

Engineering excellence. Built around your project.

Industrial technology, laboratory solutions and railway vendor development.



APEX ENGINEERING SOLUTION

Engineering Excellence | Technology Solutions | Industrial Growth

Supply. Installation. Commissioning. Calibration. Consultancy. Technical support.

01 / THE COMPANY

Expertise across disciplines.

A multidisciplinary engineering, trading, consultancy, procurement and project management organization.

End-to-end project support

Apex Engineering Solution specializes in industrial, laboratory, railway, IT, automation, testing, polymer and infrastructure solutions. The company provides supply, installation, commissioning, calibration, consultancy, manpower deployment, maintenance, technical support and project execution.

Who we serve

Manufacturing industries, government departments, railways, research institutions, educational organizations, laboratories, automotive industries and private enterprises across India.

Our mission

To deliver reliable, innovative and cost-effective engineering, industrial, laboratory, IT and consultancy solutions while maintaining the highest standards of quality, integrity and customer satisfaction.

Our vision

To become a leading industrial technology and engineering solutions provider recognized for technical excellence, innovation and customer-centric services across India and international markets.

This profile preserves the business scope supplied by the company. Railway plant and laboratory schedules on later pages are advisory planning scopes, finalized against current controlled RDSO requirements and the selected product drawing.

Capabilities 01-03.

From equipment and materials to quality systems, workforce and digital operations.

01 Industrial Machinery & Equipment

Supply, installation, commissioning, servicing and maintenance.

CNC Machines | VMC Machines | Lathe Machines | Milling Machines | Drilling Machines | Hydraulic Presses | Power Presses | Forging Equipment | Heat Treatment Furnaces | Induction Heating Systems | Injection Molding Machines | Material Handling Equipment | Industrial Automation Systems | Conveyor Systems | Special Purpose Machines (SPM)

02 Laboratory Equipment & Testing Instruments

Supply, installation, calibration and maintenance.

Universal Testing Machines (UTM) | Tensile Testing Machines | Compression Testing Machines | Hardness Testers | Impact Testing Machines | Spring Testing Machines | Spectrophotometers | Differential Scanning Calorimeters (DSC) | Muffle Furnaces | Salt Spray Chambers | Environmental Chambers | Metallurgical Microscopes | Surface Roughness Testers | Chemical Testing Equipment | Research Laboratory Instruments

03 Non-Destructive Testing (NDT) Solutions

Supply and support of inspection and quality control equipment.

Magnetic Particle Inspection (MPI) Machines | Ultrasonic Testing Equipment | Eddy Current Testing Systems | Dye Penetrant Testing Equipment | NDT Accessories | Calibration Blocks | Inspection Gauges | Quality Control Equipment

Capabilities 04-06.

From equipment and materials to quality systems, workforce and digital operations.

04 Railway Engineering Products

Supply and consultancy for railway products and technical requirements.

Elastic Rail Clips (ERC) | HVN Liners | Railway Fasteners | Inspection Gauges | Track Components | Railway Testing Equipment | Railway Laboratory Equipment | RDSO Compliance Support | Vendor Registration Assistance | Technical Documentation

05 Polymer & Engineering Plastic Solutions

Trading and supply of polymers and injection molding raw materials.

HVN Resin Granules | Nylon-66 (PA-66) | Glass Filled Nylon | Engineering Plastics | Polypropylene (PP) | ABS Granules | HDPE Granules | Polymer Additives | Color Master Batches | Injection Molding Raw Materials

06 Information Technology Solutions

Equipment supply, implementation and IT infrastructure services.

Desktop Computers | Laptops | Servers | Workstations | Networking Equipment | CCTV Surveillance Systems | Biometric Systems | Smart Classroom Solutions | Data Storage Solutions | Printers and Scanners | IT Infrastructure Setup | Network Design & Management | Annual Maintenance Contracts (AMC) | Cloud Solutions | Cyber Security Consultancy | Data Management Services

Capabilities 07-09.

From equipment and materials to quality systems, workforce and digital operations.

