INVasset Knowledge Bank

भारत इलेक्ट्रॉनिक्स
BHARAT ELECTRONICS

23rd February, 2023

INVASSET

India's Best Performing and Most Customer Centric PMS

Bharat Electronics Limited (BEL), founded in 1954, is a government-owned Indian aerospace and Defense electronics business. It mainly produces cutting-edge electrical goods that are used in ground and aircraft applications. BEL is a public sector undertaking (PSU) that is under the purview of India's Ministry of Defense. It has been granted Navratna status by the Government of India.

BEL is a worldwide recognized player that possesses a multi-product, multi-technology, and multi-unit company. It also has over six decades of expertise concentrating on Research & Development, which makes it a technology-driven company that operates in Strategic Electronics in the Defense and non-Defense segment. BEL is placed 62nd among the top 100 arms-producing and military services firms in the world outside of China and 61st among the top 100 Companies Worldwide in Defense Revenue (Defense News Top 100 2021, USA). BEL has a total workforce of 8853 employees, of which 5712 are Engineers. Company has 9 factories all over India and 24 Strategic Business Units, 2 Central Research Laboratories in Bengaluru and Ghaziabad and 1 Product Development and Innovation Centre in Bengaluru.

Company marked a Turnover of 15,044 Crores marking a net worth of 11,984 Crores in FY 21-22 and is sitting on an order book of 57,570 Crores. Orders worth 1600 Crores (as on 31st July,2022) were received during the year FY 22-23. The Profit After Tax grew 13.73% to 2,348.93 Crores in FY 2021-22 as against 2,065.42 Crores in FY 2020-21.

Stock Data	
CMP	₹95.555
52 Week High/Low	₹62.33 / 114.65
Face Value	₹1
Market Cap (In Crores)	₹ 69735
NSE	BEL
BSE	500049
Bloomberg	BHE IN
Sector	Engineering Defense

Shareholding Pattern (in %)		
	Sept-22	Dec-22
Promoter	51.14	51.14
FII	17.36	17.34
DII	25.63	25.04
Public	5.88	6.45

Price Performance (in%)			
(%)	1M	6M	1Yr
Nifty 50	(3.35)	(0.53)	7.78
BEL	(5.07)	(2.52)	52.59

Key Ratios	
P/E	25.36
P/B	5.67
Debt To Equity	0
ROE	19.52
ROCE	22.72
Book Value (Per Share)	50.49

Investment rationale

• Defense 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.

• Multiple Business Segments beacked diversification: BEL is a Multi Product, Multi Technology company which has a diverse product range which caters multiple business BEL has a strong domain knowledge and core competencies in Radar and Fire Control Systems, Weapon Systems, Communication, Network Centric Systems (C4I), Electronic Warfare Systems, Avionics, Anti-Submarine Warfare Systems & Sonars, Electro-Optics, Tank Electronics, Gun Upgrades, Strategic Components

• Strong order book backed by improvement in performance: A 59170 crore order book (3.36 times TTM sales of 17,595 Crores) provides great revenue visibility. Additionally, the Government's focus on rolling out enabling reforms to increase India's Defense product manufacturing capability and gradually reduce imports will support the order inflow in the medium-to-long term.

• Extensive focus on Research & Development: BEL has used 55% of its engineering personnel in research and development. Indigenous R&D has generated 78% of the company's sales revenue. The company spent a total of 1045 Crores on research during 2021-22. BEL has filed a total of 912 Intellectual Property Rights (IPR) Applications, of which 303 have been granted/registered. Up to July 31, 2022, 30 patents have been granted. BEL has successfully strengthened collaborations with Defense Research Laboratories, National Laboratories, DPSUs, DIO iDEX, Academia, startups, niche technology companies, reputed global OEMs, and Indian companies/agencies over the years in order to strengthen its Research and development capabilities.

Industry Analysis

• **Defence:** Defence allocation in the Budget has been increased to 5,25,166 Crore for the FY 2022-23. It is an increase of 9.8%, but keeping the threat perceptions along the borders, the substantial capital outlay has been raised by more than 10 % for the second consecutive year. As a result, the allocation under capital expenditure, which relates to the modernization and infrastructure development of the Armed Forces, has been significantly increased. The Capital allocation of 1,52,370 Crore for FY 2022-23 represents an increase of 12.6% over FY 2021-22. The capital expenditure allocated to the Air Force is 56,852 Crore, for the Navy is 47,591 Crore and for the Army is 32,135 Crore. To support the Domestic defence industry, 68% of the capital procurement budget has been earmarked for the domestic sector in 2022-23. Also, 25% of the Defence R&D budget has been planned for the Indian Industry, Start-ups and Academia to design and develop military platforms and equipment in collaboration with DRDO and other organizations. Similarly, since August 2020, Govt. has notified more than 300+ items (as part of Positive Indigenisation lists) comprising various Complex Defence Systems and equipment to be procured only from Indigenous manufacturers. Such progressive initiatives will further boost indigenisation with the active participation of public and private sectors to fulfil the twin objectives of self-reliance and promoting defence exports.

• **Non Defence:** Apart from its core Defence business, BEL has ventured into several non-Defence areas like Homeland Security, Smart City, Energy Storage Products, Solar, Space Electronics, Network & Cyber Security, Railways & Metro solutions, Composites, Medical Electronics & Healthcare Solutions, Software Solutions, etc.

• **Homeland Security:** The Homeland Security market in India is spread across the Central/ State Governments and government entities, including the PSUs and Private Sector Organisations. A significant market opportunity exists in police modernisation, critical infrastructure protection, border management, counter-terrorism activities, urban area security, ground transportation, port & maritime security, etc market in India. In addition, prevailing internal security concerns due to terrorist activities & crime, data thefts, remote monitoring needs for centralised command & control, asset protection & disaster management, growth in public infrastructure, increased IT spending, various Government initiatives, and increase in security spending are boosting demand for the Homeland Security. The Ministry of Home Affairs has been allocated more than 1.85 Lakh Crore in the Union Budget for 2022-23, nearly about 11.5% more than the previous year's budget allocation of 1.66 Lakh Crores with the majority of spending on central police organisations like the CRPF, BSF and for improving the infrastructure along the international borders.

