

Twin Disc Products for the Oil and Gas Industries

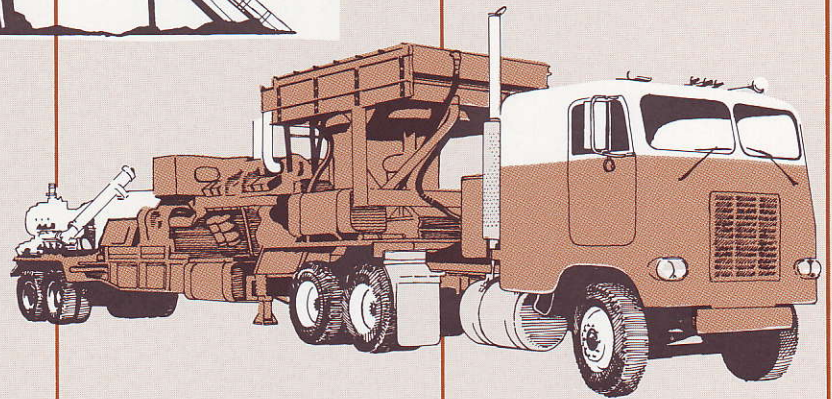
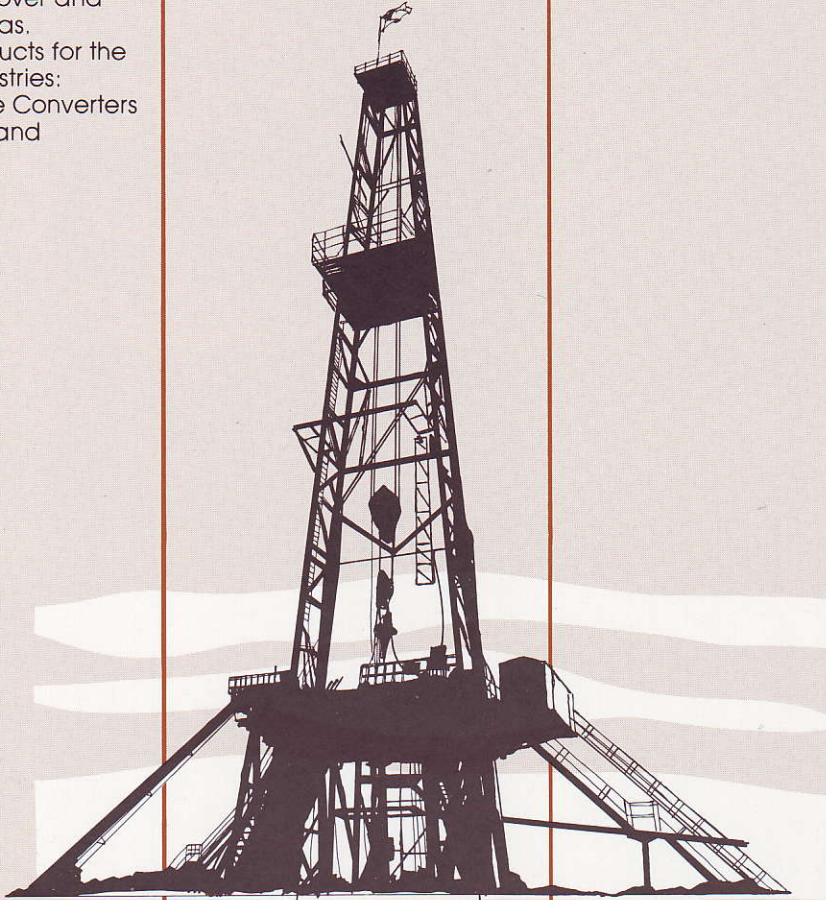
Twin Disc grew up in the Oil Patch.

Twin Disc has been a major supplier to the oil field market since a "twin disc" clutch was first applied to a drawworks.

Today Twin Disc products can be found putting horsepower to work in all types of rotary rigs, mud pumps, drawworks and compressors... throughout the oil and gas industries... wherever there is potential to discover and produce oil or gas.

Twin Disc products for the oil and gas industries: Hydraulic Torque Converters for mud pumps and

drawworks; Power-Shift Transmissions for workover, servicing and fracturing rigs; Disconnecting Fluid Coupling Power Take-Offs for mud pumps; large Air Clutches for drum hoists and disconnects; Universal Joints for rotary table drives; Power Take-Offs for compressor service; and, Marine Transmissions for crew and offshore supply boats.



Hydraulic Products

Twin Disc manufactures an extensive line of hydraulic products including Single-Stage, Three-Stage and TYPE FOUR Hydraulic Torque Converters, Fluid Couplings and the unique Twin Disc Omega Drive®.

Twin Disc Single-Stage, Three-Stage and TYPE FOUR Hydraulic Torque Converters meet the requirements of diesel or electric installations from 22 to 2610 kW (30 to 3500 hp) and are offered in a wide range of types, sizes and capacities with a broad variety of input and output combinations.

Twin Disc Hydraulic Fluid Couplings are provided in a variety of input and output combinations for applications from 7.5 to 1025 kW (10 to 1375 hp).

Power-Shift Transmissions

Twin Disc Power-Shift Transmissions are offered in eight different series covering a range from 112 to 1342 kW (150 to 1800 hp). All series feature Twin Disc's simple countershaft design which enables you to purchase virtually any set of ratios to meet specific needs. In addition, the 6500 and 7000 Series units also contain a planetary section. With a Twin Disc Power-Shift Transmission it is never necessary to compromise speed, design, or fuel economy to meet a given model's ratios. Most models of the straight-through design can be furnished with either an integral engine-mounted hydraulic torque converter and transmission...or an engine-mounted hydraulic torque converter and a remotely-mounted transmission.

Clutches

Twin Disc offers a complete line of mechanical- and air-actuated clutches. These clutches are available in diameters from 89 to 1321 mm (3.5 to 56 in) and capacities up to 718 574 N·m (530 000 lbf-ft) torque.

Industrial Universal Joints

Twin Disc Universal Joints are true heavy-duty industrial universal joints. These American-designed and manufactured J Series U-joints are available in 11 sizes in capacities from 5762 to 338 955 N·m (4250 to 250 000 lbf-ft) rated static torque. A wide range of types, sizes, yokes and accessories are offered.

Power Take-Offs

Twin Disc Power Take-Offs are suitable for applications to all industrial-type internal combustion engines with standard SAE housing dimensions from SAE No. 6 to No. 00. These PTO's contain overcenter clutches to mate with SAE flywheels and range in single-plate size from 165 to 356 mm (6.5 to 14 in); in double-plate size from 292 to 457 mm (11.5 to 18 in); and in triple-plate size from 357 to 533 mm (14 to 21 in).

