

## 450 KVA DIESEL GENERATOR

### FEATURES & BENEFITS

- Maximum 500 kVA, 380V, 1500 RPM
- Constant voltage AVR (Automatic Voltage Regulator)
- 24V Electric Starter
- 715 Litre Fuel Tank, 9 Hours @ 75% load
- Silent Version ( $\pm 72$  dBA)
- 6 Cylinder, in-line, Water cooled, Turbocharged & Aftercooled
- Three Phase Output
- DeepSea DSE6120 Digital Control Panel
- Low oil pressure system
- Low water cut out engine protection



Perkins LEROY-SOMER DEEP SEA DSE ELECTRONICS

GENERAL DATA	
<b>Model:</b>	BPD450S3-P
<b>Prime Power (P.R.P):</b>	450 kVA
<b>Stand-by Power (L.T.P):</b>	500 kVA
<b>Amps:</b>	759 A
<b>Power Factor / COS:</b>	0.8
<b>Frequency:</b>	50 Hz
<b>Voltage:</b>	380 V
<b>Phases:</b>	Three Phase
<b>Engine Speed:</b>	1500 RPM
<b>Length:</b>	4700 mm
<b>Width:</b>	1700 mm
<b>Height:</b>	2230 mm
<b>Weight:</b>	5200 kg's
<b>Tank Capacity:</b>	715 l

ADDITIONAL	
<b>Running Time:</b>	9 Hours @ 75% load
<b>Structure Type:</b>	Silent
<b>Noise Level (7m):</b>	72 dBA
<b>Auto Voltage Regulator:</b>	Constant voltage AVR
<b>ISO9001 Certified:</b>	Yes
<b>CE Certified:</b>	Yes
<b>Fuel Cons. @ 100% Load:</b>	99
<b>Fuel Cons. @ 75% Load:</b>	75
<b>Fuel Cons. @ 50% Load:</b>	50

ENGINE DATA	
<b>Brand:</b>	Perkins
<b>Model:</b>	2506C-E15TAG1
<b>Type:</b>	6 Cylinder, in-line, Water cooled, Turbocharged & Aftercooled
<b>Starting System:</b>	24V Electric Starter
<b>Auto-Decompression:</b>	Yes
<b>Cubic Capacity (l):</b>	15.0
<b>Compression Ratio:</b>	16:1
<b>Rated Power (kW/RPM):</b>	451 / 1500
<b>Fuel Type:</b>	Diesel
<b>Lube Oil:</b>	15W40
<b>Low Pressure Alert:</b>	Yes
<b>Low Fuel Cut Out:</b>	Yes

CONTROL PANEL	
<b>Model:</b>	DeepSea DSE6120
<b>Type:</b>	Digital Control Panel
<b>Analogue Inputs:</b>	6
<b>Mains Phase Voltage:</b>	Yes
<b>Mains Line Voltage:</b>	Yes

ALTERNATOR	
<b>Model:</b>	Leroy Somer - TAL-A473-C
<b>Pole Number:</b>	4
<b>Excitation Mode:</b>	Self Excitation

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011 397 7373

Pietermaritzburg  
033 007 0812

Nelspruit  
013 007 1753

Bloemfontein  
051 001 1429

# 2500 Series 2506C-E15TAG1 Diesel Engine – ElectropaK

435 kWm at 1500 rpm

The 2500 Series engine has been developed using the latest engineering techniques and builds on the strengths of the already very successful 2000 Series family and addresses today's uncompromising demands within the power generation industry. Developed from a proven heavy-duty industrial base, these products offer superior performance and reliability.

The 2506C-E15TAG1 is a turbocharged and air-to-air charge-cooled, 6 cylinder diesel engine. Its premium features provide economic and durable standby duty, exceptional power-to-weight ratio resulting in exceptional fuel consumption and low gaseous emissions and advanced overall performance and reliability making this the prime choice for today's power generation industry.



Specification		
Number of cylinders	6 vertical in-line	
Bore and stroke	137 x 171 mm	5.4 x 6.7 in
Displacement	15.2 litres	927 in <sup>3</sup>
Aspiration	Turbocharged and air-to-air charge cooled	
Cycle	4 stroke	
Combustion system	Direct injection	
Compression ratio	16:1	
Rotation	Anti-clockwise, viewed on flywheel	
Total lubricating capacity	62 litres	16.4 US gal
Cooling system	Water-cooled	
Total coolant capacity	58 litres	15.3 US gal

[www.perkins.com](http://www.perkins.com)

Photographs are for illustrative purposes only and may not reflect final specification. All information in this document is substantially correct at time of printing and may be altered subsequently. Final weight and dimensions will depend on completed specification.

