



Stainless steel hollow sections – technical information

Austenitic (1.4301, 1.4307, 1.4541, 1.4401, 1.4404, 1.4571)

Durability with excellent properties:

- **Strength, formability and toughness**
- **Good corrosion resistance**
- **High temperature performance**
- **Elegance and hygiene**

PHYSICAL PROPERTIES, TYPICAL VALUES, 20 °C

| | | |
|----------------------------------|----------------------|--|
| Density | kg/dm ³ | 7,9 for grades 1.4301, 1.4307 and 1.4541 8,0 for grades 1.4401, 1.4404 and 1.4571 |
| Modulus of Elasticity | GPa | 200 |
| Thermal Conductivity | W/mK | 15 |
| Coefficient of Thermal Expansion | 10 ⁻⁶ / K | 16,5 for grade 1.4571, 16,0 for other grades |
| Electrical Resistivity | μΩm | 0,73 for grades 1.4301, 1.4307 and 1.4541 0,75 for grades 1.4401, 1.4404 and 1.4571 |

DELIVERY CONDITION

| | |
|----------------|--|
| Forming | Cold formed (roll formed) |
| Welding | TIG/Plasma or Laser |
| Weld condition | Grinded, when tube dimension ≤ 100x100x6 mm Brushed, when tube dimension > 100x100x6 mm |

SURFACE CONDITION

| | |
|----------|--|
| Standard | Brushed, when tube dimension ≤ 100x100x6 mm As welded, when tube dimension > 100x100x6 mm |
| Optional | Polished, pickled, glass beat blasting |

PROCESSING SERVICE

| | |
|---------------------|---|
| Length | 4-18 m, standard length 6 m, tolerance 0/+20 mm |
| Precise cutting | 20-9000 mm, tolerance ± 1 mm |
| Angle cutting | 30-90°, tolerance ± 1° |
| Laser cutting | Perforating |
| Tailored components | Components ready for installation |

CORROSION RESISTANCE COMPARISON OF STALATUBE STEEL GRADES (PRE, Cr% + 3,3Mo% + 16N%)

| | |
|----------------------------------|-----------|
| 1.4003 | 11 |
| 1.4301, 1.4307 and 1.4541 | 19 |
| 1.4401, 1.4404 and 1.4571 | 23 |
| 1.4162 | 26 |

TUBE MARKING

| | |
|-------------------------|---|
| Ink-jet marking on tube | Stalatube Oy made in Finland, steel grade, dimensions, coil number, production date, welding operator |
| Bundle tag | Dimensions, steel grade, surface, bundle size (pcs), length (m), bundle weight (kg), batch id, coil No., bundle No. |

