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**ARAI**  
Progress through Research

# PROTOTYPE MANUFACTURING DEPARTMENT

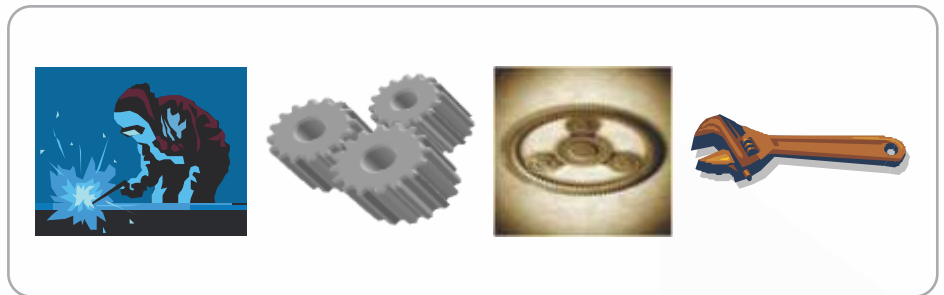


## VISION

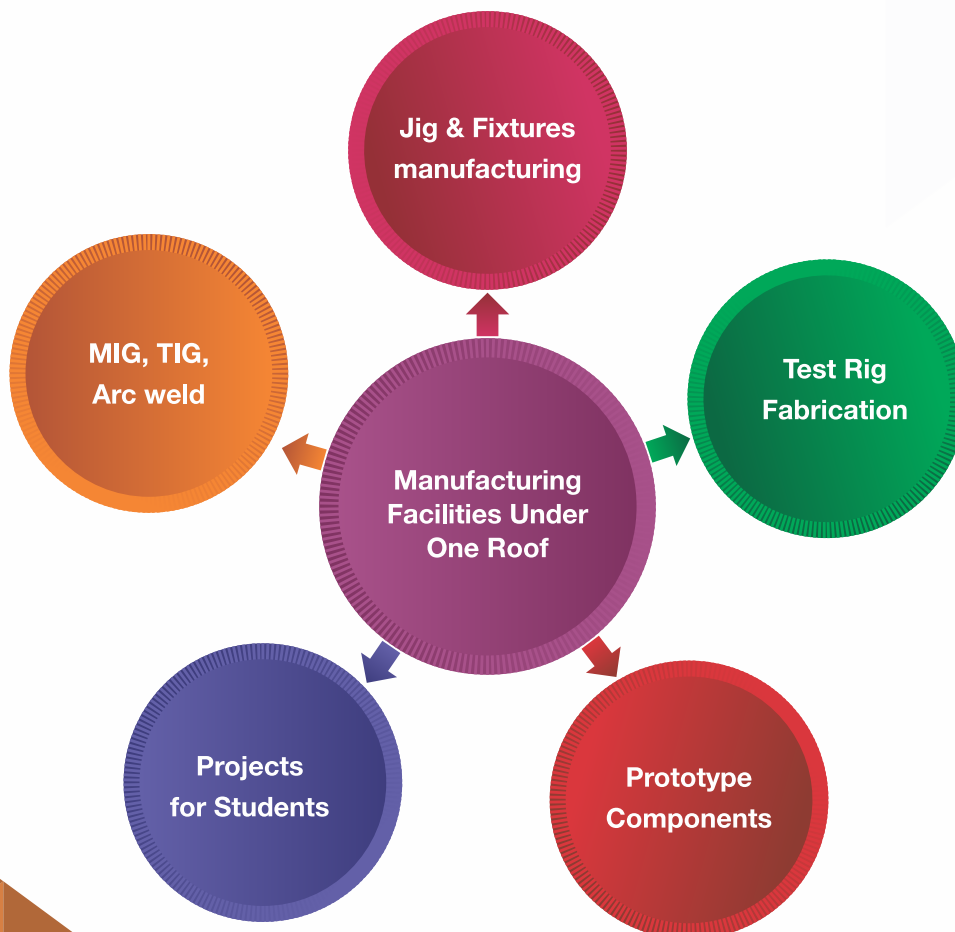
Prototype Manufacturing Department (PMD) renders services to testing and R & D Organizations, and is equipped with various type of machines suitable for manufacturing & modification of Engine components/ engineering Components/ light & heavy Jig & fixtures/ Student Projects /Fabrication /Welding & Carpentry work , special assignments such as Critical Piston Bowl Machining , Valves, Flow Box, Modification of Cylinder heads, Stiff Back, Child restraints dummy & other Test rig Development .

