



Specification sheet

Fire Pump Drive Engine

CFP60E-F40



Description

Engine Series - Cummins QSK60

Exhaust Emissions - EPA Tier 2

The CFP60E has higher torque, shorter service times, longer maintenance intervals, and increased fuel economy. Customers request this model due to the durability and compactness of the design which can be configured to meet most applications.

Features

Quality Engineering - The CFP60E-F40 is not equipped with a redundant ECM. The CFP60E complies with the NFPA 20 installation standard except for the requirements regarding a redundant ECM.

Control System - The industry-leading, state-of-the-art Fire Pump Digital Panel (FPDP) provides total fire pump drive engine system integration and intuitive operation, including:

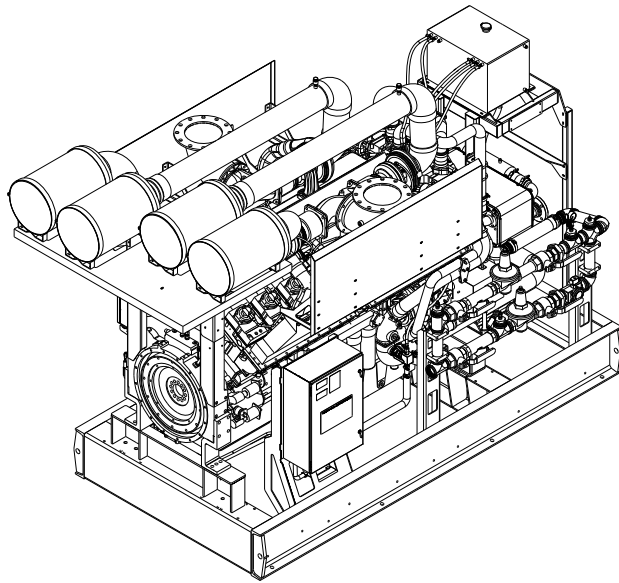
- Color touchscreen;
- Dual microprocessors for critical signal redundancy;
- Standard J1939 parameter and Cummins fault code display;
- Engine Idling; Electronic Control Module (ECM) self-diagnosis; and
- Optional Modbus[®] protocol remote messaging capability.

Warranty and Service - Our models are backed by a comprehensive warranty and worldwide distributor network.

Ratings in HP (kW)

Operating Speed (RPM)	1500		1800	
	CFP60E-F40	2120	(1580)	2656

General Engine Data



Engine Family	Industrial
Engine Type	4 Cycle; Vee, 16 Cylinder
Aspiration	Turbocharged/ 2 Pump - 2 Loop Low-temperature after-cooled
Bore and Stroke	6.26 x 7.48 in. (159 x 190mm)
Displacement	3673 in ³ (60.2 L)
Rotation	Counter-clockwise from flywheel end
Compression Ratio	14.5:1
Valves per Cylinder	Intake - 2 Exhaust - 2
Fuel System	Cummins MCRS
Maximum Allowable Bending Moment @ Rear Face of Block	7634 lb.-ft. (10350 N-m)
Estimated Wet Weight*	23,300 lbs. (10568 kg)

* Weight includes engine, cooling loop, heat exchanger, dual Electronic Control Modules (ECMs), Fire Pump Digital Panel (FPDP), standard air cleaner, standard exhaust flex, and all fluids.

Equipment	Standard	Optional
Air Cleaner	Direct-mounted, disposable indoor service	Heavy-duty, two-stage with replaceable elements
Alternator	24V-DC, 55 amps; includes belt guard	N/A
Cooling Loop (maximum pressure of 300 PSI)	2.5" diameter for fresh water; includes alarm sensors	Cu Ni construction available for sea water applications
Cooling System	40 PSI with flange connections, plate type	Radiator
Engine Heater	(2) 240/480V-AC, 6420 watts	N/A
Exhaust Protection	Metal guards on manifolds and turbocharger	N/A
Exhaust Flex Connection	Steel, flanged	Stainless steel flex, NPT
Flywheel Power Take-Off	Flywheel	Driveshaft system
Fuel Connections	Fire-resistant flexible supply and return lines	N/A
Fuel Filter	(2) Cartridge primary, (3) spin-on secondary	N/A
Governor, Speed	Constant speed, electronic	N/A
Fire Pump Digital Panel (FPDP)	7" color touchscreen; enclosure rated as Type 2/ Type 4X; Imperial and metric values	Optional 316SS construction; custom gauges with digital panel expansion module (DPEM)
Lube Oil Cooler	Engine-water-cooled, plate type	N/A
Lube Oil Filter	Full-flow with by-pass valve	N/A
Lube Oil Pump	Gear-driven	N/A
Manual Start Controls	On FPDP and/or contactors	N/A
Overspeed Controls	Electronic with reset and test on FPDP	N/A
Starter	24V-DC	24V-DC/pneumatic*/hydraulic*

