

TATA STEEL



Hybox® TT

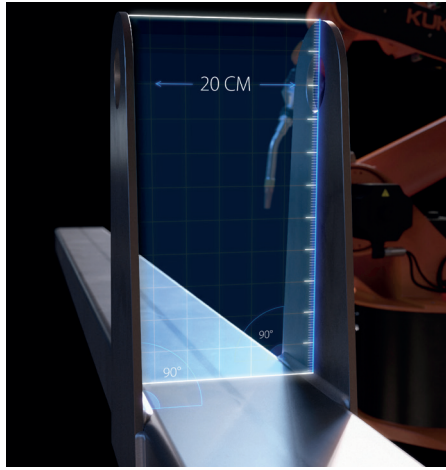
Consistently tight tolerances for efficient manufacturing
Exceeds EN 10219



TIGHT TOLERANCES FOR EFFICIENT MANUFACTURING

Hybox® TT is a cold-formed structural welded hollow section with consistently tight tolerances – making it ideal for automated production processes. With an excellent surface finish, Hybox TT can help improve manufacturing efficiency, output and end product quality.





Reduced tolerance on squareness of sides improves the parallelism of opposite faces and the perpendicularity of adjacent faces. This enables predictable positioning of elements attached to any face.



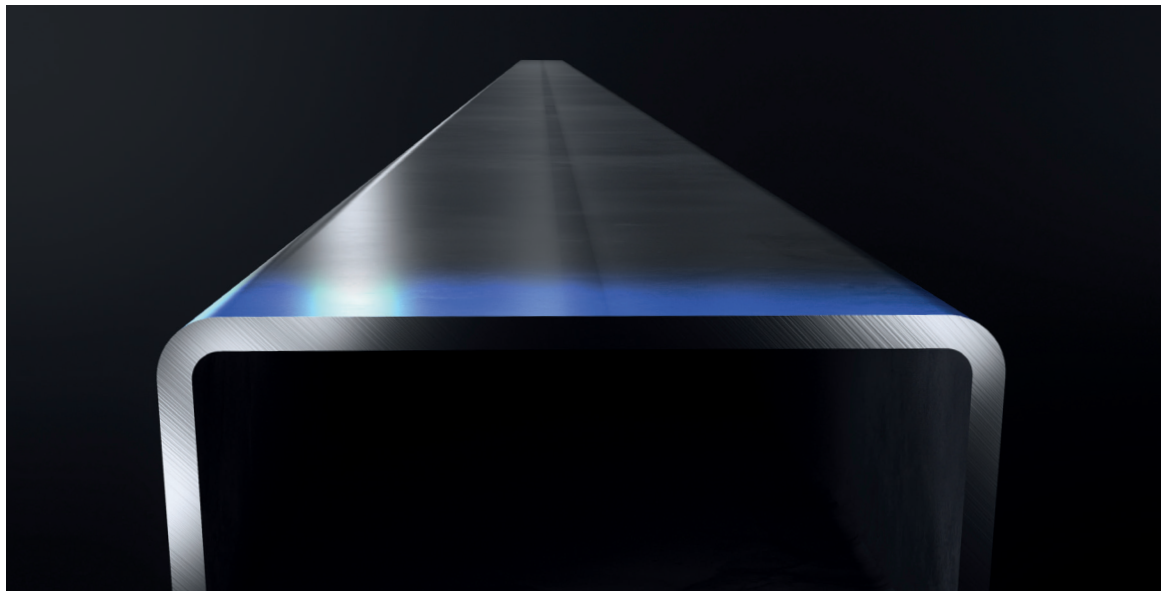
Tight tolerance on all four corners generates even corner radii throughout the tube length. This ensures a consistent weld gap and enables blanks to be fitted easily.

For optimised efficiency in equipment manufacturing, it is essential that tube size and shape are consistently accurate. Hybox TT meets that demand – with reliably tight tolerances every time.

We manufacture Hybox TT to external dimensional tolerances that are twice as stringent as those defined in European standard EN 10219. Combined with improved corner radius, concavity/convexity, clean-cut ends and an excellent surface finish, this delivers multiple benefits for equipment manufacturers. With a minimum yield strength of 275 up to 700 MPa, Hybox TT is suitable for applications including agricultural machinery, trailers and cranes.

Hybox TT enables you to:

- reduce rejection rate and rework
- speed up manufacturing for increased output
- save time and money on surface preparation
- reduce the weight of end products
- improve product performance
- enhance your brand through great looking products



An improved surface finish, with minimised marks and an almost invisible weld seam, removes the need for shot blasting prior to painting. Clean ends offer safe handling and are ready for welding.

HYBOX® TT IN ACTION

Strong, consistent sections for demanding applications

Its reliably accurate size and shape make Hybox TT the obvious choice for efficient series production. Available in a high yield strength up to 700 MPa, Hybox TT is a great choice for a range of demanding applications – from hard-working agricultural equipment and cranes to construction and mechanical applications.



KUHN is a global leader in haymaking equipment. Manufactured in France, KUHN gyrotedders are world famous for their quality of work, performance, reliability and longevity. Tata Steel worked closely with KUHN to develop the specification for Hybox TT – delivering a tube to enhance end product quality, improve manufacturing efficiency and boost output.

