Industrial Generator Set - KD60U

Ratings Range

		208/120 V - 60 Hz
Standby	**kW**	60
	kVA	75
Prime	**kW**	54
	kVA	68

Benefits and features

Rehlko premium quality
- Design offices using the latest technical innovations
- Modern fully certified factories
- A cutting edge laboratory
- The generating set, its components and a wide range of options have been fully developed, prototype tested, factory built, and production tested
- Approved for use with HVO (Hydrotreated Vegetable Oil) according to EN15940

Rehlko premium performances
- Optimized and certified sound levels
- Reliable power, even in extreme conditions
- Optimized fuel consumption
- Compact footprint
- Best quality of electricity, high starting and loading capacity, according to ISO8528-5
- Robust base frames and high-quality enclosures
- Protection of installations and people
- Approved in line with the most stringent standards

Engines
- Rehlko Premium level engines
- High power density, small footprint
- Low temperature starting capability
- Long maintenance interval

Alternator
- Provide industry leading motor starting capability
- Built with a class H insulation and IP23

Cooling
- A compact and complete solution using a mechanically driven radiator fan
- Designed or optimized by Rehlko
- High temperature and altitude product capacity available

Base frame and enclosure
- High quality steel with enhanced corrosion resistance
- Highly durable QUALICOAT-certified epoxy paint
- Minimum 1500 hours of resistance to salt spray in accordance with ISO12944
- Ergonomic access to allow easy maintenance and connection of the generator
- Robust design optimized for transportation

General Specifications

Manufacturer	Rehlko
Engine ref.	KD39L04T-AW56
Alternator choices	KH00593T
Performance class	G3
Controllers	APM303
Consumption @ 100% load ESP (L/h)*	18
Consumption @ 100% load PRP (L/h)*	16
Emission level	Not certified
Type of Cooling	Radiator
Factory installed enclosures	M147

"* Volumetric Fuel consumption is up to 4% higher when using HVO than Diesel Fuel"

Generator sets ratings

		Standby rating			Prime rating	
	Hz	kWe	kVA	Amps	kWe	kVA
208/120	60	60	75	208	54	68
380/220	60	60	75	114	54	68

Engine Specifications	
Engine brand	Rehlko
Engine ref.	KD39L04T-AW56*
Air inlet system	Turbo
Cylinder configuration	4 - L
Displacement (l)	3,92
Bore (mm) x Stroke (mm)	102 x 120
Compression ratio	17.3:1
Speed (RPM)	1800
Maximum stand-by power at rated RPM 60Hz (kW)	90
Governor type	Electronic
Frequency regulation, steady state (%)	+/- 0.5%

Lubrication System	
Oil Filter Quantity and type****	Spin On / 1
Charge Air coolant	Water/Air

*****Rehlko recommends the use of genuine oil and filters.*

Fuel System	
Maximum fuel pump flow 60Hz (l/h)	41
Fuel filter: Qty, type	1 / 1 Primary Engine Filter / Fuel Water Separator
Fuel	Diesel Fuel

* Engine reference may be partially modified depending on genset application, options selected by the customer and lead time required.

Consumption with cooling system	
Fuel consumption @ ESP Max Power 60Hz (l/h)	22
Fuel consumption @ PRP Max Power 60Hz (l/h)	20
Fuel consumption @ 75% of PRP Power 60Hz (l/h)	15
Fuel consumption @ 50% of PRP Power 60Hz (l/h)	11

Cooling system	
Radiator & Engine capacity (l)	25,2
Fan power 60Hz (kW)	5,96
Fan air flow w/o restriction (m3/s)	2
Available restriction on air flow (mm H2O)	20
Type of coolant	Glycol-Ethylene
Radiated heat to ambiant (kW)	17,7
Heat rejection to coolant HT (kW)	55
HT circuit flow rate (l/min)	132
Coolant capacity HT, engine only (l)	8,3
Max coolant temperature, Shutdown (°C)	104
Thermostat begin of opening HT (°C)	82
Thermostat end of opening HT (°C)	95

Exhaust system	
Exhaust gas temperature @ ESP 60Hz (°C)	436
Exhaust gas flow @ ESP 60Hz (l/s)	300
Electrical system	
Battery voltage (V)	12
Air Intake system	
Combustion air flow (l/s)	135
Radiated heat to ambiant (kW)	17,7

Alternator Specifications	
Number of pole	4
Technology	Brushless
AVR Regulation	Yes
Insulation class	H
Indication of protection	IP23
Number of bearing	1
Number of wires	12
Coupling	Direct
Overspeed (rpm)	2250
Voltage regulation at established rating (+/- %)	0,5
Unbalanced load acceptance ratio (%)	100

Alternator standard features

- All models are brushless, rotating-field alternators
- NEMA MG1, IEEE, and ANSI standards compliance for temperature rise and motor starting
- The AVR voltage regulator provides superior short circuit capability
- Self-ventilated and dip proof constructio
- Superior voltage waveform

Note: See Alternator Data Sheets for alternator application data and ratings, efficiency curves, voltage dip with motor starting curves, and short circuit decrement curves.

