



TITAN
TECHNOLOGIES INTERNATIONAL, INC
SUPERIOR BOLTING SOLUTIONS™



Dependable • Fast • Efficient
Cutting Edge Patented Technology

TITAN

Wind Turbine Bolting Tool Solutions

are an integral element for getting
your bolting job done right, on time, every time



**Foundation Bolt
Tensioners**



**High Load Single Piston &
Double Stacked Tensioners for 10.9
proof load requirement ASTM
A490M and EN ISO 898 1:1999**



**Titan ETite
Electric Torque Wrenches
Plus Series Torque & Angle**



**EXE 2000TT Electric
Tensioner Pumps**



Titan Hydraulic Torque Wrenches



**Titan Hydraulic Torque Wrench Pumps
including the revolutionary SmartTite
Autocycle Torque Wrench System**

TITAN is a leading bolting solutions provider committed to offering
the most reliable and comprehensive bolting solutions world wide.



WT-Tools V1_May 2008



TITAN wind turbine bolting tools

Titan Technologies is your one stop source for all the tools needed to handle the major bolting tasks in wind turbine erection amid maintenance applications.

Whether you require Hydraulic Wrenches, Electronic Torque tools, data acquisition and logging of the bolting process, double stacked tensioners, foundation bolt tensioning or even a special engineered solution, Titan Technologies has the equipment and expertise to provide you with the cost effective solution to your bolting job.



Titan offers SUPERIOR BOLTING SOLUTIONS for all **torque and tensioning applications** which are found in Wind Turbine erection and maintenance bolting jobs.

- Foundation Bolt Tensioners
- Bearing to Hub
- T Bolts
- Main Back Beam Bolting
- Titan SmartTite Auto-cycling Hydraulic Wrench System
- Tower segment bolting
- Blade to Bearing
- Turn table bolting
- Nacelle to Tower Bolting
- Ultrasonic Bolt monitoring

Titan ETite Electric Torque Wrenches Torque & angle capability built in the tool

The **Torque and Angle Capability** of the Titan ATE 2200-P16 provides quick work of the T-bolts on GE Wind Turbine (blade to blade bearing) to 413 ft/lbs plus 120 degrees rotation. On this turbine there are 60 bolts per blade on the inside of the nose cone.



Titan Hydraulic Torque Wrenches are available in several models to suit your Wind Turbine applications:

Titan - T Series square drive Hydraulic Torque Wrench



Also available with **SmartTite AUTOCYCLE** capability

Titan - LP Series Direct Fit Hydraulic Torque Wrenches



Contact your local Titan Representative for a demonstration

Titan Multi-Stage Tensioning Tools For Grade 10.9 Bolts



Titan Turbine Tensioning tools are slim, light weight Hydraulic Tensioners especially designed for the exacting specifications and limited geometry of wind turbine applications. They feature particular and carefully selected materials designed to give long service life. They are all spring return Tensioners thus avoiding the need of laborious tensioner piston retraction. They are light and easy to use with easy access side entry ports, complete with quick disconnects.



Single & Double-Stacked Models

Advantages:

- Speed of operation
- Easy to use
- Gives reliable and precise tensioning
- Long service life
- Spring return
- ROBUST Nut Rotation system
- patented Titan O-Ring Seal technology

Kits Available For:

- VESTAS
- GAMESA
- GE Wind
- Others
- Siemens
- Superior performance
- Simple set up & operation

Titan Patent Pending Automatic Wind Turbine Tensioning system Remotely operated. Features automatic nut rotation while tensioning

- Unrivaled safety & speed.
- Ensures joint integrity
- Operated from the safety of the Nacelle
- FASTER Nut rundown is simultaneous with bolt loading

Titan EXE 2000TT Electric Hydraulic Tensioning Pump

Titan Exclusive Technology



Titan has set a new and unrivalled performance benchmark is the introduction of the **EXE 2000TT™ Electric** Tensioning Pump system.

