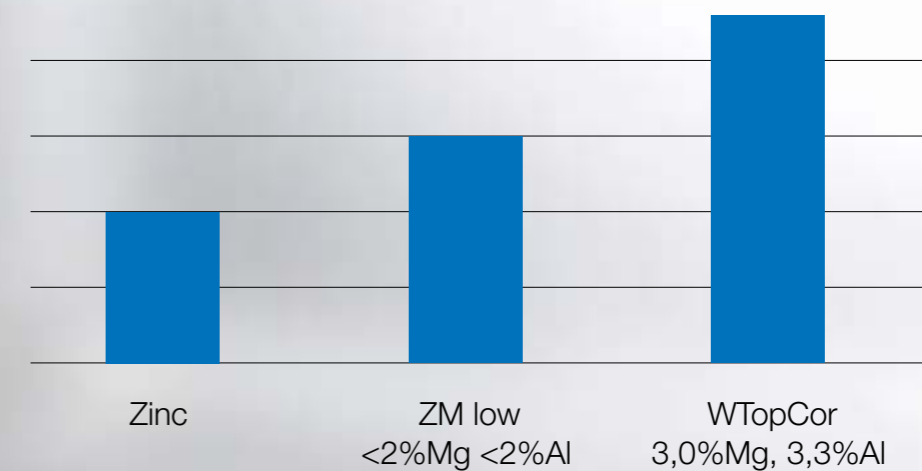
WTopCor: Advantages at a glance

- // Excellent corrosion protection
- // Excellent protection for cut edges and bending shoulders
- // Excellent processability
- // Shorter supply chain (compared to batch galvanized products) and improved profitability
- // Certified according to EN 10346
- // Two to three times the protective effect with the same coating thickness compared to pure zinc



Recommended coating thickness: 1:2 for ZM compared to Z

Lifespan

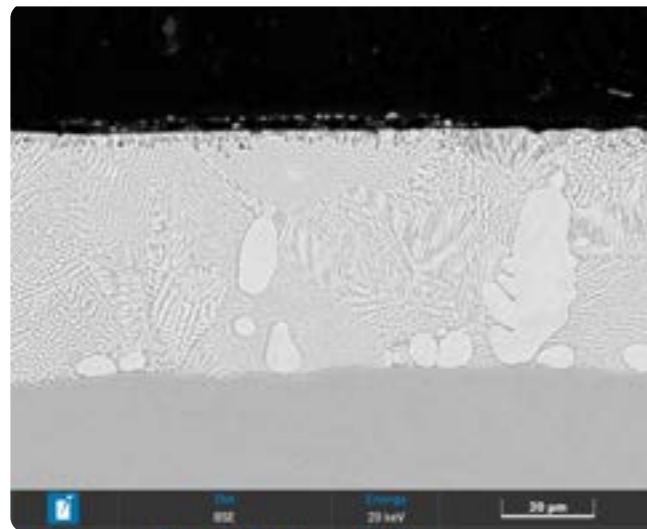


WTopCor: Best corrosion protection thanks to zinc-magnesium

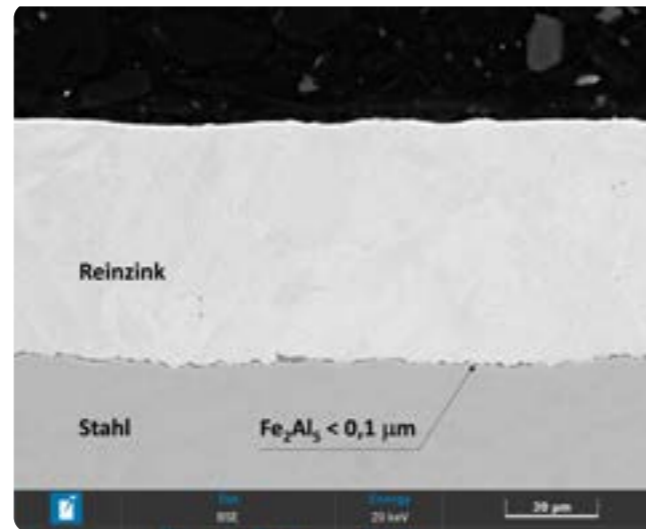
Wuppermann produces steel strip with maximum corrosion protection using **WTopCor**. **WTopCor** is produced in Wuppermann's continuous strip galvanizing plants using the so-called „heat-to-coat process“. The high level of corrosion protection is due to the special chemical composition, which, in addition to zinc, consists of approx. 3 % magnesium and approx. 3.3 % aluminium. This creates a stable, dense and durable protective layer that allows the steel to be used in the most adverse environments.

