

Service
Training
Calibration
Certification
Maintenance

Universal Thermal Services
Allen R. Hildebrand (President)
E7064 Knopp Road
Manawa, Wisconsin 54949
Phone – Fax 920-596-2983
uts@wolfnet.net

Thermach AT3000 Certificate of Calibration

Form Number: F-345-086 Rev. M 18-Jun-21

Work Instructions: WI-086 Rev. B 26-Sep-10

Certificate Number: 2022-473

Page: 1 of 10

Customer: Universal Thermal	Console: AT3000	Hopper: AT1200	
Address: 217 Center St	Serial Number: ATPC100157	Serial Number: RPFT100652	
City: Manawa	Device ID Number: N/A		
State: WI	Booth Number: 1	Hopper: AT1200	
Zip: 54949	With in 3%: Yes	Serial Number: RPFT100653	
Name: Allen Hildebrand	Adjustments: No		
Phone Number: 920-596-2983			

N.I.S.T. Instruments Used for This Calibration

Test Instrument: Press. Transducer	Test Instrument: Multi Meter	Test Instrument: Amp Clamp Meter	Test Instrument: Multi Meter
Make: Fluke	Make: Fluke	Make: Fluke	Make: Fluke
Model: PV350	Model: 87V	Model: i1010	Model: 233
Serial Number: PM-21	Serial Number: MM-13	Serial Number: AC-44	Serial Number: MM-11
Next Calibration Due: 9-Nov-22	Next Calibration Due: 22-Jun-23	Next Calibration Due: 22-Jun-23	Next Calibration Due: 21-Apr-23

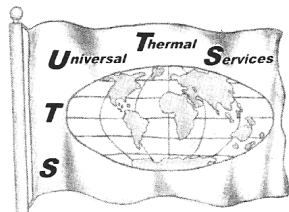
Test Instrument: Low Flow Mass Flow Meter	Test Instrument: Medium Flow Mass Flow Meter
Make: Alicat 75 scfh	Make: Alicat 400 scfh
Model: PCU50SLPM	Model: PCU250SLPM
Serial Number: 282154	Serial Number: 282155
Next Calibration Due: 24-Nov-22	Next Calibration Due: 24-Nov-22

Gas Orifices:	Sizes	Gas	Flow [FS]	In The % of Deviation Column of Each Sheet After This Sheet IsThe Manufacture Specifications, or Better, For The Individual Device
Primary Gas:	#56	Argon	511.12	0-3% Green is Acceptable 3.1-5% Orange is Alert 5.1% -> Red Is Fail
Primary Gas:	#80	Helium	110.28	
Secondary Gas:	#97 or #103	Hydrogen	31.43 or 7.34	
Powder Carrier Gas:	#77	Argon or Nitrogen	46.2 or 50.2	

Notes:

Calibrated By: Jeremy Bailey	Calibration Due: 18-Jul-23	Signature:
Calibrated Date: 18-Jul-22		

All instruments have been calibrated against standards traceable to NIST. This Certification Sheet must not be altered in any way!



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Customer: Universal Thermal

Amperage Display

Form Number: F-345-086 Rev. M 18-Jun-21

Certificate Number: 2022-473

Page: 2 of 10

Console:	AT3000	Serial Number:	ATPC100157
Device ID Number:	N/A	Booth Number:	1
Device Under Test:	Arc Gas Gauge		

Testing Instrument:	Multi Meter	233	Serial Number:	MM-11	Testing Instrument:	Amp Clamp Meter	i1010	Serial Number:	AC-44
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Pressure Full Scale [FS] = 1500 Amps

Amps Set Point	Amp Meter Display Reading	As Found NIST Meter	As Found Amps Deviation	As Found Amps % Deviation	Tolerances Pass/Fail	As Left NIST Meter	As Left Amps Deviation	As Left Amps % Deviation	Tolerances Pass/Fail
500	500	496	-4.0	-0.3	Pass	496	-4.0	-0.3	Pass
600	600	593	-7.0	-0.5	Pass	593	-7.0	-0.5	Pass
700	700	695	-5.0	-0.3	Pass	695	-5.0	-0.3	Pass
800	800	787	-13.0	-0.9	Pass	787	-13.0	-0.9	Pass
900	900	888	-12.0	-0.8	Pass	888	-12.0	-0.8	Pass

System Volts Display

Console:	AT3000	Serial Number:	ATPC100157
Device ID Number:	N/A	Booth Number:	1
Device Under Test:	Sys Volts Display		

Testing Instrument:	Multi Meter	233	Serial Number:	MM-11
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Volts Full Scale [FS] = 200 Volts