Twin Disc also offers a broad line of pump-mount power take-offs from one-pump through four-pump models in a wide range of capacities and reduction or speed-up ratios. Maximum input power is up to 876 kW (1175 hp) @ 2000 r/min depending on ratio.

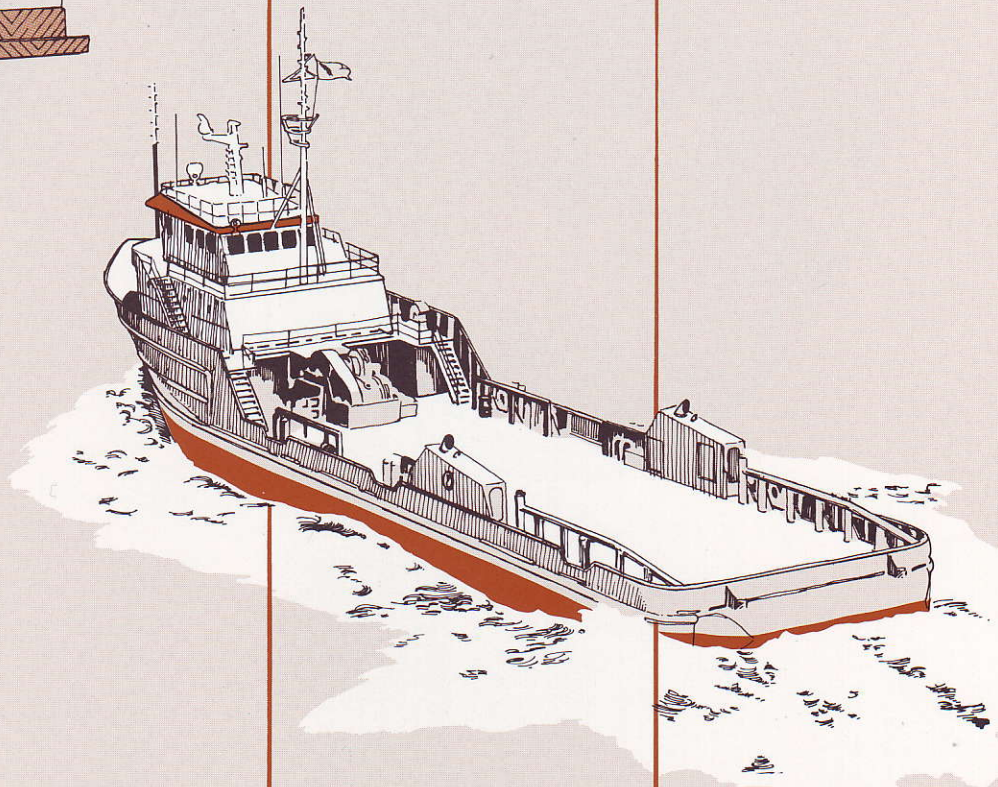
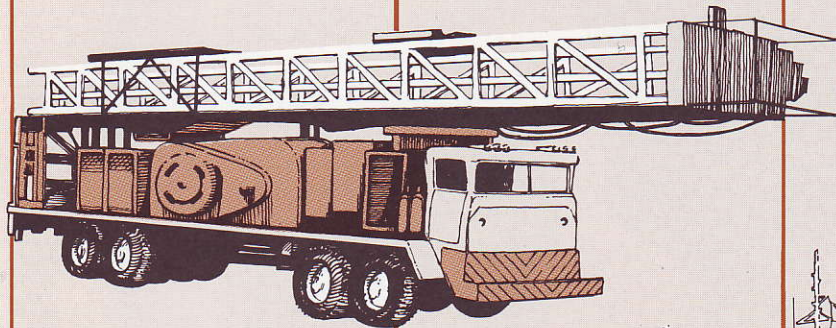
Marine Transmissions

Twin Disc builds a complete line of marine transmissions. There are 12 models with 76 different ratios with a model matched to nearly every marine diesel engine built in the world today, 52 to 746 kW (70 to 1000 hp) range. Twin Disc Marine Transmissions have found wide acceptance for use in crew, supply and offshore service vessels.

Twin Disc backs every marine transmission with approved renewal parts and service available at most major ports throughout the world.

Renewal Parts

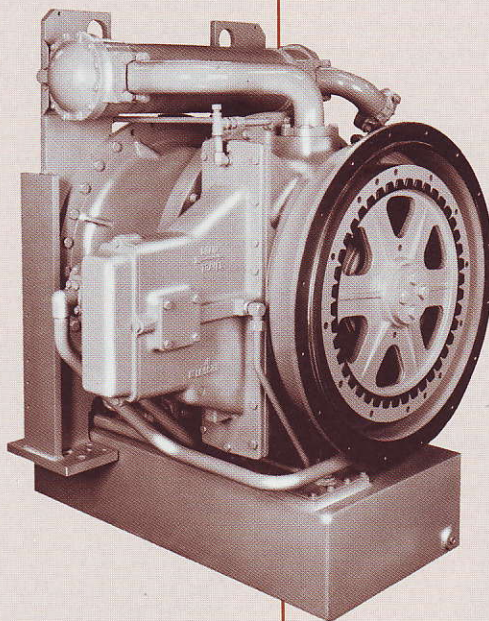
Twin Disc Approved Renewal Parts enable you to repair or overhaul all your Twin Disc components while maintaining original quality and dependability. In addition, Twin Disc has several Renewal Parts Kits which offer the convenience of having all parts needed to renew certain Twin Disc units.



Hydraulic Products

TYPE FOUR

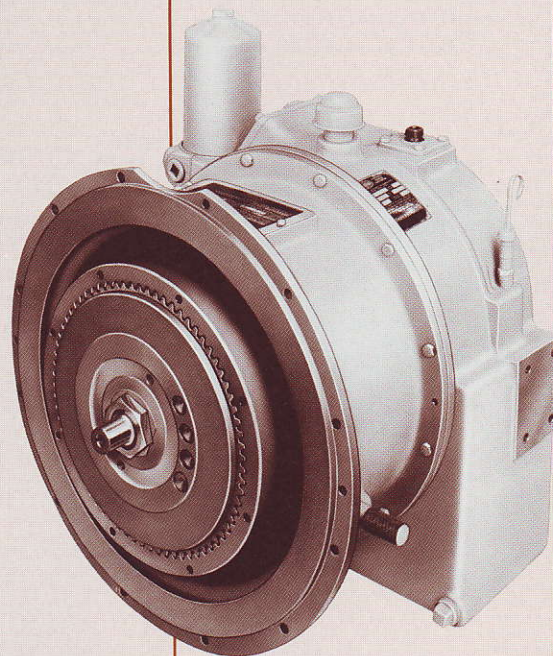
Hydraulic Torque Converters
Designed specifically for the oil and gas industries, these units transfer power from diesel engines and electric motors up to 2610 kW (3500 hp). Offered in four models, these converters provide higher torque multiplication and utilize prime mover power over a greater operating range than previous torque converters used in oil field applications. Bulletin 850.



