IVECO aifo

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COGENERATION GAS GENSET

G.E. 8281 SRG 75

NATURAL GAS

Generating set performance

	1500 rpm			1800 rpm			
	100%	75%	50%	100%	75%	50%	
Peak efficiency net rated output	262			275			kVA
Peak efficiency net active power output at 0,8 p.f.	210			220			kW
Lean burn net rated output (*)	225			250			kVA
Lean burn net active power output at 0,8 p.f.	180			200			kW
Voltage available (L - L)	190 to 440			190 to 480			V

(*) According to TA-Luft emissions rule

Prime mover performance

Peak efficiency power	225	171	119	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
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	see Technical 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		
100%	75%	50%	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
Max engine return jacket water temperature	75	°C
Max engine outlet jacket water temperature (alarm)	98	°C
Minimum allowable jacket water coolant flow	24	m^3/h
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 inlet water temperature to intercooler	54	°C
Max inlet water temperature to oil cooler	80	°C

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

Synchronous generator data

Poles	4	
Phases	3 + N	
Standard winding connections	STAR	
Windings treatment	for humide and saline climates	
Stator/rotor impregnation	class H	
Temperature rise	according to class H	
Frame mounting	B2	
Enclosure (according to IEC 34-5 Standards)	IP21	
Cooling	air	
Damper windings	for parallel (optional)	
Maximum overspeed	2250	min^{-1}
Waveform distorsion	no more than 5%	
Overexcitation device	for Icc>3In (optional)	
Exciter	brushless rotating exciter design with solid state	
Voltage regulator	static electronic 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)	1150 x 2512 x 1805	mm
Dry weight (with standard accessories)	~2350	kg
Wet weight (with standard accessories)	~2400	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, 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			
	100%	75%	50%	100%	75%	50%	

Heat balance (Peak efficiency) (§)

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