CHESTER

MODEL
CH4-90-EC

Engine Specification Sheet

Model	Ratings HP (kW) @ Rated speed rpm
	2950
CH4 -90-EC	39 (29)

ENGINE SPECIFICATIONS		
Type	4 Cycle; In-line; water cooled; 4 Cylinder	
Aspiration	Natural	
Bore and Stroke	mm×mm	90x100
Displacement	L	2.54
Compression Ratio	17.5:1	
Combustion System	Direct Injection	
Rotation Viewed from flywheel	Counter Clockwise	
Dry Weight Approx.	kg	400
Dimension Approx. (L*W*H)	mm	1205*790*1015
Crankshaft Centerline Height	mm	330
Oil Capacity	L	7
Coolant Capacity - Engine + Heat Exchanger	L	15

Engine Equipment	Standard	Optional
Air Cleaner	Drip proof	N/A
Alternator	24V-DC, 25 Amps with Belt Guard	N/A
Coupling	Bare Flywheel	N/A
Engine Heater	220V-AC	110V-AC
Exhaust Flex Connection	DN50	N/A
Exhaust Protection	Metal Guard	N/A
Flywheel Housing	SAE 4	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

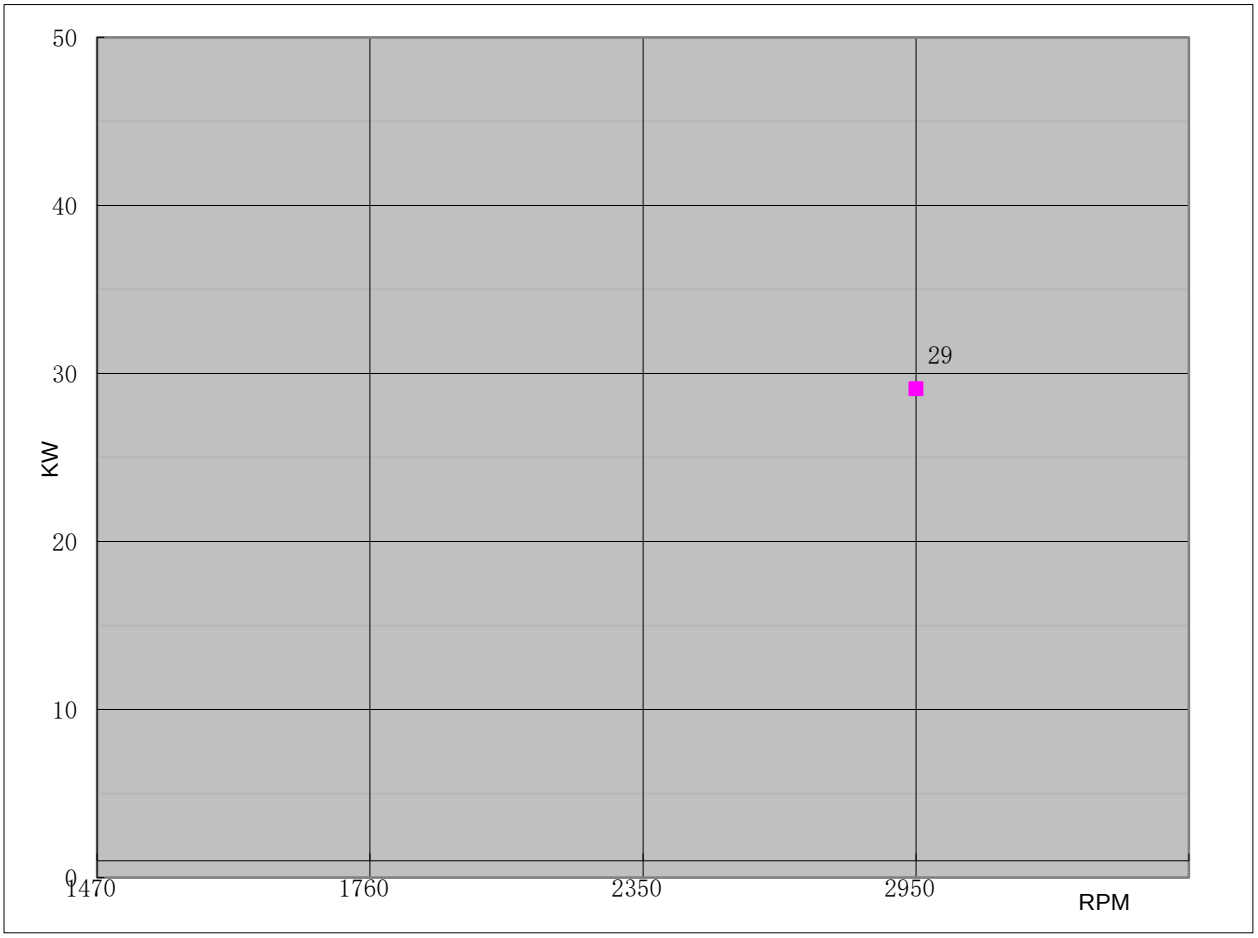
Engine Model	CH4-90-EC	**Date**	**2022/6/16**
Drawing No.	CH4-90-EC.**00**	**Performance Curve No.**	**C0490C**
Rated Power	**39 HP @ 2950 RPM**	**Reference No.**	**14DS001E**
	29 KW @ 2950 RPM	**Version**	**A**

