




# **HAMAMATSU**

P H O T O N I S O U R B U S I N E S S

## **Hamamatsu Second Quarter Report (Summary)**

**Fiscal Year ending September 30, 2019**



**May 2019**

**Hamamatsu Photonics K.K.**

**Tokyo Stock Exchange: 6965**

**[www.hamamatsu.com](http://www.hamamatsu.com)**

# Notes

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- This material is not intended to be a solicitation to buy or sell any securities of Hamamatsu Photonics K.K.
- The information contained in this material is based on data available as of making it. No guarantees, promises are made as to its accuracy or completeness.

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- 1. Financial results summary**
  2. Annual forecast/business development
  3. Topics

# Semi-annual performance financial highlights

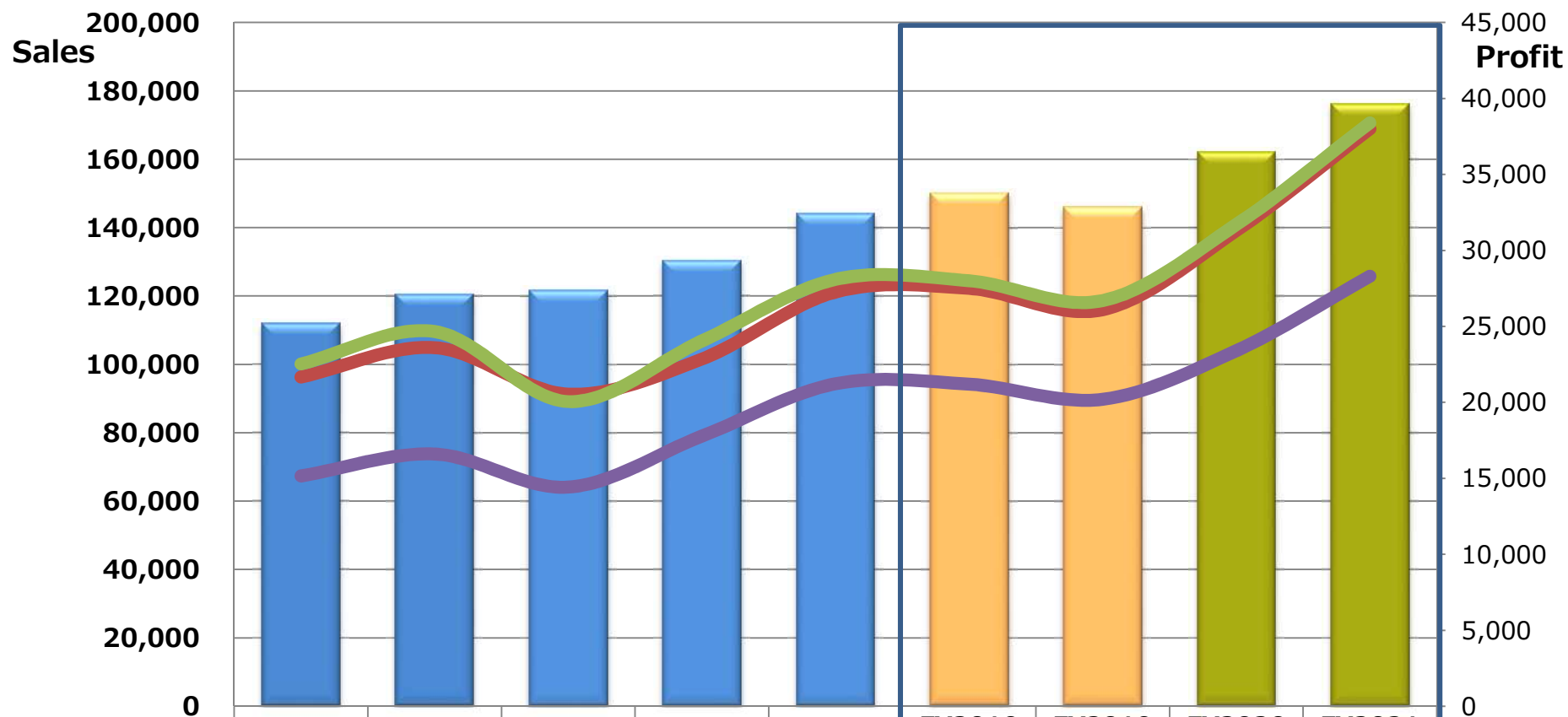
in million yen

(Consolidated)	FY2018		FY2019					
	1 <sup>st</sup> Half	Year	1 <sup>st</sup> Half	Compared with prev. year	Year (Original plan)	Year (Forecast)	Compared with original plan (Forecast)	Compared with prev. year (Forecast)
Net Sales	73,074	144,338	74,413	+1,339	150,400	146,300	△4,100	+1,962
Operating income	14,935	27,263	14,007	△928	27,500	26,100	△1,400	△1,163
Ordinary income	15,158	28,088	14,350	△808	28,000	26,700	△1,300	△1,388
Net income	10,811	21,222	10,877	+66	21,200	20,200	△1,000	△1,022
Net income per share (yen)	69.24	136.49	70.27	-	-	130.49	-	-
Dividends (yen)	17	37	20	-	40	40	-	-
Exchange rates	Actual rate		Actual rate		Assumption rate			
1 US dollar(yen)	110.66	110.46	111.61	-	105.00	108.00	-	-
1 euro(yen)	133.08	131.42	127.05	-	125.00	126.00	-	-
1 RMB(yen)	16.86	16.97	16.34	-	16.00	16.00	-	-

\*numbers are rounded down to the nearest million yen

# Sales & profit (FY2014 - FY2021)

in million yen



	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019 (Original plan)	FY2019 (Forecast)	FY2020 (Original plan)	FY2021 (Original plan)
Net sales (Left)	112,092	120,691	121,852	130,495	144,338	150,400	146,300	162,300	176,400
Operating income (Right)	21,665	23,596	20,544	22,849	27,263	27,500	26,100	31,300	38,000
Ordinary income (Right)	22,531	24,658	20,050	24,037	28,088	28,000	26,700	31,700	38,400
Net income (Right))	15,155	16,598	14,419	17,777	21,222	21,200	20,200	23,400	28,300

\*numbers are rounded down to the nearest million yen

# Sales by region

in million yen

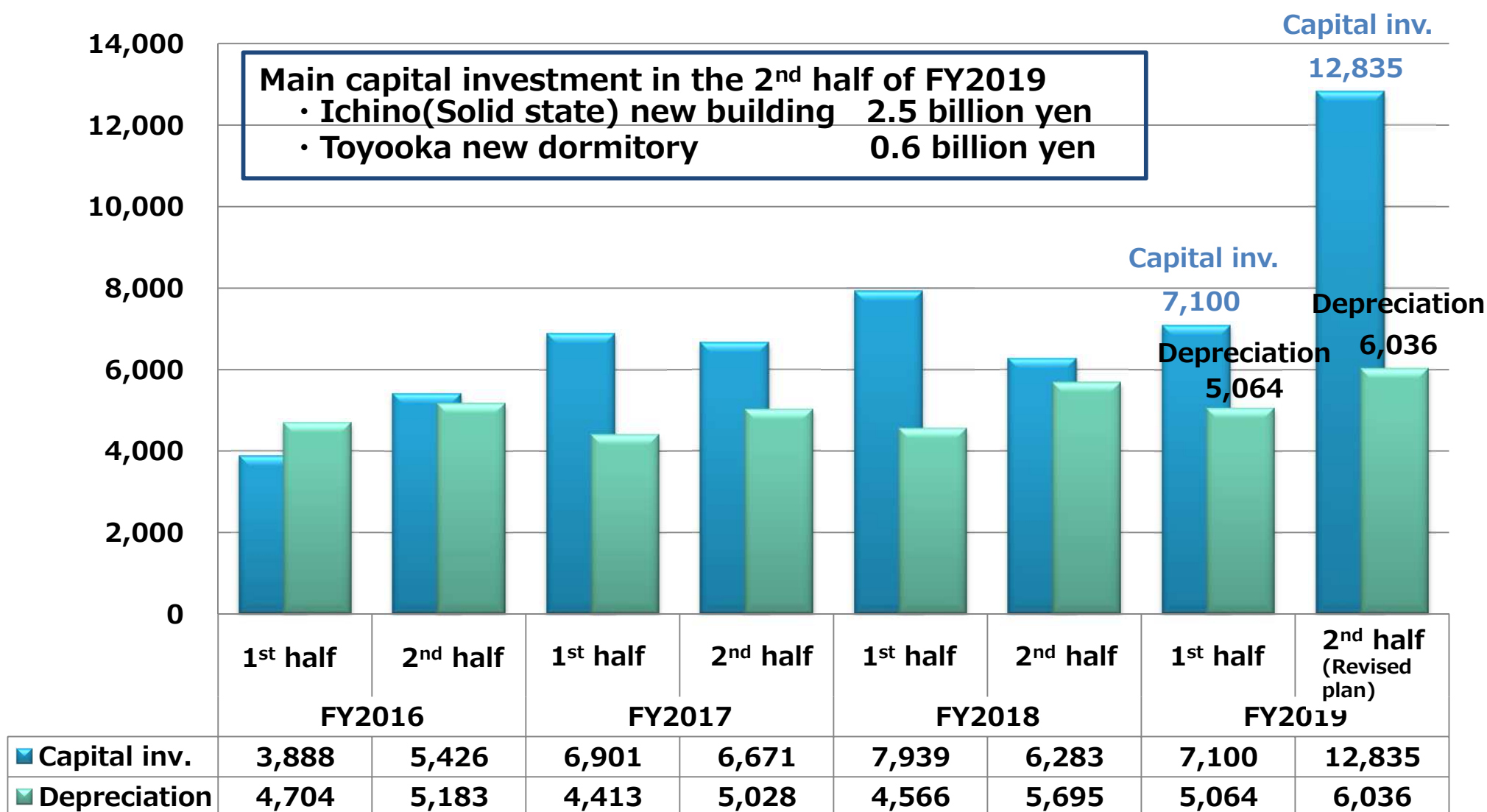
Region	FY2018				FY2019		
	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	Share	1 <sup>st</sup> half	Y/Y	Share
Japan/ Domestic	21,265	20,654	41,918	29.0%	21,632	101.7%	29.1%
North America	16,555	16,807	33,363	23.1%	18,062	109.1%	24.3%
Europe	19,061	17,485	36,545	25.3%	17,488	91.7%	23.5%
Asia and China	16,032	16,220	32,252	22.3%	16,930	105.6%	22.7%
Other	158	99	257	0.2%	298	188.6%	0.4%
<b>Total</b>	<b>73,074</b>	<b>71,264</b>	<b>144,338</b>	<b>100.0%</b>	<b>74,413</b>	<b>101.8%</b>	<b>100.0%</b>

## Major countries on each region

- North America: United States of America
- Europe: Germany, France, United Kingdom, Sweden, Italy
- Asia and China: China, South Korea, Taiwan, India, Israel
- Other: Australia

