

Dear Partner

Caspian Comfort

Air Conditioning System



Apt. No.10, No.11, 1st Gandhi Alley
Gandhi Avenue, Argentine Square
Tehran – Iran

FACTORY WITNESS TEST

Position of the tested unit in the test room



Performance datasheet (External air temperature 52°C)

		AB002
DATASHEET - Cooling		GREENPOWER-SE R 0504.22 SP HA
PERFORMANCES		
Cooling capacity	kW	339,9
Cooling capacity (EN 14511:2013)	kW	338,6
Compressors absorbed power	kW	170,4
Compressors absorbed current	A	281,0
Power factor (cosφ)	-	0,88
Compressors and fans absorbed power	kW	185,2
E.E.R. (compressors)	-	1,99
E.E.R. (compressors and fans)	-	1,84
E.E.R. (EN 14511:2013)	-	1,82
WORKING CONDITIONS		
External air temperature	°C	52
External air relative humidity	%	-
Fluid glycol percentage	%	0
Heat exchanger fouling factor	m ² K/W	0
Fluid inlet temperature	°C	12,0
Fluid outlet temperature	°C	7,0
Flowrate	m ³ /h	58,2
Heat exchanger pressure drop	kPa	46
FANS		
Air flowrate	m ³ /h	199310
Fans number	-	10
Fan absorbed power (each)	kW	1,85
Fan absorbed current (each)	A	4,0
COMPRESSORS		
Compressors type / Refrigerant		Screw / R134a
Compressors number		2 (identical)
Circuits number		2
Capacity steps		SL
Compressors start-up type		PWS
ELECTRIC DATA		
Electric supply		400V-3ph+PE-50Hz
Maximum absorbed power	kW	290,5
Maximum absorbed current	A	476,0
Maximum start-up current	A	788,0
NOISE DATA		
Sound pressure level (distance 10m, free field)	dB(A)	67,0
DIMENSIONS		
Lenght	mm	5570
Width	mm	2250
Height	mm	2510
Transport mass	kg	5240
Operating mass	kg	5480
SL: Partialization steps on each compressor (25% at start-up) - 50% - 75% - 100%		
		A GROUP S.p.A. - Via Montegrappa, 67 - 31020 San Zenone degli Ezzelini (TV) Italy Tel. +39 0423 431344 - Fax +39 0423 431345 - info@venco.net - www.venco.net

DATE OF TEST 18/4/18 13.01

Operator Ghirelli
 Model 'OWER-SE R 0504.22 SP HA
 Serial number AB002
 Unit type Air-Water
 Operating mode Chiller
 Refrigerant type R134A

ELECTRICAL DATA	AVERAGE	MIN	MAX	
Input power	185,51	184,42	186,44	[kW]
Power factor	0,81	0,81	0,81	
Voltage	399,65	399,52	399,78	[V]
Average current	329,83	328,28	331,15	[A]
Current L1	326,98	325,43	328,30	[A]
Current L2	332,71	331,16	334,02	[A]
Current L3	329,79	328,25	331,09	[A]
EVAPORATOR CIRCUIT	AVERAGE	MIN	MAX	
Inlet water temperature	12,32	12,14	12,54	[°C]
Outlet water temperature	7,32	7,17	7,46	[°C]
Water flow rate	58,20	58,13	58,26	[m ³ /h]
Cooling capacity	336,48	320,06	347,57	[kW]
E.E.R	1,81	1,72	1,88	
CONDENSER CIRCUIT	AVERAGE	MIN	MAX	
Air flow rate	0,00	0,00	0,00	[m ³ /h]
Inlet air temperature	52,04	51,96	52,18	[°C]
Air relative humidity	20,00	20,00	20,00	[%]
CHILLING CIRCUIT 1	AVERAGE	MIN	MAX	
Condensing pressure	17,84	17,73	17,91	[bar]
Condensing temperature	64,88	64,62	65,03	[°C]
Evaporation pressure	2,52	2,45	2,58	[bar]
Evaporation temperature	5,21	4,59	5,64	[°C]
Discharge temperature	99,00	98,35	99,48	[°C]
Suction temperature	10,42	9,89	10,72	[°C]
Condenser outlet temperature	54,76	54,59	54,94	[°C]
Subcooling temperature	10,12	9,92	10,30	[°C]
Superheating temperature	5,21	4,73	5,65	[°C]

CHILLING CIRCUIT 2	AVERAGE	MIN	MAX	
Condensing pressure	17,51	17,42	17,59	[bar]
Condensing temperature	64,11	63,89	64,29	[°C]
Evaporation pressure	2,45	2,35	2,54	[bar]
Evaporation temperature	4,62	3,80	5,32	[°C]
Discharge temperature	100,67	100,11	101,33	[°C]
Suction temperature	10,56	10,08	10,82	[°C]
Condenser outlet temperature	56,27	56,15	56,41	[°C]
Subcooling temperature	7,84	7,54	8,04	[°C]
Superheating temperature	5,94	5,33	6,41	[°C]

NOTE

Screenshot of the remote monitor captured during the test

4/18/2018
12:55:45 PM



TEST

Control bar

Annulla Test
Test in progress

Test time **2.000** sec
Total samples **150**
Samples number **5**

Initial date and time **4/18/2018 12:55:34 PM**
Final date and time **4/18/2018 12:55:45 PM**

Order

Operator **Ghirelli**
Unit model **GREENPOWER-SE R 0504.22 SP HA**
Serial number **AB002**
Refrigerant type **R134A** Circuits number **2**
Unit type **Air-Water** Evaporator type **Large evaporator**
Operating mode **Chiller**
Nominal air flow **+0** m³/h
Note 1
Note 2
Note 3

Operating conditions

	Evaporator	Condenser	Evaporator
Inlet water temperature	+12,53 °C		
Outlet water temperature	+7,46 °C		
Water-air flow	+58,22 m ³ /h	+0,00 m ³ /h	
Cooling capacity	+341,57 kW		
E.E.R. / C.O.P	+1,84		
Air temperature		+51,98 °C	
Air relative humidity		+20,00 %	

