AVASARALA

Avasarala Technologies Limited

Defence and Aerospace Sector

INNOVATIVE SOLUTIONS

AVASARALA

Avasarala was started as a project consultancy company in 1985 by 8 Technocrats under the leadership of our beloved Chairman Shri. Avasarala Mangapathi Rao. All promoter Directors are Technocrats with decades of experience in Mechanical, Electrical & Electronics Verticals. The prime idea was to lend the technical expertise to the Indian machinery manufacturing industry. In a hope to capitalize the latent potential in this segment, AVASARALA forayed into manufacturing in the year 1986. It began the Design, Development, Fabrication, Machining and Assembly of Special Purpose Process Machinery, Development of Custom Built equipments and Automation Systems for diverse clients and applications needs in the Indian & Global arena.

During the tenure of its growth, Avasarala have executed many challenging projects with many of them with the State of the Art Manufacturing Technologies.

During the process of developing equipments, Avasarala have acquired certain critical Technologies by entering into Technology Transfer Agreements with most strategic sectors of Indian Industries.

Leveraging its capabilities as a technically versatile company, it diversified its business interests to allied areas. Today, Avasarala has grown into a diverse corporate entity with Defence & Aerospace sector being one among them.

Avasarala has vast experience in the Defence & Aerospace Sector in the following areas.

- Fabrication of Test equipments & Structures for Missile Testing
- Building sophisticated Special Purpose Machines for Defence applications
- Ultra high Vacuum test equipments for evacuation of Microwave Tubes
- High Precision & critical machined components for Defence & Aerospace Application
- Fabrication & Machining of Sub-Assemblies & Assemblies for Missiles
- Assemblies for Torpedo Decoy Launchers
- Torpedo Critical Section/Rear Shell for light weight Torpedo
- Mechanical Assemblies of Guided missiles
- Critical Subassemblies for Defence Ship Building & submarine programme
- Fabrication of Mechanical equipment for Defence programme
- Manufacturing of Critical Aero Engine components

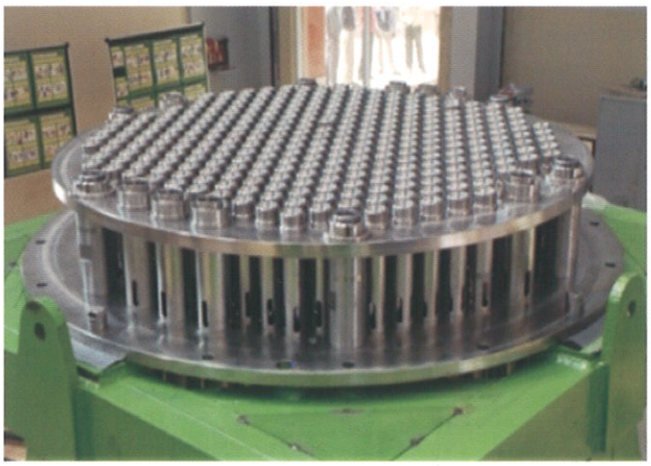
Avasarala is an establishment with in-house R&D centres recognized by Department of Scientific & Industrial Research, Govt of India.

We are keen to take up R&D projects of National importance.

Sector: Defence

Storage Module and Alignment Mechanism

Design, fabrication / manufacturing, assembly, testing & Supply of Storage modules



Critical activities:

