

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

Number of units, ( ) : million yen

	October - December 2018	October - December 2019	Change from 2018
<b>Orders</b>	45,626 (164,623)	48,257 (164,170)	5.8% (-0.3%)
<b>Production</b>	49,436 (179,334)	44,180 (161,138)	-10.6% (-10.1%)

Shipments Applications	October - December 2018			October - December 2019			Change from 2018			October - December 2018 (percentage distribution)			October - December 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>	1,047	953	2,000	761	845	1,606	-27.3%	-11.3%	-19.7%	8.5%	2.5%	4.0%	7.5%	2.5%	3.7%
Arc welding	1,159	3,934	5,093	986	3,593	4,579	-14.9%	-8.7%	-10.1%	9.4%	10.4%	10.2%	9.7%	10.6%	10.4%
Spot welding	1,139	4,383	5,522	709	2,072	2,781	-37.8%	-52.7%	-49.6%	9.2%	11.6%	11.1%	7.0%	6.1%	6.3%
Laser welding	1		1	3	127	130	200.0%		12900.0%	0.0%		0.0%	0.0%	0.4%	0.3%
Others	25	15	40	35	7	42	40.0%	-53.3%	5.0%	0.2%	0.0%	0.1%	0.3%	0.0%	0.1%
<b>Welding</b> Units	2,324	8,332	10,656	1,733	5,799	7,532	-25.4%	-30.4%	-29.3%	18.9%	22.1%	21.3%	17.1%	17.2%	17.2%
(million yen)	(10,341)	(21,992)	(32,333)	(8,872)	(11,817)	(20,689)	(-14.2%)	(-46.3%)	(-36.0%)	(20.5%)	(16.8%)	(17.8%)	(18.7%)	(10.5%)	(12.9%)
<b>Painting</b>	95	587	682	95	286	381		-51.3%	-44.1%	0.8%	1.6%	1.4%	0.9%	0.8%	0.9%
Loading/unloading	579	1,617	2,196	483	2,075	2,558	-16.6%	28.3%	16.5%	4.7%	4.3%	4.4%	4.8%	6.1%	5.8%
Mechanical cutting	1		1	2	42	44	100.0%		4300.0%	0.0%		0.0%	0.0%	0.1%	0.1%
Grinding/deburring	67	3	70	58	14	72	-13.4%	366.7%	2.9%	0.5%	0.0%	0.1%	0.6%	0.0%	0.2%
Others	22	12	34	8	12	20	-63.6%		-41.2%	0.2%	0.0%	0.1%	0.1%	0.0%	0.0%
<b>Machining</b> Units	669	1,632	2,301	551	2,143	2,694	-17.7%	31.3%	17.1%	5.4%	4.3%	4.6%	5.4%	6.3%	6.1%
(million yen)	(1,813)	(2,635)	(4,447)	(1,745)	(4,457)	(6,201)	(-3.8%)	(69.2%)	(39.4%)	(3.6%)	(2.0%)	(2.5%)	(3.7%)	(3.9%)	(3.9%)
<b>Surface Mount Technology</b>	459	3,130	3,589	353	2,934	3,287	-23.1%	-6.3%	-8.4%	3.7%	8.3%	7.2%	3.5%	8.7%	7.5%
General Assembly	2,408	7,121	9,529	1,826	8,209	10,035	-24.2%	15.3%	5.3%	19.5%	18.9%	19.1%	18.0%	24.3%	22.9%
Other Assembly	43	161	204	145	104	249	236.8%	-35.4%	22.0%	0.3%	0.4%	0.4%	1.4%	0.3%	0.6%
Bonding													0.0%		0.0%
Soldering				2		2							0.0%		0.0%
Sealing/glueing	13	95	108	15	73	88	15.4%	-23.2%	-18.5%	0.1%	0.3%	0.2%	0.1%	0.2%	0.2%
Screwing	22		22	2	4	6	-90.9%		-72.7%	0.2%		0.0%	0.0%	0.0%	0.0%
Others	8	66	74	126	27	153	1472.7%	-59.1%	106.5%	0.1%	0.2%	0.1%	1.2%	0.1%	0.3%
<b>Assembly</b> Units	2,451	7,282	9,733	1,971	8,313	10,284	-19.6%	14.2%	5.7%	19.9%	19.3%	19.5%	19.5%	24.6%	23.4%
(million yen)	(4,718)	(9,051)	(13,769)	(5,424)	(8,594)	(14,017)	(15.0%)	(-5.1%)	(1.8%)	(9.3%)	(6.9%)	(7.6%)	(11.4%)	(7.6%)	(8.7%)
<b>Palletizing/depalletizing</b>	197	626	823	439	533	971	122.6%	-14.9%	18.0%	1.6%	1.7%	1.6%	4.3%	1.6%	2.2%
<b>Material handling</b>	2,987	12,283	15,270	2,307	7,523	9,830	-22.8%	-38.8%	-35.6%	24.2%	32.6%	30.6%	22.8%	22.3%	22.4%
FPD	41	110	151	27	149	176	-34.1%	35.5%	16.6%	0.3%	0.3%	0.3%	0.3%	0.4%	0.4%
Semiconductor	1,215	1,428	2,643	1,319	1,609	2,928	8.6%	12.7%	10.8%	9.9%	3.8%	5.3%	13.0%	4.8%	6.7%
Others		1	1		38	38		3700.0%	3700.0%		0.0%	0.0%		0.1%	0.1%
<b>Cleanroom</b> Units	1,256	1,539	2,795	1,346	1,796	3,142	7.2%	16.7%	12.4%	10.2%	4.1%	5.6%	13.3%	5.3%	7.2%
(million yen)	(4,451)	(4,465)	(8,916)	(4,538)	(5,314)	(9,852)	(1.9%)	(19.0%)	(10.5%)	(8.8%)	(3.4%)	(4.9%)	(9.6%)	(4.7%)	(6.1%)
<b>Other applications</b>	833	1,288	2,121	485	983	1,468	-41.8%	-23.6%	-30.8%	6.8%	3.4%	4.2%	4.8%	2.9%	3.3%
<b>Unspecified</b>				93	2,623	2,716							0.9%	7.8%	6.2%
<b>Total</b> Units	12,318	37,652	49,970	10,133	33,778	43,911	-17.7%	-10.3%	-12.1%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
(million yen)	(50,559)	(130,790)	(181,349)	(47,504)	(112,954)	(160,458)	(-6.0%)	(-13.6%)	(-11.5%)	(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.

