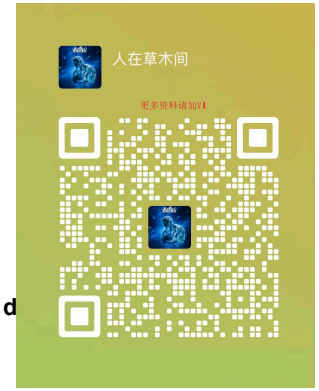
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# JPM Robotics & Factory Automation

## Unitree initiation, Inovance/Estun/UBTech downgrades – Where are the opportunities?

**Karen Li, CFA** AC
Head of HK Equity Research, Head of Asia Infra, Industrials and Transport
+852 2800 8589

J.P. Morgan Securities (Asia Pacific) Limited/J.P. Morgan Broking (Hong Kong) Limited




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# Raising global humanoid robot and China industrial robot unit shipment forecasts

## Our global humanoid robot shipment forecasts

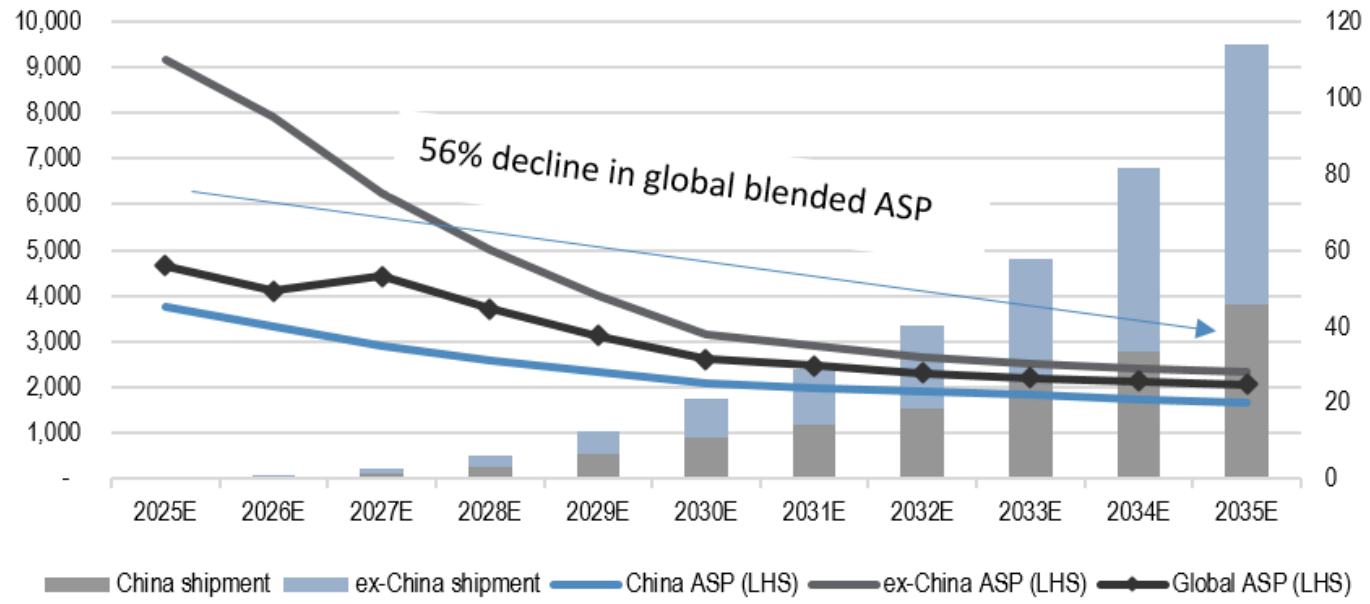
| | 2025E | 2026E | 2027E | 2028E | 2029E | 2030E |
|---|---|---|---|---|---|---|
| China | 15 | 50 | 120 | 280 | 550 | 900 |
| ex-China | 3 | 10 | 100 | 250 | 500 | 850 |
| Global total humanoid robot shipment unit (in k units) | 18 | 60 | 220 | 530 | 1,050 | 1,750 |
| *Y/Y Chg (RHS)* | | *233%* | *267%* | *141%* | *98%* | *67%* |

## China industrial robot shipment forecasts

| | 2017A | 2018A | 2019A | 2020A | 2021A | 2022A | 2023A | 2024A | 2025A | 2026E | 2027E | 2028E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Unit sales | 145,850 | 154,336 | 149,400 | 171,490 | 256,360 | 282,076 | 283,154 | 294,178 | 334,062 | 400,874 | 461,006 | 516,326 |
| Y/Y Chg | | 6% | -3% | 15% | 49% | 10% | 0% | 4% | 14% | 20% | 15% | 12% |

Source: MIR databank, J.P. Morgan estimates.

