

## Scope of supply (basic version)

### Casing

Torsion resistant, lightweight cast alloy (sea-water resistant) with machined faces and threaded holes for connecting rigid or elastic mounting brackets. All threaded connections utilise steel inserts.

### Gears and shafts

Case hardened and ground single helical gears with optimised tooth profile for minimum noise and maximum strength. Shafts supported by anti-friction roller bearings.

### Clutches

Multi-disc clutches with sintered clutch plates designed to withstand maximum peak stresses, both mechanical and thermal, and for long life. Smooth operation ensured by precise hydraulic control and lubrication.

### Hydraulic Control and Lubrication System

The casing also serves as an oil reservoir for the pressure lubrication and hydraulic control systems. Clutch discs, gears and bearings are individually lubricated, oil pressure being provided by the pump which also supplies the control circuit and clutch actuating pressure. The pump is gear driven from the input shaft with standard pump speed ratio designed for engines with nominal speed above 1650 rpm, and idle speed above 415 rpm. Optional drive ratios are available for slower speed engines.

### Oil filter

Rotary, "comb-type" filter for full-flow filtration of oil. Environmentally friendly and economical (no insert disposal problems!), the filter can also be cleaned while the engine is operating.

### Oil cooler

Sea-water resistant, tube cooler integrated in transmission casing. Suitable for use up to 40 °C at rated power. Consult ZF for remote mounted and higher capacity coolers.

### Input Drive

*Standard and A-Version:*  
Shaft stub with 1 : 30 taper for hydraulic assembly of coupling or input flange.

*'U'-version and 'V'-drive:*  
Standard input flange shrunk onto shaft.

### Output Drive

*Standard, 'U'-drive and 'V'-drive:*  
Output flange forged with shaft.

### Propeller thrust bearing

Generously dimensioned, anti-friction roller thrust bearing to take both ahead and astern thrust.

### Gearbox control

The unit includes all valves and other control equipment for the operating and lubricating oil circuits. Mechanical actuation standard, electrical or pneumatic optional. Top mounted control unit can be serviced easily.

### Monitoring System

Connections available for installing equipment to monitor temperature, clutch oil pressure, lubricating oil pressure, filter differential pressure etc. Pressure and temperature sensors available to meet customer and/or Classification requirements. Associated terminal boxes, cabling and fixtures optional.

### Works Testing

Every transmission is subjected to function and load tests prior to delivery. Special test procedures may be accommodated on request.

### Paint

*Standard:*  
Synthetic resin varnish; colour grey to RAL 7001 specification.