

## Right angle worm gearboxes for servos

Computer optimised profiles deliver 90% contact between worm and wheel in ZF's new right angle gearboxes.

Designed specifically for servo applications, the broad contact areas minimise wear, and ensure that the gearbox has long life, and that backlash levels remain constant and predictable. Noise levels are less than 55dB.

The wheels themselves are made from a specially developed, highly wear resistant bronze alloy. Large diameter bearings offer increased load bearing capacity. The worm wheels are mounted to shafts by press fit and multiple pins, which is more durable than a keyed fit.

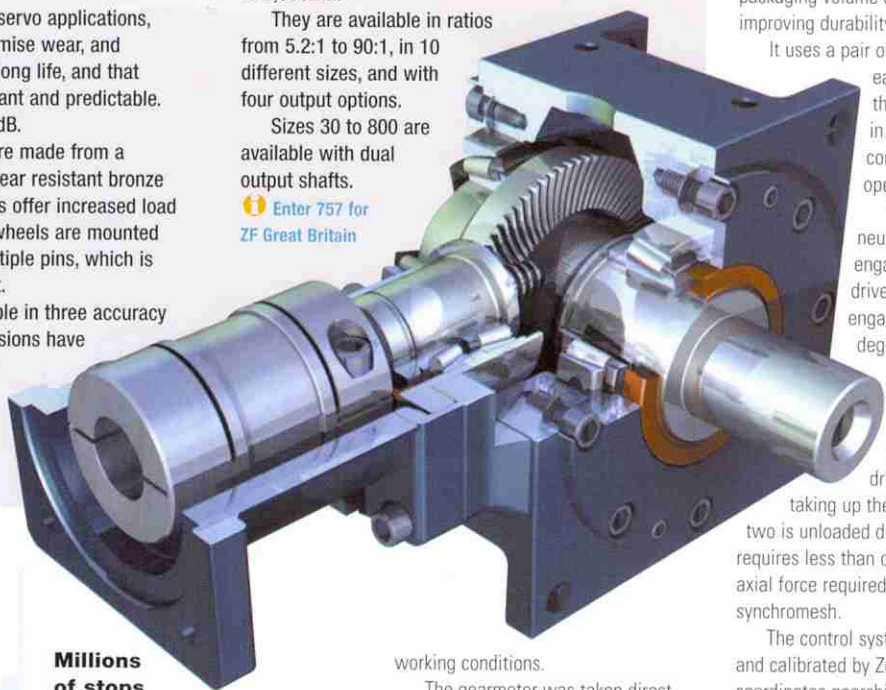
The gearboxes are available in three accuracy levels. The high precision versions have backlash below 1 arc/minute, while the precision boxes offer 3 arc/minutes and standard units 10

arc/minutes. They can operate at input speeds of up to 6,000 rpm, and deliver output torques of up to 6,900Nm.

They are available in ratios from 5.2:1 to 90:1, in 10 different sizes, and with four output options.

Sizes 30 to 800 are available with dual output shafts.

Enter 757 for ZF Great Britain



### Millions of stops and starts

A Zeitlauf Performax 42 gearmotor has undergone nearly 14 million stops and starts at five second intervals on the company's in-house endurance test rig. The motor has been working continuously for well over two years driving a conveyor system handling nine dummy loads, each of which weighs 50kg, in an arrangement that is designed to simulate real world

working conditions.

The gearmotor was taken direct from production with no special selection or modification. It incorporates a motor with a nominal running speed of 5960 rpm and a starting torque of 0.14Nm. The gearbox is also a standard unit with a reduction ratio of 13.2:1. It has hardened steel planetary gears running on needle roller bearings and internal gears made from engineering plastic.

Enter 758 for Zeitlauf Gearmotors



### Smaller and lighter

The latest Zeroshift automatic gearbox delivers reductions in cost, weight and packaging volume at the same time as improving durability and fuel economy.

It uses a pair of interlocking rings, each incorporating three drive elements in a single, forged component and operated by shift forks.

When shifting from neutral, ring one is engaged to take up drive while ring two is engaged within a few degrees of revolution to take up backlash.

The next shift is made with ring two taking up the drive and ring one taking up the backlash. As ring two is unloaded during the change, it requires less than one-twentieth the axial force required by a conventional synchromesh.

The control system, also developed and calibrated by Zeroshift, coordinates gearshift actuation, engine management and clutch operation to provide full control over the driveline during gear shifting. One side of the drive element has a retention angle to take up the drive, whilst the opposite side has a ramp face to smoothly disengage drive.

Shift forces have been reduced from around 100N in the first generation system to just 40N.

Enter 759 for Zeroshift



### BIG BEARINGS BOOST UPTIME

Right angle worm gear units from Nord Gear UK have oversized bearings to provide extended lives.

As standard, the Universal Worm units can be supplied with drive ratios from 5:1 to 100:1. With an optional helical gear pre-stage, ratios of up to 3000:1 are achievable. They are housed in single piece die cast aluminium enclosures. Efficiency for units with standard gear ratios are up to 93%. As standard, the units offer foot mounting on three sides, B14 face mounts on two sides,

and a hollow output shaft. Among the gear configuration accessories are: plug-in shafts, bolt-on flanges and torque arms.

Assembly of units takes a few minutes, and Nord carries a large stock of the basic worm housings and worm gears, allowing application-specific solutions to be built and shipped the same day if required.

Enter 760 for Nord Gear

### BROUGHT TO BOOK

Ondrives has launched a standard gearbox-only catalogue with 25 ranges of products.

Standard ranges include worm wheel gearboxes, helical and bevel, spur, epicyclic and planetary boxes. Drawings are produced with 2D and 3D CAD packages and an e-cad section of the Ondrives website allows configuring and downloading of 2D and 3D CAD models.

Enter 761 for Ondrives

