Adani Defence and Aerospace

Helping Build a Secure Nation
Adani Group is one of India’s largest integrated infrastructure conglomerates with interests in Resources (coal mining and trading), Logistics (ports, logistics, shipping and rail), Energy (renewable and thermal power generation, transmission and distribution), and Agro (commodities, edible oil, food products, cold storage and grain silos), Real Estate, Public Transport Infrastructure, Consumer Finance and Defence. Adani owes its success and leadership position to its core philosophy of ‘Nation Building’ and ‘Growth with Goodness’ - a guiding principle for sustainable growth. The Group is committed to protecting the environment and improving communities through its CSR programme based on the principles of sustainability, diversity and shared values.
Vision
To be a world-class leader in businesses that enrich lives and contribute to nations in building infrastructure through sustainable value creation.

Mission
To be a global leader in defence and aerospace, helping India transform into a destination for world-class and hi-tech defence manufacturing aligned to the ‘Make in India’ initiative.

Enhancing India’s Defence and Industrial Capabilities by
• Focusing on platforms and technologies of critical importance to meet emerging security challenges
• Collaborating with committed global partners for transfer of technology and skills
• Helping grow the dynamic MSMEs to develop a sustainable defence ecosystem in India
• Focusing on capabilities critical for indigenisation including design, system integration, maintenance and upgrade in India
Adani has set up an ecosystem of capabilities in India.
Adani is well positioned for integration of larger platforms.

- Fighter and Transport Aircraft
- Rotary Systems
- Unmanned Aerial Vehicles
- Missile Systems
We focus on platforms and technologies of critical importance, to meet emerging security and defence needs of India and further leverage capabilities for aerospace and civil aviation.

**Fighter Aircraft**

Parts in the Value Chain

- Aero-structures
- Avionics
- Engine Components
- Simulators
- Electronic Warfare Systems

**Programmes**

- Su-30 MkI Control Surfaces
- LCA Tejas Rear Fuselage & Pylones
- Su-30MkI On-board Computing Systems
- Jaguar EW Pod & Sub-systems
- CMM Inspection
- Gear Inspection

Adani Defence & Aerospace and Saab intend to deliver the Gripen Fighter System – one of the world’s most modern fighter aircrafts featuring state-of-the-art technology to the Indian Air Force.
Unmanned Aerial Systems
Parts in the Value Chain
- MALE UAVs, Mini UAVs, Strike UAVs
- Composite Aero-structures

Programmes
- Complete MALE UAVs for the Tri-services
- Composite Aero-structures for international markets
- On-board computing systems for Rustom UAV

Adani & Elbit have partnered for the design, development and upgrade of the Hermes 900 & Hermes 450 UAS for the Indian markets.

Missile Systems
Parts in the Value Chain
- Metal & Composite Components
- Rocket Motor Assemblies
- Systems - Fibre Optic Guidance Systems, Seekers

Programmes
- Brahmos Air to Air Version
- Astra & Astra Mk-I
- Various missile parts and components for missile programmes like LRSAM, MRSAM, QRSAM etc.

Adequate infrastructure for the assembly, integration and testing of missile systems.

Rotary Systems
Parts in the Value Chain
- Composite & Metal Aero-structures
- Gears & Transmission Components
- Avionics & Electronic Systems
- Electronic Warfare Systems

Programmes
- Upgrade of Mi-17 helicopters for the IAF
- Upgrade of Ka28 helicopters for the Indian Navy
- Upgrade of MILDS sensors for the Mi-17 helicopters

Adani Defence & Aerospace is participating in the Naval Utility Helicopter programme of the Indian Navy under the Strategic Partnership Policy of DPP-2016.
Systems and Avionics

Capabilities

Design, development, assembly, repair and upgrade of avionics, opto-electronics, electronic warfare systems, communication systems, C3I Systems, Microwave & RF Systems, radar systems, automated test equipment, satellite manufacturing for the Indian as well as global markets.

Avionics

- On-board Computing Systems
- IFF Systems
- Telemetry Systems
- Data Transfer Units

Opto-Electronic Systems

- Infra-red Search & Track Systems
- Day & Night sights for weapons
- Optronic systems for combat vehicles
- Laser Target designator systems
Electronic Warfare System

- MILDS
- SPJ systems for Jaguar & MiG29

Microwave & RF Systems

- RF Systems 0.5 – 40GHz
- Design & Develop SSTRU

Military Communication and C3I Systems

- Software defined radios
- MRO & upgrade Tadir
- Tactical Area Denial Systems

Automated Test Equipment

- Loopback Testing
- Computer, Display, Radar Computer & Avionics Computer
- For simulation aerial sub-systems & LRU
- For airborne communication systems

Radar Systems & Other Projects

- Assembly of systems for Fire Control radar
- Seekers for Missile Systems

Satellite Manufacturing

- Assembly & integration
- Satcom Systems
- Ground based satellite systems
Aerostructures

Capabilities

Integrated offering of metal aero-structures starting from sheet metal & machined components to complex assemblies and jigs & fixtures. We transform Carbon Fibre Reinforced Polymer (CFRP), Glass and pre-peg to create large and complex composite aerostructures.

