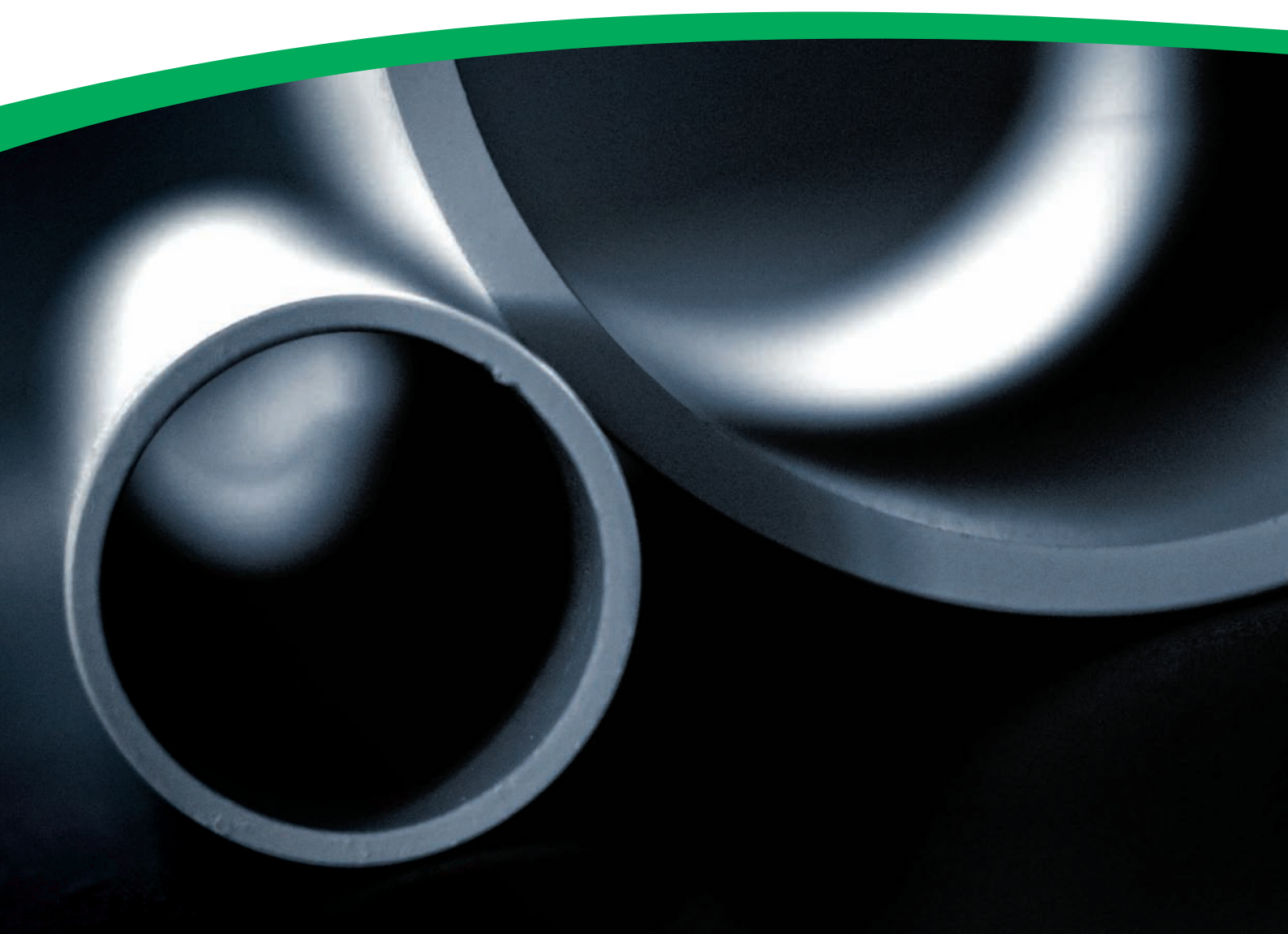


TATA STEEL



Strongbox® 235 product guide

Hollow sections





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STRONGBOX® 235

Strongbox® 235 is a cold formed, low grade hollow section manufactured to high quality standards.

Strongbox® 235 key features:

- Excellent quality, made with steel from a high quality production process
- Minimum strength of 235 MPa
- High levels of formability and, because the steel is fully-killed, excellent weldability
- Product subject to non-specific inspection and testing; with test report supplied
- Excellent consistent dimensional tolerances
- Excellent supply availability through approved stockholders
- Suitable for galvanising

TECHNICAL DATA

Cold formed hollow sections suitable for use in multi-purpose applications of a non-critical nature.

Strongbox® 235 hollow sections are supplied with a minimum yield strength of 235 N/mm² and fully comply with the European Standard for cold formed hollow sections EN10219 S235JRH.

