CHESTER

MODEL

CH4-105-E

Engine Specification Sheet

Model	Ratings HP (kW) @ Rated speed rpm
	2950
CH4-105-E	86 (64)

ENGINE SPECIFICATIONS		
Type	4 Cycle; In-line; water cooled; 4 Cylinder	
Aspiration	Naturally	
Bore and Stroke	mm×mm	105×118
Displacement	L	4.09
Compression Ratio	17:1	
Combustion System	Direct Injection	
Rotation Viewed from flywheel	Counter Clockwise	
Dry Weight Approx.	kg	510
Dimension Approx. (L*W*H)	mm	1245x900x1075
Crankshaft Centerline Height	mm	330
Oil Capacity	L	12
Coolant Capacity - Engine + Heat Exchanger	L	15

Engine Equipment	Standard	Optional
Air Cleaner	Drip proof	N/A
Alternator	24V-DC, 27 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 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%	

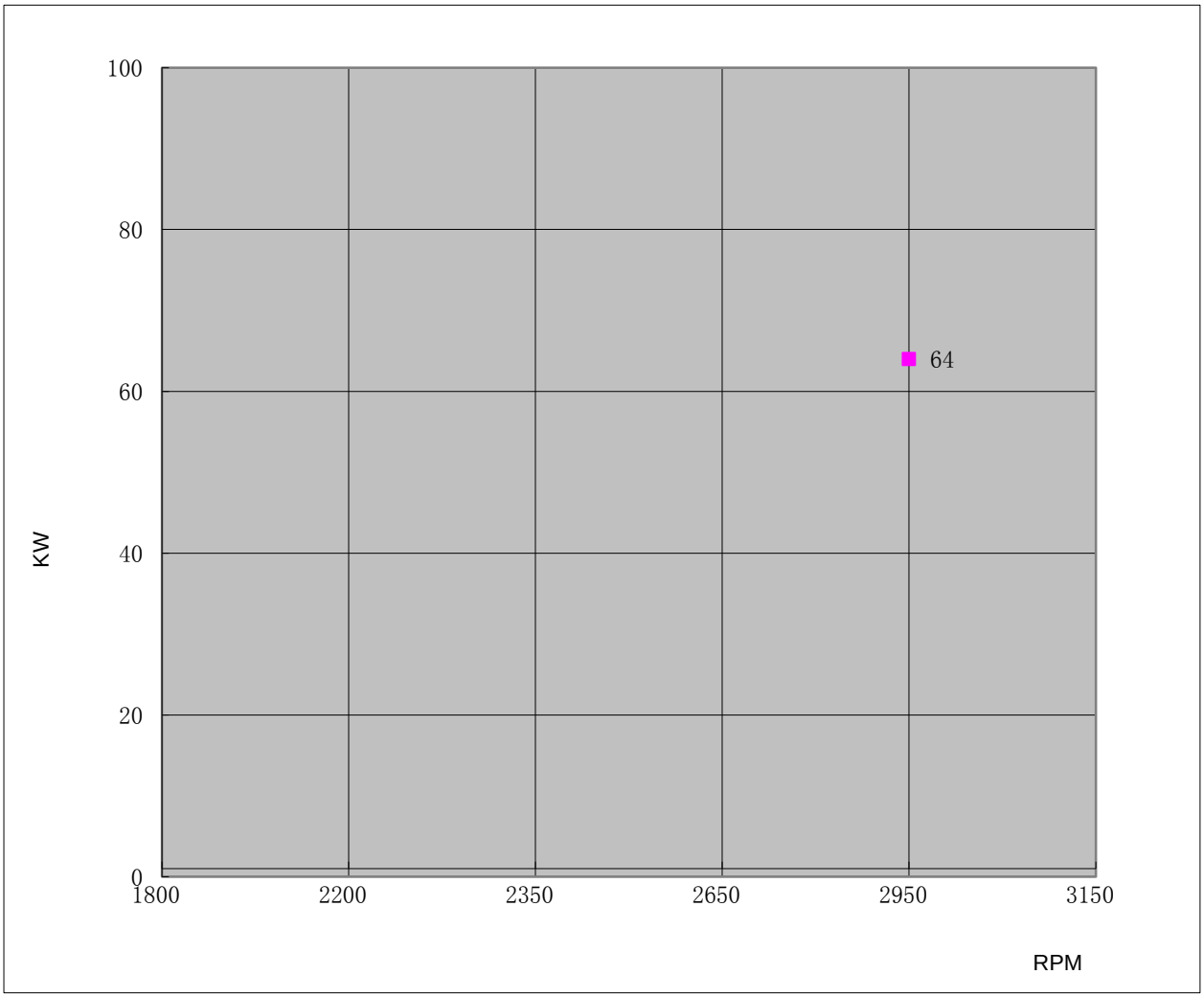
Remark:

1.All data certified within 5%;
2.TBD - To Be Determined;
3.N/A - Not Applicable;

DIESEL ENGINE

Engine Model	CH4-105-E	Curve No.	C04105	Date	2017/7/20

Displacement	4.09 L	Aspiration	Naturally	Power Standard	UL/FM
Bore	105 mm	Cylinder Qty.	4	64 KW @ 2950 r/min	
Stroke	118 mm	Fuel System	In-Line; Mechanical	86 HP @ 2950 r/min	



Torque

Speed	Torque	
RPM	N-m	lb-ft.
1800		
2200		
2350		0
2650		0
2950	232	171
3150		0

Output Power

Speed	Output Power	
RPM	KW	HP
1800		
2200		
2350		
2650		
2950	64	86
3150		

Fuel Consumption

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

REV: A

Engine Data Sheet

Engine Modle	**CH4-105-E**	**Date**	**2018/3/12**
Drawing No.	**CH4-105-E.00**	**Performance Curve No.**	**C04105**
Rated Power	**86 bhp @ 2950 rpm**	**Reference No.**	**16DS001E**
	64 kw @2950 rpm	**Version**	**A**

GENERAL ENGINE DATA				
	Type		4 Cycle; In-line; water cooled; 4 Cylinder	
	Aspiration		Naturally	
	Bore and Stroke		mm×mm	105×118
	Cylinder Liner Type		☐ Wet	☑ Dry
	Displacement		L	4.09
	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 Exhuast :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	510
	Dimension (L*W*H)(Fuel Pump Configuration)		mm	1245x900x1075
	Flywheel/ Flywheel House Dimension		10"/ SAE 3	
	Torque at rated RPM		N.m	232
EXHAUST SYSTEM				
	Exhaust Gas Temp. at max rating/power		℃	≤630
	Exhaust Gas Flow at max output		kg/h	410
	Max. Allowable Back Pressure		kpa	10
	Minimum Exhaust Pipe Diameter		DN	65
AIR INTAKE SYSTEM				
	Air Cleaner Type		Dry Type, Disposable	
	Air Flow		m^3/h	400
	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℃ (0^0F)		CCA	638
Reserve Capacity (RC)		Min	224
Charging Alternator Output		Amps	27
Starter Cranking Amps, Rolling-@4.5℃（0°F）		Amps	290
Min. Cranking Speed Required for Unaided Cold Start		rpm	380
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	108
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