



### Investment Profile

1. Solid-state battery technology; growing patented portfolio across multiple jurisdictions
2. Asset light business model with a strong focus on reaching commercialisation
3. In-house, purpose built, fabrication facilities help drive and deliver scale-up plans
4. Licencing and royalty agreement with Cirtec set to deliver economy of scale and add the ability to rapidly ramp production of Stereax® batteries
5. Goliath nearing customer prototype stage

### Share Information

<b>Ticker</b>	AIM: IKA
<b>Share Price (GBX)</b>	32.0
<b>Shares in issue (m)</b>	159
<b>Market Cap (£m)</b>	50.8
<b>12m Hi/Low (GBX)</b>	24.9/67.0

(Source: The London Stock Exchange, February 2024)

### 12-Month Share Price



(Source: The London Stock Exchange, February 2024)

### Major Shareholders (as of 30th October 2023)

Name	%
GPIM Ltd	12.0
Charles Schwab	8.9
Schroder Investment Management	6.9
Janus Henderson Investors	5.6
Hargreaves Lansdown Stockbrokers	5.4



(Source: Company website)

### Meet Ilika plc



### Company Overview

Ilika plc is a pioneer in the design and manufacture of solid-state batteries. Its state-of-the-art batteries outclass the incumbent lithium ion batteries, are non-flammable, charge six times faster and potentially have double the energy density. The Company has quickly established an international reputation and secured collaborations and commercial partnerships with a portfolio of relevant blue-chip companies. It is focused on two main product lines: Stereax and Goliath.

Stereax®	Goliath
Designed for powering miniature medical implants and industrial wireless sensors, for condition monitoring in hostile conditions Customers: Large MedTech OEMs	Large format batteries for EV cars and cordless appliances. Developing and supported by: McLaren, Honda, BMW Group, Williams Advanced Engineering and Jaguar Land-Rover
 Photo: The ultra-thin Stereax battery, with applications ranging from cardiac monitors to contact lenses	 Photo: Goliath solid-state batteries – higher energy and power density, extended range, and fast charging

### What's New

**Significant advancements in Stereax & Goliath have strongly positioned the Group for commercialisation.**

#### Stereax

As part of the ongoing manufacturing scale-up, the Company signed a [licencing & royalty agreement with Cirtec Medical](#). Cirtec is an industry-leading strategic outsourcing partner of complex medical devices, including minimally invasive and active implantable devices. It has established a partnership with Ilika to collaborate in the manufacturing and commercialisation of miniature Stereax solid-state batteries, offering economy of scale and the ability to rapidly ramp production, as well as adding to commercial momentum. In April 2023 it made its [first Stereax shipment of M50 cells](#) to Blink Energy for use in ocular devices. This was quickly followed by the [first shipment of M300 batteries](#), being utilised for their compact, high-density and high-power characteristics. Ilika has now dispatched key manufacturing equipment to Cirtec in the US, while Cirtec is currently expanding its cleanroom capacity in Lowell to accommodate growth in its business, including Stereax manufacturing. Co-operative work continues with 20 customers to support development plans and product launch timelines.

#### Goliath

Goliath has progressed strongly in the first half of the financial year, with material ground being made in its technical parameters and implementing its production scale-up plans. In October, Ilika received [further scale up funding](#) from the Automotive Transformation Fund for a collaboration to run alongside project HISTORY, for which the Company has [already recieved funding](#). A month later, it announced it had achieved its [D4 development point](#), a design-freeze for its first customer prototype. This effectively marks the start of its productization journey, being the essential P1 prototype marker, with sample sales to OEMs to follow. The P1 prototype is an intermediate milestone on the roadmap to its minimum viable product (MVP) in 2025, which will underpin licensing opportunities.

Ilika met its target of announcing [lithium-ion energy density parity](#) in 2023 and with this, commercialisation of Goliath cells has the potential to offer EV producers the benefits of solid-state batteries' improved safety, faster charging, longer lifespan, and greater temperature resilience, without the need to sacrifice size, space, or effective range.

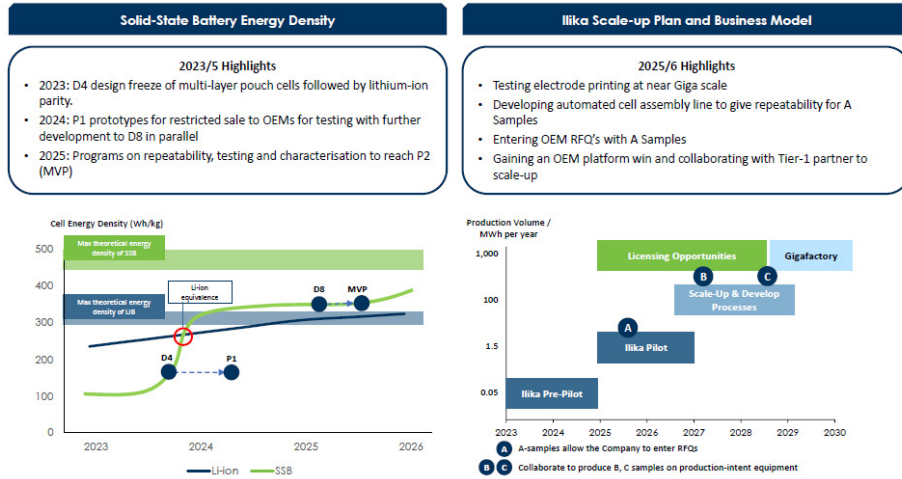
Ilika announced H1 24 revenue of £1.3m, reflecting a boost in grant funding (H1 23: £0.2m) and expects that full year results will be in line with market expectations.

