Chongqing Cummins Engine Co., Ltd.

Engine datasheet

		Datasheet number:	**DS-4417-C**
		Date:	**2006-3-10**
Engine model:	**KTA38-C/P/L1050**	**Reference Information**	
		Featur ……	**D232025CX02**
Max Power:	**1050 HP @ 2100 r/min**	**CPL(Dry exhaust manifold)**	**……0844**
	783 kW @ 2100 r/min	**CPL(Wet exhaust manifold)**	**……**
		Performance Curve Number	**……C-4417-A**
Continuous Power:		**Instalation Drawing**	
		Air-cooled	**……3056043**
		Water-cooled	**……**

Complete Engine Data

Model	Four-stroke、60° V Type12 Cylinders	
Air Intake Method	Turbocharged-Intercooled	
Bore—mm(in.)×Stroke—mm(in.)	159×159	(6.25×6.25)
Displacement—L(in^3)	37.7	(2300)
Compression Ratio	13.8:1	
Dry Net Weight		
Air-cooled & Flywheel kg(lb)	3719	(8200)
Water-cooled kg(lb)		
Wet Net Weight		
Air-cooled & Flywheel kg(lb)	4016	(8854)
Water-cooled kg(lb)		
Moment of inertia for the moving parts (not including Flywheel） kg•m^2($lb.ft^2$)	3.96	(94.00)
The distance of centroid to engine block（only engine） mm(in)	813	(32)
The centroid above the center line of Crankshaft（only engine） mm(in)	279	(11)
Ignition sequence	1R-6L-5R-2L-3R-4L-6R-1L-2R-5L-4R-3L	

ENGINE MOUNTING

Max. Allowable Bending Moment at Rear Face of Block N•m(lb.ft)	6101	(4500)
Engine overturn moment of inertia winding axis of rotation kg•m^2($lb.ft^2$)		

EXHAUST SYSTEM

Maximum allowable exhaust backpressurekPa(in.Hg)	10	(3)
The standard diameter of exhaust pipe mm(in)	152	(6)

AIR INTAKE SYSTEM

the maximum allowable air intake resistance with heavy air filer		
Clean Filter kPa(in.H_2O)	3.74	(15)
Dirty Filter kPa(in. H_2O)	6.23	(25)
Min allowing dust holding ability with heavy air filter gm•L/s(gm/CFM)	53	(25)

COOLING SYSTEM

Cooling Water Capacity		
Engine Only L(U.S.Gal)	118	(31)
With Radiator [Applicable Environment Temperature 37.8℃（100°F）] L(U.S.Gal)		
The cooling water resistance In engine external kPa(PSI)	34.5	(5.0)
The maximum drop of coolant above the crankshaft center line m(ft.)	7.6	(25)
The temperature adjustment range of standard thermostat℃(°F)	80-90	(175-195)
The max pressure of coolant(without pressure cap) kPa(PSI)	241	(35)
The allowing min pressure for the pressure cap kPa (PSI)	48	(7)
The allowing highest temperature for the water tank ℃(°F)	93.3	(200)
The recommended lowest temperature for the water tank ℃(°F)	71.1	(160)
The allowing minimum rate of filling water L/min(U.S.GPM)	18.9	(5)
The maximum allowed for the first time filling water min	5	
The allowing minimum coolant expassion volume in system volume%	5	
The longest allowing exhaust time min	25	

The allowing minimum coolant level falling volume L(U.S.Gal)……	20.8	(6)

(Levels fall volume must be more than the first time when water is not filled with capacity, does not include volume expansion)

LUBRICATION SYSTEM

Oil Pressure		
Idle Speed kPa(PSI)……	138	(20)
Rated Speed kPa(PSI)……	310-448	(45-65)
Oil flow when in rated speed L/min(U.S.GPM)……	469.4	(124)
Max. Allowable Oil Temperature ℃(°F)……	124.0	(225)
Max. Oil Consumption L/h(U.S.Gal/h)……		
By-Pass Oil Filter Capacity		
Spiral cylinderL(U.S.Gal)……	2.6*2	(0.7*2)
Replaceable parts typeL(U.S.Gal) ……	11*2	(2.9*2)
Oil Pan Capacity		
High L(U.S.Gal)……	185.49	(49.0)
Low L(U.S.Gal)……	128.70	(34.0)
Total System Capacity (except the bypass the filters) L(U.S.Gal)……	201	(53.0)
The slant angle of standard oil sump (selective parts OP4020)		
Front Down ……	30°	
Front Up ……	30°	

FUEL SYSTEM

Maximum Allowable Restriction to Fuel Pump		
Clean Filter kPa(in.Hg)……	13.55	(4)
Dirty Filter kPa(in.Hg)……	27.09	(8)
Maximum Allowable Return Line Pressure		
with one-way valve kPa(in.Hg)……	22.0	(6.5)
without one-way valve kPa(in.Hg)……	8.5	(2.5)
Allow the minimum fuel tank ventilation ability L/h（ft^3/h） ……	850	(30)

