Engine Performance Data Xi'an Cummins Engine http://www.cummins.com	QSM11-G2	FR21602		QSM11-G3A
		CPL Code	Date 09-Jul-2022	

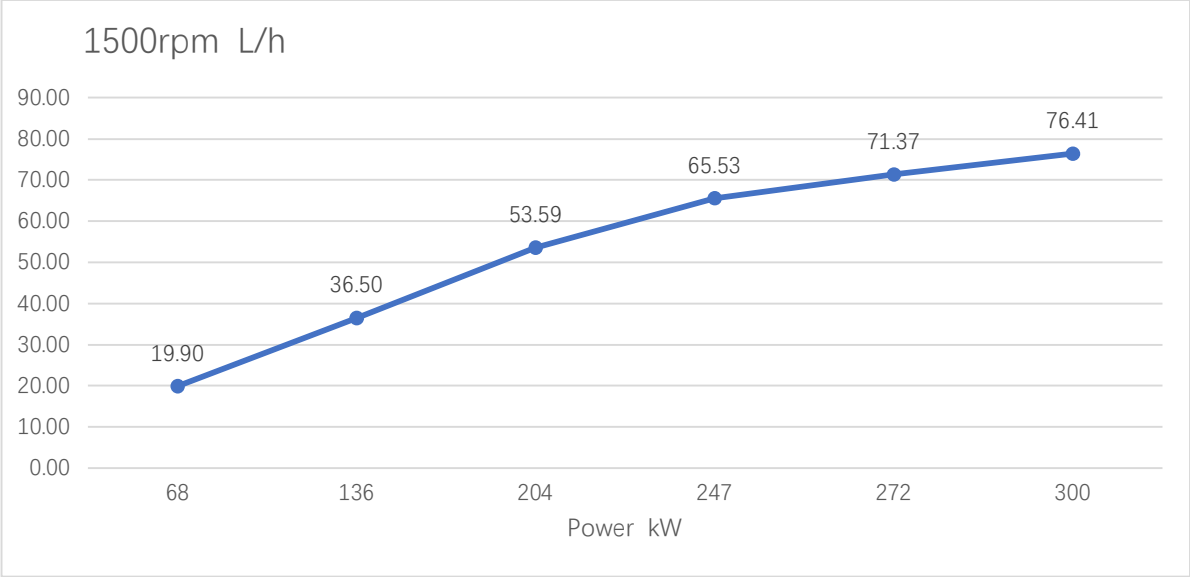
Compression ratio：16.2:1
Config：D353020CX03
Fuel System：Celect
Certification：MEP Stage III
Number Cylinders：6
Aspiration: Turbocharged and Charge Air Cooled
Bore：125mm
Displacement： 10.8L
Stroke：147mm

Genset application

RPM	Standby power		Prime Power		Continuous power	
	kWm	hp	kWm	hp	kWm	hp
1500	300	402	272	365	247	331
1800	330	442	300	402	273	366