Metal Aerostructures

Capabilities across processes and platforms

- CNC Machining
- Metal Components
- Jigs & Fixtures
- Detail Tooling
- Aircraft Sub-assembly
- Inspection
- Special Process
- Repair & Overhaul
- Modification & Upgradation
- Tig Welding
We produce advanced components, fuselages and aerostructures for India's most sophisticated civilian and military aircraft platforms:

- The Sukhoi Su-30MKI air superiority fighter
- The Sikorsky S-92 medium-lift helicopter
- Brahmos Supersonic Cruise Missile
- The HAL HTT-40 is an Indian training aircraft
- Dornier Do 228
- The HJT-36 Intermediate Jet Trainer (IJT)
- Dassault Mirage and Rafale jet fighters
- Cheetah & Chetak Helicopters
- India's Light Combat Aircraft (LCA)
- NAL NM5 multi-role, multi-mission aircraft
- Hawk—Advanced Jet Trainer
- HAL Light Combat Helicopter
- The Antonov An-32 Tarang Modification
- Airbus 320 Door Assembly

Composite Aerostructures

Capabilities

Clean Room
- 100,000 Class as per ISO7
- FEDSTD8

CNC Machines
- Size: 2.5mx1.5mx0.3m
- Five Axis

Paint Booth
- 10mx3m

Vertical Band Saw
- Lathe Machines, Drilling Machines Belt Sander, Table Saw, Small Oven, Other Test Equipment

Small Oven
- 3x2.5m
- 140 degrees

Resin Mixing Stations
- Programmable and fixed mixing ratios

Raw Material Cold Storage
- 30 sq.m
- 16-21 degrees

Large Oven
- 10x2.5m
- 140 degrees

Quality certifications in progress – AS9100, ISO 18001, ISO 14001, ISO 9001, ISO 27001
Capabilities

We manufacture high quality, precision CNC machining, prototyping, reverse engineering and supply gears and gear shafts with shared customer focus on meeting delivery commitments through transparency and trust.

**Gears**
- GEARS
- Spiral Bevel Gears
- Zerol Bevel Gears
- Hypoid Bevel Gears
- Straight Bevel Gears
- Internal Gears
- Spur Gears
- Helical Gears
- Right Angle/Miter Gears
- Gear and Splined Shafts
- Splines

**Machining**
- CNC Milling
- CNC Turning
- Mill/Turn Machining
- Multi Axis Machining (5 Axis, 9 Axis Simultaneously)
- CNC Wire EDM Machining

**Grinding**
- Gear Grinding
- CNC Cylindrical ID/OD Grinding
- Polygon Grinding
- Thread Grinding
- Surface Grinding

**Special Process**
- NDT Non Destructive Testing
- Laser Marking
- Dot Peen Marking
- “Rem” Super Finishing
- CMM Inspection
- Gear Inspection
Capabilities

Machined Components
- 3-axis & 5-axis Milling Machines for highly geometrically complexed parts, up to the size of 1,000 mm and accuracy level of 5 microns
- Turning Machines for parts of up to 300 mm diameter
- Turning and Milling Multitasking Machines up to 300 mm
- Laser Cutting up to 2 m
- Turret Punching up to 2 m
- Bending up to 1 m
- Molding up to 300 tonnes
- Source and work with AMS grade metals including High Nickel Alloys, Aluminum Alloys, Titanium, Stainless Steel Alloys, Brass, Bronze, Plastic and others

Engineering & Quality Systems
- Process Planning, PFMEA, PPAP, APQP and continuous improvement
- Unigraphics, Solidworks, IPI FAIR Software and Autodesk Inventor
- Real-time ERP Systems and Lean Manufacturing Tools

Customers
- HAL, BDL, DRDO

Sheet Metal Fabrication
- Laser Cutting, Turret Punch and Bending
- Sheet thickness can vary from 0.3 mm to 7 mm depending on the raw material varying from High Nickel Alloys to Aluminum

Welding and Assembly
- We manufacture Electro-mechanical and Avionics Assemblies, Kitting and Assembling the individual parts with Rivets, Helicoils, Lee Plugs, Bearing, Clips and Nuts. We have expertise in precision TIG Welding through qualified welders
Simulators

Capabilities

Complete end-to-end offering for simulator solutions starting from design, geo-spatial mapping to operations and upgrade of in-service simulators for the Indian and global markets.