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

Number of units, ( ) : million yen

Industries	2018 Oct. - Dec.	2019 Oct. - Dec.	Change from 2018	Percentage distribution	
				2018	2019
<b>Metal products</b>	<b>1,146</b>	<b>779</b>	<b>-32.0%</b>	<b>9.3%</b>	<b>7.7%</b>
Construction and mining machinery	31	38	23.9%	0.3%	0.4%
Metalworking machinery	214	179	-16.4%	1.7%	1.8%
Other machinery and equipment	707	729	3.1%	5.7%	7.2%
<b>Machinery and equipment</b> Units	<b>952</b>	<b>946</b>	<b>-0.6%</b>	<b>7.7%</b>	<b>9.3%</b>
(million yen)	<b>(3,981)</b>	<b>(3,965)</b>	<b>(-0.4%)</b>	<b>(7.9%)</b>	<b>(8.3%)</b>
Electronic computers	5	5		0.0%	0.0%
Consumer electrical machinery	483	329	-31.8%	3.9%	3.3%
Industrial electrical machinery	350	85	-75.6%	2.8%	0.8%
Communication equipment	249	338	35.7%	2.0%	3.3%
Video and audio equipment	15	9	-40.0%	0.1%	0.1%
Electronic components/devices/circuits	1,207	1,181	-2.2%	9.8%	11.7%
Other electrical machinery	920	849	-7.7%	7.5%	8.4%
<b>Electrical machinery</b> Units	<b>3,229</b>	<b>2,796</b>	<b>-13.4%</b>	<b>26.2%</b>	<b>27.6%</b>
(million yen)	<b>(15,475)</b>	<b>(13,873)</b>	<b>(-10.4%)</b>	<b>(30.6%)</b>	<b>(29.2%)</b>
<b>Precision instruments</b>	<b>104</b>	<b>109</b>	<b>4.8%</b>	<b>0.8%</b>	<b>1.1%</b>
Motor vehicles	1,109	1,011	-8.8%	9.0%	10.0%
Auto parts	3,098	2,476	-20.1%	25.2%	24.4%
<b>Motor vehicles and auto parts</b> Units	<b>4,207</b>	<b>3,487</b>	<b>-17.1%</b>	<b>34.2%</b>	<b>34.4%</b>
(million yen)	<b>(16,300)</b>	<b>(15,182)</b>	<b>(-6.9%)</b>	<b>(32.2%)</b>	<b>(32.0%)</b>
<b>Other transport equipment</b>	<b>82</b>	<b>49</b>	<b>-39.9%</b>	<b>0.7%</b>	<b>0.5%</b>
<b>Food products, beverages, and tobacco products</b>	<b>363</b>	<b>198</b>	<b>-45.5%</b>	<b>2.9%</b>	<b>2.0%</b>
<b>Chemical products</b>	<b>98</b>	<b>71</b>	<b>-27.6%</b>	<b>0.8%</b>	<b>0.7%</b>
<b>Plastic products</b>	<b>408</b>	<b>263</b>	<b>-35.5%</b>	<b>3.3%</b>	<b>2.6%</b>
<b>Other industries</b>	<b>1,633</b>	<b>714</b>	<b>-56.3%</b>	<b>13.3%</b>	<b>7.0%</b>
<b>Non-manufacturing industry</b>	<b>96</b>	<b>109</b>	<b>13.5%</b>	<b>0.8%</b>	<b>1.1%</b>
<b>Unspecified</b>		<b>611</b>			<b>6.0%</b>
<b>Total domestic shipments</b> Units	<b>12,318</b>	<b>10,133</b>	<b>-17.7%</b>	<b>100.0%</b>	<b>100.0%</b>
(million yen)	<b>(50,559)</b>	<b>(47,504)</b>	<b>(-6.0%)</b>	<b>(24.7%)</b>	<b>(23.1%)</b>
<b>Export</b> Units	<b>37,652</b>	<b>33,778</b>	<b>-10.3%</b>	<b>(75.3%)</b>	<b>(76.9%)</b>
(million yen)	<b>(130,790)</b>	<b>(112,954)</b>	<b>(-13.6%)</b>	<b>(27.9%)</b>	<b>(29.6%)</b>
<b>Grand total</b> Units	<b>49,970</b>	<b>43,911</b>	<b>-12.1%</b>	<b>(100.0%)</b>	<b>(100.0%)</b>
(million yen)	<b>(181,349)</b>	<b>(160,458)</b>	<b>(-11.5%)</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.