The TWD1643GE is a powerful, reliable and economical Generating Set Diesel Engine built on the dependable in-line six design.

**Durability & low noise**

Designed for easiest, fastest and most economical installation. Well-balanced to produce smooth and vibration-free operation with low noise level. To maintain a controlled working temperature in cylinders and combustion chambers, the engine is equipped with piston cooling. The engine is also fitted with replaceable cylinder liners and valve seats/guides to ensure maximum durability and service life of the engine.

**Low exhaust emission**

The state of the art, high-tech injection and charging system with low internal losses contributes to excellent combustion and low fuel consumption. The TWD1643GE is certified for EPA Tier 2. An additional feature is that TWD1643GE fulfils EU Stage 2 exhaust emission levels.

**Easy service & maintenance**

Easily accessible service and maintenance points contribute to the ease of service of the engine.

**Technical description**

**Engine and block**

- Optimized cast iron cylinder block with optimum distribution of forces without the block being unnecessarily heavy.
- Wet, replaceable cylinder liners
- Piston cooling for low piston temperature and reduced ring temperature
- Tapered connecting rods for reduce risk of piston cracking
- Crankshaft induction hardened bearing surfaces and fillets with seven bearings for moderate load on main and high-end bearings
- Case hardened and Nitrocarburized transmission gears for heavy duty operation
- Keystone top compression rings for long service life
- Viscous type crankshaft vibration dampers to withstand single bearing alternator torsional vibrations
- Replaceable valve guides and valve seats
- Over head camshaft and four valves per cylinder

**Lubrication system**

- Full flow oil cooler
- Full flow disposable spin-on oil filter, for extra high filtration
- The lubricating oil level can be measured during operation
- Gear type lubricating oil pump, gear driven by the transmission

**Fuel system**

- Non-return fuel valve
- Electronic unit injectors
- Fuel prefilter with water separator and water-in-fuel indicator / alarm
- Gear driven low-pressure fuel pump
- Fine fuel filter with manual feed pump and fuel pressure switch
- Fuel shut-off valve

**Cooling system**

- New TWD-cooling system with optimized priority and cold start valves
- Two water cooled charge air coolers
- Efficient cooling with accurate coolant control through a water distribution duct in the cylinder block. Reliable sleeve thermostat with minimum pressure drop
- Gear driven, maintenance-free coolant pump with high degree of efficiency
- Coolant filter as standard

**Turbo charger**

- Efficient and reliable dual stage turbo chargers
- Intermediate charge air coolers for both turbo chargers
- Waste gate system for the high pressure turbo charger

**Electrical system**

- Engine Management System 2 (EMS 2), an electronically controlled processing system which optimizes engine performance. It also includes advanced facilities for diagnostics and fault tracing
- The instruments and controls connect to the engine via the CAN SAE J1939 interface, either through the Control Interface Unit (CIU) or the Display Control Unit (DCU). The CIU converts the digital CAN bus signal to an analog signal, making it possible to connect a variety of instruments. The DCU is a control panel with display, engine control, monitoring, alarm, parameter setting and diagnostic functions. The DCU also presents error codes in clear text.
- Sensors for oil pressure, oil temp, boost pressure, boost temp, exhaust temp, coolant temp, fuel temp, water in fuel, fuel pressure and two speed sensors.
Technical Data

General

Engine designation: TWD1643GE
No. of cylinders and configuration: in-line 6
Method of operation: 4-stroke
Bore, mm (in.): 144 (5.67)
Stroke, mm (in.): 165 (6.50)
Displacement, l (in³): 16.12 (983.7)
Compression ratio: 16.5:1
Dry weight, kg (lb): 1700 (3748)
Dry weight with Gen Pac, kg (lb): 2200 (4850)
Wet weight, kg (lb): 1770 (3902)
Wet weight with Gen Pac, kg (lb): 2370 (5225)

Performance

1500 rpm 1800 rpm
with fan, kW (hp) at:
Prime Power 536 (729) 585 (796)
Max Standby Power 596 (811) 644 (876)

Lubrication system

1500 rpm 1800 rpm
Oil consumption, liter/h (US gal/h) at:
Prime Power 0.10 (0.026) 0.10 (0.029)
Max Standby Power 0.11 (0.029) 0.11 (0.032)

