DYNAMATIC TECHNOLOGIES LIMITED







BUILDING MILITARY-INDUSTRIAL CAPABILITIES IN INDIA

- ACTUAL CASE STUDIES

Dynamatic Technologies Limited designs and builds highly engineered products for Automotive, Aeronautic, Hydraulic and Security applications. With futuristic design, engineering and manufacturing facilities in Europe and India, we are able to meet customers' exacting requirements on 6 continents.

Our facilities are located in India (Bangalore, Chennai, Coimbatore, Nasik), United Kingdom (Swindon, Bristol) and Germany (Schwarzenberg). We also have sales offices across India and in North America, Europe & East Asia.

With three design laboratories in India and Europe, Dynamatic Technologies is a leading Private R&D Organisation, with numerous inventions and patents to its credit. The Company and its Subsidiaries employ around 60 scientists and 600 engineers with expertise in Mechanical Engineering, Advanced Computer Aided Engineering, Materials & Metallurgical Engineering, Fluid Dynamics and Defence & Aerospace Research.

We are geared towards providing innovative and creative solutions to our customers on a continuous basis. Every business process is built around the customer and this approach has, over the years, enabled us to grow at a sustained pace by forging deep and lasting relationships with all our stakeholders that are based on mutual trust and respect, and upon our capabilities in delivering complex technological solutions at economically viable price levels.



Dynamatic Park, Peenya



Hangar 1 - Dynamatic Aerotropolis, KIADB Aerospace Park

Strategic Partner of the Ministry of Defence for three decades

In the early 1990's, following the collapse of the USSR, Dynamatic partnered with the Ministry of Defence to indigenise critical hydraulic transmission systems on the T-72 Battle Tank.

Subsequently, Dynamatic became a developmental partner with the DRDO on the Arjun Main Battle Tank.



Hydraulic Transmission System for T -72



Steering Control System, Turret Control System and Brake Actuating System for Arjun MBT



Dynamatic received a National Award for excellence in Indigenisation of defence equipment by Ministry of Defence

Leading the Indigenisation of **Defence Production**

Pioneer in Indian Private Sector for Manufacture of Complex Aero Structures

Dynamatic has worked closely with various arms of the Indian Government including MoD, ISRO and DAE on strategic programs.



Dr. Raja Ramanna at Dynamatic in 1992

Dynamatic was the Developmental Partner with HAL's Aircraft Research & Development Centre for the development and prototyping of Ailerons & Flaps of Intermediate Jet Trainer HJT-36.



Dr. APJ Abdul Kalam, Dr. K.G. Narayanan, Udayant Malhoutra (LtoR) in 1993



India's first indigenous Unmanned Aerial Vehicle -Lakshya Target Drone



Dynamatic received a Creative Partnership Award from DRDO in 1998-99

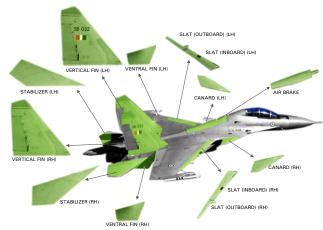


HJT 36 Intermediate Jet Trainer

Dynamatic is a work-share partner with HAL on the Sukhoi 30MKI, India's largest Aerospace Defence Program. Over 1/6th of the airframe structure, including critical control surfaces (shown below marked in green) are manufactured by Dynamatic at its facility co-located at HAL-Nasik, and is the largest PPP for manufacturing between HAL & Indian private sector.

Today, Dynamatic has the largest infrastructure in the Indian Private sector for the manufacture of exacting Air Frame Structures and Precision Aerospace Components.

First in the private sector to secure AS 9100 quality certifications & NADCAP certifications for its Non-Destructive, Heat Treatment, Welding facilities and Measurement and Inspection.





Handing over 100th Ship Set of Sukhoi-30 MKI Assemblies to HAL on 9th Dec 2017, in presence of Dr. Subhash Bhamre, Raksha Rajya Mantri, Government of India which was a unique Public-Private-Partnership successfully implemented by Hindustan Aeronautics Limited (HAL). Dynamatic is the supplier for Tejas Light Combat Aircraft (LCA) Front Fuselage Assembly for Hindustan Aeronautics Limited (HAL) - LCA Division. This is a long term contract for Dynamatic, which includes manufacturing of detail parts and Assemblies along with the jigs and fixture requirements.



