



## Mild steels

### The multi-talent for complex deep-drawing components

Mild steels provide the best forming properties with respect to deep drawing because of their low yield strength, high total elongation and high r-values. Their wide range of strength classes makes them suitable for applications ranging from steel section profiles to the most complex pressed parts that meet the highest forming requirements. The alloy design is characterized by a low-carbon base material for moderate demands on forming properties. An interstitial-free (IF) alloy design stabilized with Ti and/or Nb is used to meet the highest forming requirements. The best r-values for IF deep-drawing steels allow for extreme deep-drawing stress in complex components. Their excellent property profile predestines mild steels for exposed body panels and structural components with the highest demands on deep-drawing suitability.

#### Convincing advantages

- » Excellent deep-drawing properties
- » Excellent formability based on low yield strength and high r-values
- » Excellent weldability
- » High corrosion resistance based on ZE, Z, ZF, EG, GI, GA or ZM coatings
- » Available in exposed-panel quality



PREMIUM QUALITY  
WITH REDUCED  
CARBON FOOTPRINT

## Chemical composition

Heat analysis in % by mass

Steel grade	Standard	C max.	Si max.	Mn max.	P max.	S max.	Ti max.
<b>Pursuant to EN 10346 or voestalpine special grade</b>							
DX51D	EN 10346	0.18	0.50	1.20	0.120	0.045	0.30
DX52D	EN 10346	0.12	0.50	0.60	0.100	0.045	0.30
DX53D	EN 10346	0.12	0.50	0.60	0.100	0.045	0.30
DX54D	EN 10346	0.12	0.50	0.60	0.100	0.045	0.30
DX56D	EN 10346	0.12	0.50	0.60	0.100	0.045	0.30
DX57D	EN 10346	0.12	0.50	0.60	0.100	0.045	0.30
DX58D	voestalpine	0.12	0.50	0.60	0.100	0.045	0.30

Steel grade	Standard	C max.	Si max.	Mn max.	P max.	S max.	Al min.	Ti max.	Cu max.
<b>Pursuant to VDA 239-100 or voestalpine special grade</b>									
CR1	VDA 239-100	0.12	0.50	0.60	0.055	0.035	0.010	0.30	0.20
CR2	VDA 239-100	0.10	0.50	0.50	0.025	0.020	0.010	0.30	0.20
CR3	VDA 239-100	0.08	0.50	0.50	0.025	0.020	0.010	0.30	0.20
CR4	VDA 239-100	0.06	0.50	0.40	0.025	0.020	0.010	0.30	0.20
CR5	VDA 239-100	0.02	0.50	0.30	0.020	0.020	0.010	0.30	0.20
CR6	voestalpine	0.02	0.50	0.30	0.020	0.020	0.010	0.30	0.20
HR0	VDA 239-100	0.13	0.50	0.60	0.035	0.030	0.015	0.30	0.20
HR2	VDA 239-100	0.10	0.50	0.50	0.025	0.030	0.015	0.30	0.20

Steel grade	C max.	Mn max.	P max.	S max.	Ti max.
<b>Pursuant to EN 10130 and EN 10152</b>					
DC01	0.12	0.60	0.045	0.045	-
DC03	0.10	0.45	0.035	0.035	-
DC04	0.08	0.40	0.030	0.030	-
DC05	0.06	0.35	0.025	0.025	-
DC06	0.02	0.25	0.020	0.020	0.30
DC07	0.01	0.20	0.020	0.020	0.20

