

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T.,
Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page 4 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
9.	Temperature Simulation# RTD Type Thermocouple S -Type J-Type N-Type R - Type K-Type	(-) 200 °C to 800 °C 0 °C to 1760 °C (-)100 °C to 800 °C (-)100 °C to 990 °C 0 °C to 1700 °C (-)100 °C to 1300 °C	0.6 °C 1.3 °C 0.59 °C 0.67°C 0.82°C 0.59 °C	Using Universal Calibrator/Process Meter by Direct Method
10.	Time#	1s to 1800s 1800s to 18000 s	0.05 s to 1.2s 10.43 s to 10.43 s	Using Time Calibrator Direct Method

Laboratory

A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T., Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number

CC-2116

Page

5 of 21

Validity

07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>MECHANICAL CALIBRATION</u>				
I. DIMENSION (BASIC MEASURING INSTRUMENT, GAUGE ETC.)				
1.	Caliper [#] (Digital/Dial/Vernier) L.C.: 10 μm^ϕ	Upto 300 mm >300 mm to 600 mm >600 mm to 1000 mm	12 μm 13.8 μm 17.0 μm	Using Gauge Block Set, Long Gauge Block Set, Caliper Checker & External Micrometer
	L.C.: 20 μm^ϕ	>1000mm to 2000 mm	17 μm	Using Gauge Block Set, Long Gauge Block Set, Caliper Checker & External Micrometer
2.	Depth Caliper [§] (Digital/Dial/Vernier) L.C.: 10 μm^ϕ	Up to 300 mm	12.0 μm	Using Gauge Block Set & Surface Plate
3.	Inside Caliper/ Outside Caliper [§] L.C.: 10 μm^ϕ	10 mm to 600 mm	13.7 μm	Using Gauge Block Set & Caliper Checker
4.	Height Gauge [#] (Digital/Dial/Vernier) L.C.: 10 μm^ϕ	Upto 300 mm >300 to 600 mm >600 to 1000 mm	6.5 μm 7.0 μm 9.0 μm	Using Guage Block Set , Caliper Checker & Long Gauge Block Set

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T., Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page 6 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
5.	Electronic Height Gauge [#] L.C.: 0.1 μm^ϕ	Up to 1000 mm	9.0 μm	Using Gauge Block Set Caliper Checker & Long Gauge Block Set
6.	External Micrometer [#] (Flange Micrometer, Point Micrometer, Tube Micrometer, Blade Micrometer, Ball Anvil Micrometer, V-Anvil Micrometer, Crimp Height Micrometer, Limit Micrometer, Indicating Micrometer) L.C. 0.001 mm ^{phi}	Upto 100 mm >100 mm to 300 mm >300 mm to 600 mm >600 mm to 1000 mm >1000 mm to 2000 mm	1.2 μm 1.4 μm 3.2 μm 14 μm 17 μm	Using Gauge Block Set & Long Gauge Block Set
7.	Micrometer Setting Rod/Length Bar/Height Master Gauge ^s	25 mm to 300 mm	1.3 μm	Using Electronic Probe , LMM , Gauge Block & Long Gauge Block
8.	Depth Micrometer ^s L.C.: 1 μm^ϕ	0 to 300 mm	3.6 μm	Using Gauge Block Set
9.	Inside Micrometer/ Stick Micrometer ^s L.C.: 10 μm^ϕ	Upto 300 mm	6.5 μm	Using LMM & Long Gauge Block

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T., Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page