Volt Meter Set Point	Volt Meter Display Reading	As Found NIST Meter	As Found Volts Deviation	As Found Volts % Deviation	Tolerances Pass/Fail	As Left NIST Meter	As Left Volts Deviation	As Left Volts % Deviation	Tolerances Pass/Fail
32.0	32.0	33.4	1.4	0.7	Pass	33.4	1.4	0.7	Pass
45.0	45.0	46.2	1.2	0.6	Pass	46.2	1.2	0.6	Pass
52.3	52.3	54.0	1.7	0.9	Pass	54.0	1.7	0.9	Pass
55.0	55.0	56.5	1.5	0.8	Pass	56.5	1.5	0.8	Pass
59.7	59.7	60.2	0.5	0.3	Pass	60.2	0.5	0.3	Pass
60.6	60.6	62.0	1.4	0.7	Pass	62.0	1.4	0.7	Pass

Gun Volts Display

Testing Instrument:	Multi Meter	233	Serial Number:	MM-11
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Volt Meter Set Point	Volt Meter Display Reading	As Found NIST Meter	As Found Volts Deviation	As Found Volts % Deviation	Tolerances Pass/Fail	As Left NIST Meter	As Left Volts Deviation	As Left Volts % Deviation	Tolerances Pass/Fail
32.0	32.0	32.3	0.3	0.1	Pass	32.3	0.3	0.1	Pass
45.0	45.0	45.5	0.5	0.3	Pass	45.5	0.5	0.3	Pass
52.3	52.3	52.7	0.4	0.2	Pass	52.7	0.4	0.2	Pass
59.7	59.7	59.5	-0.2	-0.1	Pass	59.5	-0.2	-0.1	Pass
60.6	60.6	60.4	-0.2	-0.1	Pass	60.4	-0.2	-0.1	Pass

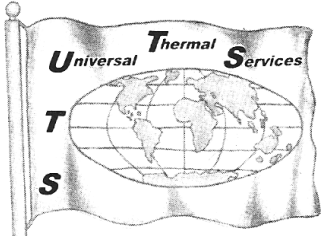
Calibrated By: Jeremy Bailey

Calibrated Date: 18-Jul-22

Calibration Due: 18-Jul-23

Signature:

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Customer: Universal Thermal

Arc Gas Gauge [P1]

Form Number: F-345-086 Rev. M 18-Jun-21

Certificate Number: 2022-473

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Console:	AT3000	Serial Number:	ATPC100157
Device ID Number:	N/A	Booth Number:	1
Device Under Test:	Primary Gas Gauge		

Testing Instrument:	Multi Meter	87V	Serial Number:	MM-13	Testing Instrument:	Press. Transducer	PV350	Serial Number:	PM-21
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Pressure Full Scale [FS] = 300 PSI

Pressure (PSI) Set Point	As Found Gauge Reading	As Found NIST Pressure	Actual PSI Deviation	As Found PSI% Deviation	Tolerance Pass / Fail	As Left Gauge Reading	As Left PSI Deviation	As Left PSI % Deviation	Tolerance Pass / Fail
30	30	30.4	0.4	0.1	Pass	30.4	0.4	0.1	Pass
50	50	50.3	0.3	0.1	Pass	50.3	0.3	0.1	Pass
70	70	70.5	0.5	0.2	Pass	70.5	0.5	0.2	Pass
90	90	90.2	0.2	0.1	Pass	90.2	0.2	0.1	Pass
110	110	109.4	-0.6	-0.2	Pass	109.4	-0.6	-0.2	Pass
130	130	130.2	0.2	0.1	Pass	130.2	0.2	0.1	Pass
150	150	149.8	-0.2	-0.1	Pass	149.8	-0.2	-0.1	Pass

Arc Gas Pressure [P2]

Console:	AT3000	Serial Number:	ATPC100157
Device ID Number:	N/A	Booth Number:	1
Device Under Test:	Primary Gas Gauge		

Testing Instrument:	Multi Meter	87V	Serial Number:	MM-13	Testing Instrument:	Press. Transducer	PV350	Serial Number:	PM-21
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Pressure Full Scale [FS] = 160 PSI

Pressure (PSI) Set Point	As Found Gauge Reading	As Found NIST Pressure	Actual PSI Deviation	As Found PSI% Deviation	Tolerance Pass / Fail	As Left Gauge Reading	As Left PSI Deviation	As Left PSI % Deviation	Tolerance Pass / Fail
10	10	9.3	-0.7	-0.4	Pass	9.3	-0.7	-0.4	Pass
30	30	29.8	-0.2	-0.1	Pass	29.8	-0.2	-0.1	Pass
50	50	49.4	-0.6	-0.4	Pass	49.4	-0.6	-0.4	Pass
70	70	69.8	-0.2	-0.1	Pass	69.8	-0.2	-0.1	Pass
90	90	89.7	-0.3	-0.2	Pass	89.7	-0.3	-0.2	Pass
110	110	110.3	0.3	0.2	Pass	110.3	0.3	0.2	Pass
130	130	130.7	0.7	0.4	Pass	130.7	0.7	0.4	Pass
150	150	150.6	0.6	0.4	Pass	150.6	0.6	0.4	Pass

