



CHONGQING CUMMINS ENGINE COMPANY LTD. ENGINE PERFORMANCE CURVE

CONFIGURATION
D233024CX02

ENGINE MODEL: KT38-P1000

CURVE NUMBER: FR-

CPL No.: 0850

DATE: 2016/5/5

Displacement: 38L

(2300)

Aspiration: Turbocharged ,

RATING

BoreXStroke: 159X159mm

(6.25X6.25 in.)

Fuel System: Cummins PT

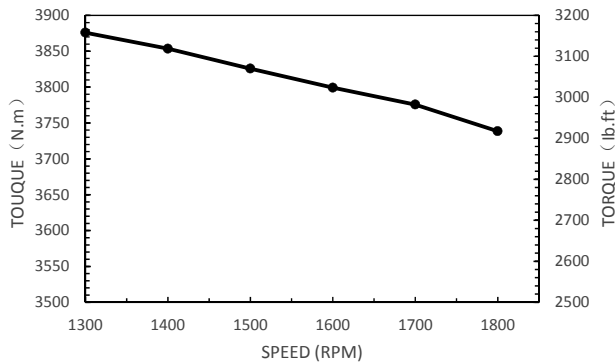
746kW(1000hp)@1800rpm

Compress Ratio: 15.5:1

Emission:

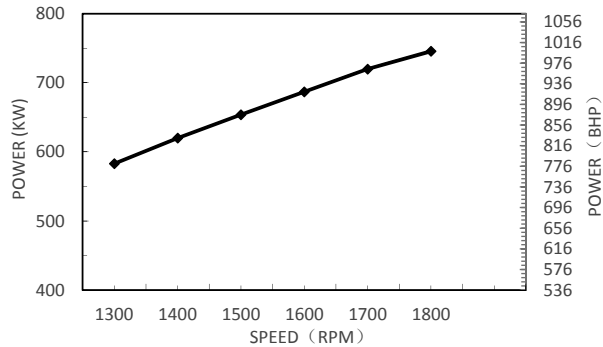
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All data is based on the engine operating with fuel system, water pump, and 20 in. H₂O(4.98kPa) inlet air restriction with 5.8 in.(147mm) inner diameter, and with 2 in. Hg(7kPa) exhaust restriction with 8 in.(203mm) inner diameter; not included are alternator, fan, optional equipment and driven components. Coolant flows and heat rejection data based on coolant as 50% ethylene glycol/50% water. All data is subject to change without notice.



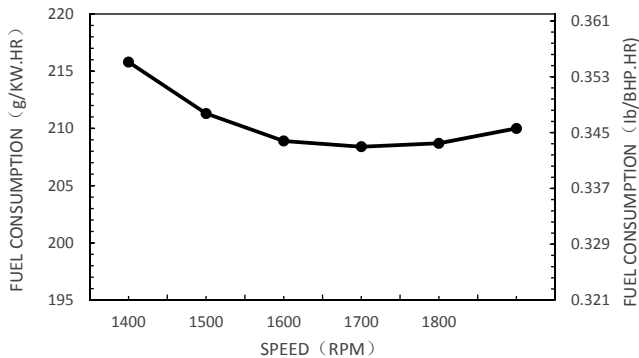
TORQUE

SPEED RPM	TORQUE	
	N-m	lb-ft.
1300	4282	3158
1400	4229	3119
1500	4163	3070
1600	4100	3024
1700	4044	2982
1800	3956	2917



POWER OUTPUT

SPEED RPM	POWER OUTPUT	
	KW	BHP
1300	583	781
1400	620	831
1500	654	876
1600	687	920
1700	720	965
1800	746	999



FUEL CONSUMPTION

SPEED RPM	FUEL CONSUMPTION	
	g/KW-HR	lb/BHP-HR
1300	215.8	0.355
1400	211.3	0.347
1500	208.9	0.343
1600	208.4	0.343
1700	208.7	0.343
1800	210.0	0.345

Curves shown above represent gross engine performance capabilities obtained and corrected in accordance with SAE J1995 conditions of 29.61 in. Hg(100kPa) barometric pressure [300ft.(91m) altitude] 77deg F (25 deg C) inlet temperature, and 0.30 in.

TECHNICAL DATA DEPT

CERTIFIED WITHIN 5%

CHIEF ENGINEER

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Page 2 of 5

ENGINE
MODEL(S): **KT38-P1000**
STAND_BY: 746KW
1000BHF @1800rpm

PRIME:

REFERENCE INFORMATION:
CONFIGURATION..... D233024CX02
CPL NUMBER 0850
PERFORMANCE CURVE NUMBER..... FR-

GENERALENGINE DATA

Type..... 4 Cycle , 60° Vee , 12 Cylinder
Aspiration..... Turbocharged ,
Bore— $\text{in. (mm)} \times \text{stroke—in. (mm)}$ 6.25×6.25 (159×159)
Displacement— $\text{in}^3(\text{L})$ 2300 (38)
Compression Ratio..... 15.5:1
Dry Weight
Fan Hub to Flywheel Engine — lb (kg) 7950 (3606)
Radiator Cooled Engine — lb (kg) N/A N/A
Wet Weight
Fan Hub to Flywheel Engine — lb (kg) 8400 (3810)
Radiator Cooled Engine — lb (kg) N/A N/A
Moment of Inertia of Rotating Components (Excluding Flywheel) — $\text{lb}_m \cdot \text{ft}^2(\text{kg} \cdot \text{m}^2)$ 94 (3.96)
C.G. Distance From Front Face of Block— in (mm) 31.5 (801)
C.G. Distance Above Crank Centerline— in (mm) 11 (279)
Firing Order..... 1R-6L-5R-2L-3R-4L-6R-1L-2R-5L-4R-3L

