CM32C Electric Power Generator Set
2 780 - 4 170 kWe

Features and Benefits

Reliable Operation
- Intensive cooling of key components including exhaust valve seats, injector cooling integrated into lubricating oil system
- Reliable, proven and high efficient single turbo charging system
- Classification society standards ensure high safety and quality
- Intelligent simplicity ensures a robust engine platform
- Optimized service schedules enable high availability and long durability

Control & Monitoring
- Ultrafast start time and load acceptance
- No engine start limitations
- Continuous power (base and peak load), prime power, stand-by
- Part load with high efficiency
- Monitoring for unattended operation
- Asset intelligence system

Ease of Installation
- Reduced complexity of standard modular design allows an easy installation
- Low space requirements between the gensets
- Genset is ready for installation
- Generator set designed for direct elastic mounting

Cat® Engine Specifications
CM32C, 4-Stroke-Cycle-Liquid Fuel

Configuration
6, 8, 9 cylinder

Fuel type
Diesel oil, heavy fuel oil (HFO), crude oil

Genset rating
2 780 - 4 170 kWe

Genset efficiency
up to 46.0%

Emissions up to
World bank emission certification
(Stage 2)

Ease of Operation
- Low fuel and oil consumption
- Low maintenance requirements
- Operator and maintenance training courses available

Intelligent Simplicity
- High reliability, modular design and integral construction reduce the number of components by 40% over conventional designs e.g.:
  - Dry engine block with integrated ducts for lubricating oil and charge air and underslung crankshaft
  - Compact cylinder head design
- Smart maintenance solutions
  - Easily removable cylinder heads, quick removable fluid connections
  - Split connecting rods to allow fast and easy piston removal without disturbing the big end bearing
  - Segmental camshaft design
  - Simplified parts spectrum by using single-pipe exhaust gas
  - Engine block free from cooling water
- State-of-art material ensures long life time
FEATURES AND BENEFITS

Ease Of Maintenance
- Smart maintenance solutions allow an easy component accessibility
- Large inspection openings afford an easy serviceability to core engine internals
- Core engine components designed for reconditioning and reuse
- Short maintenance intervals enable high availability
- No engine removal necessary for maintenance and overhauls

Fuel
- Liquid: Light fuel oil (LFO), crude oil and heavy fuel oil (HFO) with fuel quality up to 700 cSt/50°C according to CIMAC H55/K55
- Dual: Light fuel oil (LFO), crude oil and heavy fuel oil (HFO) with fuel quality up to 700 cSt/50°C according to CIMAC H55/K55
- Natural gas with methane number > 80 and lower heating value of 28MJ/Nm3
- Gaseous: Natural gas with methane number > 80 and lower heating value of 31.5 MJ/Nm3

Emission
- World bank (WB) emission certification stage 1 and 2
- Technische Anleitung (TA) Luft 2002 (only gas)
- Post-emission treatment systems for lower emission requirements available

Expertise & Experience
- Assistance for planning - delivery - commissioning - operation and service
- Expertise and experience for solutions to maximize benefits, e.g. combine heat and power systems (CHP)

Worldwide Product Support
- With nearly 200 Cat® dealers we are at home around the globe
- Factory-trained technicians, original parts and support are never out of reach
- Long term service agreements offer back-to-back services from preventive maintenance, scheduled maintenance to full operation and maintenance

EQUIPMENT

Fuel System
- Circulation module
- Pre-pressure module
- Separator module
- Engine ventilation module (only dual fuel (DF) and gas)
- Gas valve unit (GVU) (only dual fuel (DF) and gas)
- Ignition fuel oil module (only dual fuel (DF))

Lubricating Oil System
- Combined module: cooling water system and lubricating oil system
- Lubricating oil separator module
- Piping interface module

Cooling Water System
- Combined module: see lubricating oil system
- Cooling water system with radiators
- Piping interface module

Starting System
- Starting air compressor module
- Starting air receiver module

Combustion Air System
- Air filter - pocket
- Air filter - oil bath
- Air filter - pulse