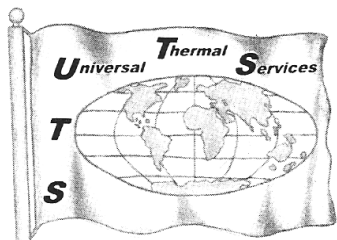
Calibrated By: Jeremy Bailey

Calibrated Date: 18-Jul-22

Calibration Due: 18-Jul-23

Signature:

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Aux Gas Gauge [P1]

Form Number: F-345-086 Rev. M 18-Jun-21

Certificate Number: 2022-473

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Console:	AT3000	Serial Number:	ATPC100157
Device ID Number:	N/A	Booth Number:	1
Device Under Test:	Secondary Gas Gauge		

Testing Instrument:	Multi Meter	87V	Serial Number:	MM-13	Testing Instrument:	Press. Transducer	PV350	Serial Number:	PM-21
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Pressure Full Scale [FS] = 300 PSI

Pressure (PSI) Set Point	As Found Gauge Reading	As Found NIST Pressure	Actual PSI Deviation	As Found PSI% Deviation	Tolerance Pass / Fail	As Left Gauge Reading	As Left PSI Deviation	As Left PSI % Deviation	Tolerance Pass / Fail
30	30	30.7	0.7	0.2	Pass	30.7	0.7	0.2	Pass
50	50	50.5	0.5	0.2	Pass	50.5	0.5	0.2	Pass
70	70	70.4	0.4	0.1	Pass	70.4	0.4	0.1	Pass
90	90	90.1	0.1	0.0	Pass	90.1	0.1	0.0	Pass

Aux Gas Pressure [P2]

Console:	AT3000	Serial Number:	ATPC100157
Device ID Number:	N/A	Booth Number:	1
Device Under Test:	Secondary Gas Gauge		

Testing Instrument:	Multi Meter	87V	Serial Number:	MM-13	Testing Instrument:	Press. Transducer	PV350	Serial Number:	PM-21
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Pressure Full Scale [FS] = 160 PSI

Pressure (PSI) Set Point	As Found Gauge Reading	As Found NIST Pressure	Actual PSI Deviation	As Found PSI% Deviation	Tolerance Pass / Fail	As Left Gauge Reading	As Left PSI Deviation	As Left PSI % Deviation	Tolerance Pass / Fail
10	10	10.3	0.3	0.2	Pass	10.3	0.3	0.2	Pass
30	30	30.6	0.6	0.4	Pass	30.6	0.6	0.4	Pass
50	50	50.4	0.4	0.2	Pass	50.4	0.4	0.2	Pass
70	70	70.4	0.4	0.3	Pass	70.4	0.4	0.3	Pass
90	90	90.6	0.6	0.4	Pass	90.6	0.6	0.4	Pass

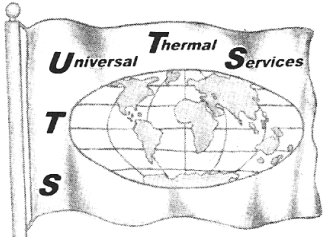
Calibrated By: Jeremy Bailey

Calibrated Date: 18-Jul-22

Calibration Due: 18-Jul-23

Signature:

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Customer: Universal Thermal

#1 Carrier Gas Gauge [P1]

Form Number: F-345-086 Rev. M 18-Jun-21

Certificate Number: 2022-473

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Console:	AT3000	Serial Number:	ATPC100157
Device ID Number:	N/A	Booth Number:	1
Device Under Test:	Arc Gas Gauge		

Testing Instrument:	Multi Meter	87V	Serial Number:	MM-13	Testing Instrument:	Press. Transducer	PV350	Serial Number:	PM-21
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Pressure Full Scale [FS] = 200 PSI

