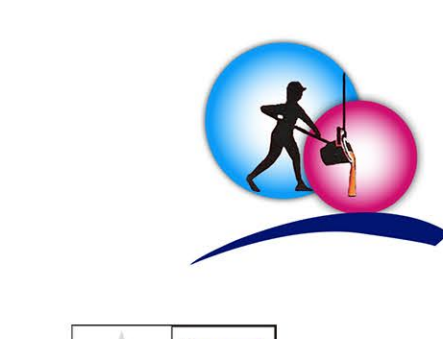




Metal Lab



NABL - Accredited Laboratory

(Dept. of Science and Technology, Government of India)

An ISO 9001-2008 Organization



Accreditation Certificate No: T-2387

AUTOMOTIVE



POWER GENERATION



AEROSPACE



WIND POWER



DEFENCE



SHIPPING



MANUFACTURING



CONSTRUCTION



ONSHORE O&G PLANTS



OFFSHORE OIL PLANTS



REFINING & CHEMICALS



INFRASTRUCTURE



MINING & METALS



STEEL PLANT



ELECTRONICS



PIPE LINE



TRUST

COMPETENCE

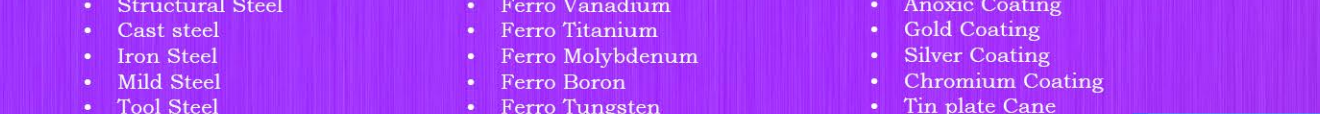
RELIABILITY

WWW.METALLAB.IN

WWW.METALTESTINGLAB.CO.IN

1. CHEMICAL ANALYSIS:

Ferrous, Non Ferrous Metals & Alloys by Spectro (OES) / AAS/ICP –OES



Steel, Stainless Steel, Cast Iron, Aluminium, Copper, Nickel, Lead, Zinc, Gold, Silver, Platinum and other alloys

STRUCTURAL MATERIALS - Stainless Steel - Tor Steel - Structural Steel - Cast steel - Iron Steel - Mild Steel - Tool Steel	FERRO ALLOYS - Ferro Chromium - Ferro Manganese - Ferro Vanadium - Ferro Titanium - Ferro Molybdenum - Ferro Boron - Ferro Tungsten - Ferro Phosphates	METALLIC COATINGS - Galvanized Steel Sheet - Mild Steel Tin - Anoxic Coating - Gold Coating - Silver Coating - Chromium Coating - Tin plate Cane - Silvered Glass Mirrors - Phosphate Coating - Mass of Zinc Coating - Powder Coating - Mass of Tin coating - Anodic Coating - Nickel Coating
ALLOYS - Lead Base Alloys - Copper Base Alloys - Aluminium Base Alloys - Zinc Base Alloys - Tin Base Alloys - Iron Base Alloys - Nickel Base Alloys - Chromium Base Alloys - Magnesium Base Alloys - Cobalt Base Alloys - Tungsten Base Alloys - Titanium Base Alloys	PRECIOUS METALS - Silver Leaf - Refined Silver - Relined Palladium - Relined Gold - Relined Platinum - Nickel Silver Sheet - Silver Tin Dental Amalgam - Silver Base Gold Thread	CORROSION STUDIES - Anodized Aluminium Coating - Phosphate Treatment of Steel and Iron - Silver coated Mirror - Copper Coated Mirror
BRONZE - Phosphor Bronze Ingots - Leaded Brass Ingots - Brazing Alloy	BRASS - Leaded Brass Ingots - Brass Die Casting - Free Cutting Brass Bars - Free Cutting Brass Rods - High Tensile Brass Ingots - Gate and Hatter Hooks - Copper all of Fancy Single Taps	PIPES - Mild Steel - Cast Iron Pipe - Grey Iron Pipe

