NGE

NEW GEN ENGINEERS

ENGINEERING EXCELLENCE – DRIVING INNOVATION

PADI · CHENNAI · INDIA

ENGINEERING PRECISION. MANUFACTURING EXCELLENCE.

Integrated precision engineering, VMC operations, Wirecut EDM tooling, custom jigs and fixtures, special purpose machinery, and industrial fabrication solutions in Chennai, India.



VMC MACHINING & PRECISION SHOP-FLOOR FACILITY
Padi Industrial Estate, Chennai — Precision Tooling & Automation Hub

CORE MANUFACTURING COMPETENCIES

01
VMC & CNC MACHINING

02
JIGS & FIXTURES

03
SPECIAL PURPOSE MACHINERY

04
INDUSTRIAL FABRICATION

05
PRECISION COMPONENTS

SECTION 01 // ABOUT US

INTEGRATED MECHANICAL ENGINEERING & PRECISION MANUFACTURING

Headquartered in the industrial hub of Padi, Chennai, **NEW GEN ENGINEERS** delivers end-to-end mechanical engineering, precision machining, and custom fabrication solutions for OEMs and industrial manufacturers. Our disciplined workflow bridges technical design and shop-floor execution—grounded in strict adherence to engineering blueprints, GD&T specifications, traceable raw materials, and stage-wise dimensional inspection.

STAGE 01
DESIGN & CAD REVIEW
Blueprint & GD&T analysis, fixture concepting, and process planning.

STAGE 02
MATERIAL TRACEABILITY
Verified grade sourcing across steels, alloys, and non-ferrous stock.

STAGE 03
SHOP-FLOOR EXECUTION
Controlled VMC, CNC, Wirecut EDM, and fabrication operations.

STAGE 04
STAGE-WISE INSPECTION
In-process and final metrological checks prior to dispatch.

OUR MISSION
To deliver precision-engineered tooling, machined components, special purpose machinery, and fabricated assemblies that satisfy exact technical specifications and support uninterrupted customer production schedules.

OUR VISION
To stand as a dependable manufacturing and engineering partner for OEMs and industrial enterprises —recognized for engineering discipline, versatile machining capability, and consistent workmanship.

ENGINEERING EXPERTISE
Practical tooling and manufacturing know-how spanning CAD-to-CAM programming, custom fixture architecture, heavy welded frames with post-weld VMC machining, and fine Wirecut EDM profiling.

QUALITY COMMITMENT
Every job is governed by verified raw material inputs, strict blueprint and GD&T compliance, controlled machine setups, and systematic dimensional verification at critical stages of production.



ENGINEERING TEAM & PADI MANUFACTURING FACILITY
CAD/CAM engineering & precision machining bays at Padi, Chennai

SECTION 02 // CORE SERVICES

SIX INTEGRATED MANUFACTURING & TOOLING VERTICALS

From bespoke production tooling and special purpose machinery to precision CNC/VMC job works and heavy industrial fabrication, our six core service verticals operate under one roof for cohesive quality and streamlined lead times.

01
JIGS & FIXTURES
Custom-designed machining, welding, assembly, inspection, and production fixtures engineered for repeatability and rapid part loading.

02
SPECIAL PURPOSE MACHINERY (SPM)
Tailored automation systems, assembly stations, and mechanical equipment built around specific shop-floor process needs.

03
INDUSTRIAL FABRICATION
Rigid machine frames, structural weldments, and custom metal fabrication with post-weld VMC machining capability.

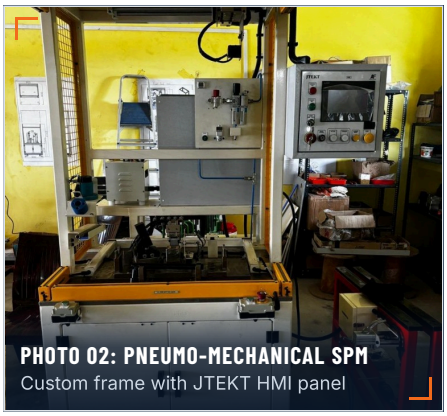
04
PRECISION MACHINE COMPONENTS
Close-tolerance turned, milled, Wirecut EDM profiled, and OEM replacement components across ferrous and non-ferrous grades.

