Issue date: 20 August 2025
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NO: SAMM 182
(Issue 2, 20 August 2025 replacement
of SAMM 182 dated 20 August 2025)

LABORATORY LOCATION/ CENTRAL OFFICE:	Setianas Sdn Bhd 17, Jalan Harmonium 35/3, Taman Desa Tebrau, 81100 Johor Bahru, Johor , 81100, JOHOR MALAYSIA
ACCREDITED SINCE :	20 AUGUST 2025
FIELD(S) OF CALIBRATION:	DIMENSIONAL FORCE FORCE & TORQUE MASS PRESSURE TEMPERATURE

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

This laboratory's fulfillment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and management system requirements that are necessary for it to consistently deliver technically valid test results and calibrations. The management system requirements in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

*** The uncertainty covered by the CMC is expressed as the expanded uncertainty corresponding to a coverage probability of approximately 95 % and have a coverage factor of k=2 unless stated otherwise.**

CENTRAL LOCATION	Setianas Sdn Bhd 17, Jalan Harmonium 35/3, Taman Desa Tebrau, 81100 Johor Bahru, Johor , 81100, Johor
FIELD(S) OF CALIBRATION :	DIMENSIONAL, FORCE, TORQUE, MASS, PRESSURE, HEAT & TEMPERATURE

SCOPE OF CALIBRATION : DIMENSIONAL

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
(e-type)	-100 ?C to 950 ?C	None	Calibrated using Temperature Calibrator as standards according to JIS C 1601 : 1983 and JIS C 1603 : 1983
(j-type)	-100 ?C to 1000 ?C	None	Calibrated using Temperature Calibrator as standards according to JIS C 1601 : 1983 and JIS C 1603 : 1983
(n-type)	-100 ?C to 1300 ?C	0.3 ?C	Calibrated using Temperature Calibrator as standards according to JIS C 1601 : 1983 and JIS C 1603 : 1983
(prt)	-100 ?C to 800 ?C	0.12 ?C	Calibrated using Temperature Calibrator as standards according to JIS C 1601 : 1983 and JIS C 1603 : 1983
(r-type)	0 ?C to 1600 ?C	0.5 ?C	Calibrated using Temperature Calibrator as standards according to JIS C 1601 : 1983 and JIS C 1603 : 1983
(s-type)	0 ?C to 1600 ?C	0.5 ?C	Calibrated using Temperature Calibrator as standards according to JIS C 1601 : 1983 and JIS C 1603 : 1983
(t-type)	-100 ?C to 400 ?C	None	Calibrated using Temperature Calibrator as standards according to JIS C 1601 : 1983 and JIS C 1603 : 1983
Analytical Balance	to 50g 100 to 200 g	0.0002 g 0.0004 g	Calibrated using Standard weights as standards according to ASTM E898 : 2020

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
B: Thermocouple	-40 ?C to 200 ?C	0.1 ?C	Calibrated using PRT as standards according to JIS C 1604 : 1997 Calibrated using PRT and Thermocouple as standards according to JIS C 1602 : 1995
	200 ?C to 400 ?C	1?C	Calibrated using PRT as standards according to JIS C 1604 : 1997 Calibrated using PRT and Thermocouple as standards according to JIS C 1602 : 1995
	400 ?C to 600 ?C	2?C	Calibrated using PRT as standards according to JIS C 1604 : 1997 Calibrated using PRT and Thermocouple as standards according to JIS C 1602 : 1995
	600 ?C to 1100 ?C	3?C	Calibrated using PRT as standards according to JIS C 1604 : 1997 Calibrated using PRT and Thermocouple as standards according to JIS C 1602 : 1995
	1100 ?C to 1200 ?C	4?C	Calibrated using PRT as standards according to JIS C 1604 : 1997 Calibrated using PRT and Thermocouple as standards according to JIS C 1602 : 1995
Caliper	0 mm to 150 mm 0 mm to 200 mm 0 mm to 300 mm 0 mm to 450 mm 0 mm to 600 mm	11 um 12 um 13 um	Calibrated using Gauge Blocks as standards with reference to ISO 13385: 2011
	None	None	gauge block as