Electrical data

Voltage	+399,7 V
Average current	+329,3 A
Input power	+185,1 kW
Power factor	+0,81
Current L1	+326,5 A
Current L2	+332,2 A
Current L3	+329,3 A

Circuits measures

	Circuit 1	Circuit 2
Condensing pressure	+17,78 bar	+17,54 bar
Condensing temperature	+64,73 °C	+64,17 °C
Evaporation pressure	+2,45 bar	+2,48 bar
Evaporation temperature	+4,65 °C	+4,88 °C
Discharge temperature	+98,39 °C	+100,15 °C
Suction temperature	+9,98 °C	+10,81 °C
Condenser outlet temperature	+54,76 °C	+56,29 °C
Subcooling	+9,97 °C	+7,88 °C
Superheating	+5,33 °C	+5,93 °C

MAIN

HYDRAULIC

AIR

TEST

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ANALOG I/O

TREND

SETUP

BITMAP

EXIT



ALARMS

4/18/2018
12:56:09 PM



TEST

Control bar

Annulla Test

Test time: **2.000** sec
Total samples: **150**
Samples number: **17**

Initial date and time: **4/18/2018 12:55:34 PM**

Final date and time: **4/18/2018 12:56:09 PM**

Order

Operator: **Ghirelli**
Unit model: **GREENPOWER-SE R 0504.22 SP HA**
Serial number: **AB002**
Refrigerant type: **R134A** Circuits number: **2**
Unit type: **Air-Water** Evaporator type: **Large evaporator**
Operating mode: **Chiller**
Nominal air flow: **+0** m³/h
Note 1:
Note 2:
Note 3:

Operating conditions

	Evaporator	Condenser	Evaporator
Inlet water temperature	+12,33 °C		
Outlet water temperature	+7,41 °C		
Water-air flow	+58,20 m ³ /h	+0,00 m ³ /h	
Cooling capacity	+331,23 kW		
E.E.R. / C.O.P	+1,78		
Air temperature		+51,96 °C	
Air relative humidity		+20,00 %	

Electrical data

Voltage: **+399,7** V
Average current: **+330,1** A
Input power: **+185,7** kW
Power factor: **+0,81**
Current L1: **+327,2** A
Current L2: **+332,9** A
Current L3: **+330,0** A

Circuits measures

	Circuit 1	Circuit 2
Condensing pressure	+17,83 bar	+17,51 bar
Condensing temperature	+64,85 °C	+64,11 °C
Evaporation pressure	+2,57 bar	+2,46 bar
Evaporation temperature	+5,59 °C	+4,70 °C
Discharge temperature	+98,66 °C	+100,19 °C
Suction temperature	+10,35 °C	+10,78 °C
Condenser outlet temperature	+54,59 °C	+56,32 °C
Subcooling	+10,25 °C	+7,79 °C
Superheating	+4,76 °C	+6,08 °C

MAIN

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ALARMS

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TEST

Control bar

Annulla Test
Test in progress

Test time: **2.000** sec
Total samples: **150**
Samples number: **31**

Initial date and time: **4/18/2018 12:55:34 PM**
Final date and time: **4/18/2018 12:56:38 PM**

Order

Operator: **Ghirelli**
Unit model: **GREENPOWER-SE R 0504.22 SP HA**
Serial number: **AB002**
Refrigerant type: **R134A** Circuits number: **2**
Unit type: **Air-Water** Evaporator type: **Large evaporator**
Operating mode: **Chiller**
Nominal air flow: **+0** m³/h
Note 1:
Note 2:
Note 3:

Operating conditions

	Evaporator	Condenser	Evaporator
Inlet water temperature	+12,41 °C		
Outlet water temperature	+7,31 °C		
Water-air flow	+58,19 m ³ /h	+0,00 m ³ /h	
Cooling capacity	+343,26 kW		
E.E.R. / C.O.P	+1,85		
Air temperature		+51,98 °C	
Air relative humidity		+20,00 %	

Electrical data

Voltage: **+399,7** V
Average current: **+329,0** A
Input power: **+185,0** kW
Power factor: **+0,81**
Current L1: **+326,2** A
Current L2: **+331,9** A
Current L3: **+329,0** A

Circuits measures

	Circuit 1	Circuit 2
Condensing pressure	+17,78 bar	+17,48 bar
Condensing temperature	+64,74 °C	+64,03 °C
Evaporation pressure	+2,51 bar	+2,44 bar
Evaporation temperature	+5,12 °C	+4,57 °C
Discharge temperature	+98,71 °C	+100,31 °C
Suction temperature	+10,29 °C	+10,72 °C
Condensor outlet temperature	+54,68 °C	+56,28 °C
Subcooling	+10,06 °C	+7,76 °C
Superheating	+5,17 °C	+6,15 °C

MAIN

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ALARMS

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TEST

Control bar

Annulla Test

Test time	2.000	sec
Total samples	150	
Samples number	46	

Initial date and time	4/18/2018 12:55:34 PM
Final date and time	4/18/2018 12:57:08 PM

Order			
Operator	Ghirelli		
Unit model	GREENPOWER-SE R 0504.22 SP HA		
Serial number	AB002		
Refrigerant type	R134A	Circuits number	2
Unit type	Air-Water	Evaporator type	Large evaporator
Operating mode	Chiller		
Nominal air flow	+0	m ³ /h	
Note 1			
Note 2			
Note 3			

Operating conditions			
	Evaporator	Condenser	Evaporator
Inlet water temperature	+12,42 °C		
Outlet water temperature	+7,46 °C		
Water-air flow	+58,23 m ³ /h	+0,00 m ³ /h	
Cooling capacity	+333,80 kW		
E.E.R. / C.O.P	+1,80		
Air temperature		+51,98 °C	
Air relative humidity		+20,00 %	

Electrical data		
Voltage	+399,7	V
Average current	+330,2	A
Input power	+185,7	kW
Power factor	+0,81	
Current L1	+327,4	A
Current L2	+333,1	A
Current L3	+330,2	A