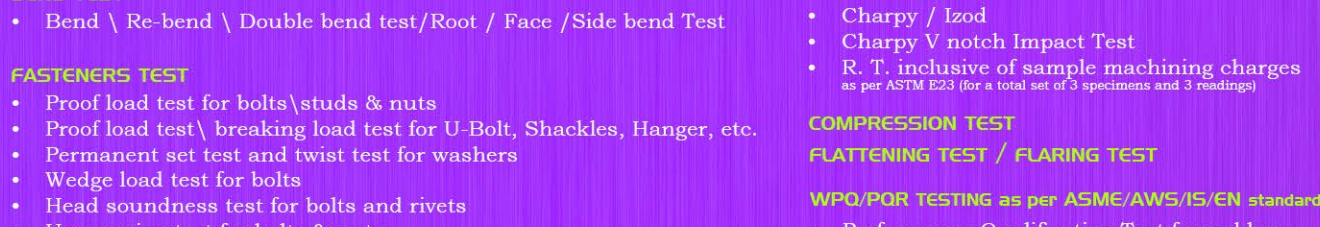
- Carbon - Manganese - Silicon - Chromium - Molybdenum - Nickel	- Sulphur - Phosphorous - Iron - Vanadium - Tungsten - Cobalt	- Titanium - Aluminium - Copper - Lead - Zinc - Tin	- Selenium - Gold - Mercury - Boron - Niobium - Tellurium	- Silver - Antimony - Zirconium - Beryllium - Platinum - Strontium	- Magnesium - Cadmium - Arsenic - Palladium - Bismuth - Mercury
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ON SITE TESTING



PMI - Positive Material Identification / Portable Hardness Testing / Coating Thickness Measurement / Insitu - Metallography
 Ferrite Content Measurement using Ferriscope / Surface roughness Measurement / Vibration Measurement

2. MECHANICAL TESTING



TENSILE TESTING - Tensile test (T.S., Y.S., 0.2% and 0.5% P.S., % Elongation and R.A.) - Room Temperature Tensile Test - Elevated Temperature Tensile Test – up to 1000 deg C - Tensile test for fine wires/foils	HARDNESS TEST - Hardness test Rockwell A, B, C - Vickers hardness test - Brinell hardness test - Superficial Hardness Test
BEND TEST Bend \ Re-bend \ Double bend test/Root / Face /Side bend Test	IMPACT TEST - Charpy / Izod - Charpy V notch Impact Test R. T. inclusive of sample machining charges as per ASTM E23 (for a total set of 3 specimens and 3 readings)
FASTENERS TEST - Proof load test for bolts/studs & nuts - Proof load test \ breaking load test for U-Bolt, Shackles, Hanger, etc. - Permanent set test and twist test for washers - Wedge load test for bolts - Head soundness test for bolts and rivets - Unscrewing test for bolts & nuts - Re-tempering test for bolts Drift expansion test - Fracture test Axial Tensile Test - Shear test Dump test - Cupping test Ball Test	COMPRESSION TEST Macro examination, Hydro pressure test
	FLATTENING TEST Weld Qualification

3. METALLOGRAPHIC TESTING

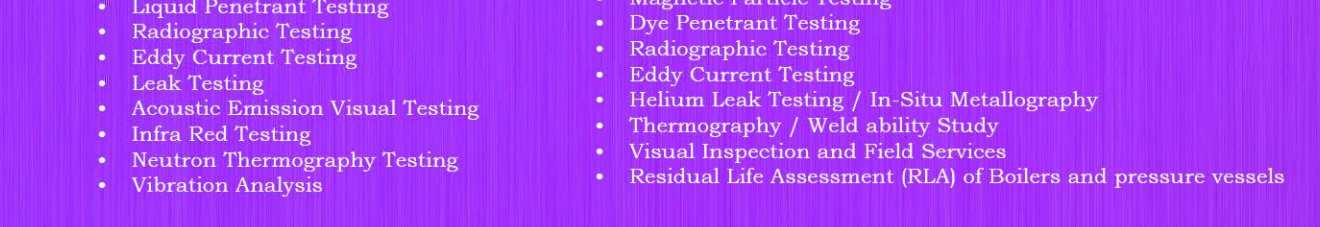


- Macro-examination (with or without photo) - Micro-examination of ferrous and non-ferrous metals & alloys (with or without photo-micrograph) - Micro-examination of thin sheets \ double count out - Effective Case Depth Measurement of case hardened Components - Nitrided depth Measurement - Metallic coating thickness by micro-examination - Plating Thickness Measurement - Case-depth by micro-examination, Decarburization - Decarburisation by micro-examination with or without photo - Austenitic grain size with or without photo-micrograph - Inclusion rating with or without photo-micrograph	- Oxygen content in copper by micro-examination - Micro Hardness, Coating/Plating analysis, - Percentage grain growth, Inclusion Rating, - Grain size, volume percentage, porosity - Macro examination, Hydro pressure test - Weld Qualification - Grain size measurement as per ASTM E 112 - Inclusion rating as per is and ASTM standards - Decarb Layer, Nodularity % & Count in S.G iron, - Graphite type in Grey iron, - Weld depth Penetration with photo
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FAILURE ANALYSIS