• **Unmanned Systems:** Military applications like reconnaissance, intelligence gathering, detection of threats etc. are migrating from Manned Systems to Unmanned Systems, due to the criticality of missions, avoidance of risk associated with International norms and value for human life. The Indian UAV segment offers an overall opportunity of about ~65,000 Crore during the TPCR Plan period ending by 2027. Opportunities in Unmanned Systems include Unmanned Aerial Vehicle (UAV) systems, Unmanned Ground Vehicles (UGVs), Unmanned Underwater Vehicles (UUVs) & Unmanned Surface Vehicle (USV) systems.

BEL has been addressing the UAV/UGV/UUV/USV requirements of the Indian Defence/Non-Defence segments by partnering with DRDO/foreign OEMs/ Indian Academia/Start-ups, etc. BEL has been working on the Payloads (like EO, Communication, ESM, etc.), Data links and Ground Control Station requirements of the UAVs. BEL has also developed and supplied Drone Guard Systems.



Unmanned Aerial Vehicles

Company Background

A Navratna Public Sector Undertaking under the Ministry of Defense (MoD), Government of India (GoI), BEL is a multi-product, multi-technology and multi-unit globally recognized electronics engineering company with over six decades of experience. BEL specializes in designing, developing, manufacturing, and supplying a wide range of strategic electronic products/systems, including those utilizing emerging technologies, to meet the changing needs of global customers in a variety of fields. Company has established a strong competitive position in both Defense and non-Defense segments in the Indian and International markets. This diversification ensures operational stability, and provides opportunities for scalability in the long-term.

Bharat Electronics Limited's Operating Structure

BEL Optronic Devices Limited (BELOP) (Wholly-owned subsidiary)

Manufacture of Image Intensifier Tubes used in night vision devices and dewar assembly for cooled thermal imager applications.

BEL-THALES Systems Limited (BTSL) (Subsidiary-74% stake)

Design, develop, market, supply and support of Civilian and Select Defense Radars for Indian and Global markets and other end-users.

GE BE Private Limited (GEBEL) (JV-26% shareholding)

Manufacturing Medical Electronics Parts and X-Ray Tubes

Defense Innovation Organization (DIO) (50% shareholding)

A 'Not for Profit' Company to fund innovation in the Defense sector

Manufacturing Units

Bengaluru, Ghaziabad, Pune, Machilipatnam, Panchkula, Chennai, Kotdwara, Hyderabad, Navi Mumbai

Overseas Office

USA (New York), Singapore, Oman, Sri Lanka, Vietnam, Myanmar

Regional/Liaison Offices

Bengaluru, Delhi, Mumbai, Visakhapatnam, Kolkata, Nagpur, Agra

Central Research Laboratories (CRL)

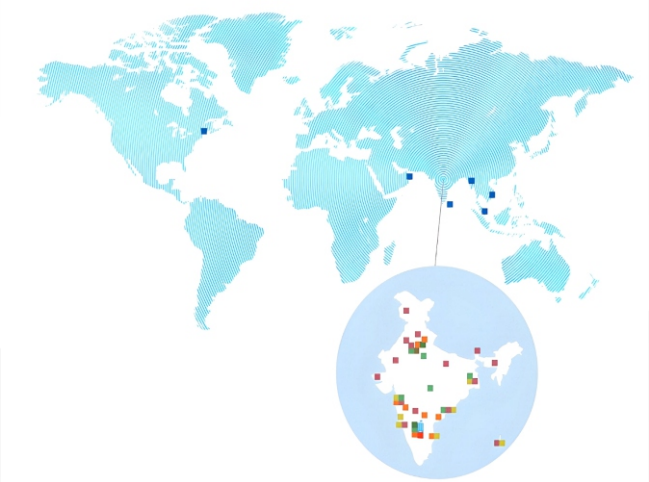
Bengaluru, Ghaziabad

Water Front Support Centers (WFSC)

Chennai, Port Blair, Kochi, Karwar, Vizag, Kolkata, Mumbai

Marketing Office

National, International, Civilian Marketing-New Delhi.



Global Footprint Of Bharat Electronics (BEL), Source: Annual Report

Product Development and Innovation Center (PD&IC)

Bengaluru

Regional Product Support Centers (RPSC)

Delhi, Kochi, Guwahati, Kolkata, Port Blair, Mumbai, Visakhapatnam, Jammu, Chandigarh, Allahabad, Jodhpur, Sulur, Bhatinda, Wadsar, Bagdogra

Company's Business Overview

	Defense	Non-Defense
		
Overview	• BEL develop a wide range of electronics equipment, systems and services for the Indian Defense services. These are manufactured at BEL's nine plants having 24 strategic business units (SBUs).	• BEL develop products and solutions for the civilian markets through select SBUs. BEL has a dedicated SBU for Homeland Security and Smart City (HS&SC) business and dedicated vertical for Medical Electronics and Solutions at Bengaluru unit given high growth opportunities.
Product Competencies	• BEL has strong domain knowledge and core competencies in Radar and Fire Control Systems, Weapon Systems, Communication, Network Centric Systems (C4I), Electronic Warfare Systems, Avionics, Anti-Submarine Warfare Systems & Sonars, Electro-Optics, Tank Electronics, Gun Upgrades, Strategic Components. BEL has recently diversified into Arms & Ammunitions, Seekers & Missiles, Network & Cyber Security and Unmanned Systems.	• BEL has competencies in the core areas of Electronic Voting Machine (EVM) & VVPAT, HS&SC, Software Solutions/Services, Healthcare Solutions, Civil Aviation and Solar Cells/Power Plants. BEL has also diversified into providing Railway/Metro/ Airport Solutions, Space Electronics and systems, Electric Vehicle charging infrastructure, Alternate Energy solutions, Secure Communication solutions and Software.
Key Highlights FY 2021-22	i. Received biggest Avionics order worth 2,400 Crores from Hindustan Aeronautics Limited (HAL) for LCA TEJAS Fighter Aircraft ii. Bagged contracts from Indian Air Force (IAF): ` 1,993 Crores for Advanced Electronic Warfare Suite for Fighter Aircraft and ` 1,109 Crores for Instrumented Electronic Warfare Range (IEWR) iii. Signed MoUs with (i) SFC-Energy-AG (Germany) & FC Tec-India (Fuel Cells) (ii) Indian Army (AI Solutions for Defense Applications) and (iii) IAF (Defense Weapons & Sensors, Radars, IACCS, Space, Cyber, EW&A, UAS & Counter UAS, IT) iv. Croreseated a Joint Technology Incubation Forum (TIF) with Indian Navy	i. Signed MoUs with (i) DMRC (Super SCADA for Metros) (ii) BPL Medical Technologies (for Oxygen Concentrator) (iii) DroneDek Corporation, USA (for Smart Mailbox) (iv) Bosch Global Software Technologies (for e-Governance, ERP and Cloud Solutions) (v) AAI (for Integrated ATM Automation System and Advanced Surface Movement Guidance & Control System) ii. Flagship executions: HS&SC projects, Kerala Fibre Optic Network, Medical Electronics, etc. iii. Successfully developed new products of Compact Indoor Robotic Vehicle and Oxygen Concentrator

