

Strenx® Tube 700MLH

General Product Description

Strenx® Tube 700MLH is an HF-welded cold-formed structural hollow section made of hot-rolled high-strength steel with a minimum yield strength of 700 MPa. Its high strength combined with naturally stiff form of welded hollow section enables construction of stronger and lighter structures. Strenx® Tube 700MLH meets or exceeds the requirements to EN 10219-3 (2020) and it is CE marked according to EN 1090-2. Typical applications include load-bearing structures in the lifting, handling and transportation segments, especially in conditions that require extremely good toughness.

Strenx® Tube 700MLH is available in circular, square and rectangular shapes. Other shapes and sizes are available upon request.

The maximum length of the tubes is 12-18 meters, depending on the size. Longer or cut-to-length tubes are available upon request.

Hot dip galvanizing Strenx® Tube 700MLH hollow sections may lead to cracking. Please consult SSAB Tech Support prior galvanization.

Dimension Range

Strenx® Tube 700MLH is available at circular, square and rectangular shapes.

Shapes	Dimensions
Circular (mm)	48.3 - 323.9
Square (mm)	40x40 - 300x300
Rectangular (mm)	50x30 - 400x200
Wall thickness (mm)	2.5 - 10.0
Mill length (mm)	6000 - 12000 / 18000

Other shapes and sizes are available upon request.

Circular Dimensions

Outer diameter (mm)	2.5 mm (kg/m)	3.0 mm (kg/m)	4.0 mm (kg/m)	5.0 mm (kg/m)	6.0 mm (kg/m)	8.0 mm (kg/m)	10.0 mm (kg/m)
48.3	2.82	3.35	—	—	—	—	—
60.3	3.56	4.24	5.55	—	—	—	—
76.1	—	5.41	7.11	8.77	—	—	—
88.9	—	6.36	8.38	10.4	—	—	—
101.6	—	7.29	9.63	11.9	—	—	—
108.0	—	7.77	10.3	12.7	—	—	—
114.3	—	8.23	10.9	13.5	—	—	—
121.0	—	—	11.5	14.3	—	—	—
127.0	—	9.17	12.1	15.0	—	—	—
139.7	—	—	13.4	16.6	19.8	26.0	32.0
168.3	—	—	16.2	20.1	24.0	31.6	39.0
219.1	—	—	—	26.4	31.5	41.7	51.6
273.0	—	—	—	33.1	39.5	52.3	64.9
323.9	—	—	—	—	47.0	62.3	77.4

Square Dimensions

Height x Width (mm)	2.5 mm (kg/m)	3.0 mm (kg/m)	4.0 mm (kg/m)	5.0 mm (kg/m)	6.0 mm (kg/m)	8.0 mm (kg/m)	10.0 mm (kg/m)
40 x 40	2.82	3.41	4.20	—	—	—	—
50 x 50	3.60	4.38	5.45	—	—	—	—
60 x 60	4.39	5.35	6.71	8.13	—	—	—
70 x 70	—	6.33	7.97	9.70	—	—	—
80 x 80	—	7.30	9.22	11.3	—	—	—
90 x 90	—	8.27	10.5	12.8	—	—	—
100 x 100	—	9.25	11.7	14.4	17.0	21.4	—
120 x 120	—	—	14.3	17.6	20.8	26.4	31.8
140 x 140	—	—	16.8	20.7	24.5	31.4	38.1
150 x 150	—	—	18.0	22.3	26.4	34.0	41.3
160 x 160	—	—	19.3	23.8	28.3	36.5	44.4
180 x 180	—	—	—	27.0	32.1	41.5	50.7
200 x 200	—	—	—	30.1	35.8	46.5	57.0
220 x 220	—	—	—	—	39.6	51.5	63.2
250 x 250	—	—	—	—	45.2	59.1	72.7
300 x 300	—	—	—	—	—	71.6	88.4