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THE HEART OF EVERY GREAT MACHINE

# 2500 Series 2506C-E15TAG1 Diesel Engine – ElectropaK

435 kWm at 1500 rpm

## Features and benefits

### Economic power

- Mechanically operated unit fuel injectors with advanced electronic control, combined with carefully matched turbocharging, give excellent fuel atomisation which leads to exceptional low fuel consumption

### Reliable power

- Developed and tested using the latest engineering techniques and finite element analysis for high reliability
- Low oil usage and low wear rates
- High compression ratio ensures clean rapid starting in all conditions
- Perkins global product support is designed to enhance the customer experience of owning a Perkins powered machine. We deliver this through the quality of our distribution network, extensive global coverage and a range of Perkins supported OEM partnership options. So whether you are an end-user or an equipment manufacturer our engine expertise is essential to your success

### Compact, clean and efficient power

- Exceptional power to weight ratio and compact size gives optimum power density for ease of installation and more cost effective transportation
- Designed to provide excellent service access for ease of maintenance

### Product support

- Perkins actively pursues product support excellence by ensuring our distribution network invest in their territory – strengthening relationships and providing more value to you, our customer
- Through an experienced global network of distributors and dealers, fully trained engine experts deliver total service support around the clock, 365 days a year. They have a comprehensive suite of web based tools at their fingertips covering technical information, parts identification and ordering systems, all dedicated to maximising the productivity of your engine
- Throughout the entire life of a Perkins engine, we provide access to genuine OE specification parts and service. We give 100% reassurance that you receive the very best in terms of quality for lowest possible cost .. wherever your Perkins powered machine is operating in the world

*Certified against the requirements of EU 2007 legislation for non-road mobile machinery, powered by constant speed engines (EU 97/68/EC Stage II)*

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THE HEART OF EVERY GREAT MACHINE

# 2500 Series 2506C-E15TAG1 Diesel Engine – Electropak

435 kWm at 1500 rpm

## Technical information

### Air inlet

- Mounted air filter

### Fuel system

- Mechanically actuated electronically controlled unit fuel injectors with full authority electronic control
- Governing to ISO 8528-5 class G3 with isochronous capability
- Replaceable 'Ecoplus' fuel filter elements with primary filter/water separator
- Fuel cooler

### Lubrication system

- Wet sump with filler and dipstick
- Full-flow replaceable 'Ecoplus' filter
- Oil cooler integral with filter header

### Cooling system

- Gear-driven circulating pump
- Mounted belt-driven fan
- Radiator supplied loose incorporating air-to-air charge cooler
- System designed for ambients up to 50°C

### Electrical equipment

- 24 volt starter motor and 24 volt 70 amp alternator with DC output
- ECM mounted on engine with wiring looms and sensors
- 3 level engine protection system

### Flywheel and housing

- High inertia flywheel to SAE J620 size 14
- SAE ½ flywheel housing

### Mountings

- Front engine mounting bracket

### Optional equipment

- 110 volt/240 volt immersion heater
- Additional speed sensor
- Temperature and pressure sensors for gauges
- Air filter rain hood
- Twin starters/facility for second starter
- Tool kit
- Additional manuals
- Closed circuit crankcase ventilation system

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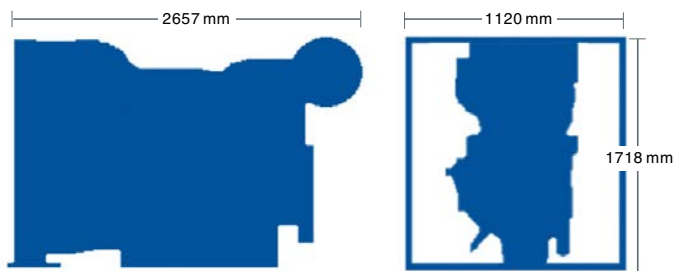
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THE HEART OF EVERY GREAT MACHINE

# 2500 Series 2506C-E15TAG1 Diesel Engine – Electropak

435 kWm at 1500 rpm



Engine package weights and dimensions		
Length	2657 mm	105 in
Width	1120 mm	44 in
Height	1718 mm	68 in
Weight (dry)	1633 kg	3600 lb

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THE HEART OF EVERY GREAT MACHINE

