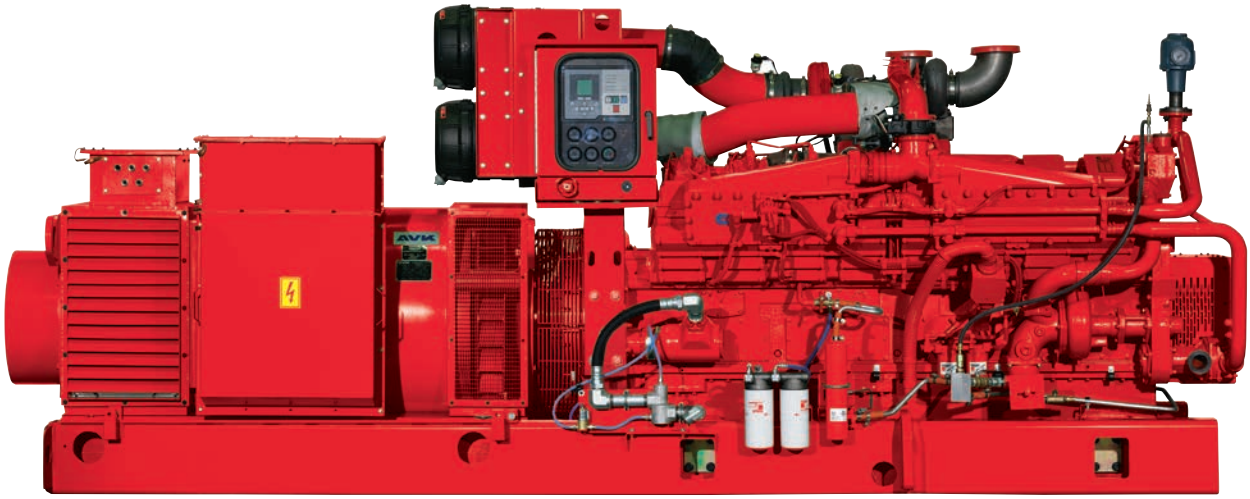
QSK50
U.S. EPA TIER 2

60Hz DRILLING POWER MODULE



CUMMINS LAND-BASED DRILLING POWER MODULES ARE DESIGNED AND TESTED BASED ON OIL-FIELD CUSTOMER REQUIREMENTS TO PROVIDE OPTIMUM PERFORMANCE, RELIABILITY AND VERSATILITY. THESE POWER MODULES DELIVER WORLD-CLASS UPTIME AND A LOW TOTAL COST OF OWNERSHIP THROUGH HIGH FUEL EFFICIENCY AND LONG LIFE-TO-OVERHAUL.

The entire power module is designed, developed, assembled, tested, and delivered with the full force of Cummins behind it. This means that the entire power module is fully supported with parts and service available worldwide. Drilling contractors can expect seamless, consistent support wherever the rig operates.

CUSTOM OPTIONS

Standard specifications and options are shown. Cummins also can provide custom factory packages.

FEATURES

- **Cummins diesel engine —** The legendary QSK50 four-stroke diesel engine provides reliable power, delivers fast response to load changes and is compliant to U.S. Environmental Protection Agency (EPA) Tier 2 emissions standards.
- **Alternator —** Form-wound stator and rotor, designed, tested and sized for drill rig service; low waveform distortion with nonlinear loads; fault-clearing short-circuit capability.
- **Control system —** Full-authority electronic controls that provide complete engine monitoring and automatic adjustment for peak performance and fuel efficiency, plus full diagnostics and prognostics.
- **Warranty and service —** Backed by a global standard Cummins factory warranty and supported by over 600 worldwide Cummins-authorized service locations.

