

Cold Formed Welded Structural Hollow Section

EN 10219: 1997

Chemical composition

Cast analysis for material equal to or less than 40mm thick

Steel Designation	C max %	Si max %	Mn max %	P max %	S max %	Nb max %
S235JRH	0.17	-	1.40	0.045	0.045	0.009
S275JOH	0.20	-	1.50	0.040	0.040	0.009
S355JOH	0.22	0.55	1.60	0.040	0.040	0.009

Mechanical properties for material equal to or less than 16mm thick

Steel Designation	Yield min N/mm ²	Tensile N/mm ²	Elongation min %	Impact Properties	
	Nominal thickness mm	Nominal thickness mm	Nominal thickness mm	Test Temperature	Minimum average absorbed energy standard test piece
	≤16	≥3 <40	<40	C	J
S235JRH	235	340-470	24	20	27
S275JOH	275	410-560	20	0	27
S355JOH	355	490-630	20	0	27

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Tolerances

Outside Diameter Square and Rectangular Hollow Sections

Dimensions less than 100mm	+/- 1.0% with a minimum of +/- 0.5mm
Dimensions 100mm up to 200mm	+/- 0.8%
Dimensions over 200mm	+/- 0.6%
Wall thickness (excluding weld area)	+/-10% for specified thickness of 5mm or below and +/-0.5mm for thickness greater than 5mm
Concavity / Convexity	Max. 0.8% with a minimum of 0.5mm
Squareness of sides:	90 Degree +/- 1 Degree
External corner radius:	6mm thick or below: 1.6 to 2.4 x wall thickness
Straightness:	0.15% of total length.
Twist:	2mm + (0.5mm per mtr) max

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		Wall	2.00	2.34	2.50	2.64	3.00	3.25	3.50	4.00	5.00	6.00	8.00	10.00	12.00	12.50
		O.D (mm)														
Square 	20.00 x 20.00		●		●											
	25.00 x 25.00		●		●		●	●								
	30.00 x 30.00		●		●		●	●								
	35.00 x 35.00						●									
	38.10 x 38.10		●		●	●			●							
	40.00 x 40.00		●		●		●	●		●						
	45.00 x 45.00						●									
	50.00 x 50.00		●		●		●	●		●	●	●				
	50.80 x 50.80		●			●										
	60.00 x 60.00		●		●		●	●		●	●	●				
	70.00 x 70.00						●			●	●	●				
	76.20 x 76.20						●	●								
	80.00 x 80.00						●		●	●	●	●	●			
	90.00 x 90.00						●			●	●	●	●	●		
	100.00 x 100.00						●			●	●	●	●	●	●	
	110.00 x 110.00						●			●	●	●	●	●	●	
	120.00 x 120.00						●			●	●	●	●	●	●	●
	125.00 x 125.00						●			●	●	●	●	●	●	●
	130.00 x 130.00						●			●	●	●	●	●	●	●
	140.00 x 140.00						●			●	●	●	●	●	●	●
150.00 x 150.00						●			●	●	●	●	●	●	●	
160.00 x 160.00						●			●	●	●	●	●	●	●	
180.00 x 180.00						●			●	●	●	●	●	●	●	
200.00 x 200.00							●		●	●	●	●	●	●	●	
250.00 x 250.00									●	●	●	●	●	●	●	
Round 	33.70						●									
	38.00						●									
	42.40						●									
	45.00						●									
	48.30						●			●						
	50.00						●			●						
	55.00						●			●						
	57.00						●			●						
	60.30						●			●						
	63.00						●			●						
	70.00						●			●						
	76.10						●			●	●					
	80.00						●			●	●					
	83.00						●			●						
	88.90						●			●	●					
	90.00						●			●						
	95.00						●			●						
	100.00						●			●	●			●		
	101.60						●			●	●	●		●		
	108.00						●			●						
	110.00						●			●						
	113.00						●			●	●					
	114.30						●			●	●	●				
	120.00						●			●			●			
	125.00						●			●	●	●				
	127.00						●			●			●	●		
	133.00						●			●						
	139.70						●			●	●		●	●		
	152.00						●			●						
	159.00						●			●	●		●			
	164.00						●			●						
	168.30						●			●	●					
	177.80						●			●	●	●		●	●	●
193.70						●			●	●	●		●	●	●	
200.00						●			●	●	●		●	●	●	
219.10						●			●	●	●		●	●	●	
244.50							●		●	●	●		●	●	●	
273.00								●	●	●	●		●	●	●	
323.90									●	●	●		●	●	●	

