

Induction Thermal Treatment Facility

TIMKEN
Where You Turn

The Timken Company's Induction Thermal Treatment Facility (ITTF) increases capacity on heat-treated steel bars and tubing while providing advancements in uniformity and production speed. Variations in strength, toughness and hardness are reduced, even when compared to present high-quality limits. This new facility complements the existing capabilities of our Continuous Thermal Treatment Facility (CTTF) and adds to our capability.

The ITTF process predominately is set to austenitize, water quench and temper but can also simultaneously normalize, and process stress relieve or temper. This provides greater flexibility of the line and saves the customers time and money by eliminating the need for future stress relief. Because

there is no need for any additional operations, the material is ready to go when it is finished.

Rotating the steel at faster speeds maintains straightness and uniformity. The type of quenching used meets stringent mechanical and hardness requirements.

Advanced computer-controlled techniques during austenitizing, quenching and tempering result in bar and tube products with characteristics tailored to a wide range of customer specifications. The uniform and concise properties in each bar are accomplished through a combination of accurate and uniform heating, controlled quenching (one to three spray rings used as necessary) and accurate and uniform tempering.

Our ITTF provides complementary capacity enabling flexibility to process a broad range of volume and product diameters. The new line will quench and temper bars and tubes up to seven inches in diameter.

For demanding thermal treatment products for oil field, automotive and industrial applications, customers turn to The Timken Company. Customers can be sure they are receiving Timken quality because we control the entire process from melt through thermal treatment. The ITTF is an efficient, technologically advanced thermal treatment facility, which will continue to meet or exceed increasing customer product performance expectations provided by Timken® steel.

ITTF Process Features:

- Overall plant capacity will increase across size ranges up to 7.000 inches (177.80 millimeters) in diameter
- Advanced quench and temper techniques plus constant product rotation for maximum uniformity
- Properties can be customized to meet specific customer needs
- Accurate, rapid and uniform heating allows for maximum production and optimum quenching
- Maximum bar and tube straightness is maintained eliminating the need for cold straightening and stress relieve
- Due to faster rotational speeds and optimum spray water quench pattern, product OD distortion is greatly reduced



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Listed below are the size ranges of the steel product supplied by our ITTF and CTF facilities:

ITTF (Size Range)

BARS: 1.750 – 6.000 inches
(44.45 – 152.40 mm) diameter

TUBES: 2.500 – 7.000 inches
(63.50 – 177.80 mm) OD,
<=1.250 inches (31.75 mm) Wall

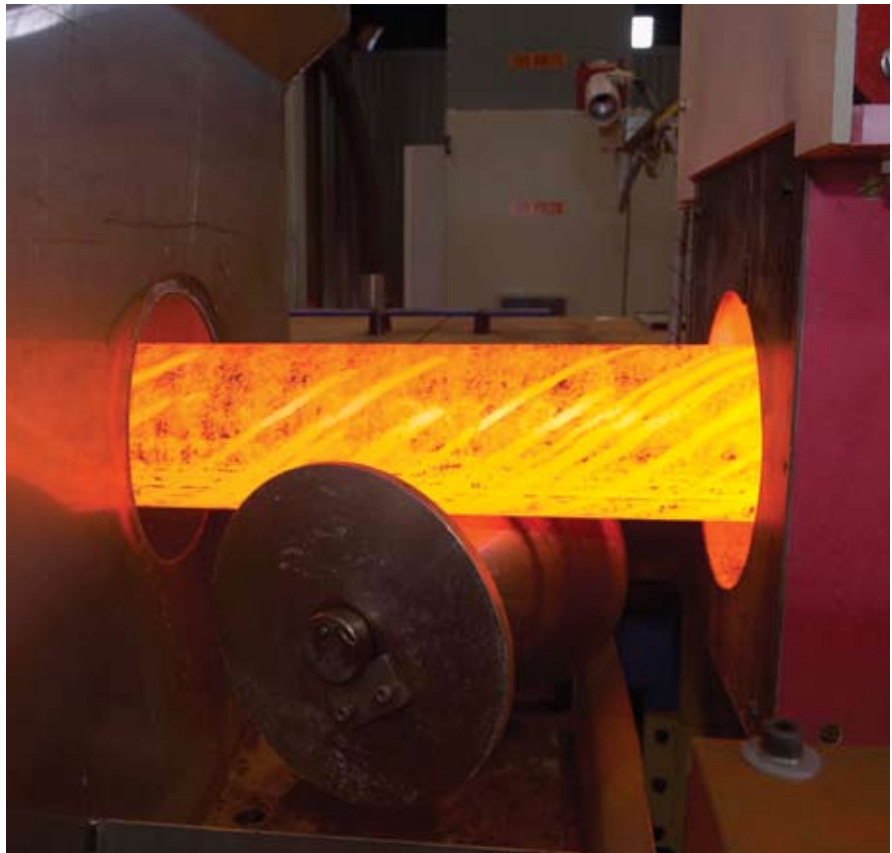
LENGTHS: 12 – 40 feet
(3.66 – 12.19 m)

CTF (Size Range)

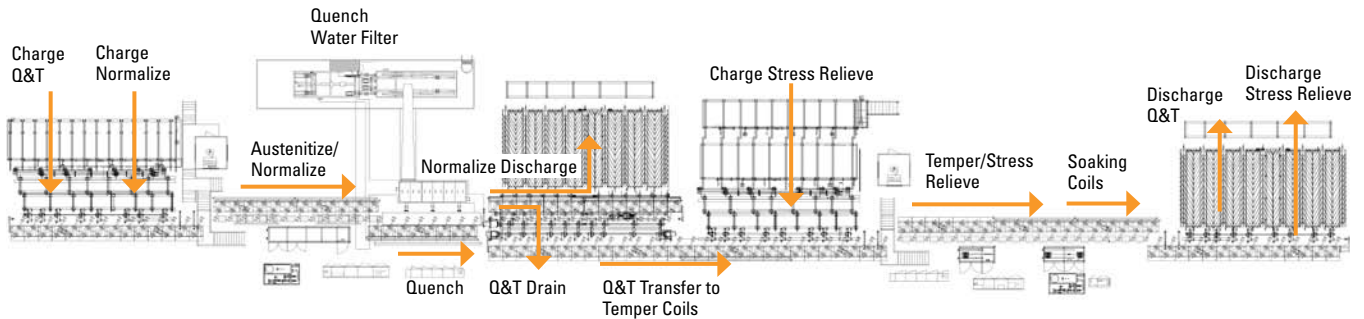
BARS: 2.375 – 10.500 inches
(60.32 – 266.70 mm) diameter

TUBES: 2.375 – 12.000 inches
(60.32 – 304.80 mm) OD,
<=3.000 inches (76.20 mm)

LENGTHS: 12 – 42 feet
(3.66 – 12.80 m)



Austenitizing to Quenching Process in ITTF



Process Chart of Induction Thermal Treatment Facility

With over \$50 million invested in research every year, customers turn to Timken for innovations, quality and value-added options to help their product perform more efficiently and improve their performance.

For more information on Timken steel and other value-added services or products, call 866-284-6536, fax 330-471-7032 or visit our website at www.timken.com/products/alloysteel.

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