VOLVO PENTA GENSET ENGINE

TAD1631GE

1500 rpm, 478 kW (650 hp)
1800 rpm, 546 kW (743 hp)

Reliable & powerful

The TAD1631GE is a powerful, reliable and economical Generating Set diesel built on the dependable in-line six design.

Durability & low noise

Designed for the easiest, fastest and most economical installation. Well-balanced to produce smooth and vibration-free operation with low noise level.

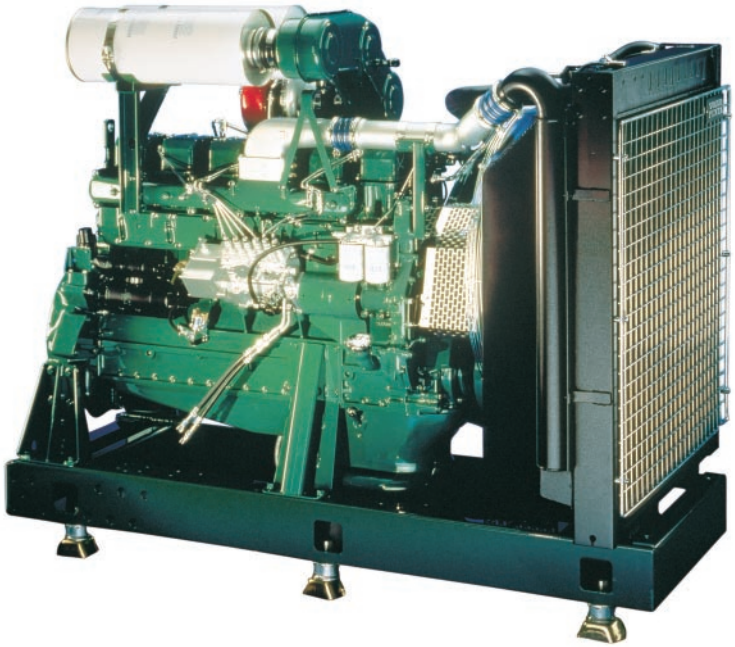
To maintain a controlled working temperature in cylinders and combustion chambers, the engine is equipped with piston cooling. The engine is also fitted with replaceable cylinder liners and valve seats/guides to ensure maximum durability and service life of the engine.

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 TAD1631GE complies with EPA/CARB Tier 1 and TA-Luft exhaust emission regulations.

Easy service & maintenance

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



Features

- Maintained performance, air temp 40°C, altitude 1000m
- Tropical cooling system (55°C)
- Guaranteed power output 0 to +2%
- El. Governing (GAC-ACB275)
- Low exhaust emissions
- Low noise levels
- Gen Pac configuration

Technical description:

Engine and block

- Optimized cast iron cylinder block with optimum distribution of forces without the block being unnessarily heavy.
- Wet, replaceable cylinder liners with flame barrier that protects the cylinder head gaskets against high temperatures.
- Piston cooling for low piston temperature and reduced ring temperature
- Tapered connecting rods to reduce risk of piston cracking
- Nitrocarburized crankshaft with seven bearings for moderate load on main bearings
- 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

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

- Bosch fuel injection system including accurate electronic governor.
- Non-return fuel valve
- Twin fuel filters of disposable type.
- Gear type lubricating oil pump, gear driven by the transmission.
- Fine fuel filter with manual feed pump and fuel pressure switch

Turbo charger

- Efficient and reliable turbo charger

Cooling system

- Air to air intercooler
- Gear driven, maintenance-free coolant pump with high degree of efficiency
- Efficient cooling with accurate coolant control through a water distribution duct in the cylinder block. Reliable sleeve thermostat with minimum pressure drop
- Automatic fan drive belt tensioner.

Electrical system

- Electronic speed governor system controls the engine speed in droop or ischronous mode. The system includes a control unit, speed sender and electro-magnetic actuator (ACB275)

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Technical Data

General

Engine designation	TAD1631GE
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 (in^3)	16.12 (984)
Compression ratio	15.0:1
Dry weight, kg (lb)	1552 (3422)
With Gen Pac, kg (lb)	1809 (3989)
Wet weight, kg (lb)	1669 (3680)
With Gen Pac, kg (lb)	1931 (4258)

Performance

with fan, kW (hp)	1500 rpm	1800 rpm
Prime Power	435 (591)	493 (671)
Maximum Standby Power	478 (650)	546 (743)

Lubrication system

Oil consumption at liter/h (US gal/h)	1500 rpm	1800 rpm
Prime Power	0.12 (0.032)	0.16 (0.042)
Maximum Standby Power	0.13 (0.034)	0.18 (0.048)

