TECHNICAL DATA SHEET

MTU 2000

GEN SET MODEL	MTU 2000		
FREQUENCY:	**60 HZ**		
P.R.P. KVA:	**2323**		
P.R.P. KW:	**1858,4**		
STAND-BY KVA:	**2555**		
STAND-BY KW:	**2044**		
VOLTAGE:	**480/ 277**		
COSφ:	**0,8**		
FUEL TANK CAPACITY LT.:	N/A		
CONTROL PANEL TYPE:	**AUTO**		
CONTROL PANEL MODEL:	**EVOLUTION**		
TYPE OF ENCLOSURE:	COVER	SILENT	S SILENT
SIZE OF ENCLOSURE:	**N.A.**	**N.A.**	**N.A.**

DIMENSIONS AND WEIGHTS:

LENGTH: mm	WIDTH: mm	HEIGHT: mm	WEIGHT: Kg.
N/A	**N/A**	**N/A**	**N/A**

Note: Standard reference conditions 25°C temperature, 100.0 mt. A.S.L., R. humidity 30%, fuel caloric power 10.200 Kcal/Kg. The mentioned power values are according to **ISO8528 standards.**
All ratings certified within ±5%

ENGINE MOD.:	**MTU-DDC 16V4000G60**
NR. OF CYLINDERS:	**16**
CUBIC CAPACITY: LT.	**NA**
ASPIRATION:	**TURBOCHARGED**
ELECTRONIC REG. / CLASS:	**ELECTRONIC**
FREQUENCY:	**60 HZ**
ENGINE SPEED:	**1800 RPM**
MAX. CONT. KW POWER AT THE FLYWHEEL :	**NA**
BMEP: kPA	**NA**
*FUEL CONSUMP. LT/H:	**NA**
HEAT TO WATER AND LUBRICATING OIL IN KW:	**NA**
HEAT TO EXHAUST IN KW:	**NA**
HEAT TO RADIATION IN KW:	**NA**
EXHAUST TEMP. IN °C:	**NA**
COOLING AIR FLOW m³/MIN:	**NA**
COMBUS. AIR FLOW m³/MIN:	**NA**
EXHAUST GAS FLOW m³/MIN:	**NA**
EMISSION CONTROL TA-LUFT / E.P.A.:	**Y / Y**

BRIEF DESCRIPTION OF THE ENGINE:

MTU water-cooled diesel engine suitable for generating set purposes.

STANDARD REF. CONDITIONS:
All data included in the present data sheet, refer to specific ambient conditions that can be found out in the original technical data sheet of the engine (to which you can enter directly from the CD-rom).
Fuel consumption data at full load with diesel fuel with a specific gravity of 0,85 and conforming to BS2869: 1988, Class A2.
All data based on operation under BS 5514: 1982, ISO 3046/1: 1982 and DIN 6271.

All engine values are referred to in stand-by power, except where noted.

*At 100% load in stand-by power

BRIEF DESCRIPTION OF STAMFORD ALTERNATOR:

STANDARDS:
Newage Stamford industrial generators meet the requirements of BS EN 60034 and the relevant section of other international standards such as BS5000, VDE 0530, NEMA MG1-22, IEC34, CSA C22.2-100, AS 1359.

CHARACTERISTICS:
The insulation system is class H. THF (as defined by BS EN 60034) is better than 2%. TIF (as defined by NEMA MG1 pt 22) is better than 50. The absence of brushgear and the high quality AVR ensure low levels of interference with radio transmissions. Additional RFI suppression may be supplied if required.
IP22 (NEMA 1) is the standard protection for all industrial alternators. Protection to IP23 (60° from the vertical) is available as an option at reduced ratings IP23 is standard on marine alternators.
Different type of excitation systems to satisfy every need are available on request.

NX3/X/010ED2E - 2001

ALTERNATOR MOD.:	**STAMFORD HCI7H**
NOTES:	**INDUSTRIAL SINGLE BEARING, BRUSHLESS**
FREQUENCY:	**60 HZ**
KVA POWER:	2323
KW POWER:	**1858,4**
VOLTAGE:	**480/ 277**
COSφ:	**0,8**
INSULATION CLASS:	**H**
AMBIENT TEMPERATURE °C:	**40 C**
ALTITUDE:	**1000 MT. A.S.L. A.S.L.**
STANDARD IP PROTECTION:	**IP 22**
ELECTRONIC REGULATOR:	**MX321**
PRECISION:	**±0,5%**

