



SDEC POWER

16KT

SERIES

POWER
GENERATION ENGINES



G-DRIVE POWERPACK

Power Generation Specification

TECHNICAL DATA SHEET

Power Output Range
2680kW – 2950kW

STAGE III EMISSION COMPLIANT
FOR USE IN THE FOLLOWING TERRITORIES. ASIA, MIDDLE EAST AND AFRICA.

16KT SERIES DIESEL ENGINE

MODELS	MAX ENGINE OUTPUT		RATED GENERATOR OUTPUT	
	Prime kW	Standby kW	Prime kVA	Standby kVA
16KTA76-G31 (1500 rpm)	2680	2950	3000	3250
16KTA76-G31 (1800 rpm)	-	-	-	-

Generator outputs calculated using nett engine power at 0.8 power factor, at an altitude below 1000 m.a.s.l. and 40-degree Celsius ambient temperature.
Refer to the outputs and ratings tables for exact site conditions.



Build specification for export markets

Manufactured in the Peoples Republic of China

TECHNICAL ENGINE SUMMARY

SPECIFICATIONS		16KTA76-G31	
Fuel Type	Diesel		
Method Of Cooling	Water Cooled – Set Mounted Radiator		
Number Of Cylinders	16		
Engine Type	Inline 4 Stroke 4 Valves		
Bore x Stroke mm x mm	170 x 210		
Cylinder Liner Type	Wet Liner		
Total Displacement cc / L	76300 / 76.3		
Combustion Type	Direct Injection		
Aspiration - Naturally or Turbo	Supercharged		
Make of Turbo Charger	SDEC		
Valves Per Cylinder	4 per cylinder		
Compression Ratio	18:1		
Firing Order	A1:B5:A3:A5:B2:B8:A2:A8:B3:A7:B4:B6:A4:A6:B1:B7		
Swept Volume in cm³	76265 @ 1500rpm		
Mean Piston Speed in m/min	630 @ 1500rpm	-	
Cyclic Irregularity	-		
Fuel System	High-pressure common rail		
Steady State Speed Stability at Constant Load	G3 Class ≤ ± 1.5		
Flywheel & Bellhousing SAE	SAE 00-21		
Direction of Rotation (Viewed from Flywheel)	Counterclockwise		
PROTECTIONS & SENSORS			
Method of Protection Against High Engine Temperature	D88A-005-800+A		
Method of Protection Against Low Oil Pressure	KE21103(NPT1/8;0-10)		
Method of Protection Against Low Water Level	KE00105(3/8-18NPT)		
Method of Protection Against High Water Temperature	D88A-005-800+A		
WEIGHTS & DIMENSIONS			
Weight (Dry) / Weight (Wet) (kg)	9450 / 10041		
Length x Width x Height (Engine Only) mm	3598 × 1951 × 2279		
Length x Width x Height (Engine Only + Radiator) mm	3598 × 1951 × 2279		

RATINGS / OUTPUTS

kW (Gross kWm)	1500	1800
Max kw	2950	-
kW (Nett kWm) Rated	1500	1800
Continuous kW	2144	-
Prime kW	2680	-
Standby kW	2950	-
kWe (Nett kWe)	1500	1800
Continuous kWe	2037	-
Prime kWe	2546	-
Standby kWe	2803	-
Based on an alternator efficiency of 95%		
kVA	1500	1800
Continuous kVA @ 0,8pf	2400	-
Prime kVA @ 0,8pf	3000	-
Standby kVA @ 0,8pf	3250	-

These guidelines have been formulated to ensure proper application of generator drive engines in A.C. generator set installations.

STANDBY POWER RATING

Applicable for supplying emergency power for the duration of the utility power outage. No overload capability is available for this rating. Under no condition is an engine allowed to operate in parallel with the public utility at the Standby Power rating. This rating should be applied where reliable utility power is available. A Standby rated engine should be sized for a maximum of an 80% average load factor and 200 hours of operation per year. This includes less than 25 hours per year at the Standby Power rating. Standby ratings should never be applied except in true emergency power outages. Negotiated power outages contracted with a utility company are not considered an emergency.