Circuits measures			
	Circuit 1	Circuit 2	
Condensing pressure	+17,85 bar	+17,52 bar	
Condensing temperature	+64,90 °C	+64,13 °C	
Evaporation pressure	+2,52 bar	+2,49 bar	
Evaporation temperature	+5,17 °C	+4,99 °C	
Discharge temperature	+98,85 °C	+100,47 °C	
Suction temperature	+10,55 °C	+10,81 °C	
Condenser outlet temperature	+54,65 °C	+56,15 °C	
Subcooling	+10,25 °C	+7,98 °C	
Superheating	+5,38 °C	+5,83 °C	

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TEST

Control bar

Annulla Test
Test in progress

Test time: **2.000** sec
Total samples: **150**
Samples number: **61**

Initial date and time: **4/18/2018 12:55:34 PM**
Final date and time: **4/18/2018 12:57:38 PM**

Order

Operator: **Ghirelli**
Unit model: **GREENPOWER-SE R 0504.22 SP HA**
Serial number: **AB002**
Refrigerant type: **R134A** Circuits number: **2**
Unit type: **Air-Water** Evaporator type: **Large evaporator**
Operating mode: **Chiller**
Nominal air flow: **+0** m³/h
Note 1:
Note 2:
Note 3:

Operating conditions

	Evaporator	Condenser	Evaporator
Inlet water temperature	+12,30 °C		
Outlet water temperature	+7,29 °C		
Water-air flow	+58,23 m ³ /h	+0,00 m ³ /h	
Cooling capacity	+337,41 kW		
E.E.R. / C.O.P	+1,82		
Air temperature		+52,02 °C	
Air relative humidity		+20,00 %	

Electrical data

Voltage: **+399,7** V
Average current: **+329,9** A
Input power: **+185,6** kW
Power factor: **+0,81**
Current L1: **+327,1** A
Current L2: **+332,8** A
Current L3: **+329,9** A

Circuits measures

	Circuit 1	Circuit 2
Condensing pressure	+17,84 bar	+17,50 bar
Condensing temperature	+64,87 °C	+64,08 °C
Evaporation pressure	+2,56 bar	+2,43 bar
Evaporation temperature	+5,53 °C	+4,49 °C
Discharge temperature	+99,01 °C	+100,47 °C
Suction temperature	+10,69 °C	+10,57 °C
Condenser outlet temperature	+54,69 °C	+56,24 °C
Subcooling	+10,17 °C	+7,84 °C
Superheating	+5,16 °C	+6,08 °C

MAIN

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EXIT



ALARMS

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TEST

Control bar

Annulla Test

Test time: sec

Total samples:

Samples number:

Test in progress

Initial date and time:

Final date and time:

Order

Operator:

Unit model:

Serial number:

Refrigerant type: Circuits number:

Unit type: Evaporator type:

Operating mode:

Nominal air flow: m³/h

Note 1:

Note 2:

Note 3:

Operating conditions

	Evaporator	Condenser	Evaporator
Inlet water temperature	+12,32 °C		
Outlet water temperature	+7,30 °C		
Water-air flow	+58,23 m³/h	+0,00 m³/h	
Cooling capacity	+337,70 kW		
E.E.R. / C.O.P	+1,82		
Air temperature		+52,03 °C	
Air relative humidity		+20,00 %	

Electrical data

Voltage	+399,7 V
Average current	+329,7 A
Input power	+185,4 kW
Power factor	+0,81
Current L1	+326,8 A
Current L2	+332,6 A
Current L3	+329,6 A

Circuits measures

	Circuit 1	Circuit 2
Condensing pressure	+17,82 bar	+17,50 bar
Condensing temperature	+64,82 °C	+64,08 °C
Evaporation pressure	+2,50 bar	+2,48 bar
Evaporation temperature	+5,01 °C	+4,89 °C
Discharge temperature	+98,98 °C	+100,70 °C
Suction temperature	+10,66 °C	+10,65 °C
Condenser outlet temperature	+54,78 °C	+56,25 °C
Subcooling	+10,04 °C	+7,84 °C
Superheating	+5,64 °C	+5,76 °C

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TEST

Control bar

Annulla Test	Test time	2.000	sec
Test in progress	Total samples	150	
	Samples number	91	

Initial date and time	4/18/2018 12:55:34 PM
Final date and time	4/18/2018 12:58:39 PM

Order			
Operator	Ghirelli		
Unit model	GREENPOWER-SE R 0504.22 SP HA		
Serial number	AB002		
Refrigerant type	R134A	Circuits number	2
Unit type	Air-Water	Evaporator type	Large evaporator
Operating mode	Chiller		
Nominal air flow	+0	m ³ /h	
Note 1			
Note 2			
Note 3			

Operating conditions			
	Evaporator	Condenser	Evaporator
Inlet water temperature	+12,27 °C		
Outlet water temperature	+7,27 °C		
Water-air flow	+58,29 m ³ /h	+0,00 m ³ /h	
Cooling capacity	+336,90 kW		
E.E.R. / C.O.P	+1,82		
Air temperature		+52,01 °C	
Air relative humidity		+20,00 %	

Electrical data		
Voltage	+399,6	V
Average current	+330,0	A
Input power	+185,6	kW
Power factor	+0,81	
Current L1	+327,1	A
Current L2	+332,8	A
Current L3	+329,9	A

Circuits measures			
	Circuit 1	Circuit 2	
Condensing pressure	+17,89 bar	+17,52 bar	
Condensing temperature	+64,98 °C	+64,13 °C	
Evaporation pressure	+2,53 bar	+2,44 bar	
Evaporation temperature	+5,28 °C	+4,49 °C	
Discharge temperature	+99,14 °C	+100,64 °C	
Suction temperature	+10,60 °C	+10,16 °C	
Condenser outlet temperature	+54,79 °C	+56,36 °C	
Subcooling	+10,19 °C	+7,78 °C	
Superheating	+5,32 °C	+5,66 °C	

TEST

Control bar

Annulla Test	Test time	2.000	sec	Initial date and time	4/18/2018 12:55:34 PM
Test in progress	Total samples	150		Final date and time	4/18/2018 12:59:08 PM
	Samples number	105			