Pressure (PSI) Set Point	As Found Gauge Reading	As Found NIST Pressure	Actual PSI Deviation	As Found PSI% Deviation	Tolerance Pass / Fail	As Left Gauge Reading	As Left PSI Deviation	As Left PSI % Deviation	Tolerance Pass / Fail
20	20	19.7	-0.3	-0.2	Pass	19.7	-0.3	-0.2	Pass
30	30	29.9	-0.1	-0.1	Pass	29.9	-0.1	-0.1	Pass
40	40	39.6	-0.4	-0.2	Pass	39.6	-0.4	-0.2	Pass
50	50	49.4	-0.6	-0.3	Pass	49.4	-0.6	-0.3	Pass
60	60	59.0	-1.0	-0.5	Pass	59.0	-1.0	-0.5	Pass
70	70	69.6	-0.4	-0.2	Pass	69.6	-0.4	-0.2	Pass
80	80	79.7	-0.3	-0.1	Pass	79.7	-0.3	-0.1	Pass
90	90	89.9	-0.1	0.0	Pass	89.9	-0.1	0.0	Pass

#1 Carrier Gas Gauge [P2]

Console:	AT3000	Serial Number:	ATPC100157
Device ID Number:	N/A	Booth Number:	1
Device Under Test:	Arc Gas Gauge		

Testing Instrument:	Multi Meter	87V	Serial Number:	MM-13	Testing Instrument:	Press. Transducer	PV350	Serial Number:	PM-21
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Pressure Full Scale [FS] = 100 PSI

Pressure (PSI) Set Point	As Found Gauge Reading	As Found NIST Pressure	Actual PSI Deviation	As Found PSI% Deviation	Tolerance Pass / Fail	As Left Gauge Reading	As Left PSI Deviation	As Left PSI % Deviation	Tolerance Pass / Fail
10	10	9.5	-0.5	-0.5	Pass	9.5	-0.5	-0.5	Pass
20	20	19.5	-0.5	-0.5	Pass	19.5	-0.5	-0.5	Pass
30	30	29.7	-0.3	-0.3	Pass	29.7	-0.3	-0.3	Pass
40	40	39.6	-0.4	-0.4	Pass	39.6	-0.4	-0.4	Pass
50	50	49.8	-0.2	-0.2	Pass	49.8	-0.2	-0.2	Pass
60	60	60.1	0.1	0.1	Pass	60.1	0.1	0.1	Pass
70	70	70.2	0.2	0.2	Pass	70.2	0.2	0.2	Pass
80	80	80.2	0.2	0.2	Pass	80.2	0.2	0.2	Pass

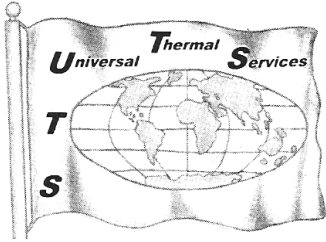
Calibrated By: Jeremy Bailey

Calibrated Date: 18-Jul-22

Calibration Due: 18-Jul-23

Signature:

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Customer: Universal Thermal

#2 Carrier Gas Gauge [P1]

Form Number: F-345-086 Rev. M 18-Jun-21

Certificate Number : 2022-473

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Console:	AT3000	Serial Number:	ATPC100157
Device ID Number:	N/A	Booth Number:	1
Device Under Test:	Arc Gas Gauge		

Testing Instrument:	Multi Meter	87V	Serial Number:	MM-13	Testing Instrument:	Press. Transducer	PV350	Serial Number:	PM-21
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Pressure Full Scale [FS] = 200 PSI

Pressure (PSI) Set Point	As Found Gauge Reading	As Found NIST Pressure	Actual PSI Deviation	As Found PSI% Deviation	Tolerance Pass / Fail	As Left Gauge Reading	As Left PSI Deviation	As Left PSI % Deviation	Tolerance Pass / Fail
20	20	19.3	-0.7	-0.4	Pass	19.3	-0.7	-0.4	Pass
30	30	29.3	-0.7	-0.4	Pass	29.3	-0.7	-0.4	Pass
40	40	39.4	-0.6	-0.3	Pass	39.4	-0.6	-0.3	Pass
50	50	49.3	-0.7	-0.4	Pass	49.3	-0.7	-0.4	Pass
60	60	59.4	-0.6	-0.3	Pass	59.4	-0.6	-0.3	Pass
70	70	69.5	-0.5	-0.3	Pass	69.5	-0.5	-0.3	Pass
80	80	79.6	-0.4	-0.2	Pass	79.6	-0.4	-0.2	Pass
90	90	89.4	-0.6	-0.3	Pass	89.4	-0.6	-0.3	Pass

#2 Carrier Gas Gauge [P2]

Console:	AT3000	Serial Number:	ATPC100157
Device ID Number:	N/A	Booth Number:	1
Device Under Test:	Arc Gas Gauge		

Testing Instrument:	Multi Meter	87V	Serial Number:	MM-13	Testing Instrument:	Press. Transducer	PV350	Serial Number:	PM-21
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Pressure Full Scale [FS] = 100 PSI