05
CNC JOB WORKS
Contract CNC milling, precision turning, drilling, tapping, and Wirecut EDM profiling for prototype and batch production.

06
VMC MACHINING SERVICES
Multi-feature vertical machining for complex pockets, contours, face milling, bearing bores, and fixture mounting pads.

SERVICE SHOWCASE GALLERY


PHOTO 01: AUTOMATED FIXTURE SPM
PLC-controlled linear slide & HMI


PHOTO 02: PNEUMO-MECHANICAL SPM
Custom frame with JTEKT HMI panel

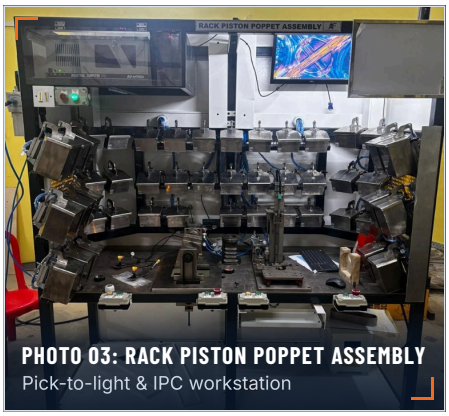
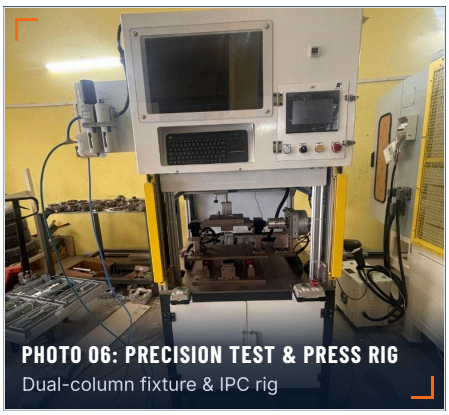

PHOTO 03: RACK PISTON POPPET ASSEMBLY
Pick-to-light & IPC workstation


PHOTO 04: FOOL-PROOFING SPM
Aluminium profile enclosure & poka-yoke


PHOTO 05: MULTI-AXIS ASSEMBLY CELL
Servo actuation & safety guarding


PHOTO 06: PRECISION TEST & PRESS RIG
Dual-column fixture & IPC rig

SECTION 03 // JIGS & FIXTURES

PRECISION WORKHOLDING, LOCATING & TOOLING SYSTEMS

Accurate workholding is foundational to dimensional repeatability and shop-floor throughput. NEW GEN ENGINEERS designs and builds robust jigs and fixtures tailored to part geometry, datum schemes, clamping forces, and operator ergonomics—reducing setup time and eliminating positional errors across machining, welding, assembly, and inspection lines.

TOOLING CATEGORY	KEY ENGINEERING FEATURES	PRODUCTION & QUALITY BENEFITS
Custom-Designed Jigs	Hardened drill bushings, precision datum locating pins, fool-proof (poka-yoke) part seating, and ergonomic toggle or manual clamps.	Ensures repeatable tool guidance for drilling, reaming, and tapping without layout marking; minimizes operator dependency.
Machining Fixtures	Rigid VMC/CNC baseplates, hardened rest pads, hydraulic/pneumatic or mechanical clamping, and unobstructed cutter clearance paths.	Withstands heavy cutting forces without deflection; cuts cycle-to-cycle setup time and holds tight GD&T tolerances.
Welding Fixtures	Heat-resistant locating blocks, copper/brass backing elements, spatter-protected clamps, and rigid distortion-control framing.	Maintains sub-assembly alignment during thermal weld cycles; minimizes post-weld warpage and rework.
Assembly Fixtures	Multi-component nesting cradles, guided alignment stops, quick-release latches, and ergonomic working heights for line operators.	Standardizes component mating sequence, speeds up sub-assembly cycle time, and prevents incorrect part orientation.
Inspection Fixtures	Ground reference datums, precision go/no-go checking pins, dial indicator mounts, and stable calibrated base structures.	Enables rapid shop-floor attribute and profile verification with reliable repeatability across production batches.
Production Fixtures	Multi-station or tombstone workholding arrangements engineered with replaceable wear parts for continuous high-duty usage.	Maximizes spindle utilization per cycle, lowers per-part handling time, and simplifies routine maintenance.



