

Engine Specification Sheet



Model	Ratings HP (kW) @ Rated speed rpm
	2950
CH4-108-E	94 (70)

ENGINE SPECIFICATIONS		
Type	4 Cycle; In-line; water cooled; 4 Cylinder	
Aspiration	Naturally	
Bore and Stroke	mm×mm	108×118
Displacement	L	4.32
Compression Ratio	17:1	
Combustion System	Direct Injection	
Rotation Viewed from flywheel	Counter Clockwise	
Dry Weight Approx.	kg	530
Dimension Approx. (L×W×H)	mm	1245x900x1075
Crankshaft Centerline Height	mm	330
Oil Capacity	L	12
Coolant Capacity - Engine + Heat Exchanger	L	15



MODEL

CH4-108-E

Engine Equipment	Standard	Optional	
Air Cleaner	Drip proof	N/A	
Alternator	24V-DC, 27 Amps with BeltGuard	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 10	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	CH4-108-E	Date	2018/7/10	
Drawing No.	CH4-108-E.00	Performance Curve No.	C04108	
Rated Power	94hp @ 2950 rpm	Reference No.	16DS001E	
	70 kw @2950 rpm	Version	A	
GENERAL ENGINE DATA				
Type		4 Cycle; In-line; water cooled; 4 Cylinder		
Aspiration		Naturally		
Bore and Stroke		mmxmm	108x118	
Cylinder Liner Type		<input type="checkbox"/> Wet <input checked="" type="checkbox"/> Dry		
Displacement		L	4.32	
Compression Ratio		17:01		
Firing Order		1-3-4-2		
Combustion System		Direct Injection		
Rotation Viewed from flywheel		Counter Clockwise		
Valves Per Cylinder		Intake :1 Exhaust :1		
Valves lashes at cold	Intake	mm	0.35~0.40	
	Exhaust	mm	0.40~0.45	
Ignition Type		Compression(Diesel)		
Charge Air Cooling Type		N/A		
Weight (Fuel Pump Configuration)		kg	530	
Dimension (L*W*H)(Fuel Pump Configuration)		mm	1245x900x1075	
Flywheel/ Flywheel House Dimension		10"/ SAE 3		
Torque at rated RPM		N.m	249	
EXHAUST SYSTEM				
Exhaust Gas Temp. at max rating/power		℃	≤630	
Exhaust Gas Flow at max output		kg/h	575	
Max. Allowable Back Pressure		kpa	10	
Minimum Exhaust Pipe Diameter		DN	65	
AIR INTAKE SYSTEM				
Air Cleaner Type		Dry Type, Disposable		
Air Flow		m³/h	430	
Air Inlet Restriction Dirty		kpa	≤5	
Air Inlet Restriction Clean		kpa	≤2.5	
LUBRICATION SYSTEM				
Oil Capacity (Only Engine)		L	12	
Max. Sump Oil Temp.		℃	120	
Normal Operating Oil Pressure Range		bars	2.5-4.5	
Oil Pressure at Idle		bar	≥1.2	
COOLING SYSTEM				
Coolant Capacity - Engine + Heat Exchanger		L	15	
Thermostat Range	Start Open	℃	72	
	Full Open	℃	82	
Coolant Pressure Cap		bar	0.9	
Max. Engine Coolant Temp.		℃	≤95	



