SECTOR
UPDATE

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EV/Mobility Team

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Rechargeable Batteries (NEUTRAL)

Dialogue with the market #43: CATL's Open Day targets European market

- CATL has just disclosed the Shenxing Pro, its new battery that is equipped with no propagation (NP) 3.0 technology.
- The company seeks to win over European automakers by changing its cell design and boosting its pack efficiency.
- The mass-production of LFP batteries at its new plant in Spain (which is scheduled to start in 2026) should catalyze battery competition in Europe.

WHAT'S THE STORY?

Introduction: In this, the 43th report in our Dialogue with the Market series, we discuss the implications of CATL's new technologies and products (presented at CATL Open Day 2025 on Sep 7 in Munich, just before the IAA Mobility 2025 exposition in Munich, Germany). While CATL Tech Day (April; at the Shanghai Motor Show) drew attention because of its timing (the Trump administration was making efforts to block Chinese firms from entering the US market by imposing high tariffs on Chinese-made batteries), CATL's Open Day drew market interest because the firm presented technological solutions tailored to Europeans. The event deserves attention as it highlights the company's strategy of rolling out tailored advanced technologies to win over potential European automakers at a time when its Korean rivals are busy entering the US LFP market.

Highlights of CATL Open Day 2025–Shenxing Pro: At CATL Open Day 2025, the company unveiled its new battery: the Shenxing Pro. The firm stressed that: 1) it is the world's first LFP battery that can supply a stable high voltage (to an EV) for one hour even after thermal runaway has begun; and 2) if thermal runaway begins, the battery does not burn or smoke. CATL presented two versions of the Shenxing Pro: 1) the Shenxing Pro Super Long Life & Long Range Battery[1], the world's first LFP battery to deliver a 758 km Worldwide Harmonised Light Vehicles Test Procedure (WLTP) range and a record-breaking 12-year/1m km lifespan; and 2) the Shenxing Pro Super-Fast Charging Battery, the leading superfast-charging LFP battery in Europe (capable of being charged 478 km (WLTP basis) in just 10 minutes). The company emphasized that both variants use its proprietary No Propagation[2] (NP) 3.0 technology.

(Continued on the next page)

[1] Direct comparison with other types of battery is difficult, but noteworthy is that the new Tesla Model Y Performance (featuring a high-nickel ternary battery, with a high nickel content of more than 90%) offers a single-charge WLTP range of 580 km.
[2] Battery thermal runaway is an uncontrollable, self-heating event where a battery's internal temperature rapidly increases due to a chain of exothermic reactions. If not contained, the thermal runaway in one cell can propagate to neighboring cells—thermal propagation (TP).

CATL's 2025 Tech Day and Open Day highlights

	Tech Day (Apr 21, 2025)	Open Day (Sep 7, 2025)
Event	Shanghai Auto Show, China	IAA Mobility, Germany
Battery technology	Shenxing 2nd generation	Shenxing Pro
Key technologies	*12C super-fast charging *Self-healing anode technology, Freevoy dual-battery combination	*NP 3.0 safety technology enabling long lifespan & super-fast charging *Wave Cell + CTB integrated design
Other announcements	Sodium-ion battery 'Naxtra' unveiled, mass-production from 2H25	Zaragoza (Spain)—LFP plant to start in 2026

Source: CATL

CATL Shenxing Pro: Two versions—Super-fast charging and Super Long Life & Long Range

Source: CATL

CATL Shenxing Pro: Details

Type	Performance
1) Super-fast charging battery	12C charging; 478 km range with a 10-minute charge (WLTP); 410 km range within 20 minutes at -20°C
2) Super long-life & long-range battery	758 km range (WLTP); 12 years, 1m km lifespan; Only 9% degradation after 0.2m km

Source: CATL

Pinnacle of safety innovations—NP 3.0 technology: CATL's NP 3.0 technology enables a sustained high voltage to be supplied to the EV for over one hour after thermal runaway has begun, meaning that the driver can maintain the vehicle's speed (whilst thermal runaway is happening) and have time to calmly navigate to a safe area. According to CATL, as Level 3 and Level 4 autonomous driving will shift accident responsibility to vehicle systems, the Shenxing Pro ensures uninterrupted power and system continuity during certain emergencies. CATL explained the importance of 'no thermal propagation' in a video. If a battery cell fails and undergoes thermal runaway, propagation can quickly spread through the entire battery pack, leading to catastrophic failure and an accident (*eg*, if the EV is being driven at high speed). But the battery maker's 'no thermal propagation' (NP) technology blocks propagation, meaning that high-voltage power can be sustained for over one hour (after thermal runaway has begun), allowing the driver to calmly navigate his EV to a safe location for remedial action.

