



ENAMELEABLE STEELS MADE BY voestalpine

Sustainability and simplest processing for the perfect enameling of cold-rolled and hot-rolled steels

Following fundamental assessment of processing, application and surface requirements, the customer may select either a hot-rolled or cold-rolled enamenable steel grade. Our enamenable steels are tailored to specific customer requirements and enameling behavior.

Enamels can be applied in wet or powder form. Depending on the steel grade, our steels can be enameled on one or both sides.

Convincing advantages:

- » Sustainability
- » Narrow analysis tolerances
- » Wide strength spectrum with low amount of scatter
- » Suitable for high surface requirements
- » Excellent resistance to fish scaling
- » Cleanest surface

COLD-ROLLED STEELS

CHEMICAL COMPOSITION

Heat analysis in mass %

Steel grade	Designation of standard EN 10209	C max.	Ti max.	Mn max.	P max.	S max.
DC01EK	DC01EK	0.08	-	0.6	0.045	0.05
DC04EK	DC04EK	0.08	-	0.5	0.030	0.05
DC05EK	DC05EK	0.08	-	0.5	0.025	0.05
DC06EK	DC06EK	0.02	0.3	0.5	0.020	0.05
DC07EK	DC07EK	0.02	0.3	0.4	0.020	0.05
DC03ED TiVac	-	0.02	0.3	0.4	0.035	0.05
DC04ED TiVac	-	0.02	0.3	0.4	0.030	0.05

MECHANICAL PROPERTIES: TENSILE TEST

Transverse to rolling direction

Steel grade	Designation of standard EN 10209	0.2% yield strength $R_{p0.2}$ [MPa]	Tensile strength R_m min. [MPa]	Total elongation A_{30} min. [%]	Vertical anisotropy r_{90} min.
DC01EK	DC01EK	140 – 270	270 – 390	30	-
DC04EK	DC04EK	140 – 220	270 – 350	36	-
DC05EK	DC05EK	140 – 220	270 – 350	36	1.5
DC06EK	DC06EK	120 – 190	270 – 350	38	1.6
DC07EK	DC07EK	100 – 170	270 – 350	40	2.0
DC03ED TiVac	-	120 – 240	270 – 370	34	-
DC04ED TiVac	-	120 – 210	270 – 350	38	-

DIMENSIONS AND FORMS OF DELIVERY

Cold-rolled enameling steels can be supplied as coils or as preprocessed material (slit or cut to length).

The following dimensions are available:

Coil width [mm]	Strip width [mm]	Thickness [mm]	Mass/width [kg/mm]
900 – 1,600	from 30	0.5 – 1.6	18 – 20

Available combinations of widths and thicknesses vary depending on the steel grade.

Dimension tolerances

The dimensional tolerances are compliant with EN10131. Narrower thickness tolerances are possible upon request.

Surface finish

Cold-rolled enameled steels are available in compliance with EN 10209.

HOT-ROLLED STEELS

CHEMICAL COMPOSITION

Heat analysis in mass %

Steel grade	C max.	Si max.	Mn max.	P max.	S max.	Al min.	Cu max.	Ti max.	B max.	Nb+V+Ti max.
DD11CCE	0.08	0.05	0.50	0.020	0.025	0.02	0.10	0.05	0.004	0.10
DD15CCE	0.01	0.05	0.30	0.020	0.025	0.02	0.10	0.10	0.004	0.15
S240CCE	0.10	0.25	0.60	0.020	0.025	0.02	0.10	0.10	0.004	0.15
S355CCE	0.12	0.30	2.10	0.020	0.015	0.02	0.15	0.20	0.005	0.22
S380CCE	0.12	0.30	2.10	0.020	0.015	0.02	0.15	0.20	0.005	0.22

MECHANICAL PROPERTIES: TENSILE TEST

Transverse to rolling direction

Steel grade	Standard data in as-delivered condition				Values according to simulation annealing at 830°C			
	Yield strength R_{p02}	Tensile strength R_m	Total elongation [%] min.		Yield strength R_{p02}	Tensile strength R_m	Total elongation [%] min.	
	[MPa]	[MPa]	A_{80}	A_5	[MPa]	[MPa]	A_{80}	A_5
DD11CCE	200 – 300	300 – 400	25	30	≥ 170	≥ 250	25	30
DD15CCE	140 – 240	260 – 360	28	33	≥ 100	≥ 250	28	33
S240CCE	240 – 360	360 – 450	22	27	≥ 240	≥ 360	22	27
S355CCE	600 – 770	650 – 800	-	14	≥ 355	≥ 500	-	16
S380CCE	620 – 790	670 – 820	-	12	≥ 380	≥ 550	-	15

Measurement of total elongation A_{80} for thicknesses < 3 mm, A_5 for thicknesses ≥ 3 mm

DIMENSIONS AND FORMS OF DELIVERY

Hot-rolled enameling steels can be supplied as coils or as preprocessed material (slit or cut to length).

The following dimensions are available:

Coil width [mm]	Strip width [mm]	Thickness [mm]	Mass/width [kg/mm]
900 – 1,620 (1,750)	from 30	1.8 – 20	18 – 20

Available combinations of widths and thicknesses vary depending on the steel grade.

Depending on the dimensions and strength, we also supply: Pickled, oiled, trimmed

MULTIPLE CERTIFICATIONS



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