

ahss high-ductility

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Advanced high-strength high-ductility steels

Complex-phase high-ductility steels data sheet | page 1/2 | 11/2020

Complex-phase high-ductility steels

The benchmark for high-strength steels with exceptional bending properties

Complex-phase high-ductility steels are an innovation of voestalpine in the field of ultralights. They are characterized by substantially improved forming properties when compared to classical complex-phase steels. The precisely defined, very fine and high-strength microstructure leads to high yield strength, high resistance to edge cracking, improved deep-drawing characteristics and unique bending properties. The microstructure consists of bainite, martensite, tempered martensite and residual austenite. The similar chemical composition of classical complex-phase steels and high-ductility complex-phase steels yields comparable welding performance. Based on their unique properties, complex-phase high-ductility steels make a substantial contribution to innovative light-weight design in safety-related and crash-relevant components.

Convincing advantages

- » Available with minimum tensile strengths from 980 to 1370 MPa
- » Unique bending properties at high yield strengths
- » Best forming properties of punched edges based on high resistance to edge cracking
- » Good weldability comparable to that of classical complex-phase steels
- » High crash energy absorption
- » Corrosion resistance based on EG and GI coatings

Premium quality with reduced carbon footprint

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Chemical composition

Heat analysis in % by mass

Steel grade	C max.	Si max.	Mn max.	P max.	S max.	Al	Cr + Mo max.	Ti + Nb max.	B max.	Cu max.
CR780Y980T-CH	0.23	1.8	3.00	0.050	0.010	0.015 - 1.0	1.0	0.15	0.005	0.2
CR900Y1180T-CH	0.23	2.0	3.00	0.050	0.010	0.015 - 2.0	1.0	0.15	0.005	0.2
CR1000Y1370T-CH	0.23	2.0	3.00	0.050	0.010	0.015 - 2.0	1.0	0.15	0.005	0.2

Mechanical properties: Tensile test

Longitudinal to rolling direction

Steel grade	0.2 % yield strength $R_{p0.2}$ [MPa]	Tensile strength R_m [MPa]	Total elongation A_{80} min. ¹⁾ [%]	n value n_{10-UE} min.	BH ₂ min. [MPa]
CR780Y980T-CH	780 - 950	980 - 1140	10	-	30
CR900Y1180T-CH	900 - 1150	1180 - 1350	7	-	30
CR1000Y1370T-CH	1000 - 1250	1370 - 1550	5	-	30

¹⁾ Restrictions based on thickness and coatings are possible

Coatings and available dimensions

Available thicknesses [mm] per coating

Steel grade	Uncoated UC	EG - ZE	GI - Z	GA - ZF
CR780Y980T-CH	0.8 - 1.7	0.8 - 1.7	Upon request	Under development
CR900Y1180T-CH	1.0 - 1.9	1.0 - 1.75	Under development	Under development
CR1000Y1370T-CH	1.0 - 1.4	1.0 - 1.4	Under development	Under development

The above named ahss steel grades are not available with MA, NA or RA surface finishes.

Available dimensions upon request.

Carbon footprint greentec steel product

greentec steel product	Maximum carbon footprint [kg CO ₂ e/kg steel] ¹⁾
Hot-rolled steel strip	2.1
Cold-rolled steel strip	2.2
Electroalvanized steel strip	2.4

¹⁾ The carbon footprint is calculated pursuant to worldsteel CML 2001-2016 (system expansion) on a cradle-to-gate basis.

All products, dimensions and steel grades listed in each voestalpine supply range are available as greentec steel.

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