

**April - June 2019 Results**  
**Production and Shipments of Manipulators and Robots by Applications**  
**[JARA Member Companies]**

Number of units, ( ) : million yen

	April - June 2018	April - June 2019	Change from 2018
<b>Orders</b>	<b>60,577</b> <b>(212,597)</b>	<b>46,405</b> <b>(177,503)</b>	<b>-23.4%</b> <b>(-16.5%)</b>
<b>Production</b>	<b>57,162</b> <b>(184,095)</b>	<b>41,964</b> <b>(153,576)</b>	<b>-26.6%</b> <b>(-16.6%)</b>

Shipments Applications	April - June 2018			April - June 2019			Change from 2018			April - June 2018 (percentage distribution)			April - June 2019 (percentage distribution)		
	Domestic shipments	Exports	Total	Domestic shipments	Exports	Total	Domestic shipments	Exports	Total	Domestic shipments	Exports	Total	Domestic shipments	Exports	Total
<b>Plastic moulding</b>	<b>838</b>	<b>1,625</b>	<b>2,463</b>	<b>741</b>	<b>1,009</b>	<b>1,750</b>	<b>-11.6%</b>	<b>-37.9%</b>	<b>-28.9%</b>	<b>8.3%</b>	<b>3.5%</b>	<b>4.3%</b>	<b>7.6%</b>	<b>3.1%</b>	<b>4.1%</b>
Arc welding	1,212	5,160	6,372	849	3,212	4,061	-30.0%	-37.8%	-36.3%	12.0%	11.0%	11.2%	8.7%	9.8%	9.5%
Spot welding	592	4,705	5,297	1,174	2,936	4,110	98.3%	-37.6%	-22.4%	5.9%	10.1%	9.3%	12.0%	9.0%	9.7%
Laser welding	1	4	5	1	1	1			-80.0%	0.0%	0.0%	0.0%	0.0%		0.0%
Others	9	14	23	15	2	17	66.7%	-85.7%	-26.1%	0.1%	0.0%	0.0%	0.2%	0.0%	0.0%
<b>Welding</b> Units	<b>1,814</b>	<b>9,883</b>	<b>11,697</b>	<b>2,039</b>	<b>6,150</b>	<b>8,189</b>	<b>12.4%</b>	<b>-37.8%</b>	<b>-30.0%</b>	<b>18.0%</b>	<b>21.2%</b>	<b>20.6%</b>	<b>20.8%</b>	<b>18.8%</b>	<b>19.2%</b>
(million yen)	<b>(8,698)</b>	<b>(25,009)</b>	<b>(33,707)</b>	<b>(9,686)</b>	<b>(13,579)</b>	<b>(23,265)</b>	<b>(11.4%)</b>	<b>(-45.7%)</b>	<b>(-31.0%)</b>	<b>(20.1%)</b>	<b>(17.3%)</b>	<b>(17.9%)</b>	<b>(21.9%)</b>	<b>(11.9%)</b>	<b>(14.7%)</b>
<b>Painting</b>	<b>78</b>	<b>479</b>	<b>557</b>	<b>80</b>	<b>300</b>	<b>380</b>	<b>2.6%</b>	<b>-37.4%</b>	<b>-31.8%</b>	<b>0.8%</b>	<b>1.0%</b>	<b>1.0%</b>	<b>0.8%</b>	<b>0.9%</b>	<b>0.9%</b>
