

珠三角机器人供应链地图

珠三角制造了世界上大部分服务机器人和越来越多的人形机器人。这是我们绘制的地图：哪个城市、哪个区做哪个部件，附中文名称，让新加坡的买家和宝安的供应商说的是同一家公司。

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一台人形机器人由几百个零件组成，来自几十家企业，而在珠三角，这些企业大多彼此相距不到两小时车程。深圳南山区的一条路上集中了整机厂商和传感器厂商；西侧的宝安区是电机和驱动器的基地；龙华和东莞承担代工制造；惠州生产电芯，佛山生产工业机械臂，广州正在汽车工厂里建设人形机器人产线，香港则提供合同和金融服务。本文把这些名字标在地图上。

这份地图最初是我们为 2026 年 10 月的 Robotech Asia 展会准备的内部资料。我们选择公开，是因为一位能叫出厂商减速器供应商名字的买家，会得到完全不同的谈话。每家企业都附中文名称，因为微信名片上的名字才是真正要紧的。标注● UNVERIFIED 的条目来自我们读过但尚未与企业本身核实的行业名录；标注● VERIFIED 的条目依据企业自身的公告、政府页面或主流媒体。

01 珠三角一图

DISTRICT	WHAT IT DOES FOR A ROBOT	FIRMS NAMED THERE	SOURCE
Nanshan 南山	Research, headquarters and most of the humanoid makers. Robot Valley runs along Liuxian Avenue from Xili Lake to Nanshan iPark with 30 or more robotics firms; a district official claims about 70% of a product's manufacturing can be handled along the road. The district counts over 6,000 national high-tech enterprises and sent more than 100 of Shenzhen's roughly 380 CES 2026 exhibitors.	UBTech, RoboSense, Orbbec, DJI, Pudu, EngineAI, LimX, Leju, Dobot, Paxini, Daimon, AI ² Robotics, Leadshine, Tencent	People's Daily, Feb 2026; KrASIA, Sep 2026; CMRA ^{2 1 3} • VERIFIED
Bao'an 宝安	The component and actuator base, with more humanoid supply-chain firms than any other district: a 2025 count gives 628 actuator firms, 842 sensing-device firms, 559 control and interaction firms, 192 power-system firms. Brand headquarters near Qianhai, factories north in Shiyan. Hosts the Shenzhen World exhibition centre.	Inovance (registered HQ), Zhaowei, Sunwoda, Everwin	Qianzhan, Apr 2025; KrASIA ^{4 1} • VERIFIED counts, 18 months old
Qianhai 前海	The Shenzhen and Hong Kong cooperation zone. Huawei's Global Embodied AI Industry Innovation Center opened here in November 2024 with 16 launch partners, Leju and Topstar among them. LimX runs a test facility.	Huawei, LimX	TechNode, Nov 2024; EyeShenzhen, Mar 2025 ^{5 6} • VERIFIED
Longgang 龙岗	Huawei's Bantian headquarters and, by one count, more than 12,700 companies across the AI and robotics supply chain. The Robot 6S Store at Xinghe WORLD sells and demonstrates Leju, Unitree, LimX and EngineAI units.	Huawei	KrASIA ¹ • VERIFIED, store • REPORTED
Longhua 龙华	Mass production. Guanlan and Yousong hold the Foxconn complex, which validated UBTech's Walker humanoid for logistics work in January 2025.	Foxconn, Creality	KrASIA ¹ • VERIFIED
Guangming 光明	Future industries. Guangming Laboratory hosts the Ascend computing centre named in the city's revised embodied AI plan.	Guangming Lab	Shenzhen STIC, Jun 2026 ⁸ • VERIFIED
Futian 福田	Government, finance and Huaqiangbei, the electronics market where every board-level part has a counter. Futian Laboratory is named	Honor, the Huaqiangbei traders	KrASIA; STIC ¹ • VERIFIED

DISTRICT	WHAT IT DOES FOR A ROBOT	FIRMS NAMED THERE	SOURCE
	in the revised plan. The high-speed rail station is one stop from Hong Kong West Kowloon.		
Pingshan 坪山	High-end automated manufacturing. BYD, which builds its own collaborative and mobile robots and sits in Morgan Stanley's Humanoid 100, is here.	BYD, Honor	KrASIA; EyeShenzhen ⁶ ● REPORTED for the HQ location

深圳市 2025 年 3 月公布的全市数据：机器人相关企业超过 57,000 家，上市机器人企业 34 家，机器人独角兽 9 家。摩根士丹利"人形机器人 100"名单中有 7 家深圳企业：比亚迪、腾讯、优必选、速腾聚创、雷赛智能、兆威机电和汇川技术。⁶ ● VERIFIED，数据已有 18 个月。

