SPECTRUM
ENGINEERING LIMITED

COMMISSIONING REPORT

CONTRACT : ITT Dublin (Tallaght)

SYSTEMS : Extract Fan
General Extract Air

CLIENT: Pro Duct Ventilation

AREAS SERVED : LAB 017A

JOB NUMBER : 3603

REPORT COMPILED BY : Eugene Traynor **DATE :** 04 May 2016

SIGNATURE :

SPECTRUM
ENGINEERING LIMITED

Unit 6, 117 Grange Drive,
Baldoyle Industrial Estate,
Dublin 13 D13 KH48
Tel : 01 839 8994 Fax : 01 839 8381
e-mail : info@ spectrumhvac.ie

SHEET NUMBER	SYSTEM	AREA SERVED	SHEET TYPE
3	ADE Enclosure & Scrubber Extract Fan	LAB 017A ADE Encloser & Scrubber	Fan Details
4	ADE Enclosure & Scrubber Extract Fan	LAB 017A ADE Encloser & Scrubber	Pitot Traverse
5	ADE Enclosure & Scrubber Extract Fan	F2 Cabinet	Pitot Traverse
6	ADE Enclosure & Scrubber Extract Fan	LAB 017A ADE Encloser & Scrubber	Air Distribution
7	LAB 017A General Extract Fan	LAB 017A	Air Distribution, Grilles

Copies of Calibration Certificates for Instruments used for measurements appended to Report

CONTRACT	:	ITT Dublin (Tallaght)	Date :	04-May-16
System	:	ADE Enclosure & Scrubber Extract Fan		
Area Served	:	Lab 017A		
Level	:	Steel Container Roof		

FAN DETAILS

	FAN 1	FAN 2
Application	Extract Air	Extract Air
Manufacturer	Ziehl Abegg	Ziehl Abegg
Type	RH35V-Z1K.DC.1.R	RH35V-Z1K.DC.1.R
Serial No.	30950155/022	30950155/022
Design A.Q. **Note 1**	0.158 M^3/s	0.158 M^3/s
Actual A.Q. **Note 1**	0.177 M^3/s	0.177 M^3/s
Design E.S.P	200 Pascals	200 Pascals
Actual E.S.P	138 Pascals	142 Pascals
Rated Volts	200 Volts	200 Volts
Rated kW	0.9 kW	0.9 kW
Rated Amps	4.4 Amps	4.4 Amps
Actual Amps	N/A Amps	N/A Amps
O.L. Range	N/A to N/A Amps	N/A to N/A Amps
O.L. Set @	N/A Amps	N/A Amps
Rated Speed	2201 RPM	2201 RPM
Actual Speed	N/A RPM	N/A RPM

Instruments Used

Instrument	Model	Calibration Due Date	Serial Number
Micromanometer	TT570 SV	04-Jul-16	5711

Comments : **Note 1** : Design A.Q. 0.158 M^3/s = 569 M^3/hr
Actual A.Q. 0.177 M3/s = 673 M3/hr

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CONTRACT	:	ITT Dublin (Tallaght)	Date	:	04-May-16
System	:	ADE Enclosure & Scrubber Extract Fan			
Area Served	:	Lab 017A			
Level	:	Ground			

Test Point No. : T.P.01
Duct Width : mm
Duct Height : mm
Duct Diameter : 315 mm
Duct Area : 0.078 m^2

Readings

Point	A	B	C	D	E	F	G	H	I	J	K	L
1	1.0	1.1										
2	1.0	1.0										
3	1.0	1.0										
4	1.0	1.1										
5	1.1	1.1										
6	1.2	1.0										
7												
8												
9												
10												
11												
12												
13												
14												
Sub	6.3	6.3										

Number of Readings	12	
Total of Meter Readings	12.6 M/s	
Meter Readings Average Velocity	1.050 M/s	
Air Volume at Traverse Point	0.082 M^3/s	295 M^3/hr
Design Air Volume	0.074 M^3/s	265 M^3/hr
Test Point Static Pressure	-80 Pa	

Instruments Used

Instrument	Model	Calibration Due Date	Serial Number
Micromanometer	TT570 SV	04-Jul-16	5711

Comments : Test Point 01 & 02 only recording air flow to CS Clean Emergency Scrubber

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CONTRACT	:	ITT Dublin (Tallaght)	Date	:	04-May-16
System	:	ADE Enclosure & Scrubber Extract Fan			
Area Served	:	Lab 017A			
Level	:	Ground			

Test Point No. : T.P.02
Duct Width : mm
Duct Height : mm
Duct Diameter : 100 mm
Duct Area : 0.008 m^2

Readings

Point	A	B	C	D	E	F	G	H	I	J	K	L
1	2.4											
2	2.4											
3	2.7											
4	2.8											
5	2.5											
6	2.5											
7												
8												
9												
10												
11												
12												
13												
14												
Sub	15.3											

Number of Readings	6	
Total of Meter Readings	15.3 M/s	
Meter Readings Average Velocity	2.550 M/s	
Air Volume at Traverse Point	0.020 M^3/s	72 M^3/hr
Design Air Volume	0.017 M^3/s	60 M^3/hr
Test Point Static Pressure	-53 Pa	

Instruments Used

Instrument	Model	Calibration Due Date	Serial Number
Micromanometer	TT570 SV	04-Jul-16	5711

Comments : Test Point 01 & 02 only recording air flow to CS Clean Emergency Scrubber

COMMISSIONED BY :
SPECTRUM ENGINEERING LIMITED Eugene Traynor

CONTRACT : ITT Dublin (Tallaght) Date : 04-May-16
System : ADE Enclosure & Scrubber Extract Fan
Area Served : Lab 017A
Level :

Reference Number	Location	Level	Design AQ M^3/hr	Actual AQ M^3/hr	Actual AQ M^3/s
Ref 01	Steel Container Floor Extract / Nitrogen Generator	Ground	245	274	0.076
Ref 02	F2 Cabinet	Ground	60	72	0.020
Ref 03	Reactive Panel Enclave	Ground	30	32	0.009
Ref 04	ADE Enclosure	Ground	160	169	0.047
Ref 05	Process Scrubber Clean Cabinet	Ground	60	72	0.020
Ref 06	Process Scrubber Column	Ground	15	18	0.005

Instruments Used

Instrument	Model	Calibration Due Date	Serial Number
Micromanometer	TT570 SV	04-Jul-16	5711

Comments :

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CONTRACT : ITT Dublin (Tallaght) Date : 04-May-16
System : General Lab Room Extract Fan
Area Served : Lab 017A
AIR DISTRIBUTION

Grille Number	Location	Level	Design AQ M^3/hr	Actual AQ M^3/hr	Actual AQ M^3/s
EAG 01	LAB 017A	Ground	186	208	0.058
EAG 02	LAB 017A	Ground	186	208	0.058
EAG 03	LAB 017A	Ground	186	194	0.054
EAG 04	LAB 017A	Ground	186	194	0.054

Instruments Used

Instrument	Model	Calibration Due Date	Serial Number
Shortridge Flow Hood	ADM 850L	31-Oct-16	M03374

Comments : Fan Speed controller set @ 30% to achieve air flows.

