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On **November 8, 2018**, Harmonic Drive Systems Inc. (HDSI) announced earnings results for 1H FY03/19 and revisions to its earnings forecast.

Quarterly performance	FY03/18				FY03/19		FY03/17	FY03/18	FY03/18	FY03/19			FY03/17	FY03/18	FY03/19			FY03/18		FY03/19 (YoY change)		
(JPYmn)	Q1	Q2	Q3	Q4	Q1	Q2	1H	1H	1H*	1H	1H Est.	% of 1H	Cons.	Cons.	Est. Q2	Init. Est.	Chg	Q1*	Q2*	Q1	Q2	1H
Sales	**12,512**	**12,502**	**14,608**	**14,717**	**16,439**	**18,035**	**14,551**	**25,014**	**25,014**	**34,474**	**32,300**	**106.7%**	**30,069**	**54,340**	**67,000**	**68,500**	**-1,500**	**12,512**	**12,502**	**+3,927**	**+5,533**	**+9,460**
Speed reducer	10,208	10,224	12,012	12,200	13,801	15,190	11,682	20,432	20,432	28,991			24,059	44,644	48,237			10,208	10,224	+3,594	+4,965	+8,559
Japan	7,019	7,136	8,344	8,544	9,811	11,141	10,295	14,155	14,155	20,953			21,218	31,043	33,835			7,019	7,136	+2,792	+4,006	+6,797
North America	782	793	875	885	878	1,027	1,387	1,575	1,575	1,904			2,841	3,335	3,430			782	793	+95	+234	+329
Europe	2,406	2,296	2,792	2,771	3,112	3,022	-	4,702	4,702	6,134			-	10,266	10,972			2,406	2,296	+707	+726	+1,432
Mechatronics	2,304	2,278	2,596	2,517	2,638	2,846	2,869	4,582	-	5,483			6,010	9,696	-			-	-	+2,638	+2,846	+5,483
Japan	961	996	1,151	1,056	1,083	1,160	1,954	1,957	1,957	2,243			4,274	4,164	-			961	996	+122	+164	+286
North America	525	430	585	634	680	643	915	955	955	1,324			1,736	2,174	-			525	430	+155	+213	+369
Europe	818	852	860	827	874	1,042	-	1,670	1,670	1,917			-	3,358	-			818	852	+56	+190	+246
Japan	7,980	8,132	9,495	9,600	10,894	12,301	12,249	16,112	16,112	23,195			25,495	35,351	-			7,980	8,132	+2,914	+4,170	+7,083
North America	1,307	1,223	1,460	1,519	1,558	1,670	2,302	2,530	2,530	3,228			4,575	5,482	-			1,307	1,223	+251	+447	+698
Europe	3,224	3,148	3,653	3,598	3,987	4,064	-	6,372	6,372	8,051			-	13,507	-			3,224	3,148	+763	+916	+1,679
YoY	72.2%	71.6%	98.6%	80.3%	31.4%	44.3%	4.5%	71.9%	71.9%	37.8%	29.1%		6.3%	80.7%	23.3%	26.1%		72.2%	71.6%			
Japan	30.6%	32.5%	50.9%	38.1%	36.5%	51.3%	6.4%	31.5%	31.5%	44.0%			8.8%	38.7%				30.6%	32.5%			
North America	13.3%	6.5%	37.5%	25.3%	19.2%	36.6%	-4.3%	9.9%	9.9%	27.6%			-5.7%	19.8%				13.3%	6.5%			
CoGS	6,610	6,346	7,651	8,030	8,492	10,327	7,654	12,955	12,955	18,819			16,202	28,636				6,610	6,346	+1,882	+3,981	+5,863
Gross profit	**5,902**	**6,157**	**6,957**	**6,688**	**7,947**	**7,708**	**6,897**	**12,059**	**12,059**	**15,655**			**13,867**	**25,703**				**5,902**	**6,157**	**+2,045**	**+1,552**	**+3,597**
YoY	67.8%	82.2%	108.6%	84.0%	34.6%	25.2%	1.5%	74.9%		29.8%			4.4%	85.4%				67.8%	82.2%			
GPM	47.2%	49.2%	47.6%	45.4%	48.3%	42.7%	47.4%	48.2%	48.2%	45.4%			46.1%	47.3%				47.2%	49.2%	+1.2pp	-6.5pp	-2.8pp
SG&A expenses	**2,868**	**2,849**	**2,912**	**4,476**	**3,279**	**3,462**	**2,918**	**5,717**	**6,298**	**6,741**			**6,053**	**13,104**				**3,149**	**3,149**	**+131**	**+313**	**+443**
YoY	93.7%	98.2%	103.4%	162.7%	14.3%	21.5%	4.7%	95.9%		17.9%			6.8%	116.5%				112.7%	119.0%			
SG&A ratio	22.9%	22.8%	19.9%	30.4%	19.9%	19.2%	20.1%	22.9%	25.2%	19.6%			20.1%	24.1%				25.2%	25.2%	-5.2pp	-6.0pp	-5.6pp
Operating profit	**3,034**	**3,307**	**4,045**	**2,212**	**4,668**	**4,246**	**3,979**	**6,342**	**5,761**	**8,914**	**8,300**	**107.4%**	**7,814**	**12,599**	**16,100**	**17,400**	**-1,300**	**2,754**	**3,008**	**+1,914**	**+1,239**	**+3,153**
YoY	48.9%	70.4%	112.4%	14.6%	53.8%	28.4%	-0.7%	59.4%		40.6%	30.9%		2.6%	61.2%	27.8%	38.1%		35.1%	54.9%			
OPM	24.3%	26.5%	27.7%	15.0%	28.4%	23.5%	27.3%	25.4%	23.0%	25.9%	25.7%		26.0%	23.2%	24.0%	25.4%	-1.4pp	22.0%	24.1%	+6.4pp	-0.5pp	+2.8pp
Recurring profit	**3,047**	**3,172**	**3,912**	**2,098**	**4,827**	**4,511**	**4,164**	**6,219**	**5,639**	**9,338**	**8,400**	**111.2%**	**7,959**	**12,228**	**16,500**	**17,600**	**-1,100**	**2,766**	**2,873**	**+2,061**	**+1,638**	**+3,699**
Japan	2,772	3,919	3,760	3,459	4,489	4,589	4,330	6,691	6,691	9,077			8,878	13,909	-			2,772	3,919	+1,717	+670	+2,387
North America	221	145	170	142	258	343	363	366	366	601			705	678	-			221	145	+36	+198	+235
Europe (*)	481	-108	491	-310	646	167	214	374	128	812			135	554	-			362	-234	+283	+401	+684
Eliminations	-427	-784	-509	-1,193	-565	-588	-743	-1,211	-1,546	-1,153			-1,759	-2,913	-			-589	-957	+24	+369	+393
YoY	46.3%	52.4%	121.3%	3.5%	58.4%	42.2%	3.2%	49.4%		50.1%	35.1%		1.6%	53.6%	34.9%	43.9%		32.8%	38.0%			
Japan	19.7%	94.6%	65.9%	51.6%	61.9%	17.1%	-6.7%	54.5%		35.7%			3.6%	56.7%	-			19.7%	94.6%			
North America	15.5%	-15.4%	-2.1%	-15.7%	16.5%	136.7%	-16.9%	0.9%		64.1%			-10.3%	-3.8%	-			15.5%	-15.4%			
RPM	24.4%	25.4%	26.8%	14.3%	29.4%	25.0%	28.6%	24.9%	22.5%	27.1%	26.0%		26.5%	22.5%	24.6%	25.7%	-1.1pp	22.1%	23.0%	+0.1pp	+0.0pp	+0.0pp
Japan	34.7%	48.2%	39.6%	36.0%	41.2%	37.3%	35.3%	41.5%	41.5%	39.1%			34.8%	39.3%				34.7%	48.2%	+6.5pp	-10.9pp	-2.4pp
North America	16.9%	11.9%	11.7%	9.3%	16.5%	20.6%	15.8%	14.5%	14.5%	18.6%			15.4%	12.4%				16.9%	11.9%	-0.4pp	+8.7pp	+4.1pp
Europe	14.9%	-3.4%	13.4%	-8.6%	16.2%	4.1%		5.9%	2.0%	10.1%				4.1%				11.2%	-7.4%	+5.0pp	+11.5pp	+8.1pp
Europe (before goodwill amortization)	28.1%	11.0%	26.1%	-26.8%	20.5%	8.3%		19.7%	7.3%	14.4%				9.2%				16.3%	-2.0%	+4.3pp	+10.3pp	+7.1pp
Net income	**1,785**	**1,919**	**2,314**	**2,042**	**3,063**	**2,845**	**2,753**	**3,704**	**3,664**	**5,908**	**5,400**	**109.4%**	**19,732**	**8,060**	**10,600**	**11,500**	**-900**	**1,766**	**1,898**	**+1,297**	**+947**	**+2,244**
YoY	30.9%	38.2%	58.7%	-86.8%	71.6%	48.3%	6.1%	34.6%		59.5%	45.8%		294.5%	-59.2%	31.5%	42.7%		29.4%	36.7%			
Net margin	14.3%	15.3%	15.8%	13.9%	18.6%	15.8%	18.9%	14.8%	14.6%	17.1%	16.7%		65.6%	14.8%	15.8%	16.8%	-1.0pp	14.1%	15.2%	+4.5pp	+0.6pp	+2.5pp
Orders	**19,966**	**20,498**	**22,055**	**21,207**	**16,088**	**12,785**	**14,503**	**40,464**	**40,464**	**28,873**			**36,330**	**83,726**				**19,966**	**20,498**	**-3,879**	**-7,713**	**-11,592**
Speed reducer	16,934	17,567	18,415	18,518	12,605	10,285	11,573	34,500	34,500	22,890			29,869	71,433				16,934	17,567	-4,329	-7,282	-11,611
Japan	13,110	12,754	14,415	14,283	8,299	5,794	10,069	25,865	25,865	14,093			26,882	54,562				13,110	12,754	-4,812	-6,960	-11,772
North America	919	1,408	1,051	1,300	1,125	1,527	1,504	2,326	2,326	2,652			2,988	4,677				919	1,408	+206	+120	+326
Europe	2,905	3,405	2,949	2,936	3,182	2,963	-	6,309	6,309	6,145			-	12,194				2,905	3,405	+277	-441	-164
Mechatroni	3,033	2,931	3,640	2,688	3,483	2,500	2,929	5,964	5,964	5,983			6,461	12,293				3,033	2,931	+450	-431	+19
Japan	1,412	1,184	1,301	1,362	1,227	656	2,000	2,596	2,596	1,883			4,711	5,259				1,412	1,184	-185	-528	-713
North America	789	669	844	706	743	719	930	1,457	1,457	1,462			1,750	3,007				789	669	-46	+51	+5
Europe	832	1,079	1,496	620	1,513	1,125	-	1,911	1,911	2,638			-	4,027				832	1,079	+681	+46	+728
Japan	164.2%	195.1%	173.2%	54.2%	-19.4%	-37.6%	13.4%	179.0%		-28.6%			31.6%	130.5%				164.2%	195.1%			
YoY	178.5%	219.8%	189.4%	55.2%	-25.6%	-41.5%	20.1%	198.1%		-33.7%			39.7%	139.2%				178.5%	219.8%			
Japan	150.7%	163.6%	151.9%	28.8%	-36.7%	-54.6%	23.9%	156.9%		-45.5%			44.5%	103.0%				150.7%	163.6%			
North Amei	8.0%	115.2%	64.1%	54.2%	22.4%	8.5%	-0.4%	54.6%		14.0%			8.0%	56.5%				8.0%	115.2%			