* Only approved as a secondary starter

Air Induction System

Maximum Temperature Rise Between Ambient Air and Engine Air Inlet	20 °F (11.1 °C)
Maximum Inlet Restriction with Dirty Filter	25 in. H ₂ O (635 mm H ₂ O)
Recommended Air Cleaner Primary Element - (Standard)	(4) Cummins Filtration AF25593
Recommended Air Cleaner Primary Element - (Heavy Duty)	(4) Cummins Filtration AF899
Recommended Air Cleaner Secondary Element - (Heavy Duty)	(4) Cummins Filtration AF880

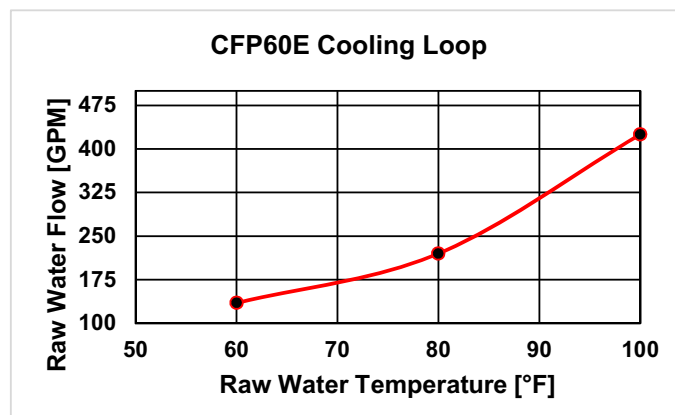
Lubrication System

Oil Pressure Range at Rated	60-70 PSI (414-483 kPa)
Oil Capacity of Pan (High - Low)	69-61 qt. (261-231 L)
Total System Capacity	74 gal. (280 L)
Recommended Lube Oil Filter	(4) Cummins Filtration LF9050

Cooling System*

Raw Water Working Pressure Range at Heat Exchanger	29 PSI (200 kPa) MAX
Recommended Minimum Water Supply Pipe Size to Heat Exchanger	2.5 in. (63.5 mm)
Recommended Minimum Water Discharge Pipe Size From Heat Exchanger	3.00 in. (76.2 mm)
Coolant Water Capacity (Engine Only)	42 gal. (159 L)
Standard Thermostat - Type	Modulating
Standard Thermostat - Range	180-200 °F (82-93 °C)
Normal Operating Temperature	180-212 °F (82-100 °C)
Minimum Raw Water Flow:	
- with Water Temperatures to 60 °F (16 °C)	135 GPM (8.52 L/sec)
- with Water Temperatures to 80 °F (27 °C)	220 GPM (13.88 L/sec)
- with Water Temperatures to 100 °F (38 °C)	425 GPM (26.81 L/sec)
Recommended Cooling Water Filter	(2) Cummins Filtration WF2075

* A jacket water heater is mandatory on this engine. The recommended heater wattage for the two heaters is 4000 down to 40 °F (4 °C)



Exhaust System

Maximum Allowable Back Pressure by Complete Exhaust System	27.2 in. H ₂ O (7 kPa)
Exhaust Pipe Size Normally Acceptable	9.1 in. (231 mm)

Noise Emissions - The noise emission values are estimated sound pressure levels at 3.3 ft. (1 m).

Top	129 dBa
Right Side	129 dBa
Left Side	129 dBa
Front	129 dBa
Exhaust	129 dBa

Fuel Supply/Drain System

Operating Speed in RPM	1500		1800	
	Fuel Rate - Gal/hr (L/hr)			
	106.9	(405)	133.9	(507)

Fuel Type	No. 2 diesel only
Minimum Supply Line Size	1 1/16 in. (26.99 mm)
Minimum Drain Line Size	1 1/16 in. (26.99 mm)
Maximum Fuel Line Length Between Supply Tank & Fuel Pump	40 ft. (12 m)
Maximum Fuel Inlet Pressure	5 PSI (34 kPa)
Recommended Fuel Filter - Primary	(3) Cummins Filtration FF5782NN
Recommended Fuel Filter - Secondary	(2) Cummins Filtration FS19763
Maximum Restriction @ Lift Pump-Inlet - With Clean Filter	5 in. Hg (127 mm Hg)
Maximum Restriction @ Lift Pump-Inlet - With Dirty Filter	9 in. Hg (229 mm Hg)
Maximum Return Line Restriction - Without Check Valves	10 in. Hg (254 mm Hg)
Minimum Fuel Tank Vent Capability	127.1 ft ³ /hr (3.6 m ³ /hr)
Maximum Fuel Temperature @ Lift Pump Inlet	160 °F (71 °C)

