INVasset Knowledge Bank

Hindustan Aeronautics Limited

30th NOVEMBER, 2022

INVASSET

India's Best Performing and Most Customer Centric PMS

Hindustan Aeronautics Limited (HAL) is one of the premier defence PSU in India, along with the Defence Research & Development Organization (DRDO), engaged in the design, development, manufacture, repair, overhaul, upgrade and servicing of a wide range of products including Aircraft, Helicopters, Aero-engines, Avionics, Accessories, Aerospace Structures and Industrial Marine Gas Turbines. HAL was conferred the "Navratna" status by the Government Of India in June 2007, providing it with strategic and operational autonomy and enhanced powers to make prompt investment decisions. The company has done exceedingly well in achieving its targeted performance parameters, and it has continuously received an "Excellent" rating from the GoI since 2002.

HAL currently manufactures Light Combat Aircraft (LCA) Tejas, Dornier Do228 Light Transport Aircraft, Dhruv - Advanced Light Helicopter, Light Combat Helicopter (LCH), and Light Utility Helicopter (LUH) along with associated engines, avionics & accessories. Additionally, it has a production line available for Su-30 MKI Aircraft, Hawk Advance Jet Trainer, Chetak and Cheetal Helicopters. Immediate future projects include HTT-40 Basic Trainer, Utility Helicopter-Maritime (Navel version of ALH), a Higher variant of LCA and Combat Air Teaming System (CATS).

Investment rationale

• **The geopolitical significance of HAL adds opportunity for exports:** Beijing's aggression in the South China Sea has increased to a multi-fold extent. South East Asian countries like Indonesia, Malaysia and the Philippines are facing aggression from Beijing in the South China Sea. These countries are eyeing Multirole Fighter Combat aircraft for the supply of new platforms as well as support their existing fleet.

• **Strong growth in revenue sustained by gigantic order book:** On a cumulative basis, HAL is sitting on an order of 82513 Cr which is almost 3 times of its revenues which is placed at 26626.65 Cr. Growth momentum is expected to continue in coming quarters. LCA Tejas MK1A deliveries to Indian Air Force will start from FY25E; execution of a large order backlog of manufacturing and sustained growth in MRO will drive revenue growth in double digits. The company produced 44 aircraft/helicopters in FY22 (same as FY21) and is expected to make 40 aircraft/helicopters in FY23. Among pending orders of HAL, which comprises the current order backlog of the manufacturing segment, the company has eight LCA – trainers orders, 15 LCH orders, nine ALH orders, 83 LCA Tejas MK1A orders along with engine manufacturing.

• **Defence remains a big area of focus area because of its excessive reliance on imports:** After ''Make In India'', new slogans such as self-reliance and '' Vocal For Local'' are gaining prominence. The government initiative of import restriction on certain equipment and setting up of a separate budget for domestic procurement will further lead to a reduction in the import bill, which gives domestic companies an opportunity

• **Significant indigenisation in line with Make In India Defence:** Increasing capital outlay in defence with Indigenisation has been the focus area of government considering the requirement of armed forces for faster procurement of modern equipment. HAL has proceeded with its endeavors towards the Design and Development of new platforms/ products /technologies and activities to enhance its capability to bring technological superiority to its products and to cope with future technical challenges. Towards the progress of various R&D efforts, the company has incurred a total expenditure of Rs. 1967 Crore in the year 2021-22, which is 8% of the turnover as against 7.50% of turnover in the previous year.

Stock Data	
CMP	₹2734
52 Week High/Low	₹2,775/1181
Face Value	₹10
Market Cap (In Crs)	₹91,252
NSE	HAL
BSE	541154
Bloomberg	HNAL IN
Sector	Defence

Shareholding Pattern (in %)		
	Jun-22	Sept-22
Promoter	75.15	75.15
FII	5.56	6.85
DII	15.71	13.48
Public	3.57	4.53

Price Performance (in%)			
(%)	1M	6M	1Yr
Nifty 50	3.46	13.28	4.89
Hindustan Aeronautics	8.38	52.06	97.22

Key Ratios	
P/E	15.7
P/B	4.43
Debt To Equity	0
ROE	29.4%
ROCE	30.5%
Dividend Yield	1.82%

Industry Overview

Global Aerospace & Defence: The defence industry has been considerably more insulated from the global impact of COVID-19 than the commercial aerospace industry and the ongoing US government bolster for the National Defense. The US military is slowly moving its attention from the Middle East to the developing dangers within the Distant East. Beijing's aggression in the South China Sea has grabbed sizeable attention in aerospace security of South East Asian Countries, Japan & Taiwan, who are now looking for a considerable expenditure on their Defence. Aerospace and Defence industry is passing through an exciting time in which companies are focusing on technology advancements and operational efficiencies. It is expected that advancements in UAVs, Aero-engines and EHPA (Electric and Hybrid Propulsion Aircraft) technologies are going to set the future path for the industry, whereas Industry-4.0, Additive Manufacturing, Digitalization, Artificial Intelligence, Augmented and Virtual Reality tools are going to be efficiency drivers.

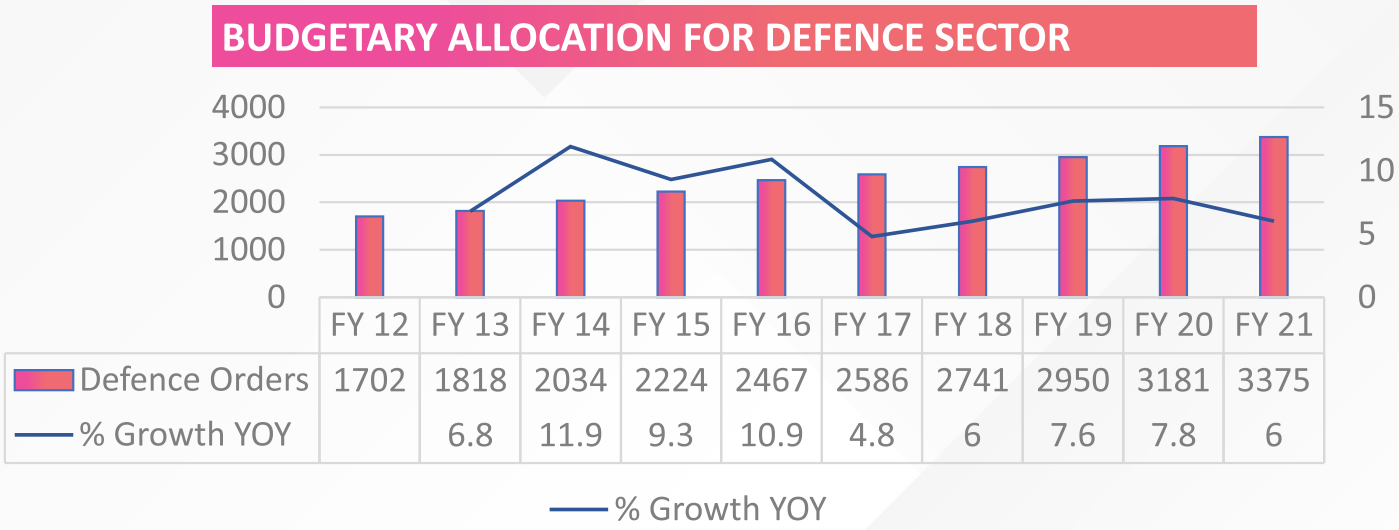
Indian Aerospace & Defence In Comparison With China: The People's Liberation Army Air Force (PLAAF) is more powerful compared to the Indian Air Force (IAF) in terms of its fleet and strategic inventory. However, the IAF is more reliable in its platforms and bases for strategic purposes and experienced troops. The increase in China's defence budget spending will majorly impact India. The increase in spending will result in a greater gap between Chinese and Indian capabilities in the military. In conjunction with China's modernization push and its emphasis on the use of high-tech technology within the army, India has a significant deficit to fill in the area of hard power.