According to CATL, the NP technology delivers improvements on three fronts: cell chemistry, structure, and systems. First, at the cell level, flame-retardant electrolytes, separators, and nano-coatings on

cathode materials help contain and suppress thermal runaway. Second, at the structural level, cell safety devices, aerogel thermal insulation pads, and a fire-retardant coating help prevent heat from spreading between cells. Third, at the system level, circuit stabilization controls and a high-voltage active cooling system help stabilize the power system.

CATL's NP 3.0 technology and cell design

Source: CATL

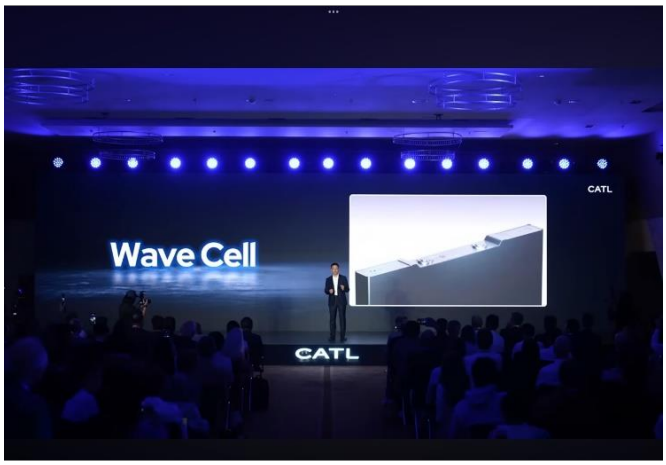
CATL's NP 3.0 technology: Three categories and functions

Category	Technology innovation	Function
Cell level	1) Electrolyte: Combustion-delaying electrolyte	When thermal runaway occurs, the electrolyte cuts off chemical reactions
	2) Separator: Non-flammable safety separator	Resists high temperature and prevents short circuits stemming from separator failure
	3) Cathode material: Nano-coated cathode	Nano coating stabilizes the structure of the cathode surface and mitigates thermal runaway
Structural level	1) Cell safety device	Reduces swelling by lowering the temperature and pressure of adjacent cells
	2) Aerogel thermal barrier	Acts as a protective layer to prevent thermal propagation (TP)
	3) Fire-retardant coating	Expands when heated, enhancing insulation and resistance to thermal runaway
System level	1) Circuit safety control technology	Analyzes circuits during thermal runaway and ensures circuit stability
	2) High-voltage cooling technology	Provides insulation and analyzes temperature, voltage, and pressure for safe discharge and stable power system operation

Source: CATL

Cell design change–Wave Cell: On top of improving its cell safety with NP 3.0 technology, CATL has improved its cell design. Specifically, the Shenxing Pro incorporates the company's innovative Wave Cells, which feature a raised shoulder design and space-sharing technologies, allowing cooling systems and fixtures to be applied in any direction (vs limited choices, previously). By achieving omnidirectional vibration suppression, the battery boosts battery pack stiffness by 25%. The battery breaks traditional cell-to-body (CTB) limitations through its cell design, achieving a remarkable 76% pack volume efficiency.

Wave Cell structure



Source: CATL

Wave cell + CTB integration: Achieves 76% pack efficiency

Source: CATL

Expanding capacity in Europe—Spain factory to commence operations in 2026: CATL also disclosed its battery capacity expansion plan for Europe. It operates a 14 GWh plant in Thuringia, Germany, and is ramping up its Debreczyn plant (Hungry), aiming to boost its capacity to 100 GWh. It is building an LFP factory (a JV with Stellantis; capacity of 50 GWh) in Zaragoza, Spain, and plans to bring the plant online by end-2026. Its expanding LFP production in Europe combined with the full-scale adoption of NP 3.0 in its battery products should level up CATL's competitiveness in Europe.

CATL: Battery production in Europe

Country	Location	Established	Investment	Capacity (Gwh)	Note
Germany	Thuringia	2018	USD1.8b	14	Its first production facility in Europe
Hungary	Debrecen	2022	EUR7.3b	100	Expands ability to meet battery demand in Europe
Spain	Zaragoza	2025	EUR4.1b	50	Joint LFP facility with Stellantis

Source: CATL

Clarifies strategy to gaining market share in Europe: The Open Day event was a venue for CATL to win over potential customers in Europe—the event was held in Europe ahead of an important auto show (IAA Mobility 2025). Moreover, by presenting brand new safety solutions that meet the safety needs of Europeans (they are particularly safety conscious), the Open Day event has likely sparked automakers' interest in CATL's products. Although there should be a time lag between CATL's technology proposals and the battery's adoption (by its clients), CATL's Shenxing Pro should rapidly penetrate the continent after European automakers put the battery (equipped with NP 3.0 technology) through its paces. To defend their market share in Europe, Korean battery makers have little choice but to improve their battery pricing and performance.

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