ENGINE MOUNTING

Maximum Allowable Back Pressure — in. Hg (kPa) 4500 (6101)
Moment of Inertia About Roll Axis — $\text{lb}_m \cdot \text{ft}^2(\text{kg} \cdot \text{m}^2)$

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
Dirty Element — $\text{in. H}_2\text{O (kPa)}$ 25 (6.23)
Clean Element — $\text{in. H}_2\text{O (kPa)}$ 15 (3.73)
Minimum Allowable Dirt Holding Capacity With Heavy Duty Air Cleaner — $\text{gm/CFM (gm} \cdot \text{L/25)}$ (53)

COOLING SYSTEM

Coolant Capacity
Engine Only — U.S. Gal (L) 31 (118)
Maximum Pressure Drop Across Any External Cooling System Circuit — PSI (kPa) 5 (34.5)
Maximum Static Head of Coolant Above Engine Crank Centerline — ft. (m) 8 (25.0)
Standard Thermostat (modulating) Range— $^{\circ}\text{F (}^{\circ}\text{C)}$ 175-195 80-90



CHONGQING CUMMINS ENGINE COMPANY LTD. ENGINE DATA SHEET

Page **3** of **5**

Maximum Coolant Pressure (Exclusive of Pressure Cap) —PSI(kPa).....	35	(241)
Minimum Allowable Pressure Cap— PSI(kPa).....	7	(48)
Maximum Allowable Top Tank Temperature (Stand_by/Prime) —°F(°C).....	203	(93.0)
Minimum Allowable Top Tank Temperature (Stand_by/Prime) —°F(°C).....	160	(71.1)
Minimum Allowable Fill Rate —U.S.GPM(L/min).....	5	(18.9)
Maximum Allowable Initial Fill Time —min.....	5	
Minimum Allowable Coolant Expansion Space —% of System Capacity.....	5	
Maximum Allowable Deaeration Time —min.....	25	

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).....	124	(469.4)
Maximum Allowable Oil Temperature —°F(°C).....	225	(124.0)

By-Pass Filter Capacity

Spin-on Cartridge Type —U.S.Gal(L).....	2 X 0.7	2.6 X 2
Replaceable Element Type —U.S.Gal(L)	2.9×2	11 X 2

Oil Pan Capacity (Option OP4020)

High —U.S.Gal(L).....	49	(185)
Low —U.S.Gal(L).....	34	(129)
Total System Capacity (Excluding By-Pass Filter) —U.S.Gal(L).....	53.0	(201.0)

Angularly of Standard Oil Pan

Front Down.....	30°
Front Up.....	30°



CHONGQING CUMMINS ENGINE COMPANY LTD. ENGINE DATA SHEET

Page 4 of 5

FUEL SYSTEM

Fuel Injection System.....	Cummins MCRS
Maximum Fuel Consumption at Maximum Rated Output and Speed —lb/h(kg/h).....	243 (110)
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 (27.90)
Maximum Allowable Injector Return Line Restriction	
With Check Valves —in.Hg(kPa).....	7 (22)
Less Check Valves —in.Hg(kPa).....	3 (9)
Minimum Allowable Fuel Tank Vent Capability —ft ³ /h (L/h)	30 (850)
(With 2.5 in. Hg (63 mm Hg) or Less Back Pressure)	

ELECTRICAL SYSTEM AND START 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.....	18000
Reserve Capacity min.....	640
Engine With Connected Drive Train	
Cold Cranking Amperes —CCA.....	1900
Reserve Capacity min.....	640
Maximum Allowable Resistance of Starting Circuit	
With 12 volt Starter—Ω.....	0.00075
With 24 volt Starter—Ω.....	0.002

PERFORMANCE DATA



CHONGQING CUMMINS ENGINE COMPANY LTD. ENGINE DATA SHEET

Page 5 of 5

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 for 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			
	FULL POWER			
Engine Speed r/min.....	1800			
Gross Power Output BHP(kW).....	1000(746)			
Nominal Rail Pressure PSI(kPa).....	105(724)			
Intake Manifold Pressure in.Hg(kPa).....	48(162)			
Brake Mean Effective Pressure PSI(kPa).....	173(1193)			
Piston Speed ft/min(m/s).....	1870(9.5)			
Friction Horsepower BHP(kW).....	232(173)			
exhaust Air FlowCFM(L/s).....	6100(2879)			
Intake Air FlowCFM(L/s).....	2500(1180)			
Exhaust Gas Temperature °F(°C).....	860(460)			
Heat Rejection to Ambient BTU/min(kW).....	6879(121)			
Heat Rejection to Coolant BTU/min(kW).....	29700(522)			

Change Log

Date	Author	Change Description
2016/5/5	Lingling Zhang	Draft