Product Portfolio & Manufacturing Facility: Bengaluru (Karnataka)

- Missile Systems (Land & Naval)
- Land- based Radar systems
- Naval Systems (Sonars, Comm. Systems, Radar & FCS)
- Military Communication
- Electronic Warfare & Avionics
- Home Land Security & Smart Cities
- EVM/VVPAT
- Unmanned Systems
- Solar Systems and Solutions
- Space Electronics & Systems
- Strategic Components/Devices
- Medical Electronics
- Cyber & Network Security
- Software Solutions & AI
- Arms & Ammunitions
- Seekers





Product Portfolio & Manufacturing Facility: Bengaluru (Karnataka)

- Radar Systems
- Network Centric Systems
- Satcom & Cellular Communication
- Antenna Systems
- Air Traffic Management Solutions





Product Portfolio & Manufacturing Facility: Pune, Navi Mumbai (Maharashtra)

- Energy Storage
- Laser Products
- Fuzes
- Support Systems for AFVs
- Arms & Ammunitions
- Shelter Systems
- Power Systems
- Mast Systems
- Composites
- Blast Doors/Valves





Product Portfolio & Manufacturing Facility: Machilipatnam (Andhra Pradesh) & Panchkula (Haryana)

- Electro Optic Equipment & Systems
- Anti Drone Systems
- Tactical Communication
- Jammers
- Avionics (HUD)
- EV Charging Stations



Product Portfolio & Manufacturing Facility: Chennai (Tamilnadu)

- Tank Electronics
- Gun Upgrades
- Airborne EO payloads
- Land Navigation Systems
- Gun Control Systems



Product Portfolio & Manufacturing Facility: Kotdwara (Uttarakhand), Hyderabad (Telangana)

- Telecom Products /Systems
- VCCS Solutions
- Rail/Metro Solutions
- Electronic Warfare Systems



Business Segments

India is one of the largest importers of Defence equipment, with most of its Defence needs being met through imports. However, the reports show India's arms imports have decreased recently. The Government of India aims to develop a solid self-reliant domestic industry in the Defence sector with substantial participation from the private sector, including MSMEs and start-ups, to reverse the trend of imports. In this regard, the Government has taken several initiatives like the Make-In-India programme and creating an eco-system for developing technologies through innovation by MSMEs/start-ups. With the Government's support, the Indian industry is expected to move up in the value chain and deliver quality products, systems and services to the Defence forces. In addition, the Government has promulgated a draft Defence production policy that aims at increasing Defence production to ₹1,70,000 Crore by 2025.Toward MoD's big push to the Atmanirbhar Bharat initiative, MoD has put an Import embargo on 300 plus items from Aug 2020 and published three positive indigenisation lists with timelines to boost the indigenisation of defence production. BEL's Products/Systems can meet about 35% of these positive lists of Defence Indigenisation because it caters multiple products under its multiple Business Segments. Under these changing business scenarios, BEL focuses on enhancing its interaction levels and building long-term relationships with emerging Strategic Partners, users and other critical stakeholders in the Indian Defence industry.

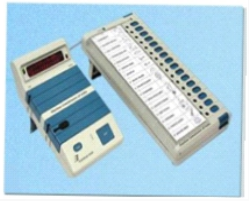












- Radar & Fire Control Systems
- Weapon Systems
- Communication Systems
- Electronic Warfare & Avionics
- Anti-Submarine Warfare
- Network Centric Systems
- Electro-Optics
- Tank Electronics & Gun Upgrade
- Home Land Security & Smart Cities
- Non-Defence Products

Comprehensive Investment Rationale

Mammoth 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 59,170 Crores which is almost 3.24 times of its TTM Revenue which is placed it 17,595 Crores. BEL's order book on 1st April 2022 was 57,570 Crores, new orders worth 1,600 Crores were received up to 30th June 2022, which comes to a total of 59,170 Crores worth of order book.

Make In India Defense Companies	Order Book (In Crores)	Trailing Revenue (In Crores)	Order Book/ Revenue (X)
Astra Microwave Products Ltd	1,852	770	2.4
Bharat Dynamics Limited	12,000	3,415	3.51
Bharat Electronics Limited	**59,170**	**17,595**	**3.36**
Cochin Shipyard Limited	21,260	3,287	6.46
Garden Reach Shipbuilders & Engineers Limited	22,930	2,293	10
Hindustan Aeronautics Limited	83,858	26,620	3.15
Mazagaon Shipbuilders Limited	42,000	6,882	6.10
MTAR Technologies Limited	1,289	394	3.27
Total	2,44,359	61,256	3.98

Defence being the mainstay of the company has contributed 90% of the Sales Revenue in FY 22 against 78% in FY 21. BEL received record new orders worth about ₹9,016 Crore. Some of the major orders received include Avionics Package for LCA, Advanced EW Suite for Fighter Aircraft, Instrumented Electronic Warfare Range (IEWR), CDR TI cum Day Light Sights, Dhanush Gun Upgrade, Nayan EW Systems, WLR (Mountain), Electronic Voting Machine & VVPAT. Company also received biggest ever export order from Airbus Defence & Space (USA) for manufacturing & supply of MAWS&RWR for C-295 Aircraft.

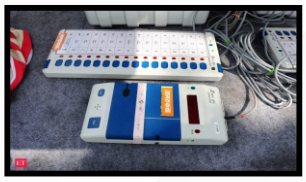
BEL's product pipeline is firm, and the company expects a healthy growth of 12-15% driven by both defence and non-defence businesses.