Rectangular Dimensions

Height x Width (mm)	2.5 mm (kg/m)	3.0 mm (kg/m)	4.0 mm (kg/m)	5.0 mm (kg/m)	6.0 mm (kg/m)	8.0 mm (kg/m)	10.0 mm (kg/m)
50 x 30	2.82	3.41	4.20	—	—	—	—
60 x 40	3.60	4.38	5.45	—	—	—	—
80 x 40	4.39	5.35	6.71	8.13	—	—	—
80 x 60	—	6.33	7.97	9.70	—	—	—
100 x 50	—	6.81	8.59	10.50	—	—	—
100 x 60	—	7.30	9.22	11.30	—	—	—
100 x 80	—	8.27	10.5	12.8	—	—	—
120 x 60	—	8.27	10.5	12.8	—	—	—
120 x 80	—	9.25	11.7	14.4	17.0	21.4	—
150 x 100	—	—	14.9	18.3	21.7	27.7	33.4
160 x 80	—	—	14.3	17.6	20.8	26.4	31.8
180 x 100	—	—	16.8	20.7	24.5	31.4	38.1
200 x 100	—	—	18.0	22.3	26.4	34.0	41.3
200 x 120	—	—	19.3	23.8	28.3	36.5	44.4
250 x 100	—	—	—	26.2	31.11	40.23	—
250 x 150	—	—	—	30.1	35.8	46.5	57.0
260 x 180	—	—	—	—	39.6	51.5	63.2
300 x 200	—	—	—	—	45.2	59.1	72.7
400 x 200	—	—	—	—	—	71.6	—

Mechanical Properties

	Yield strength $R_{p0.2}$ (min MPa)	Tensile strength R_m (MPa)	Elongation A_5 ¹⁾ (min %)
Strenx® Tube 700MLH	700	750 - 950	10

¹⁾ The hollow sections with $D/T < 15$ (round) or $(B + H)/2T < 12,5$ (rectangular and square), the minimum value of elongation is reduced by 2.

The mechanical properties for rectangular hollow sections are tested by SSAB on the longer side of the cross section.

Mechanical properties meet the requirements of EN 10219-3 (2020).

Impact Properties

Product	Min impact energy for transversal testing, Charpy V 10x10 mm test specimen ¹⁾
Strenx® Tube 700MLH	27 J / -50 °C

¹⁾ Impact testing according to EN ISO 148-1 is performed on thicknesses ≥ 6 mm. The specified minimum value corresponds to a full-size specimen.

Chemical Composition (ladle analysis)

C (max %)	Si (max %)	Mn (max %)	P (max %)	S (max %)	Nb (max %)	V (max %)	Ti (max %)
0.12	0.25	2.10	0.020	0.010	0.090 ¹⁾	0.20 ¹⁾	0.15 ¹⁾

¹⁾ Sum of Nb, V and Ti = max 0.22%

Chemical composition meets or exceeds the requirements of EN 10219-3 (2020).

In addition, boron (B), molybdenum (Mo), nickel (Ni) or copper (Cu) may be used as alloying elements either singly or in combination.

The steel is grain refined.

Carbon Equivalent CET(CEV)

Wall Thickness (mm)	2.5 - 10.0
Typ CET(CEV)	0.24 (0.38)

$$CET = C + \frac{Mn + Mo}{10} + \frac{Cr + Cu}{20} + \frac{Ni}{40} \quad CEV = C + \frac{Mn}{6} + \frac{Cr + Mo + V}{5} + \frac{Cu + Ni}{15}$$

Tolerance Circular

Characteristic	Circular hollow sections Tolerances meet or exceed the requirements of EN 10219
Outside diameter (D) ¹⁾	$\pm 1\%$, with a minimum of ± 0.5 mm and a maximum of ± 10 mm
Out-of-roundness	2%
Thickness (T)	-5%/+10%, with a minimum of ± 0.2 mm and maximum ± 0.5 mm.
Straightness	0.20% of total length and 3 mm over any 1 m length
Mass per unit length	Individual tube: $\pm 6\%$
Mill length	0/+50 mm, $6000 \leq L \leq 12000 - 18000$ mm (standard lengths 6000 & 12000 mm)
Exact length	Agreed at the time of enquiry and order

¹⁾ All external dimensions are measured with a minimum distance from the end of the section. The distance must be a minimum of 100 mm.

