

Let your ideas fly!



Dual-phase steels

The classical steel with tensile strengths of up to 1000 MPa and superb drawing properties

Dual-phase steels are part of the ahss classic product line of voestalpine in the field of ultralights and are characterized by excellent physical properties, including low yield strength, high work hardening, high tensile strength as well as high uniform and fracture elongation. The finely tuned microstructure achieves a balance between deep-drawing capacity and resistance to edge cracking. These steels are ideal for applications in complex structural components. Galvanized surfaces provide the best corrosion protection, and selected grades are also available for exposed applications. The balance between strength, formability and weldability of dual-phase steels leads to enormous potential in light-weight design while also achieving improved crash performance.

Convincing advantages

- » Customized levels of yield strength with minimum tensile strengths of 450, 490, 590, 780 and 980 MPa
- » Excellent cold workability with respect to ductility
- » Balanced relationship between drawing properties and resistance to edge cracking
- » Excellent crash behavior
- » Good weldability
- » Corrosion resistance based on ZE/EG, Z/GI or ZF/GA coatings
- » Selected grades also available in exposed-panel quality



Premium quality
with reduced carbon footprint

ahss classic
greentec steel

Chemical composition

Heat analysis in % by mass

Steel grade	C max.	Si max.	Mn max.	P max.	S max.	Al _{total}	Cr + Mo max.	Ti + Nb max.	V max.	B max.
Pursuant to EN 10346 and EN 10338										
HCT450X	0.14	0.75	2.00	0.080	0.015	0.015 - 1.0	1.00	0.15	0.20	0.005
HCT490X	0.14	0.75	2.00	0.080	0.015	0.015 - 1.0	1.00	0.15	0.20	0.005
HCT590X	0.15	0.75	2.50	0.040	0.015	0.015 - 1.5	1.40	0.15	0.20	0.005
HCT780X	0.18	0.80	2.50	0.080	0.015	0.015 - 2.0	1.40	0.15	0.20	0.005
HCT980X	0.20	1.00	2.90	0.080	0.015	0.015 - 2.0	1.40	0.15	0.20	0.005

Steel grade	Norm	C max.	Si max.	Mn max.	P max.	S max.	Al	Cr + Mo max.	Ti + Nb max.	B max.	Cu max.
Pursuant to VDA 239-100 and voestalpine special grades											
CR260Y450T-DP	voestalpine	0.14	0.50	1.80	0.050	0.010	0.015 - 1.0	1.00	0.15	0.005	0.20
CR290Y490T-DP	VDA 239-100	0.14	0.50	1.80	0.050	0.010	0.015 - 1.0	1.00	0.15	0.005	0.20
CR330Y590T-DP	VDA 239-100	0.15	0.80	2.50	0.050	0.010	0.015 - 1.5	1.40	0.15	0.005	0.20
CR360Y600T-DP	voestalpine	0.15	0.80	2.50	0.050	0.010	0.015 - 1.5	1.40	0.15	0.005	0.20
CR440Y780T-DP	VDA 239-100	0.18	0.80	2.50	0.050	0.010	0.015 - 1.0	1.40	0.15	0.005	0.20
CR500Y780T-DP	voestalpine	0.18	0.80	2.50	0.050	0.010	0.015 - 1.0	1.40	0.15	0.005	0.20
CR550Y980T-DP	voestalpine	0.20	1.00	2.90	0.050	0.010	0.015 - 1.0	1.40	0.15	0.005	0.20
CR590Y980T-DP	VDA 239-100	0.20	1.00	2.90	0.050	0.010	0.015 - 1.0	1.40	0.15	0.005	0.20
CR660Y980T-DP	voestalpine	0.23	1.00	2.90	0.050	0.010	0.015 - 1.0	1.40	0.15	0.005	0.20
CR700Y980T-DP	VDA 239-100	0.23	1.00	2.90	0.050	0.010	0.015 - 1.0	1.40	0.15	0.005	0.20

Mechanical properties: Tensile test

Steel grade	Test direction	0.2 % yield strength $R_{p0.2}$ [MPa]	Tensile strength R_m min. [MPa]	Total elongation A_{80} min. ¹⁾ [%]	n-value $n_{10-20/UE}$ min.	BH ₂ min. [MPa]
Pursuant to EN 10346 and EN 10338						
HCT450X	Longitudinal	260 – 340	450	27	0.16	30
HCT490X	Longitudinal	290 – 380	490	24	0.15	30
HCT590X	Longitudinal	330 – 430	590	20	0.14	30
HCT780X	Longitudinal	440 – 550	780	14	-	30
HCT980X	Longitudinal	590 – 740	980	10	-	30