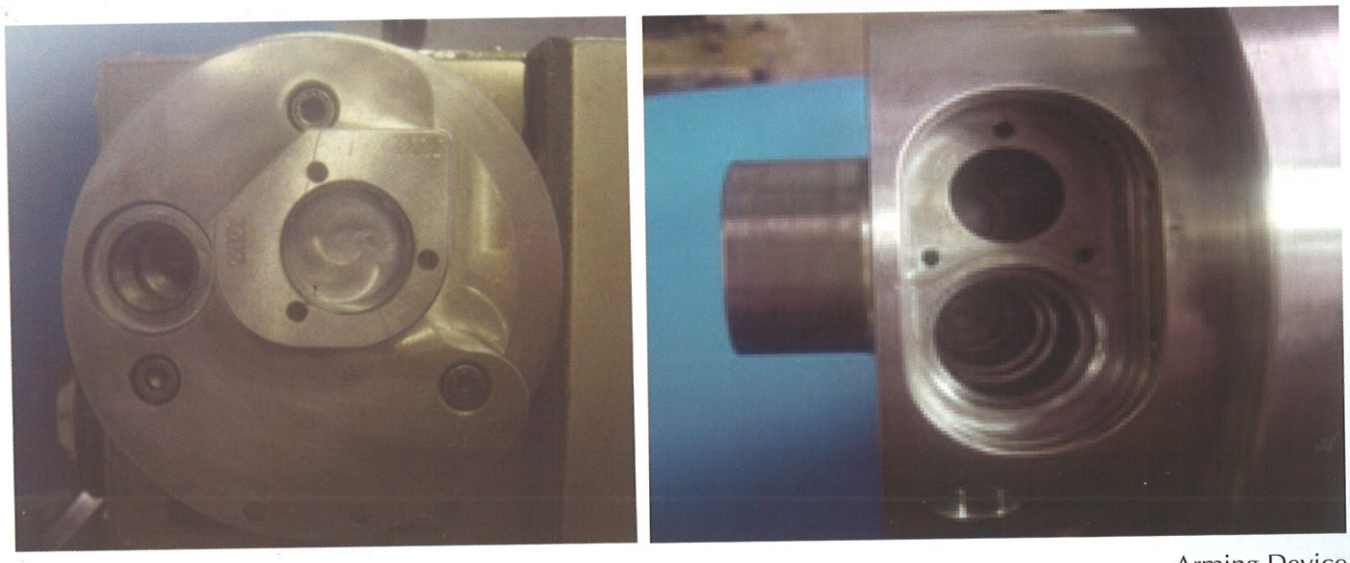
- Procurement of 100 / 50 / 26 mm thick SS 316 L Plates.
- Rolling of SS 316L Plates of thickness 26 / 28mm
- Forming of dished ends with thickness 28 mm
- Welding of Shells as per ASME Section –III / IX. Shell Dimension
  ID 2300 mm x 5041 mm Ht. x 26 mm thk.
- Radiography testing of all butt joints and Ultrasonic Testing joints where ever RT is not possible.
- Development of forgings (SS 431) of size Dia. 2600mm x 1000 mm thick involving Radiography and Ultrasonic testing.
- Development of ring forgings (SS 431) to size 2400 mm OD x 2000 mm ID x 70 mm thk. with hardness of 400 BHN.
- Machining of Grid Plates with 300 bores of size 76H12 with positioning accuracy of 25 microns. Size of Grid plate Dia.2300 mm x 40 mm thk.
- Qty. 07 Nos. One Grid Plate Assembly consists of 03 Nos. of individual Grid Plates and the all the bores of the plates should be in line.

Assemblies for Decoy Launchers

Avasarala is recognized as one of the major supplier for establishing the successful process and manufacturing a high complex assemblies for Launchers such as Manifold and Arming Device used for launching Torpedo Decoy.

- These Launcher Systems are made up of Special Grade Stainless Steel material which involves close to 542 dimensional checks to complete one full component with the accuracy upto 10 microns.
- It is tested by Hydraulic Pressure test: 450 bar for 10 min.
- Geometrical accuracy: 0.01mm between ID & OD,
- Surface finish: 0.4 Ra

Manifold



Arming Device

Equipment Mounting Stand

Design, Fabrication, Installation & Commissioning of Equipment Mounting Stand

Purpose : For flushing the reactor equipment using DM water. The equipment consists of different mounting plates for different application.

- Total Weight of the system: 28 Tons
- Pay Load: 50 Tons
- Material of Construction: IS 2062 Grade
- Size: 7.9m X 3.9m X 2.5m
- Type of Welding: SMAW
- Standard followed: ASME Section IX

Abrading System

Manufacture, Supply and Installation & Commissioning of Abrading Machine.

