

Tatva Marketing & Services Pvt. Ltd.

1st Floor, SBC Plaza, Plot-6, Sector-15, Vasundhara, Ghaziabad-201012 (U.P.)
Tel : 0120-4116638, 9560096820, E-mail : tatva@tatvamarketing.com



CC NO. 2025-26/0310

September 25, 2025

TEST AND CALIBRATION CERTIFICATE

PRODUCT : ULTRASONIC FLAW DETECTOR
MODEL/SR.NO. : ARJUN-30 / AJ0459-9140
MANUFACTURER : MODSONIC INSTRUMENTS MFG. CO. (P)
LTD., AHMEDABAD
CUSTOMER'S NAME : M/S M. G. CONTRACTORS PVT. LTD,
AMBALA
VALID UPTO : 24-09-2026

We certify that the above machine was tested and calibrated by us on 25-09-2025 in accordance with the **ASTM-E317-21** using Ultrasonic Block (V1 Block) identified as 696-1-2009 calibrated/certified by NPL, New Delhi (vide Certificate No. **25070427/D1.06/C-072** Dtd. 24-07-2025, valid up to 24-07-2027).

Following are the values of the important parameters evaluated by us:

1. **Horizontal Linearity** : Non-Linearity within $\pm 1\%$ (Plus/Minus one Percent)
For 0% to 100% Full Screen Range.
2. **Vertical Linearity** : Non-Linearity within $\pm 3\%$ (Plus/Minus Three Percent)
For 0% to 100% Full Screen Range.
3. **Resolution** : Machine checked for Resolution on IIW Block found
Resolution less than 6mm.
4. **Sensitivity** : Machine could distinctly detect drill hole on IIW Block
with probe type MM4SN with Gain reserve of 42 db.
5. **Penetration** : More than five full-scale reflections found ON Perspex
In IIW V1 block with Noise level about 10% with probe
type M2SN (2MHz X 24MM dia.)



TATVA MARKETING & SERVICES PVT. LTD.



सी एस आई आर - राष्ट्रीय भौतिक प्रयोगशाला
CSIR-NATIONAL PHYSICAL LABORATORY

(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्)
(Council of Scientific and Industrial Research)

(राष्ट्रीय मपिती संस्थान (एनएमआई), सदस्य बीएनएस एवं सिगनैचरी सीएमआई - इण्डिया)
(National Metrology Institute (NMI), Member BIPM and Signatory CIPM - INDIA)

डॉ. के. एस. कृष्णन् मार्ग, नई दिल्ली-110012, भारत
Dr. K. S. Krishnan Marg, New Delhi-110012 INDIA

दूरभाष/Phone : +91-11-4560, 8441, 8610, 9447, फैक्स/Fax : 91-11-4560 8448

ई-मेल/E-mail : csi@nplindia.org, वेबसाइट/Website : www.nplindia.org



अंशांकन प्रमाण पत्र
CALIBRATION CERTIFICATE

ULTRASONIC BLOCK

प्रमाण पत्र संख्या / Certificate No.

25070427/D1.06/C-072

दिनांक/ Date	अगले अंशांकन हेतु अनुशंसित तिथि Recommended date for next calibration	पृष्ठ / Page	पृष्ठों की संख्या / No. of Pages
24-07-2025	24-07-2027	1	2

- Calibrated for : TATVA MARKETING & SERVICES PVT. LTD., 1st Floor, SBC Plaza, Plot No. 6, Sector -15, Vasundhara, Ghaziabad, Uttar Pradesh, India, PIN - 201 012
Customer's Ref.: Letter No.- TMS/403(V1)
Dated: 24/06/2025
- Description and identification of instrument: Name of Item: Ultrasonic Block
Make: Modsonic
Model No.: IIW-V1 Block
S No.: 696-1-2009
- Environmental conditions : Temperature: (25 ± 2) °C
Relative Humidity: (55 ± 10) %
- Standards used and associated measurement uncertainty : i. Digital Storage Oscilloscope, Uncertainty in voltage ± 2 % and time ± 2 ns.
ii. Ultrasonic Flaw Detector: Uncertainty in gain ± 1dB
iii. Vernier Caliper, Uncertainty: ± 0.02 mm
- Metrological traceability of Standard(s) used : The standard(s) used for calibration is (are) traceable to the National Standard, which realize the units of quantities according to the International System of Units (SI)
- Principle /methodology of calibration and calibration procedure number : As per relevant clauses of IS4904-2006, clause 3 & 4
- Results : See Page 2 of 2