Single-Stage

Hydraulic Torque Converters
Twin Disc builds a complete line of Single-Stage Rotating-Housing Hydraulic Torque Converters including the 1100, 1300, 1400, 1450, 1500, 1600, 1700, 1750, 1800, 1850 and 2100 Series; the first two digits in the series number indicate the approximate circuit size in inches. Power ranges from 30 to 1007 kW (40 to 1350 hp).

The 381 mm (15 in) size is designed for industrial service, meaning that it is capable of a chain drive off the output shaft. All other sizes are limited to in-line drives only and are used primarily for vehicle applications. Bulletin 510.



Three-Stage

Hydraulic Torque Converters
Twin Disc offers three models of three-stage hydraulic torque converters with 30 distinct capacities. The 10,000 Series three-stage converter is rated for applications up to 250 kW (335 hp) @ 2400 r/min; the Standard-Duty 11,500 Series to 313 kW (420 hp) @ 2200 r/min; and, the Heavy-Duty 11,500 Series to 433 kW (580 hp) @ 2200 r/min. Bulletin 135.

Optional Combinations

A variety of output combinations is available with some three-stage hydraulic torque converters. Types B and F are chain housings; both types are available with the 10,000 and the Standard-Duty 11,500 Series. Type C-1 output is a straight shaft for direct connect to the driven load; Type C-2 is a flanged shaft for universal joint connection; Type C-3 is similar to Type C-1 with extra heavy bearings for side loads. The Heavy-Duty 11,500 Series converters are offered with Type C-3 output, making this series exceptionally adaptable to all applications required to withstand heavy side-pull loads. Optional accessories available for Three-Stage Hydraulic Torque Converters include freewheels, tailshaft governor take-offs, Rubber Block Drives, air-to-oil radiators and a variety of driving rings. Bulletin 135.

Omega Drive®

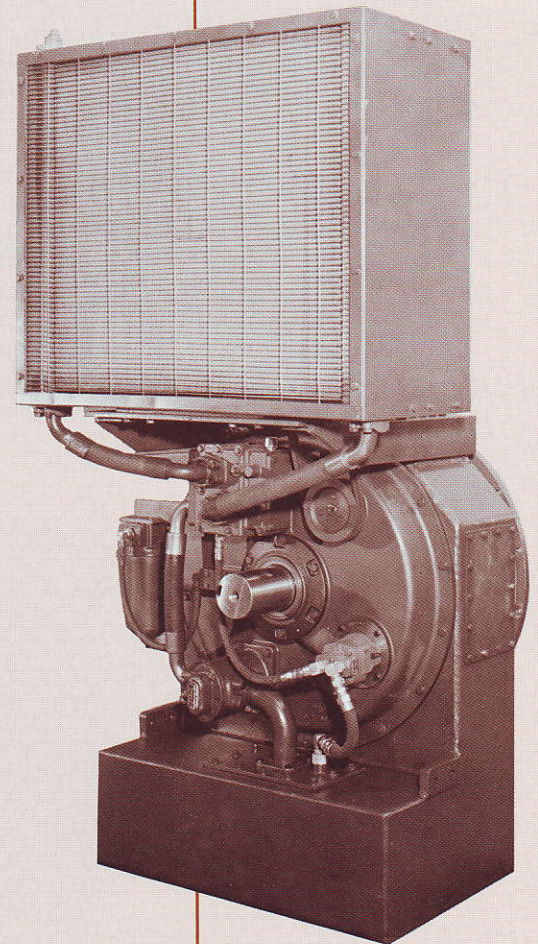
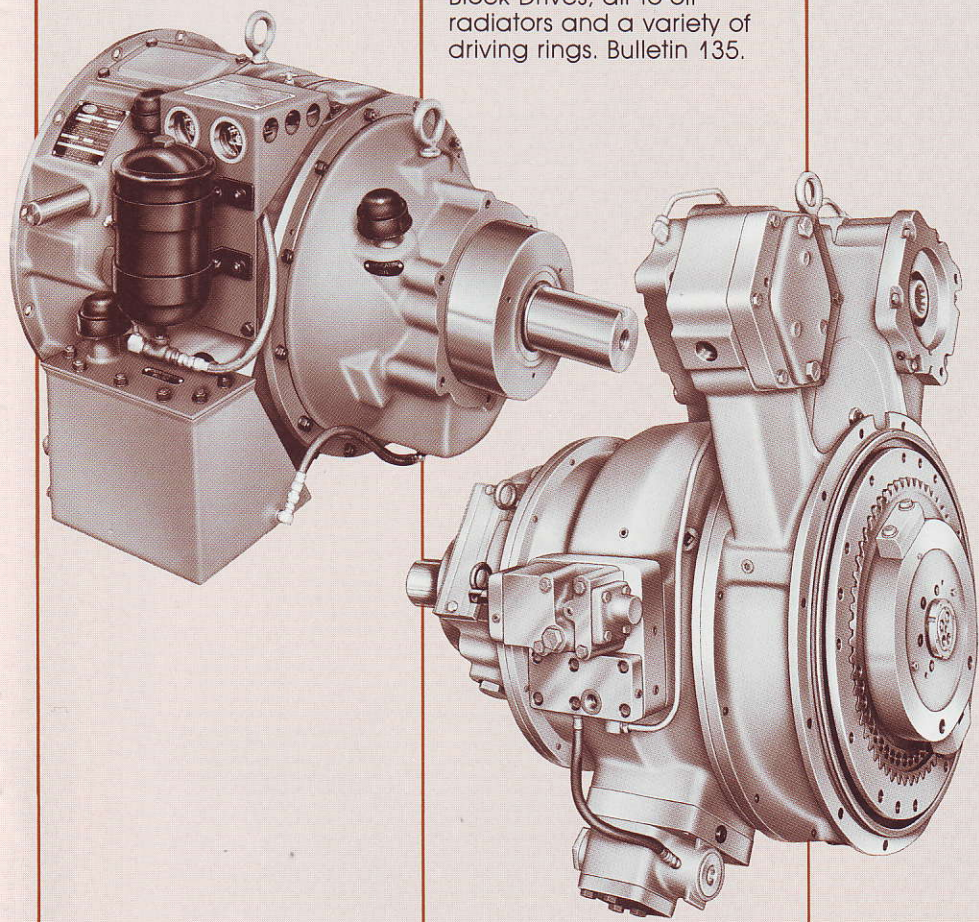
The Omega Drive is a system that combines an oil-actuated clutch and a hydraulic torque converter in one package. The Omega Drive provides variable output shaft speed while at the same time permitting one or more other engine-driven, converter-mounted power take-offs to operate at a constant speed. The Omega Drive mounts up to four engine-driven power take-offs transmitting 50-70% of full engine power.

