

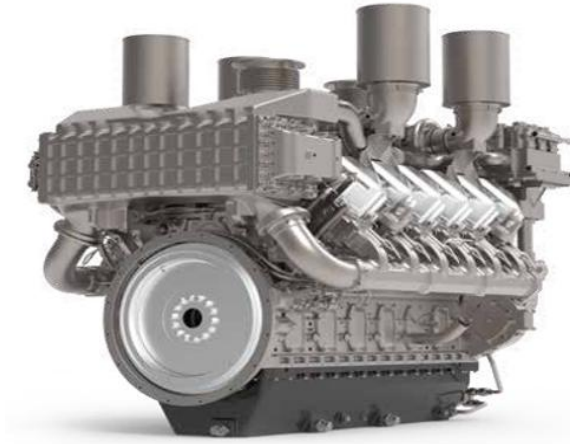


SDEC POWER

12KT

SERIES

POWER
GENERATION ENGINES



G-DRIVE POWERPACK

Power Generation Specification

TECHNICAL DATA SHEET

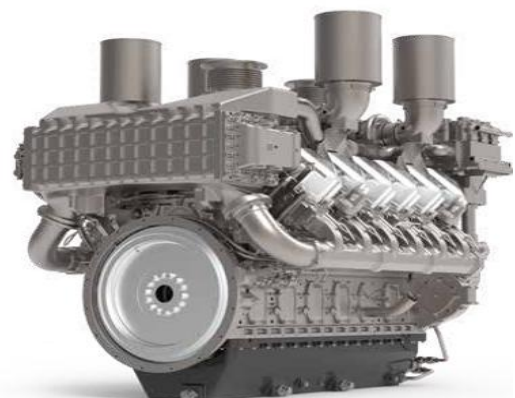
Power Output Range
1850kW – 2035kW

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

12KT SERIES DIESEL ENGINE

MODELS	MAX ENGINE OUTPUT		RATED GENERATOR OUTPUT	
	Prime kW	Standby kW	Prime kVA	Standby kVA
12KTA58-G32 (1500 rpm)	1850	2035	2000	2250
12KTA58-G32 (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 People's Republic of China

TECHNICAL ENGINE SUMMARY

SPECIFICATIONS

12KTA58-G32

Fuel Type	Diesel	
Method Of Cooling	Water Cooled – Set Mounted Radiator	
Number Of Cylinders	12	
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	57200 / 57.2	
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:A5:B3:A3:B6:A6:B2:A2:B4:A1:B1	
Swept Volume in cm³	57199 @ 1500rpm	
Mean Piston Speed in m/min	630 @ 1500rpm	-
Fuel System	High-pressure common rail	
Steady State Speed Stability at Constant Load	G3 Class ≤ ± 1.5	
Flywheel & Bellhousing SAE	SAE 00-21	
Number of Teeth on Flywheel	182	
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)	8100 / 8619	
Length x Width x Height (Engine Only) mm	2762 × 1600 × 2195	
Length x Width x Height (Engine Only + Radiator) mm	2762 × 1600 × 2195	

kW (Gross kWm)	1500	1800
Max kw	2035	-
kW (Nett kWm) Rated	1500	1800
Continuous kW	1480	-
Prime kW	1850	-
Standby kW	2035	-
kWe (Nett kWe)	1500	1800
Continuous kWe	1406	-
Prime kWe	1758	-
Standby kWe	1933	-
Based on an alternator efficiency of 95%		
kVA	1500	1800
Continuous kVA @ 0,8pf	1600	-
Prime kVA @ 0,8pf	2000	-
Standby kVA @ 0,8pf	2250	-

