IVECO aifo

G

GAS GENSET

G.E. 8281 SRG 85

NATURAL GAS

Generating set performance

	1500 rpm				1800 rpm				
	110%	100%	75%	50%	110%	100%	75%	50%	
Peak efficiency net rated output	275	250			300	260			kVA
Peak efficiency net active power output at 0,8 p.f.	220	200			240	210			kW
Lean burn net rated output (*)	-	210			-	238			kVA
Lean burn net active power output at 0,8 p.f.	-	170			-	190			kW
Voltage available (L - L)	190 to 440				190 to 480				V

(*) According to TA-Luft emissions rule

Prime mover performance

Peak efficiency power	246	225	171	119	269	235	182	126	kW
Lean burn power	-	190	146	100	-	213	162	113	kW
Mean piston speed	6,5				7,8				m/s

Derating

(see general genset installation manual)

Prime mover data

Type	Four stroke cycle	
Induction type	TCA air / water	
Cylinders, number and arrangement	8V	
Bore x Stroke	145 x 130	mm
Total displacement	17,2	l
Cooling system	closed circuit	
Exhaust manifold pattern	wet	
Speed governor	electronic	
Max speed drop steady conditions	isochronous	
Engine rotation mass moment of inertia (less flywheel)	1,27	kgm²
Moment of inertia of flywheel	2,74	kgm²
Engine rotation (viewed facing flywheel)	CCW	
Compression ratio	11:1	

Lubrication system

Total lube oil capacity (including filters)	~56	l
Oil sump capacity: min	~26,5	l
max	~44	l
Lube oil specifications	echnical Data	
Maximum oil temperature	120	°C
Minimum oil pressure at rated speed	3,43	bar
Max Specific lube oil consumption	0,7% max of gas consumption	

1500 rpm				1800 rpm			
110%	100%	75%	50%	110%	100%	75%	50%

Intake and exhaust system

Maximum allowable intake restriction with clean air filter	250							mmH_2O
Maximum allowable intake restriction with dirty air filter	500							mmH_2O
Air filter type	dry, paper cartridge							
Maximum allowable back pressure in exhaust system	500							mmH_2O
Charge pressure (peak efficiency)		0,65				0,83		bar
Charge pressure (lean burn)		0,72				0,87		bar

Carburation

Venturi based air/gas mixer and zero pressure governor. Interfaceable with automatic lambda control system

Ignition

Digital, single firing On request interfaceable with knocking control system

Electric system

Breakaway current	1670	A
Cranking motor rating	6	kW
Minimum recommended battery capacity	2 x 150	Ah
Auxiliary voltage	24	V
Alternator with voltage electronic control unit (negative earth)	28V, 30A	
Terminal connection board	Standard	

Cooling system

Coolant capacity (engine only)	~50							l
Coolant capacity (engine + radiator)	~175							l
Coolant pump flow rate		24				30		m^3/h
Max allowable pressure drop on external water circuit		0,1				0,12		bar
Max static pressure on exhaust side of radiator	10							mmH_2O
Fan power consumption	-				-			kW
Electric fan power consumption	11				11			kW
Fan air flow	10				10			m^3/s
Max engine outlet jacket water temperature (alarm)	98							°C
Recommended coolant	50% water, 50% glycol							
Radiator core size B x H	1150 x 1142							mm
Water pressure drop in the jacket water coolant circuit at minimum coolant flow (#)	0,45							bar
Minimum allowable water coolant flow to intercooler (#)	8							m^3/h
Max pressure drop on external intercooler water circuit (#)	0,57							bar
Max inlet water temperature to intercooler (#)	54							°C
Max inlet water temperature to oil cooler (#)	80							°C

(#) to utilize only with alternative exchanger (no std radiator)

1500 rpm				1800 rpm			
110%	100%	75%	50%	110%	100%	75%	50%

Synchronous generator data

Poles	4	
Phases	3 + N	
Standard winding connections	STAR	
Windings treatment	and saline climates	
Stator/rotor impregnation	class H	
Temperature rise	ding to class H	
Frame mounting	B2	
Enclosure (according to IEC 34-5 Standards)	IP21	
Cooling	air	
Damper windings	rallel (optional)	
Maximum overspeed	2250	min^{-1}
Waveform distorsion	hore than 5%	
Overexcitation device	>3In (optional)	
Exciter	exciter design with solid state	
Voltage regulator	lectronic design	
Steady voltage precision	within ± 1% Vn from no load to full at 0,8 ÷ 1 p.f.	%