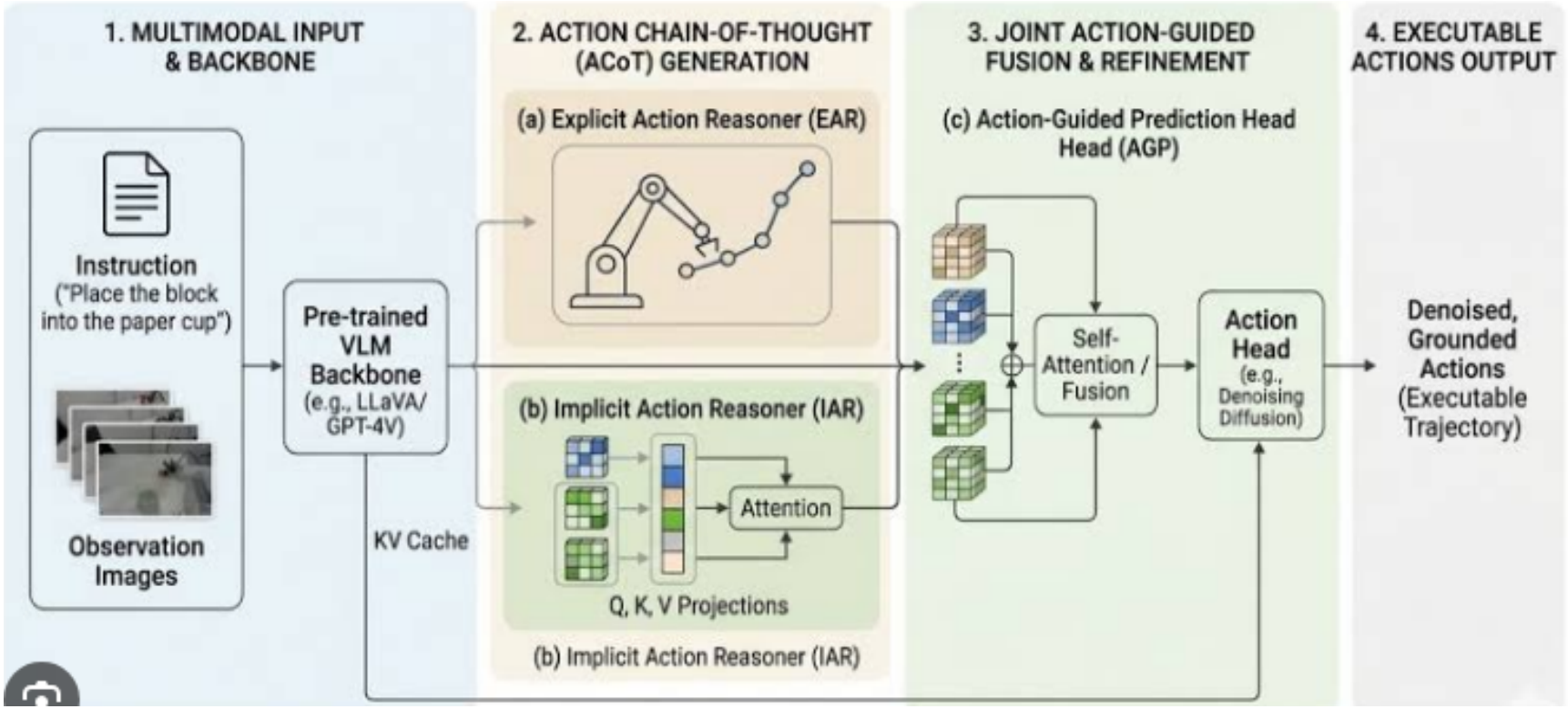
# Humanoid robot pricing trend: We expect ASPs to decline 56% by 2035 to facilitate an 87% shipment CAGR




Source: J.P. Morgan estimates.

# Humanoid robots: Physical AI as a focus in the year

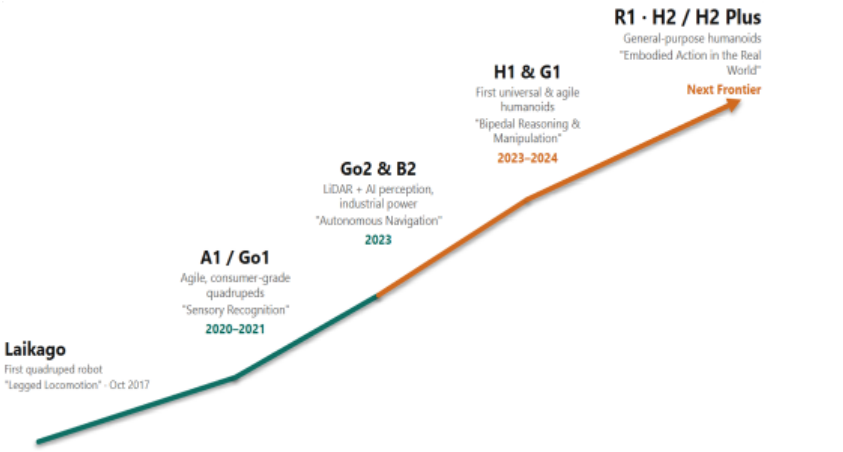
**Foundational model: Agibot GO-2 as an example**




Source: Agibot.