The predictably tight tolerances of Hybox TT are a vital factor in efficient production of gyrotedder arms. Tubes with a consistently

accurate size and shape meet the demands of KUHN's robotic welding process – avoiding the need to reset robots or undertake costly, extra manual welding.

Surface finish is another important factor for KUHN. With Hybox TT, there is no need for shot blasting prior to painting. The section's smooth surface is also a critical aspect of communicating KUHN's premium brand positioning. To safeguard employees during handling, the tube ends are free of burrs and sharp edges.

For KUHN, adoption of Hybox TT has delivered multiple benefits:

- a tube rejection rate at almost zero
- increased output
- improved overall production efficiency

"Through its partnership approach and ability to understand the challenges we faced, the Tata Steel team has helped us enhance the consistency and quality of our gyrotedders, optimise the flow of the automated welding process – and strengthen our brand image to our customers."

Pascal Weiss, Purchaser Steel Products, KUHN, Saverne, France

Hybox TT meets your needs for accuracy and performance

To compete in the marketplace, we know you need consistent hollow sections that you can rely on for efficient processing, product performance and brand reinforcement. That's why we developed Hybox TT.



Repeatable, efficient processing

To deliver Hybox TT's consistently tight tolerances, we exercise stringent control over all aspects of section production. Careful coil selection and slitting ensure a uniform cross-section. Investment in more accurate sizing and shaping rolls has ensured tighter concavity/convexity, more precise corner radii and improved external dimensions.

In addition to tight tolerances, Hybox TT offers high levels of formability and, because the steel is fully killed, excellent weldability. It can be welded, laser cut, drilled and fitted to a high quality standard in an automated production process. Hybox TT sections also have clean ends, free of burrs. This all adds up to faster, more efficient processing and increased output.

With Hybox TT you can:

- reduce your rejection rate and rework
- form and weld sections with ease and save on welding consumables
- save time in tube sorting and machine setting
- reduce the safety risk to staff during tube handling
- eliminate the need for re-cutting prior to processing

Excellent surface finish

We know that a high quality tube surface matters to you. It cuts out the need for surface preparation prior to painting. It can also play an important part in reinforcing your brand – enabling a great visual appearance to finished products.

With Hybox TT sections, we take steps to ensure an 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.

With Hybox TT you can:

- eliminate shot blasting – saving time and money
- achieve a consistent painted surface without bumps, marks and scratches
- enhance your brand with products that look good

Improved product performance

Using thermo-mechanically rolled fine grain steel feedstock, we have extended the Hybox TT range up to 700 MPa. High yield strength steel delivers the same mechanical properties at thinner gauges when compared to lower strength steel. This provides scope for end product improvements – enabling users to increase productivity and improve operational efficiency.

With Hybox TT you can reduce the weight of manufactured equipment to increase its payload and you can widen a machine's working area without weight penalties. For example; switching from 355 to 500 MPa achieves typical weight savings of 15-20%. Available in a range of profiles, Hybox TT is suitable for applications at temperatures as low as -50°C.

With Hybox TT you can:

- meet a wide range of demanding applications
- produce lighter equipment
- meet market demand for improved operational performance



Hybox TT product range

| | |
|---------------------------|---|
| Steel grades: | Range from S275 J2H up to S700 MH |
| Shape dimensions (mm): | |
| - circular: | From 88.9 x 2 up to 323.9 x 12.5 |
| - rectangular and square: | From 50 x 50 x 2 up to 250 x 250 x 12.5 |

Hybox TT is compliant and traceable

Hybox TT complies fully with EN 10219, for cold-formed structural hollow sections. Our manufacturing tolerances of the cross sections are twice as stringent as those defined in the standard. Hybox TT is batch-tested, with full test certification supplied. Sections are clearly marked as Hybox TT and delivered with a 3.1 certificate for full traceability. A declaration of performance (DoP) is also available.



A sustainable choice

Hybox TT is a sustainable choice. Its consistent quality and tight tolerances enable efficient automated processing. Available in a high yield strength up to 700 MPa. Hybox TT can reduce the amount of steel required to manufacture strong, load-bearing components.

At Tata Steel, we are committed to making the products society needs and to making them in the most responsible way possible. Our steel enables our customers to make safer cars, more energy efficient buildings and infrastructure, easily recoverable and recyclable packaging and many other products which help to move society towards our vision of a sustainable future.



Tailored technical support

Hybox 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 efficiency and end product performance.



Tata Steel

Tata Steel Group is one of the world's most geographically diversified steel producers, with operations in 26 countries and commercial offices in over 50 countries. In Europe, we are one of the largest steel producers. We serve many different and demanding markets worldwide including Automotive, Packaging, Engineering and Construction.

Our approach to business is unique. We focus on market sectors to allow us to better recognise the individual needs of our customers. We believe our strength is in how we build collaborative relationships that create new success for our customers, adding value to their business and helping them to perform in their markets.



Take advantage of Hybox® TT

Hybox TT with tight tolerances is a reliably consistent product offering multiple benefits.

For more information and to discuss how Hybox TT could help improve your manufacturing efficiency and end products, please contact us.



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