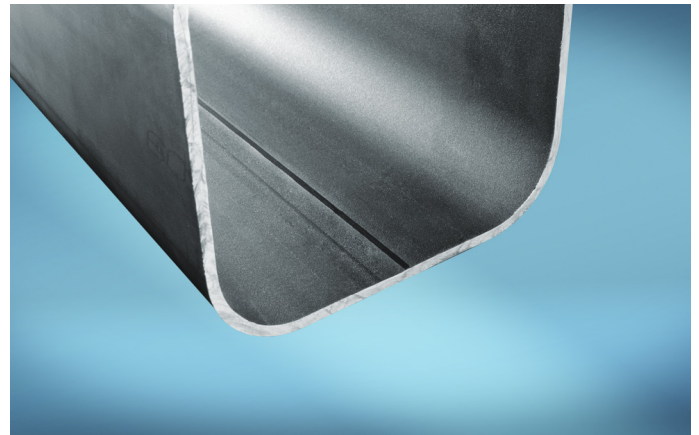


Forcon® TT

The Tailored Tube

Our Forcon® tubes are reliable, consistent and superior to many other cold formed structural hollow sections on the market. However, we understand that sometimes you need additional features. That's why we offer a range of premium options in addition to our standard product under the brand name Forcon® TT.

Forcon® TT is the tailored tube to meet your needs. With over a century of expertise in tube manufacturing and a deep commitment to customer collaboration and research, we have the solutions for your specific requirements.



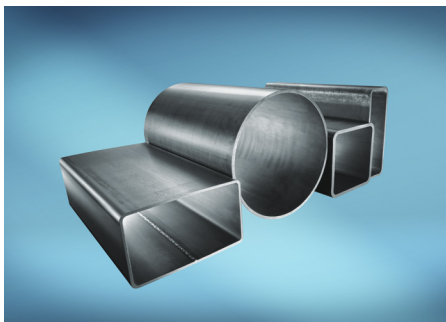
Forcon® TT is a customised cold formed welded structural hollow section. For these tailored tubes you can choose from several premium options - for example tighter dimensional tolerances, a certain position of the weld seam or a scarfed internal weld bead, a superior surface finish or special bundling. This delivers multiple benefits, particularly for automated manufacturing processes. With a minimum yield strength of 235 up to 700 MPa, Forcon® TT is suitable for many applications including agricultural machinery, trailers and cranes.

Forcon® TT enables you to:

- reduce your rejection rate and rework
- save time in tube sorting and machine setting
- save time and money on surface preparation
- refrain from shot blasting
- speed up manufacturing and increase output
- reduce material waste
- receive material and process more efficiently
- enhance your brand and quality
- gain additional security and verification

Tailored technical support

Forcon® TT is backed by technical support tailored to your needs. With knowledge and expertise in steel products, customer processes and applications, our Customer Technical Services team is available at short notice to help you to optimise manufacturing and end product performance. Contact us for more information and to discuss how Forcon® TT could help to improve your efficiency and quality.



Forcon® TT product range

Steel grades:	Range from S235JRH up to S700MH
Shape dimensions (mm):	
- circular:	From 31.8 x 2 up to 323.9 x 10
- rectangular:	From 30 x 20 x 2 up to 300 x 200 x 10
- square:	From 25 x 25 x 2 up to 250 x 250 x 10

Please check your special requirements and possible minimum order quantities with your usual contact at Tata Steel Tubes. Full details of mechanical properties and size range availability for each grade are shown in our grade-specific datasheets.

Weld seam options

Do you need the weld seam at a certain position? Or the internal weld bead scarfed, for example for a telescopic application? Generally we produce our Forcon® hollow sections with the weld seam located at the long side with an untrimmed internal weld bead. However, to make the tube fit for your purpose, we can remove the internal weld bead or offer several options, such as the weld seam positioned at the small side, in the middle or out of the middle of the side of the section (depending on the size).

Improved surface finish

If a high quality tube surface matters to you, this might be an important option. It can even cut out the need for shot blasting. To achieve this excellent surface finish with minimised indentations and scratches, we select only the best feedstock for tube manufacture. In conjunction with optimised process settings, we have also invested in roll cleaning to ensure a smooth tube surface ready for painting. The improved surface quality can also play an important part in reinforcing your brand – enabling a great visual appearance to finished products.

Tighter tolerances

For your repeatable and efficient processing you might need consistently tighter tolerances than required by the standard EN 10219. To make this possible, we exercise stringent control over all aspects of hollow section production. Careful coil selection and slitting plus investment in more accurate sizing and shaping rolls ensure a uniform cross-section. For example you can choose for Forcon® TT special tolerances on the outside dimensions, out of roundness, concavity/convexity, squareness of the side, wall thickness or more precise external corner radii.

Bespoke chemical composition

The chemical composition of our Forcon® tubes is in accordance with the specifications outlined in EN 10219, depending on the steel grade. They are all produced from fully killed steel, containing sufficient nitrogen binding elements and having a fine grain structure. Due to their low CEV, the welding suitability of our Forcon® tubes is excellent. They are suitable for hot dip zinc coating and generally fall into category A according to ISO 14713-2:2020 or occasionally into category B or C, depending on the steel grade. Should you for example need a certain delimitation of the silicon and phosphorus content in order to ensure a homogeneous appearance in hot-dip galvanised constructions – especially when combining hollow sections with other profiles – we can discuss a bespoke chemical composition of the steel for Forcon® TT.

Exact lengths

To enhance your efficiency and save time, you might want to take advantage of our service of cutting the tubes to exact lengths. This will also reduce material waste.

Extra testing







Upon request, we offer additional material testing and inspections beyond the norm requirements. This includes extended mechanical or chemical analyses or specific application-related tests. For example, we have developed a special PON test with a hardened cone which is pressed straight into the weld seam several times over its length as an extra proof for the use of our tubes for towbars.

It is also possible to issue additional or alternative certificates, such as a 3.1 certificate for JRH or JOH steel grades where only a 2.2 certificate is prescribed. Feel free to contact us to discuss your individual testing needs.

Special packaging

Do you require any special packaging such as special bundling, dunnage or slings? If so, please get in touch to explore possible customised options.

Examples of tighter dimensional tolerance options

Description of tolerance	Forcon® TT option	EN 10219
 Size B	B<100mm: Min ±0.25mm; ±0.5% B≤200mm: ±0.4% B>200mm: ±0.3%	B<100mm: Min ±0.5mm; ±1% B≤200mm: ±0.8% B>200mm: ±0.6%
 Concavity/Convexity	Min 0.25mm; Max 0.4% of side	Min 0.5mm; Max 0.8% of side
 Squareness	90°±0.5°	90°±1°
 Corner radius	T≤6mm; 1.8T ≤ r _{ext} ≤ 2.2T T≤10mm; 2.25T ≤ r _{ext} ≤ 2.75T 10mm<T; 2.7T ≤ r _{ext} ≤ 3.3T	T≤6mm; 1.6T ≤ r _{ext} ≤ 2.4T T≤10mm; 2T ≤ r _{ext} ≤ 3T 10mm<T; 2.4T ≤ r _{ext} ≤ 3.6T
 Size D	Min ±0.25mm ±0.5% Max ±5mm	Min ±0.5mm ±1% Max ±10mm
 Out of roundness	D/T≤100; Max 1% D/T>100; to be agreed	D/T≤100; Max 2% D/T>100; to be agreed

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