## Mechanical properties: Tensile test

Steel grade	Standard	Test direction	0.2% yield strength $R_{p0.2}$ [MPa]	Tensile strength $R_m$ [MPa]	Total elongation $A_{80}$ min. <sup>1)</sup> [%]	r-value $r_{90}$ <sup>1)</sup> min.	n-value $n_{10-20/A_2}$ min. <sup>1)</sup> [MPa]
<b>Pursuant to EN 10346 or voestalpine special grade</b>							
DX51D	EN 10346	Transverse	-	270 - 500	22	-	-
DX52D	EN 10346	Transverse	140 - 300	270 - 420	26	-	-
DX53D	EN 10346	Transverse	140 - 260	270 - 380	30	-	-
DX54D	EN 10346	Transverse	120 - 220	260 - 350	36	1.6	0.18
DX56D	EN 10346	Transverse	120 - 180	260 - 350	39	1.9	0.21
DX57D	EN 10346	Transverse	120 - 170	260 - 350	41	2.1	0.22
DX58D	voestalpine	Transverse	110 - 170	250 - 330	43	2.3	0.23
<b>Pursuant to VDA 239-100 or voestalpine special grade</b>							
CR1	VDA 239-100	Transverse	140 - 300	270 - 410	28	-	-
CR2	VDA 239-100	Transverse	140 - 240	270 - 370	34	1.3	0.16
CR3	VDA 239-100	Transverse	140 - 210	270 - 350	38	1.8	0.18
CR4	VDA 239-100	Transverse	140 - 180	270 - 330	39	1.9	0.20
CR5	VDA 239-100	Transverse	110 - 170	260 - 330	41	2.1	0.22
CR6	voestalpine	Transverse	110 - 170	250 - 330	43	2.3	0.23
HR0	VDA 239-100	Transverse	240 - 350	310 - 460	22	-	0.12
HR2	VDA 239-100	Transverse	180 - 290	270 - 400	30	-	0.16
<b>Pursuant to EN 10130</b>							
DC01		Transverse	140 - 280	270 - 410	28	-	-
DC03		Transverse	140 - 240	270 - 370	34	1.3	-
DC04		Transverse	140 - 210	270 - 350	38	1.6	0.18
DC05		Transverse	140 - 180	270 - 330	40	1.9	0.20
DC06		Transverse	120 - 170	270 - 330	41	2.1	0.22
DC07		Transverse	100 - 150	250 - 310	44	2.5	0.23
<b>Pursuant to EN 10152</b>							
DC01		Transverse	140 - 280	270 - 410	28	-	-
DC03		Transverse	140 - 240	270 - 370	34	1.3	-
DC04		Transverse	140 - 220	270 - 350	37	1.6	0.17
DC05		Transverse	140 - 200	270 - 330	39	1.9	0.19
DC06		Transverse	130 - 180	270 - 350	41	2.1	0.21
DC07		Transverse	110 - 160	250 - 310	43	2.5	0.22

1) Thickness and coating limitations pursuant to EN 10130, EN 10152, EN 10346, VDA 239-100 or voestalpine special grade

## Coatings and available dimensions

Available thicknesses [mm] based on coating

Steel grade	Standard	Z	ZF	ZM
<b>Pursuant to EN 10346 or voestalpine special grade</b>				
DX51D	EN 10346	0.45 - 4.00	0.45 - 2.00	0.45 - 2.00
DX52D	EN 10346	0.45 - 4.00	0.45 - 2.00	0.45 - 2.00
DX53D	EN 10346	0.45 - 4.00	0.50 - 2.00	0.50 - 2.00
DX54D	EN 10346	0.50 - 2.50	0.50 - 2.00	0.50 - 2.00
DX56D	EN 10346	0.50 - 2.50	0.50 - 2.00	0.50 - 2.00
DX57D	EN 10346	0.50 - 2.50	on request	0.50 - 2.00
DX58D	voestalpine	0.50 - 2.00	on request	0.50 - 2.00

Steel grade	Standard	UC	EG	GI	GA	ZM
<b>Pursuant to VDA 239-100 or voestalpine special grade</b>						
CR1	VDA 239-100	0.4 - 3.0	0.4 - 2.0	0.45 - 4.00	0.45 - 2.00	0.45 - 2.00
CR2	VDA 239-100	0.4 - 3.0	0.4 - 2.0	0.45 - 4.00	0.50 - 2.00	0.50 - 2.00
CR3	VDA 239-100	0.4 - 3.0	0.4 - 2.0	0.50 - 2.50	0.50 - 2.00	0.50 - 2.00
CR4	VDA 239-100	0.4 - 3.0	0.4 - 2.0	0.50 - 2.50	0.50 - 2.00	0.50 - 2.00
CR5	VDA 239-100	0.4 - 3.0	0.4 - 2.0	0.50 - 2.50	on request	0.50 - 2.00
CR6	voestalpine	0.4 - 1.5	0.4 - 1.5	0.50 - 2.00	on request	0.50 - 2.00
HR0	VDA 239-100	1.8 - 16.0	-	2.00 - 4.00	-	-
HR2	VDA 239-100	1.8 - 16.0	-	2.40 - 4.00	-	-

Steel grade	Uncoated		ZE	
	Pursuant to EN 10130		Pursuant to EN 10152	
DC01	0.4 - 3.0		0.4 - 2.0	
DC03	0.4 - 3.0		0.4 - 2.0	
DC04	0.4 - 3.0		0.4 - 2.0	
DC05	0.4 - 3.0		0.4 - 2.0	
DC06	0.4 - 3.0		0.4 - 2.0	
DC07	0.4 - 1.5		0.4 - 1.5	

Please find further information at [www.voestalpine.com/pro](http://www.voestalpine.com/pro) or contact us directly.

# 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

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

Max. carbon footprint 2.10 kg CO<sub>2</sub>e per kg of steel <sup>1)</sup>

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

Max. carbon footprint 2.15 kg CO<sub>2</sub>e per kg of steel <sup>1)</sup>

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

Max. carbon footprint 2.30 kg CO<sub>2</sub>e per kg of steel <sup>1)</sup>

### Electrogalvanized steel strip – greentec steel Edition

Max. carbon footprint 2.30 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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ONE STEP AHEAD.