Order

Operator	Ghiralli		
Unit model	GREENPOWER-SE R 0504.22 SP HA		
Serial number	AB002		
Refrigerant type	R134A	Circuits number	2
Unit type	Air-Water	Evaporator type	Large evaporator
Operating mode	Chiller		
Nominal air flow	+0	m ³ /h	
Note 1			
Note 2			
Note 3			

Operating conditions

	Evaporator	Condenser	Evaporator
Inlet water temperature	+12,37 °C		
Outlet water temperature	+7,25 °C		
Water-air flow	+58,23 m ³ /h	+0,00 m ³ /h	
Cooling capacity	+344,62 kW		
E.E.R. / C.O.P	+1,87		
Air temperature		+52,08 °C	
Air relative humidity		+20,00 %	

Electrical data

Voltage	+399,7	V
Average current	+328,9	A
Input power	+185,0	kW
Power factor	+0,81	
Current L1	+326,0	A
Current L2	+331,8	A
Current L3	+328,9	A

Circuits measures

	Circuit 1	Circuit 2
Condensing pressure	+17,84 bar	+17,42 bar
Condensing temperature	+64,88 °C	+63,89 °C
Evaporation pressure	+2,51 bar	+2,38 bar
Evaporation temperature	+5,11 °C	+4,06 °C
Discharge temperature	+99,19 °C	+100,83 °C
Suction temperature	+10,58 °C	+10,28 °C
Condenser outlet temperature	+54,86 °C	+56,29 °C
Subcooling	+10,01 °C	+7,60 °C
Superheating	+5,47 °C	+6,22 °C

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TEST

Control bar

Annulla Test

Test time: **2.000** sec
Total samples: **150**
Samples number: **126**

Initial date and time: **4/18/2018 12:55:34 PM**
Final date and time: **4/18/2018 12:59:49 PM**

Order

Operator: **Ghirelli**
Unit model: **GREENPOWER-SE R 0504.22 SP HA**
Serial number: **AB002**

Refrigerant type: **R134A** Circuits number: **2**
Unit type: **Air-Water** Evaporator type: **Large evaporator**
Operating mode: **Chiller**
Nominal air flow: **+0** m³/h

Note 1:
Note 2:
Note 3:

Operating conditions

	Evaporator	Condenser	Evaporator
Inlet water temperature	+12,17 °C		
Outlet water temperature	+7,21 °C		
Water-air flow	+58,17 m ³ /h	+0,00 m ³ /h	
Cooling capacity	+333,40 kW		
E.E.R. / C.O.P	+1,80		
Air temperature		+52,11 °C	
Air relative humidity		+20,00 %	

Electrical data

Voltage	+399,7 V
Average current	+330,0 A
Input power	+185,6 kW
Power factor	+0,81
Current L1	+327,1 A
Current L2	+332,9 A
Current L3	+329,9 A

Circuits measures

	Circuit 1	Circuit 2
Condensing pressure	+17,90 bar	+17,52 bar
Condensing temperature	+65,00 °C	+64,12 °C
Evaporation pressure	+2,53 bar	+2,41 bar
Evaporation temperature	+5,24 °C	+4,31 °C
Discharge temperature	+99,28 °C	+101,09 °C
Suction temperature	+10,14 °C	+10,38 °C
Condenser outlet temperature	+54,86 °C	+56,26 °C
Subcooling	+10,14 °C	+7,87 °C
Superheating	+4,90 °C	+6,07 °C

4/18/2018
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TEST

Control bar

Annulla Test

Test time	2.000	sec
Total samples	150	
Samples number	138	

Initial date and time	4/18/2018 12:55:34 PM
Final date and time	4/18/2018 1:00:13 PM

Order

Operator	Ghirelli		
Unit model	GREENPOWER-SE R 0504.22 SP HA		
Serial number	AB002		
Refrigerant type	R134A	Circuits number	2
Unit type	Air-Water	Evaporator type	Large evaporator
Operating mode	Chiller		
Nominal air flow	+0	m ³ /h	
Note 1			
Note 2			
Note 3			

Operating conditions

	Evaporator	Condenser	Evaporator
Inlet water temperature	+12,27 °C		
Outlet water temperature	+7,20 °C		
Water-air flow	+58,21 m ³ /h	+0,00 m ³ /h	
Cooling capacity	+341,34 kW		
E.E.R. / C.O.P	+1,84		
Air temperature		+52,16 °C	
Air relative humidity		+20,00 %	

Electrical data

Voltage	+399,7	V
Average current	+329,9	A
Input power	+185,6	kW
Power factor	+0,81	
Current L1	+327,1	A
Current L2	+332,8	A
Current L3	+329,9	A

Circuits measures

	Circuit 1	Circuit 2
Condensing pressure	+17,90 bar	+17,54 bar
Condensing temperature	+65,00 °C	+64,17 °C
Evaporation pressure	+2,48 bar	+2,45 bar
Evaporation temperature	+4,89 °C	+4,61 °C
Discharge temperature	+99,27 °C	+101,24 °C
Suction temperature	+9,98 °C	+10,44 °C
Condenser outlet temperature	+54,94 °C	+56,34 °C
Subcooling	+10,06 °C	+7,83 °C
Superheating	+5,09 °C	+5,83 °C

MAIN

HYDRAULIC

AIR

TEST

PRINT

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SETUP

BITMAP

EXIT



ALARMS

4/18/2018

1:00:39 PM



TEST

Control bar

Avvia Test

Test time	<input type="text" value="2.000"/>	sec
Total samples	<input type="text" value="150"/>	
Samples number	<input type="text" value="150"/>	