Gross profit	105.4%	101.7%	113.0%	47.5%	14.8%	-14.7%	-7.0%	103.6%		0.3%			3.5%	90.3%				105.4%	101.7%			
YoY	37.8%	21.5%	-1.1%	-2.5%	-13.1%	-44.6%	-7.5%	29.8%		-27.5%			12.0%	11.6%				37.8%	21.5%			
GPM	74.8%	39.7%	113.9%	65.7%	-5.8%	7.6%	-5.9%	56.7%		0.3%			-14.0%	71.8%				74.8%	39.7%			
Order backlog	**21,560**	**29,997**	**37,536**	**44,225**	**42,369**	**36,490**	**5,165**	**29,997**	**29,997**	**36,490**			**11,723**	**44,225**				**21,560**	**29,997**	**+20,809**	**+6,492**	**+6,492**
SG&A ratio	18,645	26,335	32,800	39,170	36,692	31,215	4,072	26,335	26,335	31,215			10,180	39,170				18,645	26,335	+18,047	+4,880	+4,880
Operating profi	14,895	20,534	26,662	32,415	29,715	23,528	3,147	20,534	20,534	23,528			9,091	32,415				14,895	20,534	+14,820	+2,993	+2,993
YoY	1,183	1,796	1,987	2,408	2,500	3,091	926	1,796	1,796	3,091			1,089	2,408				1,183	1,796	+1,317	+1,295	+1,295
OPM	2,567	4,005	4,151	4,347	4,477	4,597	-	4,005	4,005	4,597			-	4,347				2,567	4,005	+1,910	+592	+592
Recurring profit	2,914	3,662	4,735	5,055	5,677	5,274	1,092	3,662	3,662	5,274			1,544	5,055				2,914	3,662	+2,763	+1,612	+1,612
Japan	1,456	1,644	1,795	2,103	2,064	1,463	654	1,644	1,644	1,463			1,049	2,103				1,456	1,644	+607	-181	-181
North Amei	737	976	1,245	1,318	1,295	1,399	438	976	976	1,399			495	1,318				737	976	+558	+422	+422
Europe (*)	721	1,042	1,694	1,633	2,318	2,412	-	1,042	1,042	2,412			-	1,633				721	1,042	+1,597	+1,371	+1,371
Capital expenditures							1,671	3,128					4,576	8,757		24,000				-	-	-
Depreciation	584	669	759	3,152	1,159	1,281	818	1,253	2,377	2,440			1,774	5,164		6,500		1,128	1,249	+32	+31	+63
Goodwill amortization	425	454	463	-653	172	172	-	879	335	344			-	688				162	173	+10	-1	+9
R&D expenses	437	277	359	1,041	589		671	714					1,383	2,114		2,750		437	-	+152	-	-
R&D, % of sales	3.5%	2.2%	2.5%	7.1%	3.6%	-	4.6%	2.9%		-			4.6%	3.9%		4.0%		3.5%		+0.1pp	-	-
OP before depreciation	3,618	3,976	4,804	5,364	5,827	5,527	4,797	7,595	8,138	11,355			9,588	17,763				3,881	4,257	+1,946	+1,270	+3,216
YoY	49.0%	67.9%	104.1%	120.0%	61.1%	39.0%	2.0%	58.3%		49.5%			14.5%	85.3%				59.8%	79.8%			
OPM before depreciation	28.9%	31.8%	32.9%	36.4%	35.4%	30.6%	33.0%	30.4%	32.5%	32.9%			31.9%	32.7%				31.0%	34.0%	+4.4pp	-3.4pp	+0.4pp
EBITDA	4,043	4,430	5,267	4,711	6,000	5,699	4,797	8,473	8,473	11,699			9,588	18,451		23,900		4,043	4,430	+1,956	+1,269	+3,226
YoY	66.5%	87.1%	123.8%	93.2%	48.4%	28.6%	2.0%	76.7%		38.1%			4.9%	92.4%		29.5%		66.5%	87.1%			
EBITDA margin	32.3%	35.4%	36.1%	32.0%	36.5%	31.6%	33.0%	33.9%	33.9%	33.9%			31.9%	34.0%		34.9%		32.3%	35.4%	+4.2pp	-3.8pp	+0.1pp
Quarterly (parent)	**FY03/18**				**FY03/19**		**FY03/17**	**FY03/18**	**FY03/18**	**FY03/19**			**FY03/17**	**FY03/18**	**FY03/19**			**FY03/18**		**FY03/19 (YoY change)**		
(JPYmn)	**Q1**	**Q2**	**Q3**	**Q4**	**Q1**	**Q2**	**1H**	**1H**	**1H***	**1H**	**1H Est.**	**% of 1H**	**Cons.**	**Cons.**	**Est. Q2**	**Init. Est.**	**Chg**	**Q1***	**Q2***	**Q1**	**Q2**	**1H**
Sales	**8,352**	**9,581**	**10,193**	**10,854**	**12,307**	**12,921**	**12,842**	**17,933**	**17,933**	**25,228**	**23,500**	**107.4%**	**26,747**	**38,982**	**48,000**	**50,000**	**-2,000**	**8,352**	**9,581**	**+3,955**	**+3,340**	**+7,295**
Semiconductor production equipment	845	951	1,049	1,188	1,505	1,835	1,383	1,796	1,796	3,340	2,500	133.6%	2,936	4,033				845	951	+660	+884	+1,544
Flat panel display equipment	614	550	704	727	1,015	752	843	1,164	1,164	1,767	1,200	147.3%	2,167	2,595				614	550	+401	+202	+603
Industrial robot applications	4,486	5,403	5,608	5,848	6,197	6,743	6,214	9,889	9,889	12,940	13,300	97.3%	12,524	21,345				4,486	5,403	+1,711	+1,340	+3,051
Gear boxes (for electric motor makers)	454	513	521	555	592	617	615	967	967	1,209	1,200	100.8%	1,434	2,043				454	513	+138	+104	+242
Machine tools	397	490	597	540	720	599	849	887	887	1,319	1,250	105.5%	1,689	2,024				397	490	+323	+109	+432
Oil-drilling equipment	151	51	99	218	228	221	83	202	202	449	450	99.8%	167	519				151	51	+77	+170	+247
Others	1,402	1,620	1,613	1,774	2,046	2,151	2,849	3,022	3,022	4,197	3,600	116.6%	5,817	6,409				1,402	1,620	+644	+531	+1,175
YoY	**28.9%**	**50.5%**	**55.8%**	**47.4%**	**47.4%**	**34.9%**	**8.4%**	**39.6%**		**40.7%**	**31.0%**		**12.7%**	**45.7%**	**23.1%**	**28.3%**		**28.9%**	**50.5%**			
Semiconductor production equipment	24.8%	34.7%	41.0%	46.8%	78.1%	93.0%	5.1%	29.9%		86.0%	39.2%		10.2%	37.4%				24.8%	34.7%			
Flat panel display equipment	70.6%	13.9%	6.3%	9.8%	65.3%	36.7%	1.2%	38.1%		51.8%	3.1%		39.6%	19.8%				70.6%	13.9%			
Industrial robot applications	36.5%	84.6%	94.4%	70.7%	38.1%	24.8%	33.0%	59.1%		30.9%	34.5%		25.5%	70.4%				36.5%	84.6%			
Gear boxes (for electric motor makers)	53.4%	60.8%	42.0%	22.8%	30.4%	20.3%	-15.3%	57.2%		25.0%	24.1%		4.3%	42.5%				53.4%	60.8%			
Machine tools	-2.9%	11.4%	51.9%	20.8%	81.4%	22.2%	-24.3%	4.5%		48.7%	40.9%		-14.3%	19.8%				-2.9%	11.4%			
Others	1.5%	10.4%	9.7%	18.4%	45.9%	32.8%	-1.6%	6.1%		38.9%	19.1%		0.2%	10.2%				1.5%	10.4%			
Orders	**17,985**	**14,583**	**16,889**	**18,113**	**9,546**	**6,183**	**12,413**	**32,568**	**32,568**	**15,729**			**34,063**	**67,571**				**17,985**	**14,583**	**-8,439**	**-8,400**	**-16,839**
Semiconductor production equipment	1,625	1,670	2,568	1,903	1,126	624	1,407	3,295	3,295	1,750			3,452	7,766				1,625	1,670	-499	-1,046	-1,545
Flat panel display equipment	1,179	1,241	1,114	899	335	161	979	2,420	2,420	496			2,776	4,433				1,179	1,241	-844	-1,080	-1,924
Industrial robot applications	11,754	7,948	9,082	10,641	4,548	2,638	5,664	19,702	19,702	7,186			17,873	39,425				11,754	7,948	-7,206	-5,310	-12,516
Gear boxes (for electric motor makers)	423	613	650	1,091	553	443	646	1,036	1,036	996			1,740	2,777				423	613	+130	-170	-40
Machine tools	773	957	878	829	641	385	810	1,730	1,730	1,026			1,823	3,437				773	957	-132	-572	-704
Oil-drilling equipment	62	96	310	494	166	203	23	158	158	369			254	962				62	96	+104	+107	+211
Others	2,165	2,055	2,284	2,253	2,173	1,727	2,876	4,220	4,220	3,900			6,130	8,757				2,165	2,055	+8	-328	-320
Germany	1,038	727	554	659	562	-	835	1,765					2,271	2,978				1,038	-	-476		
US	786	738	985	981	722	-	645	1,524					1,618	3,490				786	-	-64		
China	3,291	1,543	1,572	1,813	371	-	1,286	4,834					4,299	8,219				3,291	-	-2,920		
Taiwan and South Korea	981	1,409	799	472	422	-	699	2,390					2,441	3,661				981	-	-559		
YoY	**178.9%**	**144.5%**	**116.7%**	**30.8%**	**-46.9%**	**-57.6%**	**24.3%**	**162.4%**		**-51.7%**			**45.5%**	**98.4%**				**178.9%**	**144.5%**			
Semiconductor production equipment	139.7%	129.1%	186.9%	65.5%	-30.7%	-62.6%	13.7%	134.2%		-46.9%			30.0%	125.0%				139.7%	129.1%			
Flat panel display equipment	151.4%	143.3%	45.1%	-12.6%	-71.6%	-87.0%	35.8%	147.2%		-79.5%			85.6%	59.7%				151.4%	143.3%			
Industrial robot applications	274.2%	215.0%	155.3%	23.0%	-61.3%	-66.8%	52.2%	247.8%		-63.5%			71.6%	120.6%				274.2%	215.0%			
Gear boxes (for electric motor makers)	39.1%	79.2%	38.0%	75.1%	30.7%	-27.7%	26.2%	60.4%		-3.9%			50.5%	59.6%				39.1%	79.2%			
Machine tools	78.5%	153.8%	95.5%	47.0%	-17.1%	-59.8%	-8.0%	113.6%		-40.7%			6.1%	88.5%				78.5%	153.8%			
Others	53.1%	40.6%	44.6%	34.5%	0.4%	-16.0%	1.6%	46.7%		-7.6%			6.4%	42.9%				53.1%	40.6%			