Starting and Electrical System

Min. Recommended Battery Capacity - Cold Soak at 0 °F (-18 °C) or Above	24V
Engine Only - Cold Cranking Amperes	1800 CCA*
Engine Only - Reserve Capacity	640 minutes*

*Based on FM requirement for a minimum of 900 CCA and 430 Reserve Capacity Minutes

Battery Cable Size - Minimum of 2/0 AWG and Maximum Cable Length Not to Exceed 6 ft. (1.5 m)	24V
Maximum Resistance of Starting Circuit	0.002 Ohms
Typical Cranking Speed	150 RPM
Alternator (Standard), Internally Regulated	55 amps

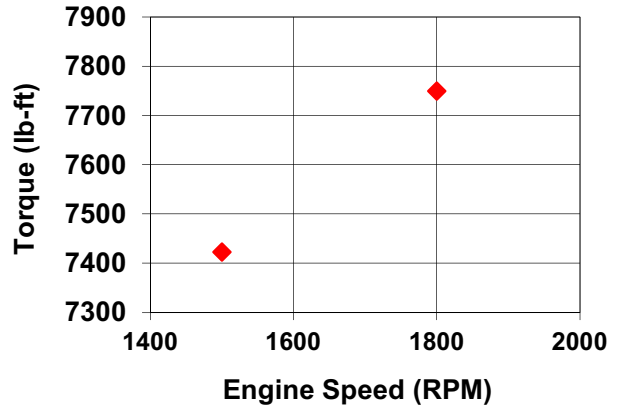
Operating Conditions

Operating Speed in RPM	1500		1800	
	Output - BHP (kW)			
Output - BHP (kW)	2120	(1580)	2656	(1980)
Ventilation Air Required - CFM (litre/sec)	4636	(2188)	6658	(3142)
Exhaust Gas Flow - CFM (litre/sec)	11465	(5411)	15074	(7114)
Exhaust Gas Temperature - °F (°C)	912	(489)	795	(424)
Heat Rejection to Jacket Coolant - BTU/min. (kW)	29237	(514)	34370	(604)
Heat Rejection to Aftercooler Coolant - BTU/min. (kW)	23058	(405)	38946	(685)
Heat Rejection to Ambient - BTU/min. (kW)	9090	(160)	11385	(201)

Engine Performance Curve for CFP60E-F40

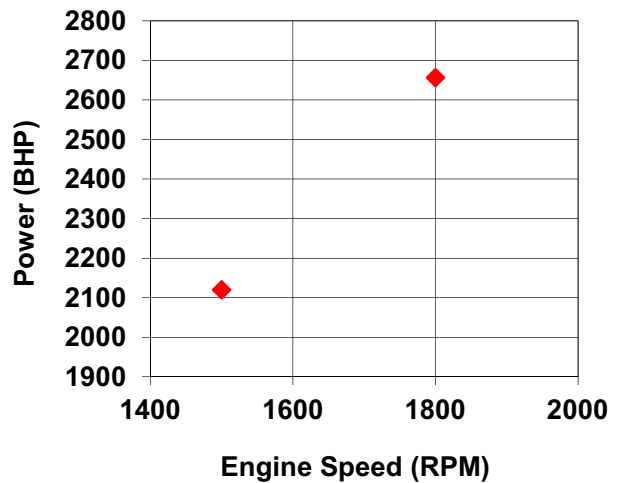
Torque Output

RPM	lb-ft	N-m
1500	7423	10064
1800	7750	10507



Horsepower Output

RPM	BHP	kW
1500	2120	1580
1800	2656	1980



All data is based on the engine operating with a fuel system, water pump, lubricating oil pump, air cleaner, and alternator. The fan, optional equipment, and driven components are not included. Data is based on operation at SAE standard J1394 conditions of 300 ft. (91.4 m) altitude, 29.61 in. (752 mm) Hg dry barometer, and 77 °F (25 °C) intake air temperature, using No.2 diesel fuel only.

Altitude above which output should be limited*:	300 ft. (91.4 m)
Correction factor per 1000 ft. (305 m) above altitude limit:	3%
Temperature above which output should be limited:	77 °F (25 °C)
Correction factor per 10 °F (11 °C) above temperature limit:	1% (2%)

* Above 5,000 feet, contact Cummins for derate information.

Fire Pump Digital Panel (FPDP)



The Cummins FPDP is an integrated microprocessor-based control system that provides full digital technology with enhanced accuracy and built-in redundancy.

Reliable design - Designed and tested with isolated mounting to minimize vibration for longer life and durability, the Cummins FPDP proves reliable in harsh environments.

Advanced control methodology - The Cummins FPDP allows for Input/Output (I/O) expansion and remote monitoring capabilities, as well as automatic Electronic Control Module (ECM) switching for electronic engines.

