

Cummins Engine Co. Ltd

Diesel Engine for Vehicle Performance Data

Technical Request	
Aspiration:	Turbocharged & Inter-cooled
Emission Certification	GB17691/GB14761
Net Weight(Dry)-Engine Only-Average:	650kg
Net Weight(Dry)-Engine with Heat Exchanger-Average	680kg
Compression Ratio:	16.6:1
Distance from Center of Gravity to the Front Engine Block	427mm
Distance from Center of Gravity to the Crankshaft Centerline	163mm
Maximum Bending Moment at Rear Face of Block	1356 N.m
Limit load of Thrust Bearing:	
Instantaneous maximum:	5338 N
Continuous maximum	2670 N
Performance Characteristic	
Idle Speed:	700 ± 100 rpm
Maximum non-load speed:	2500rpm
Over speed performance(within 15 seconds):	3500rpm
Maximum Altitude at Continuous Operation:	2000m
The clutch torque @ 800rpm:	780N.m
When install exhaust braking:	
The limit exhaust pressure of Turbocharger export @3150 rpm	450 kPa
Maximum power of Exhaust brake	114kw

Engine	Oil	Air	Air Pressurized		Exhaust	Exhaust	Fuel	Heat Energy	
Speed	Pressure	Flow			Flow	Temperature	Consumption	Loss	
(RPM)	(kPa)	(m3/min)	Flow	Pressure	(m3/min)	(°C)	(l/hr)	Coolant	Air
			(kg/min)	kPa				(KW)	(KW)
2200	426	25.0		180	62	511	67	116	73
1400	327	16.0		140	38	540	46	72	33