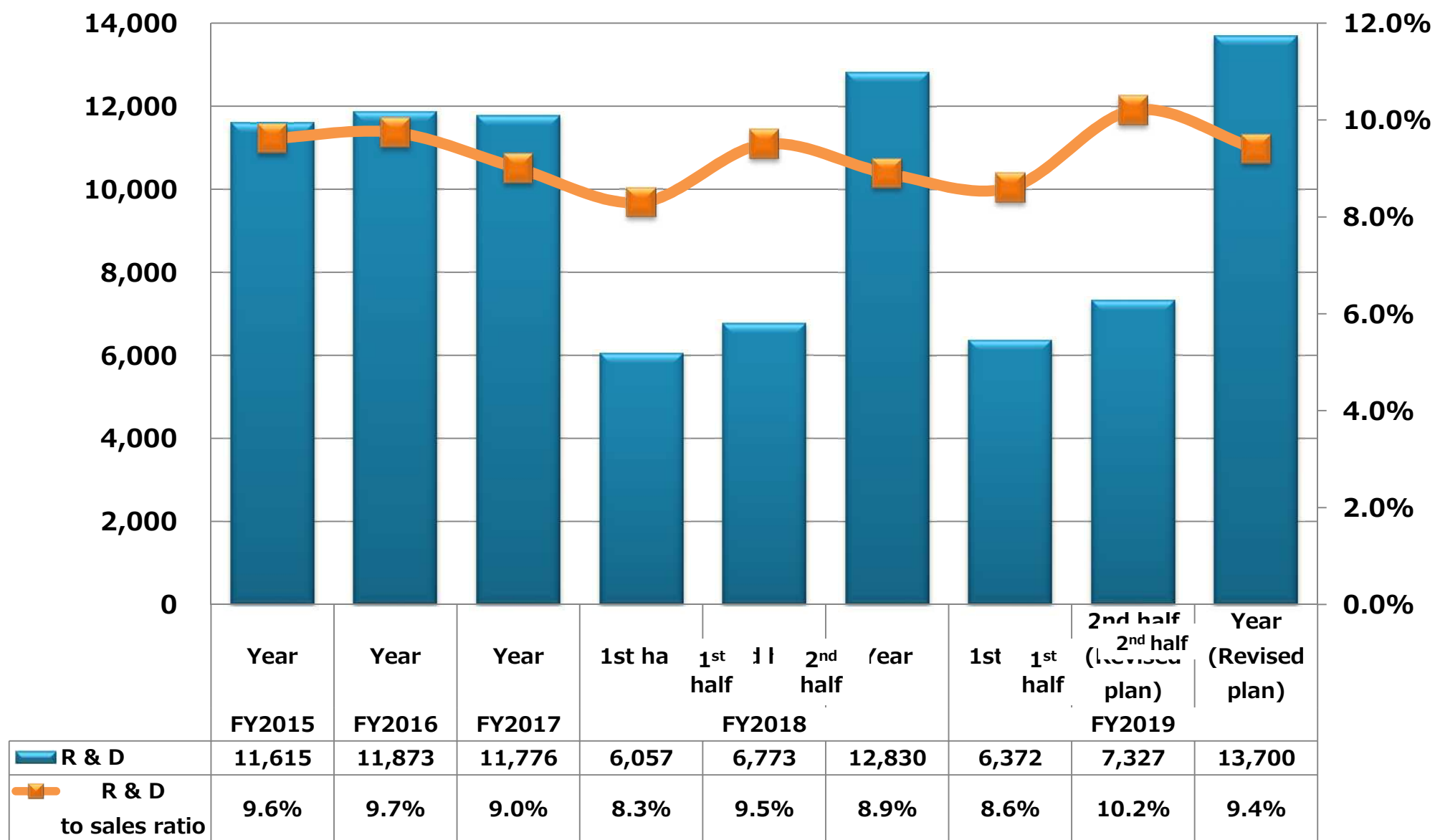
# Capital investment (payment based) & depreciation

in million yen



# Research and development

in million yen

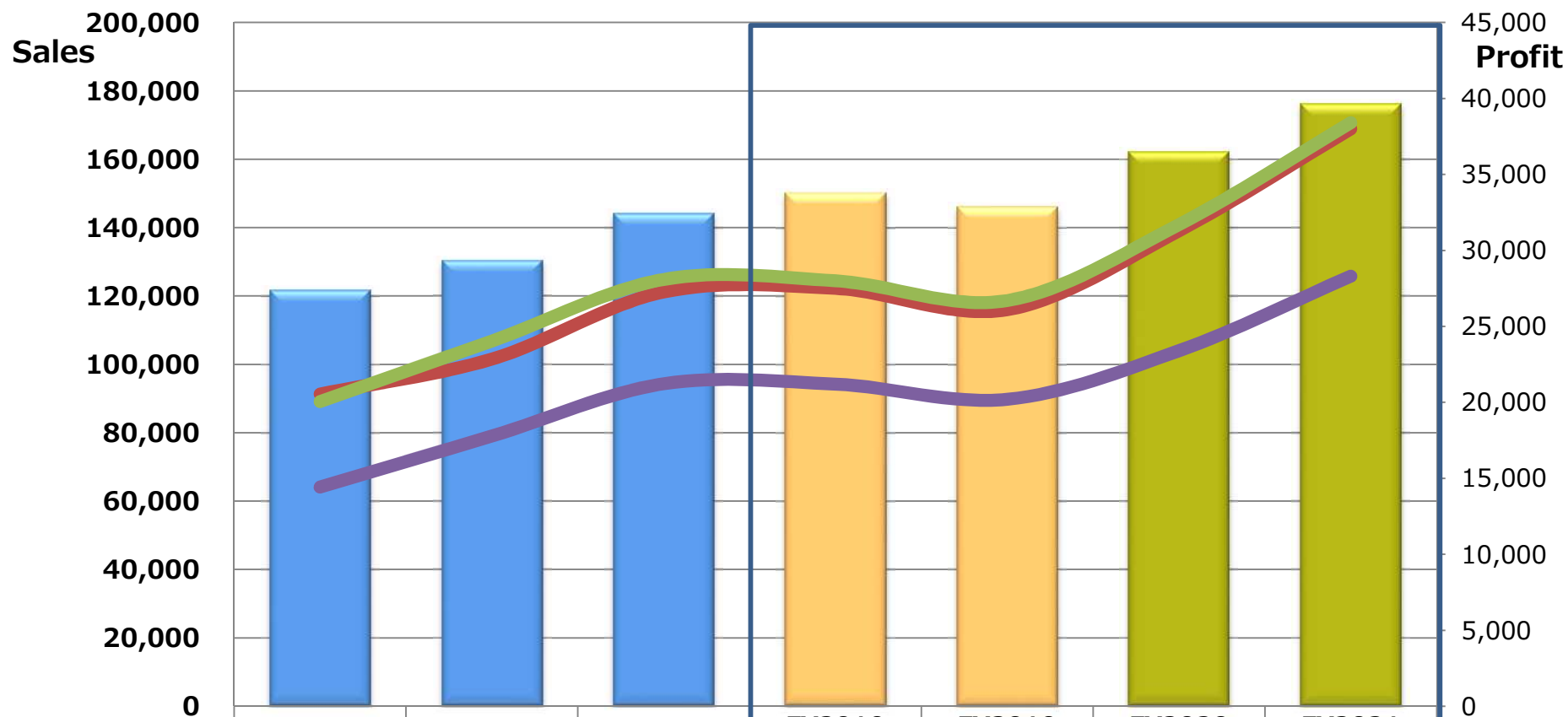




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1. Financial results summary
  - 2. Annual forecast/business development**
  3. Topics

# Sales & profit (FY2016 - FY2021)

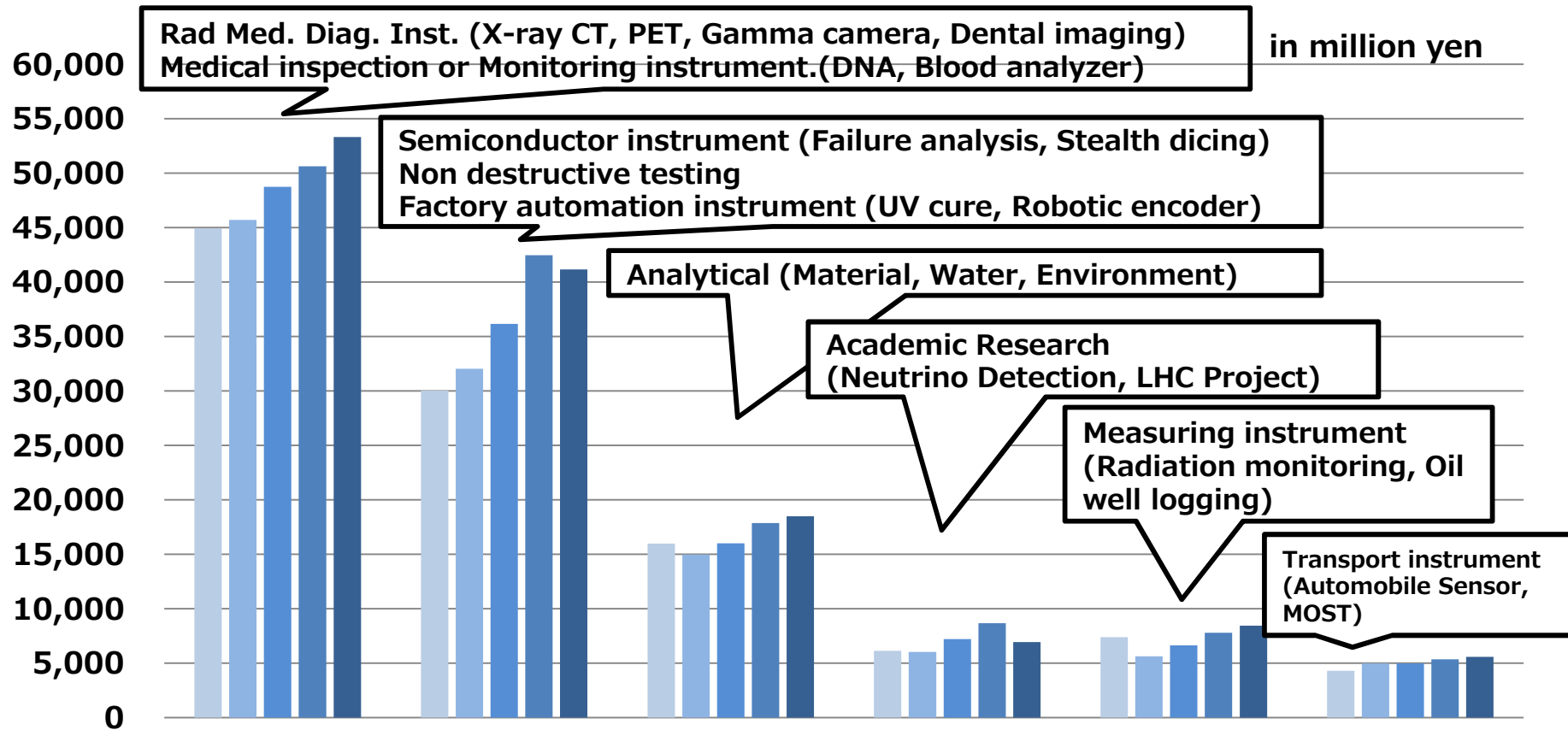
in million yen



	FY2016	FY2017	FY2018	FY2019 (Original plan)	FY2019 (Revised plan)	FY2020 (Original plan)	FY2021 (Original plan)
Net sales (Left)	121,852	130,495	144,338	150,400	146,300	162,300	176,400
Operating income (Right)	20,544	22,849	27,263	27,500	26,100	31,300	38,000
Ordinary income (Right)	20,050	24,037	28,088	28,000	26,700	31,700	38,400
Net income (Right))	14,419	17,777	21,222	21,200	20,200	23,400	28,300