Modifications engineered to match 56 to 1491 kW (75 to 2000 hp) requirements. Type 4 circuit available in 406, 508, 559 mm (16, 20 and 22 in). Bulletin 515.

Model HUD

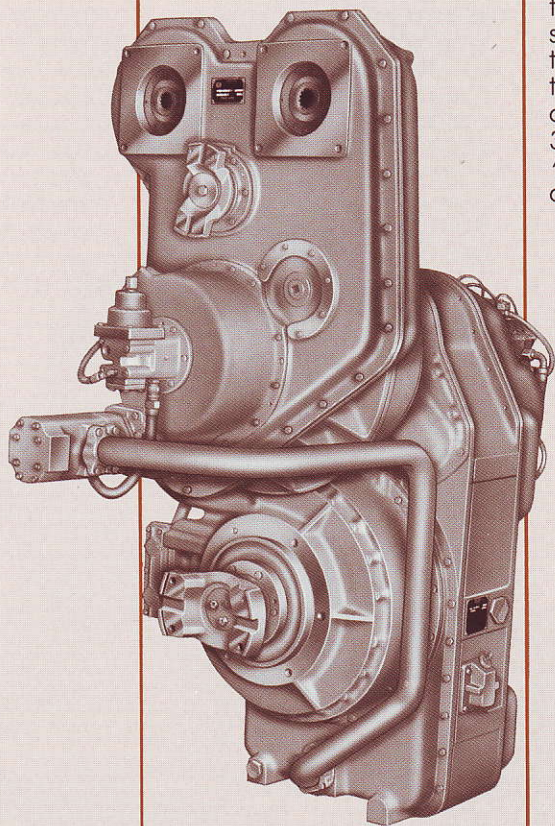
Disconnecting Fluid Coupling PTO.
The Model HUD Disconnecting Fluid Coupling Power Take-Off meets rigid oil field standards for heavy-duty service and high efficiency drive, with the ability to minimize torsional vibrations, cushion shocks, and accelerate heavy loads smoothly.

The Model HUD is rated at 1025 kW (1375 hp) @ 1500 r/min with 6508 N·m (4800 lbf·ft) torque capacity. Optional features include adaptation for compound drives, air-operated control valve for remote control operation and a radiator that is rubber-mounted to minimize vibration problems. Bulletin 195.



Power-Shift Transmissions

Bulletin 330



7000 Series

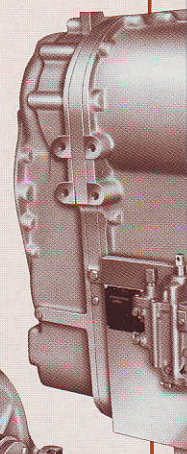
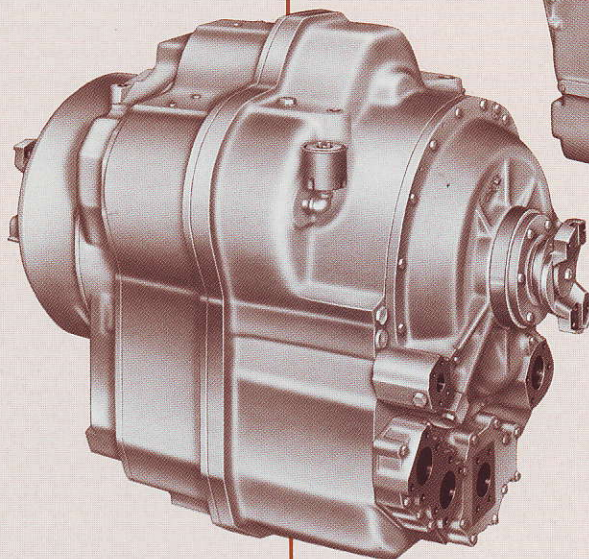
Up to 1193 kW (1600 hp)
maximum speed 1400 to
2100 r/min—Transfer Case
Design

Largest production unit in the Twin Disc line. Offers 3-speeds forward, 3-speeds reverse. Accessory drives can accommodate a combined total of 783 kW (1050 hp). Torque input to the hydraulic torque converter is controlled by a Twin Disc modulated clutch that allows constant engine speed for accessories, while the output speed of the transmission varies. Forward and reverse ratios include 3.50 in 1st, 1.91 in 2nd, and 1.00 in 3rd. Overall ratio coverage is 3.50.

6500 Series

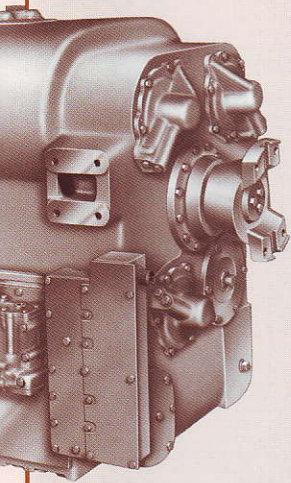
Up to 1342 kW (1800 hp)
maximum speed to 2100
r/min—Co-axial Design

This series power-shift transmission has 9-speeds forward and 0 reverse. Converter is engine-mounted and transmission is remotely-mounted to provide design flexibility and simple installation. Automatic lock-up, retarder and automatic electronic range selector system are standard on this series. Forward ratios include 4.38 to .80.



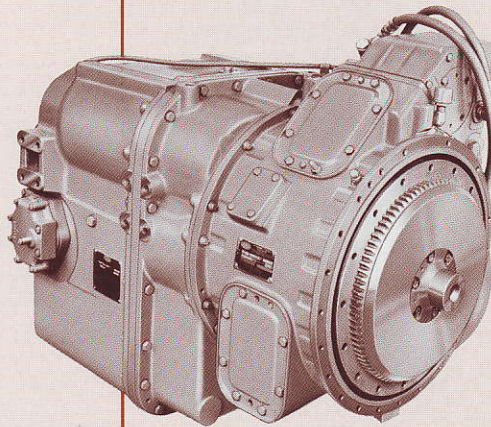
3130 Series

373 to 597 kW (500 to 800 hp) @ 2300 r/min—Co-axial Design
5-speeds forward, 1-speed reverse. Overall ratio spreads of 4.76 or 6.12. Converter/transmission package available as integral design or as separate units for independent mounting. Options include converter lock-up and retarder.