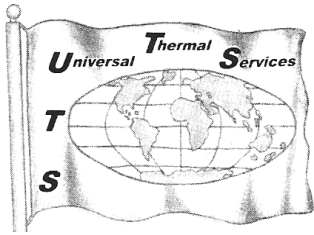
Pressure (PSI) Set Point	As Found Gauge Reading	As Found NIST Pressure	Actual PSI Deviation	As Found PSI% Deviation	Tolerance Pass / Fail	As Left Gauge Reading	As Left PSI Deviation	As Left PSI % Deviation	Tolerance Pass / Fail
10	10	9.8	-0.2	-0.2	Pass	9.8	-0.2	-0.2	Pass
20	20	19.6	-0.4	-0.4	Pass	19.6	-0.4	-0.4	Pass
30	30	29.9	-0.1	-0.1	Pass	29.9	-0.1	-0.1	Pass
40	40	39.9	-0.1	-0.1	Pass	39.9	-0.1	-0.1	Pass
50	50	50.2	0.2	0.2	Pass	50.2	0.2	0.2	Pass
60	60	60.5	0.5	0.5	Pass	60.5	0.5	0.5	Pass
70	70	70.5	0.5	0.5	Pass	70.5	0.5	0.5	Pass
80	80	80.7	0.7	0.7	Pass	80.7	0.7	0.7	Pass

Calibrated By: Jeremy Bailey
Calibrated Date: 18-Jul-22

Calibration Due: 18-Jul-23

Signature:

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Customer: Universal Thermal

Argon Flow

Form Number: F-345-086 Rev. M 18-Jun-21

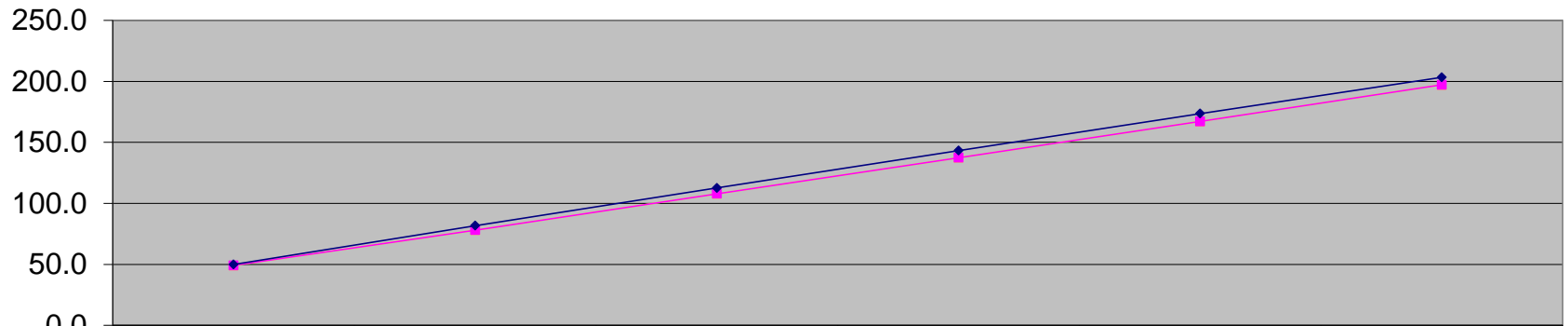
Certificate Number: 2022-473

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Console:	AT3000	Serial Number:	ATPC100157	Type of Gas:	Argon
Device ID Number:	N/A	Booth Number:	1		
Device Under Test:	Critical Orifice	Critical Orifice:	#56	Scale Rate:	Flow is in SCFH
				Full Flow SCFH [FS]:	348.2
					Based on 200 PSI

Testing Instrument: Mass Flow Meter Alicat 400 scfh Serial Number: 282155

Set Point Pressure	Critical Orifices SCFH Converted	As Found NIST SCFH	As Found SCFH Deviation	SCFH % Deviation	Tolerance Pass / Fail	As Left NIST SCFH	As Left SCFH Deviation	As Left SCFH % Deviation	Tolerance Pass / Fail
20	49.8	49.1	-0.7	-0.2	Pass	49.1	-0.7	-0.2	Pass
40	81.7	78.0	-3.7	-1.1	Pass	78.0	-3.7	-1.1	Pass
60	112.6	107.8	-4.8	-1.4	Pass	107.8	-4.8	-1.4	Pass
80	143.2	137.4	-5.8	-1.7	Pass	137.4	-5.8	-1.7	Pass
100	173.6	167.1	-6.5	-1.9	Pass	167.1	-6.5	-1.9	Pass
120	203.4	197.1	-6.3	-1.8	Pass	197.1	-6.3	-1.8	Pass



