

2016 Results
Orders, Production and Shipments of Manipulators and Robots by Applications
[JARA Members and Non-members]

Number of units, () : million yen

| CY | 2015 | 2016 | Change from 2015 |
|------------|----------------------|----------------------|------------------|
| Orders | 155,086 (702,743) | 182,098 (739,298) | 17.4% (5.2%) |
| Production | 153,785 (680,611) | 174,606 (703,387) | 13.5% (3.3%) |

| Shipments Applications | 2015 | | | 2016 | | | Change from 2015 | | | 2015 (percentage distribution) | | | 2016 (percentage distribution) | | |
|----------------------------------|--------------------|------------------|------------------|--------------------|------------------|------------------|--------------------|-----------------|----------------|-----------------------------------|-----------------|-----------------|-----------------------------------|-----------------|-----------------|
| | Domestic shipments | Exports | Total | Domestic shipments | Exports | Total | Domestic shipments | Exports | Total | Domestic shipments | Exports | Total | Domestic shipments | Exports | Total |
| Plastic moulding | 2,949 | 4,924 | 7,873 | 3,072 | 4,370 | 7,442 | 4.2% | -11.3% | -5.5% | 7.8% | 4.2% | 5.1% | 7.2% | 3.3% | 4.2% |
| Arc welding | 3,560 | 16,254 | 19,814 | 3,694 | 14,535 | 18,229 | 3.8% | -10.6% | -8.0% | 9.4% | 13.8% | 12.7% | 8.7% | 10.9% | 10.4% |
| Spot welding | 2,819 | 18,883 | 21,702 | 4,750 | 17,309 | 22,059 | 68.5% | -8.3% | 1.6% | 7.5% | 16.0% | 14.0% | 11.2% | 13.0% | 12.6% |
| Laser welding | 24 | 1 | 25 | 31 | 110 | 141 | 29.2% | 10900.0% | 464.0% | 0.1% | 0.0% | 0.0% | 0.1% | 0.1% | 0.1% |
| Others | 53 | 10 | 63 | 36 | 11 | 47 | -32.1% | 10.0% | -25.4% | 0.1% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% |
| Welding Units | 6,456 | 35,148 | 41,604 | 8,511 | 31,965 | 40,476 | 31.8% | -9.1% | -2.7% | 17.1% | 29.8% | 26.8% | 20.0% | 24.0% | 23.0% |
| (million yen) | (33,402) | (93,643) | (127,045) | (42,304) | (83,105) | (125,409) | (26.7%) | (-11.3%) | (-1.3%) | (16.6%) | (19.4%) | (18.6%) | (19.2%) | (16.8%) | (17.5%) |
| Painting | 606 | 1,650 | 2,256 | 593 | 1,569 | 2,162 | -2.1% | -4.9% | -4.2% | 1.6% | 1.4% | 1.5% | 1.4% | 1.2% | 1.2% |
| Loading/unloading | 2,268 | 5,709 | 7,977 | 1,869 | 4,541 | 6,410 | -17.6% | -20.5% | -19.6% | 6.0% | 4.8% | 5.1% | 4.4% | 3.4% | 3.7% |
| Mechanical cutting | 8 | 5 | 13 | 6 | 1 | 7 | -25.0% | -80.0% | -46.2% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% | 0.0% |
| Grinding/deburring | 214 | 111 | 325 | 250 | 285 | 535 | 16.8% | 156.8% | 64.6% | 0.6% | 0.1% | 0.2% | 0.6% | 0.2% | 0.3% |
| Others | 70 | 4 | 74 | 80 | 10 | 90 | 14.3% | 150.0% | 21.6% | 0.2% | 0.0% | 0.0% | 0.2% | 0.0% | 0.1% |
| Machining Units | 2,560 | 5,829 | 8,389 | 2,205 | 4,837 | 7,042 | -13.9% | -17.0% | -16.1% | 6.8% | 4.9% | 5.4% | 5.2% | 3.6% | 4.0% |