CUSTOM VMC MACHINING FIXTURE
Hardened locators and rigid workholding setup



WELDING & INSPECTION FIXTURE
Multi-datum assembly & dimensional checking gauge

SECTION 04 // SPECIALIZED MACHINERY & SPM

CUSTOM-BUILT MACHINERY & MECHANICAL AUTOMATION

When off-the-shelf machinery cannot address unique part geometries or cycle requirements, NEW GEN ENGINEERS develops purpose-built mechanical systems from concept and fabrication through precision machining and assembly—engineered for industrial durability and practical shop-floor maintainability.

SPECIAL PURPOSE MACHINES (SPM)
Dedicated single- or multi-station machines built for specialized drilling, pressing, crimping, gauging, or component-specific operations where standard machines fall short.

CUSTOM AUTOMATION EQUIPMENT
Pneumatic, hydraulic, and electro-mechanical actuation modules designed to automate repetitive loading, clamping, indexing, and part transfer sequences.

INDUSTRIAL MACHINERY
Robust, heavy-duty mechanical units fabricated with precision-machined bearing housings, guideways, and modular sub-assemblies for continuous plant operation.

PRODUCTION LINE EQUIPMENT
Line-side fixtures, transfer tables, indexing mechanisms, and workstation rigs seamlessly integrated into existing manufacturing and assembly lines.

CUSTOMIZED MECHANICAL SYSTEMS
Bespoke mechanical mechanisms, rotary/linear motion assemblies, tensioning units, and test rigs engineered from customer specifications or reverse-engineered mechanical requirements with full serviceable documentation.



SPECIAL PURPOSE MACHINE & CUSTOM AUTOMATION BUILD
Turnkey SPM assembly with PLC/HMI control, pneumatics & safety interlocks

