

## EVALUATION OF MEASUREMENT UNCERTAINTY

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

**DATE : 17-02-2024**

## 2. DEVICE UNDER CALIBRATION : VVV

<b>Range (min) : 96</b>	<b>Resolution (min) : 85</b>	<b>Coefficient of Thermal Expansion (DUC)-(<math>\alpha</math>D)(mm/m°C) : 0.0047</b>
-------------------------	------------------------------	---

### 3. STANDARDS / EQUIPMENT USED FOR CALIBRATION :

Sr.No	Master Name	Range/Size (min)	L.C. (min)	Uncertainty (min)	Accuracy (min)	Material
Master 1	Torque Wrench - SBC2/TW/005	10 to 50	63	74	52	Carbide

#### 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 (±)
41	8	24.50	20	0.0047	0.0047	61

## 5. REPEATABILITY (min)

R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	Standard Deviation	n
4	5	7	5	7	1	2	3	4	5	1.9465	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 1 mentioned in the certificate	74.0000	Normal	Type B	2	37.0000	1	37.0000	$\infty$
U2	Uncertainty due to Calibration of Master 2 mentioned in the certificate		Normal	Type B	2		1		$\infty$

**Combined Uncertainty (Uc) : 37.0000 min**

**Coverage Factor (k) :** -

**Degree of freedom ( $v_{eff}$ ):** -

**Expanded Uncertainty (U):**  $\pm 0.0000$  min

Metric Metric

Prepared By