| (million yen) | (9,983) | (12,649) | (22,632) | (10,148) | (10,455) | (20,603) | (1.7%) | (-17.3%) | (-9.0%) | (5.0%) | (2.6%) | (3.3%) | (4.6%) | (2.1%) | (2.9%) |
| Surface Mount Technology | 1,361 | 8,168 | 9,529 | 1,263 | 8,397 | 9,660 | -7.2% | 2.8% | 1.4% | 3.6% | 6.9% | 6.1% | 3.0% | 6.3% | 5.5% |
| General Assembly | 7,244 | 15,265 | 22,509 | 6,747 | 18,401 | 25,148 | -6.9% | 20.5% | 11.7% | 19.2% | 13.0% | 14.5% | 15.8% | 13.8% | 14.3% |
| Other Assembly | 1,600 | 5,440 | 7,040 | 2,954 | 9,557 | 12,511 | 84.6% | 75.7% | 77.7% | 4.2% | 4.6% | 4.5% | 6.9% | 7.2% | 7.1% |
| Bonding | 922 | 4,800 | 5,722 | 2,125 | 8,770 | 10,895 | 130.5% | 82.7% | 90.4% | 2.4% | 4.1% | 3.7% | 5.0% | 6.6% | 6.2% |
| Soldering | 178 | 181 | 359 | 244 | 283 | 527 | 37.1% | 56.4% | 46.8% | 0.5% | 0.2% | 0.2% | 0.6% | 0.2% | 0.3% |
| Sealing/glueing | 40 | 151 | 191 | 91 | 232 | 323 | 127.5% | 53.6% | 69.1% | 0.1% | 0.1% | 0.1% | 0.2% | 0.2% | 0.2% |
| Screwing | 16 | 6 | 22 | 23 | 6 | 29 | 43.8% | | 31.8% | 0.0% | 0.0% | 0.0% | 0.1% | 0.0% | 0.0% |
| Others | 444 | 302 | 746 | 471 | 266 | 737 | 6.1% | -11.9% | -1.2% | 1.2% | 0.3% | 0.5% | 1.1% | 0.2% | 0.4% |
| Assembly Units | 8,844 | 20,705 | 29,549 | 9,701 | 27,958 | 37,659 | 9.7% | 35.0% | 27.4% | 23.5% | 17.6% | 19.0% | 22.8% | 21.0% | 21.4% |
| (million yen) | (30,810) | (64,274) | (95,085) | (33,914) | (68,254) | (102,168) | (10.1%) | (6.2%) | (7.4%) | (15.3%) | (13.3%) | (13.9%) | (15.4%) | (13.8%) | (14.3%) |
| Palletizing/depalletizing | 1,522 | 2,591 | 4,113 | 1,577 | 2,428 | 4,005 | 3.6% | -6.3% | -2.6% | 4.0% | 2.2% | 2.6% | 3.7% | 1.8% | 2.3% |
| Material handling | 6,133 | 24,060 | 30,193 | 6,900 | 34,362 | 41,262 | 12.5% | 42.8% | 36.7% | 16.3% | 20.4% | 19.4% | 16.2% | 25.8% | 23.5% |
| FPD | 744 | 3,112 | 3,856 | 1,255 | 4,335 | 5,590 | 68.7% | 39.3% | 45.0% | 2.0% | 2.6% | 2.5% | 2.9% | 3.3% | 3.2% |
| Semiconductor | 4,325 | 8,002 | 12,327 | 4,632 | 9,822 | 14,454 | 7.1% | 22.7% | 17.3% | 11.5% | 6.8% | 7.9% | 10.9% | 7.4% | 8.2% |
| Others | 4 | 81 | 85 | 2 | 10 | 12 | -50.0% | -87.7% | -85.9% | 0.0% | 0.1% | 0.1% | 0.0% | 0.0% | 0.0% |
| Cleanroom Units | 5,073 | 11,195 | 16,268 | 5,889 | 14,167 | 20,056 | 16.1% | 26.5% | 23.3% | 13.5% | 9.5% | 10.5% | 13.8% | 10.7% | 11.4% |
| (million yen) | (31,745) | (69,175) | (100,920) | (36,723) | (73,013) | (109,736) | (15.7%) | (5.5%) | (8.7%) | (15.8%) | (14.3%) | (14.8%) | (16.6%) | (14.7%) | (15.3%) |
| Other applications | 2,199 | 3,548 | 5,747 | 2,885 | 2,959 | 5,844 | 31.2% | -16.6% | 1.7% | 5.8% | 3.0% | 3.7% | 6.8% | 2.2% | 3.3% |
| Total Units | 37,703 | 117,818 | 155,521 | 42,596 | 133,012 | 175,608 | 13.0% | 12.9% | 12.9% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% | 100.0% |
| (million yen) | (201,001) | (482,413) | (683,413) | (220,618) | (495,404) | (716,022) | (9.8%) | (2.7%) | (4.8%) | (100.0%) | (100.0%) | (100.0%) | (100.0%) | (100.0%) | (100.0%) |

Note)

Data includes dedicated type (Surface Mount Technology / Bonding).