Initial date and time **4/18/2018 12:55:34 PM**

Final date and time **4/18/2018 1:00:37 PM**

Order

Operator	<input type="text" value="Ghirelli"/>		
Unit model	<input type="text" value="GREENPOWER-SE R 0504.22 SP HA"/>		
Serial number	<input type="text" value="AB002"/>		
Refrigerant type	<input type="text" value="R134A"/>	Circuits number	<input type="text" value="2"/>
Unit type	<input type="text" value="Air-Water"/>	Evaporator type	<input type="text" value="Large evaporator"/>
Operating mode	<input type="text" value="Chiller"/>		
Nominal air flow	<input type="text" value="+0"/>	<input type="text" value="m³/h"/>	
Note 1	<input type="text"/>		
Note 2	<input type="text"/>		
Note 3	<input type="text"/>		

Operating conditions

	Evaporator	Condenser	Evaporator
Inlet water temperature	<input type="text" value="+12,16"/>	<input type="text" value="°C"/>	
Outlet water temperature	<input type="text" value="+7,24"/>	<input type="text" value="°C"/>	
Water-air flow	<input type="text" value="+58,21"/>	<input type="text" value="m³/h"/>	<input type="text" value="+0,00"/>
Cooling capacity	<input type="text" value="+331,22"/>	<input type="text" value="kW"/>	
E.E.R. / C.O.P	<input type="text" value="+1,78"/>		
Air temperature		<input type="text" value="+52,19"/>	<input type="text" value="°C"/>
Air relative humidity		<input type="text" value="+20,00"/>	<input type="text" value="°"/>

Electrical data

Voltage	<input type="text" value="+399,6"/>	<input type="text" value="V"/>
Average current	<input type="text" value="+330,3"/>	<input type="text" value="A"/>
Input power	<input type="text" value="+185,7"/>	<input type="text" value="kW"/>
Power factor	<input type="text" value="+0,81"/>	
Current L1	<input type="text" value="+327,5"/>	<input type="text" value="A"/>
Current L2	<input type="text" value="+333,2"/>	<input type="text" value="A"/>
Current L3	<input type="text" value="+330,3"/>	<input type="text" value="A"/>

Circuits measures

	Circuit 1	Circuit 2
Condensing pressure	<input type="text" value="+17,90"/>	<input type="text" value="+17,54"/>
Condensing temperature	<input type="text" value="+65,00"/>	<input type="text" value="+64,18"/>
Evaporation pressure	<input type="text" value="+2,56"/>	<input type="text" value="+2,42"/>
Evaporation temperature	<input type="text" value="+5,49"/>	<input type="text" value="+4,39"/>
Discharge temperature	<input type="text" value="+99,50"/>	<input type="text" value="+101,30"/>
Suction temperature	<input type="text" value="+10,29"/>	<input type="text" value="+10,45"/>
Condenser outlet temperature	<input type="text" value="+54,90"/>	<input type="text" value="+56,36"/>
Subcooling	<input type="text" value="+10,10"/>	<input type="text" value="+7,83"/>
Superheating	<input type="text" value="+4,81"/>	<input type="text" value="+6,06"/>

MAIN

HYDRAULIC

AIR

TEST

PRINT

ANALOG I/O

TREND

SETUP

BITMAP

EXIT



ALARMS



PRINT

Circuiti frigo 1+2

Control bar

Create file	Print File	View File	Electrical measures printing YES	Evaporator measure printing YES	Chilling circuit 1 measures prin YES	Chilling circuit 3 measures prin NO	Air section measures printing NO
			Notes printing YES	Condenser measures printing YES	Chilling circuit 2 measures prin YES	Chilling circuit 4 measures prin NO	

Order

Operator	Ghirelli		
Unit model	GREENPOWER-SE R 0504.22 SP HA		
Serial number	AB002		
Refrigerant type	R134A	Circuits number	2
Unit type	Air-Water	Evaporator type	Large evaporator
Operating mode	Chiller	Nominal air flow	+0 m³/h
Note 1			
Note 2			
Note 3			

General measures

	Evaporator			Condenser		
	Average	Minimum	Maximum	Average	Minimum	Maximum
Inlet water temperature	+12,32	+12,14	+12,54 °C			
Outlet water temperature	+7,32	+7,17	+7,46 °C			
Water - air flow	+58,20	+58,13	+58,26 m³/h	+0,0	+0,0	+0,0 m³/h
Cooling capacity	+336,48	+320,06	+347,57 kW			
E.E.R. / C.O.P	+1,81	+1,72	+1,88			
Air temperature				+52,04	+51,96	+52,18 °C
Air relative humidity				+20,00	+20,00	+20,00 %

Electrical measures

	Average	Minimum	Maximum	
Voltage	+399,7	+399,5	+399,8	V
Average current	+329,8	+328,3	+331,2	A
Input power	+185,5	+184,4	+186,4	kW
Power factor	+0,81	+0,81	+0,81	
Current L1	+327,0	+325,4	+328,3	A
Current L2	+332,7	+331,2	+334,0	A
Current L3	+329,8	+328,3	+331,1	A

