Steel Ck75

		EN	UNS (ASTM)	AISI	LMSA
Designation	**Ck75 (C75E)**	1.1248	G10750	-	**C240**

Chemical composition

Fe	C	Mn	S	P	Si
Balance	0.70 - 0.80	0.60 - 0.80	≤ 0.035	≤ 0.035	0.15 - 0.35

Values (Weight %). In order to achieve maximum homogeneity and consistent quality, the actual manufacturing tolerances are tighter and more precisely than the composition indicated.

Main technical properties and features

Ck75 steel (C75E) is an unalloyed structural steel containing about 0.70 % carbon. Thanks to its higher carbon content, this steel exhibits good hardenability, and can be hardened by conventional quenching and tempering treatment. This steel presents very good formability in the annealed condition, and high strength and toughness in the quenched and tempered condition. These characteristics make it the material of choice for stamped parts with high mechanical requirements.

Lamineries MATTHEY supplies thin strips of Ck75 steel with narrow dimensional tolerances, which allow the stamping of complex parts.

Typical uses

Ck75 steel is used for parts for the watch industry, jewelry applications, parts in machine construction, diaphragm spring, cutting tools for electronic industry.

Typical manufacturing range

		Thickness (mm)	Width (mm)	Length (mm)
Rolled products	Strip in coils [1]	0.010 - 0.500	1.5 - 200.0	-
	Strip as sheets [1]	0.015 - 0.500	10.0 - 200.0	100 - 3000

[1] Not all our production possibilities are presented here. Other dimensions or product forms available upon request. Some combinations of thicknesses and widths are not possible.

Mechanical properties of strips

Temper	R_m (N/mm^2)	A_{50mm} (%)	Hardness HV
soft	480 - 600	-	145 - 175
¼ hard	580 - 680	-	170 - 210
½ hard	660 - 770	-	210 - 240
¾ hard	750 - 860	-	220 - 270
hard	840 - 950	-	250 - 300
extra hard	930 min.	-	290 min.

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Physical properties

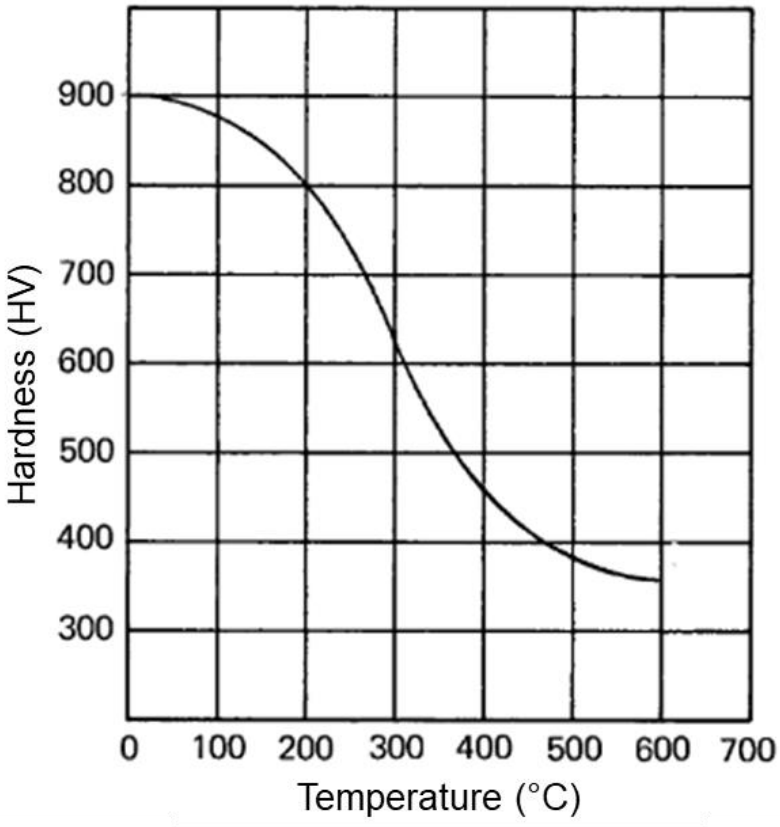
Modulus of elasticity	kN/mm^2	210
Poisson ratio		0.29
Density	g/cm^3	7.90
Melting point	°C	1400 - 1500
Linear dilatation coefficient	10^{-6}·/ ºC	11 (20-100ºC) / 12 (20-300ºC)
Thermal conductivity at 20°C	W/m °K	52
Electrical resistivity at 20°C	μΩcm	18
Electrical conductivity at 20°C	% IACS	13
Specific heat at 20°C	J/(kg. K)	50.2

Heat treatment

Steel Ck75 can be heat treated by quenching in oil or water followed by a tempering.

Normalizing (ºC)	Annealing (ºC)	Quenching (ºC)	Tempering [1] (ºC) > 60min
900	650 - 720	790 - 820 (oil or water)	350 - 700

[1] Function of time



Tolerances (strip and foil)

Thickness

The table shown is an outline of our typical thickness tolerances available. They are tighter than industry standards.

Our "LMSA Precision" and "LMSA Extreme" tolerances are available upon request.

Thickness (mm)		Lamineries MATTHEY		
≥	<	LMSA Standard	LMSA Precision	LMSA Extreme
-	0.025	-	-	± 0.001
0.025	0.050	± 0.003	± 0.002	± 0.0015
0.050	0.065	± 0.004	± 0.003	± 0.002
0.065	0.100	± 0.006	± 0.004	± 0.003
0.100	0.125	± 0.008	± 0.006	± 0.003
0.125	0.150	± 0.008	± 0.006	± 0.004
0.150	0.250	± 0.010	± 0.008	± 0.004
0.250	0.300	± 0.012	± 0.008	± 0.005
0.300	0.400	± 0.012	± 0.009	± 0.005
0.400	0.500	± 0.015	± 0.010	± 0.006
0.500	0.600	± 0.020	± 0.012	± 0.007
0.600	0.800	± 0.020	± 0.014	± 0.007
0.800	1.000	± 0.025	± 0.015	± 0.009
1.000	1.200	± 0.025	± 0.018	± 0.012
1.200	1.250	± 0.030	± 0.020	± 0.012
1.250	1.500	± 0.035	± 0.025	± 0.014

Width

Our width tolerances "Standard" is +0.2, -0.0 (or ± 0.1 mm upon request). They are available for slit widths < 125 mm and thicknesses < 1.00 mm. Special tolerances upon request.

Camber

Our tolerance "LMSA Standard" respects the EN Standard 1654 (Length of measurement 1000 mm). Other tolerances upon request.

Width (mm)		Camber max. (mm/m)			
		LMSA standard		LMSA extreme	
>	≤	≤ 0.5 mm	> 0.5 mm	≤ 0.5 mm	> 0.5 mm
3	6	12	-	6	-
6	10	8	10	4	5
10	20	4	6	2	3
20	250	2	3	1	1.5

Surface

Special surface qualities upon request

Flatness

Special requirement on the longitudinal or transversal flatness upon request

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