



##	Section Modified and Revision Description	Date	Author
1.0	Document creation	-	Praxmarer P.
2.0	Integration in QMS-template	04.11.2014	Praxmarer P.

**ENGINE TEST CERTIFICATE  
ACCORDING TO**

ISO 3046

**GENSET TEST CERTIFICATE  
ACCORDING TO**

ISO 8528

PASSWORD: CPL JMS 612 F02 POLITECNICO

Order-No.: 22553

Customer:

Design-No.: J T132

CPL CONCORDIA SOC COOP ARL

**GENERATOR SET**

Manufacturer: GEJenbacher Type: JMS 612 GS-N. L Number: 1138669

**ENGINE**Manufacturer: GEJenbacher Type: J 612 GS-F02 Number: 1138677  
Coolant: 40% Glycol - Water Starter: E-Starter Oil: Mobil Pegasus 705**ALTERNATOR**Manufacturer: AVK Type: DIG 130 k/4 Number: 8432119 A101  
Style: IM 1001 Safety Class: IP23 Isolation class: F  
Nominal Power: (Type "F") 2800 kVA cosφ 0,8 Nominal Voltage: 10500 V  
Nominal Current: 154 A Nominal Frequency: 50 Hz**SWITCHGEAR**

Type:	Number:	Manufacturer:	Type:	Number:	Manufacturer:
Module Control	1138667	GEJenbacher			
Interface	1138665	GEJenbacher			

**NOMINAL VALUES OF GEN-SET**

ELECTRIC POWER	2000	kW
ENGINE OUTPUT	2058	kW
NOMINAL VOLTAGE	10500	V
NOMINAL CURRENT	110	A
NOMINAL POWER FACTOR	1,00	cosφ
SPEC. HEAT CONSUMPTION	(+/- 5%) 2,24	kWh kWh
ELECTRICAL EFFICIENCY	(+/- 5%) 43,4	%
HIGH TEMP. CIRCUIT THERMAL OUTPUT	(+/- 8%) 1791	kW 2)
LOW TEMP. CIRCUIT THERMAL OUTPUT	(+/- 8%) 306	kW 2)
MIXTURE TEMPERATURE	50	°C
ENGINE COOLANT DISCHARGE TEMP.	95	°C
SPEED	1500	U min
NOx	250	mg mn <sup>3</sup>
CO (nach Oxikat   after oxid. cat.)	-	mg mn <sup>3</sup>
-	-	

test run,date  
17.03.2015tested by  
Rainer Markus

released Assembly Quality

  
Praxmarer Peter



PASSWORD: CPL JMS 612 F02 POLITECNICO  
ENGINE-TYPE: J 612 GS-F02  
ENGINE-NR.: 1138677

MEASURING-NO.		1	2	3	4	5	6	7	8
ENGINE LOAD	[%]	100	100	50	50	75	75		
TIME	[hh:mm]	15:47	15:50	15:59	16:02	16:11	16:14		
<b>TEST RUN CONDITIONS</b>									
1)									
1	BAROMETRIC PRESSURE	mbar	961,1	961,1	961,1	961,1	961,1	961,1	
2	INTAKE AIR TEMPERATURE	°C	23	23	24	24	24	24	
3	RELATIV AIR HUMIDITY	%	20,0	20,0	20,0	20,0	20,0	20,0	
<b>CAPACITY</b>									
4	ENGINE SPEED	min <sup>-1</sup> RPM	1500	1500	1500	1500	1500	1500	
5	FREQUENCY	Hz	50	50	50	50	50	50	
6	VOLTAGE	V	10626	10631	10629	10630	10671	10675	
7	CURRENT	A	109	109	54	54	81	81	
8	POWER FACTOR	cosφ	1,00	1,00	1,00	1,00	1,00	1,00	
9	ELECTRICAL OUTPUT	kW	2005	2006	996	996	1504	1504	
10	GENERATOR EFFICIENCY	%	97,2	97,2	96,2	96,2	97,0	97,0	
11	ENGINE OUTPUT	kW	2063	2064	1035	1035	1550	1551	
12	Reserve		#	#	#	#	#	#	
13	Reserve		#	#	#	#	#	#	
<b>FUEL CONSUMPTION at</b>									
cos φ = 1,0									
14	GASFLOW RATE	m³ h	61,05	61,03	33,2	33,24	47,4	47,42	
15	GAS PRESSURE	mbar	6864	6865	6895	6895	6877	6878	
16	GAS TEMPERATURE	°C	13,0	13,1	14,3	14,6	14,3	14,2	
17	NORMAL GASFLOW RATE (0°C, 1013,25 mbar)	nm³ h	455,9	455,7	247,7	247,8	352,9	353,2	
18	FUEL CALORIFIC INPUT	kW	4632	4630	2517	2517	3586	3589	
19	SPECIFIC HEAT CONSUMPTION	kWh kWh	2,245	2,243	2,432	2,432	2,313	2,314	
20	ELECTRICAL EFFICIENCY	%	43,3	43,3	39,6	39,6	41,9	41,9	