Dynamatic has deliver the first front fuselage for the FOC version of the Tejas Light Combat Aircraft (LCA). This is the first time a complex fuselage section for a supersonic fighter aircraft has been built by a private sector company.

Dynamatic has been a preferred production partner for Hindustan Aeronautics Limited (HAL) for over three decades on all their major platforms.

The completion of the First Front Fuselage was witnessed by Mr. R. Madhavan, Chairman & Managing Director and other Senior Executives from HAL. The event was virtually addressed by Dr. Ajay Kumar, Defence Secretary, Government of India.



(L-R) Johney Thomas, AGM - Quality HAL; Ravichander V, Co-COO, Dyanamtic-Oldland Aerospace; Jayadeva E P, GM-LCA, HAL; Amitabh Bhatt, CEO-BC, HAL; Udayant Malhoutra, CEO & MD, Dynamatic Technologies Limited; R Madhavan, CMD, HAL; Velpari M S, Director - Operations, HAL; P S Ramesh, ED, Dynamatic and Dr.Ajay Kumar, Defence Secretary, GOI (Live over video)

Consistently HAL's Best Supplier













Awards



Dynamatic Technologies Limited received the Special Commendation from the Institute of Directors for the Golden Peacock National Training Award 2019 held in Dubai on 6th March 2019.



Pioneer in Indian Private Sector for Manufacture of Assemblies for Complex Naval Application

Dynamatic has partnered with Bharat Electronics Limited (BEL) for manufacturing of Critical Beam Assemblies for Complex Naval Application. The development of these precision parts, especially during the Pandemic was challenging.

Dynamatic Handed over First Batch of Critical Beam Assemblies to Bharat Electronics Limited on 23rd October 2020.







Dynamatic received Partnership Recognition Award 2019-2020 from Bharat Electronics Limited in recognition for the significant contribution in providing extremely complex machined products to ADSN-SBU on 16th December 2020

Make In India Initiatives at Dynamatic Technologies





Dynamatic CEO, Udayant Malhoutra showcasing Flap Track Beams to Prime Minister Shri Narendra Modi at Toulouse along with Airbus India Managing Director, Dr. Srinivasan Dwarakanath.

"There is a little bit of India in every Airbus Aircraft"

- Thomas Enders, CEO Airbus

Dynamatic Technologies is the sole supplier of Class 1, flight critical Flap-Track-Beam assemblies for every major variant of Airbus aircraft produced worldwide.

Global Sole Supplier of Flap-Track-Beam Assemblies to Airbus

With the acquisition of advanced-manufacturing facilities in the United Kingdom, Dynamatic Technologies became the first Indian company to establish a global manufacturing supply chain for leading international aerospace companies.



Complex 5 Axis Machining at Dynamatic, Bristol, UK



Assembly of Flap-Track-Beams for Airbus A320 Single Aisle Aircraft at Dynamatic, Bangalore, India

Dynamatic Technologies is the single source manufacturer of Flap-Track-Beam assemblies for Airbus single aisle aircraft (A318, A319, A320 & A321) and for Airbus wide bodied aircraft (A330)

Dynamatic manufactures complex parts at its factories in Bristol & Swindon, UK, in stage I machining, and completes stage II manufacturing with artisanal craftsmanship and final assembly at its facilities in Bangalore, India, providing Airbus with global best-value Aerostructures.

It has developed a unique value proposition based on a combination of advantages that India & the UK collectively enjoy.



On 4th May 2017, Dynamatic inaugurated its new Airbus facility at Dynamatic Aerotropolis at the KIADB Aerospace Park next to the Bangalore International Airport, which was inaugurated by Mr. Pierre de Bausset, President, Airbus Group India, Mr. Klaus



Richter, Chief Procurement Officer, Airbus Group SE, Mr. Tom Williams, Chief Operating Officer, Airbus, Mr. Srinivasan Dwarakanath, Managing Director, Airbus India, Dr. Udayant Malhoutra, CEO & Managing Director, Dynamatic Technologies Limited.

