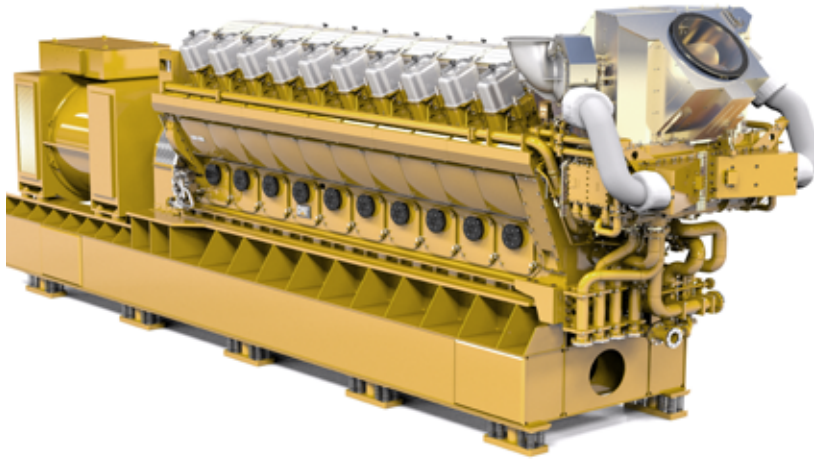


GCM34 Electric Power Generator Set

6 580 - 10 300 kW_e



Cat® Engine Specifications G20CM34, 4-Stroke-Cycle-Gas Fuel

Configuration
20 cylinder

Fuel type
Gas

Genset rating
6 580 - 10 300 kW_e

Genset efficiency
up to 48.0 %

Emissions up to
Technische Anleitung (TA) Luft-2002

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

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

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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 gas (DF) and gas)

Mounting System

- Elastic mounting - genset / engine

TECHNICAL DATA

| Ratings | Units | G16CM34 | G20CM34 |
|--|----------------------|--|--|
| Engine Type | [-] | 4-stroke-engine | 4-stroke-engine |
| Configuration | [-] | Vee-16 | Vee-20 |
| Fuel Type | [-] | Gas | Gas |
| Genset Rating Range Up To | [kWe] | 6 580 | 10 300 |
| Engine Rating Range Up To | [kW] | 6 720 | 10 500 |
| Frequency At Speed | [rpm] (50Hz / 60Hz) | 50 Hz @ 750 60 Hz @ 720 | 50 Hz @ 750 60 Hz @ 720 |
| Voltage | [kV] | 3-13.8 | 3-13.8 |
| Genset Efficiency Up To | [%] | 46.8 | 48.0 |
| Emission Level Up To | [-] | Technische Anleitung (TA) Luft-2002 | Technische Anleitung (TA) Luft-2002 |
| Ready To Accept Loads (Preheated/Vented) | [s] | 80 | 80 |
| Normal Ramp Up To 100% Load | [s] | 80 | 80 |
| Emergency Ramp Up 10% To 100% Load | [s] | 60 | 60 |
| Bore | [mm / in] | 340 / 13.39 | 340 / 13.39 |
| Stroke | [mm / in] | 420 / 16.54 | 420 / 16.54 |
| Swept Volume | [l / cu in] | 38.1 / 2 327 | 38.1 / 2 327 |
| Mean Effective Pressure Up To | [bar / psig] | 18.4 / 267 | 22.0 / 319 |
| Aspiration | [-] | turbocharged- aftercooled | turbocharged- aftercooled |
| Specific Fuel Oil Consumption (SFOC) Up To - World Bank Emission Stage 1 (WBI) | (g/kWh) / (lb/kWh) | - | - |
| Specific Fuel Oil Consumption (SFOC) Up To - World Bank Emission Stage 2 (WBII) | (g/kWh) / (lb/kWh) | - | - |
| Specific Energy Consumption (BSEC) Up To | (kJ/kWh) / (Btu/kWh) | 7 535 / 7 142 | 7 355 / 6 971 |
| Specific Pilot Fuel Consumption (Only Dual Fuel) | (kJ/kWh) / (Btu/kWh) | - | - |
| Specific Lube Oil Consumption | (g/kWh) / (lb/kWh) | 0.3 / 0.0007 | 0.3 / 0.0007 |
| Length | [mm / in] | 12 100 / 476 | 14 280 / 562 |
| Width | [mm / in] | 3 492 / 137 | 3 910 / 154 |
| Height | [mm / in] | 4 809 / 189 | 5 101 / 201 |
| Dry Weight - Genset | [t / lb] | 135.0 / 297 624 | 164.0 / 361 558 |

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.


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