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ENGINE LOAD	[%]	100	100	50	50	75	75		
TIME	[hh:mm]	15:47	15:50	15:59	16:02	16:11	16:14		
<b>CALCULATION at <math>\cos\phi = 1</math></b>									
21	GENERATOR EFFICIENCY	%	97,2	97,2	96,2	96,2	97,0	97,0	
22	ELECTRICAL OUTPUT	kW	2005	2006	996	996	1504	1504	
23	ELECTRICAL EFFICIENCY	%	43,3	43,3	39,6	39,6	41,9	41,9	
<b>HIGH TEMPERATURE COOLING CIRCUIT 2)</b>									
24	HIGH TEMP. CIRCUIT WATER TEMPERATURE INLET	°C	82,1	81,9	82,0	82,0	82,0	82,0	
25	HIGH TEMP. CIRCUIT WATER TEMPERATURE OUTLET	°C	90,3	90,4	85,8	85,7	87,8	87,8	
26	HIGH TEMP. CIRCUIT WATER FLOW RATE	m <sup>3</sup>  h	118,2	118,2	118,2	118,2	118,2	118,2	
27	HIGH TEMP. CIRCUIT THERMAL OUTPUT	kW	1061	1084	477	480	740	746	
<b>LOW TEMPERATURE COOLING CIRCUIT</b>									
28	LOW TEMPERATURE COOLANT TEMP. INLET	°C	40,5	40,5	40,4	40,4	40,4	40,5	
29	LOW TEMPERATURE COOLANT TEMP. OUTLET	°C	47,6	47,6	45,2	45,1	46,2	46,6	
30	LOW TEMP. CIRCUIT FLOW RATE	m <sup>3</sup>  h	25,0	25,0	25,0	25,0	25,0	25,0	
31	LOW TEMP. CIRCUIT THERMAL OUTPUT	kW	184	184	123	123	149	157	
<b>ENGINE COOLANT</b>									
32	COOLINGWATER TEMP. INLET	°C	89,6	89,6	87,5	87,5	88,5	88,6	
33	COOLINGWATER TEMP.OUTLET	°C	93,5	93,5	90,4	90,4	91,9	92,0	
34	RESERVE	#	#	#	#	#	#	#	
<b>ENGINE OIL</b>									
35	OILTEMP. BEFORE COOLER	°C	92,0	92,0	89,1	89,2	90,6	90,7	
36	OILTEMP. AFTER COOLER	°C	83,2	83,1	82,7	82,7	83,0	83,0	
37	OILPRESSURE BEFORE FILTER	Bar	4,3	4,3	4,38	4,37	4,32	4,32	
38	OILPRESSURE AFTER FILTER	Bar	3,99	3,99	4,08	4,08	4,02	4,02	



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MEASURING-NO.		1	2	3	4	5	6	7	8
ENGINE LOAD	[%]	100	100	50	50	75	75		
TIME	[hh:mm]	15:47	15:50	15:59	16:02	16:11	16:14		
AIR-MIXTURE									
39	MIXTURE TEMP. AFTER INTERCOOLER	°C	51	51	45	45	48	48	
40	PRECHAMBER GAS PRESSURE	mbar	3667	3668	1386	1386	2493	2495	
41	BOOST PRESSURE BEFORE THROTTLE-FLAP	mbar	3628	3630	1338	1338	2449	2452	
42	BOOST PRESSURE AFTER THROTTLE-FLAP	mbar	3623	3625	1335	1335	2444	2447	
43	PRESSURE DROP INTERCOOLER	mbar	40	40	23	23	31	31	
POWER RESERVE									
44	TURBOBYPASS POSITION	%	36	36	55	55	46	46	
45	TECJET POSITION		2,049	2,049	1,901	1,901	1,972	1,972	
46	THROTTLE VALVE POSITION	%	100	100	100	100	100	100	
47	IGNITION TIMING	°cs. b. TDC	25	25	21,8	21,8	23,4	23,4	
EXHAUST GAS									
48	EXHAUSTGAS TEMP. AFTER ENGINE	°C	334	335	426	428	379	379	
49	RESERVE		#	#	#	#	#	#	
50	RESERVE		#	#	#	#	#	#	
51	O2-CONTENT EXHAUST GAS	%	11,84	11,84	11,01	11,00	11,45	11,45	
52	CO-CONTENT EXHAUST GAS (without Oxicat)	mg nm <sup>3</sup>	647	646	672	671	696	696	
53	NOx-CONTENT EXHAUST GAS	mg nm <sup>3</sup>	245	248	211	218	243	242	