Data is collected in unit of 10,000 yen. However, the results are shown in unit of million yen by rounding the figures of 100,000 yen.

2016 Results
Shipments of Manipulators and Robots by Industries
[JARA Members and Non-members]

Number of units, () : million yen

| Industries | 2015 | 2016 | Change from 2015 | Percentage distribution | |
|---|------------------|------------------|---------------------|-------------------------|-----------------|
| | | | | 2015 | 2016 |
| Metal products | 1,972 | 1,881 | -4.6% | 5.2% | 4.4% |
| Construction and mining machinery | 124 | 126 | 1.6% | 0.3% | 0.3% |
| Metalworking machinery | 577 | 496 | -14.0% | 1.5% | 1.2% |
| Other machinery and equipment | 2,174 | 2,665 | 22.6% | 5.8% | 6.3% |
| Machinery and equipment Units | 2,875 | 3,287 | 14.3% | 7.6% | 7.7% |
| (million yen) | (15,377) | (17,936) | (16.6%) | (7.7%) | (8.1%) |
| Electronic computers | 693 | 88 | -87.3% | 1.8% | 0.2% |
| Consumer electrical machinery | 1,675 | 1,916 | 14.4% | 4.4% | 4.5% |
| Industrial electrical machinery | 862 | 954 | 10.7% | 2.3% | 2.2% |
| Communication equipment | 1,128 | 1,104 | -2.1% | 3.0% | 2.6% |
| Video and audio equipment | 417 | 21 | -95.0% | 1.1% | 0.0% |
| Electronic components/devices/circuits | 5,028 | 6,605 | 31.4% | 13.3% | 15.5% |
| Other electrical machinery | 3,781 | 3,216 | -14.9% | 10.0% | 7.6% |
| Electrical machinery Units | 13,584 | 13,904 | 2.4% | 36.0% | 32.6% |
| (million yen) | (80,365) | (76,847) | (-4.4%) | (40.0%) | (34.8%) |
| Precision instruments | 488 | 477 | -2.3% | 1.3% | 1.1% |
| Motor vehicles | 3,812 | 5,977 | 56.8% | 10.1% | 14.0% |
| Auto parts | 7,620 | 8,521 | 11.8% | 20.2% | 20.0% |
| Motor vehicles and auto parts Units | 11,432 | 14,498 | 26.8% | 30.3% | 34.0% |
| (million yen) | (53,464) | (65,078) | (21.7%) | (26.6%) | (29.5%) |
| Other transport equipment | 315 | 305 | -3.2% | 0.8% | 0.7% |
| Food products, beverages, and tobacco products | 663 | 839 | 26.5% | 1.8% | 2.0% |
| Chemical products | 277 | 411 | 48.4% | 0.7% | 1.0% |
| Plastic products | 1,147 | 1,247 | 8.7% | 3.0% | 2.9% |
| Other industries | 4,795 | 5,533 | 15.4% | 12.7% | 13.0% |
| Non-manufacturing industry | 155 | 214 | 38.1% | 0.4% | 0.5% |
| Total domestic shipments Units | 37,703 | 42,596 | 13.0% | 100.0% | 100.0% |
| (million yen) | (201,001) | (220,618) | (9.8%) | 24.2% | 24.3% |
| | | | | (100.0%) | (100.0%) |
| | | | | (29.4%) | (30.8%) |
| Export Units | 117,818 | 133,012 | 12.9% | 75.8% | 75.7% |
| (million yen) | (482,413) | (495,404) | (2.7%) | (70.6%) | (69.2%) |
| Grand total Units | 155,521 | 175,608 | 12.9% | 100.0% | 100.0% |
| (million yen) | (683,413) | (716,022) | (4.8%) | (100.0%) | (100.0%) |

Note)

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