



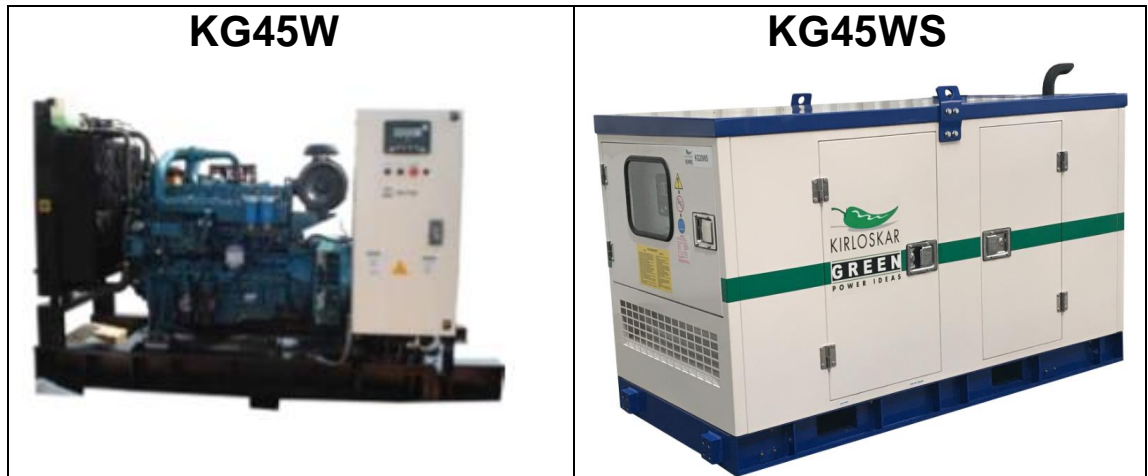
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# KIRLOSKAR DIESEL GENERATING SETS

## KG45W / KG45WS

| Diesel Generating Set Output Ratings |                              |                                |                    |                        |                        |
|--------------------------------------|------------------------------|--------------------------------|--------------------|------------------------|------------------------|
| Model                                | Prime Rating at 0.8 pf (lag) | Standby Rating at 0.8 pf (lag) | Phase / Hz         | Standard Voltage (L-L) | Optional Voltage (L-L) |
| KG45W (OPEN)                         | 45 kVA<br>36 kW              | 49.5 kVA<br>39.6 kW            | 3 Phase /<br>60 Hz | 220V                   | 380V to<br>480V*       |
| KG45WS (SAE)                         |                              |                                |                    |                        |                        |

- S  
SAE – Sound Attenuated Enclosure \* kVA rating may change please consult KOEL
- Ratings are according to ISO 8528; refer to ratings definition on page 2.



Note: Above picture shown for illustration purpose only, actual product may be different.

### Features

- Extremely reliable.
- Lower operating cost.
- Easy maintenance – higher uptime.
- Sound attenuating enclosure (canopy) is fully integrated and designed for all weather conditions (weather proof).
- Best in class Sound attenuation – 70 dB(A) at 7 meters as per ISO 8528
- State of the art generating set control system with high degree of accuracy and reliability.
- Ideally suitable for critical industries like Construction, Manufacturing, Textile, Services etc.
- Superior design standards that minimize power deration even at high ambient temperatures.
- Efficient and prompt after sales service available.

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**Ratings Definition:**

**Emergency Standby Power (ESP) :**

Emergency standby power is defined as the maximum power available during a variable electrical power sequence, under the stated operating conditions, for which a generating set is capable of delivering in the event of utility power outage. The permissible average power output over 24hours of operation shall not exceed 70% of the ESP. No overload is permitted above ESP rating.


**Prime Rated Power (PRP) :**

These ratings are applicable for supplying continuous electrical power (at variable load) in lieu of commercial purchased power. There is no limitation to the annual hours of operation and this model can supply 10% overload power for 1 hour in 12 hours.