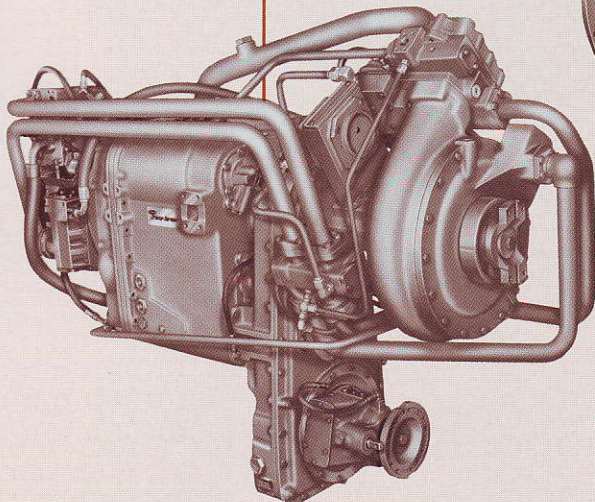
2000 Series

261 to 391 kW (350 to 525 hp) @ 2500 r/min—Co-axial Design
5-speeds forward, 1-speed reverse. Though many other sets of ratios can be made available, four have proved most popular. These have overall ratio coverages of 4.81, 4.88, 5.44 and 5.83. Converter/transmission package available as integral design or separate units. Converter lock-up and retarder are optional.



Trans-Tarder™ Transmission/Retarder

Transmission up to 500 hp @ 2100 r/min, Retarder up to 2500 hp
For well servicing rigs, this unit is a 2000 Series Power-Shift Transmission incorporating a pressure modulated retarder. Provides greater control over heavier loads. Reduced weight permits legal road weight limits. Bulletin 825



1600 Series

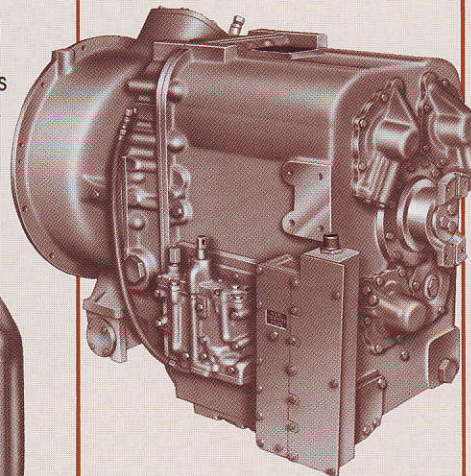
250 to 336 kW (335 to 450 hp) @ 2200 r/min—Co-axial Design
A modified version of the 2000 Series with 3-speeds forward and 3-speeds reverse.

1300 Series

186 to 261 kW (250 to 350 hp) @ 2500 r/min—Co-axial Design
Similar to the 2000 Series with 5-speeds forward, 1-speed reverse or 3-speeds forward, 3-speeds reverse. Overall ratio coverages of 4.22, 5.13, 5.60, 5.94 and 6.35 are available in the 5-speed version. Converter lock-up and retarder are optional.

Stub Shaft for Chain Side Loads

Twin Disc 1300 and 2000 Series Power-Shift Transmissions are offered with a straight output shaft to permit customer installation of chain sprockets for side loads. Consult Twin Disc, Incorporated for permissible side loads for specific application.

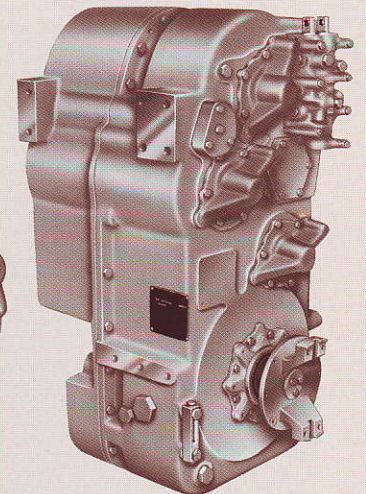


2600 Series

298 to 522 kW (400 to 700 hp) @ 2200 r/min—Transfer Case Design
Available with 4-speeds forward, 4-speeds reverse; or 6-speeds forward, 1-speed reverse, with overall ratio coverages of 5.27 or 6.05. Converter lock-up and retarder are optional.

1130 Series

112 to 242 kW (150 to 325 hp) @ 2800 r/min—Transfer Case Design
Power-shifting in all 4 forward and 4 reverse speeds. Basically a 2-speed forward, 2-speed reverse design compounded with a high-low output speed range clutch to provide four speeds. Also available with 6-speeds forward, 1-speed reverse. Three most popular ratio coverages include 5.92, 7.11 and 7.73. Available as integral design or as separate converter and transmission units. Converter lock-up and retarder are optional.



Clutches

Bulletin 326

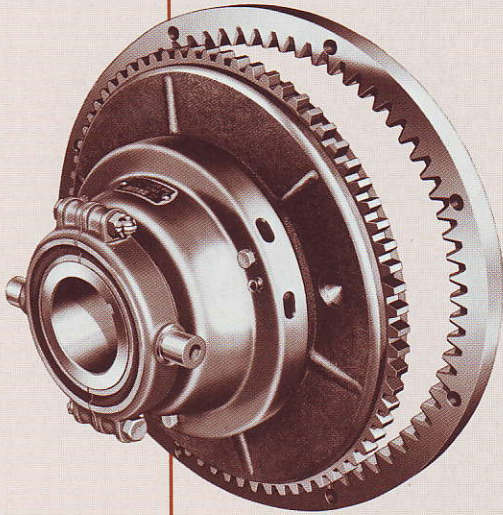
Model CL

Medium Mechanical Clutches

Model CL Clutches are available in sizes 127, 152, 203, 254 and 279 mm (5, 6, 8, 10 and 11 in). Most sizes available in 1, 2 and 3-plate construction.

Working power per 100 r/min ranges from 1.4 to 14.4 kW (1.9 to 19.3 hp).

Working torques range from 132 to 1375 N·m (97 to 1014 lbf·ft). Torque capacity can be increased 33% by use of heavy-duty driving plates on 203 through 279 mm (8 through 11 in) sizes.



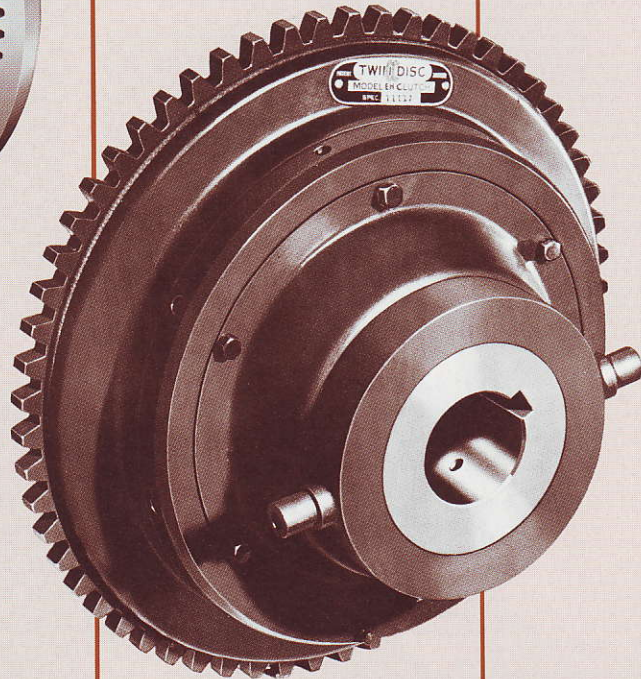
Models E and EH

Large Mechanical Clutches

Models E and EH Clutches are overcenter type clutches for extra-heavy-duty, high-horsepower, high-torque operations.