The company has added state-of-the-art manufacturing technologies including microntolerance 5 Axis Giga Milling DMC 340U, with real time geometric positioning software, for the first time in India.



Airbus A330 Flap Track Beam Assembly Line at Dynamatic Aerotropolis

Dynamatic handed over the 150 Ship Set of Airbus A330 Flap-Track-Beams to Airbus in the presence of Klaus Richter, Executive Vice President & Head of Procurement, Airbus.

Dynamatic currently delivers close to 800 aircraft Ship Sets annually, making Dynamatic the largest producer of Flap-Track-Beams globally. The flaps on the wings, which are instrumental in controlling the speed, direction



and balance of the aircraft, move along high tech guide rails known as the Flap-Track-Beams. These Flap-Track-Beams are Class-1 Flight Critical Assemblies that are connected to the wings.



Dynamatic Technologies has won the contract to manufacture the Escape Hatch Door for Airbus A220 aircraft. The contract was placed by recently established Stelia Aeronautique Canada Inc., a subsidiary of Airbus Atlantic SAS. This contract marks a milestone of workshare of the A220 supply chain in India and extends Dynamatic's capabilities for manufacturing critical aerostructure to Airbus.

"Make in India' is at the heart of our business strategy. Our partnership with Dynamatics exemplifies our commitment towards setting up an aerospace ecosystem in India. We congratulate Dynamatics for their high quality work. With partnerships like these Airbus' annual sourcing from India has exceeded US\$550million from more than 45 suppliers."

- Anand E Stanley, President & Managing Director, Airbus India & South Asia.

Dynamatic Sustainability and Business Continuity

Dynamatic worked closely with Government of Karnataka, Bangalore City Police and with local hospitals to provide onsite vaccinations to 100% of its employees, spouses and all employees within the extended supply chain. A big focus was made on Air-filtration and Decontamination, as well as on increasing ventilation in all its buildings, with extensive use of HEPA filters, UV sterilization and plasma technologies. Outgoing products were UV sterilized for customer safety.

Given the sharp decline in sales of commercial aircraft, Dynamatic quickly pivoted to accelerate production and deliveries to its defence customers. This not only protected jobs, but also reduced delivery lead-times to these customers.

Airbus selected Dynamatic Technologies from over 12,000 suppliers for the **Airbus Global Supplier Award** at the Airbus Virtual Supplier Conference held on the 29th of October 2021, for its efforts on providing 100% delivery, sustained thinking, safety implementations and practices during the Covid-19 Pandemic.





Udayant Malhoutra receiving the Airbus Global Supplier Award during his visit to Airbus in December 2021

COMPLEMENTARY ADVANTAGES

United Kingdom

- Advanced Robotic 5-Axis machining
- Qualified raw material suppliers
- Low cost of Capital

India

- Advanced 3D Engineering skills
- Artisanal craftsmanship
- Low cost of manpower



Fully Autonomous Robotic
Manufacturing line in Swindon, UK

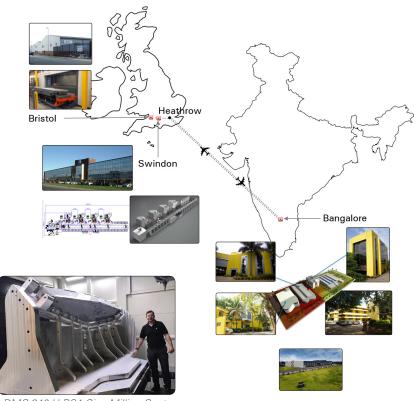


UK Prime Minister Theresa May at Dynamatic Park on 8th November 2016



Flap-Track-Beam of Wide Bodied Airbus A330 aircraft

GLOBAL BEST VALUE MODEL



DMC 340 U RS4 Giga Milling Centre at Swindon, UK

Map not to scale. For illustrative purposes only.

Manufacturing Partner for Boeing Defense Systems

BOEING P8 POSEIDON

Dynamatic is Boeing's sole global supplier of Power and Mission Cabinets for the Boeing's P8 Poseidon Maritime Reconnaissance Aircraft.



