

## Products and Technology of HORIBA Group

### ■ Our Six Target Areas

HORIBA group is striving to capture six target areas, namely IT, medical, environment & analysis, engine, biotechnology and utility.

#### IT

In the area of IT, we provide analysis, measurement and control instruments for semiconductor and LC manufacturing processes. These instruments are widely used in the research and development of new materials.

#### Medical

Our medical area centers on small and medium sized blood cell counters that contribute to enhancement of efficiency and speed at the clinical scenes. We are aiming at making our way into the area of biochemical analysis as well.

#### Environment and Analysis

In the area of environment and analysis, we provide products catering to the unique situation of each market, ranging from Japan, U.S. and Europe to ever-thriving Asian economies.

#### Engine

The area of engine is centered on MEXA series, which is often considered to be a global standard in the emission gas analysis. We comprehensively cover the area of engine measurement, from analytical instruments for SULEV and fuel cell as well as their peripheral instruments.

#### Biotechnology

In the vast biotechnology-related area, we have taken a step into the area of ultra-trace environmental measurement with our biosensor, which capitalizes on antigen-antibody reaction.

#### Utility

In the area of utility, we are concentrating our effort on consumer products, through which we apply our measurement technology to everyday life, such as automatic lighting equipment with human-sensing technology called “Tsuichaumon”.

In addition, five core technologies of HORIBA group support our foray into these six target markets.

### ■ The Five Core Technologies

The core technology of HORIBA group is five-fold: the liquid measurement technology as represented by pH meters, the gas measurement technology centered on NDIR method, the solid analysis technology by characteristic X-ray, plus the fluid measurement and control technology, and the spectroscopic analysis technology. The pH, NDIR and X-ray are the intrinsic technologies, on which HORIBA has maintained its strength since its foundation in 1953. To this date, these technologies are still at the base of our liquid, gas and solid measurement-related products.

Our fluid measurement and control technology has won STEC, Inc. the dominant position in the mass flow controller segment of the industry, which is a key device in the semiconductor process. On the other hand, COS Co., Ltd. has taken over the liquid measurement technology from HORIBA, and is now providing their original products in the semiconductor and agricultural areas.

Spectroscopic measurement is a technology area mainly promoted by Jobin Yvon S.A.S. (JY), a leading company of grating. “UT-300” the fully automated ultra-thin-film measuring device that utilizes spectroscopic ellipsometry, and “Pentra 400” developed by ABX S.A. are two of the most typical applications achieved through bringing together the measurement technology held among HORIBA group companies.

## ■ Outline of Group Companies

To mark the 50th commemorative issue, we feature seven member companies among the HORIBA group companies that are pursuing new business activities to capitalize on their highly original core technology, and provide outline of the products and technology of each.

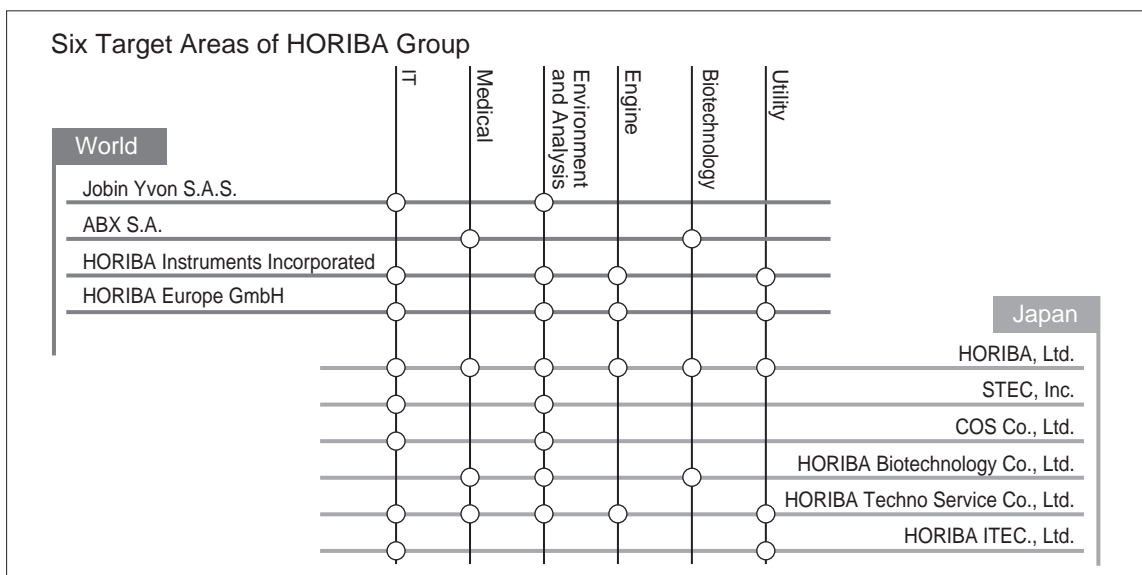


JY is a general optical instrument manufacturer, which started out its operation in 1819. It is a global company with its head office located in France, and bases scattered around the world. It provides various optical measurement instruments based upon its expertise in optical technology, which are widely known with its Jobin Yvon, Sofie, Dilor, Spex and other brand names. Since establishment, the company has been providing wide variety of products, mainly catering to the population in the area of research and development. The products have been highly evaluated for their superior performance. As it joined HORIBA group in 1997, it expanded its target market to encompass private companies as well. It is now proactively working towards semiconductor and biotechnology markets. Especially the synergy from the alliance of JY specializing in ultraviolet and visible, and HORIBA specializing infrared- and X-rays is attracting a lot of expectation of the customers.