Major Orders Received During 2021-22:

- Avionics Package for LCA
- Advanced EW Suite for Fighter Aircraft
- Instrumented Electronic Warfare Range (IEWR)
- CDR TI cum Day Light Sights
- Electronic Voting Machines
- RWR & MAWS for C-295 Aircraft
- Dhanush Electronic Upgrade

Major Projects Planned During 2022-23

- LRSAM (Long Range Surface to Air Missile) System
- Akash Missile System (7 Sqdn)
- Integrated Air Command & Control System
- Electronic Voting Machines
- AFNET
- Thermal Imagers
- Kerala Fibre Optic Network (K-FON)
- Naval Equipments
- Smart City Business
- Various Radars



Electronic Voting Machines



Long Range Surface To Air Missile (LRSAM)



Dhanush Artillery

Multiple business segments offers diversification which further reduces dependence on a particular business

As a diversification strategy, the Company has been exploring opportunities in allied defence and nondefense areas for growth, leveraging its strengths & capabilities acquired in the defence electronics domain and capitalising on the conducive policy environment encouraging indigenous solutions. In the past five years, the non-defence portion, on average, in Company's business is about 15-20% of total turnover. This year, the Company has about 12% of turnover from the non-defence segment. The Company aims to achieve and grow the revenues from the non-defence business in the coming years to about 25% of the Company's turnover.

Some of the areas being focused in the non-defence include: Solutions for the Civil Aviation sector, including Air Traffic Management solutions, Advance Ground Control Surface Movement Radar, Anti Drone systems, Space/Satellite Electronics, Space Launch Vehicles, Satellite Communication Services, Space grade Solar Cells, Satellite Assembly & Integration, Solar Business, Railway and Metro Solutions, Software as a Service, Electric Vehicles (Li-ion & Fuel Cells, Charging Stations etc.), Homeland Security & Smart City Businesses, Smart Meters, a range of Medical Electronics and health care solutions (ICU Ventilators, Dialysis Machines, Patient Monitoring System, X-ray C arm, Ultrasound, MRI, Image/Voice/Video Analytics)








- Energy Storage Products
- Unmanned Systems
- Space Electronics & Systems
- Solar Cells/Power Plants
- Seekers & Missiles
- Network & Cyber Security
- Arms & Ammunitions
- Railway / Metro Solutions
- Software Solutions / Services
- Composites
- Medical Electronics & Healthcare Solutions
- Civil Aviation

• **Smart city:** Under the Smart City Mission launched by the Government of India in June 2015, 100 smart cities have been selected, and all 100 have incorporated Special Purpose Vehicles (SPVs). The various Smart City projects are under different stages of implementation. However, as per reports, of the total number of tasks allocated by the mission, approximately 46% have been completed, with at least one project completed in every city in 2022. In addition, BEL's Strategic Business Unit, which was formed exclusively to address the Homeland Security and Smart City business, has made significant achievements in the Homeland Security and Smart City domain.

• **Energy Storage Product:** Energy Storage is emerging as a sunrise sector and part of the clean energy systems of the 21st century. Lithium-ion (Li-ion) batteries are the most versatile and efficient storage devices among mature storage technologies. The fuel cell technology-based energy storage products are also projected to dominate the future

energy storage markets globally and in India. Seeing the opportunity for Li-ion cells and an emerging market for fuel cells, BEL is collaborating with various Public/Private organisations in this area and has signed an MoU with global companies such as Triton Electric Vehicle LLC USA, SFC Energy AG, Germany and created a dedicated micro SBU to address business in a focussed manner and further expand its presence in the Energy Storage Products segment, by the manufacturing of Li-ion Cells and development/manufacturing of fuel cells. As per the report, the global battery energy storage system market size is expected to grow from USD 4.4 Billion in 2022 to USD 15.1 Billion by 2027 at a CAGR of 27.9%.



• **Space Electronics:** ISRO has opened up opportunities for manufacturing Launch Vehicles and small & microsatellites for the Indian industry. The global requirement for small launches is expected to exceed 500 numbers per annum. ISRO has ambitious plans to increase the number of satellite launches to an average of about 18 per annum from 2023-24 onwards. Commensurate with the plans of ISRO, the Department of Space has been allotted a budget of ` 13,700 Crore for the year 2022-23, which is a growth of 8.3% from the FY 2021-22 revised estimate. BEL is one of the major players in the ground segment of Satellite Communication and desires to enter into Space Electronic Systems, manufacture Small & Micro Satellite, Satellite Communication Services and address the Launch Vehicle segment jointly with Indian private industry. BEL has the long-term objective of becoming a prominent player in Space Based Assets and Payloads. During FY 2021-22, BEL also expressed its interest in participating in the production of Small Satellite and Small Satellite Launch Vehicle (SSLV) with support from ISRO. BEL has qualified as an industry partner of ISRO for the Assembly, Integration and Testing (AIT) of satellites. It has completed the Satellite AIT of three RISAT satellites at ISRO. BEL has collaborated with ISRO and has developed new products like the next-generation Indigenous Receivers for Positioning and Navigation (IRNSS), Satcom Terminals, LTCC-based Substrates, and high power space TWTs have usage in Defence, Government services and paramilitary applications. BEL is working jointly with ISRO to supply and commission various types of satellite networks and HUBs for satellite communication applications.

• **Solar- Renewable Energy:** The Government has set an ambitious target of generating 280 GW of installed solar capacity by 2030. In the Budget for 2022-23, the Government has proposed production-linked incentives (PLI) of 19,500 Crore to boost the manufacturing of high-efficiency modules with priority for fully integrated units. BEL has scaled up its operations from Cell/Module manufacturing to execution of solar power plant projects under the Engineering Procurement Construction (EPC)/ Developer mode. BEL has created a new Micro SBU for a focused approach to target the requirements of the Solar Business, which will likely contribute to BEL's business continuously shortly. ISRO has also shortlisted BEL to manufacture Multi-Junction Solar Cells for space applications. With a capacity of about 60,000 multi-junction cells per annum, the plant will be set up by ISRO, and BEL is to oversee its complete manufacturing operations under Government Owned Company Operated (GOCO) model.