Loading/unloading	488	2,051	2,539	516	1,786	2,302	5.7%	-12.9%	-9.3%	4.8%	4.4%	4.5%	5.3%	5.5%	5.4%
Mechanical cutting				9	2	11							0.1%	0.0%	0.0%
Grinding/deburring	37	14	51	45	100	145	21.6%	614.3%	184.3%	0.4%	0.0%	0.1%	0.5%	0.3%	0.3%
Others	9	4	13	9	28	37		600.0%	184.6%	0.1%	0.0%	0.0%	0.1%	0.1%	0.1%
<b>Machining</b> Units	<b>534</b>	<b>2,069</b>	<b>2,603</b>	<b>579</b>	<b>1,916</b>	<b>2,495</b>	<b>8.4%</b>	<b>-7.4%</b>	<b>-4.1%</b>	<b>5.3%</b>	<b>4.4%</b>	<b>4.6%</b>	<b>5.9%</b>	<b>5.9%</b>	<b>5.9%</b>
(million yen)	<b>(1,499)</b>	<b>(2,652)</b>	<b>(4,151)</b>	<b>(1,707)</b>	<b>(4,217)</b>	<b>(5,924)</b>	<b>(13.9%)</b>	<b>(59.0%)</b>	<b>(42.7%)</b>	<b>(3.5%)</b>	<b>(1.8%)</b>	<b>(2.2%)</b>	<b>(3.9%)</b>	<b>(3.7%)</b>	<b>(3.7%)</b>
<b>Surface Mount Technology</b>	<b>369</b>	<b>3,891</b>	<b>4,260</b>	<b>277</b>	<b>3,096</b>	<b>3,373</b>	<b>-24.9%</b>	<b>-20.4%</b>	<b>-20.8%</b>	<b>3.7%</b>	<b>8.3%</b>	<b>7.5%</b>	<b>2.8%</b>	<b>9.5%</b>	<b>7.9%</b>
General Assembly	1,723	11,633	13,356	1,696	8,556	10,251	-1.6%	-26.5%	-23.2%	17.1%	24.9%	23.5%	17.3%	26.1%	24.1%
Other Assembly	17	199	216	153	125	278	797.7%	-37.2%	28.5%	0.2%	0.4%	0.4%	1.6%	0.4%	0.7%
Bonding															
Soldering	2		2	3		3	50.0%		50.0%	0.0%		0.0%	0.0%		0.0%
Sealing/glueing	4	89	93	26	94	120	550.0%	5.6%	29.0%	0.0%	0.2%	0.2%	0.3%	0.3%	0.3%
Screwing	5	2	7		17	17		750.0%	142.9%	0.0%	0.0%	0.0%		0.1%	0.0%
Others	6	108	114	124	14	138	1960.3%	-87.0%	20.7%	0.1%	0.2%	0.2%	1.3%	0.0%	0.3%
<b>Assembly</b> Units	<b>1,740</b>	<b>11,832</b>	<b>13,572</b>	<b>1,848</b>	<b>8,681</b>	<b>10,529</b>	<b>6.2%</b>	<b>-26.6%</b>	<b>-22.4%</b>	<b>17.3%</b>	<b>25.3%</b>	<b>23.9%</b>	<b>18.8%</b>	<b>26.5%</b>	<b>24.8%</b>
(million yen)	<b>(3,464)</b>	<b>(11,384)</b>	<b>(14,848)</b>	<b>(5,382)</b>	<b>(9,252)</b>	<b>(14,634)</b>	<b>(55.4%)</b>	<b>(-18.7%)</b>	<b>(-1.4%)</b>	<b>(8.0%)</b>	<b>(7.9%)</b>	<b>(7.9%)</b>	<b>(12.1%)</b>	<b>(8.1%)</b>	<b>(9.3%)</b>
