

## Hybox S355J2H

### High-grade, cold formed hollow sections

Hybox® is a range of cold formed, high-grade multi-purpose hollow sections to EN 10219. Hybox® S355J2H offers trusted formability and toughness in the most popular grade for a multitude of applications.

Hybox® S355J2H fully complies with the European Standard for cold formed structural hollow sections, EN10219 and is used in a wide range of construction and mechanical related applications.



Hybox® is batch-tested for your assurance and perfect for projects where you require guaranteed minimum strength and mechanical properties. It can be used in a wide range of structural and engineering applications, including all those where specific properties and compliance with design codes are required.

Hybox® is also available in higher strength grades, including S420MH, S460MH, S500MH, S600MH and S700MH as well as with improved manufacturing tolerances. Please enquire with your Tata Steel representative for details.

#### Inspection and testing

All Hybox® hollow sections are subject to specific inspection and testing and are supplied with an inspection certificate type 3.1 to EN 10204.

#### Tolerances

Dimensional tolerances are to EN 10219: Part 2.

#### CE Marking

Hybox® is manufactured and CE marked according to EN 10219-1&2:2006 grade S355J2H.

#### Sustainability

The essential properties of steel make it the sustainable choice for a wide range of applications. Steel is strong, durable, versatile, re-usable and most importantly, it is 100% recyclable. We take sustainability very seriously and as well as being a member of ResponsibleSteel™, we have BES 6001 certification and Environmental Product Declarations (EPD's), for all our hollow section manufacture.



#### Chemical composition and mechanical properties

Yield strength R <sub>eH</sub> min N/mm <sup>2</sup>	Tensile strength R <sub>m</sub> N/mm <sup>2</sup>		Elongation % min L <sub>0</sub> = 5,65 √S <sub>0</sub> specimen	Impact strength 10mm x 10mm		Chemical composition % max					Carbon equivalent (CEV) max
	T < 3	3mm ≤ T ≤ 40mm		°C	J	C	Si	Mn	P	S	
T ≤ 16mm	T < 3	3mm ≤ T ≤ 40mm	T ≤ 40mm	°C	J	C	Si	Mn	P	S	0.45
355	510-680	470-630	20*	-20	27	0.22	0.55	1.60	0.030	0.030	0.45

\* For section sizes D/T < 15 (circular) and (B+H)/2T < 12.5 (square/rectangle) min elongation is reduced by 2%

## Availability

Hybox® is available across the size ranges indicated in the below tables for circular, square and rectangular hollow sections. Intermediate sizes may be available – please ask. Minimum order quantities may apply – please contact your Tata Steel representative for details.

Weights given in these tables are standard mass per metre (kg/m) according to EN 10219.

Hybox® is supplied as standard in lengths of 6.0, 7.5, 10.0 and 12.0 metres, depending on the size and production mill. Special mill lengths from 6 metres up to 18m can be available by arrangement – please contact your Tata Steel representative for details.

### Circular hollow sections (CHS)

mm	2.5	3.0	3.5	4.0	5.0	6.0	6.3	8.0	10.0	12.5	16.0
33.7	1.9	2.27									
42.4	2.5	2.91	3.4								
48.3	2.8	3.35	3.9	4.37							
60.3	3.6	4.24	4.9	5.55							
76.1	4.54	5.41	6.3	7.11							
88.9		6.36	7.4	8.38	10.3	12.3	12.8				
114.3		8.23	9.56	10.9	13.5	16.0	16.8				
139.7			11.8	13.4	16.6	19.8	20.7	26.0	32.0		
168.3		12.2	14.2	16.2	20.1	24.0	25.2	31.6	39.0	48.0	
193.7				18.7	23.3	27.8	29.1	36.6	45.3	55.9	
219.1				21.2	26.4	31.5	33.1	41.6	51.6	63.7	80.1
244.5					29.5	35.3	37.0	46.7	57.8	71.5	90.2
273.0				26.5	33.0	39.5	41.4	52.3	64.9	80.3	101
323.9					39.3	47.0	49.3	62.3	77.4	96.0	121
355.6					43.2	51.7	54.3	68.6	85.2	106	134
406.4					49.5	59.2	62.2	78.6	97.8	121	154
457.0						66.7	70.0	88.6	110	137	174
508.0						74.3	77.9	98.6	123	153	194