07 Software Development & Digital Solutions

Software and digital services for business operations.

ERP Solutions | CRM Solutions | Inventory Management Software | HRMS Solutions | Mobile Application Development | Website Design & Development | E-Commerce Solutions | AI & Automation Solutions | Data Analytics | Business Intelligence Solutions | Custom Software Development

08 Consultancy & Technical Services

Professional consultancy for industrial projects, quality and procurement.

Industrial Project Planning | Factory Setup | Plant Commissioning | Process Optimization | Quality Management Systems | ISO Certification Support | NABL Accreditation Assistance | Technical Audits | Vendor Development | Tender Consultancy | Procurement Consultancy | Engineering Design Services

09 Industrial Manpower & Staffing Solutions

Supply of skilled engineers, operators, technicians and contract workforce.

CIPET Engineers | Polymer Engineers | Production Engineers | Mechanical Engineers | Electrical Engineers | Quality Engineers | Testing Engineers | NDT Inspectors | CNC Operators | VMC Operators | Lab Technicians | Maintenance Technicians | Supervisors | Contract Workforce

Capabilities 10-11.

From equipment and materials to quality systems, workforce and digital operations.

10 Procurement & Supply Chain Services

Sourcing and procurement support for industrial and project requirements.

Industrial Procurement | Vendor Development | Strategic Sourcing | Import & Export Facilitation |
Project Procurement Management | Supply Chain Optimization | Tender Participation Support

11 Calibration, Inspection & Certification Support

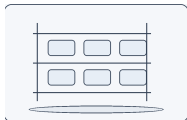
Coordination and assistance for calibration, inspection and compliance.

NABL Calibration Services | Third Party Inspection Services | Quality Assurance Support | Product
Testing Coordination | Technical Certification Assistance | Compliance Verification Services

03 / RAILWAY VENDOR PLANT SCOPE

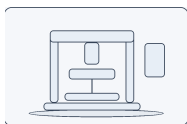
ERC: equipment scope 01-08.

Equipment selection, capacity and test acceptance limits must follow the latest controlled specification, STR and drawing.



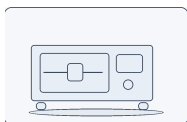
Spring-steel receiving & heat-wise storage

Segregated racks, heat identification and material certificates.



Bar cutting / shearing press

Prepare repeatable blanks with dedicated tooling.



End grinding & profile machining

Prepare ends to the selected clip drawing.



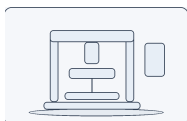
Hydro-copying / CNC profile turning

Assess for Mk-V and other profiled variants.



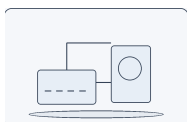
Controlled bar heating system

Select furnace or induction configuration against the current STR.



Forming power press, dies & fixtures

Match press capacity and tooling to clip geometry and output.



Oil quenching system

Controlled bath, circulation, temperature monitoring and safe transfer.



Controlled tempering furnace

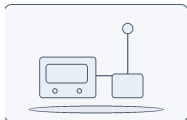
Repeatable heat-treatment cycles with recording and verification.

Images are representative photographs or labeled planning illustrations. They do not depict Apex facilities or certify an approved machine model. Shared utilities are listed separately.

03 / RAILWAY VENDOR PLANT SCOPE

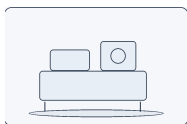
ERC: equipment scope 09-16.

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Magnetic particle inspection system

Crack detection arrangements matched to the approved inspection scheme.



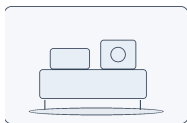
Cleaning & protective finishing station

Prepare, protect and pack finished clips to the contract.



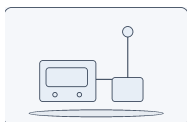
Tool room & die maintenance

Lathe, milling, grinding; CNC/VMC/EDM selected to the tooling strategy.



Clip marking & packing station

Identification, lot separation, counting and dispatch records.