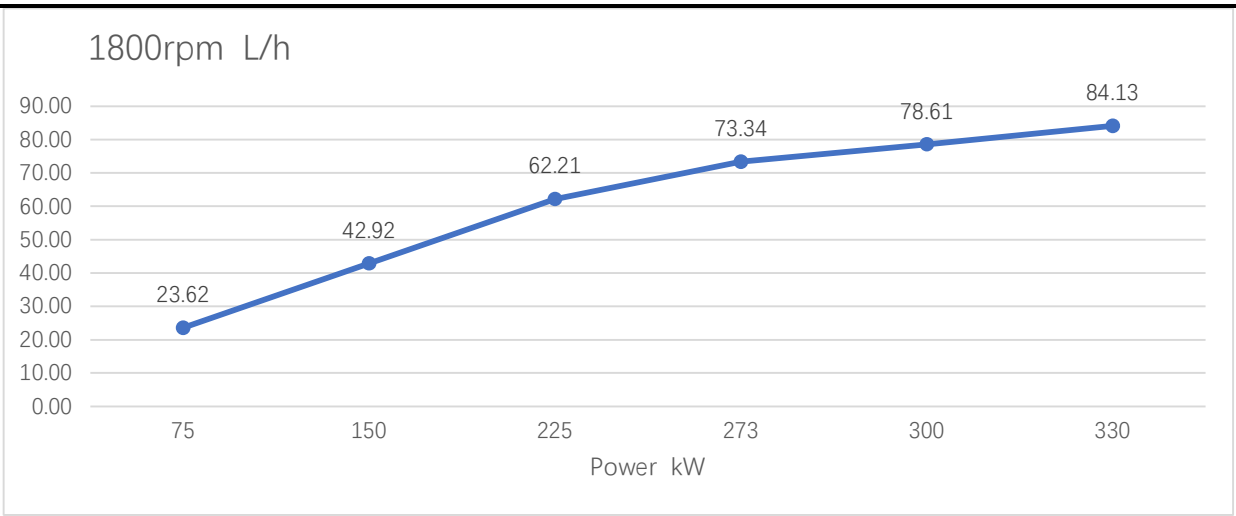
Engine Performance Data@1500rpm

Output Power			Fuel consumption		
%	kWm	hp	g/kWm.h	Liter/hour	US gal/hour
Standby power					
100	300	402	216.5	76.41	20.17
Prime Power					
100	272	365	223.03	71.37	18.84
75	204	273	223.3	53.59	14.15
50	136	182	228.14	36.5	9.63
25	68	91	248.76	19.9	5.25
Continuous power					
100	247	331	225.26	65.53	17.3

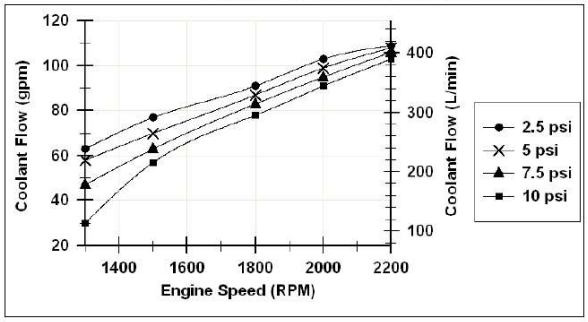


Engine Performance Data @1800rpm

Output Power			Fuel consumption		
%	kWm	hp	g/kWm.h	Liter/hour	US gal/hour
Standby power					
100	330	442	216.7	84.13	22.21
Prime Power					
100	300	402	222.72	78.61	20.75
75	225	302	235.03	62.21	16.42
50	150	201	243.19	42.92	11.33
25	75	101	267.66	23.62	6.23
Continuous power					
100	273	366	228.57	73.34	19.36



Thermostat out coolant flow vs. external restriction for engine system (with open thermostat)