WTopCor scores with lower CO₂ emissions and resource conservation. Added to this are positive properties during further processing, for example the increased protection at cut edges and scratches due to a „self-healing“ effect.

WTopCor is thus the preferred material for the steel beams on photovoltaic fields. Thanks to its enormous corrosion resistance, **WTopCor** is also used, for example, in silos as well as for road crash barriers and in the construction industry.



WTopCor - The microstructure of this zinc alloy consists of 93.7% zinc + 3.0% magnesium + 3.3% aluminium.



Zinc - The coating consists of approximately 99.8 % zinc + 0.2 % aluminium. The intermetallic compound forms at the phase boundary between steel and zinc. This very thin layer has an adhesion-promoting effect, but also suppresses the formation of the undesirable FeZn alloy.

Steelgrades

Soft steels for cold forming	EN 10346 DX51D+ZM
Steels for use in construction	EN 10346 S220GD+ZM; S250GD+ZM; S280GD+ZM; S320GD+ZM; S350GD+ZM; S390GD+ZM; S420GD+ZM; S450GD+ZM; S500GD+ZM*; S550GD+ZM
Steels with higher yield strength for cold forming	EN 10346 HX340LAD+ZM; HX380LAD+ZM; HX420LAD+ZM; HX460LAD+ZM; HX500LAD+ZM
Special features*	Special steels and steels with special alloys (e.g. >S550GD, >HX550LAD) upon request

*) not in standard EN 10346

Dimensions and form tolerances

Strip thicknesses	1.40 - 3.00 mm according to EN 10143
Strip widths	20 - 1,265 mm according to EN 10143
Special features	tightest thickness tolerances up to +/- 0.03 mm

Zinc coatings

Coating masses	170 - 450 g/m ²
Composition of coating	ZM (Zinc-Magnesium): approx. 93.7 % Zinc + approx. 3.0 % Magnesium + approx. 3.3 % Aluminium
Coating finish	M (minimized spangle)
Types of surface	A (normal surface)

Rounded strip

Strip thicknesses	1.40 - 3.00 mm
Edge form	upon request

Rounded galvanized steel strip

Rounding off refers to the machine processing of the longitudinal edges of longitudinally split, galvanized steel strip. The galvanized slit strip is continuously fed through the machine with appropriately positioned steel rollers. In the process, the sometimes sharp cut edges are formed. The zinc or zinc-magnesium coating in the edge zone is also plastically deformed during this process and virtually flows over the edge. This allows the corrosion protection to be extended beyond the edges and the so-called cathodic edge protection to be strengthened or, in the case of thicker slit strips, to be brought about.

WTopCor: From the coil to the finished profile

We offer our product WTopCor in both a wide strip and slit strip version.

We offer our hot-dip galvanized slit strip with strip-galvanized longitudinal edges in widths from 58 mm to 410 mm. This means that the steel strip is protected against corrosion all around and, in combination with very high zinc-magnesium coatings of up to 1,200 g/m² (ZM1200), is suitable for the most adverse environments.

These slit strips are used, among other things, as driven posts, e.g. for photovoltaic systems or posts for vehicle restraint systems, and are extremely corrosion-resistant.

Slit strips with galvanized longitudinal edges are available from Wuppermann as galvanized tubes and profiles.



Steel grades

**Soft steels
for cold forming and
deep drawing (EN 10346)**

DX51D+ZM; DX52D+ZM; DX53D+ZM

**Steels for use in construction
(EN 10346)**

S220GD+ZM; S250GD+ZM; S280GD+ZM; S320GD+ZM;
S350GD+ZM; S390GD+ZM; S420GD+ZM; S450GD+ZM;
S500GD+ZM; S550GD+ZM

**High-strength and
low-alloy steels
(EN 10346)**

HX300LAD+ZM; HX340LAD+ZM; HX380LAD+ZM;
HX420LAD+ZM; HX460LAD+ZM; HX500LAD+ZM;
HX550LAD+ZM

Dimensions and form tolerances

Strip thicknesses

1.25 - 5.00 mm according to EN 10143

Strip widths

58 - 410 mm according to EN 10143

Special features

Tightest thickness tolerances up to +/- 0.03 mm

Zinc coatings

Coating masses

ZM100 - ZM1200

Composition of coating

ZM (Zinc-Magnesium): approx. 93.7 % Zinc
+ approx. 3.0 % Magnesium + approx. 3.3 % Aluminium

Coating finish

M (minimized spangle)

Types of surface

A (normal surface)

WTopCor: Tubes and profiles with zinc magnesium coating

Thanks to its own strip galvanizing process, Wuppermann manufactures galvanized tubes and profiles with very tight tolerances and customer-specific zinc coatings or differential galvanizing. With its heat-to-coat strip galvanizing process, Wuppermann achieves uniquely high zinc or zinc-magnesium coatings and thus outstanding corrosion protection. Compared to piece galvanizing, strip galvanizing not only has an economic advantage, but equally a sustainable process advantage.