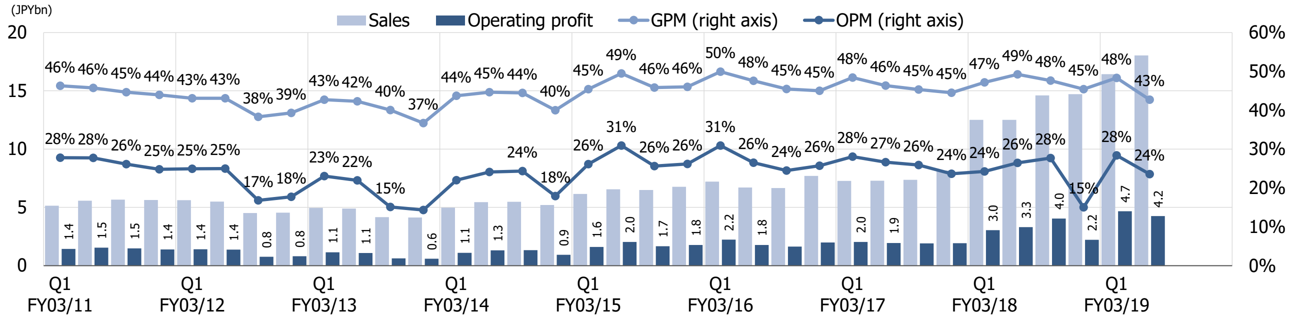
Source: Shared Research based on company data
Note: Figures may differ from company materials due to differences in rounding methods. Recurring profit from the European segment was equity in earnings of affiliates in FY03/17 and earlier, but recurring profit after amortization of goodwill and others from FY03/18.

