

General requirement of MS / BS EN 10210

Hot finished structural hollow sections of non-alloy and fine grain steels

Classification	Specification	Designation of Grade	Mechanical Properties				Chemical Composition, %										Impact Properties	
			Tensile Strength		Minimum Yield Strength	Minimum Elongation	C	Si	Mn	P	S	N	Al		CEV	Test Temp. °C	Minimum average absorbed energy J	
			t < 3mm	t ≥ 3mm	N/mm ²	%	Max	Max	Max	Max	Max	Max	Total	Soluble				
													min	min				
Hot Finished structural hollow sections of non-alloy and fine grain steels	BS EN 10210	S235JRH	360-510	360-510	235	26	0.170	-	1.40	0.040	0.040	0.009	0.020	0.015	0.37	20	27	
		S275J0H	430-580	410-560	275	23	0.200	-	1.50	0.035	0.035	0.009	0.020	0.015	0.41	0	27	
		S275J2H	430-580	410-560	275	23	0.200	-	1.50	0.030	0.030	-	0.020	0.015	0.41	-20	27	
		S355J0H	510-680	470-630	355	22	0.220	0.55	1.60	0.035	0.035	0.009	0.020	0.015	0.45	0	27	
		S355J2H	510-680	470-630	355	22	0.220	0.55	1.60	0.030	0.030	-	0.020	0.015	0.45	-20	27	

NOTES:

- In the event that the purchaser does not indicate a wish to implement any of these option at the time of enquiry and order, the hollow sections shall be supplied in accordance with the basic specification.
- The following options will only be carried-out on special request during order confirmation.

Clause 5.2 Option

- Product analysis
 - Cr, Cu, Mo, Ni, Ti and V cast analysis contents to be reported
 - Verification of impact properties for qualities J0 and JR
 - Specific inspection and testing for non-alloy qualities grades J0 and JR
 - Tensile test in corner region
 - Impact test in corner region
- The BS EN 10210 specifies technical delivery condition for hot finished circular, square or rectangular hollow sections and applies to hollow sections formed hot, with or without subsequent heat treatment, or formed cold with subsequent heat treatment to obtain equivalent metallurgical conditions to those obtained in the hot formed product.

Tolerance on shape, straightness and mass

Item	BS EN 10210	
	Hot finished structural hollow sections of non-alloy and fine grain steels	
	Hot Finished Circular Hollow Section (HFCHS)	Hot Finished Square Hollow Section (HFSHS) Hot Finished Rectangular Hollow Section (HFRHS)
Outside Diameter (OD)	± 1% with a minimum of ± 0.5mm and maximum of ± 10mm	± 1% with a minimum of ± 0.5mm
Thickness	-10 % + 6% (limited by mass tolerance)	
Length (exact length)	- 0mm, +15mm	
Out of Roundness	2% for hollow sections having a diameter to thickness ratio not exceeding 100, where the diameter to thickness exceeds 100, the tolerance on out-of-roundness shall be agreed	-
Concavity / Convexity	-	1%
Squareness of size	-	90° ± 1°
External corner profile	-	3T maximum at each corner
Twist	-	2mm plus 0.5mm/m length
Straightness	0.2% of total length and 3mm over any 1m length	
Mass	± 6% on individual delivered lengths	