Steel grade	Standard	Test direction	0.2 % yield strength $R_{p0.2}$ [MPa]	Tensile strength R_m [MPa]	Total elongation A_{80} min. ¹⁾ [%]	n-value $n_{10-20/UE}$ min.	BH ₂ min. [MPa]
Pursuant to VDA 239-100 and voestalpine special grades							
CR260Y450T-DP	voestalpine	Longitudinal	260 – 340	450 – 560	27	0.16	30
CR290Y490T-DP	VDA 239-100	Longitudinal	290 – 380	490 – 600	24	0.15	30
CR330Y590T-DP	VDA 239-100	Longitudinal	330 – 430	590 – 700	20	0.14	30
CR360Y590T-DP	voestalpine	Longitudinal	360 – 460	590 – 700	19	0.14	30
CR440Y780T-DP	VDA 239-100	Longitudinal	440 – 550	780 – 900	14	0.11	30
CR500Y780T-DP	voestalpine	Longitudinal	500 – 620	780 – 900	13	-	30
CR550Y980T-DP	voestalpine	Longitudinal	550 – 730	980 – 1130	10	-	30
CR590Y980T-DP	VDA 239-100	Longitudinal	590 – 740	980 – 1130	10	-	30
CR660Y980T-DP	voestalpine	Transverse	660 – 810	980 – 1130	10	-	30
CR700Y980T-DP	VDA 239-100	Longitudinal	700 – 850	980 – 1130	8	-	30

¹⁾ Restrictions based on thicknesses and coatings pursuant to EN 10346, EN 10338, VDA 239-100 and special voestalpine grades

Coatings and available dimensions

Available thicknesses [mm] per coating

Steel grade	Uncoated	ZE	Z	ZF
Pursuant to EN 10346 and EN 10338				
HCT450X	0.6 – 1.8	0.6 – 1.8	0.5 – 2.25	0.5 – 2.1
HCT490X	0.6 – 1.8	0.6 – 1.8	0.6 – 2.25	0.6 – 2.1
HCT590X	0.7 – 1.8	0.7 – 1.8	0.6 – 2.25	0.6 – 2.1
HCT780X	0.7 – 1.6	0.7 – 1.6	0.7 – 2.10	0.7 – 2.1
HCT980X	0.8 – 1.2	0.8 – 1.2	0.8 – 2.00	0.8 – 2.0

Steel grade	Standard	UC	EG	GI	GA
Pursuant to VDA 239-100 and voestalpine special grades					
CR260Y450T-DP	voestalpine	0.6 – 1.8	0.6 – 1.8	0.5 – 2.25	0.5 – 2.1
CR290Y490T-DP	VDA 239-100	0.6 – 1.8	0.6 – 1.8	0.6 – 2.25	0.6 – 2.1
CR330Y590T-DP	VDA 239-100	0.7 – 1.8	0.7 – 1.8	0.7 – 2.25	0.7 – 2.1
CR360Y600T-DP	voestalpine	0.7 – 1.8	0.7 – 1.8	0.7 – 2.25	0.7 – 2.1
CR440Y780T-DP	VDA 239-100	0.7 – 1.6	0.7 – 1.6	0.7 – 2.10	0.7 – 2.1
CR500Y780T-DP	voestalpine	0.7 – 1.6	0.7 – 1.6	0.7 – 2.10	0.7 – 2.1
CR550Y980T-DP	voestalpine	0.8 – 1.2	Not available	0.8 – 2.00	Upon request
CR590Y980T-DP	VDA 239-100	0.8 – 1.2	0.8 – 1.2	0.8 – 2.00	0.8 – 2.0
CR660Y980T-DP	voestalpine	0.8 – 1.6	0.8 – 1.6	0.8 – 2.00	0.8 – 2.0
CR700Y980T-DP	VDA 239-100	0.8 – 1.6	0.8 – 1.6	0.8 – 2.00	0.8 – 2.0

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

Please find available dimensions at www.voestalpine.com/Produktinformationsportal or contact us directly.



Premium quality with reduced carbon footprint

ahss classic
greentec steel

Cold-rolled steel strip – greentec steel Edition

Max. carbon footprint 2.15 kg CO₂e per kg of steel ¹⁾

Hot-dip galvanized steel strip – greentec steel Edition

Max. carbon footprint 2.30 kg CO₂e per kg of steel ¹⁾

Electrogalvanized steel strip – greentec steel Edition

Max. carbon footprint 2.40 kg CO₂e per kg of steel ¹⁾

¹⁾ per worldsteel CML 2001-2016 (system expansion) cradle to gate

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

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