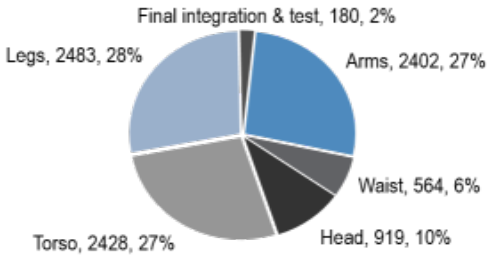
# Unitree (688836 CH): Initiate at UW: A strong hardware platform, but what's next?

## Unitree's product development roadmap



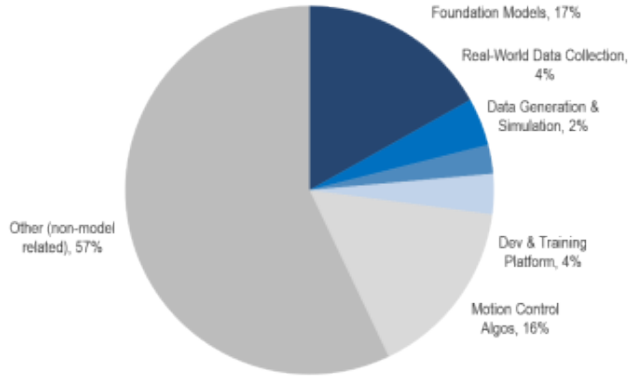

Source: Company data, J.P. Morgan.

## BOM: Vertically integrated model a key strength offering good price-to-performance




Source: SemiAnalysis.

## R&D budgeting: Unlikely a vanguard in physical AI foundation model




Source: Company data, J.P. Morgan.

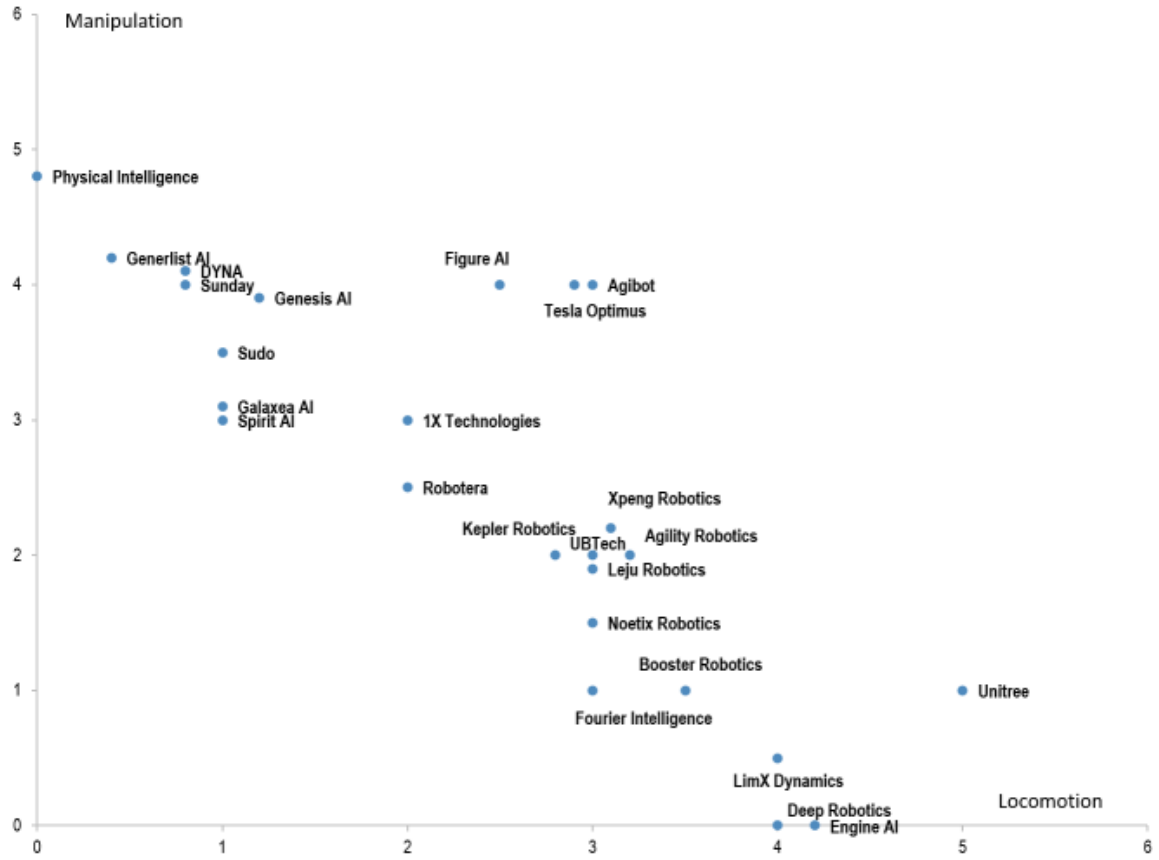
## Our key assumptions for revenue model