Description:

Manufactured to carry out abrading of the inner surface of the object, i.e, a cylindrical shell, as well as coating the abraded surface with a liquid

System Consists of:

- Supporting Structure Assembly : MOC IS 2062
  Weight: 4000Kgs
- Boom Assembly : MOC Aluminum & SS
  Weight: 200Kgs
- Linkage assembly: MOC SS304
  Weight: 60kgs
- Carriage Assembly: MOC C40
  Weight: 800Kgs
- Roller Stand : MOC IS 2062
  Weight: 4000Kgs
- Hydraulically operated system

Bowl Cleaning System

Manufacture, Supply and Installation & Commissioning of Bowl Cleaning System

Description:

1. After casting operation, bowls of 1200L & 600 L will be brought in to cleaning facility.

2. Cleaning units consists of Bowl tilting system and bowl cleaning tool with forward/ backward motion with various attachments like scrapping, scooping and mopping.

System Consists of :

Bowl Holding Arrangement – 600 L & 1200 L

Load Capacity	:	6 & 12 tons
Tilting Angles	:	135 Degree
Forward Motion	:	300 mm
MOC	:	SS 304
Bowl ID	:	1283/1676 mm

System Consists of:

Bowl cleaning boom Assembly – 600 L & 1200 L

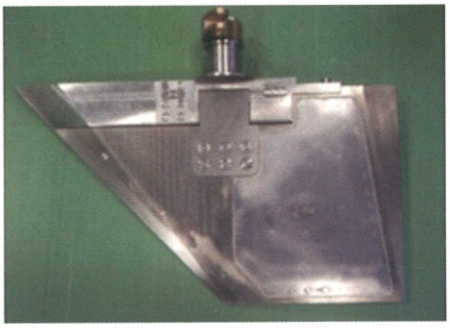
Axial Length- 1550/1800mm

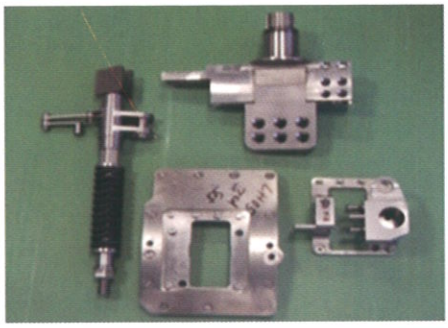
Hydraulically Operated System and Vacuum System.

Interferometer measurement & system software.

Sub assemblies and Assemblies for Missile programmes.

Avasarala has manufactured and supplied critical components such as Surface Control sets, Pneumo Hydraulic components and Stabilizer fins for missile programme.





Control Surface Assy & Sub Assy

Pneumo Hydraulic

The main function of the Control surface is to maintain the stability of the missile upon its launch.

Material of Construction is Titanium.

Pneumo Hydraulic is one of the critical components in the missile.

The stabilizer fins are also equally critical for the launch of a missile. The Function of the fins is to control the path of the missile.

Torpedo: Under Water Weapon (Light Weight Torpedo)

Torpedo is a under water weapon, it can be launched from submarines, ships & also by choppers.

Avasarala is involved in developing, manufacturing and supplying of Torpedo's Rear Shell Body which involves high critical machining for advanced Torpedo.

Material of Construction is Cast Aluminium.

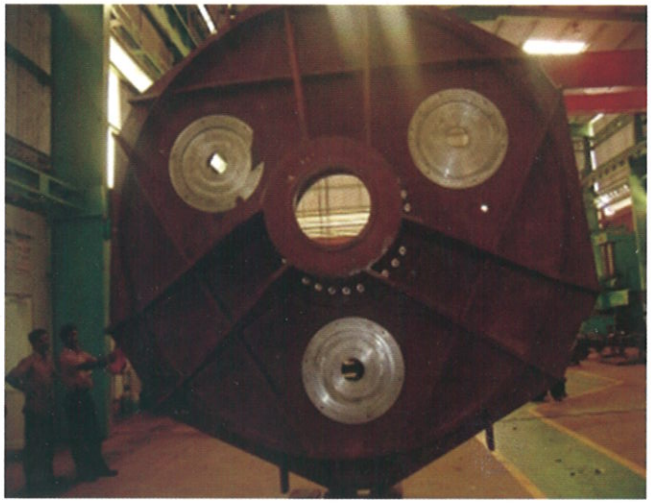
Rear Shell Body

Rear Shell Body - Inside View

Missile Test Equipment

Design, preparation of detailed engineering and manufacturing drawings, manufacture, inspection, Installation, assembly, functional testing, delivery and Guarantee of the Equipment.