Product evaluation / Process evaluation / Mechanical Damage / Root Cause Determination / Determination of Origin of failure
 Failure Mode and Type of corrosive attack / Contributing Factors / Material Anomalies / Feature / Geometric Influence

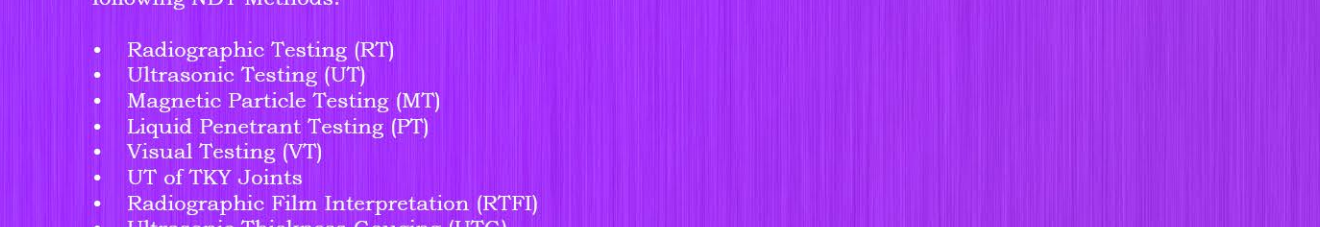
4. NON – DESTRUCTIVE TESTING (ENGINEERING)



NDT SERVICES - Ultrasonic Testing - Magnetic Particle Testing - Liquid Penetrant Testing - Radiographic Testing - Eddy Current Testing - Leak Testing - Acoustic Emission Visual Testing - Infrared Red Testing - Neutron Thermography Testing - Vibration Analysis	NDT CAPABILITIES - Ultrasonic Inspection - Time of Flight Diffraction (TOFD) and Phased Array UT - Magnetic Particle Testing - Dye Penetrant Testing - Radiographic Testing - Eddy Current Testing - Helium Leak Testing / In-Situ Metallography - Thermography / Weld ability Study - Visual Inspection and Field Services - Residual Life Assessment (RLA) of Boilers and pressure vessels
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5. NDT TRAINING & CERTIFICATION COURSE

'Metal Lab' is committed to provide most effective training with the expertise gained over the past two decades in the inspection of power stations, pressure vessels, structures, engineering components, pipe systems, storage tanks and aerospace components. Our curriculum is formalized to provide custom training programs, best practices leading to gain thorough knowledge in practical Non-destructive testing.



We are providing Level I, II Training and Certification as per Recommended Practice SNT - TC-1A -2006 in the following NDT Methods.

- Radiographic Testing (RT)
- Ultrasonic Testing (UT)
- Magnetic Particle Testing (MT)
- Liquid Penetrant Testing (PT)
- Visual Testing (VT)
- UT of TKY Joints
- Radiographic Film Interpretation (RTFI)
- Ultrasonic Thickness Gauging (UTG)

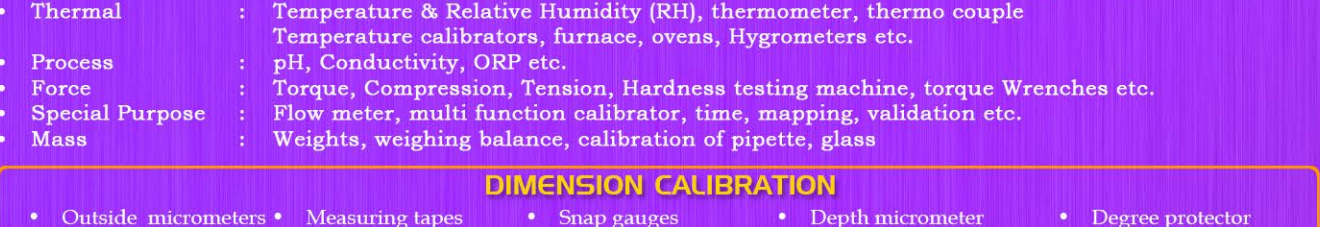
6. COMPLETE NON-DESTRUCTIVE TESTING (NDT) – (CIVIL)

CONCRETE FOR BRIDGES, DAMS, BUILDINGS, SUBWAYS, TUNNELS ETC...

