

# Structural steels

## High-quality steels for construction applications

The structural steel product family is defined by minimum yield strength, tensile strength and total elongation requirements.

The alloy is based on a low-carbon strategy, whereas the strength can be adjusted by adding solid-solution-strengthening alloying elements.

Structural steels are suitable for less complex forming operations such as folding, edging and profiling.

### Convincing advantages

- » Wide range of strength levels with minimum yield strengths from 220 to 450 MPa
- » Excellent weldability
- » High corrosion resistance based on Z, GI or ZM coatings
- » Good cold formability
- » Wide range of thicknesses for a variety of applications



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.
S220GD <sup>1)</sup>	EN 10346					
S250GD <sup>1)</sup>	EN 10346					
S280GD <sup>1)</sup>	EN 10346					
S320GD <sup>1)</sup>	EN 10346					
S350GD <sup>1)</sup>	EN 10346	0.20	0.60	1.70	0.10	0.045
S390GD <sup>2)</sup>	EN 10346					
S420GD <sup>2)</sup>	EN 10346					
S450GD <sup>2)</sup>	EN 10346					

<sup>1)</sup> cold- and hot-rolled steel strip

<sup>2)</sup> hot-rolled steel strip

## Mechanical properties: Tensile test

Steel grade	Standard	Test direction	0.2 % yield strength R <sub>p0.2</sub> min. [MPa]	Tensile strength R <sub>m</sub> [MPa]	Total elongation A <sub>80</sub> min. [%]
S220GD <sup>1)</sup>	EN 10346	Longitudinal	220	300	20
S250GD <sup>1)</sup>	EN 10346	Longitudinal	250	330	19
S280GD <sup>1)</sup>	EN 10346	Longitudinal	280	360	18
S320GD <sup>1)</sup>	EN 10346	Longitudinal	320	390	17
S350GD <sup>1)</sup>	EN 10346	Longitudinal	350	420	16
S390GD <sup>2)</sup>	EN 10346	Longitudinal	390	460	16
S420GD <sup>2)</sup>	EN 10346	Longitudinal	420	480	15
S450GD <sup>2)</sup>	EN 10346	Longitudinal	450	510	14

<sup>1)</sup> cold- and hot-rolled steel strip

<sup>2)</sup> hot-rolled steel strip

## Coatings and available dimensions

Available thicknesses [mm] based on coating

Steel grade	Standard	Z	ZM
S220GD <sup>1)</sup>	EN 10346	0.45 - 4.0	0.45 - 2.0
S250GD <sup>1)</sup>	EN 10346	0.45 - 4.0	0.45 - 2.0
S280GD <sup>1)</sup>	EN 10346	0.45 - 4.0	0.45 - 2.0
S320GD <sup>1)</sup>	EN 10346	0.45 - 4.0	0.45 - 2.0
S350GD <sup>1)</sup>	EN 10346	0.5 - 4.0	0.5 - 2.0
S390GD <sup>2)</sup>	EN 10346	2.0 - 4.0	-
S420GD <sup>2)</sup>	EN 10346	2.0 - 3.5	-
S450GD <sup>2)</sup>	EN 10346	2.0 - 3.5	-

<sup>1)</sup> cold- and hot-rolled steel strip

<sup>2)</sup> hot-rolled steel strip

Please find available dimensions at [www.voestalpine.com/Produktinformationsportal](http://www.voestalpine.com/Produktinformationsportal) or contact us directly.



Premium quality with reduced carbon footprint

Hot-rolled steel strip – greentec steel Edition

Max. carbon footprint 1.95 kg CO<sub>2</sub>e per kg of steel <sup>1)</sup>

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>

<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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voestalpine Stahl GmbH  
voestalpine-Straße 3  
4020 Linz, Austria  
produktmanagement@voestalpine.com  
[www.voestalpine.com/steel](http://www.voestalpine.com/steel)

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