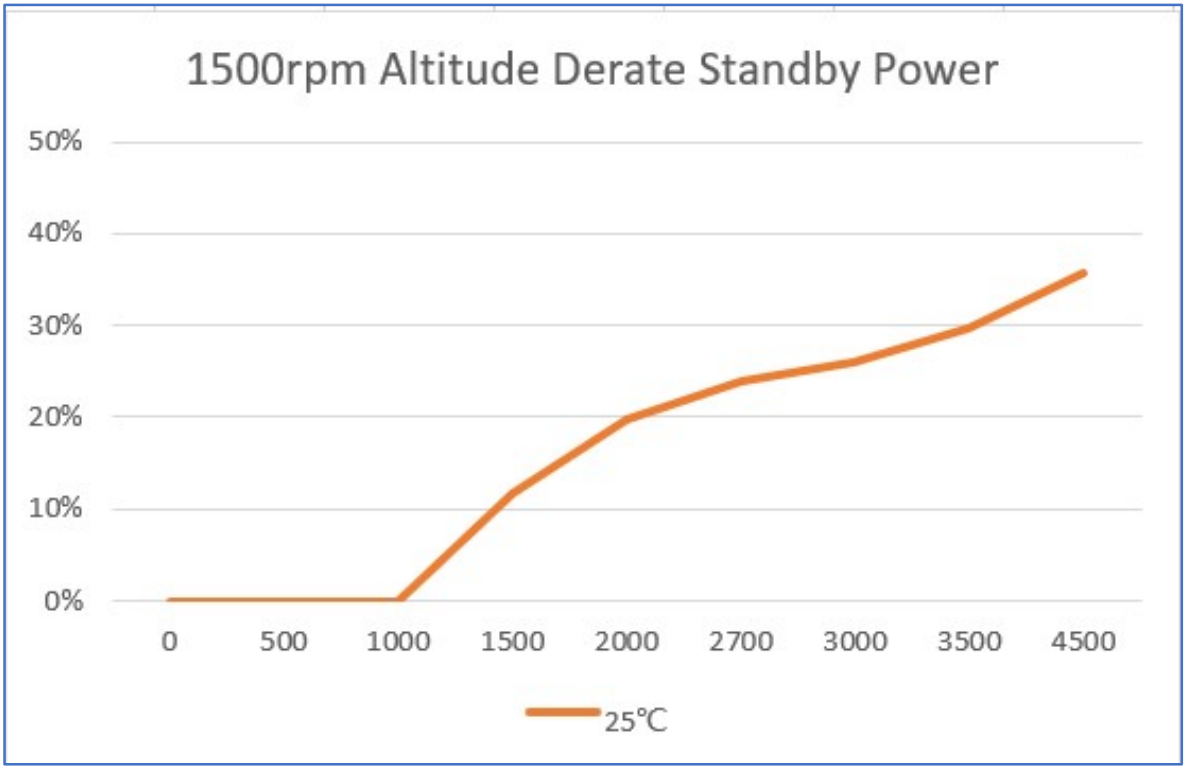


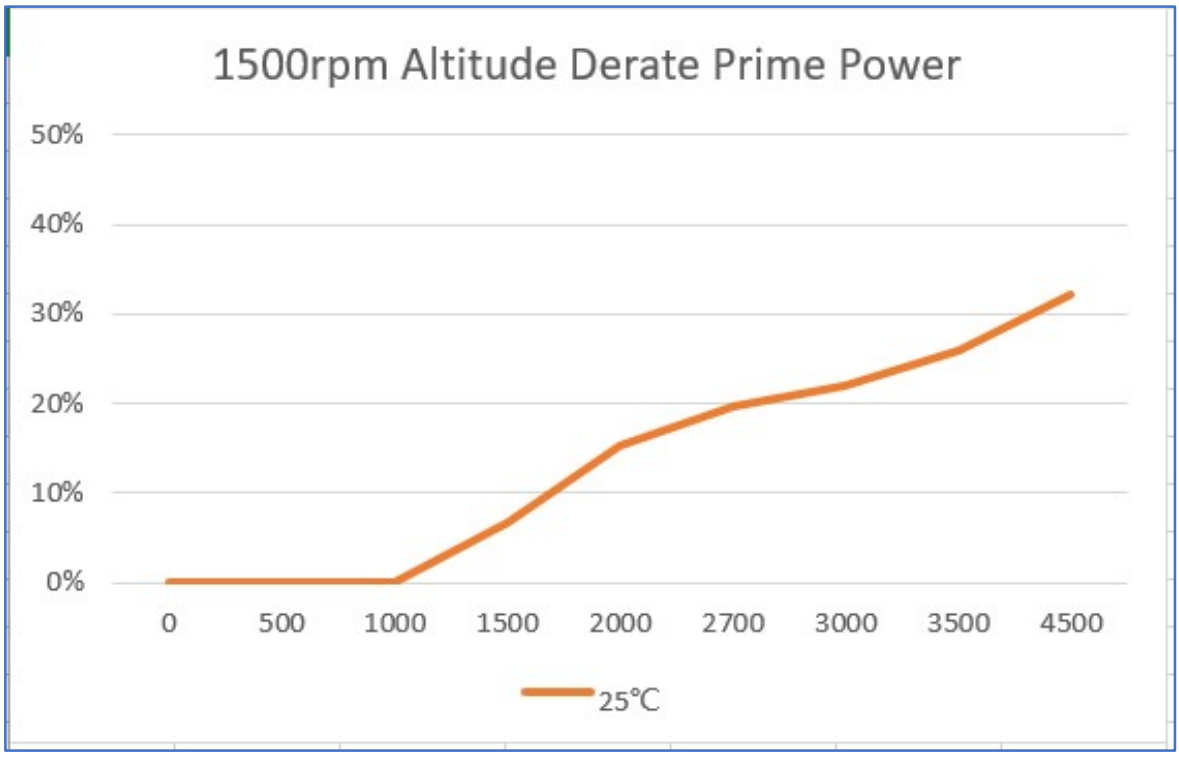
System Restriction

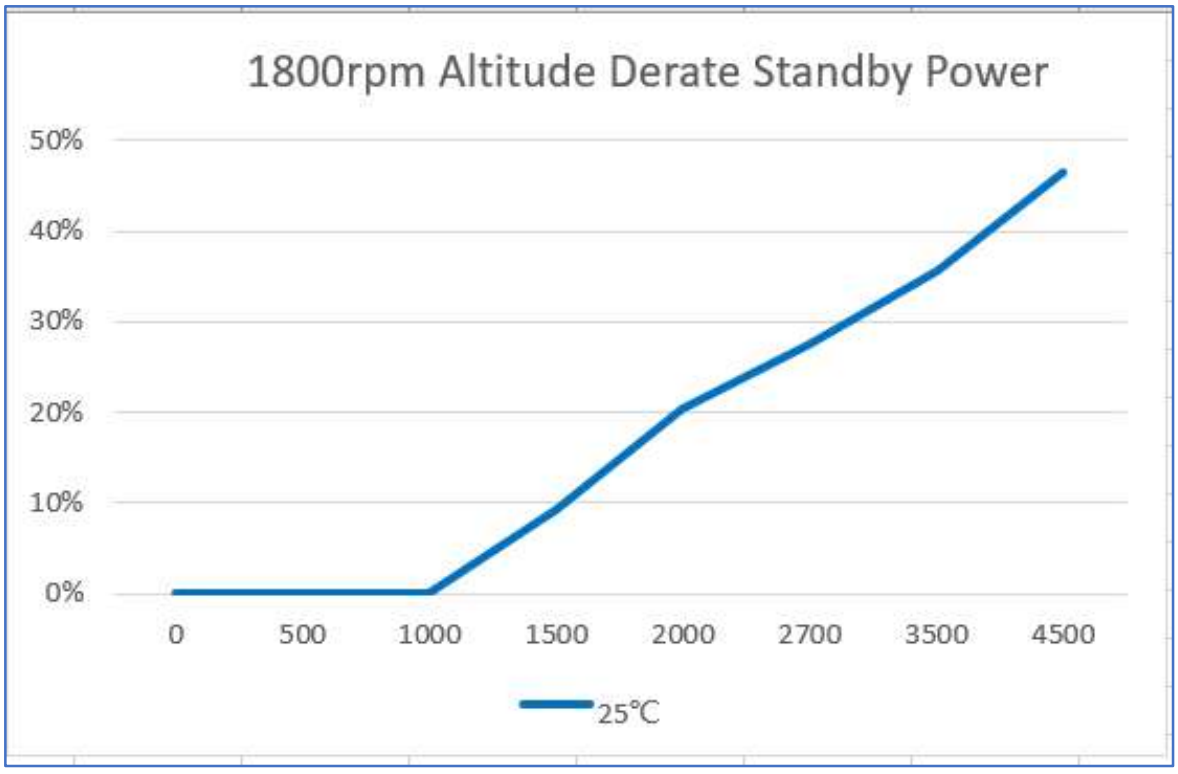
Engine Speed RPM	2.5 psi (17 kPa) gpm	2.5 psi (17 kPa) L/min	5 psi (34 kPa) gpm	5 psi (34 kPa) L/min	7.5 psi (52 kPa) gpm	7.5 psi (52 kPa) L/min	10 psi (69 kPa) gpm	10 psi (69 kPa) L/min
1,300	63	238	58	220	47	178	30	114
1,500	77	291	70	265	63	238	57	216
1,800	91	344	87	329	83	314	78	295
2,000	103	390	99	375	95	360	91	344
2,200	109	413	108	409	106	401	103	390

