



DATE 7/03/2019

# TEST REPORT AND RESULTS

Rev 0

The issue of this certificate is notification that systems have been tested in accordance with the current CIBSE Code A and the BSRIA guidelines

PROJECT: Hometech Ventilation

SYSTEM: Supply & Extract

COMMISSIONING RESULTS FOR THE ABOVE SYSTEM ARE DETAILED ON  
THE FOLLOWING SHEET NUMBERS 1 to 6

DATED: Thursday, 7 March 2019

COMMISSIONING ENGINEER:

Martin Payne

System Commissioned by:

HVAC Solutions Ltd.

Half Moon Bay,  
Manukau,  
Auckland,

Tel: 09 5372963

email: info@hvac-solutions.co.nz

Date: 7/03/2019

Note: The acceptance of this system, by the signing of this certificate, acknowledges that the system is in a state of proportional balance, and that the figures obtained can be repeated. It does not however accept design responsibility.

SHT 1 of 6



DATE 7/03/2019

# TESTING REPORT & DATA SHEET

Rev 0

TS 5

**PROJECT:** Hometech Ventilation**SYSTEM:** Supply & Extract

The purpose of this test was to establish the actual volumetric flowrates of the various fans in the Hometech range.

Each test was undertaken using calibrated Air measuring instrumentation and was conducted in accordance with the current CIBSE Commissioning Code A (Appendix A3.1) & the BSRIA guideslines.

For each fan that was tested, each was mounted in a GIB ceiling and ducted out through a roof mounted cowling. Each installation was then measured using an Alnor Balometer that provides a direct reading in Litres per second (L/S)

In the case of the Kitchen range hood, this installation was ducted through some flexible duct with a straight section of solid ducting that allowed measurement using a pitot traverse to establish a total volume on maximum speed.

All results can be seen on the attached test sheet HT2019.

All calibration certificates for the instruments used as provided at the back of this test package.

Instrument	Identity/Serial No.	Calibration Date	Used For
Balometer	91112050	10/08/2018	Terminal Volumes
LoFlo Balometer	209727	10/08/2018	Terminal Volumes
Micromanometer	PVM621639007	4/04/2018	Pressures & Velocities

**ENGINEER** Martin Payne**Sht. 2 of 6**



# FAN TYPE CONFIGURATION GRILLE READINGS

DATE 7/03/2019

HT2019

Product	Configuration	Air flow L/s		
Unovent	G4 + Pollenguard	4.2		
	G4	9.0		
	ERS Filter	13		
VS3004	3m Ø150 Paltech	45		
	3m Ø150 Eggcrate	55		
	3m Ø200 Paltech	63		
	3m Ø200 Eggcrate	88		
		G1	G2	Total
VS3003	150/150/150 RIL150 HIGH. 1m to motor, 500mm to splitter to 2 X 3m Paltech	52	42	94
	150/150/150 RIL150 low. 1m to motor, 500mm to splitter to 2 X 3m Paltech	49	39	88
	150/150/150 RIL150 HIGH. 1m to motor, 500mm to splitter to 2 X 3m Eggcrate	50	58	108
	150/150/150 RIL150 LOW. 1m to motor, 500mm to splitter to 2 X 3m Eggcrate	40	47	87
		G1	G2	Total
VS3002	1m 200/150/150 Splitter 1.5m to motor and damper to 1.5m ducting to Paltech	33	42	75
	1m 200/150/150 Splitter 1.5m to motor and damper to 1.5m ducting to Eggcrate	42	53	95
Rangehood RWE3CL6SS	Rated at 650m <sup>3</sup> /hour or 180.6 l/s 6m ducting	115		
Rangehood RWE3CL6SS	Rated at 650m <sup>3</sup> /hour or 180.6 l/s 3m ducting	138		
EDM300	4.5m ducting to ED150	66		
160DSV	VS3004 set up, Ø150 3M to 150/100 at diffuser	42		