PRIME POWER RATING

Applicable for supplying electric power in lieu of commercially purchased power. Prime Power applications must be in the form of one of the following two categories:

UNLIMITED TIME RUNNING PRIME POWER

Prime Power is available for an unlimited number of hours per year in a variable load application. Variable load should not exceed a 70% average of the Prime Power rating during any operating period of 250 hours. The total operating time at 100% Prime Power shall not exceed 500 hours per year. A 10% overload capability is available for a period of 1 hour within a 12-hour period of operation. Total operating time at the 10% overload power shall not exceed 25 hours per year.

LIMITED TIME RUNNING PRIME POWER

Limited Time Prime Power is available for a limited number of hours in a non-variable load application. It is intended for use in situations where power outages are contracted, such as in utility power curtailment. Engines may be operated in parallel to the public utility up to 750 hours per year at power levels never to exceed the Prime Power rating. The customer should be aware, however, that the life of any engine will be reduced by this constant high load operation. Any operation exceeding 750 hours per year at the Prime Power rating should use the Continuous Power rating.

CONTINUOUS POWER RATING

Applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

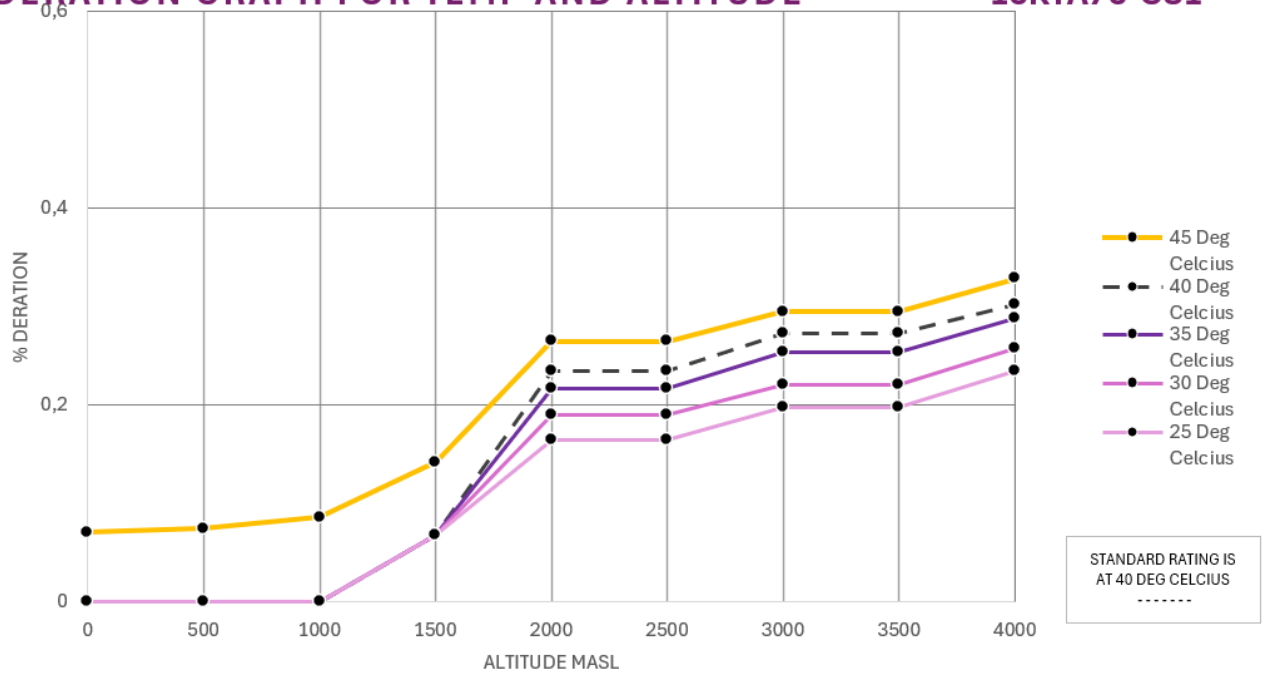
NB: DC VARIABLE SPEED POWER RATING

Please consult with engineering for applications where variable speed engines are required for D.C. generator set applications.

