

OUR MARKETS: WINNING SOLUTIONS IN AEROSPACE & DEFENCE

We provide solutions for high-reliability applications across a broad range of platforms operating on land, air and sea. Growth for TT is driven by increasing electrification of these platforms, which supports fuel efficiency and safety.

Market trends and drivers

In 2022 the global defence electronics manufacturing market is expected to have expanded by around 3%. This is a pace reflective of the past seven years, all of which have seen consistent, moderate expansion, as governments invest to maintain state-of-the-art capabilities. With Russia's invasion of Ukraine, it is likely that there will be a pickup in growth from here, with estimates suggesting an additional \$2 trillion of defence spending over the next decade, and a \$1 trillion investment in R&D, mostly in the US and Europe. Despite recessionary fears, heightened geopolitical tensions mean forecasts for growth in the defence market of c.5% per annum are possible – higher than the CAGR of 3-4% we have previously cited.

A central long-term growth driver is the desire of governments to maintain capabilities. In the US, investment in R&D and long-term projects such as the fifth generation F-35 Joint Strike Fighter and the B21 are driving growth. The US Department of Defense budget is set to increase by 14% to \$817 billion in 2023 and it is expected that the global defence budget will continue to grow despite inflationary pressures, record high deficits and fiscal consolidation. We remain optimistic that our exposure to the defence market will provide growing, high-margin business for decades to come. Recently, we were awarded a contract from long-term partner Honeywell Aerospace to support the design of a new power supply for next-generation inertial navigation units.

Throughout 2022 the commercial aerospace market has shown steady recovery from pandemic levels with the gradual alleviation of travel restrictions and release of pent-up demand. Industry

research predicts that this growth will continue to accelerate over the next 2-3 years as we get back to pre-pandemic levels. Air traffic is forecast to reach 97% of 2019 levels by the end of 2023, but demand for small- and medium-sized aircraft is not expected to recover to pre-COVID levels until 2024-5. We are planning for a strong civil aerospace recovery in the next two to four years, driven primarily by narrowbody aircraft deliveries, of at least double-digit CAGR growth.

Fundamentally, the need for safer, more efficient and more environmentally friendly aircraft remains. This drives demand for increasingly advanced electronic systems and applications, and supports our capabilities. We anticipate further tailwinds given a growing, global middle-class population who exhibit greater propensity to travel.

Our response

In commercial aerospace we are focused on supporting increasing electronic content of aircraft. In the near term, this means opportunities lie in helping customers with the adoption of hybrid models, mid-life electrification initiatives and electronics updates. Presently, we are growing capabilities in electrical power conversion and related sub-systems. We are collaborating with aerospace companies in the development of high efficiency, high power density converters as well as technologies for the next generation of higher voltage platforms. Recently, we completed qualification on a Power Supply unit for the Digital Flight Control System (DFCS) on the Dassault Falcon 6X aircraft, and we are now working on the equivalent unit for a new programme. Our ultimate ambition is in broadening our position as a supplier of choice in

CONTRIBUTION TO GROUP

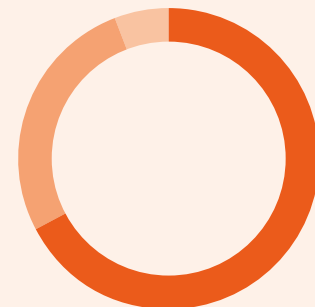
15%

of Group revenue

the increasing electrification of aircraft and aircraft systems. As technology progresses, we believe that we are well positioned to support customers throughout this transition.

In defence, we are focused on next generation requirements for high-density power electronics and electrical machines through the development of technologies that reduce size, weight, power and cost (SWaP-C), while simultaneously enhancing command, control, communications, computing, intelligence, surveillance and reconnaissance (C4ISR) capabilities. We have recently found success in providing more integrated, design-led solutions. In these products we have demonstrated greater capacity to deliver SWaP-C improvements, and this is resonating with customers. A recent example is the delivery of a significant increase in the power density of DC-DC converters for a major prime. We expect this to drive favourable shifts in our product mix moving forward.

MARKET REVENUE BY DIVISION



67% – Power and Connectivity ●
27% – Global Manufacturing Solutions ●
6% – Sensors and Specialist Components ●

PERFORMANCE- ENHANCING SOLUTIONS FOR SAFE FLIGHT



EXPECTED MARKET GROWTH

4-5%

Aerospace & defence market
2022-26 CAGR

WHAT WE DO

From cockpit displays to engine controls and defence systems, our solutions optimise performance and reliability in the harshest and most demanding conditions, while our interior solutions enhance the passenger experience.

Our products provide size, weight and efficiency benefits for applications such as power conversion, actuation and control for mission-critical systems on a broad range of military and commercial platforms globally.

TT ELECTRONICS IN ACTION

Cockpit avionics and flight controls

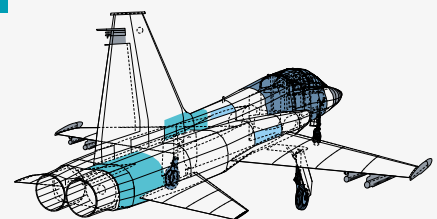
- Avionics and display units
- Flight controls
- Landing gear
- Joystick controls
- Wing de-icing

Precision guidance and defensive aids systems

- Laser targeting and inertial navigation systems
- Precision guidance systems
- Radar jammers

Communication, navigation and radar systems

- Global positioning systems (GPS)
- Radar systems
- Communications, navigation and identification



Engine controls and fuel systems

- Engine control units
- Fuel distribution systems
- Engine ice protection
- Auxiliary power units

Aircraft interiors

- Passenger Control Units
- Cabin signage
- Mood and ambient lighting