BMP II Simulator

• Design, develop, deploy and operate simulator for BMP-II Infantry Combat Vehicles
• Indigenous design and assembly of gunnery and missile systems
Ship Handling Simulator

- Design and development of bridge simulator for ship navigation operations
- 29 types of vessels and 30 harbours simulated

Mi-17 & MiG-29 Simulators

- Build, install, operate and maintain full motion simulators for the Indian Air Force
- 20-year contract for lifetime operations, maintenance and upgrades
Infrastructure

Enhancing Industrial and Defence Capabilities

State-of-the-art plug & play infrastructure to manufacture UAVs and support aerospace & defence MSMEs. The Park will have new lines of production to generate jobs and build sustainable skills to help grow MSMEs and defence manufacturing ecosystems.

Adani Aerospace Park – Hyderabad
Adani Unmanned Aerial Vehicle Complex
Integrated facility to assemble and integrate complete UAVs
• Composite Aero-structures manufacturing
• High precision machining
• Electro-mechanical systems integration
• Composites & Advanced Material R&D division
• Composite certification and training centre
Adani Defence Cluster – Mundra

Small Arms
Complete end-to-end facility to manufacture and test small arms
• Assault Rifles, Carbines, Machine Guns, Pistols
• High-end equipment for drilling, reaming and rifling and final assembly processes
• Testing facilities e.g., Indoor ballistic testing, re-loading facilities, explosive testing

Airfield Infrastructure
Adani has created a portfolio of businesses and infrastructure assets that will support our defence manufacturing endeavors
• Airside Facilities – 2.2 km long runway
• Adjacent to Special Economic Zone
• Connectivity to Ports, Rail and National Highways
• Uninterrupted access to Power, Water and other utilities
Adani Foundation
Goodness is not subject to sporadic appearances. It is a practise that ought to be ingrained in those who truly believe in it. We, at Adani, leave no stone unturned to bring happiness and livelihood at every chapter in our journey of Nation Building. The Adani Group invests about 2% of its total profit in various social initiatives through its CSR arm, Adani Foundation with an aim to lead the wave of goodness at grassroot levels. It exhibits the humane, compassionate and benevolent side of the company. Adani Foundation has touched more than 3.2 million lives in 2250 villages of 15 states through its work in Education, Community Health, Community Infrastructure Development and Sustainable Livelihood Development.

1. Education
Adani Vidya Mandirs in Ahmedabad, Bhadreshwar and Sarguja are schools that provide cost-free education to about 2100 students annually. Adani Public School in Mundra, Adani Vidyalayas in Tirora and Kawai, Adani DAV Public School in Dhamra and Navchetan Vidyalaya in Hazira provide subsidised education to students across the country. Adani Foundation also provides quality education to 100,000 children through 600 schools and balwadis.

2. Community Health
Adani Foundation brings quality medical care to a vast population of underprivileged people, through Mobile Health Care Units, Rural Clinics and General Medical Camps. Adani Foundation reaches out to 400,000 people annually through these initiatives, which include a vast population of Senior Citizens. Situated in the centre of Bhuj, Gujarat Adani Institute of Medical Sciences, in partnership with the GK General Hospital is the biggest hospital in the district. On an average, 1,400 patients are attended to and 50 surgeries are conducted in the hospital every single day at this 750-bed hospital.

3. Sustainable Livelihood Development
Adani Foundation aims at promoting growth and development of marginalised sections by promoting livelihood security. The programmes span from skilling to offering support in market linkages to creation of Self-Help groups to adoption of new and innovative techniques in crop production, animal husbandry and fisheries etc. Adani Foundation is helping out more than 25,000 families through these initiatives.

4. Community Infrastructure Development
Adani Foundation builds and restores infrastructure with an aim to improve access to basic services, like education, health, water and sanitation services. The initiatives include upgradation of medical infrastructure, creation of check dams, provision of household toilets, provision of drinking water facilities, improving the school infrastructure etc.

Special Projects:
1. Swachhagraha – The project aims at engaging people and bringing about change where people get involved to take action for ‘Creating a culture of cleanliness’. Swachhagraha is reaching out to students, teachers and communities in 17 States through 5000 Schools and 5000 Preraks (school teachers).
2. Suposhan – SuPoshan is targeted towards breaking the cycle of anemia in women and malnourishment in children below the age of 6 years. SuPoshan Sanginis who are from the community, ensure the right medical and social support to encourage mothers to adopt a healthy lifestyle. SuPoshan is spread across 11 states in more than 3 lakh households/families.
3. Saksham – Adani Skill Development Centre is the first skill imparting institute in the country to offer innovative and unique courses through its project Saksham. The courses include simulator-based crane operation, 3D printing, and welding through Augmented Reality. Currently there are more than 60 Saksham centres functioning across India offering skill training in 45 trades.
4. Udaan – With an objective to encourage young minds to develop an interest in all sorts of enterprises and to encourage them to dream big in life, Adani Foundation takes students on an exposure visit of their Power Plants and Ports, where the students get an opportunity to experience the scale of our businesses. More than 2.76 lakh students, teachers and youth from more than 3500 schools and institutes have participated in Project Udaan.