

G3520H

GAS ENGINE SITE SPECIFIC TECHNICAL DATA HE EM0912 WO PUMPS



GENSET APPLICATION

ENGINE SPEED (rpm): 1500
 COMPRESSION RATIO: 12.1:1
 AFTERCOOLER TYPE: SCAC
 AFTERCOOLER - STAGE 2 INLET (°F): 118
 AFTERCOOLER - STAGE 1 INLET (°F): 192
 JACKET WATER OUTLET (°F): 210
 ASPIRATION: TA
 COOLING SYSTEM: JW+OC+1AC, 2AC+GB
 CONTROL SYSTEM: ADEM4 W/ IM
 EXHAUST MANIFOLD: DRY
 COMBUSTION: LOW EMISSION
 NOx EMISSION LEVEL (g/bhp-hr NOx): 1.0
 SET POINT TIMING: 22

RATING STRATEGY:
 RATING LEVEL:
 FUEL SYSTEM:

HIGH EFFICIENCY
 CONTINUOUS
 CAT LOW PRESSURE
 WITH AIR FUEL RATIO CONTROL

SITE CONDITIONS:

FUEL: Nat Gas
 FUEL PRESSURE RANGE(psig): 2.0-5.0
 FUEL METHANE NUMBER: 84.8
 FUEL LHV (Btu/scf): 905
 ALTITUDE(ft): 500
 MAXIMUM INLET AIR TEMPERATURE(°F): 77
 STANDARD RATED POWER: 3468 bhp@1500rpm
 POWER FACTOR: 1.0
 VOLTAGE(V): 4160-13800

RATING	NOTES	LOAD	MAXIMUM RATING			
			100%	100%	75%	50%
GENSET POWER (WITH GEARBOX, WITHOUT FAN)	(1)(2)	ekW	2500	2500	1875	1250
GENSET POWER (WITH GEARBOX, WITHOUT FAN)	(1)(2)	kVA	2500	2500	1875	1250
ENGINE POWER (WITHOUT GEARBOX, WITHOUT FAN)	(2)	bhp	3467	3467	2607	1756
INLET AIR TEMPERATURE		°F	77	77	77	77
GENERATOR EFFICIENCY	(1)	%	97.5	97.5	97.2	96.2
GENSET EFFICIENCY (ISO 3046/1)	(3)(4)	%	45.0	45.0	44.2	42.3
THERMAL EFFICIENCY	(3)(5)	%	41.0	41.0	42.4	44.8
TOTAL EFFICIENCY	(3)(6)	%	86.0	86.0	86.6	87.1

ENGINE DATA							
GENSET FUEL CONSUMPTION (ISO 3046/1)	(7)	Btu/ekW-hr	7583	7583	7728	8073	
GENSET FUEL CONSUMPTION (NOMINAL)	(7)	Btu/ekW-hr	7844	7844	7995	8352	
ENGINE FUEL CONSUMPTION (NOMINAL)	(7)	Btu/bhp-hr	5655	5655	5749	5945	
AIR FLOW (@inlet air temp, 14.7 psia) (WET)	(8)	ft3/min	6294	6294	4668	3125	
AIR FLOW (WET)	(8)	lb/hr	27907	27907	20698	13856	
FUEL FLOW (60°F, 14.7 psia)		scfm	361	361	276	192	
INLET MANIFOLD PRESSURE	(9)	in Hg(abs)	134.1	134.1	100.2	68.3	
EXHAUST TEMPERATURE - ENGINE OUTLET	(10)	°F	742	742	806	905	
EXHAUST GAS FLOW (@engine outlet temp, 14.5 psia) (WET)	(11)	ft3/min	15152	15152	11853	8579	
EXHAUST GAS MASS FLOW (WET)	(11)	lb/hr	28896	28896	21454	14383	
MAX INLET RESTRICTION	(12)	in H2O	14.45	14.45	10.06	7.30	
MAX EXHAUST RESTRICTION	(12)	in H2O	20.06	20.06	11.29	5.37	

EMISSIONS DATA - ENGINE OUT							
NOx (as NO2)	(13)(14)	g/bhp-hr	1.00	1.00	1.00	1.00	
CO	(13)(14)	g/bhp-hr	1.52	1.52	1.45	1.40	
THC (mol. wt. of 15.84)	(13)(14)	g/bhp-hr	2.25	2.25	2.34	2.26	
NMHC (mol. wt. of 15.84)	(13)(14)	g/bhp-hr	0.32	0.32	0.33	0.32	
NMNEHC (VOCs) (mol. wt. of 15.84)	(13)(14)(15)	g/bhp-hr	0.25	0.25	0.26	0.25	
HCHO (Formaldehyde)	(13)(14)	g/bhp-hr	0.20	0.20	0.20	0.20	
CO2	(13)(14)	g/bhp-hr	395	395	402	410	
EXHAUST OXYGEN	(13)(16)	% DRY	9.7	9.7	9.4	8.9	

HEAT REJECTION							
LHV INPUT	(17)	Btu/min	326770	326770	249786	173958	
HEAT REJ. TO JACKET WATER (JW)	(18)	Btu/min	33728	33728	28822	23700	
HEAT REJ. TO ATMOSPHERE	(18)	Btu/min	4321	4321	3606	2900	
HEAT REJ. TO LUBE OIL (OC)	(18)	Btu/min	13134	13134	11788	10138	
HEAT REJECTION TO EXHAUST (LHV TO 248°F)	(18)	Btu/min	62126	62126	51770	39543	
HEAT REJ. TO A/C - STAGE 1 (1AC)	(18)(19)	Btu/min	24945	24945	13238	4490	
HEAT REJ. TO A/C - STAGE 2 (2AC)	(18)(19)	Btu/min	16118	16118	10977	6013	
HEAT REJECTION FROM GEARBOX (GB)	(18)	Btu/min	1162	1162	873	588	

COOLING SYSTEM SIZING CRITERIA							
TOTAL JACKET WATER CIRCUIT (JW+OC+1AC)	(20)	Btu/min	79069	79069			
TOTAL STAGE 2 AFTERCOOLER CIRCUIT (2AC+GB)	(20)	Btu/min	18149	18149			
HEAT REJECTION TO EXHAUST (LHV TO 248°F)	(20)	Btu/min	68339	68339			
A cooling system safety factor of 0% has been added to the cooling system sizing criteria.							

MINIMUM HEAT RECOVERY							
TOTAL JACKET WATER CIRCUIT (JW+OC+1AC)	(21)	Btu/min	64560	64560			
TOTAL STAGE 2 AFTERCOOLER CIRCUIT (2AC+GB)	(21)	Btu/min	16415	16415			
HEAT REJECTION TO EXHAUST(LHV TO 248°F)	(21)	Btu/min	55886	55886			

CONDITIONS AND DEFINITIONS

Engine rating obtained and presented in accordance with ISO 3046/1, adjusted for fuel, site altitude and site inlet air temperature. 100% rating at maximum inlet air temperature is the maximum engine capability for the specified fuel at site altitude and maximum site inlet air temperature. Maximum rating is the maximum capability at the specified aftercooler inlet temperature for the specified fuel at site altitude and reduced inlet air temperature. Lowest load point is the lowest continuous duty operating load allowed. No overload permitted at rating shown.

For notes information consult page three.