

Cummins Inc.

Marine Engine General Data Sheet

Engine Model: **QSL9**

Data Sheet: **DS-3005**

Date: **22-Nov-16**

GENERAL ENGINE DATA

Metric [U.S. Customary]

Type		4 Cycle, Inline, 6 Cylinder
Bore	mm [in]	114.02 [4.49]
Stroke	mm [in]	145 [5.71]
Displacement	liter [in ³]	8.9 [542]

ENGINE MOUNTING & ACCESSORY DRIVES

Max. Allowable Bending Moment at Rear Face of Block	N·m [ft·lb]	1356 [1000]
Max. Allowable Axial Thrust Load on Crankshaft	N [lb]	4448 [1000]
Max. Allowable Radial Load on Crankshaft		
At 0°	N [lb]	854 [192]
At 90°	N [lb]	2180 [490]
At 180°	N [lb]	4919 [1106]
At 270°	N [lb]	854 [192]
Installation/Operating Angles - Engine Installation Angles		
In-Line drive: Installation: Static Installed Engine Pitch Angle		
Engine Front Up From Horizontal	Min.	0°
Engine Front Up From Horizontal	Max.	12°
Vee Drive: Installation: Static Installed Engine Pitch		
Engine Front Up From Horizontal	Min.	2°
Engine Front Up From Horizontal	Max.	12°
All Drives: Static Installed Engine Roll Angle		
From vertical "Right/Left" Viewed from Flywheel End of Engine	Max. Right	N/A
From vertical "Right/Left" Viewed from Flywheel End of Engine	Max. Left	N/A
Engine Angles - Vessel Operating		
Steady-State Operation - Engine Pitch Angle		
Engine Front Up From Horizontal	Min.	-15°
Engine Front Up From Horizontal	Max.	25°
All Drives: Intermittent Operation - Eng. Roll Angle		
From Vertical "Right/Left" viewed from Flywheel End of Engine	Max. Right	45°
From Vertical "Right/Left" viewed from Flywheel End of Engine	Max. Left	45°
All Drives: Intermittent Operation - Engine Pitch Angle		
Engine Front Up From Horizontal	Min.	-25°
Engine Front Up From Horizontal	Max.	35°

FUEL SYSTEM

Maximum Allowable Restriction to Fuel Pump		
Clean Filter	kPa [in Hg]	8 [2.5]
Dirty Filter	kPa [in Hg]	14 [4.0]
Maximum Allowable Return Line Pressure	kPa [in Hg]	34 [10]
Maximum Static Pressure at Fuel Pump	kPa [in Hg]	34 [10]
Maximum Height of Fuel In Tank Above Fuel Pump	m [ft]	4.12 [13.5]

EXHAUST SYSTEM

Maximum Allowable Back Pressure	kPa [in Hg]	10 [3]
Maximum Bending Moment at Turbine Outlet Mounting Flange	N·m [ft·lb]	19 [14]
Maximum Incremental Direct Load at Turbine Outlet Mounting Flange	kg [lb]	9 [20]

AIR INDUCTION SYSTEM

Max. Allowable Intake Restriction - Turbocharged		
Clean Filter	mm H ₂ O [in H ₂ O]	381 [15]
Dirty Filter	mm H ₂ O [in H ₂ O]	635 [25]
Maximum Air Cleaner Inlet Temperature Rise Over Ambient	°C [°F]	17 [30]

TBD= To Be Determined

N/A = Not Applicable

N.A. = Not Available

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COLUMBUS, INDIANA

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LUBRICATION SYSTEM

Oil Consumption Rate (Volume Percent of Fuel Consumption Rate)	%	0.08
Oil Pressure at Normal Operating Temperature		
Idle Speed - Minimum in Filter Head Upstream of Filter	kPa [psi]	N.A.
Idle Speed - Minimum in Main Oil Gallery	kPa [psi]	69 [10]
Rated Speed - Measured in Filter Head Upstream of Filter (Low)	kPa [psi]	N.A.
Rated Speed - Measured in Filter Head Upstream of Filter (High)	kPa [psi]	N.A.
Rated Speed - Measured in Main Oil Gallery (Low)	kPa [psi]	276 [40]
Rated Speed - Measured in Main Oil Gallery (High)	kPa [psi]	490 [71]
Max. Allowable Oil Temperature (Sump)	°C [°F]	121 [250]
Oil Pan Capacity (Shallow) OP 9467		
Low	liter [gal]	17.0 [4.5]
High	liter [gal]	20.8 [5.5]
Oil Pan Capacity (Deep) OP 9397		
Low	liter [gal]	18.9 [5.0]
High	liter [gal]	22.7 [6.0]
Total System Capacity (Max. Sump + Filter)	liter [gal]	25.4 [6.7]
By-Pass Oil Filter Capacity	liter [gal]	2.6 [0.7]

COOLING SYSTEM

Coolant Capacity		
Engine Only	liter [gal]	24.6 [6.5]
Engine Including Heat Exchanger and Integral	liter [gal]	29.3 [7.75]
Min. Coolant Makeup Capacity	liter [gal]	1.4 [0.38]
Max. Pressure Drop Across Any External Cooling System Circuit	kPa [psi]	34 [5]
Max. Allowable Block Coolant System Pressure	kPa [psi]	483 [70]
Max. Coolant Head From Crankshaft Centerline With 15 psi Pressure Cap	m [ft]	2 [5]
Max. Coolant Temperature at Engine Outlet	°C [°F]	96 [205]
Min. Block Coolant Temperature (Warm Engine)	°C [°F]	71 [160]
Min. Allowable Coolant Expansion Space	% of System Capacity	6
Maximum Sea Water Pressure	kPa [psi]	103 [15]
Maximum Sea Water Pressure Drop Across Heat Exchanger	kPa [psi]	34 [5]
Maximum Sea Water Inlet Restriction	kPa [in Hg]	-17 [-5]

ELECTRICAL AND STARTER SYSTEM

Electrical		<u>12V</u>	<u>24V</u>
Min. Recommended Battery Capacity			
Cold Cranking Amperes Rating (CCA)		1250	625
Marine Cranking Amperes Rating (MCA)		1563	781
Reserve Capacity (Discharging 25 Amps @ 80°F)	minutes	360	180
Min. Allowable System Voltage (@ Battery While Running)	Volts	12	24
Max. Allowable System Voltage (@ Battery While Running)	Volts	15.5	31.0
Max. Allowable Voltage Drop of Starting Circuit (While Cranking)	Volts	1.0	2.0
Min. Engine Cranking Torque	ft·lb	N.A.	N.A.
Min. Break-away Engine Cranking Torque	ft·lb	N.A.	N.A.
Min. Engine Cranking Speed	rpm	150	150
Max. Engine (Running) Current Draw	Amps	N.A.	N.A.
Min. Ambient Temperature for Cold Start (No Aids)	°C [°F]	-12 [10]	-12 [10]
Air Starter			
Regulated Pressure for Air Starter System	kPa [psi]	N/A	N/A
Min. Air-Flow for Air Starter System	l/sec [cfm]	N/A	N/A
Min. Recommended Tank Volume	liter [gal]	N/A	N/A

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