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ENGINE LOAD [%]	100	100	50	50	75	75		
TIME [hh:mm]	15:47	15:50	15:59	16:02	16:11	16:14		
Cylinder temperatures								
Cylinder temperature 1 °C	698	698	536	536	531	531		
Cylinder temperature 2 °C	645	645	537	537	531	531		
Cylinder temperature 3 °C	637	637	542	542	536	536		
Cylinder temperature 4 °C	695	695	542	542	534	534		
Cylinder temperature 5 °C	679	679	541	541	534	534		
Cylinder temperature 6 °C	695	695	538	538	532	532		
Cylinder temperature 7 °C	664	664	540	540	534	534		
Cylinder temperature 8 °C	610	610	535	535	529	529		
Cylinder temperature 9 °C	632	632	540	540	534	534		
Cylinder temperature 10 °C	663	663	534	534	527	527		
Cylinder temperature 11 °C	565	565	540	540	533	533		
Cylinder temperature 12 °C	672	672	540	540	534	534		
Cylinder temperature 13 °C	634	634	#	#	#	#		
Cylinder temperature 14 °C	688	688	#	#	#	#		
Cylinder temperature 15 °C	680	680	#	#	#	#		
Cylinder temperature 16 °C	635	635	#	#	#	#		
Cylinder temperature 17 °C	692	692	#	#	#	#		
Cylinder temperature 18 °C	674	674	#	#	#	#		
Cylinder temperature 19 °C	649	649	#	#	#	#		
Cylinder temperature 20 °C	679	679	#	#	#	#		
Cylinder temperature 21 °C	#	#	#	#	#	#		
Cylinder temperature 22 °C	#	#	#	#	#	#		
Cylinder temperature 23 °C	#	#	#	#	#	#		
Cylinder temperature 24 °C	#	#	#	#	#	#		



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## REMARKS

Location: 7

# ... in the field of measured quantity ... not available or not measured

Exhaustgas emissions with reference to 5 % O<sub>2</sub> in dry exhaust gas

- 1) Further test run conditions: Sea level: 520m; Ambient temperature = air intake temperature
- 2) Thermal Output measured with: 40% Glycol - Water  
The test run in Jenbach was done without exhaust gas heat exchanger → lower thermal output. Nominal output without exhaust gas heat exchanger: 934kW



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## Prozess - Gaschromatograph PGC 9000 VC

### Natural Gas Analysis Report

Sample Name: Erdgas  
Injection Date: 17.03.2015 13:05  
Operator: Klingenschmid

Component	Vol %
Oxygene (O <sub>2</sub> )	0,0000%
Nitrogene (N <sub>2</sub> )	0,5200%
Methane (CH <sub>4</sub> )	96,1100%
n-Hexane (C <sub>6</sub> H <sub>14</sub> )	0,0100%
Carbon Dioxide (CO <sub>2</sub> )	0,4200%
Ethane (C <sub>2</sub> H <sub>6</sub> )	2,5900%
Propane (C <sub>3</sub> H <sub>8</sub> )	0,2500%
i-Butane (i-C <sub>4</sub> H <sub>10</sub> )	0,0500%
n-Butane (n-C <sub>4</sub> H <sub>10</sub> )	0,0300%
i-Pentane (i-C <sub>5</sub> H <sub>12</sub> )	0,0100%
n-Pentane (n-C <sub>5</sub> H <sub>12</sub> )	0,0100%
neo-Pentane (neo-C <sub>5</sub> H <sub>12</sub> )	0,0000%
total:	100,0000%

LOWER CALORIC VALUE 10,160 kWh/mn<sup>3</sup>  
METHANE NUMBER 89,76  
DENSITY 0,745 kg/mn<sup>3</sup>  
**FUEL GAS (at test bench) NATURAL GAS**

Reference: ISO 6976: 1995(E)

END OF THE REPORT