

Batteries for Humanoid Robots: Global Market 2027-2040

<https://marketpublishers.com/r/B56A4635B729EN.html>

Date: October 2026

Pages: 237

Price: US\$ 1,500.00 (Single User License)

ID: B56A4635B729EN

Abstracts

Battery runtime has become one of the main limits on how far and how fast humanoid robots can scale. Most humanoids run for two to four hours per charge, against working shifts of eight to twelve hours. Adding cells is not a simple fix, because a heavier pack loads the same actuators it powers, and the battery has to fit inside a compact torso. Humanoid batteries must combine four things that rarely come together: high energy density, sharp peak power for walking and lifting, long cycle life across multiple shifts, and safety close to people. Robot makers including Figure AI and Tesla have concluded that off-the-shelf EV packs are a poor fit, and design their own packs around the robot's body and duty cycle.

Lithium-ion carries the market today:

High-nickel NMC dominates where energy density matters most.

LFP serves lower-cost and lower-endurance robots.

Cylindrical cells lead on cost, maturity and supply. Pouch and custom-shaped cells are used where space is irregular.

High-rate power cells, such as Molicel's, handle actuator peak loads.

Operators are tackling the runtime gap through system design as much as chemistry. Battery swapping is spreading in industrial settings: Hexagon's AEON and UBTECH's Walker S2 change their own batteries, and Apatronik and others use dual-battery designs. Docking and fast charging suit service and home robots. Pack architecture, thermal management and battery management software are becoming points of

competition for robot makers. Next-generation chemistries are moving forward in parallel. These include silicon anodes from companies such as Amprius and Enovix, semi-solid and all-solid-state cells, lithium-metal and lithium-sulfur. Robots are attractive early customers for these premium cells because a pack of around 2 kWh can absorb a higher cost per kWh than a 60–100 kWh EV pack. Research groups argue that full-shift operation will ultimately need cells above 1,000 Wh/L.

The supply base is global and broadening:

Asian cell makers in Japan, Korea and China are developing robot-specific products. Panasonic, for example, is designing cylindrical cells for humanoids.

European specialists include Saft, which partners with Enchanted Tools, and RRC Power Solutions.

US developers QuantumScape, Factorial and others are positioning next-generation cells for robotics.

Batteries for Humanoid Robots: Global Market 2027-2040 analyzes the battery technologies, pack designs, charging strategies and supply chains that will determine how quickly humanoid robots move from pilot projects to full-shift deployment. With most humanoids limited to two to four hours of runtime, the battery is now central to the economics of every robot. Cell makers, pack integrators and robot makers across Asia, North America and Europe are developing robot-specific solutions. The report sets out what a humanoid battery must do: energy density in a confined torso, peak power for dynamic motion, multi-shift cycle life, safety near people, and a cost share of about 10% of the robot price.

Report contents include:

Executive summary with key findings, the technology roadmap, and demand and value forecasts

Humanoid market context: shipments, installed base, sector penetration, regional markets and government programmes

The battery's share of the robot's bill of materials and conditions for a sub-US\$20,000 humanoid

Power demand by subsystem and activity, and energy needs per shift

Battery requirements, a gap analysis for 8-hour operation, and specifications of leading humanoids

Lithium-ion chemistries, cathodes, anodes and high-rate power cells

Semi-solid, all-solid-state, lithium-metal, lithium-sulfur and sodium-ion batteries, with commercialization timelines

Cell formats, pack sizing, pack architectures, BMS, thermal management and safety

Fast charging versus battery swapping, total cost of ownership and the swap-pack multiplier

Supply chain, supplier tiers, regional analysis across Asia, North America and Europe, automaker programmes and partnerships

End-use applications: industrial, logistics, service, healthcare, household and hazardous environments