Details and quality-relevant key data

Dimensions

Round tube	Ø 30 - 115 mm Inch formats 1" bis 4"
Rectangular tube	10 x 40 - 50 x 130 mm
Square tube	25 x 25 - 90 x 90 mm
Profiles	Profil height: max. 80 mm resp. min. 25 mm / max. 140 mm Profile width: min. 20 mm / max. 200 mm resp. min. 25 mm / max. 300 mm
Tube lengths	50 - 15,000 mm
Wall thickness	1.50 - 4.00 mm
Wall thickness tolerances	up to +/- 0.05 mm

Quality data

Certification according to ISO 9001:2015, ISO 14001, ISO 45001, ISO 50001

EN 10219, EN 10305 part 3 & 5, EN 10217-1, EN 12899-1, further standards on request

Certificate of compliance with EN 10204 3.1

Pre-material from our own strip galvanizing

Optimum zinc and ZM adhesion (Wuppermann process)

Zinc coatings up to ZM1200 (corresponds to 96 µm/side)

Differential galvanizing at a ration of 2:1 (e.g. outside 50 µm / inside 25 µm)

Galvanized punched holes

Flexible hole pattern for perforated steel profiles

Weld seam position freely selectable

Continuous inline thermographic inspection of the weld seam

Continuous inline tube measurement

Continuous inline eddy current testing

Own pressure test up to 150 bar



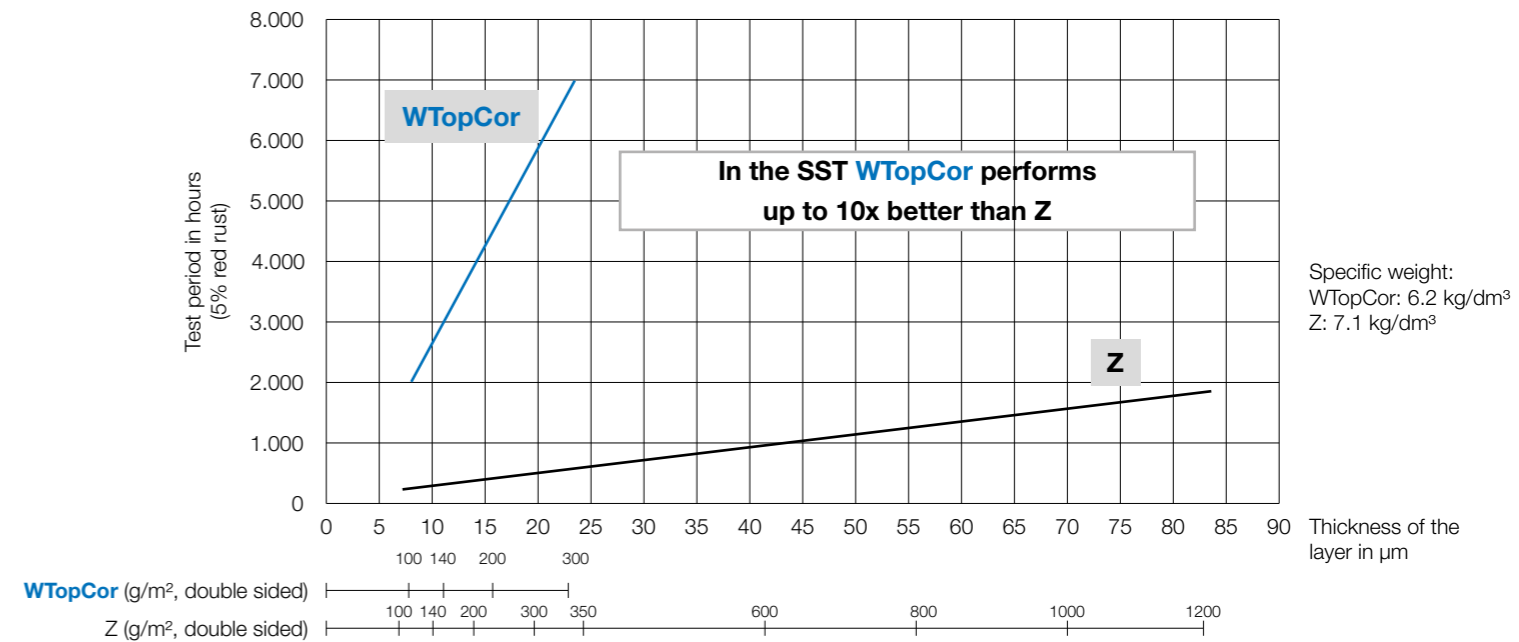
WTopCor: Improved production possibilities

