



STEELS TABLE

CHEMICAL ANALYSIS AND MECHANICAL PROPERTIES

NORM	GRADE	EXECUTION	CHEMICAL ELEMENTS (% on mass)																Yield strength R _{0.5} (Mpa)	Tensile strength R _m (Mpa)	Elongation. %	Impact test average value	
			C	Mn		P	S	Si		Ni		Cr		Cu		Al		V					Mo
			max.	min.	max.	max.	max.	min.	max.	min.	max.	min.	max.	min.	max.	min.	max.	max.					max.
ASTM A 333 / ASME SA 333	1	SoW	0.30	0.40	1.06	0.025	0.025	-	-	-	-	-	-	-	-	-	-	-	205	380	35	18 J min. -45°C	
	3	SoW	0.19	0.31	0.64	0.025	0.025	0.18	0.37	3.18	3.82	-	-	-	-	-	-	-	240	450	30	18 J min. -100°C	
	4	S	0.12	0.50	1.05	0.025	0.025	0.08	0.37	0.47	0.98	0.44	1.01	0.40	0.75	0.04	0.30	-	240	415	30	18 J min. -100°C	
	6	SoW	0.30	0.29	1.06	0.025	0.025	0.10	-	-	-	-	-	-	-	-	-	-	240	415	30	18 J min. -45°C	
	7	SoW	0.19	-	0.90	0.025	0.025	0.13	0.32	2.03	2.57	-	-	-	-	-	-	-	240	450	30	18 J min. -75°C	
	8	SoW	0.13	-	0.90	0.025	0.025	0.13	0.32	8.40	9.60	-	-	-	-	-	-	-	515	690	22	18 J min. -195°C	
	9	SoW	0.20	0.40	1.06	0.025	0.025	-	-	1.60	2.24	-	-	0.75	1.25	-	-	-	315	435	28	18 J min. -75°C	
	10 ¹	SoW	0.20	1.15	1.50	0.035	0.015	0.10	0.35	-	0.25	-	0.15	-	0.15	-	0.06	0.12	0.05	450	550	22	18 J min. -60°C
	11 ²	SoW	0.10	-	0.60	0.025	0.025	-	0.35	35.0	37.0	-	0.50	-	-	-	-	-	0.50	240	450	18	18 J min. -195°C
EN 10216-4 EN 10217-4	P215NL ³ (+N)	-	0.15	0.40	1.20	0.025	0.020	-	0.35	-	0.30	-	0.30	-	0.30	0.020	-	0.02	0.08	215	360-480	25	40 J min. -40°C
	P255QL ³ (+QT)	-	0.17	0.40	1.20	0.025	0.020	-	0.35	-	0.30	-	0.30	-	0.30	0.020	-	0.02	0.08	255	360-490	23	45 J min. -40°C
	P265NL ³ (+N)	-	0.20	0.60	1.40	0.025	0.020	-	0.40	-	0.30	-	0.30	-	0.30	0.020	-	0.02	0.08	265	410-570	24	40 J min. -40°C

Note: the yield strength, tensile strength and elongation values stated in the table here above are the minimum requirements foreseen by the norm, that does not foresee maximum values.

S = Seamless pipes
W = Welded pipes

The minimum foreseen values for elongation and impact test refer to standard longitudinal samples.

¹ C_b ≤ 0.05%

² C_o ≤ 0.50%

³ Nb ≤ 0.010%, Ti ≤ 0.040%