Rebound Hammer / Rebar Locator / Depth of concrete / Half Cell Potential Test / Carbonation Test / Pile Integrity Test
 Ultrasonic Pulse Velocity Test

7. CALIBRATION TESTING

'METAL LAB' Calibration laboratory has the most calibration capabilities under one roof to serve the varying needs of your business. We serve all industries, including aerospace, chemical, engineering, automotive, biotech, high tech manufacturing, medical & engineering from all around the world. We had the calibrated masters and reference standards for calibration test equipments, process instruments. The following parameters/instruments are taken up for calibration in our calibration laboratory.



Mechanical : NDT – ULTRASONIC MACHINE , IIW V1 & IIW V2 Block Length, Angle, Volume, Density, Pressure, Vacuum, Sound, pressure gauges, test sieves etc.	Electrical : AC/DC Current, AC/DC Voltage, Resistance, Impedance, Power, etc.	Thermal : Temperature & Relative Humidity (RH), thermometer, torque couple Temperature calibrators, furnace, ovens, Hygrometers etc.
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Process : pH, Conductivity, ORP etc.	Force : Torque, Compression, Tension, Hardness testing machine, torque Wrenches etc.	Special Purpose : Flow meter, multi function calibrator, time, mapping, validation etc.	Mass : Weights, weighing balance, calibration of pipette, glass
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- Outside micrometers - Inside micrometers - Dial vernier caliper - Vernier height gauges - Dial indicators - Dial thickness gauges - Welding gauges - Master tools - Engineer's square	- Measuring tapes - Combination set - Right angle - Measuring Pins - Coating thickness - Thread plug gauges - calibration of scale - Crimp micrometer - Vernier calipers	- Snap gauges - Taper plain plug - Slip gauge - Ford cup - NSD gauges - Digital micrometers - Vernier Depth gauge - Digital height gauge - Bore gauge	- Depth micrometer - Digital vernier caliper - Dial height gauge - Dial thickness gauges - Pie tape - Measuring scales - Bevel protectors - Angle Protectors	- Degree protector - Spirit level - Radius gauges - DFT gauges - Paddle gauges - Grove gauges 'V' block - Feeler gauges - Plain plug gauges
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PRESSURE CALIBRATION

- Pressure gauges - Pressure transducers	- Safety valve - Manometer	- Pressure recorders - Pressure switches	- Safety switches - Compound gauge	- Pressure transmitters - Differential gauge	- Vacuum gauges - Dead weight tester
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ELECTRO – TECHNICAL CALIBRATION

- Volt meters - Frequency meters - Multi meter - Insulation tester - Universal calibrator - AC power source	- DC power supply - Hart communicator - pH meter - Calibrators - Watt meters - Resistance decade box	- Clamp meter - Earth resistance tester - Current transformer - DC power source - Loop calibrator - Capacitance meter	- Conductivity meter - Calibration of ammeter - Resistance meter - Megger - V-A-W meter - Dimmer	- AC power supply - Leakage current meter - Multifunction calibrators - Calibration of devices
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FORCE / MASS CALIBRATION

- Weighing balances - Load indicator - Torque wrench	- Shore D hardness - Micro pipette - Glassware's	- calibration of pipette - Weighing scale - Tension meter	- Weight Calibration - calibrated weights - Spring balance	- Load cell - Burettes - weights	- Shore A hardness - Compression test machine - Universal tensile machine
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SPECIAL TYPE OF INSTRUMENTS CALIBRATION

- Lux Meter - Anemometer - Sound level meter	- Validation of furnaces - Mapping - Calibration of Rota meter	- Light meter - Air flow meter - Sound level calibrator	- Flow meter - Noise Meter - Illumination meter	- Calibration of microscope - Validation of autoclaves - Test equipment calibration
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ANALYTICAL INSTRUMENTS CALIBRATION

- Spectrophotometer - Hydrometer - Moisture meter	- Measuring cylinder - pH meter - Melting point apparatus	- Viscosity cup - Test sieves - Burette	- Calibration of glassware - Conductivity meter - Flame photo meter	- Muller machine - Pipette - Micro pipette
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THERMAL AND HUMIDITY CALIBRATION

