

Steel

CH-W[®]

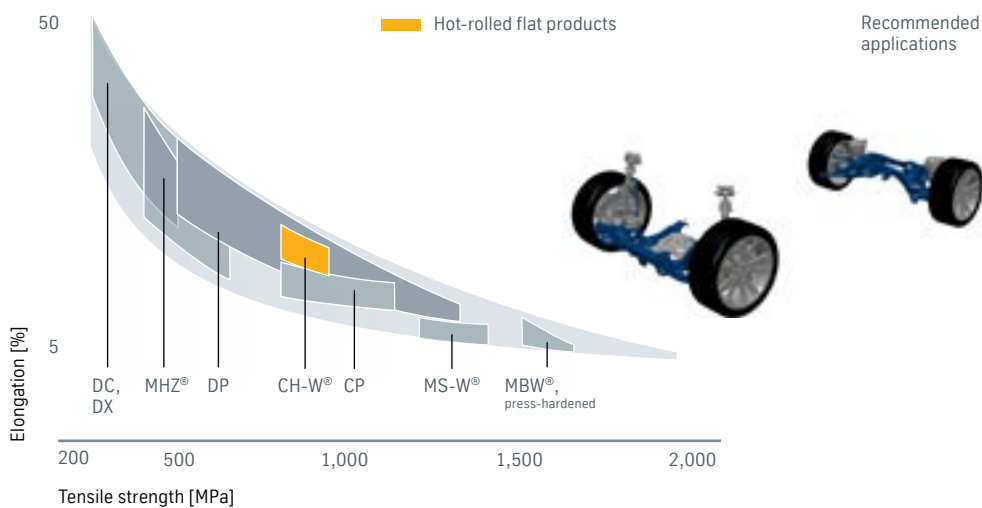
Product information for hot-rolled bainitic chassis steel



thyssenkrupp

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Overview of steel grades



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Areas of application

CH-W[®] bainitic chassis steel from thyssenkrupp offers optimized properties for the cost-efficient production of lightweight high-strength chassis parts.

The material is a further development of the proven CP-W[®] family of steels and displays comparable properties. Hole expansion is significantly improved: CH-W[®] permits larger openings with tighter flange radii. The chassis grade is also characterized by flawless surfaces with no scale patterns or graining.

These properties make CH-W[®] bainitic chassis steel ideal for complex cold-formed chassis parts such as single-skin control arms and similarly demanding parts.

Available steel grade

Steel grade designations and surface refinements

Steel grade	Reference grade DIN EN 10152, 10338, 10346	Reference grade VDA 239-100	Surface refinements					
			UC	EG	GI	GA	ZM	AS
Bainitic chassis steel								
● CH-W® 660Y760T	–	–	●					

- Hot-rolled flat products
- Serial production

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

Material characteristics

Due to its selected chemical composition and the special rolling process, the bainitic chassis steel has a very fine microstructure. The desired properties of the steel are created by the homogeneous bainitic microstructure with nanoprecipitations. The low Si content guarantees a flawless surface.

Micrograph of CH-W®

20 μm



Microstructure of CH-W®. Microstructural contrasting through etching with nital.

Technical features

thyssenkrupp's hot-rolled bainitic chassis steel CH-W® has excellent mechanical properties combined with optimized hole expansion capacity. It also offers elongation reserves beyond the guaranteed values and is therefore ideal for critical forming operations such as hole and edge flanging. Bending angles of well over 130° (to VDA 238-100) are typically possible.

Chemical composition

Mass fractions in ladle analysis	C [%] max.	Si [%] max.	Mn [%] max.	P [%] max.	S [%] max.	Al [%] total	Ti + Nb [%] max.	Cr + Mo [%] max.	V [%] max.	B [%] max.
Steel grade										
● CH-W® 660Y760T	0.10	0.20	2.00	0.020	0.010	0.015–2.0	0.25	1.00	0.20	0.005

Mechanical properties

Test direction in rolling direction	Yield strength	Tensile strength	Elongation		Hole expansion ¹
	R _{p0.2} [MPa]	R _m [MPa] min.	A [%] min.	A ₈₀ [%] min.	λ [%] min.
Steel grade					
● CH-W® 660Y760T	660–820	760	14	12	60

¹ Can only be determined within the scope of initial approval.

● Hot-rolled flat products

R_{p0.2} Proof strength at 0.2% plastic elongation

R_m Tensile strength

A Percentage elongation after fracture using a proportional specimen with L₀ = 5.65 √S₀ for sheet thicknesses ≥ 3.0 mm

A₈₀ Percentage elongation after fracture using a specimen with gauge length L₀ = 80 mm for sheet thicknesses < 3.0 mm