03 谁做什么：45 家零部件企业

按关节、感知、电池和外壳分组。有把握的注明了所在区；"unverified"表示该企业来自行业名录，产品信息尚未与企业本身核实。

电机、驱动与运动控制

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
Inovance Technology	汇川技术	Shenzhen, Bao'an (registered HQ)	Servo motors and drives, PLCs, industrial robots; about 8.8% of China's industrial robot market in 2024	● VERIFIED share, HQ
Leadshine	雷赛智能	Shenzhen, Nanshan	Frameless torque motors (about 120,000 in 2025, a plan for two million in 2026), steppers, drives, motion controllers ²⁰	● REPORTED
Zhaowei Machinery and Electronics	兆威机电	Shenzhen, Bao'an	Micro drive systems, coreless-motor gear modules for hands	● UNVERIFIED
Han's Motor	大族电机	Shenzhen, Nanshan	Frameless, linear and direct-drive motors	● UNVERIFIED
Googol Technology	固高科技	Shenzhen, Nanshan	Motion controllers, servo drives	● UNVERIFIED
INVT	英威腾	Shenzhen	Servo drives, inverters	● UNVERIFIED
Topband	拓邦股份	Shenzhen	Brushless motors, motor controllers, battery packs	● UNVERIFIED
Direct Drive Tech	本末科技	Shenzhen	Direct-drive motors and joint modules for legged robots	● UNVERIFIED
ZeroErr	零差云控	Shenzhen	eRob integrated joint modules; the eRob 80T retails from about US\$1,440 ²¹	● REPORTED price
Fortior Tech	峰昭科技	Shenzhen, Nanshan	Brushless motor-control chips with field-oriented control	● UNVERIFIED
Geehy Semiconductor	极海半导体	Zhuhai	Motor-control microcontrollers	● UNVERIFIED

减速器与丝杠

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
Tongchuan Technology	同川科技	Shenzhen	Harmonic reducers; reported supplier to Xpeng's IRON	● UNVERIFIED
Shanchuan Harmonic	杉川谐波	Shenzhen	Harmonic reducers	● UNVERIFIED
Kemeng Innovation Robotics	科盟创新	Shenzhen	Harmonic and planetary reducers, joint modules	● UNVERIFIED
Haozhi Mechanical and Electrical	昊志机电	Guangzhou, Huangpu	Spindles, harmonic reducers, torque motors, joint modules	● UNVERIFIED
Keyi Precision	科益精密	Guangzhou	Harmonic reducers with C-shaped teeth	● UNVERIFIED
Jiya Precision (Midea)	广东极亚精机	Foshan	Harmonic reducers for humanoids	● UNVERIFIED
Jijia Precision	广东吉嘉精密	Guangdong	Hollow rotary platforms, harmonic reducers	● UNVERIFIED
Tengzhan Precision	誉展精密	Shenzhen	Micro ball screws down to 1.8 mm, roller screws	● UNVERIFIED
Nuoshi Robotics	诺仕机器人	Shenzhen	Planetary roller screws	● UNVERIFIED
Weiyuan Precision	威远精密	Shenzhen	Ball screws, roller screws, linear units	● UNVERIFIED

传感器与感知

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
PaXini	帕西尼	Shenzhen, Nanshan	Hall-array tactile sensors, the DexH13 hand, a TORA humanoid; more than CNY 4 billion raised ¹⁸	● VERIFIED HQ and funding
Orbbec	奥比中光	Shenzhen, Nanshan	Depth cameras (Gemini 330, 435Le) and time-of-flight cameras used on many humanoids ¹⁹	● VERIFIED
RoboSense	速腾聚创	Shenzhen, Nanshan	LiDAR for cars and robots, robot vision, dexterous hands	● VERIFIED location
Livox (DJI)	览沃	Shenzhen, Nanshan	MID-360 LiDAR, the unit on Unitree's G1	● ESTIMATE
Hypersen	海伯森	Shenzhen	Six-axis force sensors, 3D sensors	● UNVERIFIED
Ampron	安培龙	Shenzhen	Pressure and force sensors	● UNVERIFIED
OPT Machine Vision	奥普特	Dongguan	Machine-vision lighting, cameras, software	● UNVERIFIED
Daimon Robotics	戴盟机器人	Shenzhen, Nanshan	Visuotactile sensing and hands	● REPORTED

