CERTIFICATE OF CALIBRATION

ISSUED BY AVON-DYNAMIC CALIBRATION

Date of Issue 28 November 2025 Certificate Number K1048067

UKAS CALIBRATION

0199

AVON DYNAMIC
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For:

WESTERN TOOLING SERVICES LTD.
UNIT 7, SPIBGWATER PARK
CREWS HOLE ROAD, ST GEORGE
BRISTOL
BS5 8AN Company Number: WESTERNT

Approved Signatory
Mr S. Tregaskes

Temperature:	20°C ± 0.05°C	Start date of calibration:	25 November 2025
Relative humidity:	Less than 38 %	Completion date of calibration:	28 November 2025
Description:	LENGTH BAR SET		
Manufacturer:	PITTER TOOL & GAUGE	Number of items:	10
Specification:	BS5317:1976	Serial number:	1997
Material:	Steel	Grade:	1

Length measurement:

Length bars up to 100 mm

The axial length of each length bar was determined by measurement by comparison with laboratory reference standards of a similar material with the length bar mounted vertically. Measurements were taken towards the edge of the measuring faces.

Length bars over 100 mm

The axial length of each length bar was determined by measuring four measurement points made by using a SIP MUL 1000 fitted with a twin probe measurement system, digital readout, and a Hewlett Packard laser interferometer. All measurement were made by holding the length bar horizontally at the Airy points.

Parallelism: The reported variation of each length bar is the difference between the maximum and minimum measurements of length obtained as above.

Flatness: The reported flatness of each length bar has been determined by using an optical flat and a monochromatic light source.

Measurement Positions: Measurement position 1 is in line with the Nominal size engraving points 2, 3 and 4 are equally spaced clockwise from position 1.

Flatness: Face A is determined from left hand side of bar from the view of the engraved nominal size.

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Calibrated by: OBEES

The results stated on this certificate relate only to the equipment calibrated.

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k = 2, which for a normal distribution corresponds to a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.

Unit 1, The Old Mill, Chapel Lane, Warmley, Bristol, BS15 4NQ
Tel: (0117) 9477 846 www.avon-dynamic.co.uk

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Serial Number	Nominal Value (mm)	Length Upper Tolerance (µm)	Length Lower Tolerance (µm)	Measurement Positions Point 1 (µm)	Point 2 (µm)	Point 3 (µm)	Point 4 (µm)	Mean Length (mm)	Uncertainty of Measurement (mm)
M.4819	600	3.65	-1.55	1.58	1.28	1.18	1.40	600.00136	± 0.00080
M.4959	400	2.50	-1.10	2.46	2.54 *	2.81 *	2.78 *	400.00265	± 0.00060
M.4741	300	1.40	-0.60	1.71 *	1.73 *	1.80 *	1.81 *	300.00176	± 0.00050
M.5092	200	1.40	-0.60	1.36	1.22	1.38	1.30	200.00132	± 0.00040
M.4621	100	0.85	-0.35	0.43	0.33	0.26	0.25	100.00032	± 0.00018
M.4539	80	0.70	-0.30	0.75 *	0.62	0.63	0.64	80.00066	± 0.00018
M.4686	60	0.60	-0.20	-0.51 *	-0.58 *	-0.56 *	-0.59 *	59.99944	± 0.00018
M.4781	40	0.40	-0.20	0.80 *	0.74 *	0.80 *	0.90 *	40.00081	± 0.00018
M.4347	20	0.40	-0.20	-0.12	-0.22 *	-0.14	-0.24 *	19.99982	± 0.00018
3759	10	0.40	-0.20	0.13	0.13	0.20	0.18	10.00016	± 0.00018

Serial Number	Nominal Value (mm)	Parallelism Tolerance (µm)	Results (µm)	Flatness Tolerance (µm)	Face (A) (µm)	Face (B) (µm)	
M.4819	600	0.4	0.4	0.2	0.09	0.12	
M.4959	400	0.35	0.35	0.2	0.06	0.06	
M.4741	300	0.25	0.1	0.2	0.12	0.12	
M.5092	200	0.25	0.16	0.2	0.12	0.12	
M.4621	100	0.2	0.18	0.18	0.17	0.18	
M.4539	80	0.2	0.13	0.18	0.09	0.09	
M.4686	60	0.18	0.08	0.15	0.12	0.15	
M.4781	40	0.18	0.16	0.15	0.15	0.15	
M.4347	20	0.16	0.12	0.15	0.15	0.3	*
3759	10	0.16	0.07	0.15	0.15	0.15	

Uncertainty of measurement:

Less than and including 100mm - ± 0.18µm

Over 100mm - ± 0.20 (1 X L in m) µm

Flatness: ± 0.17µm

Parallelism: ± 0.30µm

Calibrated using laboratory masters:

Optical Flat	ADC3951
SIP MUL 1000 incorporating a twin probe & laser interferometer	ADC3534
Master Length standards	ADC2383 ADC3529 ADC3530
Thermometer	ADC3519
Gauge block comparator	ADC3537 ADC2867

Comment : * Exceeds Tolerance

Compliance Statement:

Conformity / Non-Conformity statements are based on simple acceptance rule (ILAC-G8:09/2019) where, Acceptance Limit (AL) equals Tolerance Limit (TL). Provided that the Tolerance Uncertainty Ratio (TUR) ≥ 1:1.

-End of report-

Calibrated by: OBEES

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