1H FY03/19 results (out November 8, 2018)

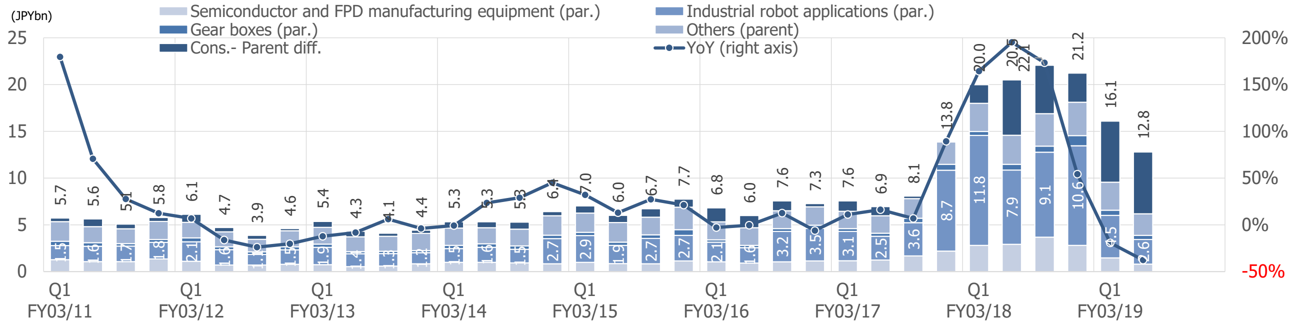
- 1H: Results exceeded initial forecasts, but HDSI revised full-year forecasts downward in light of changes in the business environment in 2H. Revision focused on parent-only results
  - Downward revision: Takes into consideration adjustments in demand on curbing of Chinese capex and changes in investment plans for semiconductor industry
  - Changes: Consolidated sales revised down JPY1.5bn (-2.2% versus previous forecast) and OP down JPY1.3bn (-7.5%). Parent sales revised down JPY2.0bn and OP down JPY1.5bn
  - Deceleration in orders at parent: In light of the need to curb capex, some client companies that had placed plentiful advance orders for products with long lead times had to conduct adjustment and cancellation (Q1: JPY2.4bn, Q2: JPY1.9bn), causing a significant impact on HDSI. Orders may have decreased more than actual demand due to the drop in orders for long lead items
- Sales: Continued quarterly sales growth against a backdrop of a large order backlog, with enhanced capacity also contributing. Exceeded company targets
- Operating profit: Up JPY3.2bn YoY (+41% YoY), reaching 107% of target (after retroactive correction accompanying determination of goodwill in Q4 FY03/18)
- Enhanced capacity: Making steady progress toward target capacity outlined in medium-term plan. HDSI announced a construction schedule for new buildings at the Ariake site, including a new plant set to begin operation in September 2019
  - Production capacity reached approximately 110,000 units a month as of Q1, by adding capacity step by step. With capacity expected to increase significantly in September following the start of operation of the second building at the Ariake Plant, the company targets 130,000 units a month by the end of FY03/19
  - The company plans to proceed with building construction at new plants according to schedule and adjust installation timing of production facilities in accordance with demand trends
- Dividend increase: Interim dividend increased from JPY17 to JPY19. Added to the JPY19 year-end dividend, this is JPY38 for the year (it had been JPY36)