| in Rmb MM | 2022 | 2023 | 2024 | 2025 | 2026E | 2027E | 2028E |
|---|---|---|---|---|---|---|---|
| Total Revenue | 123 | 159 | 393 | 1,699 | 2,819 | 4,038 | 5,269 |
| Y/Y | | 29% | 147% | 333% | 66% | 43% | 30% |
| Quadruped Robots Revenue | 93 | 119 | 231 | 698 | 1,126 | 1,571 | 1,930 |
| Y/Y | | 29% | 93% | 203% | 61% | 39% | 23% |
| Sales units | 2,403 | 3,121 | 7,136 | 23,037 | 35,159 | 49,591 | 64,779 |
| Y/Y | | 30% | 129% | 223% | 53% | 41% | 31% |
| ASP in Rmb k | 39 | 38 | 32 | 30 | 32 | 32 | 30 |
| Y/Y | | -1% | -16% | -6% | 6% | -1% | -6% |
| Humanoid Robot Revenue | - | 3 | 107 | 868 | 1,530 | 2,227 | 2,992 |
| Y/Y | | | 3516% | 709% | 76% | 46% | 34% |
| Sales units | - | 5 | 412 | 5,215 | 14,163 | 26,226 | 41,552 |
| Y/Y | | | 8140% | 1166% | 172% | 85% | 58% |
| ASP in Rmb k | - | 593 | 260 | 166 | 108 | 85 | 72 |
| Y/Y | | | -56% | -36% | -35% | -21% | -15% |

Source: J.P. Morgan estimates.

# Humanoid robots: Physical AI as a focus in the year

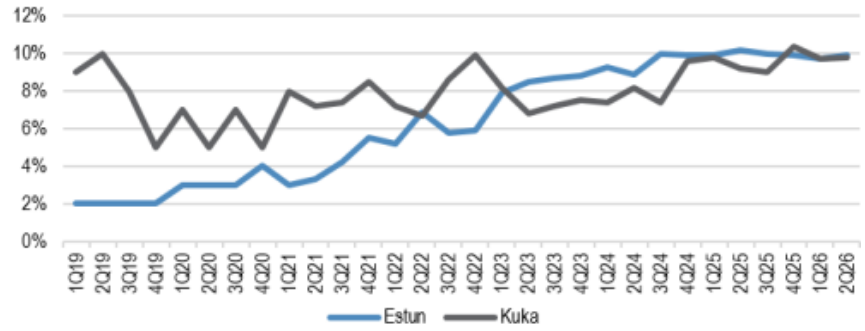
**Physical AI robot OEM positioning: Manipulation vs. locomotion**




Source: J.P. Morgan estimates.

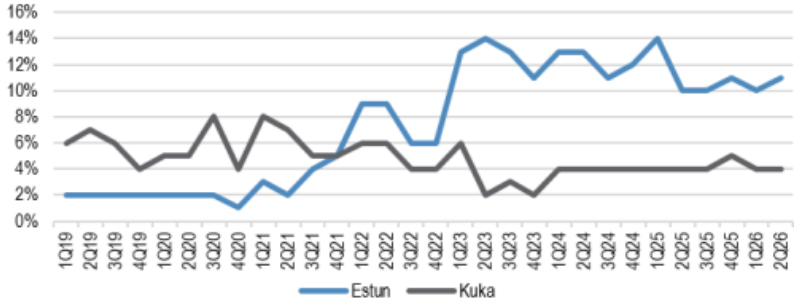
# Estun (002747 CH): Competitive pressure from KUKA

**Market share – Estun vs. KUKA: China industrial robot total market in unit terms**



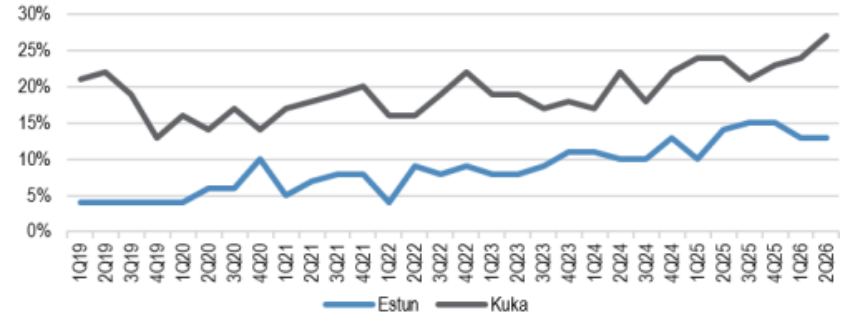

Source: MIR databank.

**Market share – Estun vs. KUKA: China small-sized six-axis robot market**



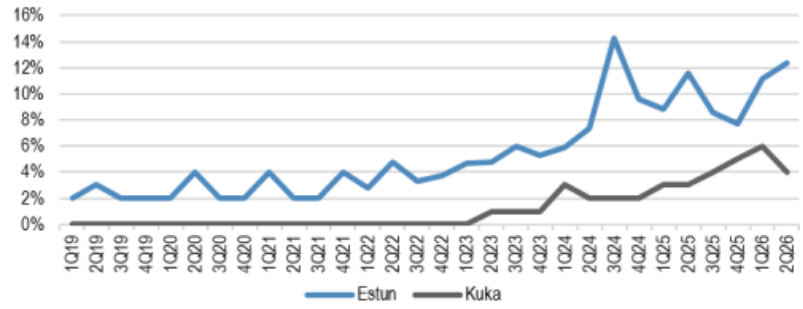

Source: MIR databank.