<b>Palletizing/depalletizing</b>	<b>212</b>	<b>514</b>	<b>726</b>	<b>388</b>	<b>520</b>	<b>908</b>	<b>83.2%</b>	<b>1.1%</b>	<b>25.1%</b>	<b>2.1%</b>	<b>1.1%</b>	<b>1.3%</b>	<b>4.0%</b>	<b>1.6%</b>	<b>2.1%</b>
<b>Material handling</b>	<b>2,037</b>	<b>12,270</b>	<b>14,307</b>	<b>2,384</b>	<b>6,569</b>	<b>8,953</b>	<b>17.0%</b>	<b>-46.5%</b>	<b>-37.4%</b>	<b>20.2%</b>	<b>26.3%</b>	<b>25.2%</b>	<b>24.3%</b>	<b>20.1%</b>	<b>21.0%</b>
FPD	50	216	266	26	80	106	-48.0%	-63.0%	-60.2%	0.5%	0.5%	0.5%	0.3%	0.2%	0.2%
Semiconductor	1,502	2,631	4,133	868	1,042	1,910	-42.2%	-60.4%	-53.8%	14.9%	5.6%	7.3%	8.8%	3.2%	4.5%
Others					21	21								0.1%	0.0%
<b>Cleanroom</b> Units	<b>1,552</b>	<b>2,847</b>	<b>4,399</b>	<b>894</b>	<b>1,143</b>	<b>2,037</b>	<b>-42.4%</b>	<b>-59.9%</b>	<b>-53.7%</b>	<b>15.4%</b>	<b>6.1%</b>	<b>7.7%</b>	<b>9.1%</b>	<b>3.5%</b>	<b>4.8%</b>
(million yen)	<b>(5,701)</b>	<b>(6,797)</b>	<b>(12,497)</b>	<b>(3,370)</b>	<b>(3,094)</b>	<b>(6,464)</b>	<b>(-40.9%)</b>	<b>(-54.5%)</b>	<b>(-48.3%)</b>	<b>(13.2%)</b>	<b>(4.7%)</b>	<b>(6.6%)</b>	<b>(7.6%)</b>	<b>(2.7%)</b>	<b>(4.1%)</b>
<b>Other applications</b>	<b>893</b>	<b>1,301</b>	<b>2,194</b>	<b>485</b>	<b>752</b>	<b>1,237</b>	<b>-45.6%</b>	<b>-42.2%</b>	<b>-43.6%</b>	<b>8.9%</b>	<b>2.8%</b>	<b>3.9%</b>	<b>4.9%</b>	<b>2.3%</b>	<b>2.9%</b>
<b>Unspecified</b>				<b>96</b>	<b>2,593</b>	<b>2,689</b>							<b>1.0%</b>	<b>7.9%</b>	<b>6.3%</b>
<b>Total</b> Units	<b>10,067</b>	<b>46,711</b>	<b>56,778</b>	<b>9,812</b>	<b>32,729</b>	<b>42,541</b>	<b>-2.5%</b>	<b>-29.9%</b>	<b>-25.1%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>	<b>100.0%</b>
(million yen)	<b>(43,336)</b>	<b>(144,680)</b>	<b>(188,016)</b>	<b>(44,319)</b>	<b>(113,705)</b>	<b>(158,024)</b>	<b>(2.3%)</b>	<b>(-21.4%)</b>	<b>(-16.0%)</b>	<b>(100.0%)</b>	<b>(100.0%)</b>	<b>(100.0%)</b>	<b>(100.0%)</b>	<b>(100.0%)</b>	<b>(100.0%)</b>

