



Graphic courtesy of FLSmidth

## Product

### Turning & Locking System with Torque Limiter

## Application

### High Pressure Grinding Rolls

## Highlights

### Twiflex

#### Custom Bi-directional Gear Turning and Locking System

Includes turning gear, gearwheel, motor, gearbox, frequency converter, manually operated tooth-locking device with limit switch, operation panel and plug-in handheld corded pendant for remote control

### Bibby Turboflex SE30 Torque Elements

Set to 169 kN (38,000 lbf.) tangential force

Brunel Corporation, a global leader in torque-limiting technologies, needed reliable power transmission components for use in a custom gear Turning and Locking (TL) system for FLSmidth, a leading manufacturer of High Pressure Grinding Rolls (HPGR).

Based on many years of successful project collaboration, Brunel contacted Twiflex for assistance. To meet the application requirements, Twiflex supplied a TL system comprised of a turning gear which engages with a 1,000 mm dia. (39.3 in.) solid steel gearwheel mounted on the output flange of a Brunel torque limiter. The turning gear includes a 1.5 kW (1,445 rpm) motor with a gearbox to produce a start-up (breakaway) torque of 3,760 Nm (2,773 lb.ft.) and an output torque (continuous turning, bi-directional) of 1,580 Nm (1,165 lb.ft.) at a nominal turning speed of 5.2 rpm.

A hand-operated clutch mechanism is used to engage and disengage the drive with a limit switch fitted to indicate its position. The system includes a manually operated tooth-locking device with a rated torque of 52,000 Nm (38,353 lb.ft.), that locks the gearwheel in place. The status of the locking device is monitored using limit switches. An operation panel for local control of the turning gear and a handheld corded pendant for remote control of the turning gear are also supplied.

Specially-designed safety element modules were introduced by Brunel engineers for use on their JSE torque limiter to provide protection from overload damage to the U-joint shaft, planetary gearbox or grinding rolls. Based on the SE30 torque elements from Bibby Turboflex, the modules set to 169 kN (38,000 lbf.) tangential force automatically disconnect if the mill gets jammed by rock debris or drive short circuit. Brunel engineered and delivered a unique packaged solution that incorporated all the components into a tight footprint.

#### Contact Twiflex

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