**Market share – Estun vs. KUKA: China large-sized six-axis robot market**




Source: MIR databank.

**Market share – Estun vs. KUKA: China SCARA robot market**




Source: MIR databank.

# Regional valuations for humanoid robots

| | BBG Ticker | JPM rating | Last Price LC | JPM PT LC | Upside/ Downside | Mkt Cap US$Mn | Daily turnover US$Mn | YTD stock perf. | P/E (x) FY26E | P/E (x) FY27E | EPS Growth FY26E | EPS Growth FY27E | ROE (%) FY26E | ROE (%) FY27E | P/S (x) FY26E | P/S (x) FY27E | Revenue growth Y/Y FY26E | Revenue growth Y/Y FY27E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **China** | | | | | | | | | | | | | | | | | | |
| **Unitree** | 688836 CH | UW | 450 | 300 | -33% | 27,164 | 460.2 | NA | 296.3 | 202.9 | NA | 46% | 6.2 | 8.2 | 64.6 | 45.1 | NA | 43% |
| **Leader Drive** | 688017 CH | OW | 274 | 358 | 31% | 7,483 | 467.0 | 41% | 271.0 | 138.3 | 36% | 96% | 5.1 | 9.6 | 55.8 | 29.9 | 58% | 87% |
| **Estun** | 002747 CH | UW | 28 | 21 | -26% | 3,839 | 342.8 | 19% | 100.5 | 73.8 | NM | 36% | 9.7 | 9.4 | 5.1 | 4.5 | 8% | 7% |
| **Sanhua Intelligent-A** | 002050 CH | OW | 36 | 51 | 43% | 21,336 | 357.5 | -35% | 31.6 | 27.0 | 17% | 17% | 12.8 | 14.6 | 4.3 | 3.8 | 9% | 13% |
| **Sanhua Intelligent-H** | 2050 HK | OW | 24 | 38 | 57% | 21,337 | 24.6 | -37% | 18.3 | 15.6 | 17% | 17% | 12.8 | 14.6 | 2.9 | 2.6 | 9% | 13% |
| **Ningbo Tuopu** | 601689 CH | UW | 47 | 48 | 3% | 12,055 | 205.5 | -40% | 29.1 | 25.4 | -1% | 14% | 11.1 | 11.7 | 2.4 | 2.1 | 16% | 13% |
| **Minth** | 425 HK | OW | 23 | 54 | 136% | 3,416 | 14.3 | -28% | 7.6 | 6.4 | 7% | 18% | 12.3 | 13.2 | 0.8 | 0.7 | 9% | 14% |
| **Zhongda Leader** | 002896 CH | NC | 60 | NA | NA | 1,747 | 106.2 | -38% | 104.6 | 87.7 | 28% | 19% | 8.7 | 9.7 | 9.0 | 7.2 | 25% | 25% |
| **Shuanhuan** | 002472 CH | NC | 38 | NA | NA | 4,828 | 167.5 | -20% | 22.9 | 19.5 | 18% | 18% | 13.1 | 13.7 | 3.2 | 2.8 | 8% | 14% |
| **Ningbo Joyson** | 600699 CH | N | 23 | 20 | -15% | 5,115 | 107.3 | -25% | 20.8 | 17.1 | 16% | 21% | 8.8 | 9.9 | 0.5 | 0.5 | 2% | 4% |
| **Hengli Hydrulic** | 601100 CH | OW | 90 | 126 | 40% | 18,056 | 109.8 | -18% | 38.3 | 28.9 | 8% | 32% | 17.3 | 20.2 | 8.9 | 7.3 | 26% | 22% |
| **Robosense** | 2498 HK | OW | 16 | 45 | 183% | 953 | 10.7 | -57% | NM | 26.1 | 28% | NM | -2.5 | 6.5 | 2.2 | 1.4 | 45% | 57% |
| **Johnson Electric** | 179 HK | N | 18 | 21 | 20% | 2,084 | 12.6 | -41% | 10.1 | 8.6 | NA | 18% | 7.4 | 8.2 | 0.6 | 0.5 | NA | 4% |
| **Wolong Electric** | 600580 CH | N | 26 | 31 | 17% | 6,147 | 211.9 | -46% | 50.8 | 32.2 | -17% | 58% | 7.3 | 10.7 | 2.7 | 2.4 | -4% | 12% |
| **Orbbec** | 688322 CH | OW | 84 | 140 | 66% | 5,196 | 168.8 | -9% | 148.5 | 67.4 | 104% | 120% | 7.5 | 13.1 | 29.6 | 15.9 | 48% | 86% |
| **Horizon Robotics** | 9660 HK | OW | 4 | 9 | 124% | 8,112 | 83.8 | -54% | NM | NM | 156% | 44% | -38.9 | -23.4 | 10.4 | 6.7 | 61% | 55% |
| **UBTech robotics** | 9880 HK | N | 75 | 118 | 57% | 4,863 | 62.4 | -41% | NM | 156.3 | 62% | 151% | -5.7 | 3.0 | 8.1 | 5.1 | 99% | 59% |
| **Shenzhen Dobot** | 2432 HK | NC | 21 | NA | NA | 1,064 | 8.2 | -44% | NM | NM | -44% | 56% | -4.0 | -1.6 | 9.2 | 6.5 | 54% | 41% |
| **Zhaowei Machinery** | 003021 CH | NC | 70 | NA | NA | 2,637 | 41.8 | -43% | 76.5 | 56.5 | 16% | 35% | 4.9 | 5.8 | 9.5 | 8.3 | -1% | 14% |
| **Laifual Drive** | 3952 HK | NC | 44 | NA | NA | 585 | 3.4 | NA | NM | 89.7 | NA | 156% | -29.0 | 3.2 | 9.6 | 5.5 | NA | 74% |