Above: Shelley Lavender, President Boeing Military Aircraft at Dynamatic





Production of Boeing P8 - Mission Cabinets, Mechanical & Power Cabinets at Dynamatic



On February 01, 2019, Dynamatic Technologies Limited handed over the 100th Shipset of Boeing P8 Power Cabinets in presence of Ms. Kim Pastega, Vice President, Enterprise Supply Chain Delivery & Performance, Boeing and Mr. Ashwani Bhargava, Director, Enterprise Supplier Management, Boeing India and Dynamatic Senior Executives.

BOEING T-7A WHIFFLETREE

Dynamatic won the contract for the delivery of tools for the Static and Fatigue Testing of the control surfaces of the Boeing-SAAB T-7A Red Hawk Program.

The T-7A Red Hawk is an all-new advanced pilot training system designed for the U.S. Air Force that will train the next generation of fighter and bomber pilots for decades to come.



Produced using advanced manufacturing techniques and built along a digital thread, the T-7A aligns with the U.S. Air Force's new eSeries strategy by enabling design, coding and testing faster and more affordable through a digital matrix.



The completion of Boeing T-7A Whiffletree Assembly was witnessed by Dr.Bala Bharadvaj & Mr.Ashwani Bhargava from Boeing.

BOEING CH-47 CHINOOK HELICOPTER

Dynamatic has been contracted to manufacture the Aft Pylon Assembly and Cargo Ramp Assembly for the Boeing Chinook CH-47F Helicopter, which is Boeing Defense Systems' largest export programme out of India. Dynamatic now builds multiple configurations of Boeing Chinook.



"In September 2014 Dynamatic Technologies and its collaborator Boeing inaugurated a plant in India to manufacture critical parts for a Boeing helicopter that is sold globally. I understand that it was a day after Make in India was launched. I am pleased to learn that the first set of parts is ready for shipment today".

- Hon. Prime Minister Shri Narendra Modi while inaugurating AERO INDIA 2015

BOEING'S F-15EX EAGLE II FIGHTER AIRCRAFT

Dynamatic Technologies has been awarded a contract for manufacturing assemblies for Boeing's newest tactical fighter, F-15EX Eagle II. This is a first where aerostructures for the the latest and most advanced F-15EX Eagle II will be made in India. This contract has given a boost to the Aatmanirbhar program and strengthens US-India collaboration on aerospace and defence industrialisation. Dynamatic Technologies will supply the F-15EX aerostructure



assembly requirements from FY 2022. Dynamatic will manufacture these aerostructures from their manufacturing facility in Bengaluru, Karnataka. Recently, we delivered the First Ship Set of the Boeing F-15 Assembly.



(Left to Right) Mr. Ravichander V, Global Co-COO Dynamatic-Oldland Aerospace®, Mr. Pierce Lehr, Vice President - BDS Bombers and Fighters, Supply Chain, Mr. Salil Gupte, President, Boeing India, Dr. Udayant Malhoutra, CEO & Managing Director, Dynamatic Technologies Limited, Mr. Pratyush Kumar, Vice President - F15 Program Manager, Boeing International, and Mr. Ashwani Bhargava, Director - Supply Chain, Boeing India

"We see tremendous potential for India to contribute to the global aerospace industry as an industrial and technology partner. The award of aerostructure assemblies for the latest and most advanced version of the F-15 aircraft family is a reflection of Boeing's focus on Aatmanirbhar Bharat and a testimony to the world-class capability of our industrial partners in India."

- Salil Gupte, President, Boeing India

On April 07, 2022, Dynamatic Technologies Limited handed over the 150th Shipset of Boeing P8 Power Cabinets in presence of Mr. Pratyush Kumar, Vice President - F15 Program Manager, Boeing International, and Mr. Ashwani Bhargava, Director - Supply Chain, Boeing India and Dynamatic Senior Executives





On April 07, 2022, Mr. Pratyush Kumar, Vice President - F15 Program Manager, launched the first assemblies production for Boeing's F-15EX Eagle II Fighter Aircraft.