\*numbers are rounded down to the nearest million yen

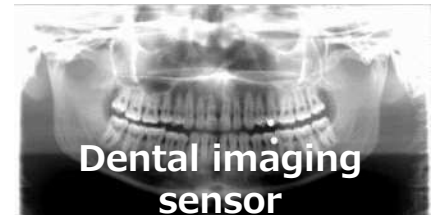
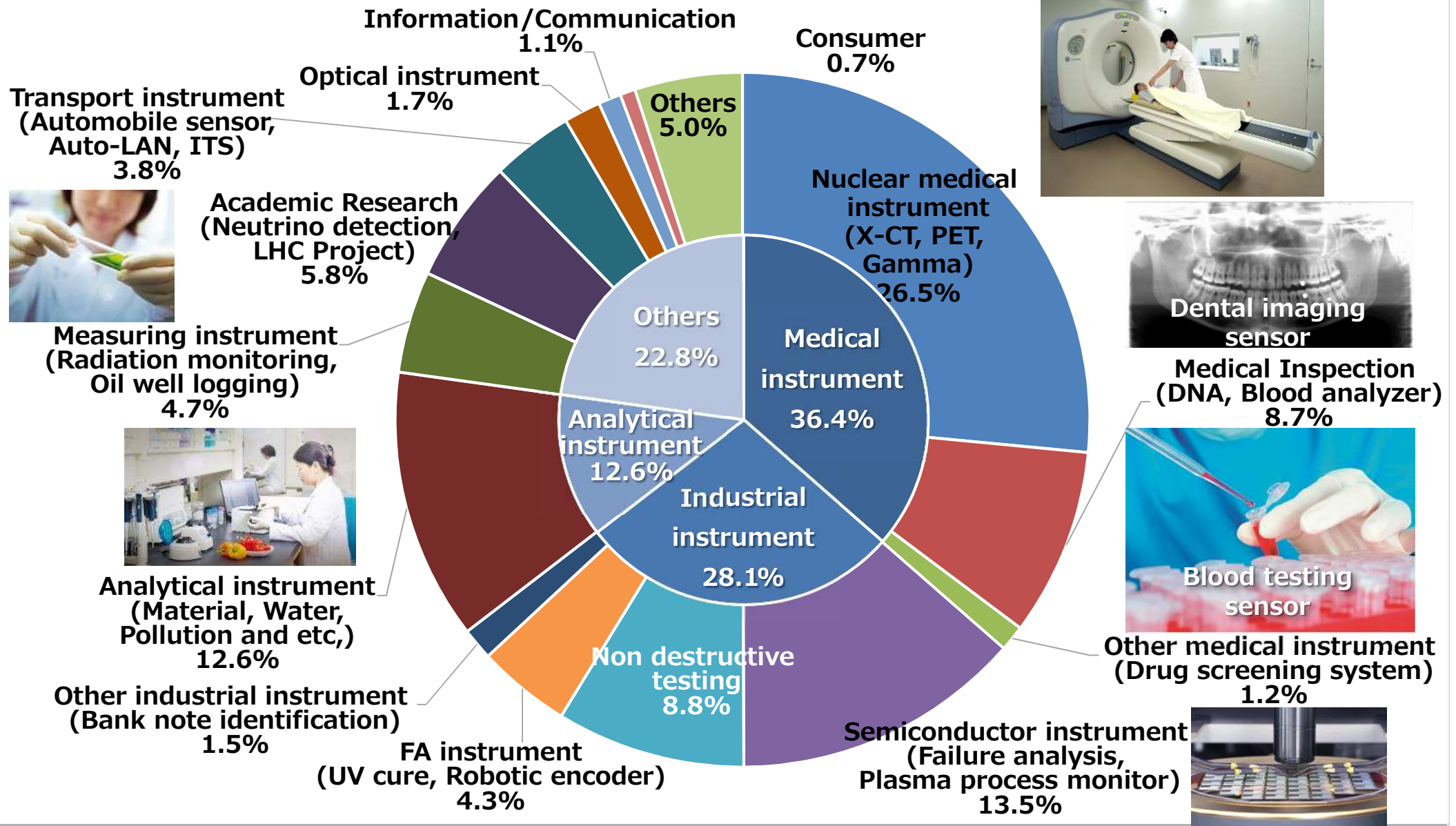
# Sales by industry & application



	Medical instrument	Industrial instrument	Analytical instrument	Academic research	Measuring instrument	Transport instrument
FY2015	44,916	30,017	15,980	6,125	7,386	4,288
FY2016	45,686	32,037	14,967	6,027	5,627	4,961
FY2017	48,773	36,155	15,986	7,210	6,635	4,968
FY2018	50,634	42,457	17,862	8,660	7,790	5,333
<b>FY2019 (Revised plan)</b>	<b>53,312</b>	<b>41,150</b>	<b>18,479</b>	<b>6,927</b>	<b>8,436</b>	<b>5,573</b>

**FY 2019  
Projection**

# Sales by industry & application



**Dental imaging sensor**  
**Medical Inspection (DNA, Blood analyzer)**  
**8.7%**



**Blood testing sensor**  
**Other medical instrument (Drug screening system)**  
**1.2%**



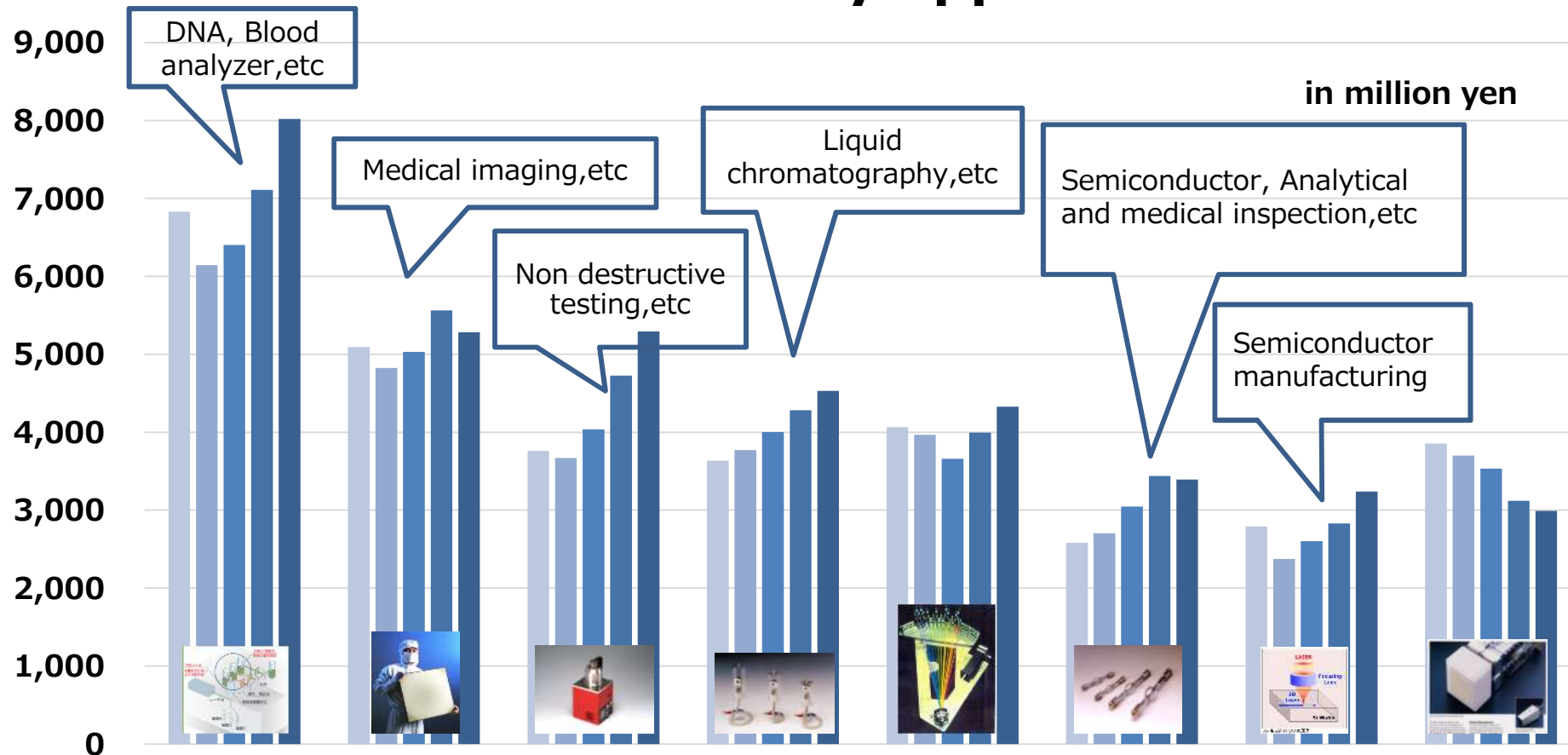
**Semiconductor instrument (Failure analysis, Plasma process monitor)**  
**13.5%**

# Electron tube segment (Electron tube division)



Toyooka factory at Iwata-city, Shizuoka-pref.