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	350 mm to 450 mm	13 um	using Caliper
	External measurement	None	Calibrate using
	0 mm to 300 mm	0.01 mm	gauge blocks as
	300 mm to 600 mm	0.02 mm	standards based on
	Internal measurement	None	JIS B 7507:2016
	0 mm to 300 mm	0.01 mm	Partial
	0 mm to 300 mm	None	Measuring face
	0 mm to 300 mm	None	contact error
	0 mm to 300 mm	None	Repeatability of
	0 mm to 300 mm	None	partial
	0 mm to 300 mm	None	measuring face
	0 mm to 300 mm	None	contact error
	0 mm to 300 mm	None	Parallelism of
	0 mm to 300 mm	None	jaws
	0 mm to 300 mm	None	Full measuring
	0 mm to 300 mm	None	face contact
	0 mm to 300 mm	None	error
	0 mm to 300 mm	None	Scale shift error
	Omm to 300mm	6 um	Calibrated using caliper
	Omm to 300mm	None	checker and gauge
	300mm to 600mm	None	block with reference to
	300mm to 600mm	None	JIS B 7507:2016
	Up to 300 mm 300 mm to 1000 mm 1000 mm to 2000 mm	17 um 27 um	Calibrated using Gauge Block.with reference to ISO 13385-1:2019
	0 ~ 300 mm	0.02 mm	reference to BS
	0.01 mm to 600 mm	10 um	Caliper Checker JIS B 7507
Caliper Checker	0 mm to 300 mm 300 mm to 600 mm	2.5 um 4.6 um	Calibrated using Gauge Blocks as standards with reference to
	0 mm to 300 mm 300 mm to 600 mm	None	ISO 7863: 1984
	0 mm to 300 mm 300 mm to 600 mm	None	Calibrated using UMM as
	up to 600mm	(0.6+0.004L) um Where = nominal length in mm	With reference to Microrep Test Method for Caliper Checker by using Gauge Block
	Up to 300 mm	External measurement =	Calibrated by
	Up to 300 mm	um	using Gauge

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	Up to 300 mm	Internal measurement =	Block with
	Up to 300 mm	(2.8+0.003L) um	references to
	Up to 300 mm	Where = nominal length	HLB Test
	Up to 300 mm	inmm	Method HLBTM-
	Up to 300 mm	None	10: 2011 for
	Up to 300 mm	None	Caliper Checker
	0 mm to 600 mm	(0.9+0.8L) um	Calibration by laser
	0 mm to 600 mm	Lis in unit meter	measurement system
Compression Tester	0 kgf to 1000 kgf	1.1 kgf	Calibrated using Load Cell as standards according to ISO 7500-1:2018
	1000 kgf to 10000 kgf	19 kof	Calibrated using Load Cell as standards according to ISO 7500-1:2018
	10000 kgf to 40000 kgf	71 kof	Calibrated using Load Cell as standards according to ISO 7500-1:2018
	40000 kgf to 200000 kof	232 kof	Calibrated using Load Cell as standards according to ISO 7500-1:2018
Dial Gauge / Indicator	0mm to5mm 5 mm to 20 mm	1.0 um 3.0 um	Calibrated using Dial Gauge Tester as standards with reference to
	0mm to5mm 5 mm to 20 mm	None	1S0463:2006
	0.001 mm to 25 mm	2.0 um	Calibrate using Calibration Tester. with reference to JIS B 7503: 2017
	Up to 25 mm	4um	Calibrated using Calibration Tester based JIS B on
	Up to 25 mm	None	7503:2017
Dial Test Indicator	0mm to 0.14 mm 0.14 mm to 1 mm 1mm	0.9 um 1.2um 3.0um	Calibrated using Dial Gauge Tester as standards with reference to
	0mm to 0.14 mm 0.14 mm to 1 mm 1mm	None	ISO 9493:2010

Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks
	0mm to 1.6 mm	1.6 um	Comparison with gauge tester based on JIS B 7533:2015
	0mm to5mm	None	dial gauge calibrator as
	up to 1.6 mm	None	With reference to JIS B 7533: 2015 Dial Test
	Graduation: 0.01 mm/0.005 mm	2.5 um	Indicator by using Dial Indicator Tester/
	Graduation: 0.01 mm/0.005 mm	None	Universal Horizontal
	Graduation: 0.001 mm/0.002 mm	1.1 um	Metroscope/ Universal Dial Gauge Checker
	Up to 0.28 mm 0.28 mm to 0.6 mm 0.6 mm to 1.5 mm	1.5 um 1.8 um 5.0 um	Calibrated by using gauge block and dial gauge tester with reference to JIS B 7533:2015
	0mm to 1.5 mm	0.004 mm	Calibrated by
	0mm	None	Calibrated using gauge tester as standard with
	0mm	None	reference to JIS
	0mm	None	B7533:1990
	Up to 3 mm	(0.3 + 0.06 L) um	Calibration by laser
	Up to 3 mm	None	measurement system
	Up to 3 mm	is measurement length	with reference to
	Up to 3 mm	in unit meter	JIS B 7533
	Omm to 1.6mm	0.7 um	Calibrated using i-
	Omm to 1.6mm	None	Checker with
	Omm to 1.6mm	None	reference to JIS B
	Omm to 1.6mm	None	7533:2015
	0mm to 0.28 mm 0.28 mm to 1.0 mm	10 um	Calibrate using Calibration Tester. with reference to JIS B 7533: 2015
	Up to 1mm	0.7 um	Calibrated by using i-checker as standards based on JIS B 7533:2015
	Up to 0.3 mm 0.3 mm to 0.6 mm 0.6 mm to 2.0 mm	1.4 um 1.5 um	Calibrate by using micrometer head as standards according to JIS B7533:2015

