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Accreditation No. NABL C0066

CALIBRATION CERTIFICATE
OF FORCE MEASURING DEVICE

Date of calibration	: 12/01/2014	Certificate No	: FRI/01/14/6605
Next calibration due on	: 12/03/2016	Page No.	: 1/2

Calibrated for	Krutam Techno Solutions Pvt. Ltd. 64/B, G.I.D.C. Makarpura Industrial Estate, Behind Fire Brigade Station, Vadodara - 390 010
Customer Reference No.	D.C.No. 01 Dated on 10/01/2014
Details of instrument under calibration	Instrument : Dynamometer Id No. : 104 (KTPL/F/003) Capacity : 50 kN Type : Bow Dial Gauge Make : Baker 1 Div : 0.01 mm Dial Gauge No. : VCI 655 Fulcrum Pin No. : 104
Date of receipt	11/01/2014
Mode of calibration	Compression
Machine used for calibration	Dead Weight Force Machine(FIE-DWP-003)
Traceability	NPL,Cert.No.12031657/D.5.05/C-084 valid upto 07/07/14
Dial gauge setting	Large pointer at 12 O' Clock position Small pointer at 2 revolutions
Temperature	24°C
Correction of temperature variation	Apply ± 0.027% correction to each reading for each °C rise or fall of temperature.

Note

1) Compression test were made out by using compression pads provided with the force measuring device.
2) Prior to each reading, the dial gauge was lightly tapped on the center of the dial cover.
3) The reported uncertainty is at coverage factor k = 2 which corresponds to a coverage probability of approximately 95% for a normal distribution, considering the relative error of different components such as Zero, Resolution, Repeatability, Interpolation and combining the uncertainty of applied force

Scientific Asst. (D. D. Magdum)	Sr. Engineer (R.V. Tambad)	Director (Dr. J.C. Padte)

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Details of instrument under calibration Id No. 104 (KTPL/F/003)

Calibration Method: The Dynamometer is calibrated in compression as per FRI Calibration procedure No. FRICAL/CAL/01 based on IS: 4169-1988 and results are tabulated below

Results: The Calibration Results are valid for specific force steps/interpolation

Applied Force in kN	Dial Gauge Reading (Divisions)			
	Series1 at 0°	Series2 at 180°	Series3 at 360°	Average
5.000	50.8	50.8	50.8	50.8
10.000	102.6	102.6	102.6	102.6
15.000	154.2	154.4	154.4	154.3
20.000	206.4	206.4	206.6	206.5
25.000	258.6	258.6	258.8	258.7
30.000	310.8	310.8	311.0	310.9
35.000	362.8	362.8	363.0	362.9
40.000	414.8	414.8	414.8	414.8
45.000	466.2	466.2	466.4	466.3
50.000	517.8	518.0	518.0	517.9

Classification : The Classification of force proving instrument is as follows:

Class	Mode	From	To	Uncertainty of measurement
Class 0	Compression	50.000 kN	20.000 kN	± 0.080%
Class 1	Compression	50.000 kN	10.000 kN	± 0.127%
Class 2	Compression	50.000 kN	5.000 kN	± 0.235%

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