Exhaust System
- Exhaust gas silencer
- Selective catalytic reduction (SCR) system
- Oxidation catalytic (Oxicat) converter system
- Exhaust gas ventilation module (only dual fuel (DF) and gas)

Control & Monitoring System
- Local control panel (LCP)
- Local data panel (LDP) / generator control panel (GCP)
- Motor control center (MCC) module
- Engine monitoring package
- Gas leak detection per cylinder (only dual fuel (DF) and gas)

Mounting System
- Elastic mounting - genset / engine
## TECHNICAL DATA

### CM32C Electric Power Generator Set

#### Ratings

<table>
<thead>
<tr>
<th>S.No.</th>
<th>Engine Type</th>
<th>Units</th>
<th>6CM32C</th>
<th>8CM32C</th>
<th>9CM32C</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>Type</td>
<td>[-]</td>
<td>4-stroke-cycle</td>
<td>4-stroke-cycle</td>
<td>4-stroke-cycle</td>
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<tr>
<td>2</td>
<td>Configuration</td>
<td>[-]</td>
<td>6 cylinder</td>
<td>8 cylinder</td>
<td>9 cylinder</td>
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<tr>
<td>3</td>
<td>Fuel Type</td>
<td>[-]</td>
<td>Diesel oil, heavy fuel oil (HFO), crude oil</td>
<td>Diesel oil, heavy fuel oil (HFO), crude oil</td>
<td>Diesel oil, heavy fuel oil (HFO), crude oil</td>
</tr>
<tr>
<td>4</td>
<td>Genset Rating Range Up To</td>
<td>[kWe]</td>
<td>2 780</td>
<td>3 700</td>
<td>4 170</td>
</tr>
<tr>
<td>5</td>
<td>Engine Rating Range Up To</td>
<td>[kW]</td>
<td>2 880</td>
<td>3 840</td>
<td>4 320</td>
</tr>
<tr>
<td>6</td>
<td>Frequency At Speed</td>
<td>[rpm] (50Hz / 60Hz)</td>
<td>50 Hz @ 600</td>
<td>50 Hz @ 600</td>
<td>50 Hz @ 600</td>
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<tr>
<td>7</td>
<td>Voltage</td>
<td>[kV]</td>
<td>3-13.8</td>
<td>3-13.8</td>
<td>3-13.8</td>
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<tr>
<td>8</td>
<td>Genset Efficiency Up To</td>
<td>[%]</td>
<td>46.0</td>
<td>45.9</td>
<td>46.0</td>
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<tr>
<td>9</td>
<td>Emission Level Up To</td>
<td>[-]</td>
<td>WB II</td>
<td>WB II</td>
<td>WB II</td>
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<tr>
<td>10</td>
<td>Ready To Accept Loads (Preheated/Vented)</td>
<td>[s]</td>
<td>40</td>
<td>40</td>
<td>40</td>
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<tr>
<td>11</td>
<td>Normal Ramp Up To 100% Load</td>
<td>[s]</td>
<td>95</td>
<td>95</td>
<td>95</td>
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<tr>
<td>12</td>
<td>Emergency Ramp Up 10% To 100% Load</td>
<td>[s]</td>
<td>35</td>
<td>35</td>
<td>35</td>
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<tr>
<td>13</td>
<td>Bore</td>
<td>[mm / in]</td>
<td>320 / 12.6</td>
<td>320 / 12.6</td>
<td>320 / 12.6</td>
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<tr>
<td>14</td>
<td>Stroke</td>
<td>[mm / in]</td>
<td>480 / 18.9</td>
<td>480 / 18.9</td>
<td>480 / 18.9</td>
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<tr>
<td>15</td>
<td>Swept Volume</td>
<td>[l / cu in]</td>
<td>38.6 / 2.356</td>
<td>38.6 / 2.356</td>
<td>38.6 / 2.356</td>
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<tr>
<td>16</td>
<td>Mean Effective Pressure Up To</td>
<td>[bar / psig]</td>
<td>24.9 / 361</td>
<td>24.9 / 361</td>
<td>24.9 / 361</td>
</tr>
<tr>
<td>17</td>
<td>Aspiration</td>
<td>[-]</td>
<td>turbocharged-aftercooled</td>
<td>turbocharged-aftercooled</td>
<td>turbocharged-aftercooled</td>
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<tr>
<td>18</td>
<td>Specific Fuel Oil Consumption (SFOC) Up To - World Bank Emission Stage 1 (WB I)</td>
<td>(g/kWh) / (lb/kWh)</td>
<td>179 / 0.395</td>
<td>178 / 0.392</td>
<td>178 / 0.392</td>
</tr>
<tr>
<td>19</td>
<td>Specific Fuel Oil Consumption (SFOC) Up To - World Bank Emission Stage 2 (WB II)</td>
<td>(g/kWh) / (lb/kWh)</td>
<td>177 / 0.390</td>
<td>177 / 0.390</td>
<td>177 / 0.390</td>
</tr>
<tr>
<td>20</td>
<td>Specific Energy Consumption (BSEC) Up To</td>
<td>(kJ/kWh) / (Btu/kWh)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>21</td>
<td>Specific Pilot Fuel Consumption (Only Dual Fuel)</td>
<td>(kJ/kWh) / (Btu/kWh)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>22</td>
<td>Specific Lube Oil Consumption</td>
<td>(g/kWh) / (lb/kWh)</td>
<td>0.6 / 0.0013</td>
<td>0.6 / 0.0013</td>
<td>0.6 / 0.0013</td>
</tr>
<tr>
<td>23</td>
<td>Length</td>
<td>[mm / in]</td>
<td>9 302 / 366</td>
<td>10 866 / 428</td>
<td>11 419 / 450</td>
</tr>
<tr>
<td>24</td>
<td>Width</td>
<td>[mm / in]</td>
<td>2 639 / 104</td>
<td>2 600 / 102</td>
<td>2 600 / 102</td>
</tr>
<tr>
<td>25</td>
<td>Height</td>
<td>[mm / in]</td>
<td>4 801 / 189</td>
<td>4 869 / 192</td>
<td>4 869 / 192</td>
</tr>
<tr>
<td>26</td>
<td>Dry Weight - Genset</td>
<td>[t / lb]</td>
<td>73.0 / 160 937</td>
<td>92.0 / 202 825</td>
<td>98.0 / 216 053</td>
</tr>
</tbody>
</table>

