

Engine Specification Sheet



Model	Ratings HP (kW) @ Rated speed rpm	
	2950	
CH4-102-EC (UL)	77 (57)	
CH4-102-EC (FM)	75 (56)	

ENGINE SPECIFICATIONS		
Type	4 Cycle; In-line; water cooled; 4 Cylinder	
Aspiration	Natural	
Bore and Stroke	mm×mm	102x118
Displacement	L	3.856
Compression Ratio	17:1	
Combustion System	Direct Injection	
Rotation Viewed from flywheel	Counter Clockwise	
Dry Weight Approx.	kg	502
Dimension Approx. (L*W*H)	mm	1230*840*1275
Crankshaft Centerline Height	mm	330
Oil Capacity	L	12
Coolant Capacity - Engine + Heat Exchanger	L	25



MODEL

CH4-102-EC

Engine Equipment	Standard	Optional
Air Cleaner	Drip proof	N/A
Alternator	24V-DC, 35 Amps with Belt Guard	N/A
Coupling	Bare Flywheel	N/A
Engine Heater	220V-AC	110V-AC
Exhaust Flex Connection	DN65	N/A
Exhaust Protection	Metal Guard	N/A
Flywheel Housing	SAE 3	N/A
Flywheel Power Take Off	SAE 11.5	N/A
Fuel Connections	Flexible hoses according ISO 15540	N/A
Fuel Filter	Full flow, cartridge type	N/A
Governor, Speed	Constant speed, mechanical	N/A
Heat Exchanger	Shell and Tube Type	N/A
Instrument Panel	Build on Engine	N/A
Junction Box	Integrated in control panel	N/A
Lube Oil Cooler	Jacket Water Cooled	N/A
Lube Oil Filter	Full flow, cartridge type	N/A
Lube Oil Pump	Gear Driven, Gear Type	N/A
Manual Start Control	Dual Manual Start Contactors	N/A
Overspeed Control	Electronic instrument panel, test on instrument panel	N/A
Raw Water Cooling Loop w/ Alarms	Galvanized	Seawater (All 316 SS)
Raw Water Solenoid Operation	Automatic from Fire Pump Controller and from Engine Instrument Panel (for Horizontal Fire Pump Applications)	N/A
Run - Stop Control	On Instrument Panel with Control Position Warning Light	N/A
Starters	24V-DC, 4.5KW	N/A
Throttle Control	Adjustable speed control	N/A
Water Pump	Centrifugal Type, Gear Driven	N/A
All data is based on the engine operating with fuel system, lubricating oil pump, air cleaner, and alternator; not included are compressor, fan, optional equipment, and driven components.;Data is based on operation at SAE standard J1394 conditions of 300ft (91,4m) altitude, 29.61 in.(752mm) Hg dry barometer, and 77°F (25°C) intake air temperature, using 0# diesel fuel follow the standard GB 252-2011.		
Altitude above which output should be Limited	m (ft.)	91 (300)
Correction Factor per 305m.(1,000ft.) above Altitude Limit		3%
Temperature above which output should be Limited	°C (°F)	25 (77)
Correction Factor per 5.6°C (10°F) above Temperature Limit		1%
Remark:		
1.All data certified within 5%; 2.TBD - To Be Determined; 3.N/A - Not Applicable;		



