

Working with the defence industry

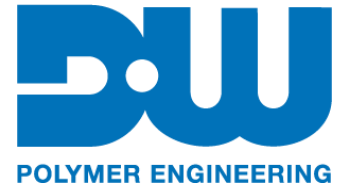
Sweden's **Dellner Bubenzler Group** incorporates Sweden's **Dellner Brakes**, Germany's **Pintsch Bubenzler**, Italy's **Rima** and a UK-based Polymer Solutions Division comprising **Dellner Woodville** and **Dellner Silentbloc**.

Dellner Woodville

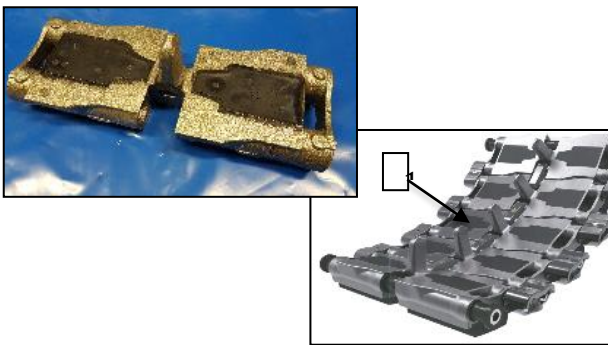
www.dellnerwoodville.com

Dellner Woodville has a well-established history of supplying parts to the sea, air and land defence sectors. With reliability and quality being critical, these parts are designed and manufactured using materials that meet the most arduous specifications and environmental conditions. Products range from complex composite seals to robust dust suppression systems, with projects including:

- Fighting vehicle tank track link rubberisation
- Fighting vehicle dust suppression kits and flexible mudguards
- Coated fabrics for swing wing aircraft seals
- Large pressure seals used in systems on naval combat ships



Fighting vehicle tank track links



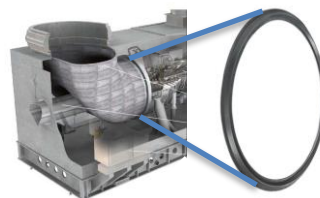
Fighting vehicle flexible mudguards



Coated fabrics for swing wing aircrafts



Combat ship flexible gas turbine seals



Dellner Silentbloc

www.silentbloc.co.uk

Dellner Silentbloc also has a long history in the design, manufacture and qualification of high-performance vibration control solutions, delivered through the supply of rubber to metal components.

Over many years Silentbloc has been involved in supplying the air, sea, land and weapons sectors of the defence industry with products ranging from suspension bushes for tracked vehicles through to noise suppression drive systems for submarines.



Combat land systems



- ✓ Tanks
- ✓ Infantry fighting vehicles (IFVs)
- ✓ Armoured personnel carriers (APCs)
- ✓ High mobility multipurpose wheeled vehicles (HMMWVs)
- ✓ Recovery
- ✓ Engineering
- ✓ Tracked
- ✓ Wheeled

Military marine



- ✓ Carriers
- ✓ Frigates
- ✓ Cruisers
- ✓ Ships
- ✓ Submarines
- ✓ Hovercrafts

BAE Hagglands BvS10 all terrain armoured vehicle



Dellner Brakes

www.dellner-brakes.com

The marine defence industry is a core market for Dellner Brakes. You'll find their innovative stopping, turning, locking (STL) systems fitted in the UK Royal Navy's Type 45 destroyers, the new Queen Elizabeth Class aircraft carriers and the Type 26 frigates which are under construction. Dellner has also supplied STLs for Norwegian Navy logistics vessel HNoMS Maud and a 'turning and locking' (TL) system for the Korean Navy's Daegu-class guided missile frigates. In addition, Dellner has supplied STLs for a series of minesweepers designated to a leading navy in the Mediterranean. These are active systems that are used to stop and lock the propeller shaft when the vessels are entering minesweeping mode.

The STL system fits round the propeller shaft to enable faster directional changes with maximum manoeuvrability. The brake stops the disc quickly in any position, then controlled hydraulic cylinders or an electric gear wheel turn the brake disc into position for a tapered pin (pawl) to push into a machined slot on the brake disc, locking it securely in place.

STL also helps lower fuel consumption, reduces load on propulsion systems and makes routine maintenance quicker, easier and safer. For military vessels, STL can be laboratory tested and built with flex in the mountings to provide shock protection and avoid damage to the system in the event of impact.

UK Royal Navy Type 45 Destroyers

Type 45 are an advanced class of six guided missile destroyers, built for the UK Royal Navy by BAE Systems.

Their primary role is anti-air warfare. However, as with all destroyers and frigates, Type 45 is a multi-role, general purpose vessel capable of a spectrum of tasks from peace support and defence diplomacy through to high-intensity warfare.

Rolls-Royce has supplied several different component packages for the T45 destroyers, including the propulsion and braking system, which incorporates a well proven Dellner Brakes 'stopping, turning, locking' (STL) system.

The STL system is fitted to the propeller shaft and consists of a hydraulic disc brake, a turning device, locking module, hydraulic power supply system, customised brake disc and framework. The braking system is precision engineered to withstand shock and the total weight per shaft line is approximately 9,000 kg (19,840 lb).



Queen Elizabeth Class aircraft carriers

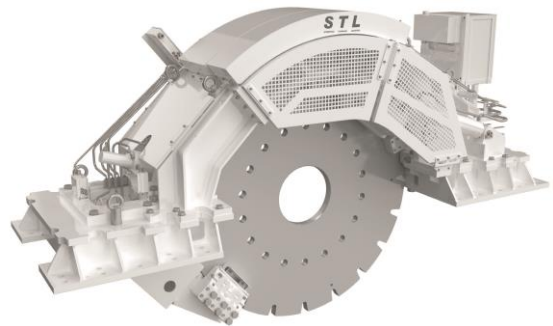
At 280 metres (919 ft) long and weighing 65,000 tonnes (71,650 lb tn), the Queen Elizabeth Class aircraft carriers (HMS Queen Elizabeth and HMS Prince of Wales) are the biggest and most powerful surface warships built for the UK Royal Navy to date.

Each of the aircraft carriers' has two propeller shafts, each fitted with a custom-designed Dellner Brakes 'stopping, turning, locking' (STL) system. Weighing in at 11,000 kg (24,250 lb) each, these are the biggest STL systems that Dellner Brakes has ever built.

The STL system allows operators to stop, hold and securely lock each shaft independently, and to individually turn the shafts and giant 33 tonne (36 lb tn) propellers for maintenance and blade assembly. The STL systems are operated from a push button control panel that integrates fully with other on-board systems.

Each Dellner STL system comprises a $\varnothing 2.3$ m (2.5 yd) brake disc, three SKD 4x125 hydraulic disc brakes delivering a total braking torque of 800 kNm (590,050 lbf-ft) and three LM70 hydraulic locking devices delivering a total locking torque of 1,660 kNm (1,224,350 lbf-ft).

The systems have been custom designed and approved according to Lloyds Register Rules & Regulations for Naval Ships.



For more information, see www.dellnerbubenzergroup.com