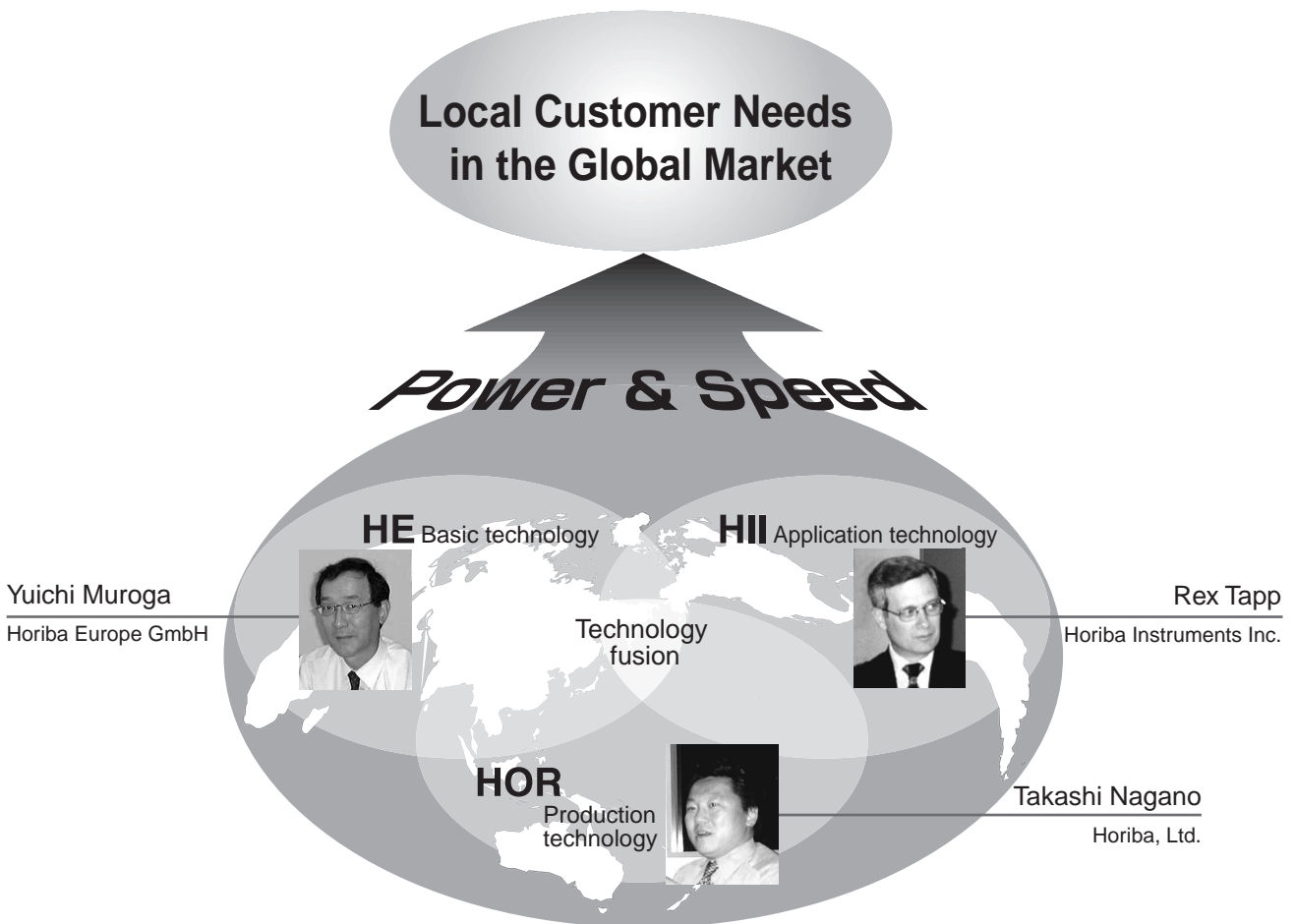


Global Collaboration by the Horiba Engine Measurement Group to Provide Excellent Measurement for an Advanced and Diversified Automobile Market



In an industry that is reaching a stage of "maturity," automobiles are undergoing considerable increases in quality and diversity. Likewise, there is also increasing quality and diversity required for the functions and roles of we measurement instrument manufacturers, who assist the development of the automobile industry and make such incredible development a reality. Recently, the three leaders of the Horiba Engine Measurement Division (EMD) in Japan, Europe and the U.S. held a videoconference to discuss what Horiba must do, and how it must do it, in order to provide our customers with superior measurement devices. This discussion covered a wide range of topics, with the three leaders eventually reaffirming the common opinion that both "Globalization & Localization" are absolute necessities for satisfying our customers, and the keywords behind achieving these are "Power & Speed."