**Continuous Rated Power :**

These ratings are applicable for supplying power continuously to a constant load upto the full output rating for unlimited hours. No sustained overload capability is available for this rating.

| GENERATING SET SPECIFICATIONS                        |                        |
|--|------------------------|
| Model - Open Type                                    | KG45W                  |
| Model - SAE Type                                     | KG45WS                 |
| Line Voltage (Volts)                                 | 220V   380V            |
| Phase Voltage (Volts)                                | 127V   220V            |
| Frequency (Hz)                                       | 60                     |
| Power Factor   | 0.8                    |
| Phase  | Three phase            |
| Fuel Tank Capacity (Liters)                          | Open – 100             |
|  | SAE – 95               |
| Fuel consumption at 100% load (lit/hr) +5% tolerance | 12.90                  |
| Fuel consumption at 75% load (lit/hr) +5% tolerance  | 9.68                   |
| Sound level at 7 m for Silent Generating set dB      | 70                     |
| Overall dimensions (cms)                             | Open – 175 x 109 x 136 |
|  | SAE – 264 x 110 x 167  |
| Weight (kgs)   | Open Type – 900        |
|  | SAE Type – 1170        |

| CONTROL SYSTEM  |   |
|---|---|
|  |   |
| Controller Make   | Deepsea   |
| Controller Model  | DSE 6120 MKII   |
| Digital display instrumentation   | Generator Voltage<br>Generator Amps<br>Generator Frequency<br>Generator kW, kVA, kVAr<br>Generator kWh<br>Generator power factor<br>Mains Voltage<br>Battery Voltage<br>Engine hours Run<br>Oil Pressure Gauge<br>Engine Temperature Gauge<br>Fuel Level                      |
| Shutdowns/Safeties  | Fail to Stop<br>Low Oil pressure<br>High Engine Temperature<br>Under/Over-speed<br>Under/Over voltage<br>Emergency Stop<br>Failed to reach loading voltage<br>Failed to reach loading frequency<br>Charge Fail<br>Over Current<br>Low DC Voltage warning<br>Low coolant level |
| Automatic Starting & AMF facility   | Available   |



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# Engine Technical Data

| Physical Data             |              |
|---------------------------|--------------|
| Engine Make               | Kirloskar    |
| Engine Model              | 4R1040       |
| Cylinders / Configuration | 4 / Inline   |
| Type                      | Four stroke  |
| Bore x Stroke (mm)        | 105 x 120    |
| Displacement (Ltr)        | 4.16         |
| Cooling                   | Water cooled |
| Aspiration                | Natural      |
| Compression Ratio         | 18 : 1       |
| hp Prime @ 1800rpm        | 62           |
| hp Standby @ 1800rpm      | 66           |

| Fuel System   |                                |
|---|--------------------------------|
| Type of fuel filter   | Two stage spin on type         |
| Governor Type   | Mechanical                     |
| Class of Governing  | ISO 8528-5, Class G2           |
| Fuel pump type  | Inline                         |
| Fuel pump make  | Mico Bosch                     |
| Recommended Fuel  | Class A2,<br>High speed diesel |
| Fuel consumption at 100% load (lit/hr) +5% tolerance  | 12.90                          |
| Fuel consumption at 75% load (lit/hr) +5% tolerance   | 9.68                           |
| Fuel consumption readings are based on diesel fuel with a specific gravity of 0.85 and confirming to BS 2869, Class A2) |                                |

| Air System   |                              |
|--|------------------------------|
| Air Filter Type  | Dry type replaceable element |
| Air Volume required for Ventilation (m <sup>3</sup> /hr)     | 5554                         |
| Combustion air flow (m <sup>3</sup> /hr)                     | 187                          |
| Total Air Flow required for ventilation (m <sup>3</sup> /hr) | 6061                         |
| Total Fresh air required (m <sup>3</sup> /hr)                | 5555                         |

| Lubrication System          |                           |
|-----------------------------|---------------------------|
| Type of lube oil filter     | Full flow spin on type    |
| Oil to be used              | SAE 15W-40 API : CI4      |
| Oil pump type               | Through G-rotor gear pump |
| Lub oil sump capacity (lit) | 11                        |
| Lube oil consumption        | 0.3% of fuel consumption  |

| Cooling System                |             |
|-------------------------------|-------------|
| Cooling system capacity (lit) | 18          |
| Water pump type               | Centrifugal |
| Radiator fan load (hp)        | 4           |

| Electrical System           |                                    |
|-----------------------------|------------------------------------|
| Starting Arrangement        | 12V Electric                       |
| Starter                     | 12V Electric                       |
| Starter Battery Rating      | 100Ah                              |
| Battery charging alternator | Engine mounted 12V battery charger |
| Battery charger amps        | 35                                 |