Note 1: No Access to roof to get fan details.

COMMISSIONED BY :
SPECTRUM ENGINEERING LIMITED Eugene Traynor

CALIBRATION CERTIFICATE

CUSTOMER DETAILS:
Customer: Spectrum Engineering Ltd
Customer Serial Number: N/A

INSTRUMENT DETAILS:
Model: TT570 SV
Serial Number: 5711

CONDITION ON RECIEPT:
1 Required repair: No
2 In spec: Yes
3 If yes to 2 adjustment: Yes
4 If no to 2 adjustment:

CALIBRATION DETAILS:
Date Of Calibration 04/07/15
Due Date: 04/07/16
Certificate Number 22797

TEST ROOM CONDITIONS:
Temperature: 27°C ± 2°C

nufacturers Specification Readings less than 100 counts ± 2 counts
Readings greater than 100 counts ± 1% of reading ± 1 count

Manufacturer: DP Measurement

TEST RESULTS:

Calibration Points Pa:	0	40.0	80.0	160	400	800	1.60	3.00	6.00
Indicated Readings:	0	40.0	80.1	160	400	800	1.60	3.00	6.00
Precentage Error:	0	0.00%	0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

Calibration Points Pa:	0	-40.0	-80.0	-160	-400	-800	-1.60	-3.00	-6.00
Indicated Readings:	0	-39.8	-79.8	-160	-401	-801	-1.60	-3.01	-6.00
Precentage Error:	0	-0.50%	-0.25%	0.00%	0.25%	0.13%	0.00%	0.33%	0.00%

Calibration Points m/sec:	0	5.00	8.16	11.5	15.0	16.3	25.8	36.5	50.0
Indicated Readings:	0	4.97	8.15	11.5	15.0	16.3	25.8	36.5	50.0
Precentage Error:	0	-0.60%	-0.12%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%

ies:

Equipment: The instrument detailed above has been calibrated against equipment serial number 0047381 which in turn has been calibrated against instruments and equipment that are traceable to National Standards.(UKAS Calibration Laboratory N° 0157). The percentage error quoted refer to the measured values only, with no account being taken of the instruments ability to maintain is calibration.

Velocity Range: Is calibrated for the ellipsoidal nose (NPL Type) Pitot Static Tubes used at air density 1.20kg/m³. Air stream temperature set at 16°C and barometeric pressure set at 1000 mbar

Calibrated by Hussein Khimji:

Unit 11, Top Angel, Buckingham Industrial Park, Buckingham. MK18 1TH
Telephone/Fax: 01280 823823 e-mail:air@ttseries.com www.a-i-r.co.uk

AIRDATA MULTIMETER CERTIFICATE OF RECALIBRATION

Customer ID: 010103 S/N: M03774

Customer: SPECTRUM ENGINEERING, LTD. City: DUBLIN State: IE

As-Received Model #: ADM-850L Converted to Model #: Order #: R153107

PO #: Customer Eqpt ID#: Calibration Due Date: 10/31/2016

This instrument has been calibrated using Calibration Standards which are traceable to NIST (National Institute of Standards and Technology). Quality Assurance Program and calibration procedures meet the requirements for ANSI/NCSL Z540-1, ISO 17025, MIL-STD 45662A and manufacturer's specifications. Calibration accuracy is certified when meters are used with properly functioning accessories only. All Uncertainties are expressed in expanded terms (twice the calculated uncertainty). This report shall not be reproduced, except in full, without the written approval of Shortridge Instruments, Inc. Results relate only to the item calibrated. For limitations on use, see Shortridge Instruments, Inc. Instruction Manual for the use of AirData Multimeters. Procedure used: Procedure for Differential Pressure, Absolute Pressure and Temperature Recalibration of AirData Multimeters SIP-CP02 Revision: 28 Dated: 07/31/14

Calibration Technician(s): C Kastrul D Babb Calibration Date: 10/05/2015

Calibration Approved by: R. Richardowicz Title: Calibration Supervisor Date: 10/20/2015

As-Received Test performed after minor repair: Yes (No)

AS-Received By OK	Final Test By CB	Test By
Date 09/30/15 Rh 46 %	Date 10/05/15 Rh 51 %	Date Rh %
Ambient Temperature 76 °F	Ambient Temperature 75 °F	Ambient Temperature N/A °F
Barometric Pressure 28.38 In Hg	Barometric Pressure 28.40 In Hg	Barometric Pressure N/A in Hg
All within spec (YES) NO NA	All within spec (YES) NO	All within spec YES NO

ABSOLUTE PRESSURE TEST (in Hg)

TEST METER TOLERANCE = ± 2.0 % ± .1 in Hg AS-RECEIVED TEST WITHIN SPEC (YES) NO N/A See Notes

Pressure Standard: Heise #02-R S/N: 41741/42451 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #04-R S/N: 41743/42453 As-Rcvd (Test 2) Test 3
Pressure Standard: Heise #06-R S/N: 41742/42452 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #08-R S/N: 42186/43328 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #10-R S/N: 42203/43352 (As-Rcvd) Test 2 Test 3
Pressure Standard: Heise #12-R S/N: 43166/44731 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #14-R S/N: 43412/45043 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #16-R S/N: 43413/45044 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #18-R S/N: 44581/46845 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #20-R S/N: 44582/46847 As-Rcvd Test 2 Test 3

Approx Set Pt	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff
14.0	14.13	14.1	-.21	14.10	14.1	0			
28.4	28.38	28.4	.07	28.40	28.4	0		N/A	
40.0	40.50	40.5	0	40.47	40.5	.07			

