



BAE Systems rendering

## Product

## Caliper Brakes and Coupling Disc Packs

## Application

## Naval Frigate Propulsion Drives

## Highlights

### Twiflex GMRP Caliper Brakes

- Pneumatically applied, spring released caliper brakes
- Easy-to-replace brake pads
- Braking force directly proportional to air pressure

### Bibby Turboflex Custom Coupling Disc Packs

- 300 Series stainless steel discs
- Specially designed to meet strict torque transmission and misalignment requirements

A leading global marine gearbox manufacturer needed coupling and braking solutions for the drives used on the Royal Navy's newest Type 26 anti-submarine warfare frigates. The 149m (489 ft.) long vessels feature a Combined Diesel-Electric OR Gas (CODLAG) propulsion system. For high speed operation, a Rolls Royce MT30 gas turbine drives two propeller shafts via a Cross Connect Gearbox and a pair of reduction gears. At slow speeds, four generators provide power to two electric induction motors, one on each propeller shaft.

Twiflex GMRP brakes are fitted to a gear shaft on the Cross Connect Gearbox to provide both static and dynamic functions (i.e. holding, soft braking and hard/emergency braking). The pneumatically applied, spring released caliper brakes, with sintered pads, combine to provide a total 42 kNm at 7 bar operating pressure. Multiple calipers act on each of the two 960mm diameter x 40mm thick discs. Control of the brakes is integrated into the Main Reduction Gearing (MRG) system which interface with a Twiflex-supplied pneumatic controller. The brakes offer quick change-out pads and torque adjustment in the field to meet different operating requirements.

To reduce weight and fit in a very limited space envelope, traditional shaft disc couplings could not be used. Instead, Bibby engineers worked extensively with the customer's engineering team to design a custom coupling disc pack that met the unique marine drivetrain requirements. Assembled using alloy steel bolts, the balanced flex disc packs allow for some angular and radial misalignment and are comprised of 300 series stainless steel discs specially sized to meet the application's strict torque transmission and misalignment requirements while minimizing size and weight.

### Contact Twiflex

Europe  
**+44 (0) 20 8894 1161**  
[twiflex.com](http://twiflex.com)

### Contact Bibby Turboflex

Europe  
**+44 (0) 1924 460801**  
[bibbyturboflex.com](http://bibbyturboflex.com)

### Asia Pacific

For a list of our AP sales offices:  
[altramotion.com/contactus](http://altramotion.com/contactus)