

| Output Power Rating |           | Prime   |      | Standby*** |      |      |
|---------------------|-----------|---------|------|------------|------|------|
| rpm                 | Frequency | Voltage | Kva  | Kw         | Kva  | Kw   |
| 1500                | 50 Hz     | 400     | 20.3 | 16.2       | 22.3 | 17.8 |
| 1800                | 60 Hz     | 480     | 24.2 | 19.3       | 26.6 | 21.3 |

### Switch able speed 1500/1800 rpm

The above kW rating are at 0.8 pf

Guaranteed within condition equivalent to those specification in ISO 8528-1,ISO 3046-1 and BS 5514-1.

\* Prime power rating of the generating set is where a variable load and unlimited hours usage are applied on the generating set with an average load factor of 80% of the prime rating over each 24 hours period.

Nothing that a 10% overload is available for 1 hour in every 12 hours operation

\*\* Standby power rating of the generating set is where a variable load limited to an annual usage up to 500 hours is applied, with 300 hours of which may be continuous running. Noting that no overload is permitted

### Engine Technical Data

|                            |   |
|----------------------------|---|
| Engine Make and Model      | Perkins 404D-22G  |
| Cylinder                   | 4 Vertical In-Line  |
| Aspiration                 | Naturally Aspirated   |
| Combustion System          | Indirect Injection  |
| Displacement               | 2.216 Liters  |
| Governor                   | Mechanical  |
| Emissions Regulation       | EU stage IIIA & US EPA Tier 4                                 |
| Electrical Starting System | 12 Volt Starter Motor and 12 Volt 15 Amp Alternator DC Output |

### Air System

|  |                                   |                       |                       |
|--|-----------------------------------|-----------------------|-----------------------|
| Air Filter Type                                  | Split Element (Replaceable)       |                       |                       |
| Combustion Air Flow<br>Cm <sup>3</sup> /min(cfm) | Prime                             | 50 Hz<br>1.45 (51.20) | 60 Hz<br>1.74 (61.44) |
|  | Standby                           | 1.45 (51.20)          | 1.74 (61.44)          |
|  | Max Air Filter Intake Restriction | 6.4 kpa               | 6.4 kpa               |

### Fuel System

|                                     |                             |            |            |
|-------------------------------------|-----------------------------|------------|------------|
| Fuel Filter Type                    | Split Element (Replaceable) |            |            |
| Recommended Fuel                    | Class A2 Diesel             |            |            |
| Fuel Consumption<br>l/hr(US gal/hr) | Engine Speed                | 1500 rpm   | 1800 rpm   |
|                                     | Standby                     | 6.1 (1.61) | 6.9 (1.82) |
|                                     | Prime Power                 | 5.3 (1.40) | 6.2 (1.64) |
|                                     | 75% of Prime Power          | 4.0 (1.06) | 4.8 (1.27) |
|                                     | 50% of Prime Power          | 2.9 (0.77) | 3.5 (0.92) |
| Fuel Tank: Open / Close             | 97 L / 114 L                |            |            |

### Lubrication System

|                    |   |
|--------------------|---|
| Lube Oil           | API-CH-4 or ACEA E5 SAE 15W40 (-10°C to 50°C Ambient Temperature) |
| Lube Oil Capacity  | 10.6 L  |
| Oil Pan            | 8.9 L   |
| Oil Filter Type    | Spin-On Full Flow   |
| Oil Cooling Method | N/A   |

### Cooling System

|  |                                |                 |                 |
|--|--------------------------------|-----------------|-----------------|
| Coolant Capacity                               | 7.0 L                          |                 |                 |
| Cooling System                                 | Mounted Radiator, Water Cooled |                 |                 |
| Cooling Fan Air Flow m <sup>3</sup> /min (cfm) | 40.2 (1419.65)                 | 52.2 (1843.42)  |                 |
| Heat Radiation to Room                         | Prime                          | 50 Hz<br>3.3 kW | 60 Hz<br>3.8 kW |
|  | Standby                        | 4.4 kW          | 4.6 kW          |

### Exhaust system

|   |          |                |                |
|---|----------|----------------|----------------|
| Silencer                                      | Grade    | Industrial     |                |
|   | Size     | 2"             |                |
|   | QTY      | 1              |                |
| Exhaust gas flow<br>m <sup>3</sup> /min (cfm) | Prime    | 3.64 (128.54)  | 4.34 (153.26)  |
|   | Standby  | 3.94 (139.13)  | 4.76 (168.09)  |
| Max Allowable Backpressure                    | 10.2 kpa |                | 10.2 kpa       |
| Exhaust Gas Max Temperature                   | Prime    | 50 Hz<br>445°C | 60 Hz<br>440°C |
|   | Standby  | 505°C          | 510°C          |