Engine Data Sheet

Engine Model	CH4-102-EC	Date	2022/9/16	
Drawing No.	CH4-102-EC.00	Performance Curve No.	C04102C	
Rated Power	77 HP @ 2950 RPM	Reference No.	14DS001E	
	57 KW @ 2950 RPM	Version	A	
GENERAL ENGINE DATA				
Type		4 Cycle; In-line; water cooled; 4 Cylinder		
Aspiration		Natural		
Bore and Stroke		mm×mm	102x118	
Cylinder Liner Type		<input type="checkbox"/> Wet	<input checked="" type="checkbox"/> Dry	
Displacement		L	3.86	
Compression Ratio		17:1		
Firing Order		1-3-4-2		
Combustion System		Direct Injection		
Rotation Viewed from front of engine		CW		
Valves Per Cylinder		Intake :1 Exhaust :1		
Valves lashes at cold	Intake	mm	0.4	
	Exhaust	mm	0.4	
Ignition Type		Compression(Diesel)		
Charge Air Cooling Type		Raw Water		
Dry Weight Approx.		kg	502	
Dimension Approx. (L*W*H)		mm	1230*840*1275	
Flywheel/ Flywheel House Dimension		11.5"/ SAE 3		
EXHAUST SYSTEM				
Exhaust Gas Temp. at max. rating/power		℃	600	
Exhaust Gas Flow at Max. Rating output		m³/h	1955	
Max. Allowable Back Pressure		kpa	10	
Minimum Exhaust Pipe Diameter		DN	65	
AIR INTAKE SYSTEM				
Air Cleaner Type		Dry Type, Disposable		
Air Flow at Max. Rating speed		m³/h	600	
Air Inlet Restriction Dirty		kpa	6	
Air Inlet Restriction Clean		kpa	3	
LUBRICATION SYSTEM				
Oil Capacity		L	12	
Max. Sump Oil Temp.		℃	120	
Normal Operating Oil Pressure Range		bars	3~6	
Oil Pressure at Idle		bar	>1	
COOLING SYSTEM				
Coolant Capacity - Engine + Heat Exchanger		L	25	
Thermostat Range	Start Open	℃	76	
	Full Open	℃	86	
Coolant Pressure Cap		bar	0.9	
Max. Engine Coolant Temp.		℃	98	
Engine Coolant Flow at Full Load		m³/h	9.6	
Raw Water Cooling Capacity		m³/h	4.2	
Raw Water Pressure		bar	2.5	



