Steel

Cold-rolled steels for enameling

Product information

thyssenkrupp

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Brief profile

Cold-rolled steel sheet for enameling is made from either mild unalloyed deep-drawing steel or IF (interstitial free) steel. thyssenkrupp offers various grades for conventional enameling (EK). Depending on the grade they are suitable for simple to complex forming operations and display good enamelability.

In addition to the DC01EK, DC04EK, DC06EK grades described in the DIN EN 10209 standard, thyssenkrupp offers the special mill grade DC06EK Plus. The DC04EK and DC06EK grades are also available with superior forming characteristics (r and n values).

Whereas the DC01EK and DC04EK grades are suitable for the production of simple shapes such as flat shower trays, baking trays, and side walls for white goods, the DC06EK and DC06EK Plus grades are designed especially for more challenging forming operations and allow the production of more complex geometries.

Content

Available steel grades

Steel grade	Standard designation as per DIN EN 10209
● DC01EK	DC01EK
● DC04EK	DC04EK
● DC06EK	DC06EK
● DC06EK Plus	Special mill grade

Surface finish and average roughness values

Cold-rolled mild steel products for enameling are supplied in finishes A and B in accordance with DIN EN 10130 and in smooth or matte finishes as per DIN EN 10209. Other average roughness value ranges are possible subject to agreement.

Surface finish and average roughness value

Surface finish	Indicator	Average roughness values R_a [µm]
Matte	m	$0.60 < R_a \leq 1.90$
Rough	r	$R_a > 1.6$

Technical features

Engineering properties [1]

Test direction transverse to rolling direction	Thickness t [mm]	Yield strength R_e [MPa]	Tensile strength R_m [MPa]	Elongation A_{80} min. [%]	Vertical anisotropy [2] r_{90} min.	Strain-hardening exponent [2] n_{90} min.
To DIN EN 10209						
Steel grade						
● DC01EK	0.7 – 2.0	140 – 270	270 – 390	30	–	–
● DC04EK	0.7 – 2.0	140 – 220	270 – 350	36	1.3	0.18
● DC06EK	0.7 – 2.0	120 – 190	270 – 330	38	2.0	0.19
	2.0 – 2.5	120 – 190	270 – 330	38	1.6	0.19
	≥ 2.5	120 – 190	270 – 330	38	1.4	0.19
● DC06EK Plus [3]	0.7 – 2.0	100 – 170	270 – 330	40	2.0	0.20
	2.0 – 2.5	100 – 170	270 – 330	40	1.6	0.20
	≥ 2.5	100 – 170	270 – 330	40	1.4	0.20

Unless stated otherwise, the values apply to thicknesses from 0.7 – 2.0 mm and for a period of 6 months from the date the products are made available. Refer to the applicable EN standards for supplements and deductions for other thicknesses. Restricted engineering properties are possible at extra cost and subject to agreement.

● Cold-rolled strip

[1] The values apply to the cold re-rolled condition.
[2] Improved forming characteristics compared to standard.
[3] Special mill grade.