| Alternator Technical Data   |  |            |             | Standford / or L.S |   |       |       |       |      |
|---|--|------------|-------------|--------------------|---|-------|-------|-------|------|
| Model Number  | BC1164E  |            |             |                    |   |       |       |       |      |
| No. of Poles  | 4  |            |             |                    |   |       |       |       |      |
| Number of terminals (leads)                                       | 12   |            |             |                    |   |       |       |       |      |
| A.V.R & Excitation  | SX 460   |            |             |                    |   |       |       |       |      |
| Regulation  | ± 1%   |            |             |                    |   |       |       |       |      |
| Ingress Protection  | IP-23  |            |             |                    |   |       |       |       |      |
| Insulation Class  | H  |            |             |                    |   |       |       |       |      |
| TIF   | <45  |            |             |                    |   |       |       |       |      |
| THD at Full Load %  | 2 / 2  |            |             |                    |   |       |       |       |      |
| THD at No Load %  | 3.7 / 3.7  |            |             |                    |   |       |       |       |      |
| Cooling Air flow-@50 Hz m <sup>3</sup> / min (cfm)                | 5.3 (187.16)   |            |             |                    |   |       |       |       |      |
| Cooling Air flow-@60 Hz m <sup>3</sup> / min (cfm)                | 45.8 (204.82)  |            |             |                    |   |       |       |       |      |
| <b>Output Voltage</b>   | <b>50 Hz</b>   |            |             |                    | <b>60 Hz</b>  |       |       |       |      |
| V   | 380  | 400        | 415         | 440                | 415   | 440   | 460   | 480   |      |
| kVA   | 17   | 17         | 17          | 15.5               | 17.5  | 18.6  | 20.4  | 20.4  |      |
| kW  | 13.6   | 13.6       | 13.6        | 12.4               | 14  | 14.9  | 16.3  | 16.3  |      |
| <b>Alternator performance data</b>                                |  |            |             |                    |   |       |       |       |      |
| Reactance (f.l.cl.f)  | xd %   | 217.2      | 196         | 182.7              | 182.1   | 224.9 | 212.7 | 213.4 | 196  |
|   | xd' %  | 18.73      | 16.9        | 15.70              | 15.70   | 19.38 | 18.34 | 18.34 | 16.9 |
|   | xd'' %   | 12.74      | 11.5        | 10.68              | 10.68   | 13.2  | 12.48 | 12.48 | 11.5 |
| Motor starting capacity based on 30% voltage dip and 0.8 pf (kVA) | 32.5   | 42.5       | 51.0        | -                  | 26  | 35    | 35    | 52.5  |      |
| <b>Controller features</b>  |  |            |             | <b>DSE</b>         |   |       |       |       |      |
| Controller Make and Model   | Auto mains failure (AMF) applications including remote communication, user configuration and complete gen-set monitoring and protection. Ready for generators with 3 ph 4 wire / 3ph 3 wire/ Mono ph |            |             |                    |   |       |       |       |      |
| Engine Protection   | * Oil Pressure<br>* Coolant Temperature  |            |             |                    | * Fuel Level (Optional)                                 |       |       |       |      |
| Generator Protection  | * Over / Under Voltage<br>* Over / Under Frequency<br>* Phases Frequency   |            |             |                    | * Over Current<br>* Charging Alternator Fault           |       |       |       |      |
| Inputs and Outputs  | * 3 No's Configurable Analog Inputs<br>* 4 No's Binary Inputs  |            |             |                    | * 6 No's Binary Outputs<br>* D+ Pre-Excitation Terminal |       |       |       |      |
| Event and Performance Log   | * Gen-set text Alarm Log<br>* For More Features we can use High Controller   |            |             |                    | * Engine Hours History Log                              |       |       |       |      |
| <b>Gen-set Enclosure specification (optional)</b>                 |  |            |             |                    |   |       |       |       |      |
| Enclosure Type  | Acoustic and Weatherproof  |            |             |                    |   |       |       |       |      |
| Anticorrosive Protection  | Polyester Powder Coated Galvanized Sheet   |            |             |                    |   |       |       |       |      |
| Access Doors  | 4  |            |             |                    |   |       |       |       |      |
| Drainage  | Fuel and Water Drainage Provision  |            |             |                    |   |       |       |       |      |
| Transportation  | Tested Single Point Lifting Facility & Forklift Pockets  |            |             |                    |   |       |       |       |      |
| Noise Level (@ Free-Field Conditions)                             | 66 dBA @ 7 meter   |            |             |                    |   |       |       |       |      |
| Water Fill  | Radiator Water Filling Provision   |            |             |                    |   |       |       |       |      |
| Cable Access  | Cable Inlet and Outlet Provision   |            |             |                    |   |       |       |       |      |
| Emergency stop  | External Emergency Push Button   |            |             |                    |   |       |       |       |      |
| Canopy RAL Color  | RAL 2000   |            |             |                    |   |       |       |       |      |
| Chassis RAL Color   | RAL 9011   |            |             |                    |   |       |       |       |      |
| <b>Shipping Data</b>  |  |            |             |                    |   |       |       |       |      |
| Type  | Length (mm)  | Width (mm) | Height (mm) | Weight (kg)        |   |       |       |       |      |
| Open  | 1600   | 700        | 1000        | 500                |   |       |       |       |      |
| Enclosed  | 1720   | 760        | 1060        | 750                |   |       |       |       |      |

**Notes:**

All Generators carry a one year or (1,000) hour's manufacturer's warranty