Laboratory Accreditation Programmes

Schedule to

CERTIFICATE OF ACCREDITATION

Teltherm Instruments Limited **Client Number 2814**

PO Box 12171, Penrose, Auckland, 1642
5G Cain Road, Penrose, Auckland, 1061

Telephone 09 633-0040 **www.teltherm.co.nz**

Authorised Representative
Ms Jennie Dingley
Laboratory Manager

Programme
Metrology & Calibration Laboratory

Accreditation Number 644 **Initial Accreditation Date** 21 April 1997

Conformance Standard
ISO/IEC 17025:2017
General requirements for the competence of testing and calibration laboratories

Laboratory Services Summary

5.16	Gas Instrumentation
5.42	Differential Pressure Measuring Devices (including Manometers)
5.44	Pressure and Vacuum
5.45	Pressure Equipment Tests
5.61	Temperature Measuring Equipment

Key Technical Personnel

Ms Jennie Dingley	5.42, 5.44
Mr Manuel Junior	5.61
Mrs Liz Li	5.16, 5.42, 5.44, 5.61
Mr Aidan Lindsay	5.16
Mr Jianxin Liu	5.42, 5.44, 5.61
Mr Elimar Machado	5.42, 5.44, 5.45

IANZ; Building 7, Central Park, 660-670 Great South Road, Ellerslie, Auckland 1051
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Calibration and Measurement Capabilities (CMC) are expressed as an expanded uncertainty corresponding to a level of confidence of 95 % Note1.

Measurement results are traceable to the International System of Units (SI) via an unbroken chain of comparisons to the New Zealand National Standards or to the National Standards of other Signatories to the CIPM MRA.

Unless stated elsewhere in this schedule, calibrations are performed at the premises of the accredited laboratory. Most calibrations of industrial pressure equipment can be carried out on site.

The Teltherm Instruments Laboratory scope of accreditation also covers a limited scope of work which is carried out by Homersham Limited, 3 Homersham Place, PO Box 79085, Burnside, Christchurch (class of test 5.16 only)

5.16 Gas Instrumentation

(a) Gas analysers

Calibration of flue gas analysers, portable and fixed gas detectors in accordance with in-house methods based on manufacturer's instructions and AS/NZS 60079.29.2, in the laboratory or on-site. Calibration of flue gas analysers cannot be undertaken at Homersham Limited.
Note: for flue gas analysers; temperature and pressure indicator calibration is covered by Classes of Test 5.44 and 5.61.
Where ppm = parts per million. For example, 1 ppm = 1 µL/L

Gas/Sensor/Range	CMC Uncertainty
CH_4 (Methane) with catalytic combustion detector or infrared detector	
0-5 % by volume or 0-100 %LEL, in laboratory and on-site	0.25 % of reading
C_4H_8 (Isobutylene) with a PID detector	
1-15,000 ppm, in laboratory and on-site	0.61 % of reading
CO (Carbon Monoxide) with electrochemical detector	
0-10,000 ppm, in laboratory and on-site	0.61 % of reading
H_2S (Hydrogen Sulphide) with electrochemical detector	
0-100 ppm, in laboratory and on-site	0.48 % of reading
O_2 (Oxygen) with electrochemical detector	
0-30 %, in laboratory	0.26 % of reading
0-30 %, on-site	1.16 % of reading

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5.42 Differential Pressure Measuring Devices (including Manometers)

(a) Diaphragm types
(d) Other types

Differential pressure by comparison with a pressure calibrator (line pressure approximately 100 kPa) either in the laboratory or on-site

Pressure	CMC Uncertainty
0 Pa to 60 Pa	0.31 Pa
60 Pa to 124 Pa	0.30 Pa
124 Pa to 250 Pa	0.31 Pa
250 Pa to 500 Pa	0.32 Pa
500 Pa to 2500 Pa	0.66 Pa

5.44 Pressure and Vacuum

(a) Pressure gauges
(b) Vacuum gauges
(c) Pressure transducers
(d) Pressure recorders

Accuracy classes: 0.1, 0.25, 0.6, 1.0, 1.6, 2.5, 4.0 in accordance with AS 1349:1986 and BS EN 837-1:1998; gauges of accuracy 4A, 3A, 2A, 1A and below as defined in ASME B40.100-2013

i) By comparison with dead weight tester

	CMC Uncertainty
Gauge pressure, gas medium	
-100 kPa to -3 kPa	0.01 % or 0.001 kPa, whichever is greater
3 kPa to 100 kPa	0.01 % or 0.001 kPa, whichever is greater
100 kPa to 3100 kPa	0.01 % or 0.01 kPa, whichever is greater
Gauge pressure, liquid medium	
600 kPa to 140000 kPa	0.008 %
Absolute pressure	
0.3 kPa to 20 kPa	0.039 kPa