SECTION 05 // INDUSTRIAL FABRICATION

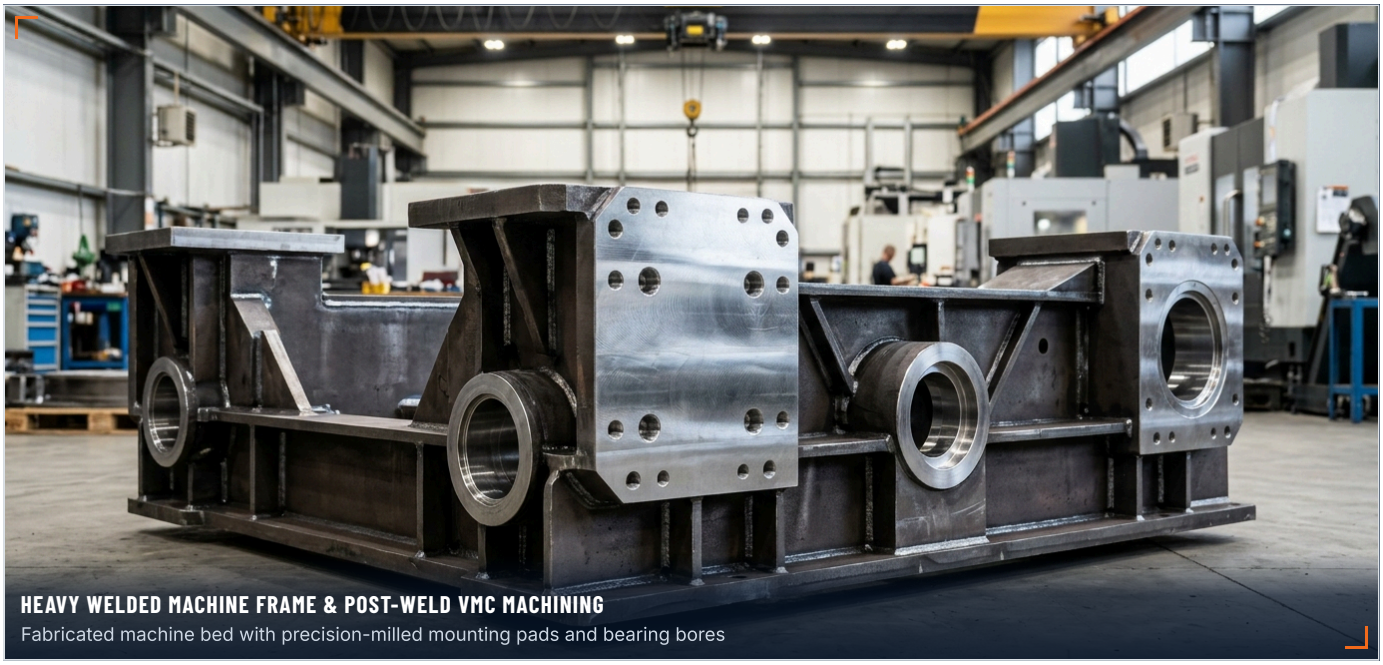
STRUCTURAL WELDMENTS, MACHINE FRAMES & CUSTOM FABRICATION

Our fabrication division pairs skilled welding and plate/section forming with precision machining capabilities. By controlling both structural assembly and finish machining in-house, we deliver dimensionally true bases, frames, and weldments ready for direct equipment installation.

IN-HOUSE PRECISION ADVANTAGE

Post-weld VMC machining for precision mounting pads and bearing bores — ensuring flatness, parallelism, and true bore alignment across welded assemblies.

FABRICATION CAPABILITY	SCOPE & TECHNICAL EXECUTION	KEY INDUSTRIAL APPLICATIONS
Industrial Fabrication	Heavy-duty plate, channel, and tubular fabrication executed strictly to engineering drawings with controlled weld sequencing and distortion management.	Plant equipment housings, industrial guards, platforms, brackets, and process support skids.
Structural Fabrication	Precision cut, fit-up, and welded structural steel assemblies utilizing beams, angles, channels, and gusseted stiffeners for high load stability.	Equipment gantries, support columns, overhead frames, and industrial material-handling frames.
Machine Frames	Rigid welded machine beds and column structures engineered for vibration damping, followed by post-weld VMC machining of datum pads and rail seats.	SPM machine bases, fixture tables, press frames, and precision linear-guideway mounting beds.
Welded Assemblies	Multi-part sub-assemblies combining laser/plasma-cut plates, turned bosses, and machined blocks welded in dedicated fixtures for alignment accuracy.	Bearing housing weldments, hydraulic manifolds/tanks, robot risers, and heavy drivetrain mounts.
Custom Metal Fabrication	Tailored fabrication in mild steel, stainless steel, and aluminium grades—incorporating bending, drilling, tapping, and precision machined interfaces.	Custom enclosures, tooling trolleys, inspection tables, and OEM-specific mechanical sub-frames.



HEAVY WELDED MACHINE FRAME & POST-WELD VMC MACHINING
Fabricated machine bed with precision-milled mounting pads and bearing bores

SECTION 06 // PRECISION COMPONENTS & CNC / VMC / WIRECUT EDM JOB WORKS

PRECISION MACHINE COMPONENTS & CONTRACT JOB WORKS

PRECISION MACHINE COMPONENTS

CNC-MACHINED COMPONENTS
Multi-feature OEM parts manufactured to strict print tolerances with consistent batch-to-batch repeatability.

PRECISION TURNED COMPONENTS
Concentric shafts, pins, bushes, sleeves, stepped collars, and threaded fasteners with clean surface finish.

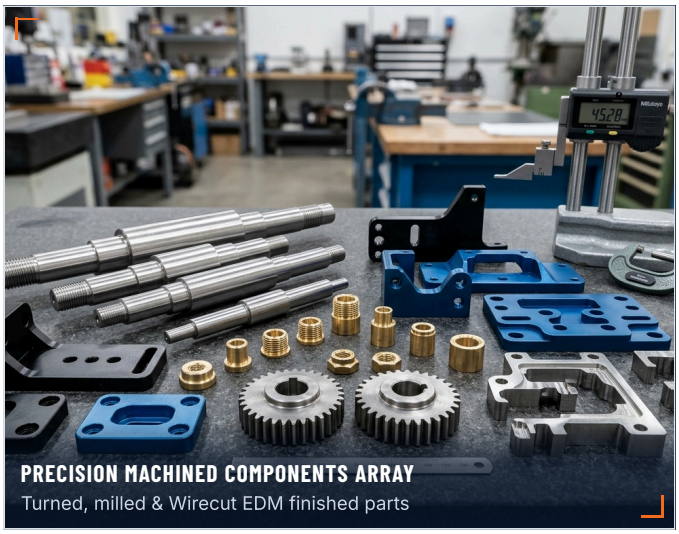
PRECISION MILLED COMPONENTS
Blocks, brackets, plates, manifold housings, and slotted tooling elements held to accurate flatness and squareness.