DIFFERENTIAL PRESSURE TEST (in wc)

TEST METER TOLERANCE = ± 2.0 % ± 0.001 in wc AS-RECEIVED TEST WITHIN SPEC (YES) NO N/A See Notes

Pressure Standard: Heise #01-L S/N: 41739/42449 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #01-R S/N: 41739/42446 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #02-L S/N: 41741/42454 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #03-L S/N: 41738/42448 As-Rcvd (Test 2) Test 3
Pressure Standard: Heise #03-R S/N: 41738/42445 As-Rcvd (Test 2) Test 3
Pressure Standard: Heise #04-L S/N: 41743/42456 As-Rcvd (Test 2) Test 3
Pressure Standard: Heise #05-L S/N: 41740/42450 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #05-R S/N: 41740/42447 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #06-L S/N: 41742/42455 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #07-L S/N: 42185/42186 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #07-R S/N: 42185/43326 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #08-L S/N: 42186/43329 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #09-L S/N: 42202/43351 (As-Rcvd) Test 2 Test 3
Pressure Standard: Heise #09-R S/N: 42202/43350 (As-Rcvd) Test 2 Test 3
Pressure Standard: Heise #10-L S/N: 42203/43353 (As-Rcvd) Test 2 Test 3
Pressure Standard: Heise #11-L S/N: 43165/44551 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #11-R S/N: 43165/44730 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #12-L S/N: 43166/44732 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #13-L S/N: 43415/45041 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #13-R S/N: 43415/45039 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #14-L S/N: 43412/45045 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #15-L S/N: 43416/45042 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #15-R S/N: 43416/45040 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #16-L S/N: 43413/45046 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #17-L S/N: 44579/46842 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #17-R S/N: 44579/46841 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #18-L S/N: 44581/46846 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #19-L S/N: 44580/46844 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #19-R S/N: 44580/46843 As-Rcvd Test 2 Test 3
Pressure Standard: Heise #20-L S/N: 44582/46848 As-Rcvd Test 2 Test 3

Approx Set Pt	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff	Standard	Test Meter	% Diff
.0500	.0507	.0506	-.20	.0511	.0510	-.20			
.1250	.1266	.1264	-.16	.1258	.1254	-.32			
.2250	.2255	.2249	-.27	.2210	.2260	-.44			
.2700	.2736	.2732	-.15	.2715	.2704	-.41			
2.000	2.030	2.026	-.20	2.018	2.010	-.40		N/A	
3.600	3.633	3.625	-.22	3.614	3.589	-.69			
4.400	4.407	4.403	-.09	4.401	4.401	0			
27.00	27.06	27.03	-.11	27.05	26.96	-.33			
50.00	50.29	50.06	-.46	50.08	49.77	-.62			
Overange	NA	✓	NA	NA	✓	NA	NA		NA

Shortridge Instruments, Inc.
7855 East Redfield Road Scottsdale, Arizona 85260
(480) 991-6744 • Fax (480) 443-1267 • www.shortridge.com

Shortridge Instruments, Inc. AirData Multimeter Calibration Equipment

Order Number: R153107 Serial Number: M03774 Test Type: Initial As-Received (Final)

ABSOLUTE PRESSURE STANDARDS

ADM #02-R	S/N: 41741/42451	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/11/15	Due Date: 04/2016
ADM #04-R	S/N: 41743/42453	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/11/14	Due Date: 11/2015
ADM #06-R	S/N: 41742/42462	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 08/19/15	Due Date: 08/2016
ADM #08-R	S/N: 42166/43328	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 03/10/15	Due Date: 03/2016
ADM #10-R	S/N: 42203/43352	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/15/15	Due Date: 01/2016
ADM #12-R	S/N: 43166/44731	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 07/14/15	Due Date: 07/2016
ADM #14-R	S/N: 43412/45043	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/10/15	Due Date: 09/2016
ADM #16-R	S/N: 43413/45044	Heise Model: PPM-2	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 02/13/15	Due Date: 02/2016
ADM #18-R	S/N: 44581/46845	Heise Model: PPM-2	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 05/12/15	Due Date: 05/2016
ADM #20-R	S/N: 44582/46847	Heise Model: PPM-2	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 08/08/15	Due Date: 08/2016

#02-R, 04-R, 06-R, 08-R, 10-R, 12-R, 14-R, 16-R Rated Accuracy: 0.05% fs (0.0305 in Hg) Range: 0-30 psia Resolution: 0.01 Uncertainty: < 0.0358

#18-R, 20-R Rated Accuracy: 0.05% fs (0.0305 in Hg) Range: 0-60 in Hg Resolution: 0.001 Uncertainty: < 0.0358

DIFFERENTIAL PRESSURE STANDARDS

ADM #01-L	S/N: 41739/42449	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/16/15	Due Date: 04/2016
ADM #01-R	S/N: 41739/42449	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/17/15	Due Date: 04/2016
ADM #02-L	S/N: 41741/42454	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 04/17/15	Due Date: 04/2016
ADM #03-L	S/N: 41738/42448	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/10/14	Due Date: 11/2015
ADM #03-R	S/N: 41738/42445	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/10/14	Due Date: 11/2015
ADM #04-L	S/N: 41743/42458	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 11/12/14	Due Date: 11/2015
ADM #05-L	S/N: 41740/42450	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 08/21/15	Due Date: 08/2016
ADM #05-R	S/N: 41740/42447	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 08/21/15	Due Date: 08/2016
ADM #06-L	S/N: 41742/42455	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 08/21/15	Due Date: 08/2016
ADM #07-L	S/N: 42166/42166	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 03/13/15	Due Date: 03/2016
ADM #07-R	S/N: 42166/43326	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 03/13/15	Due Date: 03/2016
ADM #08-L	S/N: 42166/43329	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 03/13/15	Due Date: 03/2016
ADM #09-L	S/N: 42202/43351	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/28/15	Due Date: 01/2016
ADM #09-R	S/N: 42202/43350	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/28/15	Due Date: 01/2016
ADM #10-L	S/N: 42203/43353	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 01/28/15	Due Date: 01/2016
ADM #11-L	S/N: 43165/44551	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 07/17/15	Due Date: 07/2016
ADM #11-R	S/N: 43165/44730	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 07/17/15	Due Date: 07/2016
ADM #12-L	S/N: 43166/44732	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 07/17/15	Due Date: 07/2016
ADM #13-L	S/N: 43415/45041	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/16/15	Due Date: 09/2016
ADM #13-R	S/N: 43416/45039	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/16/15	Due Date: 09/2016
ADM #14-L	S/N: 43412/45045	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 09/16/15	Due Date: 09/2016
ADM #13-L	S/N: 43416/45042	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 02/20/15	Due Date: 02/2016
ADM #15-R	S/N: 43418/45040	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 02/20/15	Due Date: 02/2016
ADM #16-L	S/N: 43413/45046	Heise Model: PPM-1	Mfgd by Dresser Industries	Calibrated by Ashcroft	Calibration Date: 02/20/15	Due Date: 02/2016
ADM #17-L	S/N: 44578/46842	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 05/16/15	Due Date: 05/2016
ADM #17-R	S/N: 44578/46841	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 09/16/15	Due Date: 05/2016
ADM #18-L	S/N: 44581/46845	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 05/16/15	Due Date: 05/2016
ADM #19-L	S/N: 44580/46844	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 05/10/15	Due Date: 05/2016
ADM #19-R	S/N: 44580/46843	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 05/10/15	Due Date: 05/2016
ADM #20-L	S/N: 44582/46848	Heise Model: PPM-1	Mfgd & Calibrated by Ashcroft, Inc.		Calibration Date: 08/09/15	Due Date: 08/2016