7 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
10.	Internal Micrometer/Bore Gauge ^s (3 – Point) L.C.: 1 μm^ϕ	6 mm to 100 mm	5.0 μm	Using Master Ring Gauge Set
11.	Plunger Dial Gauge ^s (Dial/ Digital) L.C.: 0.5 μm^ϕ	Upto 50 mm	1.9 μm	Using LMM
12.	Lever Dial Gauge ^s L.C.: 0.1 μm^ϕ	Upto 1.5 mm	1.9 μm	Using LMM
13.	Bore Gauge ^s (Transmission Accuracy) L.C.: 1 μm^ϕ	Travel movements upto 2 mm	1.9 μm	Using LMM
14.	Dial Thickness Gauge/ Dial Snap Gauge ^s L.C.: 1 μm^ϕ	Upto 150 mm	5.7 μm	Using Gauge Block Set
15.	Micrometer Head ^s L.C.: 1 μm^ϕ	0 to 150 mm	2.2 μm	Using Gauge Block Set & Electronic Probe with DRO
16.	Plain Plug Gauge/ Setting Gauge/ Reference Disc/ OD Master ^s	Upto 100 mm >100 mm to 200 mm >200 mm to 300 mm	1.3 μm 1.6 μm 1.9 μm	Using LMM & Long Gauge Block
17.	Plain Ring Gauge ^s	3 mm to 100 mm >100 mm to 200 mm >200 mm to 300 mm	1.4 μm 2.4 μm 2.4 μm	Using LMM & Master Ring Gauge

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T., Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page

8 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
18.	Snap Gauge/Snap Meter [§]	Upto 100 mm >100mm to 200 mm > 200mm to 300 mm	1.9 μ m 1.9 μ m 2.3 μ m	Using LMM , Master Ring Gauge & Gauge Block Set
19.	Cylindrical Measuring Pins [§]	Upto 20 mm	0.9 μ m	Using LMM
20.	Thread Measuring Wire [§]	Upto 6.35 mm	0.9 μ m	Using LMM
21.	Thread Plug Gauge/ Wear Check Plug Gauge [§] (Effective Diameter/ Major Diameter)	Upto 100 mm >100 mm to 200 mm >200 mm to 300 mm	0.8 μ m 1.2 μ m 1.5 μ m	Using LLM , Long Gauge Block & Thread Measuring Wires
22.	Thread Ring Gauge/ Wear Check Ring Gauge [§] (Effective Diameter)	> 5 to 100 mm >100 mm to 200 mm >200 mm to 300 mm	1.6 μ m 2.0 μ m 2.3 μ m	Using LMM & Master Ring Gauge
23.	Spherical Balls [§]	0.5 mm to 50 mm	1.3 μ m	Using LMM
24.	Comparator Stand [§]	Upto 300 mm x 300 mm	4.8 μ m	Using Lever Dial Gauge
25.	Feeler Gauge/ Standard Foils [§]	Upto 2 mm	0.8 μ m	Using Electronic Probe
26.	Air Plug Gauge [#]	4 mm to 100 mm >100 mm to 200 mm >200 mm to 300 mm	1.4 μ m 1.6 μ m 2.7 μ m	Using LMM

Laboratory

**A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T.,
Faridabad, Haryana**

Accreditation Standard

ISO/IEC 17025: 2005

Certificate Number

CC-2116

Page

9 of 21

Validity

07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
27.	Air Ring Gauge [§]	Upto 100 mm >100 mm to 200 mm >200 mm to 300 mm	2.8 μ m 2.8 μ m 2.8 μ m	Using LMM
28.	Steel Scale [§]	Upto 5 m	$90\sqrt{L}/1000 \mu$ m (Where L in mm)	Using Measuring Scale and Tape Calibrator
29.	Taper Steel Scale [§]	Upto 15 mm	57 μ m	Using Profile Projector
30.	Measuring Tape/ Circumference Tape PI Tape [§]	Upto 50 m	$284\sqrt{L}/1000 \mu$ m (Where L in mm)	Using Measuring Scale and Tape Calibrator
31.	Riser Block, Pitch Accuracy and Calibration of Micrometer head [§] Upto 25 mm , L.C. 0.001 mm [¶]	0 to 300 mm	3.8 μ m	Using Gauge Block Set & Electronic Probe
32.	Flush Pin Gauge/ Width Gauge [§]	Upto 100 mm	1.4 μ m	Using Gauge Block Set & Electronic Probe
33.	Spline/ Serration Plug Gauge [§] (Over Pin Diameter/ Major Diameter)	> 10 mm to 100 mm >100mm to 200 mm >200mm to 300 mm	1.2 μ m 1.3 μ m 3.0 μ m	Using LMM & Cylindrical Pin
34.	Spline/ Serration Ring Gauge [§] (Between Pin Diameter)	Upto 300 mm	2.0 μ m	Using Gauge Block Set , LMM & Cylindrical Pins