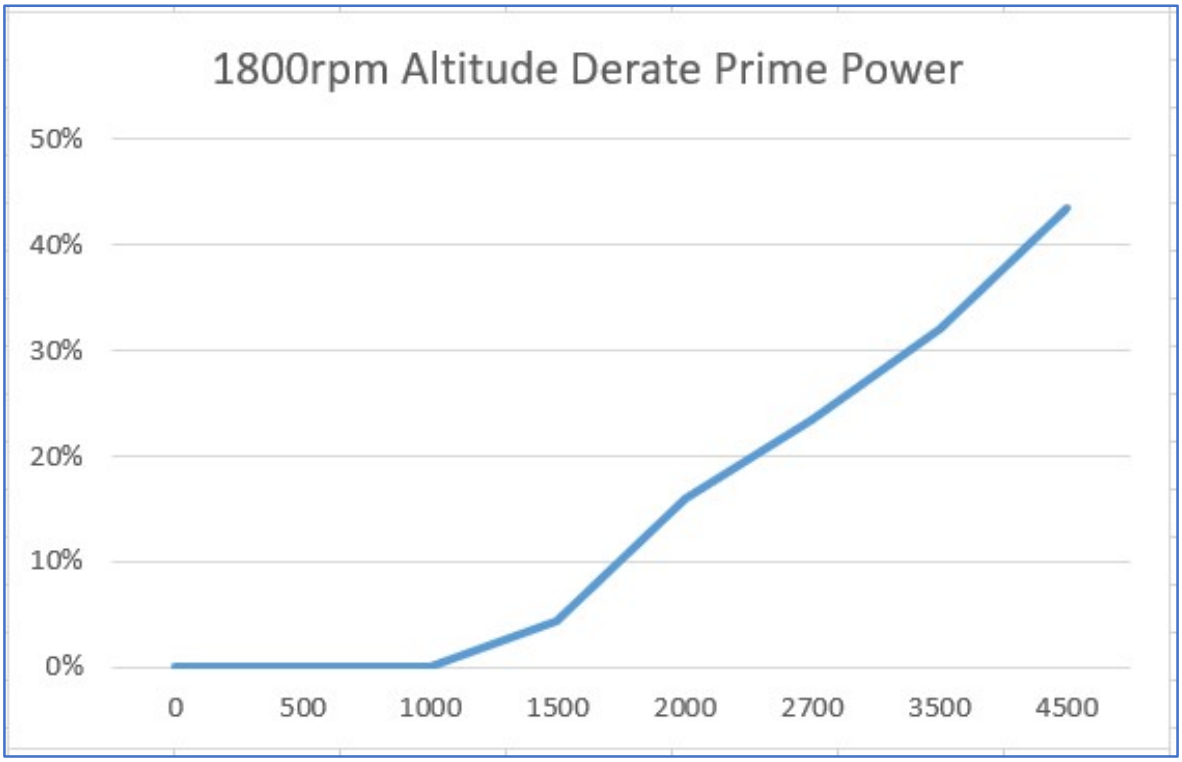
Minimum block coolant pressure at speed (open thermostat without radiator cap)

RPM	psi	kPa
1,300	7	48
1,500	12.5	86
1,800	15.4	106
2,000	19.9	137
2,200	22.8	157




1500rpm Altitude Derate Prime Power
50%
40%
30%
20%
10%
0%
0
500
1000
1500
2000
2700
3000
3500
4500
25℃


1800rpm Altitude Derate Standby Power
50%
40%
30%
20%
10%
0%
0
500
1000
1500
2000
2700
3500
4500
25℃



（liters=US gal*3.785） (kWm=hp*0.746) (US Gal=liters*0.2642) (hp=kWm*1.34)

The acquisition and correction of the above engine performance data is based on the requirements of ISO-3046. ISO-3046 requires the atmospheric pressure to be 100kPa, the air inlet temperature to be 25°C, and the relative humidity to be 30%. Diesel oil should be 2# or equivalent to ASTM D2.

The fuel consumption is based on 2# diesel oil with a density of 0.85kg/liter. The output power curve includes the power consumed by the fuel system, water pump, and oil pump, excluding generators, fans, optional equipment and drives for battery charging power consumed by the components.

Guidelines for the application of power ratings for engines used in generating sets

Standby power： It is used to supply emergency power when the external power supply is interrupted.

Standby power is no overload capability. The engine is not allowed to be connected to the public grid under any conditions when it is running in the reserve power section.