RECTANGULAR AUSTENITIC HOLLOW SECTIONS

| Outside dimensions H x B [mm] | Weight [kg/m] | | | | | | | | | |
|----------------------------------|---------------|-------|-------|--------|--------|--------|--------|--------|--------|---------|
| | 1,2 | 1,5 | 2,0 | 3,0 | 4,0 | 5,0 | 6,0 | 8,0 | 10,0 | 12,0 |
| 30 x 20 | 0,921 | 1,140 | 1,495 | 2,167 | | | | | | |
| 30 x 25 | 1,017 | 1,259 | 1,654 | 2,406 | | | | | | |
| 35 x 25 | 1,112 | 1,379 | 1,814 | 2,645 | | | | | | |
| 40 x 10 | 0,921 | 1,140 | 1,495 | | | | | | | |
| 40 x 20 | 1,112 | 1,379 | 1,814 | 2,645 | | | | | | |
| 40 x 25 | 1,208 | 1,499 | 1,973 | 2,885 | | | | | | |
| 40 x 30 | 1,304 | 1,618 | 2,133 | 3,124 | | | | | | |
| 50 x 10 | 1,112 | 1,379 | 1,814 | | | | | | | |
| 50 x 20 | 1,304 | 1,618 | 2,133 | 3,124 | | | | | | |
| 50 x 25 | 1,399 | 1,738 | 2,292 | 3,363 | | | | | | |
| 50 x 30 | 1,495 | 1,858 | 2,452 | 3,602 | | | | | | |
| 50 x 40 | | 2,097 | 2,771 | 4,081 | | | | | | |
| 60 x 10 | | 1,618 | 2,133 | | | | | | | |
| 60 x 20 | | 1,858 | 2,452 | 3,602 | | | | | | |
| 60 x 30 | | 2,097 | 2,771 | 4,081 | | | | | | |
| 60 x 40 | | 2,336 | 3,090 | 4,559 | 5,979 | | | | | |
| 70 x 20 | | 2,097 | 2,771 | 4,081 | | | | | | |
| 70 x 40 | | 2,575 | 3,409 | 5,038 | 6,617 | | | | | |
| 70 x 50 | | 2,814 | 3,728 | 5,516 | 7,255 | | | | | |
| 80 x 10 | | 2,097 | 2,771 | | | | | | | |
| 80 x 20 | | 2,336 | 3,090 | 4,559 | | | | | | |
| 80 x 30 | | 2,575 | 3,409 | 5,038 | | | | | | |
| 80 x 40 | | 2,814 | 3,728 | 5,516 | 7,255 | 8,943 | | | | |
| 80 x 50 | | | 4,047 | 5,995 | 7,893 | 9,741 | | | | |
| 80 x 60 | | | 4,366 | 6,473 | 8,531 | | | | | |
| 100 x 20 | | 2,814 | 3,728 | 5,516 | | | | | | |
| 100 x 30 | | 3,054 | 4,047 | 5,995 | | | | | | |
| 100 x 40 | | | 4,366 | 6,473 | 8,531 | 10,538 | | | | |
| 100 x 50 | | | 4,685 | 6,952 | 9,169 | 11,336 | 13,453 | | | |
| 100 x 60 | | | 5,004 | 7,430 | 9,807 | 12,133 | 14,410 | | | |
| 100 x 80 | | | 5,641 | 8,387 | 11,083 | 13,728 | 16,324 | | | |
| 120 x 40 | | | 5,004 | 7,430 | 9,807 | | | | | |
| 120 x 60 | | | 5,641 | 8,387 | 11,083 | 13,728 | 16,324 | | | |
| 120 x 80 | | | 6,279 | 9,344 | 12,359 | 15,323 | 18,237 | | | |
| 120 x 100 | | | | 10,301 | 13,635 | 16,918 | 20,151 | | | |
| 140 x 80 | | | | 10,301 | 13,635 | 16,918 | 20,151 | | | |
| 150 x 50 | | | | 9,344 | 12,359 | 15,323 | 18,237 | | | |
| 150 x 100 | | | | 11,736 | 15,548 | 19,310 | 23,022 | 30,296 | 37,369 | |
| 160 x 80 | | | | 11,258 | 14,910 | 18,513 | 22,065 | | | |
| 200 x 100 | | | | 14,129 | 18,738 | 23,298 | 27,807 | 36,675 | 45,343 | |
| 250 x 100 | | | | 16,521 | 21,928 | 27,285 | 32,592 | 43,055 | 53,318 | |
| 250 x 150 | | | | 18,913 | 25,118 | 31,272 | 37,376 | 49,434 | 61,292 | |
| 300 x 100 | | | | 18,913 | 25,118 | 31,272 | 37,376 | 49,434 | 61,292 | |
| 300 x 200 | | | | | | 39,247 | 46,946 | 62,194 | 77,241 | 92,089 |
| 400 x 200 | | | | | | 47,221 | 56,515 | 74,953 | 93,190 | 111,227 |

SQUARE AUSTENITIC HOLLOW SECTIONS

| Outside dimensions H x B [mm] | Weight [kg/m] | | | | | | | | | |
|----------------------------------|---------------|-------|-------|--------|--------|--------|--------|--------|--------|---------|
| | 1,2 | 1,5 | 2,0 | 3,0 | 4,0 | 5,0 | 6,0 | 8,0 | 10,0 | 12,0 |
| 25 x 25 | 0,921 | 1,140 | 1,495 | 2,167 | | | | | | |
| 30 x 30 | 1,112 | 1,379 | 1,814 | 2,645 | | | | | | |
| 32 x 32 | 1,189 | 1,475 | 1,941 | 2,837 | | | | | | |
| 35 x 35 | 1,304 | 1,618 | 2,133 | 3,124 | | | | | | |
| 38 x 38 | 1,418 | 1,762 | 2,324 | 3,411 | | | | | | |
| 40 x 40 | 1,495 | 1,858 | 2,452 | 3,602 | 4,703 | | | | | |
| 45 x 45 | | 2,097 | 2,771 | 4,081 | 5,341 | | | | | |
| 50 x 50 | | 2,336 | 3,090 | 4,559 | 5,979 | 7,349 | 8,668 | | | |
| 60 x 60 | | 2,814 | 3,728 | 5,516 | 7,255 | 8,943 | 10,582 | | | |
| 70 x 70 | | | 4,366 | 6,473 | 8,531 | 10,538 | 12,496 | | | |
| 75 x 75 | | | 4,685 | 6,952 | 9,169 | 11,336 | 13,453 | | | |
| 80 x 80 | | | 5,004 | 7,430 | 9,807 | 12,133 | 14,410 | | | |
| 90 x 90 | | | 5,641 | 8,387 | 11,083 | 13,728 | 16,324 | | | |
| 100 x 100 | | | 6,279 | 9,344 | 12,359 | 15,323 | 18,237 | 23,916 | 29,394 | |
| 120 x 120 | | | | 11,258 | 14,910 | 18,513 | 22,065 | 29,020 | 35,774 | |
| 140 x 140 | | | | 13,172 | 17,462 | 21,703 | 25,893 | 34,123 | 42,153 | |
| 150 x 150 | | | | 14,129 | 18,738 | 23,298 | 27,807 | 36,675 | 45,343 | 53,811 |
| 200 x 200 | | | | 18,913 | 25,118 | 31,272 | 37,376 | 49,434 | 61,292 | 72,950 |
| 220 x 220 | | | | | 27,670 | 34,462 | 41,204 | 54,538 | 67,672 | 80,605 |
| 250 x 250 | | | | | | 39,247 | 46,946 | 62,194 | 77,241 | 92,089 |
| 300 x 300 | | | | | | 47,221 | 56,515 | 74,953 | 93,190 | 111,227 |