Circuits measures

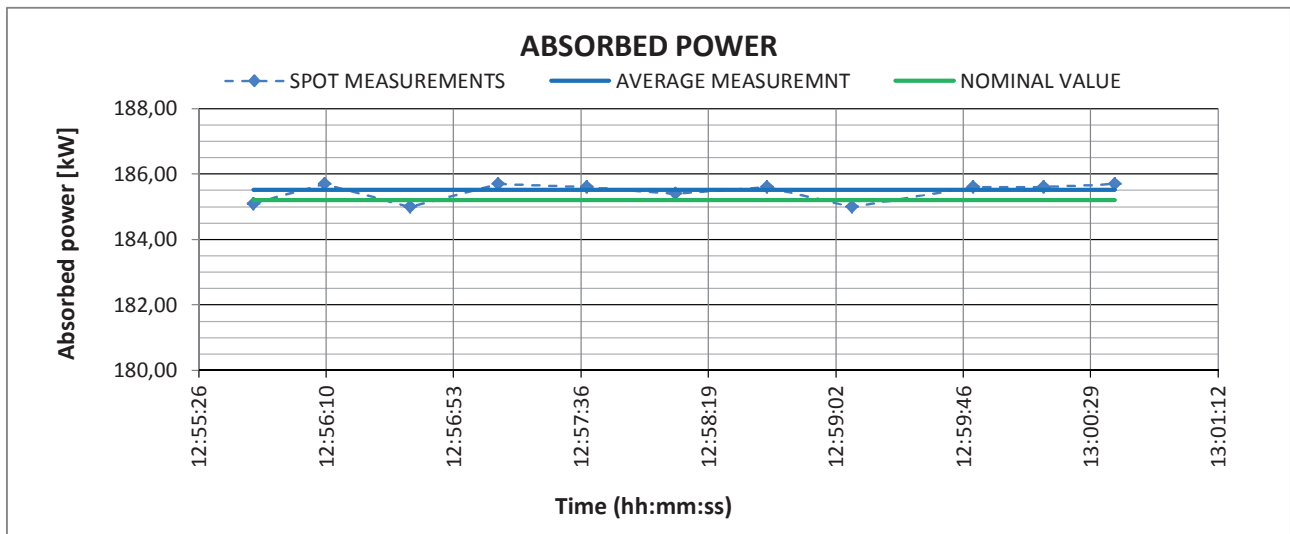
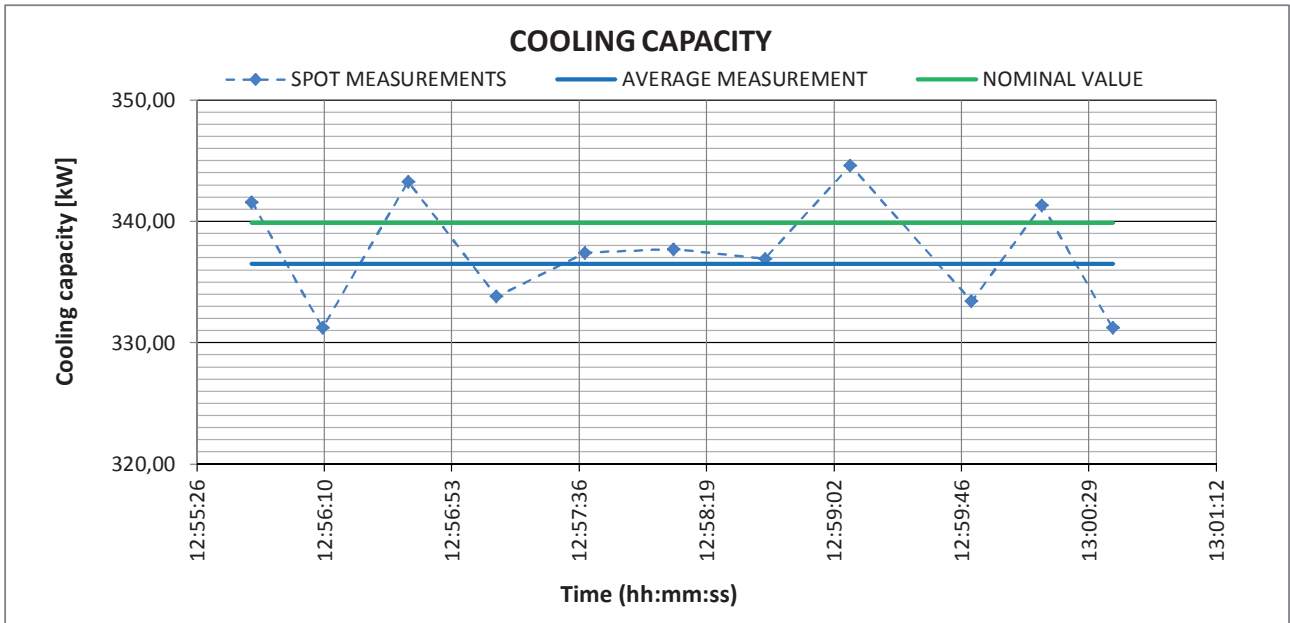
	Circuit 1			Circuit 2		
	Average	Minimum	Maximum	Average	Minimum	Maximum
Condensing pressure	+17,84	+17,73	+17,91 bar	+17,51	+17,42	+17,59 bar
Condensing temperature	+64,88	+64,62	+65,03 °C	+64,11	+63,89	+64,29 °C
Evaporation pressure	+2,52	+2,45	+2,58 bar	+2,45	+2,35	+2,54 bar
Evaporation temperature	+5,21	+4,59	+5,64 °C	+4,62	+3,80	+5,32 °C
Discharge temperature	+99,00	+98,35	+99,48 °C	+100,67	+100,11	+101,33 °C
Suction temperature	+10,42	+9,89	+10,72 °C	+10,56	+10,08	+10,82 °C
Condenser outlet temperature	+54,76	+54,59	+54,94 °C	+56,27	+56,15	+56,41 °C
Subcooling	+10,12	+9,92	+10,30 °C	+7,84	+7,54	+8,04 °C
Superheating	+5,21	+4,73	+5,65 °C	+5,94	+5,33	+6,41 °C

Test results graphic and detailed reports

AB002 - GREENPOWER-SE R 0504.22 SP HA TEST DATA RESUME		NOMINAL DATA	TEST AVERAGED RESULT	VARIANCE
Cooling capacity	kW	339,90	336,48	-1,01%
Compressors and fans absorbed power	kW	185,20	185,51	0,17%
E.E.R. (compressors and fans)	-	1,84	1,81	-1,17%
External air temperature	°C	52,00	52,04	0,04
Fluid inlet temperature	°C	12,02	12,32	0,30
Fluid outlet temperature	°C	7,00	7,32	0,32
Flowrate	m3/h	58,23	58,20	-0,03

COOLING CAPACITY AND ABSORBED CAPACITY VARIATION DATA

TIME (hh:mm:ss)	12:55:45	12:56:09	12:56:38	12:57:08	12:57:38	12:58:08	12:58:39	12:59:08	12:59:49	13:00:13	13:00:37
COOLING CAPACITY (kW)	341,57	331,23	343,26	333,80	337,41	337,70	336,90	344,62	333,40	341,34	331,22
ABSORBED POWER (kW)	185,10	185,70	185,00	185,70	185,60	185,40	185,60	185,00	185,60	185,60	185,70