Forecasts for 2027–2040 by application, chemistry, cell format and region

Standards, regulation, barriers to scale, SWOT analysis and outlook to 2040

82 company profiles. Companies profiled include 24M Technologies, Ampace, Ampcera, Amprius Technologies, ATL (Amperex Technology Ltd.), Azure, BAK Power Battery, Basquevolt, Blue Current, Blue Solutions, BTR New Material Group, BYD / FinDreams Battery, CALB, CATL, Chongqing Tailan New Energy, CNS Battery, Echion Technologies, EcoPro BM, Enovix, Enpower, EVE Energy, Factorial Energy, Farasis Energy (Funeng Technology), Ganfeng Lithium, Gotion High-Tech, Great Power Energy, Grepow, Group14 Technologies, Hoppt Battery, Idemitsu Kosan, IL Science, Ilika, Ion Storage Systems, Joyson New Energy, LG Energy Solution, Lishen Battery, Lyten, Maxell, Microvast, Molicel (E-One Moli Energy), Murata Manufacturing, Nandu Power, Nyobolt, Panasonic Energy and more.....

Contents

1 EXECUTIVE SUMMARY

- 1.1 Report scope and key definitions
- 1.2 Why the battery is the binding constraint on humanoid deployment
- 1.3 The humanoid market in 2026: hype vs. deployment reality
- 1.4 Humanoid vs. EV battery requirements
- 1.5 Battery chemistry roadmap 2027–2040
- 1.6 Solid-state batteries: why humanoids are solid-state's first commercial market
- 1.7 Market reality check: a premium niche of ~0.1 GWh in 2026
- 1.8 Charging vs. battery swapping: implications for battery demand
- 1.9 Competitive landscape
- 1.10 Global humanoid battery demand 2027–2040 (GWh)
- 1.11 Global humanoid battery market value 2027–2040 (US\$ million)
- 1.12 Comparison of third-party forecasts
- 1.13 Market drivers and restraints
- 1.14 Strategic recommendations

2 HUMANOID ROBOT MARKET CONTEXT AND POWER DEMAND

- 2.1 Industry overview 2026
 - 2.1.1 From demonstration to pilot deployment
 - 2.1.2 The industrial robot baseline: five million robots in factories
 - 2.1.3 Humanoid sales 2025: ~7,000 units for industrial and professional use
 - 2.1.4 2026 shipments
 - 2.1.5 Robot battery demand 2025–2026
 - 2.1.6 Capital markets
 - 2.1.7 Specialised physical AI vs. humanoids: where value is captured
- 2.2 Humanoid shipment and installed base outlook 2027–2040
 - 2.2.1 Penetration by sector
- 2.3 Regional markets
 - 2.3.1 China
 - 2.3.2 United States
 - 2.3.3 South Korea
 - 2.3.4 Japan
 - 2.3.5 Europe
 - 2.3.6 Rest of World
- 2.4 Government policy and industrial strategy