# Sales of core electron tube by application



	PMT for medical inspection	Scintillator	Microfocus X-ray source	Deuterium lamp	PMT for analytical instrument	Xe lamp	Stealth dicing	PMT for PET
FY2015	6,829	5,092	3,761	3,635	4,064	2,581	2,791	3,855
FY2016	6,142	4,823	3,668	3,772	3,968	2,703	2,375	3,702
FY2017	6,401	5,030	4,037	4,002	3,658	3,046	2,602	3,532
FY2018	7,108	5,561	4,727	4,281	3,995	3,437	2,828	3,121
<b>FY2019 (Revised plan)</b>	<b>8,018</b>	<b>5,283</b>	<b>5,294</b>	<b>4,529</b>	<b>4,327</b>	<b>3,392</b>	<b>3,240</b>	<b>2,989</b>

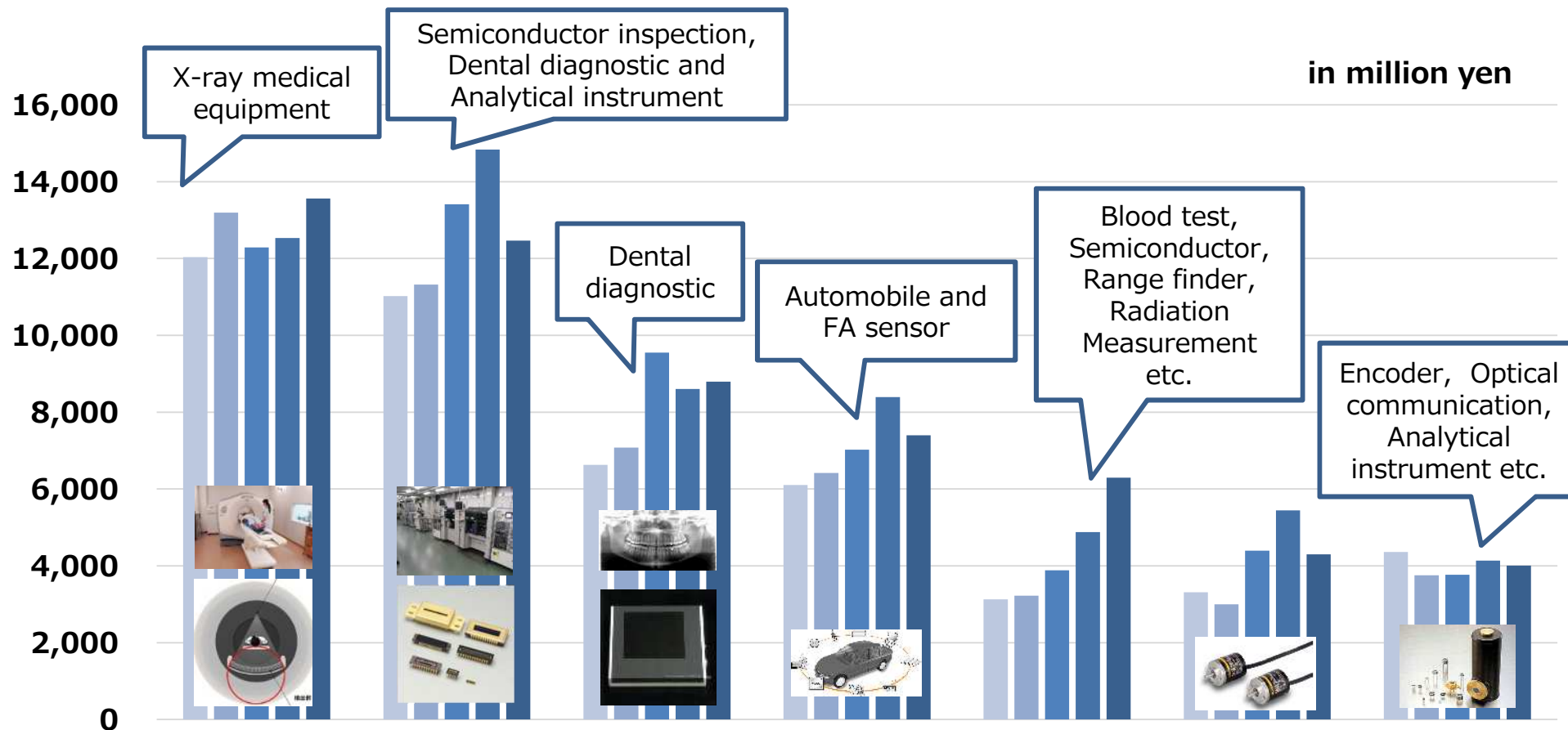
\*numbers are rounded down to the nearest million yen

# Opto-semiconductor segment (Solid state division)



**Ichino main factory at Hamamatsu-city,  
Shizuoka-pref.**

# Sales of core opto-semiconductor



	Si photodiode for medical instrument	Linear/Area image sensor	Flat panel sensor	Photo IC	Applied products and module	Si photodiode for FA	Compound semiconductor
FY2015	12,037	11,023	6,628	6,103	3,130	3,313	4,360
FY2016	13,195	11,322	7,077	6,417	3,223	2,998	3,752
FY2017	12,286	13,409	9,548	7,021	3,885	4,397	3,766
FY2018	12,534	14,832	8,600	8,390	4,876	5,445	4,134
<b>FY2019 (Revised plan)</b>	<b>13,561</b>	<b>12,468</b>	<b>8,796</b>	<b>7,399</b>	<b>6,295</b>	<b>4,297</b>	<b>4,006</b>

\*numbers are rounded down to the nearest million yen

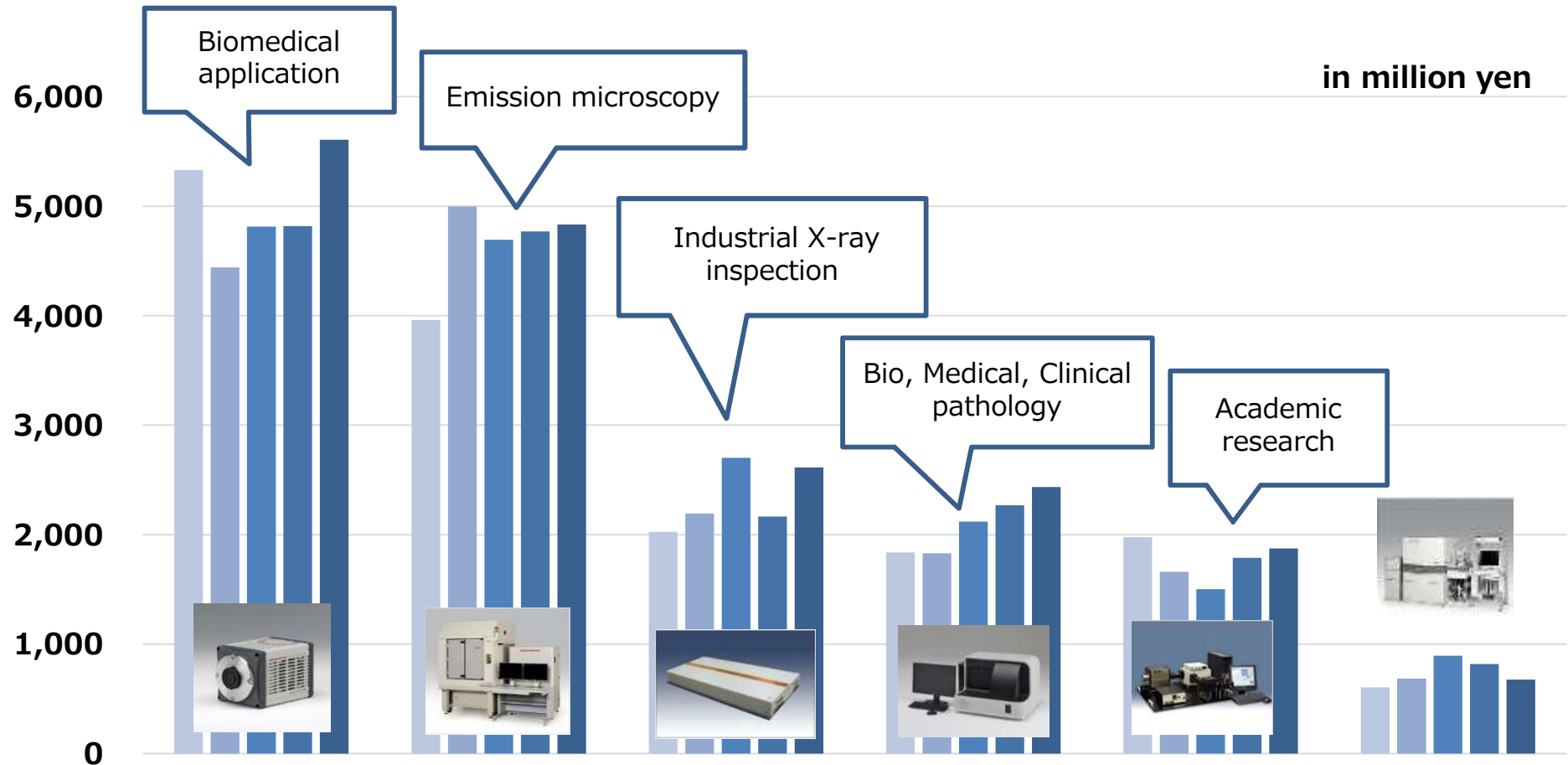


# Imaging and measurement instruments segment (Systems division)



Joko factory at Hamamatsu-city,  
Shizuoka-pref.

# Sales of core imaging & measurement instruments



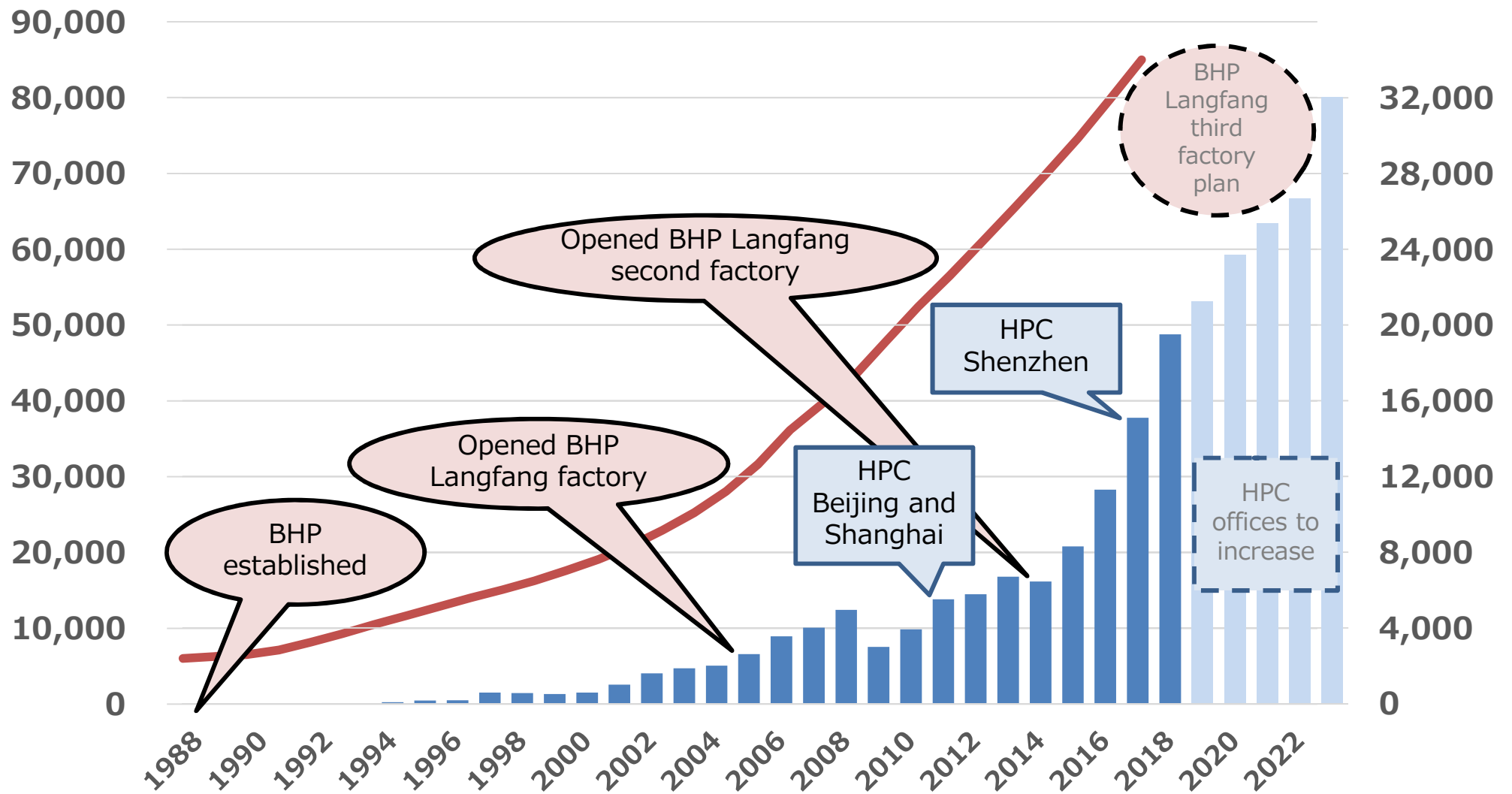
	Digital camera device	Semiconductor failure analysis	Measurement for FA	System for life science	Spectroscopy measurement	Medical system
FY2015	5,330	3,962	2,027	1,838	1,976	606
FY2016	4,440	4,996	2,192	1,831	1,660	687
FY2017	4,812	4,692	2,703	2,119	1,502	895
FY2018	4,818	4,768	2,166	2,268	1,789	818
<b>FY2019 (Revised plan)</b>	<b>5,606</b>	<b>4,833</b>	<b>2,614</b>	<b>2,435</b>	<b>1,873</b>	<b>676</b>