The Missile test equipment has been developed to subject units to be tested to acceleration ranging from **1G -60G.**



Total weight of the Test Equipment	110,000 Kgs
Raw Material used	IS: 2062 Gr.B, ISMC, ISMB & Plates
Type of Welding	SMAW
Standard followed	ASME Section IX
Payload	Nominal : 1300 Kg Peak : 2000 Kg
Payload Size	Dia2500mm x 3500 mm
Peak acceleration capacity	60G for a payload of mass 1300Kg or 40G for a payload of mass 2000Kg at the payload's centre of mass.

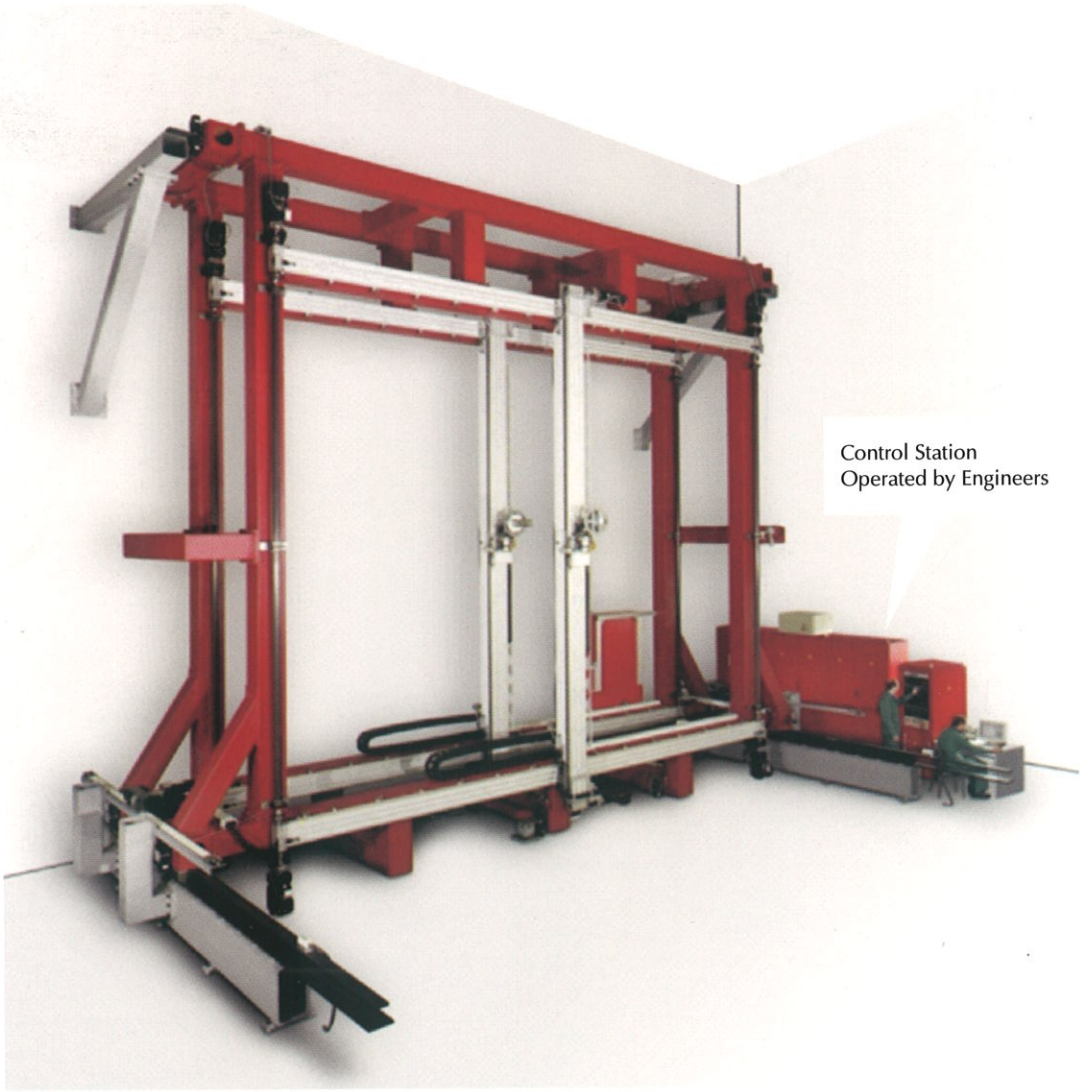
Dual Target Motion Simulator

Purpose : To test the Seeker Head of the Missile

Scope of Work : Interfacing for the X-Y stage, the local interface with the Building and construction of the support frames and rails

The job mainly consists of :

1) Z-axis rail system
2) Dual frame for support of ACH X-Y stages
3) Cable power drag for Z-axis movement Motors, drives, Brakes, Hydraulics, Laser sensors, Power and control system Project.