RATINGS

Model	QSK50-DPM	**Alternator rating**	1750 kVa (1225 kWe)*
Frequency	60 Hz	**Power module rating**	1003 kWe*
Voltage	600 V		
Speed	1200 rpm	**Emissions**	EPA Tier 2
Engine power	1480 hp (1104 kWm)		

**Total output of package varies with cooling system and alternator configuration.*

GENERAL SPECIFICATIONS

Engine type	Cummins QSK50 V-16, four-stroke diesel	**Weight w/o radiator**	29,500 lb (13,381 kg)
Bore	6.26 in (159 mm)	**Lube oil capacity**	72 gal (273 liters)
Stroke	6.26 in (159 mm)	**Base design**	Three-point mounting
Displacement	3,082 in^3 (50.3 liters)	**Alternator rotor design**	Two-bearing
Aspiration	Turbocharged and aftercooled		
Governor	Electronic	**Alternator insulation**	Class H
Cooling System	Horizontal or remote vertical discharge		

Standard Equipment

AIR INTAKE SYSTEM
- Factory-installed heavy-duty air cleaners
- Factory-installed air inlet shutoff valves

CONTROL SYSTEM
- Package-mounted control-and-monitoring system provides warning and shutdown protection for the power module
- Simple Control Panel:
  – Provides warning and engine shutdown protection
  – Monitors and protects all critical engine functions

FUEL SYSTEM
- Dual stage filtration system with integrated water separation
- Modular Common Rail Fuel System (MCRS) generates clean, quiet and efficient power
- MCRS technology helps reduce noise emissions and engine vibration, resulting in a safer and more comfortable work environment

LUBE OIL SYSTEM
- High-capacity structural oil pan
- Service-free open crankcase ventilation system
- Centrifuge oil filtration option available

COOLING SYSTEM
- Dual-core base-mounted radiator
- Electric or mechanical fan drive system
- Horizontal and remote vertical discharge systems available
- Standard radiator options available for up to 50°C
- Thermostat-controlled outlets

STARTING SYSTEM
- Air starter

MOUNTING ARRANGEMENT
- Three-point-mounted to sub-base
- Isolation pads at mounting points
- Vertical lift provisions on base

ALTERNATOR
- Two-bearing, 600 V, 60 Hz, three-phase, 0.7 pf, six-wire, WYE-connected
- Brushless type
- Standard anti-condensation heater
- Standard winding and bearing RTDs
- Custom alternator specifications available on request

Standard specifications and options are shown. Cummins can provide custom factory packages.

ALTERNATOR SPECIFICATIONS			
Design	Brushless, six-pole, revolving field	**Alternator cooling**	Direct-drive Centrifugal Blower Fan
Rotor	Two-bearing	**Efficiency @ 0.7 pf**	95.36
Insulation system	Class H	**Subtransient reactance**	(X”d, unsaturated = 0.126 p.u.)
Temperature rise	80ºC/50ºC	**Subtransient reactance**	(X”d, saturated = 0.123 p.u.)

TECHNICAL DATA

Rating	1428 kVA (1000 kWe @ 0.7 pf)	**Poles**	6
Power factor	0.70	**Speed**	1200 rpm
Voltage (line-neutral/line-line)	347/600 V	**Overspeed limit (60 seconds)**	125%
Current	1683 A	**Enclosure**	IP23 with Air Inlet Filter
Frequency	60 Hz		

DIMENSIONS AND WEIGHTS (WITHOUT COOLING SYSTEM)

Model	Length	Width	Height	Set dry weight kg (lb)
QSK50-DPM	5,159 (203.1)	2,040 (80.3)	1,756 (69.1)	14,120 (31,260)

Note: Weights represent a set of standard features. See outline drawings for weights of other configurations.

ENGINE SPECIFICATIONS

Engine manufacturer	Cummins Inc.	**Gross engine power output**	1480 hp (1104 kWm)
Model	QSK50	**Displacement**	3,069 in^3 (50.3 liters)
Design	4-stroke, V-block, turbocharged and aftercooled	**Cylinder block configuration**	Cast iron, 60º V, 16-cylinder
Injection system	MCRS	**Engine speed**	1200 rpm
Aspiration	Turbocharged and low temperature aftercooled		

COOLING

Ambient design	Standard 50°C

Cummins is a pioneer in product improvement. Thus, specifications may change without notice. Illustrations may include optional equipment.

Cummins Inc.
Box 3005
Columbus, IN 47202-3005
U.S.A.

cummins.com

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