Aerospace and defence in India is emerging as an area of focus for public and private sector companies alike. India spends 3.7 % of worldwide military expenditure, making it the world's third-largest army investor. Due to rising necessity, the government is proposing the defence sector as one of the priority components for economic growth and development.

India	China
• IAF pilots have hands-on encounters in combat missions at high altitudes. • The area of the bases near the LAC ensures a straight back for India's air resources. • Combat-tested platforms for aerial combat, such as the AH-64E Aircraft CH-47F Chinook, give unwavering quality amid clashes. The cutting-edge armada of transport aircraft permits a speedy exchange of hardware and supplies into the operational zones. • The PLAAF is planning to present J-20. It is said to be the fifth generation combat aircraft due to its stealth characteristics. It is considered second-rate to the IAF Rafale, which may be a 4.5-generation aero plane.	• China has the second-largest air force globally, whereas IAF ranks fourth globally. • People Liberation Army Air Force's (PLAFF) lethal fighter aircraft and modern air defence systems challenge IAF's fleet size. • PLAAF has over 2000 war planes aircraft, more than two times the IAF's 900 combat airplanes. • PLAFF has an attach helicopter fleet of 281 helicopters in comparison to 37 attack helicopters with IAF.

	Fighter Aircraft (Rank 2)	Dedicated Attack (Rank 3)	Transport Aircraft	Trainers	Special-Mission	Helicopters	Attack Helicopters	Total
India	564	130	253	353	71	805	37	2182
China	1200	371	286	399	114	912	281	3285

Indian Defence Budget: In the Union Budget for 2021-22, the defence sector has been allocated Rs 4.78 lakh crore, including an outlay for the payment of pensions, against last year's Rs 4.71 lakh crore. The total amount includes capital expenditure of Rs 1.35 lakh crore to purchase new weapons, aircraft, warships and other military hardware against the capital outlay of Rs.1.31 lakh crore during 2020-21. Last year, the jump in the revised expenditure for 2020-21 of the Navy and Air Force was much more.



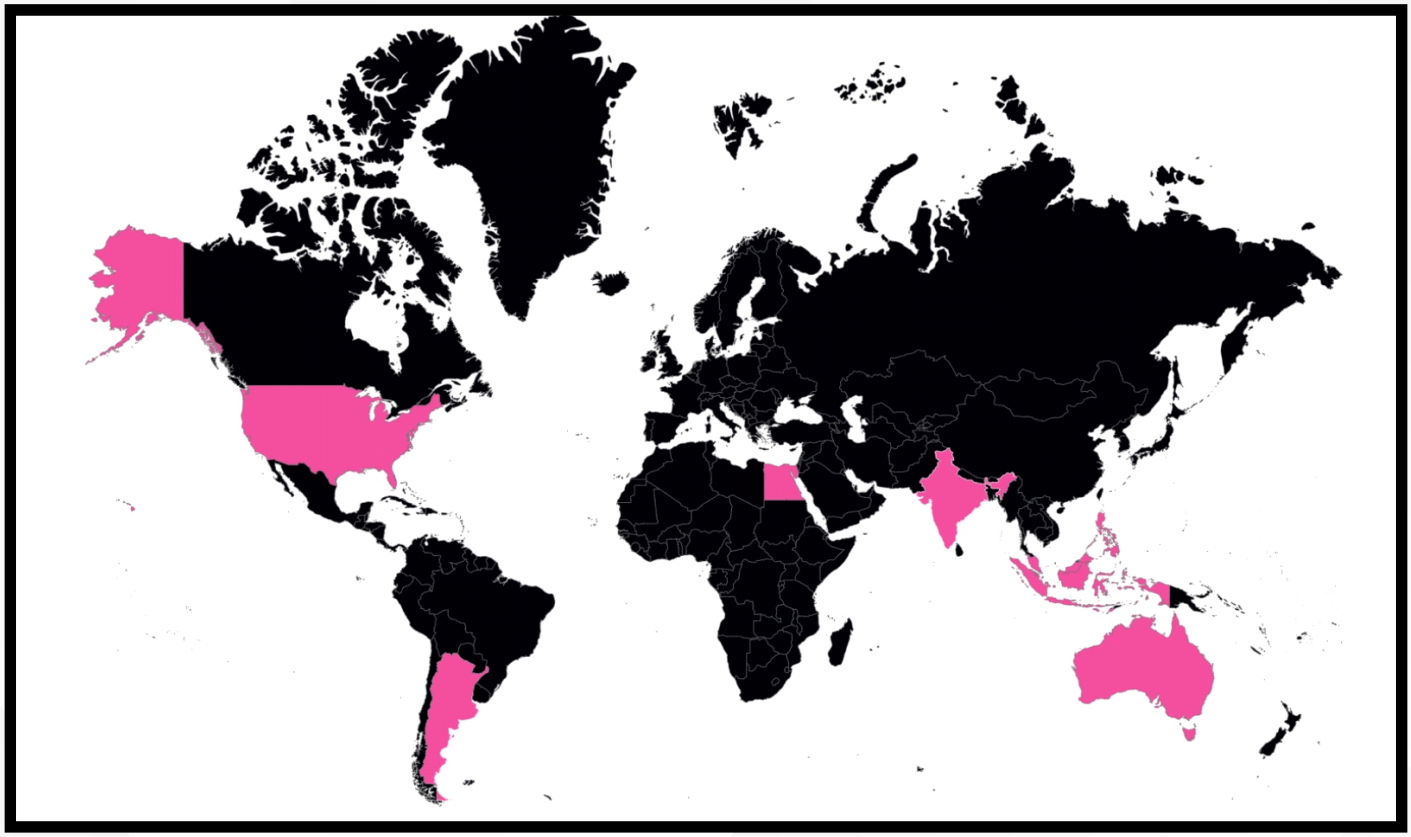
Company Background

Hindustan Aeronautics Limited (HAL) is an Indian state-owned aerospace and defence company headquartered in Bangalore, India. Established on 23 December 1940, HAL is one of the oldest and largest aerospace and defence manufacturers in the world today. HAL began aircraft manufacturing as early as 1942 with licensed production of Harlow PC-5, Curtiss P-36 Hawk and Vultee A-31 Vengeance for the Indian Air Force. HAL currently has 11 **dedicated Research and Development (R&D) centers and 21 manufacturing divisions** under four production units spread across India. HAL is managed by a Board of Directors appointed by the President of India through the Ministry of Defence, Government of India. HAL is right now included in planning and fabricating fighter jets, helicopters, jet engines and marine gas turbine engines, avionics, software development, spares supply, and overhauling and upgrading Indian military aircraft.