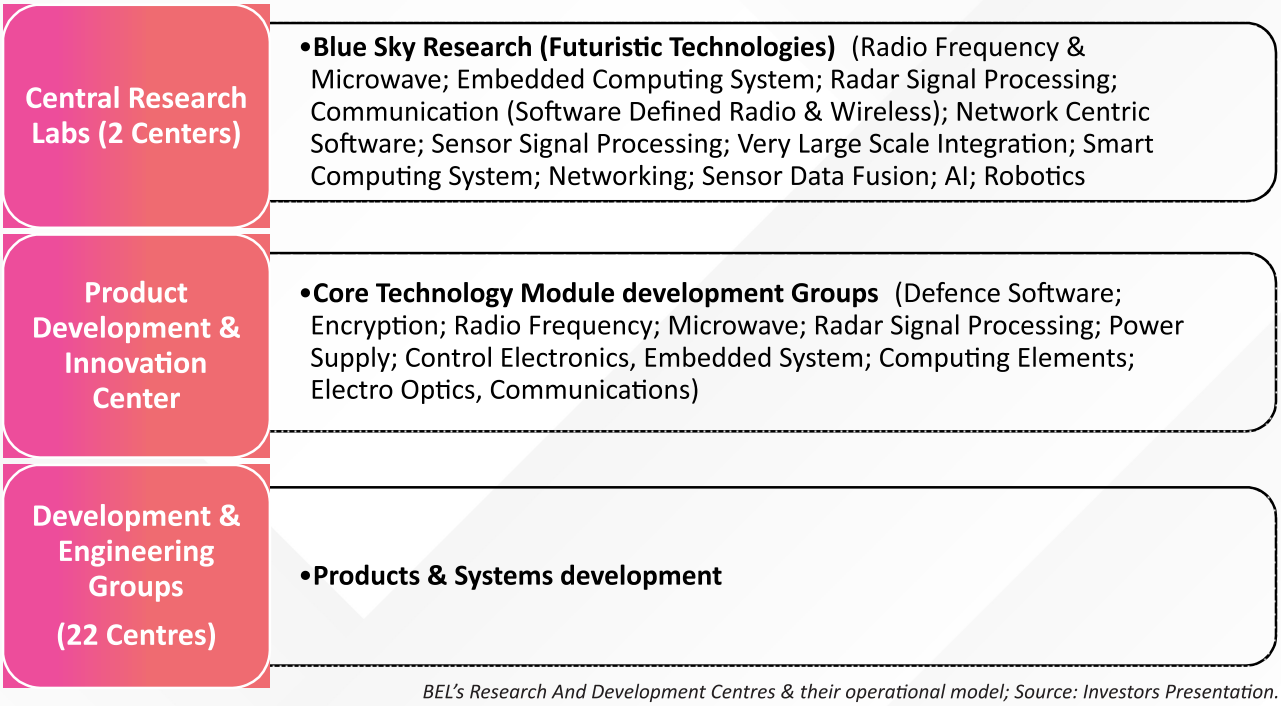
• **Network and Cyber Security:** Cyber-attacks in India have increased during the pandemic, and this trend appears to be continuing as the newly distributed workforce provides more opportunities for criminals to exploit. The cyber security market in India, which is driven by investments by organizations. to safeguard against cyber threats is expected to grow to about 30,000 Crore by 2025. As many companies have adopted work-from-home policies in response to the pandemic, cyber security has become a major issue. The Network & Cyber Security division has made key progress during the year in implementing a sizeable amount of cyber security business such as Security Analytics Centre (SAC) for Govt. Agencies, Data-Diode Solutions for DRDO, PKI and associated services for IAF, Security services for Banking/Govt. Agencies, Security Information and Event Management (SIEM) solutions for IAF, Security Operation Centre (SOC) for PSUs, etc. Since its inception, the vertical has diversified and strengthened by various tie-ups, partnerships and consortiums with start-ups, OEMs, channel partners and Academia. CERT-In has empaneled BEL for providing information security auditing services. BEL Network and Cyber security is an ISO 27001 Information security management systems-certified division. Various Cyber Security certifications have been obtained by this group, including CEH, GSEC, Lead Auditor for ISO 27001, etc. The team is also pursuing the Certified Information Systems Security Professional (CISSP) certification to qualify for domestic and global tenders.

• **Railways And Metros:** Indian Railways has prepared a National Rail Plan for India 2030. To enable Atmanirbhar Bharat and the Make In-India initiative, the plan is to create a future-ready railway system by 2030, bringing down the logistic cost for Indian industries. The total capital expenditure by Railways for 2022-23 is projected at 2,45,800 Crore, an increase of 14% over the revised estimates for 2021-22. Indian Railways is planning to redevelop 400 stations across 100 cities. The program has an outlay of over 1 Lakh Crore. Indian Railways also scheduled the induction of 400 new Vande Bharat trains in the next three years. For metro, the total budget for the financial year 2022-23 is 19,130 Crore. Some of the critical areas being pursued by BEL are Platform Screen Doors, etc. BEL is collaborating with DMRC, RDSO, NCRTC and various public/private organisations in the area of the i-ATS System, Mission Critical Communication System, Composite Panel, and Platform Screen Doors. The NCMC-compliant AFC gating system executed by BEL will be implemented across all modes of transportation, i.e. metro, trains or buses, in a phased manner.

• **Composites:** The composites manufacture various products in Aerospace & Defence, wind energy, transportation, and marine applications. BEL plans to address the composites structures requirements of shipyards, submarines, aerostructures, railways & metros, land equipment, pressurized missile containers, and high-altitude enclosures. BEL has set up facilities for the same and tied up with Government labs/Academia for consultancy and development of composite structures.

Strong Design Development Capacity Backed By Plethora Of Research

BEL has a multi tiered R&D structure to ensure greater outcomes. It comprises Central Research Laboratories (CRLs), Product Development and Innovation Centres (PD&IC), Centre of Excellence (CoE) and Development & Engineering (D&E) groups attached to SBUs across all units. Company has deployed 55% of its engineering manpower in R&D which has further boosted the indigenous sales revenue to 78% of its total revenues. Company has invested a total amount of 1045 Crores during FY 22. BEL also has a total of 912 Intellectual Property Rights (IPR) Applications Filed out of which 303 Intellectual Property Rights (IPR) are already registered/granted. Additionally 30 patents have been granted cumulatively up to 31st July 2022.



BEL's Research And Development Centres & their operational model; Source: Investors Presentation.

Research and Development (R&D) has been one of BEL's core strengths which is being enhanced through in-house and collaborative R&D modes. Various divisions of BEL are involved in the development of Strategic Components, Technology Modules, Subsystems, Products, Systems and Systems of Systems.

