

## ADJUSTABLE STEERING COLUMN BENEFITS FORKLIFF OPERATORS



A major manufacturer of forklifts and other industrial vehicles designed a tilt steering column that can be adjusted to accommodate operators getting in and out of them. Facilitating movement of the column through a 30° arc are two special, solid polymer bearings that GGB produces using self-lubricating thermoplastic compounds LATILUB by LATI.

The uniquely shaped bearings feature an elongated face flange to prevent misalignment of the system with holes at either end for securing them with fasteners. They center and support a 145mm long shaft that oscillates, allowing the steering column to be tilted for safer, easier entry and exit from the vehicle.

The bearings have an inner diameter of 25mm, an outer diameter of 28 – 30 mm on the slightly flanged back side of the bearing, length of 22.5mm, and width of 35mm. Overall length of this configuration is 75mm.

Operating speeds are negligible; loads on the bearings are relatively small at 600 to 700 newtons; and movements can range from 5 and 30 times per day, depending on how and where the vehicles are used. The company turned to GGB Bearing Technology to replace these bearings, providing drawings and specifications. The bearings it had been using contained glass fibers which accelerated wear on the system's oscillating shaft. GGB selected the material for the new bearings based on application data supplied by the company.

The material selected by GGB is its EP®22 thermoplastic bearing compound developed by LATI. Bearings made of this material perform well in both dry and lubricated applications, are corrosion-resistant, and comply with EVL, WEEE and RoHS regulations.

EP®22 is an extremely robust, PTFE-modified polybutylenterephthalate (PBT) material with low moisture absorption, low friction and excellent machinability. It can withstand operating temperatures of -50°C to +170°C.

Maximum sliding speed is 1.0 m/s, and coefficient of friction is 0.22 to 0.37. "This material does not contain glass fibers, which was important to the customer," explains GGB Automotive Project Engineer Andreas Epli. "In addition it provides a damping effect, making the system operate more smoothly."

GGB developed the tooling for injection molding sample bearings for testing by the customer. The bearings performed extremely well in these tests, according to Epli, and GGB is receiving serial orders for full production. LATI offers to its Customers outstanding properties of LATILUB compounds and know-how of its technicians