Control Station
Operated by Engineers

Ultra High Vacuum System

Design, Development, Fabrication, Supply, Integration, Demonstration of UHV Station. The System mainly comprise of SS Bell Jar, Vacuum system, Hoisting Mechanism, Pinch-off Tools, Electrical and Instrumentations

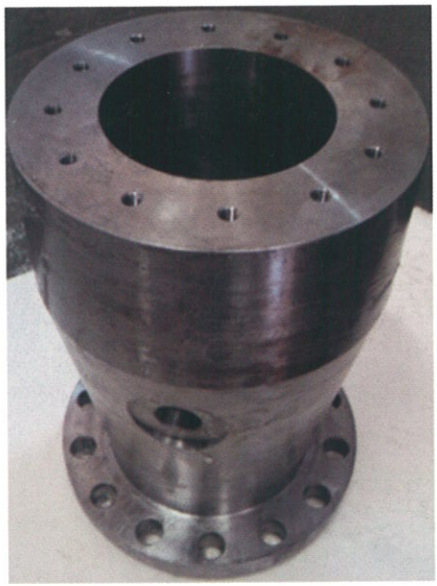
Specifications

- The total height of the backing hood : 2000 mm
- Height of top bell jar : 1100 mm
- Height of bottom bell jar : 900 mm
- Inner diameter of the bell jar : 970 mm
- Wall thickness : 6 to 8 mm
- Total usable uniform heat zone size : 780 mm dia. X 1800 mm height
- Sealing between bell jar : Viton O-Ring (water cooled)
- Leak rate : Better than 1x10-8 torr.lt/sec

Penetrator for Submarine Application

Manufacture & Supply of Penetrations including Angula Drilling, Grooving & Slotting Work.

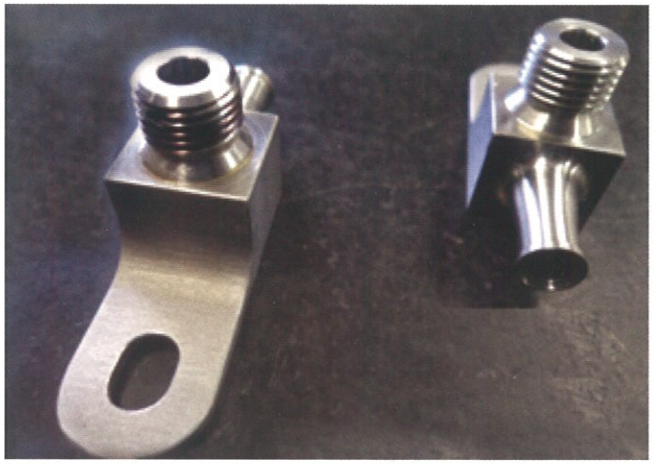
Material of Construction: 80 HLES Steel



Sector: Aerospace

Avasarala has vast experience in the manufacture of High Precision Aero Engine components