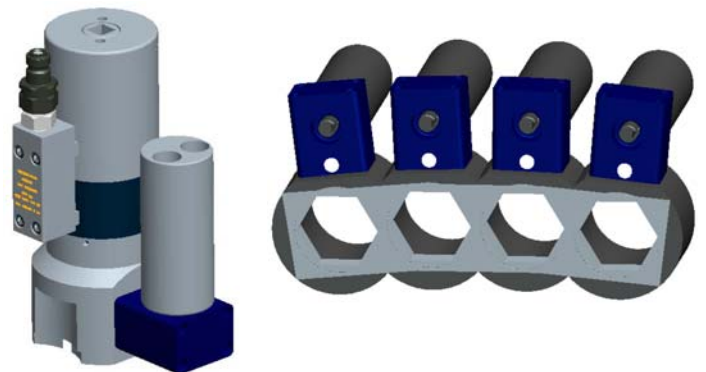
The Titan **EXE 2000TT™** was designed from the ground up for wind turbine tensioning applications. The Titan **EXE2000TT™** Electric Tensioner Pump features a unique technology which delivers up to 2000 bar, is powered electrically and will hold up to the usage required of it at those pressures.

It is a two stage high flow delivery pump. The 1st stage provides high flow to an intensifier which converts it to high pressure. This is critical where speed of operation is essential. Excellent when using multiple Tensioners in such applications as the assembly of blade to bearing and of bearing to hub applications.

This pump is designed for use with all 1500 bar tooling and represents the best compromise between price and performance.

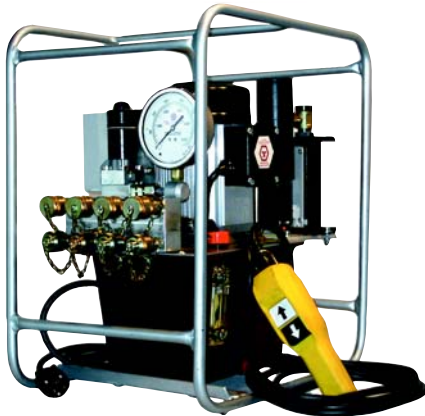
18 month warranty

The Titan **EXE-2000TT** Series comes in both 115VAC and 230VAC versions. It comes mounted in a tubular steel transportable frame. The pump is supplied complete with heavy duty remote control, pump on/off control, oil reservoir, and high pressure gauge



Titan SmartTite AUTOCYCLE Hydraulic Wrench Pump System

Titan offers a complete line of electric powered Hydraulic Wrench Pumps. All models are available with the **Titan SmartTite Automatic Cycling** option.



**Titan
Exclusive
Technology**

**multiple
patents
pending**

Titan has set a new and unrivalled performance benchmark with the introduction of the **SmartTite™** Auto Cycle Hydraulic Wrench Pump Tensioning system. The Titan SmartTite™ system saves a lot of bolting time, increases safety, reduces operator fatigue and improves the wind turbine tower erection bolting process. Most importantly the system can be operated properly with minimally skilled personnel.

Titan Foundation Base Bolt Tensioning



TITAN™ Foundation bolt Tensioners are commonly used for wind turbine tower base bolts, bridges and other civil engineering applications.

Key features include:

- Optional spring return
- Durable
- Available for Williams Bolts
- Long-life composite seals for easy retraction and leak free operation
- LOWER total cost of ownership
- FAST and easy to use
- STANDARD & CUSTOM Tooling available
- OVER- STROKE prevention device
- Highly visible stroke indicator
- Optional ROBUST GEAR DRIVE for fast nut run down
- Optimal size, weight and load capacity

PRODUCTS & SERVICES OFFERED

- Pneumatic & Electric Tensioning Pumps
- Ultrasonic Bolt Measurement
- Manual Tensioning Pumps
- Titan Hydraulic Torque Wrenches
- DataTite Torque Process Data Acquisition
- Power Spreader Flange Spreaders
- Power Splitter Nut Splitters
- Air-Tite® Pneumatic & ETite Electric Torque Wrenches
- Sockets & Accessories
- Ultrasonic Bolt Measurement
- Rentals
- Equipment Service & Repair
- Calibration Service



TITAN

TECHNOLOGIES INTERNATIONAL, INC
SUPERIOR BOLTING SOLUTIONS™

9001 Jameel Rd. Ste. 180
Houston, TX 77040

Toll-Free for U.S.A. and Canada: 866.345.8484
Phone: +1.281.449.9994 • Fax: +1.281.449.9996
Email: Sales@TitanTi.com
<http://www.TitanTi.com>

Your Local **TITAN** Representative: