

MaK & Caterpillar Marine and Industrial Power

Engine & Generator Set Technical Reference — major model families and commonly traded configurations

Prepared: 25 August 2026 | Use: marine propulsion, auxiliary power, industrial power generation, spare-parts identification and commercial screening

Important scope note: This is a practical reference covering major MaK/Caterpillar marine and industrial engine and genset families, not an OEM replacement for an individual engine's rating sheet, project specification, serial-number data sheet, or installation manual. Exact ratings, dimensions, weights, emissions tier, bore/stroke variant, turbocharger arrangement, fuel system and alternator depend on configuration, application and build year.

Manufacturer relationship: MaK is part of Caterpillar Motoren. MaK-branded marine engines are distinct from Caterpillar-branded marine and industrial engine families, although both sit within the Caterpillar group.

Quick model-family index

Area	Major families covered
MaK marine propulsion	M 20 C; M 25 C; M 32 C; M 34 DF; M 43 C; M 46 DF; M 49 DF
Caterpillar marine propulsion	C7.1; C9.3; C12; C18; C32; 3508B; 3512B/C/E; 3516B/C/E; C175-16/20
Caterpillar industrial diesel	C7.1; C9.3; C13; C15; C18; C27; C32; 3406/3412; 3508; 3512; 3516; 3500-series; 3600-series; C175
Caterpillar gas engines	CG137; CG170; CG260; G3500/G3500H families and related generator packages
Generator-set families	MaK marine gensets; Cat DE/DE series diesel gensets; Cat gas gensets; high-speed and medium-speed packages

1. MaK Marine Engines

The following table summarizes the principal MaK medium-speed engine families commonly encountered in merchant vessels, offshore units, ferries, workboats and power-generation applications.

Family	Typical cyl.	Bore (mm)	Stroke (mm)	Approx. power range (kW)	Typical speed (rpm)	Configuration / application
M 20 C	6/8/9 cyl	200	280	≈1,020–1,500	≈1,200–2,000	Medium-speed, 4-stroke diesel; marine propulsion/auxiliary
M 25 C	6/8/9/12 cyl	255	400	≈1,650–3,600	≈720–1,000	Medium-speed, 4-stroke; propulsion and genset
M 32 C	6/8/9/12 cyl	320	420	≈3,000–7,200	≈600–750	Medium-speed, 4-stroke; propulsion/auxiliary
M 34 DF	6/8/9/12 cyl	340	460	≈3,000–8,640	≈720–750	Dual-fuel; gas/diesel capability; marine propulsion/power
M 43 C	6/8/9/12 cyl	430	610	≈6,000–13,500	≈500–514	Medium-speed, 4-stroke; high-output marine propulsion
M 46 DF	6/8/9 cyl	460	610	≈6,000–12,600	≈500–514	Dual-fuel medium-speed engine
M 49 DF	6/8/9 cyl	490	610	≈7,200–14,400	≈500–514	Large dual-fuel medium-speed platform

MaK identification: A designation such as 8M32C generally indicates an 8-cylinder M 32 C engine. For spare-parts work, always obtain the engine builder/serial number, cylinder count, rating, application and component drawing/part number before quoting.

2. Caterpillar Marine Propulsion Engines

Model	Cyl.	Bore mm	Stroke mm	Disp. L	Approx. marine power kW	Typical rpm	Notes
C7.1	6	105	135	7.01	≈455–522	≈1,800–2,300	High-speed marine diesel
C9.3	6	115	149	9.3	≈503–540	≈1,800–2,300	High-speed marine diesel
C12	6	128	157	11.9	≈522–705	≈1,800–2,300	Marine propulsion
C18	6	145	183	18.1	≈447–1,015	≈1,500–2,100	Marine propulsion / auxiliary
C32	12	145	162	32.1	≈746–1,641	≈1,800–2,300	High-output marine propulsion
3508B	8	170	190	34.5	≈775–1,050	≈1,200–1,600	Large marine diesel
3512B/C/E	12	170	190	51.8	≈1,100–2,250	≈1,200–1,800	Propulsion / auxiliary
3516B/C/E	16	170	190	69.2	≈1,600–3,000+	≈1,200–1,800	High-output propulsion / genset
C175-16	16	175	220	84.7	≈2,000–3,000+	≈1,200–1,800	Very high-output marine/industrial platform
C175-20	20	175	220	106.2	≈2,500–4,000+	≈1,200–1,800	Very high-output platform

Note: Cat marine ratings are highly application-dependent (commercial/light-duty/heavy-duty, continuous/intermittent, propulsion vs auxiliary). The figures above are screening ranges rather than a single guaranteed rating.

