

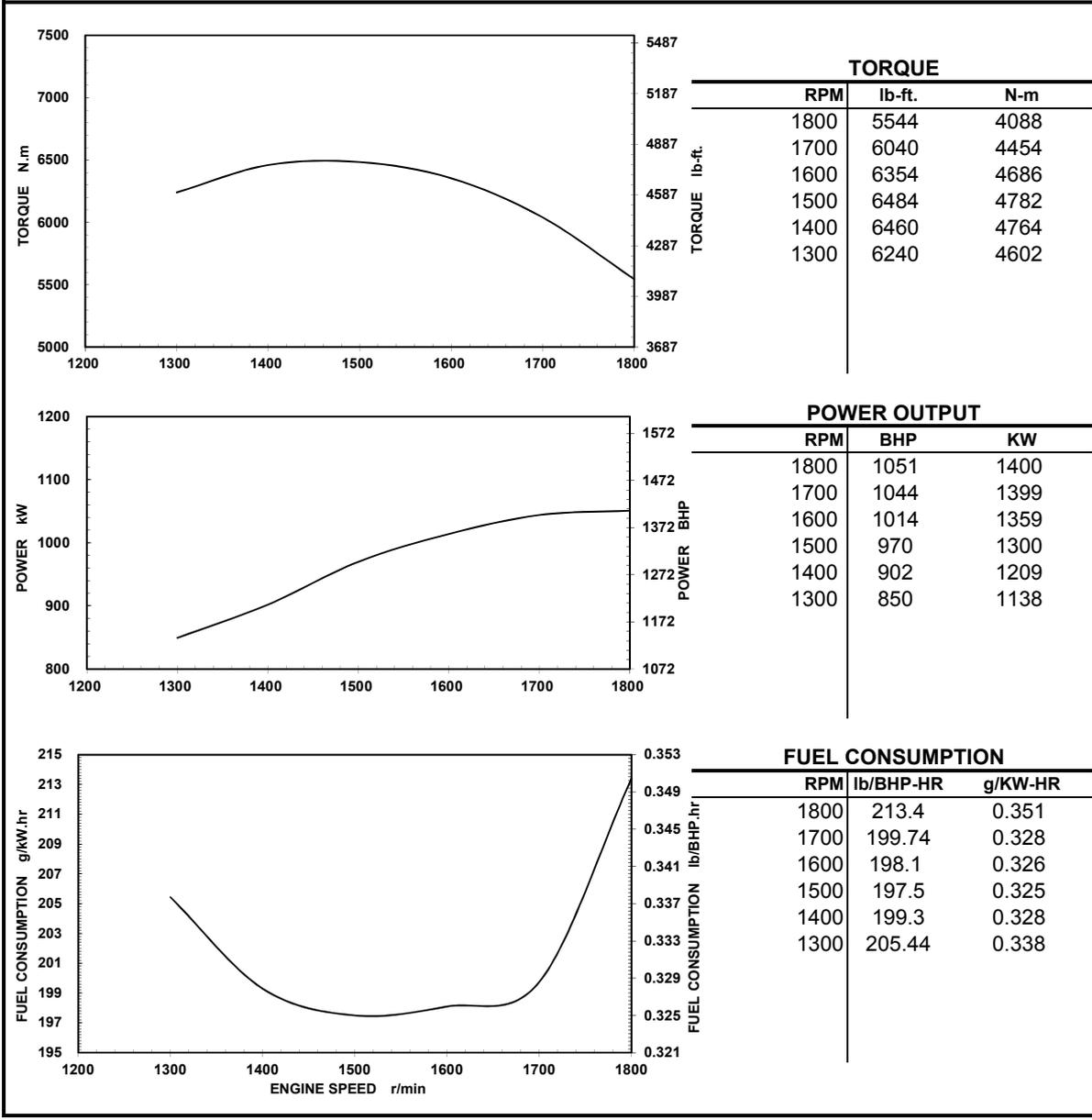


CHONGQING CUMMINS ENGINE COMPANY LTD.
CONSTRUCTION PERFORMANCE CURVE

BASIC ENGINE MODEL: KTA38-P1400	CURVE NUMBER: 6956	C-:	CPL No.: 3903
			DATE: 2016/3/28

Displacement: 38L (2300)	Aspiration: Turbocharged , Aftercooled	RATING:
Bore: 159mm (6.25 in.)	No. of Cylinder: 12	1045kW@1800r/min
Stroke: 159mm (6.25 in.)		1400BHP@1800r/min

All data is based on the engine operating with fuel system, water pump, lubricating oil pump, air cleaner, and muffler; not included are alternator, compressor, fan, optional equipment and driven components.





CHONGQING CUMMINS ENGINE COMPANY LTD.