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	Up to 0.3 mm 0.3 mm to 0.6 mm 0.6 mm to 2.0 mm	None	Calibrate by using
Dial/ Digital Thickness Gauge	0mm to 10 mm 10 mm to 20 mm	1.0 um 3.0 um	Calibrated using Gauge Blocks as standards with reference to
	0mm to 10 mm 10 mm to 20 mm	None	ISO 463:2006
Digital / Digimatic Indicator	0mm to 25 mm 25 mm to 50 mm	0.6 um 0.8 um	Calibrated using Gauge Blocks as standards with reference to JIS B 7536 : 1982
	25mm travel for frame	None	
	sizes:	None	
External Micrometer	0mm to 25 mm 50 mm 75mm 100 mm 125 mm 150 mm 175 mm and 200 mm 225 mm 250mm, 275 mm and 300 mm	1.1 um 1.2 um 1.3 um 1.5 um 1.7 um 1.9 um 2.4 um 2.4 um 4.0 um	Calibrated using Gauge Blocks as standards with reference to ISO 3611 2010
	0mm to 500 mm	um -˜L-™ in metre	Comparison with gauge block based on JIS B 7502:2016
	None	None	
	up to 50 mm travel with frame up to 300 mm	(0.81+0.012L) um	With reference to BS EN ISO 3611: 2010 by using Gauge Blocks
	Over 300 to up to 600 mm	(0.47+0.013L) um Where = nominal	
	(or inches equivalent)	length in mm	
	25 mm traverse	(0.81+0.012L) ym	Calibrated by
	25 mm travel range	0.001 mm	Calibrate using
	25 mm travel range	None	gauge blocks as
	Frame size	None	standards based on
	Up to 100 mm	0.002 mm	JIS B 7502:2016
	100 mm to 150 mm	0.003 mm	Full surface e
	150 mm to 200 mm	0.004 mm	contact error
	200 mm to 250 mm	0.005 mm	Flatness e
	250 mm to 300 mm	0.006 mm	Parallelism e
	325 mm to 350 mm	0.007 mm	
	350 mm to 400 mm	0.008 mm	
	400 mm to 500 mm	0.010 mm	Note: Standard rod
	400 mm to 500 mm	None	to be provided if the
	400 mm to 500 mm	None	measurement range

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	400 mm to 500 mm	None	is > 25 mm
	25 mm 25 mm spindle travel for 50 mm to 100 mm 100 mm to 175 mm frame	1.0 um 1.5 um 2.0 um	Measurement of instrument error, and parallelism and flatness of measuring faces reference to JIS B7502:2016. Setting rod must be provided by customer.
	Up to 100 mm 100 mm to 275 mm	None	Calibrated by using gauge block as standards based on JIS B 7502:2016
	0~ 25mm	0.002 mm	Gauge Block reference to ISO
	100 mm to 150 mm frame (25 mm traverse)	None	Calibrated using Gauge Block according to
	100 mm to 150 mm frame (25 mm traverse)	None	ISO 3611:2010
	Up to 1 inch	0.0003 inch	
	1 inch to 6 inch frame (1 inch traverse)	0.0003 inch	
	Up to 50 mm	0.003 mm	
	50 mm to 150 mm	0.004 mm	Calibrated using Gauge
Feeler Gauge	0mm to3mm	1.2 um	Calibrated using Linear Gauge as standards with reference to
	0mm to3mm	None	JIS B 7524:
	0mm to3mm	None	2008
	0.01 mm to 3 mm	0.61 um	Direct measurement with micrometer based on JIS B 7524:2008
	0.01 mm to 1 mm	2.2 um	Calibrated by using Digital Micrometer with reference to
	0.01 mm to 1 mm	None	BS 957:2008
	0mm to3mm	0.0009 mm	Calibrated by
	0.005 mm to 3 mm	1.8 um	Calibrated using digital displacement indicator as standard with reference to

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	0.005 mm to 3 mm	None	JIS B7524:2008
	0.05 mm to 1.0 mm	None	Calibrate using Mu Checker. with reference to JIS B 7524: 2008
Height Gauge	0 mm to 300 mm 300 mm to 450 mm 450 mm to 600 mm	5.3 um 6.9 um 8.6 um	Calibrated using Gauge Blocks as standards with reference to ISO 13225:
	0 mm to 300 mm 300 mm to 450 mm 450 mm to 600 mm	None	2012
	0 mm to 300 mm	None	Calibrated using gauge block as standards based
	Up to 300 mm 300 mm to 600 mm	0.007 mm 0.008 mm	Calibrated by using caliper checker & dial test indicator and standard square with reference to
	Up to 300 mm 300 mm to 600 mm	None	JIS B 7517:1993
	0 mm to 600 mm	None	using Caliper
	Up to 600 mm	Where = nominal length	using Gauge
	Up to 600 mm	Where = nominal length	using Gauge
	up to 600 mm	20 um	Measurement of instrument error and
	up to 600 mm	None	parallelism of reference surface with measuring surface of scriber
	up to 600 mm	None	reference to JIS
	up to 600 mm	None	B7517:2018
	Up to 300 mm	(1.8 + 0.009 L) um	Calibration by gauge
	Up to 300 mm	is length in mm	block and precision
	Up to 300 mm	None	square with reference
	Up to 300 mm	None	to BS EN ISO 13225
	Omm to 600mm	8 um	Calibrated using caliper
	Omm to 600mm	None	checker and gauge
	Omm to 600mm	None	block with reference to
	Omm to 600mm	None	JIS B 7517:2018