2.5 Humanoid cost structure and the battery share of BOM

2.5.1 Humanoid BOM breakdown

2.5.2 Battery cost share of robot price and the ~10% industry target

2.5.3 Conditions for a sub-US\$20,000 humanoid and implications for battery cost

2.6 Power demand of a humanoid robot

2.6.1 What the battery powers

2.6.2 Power consumption by subsystem and activity

2.6.3 Human caloric benchmark and cost of transport

2.6.4 Energy demand of example applications, including 10+ kWh use cases

2.6.5 AI compute: a growing share of the energy budget

3 BATTERY REQUIREMENTS AND DESIGN CONSTRAINTS

3.1 Requirements compared with other mobile platforms

3.2 Energy density: gravimetric and volumetric

3.2.1 Torso volume and mass limits: packs confined to the chest compartment

3.2.2 Volumetric vs. gravimetric energy density: why Wh/L matters more than in EVs

3.2.3 The weight paradox: extra battery mass raises actuator load

3.2.4 Target: >1,000 Wh/L cells for full-shift operation

3.3 Power density and peak discharge for dynamic motion

3.4 Cycle life and calendar life under multi-shift duty

3.4.1 Cycling profile of humanoid robots

3.5 Safety for close human interaction

3.5.1 Thermal runaway, nail penetration and fire containment

3.5.2 Fall, impact, vibration and shock from bipedal locomotion

3.6 Operating temperature range

3.7 Fast-charge capability

3.8 Weight distribution, centre of mass and balance

3.9 Current state of humanoid batteries

3.9.1 Specifications of commercial humanoids

3.9.2 Bipedal (<1 kWh typical) vs. wheeled (>1.5 kWh) humanoids

3.9.3 Average capacity per robot 2025–2040

3.10 Gap analysis: the road to 8-hour operation

3.10.1 Runtime today: ~2 hours for transitional packs

3.10.2 The 8-hour shift threshold, expected around 2028

3.11 Designing the robot around the pack: battery-led robot architecture

3.12 Key battery challenges

4 BATTERY CHEMISTRIES AND CELL TECHNOLOGIES

4.1 Selection criteria and overview

4.2 Lithium-ion batteries

4.2.1 Cathodes: NMC, NCA, LFP, LMFP, LCO, LMO

4.2.2 High-nickel NMC (NMC622, NMC811, NMC9??): the current incumbent

4.2.3 LFP: cost advantage in lower-endurance and voice-interaction robots

4.2.4 Anodes: graphite, silicon-carbon and silicon-dominant

4.2.5 High-rate power cells for actuator peak loads

4.2.6 Lithium-polymer packs

4.3 Semi-solid and quasi-solid-state batteries

4.3.1 Technology and commercial status

4.3.2 Humanoid deployments

4.4 All-solid-state batteries

4.4.1 Sulfide, oxide, polymer and halide electrolytes

4.4.2 Electrode technologies: high-nickel cathodes, silicon, lithium metal, anode-free

4.4.3 Why humanoids commercialize solid-state before EVs: <2 kWh robot packs vs. 60–100 kWh EV packs

4.4.4 Robots as the premium-tolerant customer: energy density, peak power and safety

4.4.5 Humanoid solid-state programmes

4.4.5.1 XPENG IRON (2nd generation)

4.4.5.2 GAC GoMate (3rd generation)

4.4.5.3 EngineAI (Zhongqing) T800

4.4.5.4 Farasis (Funeng Technology)

4.4.5.5 CALB

4.4.5.6 Joyson–Enpower embodied-AI battery joint venture

4.4.5.7 EVE Energy Longquan No. 2

4.4.6 Cost: US\$400–600/kWh today vs. LFP and NCM packs

4.4.7 Samsung SDI's two-track strategy: cylindrical for mass-market robots, all-solid-state for premium humanoids

4.4.7.1 Pouch all-solid-state for physical AI vs. prismatic for EVs

4.4.7.2 S-Line pilot: sulfide electrolyte, anode-free design, customer evaluation

4.4.8 Mass production plans of key solid-state players

4.4.9 Unconverged routes: oxide, sulfide and polymer as parallel chemistry bets

4.4.10 Automotive OEM solid-state timelines and spill-over to humanoids

4.4.11 Robots as the field-data generator for automotive solid-state programmes

4.5 Lithium-metal and anode-free batteries

4.6 Lithium-sulfur batteries

4.6.1 Advantages and challenges

- 4.6.2 Humanoid applications
- 4.7 Sodium-ion batteries: low-cost household robots and docking stations
- 4.8 Long-term and complementary technologies
 - 4.8.1 Metal-air (Li-air, Zn-air)
 - 4.8.2 Structural batteries (EFSB) for limbs and tendons
 - 4.8.3 Supercapacitors and hybrid storage for peak power
 - 4.8.4 Fuel cells for long-endurance robots
- 4.9 Chemistry adoption roadmap 2027–2040