Manufacturing Partner for Bell Helicopter

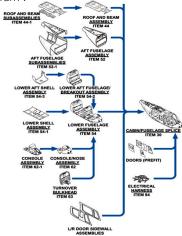
BELL 407 FUSELAGE ASSEMBLIES

The Bell 407, is one of the world's largest selling helicopters. Dynamatic Technologies has been contracted as a single-source supplier of Major Airframe Assemblies for the Bell 407 Helicopter shown below for the 'life of program'.



Major Assemblies to build the complete Bell 407 Cabin

The industrialisation program at Dynamatic has involved digitisation of over 2000 detail parts, followed by development of tooling, processes and part manufacturing. We have now taken up the 5 major fuselage assemblies and has supplied over 100 ship sets.













Dynamatic Technologies handed over the first set of Major Fuselage Aerostructures to Bell Helicopter in the presence of the Hon. Defence Minister of India, Shri Manohar Parikkar on 19th Feb, 2015.

On 15th February, 2017, Dynamatic inaugurated its First Hangar of Dynamatic Aerotropolis at the KIADB Aerospace Park next to the Bangalore International Airport, by Mr. R V Deshpande, Minister for Large & Medium Industries & Infrastructure Development, Honourable Sir Dominic Anthony Gerard Asquith, British High Commissioner, Ms. MaryKay Loss Carlson, Chargé d'Affaires at the U.S. Embassy & Dr. Udayant Malhoutra, CEO & Managing Director Dynamatic Technologies Limited. The facility inauguration also had distinguished guests from the US Government & also from UK Embassy.





It is the first state-of-the-art facility on the sprawling 28 acres next to Bangalore International Airtport. The Hangar is named as 'The Ravish Malhotra Hangar' named after Air Commodore Ravish Malhotra in consideration of his service to the Nation and to Dynamatic Technologies.

The facility manufactures Major Sub-Assemblies of the Bell 407 and Airbus A330 Flap-Track-Beam Assemblies.



On 30th October 2022 at an event in Vadodara, honoured to host **Prime Minister Narendra Modi Ji**, and showcase our successful **Make-in-India programs for the Globe**. With Aerospace & Defence as a Strategic National Goal, the entire industry benefits from his active & participative leadership.



Dr. Udayant Malhoutra, CEO & Managing Director, Dynamatic Technologies Limited showcasing complex aerostructures manufactured by Dynamatic to Hon'ble Raksha Mantri Smt. Nirmala Sitharaman, Ministry of Defence Government of India in the presence of Shri H. D. Kumaraswamy, Chief Minister of Karnataka and Dr. Subhash Bhamre, Raksha Rajya Mantri, Government of India, at Aero India 2019. India Pavilion.



Dr. Udayant Malhoutra, CEO & Managing Director, Dynamatic Technologies Limited showcasing complex aerostructures manufactured by Dynamatic to Hon'ble Raksha Mantri Sri. Rajnath Singh, Ministry of Defence Government of India, at Aero India 2021, India Pavilion.

DASSAULT RAFALE

Induction of Dassault Rafale fighter jets will provide the Indian Airforce with potent multi-role, multi-mission defence capabilities. Dynamatic is building high precision assembly and conformance jigs for Dassault under the Make-in-India initiative.







DYNAMATIC HOMELAND SECURITY®

Recognising emerging Homeland Security needs, post the 26/11 attacks, Dynamatic launched an initiative to indigenously develop industrial & technological capabilities to support the nation's para-military forces to handle modern day security challenges.

Dynamatic Homeland Security® (HLS) builds cutting-edge security solutions for countering modern day security threats. The Company's strong research and development capabilities coupled with the powerful partnerships with leading global security technology companies enables it to offer potential customers, like National Defence Forces, Police and Para Military forces, solutions that will enhance their abilities to prepare and plan for emergencies as well as their response and recovery skills.