> Note: The company determined interim accounting treatment regarding business combination at end FY03/18. Accordingly, consistency for depreciation, goodwill amortization, and operating profit was disrupted between prior to Q3 FY03/18 and Q4 FY03/18, as well as between Q4 FY03/18 and after Q1 FY03/19. This factor should be noted when referring to the tables in this report (We used post-revision figures in the text). For reference, the quarterly results table also shows post-revision figures for the previous year.

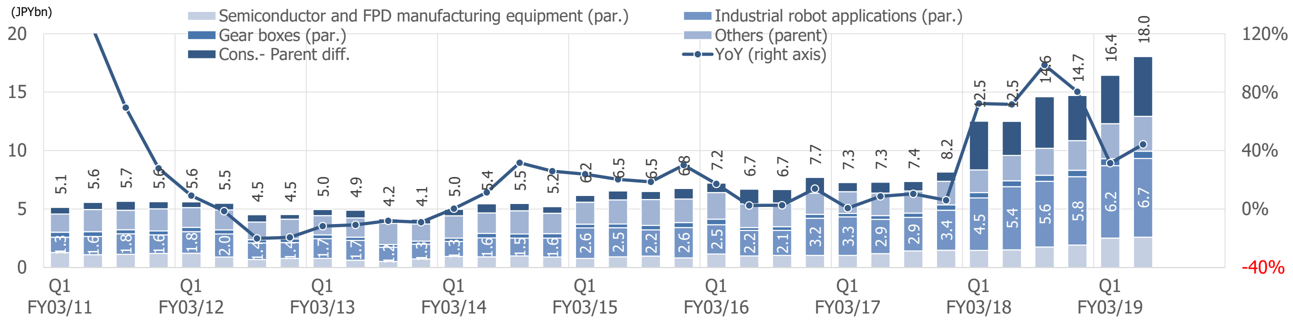
Results



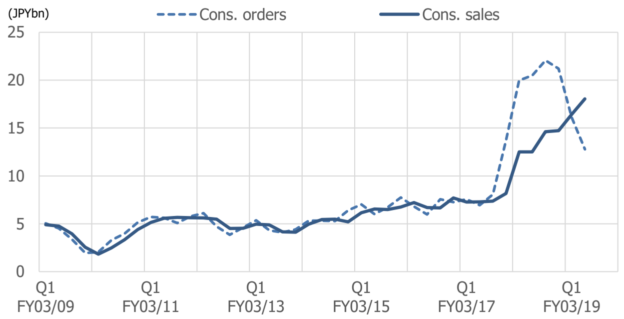
Orders

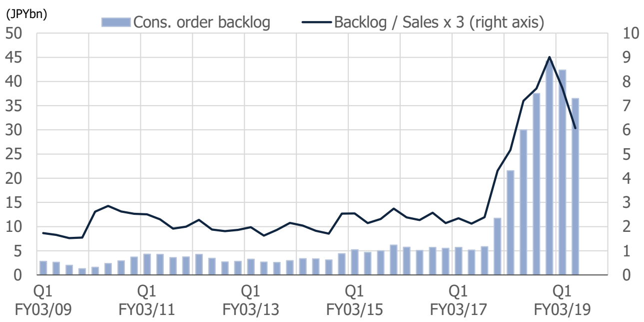


Sales



Orders, sales, and order backlog





Source: Shared Research based on company data

Forecast revision

(JPYmn)	FY03/15 1H	FY03/15 2H	FY03/16 1H	FY03/16 2H	FY03/17 1H	FY03/17 2H	FY03/18 1H	FY03/18 2H	FY03/19 1H	FY03/19 Rev. Est. 2H Est.	FY03/19 Init. Est. 1H Est.	FY03/19 Init. Est. 2H Est.	Difference 1H	Difference 2H Est.
Sales	12,700	13,251	13,919	14,359	14,551	15,518	25,014	29,325	34,474	32,526	32,300	36,200	2,174	-3,674
YoY	22.0%	24.2%	9.6%	8.4%	4.5%	8.1%	71.9%	89.0%	37.8%	10.9%	29.1%	23.4%		
CoGS	6,666	7,164	7,126	7,866	7,654	8,548	12,955	15,681	18,819					
Gross profit	6,035	6,087	6,794	6,493	6,897	6,970	12,059	13,644	15,655					
YoY	31.1%	34.8%	12.6%	6.7%	1.5%	7.4%	74.9%	95.8%	29.8%					
GPM	47.5%	45.9%	48.8%	45.2%	47.4%	44.9%	48.2%	46.5%	45.4%					
SG&A expenses	2,401	2,654	2,788	2,880	2,918	3,135	5,717	7,388	6,741					
YoY	9.3%	17.8%	16.1%	8.5%	4.7%	8.9%	95.9%	135.6%	17.9%					
SG&A ratio	18.9%	20.0%	20.0%	20.1%	20.1%	20.2%	22.9%	25.2%	19.6%					
Operating profit	3,633	3,434	4,005	3,613	3,979	3,835	6,342	6,257	8,914	7,186	8,300	9,100	614	-1,914
YoY	51.1%	51.7%	10.2%	5.2%	-0.7%	6.1%	59.4%	63.1%	40.6%	14.8%	30.9%	45.4%		
OPM	28.6%	25.9%	28.8%	25.2%	27.3%	24.7%	25.4%	21.3%	25.9%	22.1%	25.7%	25.1%	+0.2pp	-3.0pp
Recurring profit	3,886	3,639	4,034	3,795	4,164	3,795	6,219	6,009	9,338	7,162	8,400	9,200	938	-2,038
YoY	52.0%	60.6%	3.8%	4.3%	3.2%	-0.0%	49.4%	58.3%	50.1%	19.2%	35.1%	53.1%		
RPM	30.6%	27.5%	29.0%	26.4%	28.6%	24.5%	24.9%	20.5%	27.1%	22.0%	26.0%	25.4%	+1.1pp	-3.4pp
Net income	2,483	2,350	2,594	2,407	2,753	16,979	3,704	4,356	5,908	4,692	5,400	6,100	508	-1,408
YoY	52.4%	72.2%	4.5%	2.4%	6.1%	605.3%	34.6%	-74.3%	59.5%	7.7%	45.8%	40.0%		
Net margin	19.6%	17.7%	18.6%	16.8%	18.9%	109.4%	14.8%	14.9%	17.1%	14.4%	16.7%	16.9%	+0.4pp	-2.4pp
Orders	13,023	14,464	12,790	14,825	14,503	21,827	40,464	43,262	28,873					
Order backlog	4,677	6,186	5,076	5,510	5,165	11,723	29,997	44,225	36,490					
No. of months	2.2	2.8	2.2	2.3	2.1	4.5	7.2	9.0	6.4					
Capital expenditures	807	1,668	1,599	2,697	1,671	2,905	3,128	5,629	-					
Depreciation and amortization	596	709	699	825	818	957	2,131	3,721	2,785					
EBITDA	4,229	4,143	4,704	4,438	4,797	4,792	8,473	9,978	11,699					
EBITDA margin	33.3%	31.3%	33.8%	30.9%	33.0%	30.9%	33.9%	34.0%	33.9%					
R&D expenses	606	703	691	714	671	712	714	1,400	-					