Diverse Markets Require a Diverse Approach

Nagano Let us begin with the question, “What does the world’s ever-changing automobile industry require from the engine measurement manufacturing industry?” I want to start our discussion by reviewing the current markets in Asia, Europe, and the United States.

As you know, the industry has gone beyond the time when a single company was controlled by a single country, and management reorganization is occurring at a global level at a tremendous pace. At present, most Japanese car manufacturers have now formed alliances with American and European companies for all areas—in development, production, and sales. In addition to this, on the technological front, especially in the area of environmental protection, the industry has been vigorously advancing into research and development—ULEV (ultra low emission vehicles) SULEV (super low emission vehicles), and even hybrid vehicles—which aim at a better world in the twenty-first century. Within this macro-level transformation, there are unique trends which correspond to each regional situation in Europe, America and Japan. Mr. Muroga, could you tell us what the situation in the European market is?

Muroga The company that I run, Horiba Europe (HE), covers not only Europe but also the Middle East and African market. Quite naturally, each area and country has its own unique character, but our customers can be divided up into three broad areas. The first type are the big manufacturers centered in Germany. They have achieved a very high level in their measuring technology, and they demand products that meet their exact specifications. It is not uncommon for them to assemble parts they find to be of high quality and make their own measuring system. This special feature, I believe, is based on the confidence they gained from successful experience in the chemical industry. So the stiffest competition against Horiba is found in Germany and in German-speaking areas. They are asking for the very high-end of the product line and competitive prices.

The second group of customers are those who are looking for high-performance products at cost-effective prices. For example, this group includes Italian or French customers who have not been exporting their cars to the U.S. or Japan for many years. However, now they are hurrying to comply with low emissions regulations because European government regulations require very low emissions like Euro IV and Euro V. So they need speedy help and they respect Horiba’s strong position—the state of our technologies, the wide range of our products, our quality, our record on certification, and our support capabilities.

Remember that Europe is the first place that bought our new MEXA (Motor-Vehicle Exhaust-gas Analyzer) technology when we introduced it in 1985. Saab bought the MEXA 9000 and Lotus bought the first MEXA-7000 systems. Europe is very clearly an important market for Horiba.

The third group of customers are those in Russia, the Middle East, and Africa. These countries need assistance in all areas, from the planning of the measuring devices’ introduction to instruction on how to operate them. So, we are trying to establish a facility and training program. So you see, the European situation is extremely varied.

Nagano It is the same in Asian countries. If we look at the four Asian markets, the situation is very similar to Europe. The Japanese market is advanced, the Korean market is in the middle, and the other Asian countries, like China and India, are behind the others.

In the case of Japan, some of our customers are so much more knowledgeable than Horiba in specific areas. In those cases, customers try to implement their special requirements into our systems. In such cases, we must provide more than just a “standard system.”

How about the United States and South America?

Tapp The situation for us is a little different. We are very much driven by environmental regulations. The move to SULEV is opening new a new market. All of the auto manufacturers must comply with that new set of regulations, so we are being driven by some technology requirements.

One of the strongest market influences that we are seeing today is that automakers are pushing the requirement to meet emission regulations down onto their suppliers. So we see our primary customer, Ford, beginning to demand that their suppliers furnish products to Ford that have already been tested and certified. So a lot of our work right now is moving down through the suppliers in an effort to satisfy the Ford requirements.

Nagano So our approach towards this new type of customer has to be different from the one we have used up to now.

Tapp Yes. As we move into this new market, we’re encountering customers that are less knowledgeable of the regulations or of testing, and therefore are placing greater demands on us to be able to provide a more complete level of service: turn-key installations, including a building, training on how to operate cells and collect data, and help with interpreting what the data means. So we are encountering a customer that we have not serviced before.

And of course, performance is always an issue. The ability to provide reliable high-performance equipment is always key. The value of the system or the cost-benefit relationship of the system is becoming quite important. I feel as we extend our efforts to these new customers, these issues will drive our strategy and open up new opportunities and new problems for Horiba.

So for such customers, the value of the product includes the product itself, and also service, training, and operation, et cetera.

Nagano Absolutely. They are looking at the service and the total cost. The performance is critically important and it’s one of the fundamentals but it isn’t enough for someone to consider just the performance of the system as the sole basis for the valuation. So it’s important that we provide service, ongoing training, and operational guidance. Muroga-san, in Europe don’t you have the same kinds of requirements from some customers?