| **Geekplus** | 2590 HK | NC | 7 | NA | NA | 1,192 | 13.1 | -67% | NM | 30.2 | -103% | NM | 0.4 | 9.1 | 1.9 | 1.5 | 30% | 31% |
| **Mech Mind** | 9615 HK | NC | 81 | NA | NA | 1,282 | 6.0 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| **Xpeng** | 9868 HK | N | 36 | 45 | 24% | 8,872 | 73.5 | -54% | NM | NM | -10% | 27% | -13.4 | -10.9 | 0.7 | 0.6 | 11% | 22% |
| **Xpeng** | XPEVUS | N | 9 | 12 | 24% | 8,874 | 81.2 | -54% | NM | NM | -10% | 27% | -13.4 | -10.9 | 0.7 | 0.6 | 11% | 22% |
| **Average** | | | | | | | | | 66.5 | 50.4 | 12% | 49% | 1.5 | 6.3 | 8.1 | 5.3 | 26% | 31% |
| **Asia (ex-China)** | | | | | | | | | | | | | | | | | | |
| **Hiwin** | 2049 TT | UW | 345.50 | 160 | -54% | 3,847 | 47.6 | 78% | 63.3 | 53.8 | 37% | 18% | 5.2 | 6.0 | 4.6 | 4.3 | 9% | 8% |
| **Bizlink** | 3665 TT | OW | 2485.00 | 3,100 | 25% | 15,609 | 233.1 | 61% | 36.6 | 20.7 | 46% | 77% | 25.4 | 33.8 | 4.7 | 3.1 | 48% | 50% |
| **Sinbon** | 3023 TT | N | 322.50 | 235 | -27% | 2,437 | 12.3 | 68% | 24.4 | 20.5 | 5% | 19% | 19.3 | 21.6 | 2.3 | 2.2 | 6% | 9% |
| **TM Robot** | 4585 TT | NC | 291.00 | NA | NA | 958 | 2.6 | -14% | 63.8 | 38.6 | NA | 65% | NA | NA | 14.1 | 10.7 | NA | 32% |
| **HDS** | 6324 JP | NC | 6660.00 | NA | NA | 4,064 | 55.5 | 78% | 96.5 | 66.6 | NM | 45% | 7.9 | 10.5 | 8.5 | 7.3 | 30% | 16% |
| **Nidec** | 6594 JP | UW | 2180.00 | 1,800 | -17% | 16,471 | 104.0 | 2% | 12.4 | 10.9 | 61% | 14% | 10.3 | 10.6 | 0.9 | 0.9 | 7% | 6% |
| **Yaskawa** | 6506 JP | NC | 4931.00 | NA | NA | 8,332 | 176.1 | 4% | 28.2 | 22.5 | 28% | 25% | 9.1 | 10.9 | 2.2 | 2.1 | 11% | 8% |
| **Fanuc** | 6954 JP | NC | 6186.00 | NA | NA | 38,497 | 232.0 | 2% | 28.0 | 26.1 | 28% | 7% | 10.8 | 11.4 | 6.3 | 5.9 | 15% | 7% |
| **Minebea Mitsumi** | 6479 JP | OW | 3918.00 | 5,500 | 40% | 10,602 | 69.7 | 25% | 17.2 | 14.6 | 33% | 17% | 9.9 | 10.5 | 1.0 | 0.9 | 5% | 5% |
| **Hyundai Mobis** | 012330 ks | OW | 383500.00 | 710,000 | 85% | 25,649 | 154.3 | 3% | 7.0 | 6.3 | 20% | 11% | 9.1 | 9.3 | 0.5 | 0.5 | 3% | 3% |
| **Robotis** | 108490 KS | OW | 311000.00 | 430,000 | 38% | 3,396 | 123.2 | 19% | 172.3 | 84.6 | NM | 104% | 8.1 | 14.7 | 34.7 | 19.4 | 106% | 79% |
| **HL Mando** | 204320 ks | N | 47150.00 | 50,000 | 6% | 1,649 | 15.9 | -20% | 11.7 | 10.4 | 13% | 12% | 6.5 | 6.9 | 0.2 | 0.2 | 5% | 4% |
| **Hyundai motor** | 005380 KS | OW | 346500.00 | 540,000 | 56% | 52,495 | 321.5 | 17% | 9.6 | 8.4 | 8% | 14% | 7.9 | 8.5 | 0.4 | 0.3 | 5% | 6% |
| **Average** | | | | | | | | | 43.9 | 29.5 | 26% | 33% | 10.8 | 12.9 | 6.2 | 4.4 | 21% | 18% |
| **Ex-Asia** | | | | | | | | | | | | | | | | | | |
| **NVIDIA** | NVDAUS | OW | 233.95 | 320 | 37% | 5,638,195 | 25,940.7 | 25% | 50.0 | 25.3 | 60% | 97% | 104.2 | 99.8 | 26.4 | 13.8 | 66% | 91% |
| **Tesla** | TSLAUS | N | 370.59 | 415 | 12% | 1,463,663 | 13,352.7 | -18% | 259.2 | 255.6 | -11% | 1% | 5.9 | 5.6 | 13.5 | 11.8 | 14% | 15% |
| **Siemens** | SIE GR | OW | 272.75 | 345 | 26% | 239,269 | 300.0 | 14% | 22.4 | 19.1 | 6% | 17% | 13.8 | 15.2 | 2.6 | 2.4 | 5% | 8% |
| **Schaeffler** | SHA0 GR | N | 6.22 | 9 | 37% | 6,593 | 7.2 | -26% | 11.5 | 10.0 | 2% | 15% | 17.1 | 18.1 | 0.3 | 0.3 | -2% | 0% |
| **Average** | | | | | | | | | 85.8 | 77.5 | 14% | 33% | 35.2 | 34.7 | 10.7 | 7.1 | 21% | 28% |
| **Global humanoid average** | | | | | | | | | **59.5** | **45.7** | **16%** | **42%** | **8.0** | **11.4** | **7.7** | **5.2** | 24% | 27% |