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	Up to 300 mm 300 mm to 1000 mm	6 um 13 um	Calibrated using Gauge Block, L-square and Dial Gauge. with reference to ISO 13225:2012
	Up to 150 mm 150 mm to 300 mm 300 mm to 600 mm	8 um 12 um	Calibrated by using caliper checker and gauge block as standards based on JIS B 7517:2018
	0mm to 300 mm 300 mm to 600 mm	11 um	caliper checker, gauge block and dial test indicator as
	0mm to 300 mm 300 mm to 600 mm	None	standards according
	0mm to 300 mm 300 mm to 600 mm	None	to JIS B7517:2018
	0mm to 300 mm 300 mm to 600 mm	None	Calibrate by using
	0 mm to 300 mm 300 mm to 600 mm	11 um	gauge block and dial test indicator as standards according
	0 mm to 300 mm 300 mm to 600 mm	None	to JIS B7517:2018
	0 inch to 6 inch	0.0003 inch	according to BS EN ISO 13225:2012
	Up to 25 mm	None	
	25 mm to 100 mm frame (25 mm traverse)	None	
Height Setting Micrometer	0 mm to 300 mm 300 mm to 600 mm	2.5 um 4.6 um	Calibrated using Gauge Blocks as standards with reference to
	0 mm to 300 mm 300 mm to 600 mm	None	ISO 7863: 1984
Hydraulic	0 psi to 5000 psi 5000 psi to 16000 psi	0.062 % of reading 0.063 % of reading	Calibrated using Dead weights as standards according to AS 1349 : 1986
	0 psi to 10000 psi 10000 psi to 20000 psi	0.3% of reading 0.2% of reading	Calibrated using Pressure Calibrator as standards according to AS 1349:1986
	0 bar to 700 bar	90 mbar	Calibrate using
	0 bar to 700 bar	90 mbar	Calibrate using

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Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks
	Obar to 350bar	0.5 bar	
	0 psi to 1000 psi 1000 psi to 5000 psi 5000 psi to 10000 psi 10000 psi to 15000 psi	0.7 psi 3 psi 6 psi 10 psi	
	0 psi to 1000 psi 1000 psi to 10000 psi 10000 psi to 15000 psi	0.3 psi 3.3 psi 3.9 psi	
	0 psi to 1000 psi 1000 psi to 10000 psi 10000 psi to 15000 psi	0.3 psi 3.3 psi 3.9 psi	
	0 bar to 350 bar 350 bar to 700 bar	0.09 bar 0.16 bar	
	0 bar to 350 bar 350 bar to 700 bar	0.09 bar 0.16 bar	
	0 psi to 14500 psi	4 psi	
	14500 psi to 36000 psi	14 psi	
	0 to 10000 psi	2.3 psi	based on
	0 to 10000 psi	None	BS EN 837-1:1998,
	0 to 10000 psi	None	BS EN 837-2:1998 &
	0 to 10000 psi	None	BS EN 837-3:1998
	20 bar to 100 bar	0.4 bar	Pressure Meter
	0 bar to 700 bar 0 bar to 1000 bar	0.14 bar 0.016 % of reading	Calibrated using deadweight tester or by comparison method according to MSA Test Method 1
	0 bar to 700 bar 0 bar to 1000 bar	None	and 2 - 2022
	0 bar to 700 bar	0.59 bar	
	300 bar to 700 bar	0.1 bar	
	700 bar to 2500 bar	0.5 bar	
	300 bar to 700 bar	0.1 bar	
	700 bar to 2500 bar	0.46 bar	
Liquid-in-glass Thermometer (total & Partial Immersion)	-20 ?C to 50 ?C 50 ?C to 200 ?C	0.1 ?C 0.1 ?C	Calibrated using PRT as standards according to ASTM E77 : 2007
	-20 ?C to 50 ?C 50 ?C to 200 ?C	None	Calibrated using Precision