Fuel system

1500 rpm 1800 rpm
Specific fuel consumption at:
Prime Power, g/kWh (lb/hph) 215 (0.349) 224 (0.363)
25 % 196 (0.318) 201 (0.326)
50 % 196 (0.318) 197 (0.319)
75 % 196 (0.318) 199 (0.320) 203 (0.327)
100 % 210 (0.340) 220 (0.357)
Max Standby Power, g/kWh (lb/hph) 215 (0.349) 224 (0.363)
25 % 196 (0.318) 201 (0.326)
50 % 196 (0.318) 197 (0.319)
75 % 196 (0.318) 198 (0.321)
100 % 200 (0.324) 204 (0.331)

Intake and exhaust system

1500 rpm 1800 rpm
Air consumption, m³/min (cfm) at:
Prime Power 44 (1541) 53 (1874)
Max Standby Power 47 (1658) 55 (1937)
Max allowable air intake restriction, kPa (In wc) 5 (20.1) 5 (20.1)
Heat rejection to exhaust, kW (BTU/min) at:
Prime Power 415 (23601) 472 (26842)
Max Standby Power 463 (26330) 540 (30709)
Exhaust gas temperature after low pressure turbine, °C (°F) at:
Prime Power 450 (842) 422 (792)
Max Standby Power 463 (865) 481 (862)
Max allowable back-pressure in exhaust line, kPa (In wc) 10 (40.2) 10 (40.2)
Exhaust gas flow, m³/min (cfm) at:
Prime Power 101.6 (3586) 119 (4201)
Max Standby Power 111.8 (3949) 130.1 (4593)

Standard equipment

Engine

Automatic belt tensioner
Lift eyelets
Flywheel
Flywheel housing with comp. acc. to SAE 1
Flywheel for 14° flex. plate and flexible coupling
Vibration dampers
Engine suspension
 Fixed front suspension
Lubrication system
Oil dipstick
Full-flow oil filter of spin-on type
By-pass oil filter of spin-on type
Oil cooler, side mounted
Low noise oil pump
Fuel system
Fuel filters of spin-on type
Electronic unit injectors
Pre-filter with water separator
Intake and exhaust system
Air filter without rain cover
Air restriction indicator
Air cooled exhaust manifold
Connecting flange for exhaust pipe
Exhaust flange with v-clamp
Turbo chargers, dual stage, right side
Cooling system
TWD-cooling system, tropical
Gear driven coolant pump
Fan hub
Pusher fan
Fan guard
Belt guard
Control system
Engine Management System (EMS) with CAN-bus interface SAE J1939
CIU, Control Interface Unit
DCU, Display Control Unit
Alternator
Alternator 80 A / 24 V
Starting system
Starter motor, 7.0kW, 24 V
Connection facility for extra starter motor
Instruments and senders
Temp. and pressure for automatic stop/alarm
Other equipment
Expandable base frame
Engine Packing
Plastic warping

Engine Gen Pac

Power Standards

The engine performance corresponds to ISO 3046, BS 5514 and DIN 6271. The technical data applies to an engine without cooling fan and operating on a fuel with calorific value of 42.7 MJ/kg (18360 BTU/lb) and a density of 0.84 kg/liter (7.01 lb/US gal), also where this involves a deviation from the standards. Power output guaranteed within 0 to +2% at rated ambient conditions at delivery. Ratings are based on ISO 8528.

Engine speed governing in accordance with ISO 3046, BS 5514 and DIN 6271. The technical data applies to an engine without cooling fan and operating on a fuel with calorific value of 42.7 MJ/kg (18360 BTU/lb) and a density of 0.84 kg/liter (7.01 lb/US gal), also where this involves a deviation from the standards. Power output guaranteed within 0 to +2% at rated ambient conditions at delivery. Ratings are based on ISO 8528.

Rating Guidelines

PRIME POWER rating corresponds to ISO Standard Power for continuous operation. It is applicable for supplying electrical power at variable load for an unlimited number of hours instead of commercially purchased power. 10% overload capability for governing purpose is available for this rating. MAXIMUM STANDBY POWER rating corresponds to ISO Standard Fuel Stop Power. It is applicable for supplying standby electrical power at variable load in areas with well established electrical networks in the event of normal utility power failure. No overload capability is available for this rating.

1 hp = 1 kW x 1.36

A* = 1930 mm / 76 in
B* = 1350 mm / 53.1 in
C = 2362 mm / 93 in
D = 2399 mm / 94.5 in (During transport)
D = Max 3255 mm / 128.2 in

Note! Not all models, standard equipment and accessories are available in all countries.

The engine illustrated may not be entirely identical to production standard engines.