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# Chinese real GDP(left axis) and our sales(right axis)

(Unit: billion RMB)

(Unit : million yen)



# BEIJING HAMAMATSU PHOTON TECHNIQUES INC.

**(BHP)**



Established in 1988, 16 employees



Sales in 1990 : 6.3 million yen



Langfang factory opened in 2005, 450 employees, sales exceeded 1.7 billion yen



Langfang second factory opened in 2014, 510 employees, sales exceeded 3.4 billion yen

# BHP(Manufacturing subsidiary in China)

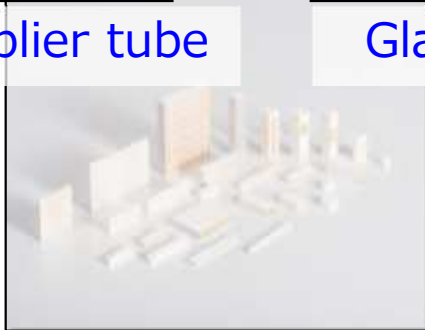
5 major product lines



Photomultiplier tube



Glass product



Scintillator

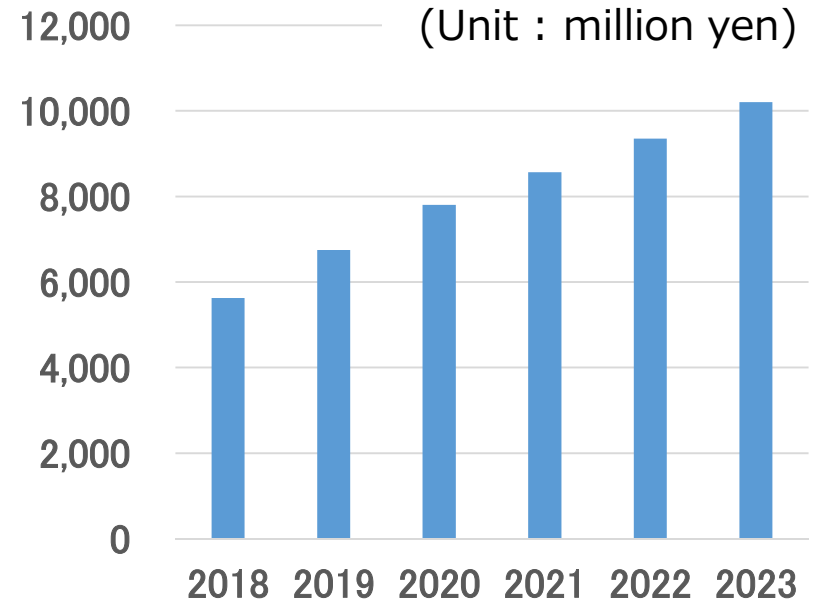


Module product



Medical equipment

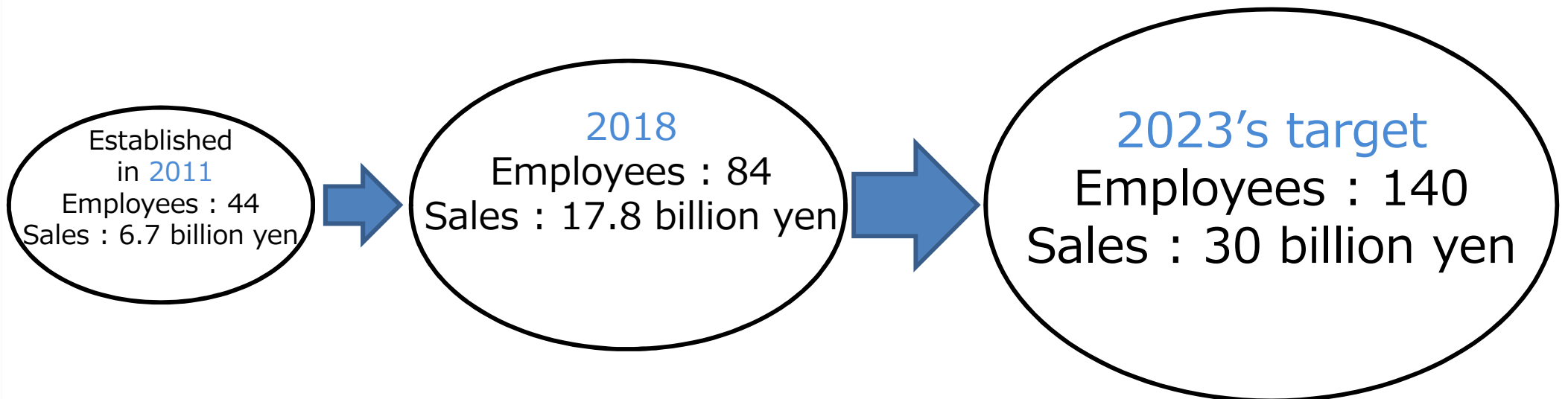
Middle term plan



Scintillators,  
Glass products and  
Medical equipment  
are to expand at BHP third factory  
→ 10 billion yen in 2023

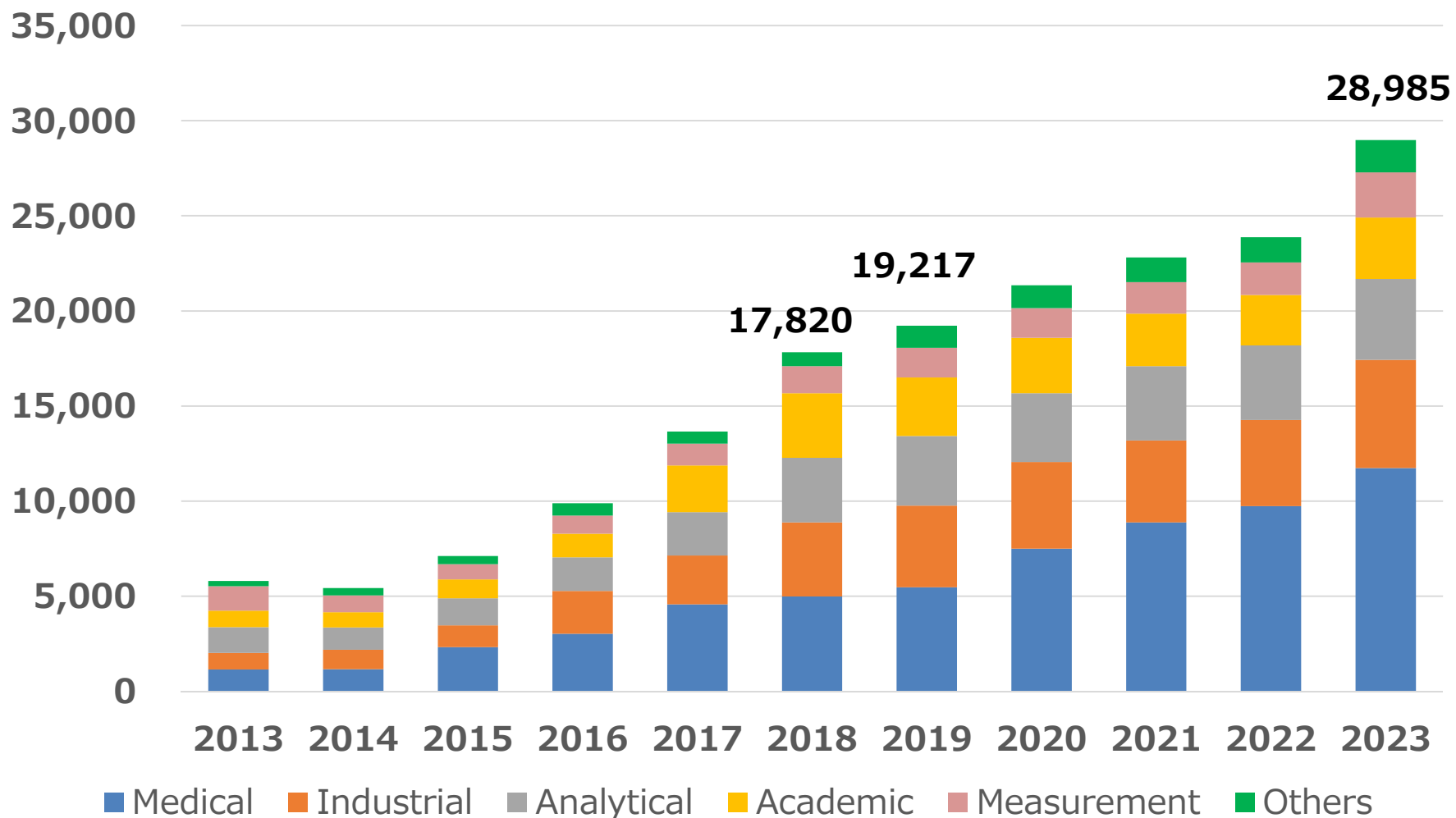
# HAMAMATSU PHOTONICS (CHINA) Co., Ltd

(HPC)