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	-30 °C to 0 °C 0 °C to 200 °C 200 °C to 400 °C	0.08 °C 0.07 °C 0.35 °C	Comparison with Pt 100 reference in liquid bath and temperature block calibrator
Mechanical Thermometer	-20 ?C to 200 ?C 200 ?C to 400 ?C 400 ?C to 650 ?C	0.7 ?C 2?C 3?C	Calibrated using PRT as standards according to JIS C 1602 : 1995
	0°C	1.5°C	Comparison with reference Thermometer with sensor in ice point
	50 °C to 350 °C	2°C	Comparison with reference thermal block calibrator
	-20 ?C to 250 ?C	0.3 ?C	Comparison method using Pt 100 Reference Standard in
	-20 ?C to 250 ?C	None	liquid bath
Pin Gauge	0mm to 25 mm	1.3 um	standards with reference to JIS
	0mm to 25 mm	None	B 7420: 1997
Plain Plug Gauge	0mm to 25 mm 25 mm to 50 mm 50 mm to 100 mm	0.9 um 1.0 um 1.6 um	Calibrated using Universal Length Measuring Machine as standards with reference to
	0mm to 25 mm 25 mm to 50 mm 50 mm to 100 mm	None	JIS B 7420: 1997
Pneumatic	0 bar to 2 bar 2 bar to 20 bar	0.002 bar 0.01 bar	Calibrated using Pressure Calibrator as standards according to AS 1349 : 1986
	0 bar to 2 bar 2 bar to 20 bar	0.002 bar 0.02 bar	Calibrated using Pressure Calibrator as standards according to AS 1349:1986
	-5 to 5 inH2O	0.0025	Calibrate using
	-5 inH2O to 5 inH2O	0.0025 inH2zO	Calibrate using
	Obar to 0.35bar 0.35bar to 6bar	0.0012bar 0.004bar	(R2018) using Pressure Tester
	0 psi to 30 psi 30 psi to 300 psi 300 psi to 1000 psi 1000 psi to 2000 psi	0.01 psi 0.05 psi 0.3 psi 3.3 psi	

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	0 psi to 30 psi 30 psi to 300 psi 300 psi to 1000 psi 1000 psi to 2000 psi	0.01 psi 0.05 psi 0.3 psi 3.3 psi	
	0 psi to 2000 psi	0.5 psi	EN 837-1:1998
	-0.9 bar to 2 bar 2 bar to 20 bar	0.0050 bar 0.03 bar	Calibrated using Pressure Calibrator &
	0 bar to 10 bar	0.007 bar	calibrator.
	0 bar to 10 bar	0.01 bar	calibrator
	-0.9 bar to 0 bar 0 bar to 0.07 bar 0 bar to 0.7 bar 0 bar to 7 bar abs 0 bar to 7 bar 0 bar to 20 bar	0.008 bar 0.000007 bar 0.00012 bar 0.0028 bar abs 0.003 bar 0.008 bar	Calibrated using reference pressure calibrator by comparison method according to MSA Test Method 1 and 2
	0 bar to 30 bar	0.011 bar	-2022
	-0.9 bar to 0 bar 0 bar to 0.07 bar 0 bar to 0.7 bar 0 bar to 7 bar abs 0 bar to 7 bar 0 bar to 20 bar 0 bar to 30 bar	0.008 bar 0.000057 bar 0.00058 bar 0.0063 bar abs 0.0064 bar 0.018 bar 0.058 bar	Calibrated using reference pressure calibrator by comparison method according to MSA Test Method 1 and 2 - 2022
	70 mbar to 700 mbar 700 mbar to 7000 mbar 7 bar to 30 bar	0.16 mbar 1.9 mbar 0.009 bar	Calibrate by using reference gauge based on AS 1349 (1986)
	0 bar to 300 bar	0.09 bar	
	70 mbar to 700 mbar 700 mbar to 7000 mbar 7 bar to 30 bar	0.16 mbar 1.9 mbar 0.009 bar	Calibrate by using reference gauge based on AS 1349
	0 bar to 300 bar	0.09 bar	-1986
Profile Projector (linear Axis)	0 mm to 200 mm	0.0025 mm	Calibrated using Glass Scale as standards with reference to JIS
	0 mm to 200 mm	None	B 7184 : 1999
	0 mm to 200 mm	None	Calibrated using Level Meter as
Push-pull Gauge	0 kgf to 0.5 kgf 0.5 kgf to 20 kgf 20 kof to 100 kgf	0.00006 kgf 0.008 kgf 0.012 kgf	Calibrated using poise weights as standards according to ISO 376 : 2011