Primary instruments calibration certificates

RQ/G05-01 r.3 SCHEDA ANAGRAFICA STRUMENTO			N°	(a) 67
Marca	TECNO ESPE			
Modello	Sala Climatica			
Data Acquisto	marzo 2015.	Matricola S/N		
Fornitore	TECNO ESPE			
Assistenza	Taratura affidata a Ist. Giordano			
Caratteristiche Tecniche (b)	TEST per GRUPPI FRIGO : 24 sonde temperatura + 6 trasduttori + misuratore di portata MAG 3100 DN 25 (Rif.n°4) + misuratore di portata MAG 5100 a 4" (Rif.n°68) + misuratore di portata MAG 5100 a 5" (Rif.n°69)			
Utilizzatore	COLLAUDO			

Tipo di strumento : SC SUC SNSC

Tipo di Conferma Metrologica : TE CI NT

Frequenza di metrologica : 2 Anni Interna.
 Dal 2018 diventa Annuale-
 Annualmente, riscontro comparativo con strumenti Eurovent in fase di certificazione.

Azioni correttive in caso di conferma metrologica negativa :

SONDE: TAIEP TAUEP TAIEG TAUEG TAIC TAUC TMC1 TMC2 TAC1 TAC2 TUC1 TUC2
 TADX1 TADX2 TADX3 TADX4 TADX5 TASX1 TASX2 TASX3 TASX4 TASX5 TAESP TAEST
TRASDUTTORI: PIEG PUEG PIC PUC PIEP PUEP

CONFERME METROLOGICHE E TARATURE

Data	ESITO NEGATIVO			ESITO POSITIVO			
	RottamaZ (c)	Certif (d)	Scad. (e)	Sigla (f)	Certificato (d)	Scad. (e)	Sigla (f)
26/02/16					Rapp.Taratura n°331786 per trasduttori: PIEG PUEG PIC PUC PIEP PUEP	02/02/18	RPD Masotti
Note:							
26/02/16					Rapp.Taratura n°331785 per sonde: TAIEP TAUEP TAIEG TAUEG TAIC TAUC TMC1 TMC2 TAC1 TAC2 TUC1 TUC2 TADX1 TADX2 TADX3 TADX4 TADX5 TASX1 TASX2 TASX3 TASX4 TASX5 TAESP TAEST	02/02/18	RPD Masotti
Note :							
26/05/17					Rapp.Taratura n° 342413 per trasmettitore di pressione 4 20 in catena con sistema Acquisizione matr. 011015K815 trasmettitore PIEP	26/05/19	RPD Masotti
Note :							
07/02/18					Taratura Int. per trasduttori: PIEG PUEG PIC PUC PIEP PUEP	07/02/19	RPD Masotti
Note:							

07/02/18				Rapp.Int. per sonde:					07/02/19	RPD
				TAIEP	TAUEP	TAIEG	TAUEG	TAIC	TAUC	Masotti
				TMC1	TMC2	TAC1	TAC2	TUC1	TUC2	
				TADX1	TADX2	TADX3	TADX4	TADX5		
				TASX1	TASX2	TASX3	TASX4	TASX5		
				TAESP	TAEST					
Note :										

SC = strumento campione ; SUC = strumento uso comune ; SNSC = strumento non soggetto a controllo.

TE = Taratura esterna ; CI = Controllo interno; NT = non tarabile.

(a) Numero Rif. Interno (b) caratteristiche tecniche correlate alla precisione dello strumento

(c) data rottamazione (d) N.ro certificato verifica/taratura o sigla operatore che ha eseguito la verifica/taratura

(e) data scadenza Certificato verifica/taratura (data prossima verifica nel caso di CI / TE)(f) firma R.PD

(g) osservazioni derivanti dalla verifica/taratura in caso di esito negativo (variazioni frequenza verifica, interventi sulle unità sottoposte a misura, rottamazione, ecc.)

Rapporto di Taratura Interna del 07/02/2018

Data Emissione: 07/02/2018

Informazioni di Identificazione dell' Apparecchiatura Verificata.

Tipologia: Sistema acquisizione temperatura (PC + PLC+ 24 Termoresistenze PT100).
Nome del Costruttore: Acquisizione: Tecno Espe; PLC: Siemens.
MATRICOLA **67 SALA CLIMATICA**

Codice di Identificazione: TAIEP TAU EP TAIEG TAU EG TAIC TAUC
TMC1 TMC2 TAC1 TAC2
TUC1 TUC2 TADX1 TADX2 TADX3 TADX4 TADX5
TASX1 TASX2 TASX3 TASX4 TASX5 TAESP TAEST

Campo di misura: da -10 a 100 (risoluzione 0,01° C).
Ubicazione apparecchiatura: Camera Climatica Test per gruppi frigo.

Dati Ambientali al momento della taratura.

Temp. Ambiente: (20+-3)°C Umidità relativa: (50 +- 10)% U.R

Prospetto riepilogativo delle misure eseguite.

Temperatura Indicata Sonda TAIEP (Temperatura acqua Ingresso Evaporatore Piccolo)						
		T.campione 0°	T.campione 25°	T.campione 50°		
TAIEP		-0,11	24,93	49,92		

Temperatura Indicata Sonda TAU EP (Temperatura acqua Uscita Evaporatore Piccolo)						
		T.campione 0°	T.campione 25°	T.campione 50°		
TAIEP		-0,07	24,96	49,94		

Temperatura Indicata Sonda TAIEG (Temperatura acqua Ingresso Evaporatore Grande)						
		T.campione 0°	T.campione 25°	T.campione 50°		
TAIEG		-0,08	24,91	49,93		

Temperatura Indicata Sonda TAUEG (Temperatura acqua Uscita Evaporatore Grande)						
		T.campione 0°	T.campione 25°	T.campione 50°		
TAUEG		-0,06	24,96	50		

Temperatura Indicata Sonda TAIC (Temperatura acqua Ingresso Condensatore)						
		T.campione 0°	T.campione 25°	T.campione 50°		
TAIC		-0,03	25,05	50,11		

