

Steel

EHZ[®]

Product information for extra high-strength steels



thyssenkrupp

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Areas of application

EHZ[®] 550 is a hot-dip coated flat product with very tight thickness tolerances as low as ± 0.06 mm from thyssenkrupp. This higher-strength steel is characterized by a high yield strength of min. 550 MPa and is ideal for cold forming. A ZM Ecoprotect[®] coating on both sides provides lasting corrosion protection as a low-cost alternative to batch galvanizing. Surface treatments such as oiling, chemical passivation and sealing reduce the formation of white rust. For chemical passivation (C) a three-month anti-corrosion warranty is provided when the material is stored and transported under the proper conditions.

EHZ[®] 550 is suitable for forming operations such as hemming, edging and profiling as well as for deep drawing-like stresses. Examples of applications for EHZ[®] 550 in automotive construction include part holders such as belt retractor housings, rail systems for car seats and other structural components. In industrial applications the grade is used among other things as profiled sheet for roofing and as rails for support structure elements.

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Available steel grade

thyssenkrupp supplies the following steel grade as per the product information.

Steel grade designations and surface refinements

Steel grade	Reference grade	Surface refinements					
		UC	EG	GI	GA	ZM	AS
● EHZ® 550	–			○		●	

- Hot-dip coated flat products
- Serial production
- On request
- UC Uncoated
- EG Electrogalvanized zinc coating
- GI Hot-dip zinc coating
- GA Galvannealed
- ZM ZM Ecoprotect®
- AS Aluminum-silicon coating

Technical features

Chemical composition

Mass fractions in ladle analysis	C [%] max.	Si [%] max.	Mn [%] max.	P [%] max.	S [%] max.	Nb [%] max.	V [%] max.	Ti [%] max.
Steel grade								
● EHZ® 550	0.10	0.50	1.80	0.025	0.006	0.09	0.20	0.15

Mechanical properties

Test direction in rolling direction	Yield strength	Tensile strength	Elongation
	$R_{eH}/R_{p0.2}$ [MPa] min.	R_m [MPa] min.	A_{80} [%] min.
Steel grade			
● EHZ® 550	550	600	12

- Hot-dip coated flat products
- R_{eH} Upper yield strength
- $R_{p0.2}$ Proof strength at 0.2% plastic elongation
- R_m Tensile strength
- A_{80} Percentage elongation after fracture using a specimen with gauge length $L_0 = 80$ mm for sheet thicknesses < 3.0 mm

Surfaces

Surface refinements, hot-dip zinc coating

	Specification	Minimum coating mass on both sides [g/m ²]		Informative
		Triple spot sample	Single spot sample	Typical thickness [μm]
ZM Ecoprotect®				
Designation				
ZM070	DIN EN	70	60	5.5
ZM090	DIN EN	90	75	7
ZM100	DIN EN	100	85	8
ZM120	DIN EN	120	100	9
ZM140	DIN EN	140	120	11

Other coatings on request.

Surface finishes and surface qualities

	Finish type	Surface quality
Products		
Hot-dip coated flat products	ZM Ecoprotect®	A Normal surface

A as per DIN EN

Surface treatments

		UC	EG	GI	GA	ZM	AS
Type of surface treatment							
O	Oiled			○		●	
C	Chemically passivated			○		●	
CO	Chemically passivated and oiled			○		●	
S	Sealed					●	

- Serial production
- On request

UC	Uncoated	GA	Galvannealed
EG	Electrogalvanized zinc coating	ZM	ZM Ecoprotect®
GI	Hot-dip zinc coating	AS	Aluminum-silicon coating

Notes on processing

Joining

EHZ® steels are suitable for welding in both same-grade and hybrid joints with other common steel grades. The precondition is welding parameters matched to the material.

MIG arc brazing

The information sheet DVS-M 0938-2 "Arc brazing" describes brazing of steels up to a tensile strength R_m of approximately 500 MPa. Based on SEP 1220-4 the use of CuAl8 as filler is recommended for steel sheet above 500 MPa. The strength of the joint mainly depends on the weld geometry/length and the strength of the filler.