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.

**April - June 2019 Results**  
**Shipments of Manipulators and Robots by Industries**  
**[JARA Member Companies]**

Number of units, ( ) : million yen

Industries	2018	2019	Change from 2018	Percentage distribution	
	Apr. - Jun.	Apr. - Jun.		2018	2019
<b>Metal products</b>	<b>614</b>	<b>681</b>	<b>10.9%</b>	<b>6.1%</b>	<b>6.9%</b>
Construction and mining machinery	22	27	22.7%	0.2%	0.3%
Metalworking machinery	163	215	31.9%	1.6%	2.2%
Other machinery and equipment	900	525	-41.7%	8.9%	5.4%
<b>Machinery and equipment</b>	Units <b>1,085</b>	Units <b>767</b>	<b>-29.3%</b>	<b>10.8%</b>	<b>7.8%</b>
(million yen)	( <b>4,662</b> )	( <b>3,005</b> )	( <b>-35.5%</b> )	( <b>10.8%</b> )	( <b>6.8%</b> )
Electronic computers	5	3	-40.0%	0.0%	0.0%
Consumer electrical machinery	276	332	20.3%	2.7%	3.4%
Industrial electrical machinery	296	141	-52.4%	2.9%	1.4%
Communication equipment	200	296	48.2%	2.0%	3.0%
Video and audio equipment	1	16	1500.0%	0.0%	0.2%
Electronic components/devices/circuits	1,305	785	-39.9%	13.0%	8.0%
Other electrical machinery	917	789	-14.0%	9.1%	8.0%
<b>Electrical machinery</b>	Units <b>3,000</b>	Units <b>2,362</b>	<b>-21.3%</b>	<b>29.8%</b>	<b>24.1%</b>
(million yen)	( <b>14,438</b> )	( <b>12,024</b> )	( <b>-16.7%</b> )	( <b>33.3%</b> )	( <b>27.1%</b> )
<b>Precision instruments</b>	<b>122</b>	<b>66</b>	<b>-45.9%</b>	<b>1.2%</b>	<b>0.7%</b>
Motor vehicles	788	1,250	58.6%	7.8%	12.7%
Auto parts	2,317	2,758	19.0%	23.0%	28.1%
<b>Motor vehicles and auto parts</b>	Units <b>3,105</b>	Units <b>4,008</b>	<b>29.1%</b>	<b>30.8%</b>	<b>40.8%</b>
(million yen)	( <b>12,923</b> )	( <b>16,842</b> )	( <b>30.3%</b> )	( <b>29.8%</b> )	( <b>38.0%</b> )
<b>Other transport equipment</b>	<b>75</b>	<b>59</b>	<b>-21.3%</b>	<b>0.7%</b>	<b>0.6%</b>
<b>Food products, beverages, and tobacco products</b>	<b>201</b>	<b>153</b>	<b>-23.9%</b>	<b>2.0%</b>	<b>1.6%</b>
<b>Chemical products</b>	<b>82</b>	<b>115</b>	<b>40.2%</b>	<b>0.8%</b>	<b>1.2%</b>
<b>Plastic products</b>	<b>332</b>	<b>285</b>	<b>-14.2%</b>	<b>3.3%</b>	<b>2.9%</b>
<b>Other industries</b>	<b>1,403</b>	<b>663</b>	<b>-52.8%</b>	<b>13.9%</b>	<b>6.8%</b>
<b>Non-manufacturing industry</b>	<b>48</b>	<b>64</b>	<b>33.3%</b>	<b>0.5%</b>	<b>0.7%</b>
<b>Unspecified</b>		<b>589</b>			<b>6.0%</b>
<b>Total domestic shipments</b>	Units <b>10,067</b>	Units <b>9,812</b>	<b>-2.5%</b>	<b>100.0%</b>	<b>100.0%</b>
(million yen)	( <b>43,336</b> )	( <b>44,319</b> )	( <b>2.3%</b> )	( <b>17.7%</b> )	( <b>23.1%</b> )
				( <b>100.0%</b> )	( <b>100.0%</b> )
				( <b>23.0%</b> )	( <b>28.0%</b> )
<b>Export</b>	Units <b>46,711</b>	Units <b>32,729</b>	<b>-29.9%</b>	<b>(82.3%)</b>	<b>(76.9%)</b>
(million yen)	( <b>144,680</b> )	( <b>113,705</b> )	( <b>-21.4%</b> )	( <b>77.0%</b> )	( <b>72.0%</b> )
<b>Grand total</b>	Units <b>56,778</b>	Units <b>42,541</b>	<b>-25.1%</b>	<b>(100.0%)</b>	<b>(100.0%)</b>
(million yen)	( <b>188,016</b> )	( <b>158,024</b> )	( <b>-16.0%</b> )	<b>(100.0%)</b>	<b>(100.0%)</b>

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