### Rating Definition and Conditions

Ratings and fuel consumption based on ISO 3046-1 at standard reference conditions. Lubricating oil consumption tolerance on value +/- 50%.

The Genset rating depends on the efficiency of the final generator specifications.

For liquid: Reference liquid fuel is distillate diesel. Reference lower calorific value: 42700 kJ/kg.

Engine brake specific fuel oil consumption (SFOC) tolerance 5%, without engine driven pumps. For each engine driven pump an additional brake specific fuel consumption of 1% at 100% load has to be calculated.

For dual fuel: Reference gaseous fuel is natural gas with methan number > 80. Minimum lower heating value: 28000 kJ/m³.

Engine brake specific energy consumption (BSEC) tolerance 5%, without engine driven pumps. For each engine driven pump an additional brake specific energy consumption of 1% at 100% load has to be calculated.

Gaseous fuel: Reference gaseous fuel is natural gas with methan number > 80. Minimum lower heating value: 31500 kJ/m³.

Engine brake specific energy consumption (BSEC) tolerance 5%, incl. engine driven lube oil pump.

For each engine driven pump an additional brake specific fuel consumption of 1% at 100% load has to be calculated.
Caterpillar Energy Solutions
medium-speed engines manufactured by:

Caterpillar Motoren GmbH & Co. KG
Falckensteiner Str. 2
24159 Kiel
Germany

For more information:

🌐 www.cat.com/electricpower
📧 electricpower@cat.com
📞 +49 431 3995 2020

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