Earnings overview

1H: Results exceeded initial forecasts, but HDSI revised full-year forecasts downward in light of changes in the business environment in 2H. Revision focused on parent-only results

In terms of business conditions for the HDS Group in 1H FY03/19, there was significant adjustment in orders due to the curbing of capital investment in China and a reactionary falloff following a rapid surge in orders in FY03/18, but sales achieved a 1H record mainly because of robust capital investment related to automation, productivity improvement, labor-saving initiatives in the manufacturing industry, and a large order backlog supporting operations.

Domestic orders declined YoY to JPY14.1bn (-45.5% YoY, -JPY11.8bn). HDSI says there were two main factors behind the decrease in orders. First, there was ongoing adjustment in orders of reducers for small robots, semiconductor production equipment, and FPD production equipment. These orders had been maintaining a high level, but were impacted by recent moves to hold off on capital investment in China due to Chinese trade friction with the US and delays in semiconductor-related capex plans even in other regions. Second, client companies and sales agents that had placed advance orders with long lead times decided to adjust orders upon consideration of recent order trends, the company’s inventory level and order backlog, and shortening lead time due to the company’s improved production capacity. According to the company as of Q1, demand itself was greater than actual orders received considering that advance allowances at manufacturers and sales agents fell, but Shared Research anticipates the same applies to Q2. Nevertheless, the impact on 2H earnings seems likely to be significant, and the company announced a downward revision to its forecasts at the same time as it released its 1H earnings results. Revised consolidated figures (sales lowered by JPY1.5bn and operating profit by JPY1.3bn) seem mostly to be the result of revised parent-only figures (-JPY2.0bn, -JPY1.5bn).

Production capacity (reference as of Q1)

The decline in total orders seen in Q1 was mainly due to a significant decrease in advance orders, and the degree of decline was within the company’s expectation. According to the company, it has not lost market share to competitors. The company is steadily enhancing its production capacity, an important factor leading to an increase in advance orders, and its plan to install additional equipment at the Ariake Plant is progressing as planned. Production capacity recently topped 110,000 units per month (versus more than 100,000 units in May 2018), boosted by enhanced facilities and progress in bottleneck elimination. With the second building at the Ariake Plant commencing operations in September, production capacity is expected to further increase to reach over 130,000 units at end March 2019.

Ariake site: On the same day it announced Q1 results, the company announced a construction schedule for new buildings at the Ariake site. According to the schedule, the second building (2,730sqm, versus 3,366sqm for the first building which commenced operations in March) of the existing plant is to be completed on schedule by end-August 2018. A new plant (third building of 6,040.4sqm and fourth building of 21,818.8sqm) is scheduled to begin operation early in September 2019. The two buildings of the new plant will be constructed for about JPY12.0bn, which is within the scope of the medium-term management plan, which budgets JPY71.0bn over three years (JPY24.0bn in FY03/19). The company plans to make a gradual capital investment in order to boost production capacity of reducers for industrial robots, semiconductor production equipment, FPD equipment, etc. where demands are expected to rise. The company plans to build a structure for domestic production capacity of 200,000 units per month, combined with its mainstay Hotaka Plant, by FY03/21.

Supplementary information on orders

In Q1 FY03/19, cancellation of some advance orders received at the parent up until Q4 FY03/18, mainly due to inventory adjustments in the Chinese market and revised production plans at some client companies, amounted to JPY2.4bn. Although the company was expecting order cancellation of such extent for March 2018, it occurred in Q1 FY03/19 at once. In Q2 as well, from among those parent-only orders received in Q1 and earlier, cancellation of advance orders totaled JPY1.9bn as some client companies revised their production plans. Since this had only a limited effect on order backlog as of Q1 (domestic orders JPY25.0bn including mechatronics), which continues to be high, the company did not plan to revise its results forecasts for FY03/19. However, at the time 1H results were announced, the company revised its forecasts downward in light of changes in the business environment for client companies.

As of Q1, the company planned to steadily boost production capacity in order to shorten delivery times. It planned to proceed with building construction at new plants (which will require time) according to its medium-term plan and respond flexibly in terms of the installation of equipment, either moving the schedule forward or back in line with demand trends. Shared Research does not believe there has been any change in this plan, but will confirm in interviews with the company.

To more accurately reflect results of marketing activities to win orders and actual demand seen in Q1 and Q2 FY03/19, the figures above are before subtracting amounts for cancelled orders, but the canceled amount is deleted from the order backlog.

Orders for mechatronics in Europe grew in Q1 both YoY and QoQ. This is mainly because customers tend to place new orders for the whole year at once and many of the orders were booked in Q1 (January to March) FY03/19, which coincides with the start of the fiscal year for many of its clients. Therefore, this level of orders was not expected to continue from Q2 onward. In fact, orders were down QoQ in Q2, but up 7.6% YoY.

Sales: Continued sales growth driven by enhanced capacity

Regarding sales, as the company has been gradually increasing production capacity, quarterly sales of reducers for the domestic market and quarterly consolidated sales continue to rise on the QoQ basis. Q2 parent-only sales (JPY12.9bn, +5.0% QoQ) were at a record high on a quarterly basis. By end application, not only did orders related to industrial robots used on production lines for smartphones and home electric appliances increase, but also orders related to semiconductor production equipment (SPE), FPD production equipment, and gear boxes for motor manufacturers.

Operating profit

Higher sales absorbed costs related to increased spending for future growth (the company invested to increase production capacity based on future demand growth). As a result, operating profit was JPY8.9bn, up 41% YoY (+JPY3.2bn). The CoGS ratio deteriorated 2.8pp. It seems increased sales were enough to offset the effects of higher depreciation expenses and the introduction of a dual shift system in the production line, but we would like to confirm the details in interviews with the company.

