

Let your  
ideas  
fly!



## Dual-phase high-ductility steels

### The benchmark for high-strength steels with exceptional drawing properties

Dual-phase high-ductility steels are an innovation of voestalpine in the field of ultralights. In contrast to classical dual-phase steels, dual-phase high-ductility steels feature significantly improved formability with respect to deep drawing. Good weldability is also achieved. Depending on the strength class, the multiphase microstructure of dual-phase high-ductility steels consists of certain amounts of ferrite, martensite, bainite and residual austenite. This results in high resistance to edge cracking and excellent crash behavior. Based on their unique properties, dual-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 of 590, 780, 980 and 1180 MPa
- » Extraordinary cold formability
- » Low susceptibility to edge cracking
- » Excellent crash behavior
- » Corrosion resistance based on EG, GI and GA coatings



Premium quality  
with reduced carbon footprint

ahss high-ductility  
greentec steel

## 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.
<b>Pursuant to VDA 239-100</b>										
CR330Y590T-DH	0.15	0.8	2.50	0.050	0.010	0.015 - 1.0	1.40	0.15	0.005	0.20
CR440Y780T-DH	0.18	0.8	2.50	0.050	0.010	0.015 - 1.0	1.40	0.15	0.005	0.20
CR700Y980T-DH	0.23	1.2	2.90	0.050	0.010	0.015 - 1.0	1.40	0.15	0.005	0.20

## 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. <sup>1)</sup> [%]	n-value $n_{10-UE}$ min.	BH <sub>2</sub> min. [MPa]
<b>Pursuant to VDA 239-100</b>					
CR330Y590T-DH	330 - 430	590 - 700	26	0.16	30
CR440Y780T-DH	440 - 550	780 - 900	18	0.13	30
CR700Y980T-DH	700 - 850	980 - 1180	13	-	- <sup>2)</sup>

<sup>1)</sup> Restrictions based on thickness and coatings are possible

<sup>2)</sup> The BH<sub>2</sub> value cannot be determined using the specified method for grades with tensile strengths  $\geq 950$  MPa

## Coatings and available dimensions

Available thicknesses [mm] per coating

Steel grade	UC	EG	GI	GA
<b>Pursuant to VDA 239-100</b>				
CR330Y590T-DH	0.8 - 1.6	0.8 - 1.6	0.7 - 2.00	Upon request
CR440Y780T-DH	0.8 - 1.6	0.8 - 1.6	0.7 - 2.25	Under development
CR700Y980T-DH	Upon request	Upon request	1.0 - 2.00	Under development

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

Available dimensions upon request.

# OUR PATH TO A GREENER FUTURE

## Premium products in the greentec steel Edition

With greentec steel, voestalpine is pursuing an ambitious step-by-step plan in the long-term decarbonization of steel production. The declared objective is to achieve carbon-neutral production by 2050, and the initial steps have already been taken. Process-optimized production operations already prevent up to 10% of the direct CO<sub>2</sub> emissions at the Linz site. The material and processing properties of the steel are not affected in any way in this production route. Each voestalpine steel strip product is available in premium quality in the greentec steel Edition with a reduced carbon footprint and unique benefits.



Premium quality with reduced carbon footprint

**ahss high-ductility**  
greentec steel

### Cold-rolled steel strip – greentec steel Edition

Max. carbon footprint 1.97 kg CO<sub>2</sub>e per kg of steel <sup>1)</sup>

### Hot-dip galvanized steel strip – greentec steel Edition

Max. carbon footprint 2.13 kg CO<sub>2</sub>e per kg of steel <sup>1)</sup>

### Electrogalvanized steel strip – greentec steel Edition

Max. carbon footprint 2.19 kg CO<sub>2</sub>e per kg of steel <sup>1)</sup>

<sup>1)</sup> per EN 15804+A2 (EPD methodology) 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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