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
Ring Gauge	4mm to 30 mm 30 mm to 100 mm	1.0 um 1.8 um	Calibrated using Universal Length Measuring Machine as standards with reference to
	4mm to 30 mm 30 mm to 100 mm	None	JIS B 7420: 1997
Ruler	0mm to 1000 mm	0.20 mm	Calibrated using Standard
	0mm to 1000 mm	None	Ruler as standards
	0mm to 1000 mm	None	with reference to JIS
	0mm to 1000 mm	None	B 7516: 1987
	Up to 2000 mm	0.12 mm	Calibration by laser
	(or inches equivalent)	None	measurement system
	(or inches equivalent)	None	with reference to
	(or inches equivalent)	None	JIS B 7516
Standard Weight	1mg,2mg,5mg, 10 mg , 20 mg	0.02 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	200 mg , 500 mg	0.02 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	1g,29,5g	0.03 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	1g,29,5g	0.04 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	50g	0.06 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	100g	0.11 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	200 g	0.19 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	500 g	1.3 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	1kg	None	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	2kg	4.6 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	5kg	13 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	10 kg	117 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	20 kg	125 mg	Calibrated using Standard Weights and Comparator as standards according to OIML R111-2 : 2004
	1kg 2kg 10 kg 20 kg	13 mg 19mg 40 mg 77mg 0.16 g	Comparison using the ABBA or AB1.... BnA weighing sequence. “Intermediate values
	1kg 2kg 10 kg 20 kg	None	can be calibrated with
	1kg 2kg 10 kg 20 kg	None	uncertainty interpolated from the next higher and lower nominal value
	1kg 2kg 10 kg 20 kg	None	tabulated.”
	2mg	0.005 mg	
	2mg	0.005 mg	2. Intermediate values
	10 mg	0.005 mg	tabulated can be
	20 mg	0.006 mg	calibrated with uncertainty
	50 mg	0.006 mg	interpolated from the next
	100 mg	0.007 mg	higher and lower nominal
	200 mg	0.007 mg	values tabulated.
	500 mg	0.007 mg	
	500 mg	None	3. Calibration Method
	1g	0.009 mg	based on OIML R111-1
	29	0.010 mg	-2004
	5g	0.014 mg	
	10g	0.020 mg	
	20g	0.028 mg	
	50g	0.07 mg	
	100g	0.14 mg	
	200 g	0.3 mg	
	500 g	0.7 mg	
	1kg	1.3 mg	
	2kg	2.6 mg	
	5 kg	8mg	
	10 kg	15 mg	
	20 k	50 m	
	5 kg	0.2g	
	10 kg	0.2g	2. Intermediate values
	20 kg	0.39	tabulated can be

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	20 kg	None	calibrated with
	20 kg	None	uncertainty interpolated
	20 kg	None	from the next higher and
	20 kg	None	lower nominal values
	20 kg	None	tabulated.
	20 kg	None	3.Calibration method
	20 kg	None	based on OIML R111-1
	20 kg	None	(2004).
	2 kg to 25 kg	0.2g	Calibrated using standard weight and comparator as standard according to OIML R111-1:2004 (E)
	1g	0.04 mg	
	29	0.05 mg	
	5g	0.06 mg	
	10g	0.07 mg	
	20g	0.09 mg	Calibrate using
	50g	0.10 mg	reference standard
	100g	0.17 mg	weight by
	200 g	0.4 mg	comparison method
	500 g	0.002 g	according to ABBA
	1kg	0.006 g	weighing scheme
	2kg	0.02 g	
	5 kg	0.03 g	
	10 kg	0.2g	
	20 kg	04g	
	2kg 5 kg 10 kg 20 kg 25 kg	0.2g	Calibrated by using standard weights and weighing comparator
	2kg 5 kg 10 kg 20 kg 25 kg	0.2g	Calibrated by using standard weights and weighing comparator
Surface Plate	2000 mm x 2000 mm	1.3 um	standards with reference to JIS
	2000 mm x 2000 mm	None	B 7513 : 1992
	600 x 600 mm 1200 x 1200 mm 1800 x 1800 mm	1.5 um 1.6 um	Planekator, micro-indicator based on JIS B 7513:1992

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Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	300 mm x 300 mm 600 mm x 600 mm 1000 mm x 1000 mm 1600 mm x 2500 mm	1.0 um 1.9 um 2.1 um 3.4 um	Calibrated by using precision inclinometer with reference to BS 817:2008
	300 mm x 300 mm 1000 mm x 1000 mm	3.2 um 6.5 um	Calibrate using Planekator with reference to BS 817:2008
	300 mm x 300 mm 1000 mm x 1000 mm	1.8 um 3.2 um	microindicator and variation gauge as
	300 mm x 300 mm 1000 mm x 1000 mm	None	standards according
	300 mm x 300 mm 1000 mm x 1000 mm	None	to BS 817:2008
Temperature Controlled Enclosures	to 200 ?C 200 ?C to 400 ?C 400 ?C to 1100 ?C	0.7 ?C 1.2?C 3.5 ?C	Calibrated using PRT Thermocouple as or standards according to AS2853 : 1986
	-20°C to 200°C 200 °C to 350 °C	2.8 °C	Calibrate by using temperature recorder with
	350 °C to 600 °C 600 °C to 1200 °C	3.5 °C 3.8 °C	thermocouple with reference to DKD-R 5-7
	-80 °C to 250 °C 251 °C to 660 °C 661 °C to 1200 °C	0.6 °C 1.1°C 2.8 °C	Using thermocouple and temperature recorder
	-20 °C to 200 °C 200 °C to 400 °C 400 °C to 1200 °C	1.6°C 2.3 °C 6.5 °C	Using Thermocouple and Temperature Data Logger Based on AS2853-1986
Temperature Indicator (electrical Simulation) (k-type)	-100 ?C to 1300 ?C	0.2 ?C	Calibrated using Temperature Calibrator as standards according to JIS C 1601 : 1983 and JIS C 1603 : 1983
Temperature Indicator (electrical Simulation) (k-type) (e-type) (j-type) (t-type) (n-type) (r-type) (s-type) (prt)	-100 ?C to 1300 ?C	None	Calibrated using temperature Calibrator as standards according to JIS C 1601 : 1983 andJIS C 1603 : 1983