LUBRICATION SYSTEM Oil Sump Capacity: Upper Limit: 23L Lower Limit: 29L Capacity of the whole system: 27.6 L AIR SYSTEM Air intake maximum temperature rise from Outside to the Turbocharger 15°C The allowable maximum restriction when use Dry Air Filter Medium: kPa (mmH2O) 2.9(300) Heavy: kPa (mmH2O) 3.7(380) The allowable maximum restriction when use dirty Filter Element: kPa (mmH2O) 6.2(635) TURBOCHARGED & INTERCOOLED Environment design parameters Stage II Stage III The highest temperature of intake manifold: 55°C 20°C The maximum allowiable cold pressure difference before and after the intercooler: 16.7(125) kPa(mmH2) The allowable minimum diameter of the intake manifold: 100mm EXHAUST SYSTEM The maximum resistance with exhaust manifold and muffler: kPa(mmH2) 10.0(75) The allowable minimum diameter of the exhaust manifold and muffler: kPa(mmH2) The allowable minimum diameter of the exhaust manifold and muffler: kPa(mmH2) The allowable minimum diameter of the exhaust manifold and muffler: kPa(mmH2) The allowable minimum diameter of the exhaust manifold and muffler: kPa(mmH2) The allowable minimum diameter of the exhaust manifold and muffler: kPa(mmH2) The allowable minimum diameter of the exhaust manifold and muffler: kPa(mmH2) The allowable minimum diameter of the exhaust manifold and muffler: kPa(mmH2) The allowable minimum diameter of the exhaust manifold and muffler: kPa(mmH2) The allowable minimum diameter of the exhaust manifold and muffler: kPa(mmH2) The allowable minimum diameter of the exhaust manifold and muffler: kPa(mmH2) The maximum resistance of Fuel Pump when use clean filter FUEL SVSTEM The range of temperature (at engine exports): 11.1 L The range of temperature (at engine exports): 100°C Maximum degassing time Maximum degassing time Maximum coolant flow to accessories 56 L Immin The lowest coolant temperature (at engine exports): 50 KPa The maximum pressure of pressure caps: 50 KPa The alam temperature of the coolant (b the system capacity 6 % Water tank c			
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The maximum pressure of Coolant(without pressure cap and thermostat closed)290kPaThe highest coolant temperature (at engine exports):100 °CMaximum degassing time25minsMaximum coolant flow to accessories56 L/minThe lowest coolant temperature70 °CMinimum speed of water-filling19 l/minMinimum coolant expansion volume relative to the system capacity6 %Water tank capacity without water expansion6 LMinimum allows pressure of pressure cap:50 kPaThe alarm temperature of the coolant104 °CThe open temperature of louverN/A	Engine Coolant Capacity:	11.1 L	
The highest coolant temperature (at engine exports):100 °CMaximum degassing time25minsMaximum coolant flow to accessories56 L/minThe lowest coolant temperature70 °CMinimum speed of water-filling19 l/minMinimum coolant expansion volume relative to the system capacity6 %Water tank capacity without water expansion6 LMinimum allows pressure of pressure cap:50 kPaThe alarm temperature of the coolant104 °CThe open temperature of louverN/A	The range of temperature adjustment for the Thermostat:	83-93 °C	
Maximum degassing time25minsMaximum coolant flow to accessories56 L/minThe lowest coolant temperature70 °CMinimum speed of water-filling19 l/minMinimum coolant expansion volume relative to the system capacity6 %Water tank capacity without water expansion6 LMinimum allows pressure of pressure cap:50 kPaThe alarm temperature of the coolant104 °CThe open temperature of louverN/A	The maximum pressure of Coolant(without pressure cap and thermostat closed)	290kPa	
Maximum coolant flow to accessories56 L/minThe lowest coolant temperature70 °CMinimum speed of water-filling19 l/minMinimum coolant expansion volume relative to the system capacity6 %Water tank capacity without water expansion6 LMinimum allows pressure of pressure cap:50 kPaThe alarm temperature of the coolant104°CThe open temperature of louverN/A	The highest coolant temperature (at engine exports):	100°C	
The lowest coolant temperature70 °CMinimum speed of water-filling19 l/minMinimum coolant expansion volume relative to the system capacity6 %Water tank capacity without water expansion6 LMinimum allows pressure of pressure cap:50 kPaThe alarm temperature of the coolant104 °CThe open temperature of louverN/A	Maximum degassing time	25mins	
Minimum speed of water-filling19 l/minMinimum coolant expansion volume relative to the system capacity6 %Water tank capacity without water expansion6 LMinimum allows pressure of pressure cap:50 kPaThe alarm temperature of the coolant104°CThe open temperature of louverN/A	Maximum coolant flow to accessories	56 L/min	
Minimum coolant expansion volume relative to the system capacity6 %Water tank capacity without water expansion6 LMinimum allows pressure of pressure cap:50 kPaThe alarm temperature of the coolant104°CThe open temperature of louverN/A	The lowest coolant temperature	70℃	
Water tank capacity without water expansion6 LMinimum allows pressure of pressure cap:50 kPaThe alarm temperature of the coolant104°CThe open temperature of louverN/A	Minimum speed of water-filling	19 l/min	
Minimum allows pressure of pressure cap:50 kPaThe alarm temperature of the coolant104°CThe open temperature of louverN/A	Minimum coolant expansion volume relative to the system capacity	6 %	
The alarm temperature of the coolant104°CThe open temperature of louverN/A	Water tank capacity without water expansion	6 L	
The alarm temperature of the coolant104°CThe open temperature of louverN/A	Minimum allows pressure of pressure cap:	50 kPa	
The open temperature of louver N/A			
	-	N/A	
	Cooling ability of cooling system:	Stage II Stage III	

The limit environmental temperature at rated speed	45 °C	42 °C	
The limit environmental temperature at peak torque	40°C	37℃	
24V ELECTRICAL SYSTEM			
Maximum resistance of starting circuit	0.002Ω		
The cold start current when engine and the clutch separate: CCA	510		
COLD STARTING SYSTEM			
The lowest cold starting temperature without auxiliary starting device	-10°C (-10°C @120rpm	
The lowest cold starting temperature with starting device	-25°C@ 110rpm		
Cummins Engine Co. Ltd			
All data is subject to change without notice- contact Cummins for most recent data.			