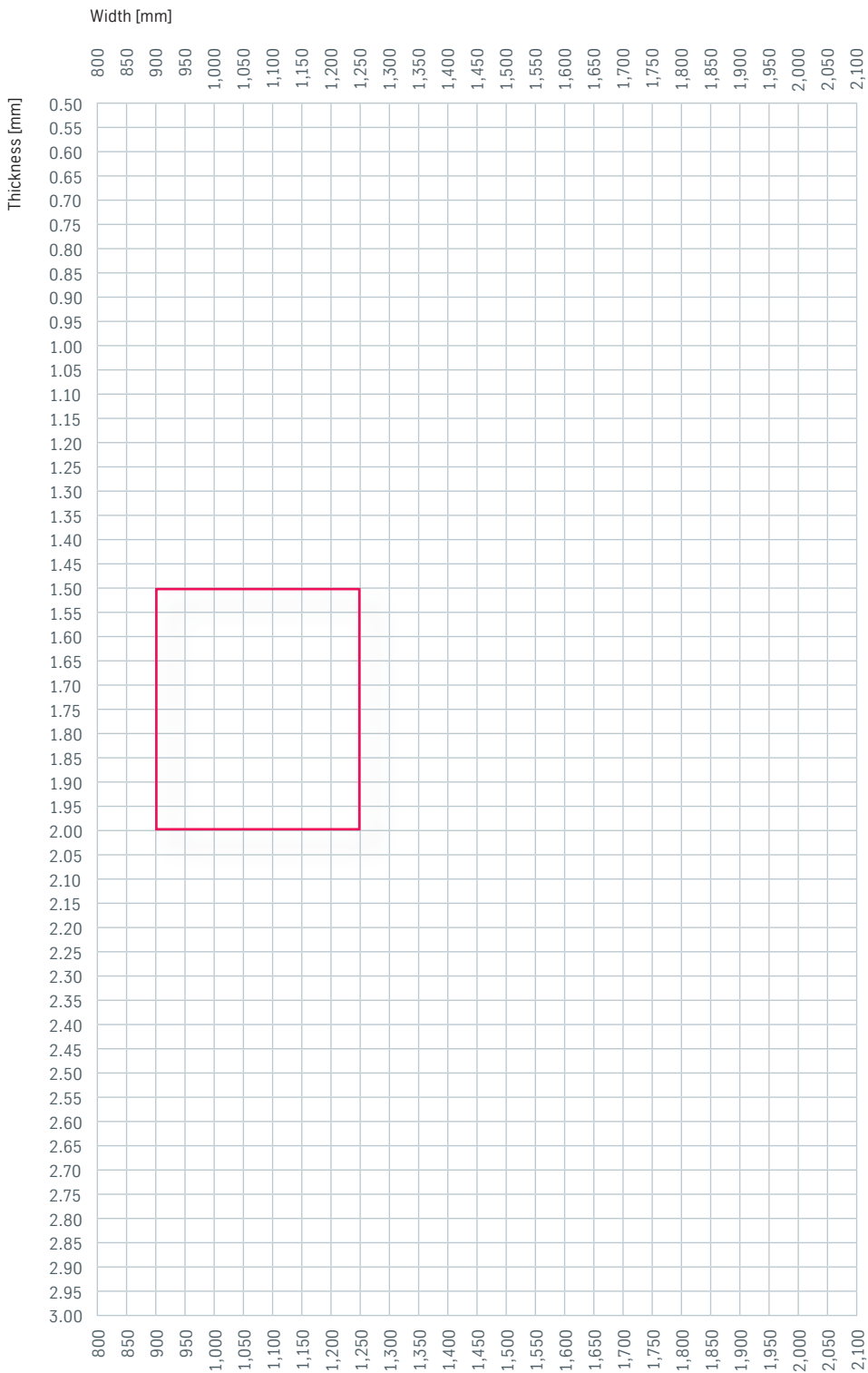
MAG welding

In principle, standard steel fillers with a strength e.g. in line with EN 440-G4Si1 (formerly "SG3") in combination with conventional mixed gases (Ar/CO₂ 82/18, 92/8) can be used to weld EHZ® materials. If a technical zero gap exists at fillet welds in the lap joint, the use of shielding gases with a higher active gas component or modern short arc processes is recommended for galvanized EHZ® steels, as this can help to counteract the pore formation typical of hot-dip coatings. In case of repair, it is advantageous to grind off the surface coating to avoid pore formation or spattering.

In general it is advisable to check the suitability of shielding gas processes for each specific part.

Available dimensions

EHZ® 550

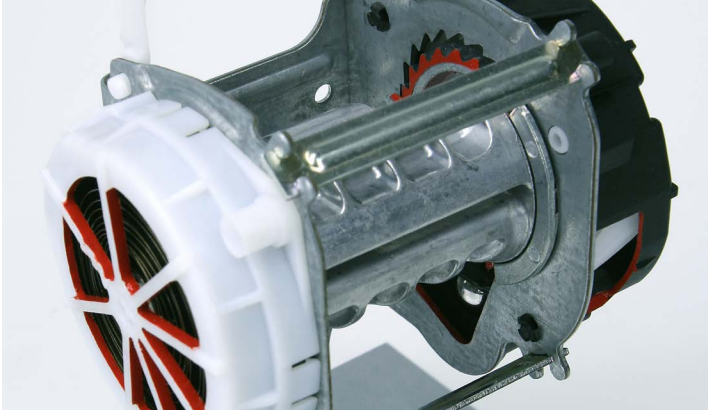


ZM ZM Ecoprotect®

ZM trimmed

Further dimensions on request.

Sample application



Belt retractor housing.

Special mill grades are supplied subject to the special conditions of thyssenkrupp. Other delivery conditions not specified here will be based on the applicable specifications. The specifications used will be those valid on the date of issue of this product information brochure.

General information

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