Oil system capacity incl filters, liter	64
Oil change intervals at specification	
VDS-2, h	600
VDS, ACEA E3, h	400
ACEA E1, E2, API CD, CF, CF-4, CG-4, h	200

Fuel system

Specific fuel consumption at Prime Power, g/kWh (lb/hph)

	1500 rpm	1800 rpm
25 %	230 (0.373)	240 (0.389)
50 %	210 (0.340)	214 (0.347)
75 %	205 (0.332)	208 (0.337)
100 %	209 (0.339)	212 (0.344)

Specific fuel consumption at Maximum Standby Power, g/kWh (lb/hph)

	1500 rpm	1800 rpm
25 %	227 (0.368)	236 (0.383)
50 %	208 (0.337)	212 (0.344)
75 %	205 (0.332)	208 (0.337)
100 %	213 (0.345)	217 (0.352)

Intake and exhaust system

Air consumption at 25°C, m^3/min (cfm)

	1500 rpm	1800 rpm
Prime Power	31.8 (1123)	39.3 (1388)
Standby Power	34.3 (1211)	41.8 (1476)

Max allowable air intake restriction, kPa (In wc)	5 (20.1)

Heat rejection to exhaust, kW (BTU/min)

	1500 rpm	1800 rpm
Prime Power	369 (20984)	415 (23600)
Maximum Standby power	416 (23657)	482 (27410)

Exhaust gas temperature after turbine, °C (°F)

	1500 rpm	1800 rpm
Prime Power	550 (1015)	520 (965)
Standby Power	565 (1045)	560 (1035)
Max allowable back-pressure in exhaust line, kPa (In wc)	5 (20.1)	7 (28.1)
Exhaust gas flow, m^3/min (cfm)	1500 rpm	1800 rpm
Prime power	90.3 (3189)	105 (3708)
Maximum Standby Power	99.0 (3496)	116.6 (4117)

Cooling system

Heat rejection radiation from engine, kW (BTU/min)

	1500 rpm	1800 rpm
Prime Power	26 (1478)	30 (1706)
Standby Power	29 (1649)	33 (1877)

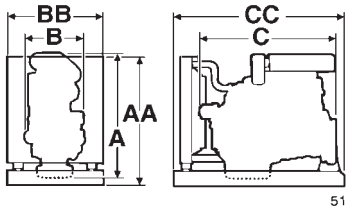
Heat rejection to coolant kW (BTU/min)

	1500 rpm	1800 rpm
Prime Power	180 (10236)	211 (11999)
Maximum Standby Power	195 (11089)	235 (13364)

Fan power consumption	
kW (hp) 1500 rpm	7 (10)
kW (hp) 1800 rpm	12 (16)

Standard equipment	Engine	Gen Pac
Engine		
Automatic belt tensioner	•	•
Lift eyelets	•	•
Flywheel		
Flywheel housing with conn. acc. to SAE 1	•	•
Flywheel for 14" flexible plate and flexible coupling	•	•
Vibration damper	•	•
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	•	•
Fuel system		
Twin fuel filters of disposable type	•	•
Flexible fuel lines	–	•
Injection pump, Bosch, with GAC electrical governor	•	•
Pump coupling guard	•	•
Intake and exhaust system		
Air filter of disposable type	•	•
Air restriction indicator	•	•
Air cooled exhaust manifold	•	•
Connecting flange for exhaust line	•	•
Turbocharger	•	•
Crankcase ventilation	•	•
Cooling system		
Tropical radiator and intercooler	•[1)]	•
Radiator guard	–	–
Gear driven coolant pump	•	•
Fan hub	•	•
Thrust fan	–	•
Fan guard	–	•
Belt guard	–	•
Intercooler	•	•
Alternator		
Alternator 60A / 24V low, left side	•	•
Starting system		
Starter motor, Bosch 7.5 kW / 24V	•	•
Connecting facility for extra starter motor	•	•
Electrical starter heater	•	•
Electrical wiring		
Cable iron	•	•
Instruments and switches		
Temp.- and oil pressure switches for automatic stop/alarm 103°C	–	•
Other equipment		
Expandable base frame	–	•
Engine Packing		
Plastic wrapping	•	•

[1)] must be ordered, see order specification - optional equipment



mm / in
A* = 1665 / 65.6
B* = 1261 / 49.6
AA = 1764 / 69.4
BB = 1261 / 49.6
CC = 2292 / 90.2

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% att rated ambient conditions at delivery. Ratings are based on ISO 8528.

Engine speed governing in accordance with ISO 3046/IV, class A1 and ISO 8528-5 (G3 with electronic speed governor)

Exhaust emissions.

The engine complies with EPA / CARB - Tier 1 and TA-luft exhaust emission regulations.

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. A10 % overload capability for govering 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.

Information

For more technical data and information, please look in the Generating Set Engines Sales Guide.

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