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# Alternator Technical Data

| Physical Data             |           |           |
|---------------------------|-----------|-----------|
| Line Voltage (Volts)      | 220V      | 380V      |
| Manufacturer              | Stamford  |           |
| Model                     | PI 144 J1 | PI 144 J1 |
| Number of bearings        | 1         |           |
| Insulation class          | H         |           |
| Winding pitch             | 2/3       |           |
| Wires                     | 12        |           |
| Ingress Protection Rating | IP 23     |           |
| AVR Model                 | AS 480    |           |

| Operating Data                               |              |      |
|--|--------------|------|
| Line Voltage (Volts)                         | 220V         | 380V |
| Over speed (RPM)                             | 2250         |      |
| Excitation                                   | Self excited |      |
| Efficiency (%)                               | 87.7         | 87.7 |
| THD at full linear balanced load AC waveform | ≤ 5%         |      |
| Voltage Regulation (%)                       | ± 1.0        |      |
| Reactance per unit (Xd)                      | 2.17         | 2.17 |
| Reactance per unit (X'd)                     | 0.20         | 0.20 |
| Reactance per unit (X''d)                    | 0.14         | 0.14 |

## Sound Attenuating Enclosure (Canopy)

|                     |   |
|---------------------|---|
| Sound Level         | 70 dB at 7 meter as per ISO 8528  |
| Construction        | <ul style="list-style-type: none"> <li>Fully Integrated, metal construction for ALL WEATHER USE (weather proof).</li> <li>Black zinc die cast, Aluminium hinges or Stainless steel hinges tested to withstand corrosive environment conditions.</li> <li>Fuel filling spout with lock.</li> <li>Emergency stop button on canopy exterior.</li> <li>Provision of glass window for viewing control panel</li> <li>Provision for lifting canopy</li> </ul> |
| Maintenance         | Easy access through lockable doors for operation/maintenance and repair works (including access for radiator service)   |
| Protection Standard | IP 23   |

## General Data

|                   |   |
|-------------------|---|
| Documents         | <ul style="list-style-type: none"> <li>A full set of Illustrated spare parts catalogue</li> <li>Operation &amp; Maintenance manual</li> <li>Circuit Diagrams</li> </ul> |
| Quality Standards | ISO 8528, ISO 3046, IS 100002, BS5514, DIN 6271, ISO 9001, ISO 14001  |



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### KIRLOSKAR OIL ENGINES LIMITED

Head Office: Laxmanrao Kirloskar Road, Khadki, Pune 411 003, India.

Tel.: +91 20 2581 0341 / 534 Fax: +91 20 2581 3208 Website : [www.koel.co.in](http://www.koel.co.in)

### International business offices

#### KIRLOSKAR DMCC

JBC-5, Cluster W, Jumeirah Lake Towers, P.O.Box 37745, Dubai. U.A.E

Tel.: +971 4 443 8591 Fax: +971 4 441 4532

Email: [enquiry@kirloskar.ae](mailto:enquiry@kirloskar.ae) Website : [www.kirloskar.ae](http://www.kirloskar.ae)

#### JOBURG INDUSTRIAL TRADING S.A.(Pty) LTD.

Unit B1, The Stables Business Park, Cnr of Third Avenue & Second Road, Limbro Park, Modderfontein, Johannesburg.

Tel.: +27(0) 11 553 6900/6903 Email: [kirsons@kirloskar.co.za](mailto:kirsons@kirloskar.co.za)

#### KIRLOSKAR KENYA LTD.

P.O. Box 60061, Off Dunga Road, Nairobi, Kenya. Tel.: +254 20 653 6632

Fax: +254 20 653 3390 Email: [rspatil@kirloskar.co.ke](mailto:rspatil@kirloskar.co.ke)

#### KOEL AMERICAS CORPORATION

33300 Egypt Lane, Suite C300, Magnolia, TEXAS – 77354, United States

Office Phone: +1 346 248 5777 Email: [Vinay.Kulkarni@koelamerica.com](mailto:Vinay.Kulkarni@koelamerica.com)

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