

EN 10219-1 & 2 ERW Round Steel Pipes

Nominal dimensions and sectional properties of circular hollow sections

Outside Diameter (D)	Wall Thickness (T)		Mass per unit length		Pieces/bdls
	mm	inch	kg/m	lb/ft	
114.3	0.098	2.50	6.89	4.630	10
	0.118	3.00	8.23	5.531	10
	0.157	4.00	10.90	7.325	10
	0.197	5.00	13.50	9.073	10
	0.236	6.00	16.00	10.753	10
	0.248	6.30	16.80	11.290	10
	0.315	8.00	21.00	14.113	10
	0.394	10.00	25.72	17.285	10
139.7	0.118	3.00	10.10	6.788	7
	0.157	4.00	13.40	9.005	7
	0.197	5.00	16.60	11.156	7
	0.236	6.00	19.80	13.306	7
	0.248	6.30	20.70	13.911	7
	0.315	8.00	26.00	17.473	7
	0.394	10.00	32.00	21.505	7
	0.472	12.00	37.80	25.403	7
165.1	0.118	3.00	11.99	8.059	7
	0.157	4.00	15.89	10.679	7
	0.197	5.00	19.74	13.266	7
	0.236	6.00	23.54	15.820	7

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	mm	inch	kg/m	lb/ft	
165.1	0.248	6.30	24.67	16.580	7
	0.315	8.00	30.99	20.828	7
	0.394	10.00	38.25	25.704	7
	0.472	12.00	45.31	30.447	7
168.3	0.118	3.00	12.20	8.199	7
	0.157	4.00	16.20	10.887	7
	0.197	5.00	20.10	13.508	7
	0.236	6.00	24.00	16.129	7
	0.248	6.30	25.20	16.935	7
	0.315	8.00	31.60	21.237	7
	0.394	10.00	39.00	26.210	7
	0.472	12.00	46.25	31.082	7
177.8	0.157	4.00	17.10	11.492	4
	0.197	5.00	21.30	14.315	4
	0.236	6.00	25.40	17.070	4
	0.248	6.30	26.60	17.876	4
	0.315	8.00	33.50	22.513	4
	0.394	10.00	41.40	27.823	4
	0.472	12.00	49.10	32.997	4
193.7	0.157	4.00	18.70	12.567	4

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	mm	inch	kg/m	lb/ft	
193.7	0.197	5.00	23.30	15.659	4
	0.236	6.00	27.80	18.683	4
	0.248	6.30	29.10	19.556	4
	0.315	8.00	36.60	24.597	4
	0.394	10.00	45.30	30.444	4
	0.472	12.00	53.80	36.156	4
219.1	0.157	4.00	21.20	14.247	4
	0.197	5.00	26.40	17.742	4
	0.236	6.00	31.50	21.169	4
	0.248	6.30	33.10	22.245	4
	0.315	8.00	41.60	27.957	4
	0.394	10.00	51.60	34.677	4
	0.472	12.00	61.30	41.196	4
244.5	0.157	4.00	23.72	15.941	4
	0.197	5.00	29.50	19.825	4
	0.236	6.00	35.30	23.723	4
	0.248	6.30	37.00	24.866	4
	0.315	8.00	46.70	31.384	4
	0.394	10.00	57.80	38.844	4
	0.472	12.00	68.80	46.237	4

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Outside Diameter (D)	Wall Thickness (T)		Mass per unit length		Pieces/bdls
	mm	inch	mm	kg/m	
273.1	0.157	4.00	26.53	17.829	4
	0.197	5.00	33.00	22.177	4
	0.236	6.00	39.50	26.546	4
	0.248	6.30	41.40	27.823	4
	0.315	8.00	52.30	35.148	4
	0.394	10.00	64.90	43.616	4
	0.472	12.00	77.20	51.882	4
323.9	0.197	5.00	39.30	26.411	2
	0.236	6.00	47.00	31.586	2
	0.248	6.30	49.30	33.132	2
	0.315	8.00	62.30	41.868	2
	0.394	10.00	77.40	52.016	2
	0.472	12.00	92.30	62.030	2

TOLERANCES ON SHAPE AND MASS:

Characteristic	Circular hollow sections	Square and Rectangular hollow sections	
External dimensions (D, B & H)	± 1%, with a minimum of ±0.5 mm and a maximum of ± 10 mm	Side length (mm)	Tolerance
		H, B < 100	± 1% with a min. ± 0.5mm
		100 ≤ H, B ≤ 200	± 0.8%
		H, B > 200	± 0.6%

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Characteristic	Circular hollow sections	Square and Rectangular hollow sections
Thickness(T)	For $D \leq 406.4$ mm, $T \leq 5.0\text{mm} \pm 10\%$ $T > 5.0\text{mm} \pm 0.5\text{mm}$	$T \leq 5.0\text{mm} \pm 10\%$ $T > 5.0\text{mm} \pm 0.5\text{mm}$
Out of roundness(O)	2% for hollow sections having a diameter to thickness ratio not exceeding 100	---
Concavity/Convexity	---	Max. 0.8 % with a minimum of 0.5mm
Squareness of sides(\emptyset)	---	$90^\circ \pm 1^\circ$
External corner profile	---	$T \leq 6.0\text{mm}$: 1.6T to 2.4T, $6.0 < T \leq 10.0\text{mm}$: 2.0T to 3.0T, $T > 10.0\text{mm}$: 2.4T to 3.6T
Twist		2.0 mm plus 0.5mm/m length
Straightness	0.20% of total length and 3.0 mm over any 1m length	0.15% of total length and 3.0 mm over any 1m length
Mass per unit length	$\pm 6\%$ on individual delivered length	
Length	-0/+20mm	

CHEMICAL COMPOSITION:

Grade	Chemical composition % max.						
	C	Si	Mn	P	S	N	Carbon Equivalent(CEV)
S235JRH	0.17	--	1.40	0.040	0.040	0.009	0.35
S275J0H	0.20	--	1.50	0.035	0.035	0.009	0.40
S275J2H	0.20	--	1.50	0.030	0.030	--	0.40
S355J0H	0.22	0.55	1.60	0.035	0.035	0.009	0.45

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Grade	Chemical composition % max.						
	C	Si	Mn	P	S	N	Carbon Equivalent(CEV)
S355J2H	0.22	0.55	1.60	0.030	0.030	--	0.45

Carbon Equivalent : Max carbon equivalent shall be
 $CEV = C + (Mn/6) + (Cr + Mo + V)/5 + (Ni + Cu)/15$

MECHANICAL PROPERTIES:

Grade	Min. Yield Strength R_{eh} (MPa)	Tensile Strength R_m (MPa)		Minimum Elongation %	Min. Impact Energy(J)		
		T < 3 mm	T ≥ 3 mm		-20°C	0°C	20°C
S235JRH	235	360-510	360-510	24	--	--	27
S275J0H	275	430-580	410-560	20	--	27	--
S275J2H					27	--	--
S355J0H	355	510-680	470-630	20	--	27	--
S355J2H					27	--	--

* For section sizes $D/T < 15$ (round) and $(B+H) / 2T < 12.5$ (square & rectangular) the minimum elongation is reduced by 2

Workmanship : Free from overlap, lamination, tool/roll marks, pin holes, open seam & other harmful defect.

Packing : Hexagonal Type

Marking : Online stenciling as per the standard & customer requirement.