ENGINE DATA SHEET

www.cumminspowerunits.com

Number: DS-6956

Date: 2016/3/28

ENGINE

MODEL(S): KTA38-P1400
MAXIMUM RATING: 1400BHP@1800r/min
1045kW@1800r/min

REFERENCE INFORMATION:

CONFIGURATION NUMBER(S).....D233047CX03
CPL NUMBER (DRY MANIFOLD).....3903
CPL NUMBER (DRY MANIFOLD).....
PERFORMANCE CURVE NUMBER.....C-6956
INSTALLATION DIAGRAM NUMBER
FAN TO FLYWHEEL.....3003606
RADIATOR COOLED.....

GENERALENGINE DATA

Type.....4 Cycle , 60° Vee , 12 Cylinde
Aspiration.....Turbocharged , Aftercooled
Bore—in.(mm)×stroke—in.(mm).....6.25×6.25 (159×159)
Displacement—in³(L).....2300 (38)
Compression Ratio.....13.9:1
Dry Weight
Fan Hub to Flywheel Engine —lb(kg).....8200 (3719)
Radiator Cooled Engine —lb(kg).....9625 (4366)
Wet Weight
Fan Hub to Flywheel Engine —lb(kg).....8700 (3946)
Radiator Cooled Engine —lb(kg).....9625 (4366)
Moment of Inertia of Rotating Components (Excluding Flywheel) —lb.ft²(kg•m²).....94 (3.96)
C.G. Distance From Front Face of Block (Engine Only) —in(mm).....32 (813)
C.G. Distance Above Crank Centerline (Engine Only) —in(mm).....11 (279)
Firing Order.....1R-6L-5R-2L-3R-4L-6R-1L-
2R-5L-4R-3L

ENGINE MOUNTING

Maximum Allowable Bending Moment at Rear Face of Block —N•m(lb.ft).....4500 (6101)
Moment of Inertia About Roll Axis —lb.ft²(kg•m²).....

EXHAUST SYSTEM

Maximum Allowable Back Pressure —in.Hg(kPa).....3 (10)
Exhaust Pipe Size Normally Acceptable —in(mm).....6 (152)

AIR INDUCTION SYSTEM

Maximum Allowable Intake Air Restriction With Heavy Duty Air Cleaner
Clean Element —in.H₂O(kPa).....15 (3.74)
Dirty Element —in.H₂O(kPa).....25 (6.23)
Minimum Allowable Dirt Holding Capacity With Heavy Duty Air Cleaner —gm/CFM(gm•L/s) 25 (53)

COOLING SYSTEM

Coolant Capacity
Engine Only —U.S.Gal(L).....31 (117)
Radiator With 100°F —U.S.Gal(L).....86 (326)
Maximum Coolant Friction Head External to Engine —PSI(kPa).....5.0 (34.5)
Maximum Static Head of Coolant Above Engine Crank Centerline —ft.(m).....25 (7.6)

Maximum Air Restriction Across Radiator —in.H ₂ O(kPa).....	0.50	(0.12)
Minimum Raw Water Flow @ 90°F(32°C) to Heat Exchanger —GPM(L/min).....	55	(208)
Maximum Raw Water Inlet Pressure at Heat Exchanger —PSI(kPa).....	100	(689)
Standard Thermostat (modulating) Range— °F(°C).....	175-195	(80-90)
Maximum Coolant Pressure (Exclusive of Pressure Cap) —PSI(kPa).....	35	(241)
Minimum Allowable Pressure Cap— PSI(kPa).....	7	(48)
Maximum Allowable Top Tand Temperature —°F(°C).....	203	(93.3)
Minimum Recommended Top Tank Temperature —°F(°C).....	160	(71.1)
Minimum Allowable Fill Rate —U.S.GPM(L/min).....	5	(18.93)
Maximum Allowable Initial Fill Time —min.....	5	
Minimum Allowable Coolant Expansion Space —% of System Capacity.....	5	
Maximum Allowable Deaeration Time —min.....	25	
Minimum Allowable Drawdown —U.S.Gal(L).....	5.5	(20.8)

(Drawdown Must Exceed the Volume Not Filled at Initial Fill & Must Not Include Expansion Space)

LUBRICATION SYSTEM

Oil Pressure

@ Idle —PSI(kPa).....	20	(138)
@ Rated Speed —PSI(kPa).....	45-65	(310-448)
Oil Flow at Rated Speed —U.S.GPM(L/min).....	112	(424.0)
Maximum Allowable Oil Temperature —°F(°C).....	250	(121.1)
Maximum Oil Consumption —U.S.Gal/h(L/h).....	0.083	(0.31)

By-Pass Filter Capacity

Spin-on Cartridge Type —U.S.Gal(L).....	2 X 0.7	(2 X 2.6)
Replaceable Element Type —U.S.Gal(L).....	2 X 0.7	(2 X 2.6)

Oil Pan Capacity (Option OP6023)

High —U.S.Gal(L).....	30.0	(113.6)
Low —U.S.Gal(L).....	23.0	(87.1)
Total System Capacity (Excluding By-Pass Filter) —U.S.Gal(L).....	34.2	(129.5)