Basic data

Installation dimensions (width x length x height)	1300 x 3780 x 1805	mm
Dry weight (with standard accessories)	~3000	kg
Wet weight (with standard accessories)	~3230	kg

Electric control board (only on request)

The manual starting control panel has been designed and built to combine all the instruments control and warnings lights both for the engine and the generator.
The sheet steel made panel is carefully painted for tropical climate and is designed for generator mounting and dust proof application.
The main equipments included on the control panel are the following: three ammeters with CT's; voltmeter; voltmeter selector switch; frequency meter; moulded case triple-pole circuit breaker with termal and magnetic releasesand minimum voltage coil; electronic device for shut-down of the engine in case of HWT, LOP and overspeed; starting key and stop push button; acoustic signal; warning light for: high cooling water temperature, low oil pressure, high oil temperature, battery charging, overspeed, low and high gas pressure, low water level, high supercharged air temperature; outlet power cable terminal box; hours meter; instruments for: water temperature, oil temperature, oil pressure, supercharged air pressure.

	1500 rpm				1800 rpm				
	110%	100%	75%	50%	110%	100%	75%	50%	

Heat balance (Peak efficiency) (§)

Input energy (LHV)	675(100)	633(100)	499(100)	390(100)	776(100)	702(100)	570(100)	447(100)	kW (%)
Work	246(36,4)	224(35,4)	171(34,3)	119(30,6)	269(34,7)	237(33,8)	182(31,9)	126(28,1)	kW (%)
Heat to coolant (water + oil)	224(33,2)	221(34,9)	191(38,3)	176(45,3)	266(34,4)	248(35,4)	216(37,9)	202(45,2)	kW (%)
Heat to exhaust (LHV)	158(23,5)	148(23,4)	109(21,9)	82(21)	183(23,5)	166(23,7)	134(23,5)	102(22,9)	kW (%)
Heat to intercooler	33,1(4,9)	22,7(3,6)	17,4(3,5)	5,2(1,3)	41,9(5,4)	31,4(4,5)	20,9(3,7)	6,3(1,4)	kW (%)
Heat to radiation	13,4(2)	16,7(2,6)	9,9(2)	6,9(1,8)	16,3(2,1)	18,6(2,7)	16,9(3)	10,6(2,4)	kW (%)
Heat to exhaust cooled to 140 °C	115,3	107,6	77,5	56,9	131,1	118,6	95,2	71,5	kW
Max exhaust temperature (after turbine)	408	405	392	375	400	400	395	380	°C
Exhaust gas flow	1185	1117	865	678	1432	1296	1060	842	kg/h
Induction air flow	891,6	841	651	510	1081,4	978,3	800,4	636,3	m^3_N/h
SFC - Specific fuel consumption	9,9	10,2	10,5	11,8	10,4	10,6	11,3	12,8	MJ/kWh
BMEP	11,4	10,4	7,9	5,5	10,4	9,2	7,1	4,9	bar

Heat balance (Lean burn) (§)

Input energy (LHV)	-	570(100)	477(100)	376(100)	-	676(100)	568(100)	451(100)	kW (%)
Work	-	190(33,3)	146(30,5)	100(26,8)	-	213(31,5)	162(28,6)	113(25,1)	kW (%)
Heat to coolant (water + oil)	-	174(30,6)	151(31,7)	145(38,7)	-	220(32,5)	202(35,7)	195(43,3)	kW (%)
Heat to exhaust (LHV)	-	175(30,7)	146(30,7)	113(30)	-	209(30,9)	168(29,6)	122(27)	kW (%)
Heat to intercooler	-	18,3(3,2)	18,3(3,8)	5,5(1,5)	-	18,8(2,8)	20,9(3,7)	6,3(1,4)	kW (%)
Heat to radiation	-	12,7(2,2)	15,5(3,2)	11,6(3,1)	-	15,3(2,3)	13,8(2,4)	14,4(3,2)	kW (%)
Heat to exhaust cooled to 140 °C	-	118	100	75	-	140	115	78	kW
Max exhaust temperature (after turbine)	-	400	395	385	-	395	390	360	°C
Exhaust gas flow	-	1170	980	775	-	1405	1125	865	kg/h
Induction air flow	-	890	745	590	-	1070	850	655	m^3_N/h
SFC - Specific fuel consumption	-	10,8	11,8	13,5	-	11,4	12,6	14,4	MJ/kWh
BMEP	-	8,8	6,8	4,7	-	8,3	6,3	4,4	bar

(§) Indicative average figures depending on installation, setting of speed regulator and carburator