# HPC (Sales subsidiary in China)

(Unit : million yen) **Past, present and future of business in China**





# Future growth field in China



## Medical

PET-CT, X-ray CT,  
Dental, Blood testing



## Industrial

Semiconductor manufacturing /  
inspecting instrument,  
Laser processing



## Analytical

Environment(atmosphere,  
water, soil), Food-safety



## Academic

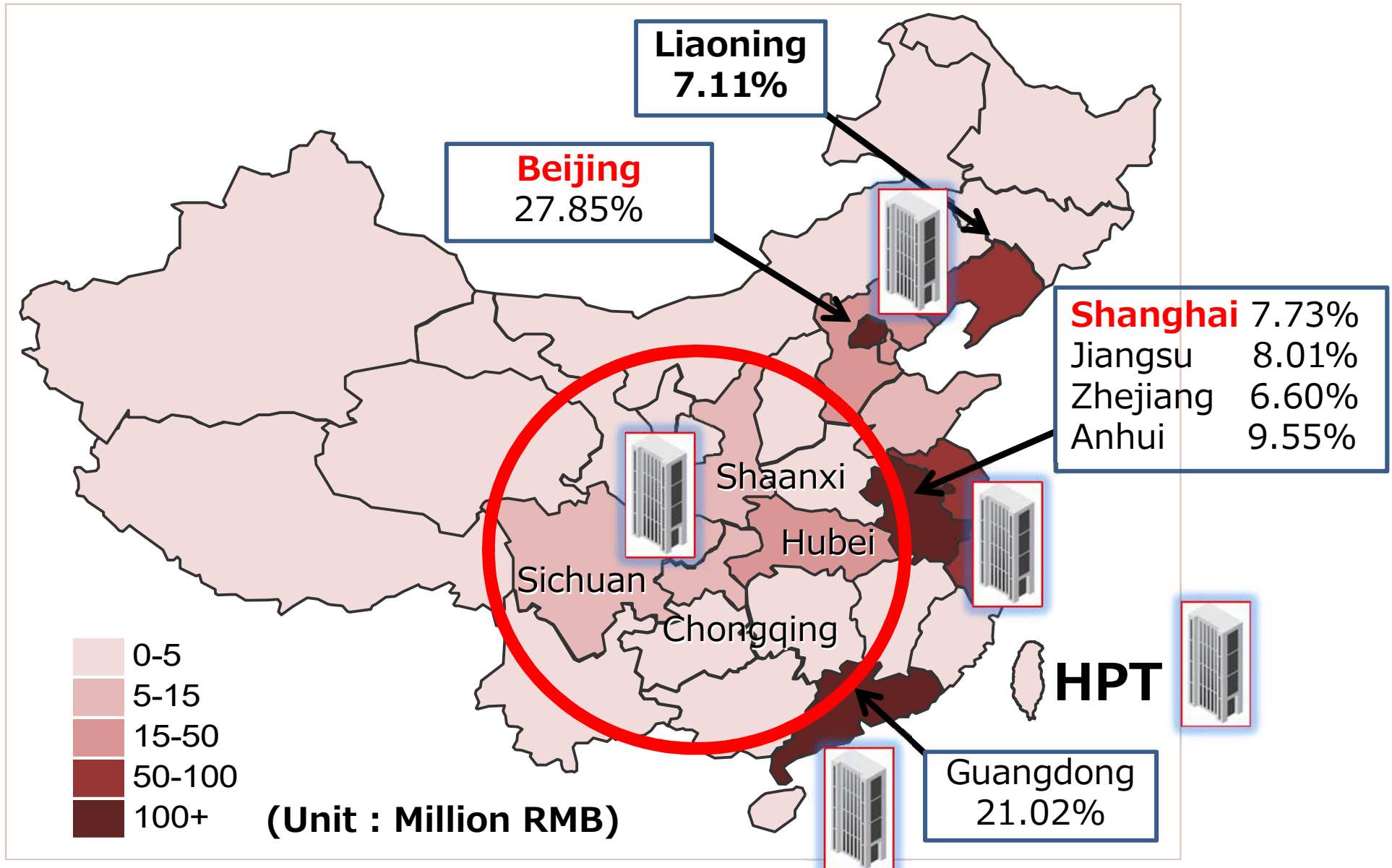
Fundamental science  
experiment(neutrino,  
dark matter)



## Measurement

Automated driving,  
Range meter, Oil well logging,  
Radiation counting

# Future priority area in China



# High-energy physics experiments using photomultiplier tubes

Type	Project Name	Purpose	Place	Expected year of first delivery	Number
Underground	Hyper-Kamiokande	Neutrino, Proton decay	Japan	2020	40,000 7,000
	JUNO(Daya Bay II)	Neutrino	China	Complete an order	5,000
Deep-sea	KM3NeT	Neutrino	Mediterranean Sea	2018	175,000
	Baikal-GVD	Neutrino	Russia	2015	10,000
Ice experiment	IceCube Upgrade	Neutrino	Antarctica	2019	600 10,000
	IceCube-Gen2	Neutrino	Antarctica	2025	350,000
Ground-surface	CTA	Gamma-ray space telescope	Southern and Northern Hemisphere	2015	96,000
Satellite	K-EUSO	Cosmic ray	I S S	2020	2,000

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**HAMAMATSU**

PHOTON IS OUR BUSINESS

# Databook

**Second Quarter of Fiscal Year ending September 30, 2019**



**May 2019**

**Hamamatsu Photonics K.K.**

**Tokyo Stock Exchange: 6965**

**[www.hamamatsu.com](http://www.hamamatsu.com)**

# Income statements(consolidated)

Unit :Million Yen

	FY2017		FY2018				FY2019			
	Year	%	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	%	1 <sup>st</sup> half	2 <sup>nd</sup> half (Forecast)	Year (Forecast)	%
Net sales	<b>130,495</b>	<b>100.0</b>	<b>73,074</b>	<b>71,264</b>	<b>144,338</b>	<b>100.0</b>	<b>74,413</b>	<b>71,886</b>	<b>146,300</b>	<b>100.0</b>
Cost of sales	<b>65,670</b>	<b>50.3</b>	<b>35,414</b>	<b>34,971</b>	<b>70,385</b>	<b>48.8</b>	<b>36,255</b>	<b>35,044</b>	<b>71,300</b>	<b>48.7</b>
Gross profit	<b>64,825</b>	<b>49.7</b>	<b>37,659</b>	<b>36,293</b>	<b>73,952</b>	<b>51.2</b>	<b>38,157</b>	<b>36,842</b>	<b>75,000</b>	<b>51.3</b>
Selling, G & A expenses	<b>30,199</b>	<b>23.1</b>	<b>16,666</b>	<b>17,191</b>	<b>33,857</b>	<b>23.5</b>	<b>17,777</b>	<b>17,422</b>	<b>35,200</b>	<b>24.1</b>
R & D Expense	<b>11,776</b>	<b>9.0</b>	<b>6,057</b>	<b>6,773</b>	<b>12,830</b>	<b>8.9</b>	<b>6,372</b>	<b>7,327</b>	<b>13,700</b>	<b>9.4</b>
Operating profit	<b>22,849</b>	<b>17.5</b>	<b>14,935</b>	<b>12,328</b>	<b>27,263</b>	<b>18.9</b>	<b>14,007</b>	<b>12,092</b>	<b>26,100</b>	<b>17.8</b>
Non-operating income	<b>1,407</b>	<b>1.1</b>	<b>486</b>	<b>719</b>	<b>1,205</b>	<b>0.8</b>	<b>593</b>	<b>306</b>	<b>900</b>	<b>0.6</b>
Non-operating expense	<b>219</b>	<b>0.2</b>	<b>264</b>	<b>117</b>	<b>381</b>	<b>0.3</b>	<b>250</b>	<b>49</b>	<b>300</b>	<b>0.2</b>
Ordinary income	<b>24,037</b>	<b>18.4</b>	<b>15,158</b>	<b>12,930</b>	<b>28,088</b>	<b>19.5</b>	<b>14,350</b>	<b>12,349</b>	<b>26,700</b>	<b>18.3</b>
Extraordinary income	<b>234</b>	<b>0.2</b>	<b>11</b>	<b>583</b>	<b>594</b>	<b>0.4</b>	<b>26</b>	<b>23</b>	<b>50</b>	<b>0.0</b>
Extraordinary expense	<b>701</b>	<b>0.5</b>	<b>800</b>	<b>305</b>	<b>1105</b>	<b>0.8</b>	<b>27</b>	<b>22</b>	<b>50</b>	<b>0.0</b>
Pre-tax income	<b>23,570</b>	<b>18.1</b>	<b>14,369</b>	<b>13,208</b>	<b>27,577</b>	<b>19.1</b>	<b>14,349</b>	<b>12,350</b>	<b>26,700</b>	<b>18.3</b>
Income taxes etc.	<b>5,793</b>	<b>4.4</b>	<b>3,557</b>	<b>2,797</b>	<b>6,354</b>	<b>4.4</b>	<b>3,471</b>	<b>3,028</b>	<b>6,500</b>	<b>4.4</b>
Net income	<b>17,777</b>	<b>13.6</b>	<b>10,811</b>	<b>10,411</b>	<b>21,222</b>	<b>14.7</b>	<b>10,877</b>	<b>9,322</b>	<b>20,200</b>	<b>13.8</b>

\*numbers are rounded down to the nearest million yen

# Sales by industry & application(consolidated) Unit :Million Yen

Application		FY2017				FY2018				FY2019			
		March		September		March		September		March		September	
		1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	%	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	%	1 <sup>st</sup> half	2 <sup>nd</sup> half (Forecast)	Year (Forecast)	%
Medical instrument	Medical instrument (X-ray CT, PET, Gamma camera, Dental imaging)	19,133	18,405	37,538	28.8	18,909	18,806	37,715	26.1	20,106	18,671	38,777	26.5
	Medical inspection (DNA, Blood analyzer)	4,838	5,056	9,894	7.6	5,881	5,258	11,139	7.7	6,373	6,406	12,779	8.7
	Other medical instrument	670	669	1,339	1.0	941	838	1,779	1.2	927	829	1,756	1.2
	(Subtotal)	24,641	24,132	48,773	37.4	25,731	24,903	50,634	35.1	27,406	25,906	53,312	36.4
Industrial instrument	Semiconductor instrument (Failure analysis, Stealth dicing)	8,176	9,062	17,238	13.2	9,914	11,152	21,066	14.6	9,813	9,927	19,740	13.5
	Non destructive testing	5,350	5,240	10,590	8.1	5,951	5,864	11,815	8.2	6,329	6,555	12,884	8.8
	Factory automation instrument (UV cure, Robotic encoder)	2,787	3,391	6,178	4.7	3,388	3,774	7,162	5.0	3,277	3,084	6,361	4.3
	Other industrial instrument (Bank note identification)	1,009	1,139	2,148	1.6	1,078	1,334	2,412	1.7	1,040	1,125	2,165	1.5
(Subtotal)	17,324	18,831	36,155	27.7	20,334	22,123	42,457	29.4	20,459	20,691	41,150	28.1	
Analytical instrument		7,886	8,100	15,986	12.3	9,402	8,460	17,862	12.4	9,266	9,213	18,479	12.6
Material, water, environment													
Academic research		3,850	3,360	7,210	5.5	4,965	3,695	8,660	6.0	3,922	3,005	6,927	4.7
Neutrino/ gamma ray													
Measuring instrument		3,174	3,461	6,635	5.1	3,927	3,863	7,790	5.4	4,344	4,092	8,436	5.8
Radiation monitoring, oil well logging													
Transport instrument		2,467	2,501	4,968	3.8	2,638	2,695	5,333	3.7	2,708	2,865	5,573	3.8
Automotive sensor, auto-LAN, ITS													
Information/ communication		1,004	796	1,800	1.4	922	743	1,665	1.2	845	697	1,542	1.1
Optical communication, printer													
Optical/ photographic instrument		1,082	973	2,055	1.6	1,069	1,136	2,205	1.5	1,449	1,065	2,514	1.7
Auto focus, LSM													
Consumer instrument		425	494	919	0.7	667	556	1,223	0.8	565	474	1,039	0.7
Audio link & etc.													
Others/not classified		3,093	2,897	5,990	4.6	3,415	3,088	6,503	4.5	3,449	3,879	7,328	5.0
<b>Total</b>		<b>64,953</b>	<b>65,542</b>	<b>130,495</b>	<b>100.0</b>	<b>73,074</b>	<b>71,264</b>	<b>144,338</b>	<b>100.0</b>	<b>74,413</b>	<b>71,887</b>	<b>146,300</b>	<b>100.0</b>
Exchange rate		Actual		Actual		Actual		Actual		Actual	Assumption	Assumption	
US \$		111.51	—	111.27		110.66	—	110.46		111.61	105.00	108.00	
Europe €		119.45	—	122.91		133.08	—	131.42		127.05	125.00	126.00	
China RMB		15.66	—	16.03		16.86	—	16.97		16.34	16.00	16.00	