Temperatura Indicata Sonda (Temperatura Aria Batteria Sinistra)						
		T.campione 0°	T.campione 25°	T.campione 50°		
TASX1		-0,10	24,91	49,89		
TASX2		-0,01	24,92	49,89		
TASX3		-0,01	24,95	49,92		
TASX4		0,11	24,91	49,84		
TASX5		0,04	24,97	50,00		

Temperatura Indicata Sonda (Temperatura Aria Batteria Destra)						
		T.campione 0°	T.campione 25°	T.campione 50°		
TADX1		-0,02	24,92	49,98		
TADX2		-0,03	24,99	50,03		
TADX3		-0,04	25,00	49,87		
TADX4		0,00	24,97	50,04		
TADX5		-0,10	24,90	49,88		

Temperatura Indicata Sonda TAC1 (Temperatura Aspirazione Circuito 1)						
Temperatura Indicata Sonda TUC1 (Temperatura Uscita Condensatore Circuito 1)						
Temperatura Indicata Sonda TMC1 (Temperatura Mandata Circuito 1)						
		T.campione 0°	T.campione 25°	T.campione 50°		
TAC1		0,05	24,94	50,03		95,00
TUC1		-0,01	24,93	49,91		
TMC1		0,12		50,09		95,19

Temperatura Indicata Sonda TAC2 (Temperatura Aspirazione Circuito 2)						
Temperatura Indicata Sonda TUC2 (Temperatura Uscita Condensatore Circuito 2)						
Temperatura Indicata Sonda TMC2 (Temperatura Mandata Circuito 2)						
		T.campione 0°	T.campione 25°	T.campione 50°		
TAC2		0,01	24,98	50,00		
TUC2		-0,05	24,95	49,95		
TMC2		-0,12		49,87		95,16

Rapporto di Taratura Interna del 07/02/2018

Data Emissione: 07/02/2018

Informazioni di Identificazione dell' Apparecchiatura Verificata.

Tipologia: Sistema acquisizione Pressione (PC + PLC+ 6 Trasduttori di Pressione 4 .. 20 mA).
Nome del Costruttore: Acquisizione: Tecno Espe; PLC: Siemens; Trasduttori: Johnson Controls.
Modello: Trasduttori **P499ACS-401**
MATRICOLA **67 SALA CLIMATICA**

Codice di Identificazione: PIEG; PUEG; PIC; PUC; PIEP; PUEP
Campo di misura: da -1 a 8 bar (risoluzione 0,001 bar).
Ubicazione apparecchiatura: Camera Climatica Test per gruppi frigo.

Dati Ambientali al momento della taratura.

Temp. Ambiente: (20+-3)°C Umidità relativa: (50 +- 10)% U.R

Prospetto riepilogativo delle misure eseguite.

Verifica Trasduttore "PIEG" Pressione Ingresso Evaporatore Grande (sn 011015K937)

Pressione di Rif.	Lettura Strumento	Scostamento
0,00	0,001	0,001
1,20	1,207	0,007
2,40	2,407	0,007
3,60	3,608	0,008
4,80	4,81	0,010
6,00	6,013	0,013
4,80	4,805	0,005
3,60	3,606	0,006
2,40	2,408	0,008
1,20	1,207	0,007
0,00	0,005	0,005

Max Errore positivo	0,05
Min Errore negativo	0,05

Verifica Trasduttore "PUEG" Pressione Uscita Evaporatore Grande (sn 011015K780)

Pressione di Rif.	Lettura Strumento	Scostamento
0,00	0,009	0,009
1,20	1,208	0,008
2,40	2,406	0,006
3,60	3,605	0,005
4,80	4,803	0,003
6,00	6,000	0,000
4,80	4,805	0,005
3,60	3,610	0,010
2,40	2,410	0,010
1,20	1,209	0,009
0,00	0,010	0,010

Max Errore positivo	0,05
Min Errore negativo	0,05

Verifica Trasduttore "PIC" Pressione Ingresso Condensatore (sn 011015K952)

Pressione di Rif.	Lettura Strumento	Scostamento
0,00	0,013	0,013
1,20	1,210	0,010
2,40	2,409	0,009
3,60	3,609	0,009
4,80	4,808	0,008
6,00	6,002	0,002
4,80	4,810	0,010
3,60	3,611	0,011
2,40	2,412	0,012
1,20	1,215	0,015
0,00	0,015	0,015

Max Errore positivo	0,05
Min Errore negativo	0,05

Verifica Trasduttore "PUC" Pressione Ingresso Condensatore (sn 011015K931)

Pressione di Rif.	Lettura Strumento	Scostamento
0,00	0,020	0,020
1,20	1,213	0,013
2,40	2,414	0,014
3,60	3,610	0,010
4,80	4,808	0,008
6,00	6,001	0,001
4,80	4,810	0,010
3,60	3,613	0,013
2,40	2,418	0,018
1,20	1,216	0,016
0,00	0,019	0,019

Max Errore positivo	0,05
Min Errore negativo	0,05

Verifica Trasduttore "PIEP" Pressione Ingresso Evaporatore Piccolo (sn 011015K815)

Pressione di Rif.	Lettura Strumento	Scostamento
0,00	0,020	0,020
1,20	1,216	0,016
2,40	2,412	0,012
3,60	3,610	0,010
4,80	4,810	0,010
6,00	5,999	0,001
4,80	4,804	0,004
3,60	3,610	0,010
2,40	2,413	0,013
1,20	1,218	0,018
0,00	0,017	0,017

Max Errore positivo	0,05
Min Errore negativo	0,05

Verifica Trasduttore "PUPEP" Pressione Uscita Evaporatore Piccolo (sn 011015K781)

Pressione di Rif.	Lettura Strumento	Scostamento
0,00	0,022	0,022
1,20	1,217	0,017
2,40	2,414	0,014
3,60	3,611	0,011
4,80	4,806	0,006
6,00	6,000	0,000
4,80	4,809	0,009
3,60	3,613	0,013
2,40	2,416	0,016
1,20	1,220	0,020
0,00	0,019	0,019

Max Errore positivo	0,05
Min Errore negativo	0,05



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