Sizes include 356, 406 and 457 mm (14, 16 and 18 in). The 356 mm (14 in) and the 406 mm (16 in) models are available in 1 or 2-plate construction. The 457 mm (18 in) model is available in 1, 2 or 3-plate construction.

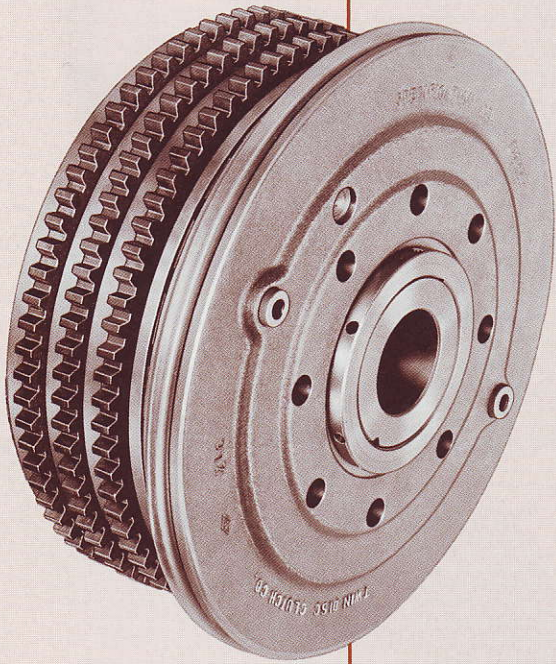
Working power per 100 r/min ranges from 1241 to 7677 N·m (915 to 5655 lbf·ft). Maximum engine power recommended includes 127 to 552 kW (170 to 740 hp) for light duty; 97 to 321 kW (130 to 430 hp) for normal duty; and, 71 to 186 kW (95 to 250 hp) for heavy duty. Complete range of optional driving rings, throwout forks and hand levers available.



Model PO

Medium Air Clutches

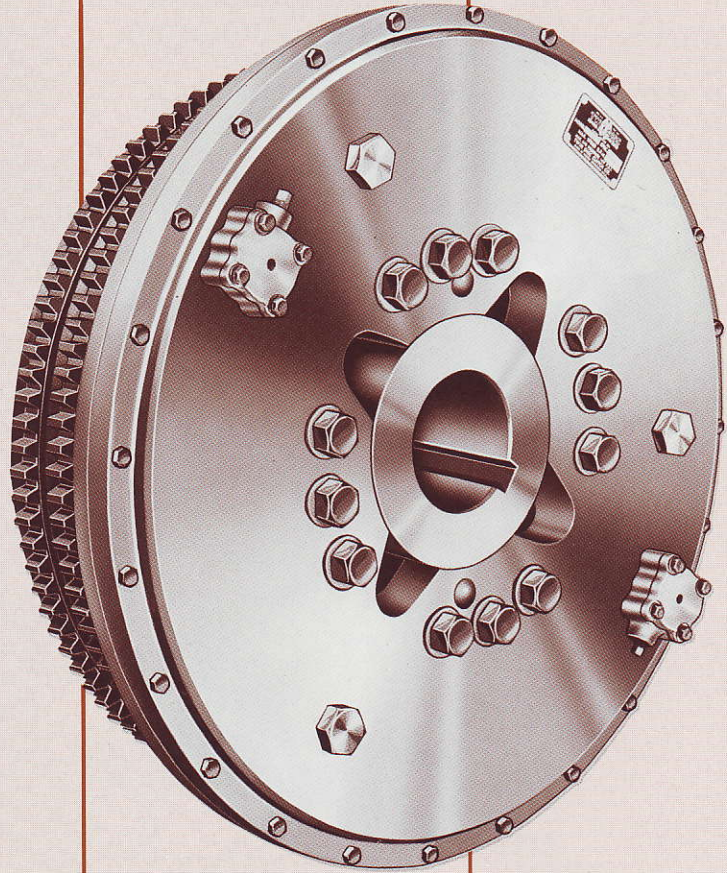
Medium Model PO Air Clutches are available in sizes of 203, 254 and 289 mm (8, 10 and 11.375 in) diameters and in 1, 2 or 3-plate construction. Power per 100 r/min ranges from 2.75 to 25 kW (3.7 to 33.3 hp). Slip torque at 896 kPa (130 psi) ranges from 529 to 4718 N·m (390 to 3480 lbf·ft)...torque capacity can be increased 33% by use of heavy-duty plates.



Model PO

Large Air Clutches

Large Model PO Air Clutches are available in sizes 356, 457, 610, 762, 914 and 1067 mm (14, 18, 24, 30, 36, 42 and 52 in.) diameters, with most sizes available in 1, 2 or 3-plate construction. Power per 100 r/min ranges from 40 to 5644 kW (54 to 7569 hp). Slip torque at 896 kPa (130 psi) ranges from 5084 up to 718 574 N·m (3750 to 530 000 lbf·ft).



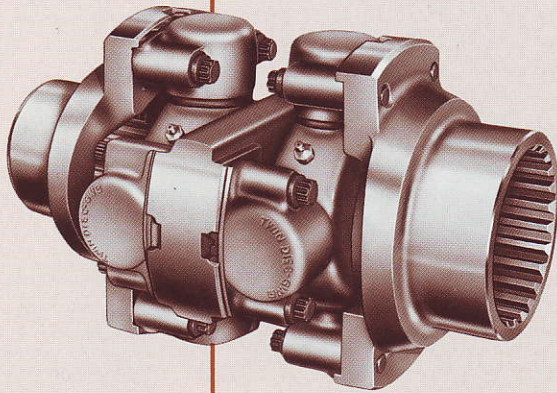
Rubber Block Drives

Twin Disc offers Rubber Block Drives for internal combustion engine power transmission applications that do not require a disconnect clutch. These are excellent for installations such as pumps, compressors, and single and double bearing generator drives. Standard sizes available include a 279, 356, 457 and two 533 mm (11, 14, 18 and 21 in) units. One 533 mm (21 in) unit has a single-row of blocks; the other 533 mm (21 in) unit contains a double-row of blocks. Other sizes can be purchased in production quantities only. Bulletin 313.

