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SKF helps Alexander Dennis Limited deliver comfort for bus passengers

Engineering expertise from SKF is helping the UK's largest bus and coach manufacturer build vehicles for challenging operating environments around the world.

When Alexander Dennis Limited (ADL) received an order for 250 buses from Go Transit in Toronto, its engineers faced a challenge: To keep passengers comfortable year round in a city where temperatures can vary from -25 °C in the winter and more than 35 °C during hot summer spells, the customer specified an uprated heating and air conditioning system. ADL had designed a suitable system, but the compressors and alternators required to run it needed a shaft and intermediate bearings to transfer power from the engine. The company's engine supplier had quoted a lead time of 18 months to supply an appropriate unit.

In need of a quicker solution, ADL called on SKF, which despatched a team of application engineers to the bus manufacturer's headquarters to discuss possible solutions. Taking into account the loads, speeds, operating conditions and life expectancy required, the SKF team applied its proprietary engineering tools, including the Bearing Beacon 3D modelling system, to create a suitable system design and select appropriate components. The full design was then modelled using industry-leading Creo CAD software and handed to ADL for approval.

To meet the client's need for quiet, efficient operation and a long service life, SKF based the design on its SKF Explorer deep groove ball bearings. These bearings feature an innovative design of advanced, high purity steel, with a homogenised structure and superior finish on all contact faces. This is combined with an optimised design of bearing cage and balls. As a result, SKF Explorer bearings reduce friction by around 50 percent, leading to lower levels of heat



and noise to give a basic rating life that is 15 percent better than standard designs.

Each bearing is protected from the ingress of contamination by SKF's V-ring seals. These are easy to install, with a simple interference fit on each shaft, sealed axially against the outer bearing face. The seals provide high levels of abrasion resistance, plus excellent compatibility with a range of oils and chemicals.

The bearings are lubricated with SKF High Load, Extreme Pressure, Wide Temperature Range Bearing Grease LGWA 2. This premium quality mineral oil-based, lithium complex grease is specifically designed for industrial and automotive applications where loads or temperatures may exceed the capabilities of general purpose greases. LWGA 2 can handle temperatures of up to 220 °C for short periods, offers excellent water and corrosion resistance with effective

lubrication in wet conditions, and has superior performance at high loads and low speeds.

Happy with the design, ADL asked SKF to assemble and supply complete bearing units for its Canadian contract, including pulleys and other secondary components. Making use of its UK workshop, SKF was able to assemble all the units for the original order, beating a tight delivery deadline by two weeks.

"Our partnership with SKF helped us meet a tricky engineering challenge to a tight timescale," says Kate Lebedeva, Head of North American Sourcing at ADL. "Our experience with these bearing units in operation has been very positive and we are now working with SKF to develop a 25 per cent lighter version for future vehicles, helping us to achieve challenging emissions reduction objectives."

SKF Explorer deep groove ball bearings



Customer benefits

- Runs cooler
- Increased uptime and productivity
- Reduced noise and vibration levels
- Longer bearing service life
- Longer lubricant life

SKF V-ring seals



Customer benefits

- Improved sealing system performance
- Reduction in maintenance and failures caused by contamination
- More reliable system performance
- Increased bearing service life
- Increased uptime and productivity

SKF Bearing Grease LGWA 2



Customer benefits

- Excellent lubrication at peak temperatures up to 220 °C for short periods
- Protection of wheel bearings operating under severe conditions
- Effective lubrication in wet conditions
- Good water and corrosion resistance
- Excellent lubrication under high loads and low speeds



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