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

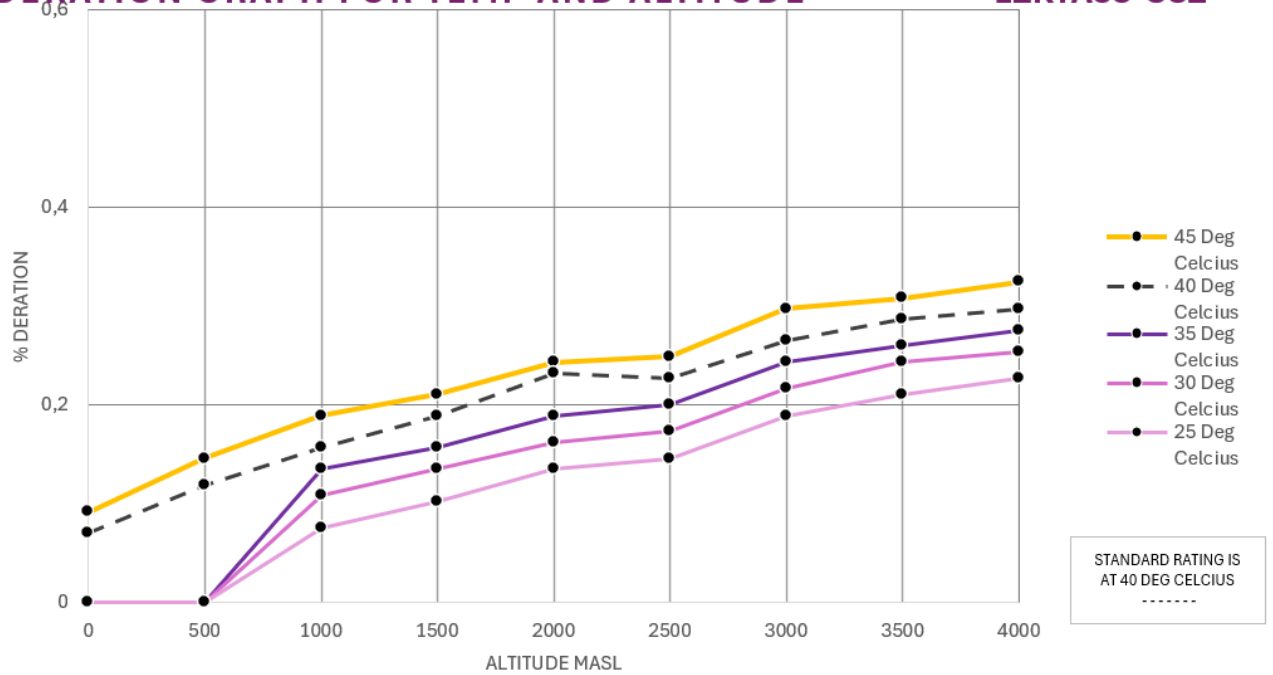
Applicable for supplying utility power at a constant 100% load for an unlimited number of hours per year. No overload capability is available for this rating.

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

12KTA58-G32


Alt.	500	1000	1500	2000	2500	3000	3500	4000
Temp								
50 Deg C	-	-	-	-	-	-	-	-
45	15%	19%	21%	24%	25%	30%	31%	32%
40	12%	16%	19%	23%	23%	26%	29%	30%
35	0%	14%	16%	19%	20%	24%	26%	28%
30	0%	11%	14%	16%	17%	22%	24%	25%
25	0%	8%	10%	14%	15%	19%	21%	23%

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 kW _e nett	Expected frequency deviation %	Frequency recovery time seconds	Frequency stability
25% - 75%	463 – 1388	440 – 1319	2.5-3.5% dip	≤ 4-6	± 0.5%
0% - 100%	0 – 1850	0 – 1758	5-6% dip	≤ 6-9	± 0.5%
100 – 0% load drop	1850 – 0	1758 – 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 Lashes when Cold	Intake 0.45mm	
	Exhaust 0.80mm	
VALVE TIMING	OPENING	CLOSE
Intake Valve	29 ° BTDC	48 ° ABDC
Exhaust Valve	64 ° BBDC	6 ° 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	8.5 Kw x2
Starter Motor Voltage	24 V
BATTERIES (NOT SUPPLIED / RECOMMENDED)	
Battery Capacity	200 Amp Hour
Number of Battery & Type	4 x 12V Lead Acid

MODEL \ LOAD	25%	50%	75%	100%	110%
1500 rpm g/kWh	54	99	146	200	223
1500 rpm l/h	120	217	321	441	490
1800 rpm g/kWh	-	-	-	-	-
1800 rpm l/h	-	-	-	-	-

