



# WARRIOR



Q1-0357



8C-0136



TS-0166

## TW88 AUTOMATED TORQUE WRENCH

The Warrior Model TW88 Torque Wrench is compact and light and can be adapted to a large range of rig floor sizes and can be operated in fully-automatic, semi-automatic or manual modes.

### Torque Wrench Specifications

Max Break-Out Torque	88,000 ft-lbs (119,000 N-m)
Max Make-Up Torque	80,000 ft-lbs (108,500 N-m)
Tubular OD Range	3-1/2 in drillpipe to 9-5/8 in Casing (89-mm to 244-mm)
Hydraulic System	Integrated or Remote
Area Classification	Atex Zone 1 or Class 1 Div 2
Spin Torque	2,000 ft-lbs
Spin RPM	50



### Unique Features:

- Three-point self-centering gripping jaws that can accommodate a large grip diameter range.
- Fast cycle times over well-center, < 10-seconds either direction (Grip/Spin/MU/ Release or Grip/BO/Spin/ Release).
- Torque - adaptive grip pressure
- Tool joint and tong die life are improved by the conservative tri-gripper design and adaptive grip pressure.
- Minimum spacing center to center of 8.25-in (209-mm) between the torque and backup Jaw positions backup grip above the hardbanding on the box end which prolongs hard banding and die life.
- Proportional controls for reduced positioning time and smoother operations. Automatic, semi-automatic & manual modes. The control console can be remote, local (on tong) or dual (optional).
- Tool handling, with accessories capable of all typical operations including stabilizers, bits and motors.

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## Positioning System

The Warrior TW88 comes complete with the Tongavator positioning system, the Tongavator is an innovative system that requires a minimal footprint on the floor when parked and has excellent range to well-center or the mousehole. (Alternative positioning systems can be customized to suit specific rig requirements).

Tongavator Specifications:	Model 120-60	Model 96-48
<b>Max Mounting Location</b>	120-in (3,048-mm) from well center and/or mousehole.	96-in (2,438-mm) from well center and/or mousehole.
<b>Min Mounting Location</b>	60-in (1,524-mm) from well center and/or mousehole.	48-in (1,219-mm) from well center and/or mousehole.
<b>Nominal Connection Height</b>	24-in to 90-in (609-mm x 2,286-mm).	24-in to 72-in (609-mm x 1,829-mm).
<b>Min Connection Height</b>	8-in (203-mm) when the Tong is extended past 98-inches (2,489- mm) from base.	8-in (203-mm) when the Tong is extended past 74-inches (1,879- mm) from base.
<b>Horizontal Travel</b>	114-in (2,896-mm).	90-in (2,286-mm).
<b>Torque Rating</b>	30,000 ft-lb torque, for back-up of TD connection make-up, bit breaking (bit breaker in the rotary table), steering or slow drillstring rotation for directional drilling.	30,000 ft-lb torque, for back-up of TD connection make-up, bit breaking (bit breaker in the rotary table), steering or slow drillstring rotation for directional drilling.
<b>Parked Footprint</b>	33.5-in (851-mm) wide x 49-in (1,245-mm) front to back - 1,752 in <sup>2</sup> .	33.5-in (851-mm) wide x 49-in (1,245-mm) front to back - 1,752 in <sup>2</sup> .
<b>Parked Clearance from well-center to front of tong</b>	92-in (2,337-mm) when tong is mounted at maximum reach position.	72-in (1,764-mm) when tong is mounted at maximum reach position.
<b>Parked Height (Including Tong)</b>	96-in (2,438-mm).	78-in (1,981-mm).
<b>Slewing Rotation</b>	Unlimited.	Unlimited.

## Optional Tong Features:

- Stabavator - a tubular positioning arm that can be mounted on the tong and can be extended to the setback area or a v-door ramp, the arm will automate the movement of tubulars to and from well-center, from the setback or v-door area (no manual intervention required).
- Auto-Split Detection System - allows the tong to automatically locate the seam in the drilling connection and to grip the box and pin in the proper location. The split detection system will allow the operator to run the tong in automatic mode from standby position.



Patents Pending

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