Mechanical properties

Yield strength

R_{eH} min N/mm²

235

Strongbox® 235 is produced from fully-killed steel – critical to formability and weldability.

Testing

Strongbox® 235 hollow sections EN10219 S235JRH are subject to non-specific inspection and testing and are supplied with a test report type 2.2 to EN10204.

Designation

Strongbox® 235 hollow sections are designated by their product name, outside dimensions and thickness in millimetres.

Examples

Circular Hollow Section

Strongbox® 235 114.3 x 5.0

or **114.3 x 5.0 CHS**

Rectangular Hollow Section

Strongbox® 235 100 x 50 x 4.0

or **100 x 50 x 4.0 RHS**

Dimensional tolerances EN10219: Part 2

	Circular	Square/Rectangular	
		Side length (mm)	Tolerance
Outside dimension (D B and H)	±1% with a min of ±0.50mm and a max of ±10mm	H,B < 100 100 ≤ H,B ≤ 200 H,B > 200	±1% with a min of ±0.5mm ±0.8% ±0.6%
Thickness (T)	For D ≤ 406.4mm T ≤ 5mm ±10% T > 5mm ±0.50mm	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	1.6T to 2.4T 2.0T to 3.0T
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	–

Strongbox® 235 Square Hollow Sections – length and tolerances

Size mm	Thickness mm	Standard mill length m	Special mill lengths m*	Tolerance mm
25 x 25 uti 30 x 30	All	7.5	6.0 – 8.0	+ 50-0
40 x 40 uti 50 x 50 x 4.0mm	All	7.5	6.0 – 12.0	+ 50-0
50 x 50 x 5.0mm & 60 x 60 x 5.0mm	All	7.5	6.0 – 7.5	+ 50-0
60 x 60	3 & 4	7.5	6.0 – 12.0	+ 50-0
70 x 70	All	7.5	6.0 – 14.0	+ 50-0
80 x 80 uti 150 x 150	All	7.5	6.0 – 15.0	+ 50-0

(uti – up to and including)

Strongbox® 235 Rectangular Hollow Sections – length and tolerances

Size mm	Thickness mm	Standard mill length m	Special mill lengths m*	Tolerance mm
50 x 25	All	7.5	6.0 – 10.0	+ 50-0
50 x 30 uti 60 x 40	All	7.5	6.0 – 12.0	+ 50-0
80 x 40 uti 90 x 50	All	7.5	6.0 – 12.0	+ 50-0
100 x 50 uti 120 x 60	All	7.5	6.0 – 13.0	+ 50-0
120 x 80	All	7.5	6.0 – 15.0	+ 50-0
150 x 100	All	7.5	6.0 – 15.0	+ 50-0
160 x 80	All	7.5	6.0 – 14.0	+ 50-0
200 x 100	All	7.5	6.0 – 15.0	+ 50-0

(uti – up to and including)

Strongbox® 235 Circular Hollow Sections – length and tolerances

Outside diameter mm	Thickness mm	Standard mill length m	Special mill lengths m*	Tolerance mm
33.7	3	7.5	6.0 – 8.0	+ 50-0
42.4	3	7.5	6.0 – 10.0	+ 50-0
48.3 – 76.1	All	7.5	6.0 – 12.0	+ 50-0
88.9 – 168.3	All	7.5	6.0 – 15.0	+ 50-0

(uti – up to and including)

* Lengths available in 100mm increments

SIZE RANGE CHARTS

Strongbox® 235 Circular Hollow Sections

Outside Diameter (mm)	Thickness (mm)					
	2.5	3.0	3.5	4.0	5.0	6.0
33.7		S				
42.4		S				
48.3		S				
60.3		S				
76.1		S				
88.9						
114.3						
139.7						
168.3						

Strongbox® 235 Square Hollow Sections

Size (mm)	Thickness (mm)							
	2.0	2.5	3.0	3.5	4.0	5.0	6.0	8.0
25 x 25	S	S	S					
30 x 30		S	S					
40 x 40		S	S		S			
50 x 50		S	S		S	S		
60 x 60			S		S	S		
70 x 70			S			S		
80 x 80			S	S		S		
90 x 90								
100 x 100					S	S	S	
120 x 120						S		
150 x 150						S		

- Minimum order quantities may apply to some sizes.
- Other sizes can be manufactured – please consult us.

S Speedstock – 7.5m

Strongbox® 235 Rectangular Hollow Sections

Size (mm)	Thickness (mm)							
	2.0	2.5	3.0	3.5	4.0	5.0	6.0	8.0
50 x 25		S	S					
50 x 30			S					
60 x 40			S		S			
80 x 40			S		S			
90 x 50								
100 x 50			S		S	S		
100 x 60								
120 x 60								
120 x 80								
150 x 100								
160 x 80								
200 x 100								

- Minimum order quantities may apply to some sizes.
- Other sizes can be manufactured – please consult us.

S Speedstock – 7.5m

BUNDLE CONFIGURATION

Strongbox® 235 Circular Hollow Sections

Size mm		Thickness mm	Mass kg/m	Number of lengths per bundle		
				uti 7.5m	uti 10m	> 10m
33.7	x	2.50	1.92	102		
		3.00	2.27	102		
42.4	x	2.50	2.46	79	61	
		3.00	2.91	79	61	
48.3	x	2.50	2.82	61	44	
		3.00	3.35	61	44	
		4.00	4.37	61	44	
		5.00	5.34	61		
60.3	x	3.00	4.24	44	37	37
		4.00	5.55	44	37	37
		5.00	6.82	44		
76.1	x	2.50	4.54	37	24	24
		3.00	5.41	37	24	24
		4.00	7.11	37	24	24
		5.00	8.77	37		
88.9	x	3.00	6.36	24	24	24
		4.00	8.38	24	24	19
		5.00	10.3	24	19	13
114.3	x	3.00	8.23	19	13	13
		3.50	9.56	19	13	13
		5.00	13.5	19	13	13
		6.00	16.0	19	13	7
139.7	x	3.00	10.1	10	10	10
		3.50	11.8	10	10	10
		5.00	16.6	10	7	7
		6.00	19.8	10	7	7
168.3	x	4.00	16.2	16	14	10
		5.00	20.1	16	14	12
		6.00	24.0	15	11	9

Strongbox® 235 Square Hollow Sections

Size mm		Thickness mm	Mass kg/m	Number of lengths per bundle
				All lengths
25 x 25	x	2.00	1.36	144
	x	2.50	1.64	144
	x	3.00	1.89	144
30 x 30	x	2.00	1.68	100
	x	2.50	2.03	100
	x	3.00	2.36	100
40 x 40	x	2.00	2.31	72
	x	2.50	2.82	72
	x	3.00	3.30	64
	x	4.00	4.20	48
50 x 50	x	2.00	2.93	56
	x	2.50	3.60	56
	x	3.00	4.25	49
	x	4.00	5.45	35
	x	5.00	6.56	30
60 x 60	x	2.50	4.39	42
	x	3.00	5.19	36
	x	4.00	6.71	25
	x	5.00	8.13	20
70 x 70	x	3.00	6.13	30
	x	3.50	7.06	25
	x	5.00	9.70	20
80 x 80	x	3.00	7.07	30
	x	3.50	8.16	20
	x	4.00	9.22	20
	x	5.00	11.3	16
	x	6.00	13.2	12
90 x 90	x	3.00	8.01	20
	x	3.50	9.26	20
	x	5.00	12.8	16
	x	6.00	15.1	12
100 x 100	x	3.00	8.96	16
	x	4.00	11.7	16
	x	5.00	14.4	12
	x	6.00	17.0	9
	x	8.00	21.4	9
120 x 120	x	5.00	17.5	9
	x	6.00	20.7	9
	x	8.00	26.4	6
150 x 150	x	5.00	22.3	6
	x	6.00	26.4	6
	x	8.00	33.9	4

Strongbox® 235 Rectangular Hollow Sections

Size mm		Thickness mm	Mass kg/m	Number of lengths per bundle
				All lengths
50 x 25	x	2.00	2.15	72
	x	2.50	2.62	72
	x	3.00	3.07	72
50 x 30	x	2.00	2.31	72
	x	2.50	2.82	72
	x	3.00	3.30	72
60 x 40	x	2.00	2.93	54
	x	2.50	3.60	54
	x	3.00	4.25	48
	x	4.00	5.45	35
80 x 40	x	2.50	4.39	45
	x	3.00	5.19	40
	x	4.00	6.71	28
90 x 50	x	3.00	6.13	32
	x	3.50	7.06	28
	x	5.00	9.70	20
100 x 50	x	3.00	6.60	28
	x	4.00	8.59	24
	x	5.00	10.5	20
	x	6.00	12.3	15
100 x 60	x	3.00	7.07	28
	x	3.50	8.16	21
	x	5.00	11.3	18
	x	6.00	13.2	15
120 x 60	x	3.00	8.01	18
	x	3.50	9.26	18
	x	5.00	12.8	15
	x	6.00	15.1	12
120 x 80	x	5.00	14.4	12
	x	6.00	17.0	9
	x	8.00	21.4	8
150 x 100	x	5.00	18.3	9
	x	6.00	21.7	9
	x	8.00	27.7	6
160 x 80	x	5.00	17.5	10
	x	6.00	20.7	8
	x	8.00	26.4	6
200 x 100	x	5.00	22.3	6
	x	6.00	26.4	6
	x	8.00	33.9	4



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