# 2500 Series 2506C-E15TAG1 Diesel Engine – ElectropaK

435 kWm at 1500 rpm

Speed rpm	Type of operation	Typical generator output (Net)		Engine power			
				Gross		Net	
		kVA	kWe	kWm	hp	kWm	hp
1500	Prime power	455	364	412	552	396	531
	Standby power	500	400	451	605	435	583

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS 5514/1. **Derating may be required for conditions outside these; consult Perkins Engines Company Limited.**

Generator powers are typical and are based on an average alternator efficiency and a power factor (cos.  $\theta$ ) of 0.8. **Fuel specification:** BS 2869: Part 2 1998 Class A2 or ASTM D975 D2. **Lubricating oil:** 15W40 to API C14.

#### Rating definitions

**Prime power:** Power available at variable load with a load factor not exceeding 80% of the prime power rating. Overload of 10% is permitted for 1 hour in every 12 hours' operation. **Standby power:** Power available in the event of a main power network failure up to a maximum of 500 hours per year of which up to 300 hours may be run continuously. Load factor may be up to 100% of standby power. No overload is permitted.

Percent of prime power	Fuel consumption at 1500 rpm g/kWh	Fuel consumption at 1500 rpm l/hr
Standby power	217	109
Prime power	216	99
75%	212	73
50%	222	51

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THE HEART OF EVERY GREAT MACHINE

# DSE6110/20 MKII

## AUTO START & AUTO MAINS FAILURE CONTROL MODULES

**DSE6110 MKII**

**DSE6120 MKII**

**KEY FEATURES**

- Large back-lit text display
- Multiple display languages
- Heated display option available
- DSENet® expansion compatible
- Data logging facility
- Fully configurable via PC using USB communication
- Front panel configuration
- Efficient power save mode
- 3 phase generator sensing
- 3 phase mains (utility) sensing (DSE6120 MKII only)
- Generator/load power monitoring (kW, kV A, kV Ar, pf)
- Accumulated power monitoring (kW h, kVA h, kVAr h)
- Generator/load current monitoring and protection
- Generator overload protection (kW)
- Breaker control via fascia buttons
- Fuel and start outputs, configurable when using CAN
- 4 configurable DC outputs
- 4 configurable analogue/digital inputs
- Support for 0 to 10 V &

- 4 to 20 mA oil pressure sensors
- 6 configurable digital inputs
- Configurable staged loading outputs
- CAN, MPU and alternator speed sensing in one variant
- 3 engine maintenance alarms
- Engine speed protection
- Engine hours counter
- Engine pre-heat
- Engine run-time scheduler
- Engine idle control for starting & stopping
- Fuel pump control
- Real time clock
- Battery voltage monitoring
- Start on low battery voltage
- Configurable remote start input
- 1 alternative configuration
- Comprehensive warning, electrical trip or shutdown protection upon fault condition
- LCD and LED alarm indication
- Customisable information screens
- Configurable event log (100)
- Tier 4 ECO engine support including exhaust fluids & filters

- J1939-75 instrumentation output, configurable CAN instrumentation and alarms
- Start on low battery
- Enhanced alarm functionality
- Low load alarm

**KEY BENEFITS**

- Automatically transfers between mains (utility) and generator (DSE6120 MKII only)
- Increased input and output expansion capability via DSENet®
- User-friendly set-up and button layout for ease of use
- Multiple parameters are monitored simultaneously which are clearly displayed on a large back-lit text display via multiple languages
- The module can be configured to suit a wide range of applications
- Uses DSE Configuration Suite PC Software for simplified configuration
- Licence-free PC software
- IP65 rating (with optional gasket) offers increased resistance to water ingress

**SPECIFICATIONS**
**DC SUPPLY**

**CONTINUOUS VOLTAGE RATING**  
8 V to 35 V Continuous

**CRANKING DROPOUTS**

Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5 V. This is achieved without the need for internal batteries. LEDs and backlight will not be maintained during cranking.