This power rating should be applied where there is a reliable public power supply. The engine is allowed to operate at an average 80% load for no more than 200 hours per year at the standby power level. This includes standby power point conditions of less than 25 hours per year. Standby power levels are generally not recommended except in emergency situations. A public grid outage with prior notice is not considered an emergency.

Prime Power： Used to supply electrical energy where power can be purchased. The prime power class has the following two application categories.

Infinite time running mode

The engine operates at a prime power level under variable loads for an unlimited time per year. The variable load here means that the average load does not exceed 70% of the prime power during any 250-hour period of operation, and the total time of operation at 100% load per year should not exceed 500 hours.

Allow the engine to run at 10% overload for 1 hour in a 12-hour cycle. The total running time of 10% overload per year shall not exceed 25 hours

Time-limited run mode

Prime power levels are applied under non-variable loads that limit run time. This mode is used in the case of

tight power supply. The engine does not exceed the basic power and runs in parallel with the mains at a fixed load for a maximum of 750 hours per year. But users should be aware that any engine used under high load for a long time will affect its life. Continuous power level should be used if operating at base power level for more than 750 hours.

Continuous power： Can be applied to supply electricity at full load for an unlimited time per year. The continuous power rating has no overload capability.

Performance Data

General Engine Data

Approximate engine weight (dry):	973kg
Approximate engine weight (wet):	1007kg

Rotating component inertia

FW2141 Flywheel:	2.63kg.m2
Distance from the center of gravity to the front face of the cylinder block	190mm
The distance from the centerline of the crankshaft to its upper center of gravity	450mm

Engine Mounting System

Maximum static mounting surface bending moment at rear face of block:	1356N.M

Exhaust System

Maximum exhaust back pressure:	3.0 in-Hg 10kPa

Intake Air System

Maximum Intake Manifold Temperature Differential (Ambient to IMT) (IMTD)	35℃
Maximum intake air restriction (heavy duty air cleaner)	
Dirty Filter:	6.2kPa
Clean Filter:	3.7kPa

Cooling System

Maximum radiator temperature Standby Power/Prime Power:	212℉ 100℃
Radiator pressure cover minimum pressure:	69kPa
Thermostat temperature range:	82-93℃
Maximum allowable pressure drop across charge air cooler and OEM CAC piping (IMPD)@1800rpm:	13 kPa
Maximum allowable pressure drop across charge air cooler and OEM CAC piping (IMPD)@1500rpm:	8.5 kPa
Maximum coolant temperature for engine protection controls:	219℉ 104℃
Coolant capacity - engine only	9.5L
Fan Drive Ratio:	1.00:1

Lubrication System

Nominal operating oil pressure@ minimum low idle:	103kPa
Nominal operating oil pressure@ maximum rated speed:	241kPa
Maximum oil temperature:	135℃
Oil pan volume:	26-34L
Total system volume (including oil filter):	36.7L

Fuel System

Maximum fuel supply resistance:	20kPa
Maximum fuel return resistance:	9kPa
Maximum oil supply temperature:	71℃

Electrical System

System voltage:	24V
Maximum starting circuit resistance:	0.002Ω
Engine only-cold cranking amperes:	1250 CCA
Starter power:	7.5kW

Cold start capability

Minimum ambient temperature with Grid Heater only -14℃

Minimum ambient temperature for unaided cold start -4℃

Certification Information

Approval code：CN FC G3 00 0885000023 000001

Performance Data					
Parameter	**Unit**	**Standby Power**		**Prime Power**	
		60Hz	50Hz	60Hz	50Hz
Engine Speed	rpm	1800	1500	1800	1500
Idle Speed	rpm	700	700	700	700
Output Power	kW	330	300	300	272
Turbo Comp.Outlet Pressure(	kPa	259	252	254	248
Temperature	℃	210	201	205	198
Inlet air flow	L/s	512	436	506	427
Exhaust gas temperature	℃	478	500	466	495
Exhaust gas flow	L/s	1175	1065	1143	1052
Heat rejection to coolant	kWm	167.48	153.62	162.59	145.12
Heat dissipation to oil return	kWm	4.68	4.3	4.25	3.91
Heat rejection to CAC	kWm	87.8	71.83	85.02	69.07