WIRECUT EDM PROFILED PARTS
Intricate internal/external profiles, sharp corners, die inserts, and hardened tool-steel punches without cutting stress.

INDUSTRIAL REPLACEMENT PARTS
Wear spares, custom shafts, couplings, and legacy machine components produced from drawings or sample parts.

CNC, VMC & WIRECUT EDM JOB WORK OPERATIONS

MACHINING OPERATION	PROCESS CAPABILITY & TOOLING SCOPE	TYPICAL OUTPUT & GEOMETRIES
VMC Machining	Vertical machining center operations utilizing programmed toolpaths for high-accuracy multi-face milling, boring, and datum finishing.	Fixture plates, manifold blocks, housings, and post-weld machined beds.
Wirecut EDM	Fine wire electrical discharge machining for hardened tool steels and conductive alloys where zero mechanical distortion is essential.	Die profiles, precision slots, keyways, splines, and hardened inserts.
CNC Milling & Face Milling	Controlled roughing and precision finishing passes for flat surfaces, stepped shoulders, and parallel reference faces.	Baseplates, spacer blocks, mounting pads, and structural plates.
Contouring & Pocket Milling	2D/3D interpolated profiling and deep cavity pocketing with clean corner radii and controlled wall perpendicularity.	Nesting pockets, cam profiles, cavities, and contoured brackets.
Precision Drilling & Tapping	Accurate hole-pattern positioning, counterboring, countersinking, reaming, and rigid tapping across metric and imperial threads.	Dowel-pin grids, bolt-circle flanges, and threaded fixture manifolds.
Custom Machining Operations	Tailored single-piece prototypes, rework/modification of existing components, and specialized multi-setup machining sequences.	R&D prototypes, urgent maintenance spares, and custom tooling blocks.



PRECISION MACHINED COMPONENTS ARRAY
Turned, milled & Wirecut EDM finished parts



WIRECUT EDM & VMC JOB WORK
Precision Wirecut EDM profiling & die cutting

SECTION 07 // MANUFACTURING CAPABILITIES

MACHINE SPECIFICATIONS, MATERIALS & METROLOGY

EQUIPMENT & PRODUCTION CAPACITY MATRIX

PARAMETER / CAPABILITY	SPECIFICATION / STATUS
VMC Machine Make & Model	**3-Axis Vertical Machining Center** (BT40 Taper · CNC Controlled)
Spindle Speed (RPM) & Power (kW)	8,000 – 10,000 RPM · 7.5 / 11 kW High-Torque Spindle
VMC Axis Travels (X / Y / Z)	800 × 500 × 500 mm (Standard Machining Envelope)
Wirecut EDM Travel & Make	400 × 300 × 250 mm · 5-Axis CNC Taper & Die-Profile Cutting
Maximum Table Load Capacity	500 – 600 kg (Uniformly Distributed)
Standard Achievable Tolerance Band	**±0.01 mm** (VMC) · **±0.005 mm** (Wirecut EDM) — operated strictly per customer blueprint & GD&T specs
Monthly Available Machine Hours	450 – 500+ Machine Hours / Month (Multi-Shift Capable)
Production Capacity & Lot Size	**Prototype & Single-Piece Tooling · Low-to-Medium Batch Production · Contract Job Works**

MACHINABLE MATERIALS PORTFOLIO

MILD & STRUCTURAL STEELS
Mild Steel (MS) plates, bars, sections, and structural weldment grades.

CARBON & ALLOY STEELS
EN8, EN19, EN24, EN31 (pre-hardened, case-hardened, and heat-treatable).

TOOL & DIE STEELS
D2, H13, OHNS (suited for punches, dies, wear pads, and Wirecut EDM).

STAINLESS STEELS
SS304, SS316 (corrosion-resistant process, pharma, and industrial parts).