RATINGS – DERATION CURVES

DERATION GRAPH FOR TEMP AND ALTITUDE

16KTA76-G31



Alt.	500	1000	1500	2000	2500	3000	3500	4000
Temp								
50 Deg C	-	-	-	-	-	-	-	-
45	7%	9%	14%	26%	26%	29%	29%	33%
40	0%	0%	7%	24%	24%	27%	27%	30%
35	0%	0%	7%	22%	22%	25%	25%	29%
30	0%	0%	7%	19%	19%	22%	22%	26%
25	0%	0%	7%	16%	16%	20%	20%	24%

TEST CONDITIONS

Air temperature. 27 °C
 Barometric pressure..... 100 kPa
 Relative humidity 30%
 Air inlet restriction at maximum power (nominal) 2,5 kPa
 Intercooler Pressure at maximum power (nominal) 2,5 kPa
 Exhaust back pressure at maximum pressure (nominal) ... 3,0 kPa
 Fuel temperature (inlet pump) 55 °C maximum

Notes:

All data is based on the engine operating without alternator, optional equipment and driven components. Data shown above represents gross engine performance capabilities obtained and corrected in accordance with GB/T1147.1-2017 and Equivalent ISO 3046-1:2002

Standards for ratings (continuous, prime, standby) in accordance with GB/T2820 and Equivalent ISO 8528-1:2018

LOAD ACCEPTANCE AND GOVERNING CLASS

Initial load acceptance					
When engine reaches rated speed					
(Withing 15 seconds after engine starts to crank)					
Step Load	Prime Power Load kWm	Load kWe nett	Expected frequency deviation %	Frequency recovery time seconds	Frequency stability
25% - 75%	670 – 2010	637 – 1910	2.5-3.5% dip	≤ 4-6	± 0.5%
0% - 100%	0 – 2680	0 – 2546	5-6% dip	≤ 6-9	± 0.5%
100 – 0% load drop	2680 – 0	2546 – 0	4-5% overshoot	≤ 3-5	± 0.5%

VALVES AND MECHANICS

VALVE MECHANISM		
Type	Overhead Valves	
Number of Valves	2 inlet and 2 outlet per Cylinder	
Valve Latches when Cold	Intake 0.45mm	
	Exhaust 0.80mm	
VALVE TIMING	OPENING	CLOSE
Intake Valve	33 ° BTDC	48 ° ABDC
Exhaust Valve	68 ° BBDC	34 ° ATDC

ELECTRICAL SYSTEM

CHARGING ALTERNATOR	
Charging Alternator Manufacturer	SDEC
Charging Alternator	55 A x 27V
Voltage Regulator	Built-In IC Regulator
STARTER MOTOR	
Starter Motor Manufacturer	SDEC
Number of Starter Motors	2
Starter Motor Power	9.5 Kw x2
Starter Motor Voltage	24 V
BATTERIES (NOT SUPPLIED / RECOMMENDED)	
Battery Capacity	200 Amp Hour
Number of Battery & Type	6 x 12V Lead Acid

FUEL SYSTEM

Injection System	
Type	E.C.U
Injection Pump	High pressure common rail
Injection Nozzle	Porous
Opening Pressure	Electronic control
Injection Timing	Electronic control
Feed Pump	Electronic control
Governor	Electronic regulator
Governing Class	G3
Speed Controller	-
Fuel Filtration	
Fuel Filter	Spin On Type
Fuel Filters Type	Full Flow Cartridge
Fuel	
Fuel Type	Diesel
Suggested Grade / Class	50 ppm or better
Bio Diesel Compatible	Confirm the ratio with the factory before use