GENERAL ENGINE DATA				
	Type		4 Cycle; In-line; water cooled; 4 Cylinder	
	Aspiration		Natural	
	Bore and Stroke		mm×mm	90x100
	Cylinder Liner Type		☑ Wet	☐ Dry
	Displacement		L	2.54
	Compression Ratio		17.5:1	
	Firing Order		1-3-4-2	
	Combustion System		Direct Injection	
	Rotation Viewed from front of engine		CW	
	Valves Per Cylinder		Intake :1 Exhuast :1	
	Valves lashes at cold	Intake	mm	0.3
		Exhaust	mm	0.3
	Ignition Type		Compression(Diesel)	
	Charge Air Cooling Type		Raw Water	
	Weight Approx.		kg	400
	Dimension Approx. (L*W*H)		mm	1205*790*1015
	Flywheel/ Flywheel House Dimension		10"/ SAE 4	
EXHAUST SYSTEM				
	Exhaust Gas Temp. at max. rating/power		℃	500
	Exhaust Gas Flow at Max. Rating output		m^3/h	1060
	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		m^3/h	400
	Air Inlet Restriction Dirty		kpa	6
	Air Inlet Restriction Clean		kpa	3
LUBRICATION SYSTEM				
	Oil Capacity		L	7
	Max. Sump Oil Temp.		℃	120
	Normal Operating Oil Pressure Range		bars	2~4.5
	Oil Pressure at Idle		bar	>1
COOLING SYSTEM				
	Coolant Capacity - Engine + Heat Exchanger		L	15
	Thermostat Range	Start Open	℃	75
		Full Open	℃	85
	Coolant Pressure Cap		bar	0.9
	Max. Engine Coolant Temp.		℃	98
	Engine Coolant Flow at Full Load		m^3/h	4.8
	Raw Water Cooling Capacity		m^3/h	2.4-6
	Raw Water Pressure		bar	2

Performance Curve

Engine Model	CH4-90-EC	Curve No.	C0490CF	Date	2022/5/12

Displacement	2.54 L	Aspiration	Natural	Power Standard	UL/FM
Bore	90 mm	Cylinder Qty.	4，In-Line;	29 KW @ 2950 r/min	
Stroke	100 mm	Fuel System	Mechanical	39 HP @ 2950 r/min	



Torque		
Speed	Torque	
RPM	N-m	lb-ft.
1470		
1760		
2350		
2950	94	69

Output Power		
Speed	Output Power	
RPM	KW	HP
1470		
1760		
2350		
2950	29	39

Fuel Consumption		
Speed	Consumption	
RPM	g/KW-HR	lb/BHP-HR
1470		
1760		
2350		
2950	265	0.436

REV: A

Engine Data Sheet

Min. Raw Water Temp.		℃	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℃ (0°F)		CCA	900
Reserve Capacity (RC)		Min	290
Charging Alternator Output		Amps	25
Max. Starter Cranking Amps @4.5℃ (0°F)		Amps	265
Min. Cranking Speed Required for Unaided Cold Start		rpm	370
FUEL SYSTEM			
Injection Pump			
Injection Advance Angle		°	16±1
Minimum Supply line Size		mm	8
Minimum Return line Size		mm	8
Fuel Management Control		Mechanical	
Max. Fuel Consumption		g/kw,h	265
Idle Speed		rpm	940±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	108
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