#01-L, 03-L, 05-L, 07-L, 09-L, 11-L, 13-L, 15-L, 17-L, 19-L Rated Accuracy: > 0.07% fs (0.000175 in wc) Range: 0.0-0.25 in wc Res.: 0.00001 Uncertainty: < 0.00035

#01-R, 03-R, 05-R, 07-R, 09-R, 11-R, 13-R, 15-R, 17-R, 19-R Rated Accuracy: > 0.06% fs (0.003 in wc) Range: 0.0-5.0 in wc Res.: 0.0001 Uncertainty: < 0.00348

#02-L, 04-L, 06-L, 08-L, 10-L, 12-L, 14-L, 16-L, 18-L, 20-L Rated Accuracy: > 0.06% fs (0.03 in wc) Range: 0.0-50.0 in wc Res.: 0.001 Uncertainty: < 0.0348

Shortridge Instruments, Inc.
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(480) 991-6744 • Fax (480) 443-1267 • www.shortridge.com

TECHNICAL SERVICES
1698 S. 140th Place, Gilbert, AZ 85295 • phone • 602.380.3817 • fax • 866.752.8131 • www.fsttechnical.com

Helium Leak Test Report

Customer:	**Nines Photovoltaics**	Date:	28/05/16
Tool :	ADE 1000	Gas System:	F2
System:	F2 Outer Containment	Serial No:	n/a
Cart #	Gas Check G3	Test Type:	Outboard

Starting Leak Rate: 1.0×10^{-5} Final Leak Rate: 1.0×10^{-5}

Specifications: Leak Rate Not to Exceed $1x\ 10^{-5}$ mbar. l/sec

Certification: PASSED Retest: No

Comments Outer Containment was filled with Helium and all welds and joints were Tested using Gas Check G3.
When test was finished line was pumped down using ul200 and left under vacuum

Printed Name: Martin Finegan Date: 28/05/16

Signed Name:

www.fsttechnical.com
p 602.380.3817 f 866.752.8131
1698 S. 140th Pl. Gilbert, AZ 85295

TECHNICAL SERVICES
1698 S. 140th Place, Gilbert, AZ 85295 • phone • 512.293.3679 • fax • 866.752.8131 • www.fsttechnical.com

Customer: Nines Photovoltaics Gas System: F2

Tool/System: ADE 1000 Location: Tallaght ITT

Leak Test Data

Equipment: UL200 Cart # Set-Up Time: 1 Hr

Starting Leak Rate: 1.0 x 10-9 Final Leak Rate: 1.0 x 10-9

Test Duration: 1 Hr Certification: (Pass) Fail Retest: Yes (No)

Comments

Particle Test Data

Equipment: Met One Cart # 1 Set-Up Time: 15 Mins

	0.1µ	0.2µ	0.3µ	0.5µ	0.7µ	1.0µ
Sample 1	0	0	0	0	0	0
Sample 2	0	0	0	0	0	0
Sample 3	0	0	0	0	0	0

System Diameter: ¼" System Flow Rate: 1200 fpm

Test Duration: 5 Mins Certification: (Pass) Fail Retest: Yes (No)

Comments

Trace Gas Test Data

Equipment: Delta F/ Ametek Cart # 1 Set-Up Time: 15 Min

	Sample Location	Oxygen	Moisture	Other
Reading:	P.O.C. @ Tool	90 ppb	45 ppb	
Baseline:	CAR System	n/a	n/a	

Test Duration: 1 Hour Certification: (Pass) Fail Retest: Yes (No)

Comments

Printed Name:: Martin Finegan Date: 28/05/16

Signed By: Martin Finegan Date: 28/05/16

Rev. 9 03/08

F2 Line to Tool
ADE 1000

LOCATION 000, 12:37:14 MAY 27,16
CYCLES = 360, PERIOD = 00:01:00

SIZE	CUMULATIVE	DIFFERENTIAL
0.1u	0	0
0.2u	0	0
0.3u	0	0
0.5u	0	0
0.7u	0	0
1.0u	0	0

LOCATION 000, 12:38:15 MAY 27,16
CYCLES = 360, PERIOD = 00:01:00

SIZE	CUMULATIVE	DIFFERENTIAL
0.1u	0	0
0.2u	0	0
0.3u	0	0
0.5u	0	0
0.7u	0	0
1.0u	0	0

LOCATION 000, 12:39:16 MAY 27,16
CYCLES = 360, PERIOD = 00:01:00

SIZE	CUMULATIVE	DIFFERENTIAL
0.1u	0	0
0.2u	0	0
0.3u	0	0
0.5u	0	0
0.7u	0	0
1.0u	0	0

TECHNICAL SERVICES
1698 S. 140th Place, Gilbert, AZ 85295 • phone • 512.293.3679 • fax • 866.752.8131 • www.fsttechnical.com

Customer: Nines Photovoltaics Gas System: Nitrogen

Tool/System: N2 to F2 Sempa Unit Location: Tallaght ITT

Leak Test Data

Equipment: UL200 Cart #: _____ Set-Up Time: 1 Hr

Starting Leak Rate: 1.0 x 10-9 Final Leak Rate: 1.0 x 10-9

Test Duration: 1 Hr Certification: (Pass) / Fail Retest: Yes / (No)