Tolerance Square

Characteristic	Square hollow sections Tolerances meet or exceed the requirements of EN 10219
Outside dimensions (B, H) ¹⁾	When B, H < 100 mm $\pm 1\%$ minimum ± 0.5 mm When $100 \text{ mm} \leq B, H \leq 200 \text{ mm}$: $\pm 0.8\%$ When B, H > 200 mm: $\pm 0.6\%$
Thickness (T)	-5%/+10%, with a minimum of ± 0.2 mm and maximum ± 0.5 mm.
External corner profile	When $T \leq 6 \text{ mm}$: $1.6 \times T - 2.4 \times T$ When $6 \text{ mm} < T \leq 10 \text{ mm}$: $2.0 \times T - 3.0 \times T$
Squareness of side	$90^\circ \pm 1^\circ$
Concavity/convexity	0.8%, with a minimum of 0.5 mm
Twist	2 mm + 0.5 mm/m
Straightness	0.15% of total length and 3 mm over any 1 m length
Mass per unit length	Individual tube: $\pm 6\%$
Mill length	0/+50 mm, $6000 \leq L \leq 12000 - 18000$ mm (standard lengths 6000 & 12000 mm)
Exact length	Agreed at the time of enquiry and order

¹⁾ All external dimensions are measured with a minimum distance from the end of the section. The distance must be a minimum of 100 mm.

Tolerance Rectangular

Characteristic	Rectangular hollow sections Tolerances meet or exceed the requirements of EN 10219
Outside dimensions (B, H) ¹⁾	When B, H < 100 mm $\pm 1\%$ minimum ± 0.5 mm When $100 \text{ mm} \leq B, H \leq 200 \text{ mm}$: $\pm 0.8\%$ When B, H > 200 mm: $\pm 0.6\%$
Thickness (T)	-5%/+10%, with a minimum of ± 0.2 mm and maximum ± 0.5 mm.
External corner profile	When $T \leq 6 \text{ mm}$: $1.6 \times T - 2.4 \times T$ When $6 \text{ mm} < T \leq 10 \text{ mm}$: $2.0 \times T - 3.0 \times T$
Squareness of side	$90^\circ \pm 1^\circ$
Concavity/convexity	0.8%, with a minimum of 0.5 mm
Twist	2 mm + 0.5 mm/m
Straightness	0.15% of total length and 3 mm over any 1 m length
Mass per unit length	Individual tube: $\pm 6\%$
Mill length	0/+50 mm, $6000 \leq L \leq 12000 - 18000$ mm (standard lengths 6000 & 12000 mm)
Exact length	Agreed at the time of enquiry and order

¹⁾ All external dimensions are measured with a minimum distance from the end of the section. The distance must be a minimum of 100 mm.

Delivery Conditions

The tubes are cold formed and high frequency welded from thermomechanically rolled steel.

Fabrication and Other Recommendations

Welding, bending and machining.

Strenx® Tube 700 MLH has good weldability, including corner region, and it is suitable for thermal cutting. All the common welding methods are suitable with matching or undermatching consumables.

Strenx® Tubes can also be sawed and machined with regular tools. Bending of the tubes is also possible, typically at least 5xD (five times the diameter) bending radius can be achieved with regular draw bending tooling. Hot dip galvanizing Strenx® Tube 700 MLH hollow sections may lead to cracking. Please consult Tech Support prior galvanization.

For information concerning fabrication, see SSAB's brochures on www.ssab.com or consult Tech Support.

Appropriate health and safety precautions must be taken when bending, welding, cutting, grinding or otherwise working on the products.

Contact Information

www.ssab.com/contact