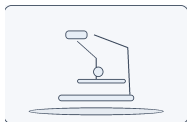
Chemical analysis facility

Spectrometer or permitted laboratory arrangement for spring steel.



Rockwell hardness tester

Calibrated hardness measurement with appropriate specimen preparation.



Metallurgical microscope & image analysis

Evaluate microstructure, grain size, inclusions and decarburization.



Metallographic preparation suite

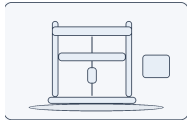
Sectioning, mounting, grinding, polishing and controlled etching.

Images are representative photographs or labeled planning illustrations. They do not depict Apex facilities or certify an approved machine model. Shared utilities are listed separately.

03 / RAILWAY VENDOR PLANT SCOPE

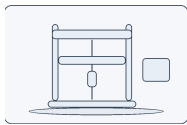
ERC: equipment scope 17-24.

Equipment selection, capacity and test acceptance limits must follow the latest controlled specification, STR and drawing.



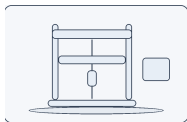
Toe-load testing machine & fixture

Load measurement at the drawing-specific assembly deflection.



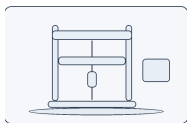
Application & deflection blocks

Drawing-specific functional fit and deformation checks.



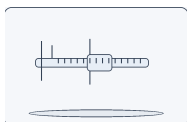
Fatigue test rig

Cyclic testing to the governing clip test scheme.



Stress test instrumentation

Strain measurement and fixtures where required for the selected variant.



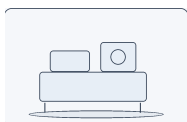
Approved dimensional gauge sets

Use gauges corresponding to the selected drawing and alteration.



Calipers, micrometers & weighing balance

Dimensional and mass checks with traceable calibration.



Temperature measurement & recording

Pyrometers, thermocouples and process recorder verification.



Raw-material mechanical testing

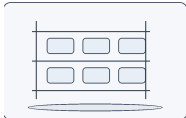
UTM and sample machining or permitted external test route.

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03 / RAILWAY VENDOR PLANT SCOPE

HVN: equipment scope 01-08.

Equipment selection, capacity and test acceptance limits must follow the latest controlled specification, STR and drawing.



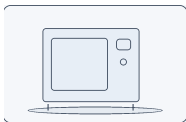
PA-66 resin receiving & dry storage

Batch segregation, supplier records and sealed material handling.



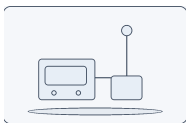
Automatic screw injection moulding machine

Select clamping force, shot capacity and controls for liner moulds.



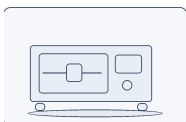
Dehumidifying resin dryer

Controlled drying with dew-point monitoring before moulding.



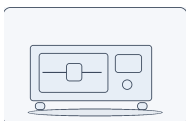
Resin moisture measurement

Verify dryness before processing using a validated method.



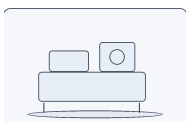
Approved-design liner moulds

Cavity identification, marking, venting and dimensional control.



Mould temperature controller & chiller

Stable cooling and mould temperature for repeatable production.



Material loader & sealed conveying

Limit moisture uptake between dryer and machine.



Mould lifting & maintenance equipment

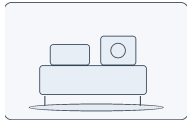
Safe handling, cleaning and polishing of the tooling.

Images are representative photographs or labeled planning illustrations. They do not depict Apex facilities or certify an approved machine model. Shared utilities are listed separately.

03 / RAILWAY VENDOR PLANT SCOPE

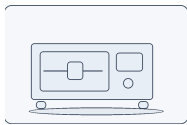
HVN: equipment scope 09-16.

Equipment selection, capacity and test acceptance limits must follow the latest controlled specification, STR and drawing.



