

## 100 KVA DIESEL GENERATOR

### FEATURES & BENEFITS

- Maximum 110 kVA, 380V, 1500 RPM
- Constant voltage AVR (Automatic Voltage Regulator)
- 12 Volt Electric Starter
- 165 Litre Fuel Tank, 12 Hours @ 75% load
- Silent Version ( $\pm 72$  dBA)
- 4 cylinder, Turbocharged, Water cooled Diesel Engine
- Three Phase Output
- DeepSea DSE6120 Digital Control Panel
- Low oil pressure system
- Low water cut out engine protection



 Perkins

 DEEP SEA  
DSE ELECTRONICS

 LEROY-SOMER

| GENERAL DATA                   |             |
|--------------------------------|-------------|
| <b>Model:</b>                  | BPD100S3-P  |
| <b>Prime Power (P.R.P):</b>    | 100 kVA     |
| <b>Stand-by Power (L.T.P):</b> | 110 kVA     |
| <b>Amps:</b>                   | 167 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>                 | 2600 mm     |
| <b>Width:</b>                  | 1000 mm     |
| <b>Height:</b>                 | 1200 mm     |
| <b>Weight:</b>                 | 1210 kg's   |
| <b>Tank Capacity:</b>          | 165 l       |

| ADDITIONAL                     |                      |
|--------------------------------|----------------------|
| <b>Running Time:</b>           | 12 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> | 18.2                 |
| <b>Fuel Cons. @ 75% Load:</b>  | 13.6                 |
| <b>Fuel Cons. @ 50% Load:</b>  | 9.6                  |

| ENGINE DATA                  |                                                      |
|------------------------------|------------------------------------------------------|
| <b>Brand:</b>                | Perkins                                              |
| <b>Model:</b>                | 1104C-44TAG2                                         |
| <b>Type:</b>                 | 4 cylinder, Turbocharged, Water cooled Diesel Engine |
| <b>Starting System:</b>      | 12 Volt Electric Starter                             |
| <b>Auto-Decompression:</b>   | Yes                                                  |
| <b>Cubic Capacity (l):</b>   | 4.4                                                  |
| <b>Compression Ratio:</b>    | 18.23:1                                              |
| <b>Rated Power (kW/RPM):</b> | 103 / 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>     | 2                     |
| <b>Mains Phase Voltage:</b> | Yes                   |
| <b>Mains Line Voltage:</b>  | Yes                   |

| ALTERNATOR              |                         |
|-------------------------|-------------------------|
| <b>Model:</b>           | Leroy Somer - TAL-A44-D |
| <b>Pole Number:</b>     | 4                       |
| <b>Excitation Mode:</b> | Self Excitation         |

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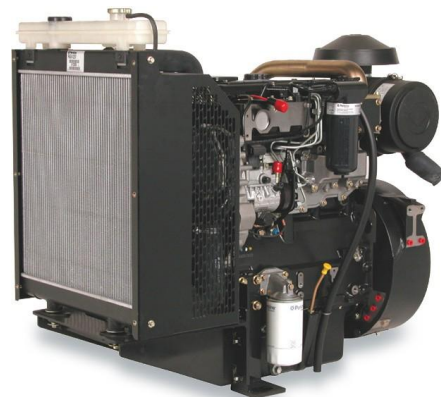
# 1100 Series 1104A-44TG2 Diesel Engine – ElectropaK

79.1 kWm / 106.1 hp @ 1500 rpm

Building upon Perkins proven reputation within the power generation industry, the 1100 Series range of ElectropaK engines now fit even closer to customers needs.

In the world of power generation success is only gained by providing more for less. With the 1104A-44TG2 Perkins has engineered even higher levels of reliability, yet lowered the cost of ownership.

1100A units are designed for territories that do not require compliance to EPA or EU emissions legislation. These units are able to meet TA luft legislation.



| Specification              |                                      |                       |
|----------------------------|--------------------------------------|-----------------------|
| Number of cylinders        | 4 vertical in-line                   |                       |
| Bore and stroke            | 105 x 127 mm                         | 4.1 x 5 in            |
| Displacement               | 4.4 litres                           | 268.5 in <sup>3</sup> |
| Aspiration                 | Turbocharged                         |                       |
| Cycle                      | 4 stroke                             |                       |
| Combustion system          | Direct injection                     |                       |
| Compression ratio          | 17.25:1                              |                       |
| Rotation                   | Anti-clockwise, viewed from flywheel |                       |
| Total lubricating capacity | 8.0 litres                           | 2.1 US gal            |
| Cooling system             | Water-cooled                         |                       |
| Total coolant capacity     | 13.0 litres                          | 3.4 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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 **Perkins®**