3. Caterpillar Industrial Diesel Engine Families

Family	Cyl.	Bore x stroke	Disp. L	Approx. power kW	Typical use / note
C7.1	6	105 × 127	7.01	≈129-225	Industrial power, pump, genset and prime-power applications
C9.3	6	115 × 149	9.30	≈200-335	Industrial and electric-power applications
C13	6	130 × 157	12.5	≈287-400	Industrial / electric power
C15	6	137 × 171	15.2	≈328-403	Industrial / generator
C18	6	145 × 183	18.1	≈401-597	Industrial / generator / pump
C27	12	135 × 152	27.0	≈575-800	Industrial / electric power
C32	12	145 × 162	32.1	≈597-940	Industrial / electric power
3406 family	6	137 × 165	14.6	≈250-400+	Legacy industrial/genset platform; many variants
3412 family	12	137 × 152	27.0	≈300-600+	Legacy industrial/genset platform
3508	8	170 × 190	34.5	≈600-1,000+	3500-series industrial power
3512	12	170 × 190	51.8	≈900-1,500+	Industrial/generator
3516	16	170 × 190	69.2	≈1,200-2,500+	Industrial/generator
C175-16	16	175 × 220	84.7	≈2,000-3,000+	High-output electric power / prime power
C175-20	20	175 × 220	106.2	≈2,500-4,000+	High-output electric power
3606 / 3608 / 3612 / 3616	6-16	≈280 × 300	≈106-339	≈1,500-4,000+	Large-bore legacy/industrial power families

4. Caterpillar Gas Engine Families

Family	Cyl.	Approx. bore mm	Approx. stroke mm	Disp. L class	Approx. output class kWe	Typical application
CG137	12	≈137	≈160	≈28-35	≈300-450	Natural-gas power generation
CG170	12/16/20	≈170	≈195	≈63-106	≈1,000-2,000+	High-efficiency gas gensets
CG260	12/16/20	≈260	≈320	≈100-340	≈2,000-4,000+	Large gas power generation
G3500 / G3500H	12/16	≈170	≈190	≈52-69	≈800-2,000+	Gas generator / CHP applications

5. Generator-Set Reference

A genset is a package: engine + alternator + controls + cooling/exhaust/fuel systems + base frame/enclosure as applicable. The engine model alone does not uniquely identify the generator rating.

Engine family	Typical genset output class*	Frequency	Common duty
Cat C7.1 / C9.3	50-300+ kVA class	50/60 Hz	Standby / prime / continuous depending package
Cat C13 / C15 / C18	300-750+ kVA class	50/60 Hz	Prime and standby power
Cat C27 / C32	500-1,250+ kVA class	50/60 Hz	Prime / standby / industrial
Cat 3508 / 3512 / 3516	700-2,500+ kVA class	50/60 Hz	Large industrial and utility-type gensets
Cat C175	1,500-4,000+ kVA class	50/60 Hz	High-output prime / standby / utility
MaK M 20 C / M 25 C	≈1-3.5 MW class	50/60 Hz	Medium-speed marine auxiliary generation
MaK M 32 C / M 34 DF	≈2-8.5 MW class	50/60 Hz	Marine auxiliary / dual-fuel power
MaK M 43 C / M 46 DF / M 49 DF	≈6-14+ MW class	50/60 Hz	Large marine auxiliary / power plant

*Output classes are broad commercial screening ranges. Actual alternator kVA/kW depends on engine rating, speed, power factor, site conditions, emissions requirements and package configuration.

6. Core Technical Parameters to Capture When Buying / Selling

Category	Data to record
Engine identification	Manufacturer, exact model, engine serial number, arrangement/build number, cylinder count, rating code, build year
Mechanical	Bore, stroke, displacement, compression ratio, rated speed, rated power, torque, firing order
Air system	Turbocharger make/model, charge-air cooler, inlet/exhaust arrangement, exhaust gas temperature limits
Fuel system	Injection system, fuel pump/injector type, common rail or unit injection where applicable, fuel consumption
Cooling	Fresh-water/sea-water circuit, heat exchanger/keel cooling, thermostat, pump type, coolant capacity
Lubrication	Oil capacity, lube-oil pump, filters, pressure range, sump arrangement
Electrical	Starting voltage, starter configuration, ECU/EMCP/control system, sensors and monitoring
Generator	Alternator make/model, kVA/kW, voltage, phase, frequency, PF, rpm, insulation class, IP class, AVR, excitation
Dimensions & weight	Engine length/width/height, dry weight, genset footprint, shipping weight, lifting points
Emissions	IMO/EPA/EU/Stage/Tier requirement, after-treatment, SCR/DPF where applicable
Service parts	OEM part number, superseded number, quantity per engine, condition, interchangeability, inspection report

7. Spare-Parts & Used-Engine Identification Checklist

- Do not identify a part from the model name alone. Serial number + arrangement/build number + part number is the safest combination.
- For marine engines, establish whether the engine is propulsion, auxiliary/genset, emergency generator or special application.
- Confirm cylinder count and engine rating before comparing used parts.
- For Caterpillar engines, record the engine serial number and arrangement number; for MaK engines, record engine type, serial/build information and component drawing number.
- For alternators, record manufacturer, frame size, model, serial number, voltage, frequency, kVA/kW and winding/connection details.
- For export/shipping, record overall dimensions, dry/shipping weight, center of gravity and lifting points separately from operating weight.

8. Important Accuracy / Revision Notice

Caterpillar and MaK have many rating variants, market-specific configurations and legacy models. Model families also evolve through B/C/D/E/H-series and application-specific rating codes. Therefore, this PDF should be used as a commercial/technical screening reference, not as a final quotation basis for exact performance, interchangeability, dimensions or spare-part fitment. Before a purchase order or technical commitment, verify the applicable OEM technical data sheet and the engine's serial/arrangement/build number.

For a truly exhaustive catalogue, the next version should be built from OEM MaK/Caterpillar datasheets and can include one row per model/variant with bore, stroke, displacement, cylinder count, rpm, kW, BMEP, fuel consumption,

dimensions, dry weight, turbocharger, governor/ECU, emissions level, alternator options and application.