- Temperature indicator - Temperature gauges - Water bath - temperature sensors	- Temperature transducers - Temperature calibrator - Temperature Controller - Ovens calibration	- Thermocouple - thermometer - Humidity chamber - Temperature logger	- Temperature bath - Temperature recorder - Muffle furnace - Rtd sensors calibration	- Hygrometer - Temperature transmitter - Humidity data logger - Deep freezer
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8. CORROSION TESTING

- Inter Granular Corrosion Testing (IGC) as per ASTM A – 262
- Pitting & Crevice Corrosion test as per ASTM G 48 Specification
- Evaluation of detrimental inter metallic Phases in Duplex Austenitic Ferritic Stainless Steels as per ASTM A - 923
- Intergranular Corrosion in wrought, Nickel – Rich, Chromium Bearing Alloys as per ASTM G 28 Method A – Ferric Sulfate – Sulfuric Acid test
- Chloride Stress Corrosion Cracking Test as per ASTM G 36
- Sulphide Stress Corrosion Cracking Test - SSCC as per NACE TM 0177
- Hydrogen Induced Cracking Test - HIC as per NACE TM 0284
- Mercurous Nitrate test
- Mass Coating and Coating Thickness Measurement

9. RUBBER TEST

- Tensile Strength & Elongation %
- Material Identification
- 100 %, 200 % & 300 % modulus
- Hardness Shore 'A'
- A durometer
- Tear Strength
- Adhesion - Metal rubber bonding strength
- Hot air oven ageing test
- Ageing in ASTM Oil & Fuels @ specified temp.
- Compression set test
- Low Temperature Test
- Ash content
- Density & Polymer Identification
- Acetone Extract test

10. BITUMEN, OIL & GREASE TESTING

- Bitumen - Softening Point, Flash Point
- Oil - Synthetic and mineral oils/ Engine oils/ Gas engine oils/ Hydraulic oils/ Transmission oils/ Gear oils/ Coolants/ Cutting fluids/ water based oils/ glycols emulsions/ Diesel fuel/ bunker fuel and biodiesel
- Grease - Drop Point, Penetration

11. SALTSPEY TEST

- Salt Spray Corrosion tests as per ASTM B 117 IS: 101 & ISO: 9227.
- Neutral salt spray test / Acetic salt spray test (ASS)
- Copper Chloride Acid Saltspray test (CASS)
- Humidity tests @ 95 % R.H, 40 to 50 °C (with automatic Parameter control)

12. WATER TEST

- Drinking Water as per IS: 10500: 1991.
- Packaged Drinking Water as per IS: 14543: 2004
- All Chemical Parameters including Pesticide Residuals.
- Micro Biological Examination (like E.coli, Faecal coliform, Total coliform)
- Swimming Pool Water
- Water for Food Processing
- Boiler Feed Water
- Bore Well Water
- Raw Water & Treated Water
- Water for Construction Purpose
- Cooling Tower Water
- Jar Test (Water Treatment)
- Water absorption & Efflorescence

13. PLASTIC TEST

- Flammability test
- Length of flame
- Heat cycle resistance test
- Heat aging test
- Chemical resistance
- Impact resistance
- Material identification
- Water resistance Odour test
- Fading resistance test
- Weather ability test
- Suction test
- Falling ball test
- Wear resistance test.

14. CIVIL CONSTRUCTION MATERIALS

- Cement Chemical analysis, Compressive Strength, Setting Time
- Packaged Drinking Water as per IS: 14543: 2004
- Loafie aggregate - sieve, crushing strength etc.
- Concrete cube - compressive strength
- Bricks - Compressive strength
- Water absorption & Efflorescence, Water for construction purpose

15. PAINT TESTING

- Synthetic Enamel as per IS 2932 & IS 8662,
- Redmixed paint,
- Epoxy Paint, PU Paint.



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Metallurgical Testing / Mechanical testing / Non – Destructive Testing (Engineering & Civil) / Training & Certification
 Mechanical Calibration / Calibration (NDT) – Ultrasonic Testing Machine, IIW V1, IIW V2 Block)
 NABL & ISO Accreditation Consulting, certification, implementation and documentation
 Geo Technical Investigation / Building Material Testing / Highway Material Testing
 Inspection & Manpower / Lubricant Testing / Fuels Testing / Water Testing
 Plastic Testing / Rubber Testing / Paint Testing
 Steel Trading Stockiest & Suppliers