5 CELL FORMATS, PACK INTEGRATION, BMS, THERMAL MANAGEMENT AND SAFETY

- 5.1 Cell formats
 - 5.1.1 Cylindrical: 18650, 21700, 46-series
 - 5.1.2 Pouch: Samsung SDI's shift to pouch format for robots
 - 5.1.3 Prismatic
 - 5.1.4 Structural and custom-shaped cells
- 5.2 Cell count and pack sizing
 - 5.2.1 21700-based pack estimation
 - 5.2.2 4680-based pack estimation
 - 5.2.3 Installed vs. actual capacity: fit assessment for major models
- 5.3 Pack architectures
 - 5.3.1 Centralised torso pack
 - 5.3.2 Distributed and embedded packs
 - 5.3.3 Swappable cartridges: single and dual
 - 5.3.4 Structural integration: torso as battery enclosure
 - 5.3.5 Per-model pack customisation vs. platform standardisation
- 5.4 Voltage platforms and power distribution
- 5.5 Battery management systems
 - 5.5.1 SoC/SoH estimation under dynamic loads
 - 5.5.2 AI-driven BMS and predictive energy management
 - 5.5.3 Functional safety and robot-controller integration
- 5.6 Thermal management
 - 5.6.1 Air, heat-pipe and liquid cooling
 - 5.6.2 Shared cooling of battery and AI compute
 - 5.6.3 Case studies
 - 5.6.4 Figure 03 battery design
 - 5.6.5 Tesla Optimus: pack, cells and patent PCT/US2023/033983
 - 5.6.6 Boston Dynamics Atlas battery strategy

- 5.6.7 UBTECH Walker S2 dual-battery system
- 5.6.8 High-power pack for multi-legged robots (Molicel P45B 16S3P)
- 5.7 Connectors, harnesses and protection circuits

6 CHARGING, BATTERY SWAPPING AND ENERGY MANAGEMENT

- 6.1 Limited endurance: fast charging or swapping?
- 6.2 Fast charging (5C–7C) and degradation trade-offs
- 6.3 Docking and autonomous charging
- 6.4 Battery swapping
 - 6.4.1 Manual hot swapping
 - 6.4.2 Autonomous self-swapping
 - 6.4.3 Dual-battery architectures
 - 6.4.4 Swap stations and fleet energy management
 - 6.4.5 Standardisation of swappable packs
- 6.5 Economics of battery swapping
 - 6.5.1 Additional packs per robot and effect on total battery demand
- 6.6 Charging model by application
- 6.7 Wireless power transfer
- 6.8 Energy harvesting and regenerative systems

7 SUPPLY CHAIN AND COMPETITIVE LANDSCAPE

- 7.1 Humanoid battery value chain
- 7.2 Market scale today: strategic, not yet material
 - 7.2.1 Robot battery shipments vs. total Li-ion (5.2 GWh in 2024, <0.4%)
 - 7.2.2 Humanoid battery demand of ~0.1 GWh in 2026 vs. gigafactory scale
 - 7.2.3 Battery vendors' narratives vs. robot OEM priorities
- 7.3 Supplier–OEM relationships
- 7.4 Regional analysis
 - 7.4.1 China: scale, first-mover solid-state programmes and a full domestic supply chain
 - 7.4.2 South Korea: EV-to-robot pivot
 - 7.4.3 Japan: Panasonic, TDK, Murata, Maxell
 - 7.4.4 Taiwan, US and Europe
- 7.5 Supplier tiers
- 7.6 Automotive OEMs as humanoid makers and battery integrators
 - 7.6.1 XPENG Guangzhou humanoid production base
 - 7.6.2 GAC GoMate small-batch production