Industrial Universal Joints

Twin Disc Universal Joints are true heavy-duty industrial universal joints.

Twin Disc now offers 11 sizes of American-designed and manufactured J Series industrial universal joints—J-170, J-230, J-310, J-490, J-600, J-800, J-1200, J-2500, J-4000, J-6500, J-10,000—with different types in each size. Capacities range from 5762 to 338 955 N·m (4250 to 250 000 lbf·ft) rated static torque. Twin Disc is the first American manufacturer to calculate a U-joint lifespan based on all four variables—torque, speed, angularity and application factors. For this reason, you can choose a U-joint designed to match the predicted lifespan of the other components in your drive system. Bulletin 525.

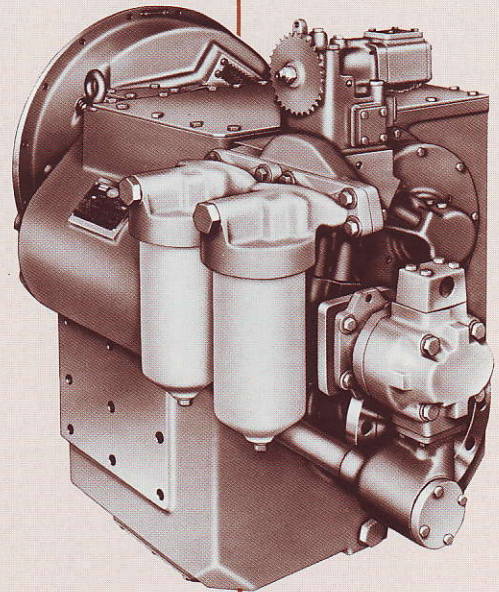


Marine Transmissions

Quality, dependability and smooth operation has made Twin Disc the leading name in hydraulic marine transmissions throughout the world.

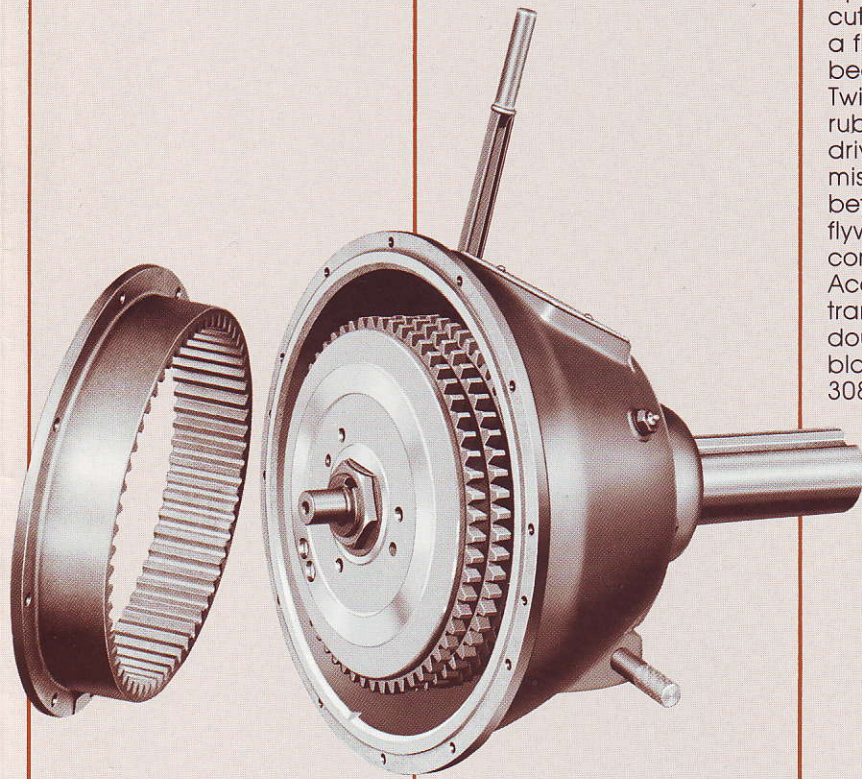
Twin Disc marine products include a wide range of options: Omega Power Control, top and front power take-offs, pump-mount power take-offs, trolling valves, heat exchangers, various input housings and output coupling flanges. Twin Disc has a marine transmission for virtually every marine engine in the 52 to 746 kW (70 to 1000 hp) continuous-duty range.

Most Twin Disc Marine Transmissions are designed for continuous operation with identical ratios in either forward or reverse...thus, in many cases, same-rotation engines can be used in twin installations. All Twin Disc Marine Transmissions feature hydraulically-actuated and oil-cooled clutches for smooth, fast, fingertip response. Bulletin 319.



Power Take-Offs **Standard**

Easy-to-mount unit consisting of clutch assembly with shaft and bearings in rigid cast iron housing. Designed for manual operation on all internal combustion engines with standard SAE flywheel housing from No. 6 to No. 00. Triple-plate 356 to 533 mm (14 to 21 in); double-plate 292 to 457 mm (11.5 to 18 in); single-plate 165 to 356 mm (6.5 to 14 in). Capacities to 1454 kW (1950 hp) and to 11 389 N·m (8400 lbf·ft) torque. Bulletin 308.



Limited-Attendance

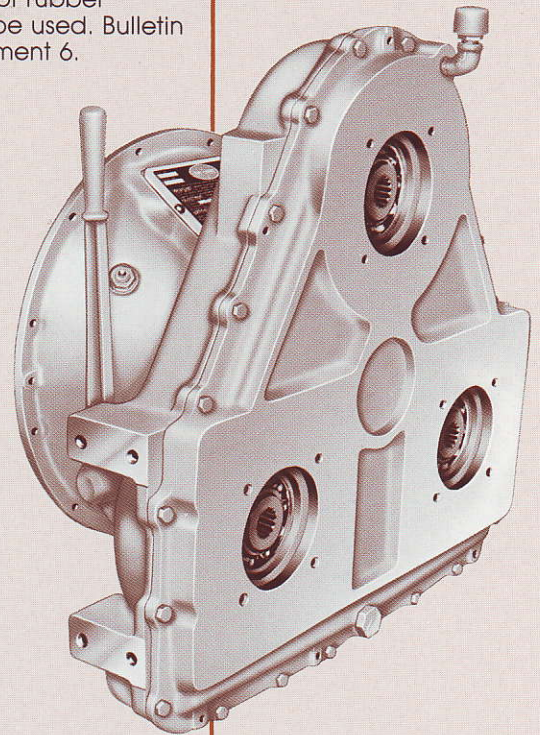
To meet the oil field pumping requirement for a power take-off which can operate continuously for six months without additional lubrication, Twin Disc offers nine models of Limited-Attendance PTO's. These units cover a range of 21 to 195 kW (28 to 261 hp). Bulletin 308, Supplement 2.

