

**Standards I Norme**

Chemical Composition (%)									Mechanical properties														
Standard	Steel Name	C max		Si max.	Mn max.	P max.	S max.	N max.	Minimum yield strength ReH MPa					Tensile strength Rm Mpa			Minimum elongation A% Longitudinal			Minimum impact energy KV			
		40≤S	40<S≤120							≤16S	16<S≤40	40<S≤63	63<S≤80	80<S≤100	100<S≤120	3≤S	3<S≤100	100<S≤120	40≤S	40<S≤63	63≤S≤100	100<S≤120	T°
EN 10210-1	S235JRH	0,17	0,20	-	1,40	0,040	0,040	0,009	235	225	215	215	215	195	360+510	360+510	350+500	26	25	24	22	20	27
	S275JOH	0,20	0,22	-	1,50	0,035	0,035	0,009	275	265	255	245	235	225	430+580	410+560	400+540	23	22	21	19	0	27
	S275J2H	0,20	0,22	-	1,50	0,030	0,030	-	275	265	255	245	235	225	430+580	410+560	400+540	23	22	21	19	-20	27
	S355JOH	0,22	0,22	0,55	1,60	0,035	0,035	0,009	355	345	335	325	315	295	510+680	470+630	450+600	22	21	20	18	0	27
	S355J2H	0,22	0,22	0,55	1,60	0,030	0,030	-	355	345	335	325	315	295	510+680	470+630	470+600	22	21	20	18	-20	27

Chemical Composition (%)									Mechanical properties										
Standard	Steel Name	C max	Si max.	Mn max.	P max.	S max.	Other Elements		Minimum yield strength ReH mPa					Tensile strengt Rm Mpa				Minimum elongation A%	
									≤16S	16<S≤40	40<S≤65	65<S≤80	80<S≤100	16≤S	16<S≤40	40<S≤65	65<S≤100	Longitudinal	Transverse
EN 10297-1	E235	0,17	0,35	1,20	0,030	0,035	-	-	235	225	215	205	195	360	360	360	340	25	23
	E275	0,21	0,35	1,40	0,030	0,035	-	-	275	265	255	245	235	410	410	410	380	22	20
	E355	0,22	0,55	1,60	0,030	0,035	-	-	355	345	335	315	295	490	490	490	470	20	18
	ST52,3	0,22	0,55	1,60	0,040	0,04	-	-	335					490+630				22	-
	E470	0,16÷0,22	0,10÷0,50	1,30÷1,70	0,030	0,035	V0,08/0,15 Al min 0,010		470	430	-	-	-	650	600	-	-	17	15

Chemical Composition (%)									Tolerances on shape and mass- EN 10210-2				
Standard	Steel Name	C max		Si max.	Mn max.	P max.	S max.	N max.	Outside Diameter	Thickness	Out of roundness	Straightness	Mass
		40≤S	40<S≤120										
EN 10210-1	S235JRH	0,17	0,20	-	1,40	0,040	0,040	0,009	± 1 % with a minimum of ± 0,5 mm and a maximum of ± 10 mm	- 12,5 %,The positive deviation is limited by the tolerance on mass	2 % for hollow sections having a diameter to thickness ratio not exceeding 100	0,2 % of total length and 3 mm over any 1 m length	+ 8 % - 6 % on individual delivered lengths
	S275JOH	0,20	0,22	-	1,50	0,035	0,035	0,009					
	S275J2H	0,20	0,22	-	1,50	0,030	0,030	-					
	S355JOH	0,22	0,22	0,55	1,60	0,035	0,035	0,009					
	S355J2H	0,22	0,22	0,55	1,60	0,030	0,030	-					

Chemical Composition (%)									Tolerances on shape and mass - EN 10297				
Standard	Steel Name	C max	Si max.	Mn max.	P max.	S max.	Other Elements		Outside Diameter,including Out of roundness	Wall thickness tolerance for O.D ≤ 219,1 mm			Straightness
EN 10297-1	E235	0,17	0,35	1,20	0,030	0,035	-	-	D≤219,1mm.±1%or±0,5mm.Whichever in the greater	± 12,5 % or ± 0,4 mm whichever is the greater			O.D.< 33,7 mm. Is not specified
	E275	0,21	0,35	1,40	0,030	0,035	-	-					
	E355	0,22	0,55	1,60	0,030	0,035	-	-					
	ST52,3	0,22	0,55	1,60	0,040	0,04	-	-		Wall thickness tolerance for O.D >219,1 mm. With T/O.D. ratio			
										≤0,025	>0,025≤0,050	> 0,050	
	E470	0,16÷0,22	0,10÷0,50	1,30÷1,70	0,030	0,035	V0,08/0,15 Al min 0,010			O.D.>219,1mm±1%	±20%	± 15%	