IVECO *aifo*

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COGENERATION GAS GENSET

G.E. 8210 SRG 75

NATURAL GAS

Generating set performance

	1500 rpm			1800 rpm			
	100%	75%	50%	100%	75%	50%	
Peak efficiency net rated output	210			225			kVA
Peak efficiency net active power output at 0,8 p.f.	170			180			kW
Lean burn net rated output (*)	185			185			kVA
Lean burn net active power output at 0,8 p.f.	150			150			kW
Voltage available (L - L)	190 to 440			190 to 480			V

(*) According to TA-Luft emissions rule

Prime mover performance

Peak efficiency power	180	134	90	191	143	95	kW
Lean burn power	159	118	79	158	119	79	kW
Mean piston speed	7,8			9,4			m/s

Derating

(see general genset installation manual)

Prime mover data

Type	Four stroke cycle	
Induction type	TCA air / water	
Cylinders, number and arrangement	6L	
Bore x Stroke	137 X 158	mm
Total displacement	13,8	l
Exhaust manifold pattern	wet	
Speed governor	electronic	
Max speed drop steady conditions	isochronous	
Engine rotation mass moment of inertia (less flywheel)	1,088	kgm²
Moment of inertia of flywheel	2,84	kgm²
Engine rotation (viewed facing flywheel)	CCW	
Compression ratio	12:1	

Lubrication system

Total lube oil capacity (including filters)	27,5	l
Oil sump capacity: min	13,2	l
max	22	l
Lube oil specifications	see Technical Data	
Maximum oil temperature	120	℃
Minimum oil pressure at rated speed	1,96	bar
Max Specific lube oil consumption	0,8% 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	1500					mmH_2O
Charge pressure (peak efficiency)	0,85			1,1		bar
Charge pressure (lean burn)	1			1,2		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	6,6	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)	~30	l
Max engine return jacket water temperature	75	°C
Max engine outlet jacket water temperature (alarm)	98	°C
Minimum allowable jacket water coolant flow	22	m^3/h
Water pressure drop in the jacket water coolant circuit at minimum coolant flow	1,9	bar
Minimum allowable water coolant flow to intercooler	11	m^3/h
Max inlet water temperature to intercooler	54	°C
Max inlet water temperature to oil cooler	-	°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 2397 x 1892	mm
Dry weight (with standard accessories)	~3050	kg
Wet weight (with standard accessories)	~3075	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; outlet power cable terminal box; hours meter; instruments for: water temperature, oil temperature, oil pressure.

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

Heat balance (Peak efficiency) (§)

Input energy (LHV)	519(100)	405(100)	300(100)	592(100)	478(100)	358(100)	kW (%)
Work	180(34,7)	134(33,1)	90(30,1)	191(32,2)	143(29,8)	95(26,6)	kW (%)
Heat to coolant (water + oil)	175(33,8)	154(38)	129(43,1)	199(33,6)	182(38)	153(42,8)	kW (%)
Heat to exhaust (LHV)	129(24,8)	99(24,5)	73(24,2)	154(26)	124(25,9)	93(26)	kW (%)
Heat to intercooler	23,5(4,5)	9,1(2,3)	1,3(0,4)	33,7(5,7)	21,6(4,5)	10,8(3)	kW (%)
Heat to radiation	11,1(2,1)	8,7(2,1)	6,5(2,2)	14,9(2,5)	8,4(1,8)	5,5(1,5)	kW (%)
Heat to exhaust cooled to 140 °C	94,1	73,5	53,9	113	91,8	70	kW
Max exhaust temperature (after turbine)	425	440	444	440	450	460	°C
Exhaust gas flow	915	680	490	1050	825	590	kg/h
Induction air flow	690	510	367	790	620	445	m^3_N/h
SFC - Specific fuel consumption	10,4	10,9	12	11,2	12,1	13,5	MJ/kWh
BMEP	10,4	7,8	5,2	9,2	6,9	4,6	bar

Heat balance (Lean burn) (§)

Input energy (LHV)	525(100)	412(100)	300(100)	570(100)	443(100)	350(100)	kW (%)
Work	159(30,2)	118(28,8)	79(26,3)	158(27,8)	119(26,7)	79(22,5)	kW (%)
Heat to coolant (water + oil)	175(33,3)	159(38,6)	130(43,4)	190(33,4)	160(36,2)	152(43,4)	kW (%)
Heat to exhaust (LHV)	151(28,8)	118(28,7)	82(27,4)	168(29,4)	130(29,4)	105(30)	kW (%)
Heat to intercooler	28,8(5,5)	14,4(3,5)	5,2(1,7)	33,7(5,9)	20,2(4,6)	1,3(0,4)	kW (%)
Heat to radiation	11,8(2,3)	1,6(0,4)	3,4(1,1)	19,7(3,5)	13,8(3,1)	12,9(3,7)	kW (%)
Heat to exhaust cooled to 140 °C	111	87	61	122	95	77	kW
Max exhaust temperature (after turbine)	435	440	445	445	450	460	°C
Exhaust gas flow	1070	825	565	1135	865	670	kg/h
Induction air flow	810	625	425	860	655	505	m^3_N/h
SFC - Specific fuel consumption	11,9	12,5	13,7	12,9	13,5	16	MJ/kWh
BMEP	9,2	6,9	4,6	7,7	5,7	3,8	bar

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