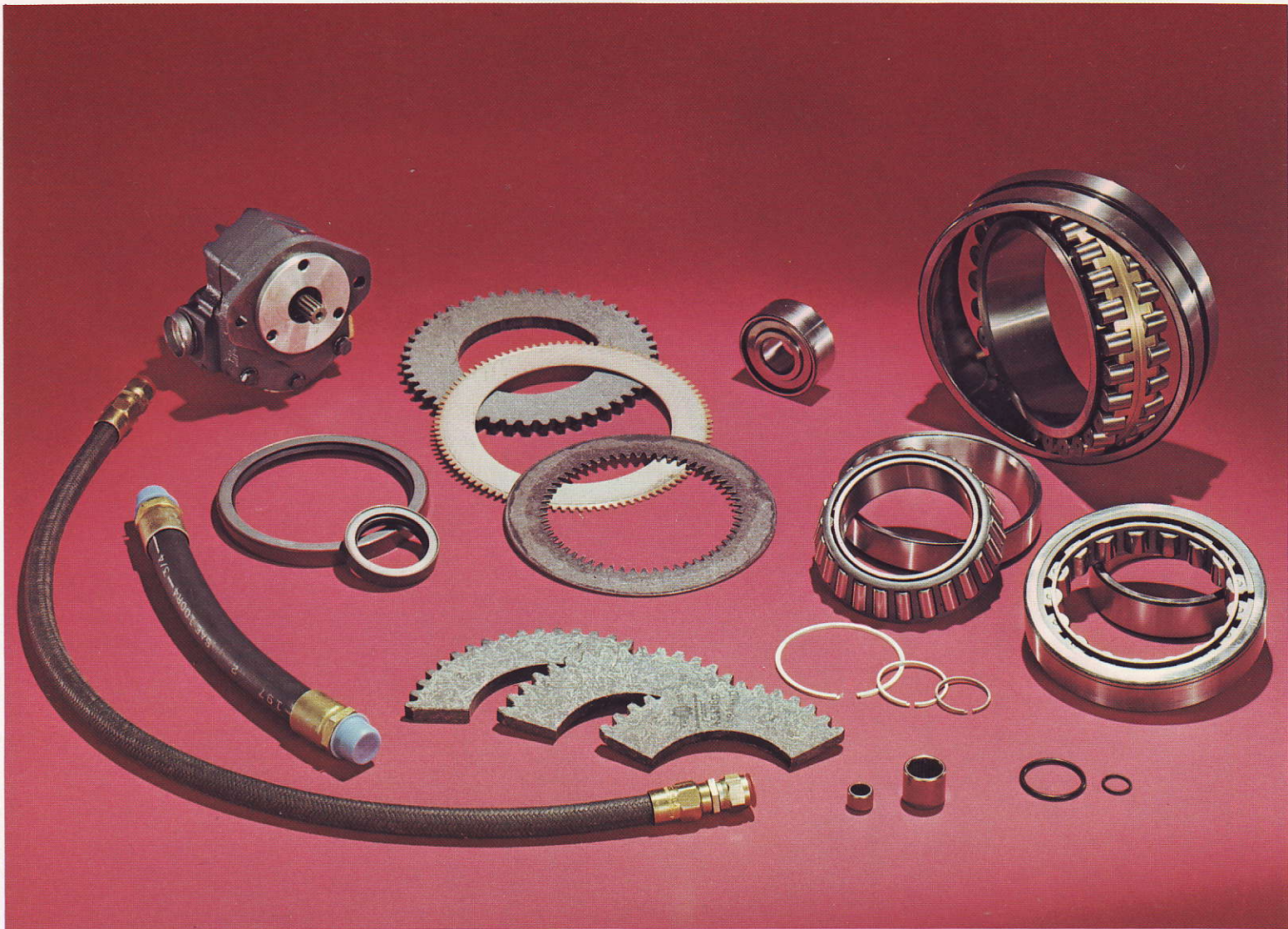
Rubber Block

This special purpose PTO is intended for heavy-duty applications not requiring a cut-off clutch. The need for a flywheel pilot bearing has been eliminated by use of Twin Disc's time-proven rubber block drive. This drive absorbs the minor misalignment usually found between the engine flywheel and the PTO connecting members. According to the load to be transmitted, a single or double row of rubber blocks can be used. Bulletin 308, Supplement 6.

Pump-Mount

Twin Disc offers a complete line of one-pump through four-pump mount power take-off units for applications requiring total maximum input torque to 3346 N·m (2468 lbf·ft). Maximum input power is up to 876 kW (1175 hp) @ 2000 r/min depending on ratio. Pads through SAE "F" can be provided. Input options include clutches, rubber block drives, flex-plates, and independent types. Output options include special "live" output clutch PTO units and independent shafts. Depending on the unit, reduction or speed-up ratios include .707, .800, .815, .898, .904, 1.0, 1.106, 1.152, 1.250, 1.325, 1.415 and 1.605. Bulletin 333.





Approved Renewal Parts

Your investment in the repair or overhaul of productive equipment should deliver a return in the form of reliable operation over an extended service life. When you specify Twin Disc Power Transmission Components, you get high performance and dependability...Twin Disc is vitally concerned with helping you keep this original performance throughout the life of your component. All Twin Disc

Approved Renewal Parts are manufactured or selected to maintain or improve the value of your unit.

The cost of replacement parts is a very small part of operating expense, while the quality of the parts installed during repair can have a substantial effect on operating revenues. When you insist on Twin Disc Approved Renewal Parts, you know that your Twin Disc

unit has been RENEWED—not just repaired—and that the replacement parts have been furnished to maintain your confidence in the value and quality of Twin Disc Components.

When offered a substitute part, your concern for quality prompts questions...

- A bearing might "cross-match", but, does it meet the precise installed rolling internal clearance and load/speed capacity of the specified original?
- An "O" ring might be dimensionally equal to

the original, it may look and feel the same, but, is the material specification identical...will it hold up in operation?

Why be in doubt when you have so much depending on productive performance? All parts furnished by Twin Disc are equal to or better than the original.

When your Twin Disc Component needs attention, see your Authorized Twin Disc Distributor and specify TWIN DISC APPROVED RENEWAL PARTS.

IMPORTANT NOTICE: Twin Disc, Incorporated reminds users of these products that their safe operation depends on use in compliance with engineering information provided in this catalog. Users are also reminded that safe operation depends on proper installation, operation and routine maintenance and inspection under prevailing conditions. It is the responsibility of users (and not Twin Disc, Incorporated) to provide and install guards or safety devices which may be required by recognized safety standards or by the Occupational Safety and Health Act of 1970 and its subsequent provisions.