## CERTIFICATE OF CALIBRATION

**Issued by:** TechRentals NZ  
**Certificate Number:** HV001/100818/CA57 Page 1 of 1 Pages  
**Workorder Number:** 2018000857  
**Date of Calibration:** 10/08/2018  
**Client Name:** HVAC Solutions Ltd  
**Address:** Unit 31, Majesty Place, Half Moon Bay, Manukau, Auckland

**Unit Under Test (UUT):**  
**Description:** TSI Alnor EBT721 Balometer  
**Manufacturer:** TSI Inc  
**Model Number:** EBT721  
**Serial Number:** 91112050  
**Asset Number:** BC003475

**Working Standards Used:** 388170 Traceable to NPL United Kingdom  
**TechRentals Procedure/s:** PRES 11.1.14  
**Environmental Conditions:** Temperature 22°C ±2      RH% 48 ±5%      Baro 1021 mbar ±2

**Comments, opinions & interpretations:**  
 UUT was placed on a level horizontal surface with the display facing upwards and zeroed before proceeding with testing.

**Calibration Information:**

1. A Certificate of Calibration does not imply compliance to a specification. Please assess measured values against permissible limits and read the comments, Opinions & Interpretations, when provided, to determine suitability of the UUT (Unit Under Test)
2. Measurements taken under environmental conditions other than those stated in this report may produce values which differ from those quoted herein.
3. U = Measurement Uncertainty (Includes combined uncertainty of the reference and the UUT)
4. The uncertainties quoted in this report refer to the measured values at the time of calibration, with no account being taken of the UUT drift over extended periods.
5. This expanded uncertainty is estimated by combining the uncertainties associated with the reference standards and the calibration process. The expanded uncertainty was calculated using a coverage factor k= 2.2 and defines an interval estimated to have a 95% level of confidence (see ISO Guide to the Expression of Uncertainty of Measurement, 1995)

The Calibration Result for this gauge is shown in the table below

Applied Reference Pressure	UUT Pressure Corrections Pa		Expanded U of Corrections
Pa	Rising ↑	Falling ↓	+/- Pa
0.00	-	0.0	0.1
+10.00	-0.08	+0.04	0.11
+100.00	-0.7	-1	0.1
+200.0	-1	-1	0.6
+500.0	-2	-2	0.7
+1000.0	-7	-7	0.7
+2000.0	-19	-	0.7

Calibrated by: 

Checked by: 

NAME: John He  
Metrologist

NAME: Mauray Gantar  
Approved Signatory

*Tests marked with a \* are NOT IANZ ENDORSED and are outside the scope of the laboratories terms of registration.*

This certificate is issued in accordance with the laboratory accreditation requirements of International Accreditation NZ. It provides traceability of measurement to recognised national standards, and to the SI units of measurement realised at a NZ National Standards Laboratory or other international standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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## CERTIFICATE OF CALIBRATION

Issued by: TechRentals NZ

**Certificate Number:** HV001/100818/CA58  
**Workorder Number:** 2018000858  
**Date of Calibration:** 10/08/2018  
**Client Name:** HVAC Solutions Ltd  
**Address:** Unit 31, Majesty Place, Half Moon Bay, Manukau, Auckland

Page 1 of 2

**Unit Under Test UUT:**

**Description:** TSI Inc 6200 Loflo Balometer  
**Manufacturer:** TSI Inc  
**Model Number:** 6200 Loflo  
**Serial Number:** 209727  
**Asset Number:** BC003476

**Working Standards Used:**

Reference Manometer Asset No 388170 traceable to UKAS UK

**TechRentals Procedure/s:** 11.1.13 FLOW 11.1.14 PRESSURE

**Environmental Conditions:**  
 Temperature 21°C ± 2  
 Relative Humidity % 53 ±10%  
 Barometric mbar 1021 ± 2  
 Air Density kg/m3 1.203 ± 0.013

**Comments, opinions & interpretations:**

*UUT set for "Standard Air" during testing. The results shown on page 2 of this report provide "As Found" data with a k factor of 1 and how the UUT will read with using the suggested optimised k factors for Supply & Return.*