**MAXIMUM OPERATING CURRENT**  
100 mA at 12 V, 105 mA at 24 V

**MAXIMUM STANDBY CURRENT**  
60 mA at 12 V, 55 mA at 24 V

**MAXIMUM SLEEP CURRENT**  
40 mA at 12 V, 35 mA at 24 V

**GENERATOR & MAINS (UTILITY) VOLTAGE RANGE**

15 V to 415 V AC (Ph to N)  
26 V to 719 V AC (Ph to Ph)

**FREQUENCY RANGE**  
3.5 Hz to 75 Hz

**INPUTS**

**DIGITAL INPUTS A to F**  
Negative switching

**ANALOGUE INPUT A**

Configurable as:  
Negative switching digital input  
0 V to 10 V  
4 mA to 20 mA  
0 Ω to 240 Ω

**ANALOGUE INPUTS B TO D**

Configurable as:  
Negative switching digital input  
0 Ω to 480 Ω

**OUTPUTS**
**OUTPUT A (FUEL)**

10 A short term, 5 A continuous, at supply voltage

**OUTPUT B (START)**

10 A short term, 5 A continuous, at supply voltage

**AUXILIARY OUTPUTS C, D, E & F**

2 A DC at supply voltage

**DIMENSIONS**

**OVERALL**  
216 mm x 158 mm x 43 mm  
8.5" x 6.2" x 1.5"

**PANEL CUT-OUT**

184 mm x 137 mm  
7.2" x 5.3"

**MAXIMUM PANEL THICKNESS**

8 mm  
0.3"

**STORAGE TEMPERATURE RANGE**

-40 °C to +85 °C  
-40 °F to +185 °F

**OPERATING TEMPERATURE RANGE NON HEATED DISPLAY VARIANT**

-30°C to +70°C  
-22 °F to +158 °F

**HEATED DISPLAY VARIANT**

-40 °C to +70 °C  
-40 °F to +158 °F

**OPTIONAL PARTS**

PART	PART NUMBER
IP65 Gasket	020-521

**RELATED MATERIALS**
**TITLE**

DSE6110/20 MKII Installation Instructions  
DSE6110/20 MKII Operator Manual  
DSE6110/20 MKII Configuration Suite PC Manual

**PART NO.**

053-173  
057-226  
057-224

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# DSE6110/20 MKII

## AUTO START & AUTO MAINS FAILURE CONTROL MODULES

The DSE6110 MKII Auto Start Control Module and the DSE6120 MKII Auto Mains (Utility) Failure Control Module are suitable for a wide variety of single gen-set applications.

Monitoring engine speed, oil pressure, coolant temperature, frequency, voltage, current, power and fuel level, the modules give comprehensive engine and alternator protection. This is indicated on a large back-lit LCD text display via an array of warning, electrical trip and shutdown alarms in multiple languages.

Electronic J1939 (CAN) and non-electronic MPU and alternator sensing engine support for diesel, gas and petrol engines all in one variant. With a number of flexible inputs, outputs and protections, the modules can be easily adapted to suit a wide range of applications.

Through USB Communication both modules can be configured using the DSE Configuration Suite PC Software or through the module's front panel editor.

Using the DSE Configuration Suite PC Software the controller is easy to use and configure which allows alteration of operating parameters, sequences, timers and alarms.

### AVAILABLE VARIANTS

- 6110-03 Auto Start with real time clock
- 6120-03 Auto Mains Failure with real time clock

### ENVIRONMENTAL TESTING STANDARDS

**ELECTRO-MAGNETIC COMPATIBILITY**  
 BS EN 61000-6-2  
 EMC Generic Immunity Standard for the Industrial Environment  
 BS EN 61000-6-4  
 EMC Generic Emission Standard for the Industrial Environment

**ELECTRICAL SAFETY**  
 BS EN 60950  
 Safety of Information Technology Equipment, including Electrical Business Equipment

**TEMPERATURE**  
 BS EN 60068-2-1  
 Ab/Ae Cold Test -30 °C  
 BS EN 60068-2-2  
 Bb/Be Dry Heat +70 °C

**VIBRATION**  
 BS EN 60068-2-6  
 Ten sweeps in each of three major axes  
 5 Hz to 8 Hz at +/-7.5 mm,  
 8 Hz to 500 Hz at 2 GN

**HUMIDITY**  
 BS EN 60068-2-30  
 Db Damp Heat Cyclic 20/55 °C at 95% RH 48 Hours  
 BS EN 60068-2-78  
 Cab Damp Heat Static 40 °C at 93% RH 48 Hours

**SHOCK**  
 BS EN 60068-2-27  
 Three shocks in each of three major axes  
 15 GN in 11 mS

**DEGREES OF PROTECTION PROVIDED BY ENCLOSURES**  
 BS EN 60529  
 IP65 - Front of module when installed into the control panel with the optional sealing gasket.

## COMPREHENSIVE FEATURE LIST TO SUIT A WIDE VARIETY OF GEN-SET APPLICATIONS