	1	2	3	4	5	6
Flow SCFH As Found	49.1	78.0	107.8	137.4	167.1	197.1
Flow SCFH As Left	49.1	78.0	107.8	137.4	167.1	197.1
Set Point SCFH	49.8	81.7	112.6	143.2	173.6	203.4

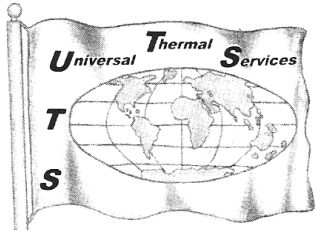
Calibrated By: Jeremy Bailey

Calibrated Date: 18-Jul-22

Calibration Due: 18-Jul-23

Signature:

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Phone – Fax 920-596-2983
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Customer: Universal Thermal

Hydrogen Flow

Form Number: F-345-086 Rev. M 18-Jun-21

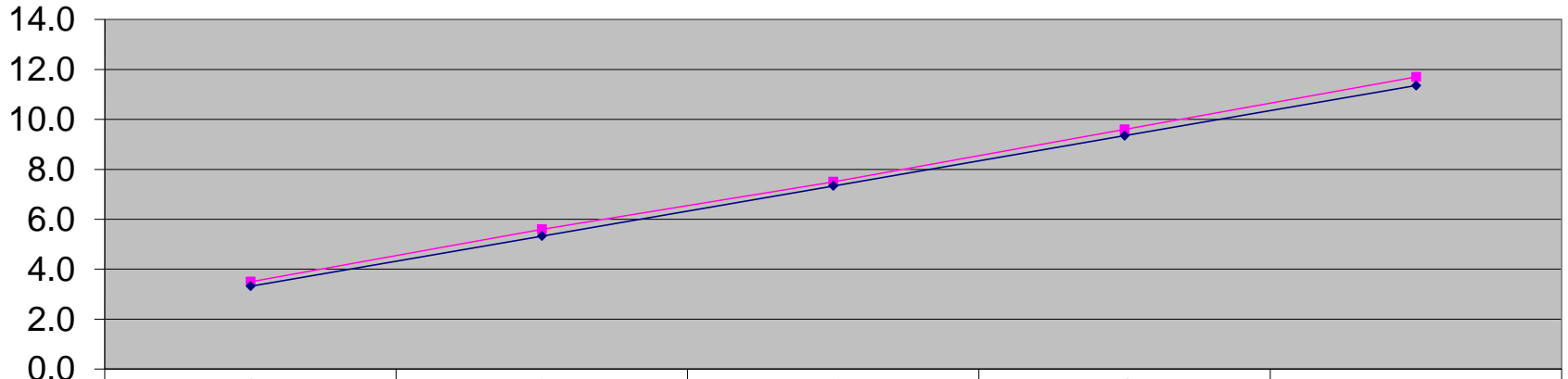
Certificate Number: 2022-473

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Console:	AT3000	Serial Number:	ATPC100157	Type of Gas	Hydrogen
Device ID Number:	N/A	Booth Number:	1		
Device Under Test:	Critical Orifice	Critical Orifice:	#97	Scale Rate:	Flow is in SCFH
				Full Flow SCFH [FS]:	21.3
				Based on	200 PSI

Testing Instrument:	Mass Flow Meter	Alicat 75 scfh	Serial Number:	282154
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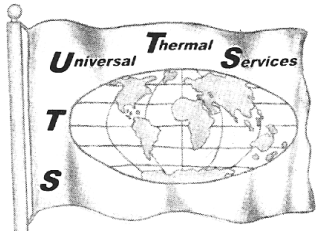
Set Point Pressure	Critical Orifices SCFH Converted	As Found NIST SCFH	As Found SCFH Deviation	SCFH % Deviation	Tolerance Pass / Fail	As Left NIST SCFH	As Left SCFH Deviation	As Left SCFH % Deviation	Tolerance Pass / Fail
20	3.3	3.5	0.2	0.8	Pass	3.5	0.2	0.8	Pass
40	5.3	5.6	0.3	1.3	Pass	5.6	0.3	1.3	Pass
60	7.3	7.5	0.2	0.8	Pass	7.5	0.2	0.8	Pass
80	9.3	9.6	0.3	1.2	Pass	9.6	0.3	1.2	Pass
100	11.4	11.7	0.3	1.6	Pass	11.7	0.3	1.6	Pass



	1	2	3	4	5
Flow SCFH As Found	3.5	5.6	7.5	9.6	11.7
Flow SCFH As Left	3.5	5.6	7.5	9.6	11.7
Set Point SCFH	3.3	5.3	7.3	9.3	11.4

Calibrated By: Jeremy Bailey
 Calibrated Date: 18-Jul-22
 Calibration Due: 18-Jul-23
 Signature: *[Handwritten Signature]*

All instruments have been calibrated against standards traceable to NIST. This Certification Sheet must not be altered in any way!