Angularity of Standard Oil Pan (Option OF

Front Down.....	30°	
Front Up.....	30°	

FUEL SYSTEM

Maximum Fuel Consumption at Maximum Rated Output and Speed —lb/h(kg/h).....	492	(223)
Maximum Fuel Flow to Pump at Maximum Rated Output and Speed —lb/h(kg/h).....	1967	(892)
Maximum allowable Restriction to PT Fuel Pump		
With Clean Fuel Filter —in.Hg(kPa).....	4	(13.55)
With Dirty Fuel Filter —in.Hg(kPa).....	8	(27.09)
Maximum Allowable Injector Reti		
With Check Valves —in.Hg(kPa).....	7	(22)
Less Check Valves —in.Hg(kPa).....	3	(8)
Minimum Allowable Fuel Tank Vent Capability —ft ³ /h (L/h).....	15	(425)

(With 2.5 in. Hg (63 mm Hg) or Less Back Pressure)

ELECTRICAL SYSTEM

Minimum Recommended Battery Capacity (Cold Soak at 0°F(-18°C) or Above V.....	12	24
Engine Only (De-clutched Load)		
Cold Cranking Amperes —CCA.....		900
Reserve Capacity min.....		320
Engine With Connected Drive Train		

Cold Cranking Amperes —CCA.....	900
Reserve Capacity min.....	320
Maximum Allowable Resistance of Starting Circuit	
With 12 volt Starter— Ω	0.00075
With 24 volt Starter— Ω	0.002

PERFORMANCE DATA

Idle —r/min.....	575-650
Maximum No-Load Governed Speed —r/min.....	2100
Maximum Overspeed Capability —r/min.....	2625
Breakaway Torque at Minimum Unaided Start Temperature —N•m(lb.ft).....	
Cranking Torque at Minimum Unaided Start Temperature —N•m(lb.ft).....	
Torque Available at Clutch Engagement (800 r/min) —N•m(lb.ft).....	2500
Minimum Recommended Combined Converter and Hydraulic Stall Speed r/min.....	1500
Crankshaft Thrust Bearing Load	
Maximum Intermittent —lb(N).....	2000 (8896)
Maximum Continuous —lb(N).....	1000 (4448)
Maximum Allowable Power From Front of Crankshaft —BHP(kW).....	
Maximum Allowable Power From Accessory Drive —BHP(kW).....	
Estimated Free Field Sound Pressure Level	
(At 50 ft(15m) and Full Load Governed Speed (Excludes Noise From Intake.Exhaust. Cooling System and Driven Compon	
Right Side —dBA.....	85
Left Side —dBA.....	85
Front —dBA.....	85
Rear —dBA.....	
Minimum Ambient Temperature For Unaided Cold Start —°F(°C).....	4
Minimum Cranking Speed Required For Unaided Cold Start —°F(°C).....	150

All data is based on the engine operating with fuel system, water pump, lubricating oil pump, air cleaner, and muffler, not included are alternator, compressor, fan, optional equipment and driven components. Data represents gross engine performance capabilities obtained and corrected in accordance with SAE J1349 conditions fo 29.61 in Hg(100 kPa) barometric pressure[300ft. (90 m) altitude], 77°F (25°C) inlet air temperature, and 0.30 in. Hg (1kPa) water vapor pressure with No. 2 diesel fuel or a fuel corresponding to ASTM D2. All data is subject to change without notice.

	MAXIMUM		CONTINUOUS	
	FULL POWER	PEAK TORQUE	FULL POWER	PEAK TORQUE
Engine Speed r/min.....	1800	1500	N/A	N/A
Gross Power Output BHP(kW).....	1400(1045)	1300(970)		
Torque lb.ft(N·m).....	5544(5544)	4554(6175)		
Fan Power				
with 100°F(38°C) Radiator BHP(kW).....				
with 125°F(52°C) Radiator BHP(kW).....				
Nominal Rail Pressure PSI(kPa).....	181(1250)	63(437)		
Intake Manifold Pressure in.Hg(kPa).....	56(191)	29(97)		
Brake Mean Effective Pressure PSI(kPa).....	31(214)	35(238)		
Piston Speed ft/min(m/s).....	1870(9.5)	1555(7.9)		
Friction Horsepower BHP(kW).....	170(127)	115(86)		
Intake Air FlowCFM(L/s).....	1294(611)	881(416)		
Exhaust Gas Flow		6242(2946)		
Dry ManifoldCFM(L/s).....	7004(3306)			
Wet ManifoldCFM(L/s).....		1134(612)		
Exhaust Gas Temperal				
Dry Manifold °F(°C).....	1067(575)	1134(612)		
Wet Manifold°F(°C).....				
Heat Rejection to Ambient				
Dry Manifold BTU/min(kW).....	7791(137)	12113(213)		
Wet Manifold BTU/min(kW).....				
Heat Rejection to Coolant				
Dry Manifold BTU/min(kW).....	33780(594)	31392(552)		
Wet Manifold BTU/min(kW).....				
Engine Water Flow L/s(U.S.GPM).....	412.2(26)	317(20)		
Cooling Fan Air Flow				
with 100°F(38°C) RadiatorCFM(L/s).....				
with 125°F(52°C) RadiatorCFM(L/s).....				