**Calibration Information:**

1. A Certificate of Calibration does not imply compliance to a specification. Please assess measured values against permissible limits and read the comments, Opinions & Interpretations, when provided, to determine suitability of the UUT (Unit Under Test)
2. Measurements taken under environmental conditions other than those stated in this report may produce values which differ from those quoted herein.
3. U = Measurement Uncertainty (Includes combined uncertainty of the reference and the UUT)
4. The uncertainty limits quoted refer to the measured values at the time of calibration, with no account being taken of the UUT drift over extended periods.
5. The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%. The uncertainty evaluation has been carried out in accordance with GUM 1995

Calibrated by:



NAME:

John He  
Metrologist

Checked by:



NAME:

Mauray Ganter  
Approved Signatory

This certificate is issued in accordance with internationally accepted procedures & processes. It provides traceability of measurement to recognised national standards, and to the SI units of measurement realised at NPL UK & NIST USA

101A Station Road, Penrose, Auckland. Ph(09) 5892030 Fax(09) 5892031 calibration@techrentals.co.nz

Rev 1.5

Issue Date: 10/04/2018

Issued by: M Ganter

## CERTIFICATE OF CALIBRATION

Page 1 of 1 Pages

Issued by: TechRentals NZ

**Certificate Number:** HV001/040418/CA21  
**Workorder Number:** 2018000321  
**Date of Calibration:** 4/04/2018  
**Client Name:** HVAC Solutions Ltd  
**Address:** Unit 31, Majesty Place, Half Moon Bay, Manukau, Auckland

**Unit Under Test (UUT):**

<b>Description:</b>	TSI Inc PVM620 Micromanometer
<b>Manufacturer:</b>	TSI Inc
<b>Model Number:</b>	PVM620
<b>Serial Number:</b>	PVM621639007
<b>Asset Number:</b>	BC003292

**Working Standards Used:** 388170 Traceable to NPL United Kingdom  
**TechRentals Procedure/s:** PRES 11.1.14  
**Environmental Conditions:** Temperature 23°C ±2 RH% 53 ±5% Baro 1015 mbar ±2

**Comments, opinions & interpretations:**  
 UUT was placed on a level horizontal surface with the display facing upwards and zeroed before proceeding with testing.

**Calibration Information:**

1. A Certificate of Calibration does not imply compliance to a specification. Please assess measured values against permissible limits and read the comments, Opinions & Interpretations, when provided, to determine suitability of the UUT (Unit Under Test)
2. Measurements taken under environmental conditions other than those stated in this report may produce values which differ from those quoted herein.
3. U = Measurement Uncertainty (Includes combined uncertainty of the reference and the UUT)
4. The uncertainties quoted in this report refer to the measured values at the time of calibration, with no account being taken of the UUT drift over extended periods.
5. This expanded uncertainty is estimated by combining the uncertainties associated with the reference standards and the calibration process. The expanded uncertainty was calculated using a coverage factor k= 2.2 and defines an interval estimated to have a 95% level of confidence (see ISO Guide to the Expression of Uncertainty of Measurement, 1995)

The Calibration Result for this gauge is shown in the table below

Applied Reference Pressure Pa	UUT Pressure Corrections Pa		Expanded U of Corrections +/- Pa
	Rising ↑	Falling ↓	
0.00	--	0.0	0.1
+10.00	-0.2	-0.1	0.1
+100.00	-1.0	-0.8	0.1
+300.00	-2.5	-2.3	0.3
+500.00	-4.0	-3.8	0.2
+1000.0	-7.6	-7.5	0.3
+2000.0	-14.1	--	0.5

Calibrated by:   
 NAME: John He  
 Metrologist

Checked by:   
 NAME: Mauray Ganter  
 Approved Signatory

Tests marked with a \* are NOT IANZ ENDORSED and are outside the scope of the laboratories terms of registration.

This certificate is issued in accordance with the laboratory accreditation requirements of International Accreditation NZ. It provides traceability of measurement to recognised national standards, and to the SI units of measurement realised at a NZ National Standards Laboratory or other international standards laboratories. This certificate may not be reproduced other than in full, except with the prior written approval of the issuing laboratory.

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Rev 1.4 Issue Date: 7/11/16 Issued by: Mauray Ganter

Filename: HV001\_BC003292\_0001