λ Hole expansion according to ISO 16630

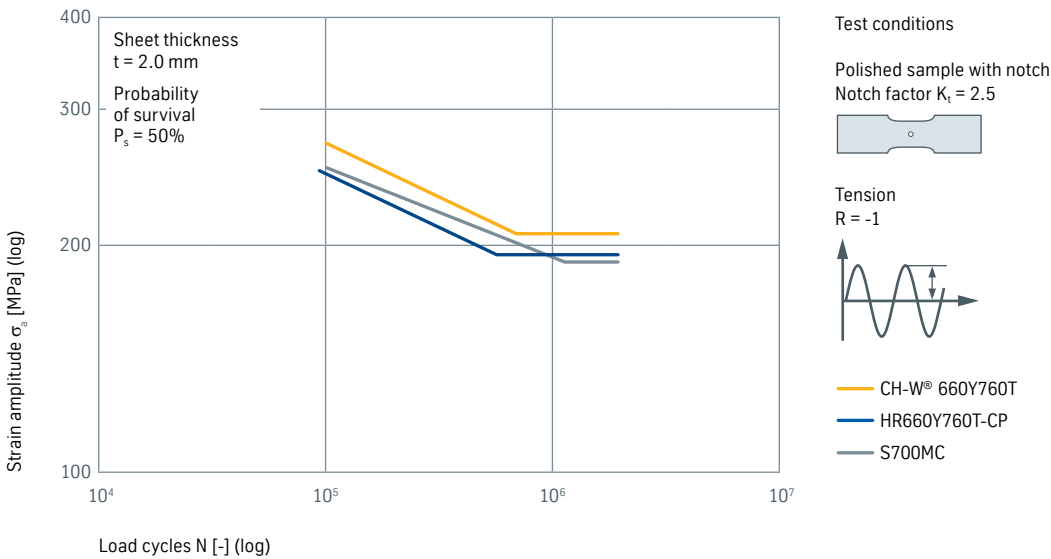
Surfaces

Surface treatment		Surface refinements					
		UC	EG	GI	GA	ZM	AS
Type of surface treatment							
0	Oiled	●					
● Serial production		UC	Uncoated	GA	Galvannealed		
		EG	Electrogalvanized zinc coating	ZM	ZM Ecoprotect®		
		GI	Hot-dip zinc coating	AS	Aluminum-silicon coating		

Fatigue strength

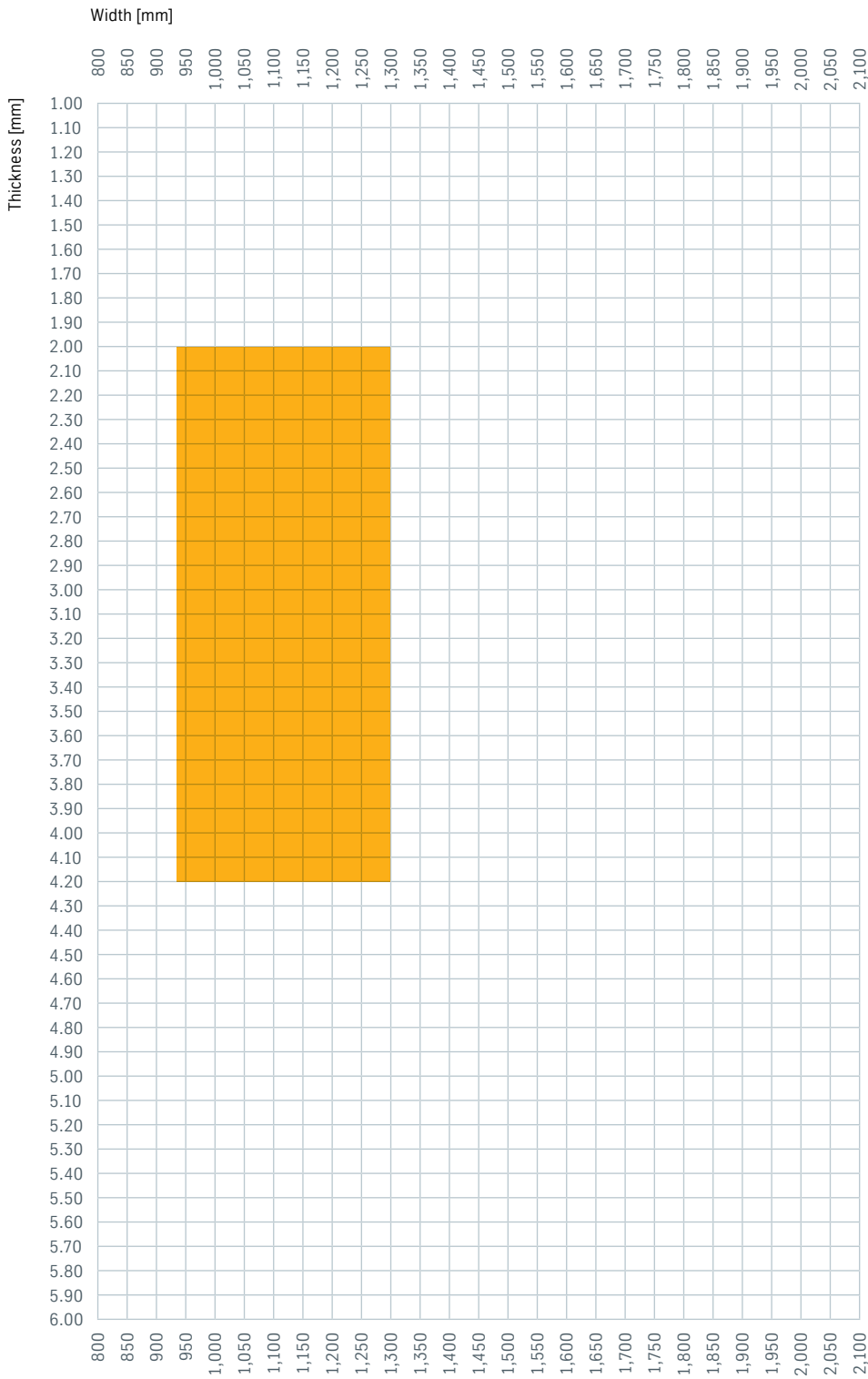
The bainitic chassis steel CH-W® 660Y760T displays a comparably good fatigue strength like standard chassis grades.

Stress-strain curve of CH-W® 660Y760T compared to HR660Y760T-CP and S700MC



Available dimensions

CH-W® 660Y760T



Sample application



Bainitic chassis steel CH-W® is ideal for use in the chassis.

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.

General information

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