FUEL SYSTEM

Injection System	
Type	E.C.U.
Injection Pump	High-Pressure Common rail
Injection Nozzle	Porous
Opening Pressure	Electronically Controlled
Injection Timing	Electronically Controlled
Feed Pump	Electronically Controlled
Governor	E.C.U Regulated
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

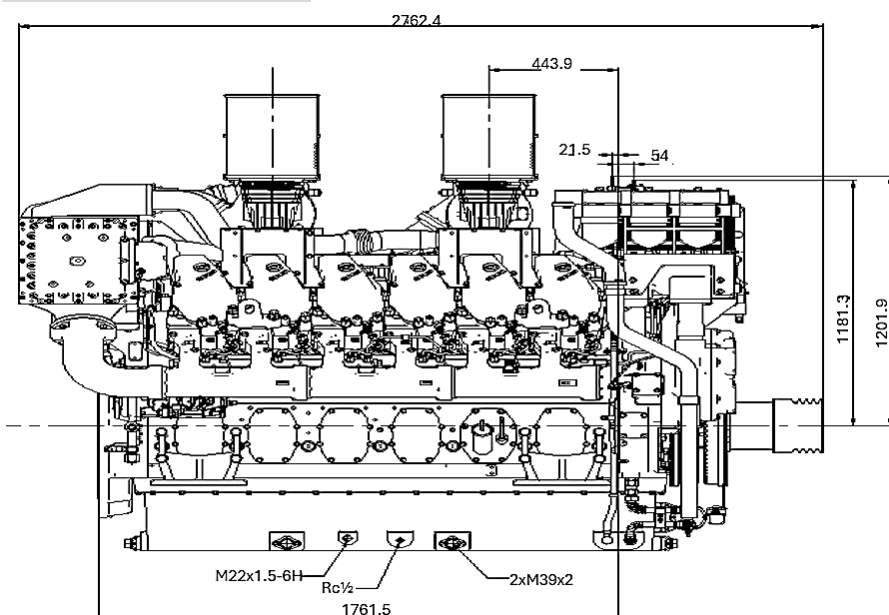
LUBRICATION SYSTEM

Oil Lubrication System	
Lubrication Method	Pressure splash
Oil Pump Type	Gear type driven by crankshaft
Oil Pan Capacity	
High Level / Low Level (Litres)	320 / 280
Angularity limit	
Front Down	12 °
Front Up	15 °
Side to Side	15 °
Oil Filtration	
Oil Filter	Spin On Type
Oil Filters Type	Full Flow Cartridge
Oil	
Oil Type	Multigrade Oil
Suggested Grade / Class	CF-4 15W/40