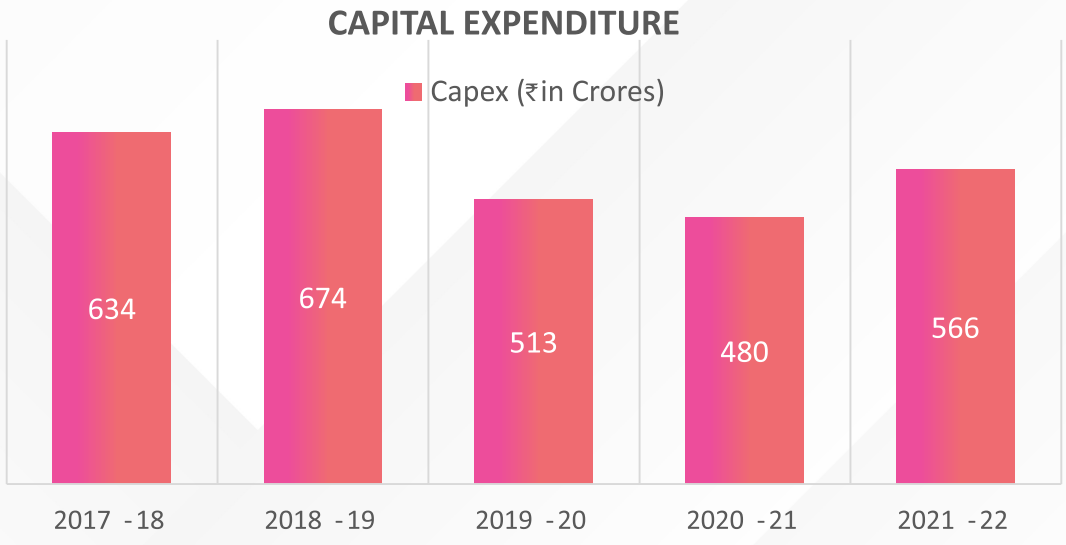
Strategic Alliance For Research and Development

BEL has been focusing on strengthening its R&D capabilities and rapidly harnessing specialised technologies into new products, which further helps in fulfilling the customer need for providing complete solutions and platforms, thereby enhancing our market access and facilitating entry into new markets.

Key Research And Development Partners		
Defence PSU	**Companies**	**Academia**
National Technical Research Organization	SAFRAN Engineering & Defense	IISC
DRDO	Microwave IC, Russia	IIT Madras, Kanpur, Roorkee, Kharagpur, Hyderabad, Ropar, Bangalore, Jabalpur, Dharwad
ISRO	DMRC	
WESEE /Indian Navy	BPL Medical Technologies	
Army Technology Board	AAI	
IAF	Renalyx Health Systems	
Indian Army	Motorola Solutions India	
Hindustan Shipyard Limited	NHAI	
Hindustan Aeronautics Limited	Bosch	

Development of new facilities

Infrastructure enhancement is one of the primary objectives of the BEL to stay upgraded for global opportunities and to be the best in business. During the year 2021-22, the Company has spent around 56,558 Lakh as part of CAPEX investment towards modernisation of Plant & Machinery, Test instruments, R&D investments, and Infrastructure upgradation.



Plants / Centers: To address Manufacturing needs & R&D

- Nimmaluru, Andhra Pradesh : Advance EO Systems Manufacturing
- Palasamudram, Andhra Pradesh : Weapon System Integration
- PDIC - Bengaluru: R&D Centre
- Ibrahimpatnam, Hyderabad: EW Systems Manufacturing

Investments to address Diversification Initiatives

- Land in Devanahalli (Bengaluru): Space, Unmanned Systems, Solar, etc.
- Land in Nagpur: Explosive handling for Fuzes
- RPSC Centres: Product Support Services

Exports Are Expected To Be A Key Avenue of Growth for BDL

BEL has been focussing increasingly towards harnessing the export potential of Defence electronics products & systems, including Homeland Security Solutions, Border Protection systems and state-of-the-art systems & solutions and professional electronics to address the civilian market, which represents its core area of business. BEL has been exporting various products and techniques to foreign countries and global OEMs. It has established a healthy relationship with its current & prospective customers and based on their requirements. BEL is also exploring the civil and medical equipment market in developed, developing & third world countries, with products and solutions like Artificial Intelligence-based solutions, software development for various civilian projects, IOT Sensors, Sensor Fusion and Management Systems, Unified Data Analytics Platform System, Smart Hub, security package for VVIP areas, Smart Cities, Critical infrastructure development, solar power generation projects.

Export Inititatives

- Collaborated with partners in Chile, Suriname, Argentina, Peru, Columbia, Panama, Malaysia, Nepal, ASEAN, Bangladesh & USA.
- Resource sharing – marketing products and systems of Defence Industries in India through BEL's overseas representative/marketing offices to quickly expand geospatial reach (18 Countries)
- BEL has planned strategic alliance with Major Indian Platform Manufacturers and is in the process of signing Agreements to create strong support within the country.

BEL is leveraging on its new International Marketing offices to expand the reach of its products & services to the new markets and also explore offset opportunities. BEL is also forging partnerships with other PSUs/industry players for quickly expanding the geo spatial reach through resource sharing. Company managed to get export orders worth 1468.18 Crores in the year FY 22. Companies total export order book no stands at 2230.97 Crores

The Company achieved an export sale of 271.49 Crores during FY 2021-22 to various countries, viz., Switzerland, the US, France, Israel, Sweden, Seychelles, Maldives, Sri Lanka, ASEAN Countries and the various SEZs. Significant products/ systems exported were Coastal Surveillance Systems Radar, Sub Systems of Radar and EW Systems, Data Link II, Cable looms, mechanical parts, communication equipment, IFF Interrogator, Radar Finger Printing System, EOS, Power Source, Radar Spares.

Strengths

- BEL is an established player in Indian defence electronics which
- with Diverse technology, domain expertise and state-of-the-art manufacturing infrastructure.
- A strong network of product support across India and strong segment-specific indigenousization capability
- Strong, multi-layered internal R&D for the creation of new technologies and products.
- Solid ties to government agencies, military R&D labs, and the military.
- Expertise in executing complex system integration\projects & turnkey solutions.

Weakness

- Gaps in some of the critical technology areas.
- Dependence on Cyclic Defence market.
- Time to Market - High.
- Low value addition in certain projects.
- Dependence on DRDO for technology in

certain segments.

- Dependence on foreign OEMs for certain

critical technologies.

