

EN10225-1: 2019 Plates

Thickness Range

In EN10225:2009 edition, the maximum thickness is:

150mm for	S355G7/8/10 + N
100mm for	S355G7/8/10 + M
100mm for	S420Gx/S460Gx + M/QT

In the EN10225-1:2019 edition, the thicknesses have increased to:

200mm for	S355NLO
120mm for	S355/S420/S460/S500MLO
150mm for	S355/S420/S460/S500/S620/S690QLO

Internal Soundness (UT):

According to EN10225:2009, Ultrasonic testing shall be carried out and shall meet the following requirements

- Group 3 - EN 10160, class S1/E2
- Group 2 - EN 10160, class S0/E1

According to EN10225-1:2019,
All plates shall meet EN10160 class S0/E1

When option 18 is specified S1/E2 shall be met

Chemistry:

In EN10225-1:2019 the chemical analysis per element is less strict. However, the requirement on CEV are more severe.

For example:

S355MLO	CEV max 0,39
S355G10	CEV max 0,43

Equivalent Steel Grades b/w 2009 & 2019 editions

	EN10225: 2009	EN10225-1: 2019
Group 2	S355G7+M	S355MLO
Group 2	S355G7+N	S355NLO
Group 3	S355G8+M	S355MLO + Options 2 & 3
Group 3	S355G8+N	S355NLO + Options 2 & 3
Group 2	S355G9+N	S355NLO
Group 2	S355G9+M	S355MLO
Group 3	S355G10+N	S355NLO + Options 2 & 3
Group 3	S355G10+M	S355MLO + Options 2 & 3
Group 2	S420G1+QT	S420QLO
Group 2	S420G1+M	S420MLO
Group 3	S420G2+QT	S420QLO + Options 2 & 3
Group 3	S420G2+M	S420MLO + Options 2 & 3
Group 2	S460G1+QT	S460QLO
Group 2	S460G1+M	S460MLO
Group 3	S460G2+QT	S460QLO + Options 2 & 3
Group 3	S460G2+M	S460MLO + Options 2 & 3
X	X	S500MLO
X	X	S500QLO
X	X	S550QLO
X	X	S620QLO
X	X	S690QLO

Impact Test:

According to EN10225:2009, Charpy impact test specimen orientation for:

- Group 1 — Longitudinal
- Group 2 & 3 — Transverse

According to EN10225-1: 2019,
All the Charpy impact test specimens — Transverse

Steel Name Designation System Comparison

Standard	S	355/420/ 460/ 500/ 550/ 600 / 620/ 690	Gxx	M / N / QT	L	O	Example
EN10225: 2009	Structural Steel	Min. Yield Strength for thickness $t \leq 16$ mm in Mpa	Capital G, followed by a max. of 2 digits indicating steel grade within the groups 1,2 or 3, as defined in EN 10225:2009	+ M Thermo mechanical rolling + N Normalizing rolling + QT Quenched & Tempered	not applicable	not applicable	S355G7+N S355G8+M S460G2+QT
EN10225-1: 2019	Unchanged - as above -	Unchanged - as above -	removed	+ M Thermo mechanical rolling + N Normalizing rolling + Q Quenched & Tempered	Letter L indicating specified impact properties @-40°C	Capital O indicating Offshore structures	S355NLO S355MLO S460QLO

EN10225: 2019 Other Changes

Reporting of CEV

According to EN10225: 2009, reporting of CEV in the MTC is mandatory.

According to EN10225: 2019, reporting of CEV and/ or Pcm is not mandatory unless otherwise agreed between the manufacturer and buyer at the time of enquiry and order (Option 8)

Through Thickness Testing

According to EN10225: 2009, Through Thickness Testing is required for materials ≥ 25 mm

According to EN10225: 2019, Through Thickness Testing is required for materials ≥ 15 mm

Certification:

According to EN10225: 2009 edition, material certification shall be according to EN10204 (2.1 / 2.2 / 3.1 / 3.2) based on agreement between purchaser and seller.

But according to EN10225-2: 2019 edition, minimum EN10204 3.1 certification is mandatory.

Marking & Bundling:

	EN10225: 2009	EN10225: 2019
Colorcoding	Mandatory	Not Mandatory
Die stamping	Mandatory	Not Mandatory

EN 10225: 2019 Possible Confusions

Both plates and rolled sections are available in S355MLO.

However, for plates the impact test is in transverse direction. For rolled sections the impact test is done in longitudinal direction.

List of Options in EN 10225-1 to -4

Option Number	Options	Part 1	Part 2	Part 3	Part 4
1	Further details of steel manufacturing process	X	X	X	X
2	Vacuum degassed and/or ladle refined	X	X	X	X
3	Reduced S-contents	X		X	X
4	Furnace normalizing is mandatory	X			
5 (4)	Other more severe reduction ratios	X			
6 (7)	Restricted heat analysis	X	X	X	X
7 (8)	Product analysis	X	X	X	X
8	Whether a P_{CM} and/ or CEV value to be reported	X	X	X	X
9 (10)	Simulated post weld heat treatment (PWHT) at 580°C	X		X	X
10	Simulated PWHT at another temperature	X		X	X
11 (12)	Strain age test	X			
12 (13)	Through thickness testing	X	X	X	X
13 (14)	Flattening test			X	
14 (15)	Fracture mechanic testing	X			
15 (16)	Plate cold forming procedures	X			
16 (17)	Plate hot forming procedures	X			

Option Number	Options	Part 1	Part 2	Part 3	Part 4
17 (18)	Weldability data	X	X	X	X
18 (19)	Ultrasonic testing according to EN10160	X			
19 (21)	Ultrasonic testing according to EN10306		X		
20	NDT surface inspection for HFW hollow sections				X
21	Higher requirements for NDT			X	X
22	Internal soundness according to EN ISO 10893-8 and -9			X	X
23 (20)	Other surface conditions than EN10163-3, class C 2		X		
24	Inspection certificate 3.2	X	X	X	X
25	Test frequency for every specified plate thickness	X			
26 (24)	Testing of the weld seam			X	X
27	Testing of the corner region for rectangular hollow sections			X	X
28	Marking by another method	X	X	X	X
29 (29)	Unbundled supply		X	X	X
30 (25)	Greater thicknesses than specified		X	X	X