

EVALUATION OF MEASUREMENT UNCERTAINTY

1. COMPANY NAME : Sri Balaji Castings Pvt. Ltd.

DATE : 16-02-2024

2. DEVICE UNDER CALIBRATION : thy

Range (mm) : 41	Resolution (mm) : 63	Coefficient of Thermal Expansion (DUC)-(αD)(mm/m°C) : 0.0047
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3. STANDARDS / EQUIPMENT USED FOR CALIBRATION :

Sr.No	Master Name	Range/Size (mm)	L.C. (mm)	Uncertainty (mm)	Accuracy (mm)	Material
Master 1	Bore Dial Gauge - SBC2/BDG/028	35-60	52	58	76	Ceramic

4. ENVIRONMENTAL PARAMETERS

Start Temp T1 (°C)	End Temp T2 (°C)	Mean Temp (TA= (T1+T2)/2)	Ref. Temp (TR)	Thermal Expansion of master (mm/m°C) (αM)	Thermal Expansion of DUC (mm/m°C) (αD)	Uncertainty of Temperature Indicator (°C) UT (±)
12	63	37.50	20	0.0105	0.0047	75

5. REPEATABILITY (mm)

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	Standard Deviation	n
75	52	67	39	14	41	52	36	12	58	20.6355	10

6. UNCERTAINTY BUDGET

Source of uncertainty Xi		Estimates (Xi)	Probability Distribution	Type	Factor (x)	Standard Uncertainty $u = (Xi / x)$	Sensitivity Coefficient (y)	Uncertainty contribution $ui = (x * y)$	Degree of freedom $vi = (n - 1)$
U1	Uncertainty due to Calibration of Master 2 mentioned in the certificate		Normal	Type B	2		1		∞
U2	Uncertainty due to Calibration of Master 1 mentioned in the certificate	58.0000	Normal	Type B	2	29.0000	1	29.0000	∞

Combined Uncertainty (Uc) : 29.0000 mm

Coverge Factor (k) : -

Degree of freedom (v_{eff}): -

Expanded Uncertainty (U): ± 0.0000 mm

Metric Metric

Prepared By