Dynamatic Homeland Security® designs and builds Unmanned Aerial, Unmanned & Manned Ground ISR (Intelligence Surveillance & Reconnaissance) platforms for military and paramilitary. The HLS vertical of Dynamatic Technologies, also offers comprehensive integrated border management solutions CIBMS, which is a more robust and integrated system capable of addressing the gaps in the present system of border security by seamlessly integrating human resources, weapons, and high-tech surveillance equipment. A composite, collated picture would help senior commanders analyse and classify the threat and mobilise resources accordingly to assist the field security personnel in their response. CIBMS holds the potential to eventually replace manual surveillance/patrolling of the international borders by electronic surveillance and organising the BSF personnel into quick reaction teams to enhance their detection and interception capabilities.

The Company has DSIR (Department for Scientific & Industrial Research) approved R&D capabilities critical to developing cutting edge security solutions.

UNMANNED AERIAL VEHICLES

Dynamatic Technologies has partnered with Israel Aerospace Industries (IAI) for the manufacture of UAVs in India. The company has entered into a tripartite agreement between IAI, Hindustan Aeronautics Limited (HAL) and Dynamatic for manufacture, sales and service of large UAVs in India to cater to the requirements from the Indian Defense and CAPF requirements.

Israel Aerospace Industries (IAI), is a globally recognized leader in the delivery of state-ofthe-art systems for the defense and commercial markets. IAI offers unique solutions for a broad spectrum of requirements in space, air, land, sea, cyber, and homeland security.

IAI is the largest government owned defense and aerospace company in Israel. Over the past 60 years IAI has delivered, supplied and supported advanced systems for the Israeli Ministry of Defense as well as many demanding customers worldwide. IAI has

been a reliable partner of the Indian MoD for over two decades with critical products and technologies

IAI is today a world leader in UAVs with over 1,400,000 accumulated operational flight hours. Indian Military is effectively using HERONS & SEARCHER UAVs from Israel Aerospace Industries (IAI), in surveillance missions in the high altitude mountainous region and also for acquiring critical information to manoeuvre elements in the country's western deserts.

HAL is an Indian state-owned aerospace and defence company headquartered in Bangalore, India. It is governed under the management of the Indian Ministry of Defence.



HERON MALE UAV (photo credits: IAI)

The HERONs have been able to fly in dual role and thereby fly at ranges of 400 km and extended range of 1000 km using SATCOM. Herons can operate at Altitudes of 30000 feet and are the best platforms for surveillance and reconnaissance missions at High Altitude and Hilly Terrains.

During the Covid-19 pandemic, Dynamatic as a proactive measure, established a inhouse biosecurity laboratory for the purpose of carrying out RT-PCR tests regularly on all it's employees. Services of this biosecurity lab is also extended to the stakeholders of the company.

Dynamatic Biosecurity Laboratory situated in the JKM Science Centre, Dynamatic Park, is a NABL Certified (ISO 15189:2012) and ICMR approved Molecular Testing Laboratory. This state-of-the-art lab has the finest equipment and infrastructure and is managed by highly experienced Microbiologists, Research Scientists and Laboratory Technicians.

For Covid-19 diagnosis, the RT-PCR (Reverse Transcription Polymerase Chain Reaction) test is considered the gold standard. The nasal and throat swabs are collected by highly trained Dynamatic staff at site and these samples are moved to the biosecurity lab for testing as per the Standards. The lab maintains a consistent Quality Standard by appropriate knowledge documentation, defined objectives aligning with company Quality Policy to provide reliable, timely, consistent and accurate medical diagnosis through RT-PCR tests.

The regular RT-PCR tests have shown that there are nil positive cases amongst the employees.













Dynamatic Technologies Limited

JKM Plaza Dynamatic Aerotropolis 55 KIADB Aerospace Park Devanahalli Bangalore 562110 India Tel +91 80 2111 1223 / +91 80 2204 0535

Udavant Malhoutra

CEO & Managing Director Dynamatic Technologies Limited toby@dynamatics.net

Arvind Mishra

Executive Director & Global COO - Hydraulics Head - Homeland Security arvind@dynamatics.net

James Tucker

Global COO Dynamatic-Oldland Aerospace®, UK JamesT@dynamatic-oldland.com

Ravichander V

Global Co-Chief Operating Officer Dynamatic-Oldland Aerospace®, India ravichander.v@dynamatics.net



Indian Company Global Brand