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		Wall	2.00	2.34	2.50	2.64	3.00	3.25	3.50	4.00	5.00	6.00	8.00	10.00	12.00	12.50
Rectangular	O.D. (mm)															
	40.00 x 25.00						●									
	40.00 x 27.00						●									
	40.00 x 30.00						●									
	40.00 x 35.00						●									
	45.00 x 25.00						●									
	45.00 x 30.00						●									
	45.00 x 35.00						●			●						
	50.00 x 20.00						●									
	50.00 x 25.00		●		●		●									
	50.80 x 25.40					●		●								
	50.00 x 30.00		●				●	●			●					
	50.00 x 40.00						●			●						
	60.00 x 20.00						●									
	60.00 x 25.00						●									
	60.00 x 30.00						●									
	60.00 x 40.00						●			●	●	●				
	63.50 x 38.10		●	●					●							
	70.00 x 30.00						●			●	●	●				
	70.00 x 40.00						●			●	●	●				
	70.00 x 50.00						●			●	●	●				
	75.00 x 25.00						●									
	76.20 x 38.10								●							
	76.20 x 50.80		●													
	80.00 x 30.00						●				●					
	80.00 x 40.00						●				●	●				
	80.00 x 45.00						●				●					
	80.00 x 50.00						●				●	●				
	80.00 x 60.00						●				●	●				
	90.00 x 30.00						●				●					
	90.00 x 40.00						●				●					
	90.00 x 50.00						●				●		●			
	100.00 x 40.00						●				●	●				
	100.00 x 50.00						●				●	●				
	100.00 x 60.00						●				●	●		●		
	100.00 x 80.00						●				●	●		●		
	110.00 x 70.00						●				●					
	120.00 x 40.00						●				●	●		●		
	120.00 x 50.00						●				●	●		●		
	120.00 x 60.00						●				●	●		●		
	120.00 x 80.00						●				●	●		●	●	
	120.00 x 100.00						●				●	●		●	●	
	140.00 x 60.00						●				●	●		●	●	
	140.00 x 80.00						●				●	●		●	●	
	140.00 x 100.00						●				●	●		●	●	●
	150.00 x 50.00						●				●	●		●	●	
	150.00 x 100.00						●				●	●		●	●	●
	160.00 x 80.00						●				●	●		●	●	●
	160.00 x 90.00						●				●	●		●	●	●
	160.00 x 100.00						●				●	●		●	●	●
160.00 x 120.00						●				●	●		●	●	●	
180.00 x 80.00						●				●	●		●	●	●	
180.00 x 100.00						●				●	●		●	●	●	
180.00 x 120.00						●				●	●		●	●	●	
180.00 x 140.00						●				●	●		●	●	●	
200.00 x 80.00						●				●	●		●	●	●	
200.00 x 100.00						●				●	●		●	●	●	
200.00 x 120.00						●				●	●		●	●	●	
200.00 x 150.00						●				●	●		●	●	●	
200.00 x 160.00						●				●	●		●	●	●	
250.00 x 100.00						●				●	●		●	●	●	
250.00 x 150.00						●				●	●		●	●	●	
250.00 x 200.00						●				●	●		●	●	●	
260.00 x 180.00						●				●	●		●	●	●	
300.00 x 100.00						●				●	●		●	●	●	
300.00 x 150.00						●				●	●		●	●	●	
300.00 x 200.00						●				●	●		●	●	●	
300.00 x 220.00						●				●	●		●	●	●	