We note that HAL's capability in fabricating and servicing defence aircraft and helicopters makes it a direct comparison to established International defence players. It thus faces no competition domestically and only from international players. Moreover, HAL has the following positives: a comprehensive portfolio comprising indigenous and licensed products, a long credible history of proven design and development capabilities, expansion and diversification into new growth areas of engines, UAVs, civil aircraft and exports and a strong balance sheet.

HAL has an order book of approx. 90,000 Cr. There are additional orders of about Rs 36,000 crore that are in the advanced stages of negotiations after which it will be sitting on a gigantic order book of 1.2L Cr. Potential export orders and the extension of ongoing limited series programme like the light combat and light utility helicopters has placed the company with "comfortable" growth potential. As of now the company is registering a growth of 7% to 8% per annum which is expected to shoot up to double digits in FY 24-25.

The United States, Australia, Indonesia, and the Philippines are among six nations that have expressed interest in India's Tejas aircraft, while Malaysia has already shortlisted the plane for its purchase programme, according to the government. Argentina and Egypt have also expressed interest in Tejas



Product Portfolio : Aircrafts

HAWK: The Hawk is a tandem-seat Aircraft for ground attack, flying training and weapon training. It has a low wing and an all-metal structure and is powered by an Adour Mk 871 turbofan engine. The Aircraft has an integrated navigation /attack system and radio and inertial navigation systems. The Aircraft is cleared for instrument (IFR) flying and for Solo Instrument flying from the front cockpit only.



Light Combat Aircraft (LCA): LCA Tejas is a 4.5 generation, all weather and multi-role fighter aircraft. The aircraft is designed to be a multi-role aircraft capable of taking up offensive air support, close combat and ground attack role at ease. It is also designed to undertake Ground Maritime Operations.
The different variants of aircraft under production and development are:
• Single seater fighter for Air Force
• Single seater fighter for Navy
• Twin Seater trainer aircraft for Air Force • Twin Seater trainer version for Navy Further LCA Mk1A is the most advanced version of the LCA Tejas. It is equipped with AESA Radar, EW suite consisting of radar warning and self-protection jamming, Digital Map Generator (DMG), Smart Multi-function Displays (SMFD), Combined Interrogator and Transponder (CIT), Advanced Radio Altimeter and other advances features.





Intermediate Jet Trainer (IJT): The Intermediate Jet Trainer (IJT) christened as HJT-36 is indigenously designed and developed by HAL to replace ageing fleet of KIRAN Jet Trainer aircraft in service with Indian Air Force for Stage II training of its pilots. IJT will be fitted with AL-55i Jet engines produced in house at Engine Division Koraput. IJT incorporates the simplicity necessary for ease of conversion from Basic Piston Trainer and the sophistication required for quick conversion to the complexities of an Advanced Jet Trainer.



Dornier: The 19 seater HAL - DO - 228 aircraft is a highly versatile multi-purpose light transport aircraft. It has been developed specifically to meet the manifold requirements of utility and commuter transport, third level services and air-taxi operations, coast guard duties and maritime surveillance.



HTT-40 (Hindustan Turbo Trainer-40): HTT 40 is an Indian training aircraft designed and built by Hindustan Aeronautics Limited (HAL). It will replace the Indian Air Force's retired HPT-32 Deepak as a basic trainer.



Sukhoi Su – 30 MKI: The Sukhoi Su-30MKI (NATO reporting name: Flanker-H) is a twinjet multirole air superiority fighter developed by Russia's Sukhoi and built under license by India's Hindustan Aeronautics Limited (HAL) for the Indian Air Force (IAF). A variant of the Sukhoi Su-30, it is a heavy, all-weather, long-range fighter.

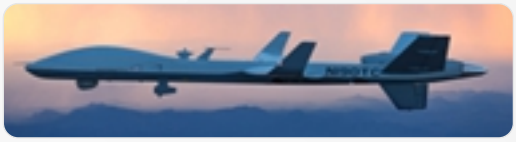


Product Portfolio : Helicopters

Dhruv: The indigenously designed and developed Advanced Light Helicopter (ALH-DHRUV) is a twin engine, multi-role, multi-mission new generation helicopter in the 5.5-ton weight class. The basic Helicopter is produced in skid version and wheeled version.	
Cheetah: The Cheetah Helicopter (identical to LAMA SA 315B Helicopter of Euro copter, France) is a high performance helicopter designed for operation over a very wide range of weight, center of gravity and altitude conditions. The five seater Cheetah helicopter is versatile, multi role, multi purpose, highly maneuverable and rugged in construction. It holds the world record in high altitude flying among all categories of Helicopters.	
Chetak: The seven seater Chetak helicopter is versatile, multi role, multi purpose, and spacious. The helicopter is suitable for commuting, cargo / material transport, casualty evacuation, Search & Rescue (SAR), Aerial Survey & Patrolling, Emergency Medical Services, Off-shore operations and Under slung operations. Till date, HAL has produced and sold more than 350 of these versatile Helicopters which are in service both in India and abroad. Recently, HAL has received orders for Chetak helicopters from MOD Namibia & MoD Suriname.	
Lancer: The Lancer Helicopter is a light attack helicopter developed by Hindustan Aeronautics Limited as a cost-effective airmobile area weapon system. The basic structure of the lancer is derived from reliable and proven Cheetah helicopter. The helicopter has bullet proof front panels and crew seat.	
Cheetal: Cheetal is the re-engined version of the Cheetah helicopter. The project initiated during 2002 and aimed to enhance high altitude operational capabilities and maintainability as well as to provide a mid-life upgrade for safe & reliable operations.	
Rudra: Rudra is the Weaponized version of the Advanced Light Helicopter (Dhruv) designed and developed by Hindustan Aeronautics Limited (HAL) to meet the requirements of Indian Army & Air Force. The multi role helicopter of 5.8 Ton class is powered by two Shakti Engines. It has an a 20mm Turret Gun, 70mm Rocket System & Air to air missiles attached. It is designed for high rate climb performances.	
Light Combat Helicopters (LCH): Light Combat Helicopter (LCH) was proposed to meet IAF's requirement of a dedicated light helicopter for combat operations. LCH with a narrow fuselage has pilot and co-pilot/gunner in tandem configuration incorporating a number of stealth features, Armor protection, Night attack capability and crash worthy landing gear for better survivability.	
Light Utility Helicopters (LUH): LUH is designed and developed as a replacement for Cheetah & Chetak helicopters which are being operated by Indian Armed forces. LUH will meet the emerging needs in this class of helicopters in the coming decades. The helicopter will be capable of flying at 220 Kmph; service ceiling of 6.5 Km and a range of 350 Km with 500 kg payload.	