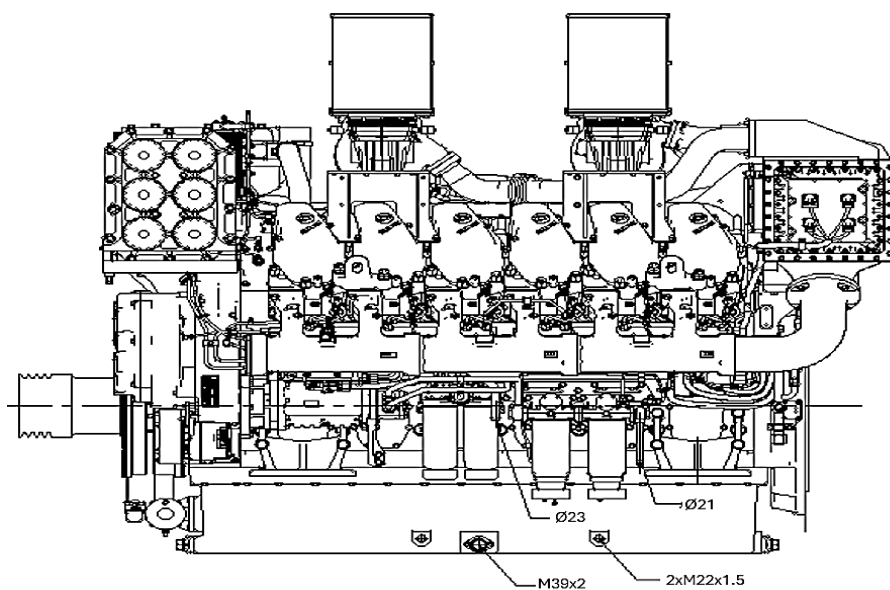
ENGINE COOLING DATA AND THERMODYNAMICS

Cooling System		Heat Rejection	
Cooling Method	Fresh Water Forced Circulation	Heat Rejection to Coolant	170 kcal/sec (1500 rpm)
Water Capacity (Engine Only)	198.7 litres	Heat Rejection to Intercooler	108 kcal/sec (1500 rpm)
Water Lid Min. Pressure	70 kPa	Max. Permissible Restrictions	3kPa
	Belt Driven	Intake System kPa	6kPa
Water Pump Capacity 1500 rpm	880 L/min	Max. Permissible Altitude m.a.s.l.	2000m
Water Pump Capacity 1800 rpm	-	Exhaust System	
Thermostat	Wax-Pellet Type	Exhaust Gas flow	292 m3/min (1500 rpm)
	Opening Temp. 77°C	Exhaust Gas Temperature Max °C	600°C
	Full Open Temp. 90°C	Exhaust Outlet Size (Internal) mm	Ø255
Cooling Fan Power Consumption	80 KW	Turbo Charger	
		Boost Pressure Ratio	18:1
Radiator		Water Jacket Cooling Data (Optional)	
Type	Set Mounted	Coolant Flow - litres/min	26-33 L/min
Manufacturer	LK	Coolant Exit Temperature (max) °C	90 °C
Construction	Copper Core	Coolant Inlet Temperature (min) °C	-40 °C
Treatment	Tropicalised	Coolant Inlet Temperature (max) °C	+70 °C
Temperature	50 Degree	Suggested Pump Rating kW	4 KW
Intercooled	Yes		
Antifreeze		Colour of the engine	
Fuel Type	Premix (50/50)	RAL(Colour)	RAL 9006 (White/Silver Aluminium)
Compliant Grade / Class	ASTM D-3306 ASTM D-6210 SAE J814		
Main Ingredient	50% Glycol or More		

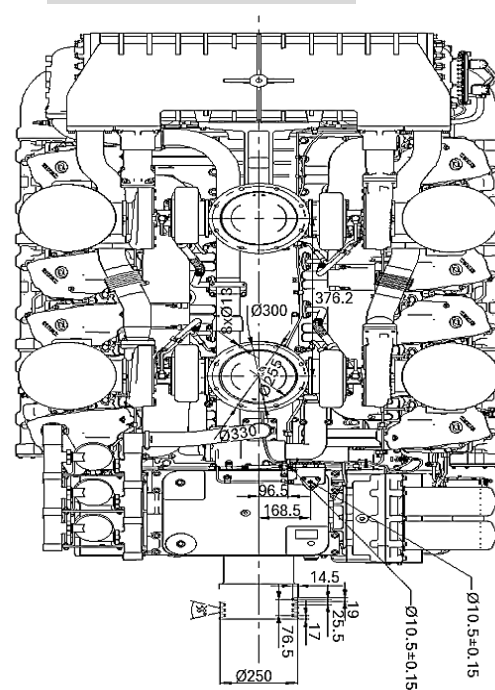
SIDE VIEW - RHS



SIDE VIEW - LHS



TOP VIEW - AERIAL



Technical drawing of the front view of a generator. The drawing shows a circular front panel with a central circular area containing a 12V 1000W label. The panel is surrounded by a grid of cooling fins. Dimensions are provided: overall width 1582.4, overall height 2193.1, and a central height of 1400.9. Mounting points are labeled: 2xNPT1, 2xNPT1, 16xM12-6H, 12xM16-6H, and M32x2. A central shaft with a diameter of Ø641.4 is shown.

NOTES

NOTES

MANUFACTURER DETAILS

HEADQUARTERS & FACTORY



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