



STEELS TABLE

Mechanical and chemical properties of steel grades, as well as their possible delivery conditions, are according to norm of feedstock tubes subjected to chroming process.

Feedstock tubes are manufactured by cold drawing process, which provides needed dimensional precision, while different delivery conditions are foreseen to help reaching various levels of mechanical properties, according to specific needs.

Our standard product is in steel grade E355+SR, always ready-on-stock. Thanks to "stress relieved" delivery condition it offers a good compromise of the mechanical properties and the rigidity needed for obtainment of a shaft, reaching in the meanwhile impact properties of a minimum average value of 27 Joule at -20°C*.

CHEMICAL ANALYSIS

Reference norm	Steel grade	Chemical elements (% on mass)					
		C max.	Si max.	Mn max.	P max.	S max.	Al min.
EN 10305-1	E215	0.10	0.05	0.70	0.025	0.025	0.025
	E235	0.17	0.35	1.20	0.025	0.025	0.015
	E355	0.22	0.55	1.60	0.025	0.025	0.020
EN 10305-2	E155	0.11	0.35	0.70	0.025	0.025	0.015
	E195	0.15	0.35	0.70	0.025	0.025	0.015
	E235	0.17	0.35	1.20	0.025	0.025	0.015
	E275	0.21	0.35	1.40	0.025	0.025	0.015
	E355	0.22	0.55	1.60	0.025	0.025	0.020

MECHANICAL PROPERTIES

Reference norm	Steel grade	Delivery condition +C		Delivery condition +LC		Delivery condition +SR			Delivery condition +A		Delivery condition +N		
		Rm Mpa	All. %	Rm Mpa	All. %	ReH Mpa	Rm Mpa	All. %	Rm Mpa	All. %	ReH Mpa	Rm Mpa	All. %
EN 10305-1	E215	430	8	380	12	280	380	16	280	30	215	290-430	30
	E235	480	6	420	10	350	420	16	315	25	235	340-480	25
	E355	640	4	580	7	450 ¹	580	10	450	22	355	490-630	22
EN 10305-2	E155	400	6	350	10	245	350	18	260	28	155	270-410	28
	E195	420	6	370	10	260	370	18	290	28	195	300-440	28
	E235	490	6	440	10	325	440	14	315	25	235	340-480	25
	E275	560	5	510	8	375	510	12	390	22	275	410-550	22
	E355	640	4	590	6	435	590	10	450	22	355	490-630	22

¹ For tubes with outside diameter > 160 mm ReH≥420 Mpa.

* For specimen with longitudinal orientation and standard dimension 10x10x55 mm.

STEEL COMPARISON

Here below are summarized indicative comparisons between expired steels and norms designations respect to current ones.

EN norms		UNI norms	DIN norms	AFNOR norms
EN 10305-1	EN 10305-2			
E215		Fe280 UNI 7945	St 30Si DIN 2391	Tu37b NF A 49-310
E235		Fe360 UNI 7945	St 35 DIN 2391	-
E355		Fe490 UNI 7945	St 52 DIN 2391	Tu52b NF A 49-310
	E155	Fe280 UNI 7946	-	-
	E195	Fe320 UNI 7946	RSt 34.2 DIN 2393	-
	E235	Fe360 UNI 7946	RSt 37.2 DIN 2393	-
	E275	-	-	-
	E355	Fe490 UNI 7946	St 52.3 DIN 2393	-