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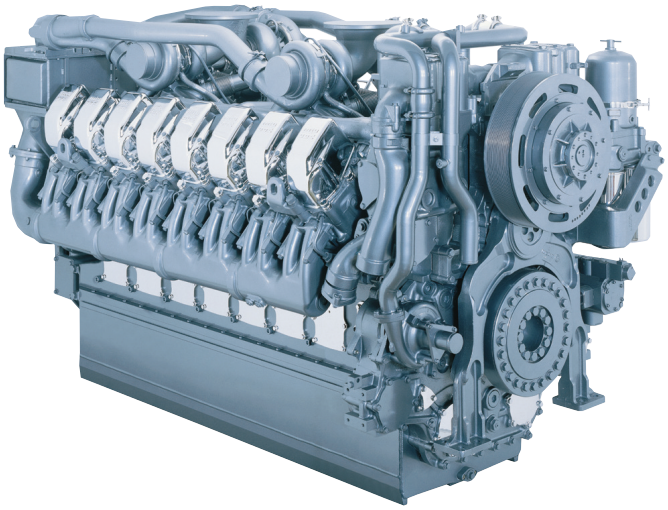
DETROIT DIESEL

DDC 16V-4000 Generator Set Power



(Shown with optional equipment)

Specifications

Engine	16V-4000
Description	Turbocharged – Aftercooled
Number of Cylinders	16
Bore and Stroke	6.50 in x 7.50 in (165 mm x 190 mm)
Displacement	3967 CID (65 L)
Compression Ratio	13.7:1
Fluid Capacity, Coolant	160 qts (150 L)
Lube Oil	264 qts (250 L)
Engine Control	DDEC
Dimensions	
Length	113.3 in (2879 mm)
Width	55.1 in (1400 mm)
Height	68.3 in (1735 mm)
Weight (dry)	14558 lbs (6603 kg)

Performance

Quad turbocharging provides optimum block loading capability

DDEC electronic control system manages the fuel system for maximum output, low smoke and precise speed control

Separate circuit charge cooling provides maximum charge air cooling for optimum performance

Common rail fuel system for exceptional fuel economy and low emission characteristics

All 1800 RPM engines meet EPA Year 2000 non-road mobile emissions standards

Four valve cylinder heads for optimum air flow and engine performance

Powertuned performance - All Series 4000 engines produce their rated power. The power you buy is the power you get.

Reliability and Durability

Individual cylinder heads reduce thermal stress and ensure long compression seal life

Rillenlager main bearings provide a combination of long life and durability

High capacity oil pump for maximum piston cooling and bearing life

No hose clamps - only ISO 6149 sealing techniques used for oil and water connections

Endurance tested in heavy duty industrial applications

One year limited warranty

Built and tested in Detroit, MI USA

Three hour dynamometer testing and oil analysis on every engine

Ceramic chrome piston rings with offset barrel design for long life to overhaul

Plateau honed cylinder liners for low oil consumption and long ring life

Features and Benefits

Separate circuit charge air cooling for low emissions and outstanding fuel economy

Optimized injection provides a significant reduction in peak cylinder pressure and engine noise

Common rail fuel system requires no mechanical adjustments

Operates at fuel temperatures up to 140°F without power deration

Operates on DF-1, DF-2, K-1, Jet A, or JP-8 with no changes to the fuel system

Designed for 500 hour or one year oil change interval – whichever occurs first

Same inexpensive diagnostic tool used on all DDEC electronic engines

True worldwide parts and service support

Optional extended warranty

Fully Supported by the Detroit Diesel Professional Network

16V-4000 Performance Chart

Model	T1637K38-G21		T1637K36-G41		T1637K38-G60			T1637K36-G80		
RPM	1500	1500	1800	1800	1500	1500	1500	1800	1800	1800
Rating HP (BKW)	2260(1686)	2055(1533)	2550(1900)	2320(1730)	2600(1940)	2360(1760)	1945(1450)	2935(2190)	2670(1990)	2000(1495)
Charge Air Cooling	SCCC	SCCC	SCCC	SCCC	SCCC	SCCC	SCCC	SCCC	SCCC	SCCC
Duty Cycle	Standby	Prime	Standby	Prime	Standby	Prime	Continuous	Standby	Prime	Continuous
Fuel Consumption										
@ 50% load (gal/hr)	52.70	48.70	62.60	56.10	58.90	54.00	46.10	67.20	62.60	49.10
(l/min)	3.32	3.07	3.83	3.54	3.72	3.41	2.91	4.24	3.91	3.10
@ 75% load (gal/hr)	75.80	69.20	86.50	79.40	86.20	78.20	65.50	96.70	88.90	68.50
(l/min)	4.78	4.36	5.46	5.01	5.44	4.93	4.13	6.10	5.61	4.32
@100% load (gal/hr)	102.60	92.40	114.90	104.10	118.90	106.70	85.90	133.20	119.10	88.90
(l/min)	6.48	5.83	7.25	6.57	7.50	6.73	5.42	8.40	7.51	5.61

All Detroit Diesel Series 4000 engines operating at 1800rpm have been certified to meet the US EPA Year 2000 Non-road Mobile Emission Requirements, which are as follows:

NOx	HC	CO	PM
6.9 g/bhp/hr	0.97 g/bhp/hr	8.5 g/bhp/hr	0.40 g/bhp/hr

Rated power output shown represents engine performance capabilities at ambient conditions equivalent to ISO 3046, BS5514: 100 kPa total barometric pressure, 25°C air inlet temperature, 30% relative humidity.

