

Let your  
ideas  
fly!



## Multi-phase steels high-formability

### The standard for high-strength steels with unique deep-drawing properties

Multi-phase steels high-formability are an innovation of voestalpine in the field of ultralights. In contrast with high-ductility steels, dual-phase high-ductility steels feature significantly improved formability with respect to deep drawing. The multi-phase microstructure consists of a combination of tempered martensite, bainite and austenite. Ferrite and martensite may also be present. This results in a high degree of design freedom for components with excellent crash behavior. Their property profile makes a significant contribution to innovative lightweight design.

#### Convincing advantages

- » Available with minimum tensile strengths of 980 and 1180 MPa
- » Extraordinary cold formability
- » Low susceptibility to edge cracking
- » Excellent crash behavior
- » Corrosion resistance based on EG coatings



Premiumqualität  
mit reduziertem CO<sub>2</sub>-Fußabdruck

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> |        |         |         |        |        |             |              |              |        |         |
| CR600Y980T-FH                  | 0.26   | 2.20    | 2.50    | 0.050  | 0.010  | 0.015 - 2.0 | 1.40         | 0.15         | 0.005  | 0.20    |
| CR850Y1180T-FH                 | 0.26   | 2.20    | 3.00    | 0.050  | 0.010  | 0.015 - 2.0 | 1.40         | 0.15         | 0.005  | 0.20    |

## Mechanical properties: Tensile test

Longitudinal to rolling direction

| Steel grade                    | 0.2 % yield strength<br>$R_{p0.2}$<br>[MPa] | Tensile strength<br>$R_m$ min.<br>[MPa] | Total elongation<br>$A_{80}$ min. <sup>1)</sup><br>[%] | n-value<br>$n_{10-UE}$<br>min. | BH <sub>2</sub><br>min. <sup>2)</sup><br>[MPa] |
|--------------------------------|---------------------------------------------|-----------------------------------------|--------------------------------------------------------|--------------------------------|------------------------------------------------|
| <b>Pursuant to VDA 239-100</b> |                                             |                                         |                                                        |                                |                                                |
| CR600Y980T-FH                  | 600 - 750                                   | 980 - 1130                              | 19                                                     | 0.11                           | -                                              |
| CR850Y1180T-FH                 | 850 - 1050                                  | 1180 - 1350                             | 13                                                     | -                              | -                                              |

<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                    | uncoated UC  | EG - ZE      | GI - Z | GA - ZF |
|--------------------------------|--------------|--------------|--------|---------|
| <b>Pursuant to VDA 239-100</b> |              |              |        |         |
| CR600Y980T-FH                  | Upon request | Upon request | -      | -       |
| CR850Y1180T-FH                 | 1.0 - 1.6    | 1.0 - 1.6    | -      | -       |

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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