



## Engine Specification Data • EMI4JB1H Fire Pump Diesel Engine

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### General Data

Speed	UL/FM HP (kw)
1760	41 (31)
2100	51 (38)
2350	55 (41)
2600	59 (44)
3000	63 (47)

Model ..... EMI4JB1H  
 Number of Cylinders ..... 4  
 Bore and Stroke-in (mm) ..... 3.7x4.0 (93x102)  
 Displacement-in<sup>3</sup> (L) ..... 169 (2.8)  
 Compression Ratio ..... 18.2:1  
 Valves per Cylinder-Intake/Exhaust ..... 2  
 Firing Order ..... 1-3-4-2  
 Combustion System ..... Direct Injection  
 Engine Type ..... In-Line, 4 cycle  
 Aspiration ..... Natural  
 Engine Crankcase Vent System ..... Open Breather  
 Maximum Crankcase Pressure-in H<sub>2</sub>O (kPa) ..... 1 (.249)

### Physical Data

Length-in (mm) ..... 31.9 (809)  
 Width-in (mm) ..... 23.6 (600)  
 Height-in (mm) ..... 28 (711)  
 Weight, dry (power unit)-lb (kg) ..... 552 (250)  
 (Includes flywheel & electrics)  
 Center of Gravity Location  
 From Rear Face of Block (X-axis--in (mm) ..... 9" (230)  
 Right of Crankshaft (Y-axis)--in (mm) ..... 0.4" (10)  
 Above Crankshaft (Z-axis)--in (mm) ..... 4.2" (107)  
 Maximum Allowable Static Bending Moment at  
 Rear Face of Flywhi Hsg. w/5-G Load-lb-ft (N-m) ... 290(393)  
 Thrust Bearing Cont Load Limit (Forward)-lb (N) ..... 0(0)

### Fuel System

Fuel Injection Pump (Dubuque) ..... Bosch  
 Governor Regulation ..... 8%  
 Governor Type ..... Mechanical  
 Fuel Consumption lb/hp-hr (kg/kw-hr) approx ..... 0.36 (0.22)\*  
 Maximum Allowable Fuel Pump Inlet Pressure  
 Clean System--psi (kPa) ..... 5 (.71)  
 Fuel Filter Micron Size @ 98% Efficiency ..... 30

### Lubrication System

Oil Pressure at Rated Speed-psi (kPa) ..... 55-65 (7.8-9.2)  
 Oil Pressure at Low Idle-psi ..... 21-28  
 In Pan Oil Temperature-°F (°C) ..... 230-240 (110-115)  
 Oil Pan Capacity, High-qt (L) ..... 10.1 (9.6)  
 Oil Pan Capacity, Low--qt (L) ..... 8.0 (7.6)  
 Total Engine Oil Capacity with Filters--qt (L) ..... 7.0 (6.62)  
 Engine Angularity Limits (Continuous)  
 Any Direction-degrees ..... 30

### Air System

Maximum Air Intake Restriction  
 Dirty Air Cleaner--in H<sub>2</sub>O (kPa) ..... 25 (6.23)  
 Clean Air Cleaner-in H<sub>2</sub>O (kPa) ..... 10 (2.49)  
 Combustion Air Flow-ft<sup>3</sup>/min (m<sup>3</sup>/min) ..... 127 (3.6)  
 Recommended Intake Pipe Diameter--in (mm) ..... 2" (51)

### Cooling System

Engine Heat Rejection--BTU/min (kW) ..... 2248 (39.5)  
 Coolant Flow--gal/min (L/min) ..... 23.2 (88)  
 Thermostat Start to Open-°F (°C) ..... 180 (82)  
 Thermostat Fully Open-°F (°C) ..... 203 (95)  
 Max. Water Pump Inlet Restriction-in H<sub>2</sub>O (kPa) ..... 20" (5.07)  
 Engine Coolant Capacity--qt (L) ..... 9.6 (9)  
 Recommended Pressure Cap--psi (kPa) ..... 7 (1.74)  
 Maximum Top Tank Temp-°F (°C) ..... 205 (96)

### Exhaust System

Exhaust Flow--ft<sup>3</sup>/Min (M3/Min) ..... 370 (10.5)  
 Exhaust Temperature--°F (°C) ..... 1150 (620)  
 Max. Allowable Back Pressure-in H<sub>2</sub>O (kPa) ..... 41 (10.21)

### Electrical System

Recommended Battery Capacity (CCA)  
 12 Volt System--amp ..... 930  
 Maximum Allowable Starting Circuit Resistance  
 12 Volt System--Ohm ..... 0.00022/Ft  
 Starter Rolling Current--12 Volt System  
 At 32°F (0°C)--amp ..... 250-260  
 Jacket Water Heater ..... 1000W, 120VAC, 1 Phase, 50/60HZ

### Performance Data (NET)

Rated Speed--max rpm ..... 3000  
 Noise--dB(A) @ 1m ..... 94

**Note**-The following NFPA 20, 1999 paragraphs prescribe horsepower deductions for altitude and temperature:

**8-2.2.4** A deduction of 3 percent from engine horsepower rating at standard UL/FM condition shall be made for diesel engines for each 1000 ft (305 m) altitude above 300 ft (91.4 m).

**8-2.2.5** A deduction of 1 percent from engine horsepower rating as corrected to standard UL/FM conditions shall be made for diesel engines for every 10°F (5.6°C) above 77°F (25°C) ambient temperature.

\*To convert lb/hp-hr into gallons/hp-hr multiply lb/hp-hr by 0.141.

To convert gallons/hp-hr into liters/kw-hr multiply gallons/hp-hr by 5.07.