## The Market Opportunity

The EV market could be transformational for Ilika, and Partnerships with the likes of Honda, McLaren, and Jaguar Land Rover, indicate that the Goliath platform is maturing well. Given Ilika's flexible model it is expected to move to a licence and royalty model as the business scales up. This will shift the manufacturing burden to larger companies with more expertise in that area, providing Ilika with a high-margin revenue stream and enabling it to focus on the core research and product development capability.

Goliath batteries are designed for EVs, which will soon become the largest battery market globally. Most industry analysts agree that solid-state batteries like Goliath cells will become the dominant battery technology over the next decade.

## Goliath Development & Scale-up Roadmap



## Cirtec Medical Agreement

- Landmark, ten-year licence to manufacture the Stereax range of products.
- Exclusivity for Cirtec in the field of medical devices designed to drive full utilisation of Cirtec's installed capacity.
- Profit sharing during the initial period followed by royalty-bearing manufacturing aligned with industry norms, calculated on individual battery volumes.

## Outlook

- Cirtec contract represents most immediate commercialisation opportunity, allowing fulfilment of order book and creating further opportunities for commercial engagement.
- Clear path to move Ilika's Goliath roadmap to the next stage and reach the D8 development milestone by the end of the HISTORY programme grant in Q1 2025, underpinning licencing opportunities.
- Ilika to manufacture and test batches of pouch cells based on the D4 development point prior to delivery of fully characterised P1 cells to customers.
- Enlarged capacity of existing pre-pilot production facility using automation and larger scale equipment.
- Targeting installed capacity of 1.5 MWh/a to allow scale production volumes and mature technology to the level required to respond to requests for quotation ('RFQ') by the end of 2025.
- Commercial interest and government grant support expected to intensify.

## Forecasts (Source: Consensus forecast compiled by Factset)

Year-end April	FY22 (Actual)	FY23 (Actual)	FY24 (Est.)	FY25 (Est.)	FY26 (Est.)
Sales (£m)	0.5	0.7	2.0	2.2	4.0
EBITDA (£m)	(6.8)	(7.0)	(6.2)	(5.8)	(5.0)
EPS (p)	(4.7)	(4.6)	(3.9)	(3.8)	(3.2)

Cash Balance at 31 October 2023: £13.2m (30 April 2023: £15.9m)

## Key Newsflow History

### Jan - Half Year Results

### Jan - 2024 Conference Schedule

### Dec - Exercise of Options & TVR

### Dec - Lithium-ion Parity Milestone Reached

### Nov - Trading Update

### Nov - Key Technology Development Milestone

### Oct - Award of Scale-up Funding for Goliath

### Aug - Signed Agreement with Cirtec Meidcal

### Jul - Final Results

### Jun - Senior Appointment & Conversion of Preference Shares

## Management Team

Ilika is led by **CEO, Graeme Purdy**, having joined in 2004. Graeme's extensive technical and commercial knowledge has enabled him to execute the transition from a materials discovery company to one focused on solid-state battery innovation.



**Jason Stewart, CFO**, was appointed to the Board in January 2023, bringing significant commercial experience from the manufacturing sector. He joined Ilika from Sunseeker International Ltd. where he was interim CFO.



## Goliath Competitive Landscape

	Oxide Electrolyte	Sulfide Electrolyte	Polymer Electrolyte
Si anode	Ilika, WBLI, Prologium, Umicore, LONGRAD DEVELOPMENT	Gotion, Solid Power	BlueCurrent, Amprius
Li anode	BYD, GanfengLithium, SVOLT	Factorial, SVOLT, CATL, GanfengLithium, HYUNDAI, SAMSUNG	BlueSolutions, NUVVON
Anode-less	QuantumScope		

Chemistry					
Sulfide Electrolyte	Oxide Electrolyte	Polymer Electrolyte	Lithium Anode	Silicon Anode	Anode-less
<ul style="list-style-type: none"> <li>High ionic conductivity</li> <li>Malleable</li> <li>Reacts easily with O<sub>2</sub> and moisture to make toxic H<sub>2</sub>S</li> <li>Expensive to manufacture</li> </ul>	<ul style="list-style-type: none"> <li>Stable in air</li> <li>More difficult to manage interfacial resistance</li> </ul>	<ul style="list-style-type: none"> <li>High ionic conductivity</li> <li>Needs pre-heating to 50-60°C</li> </ul>	<ul style="list-style-type: none"> <li>Constant cell voltage</li> <li>High energy density</li> <li>Expensive</li> <li>Dendrite formation can lead to short life</li> </ul>	<ul style="list-style-type: none"> <li>Longer cell life</li> <li>Less expensive than lithium</li> <li>Can lead to volumetric expansion</li> </ul>	<ul style="list-style-type: none"> <li>Cheaper than lithium anode</li> <li>Very high energy density</li> <li>Cell life compromise</li> <li>Volumetric expansion</li> </ul>