Product Portfolio: Future Products

1. Indian Multirole Helicopter (IMRH)
2. Unmanned Aerial Vehicle (UAV)
3. Rotary Unmanned Aerial Vehicle (RUAV)
4. Supersonic Omni Role Trainer Aircraft (SPORT)



Product Portfolio: Power Plant

1. Adour MK 871
2. Garrett TPE 331-5
3. RD 33
4. AL 31 FP
5. Shakti
6. Artouste III B
7. PTAE 7
8. LM 2500



Product Portfolio: Avionics

1. Inertial Navigation System
2. Auto Stabilizer
3. Head Up Display
4. Laser Range System
5. Communication Equipment
6. Radio Navigation Equipment
7. Air Borne Secondary Radar
8. Missile Inertial Navigation
9. Radar Computers
10. Ground Radars



Product Portfolio: Aerospace

Aerospace Division is engaged in the manufacture of Aluminum alloy riveted structures and welded tankages of conical, cylindrical and other shapes with different types of detailed parts such as sheets, rings, brackets, stiffeners, bulkheads, panel bolts, nuts, rivets etc. Some of the important structures manufactured are Heat Shield Assembly, Nose Cone Assembly and Tank and Shrouds used in Satellites.

1. Polar satellite launch vehicle (PSLV)
2. GEO-synchronous satellite launch vehicle MK II (GSLV)
3. GEO-synchronous satellite launch vehicle MK III (GSLV)
4. Indian remote sensing satellite
5. Indian national satellite



Product Portfolio: Materials

1. Castings
2. General Forgings
3. Precision Forgings
4. Powder Metallurgy
5. Rubber Products
6. Rolled Rings
7. Composites



FY 22 Key Highlights

1. In a major boost to Atmanirbhar Bharat Mission, HAL has bagged a contract for production and supply of 15 Light Combat Helicopters (LCH) on 30th March, 2022.

2. In-line with Government's vision to boost defence exports to friendly foreign countries, HAL has signed contracts with Government of Mauritius (GoM) for supply of one Passenger Variant Do-228 (PVD) on 10th September, 2021 and for one Advanced Light Helicopter (ALH) Mk III helicopter on 19th January, 2022. Further, HAL also completed the production and delivered this Do-228 PVD to Mauritius on 6th April, 2022 within a record time of six months from contract conclusion.

3. The heaviest Semi-Cryogenic propellant tank ever fabricated by HAL was delivered to Indian Space Research Organization (ISRO) on 5th October, 2021.

4. HAL delivered the first set of hardware for Gaganyaan mission (first unmanned mission) as well as the 150th HAL made Satellite Bus-structure to Indian Space Research Organization (ISRO) on 4th April, 2022.

5. The green field helicopter factory of HAL at Tumakuru is in place, with stage 1 & stage 2 infrastructure facilities at an investment of Rs. 47,637 Lakh by the company, to take up manufacture of Light Utility Helicopters (LUH) and other future platforms with an initial capacity of 30 helicopters per annum.

6. HAL has signed an MoU with Uganda Peoples Defence Forces (UPDF) on 3rd March, 2022 towards Co-operation for Repair, Overhaul and maintenance, supply of spares etc. for Su-30 Mk2 of UPDF.

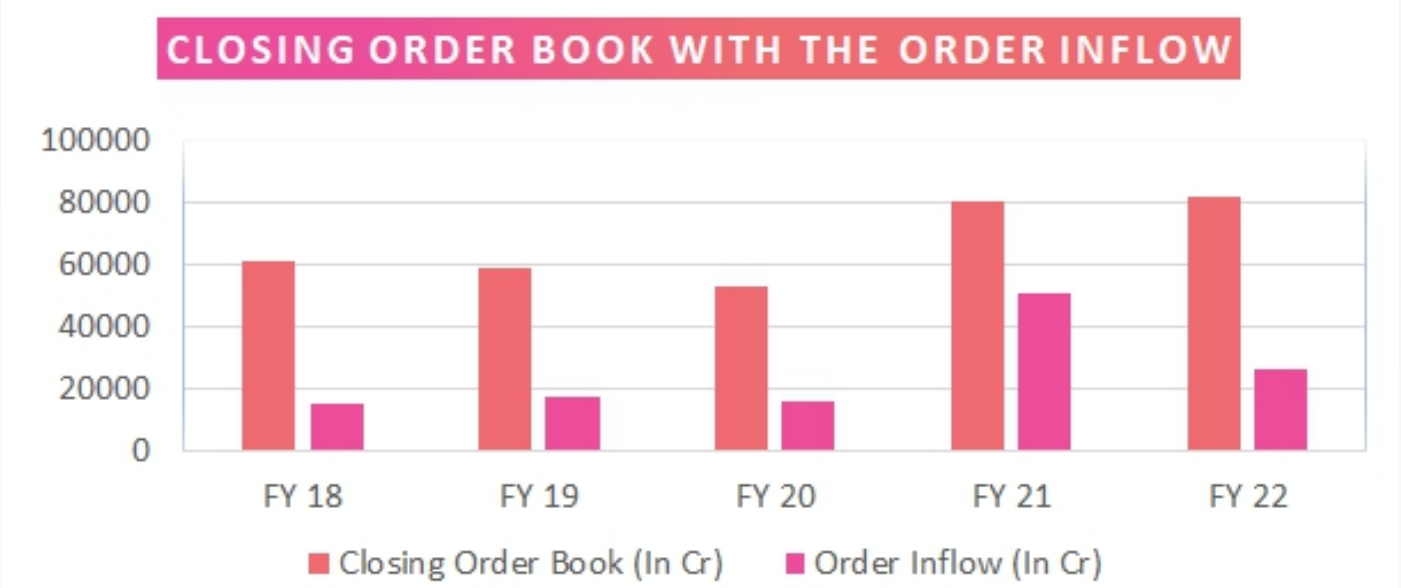
7. HAL has entered into a MoU with Israel Aerospace Industries (IAI) on 4th April, 2022 to convert Civil (Passenger) aircraft to Multi Mission Tanker Transport (MMTT) aircraft in India. Under the pact, HAL will convert pre-owned Civil (Passenger) aircraft into air refuelling aircraft, cargo and transport capabilities.