Standby Power Rating: This rating is applicable to heavy duty diesel generator sets and is subject to varying load factors used in the event of a utility power failure. In this and other emergency applications, the generator set may be operated at rated power until normal power is restored. Power loss may be experienced at elevated ambient temperature and high altitude. The generator set in standby applications will operate an average of less than 5% of the time over the course of a year and at an average load factor not to exceed 70% of the Standby Rating.

Prime Power Rating: This rating is applicable to heavy duty diesel generator sets when used as a utility type power source and is subject to varying load conditions, with an intermittent overload (of 10%) up to the standby power rating, for no more than one hour in every 12 hours of operation. When averaged over a 24 hour period, this load factor will not exceed 70% of the Prime Power Rating. Under these conditions, the generator set may be operated continuously for an unlimited number of hours. Power loss may be experienced at elevated ambient temperature and high altitude.

Continuous Power Rating: This rating is applicable to heavy duty diesel generator sets when used as a utility type power source. The engine is expected to be operated with non-varying load factors of up to 100% of the continuous power rating and/or constant dedicated loads. Under these conditions it may be operated for an unlimited number of hours per year. Power loss may be experienced at elevated temperatures and high altitude.

Standard Equipment

Main Engine – One piece engine block; SAE #00 flywheel and housing; Inspection plates for con rod inspection; oil pressure fed vibration damper

Fuel System – Common rail high pressure fuel system; secondary fuel filters mounted on the RH side of the engine

Engine Lube System – Engine mounted oil filters; positive crankcase ventilation system; integral oil cooler

Cooling System – Engine driven water pump and auxiliary (SCCC) water pump

Air Inlet System – Direct mounted turbochargers; separate circuit charge cooling for aftercooler

Electrical – 24VDC starter; 100A alternator

Mounting – Front and rear mounting pads

Exhaust System – Dry exhaust manifold

Optional Equipment

Fuel System – Remote mounted fuel filters

Engine Lube System – Centrifugal lube oil filter for prime power application; Maintenance Alert System to provide oil filter change notification

Starting System – Air starter

Electrical System – 70A, 220A, 24VDC alternator

Mounting System – Front trunnion mount

For a complete listing of standard and optional equipment, consult your authorized Detroit Diesel Corporation representative.

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DETROIT DIESEL QS CERTIFIED ORGANIZATION 9000 CORPORATION

5SA432 0002 As technical advancements continue, specifications will change. Printed in U.S.A.

GUARD EVOLUTION

THE STARTING DEVICE CHECKS AND MEASURES THE ELECTRIC PARAMETERS THROUGH A MICRO PROCESSOR THAT IS EASY TO USE AND THE OPERATOR CAN FOLLOW THE UNITS OPERATIONS ON THE WIDE SCREEN DISPLAY.
THE EXPANDABLE MEMORY RECORDS EVERY ALARM AND MEMORIZES THE PARAMETERS SURROUNDING THE EVENT THAT ACTIVATED THE ALARM.
THE DEVICE IS EQUIPPED WITH SERIAL PORT RS485 THAT ALLOWS ACTIVE CONNECTION BETWEEN THE GENSET AND PC.

OPERATION MODES

MANUAL START/STOP VIA KEYBOARD
REMOTE SIGNAL START/STOP

AVAILABLE MEASUREMENTS

MAXIMUN PHASE GENERATOR VOLTAGE
DETAILED GENERATOR VOLTAGE FOR EACH PHASE/PHASE AND PHASE/NEUTRAL (6 VALUES)
MAXIMUN PHASE CURRENT GENERATED
AVERAGE CURRENT GENERATED FOR EACH PHASE/PHASE AND PHASE/NEUTRAL (3 VALUES)
ACTIVE POWER (kW)
APPARENT POWER (kVA)
ENERGY PRODUCED (kWh)
POWER FACTOR
GENERATOR FRECUENCY
ENGINE RPM METER
STARTING BATTERY VOLTAGE
ENGINE TEMPERATURE
ENGINE OIL PRESSURE
WORKING HOURS
MAINTENANCE TIME COUNTDOWN

PROTECTIONS WITH AUTOMATIC STOP OR ALARM

ALTERNATOR OVER AND UNDER VOLTAGE
OVERSPEED AND UNDERSPEED
FAIL TO START
LOW BATTERY VOLTAGE
LOW OIL PRESSURE
LOW ENGINE OIL LEVEL
ENGINE OVERHEATING
LOW COOLANT LEVEL
LOW FUEL LEVEL
BATTERY CHARGER ALTERNATOR FAULT
MAINTENANCE INTERVAL EXCEEDED
LOWER/HIGHER POWER FACTOR
ALTERNATOR OVERCURRENT
GENERAL ALARM
EXTRA ALARM