Comments: _____

Particle Test Data

Equipment: Met One Cart #: 1 Set-Up Time: 15 Mins

	0.1µ	0.2µ	0.3µ	0.5µ	0.7µ	1.0µ
Sample 1	0	0	0	0	0	0
Sample 2	0	0	0	0	0	0
Sample 3	0	0	0	0	0	0

System Diameter: ¼" System Flow Rate: 1200 fpm

Test Duration: 5 Mins Certification: (Pass) / Fail Retest: Yes / (No)

Comments: _____

Trace Gas Test Data

Equipment: Delta F/ Ametek Cart #: 1 Set-Up Time: 15 Min

	Sample Location	Oxygen	Moisture	Other
Reading:	P.O.C. @ Tool	90 ppb	45 ppb	
Baseline:	CAR System	n/a	n/a	

Test Duration: 1 Hour Certification: (Pass) / Fail Retest: Yes / (No)

Comments: _____

Printed Name:: Martin Finegan Date: 28/05/16

Signed By: [signature] Date: 28/05/16

Rev. 9 03/08

N2 Line to Sample Unit

LOCATION 000, 12:37:14 MAY 27,16
CYCLES = 360, PERIOD = 00:01:00

SIZE	CUMULATIVE	DIFFERENTIAL
0.1u	0	0
0.2u	0	0
0.3u	0	0
0.5u	0	0
0.7u	0	0
1.0u	0	0

LOCATION 000, 12:38:15 MAY 27,16
CYCLES = 360, PERIOD = 00:01:00

SIZE	CUMULATIVE	DIFFERENTIAL
0.1u	0	0
0.2u	0	0
0.3u	0	0
0.5u	0	0
0.7u	0	0
1.0u	0	0

LOCATION 000, 12:39:16 MAY 27,16
CYCLES = 360, PERIOD = 00:01:00

SIZE	CUMULATIVE	DIFFERENTIAL
0.1u	0	0
0.2u	0	0
0.3u	0	0
0.5u	0	0
0.7u	0	0
1.0u	0	0

TECHNICAL SERVICES
1698 S. 140th Place, Gilbert, AZ 85295 • phone • 512.293.3679 • fax • 866.752.8131 • www.fsttechnical.com

Customer: **Nines Photovoltaics** Gas System: Nitrogen

Tool/System: ADE 1000 Location: Tallaght ITT

Leak Test Data

Equipment: UL200 Cart # _____ Set-Up Time: 1 Hr

Starting Leak Rate: 1.0 x 10-9 Final Leak Rate: 1.0 x 10-9

Test Duration: 1 Hr Certification: (Pass) / Fail Retest: Yes / (No)

Comments _____

Particle Test Data

Equipment: Met One Cart # 1 Set-Up Time: 15 Mins

	0.1µ	0.2µ	0.3µ	0.5µ	0.7µ	1.0µ
Sample 1	0	0	0	0	0	0
Sample 2	0	0	0	0	0	0
Sample 3	0	0	0	0	0	0

System Diameter: ¼" System Flow Rate: 1200 fpm

Test Duration: 5 Mins Certification: (Pass) / Fail Retest: Yes (No)

Comments _____

Trace Gas Test Data

Equipment: Delta F/ Ametek Cart # 1 Set-Up Time: 15 Min

	Sample Location	Oxygen	Moisture	Other
Reading:	P.O.C. @ Tool	6.5 ppb	11 ppb	
Baseline:	CAR System	n/a	n/a	

Test Duration: 1 Hour Certification: (Pass) / Fail Retest: Yes (No)

Comments _____

Printed Name:: Martin Finegan Date: 28/05/16

Signed By: [signature] Date: 28/05/16

Rev. 9 03/08

N2 Line to tool
ADE 1000

LOCATION 000, 12:22:49 MAY 27,16
CYCLES = 360, PERIOD = 00:01:00

SIZE	CUMULATIVE	DIFFERENTIAL
0.1u	0	0
0.2u	0	0
0.3u	0	0
0.5u	0	0
0.7u	0	0
1.0u	0	0

LOCATION 000, 12:23:50 MAY 27,16
CYCLES = 360, PERIOD = 00:01:00

SIZE	CUMULATIVE	DIFFERENTIAL
0.1u	0	0
0.2u	0	0
0.3u	0	0
0.5u	0	0
0.7u	0	0
1.0u	0	0

LOCATION 000, 12:24:51 MAY 27,16
CYCLES = 360, PERIOD = 00:01:00

SIZE	CUMULATIVE	DIFFERENTIAL
0.1u	0	0
0.2u	0	0
0.3u	0	0
0.5u	0	0
0.7u	0	0
1.0u	0	0

QM – acceptance protocol

☒ acceptance ☒ commissioning ☒ handover

development: Nines PV

project: F2 - system **order no.:** 134027

contract no.: ..... **cost object:** .....

building: ITT **room:** Container F2

principal: .....

agent: SEMPA SYSTEMS GmbH

attendee (name, firm): Dirk Mai, Sempa
Mr. Laurent Clochard (Nines PV)

acceptance of ☐ overall performance ☒ partial performance like following:

- part of the documention are missing, will be delivered in week 25

The performance was generated from 2015 till 17.6.16 .

