

API SPECIFICATION FOR ERW CASING & TUBING STEEL PIPES

Chemical and Tensile Requirement (Extracted from API 5CT Specification , 8th Edition , 1st July 2005)

1) Chemical Composition

Application	Grade		Chemical Requirement (%) Max				
			C	Si	Mn	P	S
CASING & TUBING	API 5CT	H40	-	-	-	0.030	0.030
	API 5CT	J55	-	-	-	0.030	0.030
	API 5CT	K55	-	-	-	0.030	0.030

2) TENSILE REQUIREMENT

Application	Grade		Yield Strength				Tensile Strength	
			Min (PSI)	Max (PSI)	Min (Mpa)	Max (Mpa)	Min (PSI)	Min (Mpa)
CASING & TUBING	API 5CT	H40	40,000	80,000	276	552	60,000	414
	API 5CT	J55	55,000	80,000	379	552	75,000	517
	API 5CT	K55	55,000	80,000	379	552	95,000	655

3) OTHER REQUIREMENT

Application	Grade		Elongation (%)		Flattening Test	Charpy V-notch (Joules)	Heat Treatment
			Longitudinal	Transverse			
CASING & TUBING	API 5CT	H40	*e=k X $\frac{A^{0,2}}{U^{0,9}}$	*e=k X $\frac{A^{0,2}}{U^{0,9}}$	D/t ≥ 16, H = 0.5D D/t < 16, H = D (0.83 - 0.0206 D/t)	Not Required	Weld Seam Normalizing
	API 5CT	J55			D/t ≥ 16, H = 0.65D		
	API 5CT	K55			D/t 3.93 to 16, H = D (0.98 - 0.0206 D/t) D/t < 3.93, H = D (1.104 - 0.0518 D/t)		

* Note :-

e : minimum elongation in 2" (50.8mm)

k : is a constant 625 000 (1944)