\*numbers are rounded down to the nearest million yen

# Major subsidiaries income statements (America, Europe, China)

Unit: Thousand local currency

American sales company	Account item	Local currency(thousand dollars)												Yen(million yen)					
		FY2018						FY2019						FY2018			FY2019		
		1 <sup>st</sup> half	%	2 <sup>nd</sup> half	%	Year	%	1 <sup>st</sup> half	%	2 <sup>nd</sup> half (Forecast)	%	Year (Forecast)	%	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half (Forecast)	Year (Forecast)
Hamamatsu Corporation	Net sales	173,458	100	168,901	100	342,360	100	179,786	100	180,616	100	360,402	100	19,194	18,622	37,817	20,065	18,857	38,923
	Gross profit	42,084	24	38,112	23	80,196	23	43,897	24	41,973	23	85,871	24	4,657	4,201	8,858	4,899	4,374	9,274
	Operating profit	15,055	9	11,437	7	26,493	8	15,035	8	14,210	8	29,245	8	1,666	1,260	2,926	1,678	1,480	3,158
	Ordinary income	15,807	9	12,745	8	28,553	8	14,521	8	14,421	8	28,942	8	1,749	1,404	3,154	1,620	1,505	3,125
	Net income	11,110	6	9,588	6	20,698	6	10,989	6	10,160	6	21,149	6	1,229	1,056	2,286	1,226	1,057	2,284
												Exchange rate (one dollar)		110.66	-	110.46	111.61	-	108.00

German sales company	Account item	Local currency(thousand euros)												Yen(million yen)					
		FY2018						FY2019						FY2018			FY2019		
		1 <sup>st</sup> half	%	2 <sup>nd</sup> half	%	Year	%	1 <sup>st</sup> half	%	2 <sup>nd</sup> half (Forecast)	%	Year (Forecast)	%	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half (Forecast)	Year (Forecast)
Hamamatsu Photonics Deutschland GmbH	Net sales	73,106	100	72,261	100	145,368	100	74,119	100	78,993	100	153,113	100	9,729	9,375	19,104	9,416	9,875	19,292
	Gross profit	14,935	21	12,284	17	27,219	19	14,092	19	14,317	18	28,410	19	1,987	1,589	3,577	1,790	1,789	3,579
	Operating profit	8,293	11	4,302	6	12,595	9	6,745	9	5,186	7	11,932	8	1,103	551	1,655	857	646	1,503
	Ordinary income	8,319	11	4,326	6	12,646	9	7,467	10	4,936	6	12,404	8	1,107	554	1,662	948	614	1,562
	Net income	6,138	8	3,231	4	9,370	6	5,486	7	3,637	5	9,123	6	816	414	1,231	697	452	1,149
												Exchange rate (one euro)		133.08	-	131.42	127.05	-	126.00

Chinese sales company	Account item	Local currency(thousand RMB)												Yen(million yen)					
		FY2018						FY2019						FY2018			FY2019		
		1 <sup>st</sup> half	%	2 <sup>nd</sup> half	%	Year	%	1 <sup>st</sup> half	%	2 <sup>nd</sup> half (Forecast)	%	Year (Forecast)	%	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half (Forecast)	Year (Forecast)
HAMAMATSU PHOTONICS (CHINA) Co., Ltd.	Net sales	503,685	100	444,007	100	947,693	100	595,974	100	487,507	100	1,083,482	100	8,492	7,590	16,082	9,738	7,597	17,335
	Gross profit	100,027	20	92,368	21	192,396	20	118,066	20	93,359	19	211,425	20	1,686	1,578	3,264	1,929	1,453	3,382
	Operating profit	65,211	13	55,923	13	121,134	13	72,519	12	48,718	10	121,237	11	1,099	956	2,055	1,184	754	1,939
	Ordinary income	65,773	13	56,488	13	122,261	13	71,495	12	49,255	10	120,750	11	1,108	965	2,074	1,168	763	1,932
	Net income	49,380	10	41,096	9	90,476	10	59,535	10	32,245	7	91,781	8	832	702	1,535	972	495	1,468
												Exchange rate (one RMB)		16.86	-	16.97	16.34	-	16.000

\*numbers are rounded down



# Sales by business segment (consolidated)

Unit :Million Yen

	FY2017	FY2018			FY2019		
	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half (Forecast)	Year (Forecast)
<b>Electron tube</b>	<b>50,449</b>	<b>28,725</b>	<b>29,056</b>	<b>57,781</b>	<b>30,000</b>	<b>28,999</b>	<b>59,000</b>
<b>Opto- semiconductor</b>	<b>61,526</b>	<b>34,560</b>	<b>32,934</b>	<b>67,494</b>	<b>34,018</b>	<b>32,431</b>	<b>66,450</b>
<b>Imaging and measurement instruments</b>	<b>17,242</b>	<b>8,686</b>	<b>8,483</b>	<b>17,169</b>	<b>9,296</b>	<b>9,353</b>	<b>18,650</b>
<b>Other (incl. laser and excl. internal sales)</b>	<b>1,277</b>	<b>1,101</b>	<b>792</b>	<b>1,893</b>	<b>1,097</b>	<b>1,102</b>	<b>2,200</b>
<b>Total</b>	<b>130,495</b>	<b>73,074</b>	<b>71,264</b>	<b>144,338</b>	<b>74,413</b>	<b>71,886</b>	<b>146,300</b>

\*Including inter-segment sales

# Electron tube's performance

Unit :Million Yen

	FY2017		FY2018				FY2019							
	Year	%	1 <sup>st</sup> half	%	2 <sup>nd</sup> half	%	Year	%	1 <sup>st</sup> half	%	2 <sup>nd</sup> half (Forecast)	%	Year (Forecast)	%
Net sales	<b>50,449</b>	<b>100.0</b>	<b>28,725</b>	<b>100.0</b>	<b>29,056</b>	<b>100.0</b>	<b>57,781</b>	<b>100.0</b>	<b>30,000</b>	<b>100.0</b>	<b>28,999</b>	<b>100.0</b>	<b>59,000</b>	<b>100.0</b>
Cost of sales	<b>22,762</b>	<b>45.1</b>	<b>12,592</b>	<b>43.8</b>	<b>12,749</b>	<b>43.9</b>	<b>25,341</b>	<b>43.9</b>	<b>12,811</b>	<b>42.7</b>	<b>12,288</b>	<b>42.4</b>	<b>25,100</b>	<b>42.5</b>
Gross profit	<b>27,687</b>	<b>54.9</b>	<b>16,133</b>	<b>56.2</b>	<b>16,307</b>	<b>56.1</b>	<b>32,440</b>	<b>56.1</b>	<b>17,189</b>	<b>57.3</b>	<b>16,710</b>	<b>57.6</b>	<b>33,900</b>	<b>57.5</b>
Selling, G & A expense	<b>8,413</b>	<b>16.7</b>	<b>4,869</b>	<b>17.0</b>	<b>5,133</b>	<b>17.7</b>	<b>10,002</b>	<b>17.3</b>	<b>5,152</b>	<b>17.2</b>	<b>5,097</b>	<b>17.6</b>	<b>10,250</b>	<b>17.4</b>
R & D expense	<b>2,280</b>	<b>4.5</b>	<b>1,320</b>	<b>4.6</b>	<b>1,420</b>	<b>4.9</b>	<b>2,740</b>	<b>4.7</b>	<b>1,523</b>	<b>5.1</b>	<b>1,776</b>	<b>6.1</b>	<b>3,300</b>	<b>5.6</b>
Segment profit	<b>16,992</b>	<b>33.7</b>	<b>9,943</b>	<b>34.6</b>	<b>9,754</b>	<b>33.6</b>	<b>19,697</b>	<b>34.1</b>	<b>10,513</b>	<b>35.0</b>	<b>9,836</b>	<b>33.9</b>	<b>20,350</b>	<b>34.5</b>

\*Including inter-segment sales

# Opto-semiconductor's performance

Unit :Million Yen

	FY2017		FY2018				FY2019							
	Year	%	1 <sup>st</sup> half	%	2 <sup>nd</sup> half	%	Year	%	1 <sup>st</sup> half	%	2 <sup>nd</sup> half (Forecast)	%	Year (Forecast)	%
Net sales	<b>61,526</b>	<b>100.0</b>	<b>34,560</b>	<b>100.0</b>	<b>32,934</b>	<b>100.0</b>	<b>67,494</b>	<b>100.0</b>	<b>34,018</b>	<b>100.0</b>	<b>32,431</b>	<b>100.0</b>	<b>66,450</b>	<b>100.0</b>
Cost of sales	<b>33,264</b>	<b>54.1</b>	<b>18,025</b>	<b>52.2</b>	<b>17,343</b>	<b>52.7</b>	<b>35,368</b>	<b>52.4</b>	<b>18,108</b>	<b>53.2</b>	<b>17,441</b>	<b>53.8</b>	<b>35,550</b>	<b>53.5</b>
Gross profit	<b>28,262</b>	<b>45.9</b>	<b>16,535</b>	<b>47.8</b>	<b>15,590</b>	<b>47.3</b>	<b>32,125</b>	<b>47.6</b>	<b>15,909</b>	<b>46.8</b>	<b>14,990</b>	<b>46.2</b>	<b>30,900</b>	<b>46.5</b>
Selling, G & A expense	<b>6,905</b>	<b>11.2</b>	<b>3,860</b>	<b>11.2</b>	<b>3,997</b>	<b>12.1</b>	<b>7,857</b>	<b>11.6</b>	<b>4,064</b>	<b>12.0</b>	<b>3,935</b>	<b>12.1</b>	<b>8,000</b>	<b>12.0</b>
R & D expense	<b>3,201</b>	<b>5.2</b>	<b>1,392</b>	<b>4.0</b>	<b>1,554</b>	<b>4.7</b>	<b>2,946</b>	<b>4.4</b>	<b>1,428</b>	<b>4.2</b>	<b>1,521</b>	<b>4.7</b>	<b>2,950</b>	<b>4.4</b>
Segment profit	<b>18,155</b>	<b>29.5</b>	<b>11,282</b>	<b>32.6</b>	<b>10,038</b>	<b>30.5</b>	<b>21,320</b>	<b>31.6</b>	<b>10,416</b>	<b>30.6</b>	<b>9,533</b>	<b>29.4</b>	<b>19,950</b>	<b>30.0</b>