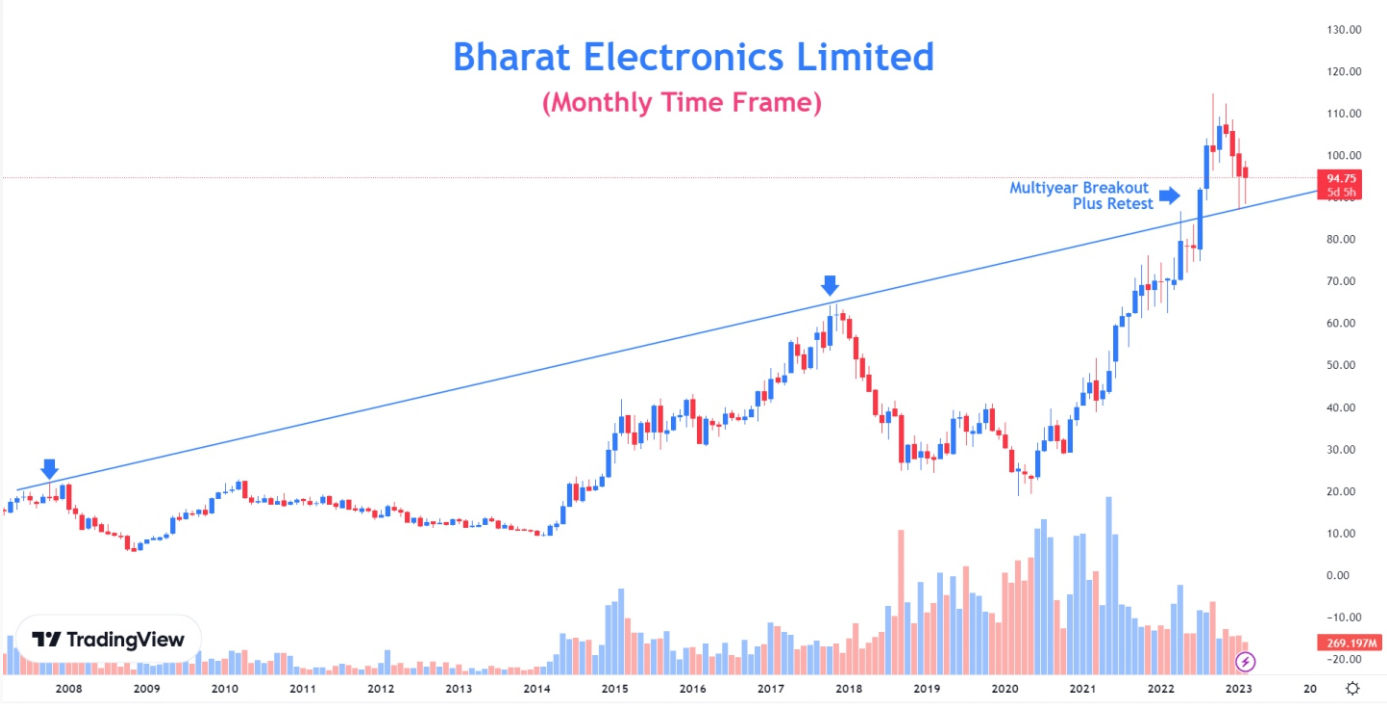
Opportunities

- Increasing spending on modernization, upgrade programmes, maintenance repair, and overhaul as a result of growing defence and security needs.
- The government's focus on Atmanirbhar Bharat and Make-In-India for the manufacturing the defence equipment
- Withdrawal of OEMs from select Asian countries as \sa manufacturing base.
- Opening up of Space segment for Industries.
- The modernization of the CPMF, police, railroads, and airports.
- Expanding market for related, non-defense industries such homeland security, smart cities, energy storage products, network & cyber security, composites, solar-powered power plants, railroads, etc.
- The Positive List of Indigenization and PLI.

Threats

- Rapid changes in technology in Defence.
- Difficulty in sourcing of few critical and denied technologies.
- Policy interventions favoring the private sector.
- Manifold increase in competition from Indian private industry and foreign OEMs including their JVs in the Defence sector.
- Impact due to COVID-like pandemic and Semiconductor shortage.
- Disinvestments by the Govt. of India and depleting cash reserves.

Technical Outlook



Bharat Electronics Limited (BEL) has given a Multi-Year Breakout and is now retesting the breakout line. The share price has shot up more the 173% in last 24 months from a low of 41.45 to a high of 114.50.

The share price of BEL is trading very close to the 200 Day moving average which further gives us an additional confirmation with the Bullish Price Action.

Moving Averages Days	Simple Moving Average	Exponential Moving Average
5	95.25	95.05
10	95.40	95.30
20	94.55	95.80
50	101.40	98
100	101.90	98.75
200	95.60	94.40

Pivot Levels : FIBONACCI		
R1 95.83	Pivot 95.32	S1 94.80
R2 96.15		S2 94.48
R3 96.67		S3 93.97

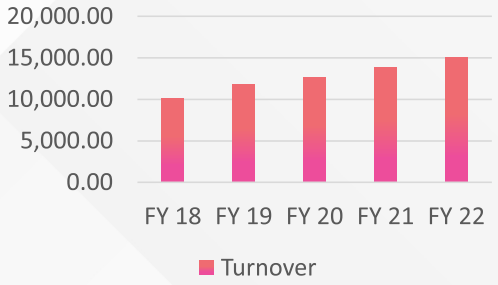
Peer Comparison

Particulars	Bharat Electronics	Data Pattern	Bharat Heavy Electronics	Hindustan Aeronautics	AIA Engineering
CMP (23-02-2023)	95.4	1,245	69	2,545	2,685
Price/Earnings (X)	25.36	49.6	30.8	14.1	25.8
Price/Book (X)	5.37	10.9	0.92	4.11	4.92
Price/Sales (X)	3.97	14.7	1.03	3.27	5.36
EV/EBITDA (X)	12.38	24	13.36	5.38	17.65
EV/Sales (X)	2.87	11.19	0.70	1.44	4.84
Enterprise Value (₹ In Crores)	43,876.57	3479.56	14775.23	35383.53	14929.02
Market Capitalisation (₹ In Crores)	69,735	6,458	24,009	85,095	25,325
Current Ratio (X)	1.39	5.02	1.30	1.80	17.11
Quick Ratio (X)	1.11	3.87	1	1.22	14.02
Inventory Turnover Ratio (X)	1.55	0.95	0.77	0.57	3.30
Dividend Pay-out Ratio (%)	43.56	11.81	0.00	26.29	14.52
Return On Net Worth (%)	19.60	16.35	1.52	26.40	12.72
Return On Capital Employed (%)	22.72	22.93	2.24	15.88	16.22
Return On Asset (%)	7.02	13.29	0.72	8.72	12.01
Asset Turnover Ratio (%)	0.49	0.60	0.38	0.45	0.66
Total Debt/Equity (X)	0.00	0.01	0.18	0.00	0.00
Net Profit Margin (%)	15.33	30.23	1.93	20.65	18.96
Basic EPS (₹)	9.64	19.48	1.18	152.11	61.97
Diluted EPS (₹)	9.64	19.48	1.18	152.11	61.97
Book Value (₹)	49.18	110.70	77.46	576.09	487.16
Dividend (₹)	4.50	3.50	0.40	50	9
Revenue/Share (₹)	62.85	59.89	60.92	736.27	326.71
PBT/Share (₹)	12.96	24.54	1.25	156.44	79.78
Net Profit/Share (₹)	9.64	18.11	1.18	152.11	61.97