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	-100 ?C to 950 ?C	None	Calibrated using temperature Calibrator as standards according to JIS C 1601 : 1983 andJIS C 1603 : 1983
	-100 ?C to 1000 ?C	None	Calibrated using temperature Calibrator as standards according to JIS C 1601 : 1983 andJIS C 1603 : 1983
	-100 ?C to 400 ?C	None	Calibrated using temperature Calibrator as standards according to JIS C 1601 : 1983 andJIS C 1603 : 1983
	-100 ?C to 1300 ?C	0.3 ?C	Calibrated using temperature Calibrator as standards according to JIS C 1601 : 1983 andJIS C 1603 : 1983
	to 1600 ?C	0.5 ?C	Calibrated using temperature Calibrator as standards according to JIS C 1601 : 1983 andJIS C 1603 : 1983
	0 ?C to 1600 ?C	0.5 ?C	Calibrated using temperature Calibrator as standards according to JIS C 1601 : 1983 andJIS C 1603 : 1983
	-100 ?C to 800 ?C	0.12 ?C	Calibrated using temperature Calibrator as standards according to JIS C 1601 : 1983 andJIS C 1603 : 1983

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
Temperature Sensor A: Prt	-40 ?C to 200 ?C	0.1 ?C	Calibrated using PRT as standards according to JIS C 1604 : 1997 Calibrated using PRT and Thermocouple as standards according to JIS C 1602 : 1995
	200 ?C to 400 ?C	1?C	Calibrated using PRT as standards according to JIS C 1604 : 1997 Calibrated using PRT and Thermocouple as standards according to JIS C 1602 : 1995
	400 ?C to 600 ?C	2?C	Calibrated using PRT as standards according to JIS C 1604 : 1997 Calibrated using PRT and Thermocouple as standards according to JIS C 1602 : 1995
Tension Gauge	0.6 gf to 20 of 20 gf to 100 of 50 gf to 1000 of	0.05 gf 1.2 gf 5 of	Calibrated using poise weights as standards according to ISO 376 : 2011
Tension Tester	0 kgf to 1000 kgf	1.1 kgf	Calibrated using Load Cell as standards according to ISO 7500-1:2018
	1000 kgf to 10000 kgf	19 kof	Calibrated using Load Cell as standards according to ISO 7500-1:2018
Thermohygrograph / Thermohygrometer	30 %RH to 90 %RH @ 23 ?C 20 ?C to 80 ?C	4 %RH 0.4 ?C	Thermohygrometer and PRT as Standards according to BS 1339-3 : 2004
Thread Plug Gauge (major And Pitch Diameter Only)	1mm to 30 mm 30 mm to 68 mm	1.5 um 1.7 um	Calibrated using Universal Length Measuring Machine as standards with reference to JIS B 0261: 2004

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
Thread Ring Gauge (minor And Pitch Diameter Only)	4mm to 30 mm 30 mm to 68 mm	1.5 um 2.0 um	Calibrated using Universal Length Measuring Machine as standards with reference to JIS B
	4mm to 30 mm 30 mm to 68 mm	None	0261: 2004
Torque Measuring Device	0 kgf.cm to 2 kgf.cm 2 kgf.cm to 50 kgf.cm 50 kgf.cm to 300 kgf.cm 300 kgf.cm to 3000 kgf.cm 3000 kgf.cm to 6000 kgf.cm	0.0002 kgf.cm 0.004 kgf.cm 0.03 kgf.cm 0.7 kgf.cm 1.6 kgf.cm	Calibrated using poise weights as standards according to BS 7882: 2017
Torque Tools (wrenches And Drivers)	1 kgf.cm to 10 kgf.cm 0 kgf.cm to 100 kgf.cm 100 kgf.cm to 900 kgf.cm 900 kgf.cm to 2900 kgf.cm 2900 kgf.cm to 7000 kgf.cm	0.04 kgf.cm 0.24 kgf.cm 1.0 kgf.cm 10 kgf.cm 25 kgf.cm	Calibrated using Torque Meter as standards according to ISO 6789: 2017
Vacuum	Up to 14 psi	0.02 psi	Electronic Pressure Test Gauge and Air Dead Weight Tester
	Up to 14 psi	0.018 psi	Pressure sensor
	None	None	Calibrated using Pressure
	-0.9 bar to 0 bar	0.004 bar	Calibrator as standards
	-0.9 bar to 0 bar	None	according to AS 1349 : 1986
	-0.9 bar to 0 bar	0.004 bar	Calibrated using Pressure Calibrator as standards according to AS 1349:1986
	-12 to 0 psi	0.022 psi	“Intermediate values can be
	-0.97 bar to 0 bar	1.3 mbar	Calibrate using
	-0.97 bar to 0 bar	1.3 mbar	Calibrate using
	-0.9bar to Obar	0.03bar	according to AS 1349:1986
	Ambient to - 0.95 bar	0.001 bar	Calibrated using Pressure Calibrator based on BS EN 837-1, BS EN 873-3 & DKD-R 6-1 Ed 03/2014