APM303 controller
The APM303 is a versatile unit which can be operated in manual or automatic mode. It offers the following features:

- Measurements: phase-to-neutral and phase-to-phase voltages, fuel level (In option : active power currents, effective power, power factors, Kw/h energy meter, oil pressure and coolant temperature levels)
- Supervision: Modbus RTU communication on RS485
- Reports: (In option : 2 configurable reports)
- Safety features: Overspeed, oil pressure, coolant temperatures, minimum and maximum voltage, minimum and maximum frequency (Maximum active power P<66kVA)
- Traceability: Stack of 12 stored events

For further information, please refer to the data sheet for the APM303

Codes and Standards

Engine-generators set is designed and manufactured in facilities certified to standards ISO9001:2015 & ISO14001:2015. The generator sets and its components are prototype-tested, factory built and production tested and are in compliance with the relevant standards:

- Machinery Directive 2006/42/EC of May 17th 2006
- EMC Directive2014/30/UE
- Safety objectives set out in the Low Voltage Directive 2014/35/UE
- EN ISO 8528-13, EN 60034-1, EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 55011, EN 1679-1 et EN 60204-1

Power ratings definition according to ISO8528-1 (2018-02 edition) and ISO-3046-1

Emergency Standby Power (ESP): The standby rating is applicable to varying loads for the duration of a power outage. There is no overload capability for this rating. Average load factor per 24 hours of operation is <70%.
Prime Power (PRP): At varying load, the number of generator set operating hours is unlimited. A 10% overload capacity is available for one hour within 12 hour of operation. Average load factor per 24 hours of operation is <70%.

Standard scope of supply:

All our open gensets are fitted with:

- Industrial water-cooled DIESEL engine
- Engine electronic governor
- Electric starter & charge alternator
- Battery(1)
- Standard air filter
- Electric circuit breaker, adapted to the short-circuit current of the generating set
- Single bearing alternator IP 23 T° rise/ insulation to class H/H
- Welded steel base frame with 85% vibration attenuation mounts
- frame height optimized to allow it to be moved safely by forklift
- enclosure made of new high-quality European steel with enhanced corrosion resistance
- enclosures and base frames tested and analyzed by the French Corrosion Institut
- 100% of tanks tested for permeability
- Personal protection ensured by protective grilles on hot and rotating parts
- Separate 9 dB(A) silencer
- Fuel tank welded inside the genset frame
- Retention bund included for gensets up to 250 kVA ESP
- Emergency stop button on the outside
- Flexible fuel lines & lub oil drain cock
- Oil(2) and antifreeze liquid(2)
- Exhaust outlet with flexible and flanges
- User’s manual (1 copy)
- Packing under plastic film

(1) excluded from the supply up to 165 kVA ESP if assembled outside Europe
(2) excluded from the supply up to 830 kVA ESP if assembled outside Europe

Dimensions and Weights

Compact version – Radiator	
Overall Size, max., L x W x H, (mm)	1893 x 1068 x 1314
Dry weight (kg)	1030
Tank capacity (L)	181

M147 - Dimensions soundproofed version – Radiator	
Overall Size, max., L x W x H, (mm)	2470 x 1109 x 1460
Tank capacity (L)	181
Dry weight (kg)	1280
Acoustic pressure level @1m in dB(A) 60Hz (100% PRP)	85
Acoustic pressure level @7m in dB(A) 60Hz (100% PRP)	75

** dimensions and weight without options*

Reference Conditions: 25°C Air Inlet Temperature, 40°C Fuel Inlet Temperature, 100 kPa Barometric Pressure; 10.7 g/kg of dry air Humidity. Intake Restriction set to maximum allowable limit for clean filter; Exhaust Back pressure set to maximum allowable limit; Fuel density at 0.85 kg/L.
Data was taken from a single engine test according to the test methods, fuel specification and reference conditions stated above and is subjected to instrumentation and engine-to-engine variability. Test conducted with alternate test methods, instrumentation, fuel or reference conditions can yield different results. Data and specifications subject to change without notice.