\*Including inter-segment sales

# Imaging & measurement instrument's performance

Unit :Million Yen

	FY2017		FY2018				FY2019							
	Year	%	1 <sup>st</sup> half	%	2 <sup>nd</sup> half	%	Year	%	1 <sup>st</sup> half	%	2 <sup>nd</sup> half (Forecast)	%	Year (Forecast)	%
Net sales	<b>17,242</b>	<b>100.0</b>	<b>8,686</b>	<b>100.0</b>	<b>8,483</b>	<b>100.0</b>	<b>17,169</b>	<b>100.0</b>	<b>9,296</b>	<b>100.0</b>	<b>9,353</b>	<b>100.0</b>	<b>18,650</b>	<b>100.0</b>
Cost of sales	<b>8,764</b>	<b>50.8</b>	<b>4,175</b>	<b>48.1</b>	<b>4,190</b>	<b>49.4</b>	<b>8,365</b>	<b>48.7</b>	<b>4,520</b>	<b>48.6</b>	<b>4,529</b>	<b>48.4</b>	<b>9,050</b>	<b>48.5</b>
Gross profit	<b>8,477</b>	<b>49.2</b>	<b>4,511</b>	<b>51.9</b>	<b>4,292</b>	<b>50.6</b>	<b>8,803</b>	<b>51.3</b>	<b>4,775</b>	<b>51.4</b>	<b>4,824</b>	<b>51.6</b>	<b>9,600</b>	<b>51.5</b>
Selling, G & A expense	<b>4,268</b>	<b>24.8</b>	<b>2,190</b>	<b>25.2</b>	<b>2,271</b>	<b>26.8</b>	<b>4,461</b>	<b>26.0</b>	<b>2,404</b>	<b>25.9</b>	<b>2,595</b>	<b>27.7</b>	<b>5,000</b>	<b>26.8</b>
R & D expense	<b>664</b>	<b>3.9</b>	<b>439</b>	<b>5.1</b>	<b>318</b>	<b>3.7</b>	<b>757</b>	<b>4.4</b>	<b>354</b>	<b>3.8</b>	<b>445</b>	<b>4.8</b>	<b>800</b>	<b>4.3</b>
Segment profit	<b>3,544</b>	<b>20.6</b>	<b>1,880</b>	<b>21.6</b>	<b>1,704</b>	<b>20.1</b>	<b>3,584</b>	<b>20.9</b>	<b>2,016</b>	<b>21.7</b>	<b>1,783</b>	<b>19.1</b>	<b>3,800</b>	<b>20.4</b>

\*Including inter-segment sales

# Sales by product line 1

Unit : Million Yen

(Consolidated)		FY2016			FY2017			FY2018			FY2019		
Segment	Product	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half (Forecast)	Year (Forecast)
Electron tube segment	PMT for medical inspection	3,217	2,924	6,142	3,068	3,334	6,401	3,673	3,435	7,108	3,972	4,046	8,018
	Micro-focus X-ray light source	1,791	1,877	3,668	1,921	2,116	4,037	2,269	2,457	4,727	2,679	2,614	5,294
	Scintillator(FOS, ACS, ALS)	2,530	2,293	4,823	2,284	2,745	5,030	2,519	3,042	5,561	2,661	2,622	5,283
	Deuterium lamp	1,959	1,813	3,772	2,011	1,991	4,002	2,133	2,148	4,281	2,298	2,231	4,529
	PMT for analysis	2,282	1,686	3,968	1,895	1,763	3,658	2,014	1,981	3,995	2,165	2,162	4,327
	Xe lamp	1,346	1,358	2,703	1,440	1,606	3,046	1,742	1,696	3,437	1,686	1,705	3,392
	Stealth dicing	1,385	989	2,375	1,386	1,216	2,602	1,318	1,510	2,828	1,698	1,542	3,240
	PMT for PET	1,990	1,711	3,702	2,039	1,493	3,532	1,664	1,456	3,121	1,494	1,495	2,989
	PMT for oil-well logging	354	157	511	309	669	978	674	1,038	1,712	1,321	1,166	2,488
	PMT for high-energy physics	981	763	1,744	1,213	1,597	2,810	2,043	1,476	3,519	1,117	761	1,878
	PMT for semi-con. & NDT	843	713	1,556	1,009	744	1,752	941	933	1,874	785	752	1,537
	Image intensifier(I.I.)	913	636	1,549	619	605	1,224	632	742	1,374	815	704	1,519
	PMT for gamma-ray camera	738	745	1,483	874	640	1,514	704	782	1,486	751	689	1,440
	Microchannel plate, fiber optic plate	256	221	476	279	291	571	354	247	601	373	377	750
	Photoionizer	225	232	457	291	271	562	286	345	631	279	217	496
PMT for radiation monitoring	242	264	506	244	330	574	264	192	457	170	222	391	

\*numbers are rounded down to the nearest million yen

# Sales by product line 2

Unit : Million Yen

(Consolidated)		FY2016			FY2017			FY2018			FY2019		
Segment	Product	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half	Year	1 <sup>st</sup> half	2 <sup>nd</sup> half (Forecast)	Year (Forecast)
Opto- semicon ductor segment	Si photodiode for medical instrument	6,604	6,591	13,195	6,613	5,673	12,286	5,980	6,554	12,534	6,754	6,807	13,561
	Linear/area image sensor	5,439	5,883	11,322	5,731	7,678	13,409	7,724	7,109	14,832	6,140	6,328	12,468
	Flat panel image sensor	3,659	3,419	7,077	4,815	4,733	9,548	4,691	3,910	8,600	4,976	3,820	8,796
	Photo IC	3,209	3,208	6,417	3,329	3,692	7,021	4,271	4,119	8,390	3,823	3,576	7,399
	Applied products & modules	1,621	1,602	3,223	2,014	1,872	3,885	2,248	2,628	4,876	3,135	3,160	6,295
	Si photodiode for FA	1,358	1,640	2,998	1,901	2,496	4,397	2,637	2,808	5,445	2,178	2,119	4,297
	Compound semiconductor	1,728	2,024	3,752	1,856	1,910	3,766	2,124	2,009	4,134	1,976	2,030	4,006
	Device for optical communication	103	80	184	94	116	210	100	102	202	156	137	293

Imaging and measure ment instru ments Segment	Digital camera device	2,549	1,890	4,440	2,362	2,450	4,812	2,558	2,261	4,818	2,816	2,790	5,606
	Semi-con. failure analysis	2,465	2,531	4,996	2,415	2,277	4,692	1,850	2,918	4,768	2,294	2,540	4,833
	Measurement for FA	1,156	1,037	2,192	1,435	1,269	2,703	1,071	1,095	2,166	1,277	1,337	2,614
	System for life science	1,066	765	1,831	1,162	957	2,119	1,410	859	2,268	1,193	1,243	2,435
	Spectroscopy measurement	969	691	1,660	765	737	1,502	1,047	741	1,789	1,022	851	1,873
	Drug screening system	482	204	687	438	457	895	493	324	818	343	333	676
	Medical system	302	242	544	250	240	490	253	266	519	268	213	481

Laser	Laser diode	556	502	1,058	727	657	1,384	747	758	1,505	864	886	1,750
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\*numbers are rounded down to the nearest million yen

# Capital investment, R & D expenses and depreciation

Unit : Million Yen

## FY2015 – FY2019

(Consolidated)		FY2015		FY2016		FY2017		FY2018		FY2019	
			Ratio to sales (%)		Ratio to sales (%)		Ratio to sales (%)		Ratio to sales (%)		Ratio to sales (%)
Capital investment	1 <sup>st</sup> quarter	3,122	10.9	1,441	4.8	4,441	14.8	4,235	12.4	2,052	5.7
	2 <sup>nd</sup> quarter	7,283	11.7	3,888	6.2	6,901	10.6	7,939	10.9	7,100	9.5
	3 <sup>rd</sup> quarter	11,787	13.1	6,513	7.1	11,026	11.5	10,467	9.7	-	-
	Year	14,338	11.9	9,315	7.6	13,572	10.4	14,221	9.9	19,900 (Forecast)	13.6 (Forecast)
R & D expenses	1 <sup>st</sup> quarter	2,717	9.5	2,748	9.2	2,872	9.6	3,012	8.8	3,095	8.7
	2 <sup>nd</sup> quarter	5,479	8.8	5,862	9.3	5,824	9.0	6,057	8.3	6,372	8.6
	3 <sup>rd</sup> quarter	8,510	9.4	8,825	9.7	8,707	9.1	9,151	8.5	-	-
	Year	11,615	9.6	11,873	9.7	11,776	9.0	12,830	8.9	13,700 (Forecast)	9.4 (Forecast)
Depreciation	1 <sup>st</sup> quarter	1,633	5.7	2,262	7.6	2,132	7.1	2,184	6.4	2,437	6.8
	2 <sup>nd</sup> quarter	3,585	5.8	4,704	7.5	4,413	6.8	4,566	6.2	5,064	6.8
	3 <sup>rd</sup> quarter	5,902	6.5	7,184	7.9	6,822	7.1	7,151	6.6	-	-
	Year	8,561	7.1	9,888	8.1	9,441	7.2	10,261	7.1	11,100 (Forecast)	7.6 (Forecast)

\*numbers are rounded down to the nearest million yen

## Asia

HAMAMATSU PHOTONICS K.K.

Headquarters

HAMAMATSU PHOTONICS (CHINA) Co., Ltd.

Head Office / Shanghai Branch  
/ Shenzhen Branch

BEIJING HAMAMATSU PHOTON TECHNIQUES INC.

Head Office / Langfang Factory

HAMAMATSU PHOTONICS TAIWAN Co., Ltd.

Hsinchu Office / Kaohsiung Office

## North America

HAMAMATSU CORPORATION

Main Office / California Office / Chicago Office  
/ Boston Office

PHOTONICS MANAGEMENT Corp.

ENERGETIQ TECHNOLOGY, Inc.

## Europe

HAMAMATSU PHOTONICS EUROPE GmbH

HAMAMATSU PHOTONICS DEUTSCHLAND GmbH

Main Office / Netherlands Office  
/ Poland Office / Danish Office

HAMAMATSU PHOTONICS FRANCE S.A.R.L.

Main Office / Swiss Office / Belgian Office  
/ Spanish Office

HAMAMATSU PHOTONICS NORDEN AB

Main Office / Russian Office

HAMAMATSU PHOTONICS ITALIA S.r.l.

Main Office / Rome Office

HAMAMATSU PHOTONICS UK Limited

Main Office / South Africa Office