Result

€ no visible failings € minor failings € significant failings

acceptance ☒ yes € no

€ the following checks have been done

☒ press. test € leak test ☒ vacuum-leak test ☒ moisture measurement ☒ particle measurement

Date of acceptance: 17.6.2016

The guarantee started on: 17.6.2016

principal agent

[redacted]

SEMPA SYSTEMS

Projekt
project F2 supply system
Kunde
customer NINES PV
Datum
date 15.6- 17.6.2016

Test report

Performing person: Dirk Mai (Sempa)

description	[redacted]	[redacted]
Transducer WIKA Purgepressure N2 PT+/-	PT1.1	✓
Transducer WIKA vacuumpressure PT+/-	PT1.2	✓
Transducer WIKA cylinderpressure PT+/-	PT1.3	✓
Transducer WIKA systempressure PT+/-	PT1.4	✓
Transducer WIKA systempressure PT+/-	PT1.31	✓
pressuregauge N2 Panel PISA-	PS3.1	✓
Pressuregauge burstdisc F2 Tableau PISA+	PS1.5	✓
Pressuregauge N2 Tableau PISA-/--	PS1.3/ PS2.3	✓
Pressuregeuge N2 Tableau burstdisc PISA-/--	PS3.5	✓
pressureswitch Steuerluft PISA-	PS0.1	✓
Doubletube monitoring F2 processline PISA+/-	PS1.6	✓
EMO cabinet touchpanel HSZA-	HZ0.1	✓
EMO toolbox (key) HSZA-	HZ0.2	✓
requirement gas, keyswitch XSA- (toolbox)	XS.01/ V1.4	✓
External firesignal BMZ	XS.02	✓
Flowswitch exhaust air FSA-	FS0.1	✓
Flowswitch N2 purgegas safetyline exhaust vent FSA-	FS3.1	✓
Signal gasmonitoring sensor cabinet A1/ A2 QIZA+	QS 10	✓
Signal gasmonitoring sensor gasroom A1/ A2 QIZA+	QS 20	✓

SEMPA SYSTEMS GmbH
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01109 Dresden, Germany
Tel: +49 (0)351 [redacted]
Fax: +49 (0)351 [redacted]
Mail info@sempa.de – Web www.[redacted]

[redacted]

Pneumatic valve	V1.0	✓
Pneumatic valve	V1.1	✓
Pneumatic valve	V1.2	✓
Pneumatic valve	V1.3	✓
Pneumatic valve	V1.4	✓
Pneumatic valve	V1.5	✓
Pneumatic valve	V1.6	✓
Pneumatic valve	V1.31	✓
Pneumatic valve	V1.32	✓

Prüfer: Inspector **Name:** Dirk Mai name **Unterschrift:** signature **Datum, Ort:** 17.6.2016 date, location

SEMPA SYSTEMS GmbH
Grenzstrasse 13
01109 Dresden, Germany

Tel: +49 (0)351/ 88510 -0
Fax: +49 (0)351/88510 - 18
Mail info@sempa.de – Web www.sempa.de

passivation protocol 30% F2 in N2

custumer: Nines PV
location: ITT Dublin- Tallaght
equipment: F2 supply system
date: 16.06.2016
performing person: Dirk Mai (Sempa)

Start	End	work step	Bemerkung
		close pressure regulator	
		open cylindervalve 1.0	
8:30	9:00	passivation HP 30 min @ 136bar	136 bar F2
		open pressure regulator	
9:00	9:30	passivation LP 30 min @ 2 bar	2.0 bar until V1.8
		reject F2	by CS Cleaner
		evacuate panel	by CS Cleaner
9:45	13:45	passivation HP 240 min @ 136bar	136 bar F2
9:45	13:45	passivation LP 240 min @ 2bar	PR 1.1 until toolvalves
14:00		reject F2	by CS Cleaner
14:00		evacuate system	by CS Cleaner
14:10		refill system until toolvalves	

23.6.2016

14.8.2 Test certificates

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Grenzstr. 13
01109 Dresden, Germany
Phone: +49 351 88810-0
Fax: +49 351 88810-15
E-Mail: info@sempa.de – Web: www.sempa.de

Prüfprotokoll Werkszeugnis
test report

Anlage / machine:	**F2 cabinet**	**Datum/date:**	**18-8-2015**
		Auftraggeber/Client:	**Nines PV**
Medium / medium:	**F2- fluor/ N2- nitrogen**	**Auftrag/order:**	
SN	**Cabinet 010 00.000.487**	**KTR intern/internal:**	**134027**

Drucktest/pressure test

Zeit/time:	24 h
Druck / pressure:	170 bar g (high pressure Unit)
Prüfer /test engineer:	Dirk Mai
Datum:	17.8.2015- 18.8.2015

Drucktest/pressure test

Zeit/time:	24 h
Druck / pressure:	6bar (low pressure Unit)
Prüfer/test engineer:	Dirk Mai
Datum:	17.8.2015- 18.8.2015

Helium-Lecktest/leak test

Zeit:/time	Not specified !
Ergebnis / result	1x10-9 mbar l/s
Prüfer / test engineer:	Dirk Mai
Datum / date:	18.8.2015

Feuchtetest/moisture test

Zeit:/time	Not performed
Ergebnis/result:	Not performed
Prüfer/test engineer:	Not performed
Datum/date:	Not performed

Partikeltest/particle test

Messgerät / gauge	Not performed
Messvol / measured volume.:	Not performed
Prüfer / test engineer:	Not performed
Datum / date:	Not performed

Partikel in µm	Test Nr.			
	1	2	3	4
0,1				
0,2	Not perfor-med !			
0,3				
0,5				
1,0				
2,0				
3,0				
5,0				

Prüfprotokoll Werkszeugnis
test report

Anlage / machine:	N2 panel	Datum/date:	18-8-2015
		Auftraggeber/Client:	Nines PV
Medium / medium:	N2- nitrogen	Auftrag/order:	
SN	panel 010 00.000.488	KTR intern/internal:	134027

Drucktest/pressure test

Zeit/time:	14 h
Druck / pressure:	198 bar g (high pressure Unit)
Prüfer /test engineer:	Dirk Mai
Datum:	18.8.2015

Drucktest/pressure test

Zeit/time:	14 h
Druck / pressure:	12 bar/ 6bar (low pressure Unit)
Prüfer/test engineer:	Dirk Mai
Datum:	18.8.2015

Helium-Lecktest/leak test

Zeit:/time	Not specified !
Ergebnis / result	1x10-9 mbar l/s
Prüfer / test engineer:	Dirk Mai
Datum / date:	18.8.2015

Feuchtetest/moisture test

Zeit:/time	Not performed
Ergebnis/result:	Not performed
Prüfer/test engineer:	Not performed
Datum/date:	Not performed

Partikeltest/particle test

Messgerät / gauge	Not performed
Messvol / measured volume.:	Not performed
Prüfer / test engineer:	Not performed
Datum / date:	Not performed

Partikel in µm	Test Nr.			
	1	2	3	4
0,1				
0,2	Not perfor-med !			
0,3				
0,5				
1,0				
2,0				
3,0				
5,0				

