



IMPROVED MECHANICAL COMPONENTS FOR EVOQUA'S ORBAL SYSTEM

Direct-Drive Gearbox

- **Efficiency** - Increases energy efficiency by seven percent, compared to previous belt-driven gearbox.
- **Maintenance** - Reduces maintenance by eliminating belts (no belt tensioning, replacements or over tightening, which can result in premature wear of gearbox input shaft, gearbox bearings and motor bearings).
- **Accessibility** - Makes oil changes and seal inspections faster and easier by eliminating belts.
- **Compact Size** - Requires less space than previous belt-driven gearbox, which makes it ideal for retrofit applications.

Belted vs. Direct-Drive Gearbox Cost Savings

Orbal System Drive Arrangement	Two 10 HP Two 20 HP	Two 20 HP Two 40 HP	Two 30 HP Two 60 HP
Belt Reducer Efficiency	0.86	0.86	0.86
Gear Reducer Efficiency	0.94	0.94	0.94
Estimated Gear Upgrade Cost	\$3,000	\$10,000	\$12,000
Gear Reducer Power Savings (\$/yr)*	\$3,000	\$5,000	\$8,000
Payback Period (yrs)	1.0	2.0	1.5

*Based on 8,400 annual operating hours and an energy cost of \$0.07/kWhr.

As shown above, the payback period on an investment in new direct-drive gearboxes for a current Orbal® system that has the original belt-driven gearboxes ranges from only one to two years.

Upgrades Made Easy

Regardless of the age of your Orbal® system, Evoqua offers a wide range of equipment to enhance its performance. You can select any or all of the following products for upgrades:

- OX™ Disc Aerators
- Weatherhoods
- Direct-Drive Gearboxes
- Bearings
- Automatic Greasing System
- Couplings



Evoqua field service support teams are available to handle many upgrade installations.

To learn more about upgrade options, visit www.evoqua.com/orbal.

The new direct-drive gearbox increases efficiency by seven percent, compared to the Orbal system's previous belt-driven gearbox.

Bearings

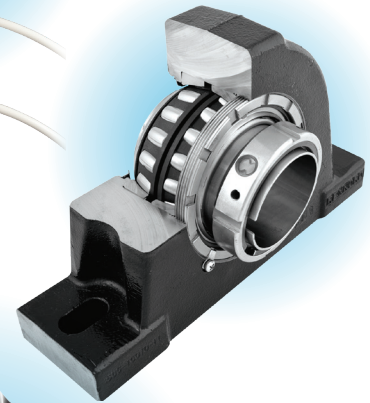
- **Automatic Greasing System** - Each replaceable grease cartridge lasts up to three months and is applied directly into the bearing with remote grease lines for ease of maintenance.
- **Easy Fit** - Ensures proper shaft and housing fit with wide shaft tolerance range (+0.000 / -0.004).
- **Easy Removal** - Eliminates the gap between the shaft and the bearing set collar, which prevents moisture corrosion that bonds the shaft and bearing together.
- **Minimal Downtime** - Allows replacement in less than one hour.
- **Direct Replacement** - Replaces most Orbal system bearings (Dodge, Morse, Sealmaster and Link-Belt).

Couplings

- **Longer Life** - Extends bearing life and prevents premature wear of the coupling when using a variable frequency drive (VFD) due to its ability to handle greater degrees of misalignment while dampening the loads on the overall system.
- **Minimal Downtime** - Allows element replacement in less than 15 minutes, since hubs, bearings, drives and shafts do not need to be removed.



Evoqua's Auto Greasing System is a standard feature providing easy maintenance of the bearings.



The elements of the Orbal system's new couplings can be replaced in less than 15 minutes.



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