## FACILITIES

- Vertical Machining Centre
- CNC Turning Centre
- Milling & Lathe Machines
- Radial Drilling Machine
- Surface & Cylindrical Grinding
- Horizontal Swing Type Band Saw
- MIG , TIG Welding , Arc Welding
- Plasma Cutting , Gas Cutting



## CAPABILITIES



## FACILITIES



### Vertical Machining Center

Working range: 1050 x 610 x 610 mm  
Max load on table: 1200 kg  
4TH axis positional accuracy: +/- 15" deg.  
Positioning accuracy: +/- 0.005 mm  
Repeatability: +/- 0.003 mm



### CNC Turning Center

Working range: 1200 x 200 mm  
Spindle speed range: 40-4000 rpm  
Max turning diameter: 365 mm  
Positioning accuracy: +/- 0.01 mm  
Repeatability: +/- 0.005 mm



### Milling Machine BFW

Working range: 1030 X 350 X 470 mm  
Speed range: 35-1800 rpm  
Positioning accuracy: +/- 0.10 mm  
Repeatability: +/- 0.05 mm



### Lathe Enterprises 1550

Centre distance: 1500 mm  
Height of center: 190 mm  
Positioning accuracy: +/- 0.1mm  
Repeatability: +/- 0.05 mm



### Radial Drilling

Working surface: 600x500x450 mm  
Working surf from base: 1490x910 mm  
Max /min drilling radius: 1500/530 mm  
Spindle speed: 40 -1700 Rev./ min  
Positioning accuracy: +/- 0.05 mm  
Repeatability: +/- 0.03 mm



### Cylindrical Grinding

Distance between center: 800 mm  
Height of center: 130 mm  
Max. diameter ground: 125 mm  
Max. table travels: 810 mm  
Accuracy: +/- 0.01 mm



## FACILITIES



### Horizontal Swing type Band Saw

Max. diameter cutting: 250 mm  
Max. sq. tube cutting: 230 x 230 mm  
Blade size: 3760 X 27 X 0.9 mm  
Cutting Speed: 22 – 88 m/min  
Accuracy: 0.5 mm



### Plasma Cutting Machine

Type of cooling: Ambient air & Gas stream  
Operating pressure: 4.1-6.5 bar  
Current & Voltage range: 30A – 100A / 400V  
Max thickness cutting: 25.4 mm (mild steel)  
Application: Ferrous & non ferrous cutting



### Vertica Turret Milling Machine

Working range - 1270 x 254 mm  
Max load on table – 300 Kg  
Position accuracy - ± 0.01 mm  
DRO least count - 0.005 mm



### MIG Welding

Type of cooling: Forced air  
Shielding gas: CO<sub>2</sub> / Argon  
Wire diameter: 0.8 - 1.2  
Supply voltage: 415 V  
Current range: 60-400 A  
Application: Ferrous / non ferrous material



### TIG Welding

Shielding gas: Argon / Helium  
Current range: 5-315 A  
Welding electrode Dia.: 0.5 - 4.8 mm  
Filler wire Diameter: 1-6 mm  
Supply voltage: 415 V  
Application: Ferrous / non ferrous material



### Portable Tapping Machine

Tapping capacity - M6 – M30  
Working radius– 1350 mm  
Current & voltage – single phase 220 v



The Automotive Research Association of India  
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