A : Cross Sectional area of the test specimen in square inch

U : Specified minimum ultimate tensile strength in PSI

API 5CT DIMENSIONS , MASSES AND HYDROSTATIC TEST PRESSURE FOR CASING

Size	Outside Diameter (D)		Wall Thickness (t)		Weight (Wpe)		Drift Test (Dia)			Hydrostatic Test Pressure (PSI)			
	Inch	mm	Inch	mm	lb/ft	kg/m		Inch	mm	Std	H40	J55	K55
4-1/2	4.500	114.30	0.205	5.21	9.41	14.02	Std	3.965	100.70	Std	2900	4000	4000
			0.224	5.69	10.24	15.24	Std	3.927	99.74	Std	N.A	4400	4400
			0.250	6.35	11.36	16.91	Std	3.875	98.42	Std	N.A	4900	4900
5	5.000	127.00	0.220	5.59	11.24	16.74	Std	4.435	112.64	Std	N.A	3900	3900
			0.253	6.43	12.84	19.12	Std	4.369	110.96	Std	N.A	4500	4500
			0.296	7.52	14.88	22.16	Std	4.283	108.78	Std	N.A	5200	5200
5-1/2	5.500	139.70	0.244	6.20	13.71	20.41	Std	4.887	124.12	Std	2800	3900	3900
			0.275	6.98	15.36	22.85	Std	4.825	122.56	Std	N.A	4400	4400
			0.304	7.72	16.89	25.13	Std	4.767	121.08	Std	N.A	4900	4900
6-5/8	6.625	168.28	0.288	7.32	19.51	29.06	Std	5.924	150.46	Std	2800	3800	3800
			0.352	8.94	23.60	35.13	Std	5.796	147.22	Std	N.A	4700	4700
7	7.000	177.80	0.231	5.87	16.72	24.89	Std	6.413	162.88	Std	2100	N.A	N.A
			0.272	6.91	19.56	29.12	Std	6.331	160.80	Std	2500	3400	3400
			0.317	8.05	22.65	33.70	Std	6.241	158.52	Std	N.A	4000	4000
			0.362	9.19	25.69	38.21	Std	6.151	156.24	Std	N.A	4600	4600
7-5/8	7.625	193.68	0.300	7.62	23.49	34.96	Std	6.900	175.26	Std	2500	N.A	N.A
			0.328	8.33	25.59	38.08	Std	6.844	173.84	Std	N.A	3800	3800
8-5/8	8.625	219.08	0.264	6.71	23.60	35.14	Std	7.972	202.48	Std	N.A	2700	2700
			0.304	7.72	27.04	40.24	Std	7.892	200.46	Std	2300	N.A	N.A
			0.352	8.94	31.13	46.33	Std	7.796	198.02	Std	2600	3600	3600
			0.400	10.16	35.17	52.35	Std	7.700	195.58	Std	N.A	4100	4100
9-5/8	9.625	244.48	0.312	7.92	31.06	46.20	Std	8.845	224.66	Std	2100	N.A	N.A
			0.352	8.94	34.89	51.93	Std	8.765	222.63	Std	2300	3200	3200
			0.395	10.03	38.97	57.99	Std	8.679	220.45	Std	N.A	3600	3600
10-3/4	10.750	273.05	0.279	7.09	31.23	46.50	Std	10.036	254.91	Std	1200	N.A	N.A
			0.350	8.89	38.91	57.91	Std	9.894	251.31	Std	1700	N.A	N.A
			0.400	10.16	44.26	65.87	Std	9.794	248.77	Std	1600	2100	2100
			0.450	11.43	49.55	73.75	Std	9.694	246.23	Std	2100	2900	2900
			0.312	7.92	31.06	46.20	Std	9.875	250.82	Alt	N.A	2500	2500
			0.352	8.94	34.89	51.93	Std	9.875	250.82	Alt	N.A	3300	3300
11-3/4	11.750	298.45	0.333	8.46	40.64	62.56	Std	10.928	277.56	Std	N.A	2800	2800
			0.375	9.52	45.60	67.83	Std	10.844	275.44	Std	N.A	3700	3700
			0.435	11.05	52.62	78.32	Std	10.724	272.39	Std	1400	N.A	N.A
			0.489	12.42	58.87	87.61	Std	10.616	269.65	Std	1800	N.A	N.A
			0.333	8.46	40.64	62.56	Alt	11.000	279.40	Alt	N.A	2100	2100
			0.375	9.52	45.60	67.83	Alt	10.844	275.44	Alt	N.A	2800	2800
0.435	11.05	52.62	78.32	Alt	10.724	272.39	Alt	N.A	2400	2400			
0.489	12.42	58.87	87.61	Alt	10.616	269.65	Alt	N.A	3300	3300			
0.489	12.42	58.87	87.61	Alt	10.625	269.88	Alt	N.A	2700	2700			
0.489	12.42	58.87	87.61	Alt	10.625	269.88	Alt	N.A	3700	3700			

API 5CT DIMENSIONS , MASSES AND HYDROSTATIC TEST PRESSURE FOR CASING

Size	Outside Diameter (D)		Wall Thickness (t)		Weight (Wpe)		Drift Test (Dia)			Hydrostatic Test Pressure (PSI)				
	Inch	mm	Inch	mm	lb/ft	kg/m		Inch	mm		H40	J55	K55	
13-3/8	13.375	339.72	0.330	8.38	46.02	68.48	Std	12.559	318.99	Std	1200	N.A	N.A	
										Alt	1600	N.A	N.A	
			0.380	9.65	52.79	78.55	Std	12.459	316.45	Std	N.A	1900	1900	
										Alt	N.A	2500	2500	
			0.430	10.92	59.50	88.55	Std	12.359	313.91	Std	N.A	2100	2100	
										Alt	N.A	2800	2800	
			0.480	12.19	66.17	98.46	Std	12.259	311.37	Std	N.A	2400	2400	
										Alt	N.A	3200	3200	
16	16.000	406.40	0.375	9.53	62.64	96.73	Std	15.062	382.57	Std	1100	N.A	N.A	
										Alt	1500	N.A	N.A	
			0.438	11.13	72.86	108.49	Std	14.936	379.37	Std	N.A	1800	1800	
										Alt	N.A	2400	2400	
			0.495	12.57	82.05	122.09	Std	14.822	376.48	Std	N.A	2000	2000	
										Alt	N.A	2700	2700	
			0.656	16.66	107.60	160.13	Std	14.500	368.30	Std	N.A	2700	2700	
										Alt	N.A	3600	3600	

TOLERANCES :-

- 1) OD
 - a) $< 4.1/2"$: $\pm 0.79\text{mm}$ ($\pm 0.031"$)
 - b) $\geq 4.1/2"$: $-0.5 / + 1\% D$
- 2) Wall Thickness All Sizes : -12.5%
- 3) Mass Single Length: $-3.5 / +6.5\%$