Engine Data Sheet

	Min. Raw Water Temp.		°C	15.6
	Raw Water Pipe Size	Raw Water Inlet	G3/4"	
		Raw Water Outlet	G1"	
HEATER SYSTEM				
	Wattage		W	2000
	Voltage AC		V	220
ELECTRICAL SYSTEM-DC				
	System Voltage(Nominal)		V	24
	Starter motor		Kw	4.5
	Recommended Battery Capacity		AH	150
	Cold Cranking Amperes @ -18°C (0°F)		CCA	900
	Reserve Capacity (RC)		Min	290
	Charging Alternator Output		Amps	35
	Max. Starter Cranking Amps @4.5°C (0°F)		Amps	245
	Min. Cranking Speed Required for Unaided Cold Start		rpm	220
FUEL SYSTEM				
	Injection Pump			
	Injection Advance Angle		°	14~15
	Minimum Supply line Size		mm	10
	Minimum Return line Size		mm	10
	Fuel Management Control		Mechanical	
	Max. Fuel Consumption		g/kw,h	240
	Idle Speed		rpm	790±40
	Max. Governed Speed		rpm	3245
	Maximum allowable fuel height above fuel pump		m	3
	Governed Speed Rate		%	<10
Engine Performance Data				
	Estimated free field soud pressure level at 1 meter with full-load governed speed(Includes Noise from: exhaust; Cooling System and Driven Components)		dBa	110
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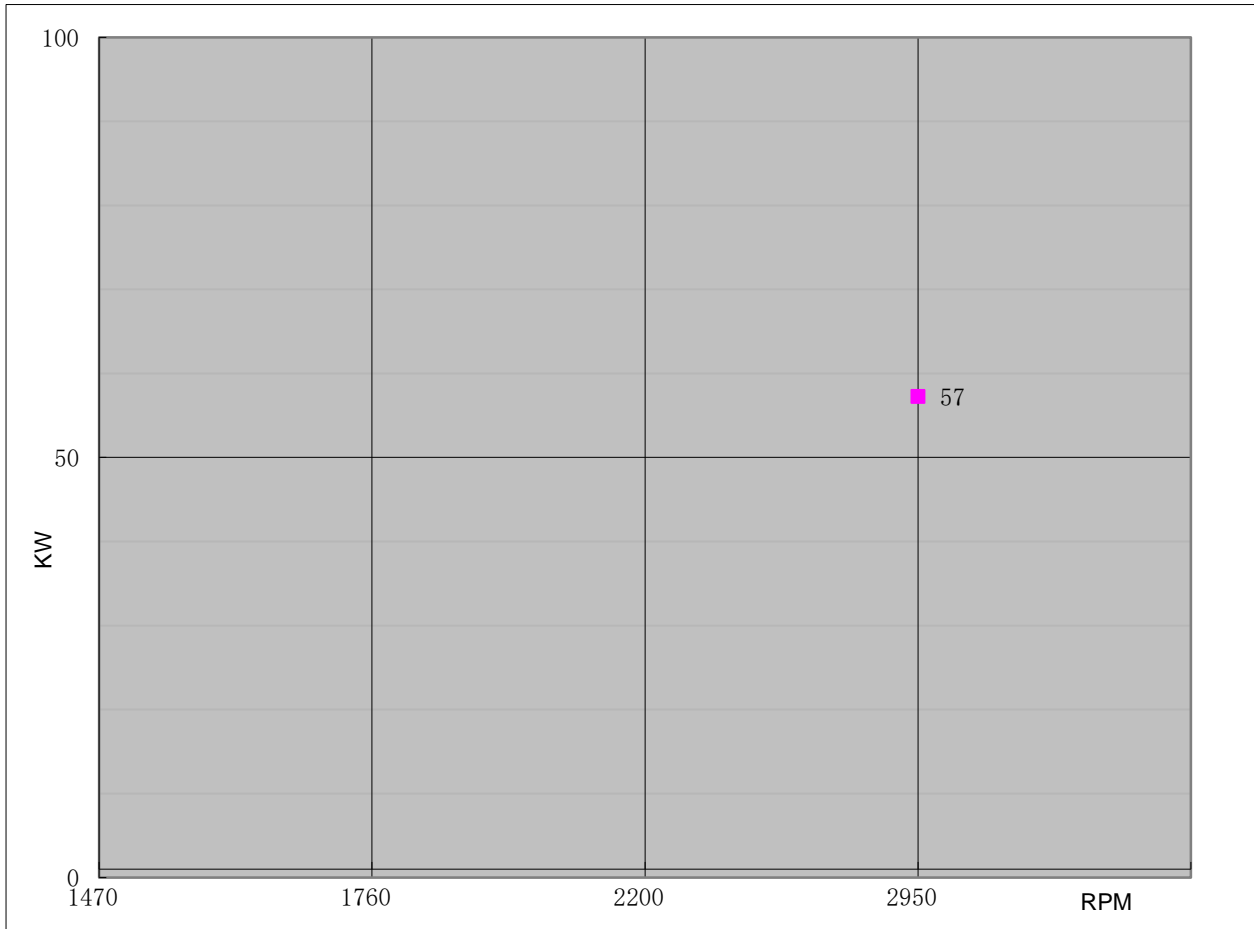
Remark:

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Performance Curve

Engine Model		CH4-102-EC		Curve No.		C04102C	Date	2022/9/16
Displacement	3.86	L	Aspiration	Natural		Power Standard		UL/FM
Bore	102	mm	Cylinder Qty.	4, In-Line;		57	KW @ 2950 r/min	
Stroke	118	mm	Fuel System	Mechanical		77	HP @ 2950 r/min	



Torque		
Speed	Torque	
RPM	N-m	lb-ft.
1470		
1760		
2200		
2950	185	137

Output Power		
Speed	Output Power	
RPM	KW	HP
1470		
1760		
2200		
2950	57	77

Fuel Consumption		
Speed	Consumption	
RPM	g/KW-HR	lb/BHP-HR
1470		
1760		
2200		
2950	240	0.395

REV: A