



Kvenna EMT
ENGINEERING MANUFACTURING TECHNOLOGY

SUBSEA TORQUE TOOLS



WHO WE ARE

Kvenna EMT supplies services within engineering, manufacturing, assembly and testing for subsea, marine and power projects all over the world.

We have a range of our own-developed products which includes Soft Landing Cylinders, Levelling Jacks, Subsea Torque Tools, etc.

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DESCRIPTION OF SUBSEA TORQUE TOOL

- Kvenna EMT has designed Subsea Torque Tools to operate large subsea ball valves. The Torque Tools are delivered with different torque capacities, and can operate subsea ball valves from size 20"-34". Max. available torque 1000kNm.
- Torque Tool TT400 is designed with three different replaceable adapter plates to fit the Kvenna EMT top work interface flange for 20", 24" and 28" ball valves.
- Torque Tool TT800 is designed with two different replaceable adapter plates to fit the Kvenna EMT top work interface flange for 30" and 34" ball valves.
- The torque tools are delivered with Subsea Deployment Basket, Transportation Skid, Calibration Unit, Pressure Caps, Protection Caps, Control Systems and Service Personnel.
- Torque Tools, Pressure Caps and Protection Caps are all designed to fit the Kvenna EMT top work interface flange and Kvenna EMT stem adapter.

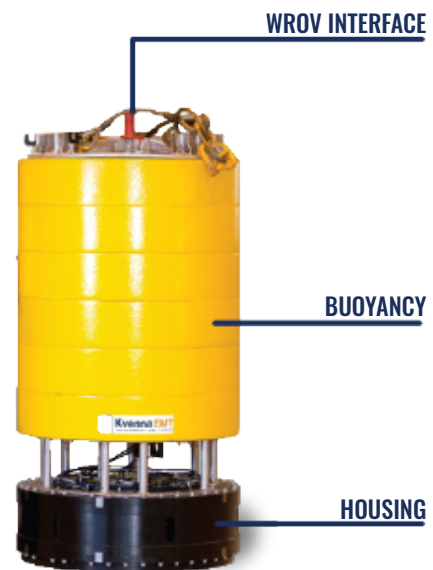
GENERAL INFORMATION

TT400 & TT800

TORQUE TOOL CONSTRUCTION

DESCRIPTION

Yoke	One single machined piece
Tool Housing	Bolted together
Socket	One single machined piece
Main Cylinder	Hydraulic
Pawl Cylinder	Hydraulic



TORQUE TOOL GENERAL INFORMATION

DESCRIPTION	TT400	TT800
Operator Type	Hydraulic / Mechanical	Hydraulic / Mechanical
Location	Subsea	Subsea
Water Depth	1500 m max.	1500 m max.
Design life	25 years	25 years
Torque Range	20 - 400 kNm	20 - 800 kNm
Torque in normal condition	200 kNm	400 kNm
Hydraulic Operated Ratchet	20 °C per stroke	20 °C per stroke
Storage Temperature	-30 °C to 55 °C	-30 °C to 55 °C
Transportation Temperature	-30 °C to 55 °C	-30 °C to 55 °C
Operating Temperature in air	-18 °C to 55 °C	-18 °C to 55 °C
Operating Temperature in water	3.3 °C to 17 °C	3.3 °C to 17 °C
External Medium	Air and sea water	Air and sea water
Outer Diameter	1000 mm	1260 mm
Height without Buoyancy	421 mm	458 mm
Height with Buoyancy	2449 mm	2467 mm
Weight in air	1423 kg	2208 kg
Weight in water	25 kg +/- 5 kg	25 kg +/- 5 kg



KVENNA EMT TORQUE TOOLS PRODUCT FAMILY

TORQUE TOOLS



TT250



TT400



TT800

TRANSPORTATION & DEPLOYMENT BASKET

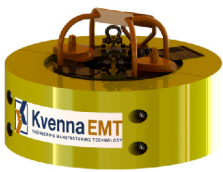


TRANSPORTATION SKID

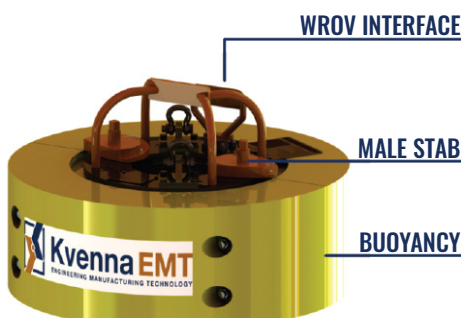


DEPLOYMENT SKID

PRESSURE CAPS

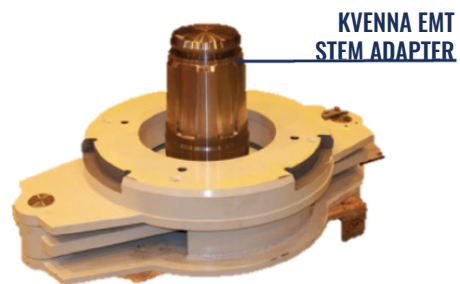


PC 400



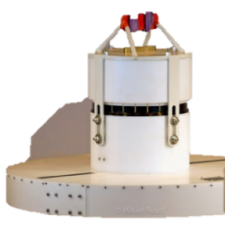
PC 800

CALIBRATION UNIT

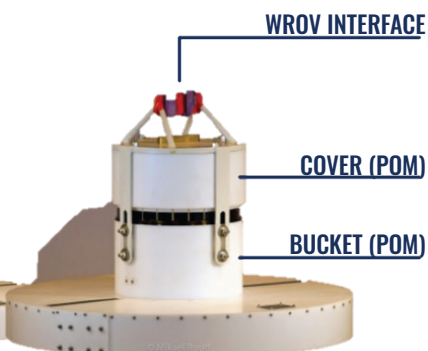


CALIBRATION UNIT

PROTECTION CAPS



PTC 400



PTC 800

CONTROL SYSTEM





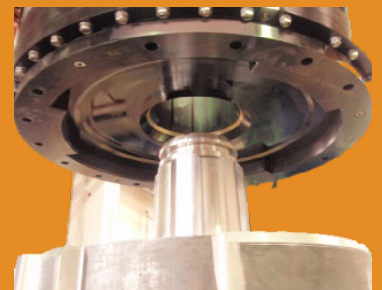
1st generation TT250 for Ormen Lange

REFERENCES

QUANTITY	PROJECT	CLIENT	YEAR
2 off TT400 w/ Kvenna EMT Top Work Design	Gorgon	GE Oil & Gas (Chevron)	2011
2 off TT800 w/ Kvenna EMT Top Work Design	Gorgon	GE Oil & Gas (Chevron)	2011
2 off TT250	Ormen Lange	FMC	2006

QUANTITY	PROJECT	CLIENT	YEAR
2 off PC400 w/ Kvenna EMT Top Work Design	Gorgon	GE Oil & Gas (Chevron)	2011
2 off PC800 w/ Kvenna EMT Top Work Design	Gorgon	GE Oil & Gas (Chevron)	2011

QUANTITY	PROJECT	CLIENT	YEAR
4 off PTC400 w/ Kvenna EMT Top Work Design	Gorgon	GE Oil & Gas (Chevron)	2011
17 off PTC800 w/ Kvenna EMT Top Work Design	Gorgon	GE Oil & Gas (Chevron)	2011



KVENNA EMT STEM DESIGN

KVENNA EMT REPLACABLE ADAPTER RINGS



KVENNA EMT TOP WORK INTERFACE FLANGE