



HIGHLIGHTS

- Custom, cost-effective compact solution
- Hydraulically-applied, spring-released caliper brakes
- Integrated motor-driven geared pinion
- 23 kNm continuous turning torque at 0.6 rpm in both directions
- Braking (static holding) torque up to 16 kNm
- 140 kNm shaft locking torque
- Control panel and handheld pendant

Application Success Story



Turning, Locking & Braking Systems (TLB) Offshore Patrol Vessel Propulsion Shafts

PROBLEM

A major marine systems provider needed Turning, Locking and Braking (TLB) devices for use on a new offshore patrol vessel (OPV). The twin-propeller vessel features a hybrid diesel-electric propulsion system that utilizes dual diesel engines, each rated at 5,440 kW, and two electric motors. A TLB system is positioned between the gearbox and propeller on each of the two shaft lines and is used to rotate and hold the propulsion shafts during maintenance. It also stops and locks the shaft lines to prevent propeller rotation when the vessel is moored in a flow stream.

SOLUTION

While a competitor could not meet the challenging space limitations, Twiflex engineers were willing and able to work with the OEMs engineering team to develop a custom, cost-effective design that the shipyard could accommodate. The TLB system has all three functions (turning, locking and braking) mounted on one side of the gearwheel (brake disc) which provides a compact solution to meet the demanding requirement.

The unique Twiflex TLB system features a maximum momentary (start-up) torque of 35 kNm and continuous (bi-directional) torque of 23 kNm. An integral Twiflex T40 hydraulically applied, spring released brake, operated by a custom hydraulic power unit, provides 16 kNm static locking torque. The brake is also capable of stopping an un-clutched propeller at speeds up to 25 rpm. A manual locking device, rated at 140 kNm, is used to lock the gear teeth and prevent shaft rotation when the brake is released.

The system features a 792 mm diameter split disc supplied with a spacer for easy connection to the customer's flange. A manual lever is used to engage/disengage the turning gear pinion with the gearwheel teeth. Once engaged, an electric motor allows the operator to slowly rotate the shaft to the desired position for maintenance via the Twiflex-supplied control panel or handheld pendant.

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