The reported uncertainty is at coverage factor k=2 which corresponds to a coverage probability of approximately 95 % for a normal distribution. Uncertainty in dimensional measurement of this block was ± 0.03 mm

8. Date(s) of calibration : 18-07-2025

9. Remarks (if any) : Nil

अंशांकनकर्ता:
Calibrated by:
Ravinder Kumar

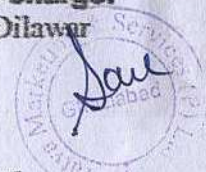
जांचकर्ता:
Checked by:
P K Dubey

प्रभारी वैज्ञानिक:
Scientist-in-charge:
Nita Dilawar

जारीकर्ता:
Issued by:



डॉ. श्रीनिवास राव रागम
Dr. Srinivasa Rao Ragam





सी एस आई आर - राष्ट्रीय भौतिक प्रयोगशाला
CSIR-NATIONAL PHYSICAL LABORATORY
(वैज्ञानिक तथा औद्योगिक अनुसंधान परिषद्)
(Council of Scientific and Industrial Research)



(राष्ट्रीय मॉनिटरिंग संस्थान (एनएमआई), सदस्य योगदानकर्ता एवं हस्ताक्षरित संगठन - एनएमआई)
(National Metrology Institute (NMI), Member BPM and Signatory CIPM - MRA)

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अंशांकन प्रमाण पत्र
CALIBRATION CERTIFICATE
ULTRASONIC BLOCK

प्रमाण पत्र संख्या / Certificate No.

25070427/D1.06/C-072

दिनांक/ Date	अगले अंशांकन हेतु अनुशंसित तिथि Recommended date for next calibration	पृष्ठ / Page	पृष्ठों की संख्या / No. of Pages
24-07-2025	24-07-2027	2	2

RESULTS: Calibration Block: VI - Block. S. No.: 696-1-2009

I. Propagation parameters

- | | |
|---|-----------------|
| a) Time of travel of longitudinal ultrasonic wave in block material | : 4.231 μ s |
| b) Longitudinal Ultrasonic velocity in block | : 5895 m/s |
| c) Time of travel of longitudinal ultrasonic wave in plastic insert | : 8.495 μ s |
| d) Thickness of Steel- equivalent to time of travel in plastic insert | : 49.85 mm |

II. Parameters as per IS4904

Relevant clause of IS 4904-2006	Characteristic/parameter	Acceptance criteria	Measured value
1	2	3	4
Clause 3.1 and Clause 3.3	Grain size and surface roughness	Relative attenuation 30 $\pm$ 2 dB	30.4 dB
Clause 3.2	Presence of internal flaw(s)	No internal flaw	No flaws detected
Clause 3.4	Local variation in the ultrasonic attenuation leaving areas within 5 mm of all edges and the area having markings	Variation in the ultrasonic attenuation should not be > 1dB	0.8 dB
Clause 4	Dimension	1. Dimensions as per drawing within $\pm$ 0.1mm	Yes, $\pm$ 0.05 mm
	Parallelism	2. Parallelism echo height variation within $\pm$ 1%	$\pm$ 0.5%
	Perpendicularity	3. Perpendicularity echo height variation within $\pm$ 1%	$\pm$ 0.5%
	Circularity	4. Circularity lines pass through probe index	Yes

Note:

- The parameters like grain size, surface roughness, parallelism and Perpendicularity have been evaluated using ultrasonic method, hence the acceptance criteria given in column 3 relates to the value of ultrasonic parameter corresponding to the particular characteristic of block.
- Propagation parameters are not specified in IS 4904. These have been provided as additional information

अंशांकनकर्ता:

Calibrated by:

Ravinder Kumar

जाँचकर्ता:

Checked by:

P K Dubey

जारीकर्ता:

Issued by: श्रीनिवास राव रागम
Dr. Srinivasa Rao Ragam

प्रभारी वैज्ञानिक:

Scientist-in-charge:

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