### Square hollow sections (SHS)

mm	2.0	2.5	3.0	3.5	4.0	5.0	6.0	6.3	8.0	10.0	12.5
25/25	1.36	1.64	1.89								
30/30	1.68	2.03	2.36								
40/40	2.31	2.82	3.30	3.8	4.20						
50/50		3.60	4.25	4.9	5.45	6.56					
60/60			5.19	6.0	6.71	8.13	9.45				
70/70			6.13	7.06	7.97	9.70	11.3				
80/80			7.07	8.16	9.22	11.3	13.2				
90/90			8.01	9.26	10.5	12.8	15.1				
100/100			8.96	10.4	11.7	14.4	17.0	17.5	21.4		
120/120			10.8	12.6	14.2	17.5	20.7	21.4	26.4	31.8	
140/140					16.8	20.7	24.5		31.4	38.1	
150/150					18.0	22.3	26.4	27.4	33.9	41.3	
160/160					19.3	23.8	28.3		36.5	44.4	
180/180						27.0	32.1	33.3	41.5	50.7	60.5
200/200						30.1	35.8	37.2	46.5	57.0	68.3
250/250							45.2	47.1	59.1	72.7	88.0
300/300							54.7	57.0	71.6	88.4	108
350/350							64.1	66.9	84.2	104	127
400/400							73.5	76.8	96.7	120	147

### Rectangular hollow sections (RHS)

mm	2.0	2.5	3.0	3.5	4.0	5.0	6.0	6.3	8.0	10.0	12.5
50/25	2.15	2.62	3.07								
50/30	2.3	2.82	3.30	3.8	4.20						
60/40		3.60	4.25	4.9	5.45	6.56					
60/50			4.72		6.08						
70/40					6.08	7.34	8.5				
70/50			5.19		6.71	8.13	9.45				
80/30			4.72								
80/40			5.19	6.0	6.71	8.13					
80/50			5.66		7.34	8.91					
80/60			6.13		7.97	9.70	11.3				
90/50			6.13	7.1	7.97	9.70					
100/40			6.13		7.97	9.70					
100/50			6.60	7.6	8.59	10.3	12.3				
100/60			7.07	8.2	9.22	11.3	13.2				
100/80			8.01		10.5	12.8	15.1				
110/70					10.5	12.8					
120/40				7.07	9.22	11.3					
120/50		6.35	7.54		9.85	12.1					
120/60			8.01	9.3	10.5	12.8	15.1				
120/80			8.96	10.4	11.7	14.4	17.0	17.5	21.4		
140/50			8.48		11.1	13.6	16				
140/60			8.96		11.7	14.4	17				
140/80					13.0	16.0	18.9		23.9	28.7	
150/100			11.3	13.1	14.9	18.3	21.7	22.4	27.7	33.4	
160/80			10.8	12.6	14.2	17.5	20.7	21.4	26.4	31.8	
180/80									28.9		
180/100					16.8	20.7	24.5		31.4	38.1	
200/100					18.0	22.3	26.4	27.4	43.2	41.3	
200/120					19.3	23.8	28.3		36.5	44.4	
200/150						26.2	31.1		40.2	49.1	
250/100						26.2	31.1		40.2	49.1	
250/150						30.1	35.8	37.2	46.5	57.0	68.3
300/100							35.8		46.5	57.0	
300/150									52.8	64.8	
300/200							45.2	47.1	59.1	72.7	88.0
400/200							54.7	57.0	71.6	88.4	108
450/250							64.1	66.9	84.2	104	127
500/300							73.5	76.8	96.7	120	147

	Circular	Square/Rectangular	
Outside dimension (D B and H)	±1% with a min of ±0.50mm and a max of ±10mm	<b>Side length (mm)</b> H,B < 100 100 ≤ H,B ≤ 200 H,B > 200	<b>Tolerance</b> ±1% with a min of ±0.5mm ±0.8% ±0.6%
Thickness (T)	For D ≤ 406.4mm T ≤ 5mm ±10% T > 5mm ±0.50mm For D > 406.4mm ±10% with a max of ±2mm	T ≤ 5mm  T > 5mm	±10%  ±0.50mm
Out of roundness (O)	2% for D/T < 100, where D/T ≥ 100 out-of-roundness tolerance to be agreed	-	
Concavity/Convexity (independent – tolerance on outside dimensions)	-	Max 0.8% with a min of 0.5mm	
Squareness of side	-	90° ± 1°	
External corner profile – (radius need not be tangential to the sides) EN10219: Part 2 Table 3	-	T ≤ 6.0 6.0 < T ≤ 10.0 T > 10.0	1.6T to 2.4T 2.0T to 3.0T 2.4T to 3.6T
Twist (V)	-	2mm plus 0.5mm/m length	
Straightness	0.20% of total length & 3mm over any 1m length	0.15% of total length & 3mm over any 1m length	
Mass (M)	±6% on individual lengths	±6% on individual lengths	
Length	-0 + 50mm	-0 + 50mm	

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