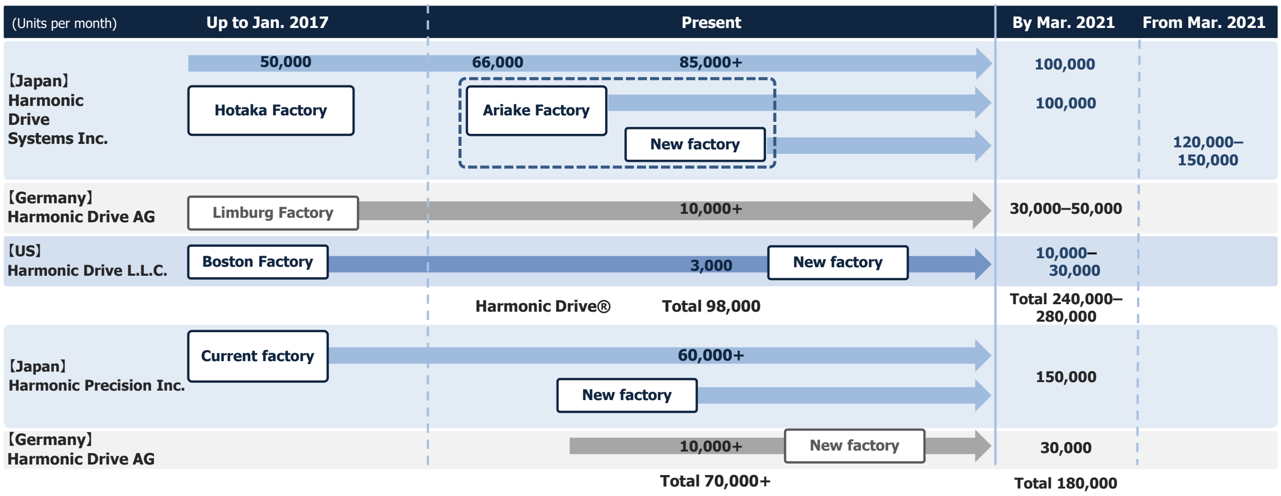
Outlook for Q2 and beyond (reference as of Q1)

In terms of progress toward 1H targets (sales of JPY32.3bn and operating profit of JPY8.3bn), sales reached 50.9% and operating profit 56.2%. Considering the large order backlog and increasing production capacity, Shared Research believes these results indicate no particular reason for concern about performance. More specifically, a) **Sales**: as domestic production capacity continues to increase and the second building at the Ariake Plant starts operation in September, 1H sales will likely surpass company targets, b) **Profitability**: no major changes are expected, excluding the impact of product mix, c) **Depreciation**: expected to increase in Q2 and 2H due mainly to the operation start at the second building at the Ariake Plant. As R&D expenses also skew toward 2H, Q1 result was in line with plan. Accordingly, operating profit in Q2 will unlikely decrease QoQ, and HDSI does not anticipate any significant increase in expenses in Q2.

Order Trends

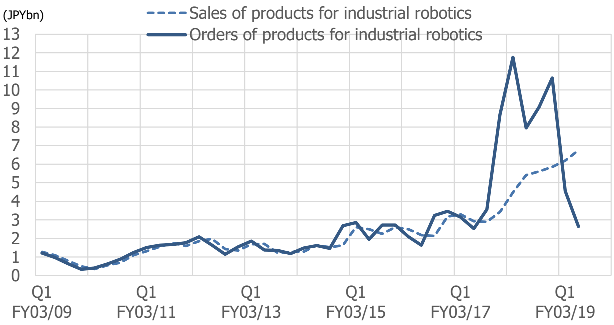
Parent-only orders in May fell below sales, resulting in the book-to-bill ratio below 1 for the first time in a while. As advance orders decreased, orders with long lead times also decreased, and the order backlog is gradually decreasing as well. However, orders might recover from Q3 because of the following factors; a) as of May, the company received advance orders with lead times exceeding eight months, and b) with lead times typically within two months, delivery time may not return to normal for another half a year, considering advance orders. Also, c) demands for products for small robots tend to increase at the end of the year. Furthermore, parent-only order backlog at end Q1 was approximately JPY35bn (about nine months' worth), therefore even with a JPY5–6bn decrease in order backlog every quarter, there would not be a substantial impact on its results.

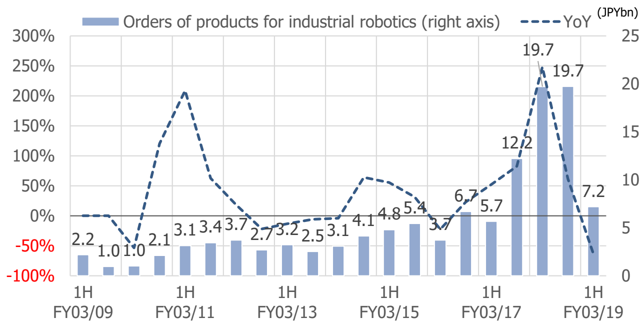
Production structure (as of May 2018 announcement)



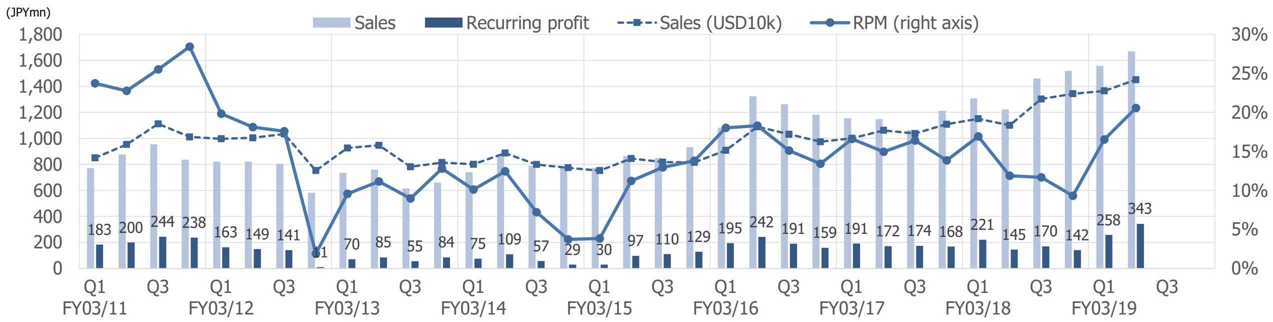
Source: Shared Research based on company data

Products for industrial robotics (parent)