7.7 Materials suppliers

7.8 Specialist robotics pack integrators

7.9 Investments, partnerships, joint ventures and M&A 2024–2026

7.10 Humanoids in battery manufacturing: CATL, BMW and the reverse relationship

8 END-USE APPLICATIONS

8.1 Industrial manufacturing

8.1.1 Automotive and battery plants

8.1.2 Electronics and general manufacturing

8.2 Logistics and warehousing

8.3 Commercial and service

8.3.1 Retail and hospitality

8.3.2 Healthcare and eldercare (KAPEX hospital deployment)

8.4 Household and domestic

8.5 Research, education and AI training-data collection

8.6 Hazardous environments, defence and outdoor

8.7 Battery requirements compared across applications

9 GLOBAL MARKET FORECASTS 2027–2040

9.1 Forecast summary

9.2 Scenarios and assumptions

9.3 Battery demand (GWh)

9.3.1 By application

9.3.2 Industrial demand by technology

9.3.3 Industrial demand including battery swapping

9.3.4 Commercial and domestic demand by technology

9.3.5 By chemistry

9.3.6 Solid-state battery demand from humanoids

9.3.7 Lithium-ion NMC by nickel content

9.3.8 By cell format

9.3.9 By region

9.4 Market value (US\$ million)

9.4.1 Average selling prices

9.4.2 By application

9.4.3 By chemistry

9.4.4 Solid-state batteries by application

9.4.5 By region

- 9.4.6 Value split: cells, packs, BMS and thermal systems
- 9.5 Scenario analysis
- 9.6 Sensitivity analysis

10 REGULATION, STANDARDS, CHALLENGES AND OUTLOOK

- 10.1 Safety standards and certification
- 10.2 Standards gap: no robot battery duty-cycle or performance test
- 10.3 China's solid-state definitions: GB/T 43568-2026 and the IEC submission
- 10.4 EU Battery Regulation: removability, battery passport and recycling
- 10.5 Transport, end-of-life and second life
- 10.6 Supply chain risks: critical minerals, export controls and tariffs
- 10.7 Technical challenges
- 10.8 Market challenges: undefined product-market fit, fast-changing robot architectures, supplier hype
 - 10.8.1 Robot body designs iterating faster than battery qualification cycles
 - 10.8.2 Lack of pack standardisation across platforms
 - 10.8.3 Solid-state chemistry routes yet to converge
- 10.9 SWOT analysis
- 10.10 Outlook to 2040

11 COMPANY PROFILES (82 company profiles)

12 APPENDICES

- 12.1 Report scope and objectives
- 12.2 Definitions and terminology
- 12.3 Humanoid robot classification
 - 12.3.1 Bipedal, wheeled and hybrid humanoids
 - 12.3.2 Autonomy levels: transition from Level 3 to Level 4
- 12.4 Research methodology
 - 12.4.1 Primary and secondary research
 - 12.4.2 Forecast model
 - 12.4.3 Scenarios: base, conservative and accelerated
- 12.5 Market segmentation
- 12.6 Glossary of terms
- 12.7 List of abbreviations

13 REFERENCES

List Of Tables

LIST OF TABLES

- Table 1. Key humanoid market indicators 2025–2026
- Table 2. Humanoid vs. EV battery requirements compared
- Table 3. Solid-state battery commercialization targets of leading cell makers for robotics
- Table 4. Global humanoid battery demand by application 2027–2040 (GWh)
- Table 5. Global humanoid battery market value by chemistry 2027–2040 (US\$ million)
- Table 6. Humanoid robot and humanoid battery forecasts compared by source
- Table 7. Market drivers and restraints for humanoid robot batteries
- Table 8. Global industrial robot operational stock and annual installations by region (latest available)
- Table 9. Humanoid robot shipments and installed base estimates 2024–2026 by source
- Table 10. Global humanoid robot shipments by application 2027–2040 (thousand units)
- Table 11. Global humanoid robot installed base by application 2027–2040 (thousand units, year end)
- Table 12. Humanoid penetration rate by sector, 2030, 2035 and 2040
- Table 13. Humanoid robot shipments by region 2027–2040 (thousand units)
- Table 14. Government programmes relevant to humanoid batteries
- Table 15. Battery cost share of robot price by chemistry at US\$5,000, US\$20,000 and US\$50,000 price points (2 kWh pack, 2027 pack prices)
- Table 16. Power consumption by subsystem and activity (full-size bipedal humanoid, typical ranges)
- Table 17. Estimated energy demand per shift for example humanoid applications
- Table 18. Battery requirements: humanoid vs. EV, eVTOL/drone, AMR, quadruped and power tool
- Table 19. Peak and continuous discharge requirements by activity
- Table 20. Battery specifications of leading humanoid robots (manufacturer data; n/d = not disclosed)
- Table 21. Average battery capacity per humanoid robot by application 2025–2040 (kWh)
- Table 22. Gap analysis: installed vs. required energy for 2, 4, 8 and 12 hour operation
- Table 23. Battery challenges for humanoid robots and mitigation strategies
- Table 24. Rechargeable battery technologies compared for humanoids
- Table 25. NCM vs. LFP: effect of chemistry switch on humanoid robot price (2 kWh pack, 2026 cell prices)
- Table 26. Lithium-ion anode materials compared
- Table 27. Semi-solid-state cells offered for robots: specifications by supplier
- Table 28. Solid electrolyte families compared
- Table 29. Solid-state cost premium per unit: humanoid robot vs. electric vehicle