CASTINGS & NON-FERROUS
Cast Iron, Aluminium Alloys, Brass, and Copper (blocks, busbars, housings).

ENGINEERING PLASTICS
Delrin (Acetal) and Nylon (non-marring fixture nests, bushes, guides).

QUALITY INSPECTION & METROLOGY EQUIPMENT

- Digital & Analog Vernier Calipers
- Outside & Inside Micrometers
- Precision Bore Gauges
- Vernier / Digital Height Gauges
- Dial Test Indicators (DTI)
- Precision Granite / Cast Iron Surface Plate
- Calibration Slip Gauges
- Thread & Pin Gauges

SECTION 08 // QUALITY ASSURANCE & INDUSTRIES WE SERVE

SIX-STAGE QUALITY PROTOCOL & SECTOR COVERAGE

6-STEP QUALITY ASSURANCE PROCESS FLOW

STEP 01 → NEXT
MATERIAL VERIFICATION
Incoming raw stock checked for grade compliance, material traceability, and dimensional allowance prior to release.

STEP 02 → NEXT
IN-PROCESS CONTROL
First-article checks and stage-wise monitoring during VMC, CNC, Wirecut EDM, and welding setups to prevent drift.

STEP 03 → NEXT
DIMENSIONAL VERIFICATION
Strict feature-by-feature checking against customer engineering blueprints and specified GD&T callouts.

STEP 04 → NEXT
PRECISION MEASUREMENT
Verification on surface plates using calipers, micrometers, bore gauges, height gauges, DTIs, slip, thread, and pin gauges.

STEP 05 → NEXT
FINAL INSPECTION & DISPATCH
Deburring, visual surface audit, anti-corrosion protection, and secure packaging prior to dispatch clearance.

STEP 06 COMPLETE
ON-TIME DELIVERY
Disciplined production scheduling and coordinated logistics to align with customer line and project timelines.

INDUSTRIES WE SERVE

AUTOMOTIVE & AUTO COMPONENTS
Machining/welding fixtures, checking gauges, and close-tolerance component batch works.

INDUSTRIAL AUTOMATION
Custom SPM stations, actuator mounts, robotic tooling interfaces, and precision guide blocks.

GENERAL ENGINEERING
Versatile CNC/VMC job works, turned shafts, milled brackets, and replacement mechanical spares.

HEAVY ENGINEERING
Rigid welded structures and machine frames finished with post-weld VMC bore and pad machining.

MACHINERY & EQUIPMENT
Precision mechanical sub-assemblies, bearing housings, and custom production equipment builds.

MANUFACTURING & PROCESS PLANTS
Stainless steel components, line-side assembly fixtures, and custom plant maintenance fabrication.

AEROSPACE & PRECISION TOOLING
High-accuracy Wirecut EDM profiles, tool-steel die elements, and GD&T-compliant inspection and workholding fixtures.

SECTION 09 // PARTNER WITH US

YOUR ENGINEERING PARTNER FOR PRECISION MANUFACTURING.

We welcome technical drawings, 2D blueprints, and 3D CAD models (**STEP / IGES / DXF**) along with Requests for Quotation (RFQs) for custom jigs and fixtures, special purpose machinery, industrial fabrication, VMC machining, and Wirecut EDM job works.

FACILITY & REGISTERED ADDRESS
No. 125, Sathya Nagar Main Road, Mugappair Road, Padi, Chennai – 600 050, Tamil Nadu, India

DIRECT CONTACT – PRASANTH.N
+91 90036 54339

DIRECT CONTACT – GUNASEKARAN.R
+91 97152 38846

EMAIL / RFQ DESK
newgenengg22@gmail.com

WEBSITE
www.newgenengineers.co.in

RFQ SUBMISSION & SERVICE SCOPE

For prompt technical review and quotation turnaround, please include CAD files (STEP / IGES / DXF) or PDF engineering drawings specifying material grade, surface finish, and batch quantity.

- Jigs & Fixtures
- Special Purpose Machinery (SPM)
- Industrial Fabrication
- VMC Machining
- Wirecut EDM Job Works
- CNC Turning & Milling
- Prototype & Batch Production

SCAN TO VISIT WEBSITE
www.newgenengineers.co.in