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T., Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page

10 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
35.	Gauge Block Accessories Set [§]	Upto 25 mm	2.1 μ m	Using Gauge Block & Electronic Comparator By Comparison Method
36.	Engineer Square/ Try Square [#] (Parallelism , Squareness)	Upto 400 mm	1.4 μ m	Using Gauge Block, Electronic Probe & Master Cylinder
37.	Angle Plate [#]	Upto 400 mm	7.7 μ m	Using Gauge Block, Dial Indicator & Master Cylinder
38.	Box Angle Plate [#]	Upto 400 mm	7.7 μ m	Using Gauge Block, Dial Indicator & Master Cylinder
39.	V-Block (Parallelism , Flatness , Symmetry, Squareness) [§]	Upto 150 mm	4.5 μ m	Using Dial Gauge, Test Mandrel , Master Cylinder & Gauge Block Set
40.	Radius Gauge/ Radius Chart/ Radius Measurement [§]	Upto 25 mm	52 μ m	Using Profile Projector
41.	Test Mandrel/ Taper Mandrel [§] (Taper , Diameter & Runout)	Upto 300 mm	1.5 μ m 2.3 μ m	Using Slip Gauge Set , Electronic Probe , Surface Plate , Bench Center & Dial Gauge
42.	Thread Pitch Gauge/ Pitch of Component [§] (Pitch , Length Angle)	Upto 25 mm	6 μ m	Using Profile Projector
43.	Weld Fillet Gauge [§] (Length)	Upto 25 mm	289 μ m	Using Profile Projector

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T., Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page 11 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
44.	Test Sieves [§] (Aperture Size)	0.032 mm to 125 mm	5.1 μ m 26.9 μ m	Using Profile Projector & Digimatic Caliper
45.	Bevel Protector/ Combination set/ Angle Protector [§] L.C. 1 min ^φ	0 to 180° to 0	1.7 arc min.	Using Angle Gauge Set & Dial Indicator
46.	Spirit Level [§] Sensitivity: 10 μ m/m ^φ	Upto 300 mm	7.7 μ m/m	Using Electronic Level, Dial Test Indicator, Master Cylinder, Gauge Block & Tilting Table
47.	Sine Bar/ Sine Centre [§]	Upto 500 mm	16 arc sec	Using Gauge Block Set, Angle Gauge Set & Dial Test Indicator
48.	Bench Centre/ PCD Tester [#] (Co-Axiality, Parallelism)	Upto 1500 mm	3.0 μ m	Using Test Mandrel & Dial Indicator
49.	Coating Thickness Gauge [§]	Upto 0.5 mm	2.2 μ m	Using Master Foils
50.	Ultrasonic Thickness Gauge [§]	Upto 100 mm	1.8 μ m	Using Gauge Block Set
51.	Air Gauge Unit/ Air Electronic Unit/ Air Electronic Column Bar [#]	\pm 40 μ m	3.0 μ m	Using Standard Air Plug Gauge with Setting Ring