LUBRICATION SYSTEM

Oil Lubrication System	
Lubrication Method	Pressure splash
Oil Pump Type	Gear type driven by crankshaft
Oil Pan Capacity	
High Level / Low Level (Litres)	350 / 250
Angularity limit	
Front Down	10 °
Front Up	10 °
Side to Side	10 °
Oil Filtration	
Oil Filter	Spin On Type
Oil Filters Type	Full Flow Cartridge
Oil	
Oil Type	Multigrade Oil
Suggested Grade / Class	API CH4 15W/40

ENGINE COOLING DATA AND THERMODYNAMICS

Cooling System

Water Lid Min. Pressure	90 kPa
	Gear Driven
Water Pump Capacity 1500 rpm	1600 L/min
Water Pump Capacity 1800 rpm	-
	Opening Temp. 77°C
	Full Open Temp. 90°C
Cooling Fan Type	Blower Type-Plastic

Radiator

Type	Set Mounted
Manufacturer	LK
Construction	Copper Core
Treatment	Tropicalised
Temperature	50 Degree
Intercooled	Yes

Antifreeze

Fuel Type	Premix (50/50)
Compliant Grade / Class	ASTM D-3306 ASTM D-6210 SAE J814
Main Ingredient	50% Glycol or More

Heat Rejection

Max. Permissible Restrictions	2.5kPa
Intake System kPa	4kPa
Max. Permissible Altitude m.a.s.l.	2000m

Exhaust System

Exhaust Gas Temperature Max °C	700°C
Exhaust Outlet Size (Internal) mm	Ø255
Exhaust Outlet Flange Size mm	Ø330
Boost pressure ratio	18:1

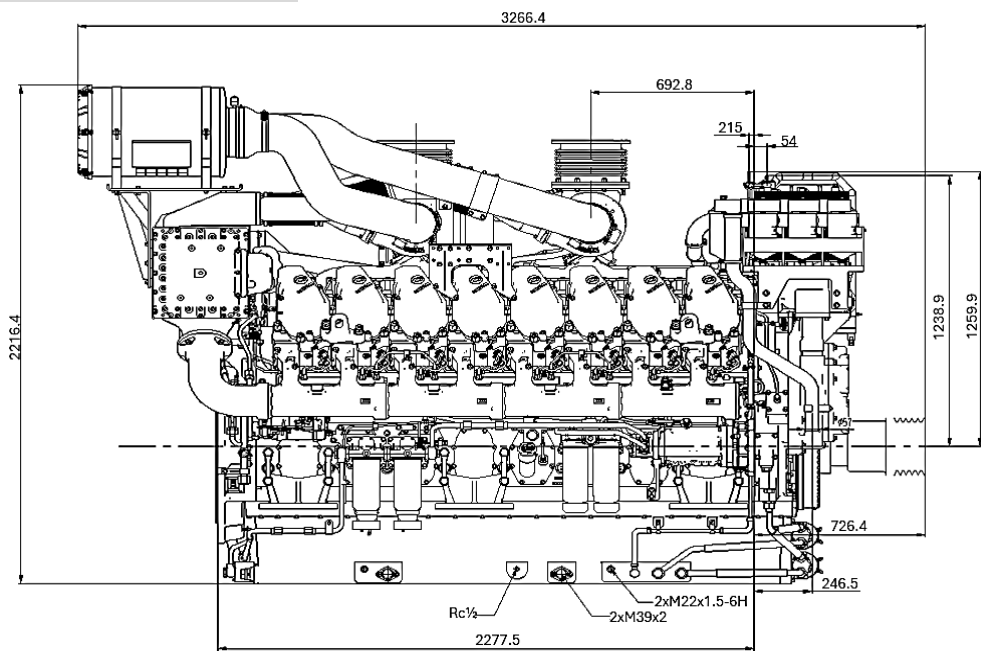
Water Jacket Cooling Data (Optional)

Coolant Flow - litres/min	26-33 L/min
Coolant Exit Temperature (max) °C	90 °C
Coolant Inlet Temperature (min) °C	-40 °C
Coolant Inlet Temperature (max) °C	+70 °
Suggested Pump Rating kW	4 KW