Material of Construction: Stainless Steel

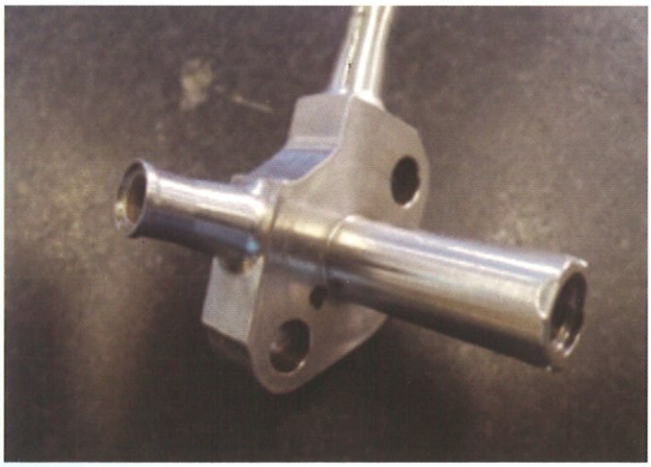


Pipe Compressor Cleaning

Pipe Rear Bearing

Flange Union

Pipe Relay Right



Manifold

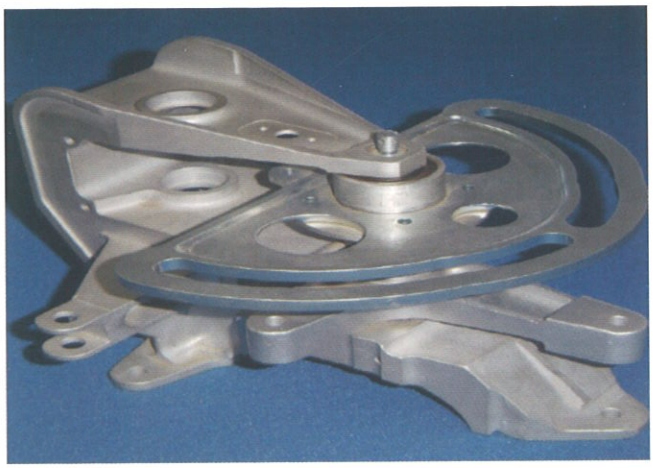
Casing (Nickel Based Alloy)

High Precision Aero Engine Components for Aerospace Application

Material of Construction : Titanium Alloy

Journal

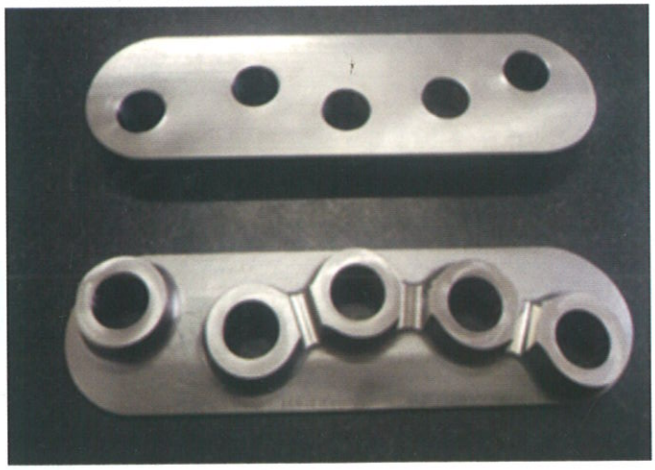
Material of Construction : Aluminium Alloy



Spoiler Assembly

Casing

Pinion Housing



Panel

Elbow

RECOGNITION

Recognitions for Avasarala's technical excellence have come from different quarters including the Govt. of India CSIR award in process industry category.

WHIRLPOOL OF INDIA LTD
Pondicherry

EXCELLENCE AWARD

AVASARALA AUTOMATION, BANGALORE

The management of Whirlpool of India Limited
takes great pleasure in recognising
your excellent performance in the area of
TIMELY SUPPORT ON DEVELOPMENT OF TOOLS FOR NEW PROJECT
We appreciate your hard work, Commitment and dedication

Date : 26.12.2001 — Head (Washer Unit)

Indian Nuclear Society
"Industrial Excellence Award"

SIATI Award
for Excellence in Aerospace
Indigenisation 2001

ELCINA Award
Indigenisation of Capital
Machinery 1987 & 1996

National Award
R & D efforts in Tungsten
Manufacturing 1998

Avasarala works for Nation's Pride

Corporate Centre, Bangalore

Future Plans

As a part of its growth strategy, Avasarala is planning to build a integrated Heavy Machining & Fabrication Facility very close to Chennai Port. It has already acquired 30 Acres of Land with a sea front. The land is located 9 km from Ennore Port at Chennai

Above picture shows the artistic view of proposed Heavy Fabrication & Machining Facility at Chennai. Later we have plan to have our own Jetty for sea Transportation of Heavy Equipments.

AVASARALA

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Corporate Centre

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