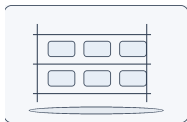
De-flashing & visual inspection bench

Finish edges and segregate surface or moulding defects.



Test-specimen moulds

Prepare tensile, flexural and electrical test specimens as specified.



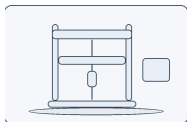
Batch-wise finished-goods storage

Dry, identified lots with quarantine and release control.



Computerized universal testing machine

Tensile strength, elongation and flexural tests with suitable fixtures.



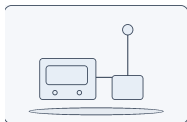
Extensometer & polymer grips

Measure deformation without specimen slippage.



Flexural fixture & product-strength fixture

Separate specimen modulus tests from liner product strength tests.



Differential scanning calorimeter (DSC)

Melting behavior using the specified thermal test method.



Analytical balance & density kit

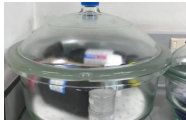
Specific gravity and accurate specimen mass measurements.

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03 / RAILWAY VENDOR PLANT SCOPE

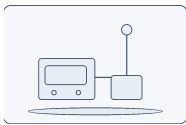
HVN: equipment scope 17-24.

Equipment selection, capacity and test acceptance limits must follow the latest controlled specification, STR and drawing.



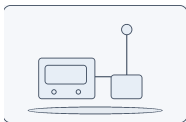
Muffle furnace, crucibles & desiccator

Ash-content analysis with controlled weighing and cooling.



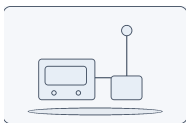
Rockwell R hardness tester

Polymer hardness using the prescribed scale and method.



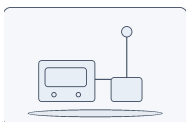
Viscosity-number test facility

Viscometer, temperature bath and laboratory preparation or permitted external route.



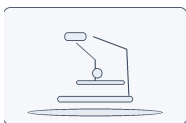
Dielectric strength tester

Electrical insulation testing with appropriate electrodes and safeguards.



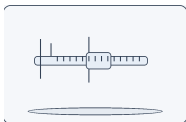
Volume resistivity measurement

High-resistance measurement with controlled specimen conditions.



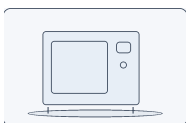
Sectioning tools & magnification

Internal-cavity examination on liner cross-sections.



Approved liner gauges & metrology

Drawing-specific fit checks, calipers and measurement records.



Controlled laboratory environment

Temperature/humidity monitoring, conditioning and specimen traceability.

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04 / SHARED INFRASTRUCTURE

A complete plant ecosystem.

Utilities, people, records and controls connect the production line to repeatable quality.

Factory layout & material flow

Separate receiving, production, laboratory, rejected stock and released goods.

Electrical supply & distribution

Sanctioned load, protection, earthing and machine-wise installation planning.

Compressed air & cooling water

Size the utility network to selected machines and operating shifts.

Ventilation, extraction & fire safety

Address heat, oil quenching, dust, chemicals and local permissions.

Material handling & maintenance

Lifting equipment, workshop tools, spares and preventive maintenance.

Calibration & reference standards

Instrument register, certificates, due dates and out-of-tolerance response.

Quality records & traceability system

Link raw-material batches to process data, test results and dispatched lots.

Qualified production & quality team

Engineers, operators, laboratory personnel and inspection responsibility.

Environmental & statutory approvals

Review factory, pollution, waste and safety obligations for the selected site.

Water-conditioning bath & weighing setup

GFN conditioning/water absorption is a separate route; not an HVN test requirement.

HVN and GFN are distinct material routes. HVN is not glass-filled nylon. GFN conditioning and water-absorption requirements should not be transferred into the HVN scope.

05 / RDSO VENDOR DEVELOPMENT

Prepared at every stage.

Consultancy supports readiness and documentation. Approval remains the decision of RDSO and the competent railway authorities.