TOLERANCES (EN 10219-2)

Also other dimensions may be possible on request.

| Characteristic | Tolerance |
|--|---|
| Outside dimensions, B and H | $\pm 1\%$, with a minimum of $\pm 0,5$ mm, when $B, H < 100$ mm $\pm 0,8\%$, when $100 \text{ mm} \leq B, H \leq 200$ mm $\pm 0,6\%$, when $B, H > 200$ mm |
| Concavity/convexity | Max. $0,8\%$ with a minimum of $0,5$ mm |
| Wall thickness, T | $\pm 10\%$, when $T \leq 5$ mm $\pm 0,5$ mm, when $T > 5$ mm |
| Squareness of side | $90^\circ \pm 1^\circ$ |
| External corner profile, C1, C2 or R ¹⁾ | Maximum $1,5T$, when $T \leq 3$ mm $1,6T - 2,4T$, when $T > 3$ mm |
| Length, L ²⁾ | $0 / + 20$ mm |
| Straightness | $0,15\%$ of total length |
| Twist | $2 \text{ mm} + 0,5 \text{ mm/m}$ |

¹⁾ Exception from standard ²⁾ Better than standard tolerance $0 / +50$ mm

CHEMICAL COMPOSITION

(FULFILS THE STANDARDS ASTM A 554-03 AND EN 10088-2)

| EN | AISI | C %, max | Mn %, max | P %, max | Ni % | Cr % | Mo % | Ti % |
|--------|---------------------|----------|-----------|----------|-----------|-----------|---------|--------------|
| 1.4301 | 304 | 0,07 | 2,00 | 0,040 | 8,0-10,5 | 18,0-19,5 | | |
| 1.4307 | 304L | 0,03 | 2,00 | 0,040 | 8,0-10,5 | 18,0-19,5 | | |
| 1.4541 | 321 | 0,08 | 2,00 | 0,040 | 9,0-12,0 | 17,0-19,0 | | 5 x(C+N)-0,7 |
| 1.4401 | 316 | 0,07 | 2,00 | 0,040 | 10,0-13,0 | 16,5-18,0 | 2,0-2,5 | |
| 1.4404 | 316L | 0,03 | 2,00 | 0,040 | 10,0-13,0 | 16,5-18,0 | 2,0-2,5 | |
| 1.4571 | 316Ti ¹⁾ | 0,08 | 2,00 | 0,045 | 10,0-13,5 | 16,5-18,0 | 2,0-2,5 | 5 x(C+N)-0,7 |

For all grades S max 0,015, Si max 0,75 and N max 0,10 ¹⁾ Fulfills the standards A240-06b and EN 10088-2

MECHANICAL PROPERTIES

STANDARD STRENGTH CLASS MEASURED FROM COIL
(EN 10088-2)

| EN | AISI | Yield strength $R_{p0.2}$ min N/mm ² | Tensile strength R_m min N/mm ² | Elongation $A^{1)}$ min % |
|--------|-------|---|--|---------------------------------|
| 1.4301 | 304 | 230 | 540 | 45 |
| 1.4307 | 304L | 220 | 520 | 45 |
| 1.4541 | 321 | 220 | 520 | 40 |
| 1.4401 | 316 | 240 | 530 | 40 |
| 1.4404 | 316L | 240 | 530 | 40 |
| 1.4571 | 316Ti | 240 | 540 | 40 |

HIGH STRENGTH CLASS (STALA 350)

UP TO THICKNESS 6 mm

MEASURED FROM TUBE IN LONGITUDINAL DIRECTION

| | | | |
|---------------------|-----|-----|----|
| Same for all grades | 350 | 600 | 30 |
|---------------------|-----|-----|----|

¹⁾ A80 when thickness $T < 3$ mm, A5 when thickness $T \geq 3$ mm

We reserve the right to changes. Stalatube takes no responsibility for any errors in numerical information that might appear in this brochure.

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