Chemical composition

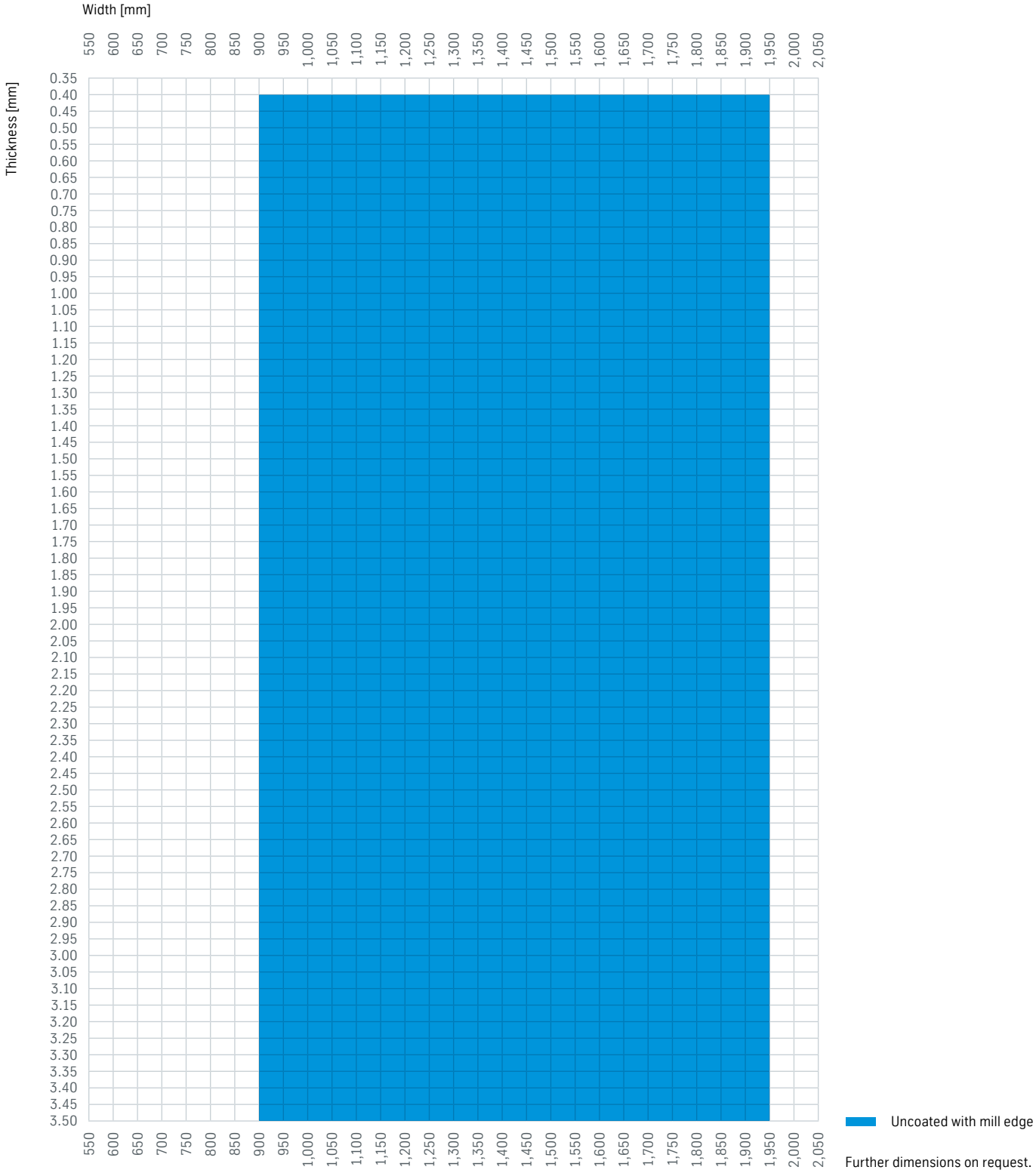
Mass fractions in ladle analysis	C [%] max.	Mn [%] max.	P [%] max.	S [%] max.	Ti [%] max.
To DIN EN 10209					
Steel grade					
● DC01EK	0.08	0.60	0.045	0.050	–
● DC04EK	0.08	0.50	0.030	0.050	–
● DC06EK	0.02	0.50	0.020	0.050	0.20
● DC06EK Plus [1]	0.02	0.50	0.020	0.050	0.20

● Cold-rolled strip

[1] Special mill grade.