Table 30. Humanoid solid-state battery programmes: claimed specifications, runtime and timing

Table 31. Solid-state vs. LFP and NCM pack cost 2026–2040 (US\$/kWh, humanoid packs)

Table 32. Solid-state mass production timelines

Table 33. Chemistry share of humanoid battery demand, 2027, 2030, 2035 and 2040

Table 34. Cell format comparison for humanoid robots

Table 35. Cell format share of humanoid battery demand 2027–2040

Table 36. Estimated cell count and pack volume for 2.0, 3.0 and 5.0 kWh packs by cell format (14S, ~52 V nominal)

Table 37. Pack architecture comparison: energy, serviceability, safety, cost

Table 38. Pack voltage and configuration by humanoid model

Table 39. Thermal management approaches by humanoid class (reported examples where disclosed)

Table 40. Fast-charge capability by chemistry and impact on cycle life

Table 41. Battery swapping implementations by humanoid model

Table 42. Total cost of ownership per robot: fast charging vs. swapping

Table 43. Swap-pack multiplier by application 2027–2040 (packs in service per robot)

Table 44. Recommended charging and swapping model by application

Table 45. Publicly disclosed battery supply relationships with humanoid OEMs

Table 46. Humanoid battery suppliers by region and technology focus

Table 47. Tiered supplier landscape

Table 48. Automaker humanoid programmes and battery sourcing

Table 49. Cathode, solid electrolyte and anode suppliers targeting humanoid batteries

Table 50. Key investments and partnerships in humanoid batteries 2024–2026

Table 51. Industrial humanoid deployments and battery configurations

Table 52. Battery requirement profile by application

Table 53. Published humanoid battery and robot forecasts compared

Table 54. Global humanoid battery demand by application 2027–2040 (GWh)

Table 55. Industrial humanoid battery demand by technology 2027–2040 (GWh)

Table 56. Industrial humanoid battery demand including swap packs 2027–2040 (GWh)

Table 57. Commercial and domestic humanoid battery demand by technology 2027–2040 (GWh)

Table 58. Global humanoid battery demand by chemistry 2027–2040 (GWh)

Table 59. Humanoid solid-state battery demand: semi-solid vs. all-solid-state 2027–2040 (GWh)

Table 60. Lithium-ion NMC demand by nickel content 2027–2040 (GWh)

Table 61. Humanoid battery demand by cell format 2027–2040 (GWh)

Table 62. Humanoid battery demand by region 2027–2040 (GWh)

Table 63. Cell and pack ASP by chemistry 2027–2040 (US\$/kWh, cell / pack)
Table 64. Humanoid battery market value by application 2027–2040 (US\$ million)
Table 65. Humanoid battery market value by chemistry 2027–2040 (US\$ million)
Table 66. Solid-state humanoid battery market value by application 2027–2040 (US\$ million)
Table 67. Humanoid battery market value by region 2027–2040 (US\$ million)
Table 68. Humanoid battery system value split 2027–2040 (US\$ million)
Table 69. Base, conservative and accelerated scenarios: demand and value, 2030, 2035, 2040
Table 70. Sensitivity of 2040 demand to runtime targets, US\$/kWh and swap adoption
Table 71. Standards relevant to humanoid robot batteries
Table 72. Barriers to scale for humanoid batteries
Table 73. SWOT analysis: humanoid robot battery market
Table 74. Battery metrics and terminology used in this report
Table 75. Humanoid morphology and its implications for battery capacity, placement and runtime
Table 76. Key forecast assumptions 2027–2040 (base case)

List Of Figures

LIST OF FIGURES

Figure 1. Humanoid battery chemistry roadmap 2027–2040 Source: Future Markets.