01 Define the item

Confirm product, drawing and alteration. Obtain current specification, STR and applicable UVAM requirements.

02 Establish readiness

Review manufacturing eligibility, works infrastructure, ISO 9001 scope, personnel and equipment gaps.

03 Prepare the dossier

Assemble entity and works documents, declarations, machinery registers, calibration records, QAP and evidence.

04 Submit through UVAM

Use the prescribed application route, supporting documents and applicable charges.

05 Address scrutiny & CCA

Respond to observations and demonstrate capacity, process controls, testing and traceability.

06 Qualify gauges & samples

Complete drawing-specific gauge checks, trial manufacture and prescribed or witnessed testing.

07 Meet listing conditions

Follow the applicable developmental or approved-vendor route and any prototype or field-performance conditions.

08 Maintain & progress

Meet inspection and performance obligations; maintain audit readiness and apply for status changes when eligible.

Stages can overlap or vary by item. Current directives govern fees, sample quantities, timelines and upgradation. Consultancy does not guarantee approval.

From planning to qualification.

Equipment, laboratory capability, documentation and production readiness developed together.

Feasibility, layout & procurement

Factory setup, production targets, utility planning, technical specifications, supplier evaluation and procurement coordination.

Laboratory & quality systems

Test-method mapping, fixtures, instrument registers, traceable calibration, QAP, release control and corrective-action support.

ERC approval readiness

Map current IRS T-31 and TDG 0044 requirements to the selected clip. Establish steel traceability, heat-treatment control, gauges and performance evidence.

HVN approval readiness

Map current IRS T-44 and TDG 0005 requirements to the selected liner. Establish resin qualification, drying, cavity identification, process records, gauges and polymer test evidence.

Commissioning, training & operations

Installation, trial-production support, workforce deployment, maintenance, technical training, tender documentation and process improvement.

Key dossier: legal and works documents; ISO 9001 scope/address; factory layout; machinery and calibration registers; QAP; personnel records; raw-material and batch traceability; trial tests; applicable declarations and current annexures.

07 / REFERENCES & IMAGE CREDITS

Built on clear references.

Reference review: 3 October 2026. Always obtain superseding revisions before procurement or application.

RDSO Track Design: current documents

IREPS / UVAM: live requirements and directory

QO-D-8.1-5 v2.6: application for registration

QO-D-8.1-6 v6.1: application processing

IRS T-44-2023: reviewed HVN/GFN reference

Fresh vendor registration and e-tender participation are separate. The reviewed QO-D-8.1-5 v2.6 states that digital-signature details are optional for fresh registration and IREPS registration is not required for fresh registration. Follow current portal instructions.

No certified current ERC/HVN mandatory equipment schedule is claimed. Machine capacities, numerical acceptance criteria and permitted outside-test routes must be checked against the latest controlled STR/specification and contract.

Photography and visual integrity

Injection moulding robot: The robotic engineer1, CC BY-SA 4.0. Wikimedia Commons. Resized, recompressed and cropped.

Bi-material moulding machine / compression test: Cjp24, CC BY-SA 3.0. Wikimedia Commons. Resized, recompressed and cropped.

Heat-treatment furnace: Ichudov, CC BY-SA 3.0. Wikimedia Commons. Resized, recompressed and cropped.

Universal testing machine: Ganitz, CC BY-SA 4.0. Wikimedia Commons. Resized, recompressed and cropped.

Rockwell_hardness_tester_001.jpg: Three-quarter-ten, CC BY-SA 3.0.

Kent_USA_KLS-1840N_CNC_Lathe.jpg: Mike Zielinski, CC BY-SA 4.0.

CNC_milling_machine.jpg: Impressionmanufacturer, CC BY-SA 4.0.

Air_compressor.webp: Wikideas1, CC0 1.0.

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Three_point_flexural_test.jpg: Cjp24, CC BY-SA 3.0.

Pulidora_metalografica_tecnipol.jpg: TECNIMETAL, CC BY-SA 4.0.

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