Source: Bloomberg Finance L.P., J.P. Morgan estimates. Consensus estimates for Not Covered (NC) companies, J.P. Morgan estimates for all others. Daily turnover shows 3M aver

# Regional valuations for Industrial Automation (IA)

| | BBG Ticker | JPM rating | Last Price LC | JPM PT LC | Upside/ Downside | Mkt Cap US$Mn | Daily turnover US$Mn | YTD Stock perf. | P/E (x) FY26E | P/E (x) FY27E | EPS growth Y/Y FY26E | EPS growth Y/Y FY27E | PEG(x) FY26E | ROE (%) FY26E | ROE (%) FY27E | P/S (x) FY26E | P/S (x) FY27E | Revenue growth Y/Y FY26E | Revenue growth Y/Y FY27E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **China/HK automation** | | | | | | | | | | | | | | | | | | | |
| Inovance | 300124 CH | N | 52 | 55 | 6% | 20,971 | 248.1 | -31% | 25 | 20 | 10% | 25% | 2.6 | 14.8 | 16.5 | 3 | 2 | 18% | 12% |
| Estun | 002747 CH | UW | 28 | 21 | -26% | 3,839 | 342.8 | 19% | 105 | 81 | 440% | 30% | 0.2 | 9.7 | 9.4 | 5 | 5 | 13% | 7% |
| OPT | 688686 CH | NC | 128 | NA | NA | 2,340 | 35.9 | 3% | 64 | 44 | 32% | 43% | 2.0 | 7.9 | 10.1 | 10 | 8 | 33% | 29% |
| Yiheda | 301029 CH | N | 24 | 24 | 0% | 2,286 | 39.5 | -9% | 25 | 21 | 19% | 21% | 1.4 | 13.6 | 15.5 | 4 | 4 | 25% | 17% |
| Hongfa | 600885 CH | OW | 34 | 46 | 37% | 7,738 | 83.3 | 10% | 23 | 18 | 19% | 10% | 1.2 | 16.0 | 17.7 | 2 | 2 | 32% | 18% |
| Leader Drive | 688017 CH | OW | 274 | 358 | 31% | 7,483 | 467.0 | 43% | 272 | 139 | 46% | 96% | 5.9 | 9.6 | 12.9 | 56 | 30 | 58% | 87% |
| Sanhua-A | 002050 CH | OW | 36 | 51 | 43% | 21,336 | 357.5 | -35% | 35 | 28 | -1% | 25% | -36.1 | 12.8 | 14.6 | 4 | 4 | 5% | 13% |
| Sanhua-H | 2050 HK | OW | 24 | 38 | 57% | 21,337 | 24.6 | -37% | 20 | 16 | -1% | 25% | -20.9 | 12.8 | 14.6 | NA | NA | 5% | 13% |
| Jiangsu Hengli | 601100 CH | OW | 90 | 126 | 40% | 18,056 | 109.8 | -18% | 38 | 29 | 16% | 32% | 2.4 | 17.3 | 20.2 | 9 | 7 | 26% | 22% |
| HCFA | 688320 CH | NC | 35 | NA | NA | 791 | 21.2 | -6% | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| SUPCON | 688777 CH | NC | 80 | NA | NA | 9,444 | 212.2 | 62% | 98 | 67 | 46% | 46% | 2.1 | 6.4 | 8.6 | 7 | 6 | 6% | 16% |
| Shuanghuan Driveline | 002472 CH | NC | 38 | NA | NA | 4,828 | 167.5 | -20% | 23 | 20 | 11% | 18% | 2.1 | 13.1 | 13.7 | 3 | 3 | 8% | 14% |
| Zhongda Leader | 002896 CH | NC | 60 | NA | NA | 1,747 | 106.2 | -33% | 105 | 88 | 78% | 19% | 1.3 | 8.7 | 9.7 | 9 | 7 | 25% | 25% |
| Guomao Reducer | 603915 CH | NC | 13 | NA | NA | 1,324 | 12.3 | -28% | 26 | 24 | 40% | 12% | 0.7 | 8.2 | 8.8 | 3 | 3 | 10% | 11% |