### ABX S.A.

ABX S.A. is a French manufacturer dedicated to hematological test equipments, established in 1983, which has now grown to be the fifth largest in the world. Its automated blood cell counters, incorporated with its unique technologies, such as DHSS™ and MDSS™, are well received, because of their ability to improve the productivity of clinical assay. The equipment is now utilized at more than 25,000 medical institutions in 140 countries. Since it joined HORIBA group in 1996, the level of research and development ability of ABX and level of production technology of HORIBA have been generating a synergistic effect, which has achieved high reliability in various applications including OEM provided to competitive companies. Recently, it has brought to the market such unique products as “Micros CRP” or automatic blood cell counter plus CRP analyzer, and “Pentra 400” or clinical chemical test system, so that it may bring together the collective strength of HORIBA group.





*STEC, Inc.*

As the dominant manufacturer of mass flow controller, based on their expertise in the fluid measurement and control technology, it is positioned as the core company in the semiconductor business of HORIBA group. STEC Inc. was established in 1974, in order to commercialize a standard gas generator for evaluation of pollution measurement device. Since then, the company has won the customer's immeasurable faith through provision of products and services, especially emphasizing the standardization and quality assurance. In the tight economic situation of semiconductor industry, it is striving to make its product more intelligent, modularized and networked, through which it is contributing to improvement of productivity in the overall semiconductor process.

## **HORIBA**

*HORIBA Instruments Incorporated*

HII's roots can be traced back to Orson Horiba Inc. (established in 1970), the first joint venture in foreign country for HORIBA. HII has been developing with automotive emission measurement, with some unforgettable milestones. The first one was the adoption of HORIBA exhaust gas analyzers including CVS by US EPA in 1975. In 1977 a software design base was established in Ann Arbor, Detroit, which is now taking a leading part in global system development for engine emission measurement.

HII's progressive activity is not limited to engine measurement; it also aggressively cultivates the US market for HORIBA scientific analysis products. The Crystal Factory in Tempe, Arizona (established in 1991) recently succeeded in 31" NaI scintillation crystal for gamma camera application, a spur to HII's expansion in "Non-automotive" market.

## **HORIBA**

*HORIBA Europe GmbH*

HE, originally the European liaison office of Orson Horiba GmbH, was established in 1971. With steady business expansion, the office continued growing and in 1981 changed its name to HE, HORIBA Europe GmbH. In 2003 HE completed its headquarter building in Oberursel city in the West Germany, greatly advanced into a leading part in each HORIBA group companies in Europe.

HE started from sales in engine exhaust measurement products, and soon included the business of air pollution monitoring products. Now it has evolved to a comprehensive measurement products manufacturer covering design, development, production, sales, and service of the measurement products mainly for the environmental use. HE is proud of its unique customer service policy that they can customize the products for the local specifications in its wide territory, such as north, east, and middle-east areas, let alone each country in central Europe.



### *COS Co., Ltd.*

Among the HORIBA group companies, COS Co., Ltd. is positioned as a group of experts in the liquid measurement area. It was established in 1975 for manufacturing and sales of measurement devices for relatively small new markets, such as agriculture, food processing and so on. In the recent years, the company has been providing products and services in the environment and semiconductor markets as its major targeted areas, such as measurement device for preservation of water quality of domestic sewage, rivers and lakes, and cleaning process monitor for semiconductor. As a part of HORIBA group as general supplier of measurement appliances, the biggest strength of this company is its nimbleness, through which it can capture highly specific needs of customers by gaining access to their midst, and materialize them promptly.

### **HORIBA**BIOTECHNOLOGY

#### *HORIBA Biotechnology Co., Ltd.*

This venture business was established in March 2000 in an attempt to commercialize sensitive analysis of chemical materials posing burden to the environment. By combining the academic achievements of universities and the semiconductor sensing technology of HORIBA, it aims to develop products and technologies that can sensitively and easily measure the amount of chemical materials posing burden to the environment, such as endocrine disruptors and residual pesticides. A residual pesticide analysis using an assay kit for immunochemical analysis, intended for use in the screening process by food products materials manufacturers and child diet manufacturers, is considered particularly promising. In the near future, the combination of state-of-the-art biotechnologies, such as antigen production based on gene recombination and HORIBA's know-how in physical and chemical analyses is expected to create a totally new market.