The WTopCor alloy convinces with better friction, wear and sliding properties. In press shops and profiling plants, this results in savings in energy and material use, production and maintenance. At the same time, occupational safety is improved.

- // Good forming properties due to lower coefficients of friction → The thin metallic WTopCor coating adheres perfectly to the steel strip, which thus also allows complex deformations.
- // Lower drive power of the machine motors
- // Minimal tool wear
- // Longer maintenance intervals of the machines
- // Lower noise level during production
- // Less contamination of the production tools and machines

Salt spray test according to EN ISO 9227

WTopCor protects at least twice as well against corrosion with the same coating thickness. Due to the improved corrosion resistance, the coating thickness can be halved. WTopCor achieves a result 10 times better than zinc in the salt spray test. (Source: Wuppermann)



Source: Research & Development, Wuppermann Engineering

C100 profiles in salt spray test after 1,000 hours at a constant 35°C, 5% NaCl



WTopCor 500 (38 µm)

Z1000 (70 µm)

Batch galvanized (~70 µm)



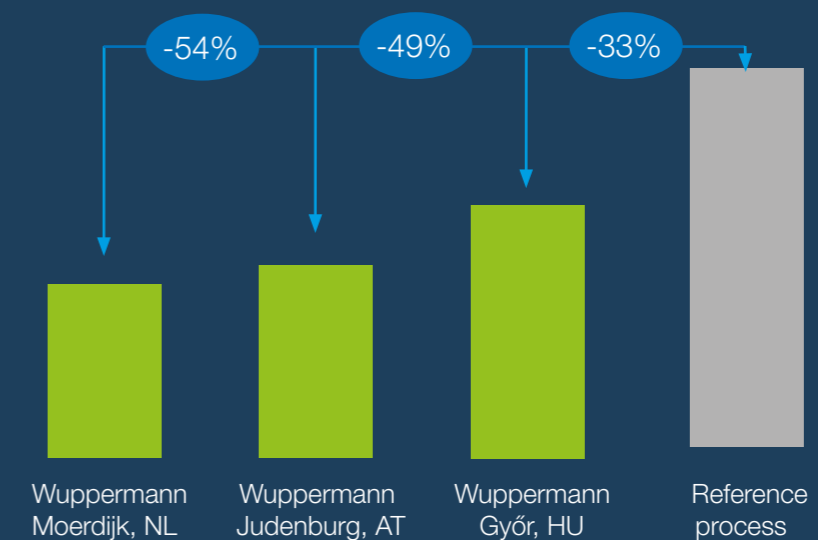
STEEL | ENVIRONMENT
PROTECTION

Sustainable production as part of our self-image

At Wuppermann, we understand sustainability to be a form of ecological and economic action that ensures comparable or better living conditions for present and future generations. As a family-owned company with a long tradition, we feel an obligation to future generations and set ourselves ambitious and concrete goals in climate protection: The production process for the Wuppermann Group is to be 100% CO2 neutral by 2027.

Heat-to-coat process from Wuppermann saves up to 54% CO2

In an investigation with the Fraunhofer UMSICHT Institute, it was possible to determine: The galvanizing process including post-treatment and zinc causes 0.080 t CO2-eq./t at the Moerdijk site in the Netherlands (WSN). The reference process causes CO2 emissions of 0.173 t CO2-eq./t. This now results in a CO2 saving of 54%. The Judenburg site in Austria (WA) produces 0.089 t CO2-eq./t CO2 emissions, which corresponds to an advantage of 49%. At the Győr site in Hungary (WH), CO2 emissions amount to 0.116 t CO2-eq./t, which corresponds to an advantage of 33%. This includes the emissions from the production of the zinc and electricity consumed. The environmental impact of the hot strip input material is not included in this calculation.



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