8. HAL has launched new platform design and development programmes such as Combat Air Teaming System (CATS) Warrior, Hindustan Lead in Fighter Trainer HLFT-42, High Altitude Pseudo Satellite (HAPS), Utility Helicopter-Maritime, Deck Based Multi Role Helicopter (DBMRH).

Comprehensive Investment Rationale

Colossal order book gives a long and strong visibility of expansion in revenue and profitability:

Despite being a labor-intensive industry, the company effectively managed the challenges posed by the COVID-19 pandemic and progressed operations, continuously improving internal efficiencies. Currently (FY 22), the company has an order backlog of 82,513 Cr which is almost 3 times of its revenues which is placed to 26626.65 Cr. The company received orders worth 76,306 crores in the last two years (FY21 & Fy22).



The company delivered 44 aircraft/helicopters in FY22 (same as FY21) and is expected to make 40 aircraft/helicopters in FY23. Among pending orders of HAL, which comprises the current order backlog of the manufacturing segment, the company has eight LCA – trainers orders, 15 LCH orders, 9 ALH orders, 83 LCA Tejas MK1A orders, along with engine manufacturing.

During the year under review, the turnover of the Company increased by 8% to 24,362 Cr from 22,501 Cr in the previous year. The Profit before Tax for the year increased by 22% to 5,231 Cr from 4,277 Cr in the previous year. The Profit after Tax (PAT) increased by 57% to 5,086 Cr from 3,234 Cr in the previous year.

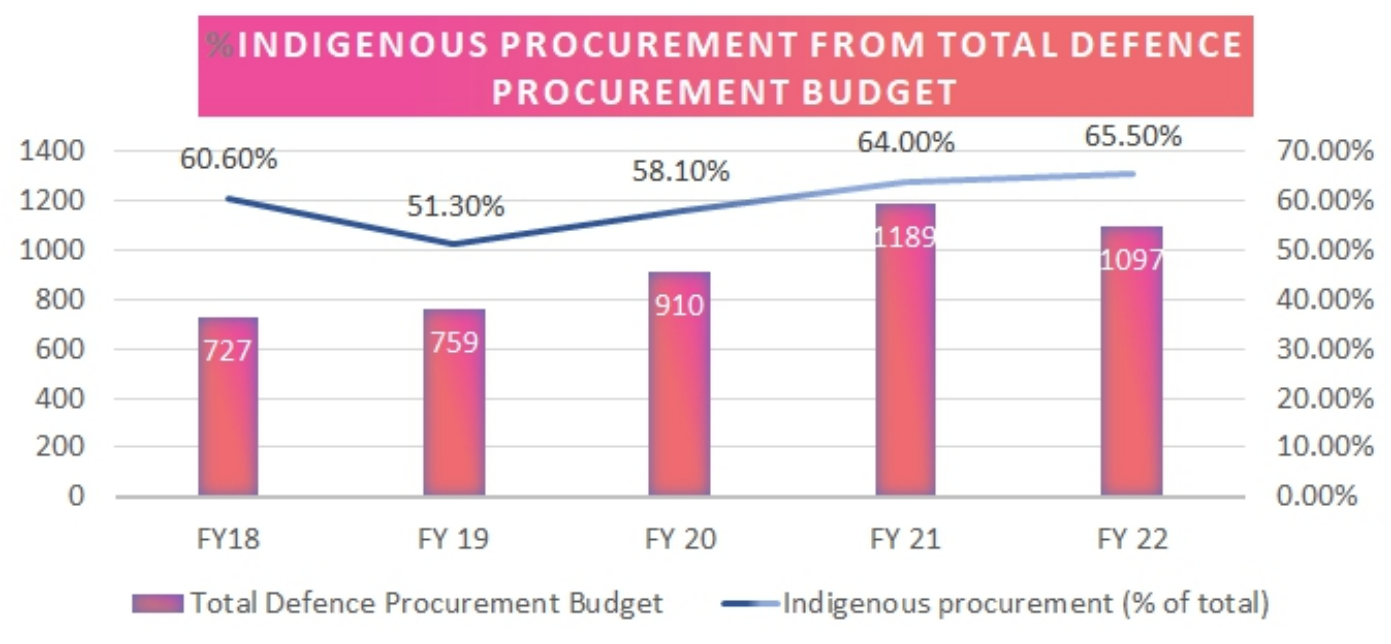
Make In India Defence Companies	Order Book (In Cr)	Trailing Revenue (In Cr)	Order Book/ Revenue (X)
Astra Microwave Products Ltd	1650	783.73	2
Bharat Dynamics Limited	13000	3383.61	4
Bharat Electronics Limited	55450	16860.12	3
Cochin Shipyard Limited	20000	3302.37	6
Garden Reach Shipbuilders & Engineers Limited	23583	2033.1	12
Hindustan Aeronautics Limited	82513	26626.65	3
Mazagaon Shipbuilders Limited	43500	6749.36	6
Mtar Technologies Limited	766	358.98	2
Total	242749	60097.93	4

Companies like GRSE and Hindustan Aeronautics have the highest visibility. Many of their big projects have now started. This means revenue and profitability would be much higher in the current and next fiscal, considering their revenue recognition cycle . The peak in revenue and profitably could be seen in fiscal 2024. Revenues from manufacturing are anticipated to come down in FY23-24E as the significant order of LCA Tejas MK1A will also start production by FY25E and will be executed over the next six years beginning from FY25E. However, the other pending orders of LCA trainers, ALH, LCH, and LUH, will be completed over the next two to three years. The management said the manufacturing capacity of Tejas LCA is 8 per annum and is anticipated to increase to 16 by FY25E and 20 after that by the time production of 83 LCAs kicks in.

Defence remains a big area of focus area because of its excessive reliance on imports:

Indian defence companies are seen spreading their wings wider and are expected to soar even higher. Both the military and commercial aerospace sectors have good growth potential in India. The Defence budget allocation has been ceaselessly expanding over the years. The government reserved 84,598 crores, 68% of the military's capital-securing budget, for acquiring indigenized weapons and systems to boost self-reliance in the defence sector. In like manner, the government has informed three lists of 310 defence items (in the last two years), which will be acquired locally in the next three to five years. These include major equipment/platforms like combat aircraft, submarines, armored vehicles, lightweight tanks, helicopters, missiles, radars, lightweight tanks, missiles, howitzers, sensors, simulators, torpedoes, helicopters, unmanned aerial vehicles, etc. Of these 310 items, 90 are planned to be indigenized by December 2022. Moreover, the Defence Ministry has also notified two lists of 458 things (in the last six months) for Indigenisation manufacturing (that includes sub-systems, assemblies, and components).