Service
Training
Calibration
Certification
Maintenance

Universal Thermal Services
Allen R. Hildebrand (President)
E7064 Knopp Road
Manawa, Wisconsin 54949
Phone – Fax 920-596-2983
uts@wolfnet.net

Customer: Universal Thermal

Argon Carrier Flow #1

Form Number: F-345-086 Rev. M 18-Jun-21

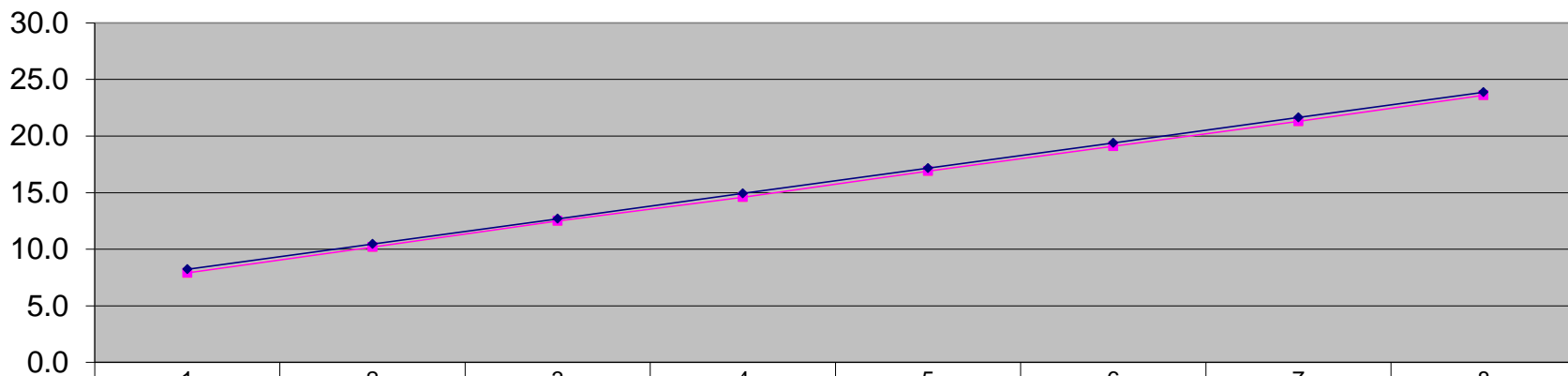
Certificate Number: 2022-473

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Console:	AT3000	Serial Number:	ATPC100157	Type of Gas:	Argon
Device ID Number:	N/A	Booth Number:	1	Scale Rate:	Flow is in SCFH
Device Under Test:	Critical Orifice	Critical Orifice:	#77	Full Flow SCFH [FS]:	23.9 Based on 100 PSI

Testing Instrument:	Mass Flow Meter	Alicat 75 scfh	Serial Number:	282154
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Set Point Pressure	Critical Orifices SCFH Converted	As Found NIST SCFH	As Found SCFH Deviation	SCFH % Deviation	Tolerance Pass / Fail	As Left NIST SCFH	As Left SCFH Deviation	As Left SCFH % Deviation	Tolerance Pass / Fail
20	8.2	7.9	-0.3	-1.4	Pass	7.9	-0.3	-1.4	Pass
30	10.5	10.2	-0.3	-1.1	Pass	10.2	-0.3	-1.1	Pass
40	12.7	12.5	-0.2	-0.8	Pass	12.5	-0.2	-0.8	Pass
50	14.9	14.6	-0.3	-1.4	Pass	14.6	-0.3	-1.4	Pass
60	17.2	16.9	-0.3	-1.1	Pass	16.9	-0.3	-1.1	Pass
70	19.4	19.1	-0.3	-1.3	Pass	19.1	-0.3	-1.3	Pass
80	21.6	21.3	-0.3	-1.4	Pass	21.3	-0.3	-1.4	Pass
90	23.9	23.6	-0.3	-1.1	Pass	23.6	-0.3	-1.1	Pass

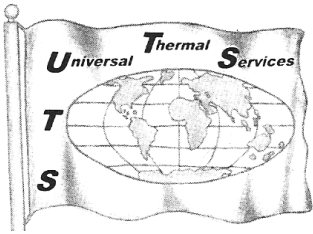


	1	2	3	4	5	6	7	8
Flow SCFH As Found	7.9	10.2	12.5	14.6	16.9	19.1	21.3	23.6
Flow SCFH As Left	7.9	10.2	12.5	14.6	16.9	19.1	21.3	23.6
Set Point SCFH	8.2	10.5	12.7	14.9	17.2	19.4	21.6	23.9