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	0 bar to -0.95 bar	0.003 bar	Calibration using pressure
	0 bar to -0.95 bar	0.003 bar	Calibration using pressure
Weighing Balance	200 g to 600 g 600 g to 1000 g to 2000 g 2000 g to 5000 g 5000 g to 10000 g 6000 g to 20000 g 20 kg to 60 kg 60 kg to 100 kg 100 kg to 200 kg 200 kg to 500 kg 500 kg to 1000 kg 1000 kg to 2000 kg	0.0050 g 0.054 g 0.011g 0.053g 0.0023 kg 0.003 kg 0.064 kg 0.015 kg 0.03 kg 0.063 kg	Calibrated using Standard weights as standards according to ASTM E898 : 2020 Euramet Cg-18 Ver 4.0
	Up to 60 kg	0.01 kg	Calibrated by using standard weights with reference to
	Up to 200 g	1.5 mg	1. The calibration
	Up to 600 g	4.0 mg	procedure covers tests
	Up to 1000 g	10 mg	for linearity error,
	Up to 2000 g	20 mg	repeatability, off-centre
	Up to 5000 g	0.03 g	loading and hysteresis.
	Up to 10 000 g	0.19	
	Up to 20 000 g	0.2g	2. The CMC is estimated
	Up to 32 000 g	0.2g	from the contributions
	Up to 300 kg	0.02 kg	from the first three tests
	Up to 500 kg	0.04 kg	and the standards used.
	Up to 500 kg	None	3. Weighing balances
	Up to 500 kg	None	with ranges intermediate
	Up to 500 kg	None	from the values tabulated
	Up to 500 kg	None	can be calibrated with
	Up to 500 kg	None	uncertainty interpolated
	Up to 500 kg	None	from the next higher and
	Up to 500 kg	None	lower ranged values.
	Up to 500 kg	None	4. Calibration method
	Up to 500 kg	None	based on OIML R76-

Instrument Calibrated/Measurement Parameter	**Range**	**Calibration and Measurement Capability Expressed as an Uncertainty (±)***	**Remarks**
	Up to 500 kg	None	1(2006) and with
	Up to 500 kg	None	standard weight sets
	Up to 500 kg	None	based on OIML R111-1
	Up to 500 kg	None	(2004).
	6 kg to 10 kg 10 kg to 15 kg	04g 0.0006 kg	weights with reference to
	15 kg to 30 kg	0.0009 kg	ASTM E898 - 88
	30 kg to 60 kg	0.005 kg	-2020
	60 kg to 100 kg	0.08 kg	
	100 kg to 150 kg	0.09 kg	
	150 kg to 300 kg	0.13 kg	
	None	None	Calibration
	Up to 100 g Up to 200 g Up to 300 g Up to 500 g	0.0002 g 0.0002 g 0.0003 g 0.0005 g	Calibrated using Standard Weight.
	Up to 1 kg Up to 2 kg Up to 3 kg Up to 5 kg	0.006 g 0.01g 0.02 g 0.05 g	The Calibration Method is with reference to
	Up to 10 kg Up to 20 kg Up to 30 kg Up to 50 kg	0.06 g 45g 9.0g	BS EN 45501: 2015 and Euramet CG No 18 Version 4.0
	Up to 100 kg Up to 200 kg Up to 300 kg Up to 500 kg	19g 45g 49g 0.10 kg	(11/2015).
	Up to 1,000 kg	0.20 kg	

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SCOPE OF CALIBRATION : FORCE

Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks

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SCOPE OF CALIBRATION : FORCE & TORQUE

Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks

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SCOPE OF CALIBRATION : MASS

Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks

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SCOPE OF CALIBRATION : PRESSURE

Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks

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SCOPE OF CALIBRATION : TEMPERATURE

Instrument Calibrated/Measurement Parameter	Range	Calibration and Measurement Capability Expressed as an Uncertainty (±)*	Remarks