| **Average** | | | | | | | | | **66** | **46** | **58%** | **31%** | **-2.7** | **11.6** | **13.3** | **9.6** | **6.7** | **20%** | **22%** |
| **Asia (ex-China) automation** | | | | | | | | | | | | | | | | | | | |
| Delta | 2308 TT | OW | 2005 | 2500 | 25% | 163,910 | 674.0 | 108% | 47 | 30 | 86% | 53% | 0.5 | 37.4 | 44.6 | 6.5 | 4.7 | 44% | 40% |
| Hiwin | 2049 TT | UW | 346 | 160 | -54% | 3,847 | 47.6 | 78% | 63 | 54 | 27% | 18% | 2.4 | 5.2 | 6.0 | 4.6 | 4.3 | 9% | 8% |
| Airtac | 1590 TT | OW | 1180 | 1350 | 14% | 7,427 | 36.8 | 27% | 24 | 22 | 17% | 10% | 1.4 | 18.1 | 18.4 | 6.0 | 5.5 | 16% | 9% |
| Keyence | 6861 JP | NC | 81680 | NA | NA | 125,857 | 311.6 | 44% | 35 | 31 | 27% | 12% | 1.3 | 15.5 | 15.7 | 17.4 | 13.7 | 8% | 27% |
| FANUC | 6954 JP | NC | 6186 | NA | NA | 38,497 | 232.0 | 2% | 28 | 26 | 24% | 7% | 1.2 | 10.8 | 11.4 | 7.2 | 6.3 | 7% | 15% |
| NSK | 6471 JP | NC | 1126 | NA | NA | 3,567 | 16.7 | 15% | 17 | 13 | 44% | 27% | 0.4 | 4.9 | 6.0 | 0.6 | 0.5 | 14% | 14% |
| SMC | 6273 JP | NC | 75190 | NA | NA | 30,427 | 132.2 | 38% | 22 | 21 | 30% | 6% | 0.7 | 10.1 | 10.1 | 5.8 | 4.5 | 6% | 27% |
| Harmonic Drive System | 6324 JP | NC | 6660 | NA | NA | 4,064 | 55.5 | 76% | 97 | 67 | 306% | 45% | 0.3 | 7.9 | 10.5 | 11.0 | 8.5 | 6% | 30% |
| Yaskawa | 6506 JP | NC | 4931 | NA | NA | 8,332 | 176.1 | 4% | 28 | 23 | 29% | 25% | 1.0 | 9.1 | 10.9 | 2.5 | 2.2 | -1% | 11% |
| THK | 6481 JP | NC | 6758 | NA | NA | 5,099 | 49.7 | 69% | 17 | 16 | NA | 6% | NA | 15.6 | 16.4 | 2.5 | 2.3 | -11% | 9% |
| MISUMI | 9962 JP | NC | 4093 | NA | NA | 7,398 | 34.2 | 67% | 23 | 20 | 22% | 13% | 1.0 | 12.4 | 13.7 | 2.6 | 2.2 | 10% | 19% |
| Nabtesco | 6268 JP | NC | 4979 | NA | NA | 3,724 | 31.8 | 33% | 21 | 20 | 79% | 7% | 0.3 | 9.0 | 9.1 | 1.7 | 1.6 | 14% | 7% |
| Sumitomo | 8316 JP | OW | 3374 | 4110 | 22% | 162,506 | 532.0 | 34% | 14 | 12 | 17% | 17% | 0.8 | 11.2 | 12.4 | 5.6 | 4.7 | 8% | 17% |
| **Average** | | | | | | | | | **33** | **27** | **59%** | **19%** | **0.9** | **12.9** | **14.2** | **5.7** | **4.7** | **11%** | **18%** |

Source: Bloomberg Finance L.P., J.P. Morgan estimates. Consensus estimates for Not Covered (NC) companies, J.P. Morgan estimates for all others. Daily turnover shows 3M average daily trading value in USD terms. All share prices are as of 5 October 2026 intra-day.

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