Calibrated By: Jeremy Bailey
Calibrated Date: 18-Jul-22

Calibration Due: 18-Jul-23
Signature: *[Handwritten Signature]*

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Service
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Customer: Universal Thermal

Argon Carrier Flow #2

Form Number: F-345-086 Rev. M 18-Jun-21

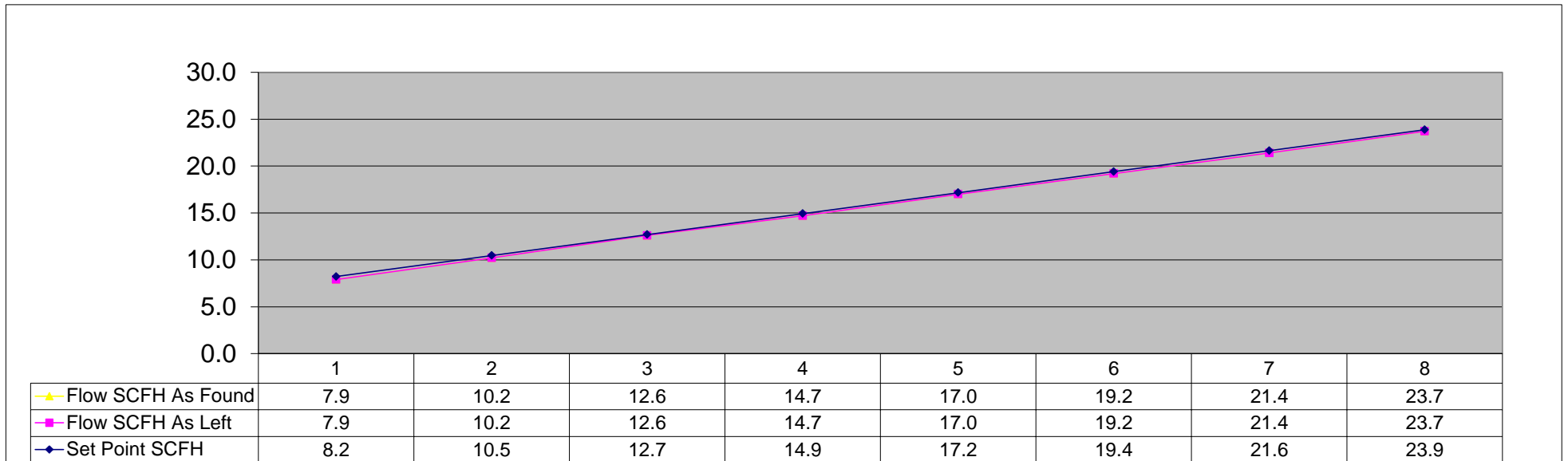
Certificate Number: 2022-473

Page: 10 of 10

Console:	AT3000	Serial Number:	ATPC100157	Type of Gas:	Argon
Device ID Number:	N/A	Booth Number:	1	Scale Rate:	Flow is in SCFH
Device Under Test:	Critical Orifice	Critical Orifice:	#77	Full Flow SCFH [FS]:	23.9
					Based on 100 PSI

Testing Instrument:	Mass Flow Meter	Alicat 75 scfh	Serial Number:	282154
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Set Point Pressure	Critical Orifices SCFH Converted	As Found NIST SCFH	As Found SCFH Deviation	SCFH % Deviation	Tolerance Pass / Fail	As Left NIST SCFH	As Left SCFH Deviation	As Left SCFH % Deviation	Tolerance Pass / Fail
20	8.2	7.9	-0.3	-1.4	Pass	7.9	-0.3	-1.4	Pass
30	10.5	10.2	-0.3	-1.1	Pass	10.2	-0.3	-1.1	Pass
40	12.7	12.6	-0.1	-0.4	Pass	12.6	-0.1	-0.4	Pass
50	14.9	14.7	-0.2	-1.0	Pass	14.7	-0.2	-1.0	Pass
60	17.2	17.0	-0.2	-0.7	Pass	17.0	-0.2	-0.7	Pass
70	19.4	19.2	-0.2	-0.8	Pass	19.2	-0.2	-0.8	Pass
80	21.6	21.4	-0.2	-1.0	Pass	21.4	-0.2	-1.0	Pass
90	23.9	23.7	-0.2	-0.7	Pass	23.7	-0.2	-0.7	Pass



Calibrated By: Jeremy Bailey

Calibrated Date: 18-Jul-22

Calibration Due: 18-Jul-23

Signature:

All instruments have been calibrated against standards traceable to NIST. This Certification Sheet must not be altered in any way!