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20 kPa to 200 kPa	0.034 kPa
200 kPa to 3200 kPa	0.034 kPa or 0.006 % of reading, whichever is greater

ii) By comparison with an automatic pressure calibrator and/or a digital absolute pressure gauge either in the laboratory or on-site

Gauge pressure

-2 kPa to 2 kPa	0.0027 kPa
-35 kPa to 35 kPa	0.0044 kPa
-70 kPa to 70 kPa	0.0066 kPa
-100 kPa to 100 kPa	0.0093 kPa

Absolute pressure

5 kPa to 200 kPa	0.066 kPa

iii) By comparison with reference gauges either in the laboratory or on-site

-100 kPa to 0 kPa	0.01 kPa or 0.01 %, whichever is greater
0 kPa to 7000 kPa	0.01 kPa or 0.01 %, whichever is greater
7000 kPa to 70000 kPa	1 kPa or 0.017 %, whichever is greater
70000 kPa to 140000 kPa	10 kPa or 0.1 %, whichever is greater

On-site pressure calibration is offered in Fiji over the ranges below

0 kPa to 50 kPa	0.01 kPa or 0.03 %, whichever is greater
50 kPa to 700 kPa	0.01 kPa or 0.015 %, whichever is greater
700 kPa to 3500 kPa	0.015 % of reading

iv) Controllers, indicators, recorders and transmitter systems, wholly or in part, by electrical simulation or measurement using a process calibrator either in the laboratory or on-site for the ranges and CMCs above

Transmitter Range

4 to 20 mA (measure)	300 ppm

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4 to 20 mA (source)	120 ppm

5.45 Pressure Equipment Tests

(e) Pressure relief valve tests
(f) Other tests

Pressure relief valves, pressure pipes and fittings and pressure switches up to 140000 kPa, in accordance with in-house methods and manufacturers specifications. In the laboratory only.

5.61 Temperature Measuring Equipment
(including temperature calibration of electronic thermometers)

(a) Rare metal thermocouples
(b) Base metal thermocouples
(c) Platinum (and other metallic) resistance thermometers
(e) Thermistors and other semi-conductor thermometers
(g) Clinical thermometers
(j) Radiation thermometers
(k) Vapour pressure thermometers
(l) Filled metal systems
(m) Bimetallic systems
(o) Indicators, recorders and controllers
(p) Other direct reading temperature measuring equipment

Direct reading thermometers by comparison with reference thermometers (or ice point)

Temperature	CMC Uncertainty
ice point	0.01 °C
-40 °C to 25 °C	0.026 °C
25 °C to 75 °C	0.015 °C
75 °C to 250 °C	0.018 °C
250 °C to 500 °C	0.029 °C

CMC uncertainty is based on the thermometer sensor being immersed to 150 mm. Calculated measurement uncertainty may be greater for shorter probe lengths or large diameter probes.

Radiation pyrometers (infrared thermometers)

By comparison with a reference contact thermometer	
-30 °C to 140 °C (where ε = 1)	0.3 °C
By comparison with a reference infrared thermometer	
45 °C to 600 °C	1.0 °C

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Controllers, indicators, recorders and transmitter systems, wholly or in part, by electrical simulation or measurement using a process calibrator either in the laboratory or on-site for the ranges and CMCs above or for the additional sensor types listed below.

Sensor type	Temperature	
Pt100 measure (3W)	-50 °C to 450 °C	0.06 °C
Pt100 source	-50 °C to 450 °C	0.006 °C
Thermocouples (source and measurement)		
Type K thermocouple	-200 °C	0.33 °C
	-100 °C	0.18 °C
	-50 °C	0.16 °C
	0 °C to 500 °C	0.13 °C
	1000 °C	0.26 °C
	1370 °C	0.40 °C
Type J thermocouple	-210 °C	0.27 °C
	-100 °C to -50 °C	0.16 °C
	0 °C to 100 °C	0.11 °C
	200 °C to 500 °C	0.17 °C
	1000 °C to 1190 °C	0.23 °C
Type N thermocouple	-200 °C	0.40 °C
	-150 °C to -50 °C	0.22 °C
	0 °C to 250 °C	0.15 °C
	500 °C to 1300 °C	0.27 °C
Type T thermocouple	-200 °C	0.63 °C
	-150 °C to -75 °C	0.24 °C
	0 °C to 400 °C	0.13 °C
Type R thermocouple	0 °C	0.50 °C
	100 °C	0.48 °C
	500 °C	0.47 °C
	1000 °C to 1750 °C	0.46 °C

Note 1:
Unless stated otherwise the CMC is based on the performance of the best available device and measurement uncertainties achieved for specific calibrations may be greater than the CMC Uncertainty. A laboratory may not report measurement uncertainties lower than its CMC. However, if the device under calibration has a greater accuracy than the device used to calculate the CMC the laboratory may be able to use the calibration data to lower its CMC Uncertainty. Please contact the laboratory to discuss your specific requirements.

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