The government's Atmanirbhar Policy will likely create more opportunities in the aerospace and defence industry. While the Indian Defence market will continue to be a prime revenue source for HAL due to projects like LCA Mk1A, LCH, LUH and HTT-40, HAL is preparing to have differentiated products and services required in the future by having an agile, effective and cost-efficient system. In addition, the futuristic projects such as LCA MkII, Twin Engine Deck Based Fighter (TEDBF), Advance Medium Combat Aircraft (AMCA), Indian Multirole Helicopter (IMRH), and Aero Engines will ensure the technological lead of HAL in the years to come.



The geopolitical significance of HAL adds opportunity for exports:

Freedom of Navigation and necessity for rules-based order in the Indo-Pacific region are the principles India and other like-minded powers pursue. The principles India and other like-minded powers pursue are freedom of Navigation and the necessity for a rules-based order in the Indo-Pacific region. However, Beijing's aggression in the South China Sea has increased to a multi-fold extent. South East Asian countries like Indonesia, Malaysia and the Philippines are facing aggression from Beijing in the South China Sea. The company is looking at Indian ocean region countries like Malaysia, Philippines, Indonesia and Vietnam as countries are eyeing Multirole Fighter Combat aircraft for the supply of new platforms as well as support their existing fleet. HAL has further inquiries from a non-Asian like Argentina, Egypt, Australia and United States of America. Multirole Fighter Aircrafts and Helicopters are a big untapped market for exports to these countries.

India has offered to set up production facilities for manufacturing LCA as well as helicopters in Egypt as it pursues export opportunities in the Middle East & North Africa region. According to media sources, Egyptian Air Force has a requirement of about 70 light combat jets, with focus on local production and technology transfer. Besides the Tejas LCA Mk1A, indigenous choppers manufactured by HAL like ALH and LCH have also been offered.

Argentina: Due to sanctions imposed by the United Kingdom, Argentina has been unable to purchase a modern fighter jet for decades. However, in 2021, at the same time, rumours about Argentina purchasing the Chinese-Pakistani JF-17 surfaced, and the Argentinian Air Force revealed it has also started talks with HAL and other manufacturers across the world.

Egypt: Numerous meetings between Indian and Egyptian officials have taken place since the event, with the local press reporting that HAL offered to build a factory in Egypt to partially produce Tejas. Tejas and India's arsenal of home-grown missiles could be what Egypt is looking for, hence the interest.

United States: India offered the Tejas in response to a 2020 request for information by the United States Navy (USN) for the Undergraduate Jet Training System (UJTS) program. The USN is looking for a replacement to its McDonnell Douglas T-45 Goshawk trainers, and the lead-in fighter trainer variant of the Tejas seems to fit the bill.

Current Year Exports

1. Concluded contracts with Mauritius Police Force under Government of India supported EXIM Bank Line of Credit for supply of following platforms:
(a) one Passenger Variant Do-228 (PVD) aircraft and
(b) one Advanced Light Helicopter (ALH) Mk.III helicopter

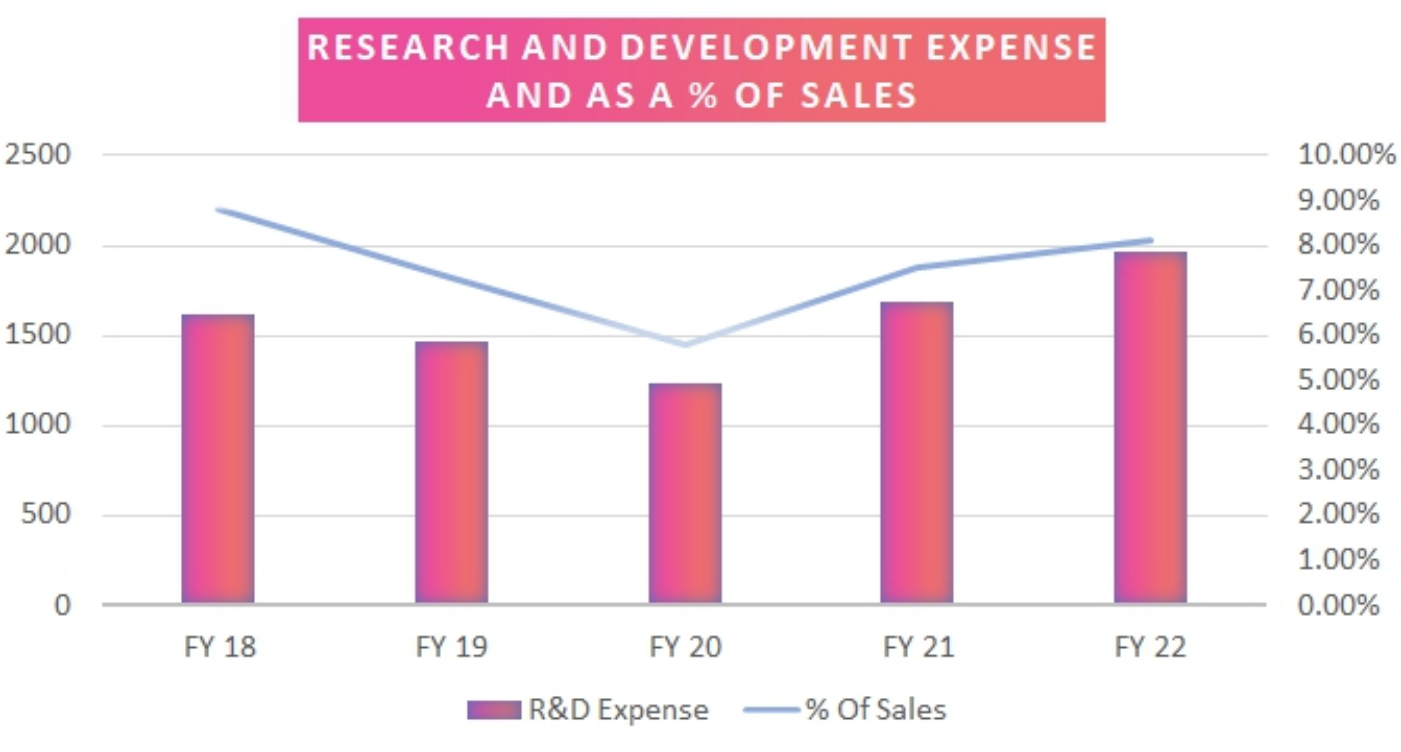
2. Signed Contract with Nigerian Army Aviation for abinitio training of six helicopter pilots and the training was completed successfully. Follow-on Contract for Phase 2 Training has also been signed by Nigerian Army.

