

TECHNI/TIPS

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LEADERS IN LUBRICANTS

NUMBER 93

GEAR REDUCER LUBRICATION IN WASTEWATER TREATMENT PLANTS

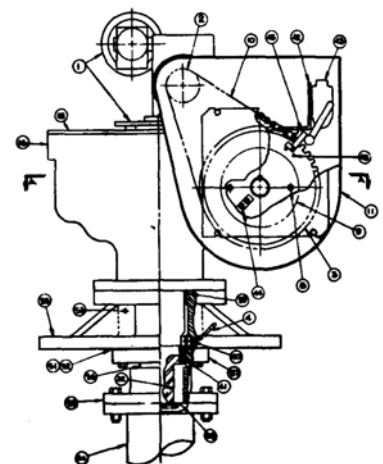
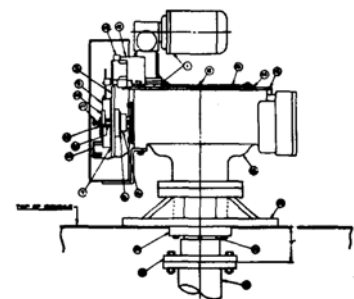
Gear reduction is an important factor in the basic power transmission flow in any industry, including wastewater treatment facilities. Of the basic unit group consisting of power sources (electric motor or internal combustion engine), gear reduction (open or enclosed gears) and various types of couplings (including chain or belt drives), gear reduction is of prime importance. How else could speed and torque be stepped up or stepped down and/or increased or decreased?

Normally, speed reducing equipment is required in any material handling application, including sewage. When selecting a speed reducer, several fundamental considerations must be studied to ensure that the most economical and durable equipment is used, in line with the work to be done.

Several types of reducers are available: (1) parallel shaft (2) concentric shaft or (3) the right angle type of either worm gear or spiral bevel design. In most instances, the choice of shaft arrangement is governed by installation convenience rather than by either cost or design considerations. However, a right angle worm reducer is primarily considered when space is at a premium or a high gear ratio is required. The worm speed reducer generally offers the lowest reduction problem. If efficiency is a factor, the higher cost spiral bevel units are considered.

Speed reducers are usually durable pieces of equipment. Built-in safety factors protect them against the severity of most applications. Despite this protection and the general ruggedness of the equipment, gear reducers can be destroyed by neglect, carelessness, failure to follow instructions and misuse. Of the 12 most common reasons for enclosed gear drive failures, over-looking proper lubrication is number two, while neglecting proper oil changes is number four. Gearbox manufacturers usually furnish specific recommendations as to frequency of gear oil changes and viscosities.

The proper service and maintenance (including lubrication) of the gear reducers at wastewater treatment facilities are just as important as for gear reducers in any other industrial facility.

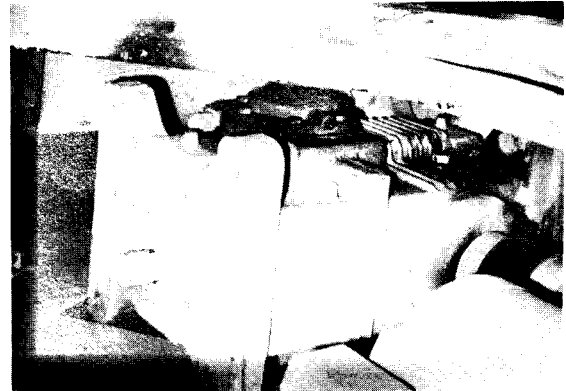


LE'S ALMASOL, MONOLEC and SYNOLEC Gear Lubricants solve operating and maintenance problems and cut expenses for gear reducers operating in hundreds of wastewater treatment facilities throughout the United States, and in a growing number of other nations.

Gear reducers are to be found in the power transmission train of all equipment typical to wastewater treatment facilities, such as:

Aerators	Flocculates/Thickeners
Air Condition Equipment	Hoists
Blowers	Grinders (Comminutors, Disintegrators, Delumpers)
Boiler Equipment	Pumps
Centrifuges	Screens (Bar Screens, Drum Screens, etc.)
Chain Drives	Sliding and Shear Surfaces
Clarifiers	Sludge Thickeners
Compressor Drives	Sluice Gates Conveyors
Swingfusers Digesters	Vacuum Pump Drives
Engine-Generator Sets	

The recommended LE gear lubricant for the typical gear reducer application at wastewater treatment plants are necessarily shown on an "and/or" basis. All variables should be taken into account: (1) speed; (2) load; (3) temperature and (4) operating environment when choosing the particular LE gear lubricant for use.



GEAR REDUCERS

Open Gearing:

Heavily Loaded 5180-5182 or 9000-9001 PYROSHIELD®
3083 ALMASHIELD® Open Gear Lubricant; or
9901 ALMASOL SYNTEMP® Lubricant

Lightly Loaded 5180-5182 or 9000-9001 PYROSHIELD®
9102 SYNTEMP® Synthetic Lubricant, or
9200 ALMASOL® Dry Film Lubricant.

Enclosed Gears:

R&O (nonEP) Oils 6403-6407 MONOLEC® Turbine Oil, or
6803-6807 MULTILEC® Industrial Oil.

EP Gear Oils 300 MONOLEC® Industrial Lubricant, or
604-609 ALMASOL® Vari-Purpose Gear Lubricant
703-704 MONOLEC® Gear Lubricant
9920 SYNOLEC® Gear Lubricant



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