Engine Data Sheet

Engine Coolant Flow at Full Load		m ³ /h	7
Min./Max. Raw Water Cooling Capacity		m ³ /h	2.3~4.2
Min. /Max. Raw Water Pressure		bar	1~3
Min.Raw Water Temp.		℃	15.6
	Raw Water Pipe Size	Raw Water Inlet	G1/2"
		Raw Water Outlet	G3/4"
HEATER SYSTEM			
Wattage		W	1190
Voltage AC		V	240
ELECTRICAL SYSTEM-DC			
System Voltage(Nominal)		V	24
Starter motor		Kw	4.5
Recommended Battery Capacity		AH	120
Cold Cranking Amperes @ -18℃ (0°F)		CCA	638
Reserve Capacity (RC)		Min	224
Charging Alternator Output		Amps	27
Starter Cranking Amps, Rolling-@4.5℃ (0°F)		Amps	295
Min. Cranking Speed Required for Unaided Cold Start		rpm	412
FUEL SYSTEM			
Injection Pump		In-line, Plunger type	
Injection Advance Angle		°	18±1
Minimum Supply line Size		mm	10
Minimum Return line Size		mm	10
Fuel Management Control		Mechanical	
Fuel Consumption @2950rpm		g/kw.h	242
Idle Speed		rpm	800
Max. Governed Speed		rpm	3300
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	114
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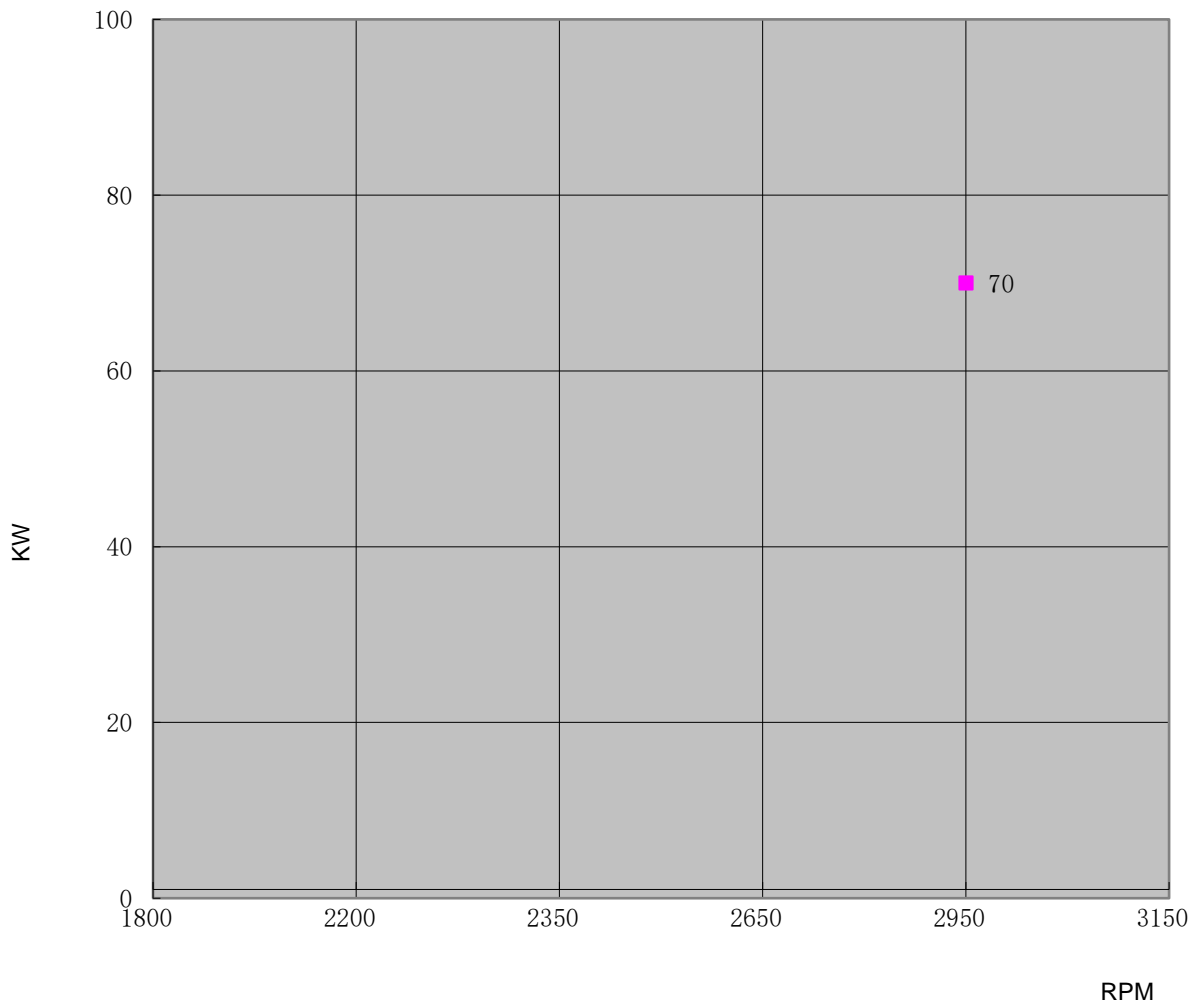
Remark:

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- 3.N/A - Not Applicable;



DIESEL ENGINE

Engine Model		CH4-108-E		Curve No.		C04108	Date	2018/7/9
Displacement	4.32	L	Aspiration	Naturally		Power Standard		UL/FM
Bore	108	mm	Cylinder Qty.	4		70 KW @ 2950 r/min		
Stroke	118	mm	Fuel System	In-Line; Mechanical		94 HP @ 2950 r/min		



Torque		
Speed	Torque	
RPM	N-m	lb-ft.
1800		
2200		
2350		0
2650		0
2950	249	184
3150		0

Output Power		
Speed	Output Power	
RPM	KW	HP
1800		
2200		
2350		
2650		
2950	70	94
3150		

Fuel Consumption		
Speed	Consumption	
RPM	g/KW-HR	lb/BHP-HR
1800		
2200		
2350		
2650		
2950	242	0.398
3150		

REV: A