（In the back pressure is 8.4kPa (2.5in.Hg) or lower back pressure）

ELECTRICAL AND STARTER SYSTEM

Min. Recommended Battery Capacity （在-18℃（0°F）） ……	24
Engine without load	
Cold starting current CC……	18000
Starting again current capacity (minimum) ……	640
Engine with drive system	
Cold starting current CCA……	1900
Starting again current capacity (minimum)……	640

Starting circuit allows the biggest resistance

With 12V Starter Motor Ω…… 0.00075

With 24V Starter MotorΩ…… 0.002

Performance Data

Idle Speed r/min…… 725

Maximum no-load speedr/min…… 2400

The max overspeed ability r/min…… 2625

Breakaway torque for minimum starting temperature（without auxiliary device）N•m(lb.f

Starting torque for minimum starting temperature（without auxiliary device）N•m(lb.ft)…

Clutch Joint Effective Torque (800 r/min) N•m(lb.ft)……

Min. Recommended speed of stall matching with hydraulic torque converter and hydraulic pump r/min

The load limitation of Crankshaft Bearing

The max intermittence load N(lb)…… 6672 (1500)

The max continuous loadN(lb)…… 3336 (750)

Maximum output power the front of crankshaft allowing kW(HP)……

Maximum output power attachment drives allowing kW(HP)…… 6 (8)

The free field sound pressure level

In the 15 m (50 ft) place and full load the rated speed (not including exhaust system cooling system and drive parts of the noise：

Right side dBA…… 82

Left side dBA…… 84.5

Front dBA…… 84

Rear dBA……

Note: All data is based on the engine with the fuel pump, water pump, oil pump, air filter and muffler operation, but does not include the alternator, air compressor, fan, optional equipment and drive. All data are based on SAE J1349 standard conditions - an altitude of 90m (300ft.), atmospheric pressure 100kPa (29.61in.Hg), intake air temperature 25 ° C (77 ° F), water vapor pressure of 1.0kPa (0.30in Hg), using a standard # 2 diesel or diesel conforming to ASTM D2. New tips and techniques will be added as time goes by, so these date could be amended at any time without prior notice.

	Rated Power		Continuous Power	
	Max Power Point	Peak Torque Point	Max Power Point	Peak Torque Point
Speed r/min	2100	1300	1800	1300
Output power kW(HP)	783(1050)	630(845)	634(850)	536(718)
Torque N·m(lb.ft)	3561(2626)	4631(3415)	3363(2480)	3932(2900)
Fan Consumption Power				
Power[RadiatorTemperature38℃(100°F)] kW(HP)	28(37)	6(8)	17(23)	6(8)
Power[RadiatorTemperature52℃(125°F)] kW(HP)	28(37)	6(8)	17(23)	6(8)
Fuel pipe rated point pressure kPa(PSI)	724(105)	571(75)	558(81)	448(65)
Intake manifold pressure kPa(in.Hg) kPa(in.Hg)	162(48)	115(34)	118(35)	94(28)
Mean effective pressure kPa(PSI)	1193(173)	1544(224)	1124(163)	1310(190)
Piston mean speed m/s(ft/min) m/s(ft/min)	11.1(2188)	6.9(1354)	9.5(1875)	6.9(1354)
Friction power kW(HP)	173(232)	60(80)	127(170)	60(80)
Intake flow rate L/s(CFM)	1180(2500)	673(1425)	909(1925)	602(1275)
Exhaust flow rate				
Dry exhaust manifold L/s(CFM)	2879(6100)	1829(3875)	2207(4675)	1586(3360)
Wet exhaust manifold L/s(CFM)				
Exhaust temperature				
Dry exhaust manifold ℃(°F)	460(860)	543(1010)	457(855)	521(970)
Wet exhaust manifold ℃(°F)				
The heat loss of coolant				
Dry exhaust manifold kW(BTU/min)	121(6879)	92(5258)	94(5367)	78(4441)
Wet exhaust manifold kW(BTU/min)				
The heat loss of coolant				
Dry exhaust manifold kW(BTU/min)	522(29700)	346(19700)	355(20200)	278(15800)
Wet exhaust manifold kW(BTU/min)				
The engine cooling water flow L/s(U.S.GPM)	30(480)	18(290)	26(411)	18(290)
Fan cooling air flow				
The radiator flow at temperature L/s(CFM)	34692(73500)	20060(42500)	29358(62200)	20060(42500)
The radiator flow at temperature L/s(CFM)	32143(68100)	18597(39400)	27282(57800)	18597(39400)

All the data are based on engine with fuel pump, water pump, oil pump, air filter and silencer, not include alternator, air compressor, fan, other selective equipment and being driven components.