

TYPICAL SPECIFICATION

DRIVE UNIT FOR PIER SUPPORTED CIRCULAR COLLECTOR

The drive assembly for pier supported collector mechanisms consists of a cast iron drive base, a ductile iron spur gear, a full compliment rolling element ball bearing assembly with replaceable wire race inserts, a single piece alloy steel pinion, chain drive assembly with shear pin coupling, intermediate worm gear reduction assembly, drive garmotor and an overload alarm and motor cut-off actuation system.

These drive assemblies are manufactured to a minimum Quality Number of Q6 on the internal spur gear and Q8 on the pinion gear and have a minimum Transmission Accuracy Level of AV11 on internal spur gear and AV9 on the pinion gear, in conformance with ANSI/AGMA 2000-A88 and ANSI/AGMA 2015-1-A01. The internal spur gear ring is split to allow removal and access to the main bearing balls and replaceable wire race inserts. Both the spur and worm gear housings are machined from cast iron to provide stability, precision and superior corrosion resistance. The output torque is based on a continuous 20-year life. The drive design and torque ratings are in conformance with the latest ANSI/AGMA Standards 908, 2001 and 2004.

The turntable base is machined from ASTM A48 Class 40 gray cast iron and supports an internal spur gear machined from ASTM A536 Grade 120-90-02 ductile iron. The main bearing assembly consists of a full complement rolling element ball bearing assembly with AISI E52100 ABMA bearing balls that bear both horizontally and vertically on renewable AISI E4340, cold finished, annealed aircraft quality steel to ASTM A331, MIL-S 5000, AMS 6415, cleanliness specification AMS 2301, with mill test reports certifying the material is vacuum de-gassed. Races are ground and heat-treated to hardness between 43 Rockwell C and 48 Rockwell C. The wire race inserts are pressed into the housing and spur gear. The balls run in an oil bath and are protected by a steel dust shield.

The intermediate worm gear reduction unit consists of a worm gear driven by an integral straddle mounted worm and shaft supported by heavy duty rolling element bearings running in an oil bath in conformance with ANSI/AGMA Standards 6022, 6034, and 2004. The worm and shaft are fabricated from heat treated, carburized and ground AISI 8620 alloy steel. The worm gear is centrifugally cast UNS 86300 bronze. The worm gear assemblies are manufactured to a minimum AGMA Tolerance Grade 10 in conformance with ANSI/AGMA 2011-A98.

Power transmission from the intermediate reduction unit to the spur gear is through a one piece alloy steel pinion that extends from the worm gear to the spur gear and is straddle mounted between anti-friction tapered roller bearings to maintain alignment and contact.

The chain drive includes a drive sprocket on the output shaft of the garmotor and a driven sprocket on the worm shaft connected with a steel self lubricated roller chain. The chain drive assembly includes a shear pin coupling assembly to provide backup overload protection. The chain drive assembly is supplied with a 304 stainless steel chain guard that conforms to OSHA requirements.

The helical garmotor is heavy duty parallel shaft type and operates on 3 phase, 60 hertz 230/460 volt power and is at least 1/2 HP and designed for outdoor service.

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The drive includes a factory calibrated indicating overload device actuated by thrust from the worm shaft and operating two electrically isolated SPDT switches. The first switch will close a circuit to a remote alarm when the mechanism torque reaches 100% of the rated continuous running torque of the drive unit. The second switch will open the motor circuit when mechanism torque reaches 125% of the rated continuous running torque of the drive unit to cut power to the motor. The overload limiting device is enclosed in a stainless steel weatherproof housing. A shear pin coupling will provide additional torque limiting protection at higher torque levels.

The drive assembly will receive one (1) prime coat of Tnemec N69-1211 (Red) Hi-Build Epoxoline II, 2.0 mils minimum dry film thickness followed by one (1) finish coat of Tnemec Series 73-32GR (Light Gray) Endura-Shield, 2.0 mils minimum dry film thickness. The motor and primary reducer will be provided with the original manufacturer's standard finish paint. Aluminum, stainless steel, galvanized steel, plastic and other special materials will not be shop painted.

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