

3 Technical & dimensional characteristics

All the hereunder grades are available as hot rolled steel plates. A remark mentions if they are available in another form.

		Grades	Remark	Thickness	Delivery conditions
High temperature		P 235 GH	Also as forged plates or forged bars	HR plates : 3 - 200 Forged plates : 150 - 250 Forged bars : 361 - 1000	Normalized rolled or normalized
		P 265 GH			
		P 295 GH	Also as forged plates or forged bars		
		P 355 GH			
Fine grain weldable		P 275 NH	Also as forged plates or forged bars	HR plates : 3 - 200 Forged plates : 150 - 250 Forged bars : 361 - 1000	Normalized rolled or normalized
		P 275 NL1			
		P 275 NL2			
		P 355 N			
		P 355 NH	Also as forged plates or forged bars		
		P 355 NL1			
		P 355 NL2			
		P 460 NH			
		P 460 NL1			
		P 460 NL2 (*)			
		P355 M	3 - 150	Normalized	
		P355 ML1			
		P355 ML2			
		P420 M			
		P420 ML1			
		P420 ML2			
		P460 M	3 - 25, 40	Thermomechanically controlled rolled	
P460 ML1					
P460 ML2					
	transport hazardous material	P 400 NGJ4		5 - 15	Normalized
Carbon steel with low and intermediate resistance to tension		ASTM A 285 Gr. C		3 - 50	As rolled
Lower & moderate temperature	low and intermediate resistance to tension	ASTM A 516 Gr. 55 ASTM A 516 Gr. 60 ASTM A 516 Gr. 65 ASTM A 516 Gr. 70		up to 250	As rolled or normalized
	high resistance to tension	ASTM A 612		8 - 25,40	Normalized rolled or normalized
Alloyed	Mo	16 Mo 3	Also as forged plates	3 - 250	Normalized
		13CrMo4-5 (*)	Also as forged plates	5 - 60	Norm. & tempered
		12CrMo9-10		100 - 250	Quenched & tempered
		ASTM A387 Gr.11 CL 1		140 - 250	Norm. & tempered/ Quenched & tempered
		ASTM A387 Gr.11 CL 2			Norm. & tempered/ Quenched & tempered
		ASTM A387 Gr.12 CL1			Norm. & tempered/ Quenched & tempered
		ASTM A387 Gr.12 CL 2 (*)			Norm. & tempered/ Quenched & tempered
C - Mn - Si steels		ASTM A537 CL 1		4,76 - 100	Normalized
		ASTM A537 CL 2		10-50	Quenched & tempered

(*) '13CrMo4-5' and 'ASTM A387 Gr.12 CL 2' are equivalent steels ^(**)by agreement

4 Technical precautions

As the properties of boiler plates and pressure vessels steels differs from the one to the other, it is recommended to observe elementary precautions and to strictly follow the instructions

given in the norms and in the technical guides before using advanced techniques for cutting, welding, forming, welding, etc... Our technical experts are at your disposal for any request or requirement.

The elements in the datasheet are given for information only and reflect the information known at the time of publishing. This document is intended to give a general guideline for the purchasing and use of the steels only. The transmitter of this document doesn't accept any liability for any error or omission in the content of this document. Values and components quoted must not be considered as being guaranteed unless specifically confirmed separately in writing.

High carbon steels

1 Steel description and applications

As a result of its expertise in forging and rolling high carbon steel plates, NLMK Europe - Plate is supplying its plates in accordance with a variety of relevant national and international standards.

The high carbon steels are characterized by their higher hardness level, and good machinability.

All these steels are preferred for applications with elevated temperature and where long life service is required, as:

- tools steels
- dies
- forgings
- etc.

2 Available grades

Heat Treatable Steels		
Europe		U.S.A.
EN 10083-2	EN 10083-2	ASTM A830
C 35 (E/R)	C 35	1033
C 40 (E/R)	C 40	to
C 45 (E/R)	C 45	1046

Note : (E) = S 0,025% (R) = S = 0,020 - 0,040%

3 Dimensions

GRADE	Hot Rolled Steels Thickness	Forged Plates Thickness	Forged Bars ^(*) Thickness	Delivery Conditions
C 35	4 - 200	from 200mm and above	upon request	As rolled
C 35 E				As rolled
C 35 +N				Normalized or normalized rolled
C 35 E+N				Normalized or normalized rolled
C 40	5 - 200			As rolled
C 40 E				As rolled
C 40 +N				Normalized or normalized rolled
C 40 E+N				Normalized or normalized rolled
C 45	7 - 200			As rolled
C 45 E				As rolled
C 45 E+N				Normalized or normalized rolled
C 45 +N				Normalized or normalized rolled
C 45 +S	30 - 200			Stress relieved

(*) max. length: 12m

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