电池

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
Sunwoda	欣旺达	Shenzhen, Bao'an	Cells and packs	● UNVERIFIED district
EVE Energy	亿纬锂能	Huizhou	Cylindrical and prismatic cells	● UNVERIFIED district
Desay Battery	德赛电池	Huizhou	Packs and battery management systems	● UNVERIFIED
BYD, FinDreams	比亚迪 · 弗迪	Shenzhen, Pingshan	Blade cells, packs	● VERIFIED HQ

代工、结构件与设备

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
Foxconn, FII	富士康 · 工业富联	Shenzhen, Longhua	Electronics assembly; validated UBTech's Walker for its own logistics	● REPORTED
Luxshare Precision	立讯精密	Dongguan and Shenzhen	Electronics assembly, connectors, cables; its robot work is not public	● UNVERIFIED
BYD Electronics	比亚迪电子	Shenzhen	Electronics assembly, structural parts	● UNVERIFIED
Everwin Precision	长盈精密	Shenzhen, Bao'an	Precision metal structural parts	● UNVERIFIED
Lingyi iTech	领益智造	Jiangmen and Shenzhen	Precision parts and modules	● UNVERIFIED
JLC (JLCPCB, JLCCNC)	嘉立创	Shenzhen	Quick-turn circuit boards and assembly, CNC, 3D printing	● VERIFIED services
LK Technology	力劲科技	Shenzhen factory, Hong Kong listed	Die-casting machines, including the largest presses	● UNVERIFIED
Yizumi	伊之密	Foshan, Shunde	Die-casting and injection-moulding machines	● UNVERIFIED
Wencan	文灿股份	Foshan, Nanhai	Aluminium die castings	● UNVERIFIED
Guangdong Hongtu	广东鸿图	Zhaoqing	Die castings	● UNVERIFIED
Topstar	拓斯达	Dongguan	Industrial robots, automation lines, injection machines; a Huawei centre partner	● REPORTED
GSK CNC	广州数控	Guangzhou, Huangpu	CNC controllers, servo drives, industrial robots	● UNVERIFIED
XbotPark Songshan	松山湖国际机器人产业基地	Dongguan, Songshan	Hardware incubator founded by Li Zexiang, the HKUST professor	● VERIFIED

FIRM	中文	WHERE	WHAT THEY MAKE	STATUS
Lake		Lake	behind DJI; more than 280 firms incubated, 12 unicorns or near-unicorns, alumni Narwal, EcoFlow, Hai Robotics and Mammotion ¹²	

会在会谈中被提到、但不在珠三角的企业

宇树和云深处在杭州；智元、傅利叶和擎朗在上海；银河通用在北京。减速器龙头绿的谐波（苏州）和来福（浙江）、丝杠厂商贝斯特（无锡）和五洲新春、激光雷达厂商禾赛（上海）以及电芯厂商宁德时代（宁德）也都不在珠三角。在深圳，你见到的是它们的经销商和展厅，或者需要另外安排杭州和上海的行程。

04 向它们采购的整机厂商

MAKER	中文	WHERE	WHAT WE KNOW
UBTech Robotics	优必选	Nanshan iPark, Shenzhen	Walker S2 industrial humanoid with an autonomous battery swap; Hong Kong listed (9880); the largest deployed industrial humanoid fleet in China by its own count; the corpus we read gives 1,079 Walker units and CNY 820 million of humanoid revenue in 2025. • REPORTED
EngineAI	众擎机器人	Honghualing, Nanshan	A 12,000 m ² base that rolled its first T800 humanoids off the line on 29 May 2026, with a claimed cycle of one unit every 15 minutes. ¹³ • VERIFIED
Pudu Robotics	普渡科技	Robot Valley, Nanshan	Delivery and cleaning robots for restaurants, hotels and malls, the fleets most often found in our tracker ; the D9 biped. • REPORTED
Dobot	越疆科技	Robot Valley, Nanshan	Collaborative arms and the Atom humanoid. • REPORTED
LimX Dynamics	逐际动力	Nanshan, test site in Qianhai	TRON 1 biped and Oli humanoid, sold mainly to researchers. ⁶ • VERIFIED
Leju Robotics	乐聚机器人	Yuehai, Nanshan	Kuavo 夸父 humanoid, a launch partner of Huawei's embodied AI centre. ⁵ • VERIFIED
Xpeng	小鹏	Tianhe, Guangzhou	IRON humanoid lines commissioned on 8 September 2026 inside a 110,000 m ² base, more than 80% of core processes automated, mass production targeted by end 2026. ¹⁴ • VERIFIED
GAC	广汽	Panyu, Guangzhou	GoMate, a wheeled humanoid with 38 degrees of freedom, unveiled December 2024 with small-scale production planned for 2026; current status unconfirmed. ¹⁵ • REPORTED
Midea and KUKA	美的 · 库卡	Shunde, Foshan	China's largest industrial robot base; Midea's components arm Welling is building a 55,000 m ² precision factory in Beijiao with phase one due 2027, and Midea put its own humanoid into washing-machine plants in 2025. ^{16 17} • VERIFIED
DJI	大疆创新	Nanshan	Drones and a robot vacuum; the model every Shenzhen hardware firm cites for vertical integration. • REPORTED