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T.,
Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page 14 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
IV.	PRESSURE INDICATING DEVICES			
1.	Vacuum Gauges # (Digital/ Analog)	-0.94 bar to -0.1 bar	0.01 bar	Using Digital Vacuum Gauge & Vacuum Comparator Pump
2.	Hydraulic Pressure: Pressure Gauges# (Digital/Analog)/ Pressure Transmitter/ Transducer(with pressure indicator only)	0 bar to 30 bar	0.05 bar	Digital Pressure Gauge with hydraulic hand pump, Comparison Method
3.	Hydraulic Pressure: Pressure Gauges# (Digital/Analog)/ Pressure Transmitter/ Transducer(with pressure indicator only)	70 bar to 700 bar	0.3 bar	Digital Pressure Gauge with hydraulic hand pump, Comparison Method
4.	Pneumatic Pressure: Low Pressure Gauges/ Magnehelic Gauges/ Manometers# (Analog/Digital)	50 mmWC to 500 mmWC	58 Pa	Digital Pressure Gauge with pneumatic hand Pump, Comparison method
5.	Pneumatic Pressure: Manometers# (Analog/Digital)	26 mmHg to 260 mmHg	78.7 Pa	Digital Pressure Gauge with pneumatic hand Pump, Comparison method

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T.,
Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page 15 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
V.	TORQUE GENERATING DEVICES			
1.	Torque Wrench / Torque Screw Driver ^s (Type-1 Class B,C,D & E and Type-II Class A,B,D,E & G)	4 to 20 Nm >20 to 500 Nm >500 to 995 Nm	0.17 Nm 1.8 % rdg 7.8 Nm	Using Torque Wrench Calibration System (ISO 6789)
VI.	HARDNESS TESTING MACHINES			
1.	Rubber Hardness Tester ^s (Shore A & D)	0 to 100 Shore A 0 to 100 Shore D	1.68 Shore A 0.8 Shore D	Using Electronic Weighing Balance(ISO 18898-2006)
VII.	MOBILE FORCE MEASURING SYSTEM			
1.	Force Gauge/ Push Pull Gauge/ Tension Gauge ^s (Push / Pull Mode)	0.1 N to 1000 N	0.15% rdg to 1% rdg	Using SS304 Newtonian weights with different loading hangers

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T., Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page 17 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
VIII.	WEIGHING SCALE AND BALANCE			
1.	Weighing Balance [#] d=Readability d = 0.01 mg ^ϕ d = 0.1 mg ^ϕ	0 to 220 g	0.08 mg 0.2 mg	Using E2 Class weights, Procedure based on OIML R – 76
	d = 1 mg ^ϕ	0 to 500 g	1.5 mg	Using E2 & F1 Class weights, Procedure based on OIML R – 76
	d = 10 mg ^ϕ d = 1 g ^ϕ	0 to 1000 g 0 to 50 kg	10 mg 1.0 g	Using F1 Class weights, Procedure based on OIML R – 76
	d = 10 g ^ϕ	0 to 450 kg	15 g	Using F1 & M1 Class weights, Procedure based on OIML R – 76
2.	Spring Balance [#] d = 100 g ^ϕ	0 to 100 kg	569 g	Using F1 Class weights
IX.	VOLUME			
1.	Micro-Pipettes ^{\$}	10 μ l to 100 μ l >100 μ l to 1000 μ l	0.3 μ l 0.5 μ l	Using Standard weights, Precision Balance & Distilled water of known Density by Gravimetric Method based on I/ISO 4787

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T.,
Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page 18 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
2.	Pipettes/ Burette ^s	1 ml to 10 ml >10 ml to 50 ml >50 ml to 100 ml	0.3 μ l 0.3 μ l 1.7 μ l	Using Standard weights, Precision Balance & Distilled Water of known Density by Gravimetric Method based on I/ISO 4787
3.	Measuring Cylinder/ Volumetric Flask/ Glassware/ Graduated Jar etc ^s	1 ml to 10 ml >10 ml to 50 ml >50 ml to 100 ml >100 ml to 500 ml >500 ml to 1 L >1 L to 5 L	0.3 μ l 0.3 μ l 1.7 μ l 0.1 ml 0.3 ml 0.4 ml	Using Standard weights, Precision Balance & Distilled Water of known Density by Gravimetric Method based on I/ISO 4787
X.	ACCELERATION AND SPEED			
1.	Contact-Type Tachometer/ RPM /Stroboscope/ Centrifuge Machine [#]	40 rpm to 3000 rpm	0.24 % rdg.	Using Tachometer
2.	Non Contact - Type Tachometer/RPM/ Stroboscope/ Centrifuge Machine [#]	100 rpm to 50000 rpm	0.83 % rdg.	Using Tachometer