THE HEART OF EVERY GREAT MACHINE

# 1100 Series 1104A-44TG2 Diesel Engine – ElectropaK

79.1 kWm / 106.1 hp @ 1500 rpm

## Features and benefits

### Compact, efficient power

- 1100 Series is the result of an intensive period of customer research that has guided the development of the range
- The new 4.4 litre cylinder block ensures bore roundness is maintained under the pressures of operation. It also ensures combustion and mechanical noise is lowered
- A new cylinder head has re-established Perkins mastery of air control

### Quality by design

- Product design and Class A manufacturing improvements enhance product reliability while maintaining Perkins legendary reputation for durability

### Cost effective power

- Compact size and low noise
- Lower fuel consumption and oil use
- 500 hour service intervals
- Warranties and Service Contracts

We provide one-year warranties for constant speed engines and two-year warranties for variable speed models, as standard. These are supported by multilevel Extended Service Contracts that can be bought additionally  
Discover more: [www.perkins.esc](http://www.perkins.esc)

### 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
- To find your local distributor: [www.perkins.com/distributor](http://www.perkins.com/distributor)

# 1100 Series 1104A-44TG2 Diesel Engine – ElectropaK

79.1 kWm / 106.1 hp @ 1500 rpm

## Technical information

### Air inlet

- Mounted air filter

### Fuel system

- Rotary type pump
- Ecoplus fuel filter

### Lubrication system

- Wet sump with filler and dipstick
- Spin-on oil filter

### Cooling system

- Thermostatically controlled system with gear-driven circulation pump and belt-driven pusher fan
- Mounted radiator and piping

### Electrical equipment

- 12 volt starter motor and 12 volt 65 amp alternator with DC output
- 12 volt shutdown solenoid energised to run

### Flywheel and housing

- High inertia flywheel to SAE J620 Size 10/11½
- SAE 3 flywheel housing

### Mountings

- Front engine mounting bracket

### Literature

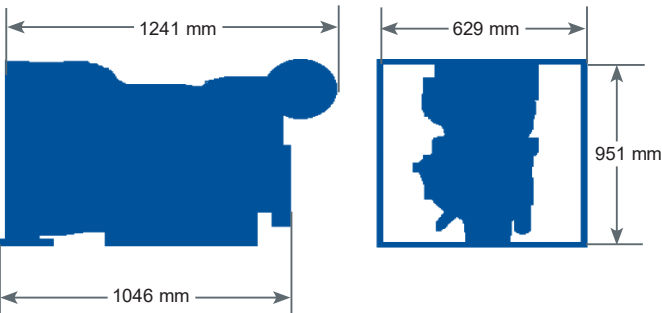
- User's Handbook

### Optional equipment

- Woodward electronic governor (LCG2)
- Workshop manual
- Parts book

# 1100 Series 1104A-44TG2 Diesel Engine – ElectropaK

79.1 kWm / 106.1 hp @ 1500 rpm



| Engine package weights and dimensions |         |         |
|---------------------------------------|---------|---------|
| Length                                | 1241 mm | 48.8 in |
| Width                                 | 629 mm  | 24.7 in |
| Height                                | 951 mm  | 37.4 in |
| Weight (dry)                          | 463 kg  | 1021 lb |

# 1100 Series 1104A-44TG2 Diesel Engine – Electropak

79.1 kWm / 106.1 hp @ 1500 rpm

| Speed rpm | Type of operation | Typical generator output (Net) |      | Engine power |       |      |       |
|-----------|-------------------|--------------------------------|------|--------------|-------|------|-------|
|           |                   |                                |      | Gross        |       | Net  |       |
|           |                   | kVA                            | kWe  | kWm          | hp    | kWm  | hp    |
| 1500      | Prime power       | 80.0                           | 64.0 | 73.4         | 98.4  | 71.9 | 96.4  |
|           | Standby power     | 88.0                           | 70.4 | 80.7         | 108.2 | 79.1 | 106.1 |

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS5514/1. 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 DIN EN 590. Lubricating oil: 15W40 to API CG4.

#### Rating definitions

Prime power: Variable load. Unlimited hours usage with an average load factor of 80% of the published prime power over each 24 hour period. A 10% overload is available for 1 hour in every 12 hours of operation. Standby power: Variable load. Limited to 500 hours annual usage, up to 300 hours of which may be continuous running. No overload is permitted.

| Percent of prime power | Fuel consumption at 1500 rpm<br>g/kWh | Fuel consumption at 1500 rpm<br>l/hr |
|------------------------|---------------------------------------|--------------------------------------|
| 110%                   | 4.5                                   | 20.5                                 |
| 100%                   | 4.1                                   | 18.7                                 |
| 75%                    | 3.0                                   | 14.0                                 |
| 50%                    | 2.1                                   | 9.7                                  |

# DSE6110/20 MKII

## AUTO START & AUTO MAINS FAILURE CONTROL MODULES

DSE6120 MKII



DSE6110 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

### 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

### OPTIONAL PARTS

| PART        | PART NUMBER |
|-------------|-------------|
| IP65 Gasket | 020-521     |

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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

