



Engine Specification Data • EMI4050T 2100-3000 RPM Fire Pump Diesel Engine

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General Data

Speed	UL HP (kw)	FM HP (kw)
2100	45 (34)	40 (30)
2350	51 (38)	51 (38)
3000	52 (39)	52 (39)

Model EMI4050T21-30
 Number of Cylinders 4
 Bore and Stroke 3.31x3.54 (84x90)
 Displacement-in³ (L) 121.7 (1.994)
 Compression Ratio 18:1
 Valves per Cylinder-Intake/Exhaust 1/1
 Firing Order 1-3-4-2
 Combustion System Direct Injection
 Engine Type In-line 4-Cycle
 Aspiration Turbocharged
 Engine Crankcase Vent System Open
 Maximum Crankcase Pressure—in. H₂O (kPa) 2 (0.5)

Physical Data (Engine Only)

Length-in (mm) 32.2 (819)
 Width-in (mm) 24.5 (621)
 Height-in (mm) 33.0 (837)
 Weight, dry(power unit)--lb (kg) 513 (233)
 (includes flywheel & electrics)
 Center of Gravity Location
 From Rear Face of Block (X-axis)--in. (mm) 7.32 (186)
 Right of Crankshaft (Y-axis)--in.(mm) -0.18 (-4.6)
 Above Crankshaft (Z-axis)—in.(mm) 3.62 (92)
 Maximum Allowable Static Bending Moment at
 Rear Face of Flywhl. Hsg. w/5-G Load-lb-ft.N-m) .. 159 (216)
 Thrust Bearing Cont. Load Limit (Forward)-lb (N) . 639 (2842)

Fuel System

Fuel Injection Pump Yanmar
 Governor Regulation 10% max
 Governor Type Mechanical
 Fuel Consumption lb/hp-hr (kg/kw-hr) approx 0.38 (0.23)*
 Maximum Allowable Fuel Pump Suction
 Clean System-psi (kPa) 1.13 (7.8)
 Fuel Filter Micron Size @ 98% Efficiency 10

Lubrication System

Oil Pressure at Rated Speed-psi (kPa) 63.9 (441)
 Oil Pressure at Low Idle-psi (kPa) 28.4 (196)
 In Pan Oil Temperature-°F (°C) 240 (115)
 Oil Pan Capacity, High-qt (L) 6.5 (5.8)
 Oil Pan Capacity, Low-qt (L) 3.6 (3.5)
 Total Engine Oil Capacity with Filters—qt. (L) 6.7 (6.4)
 Engine Angularity Limits (Continuous)
 Any Direction—degrees 25

Air System

Maximum Allowable Temp Rise—Ambient Air to
 Engine Inlet--°F (°C) 18 (10)
 Maximum Air Intake Restriction
 Dirty Air Cleaner -- in. H₂O (kPa) 25 (6.25)
 Clean Air Cleaner-- in. H₂O (kPa) 12 (3)
 Combustion Air Flow—ft³/min (m³/min) 184 (5.2)
 Recommended Intake Pipe Diameter—in. (mm) 1.97 (50)

Cooling System

Engine Heat Rejection—BTU/min (kW) 1706 (29.9)
 Coolant Flow—gal/min (L/min) 18.2 (70)
 Thermostat Start to Open--°F (°C) 160 (71)
 Thermostat Fully Open--°F (°C) 185 (85)
 Max. Water Pump Inlet Restriction—in. H₂O (kPa) 40 (10)
 Engine Coolant Capacity—qt (L) 5.4 (5.2)
 Recommended Pressure Cap—psi (kPa) 12.8 (88)
 Maximum Top Tank Temp--°F (°C) 221 (105)
 Recommended Air to Boil--°F (°C) 117 (47)

Exhaust System

Exhaust Flow-- ft³/min (m³/min) 441 (12.5)
 Exhaust Temperature--°F (°C) 1094 (590)
 Maximum Allowable Back Pressure—in. H₂O (kPa) .. 20 (4.7)*
 Recommended Exhaust Pipe Diameter—in (mm) ... 2.36 (60)

Electrical System

Recommended Battery Capacity (CCA)
 12 Volt System—amp 700
 Maximum Allowable Starting Circuit Resistance
 12 Volt System—Ohm 0.0012
 Starter Rolling Current—12 Volt System
 At 32°F (0°C)—amp 350
 Jacket Water Heater 1000 Watts, 120 Volts, 1-Phase, 50/60
 Hz

Performance Data (NET)

Rated Speed— max rpm 3000
 Noise—dB (A) @ 1 m 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 SAE conditions 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 SAE 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.