



# Twin Disc Marine Transmissions for High Performance Vessels

Since its establishment in 1952 as a joint venture company of Twin Disc, Incorporated, Niigata Converter Co., Ltd., (NICO) of Japan has been specializing in the manufacture of power transmission equipment. NICO has grown to become an acknowledged world leader in the industry and offers a broad range of heavy-duty marine transmissions.

Twin Disc markets the MGN Series in the 515 to 1931 kW (690 to 2590 hp) range and the MGNV Series in the 493 to 1931 kW (661 to 2590 hp) range. These transmissions are ideal for such vessels as large pleasure craft, crew boats and patrol boats whose service classification is in the intermediate duty or pleasure craft (maximum rating) range which require compact propulsion systems with the high-power-to-weight ratios needed to achieve desired vessel performance.

Twin Disc also markets larger MGN Marine Transmissions primarily for applications up through 3729 kW (5000 hp). These transmissions have found widespread acceptance in offshore oil industry vessels, tugs, river and coastal tow boats, cargo transport tankers, long range fishing vessels, ferry boats and research vessels. Request Bulletin 900 for full information.

## The High Performance Line of MGN and MGNV Marine Transmissions.

There are six basic models available in the MGN parallel shaft Series, and five models in the MGNV 10° down angle Series.

These units are compact and lightweight due primarily to built-in hydraulically-actuated, multiple-disc clutches and the utilization of lightweight alloy housings (except for the MGN-80).

All clutches, bearings and gears are positively lubricated and cooled with

100% filtered oil. The clutch driving plates are steel and the driven plates are sintered bronze for lubrication retention and service longevity.

All gear elements are case hardened and precision helical machined from low carbon chrome-molybdenum steel forgings. All shafts are precision machined from forged alloy steel. Conservatively rated bearings are used throughout all transmission models described in this bulletin.

The MGNV Series utilizes conical involute gearing which permits a 10° down angle output shaft as illustrated in the drawing below. This design feature offers the benefits of: near-level engine installation; reduced installation and running angles; and lower center of gravity.

All models in both series are equipped with a come-home feature to assure return to port under emergency conditions.

The MGN and MGNV Series Transmissions offer identical reduction ratios both forward and reverse, and the reverse transfer gear sets are rated for full power continuous duty ahead operation.

### "X" Control

This option provides a means for controlling propeller speed independent of engine in either directional mode when this is desirable because of the nature of the vessel operation.

Examples are travel in restricted waterways where speed limits may be in effect or fishing when propeller speeds even at engine idle may propel the boat at an undesirable speed.

Consult factory for approval if "X" control must be used at speeds above normal engine idle.

### Standard Equipment

Standard equipment on all models in-

cludes filters, pump(s), temperature gauges, transmission-mounted heat exchanger for salt or fresh water cooling, output companion flange and manually-actuated range selector and control valve.

Equal reduction ratios for forward and reverse permit the use of identical standard rotation engines (counterclockwise rotation as viewed from the flywheel), since the power transmission capacity of the forward and reverse components is the same.

### Optional Equipment

Optional features in addition to the "X" control are remote mounting, pressure gauges, on-board spare parts and tools. In addition, survey society certification such as ABS, Lloyd's and others is available.

Use of a torsional coupling may be required to decrease system-related torsional vibrations to within permissible limits. Disregarding propulsion system torsional compatibility could cause damage to components in the drive train resulting in loss of mobility. At minimum, system incompatibility could result in gear clatter at low speeds.

The responsibility for ensuring that torsional compatibility of the propulsion system is satisfactory rests with the assembler of the drive and driven equipment.

Torsional vibration analysis can be made by the engine builder, marine survey societies, independent consultants and others. Twin Disc is prepared to assist in finding solutions to potential torsional problems that relate to the marine transmission.

### Warranty

The MGN and MGNV Series Marine Transmission are designed for long and dependable service. But should you have any trouble, you'll find that Twin Disc's reputation for standing behind their products is built on a centralized Approved Renewal Parts inventory and personnel anxious to serve you. Twin Disc takes great pride in having an equitable warranty program, with each claim handled on an individual basis.

## Installation Arrangement — MGNV Series with 10° Down Angle

