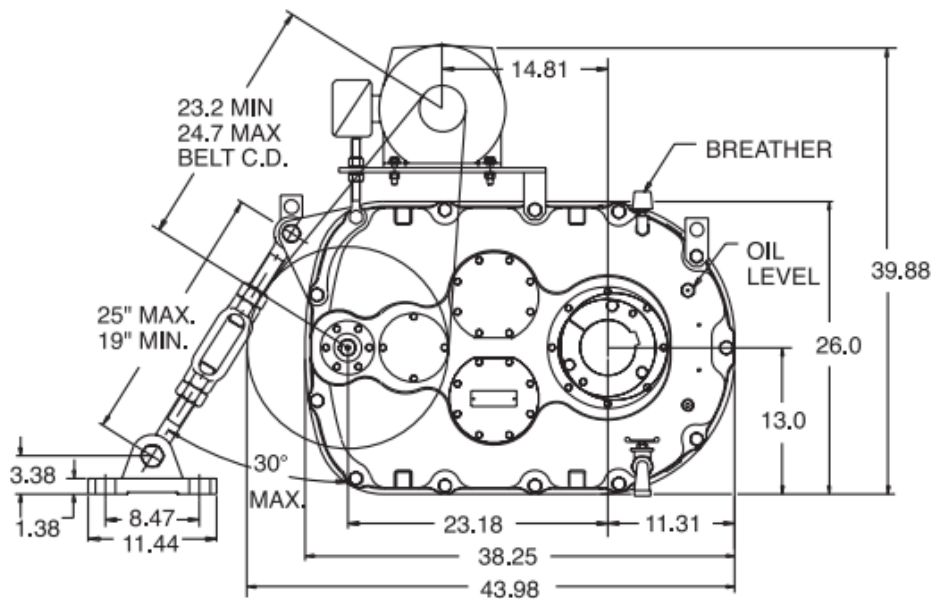


Dodge TXT gear reducers: Bio-Disc rating and bearing life

A rotating biological contactor is a biological treatment system used in wastewater treatment facilities to remove course material after the primary treatment. This system rotates media discs or panels at extremely slow speeds in order to increase the surface area contacting the wastewater. The ultimate goal in this environment is to remove pollutants before discharging the treated water into the environment.

The Dodge 188D Bio-Disc reducer is an excellent solution for this application. With a gear ratio of 170.44:1, the Dodge Bio-Disc reducer can operate in the harsh outdoor environment of any wastewater treatment facility. The Bio-Disc reducer has a 3-stage gear design with a split power path in the final stage to maximize torque transmitting capacity. The split power path design to evenly divides the torque between two parallel paths so each set of gears see less stress, resulting in increased life and reliability.

The Bio-Disc reducer incorporates cylindrical and tapered roller bearings with a minimum unadjusted bearing L10 life of 215,000 hours when operating at 5 HP at 1.5 rpm output speed – Class II service. The Dodge Bio-Disc speed reducer has twice the bearing life as any competitor.



#188D L.H. BIO-DISC ASSY

The Bio-Disc gear reducer is mounted directly on the 4-15/16" diameter shaft extension of the rotating biological contractor wheel, eliminating other costly and time-consuming items such as couplings and chain drives. The Dodge twin tapered bushing system provides sturdy grip on each side of the reducer hub, which centers the shaft within the gear reducer, ultimately reducing the amount of downtime by having an easy on, easy off shaft attachment method.

Twin tapered bushings have been a proven removal procedure since 1972. Other reducer designs use a straight bore hub or single bushing design, which allows full contact of the shaft to the hub resulting in fretting corrosion and an inability to remove the reducer from the shaft. These methods generally require the shaft to be cut off with the reducer, resulting in the added cost of replacing the shaft along with the reducer.

This Bio-Disc speed reducer is designed to rotate the equipment at slow speed in wet and humid conditions, 24 hours a day for maximum reliability and service life. Dodge Bio-Disc reducers are packaged with TDNC (thin dense nickel coatings) to machined surfaces such as output hub, bushings, retaining rings, and bushing backup plates, to survive this harsh environment. Additional accessories for this reducer are treated with corrosion resistance material in order to provide longer life in the weather of the application. These accessories include torque arm rod assembly, which is zinc plated, as well as the steel belt guard, which is painted with a two-coat epoxy coating.

Contaminant free lubrication of the internal gears and bearings is critical; therefore, the Bio-Disc gear reducer comes standard with Hydrogenated Nitrile Butadiene Rubber (HNBR) seals, which offers considerable advantages over other seal materials. HNBR seals have better wear resistance than standard nitrile, are less abrasive to the shaft than Viton. This material is less likely to carbonize oil at high temperatures, which extends the operating life of the lubrication preinstalled from the factory. HNBR also has a similar upper temperature limit as Viton (300°F), and better cold temperature capability (-40°F vs +20°F). An additional v-ring flinger is installed on the input shaft to protect from external moisture and contamination.

The Dodge Bio-Disc reducer is also supplied with an upgraded breather commonly known as Dodge hydraulic lock. Provided with an internal check valve system this breather is ideal for wet, humid environments. The valve opens and closes depending on the pressure within the gearbox. While sealed from the environment, the breather visually provides feedback to maintenance staff with desiccant material changing colors – from blue to pink. Once pink, the maintenance personnel have a visual cue to inspect oil in order to extend the operating life of the system.

In summary, the Dodge Bio-Disc speed reducer has the highest published bearing life as well as the additional harsh duty features needed to survive in the toughest environments. An investment should be built to last.