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T., Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page 19 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
<u>THERMAL CALIBRATION</u>				
I.	TEMPERATURE			
1.	RTD's, Thermocouples With /Without Controller /indicator/ Data logger/ Recorder, Digital Thermometer [#]	(-) 196 °C	0.2 °C	Using 4 wire PRT with Digital Indicator & Liquid Nitrogen Appratus
2.	RTD's, Thermocouples With /Without Controller /indicator/ Data logger/ Recorder, Temperature Gauges, Glass Thermometers, Digital Thermometer [#]	(-) 35 °C to 50 °C	0.14 °C	Using RTD (PT-100) , Digital Thermometer Comparison calibration (Tempsens CALSYS (-) 40/200 Low Temperature Bath)
3.	RTD's, Thermocouples with /without Controller /indicator/ Data Logger/ Recorder, Temperature Gauges, Glass Thermometers, Digital Thermometer [§]	>50 °C to 250°C	0.19 °C	Using RTD (PT-100) , Digital Thermometer Comparison calibration (Tempsens CALSYS 300 Oil Temperature Bath)

Mithillesh Kumar
Convenor

Avijit Das
Program Manager

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T., Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page 20 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
4.	RTD's, Thermocouples with /without Controller/ Indicator/ Data Logger/ Recorder, Temperature Gauges, Glass Thermometers, Digital Thermometer ^s	250 °C to 1200°C	2.0 °C	Using S Type Thermocouple Digital Thermometer Comparison calibration (Dry Block Furnace CALSYS 1200L)
5.	Temperature Indicator with sensor of Freezers Oven, Environment Chamber ,Incubator , BOD Incubator , Liquid Bath/ Dry Block Furnaces ^s	(-) 80 °C to 400 °C	0.62 °C	Using RTD(PT-100), Digital Thermometer
6.	Temperature Indicator with sensor of Muffle Furnace/Dry Block Furnaces ^s	400 °C to 1200 °C	2.0 °C	Using S Type Thermocouple, Digital Thermometer
7.	Freezers , Oven , Cold Chamber , Incubator *	(-) 80 °C to 250 °C	3.5 °C	Using Multipoint Datalogger and RTD (PT-100) Sensors, Multipoint Calibration
8.	Ovens/ Muffle and Industrial Furnaces / Spatial Thermal Mapping*	250 °C to 1200 °C	6.1 °C	Using Multipoint Datalogger and Thermocouples Sensors, Multipoint Calibration

Laboratory A.V. Industries, B-576/ 577, 2nd Floor, Nehru Ground, N.I.T.,
Faridabad, Haryana

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number CC-2116

Page 21 of 21

Validity 07.11.2018 to 06.11.2020

Last Amended on 12.11.2018

Sl.	Quantity Measured / Instrument	Range/Frequency	*Calibration Measurement Capability (\pm)	Remarks
II. SPECIFIC HEAT AND HUMIDITY				
1.	Hygrometer, Humidity Sensor with Indicator [§]	25 % RH to 90 % RH	1.7%RH	Digital Indicator with RH Sensor, Temperature & Humidity Generator
2.	Humidity Indicator with Sensor of Humidity Calibrator/ Generator/Chamber #	15 % RH to 95 % RH	1.5 % RH	Using Standard RH Sensor with Digital indicator, Single Position Calibration.

* Measurement Capability is expressed as an uncertainty (\pm) at a confidence probability of 95%

[§]Only in Permanent Laboratory

[^]Only for Site Calibration

The laboratory is also capable for site calibration however, the uncertainty at site depends on the prevailing actual environmental conditions and master equipment used.

^φ Laboratory can also calibrate instruments/devices of coarser resolution / least count within the accredited range using same reference standard/ master equipment under the scope of accreditation.