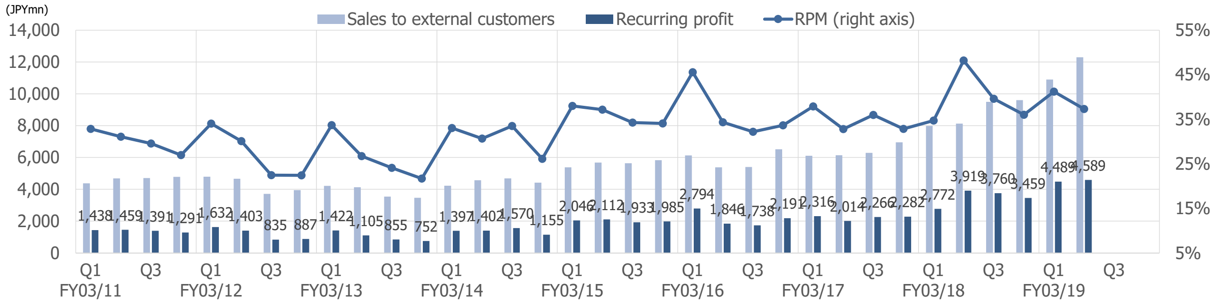


North America segment results

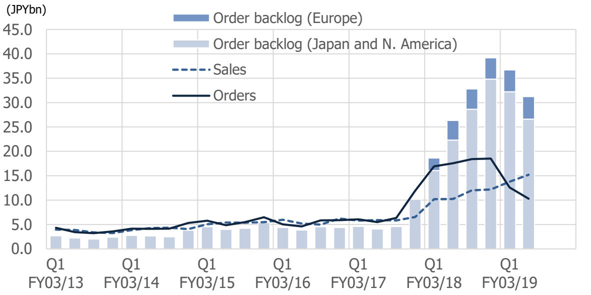


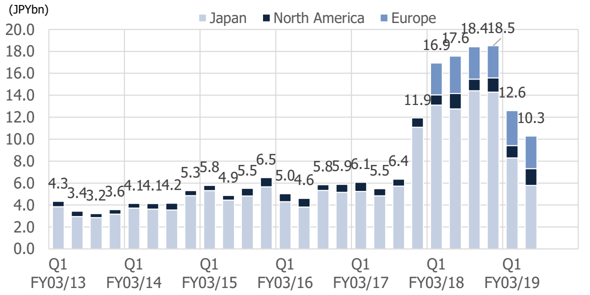
Source: Shared Research based on company data

Japan segment results

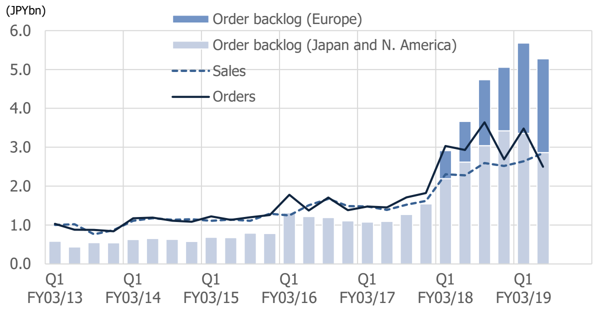


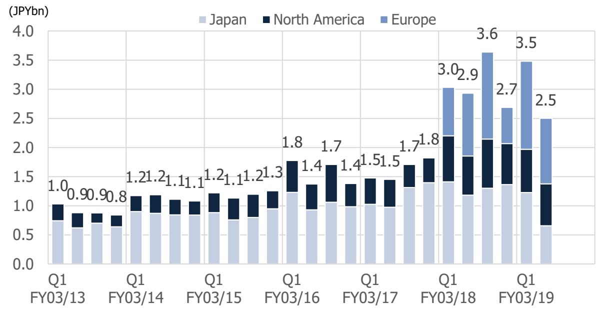
Reducers (left: consolidated, right: orders by region)



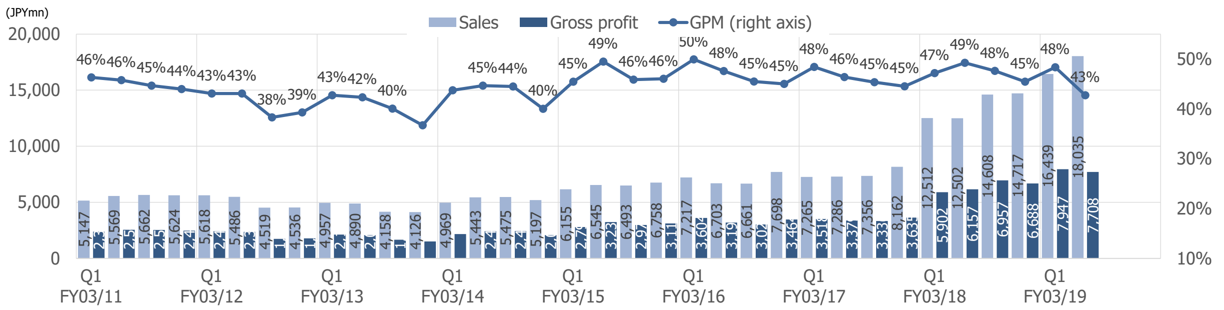


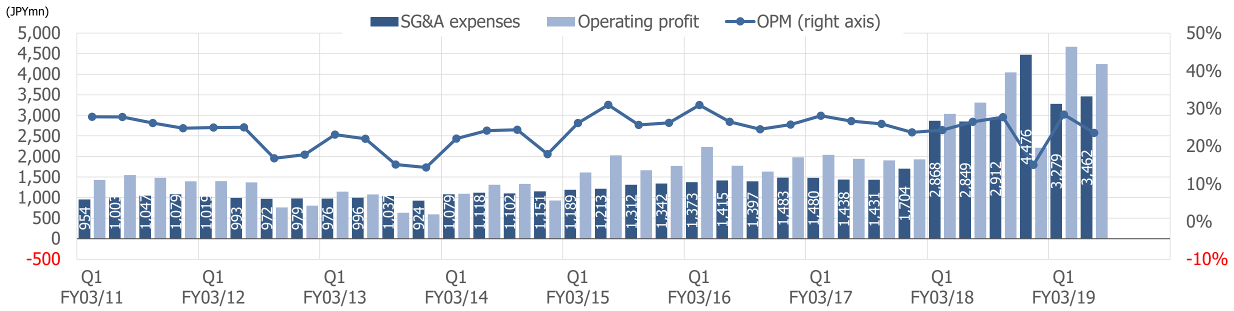
Mechatronics (left: consolidated, right: orders by region)





Gross profit, SG&A and operating profit





Source: Shared Research based on company data

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Contact Details

Shared Research Inc.
3-31-12 Sendagi Bunkyo-ku Tokyo, Japan
https://sharedresearch.jp
Phone: +81 (0)3 5834-8787
Email: info@sharedresearch.jp