Strong Design Development Capacity Backed By Plethora Of Research

HAL has continued its efforts towards the Design and Development of new platforms, products, technologies and activities to enhance its capability to bring technological superiority to its products and to cope with future technological challenges. HAL has 10 dedicated R&D centers capable of developing a wide range of products, upgrading products with combat operational capability and operational performance and maintaining a pipeline of products to meet future needs.

Over a long time, HAL has showcased its research, plan and advancement capabilities with the effective advancement of indigenous military aircraft and helicopters such as the Ajeet, Marut, HPT-32, Kiran, Tejas LCA and advanced light helicopter, which were manufactured by the company post approvals. In addition, the company has coordinated its advancement endeavors towards innovative technologies designed to expand its defence products portfolio. HAL has completed transfer of technology (ToT) absorption and production of aircraft & helicopters like Su-30MKI, Jaguar, Hawk, MiG-27, MiG-21, Cheetah and Chetak Helicopters.

During the year, the company incurred a total R&D expenditure of 1,96,691 Lakh, 8.07% of the Turnover. As a result, the company has transferred a sum of 31,596 Lakh (10% of Operating PAT) to the R&D reserve for contribution to the R&D corpus from 2021-22. In addition, during the year, HAL has filed 102 IPR applications, totaling 2031 IPRs filed by the company. Further, 147 IPRs have also been granted during the year, taking the cumulative IPRs held by the organization to 611. (Patents – 64, Industrial Designs – 102, Copyrights – 443, Trademark - 2).



Competency across segments- Fabrication of Helicopters, Aircrafts Engines & Overhaul

HAL caters to a large spectrum of the aerospace business, which includes manufacturing and maintenance, repair & overhaul (MRO) of the fixed-wing, rotary-wing, aero-engines, line replaceable units (LRUs) and airborne systems.

Apart from the indigenous-designed aircraft/helicopters manufactured by HAL (such as Ajeet, Marut, HPT-32, Kiran, Tejas LCA and advanced light helicopters, the Company has also manufactured aircraft under license (such as the MiG 21FL/M/BIS, MiG-27, Avro, Jaguar, Dornier 228, Su-30 MkI, Hawk Mk 132) and helicopters under license (such as the Cheetah and Chetak) along with associated engines, accessories and avionics to meet the demand of Indian defence customers.

During the year, the Company has produced 34 numbers of new Aircraft and Helicopters, covering LCA Tejas, Dornier Do228, ALH Dhruv and Light Combat Helicopter (LCH) in addition to the production of 80 New Engines and Accessories, at its various Divisions. The Company has also overhauled 207 Aircraft / Helicopters and 506 engines during the year, which is an immense contribution towards Atmanirbhar Bharat. These are state-of-the-art platforms in their class, the development of which has obviated the need for importing platforms from abroad, thus not only saving significant Foreign Exchange to the country but ensuring the availability of lifecycle support within the country.

The Design team of the Company has made continuous efforts to propel the development programs by developing various technologies and significantly moved towards the realization of the projects viz. Basic Trainer Aircraft (HTT-40), Light Utility Helicopter (LUH), Light Combat Aircraft (LCA)- MK1A, Indian Multi-Role Helicopter (IMRH) and Development of Engines

In addition, HAL provides support for maintenance, repair and overhaul for these indigenous and license-manufactured aircraft and helicopters, as well as for aircraft and helicopters. MRO contributed 64% to the company's total revenues in FY22, which increased from 49% in FY19, while the share of revenues from manufacturing declined to 30% in FY22 from 42% in FY19. The rationale for the fall was a lack of orders in the manufacturing segment, as a lot of products were in the development stage, which led to a decline in revenues from manufacturing. However, MRO revenues continued to increase, led by repair & overhaul activities in Russian & western origin aircraft and engines.

Business Development

• HAL is in discussion with Lockheed Martin Corporation USA, Boeing-USA, IAI-Israel, Saab Aeronautics-Sweden, Airbus-Germany, Dassault Aviation-France, Rolls Royce UK, GE Engines-USA and others for possible business co-operation in manufacturing of system, subsystem, final assembly & integration of aircraft in India under Indigenization and Atmanirbhar scheme of Government Of India.
• MoU with Rolls Royce for extending RoH services for Adour 871 Engine operating overseas.
• MoU signed between HAL and Lockheed Martin towards meeting Offset commitments related to Indian MoD procurements.
• Interaction with Boeing for ToT/Co-development projects, under offsets, for refinement of HAL platforms with a view to enhance customer comfort.
• HAL and Alliance Air signed Dry Lease Agreement for two Do-228 aircraft on September 26, 2021 which are now being operated in N-E region.
• HAL is progressing on the design & development of Amphibian variant of Do-228 aircraft, considering the requirement for such aircraft in domestic and international markets.



Quarter 2 Result Analysis

Particulars	Q2 FY23	Q1 FY23	Q2 FY22	Q-O-Q	Y-O-Y
Net Revenue	5,144.79Cr	3,623Cr	5,552Cr	42%	-7.3%
EBITDA	1,610Cr	825Cr	1,243Cr	95.15%	29.52%
PBT	1,619Cr	809Cr	1,138Cr	96.24%	42.26%
PAT	1,209Cr	607Cr	848Cr	99.17%	42.5%
EPS	36.16	18.14	25.37	96.52%	42.5%

Major Achievements In HY 2022-2023

• Declared 1st interim Dividend of 200% for the FY 2022-23
• With continued budget allocation form the Customers Cash and Bank Balance Position has improved to Rs. 16783 Crores
• Order book position is maintained at Rs. 83858 Crores with receipt of fresh ROH and Spares orders
• HAL-L&T consortium bagged Rs 860 crore contract on 5th Sep 2022 for end-to-end realization of five Polar Satellite Launch Vehicles (PSLV) from the New Space India Limited (NSIL)
• Light Combat Helicopters (LCH) - Prachand were delivered to IAF ahead of schedule which were inducted into Indian Air Force at Jodhpur
• In a major boost to indigenization, Hon'ble Prime Minister of India unveiled the HTT-40 at Defence Expo – 2022. IAF and HAL have also concluded the Price Negotiation for 70 Nos HTT-40 trainer aircraft worth Rs 6,800 crore.

Key Highlights

• The manufacturing activity business was maintained at more or less than the previous year's levels; there is an increase in the ROH and repair and overhaul segments, which has helped to maintain this growth. Development revenue which is nothing but the design and development sales, grew by almost 69% owing to the LCA Mark 1A development activities, which are on track, which is also very important for HAL for commencing the deliveries from 2023 and 2024 onwards.

• Material consumption has also been reduced when compared to the previous year. The major reason is that since the ROH activity has increased, the material consumption proportionate to the ROH activity is relatively less, which is why it has come down. But again, when supplies are to the manufacturing platforms, material consumption rates will be on track.