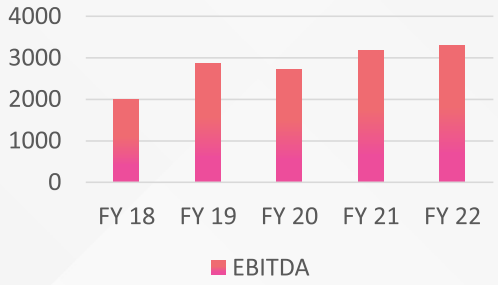
Financia Snapshot

Particulars	FY 22	FY 21	FY 20	FY 19	FY 18
Sales & Services	15,044	13,818	12,608	11,789	10,085
Value of Production	15,321	13,947	12,348	11,921	9,670
Other Income	234	126	102	170	200
Materials	9,179	7,957	6,846	6,080	5,104
Employee	2,109	1,941	2,057	1,879	1,772
Benefits Expense	380	366	350	316	251
Depreciation/Amortisation	380	366	350	316	251
Interest/Finance Cost	5	6	3	12	1
Other Expenses	993	1,114	1,028	1,396	1,110
Profit Before Tax	3,158	2,935	2,479	2,703	1,948
Provision For Tax	809	869	685	776	549
Profit After Tax	2,349	2,065	1,794	1,927	1,399
Dividend (Amount)	1,096	975	682	828	491
Dividend (%)	450	400	280	340	200
Equity Share Capital	244	244	244	244	244
Other Equity	11,741	10,564	9,609	8,775	7,517
Loan Funds	-	-	8	33	67
Gross Block	4,534	4,118	3,795	3,013	2,220
Cumulative Depreciation	2,010	1,638	1,275	929	613
Inventory	5,567	4,955	3,963	4,455	4,739
Trade Receivables	6,103	6,552	6,733	5,369	5,050
Working Capital	7,625	6,812	5,817	5,376	4,366
Capital Employed	10,149	9,292	8,336	7,461	5,973
Net Worth	11,984	10,808	9,853	9,019	7,761
Earnings Per Share (in ?)	9.64	8.48	7.36	7.91	5.70
Book Value Per Share (in ?)	49.18	44.36	40.44	37.01	31.85
No. of Employees	8,853	9,172	9,279	9,612	9,726

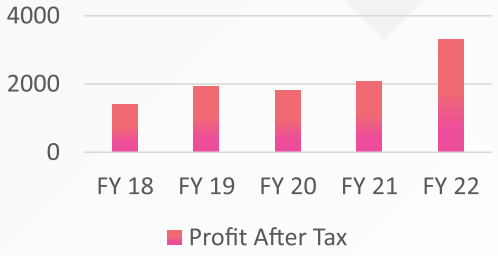
Turnovers (In Crores)



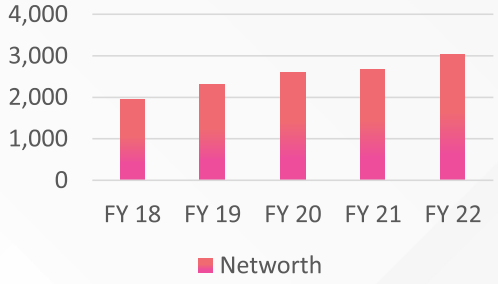
EBITDA (In Crores)



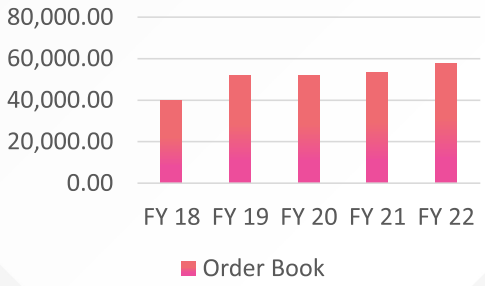
Profit After Tax (In Crores)



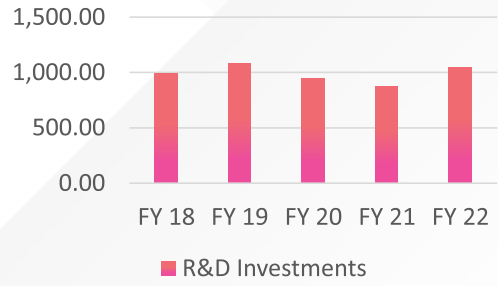
Networth (In Crores)



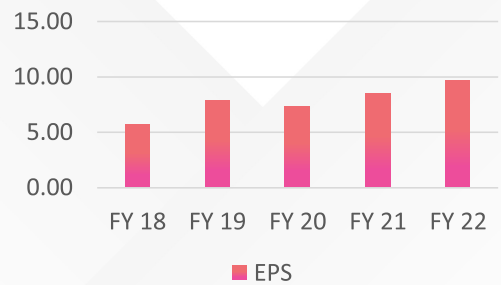
Order Book Size (In Crores)



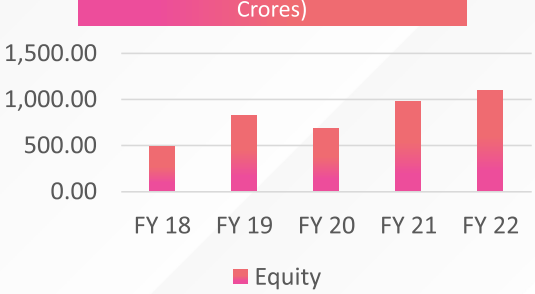
R&D Investments (In Crores)



EPS (In Rs.)



Dividend Distribution (In Crores)



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