Certified Quality - The Cummins FPDP is UL 1247-listed and FM 1333-approved.

Operator Panel Features

Operator/Display Panel

- 7" TFT LCD (thin-film-transistor liquid-crystal display) - color, 24-bit, 800x480 (WVGA).
- Auto, manual, start, stop, and fault reset.
- Assembly enclosure that meets Type 2 and Type 4X design requirements and is water, corrosion, fire, and impact-resistant.

Electronic Engine Communications - SAE J1939 protocol.

- Comprehensive full-authority engine (FAE) data: oil pressure and temperature; coolant temperature; and intake manifold pressure and temperature.
- Cummins fault code display.
- Sensor failure indication.
- Optional RS-485 serial - Modbus[®] RTU/Modbus[®] TCP/IP.

Variable Speed Pressure Limiting Control (VSPLC) Capabilities

- Display indicates when VSPLC is active.
- Pump discharge pressure display.
- Ability to run the engine at fixed speed from the FPDP at start-up for commissioning.

Other Control Features

- Digital Panel Expansion Module (DPEM) for additional analog/digital inputs and configurable dry relay contact output.
- Ability to idle at start-up for commissioning of electronic engines.
- Idle cool down for electronic engines.
- DC voltage.

Functional

- Configurable display units for temperature in degrees Fahrenheit or Celsius and pressure in PSI or kPa.
- Manual ECM selector switch on electronic engines.
- Ability to crank the fire pump drive engine from Battery A, Battery B, or both.
- Fixed engine speed adjustments in +/- 10 RPM increments.
- Overspeed shutdown.

Environmental

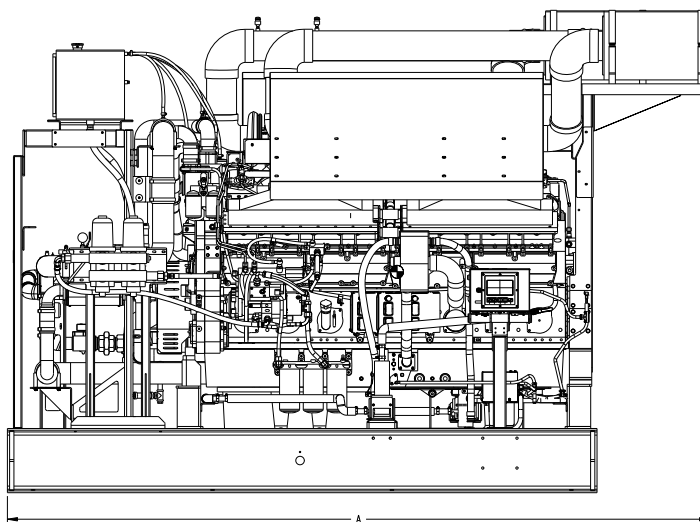
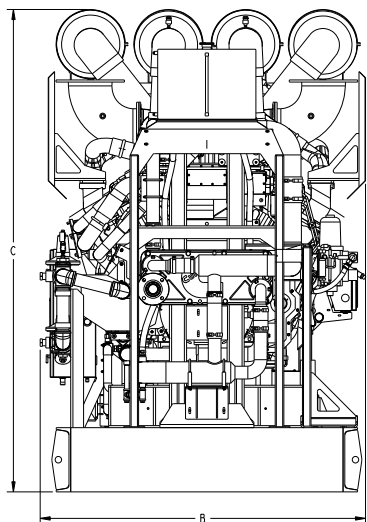
- Operating temperature - 4 to 158 °F (minus 20 to 70 °C).
- Storage temperature - minus 22 to 176 °F (minus 30 to 80 °C).
- Meets CISPR 11 Class B radiated emissions.
- Vibration: 7 G_{PEAK}; three-axis.

Electrical

- 8-30 VDC operating voltage.
- Reverse polarity protected.
- Spring cage terminal block interface.
- Built-in dual micro controllers for increased reliability.

Mechanical

- 1 3/8" pre-cut customer conduit knockout for easy field installation.
- Simplified internal design for efficiency and ease of customer connections.
- 16GA ASTM A366 material - 316 stainless steel optional.
- RAL3001 red powder coat finish.



This outline drawing is for reference only.
Do not use for installation design.

	Dim "A" in. (mm)	Dim "B" in. (mm)	Dim "C" in. (mm)
CFP60E	164 (4175)	76 (1934)	113 (2862)

NOTE: Consult drawings or contact the factory for additional information.



This product has been manufactured under the controls established by a Bureau Veritas Certification approved management system that conforms with ISO 9001:2015.

NOTE: Codes or standards compliance may not be available with all model configurations - consult factory for availability. Specifications are subject to change without notice.

For more information, contact firepumpsales@cummins.com.



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