05 零部件成本，以及产业集群为什么赢

- **关节就是机器人。**驱动加灵巧手约占人形机器人物料成本的一半到三分之二。旋转关节内部，减速器（约 36%）和力矩传感器（约 30%）各自都比电机（约 13.5%）贵；直线关节中行星滚柱丝杠约占 64%。^{22 21} ● ESTIMATE
- **中国的物料成本比西方低一个数量级。**中邮证券的拆解把宇树 G1 基础版的物料成本定在约 41,600 元（约 5,900 美元），一个小关节全部成本约 1,000 元；摩根士丹利的不同口径把 Optimus Gen 2 定在 46,000 到 55,000 美元。²³ ● REPORTED
- **利润是实实在在的。**宇树的招股书显示 2025 年毛利率 60.4%，人形机器人平均售价接近 166,000 元；因为自制关节、驱动器和电池管理系统，外购零部件只占成本的 14% 到 18%。²⁴ ● VERIFIED
- **本土供应商正在拿下本土市场。**2025 年哈默纳科在中国谐波减速器市场的份额为 4.4%，绿的谐波 27.5%，来福 21.4%；国产厂商占据中国人形机器人六维力传感器市场约 93%。^{25 26} ● ESTIMATE
- **算力是唯一涨价的部件。**英伟达于 2026 年 7 月 22 日将 Jetson 模组和开发套件价格上调最多 101%，T5000 模组千片单价从 2,999 美元涨到 4,999 美元。²⁷
● VERIFIED
- **产能跑在需求前面。**雷赛智能计划 2026 年生产 200 万台无框电机（2025 年为 12 万台），丝杠厂商也在新建产线，而瑞银预测 2026 年全球人形机器人出货量约 30,000 台，零部件价格战因此随之而来。^{20 28} ● ESTIMATE
- **稀土是这个集群控制不了的杠杆。**中国 2025 年 4 月对七种重稀土及其磁材实施的出口许可仍在执行；2025 年 10 月的扩大管制暂停至 2026 年 11 月 10 日。^{29 30}
● VERIFIED 请向每一家驱动器供应商询问：暂停结束会对交期产生什么影响。

06 背后的公共资金

PROGRAMME	ISSUER AND DATES	KEY NUMBERS
Shenzhen embodied AI robot action plan, "18 measures"	Shenzhen Science, Technology and Innovation Commission, 3 March 2025, revised 18 June 2026 ^{7 8} ● VERIFIED	By 2027: 10 or more new firms valued over CNY 10 billion, 20 or more with revenue over CNY 1 billion, 50 or more billion-yuan application scenarios, an industry above CNY 100 billion, 1,200 or more firms in the cluster. Priorities: core components, robot AI chips, multi-finger hands.
Shenzhen AI and robotics fund	Shenzhen, February 2025 ⁹ ● REPORTED	CNY 10 billion, about US\$1.4 billion.
Huawei Global Embodied AI Industry Innovation Center	Huawei with the Qianhai administration, November 2024 ⁵ ● VERIFIED	16 launch partners, Leju and Topstar among them.
Guangzhou embodied robot measures	Guangzhou industry bureau, 2 July 2026 to 1 July 2029 ¹⁰ ● VERIFIED	Up to CNY 1 million per application-scenario project, 10 a year; by 2029 about 10 whole-robot makers clustered, 40 or more demonstration scenarios.
Dongguan intelligent robot measures	Dongguan, 24 April 2025 to 31 December 2027 ¹¹ ● VERIFIED	Joint research consortia up to CNY 30 million; manufacturing innovation centres up to CNY 50 million national; smart factories up to CNY 5 million; loan interest subsidy up to CNY 5 million per firm per year.

这些补贴对海外买家意味着什么：资金流向在本地注册并生产的企业，大多在支出后以补助形式发放。对我们的影响是间接的，但有用：拿到补贴的厂商需要海外渠道和应用场景，而"海外部署"正是它们所在城市设定的考核指标之一。 ● ESTIMATE

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