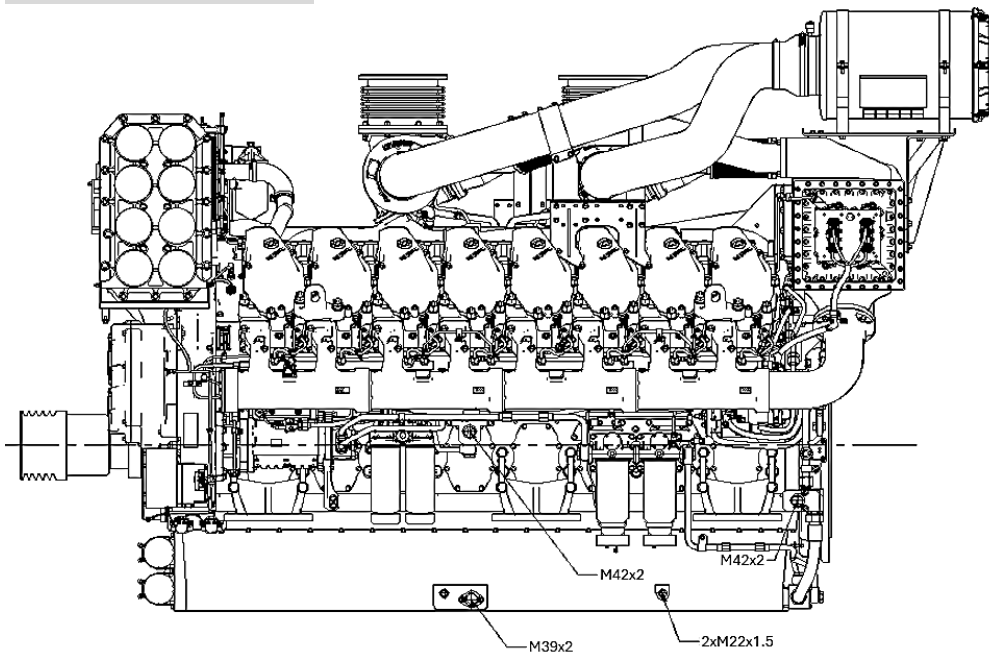
Colour of the engine

RAL(Colour)	RAL 9006 (White/Silver Aluminium)

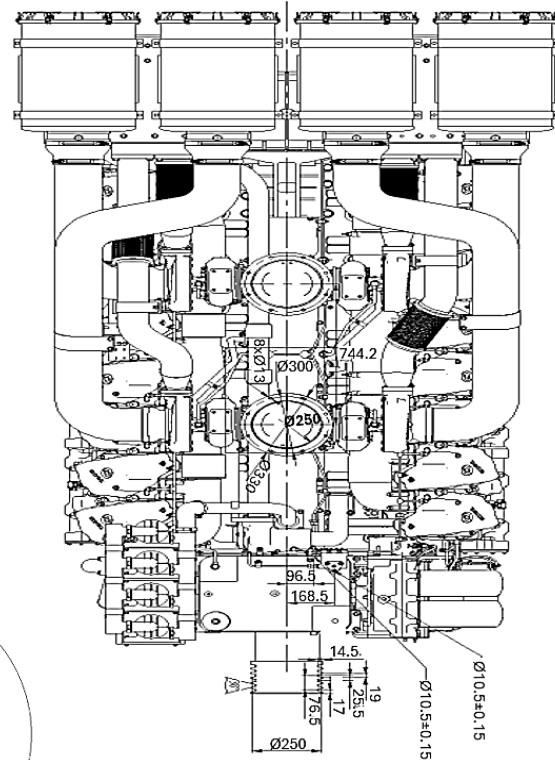
SIDE VIEW - RHS



SIDE VIEW - LHS



TOP VIEW - AERIAL



1951

1401

285

1582.4

2xNPT1

2xNPT1 16xM12-6H

12xM16-6H

M39x2

2850.6

NOTES

NOTES

MANUFACTURER DETAILS

HEADQUARTERS & FACTORY



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