Prüfprotokoll Werkszeugnis
test report

Anlage / machine:	**N2 push gas panel**	**Datum/date:**	**18-8-2015**
		Auftraggeber/Client:	**Nines PV**
Medium / medium:	**N2- nitrogen**	**Auftrag/order:**	
SN	**panel 010 00.000.490**	**KTR intern/internal:**	**134027**

Drucktest/pressure test

Zeit/time:	4 h
Druck / pressure:	6 bar
Prüfer /test engineer:	Dirk Mai
Datum:	18.8.2015

Drucktest/pressure test

Zeit/time:	
Druck / pressure:	
Prüfer/test engineer:	
Datum:	

Helium-Lecktest/leak test

Zeit:/time	Not specified !
Ergebnis / result	1x10-9 mbar l/s
Prüfer / test engineer:	Dirk Mai
Datum / date:	18.8.2015

Feuchtetest/moisture test

Zeit:/time	Not performed
Ergebnis/result:	Not performed
Prüfer/test engineer:	Not performed
Datum/date:	Not performed

Partikeltest/particle test

Messgerät / gauge	Not performed
Messvol / measured volume.:	Not performed
Prüfer / test engineer:	Not performed
Datum / date:	Not performed

Partikel in µm	Test Nr.			
	1	2	3	4
0,1				
0,2	Not perfor-med !			
0,3				
0,5				
1,0				
2,0				
3,0				
5,0				

Prüfprotokoll Werkszeugnis
test report

Anlage / machine:	**N2 purge gas panel**	**Datum/date:**	**18-8-2015**
		Auftraggeber/Client:	**Nines PV**
Medium / medium:	**N2- nitrogen**	**Auftrag/order:**	
SN	**panel 010 00.000.489**	**KTR intern/internal:**	**134027**

Drucktest/pressure test

Zeit/time:	4 h
Druck / pressure:	6 bar
Prüfer /test engineer:	Dirk Mai
Datum:	18.8.2015

Drucktest/pressure test

Zeit/time:	
Druck / pressure:	
Prüfer/test engineer:	/
Datum:	

Helium-Lecktest/leak test

Zeit:/time	Not specified !
Ergebnis / result	1x10-9 mbar l/s
Prüfer / test engineer:	Dirk Mai
Datum / date:	18.8.2015

Feuchtetest/moisture test

Zeit:/time	Not performed
Ergebnis/result:	Not performed
Prüfer/test engineer:	Not performed
Datum/date:	Not performed

Partikeltest/particle test

Messgerät / gauge	Not performed
Messvol / measured volume.:	Not performed
Prüfer / test engineer:	Not performed
Datum / date:	Not performed

Partikel in µm	Test Nr.			
	1	2	3	4
0,1				
0,2	Not perfor-med !			
0,3				
0,5				
1,0				
2,0				
3,0				
5,0				

PROWATEC

EMSR-Prozesstechnik für Wasser- und Abfallaufbereitungsanlagen
Schaltschrankfertigung
EMSR-Montageleistungen

Customer: AVI GmbH
Konrad-Zuse-Str. 19
02977 Hoyerswerda

Project Manager: V. Menges

Project: 2671 – NINES_PV

Routine test protocol according to DIN EN 61439 part 1 and 2

Plant Component: electrical control cabinet (Designation) +C1 (Identification)

		Result (OK = ✓)	Comment
1	**check of the switchgear**		
1.1	functional ability of operating elements	✓	
1.2	wiring (pressure marks, angle-forming)	✓	
1.3	installation devices (mounting, tight fit, mounting place according to the plan)	✓	
1.4	protection class (sealing, covering)	✓	
1.5.	compliance of leakage distance and sparking distance in air	✓	
1.6	screw fittings (tight fit, contact)	✓	
1.7	item designation completed	✓	
1.8	functional check, wiring check, rotary field	✓	
1.9	locking system, free moving, key available	✓	
1.10	color of conductor according to specifications	✓	
1.11	free of swarf	✓	
1.12	painting ok, accessories are completed	✓	
2	**measurement of insulating resistance, value > 1,0 MΩ**	>200 M Ohm	
2.1	protection system is completed, value <0,1 Ω	0,02 Ohm	
3	**safety measures**		
3.1	connections of equipment grounding conductor are completed	✓	
3.2	correct screw fittings	✓	
4	**documentation in the cabinet**		
4.1	circuit diagrams available	✓	
4.2	layout chart available	✓	

Inspector: Bischoff ..... Hoyerswerda, 31-07-2015
Name Signature Date

PROWATEC Systemtechnik GmbH
Konrad-Zuse-Straße 19
02977 Hoyerswerda
Tel. 03571 93012-0 Fax

14.8.3 Installation statement

SEMPA SYSTEMS GmbH
Grenzstr. 13
01109 Dresden, Germany

Phone: +49 351 88810-0
Fax: +49 351 88810-15
E-Mail: info@sempa.de – Web: www.sempa.de

Einbauerklärung
Installation Statement

(nach Maschinenrichtlinie 2006/42/EG, Anhang II B)
(in accordance with machinery directive 2006/42/EG, appendix II B)

Hersteller / Manufacturer:	SEMPA SYSTEMS GmbH Grenzstraße 13 01109 Dresden Germany
Produktbezeichnung/ Product name:	134027 NINES PV – F2 Supply System
Baujahr / Year of manufacture:	08/2015
Seriennummer / Serial number:	00.000.487 F2 Cabinet 00.000.488 N2 Panel 00.000.489 N2 Purge gas panel 00.000.490 N2 Push gas panel

Das bezeichnete Produkt ist ausschließlich zum Einbau in eine andere Maschine bestimmt.
Die Inbetriebnahme ist solange untersagt, bis die Konformität des Endproduktes mit der Richtlinie 2006/42/EG festgestellt ist.
The product mentioned above are intended solely for integration into another machine. Commissioning is prohibited until conformity of the end product with EC directive 2006/42/EG has been confirmed.

Folgende nationale oder intern. Normen (od. Teile/Klauseln daraus) und Spezifikationen wurden angewandt:
The following national and international standards (or parts/clauses of them) and specifications have been applied:

Richtlinie 97/23/EG Druckgeräterichtlinie / pressure equipment directive
Richtlinie zur Installation Elektroteil nach VDE 0113
Richtlinie zur Stückprüfung Elektroteil VDE 0660 Teil 500
Technische Regeln für Gefahrstoffe TRGS 510
AD-Merkblatt HP0

Name der Person, die bevollmächtigt ist, die technischen Unterlagen zusammenzustellen:
Name of the person authorized to compile the technical documentation: Hagen Krüger-Molz

Ort / Place: Dresden
Datum / Date: 12.08.2015

Thomas Krafft
Senior Projektingenieur
Senior Project Engineer

Wolfgang Glanz
Qualitätsmanagement
Quality Management

Diese Erklärung ist keine Zusicherung von Eigenschaften im Sinne des Produkthaftungsgesetzes!
This declaration is not an assurance of characteristics in the meaning of the product liability act.