Figure 2. Humanoid battery demand 2025–2026 vs. output of a single 30 GWh gigafactory line

Figure 3. Humanoid battery supplier map by region and technology tier Source: Future Markets.

Figure 4. Global humanoid battery demand by application 2027–2040 (GWh)

Figure 5. Global humanoid installed base by application 2027–2040

Figure 6. Power flow diagram for a humanoid robot

Figure 7. Runtime vs. battery mass trade-off for a bipedal humanoid Source: Future Markets.

Figure 8. Typical humanoid duty cycle and state-of-charge profile over a shift

Figure 9. Battery capacity vs. operating time for commercial humanoids

Figure 10. Robot weight vs. battery capacity Source: Future Markets.

Figure 11. Battery capacity vs. degrees of freedom Source: Future Markets.

Figure 12. Average battery capacity per humanoid robot 2025–2040 (kWh) Source: Future Markets.

Figure 13. Humanoid runtime roadmap 2024–2032: transitional Li-ion to semi-solid and all-solid-state packs Source: Future Markets.

Figure 14. Chemistry suitability for humanoid robots (radar chart) Source: Future Markets.

Figure 15. XPENG IRON

Figure 16. GAC GoMate

Figure 17. EngineAI's T800 humanoid

Figure 18. Farasis Energy all-solid-state pouch cells

Figure 19. CALB solid-state cell

Figure 20. Solid-state battery cost-down trajectory 2026–2040 Source: Future Markets.

Figure 21. Solid-state commercialization timeline for robotics, 2026–2032 Source: Future Markets.

Figure 22. Technology readiness and adoption timeline by chemistry Source: Future Markets.

Figure 23. Battery pack placement options in a humanoid body Source: Future Markets.

Figure 24. Figure 03 battery pack architecture (schematic)

Figure 25. Conventional charging vs. battery swapping: robot availability over 24 hours

Figure 26. Value chain: materials ? cells ? packs/BMS ? robot OEMs ? fleet operators

Figure 27. Regional share of humanoid battery cell supply, 2026 vs. 2035 Source: Future Markets.

Figure 28. Application vs. battery attribute heat map Source: Future Markets.

Figure 29. Global humanoid battery demand by application 2027–2040 (GWh) Source: Future Markets.

Figure 30. Chemistry mix of humanoid battery demand 2027–2040 (%) Source: Future Markets.

Figure 31. Humanoid solid-state battery demand 2027–2040 (GWh)

Figure 32. Humanoid battery demand by region 2027–2040 (GWh) Source: Future Markets.

Figure 33. Humanoid battery market value by chemistry 2027–2040 (US\$ million)

Figure 34. Scenario range for humanoid battery demand 2027–2040 (GWh) Source: Future Markets.

Figure 35. Humanoid battery forecast model structure

Figure 36. Segmentation framework: application, chemistry, cell format, pack architecture, charging model, region

I would like to order

Product name: Batteries for Humanoid Robots: Global Market 2027-2040

Product link: <https://marketpublishers.com/r/B56A4635B729EN.html>

Price: US\$ 1,500.00 (Single User License / Electronic Delivery)

If you want to order Corporate License or Hard Copy, please, contact our Customer Service:

info@marketpublishers.com

Payment

To pay by Credit Card (Visa, MasterCard, American Express, PayPal), please, click button on product page <https://marketpublishers.com/r/B56A4635B729EN.html>