

<b>PRODUCT DATA SHEET, TORQUE TOOL 2700 NM API 17D CLASS 4</b>
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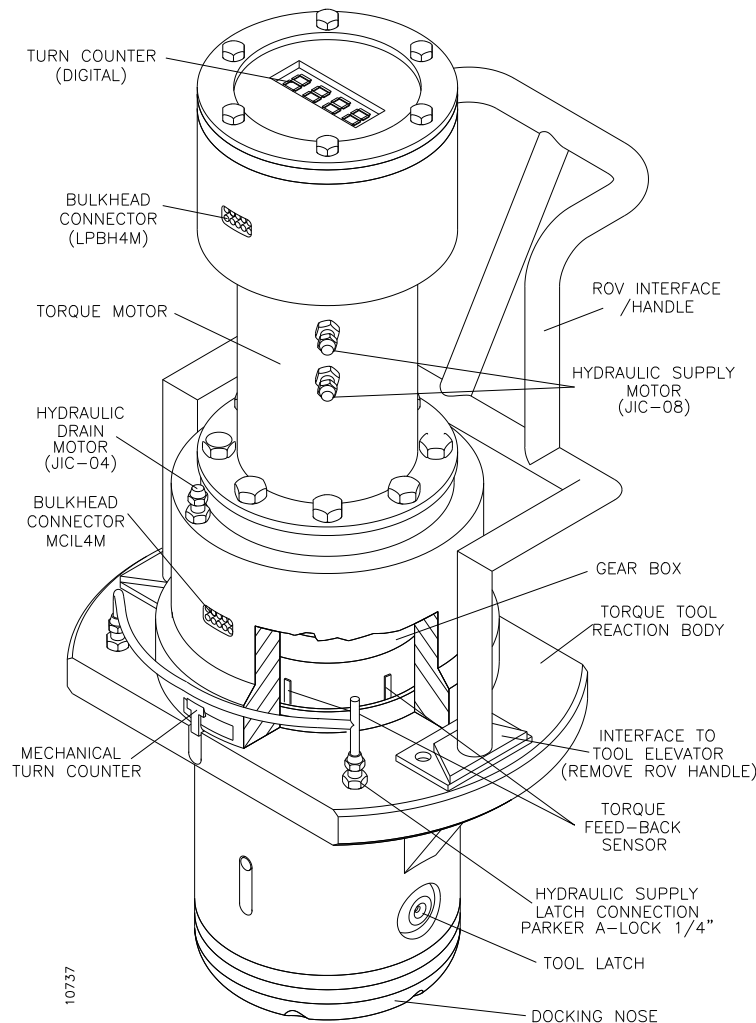
Summary:

This document contains details of the Torque Tool 2,700 Nm supplied by FMC Technologies (FMC).

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## PRODUCT DATA SHEET

## Torque Tool 2.700 Nm



### Key Features

- Subsea deployed, hydraulic Torque Tool with a wide range of applications, such as valve operation, module connection and disconnection and the operation of certain override functions.
- Intervention profile (docking nose) to API 17D, Class 1-4.
- Can be deployed by a standard Work Class III ROV system with suitable hydraulic and electrical systems.
- Hydraulic fluid for operation of the Torque Tool can be supplied directly from the ROV or via the FMC supplied Remote Control Unit (RCU) mounted on the ROV.
- The RCU allows direct control of the Torque Tool and monitoring of torque feedback from the surface using a simple Graphical User Interface (GUI).
- Can be deployed on the FMC supplied ROV Tool Elevator or handled by the manipulator.
- Precise torque output from 26 to 2,700 Nm using interchangeable hydraulic motors.
- Suitable for water depths down to 3,000 meters (10,000 ft) with no modification.
- Design life 25 years maintainable.
- Minimal mobilization requirements and the equipment is air transportable world-wide.

## Technical Description

### Configuration

- The Torque Tool has a reversible 'Orbit' type hydraulic motor driving through a gearbox. Two interchangeable motors are supplied, OMM 32 for torque outputs from 26 up to 300 Nm and OMSS 200 for torque outputs from 250 up to 2,700 Nm.
- Hydraulic fluid for the Torque Tool motor is supplied directly from the host ROV or via the Remote Control Unit (RCU) for operation from the surface.
- Digital and mechanical turn counters are provided for direct monitoring by cameras on the ROV.
- The digital turn counter and torque sensor signals can be transmitted to the surface when the Torque Tool is used in conjunction with the RCU.
- The RCU can be configured to stop the Torque Tool automatically when a pre-set torque value is reached.
- The Torque Tool can be hydraulically latched in the API receptacle for equipment handling, such as a Multi Quick Connect (MQC) Plate on a hydraulic jumper.
- The torque output can be checked and calibrated using the FMC supplied Torque Tool Calibration Jig before deployment.

### Design Rating

- Overall Dimensions of Torque Tool:
 

Length with OMM 32:	560 mm (22")
Length with OMSS200:	600 mm (23.5")
Width:	360 mm (14")
Diameter:	300 mm (12")
- Weight of Torque Tool:
 

In air with OMM 32:	37 kg (81.5 lb)
In air with OMSS200:	39 kg (86 lb)
In water with OMM 32:	26 kg (57 lb)
In water with OMSS 200:	30 kg (60.5 lb)
- Torque Range:
 

With OMM 32 Motor:	26-300 Nm (19-222 lbs ft)
With OMSS 200 Motor:	250-2700 Nm (185-2000 lbs ft)
- Hydraulic Supply from ROV:
 

Pressure with OMM 32:	200 bar (2,900 psi)
Pressure with OMSS200:	200 bar (2,900 psi)
Max Flow:	36 liters/min. (9.5 US gal/min.)
Fluid:	ISO VG22 (Shell Tellus or equal)
- Axial Force on latches: 3,000 N
- Maximum Water Depth: 3,000 m (10,000 ft)

### Installation/Handling

- The Torque Tool is mounted on the ROV Tool Elevator using two Wire Anchors that allow the tool to be used in the vertical or horizontal mode when lowered from the storage position.
- The Tool can also be used in horizontal 'Stinger' mode on the Tool Elevator.
- The Torque Tool can be handled directly by the ROV manipulator using the interface handle supplied.

### interfaces

- Hydraulic interface:
  - RCU subsea Unit / Torque Tool: Motor - JIC08 (2 off), Drain - JIC04, Latch - 1/4" Parker A-Lock all with 4.5 meter hoses
- Electrical interface:
  - RCU subsea Unit / Torque Tool:
    - Torque Sensor - MCIL4F connector,
    - Turn Counter - LPBH4F connector
- Mechanical interface:
  - ROV / Torque Tool: ROV Tool Elevator or manipulator
  - Torque Tool / Module, MQC Plate etc.: Intervention Profile to API 17D, Class 4

### References

Description	Document Number
System Data Sheet for KOSCON® Tie-in Products for Subsea sealines and Risers	SDS-0000020092
Product Data Sheet for FLYCON® ROV Tool Package	PDS-0000020435
Product Data Sheet for Remote Control Unit	PDS-0000020291
Product Data Sheet for ROV Tool Elevator	PDS-0000020292