Die Sicherheitshinweise der Produktdokumentation sind zu beachten!
Pay attention to the safety notes in the product documentation!

14.8.4 Company certificates

SEMPA SYSTEMS GmbH
Grenzstr. 13
01109 Dresden, Germany

Phone: +49 351 88810-0
Fax: +49 351 88810-15
E-Mail: info@sempa.de – Web: www.sempa.de

ZERTIFIKAT ■ CERTIFICATE ■ 認證證書 ■ СЕРТИФИКАТ ■ CERTIFICADO ■ CERTIFICAT

TÜV SÜD Management Service

CERTIFICATE

The Certification Body
of TÜV SÜD Management Service GmbH

certifies that

SEMPA SYSTEMS®

SEMPA Systems GmbH
Grenzstraße 13
01109 Dresden
Germany

has established and applies
a Quality Management System for

Development, design, manufacturing, distribution and construction of equipment and systems for high-purity gas and media supply technology.

An audit was performed, Report No. **70033162**.

Proof has been furnished that the requirements according to

ISO 9001:2008

are fulfilled. The certificate is valid from **2015-02-28** until **2018-02-27**.

Certificate Registration No. **12 100 17868 TMS**

Certificate was issued for the first time on 2003

Product Compliance Management
Munich, 2015-02-09

DAkkS
Deutsche Akkreditierungsstelle
D-ZM-14143-01-03

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD
Industrie Service

CERTIFIKAT

to the fulfilment of the
Quality requirements for fusion welding
of metallic materials

TÜV SÜD Industrie Service GmbH
North-East-Region
Department Steam and Pressure Equipment
Drescherhäuser 5 d, 01159 Dresden

certifies the manufacturer

SEMPA SYSTEMS GmbH

Grenzstrasse 13
D - 01109 Dresden

has met the

- Comprehensive quality requirements -

according to

DIN EN ISO 3834-2

The company has the necessary conditions.
The scope is detailed in our report dated 23-01-2014.

The certificate expires in **December 2016.**

report-nr.: Z01/14/770317

Dresden, January 27th 2014

Hendrik Oltersdorf
Department
Steam and Pressure Equipment
IS-DD1-DRE

TÜV®

ZERTIFIKAT ◆ CERTIFICATE ◆ 認証書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

TÜV SÜD Industrie Service

CERTIFICATE

The company

SEMPA SYSTEMS GmbH

Grenzstrasse 13
D-01109 Dresden

has been audited according to

AD 2000-Merkblatt HP0 / HP100R

The company has proved to dispose of the prerequisites for the manufacture of pressure equipment as defined in

Pressure Equipment Directive 97/23/EG.

Independently to this conformation the procedures appertaining to the chosen modules have to be observed.

The company

- has facilities permitting manufacturing and inspection in compliance with the current technical standards,
- operates a quality system which guarantees that manufacturing and inspection of the products stated in our report are in conformity with the technical rules and standards,
- employs qualified supervisory and inspection personnel.

The scope of the audit is detailed in our report no. Z01/14/770317.

The certificate expires in December 2016.

Dresden, January 27th 2014

TÜV SÜD Industrie Service GmbH Benannte Stelle 00 36

TÜV SÜD Industrie Service GmbH
TÜV-CERT-Zertifizierungsstelle für Druckgeräte

(Hendrik Oltersdorf)

Notified body, ident no. 0036

TÜV SÜD Industrie Service GmbH, Department Leipzig
IS-DD1-DRE, Drescherhäuser 5 d, D-01159 Dresden

TÜV®

EG-Konformitätserklärung
EC Declaration of Conformity

Hersteller: *Manufacturer:* Prowatec Systemtechnik GmbH

Anschrift: *Address:* Konrad-Zuse-Str. 19
02977 Hoyerswerda

Produktbezeichnung: *Product description:* Schaltgerätekombinationen **2671 – NINES_PV**
Low-voltage switchgear and controlgear assemblies

Das bezeichnete Produkt stimmt in der von uns in Verkehr gebrachten Ausführung mit den Vorschriften folgender Europäischer Richtlinien überein:
The product described above in the form as delivered is in conformity with the provisions of the following European Directives:

2004/108/EG **Richtlinie des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten über die elektromagnetische Verträglichkeit**
Council Directive on the approximation of the laws of the Member States relating to electromagnetic compatibility

2006/95/EG **Richtlinie des Europäischen Parlaments und des Rates zur Angleichung der Rechtsvorschriften der Mitgliedstaaten betreffend elektrische Betriebsmittel zur Verwendung innerhalb bestimmter Spannungsgrenzen**
Directive of the European Parliament and of the Council of 12 December 2006 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits

CE-Kennzeichnung / *CE marking* : **31-07-2015**

Die Konformität mit den Richtlinien wird nachgewiesen durch die Einhaltung folgender Normen:
Conformity to the Directives is assured through the application of the following standards:

- DIN EN 60204-1
- DIN EN 61439-1
- DIN EN 61439-2
- DIN-VDE-Normen und Entwürfe sowie einschlägige internationale Normen, CE-Publikationen und Empfehlungen
- Unfallverhütungsvorschriften der gewerblichen Berufsgenossenschaften, insbesondere BGV A3

Prowatec Systemtechnik GmbH

Hoyerswerda, den / *the* 31-07-2015

M. Bischoff

PROWATEC
Systemtechnik GmbH
Konrad-Zuse-Straße 19
02977 Hoyerswerda
Tel. 03571 93012-0 Fax 93012-16

Diese Erklärung bescheinigt die Übereinstimmung mit den genannten Richtlinien, ist jedoch keine Beschaffenheits- oder Haltbarkeitsgarantie. Die Sicherheitshinweise der mitgelieferten Produktdokumentation sind zu beachten.
This declaration certifies the conformity to the specified directives but contains no assurance of properties. The safety documentation accompanying the product shall be considered in detail.