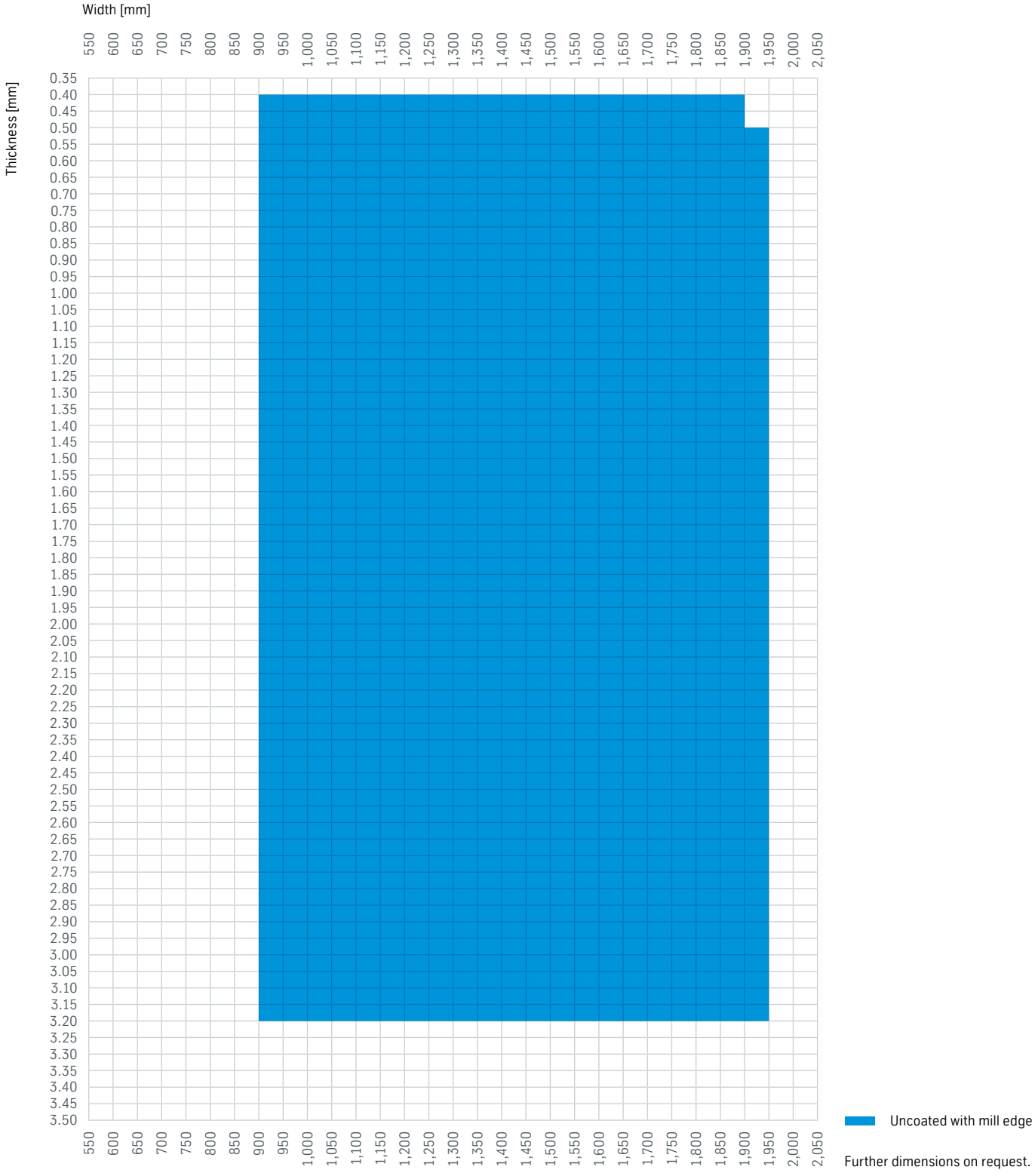
Available dimensions

DC01EK, DC04EK



Further dimensions on request.

DC06EK, DC06EK Plus



Further dimensions on request.

Sample applications

Bathtubs.

Baking trays.

Special mill grades are supplied subject to the special conditions of thyssenkrupp. Other delivery conditions not specified here will be based on the applicable specifications. The specifications used will be those valid on the date of issue of this product information brochure.

General information

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