• HAL working in consortium with L&T bagged an order of Polar Satellite Launch Vehicle (PSLV) worth 860 Cr. The order was bagged amidst the competition, and this has been a big good opening for HAL for getting more satellite launch vehicle.

Key Risk And Concern

» Depending heavily on Ministry of Defence (MoD) contracts, quantum of allocation of Defence budget and timely allocation of budget. Any decline or re-prioritization of financing within the Indian defence budget, that of customers including the Indian Army, Indian Air Force and Indian Navy, Indian Coast Guard, Border Security Force, Central Reserve Police Force and Paramilitary forces or any delays in the budget or any delays within the budget prepare can affect the company's profitability and cash streams. In expansion, the company is additionally uncovered to various risks, like stricter regulatory requirements from the government.

» Dependent on OEMs for supply of various components / spare parts required for the manufacture and overhaul of Aircraft/ Helicopters: HAL considerably relies on the license of technology from domestic and international licensors and OEMs such as the Aeronautical Development Agency (ADA) in case of domestic technology, BAE Systems, Rolls Royce and others in the case of western technology and Rosoboronexport in case of Russian technology. HAL's business can be affected by the cost, quality, accessibility and timely delivery of the parts used to manufacture the products, which further can impact the execution of contracts and, thus, productivity and cash flows.

» The Strategic Partnership (SP) Model may deprive HAL of some high value Defence orders.

» Change in preference of Defence customers by moving away from single source to multiple sources.

» Little presence outside India in export market.

Peer Comparison

Particulars	Hindustan Aeronautics Limited	Taneja Aerospace	MTAR	Data Pattern	Bharat Dynamics Limited
CMP (30-11-2022)	2737	121.70	1605	1338.90	944.90
Price/Earnings	15.6	30.38	66.09	65.69	28.03
Price/Book	4.34	2.78	8.80	11.74	5.52
Price/Sales	3.49	10.12	12.55	18.73	5.07
Enterprise Value	74650.92 Cr	297.54 Cr	5033.84 Cr	6892.68 Cr	15315.08 Cr
Market Cap/Sales	3.49	10.12	12.55	18.73	5.07
ROCE	30.49%	12.18%	15.67%	33.39%	26.09
ROE	29.37%	8.09%	11.93%	24.02%	18.31
ROA	8.98%	6.85%	9.05%	18.15%	8.26
Debt To Equity	0	0	0.24	0.02	0
Promoter Holding	75.15%	51.23%	47.18%	45.76%	74.93%
FII Holding	6.85%	0.46%	3.18%	1.60%	2.88%
DII Holding	13.48%	0%	27.74%	9.24%	13%
Book Value	623.58	43.69	182.61	114.01	170.66
Dividend Yield	1.81	2.04	0.19	0.27	0.88

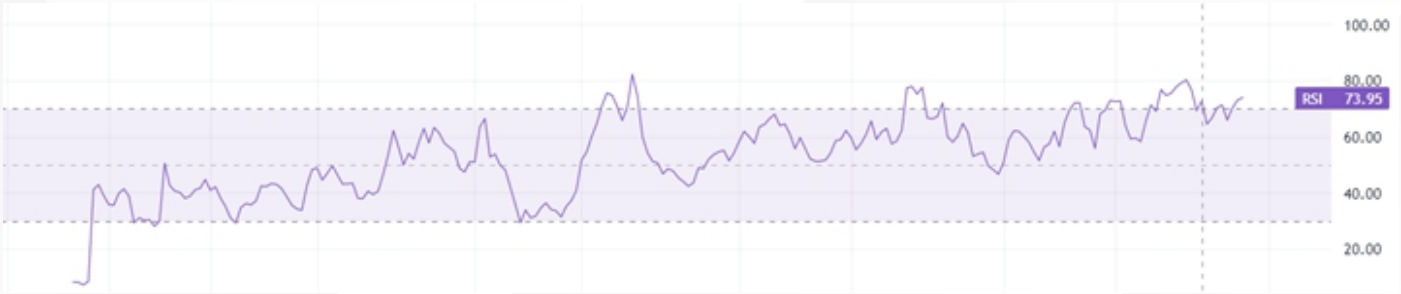
Technical Outlook



Hindustan Aeronautics has given a Multi-Year Breakout and has continued its upward momentum following the rising trendline.

This strong trend is supported by Moving Averages as the 20 Days Moving Average > 50 Days Moving Average > 200 Days Moving Average. This further indicates that improvement in the fundamentals is rewarded with the upward price movement which add rationale to the bullish momentum.

Relative Strength Index (RSI) has maintained 50+ and keeps drifting between 50 to 75 which further adds rationale to the strong bullish momentum



On the technical front, Lower Side is capped at 2200, weakness kicks in below 2200 levels. On the Upper Side, HAL is making new all time highs. HAL looks ready for 3000 followed by 3500, 4000.

Financial Snapshot

Particulars	FY 18	FY 19	FY 20	FY 21	FY 22
Financial Position					(₹ In Cr)
Equity Share Capital	362	334	334	334	334
Reserve & Surplus	9,151	11,741	12,865	15,034	18.930
Net Block	2,391	2,728	2,882	2,690	2,535
Other Asset (Net)	8,936	13,463	16,204	12,687	16,729
Deferred tax liability	978	0	0	0	0
Long-term borrowing	100	100	0	0	0
Short-term borrowing	764	4,016	5,887	9	0
Operating Results					(₹ In Cr)
Sales Inland	17,970	19,416	21,016	22,261	24,194
Sales Export	314	405	212	240	168
Total Expenditure	(14,313)	(14,908)	(16,652)	(15,767)	(18539)
Value Of Production	17,553	18,650	20,590	20,044	23,770
Value Added	9,507	10,986	11,830	11,304	14,358
Profit/(Loss) Before Tax	3,240	3,742	3,938	4,277	5,231
Provision For Tax	1,253	1,396	1,096	1,038	144
Profit/(Loss) After Tax	1,987	2,346	2,842	3,239	5,087
Financial Statistics					(₹ In Cr)
R&D Expenditure	1,612	1,464	1,232	1,687	1,967
EBITDA	4,215	4,936	5,284	5,694	6,399
Inventory	19,375	19,685	19,454	16,689	14,364
Trade Receivables	6,751	12,459	11,235	5,670	4,642
Ratios					
Sales Per Employee	6297179	6992768	7751972	8512788	9586809
Value Added Per Employee	3274259	3875816	4320041	4276634	5650087
PBT/Sales	18	19	19	19	21
Debt To Equity	0.07	0.34	0.44	0.00	0.00
No. of Employees	29,035	28,345	27,384	26,432	25,412
ROE	17.18	19.27	21.70	21.01	26.30
Book Value	360.62	361.45	396.04	461.02	623.58
EPS	388	239	401	300	401

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