It is not that the number decreased, rather, it is the quality that changed

Muroga Yes, there are two issues: one issue is related to the company's policy of outsourcing, the other one is that companies are merging. Companies are trying very hard to achieve the synergy effect. Recently our customer, PSA Group (Peugeot-Citroen) consolidated five different testing sites into one place. They are now consolidating the facilities and they want maximum efficiency and availability of the system. So support and availability have now become very important. Also, in Europe it was uncommon to perform shift work in measurement areas, but now they are reconsidering this and they have asked us to support around-the-clock operations by providing 24-hour or even 12-hour response time, or longer standby time, or Saturday maintenance. In other words, we need to set up a system that can improvise and make products that are tied to the profits of our customers.

Tapp We continue to see that the average time to respond or the average time to repair a system is becoming more important as people try to increase their utilization of the equipment. Factors, such as on-call service and response time, will become very important when companies choose a measuring device maker. Collecting resources together at one location is going to place a lot of demand on that equipment.

Nagano The customer is very concerned with the efficiency of the test cell. In Japan, Horiba has provided a 24-hour automation system to Honda. Many of our latest products are designed for such customer requirements. We supplied robot drivers, computer systems, and automatic equipment to open the front hood. So even if the number of test cells is shrinking, the automation business is expanding. This is especially true for the "advanced" customer.

Muroga This is related to the regrouping of the companies. Daimler merged with Chrysler, and recently they bought a very high percentage of Mitsubishi. They have decided to provide their engines to those companies—starting in the U.S., I think. So the efficiency of their engine development efforts is now very high. They are under high pressure to succeed in their commonization. Since most of the engine test cells are the oldest parts of the testing facility and are spread around, they want to consolidate them and make a high efficiency test facility.

Nagano Looking at the results in this way, while the number of test cells per se may not necessarily increase, there do appear to be major qualitative fluctuations. There are indeed growing needs for cell automation and increased cell efficiency, trends that are particularly important to leading device manufacturers.

Horiba's true ability can be seen in its diesel engine measurement technologies

Nagano I believe that there will be some kind of new engine test cell related to diesel engine development. The last time I visited Germany, the percentage of diesel cars had increased. Also, the performance and capability of the diesel car is amazing. Their fuel economy is more than 15 percent higher and it's really difficult to tell: "is this a diesel car or a gasoline car?"

Muroga You know that top car makers in Europe are pushing their large diesel engines, like a 3-liter V-6 or 4-liter V8, they are pushing them into "sporty" cars. There are two issues: one is carbon dioxide emissions, because European people are very supportive of the environment. The other issue is the rising of fuel prices—so people are more motivated to buy diesels. If you see the new car registrations in Germany, nearly 30% of new cars are now diesel cars.

Nagano So that's why we are now developing some new instruments to measure particulate matter (PM) and oxides of nitrogen. I think that kind of a product is very useful for diesel engine development.

Tapp One of the strengths of Horiba is looking at these issues from a global basis. I think the development of PM measurement capability is really a case in point that we will all be able to use in our respective marketplaces.

"Globalization & Localization" and "Power & Speed"

Nagano Fifteen years ago, when Japanese companies began to move to the U.S., each Horiba EMD subsidiary took care of their own territory. Then, a Japanese customer moved to the U.S. and they wanted to use the exact same product that they were using inside Japan. So we shipped some MEXA products from Horiba in Japan to the U.S. At that time, the U.S. was manufacturing and supporting their own products and we found it difficult to support the Japanese customer. This was one of the key events that showed why we needed to be globalized. So we decided to develop global products, such as the MEXA 7000 because it is much easier for the subsidiary to support and service.

That was successful for us, but at the same time, especially outside of Japan, the customer expected a quick response from Horiba. The product development of the MEXA was done at Horiba in Japan. It was a truly global project and we involved several people from our subsidiaries, but it was not enough to support the customer. The customer was satisfied with the global product, but at the same time the customer wanted a quick response. Now, the entire EMD group understands that globalization is a must, and some localization of products to satisfy local requirements is also necessary.

Muroga Localization, in terms of satisfying requirements and support, must be very speedy and must be done on a very high-quality basis.

Our Global Product Planning Group's philosophy was that Europe has many analyzer technologies, so some technologies came from Europe. America is excellent in software technology, and Japan is the best place to manufacture technology products. Horiba has a great advantage to optimize those resources.

Tapp It was a big step! The introduction of the MEXA 7000 into our territory was a challenge. We needed to understand and be able to service that product effectively in the field, and there was a challenge to our customer, who was used to a different approach. But, again, I think that's one of the strengths of Horiba, in being able to accommodate and overcome problems.

Our markets are local. I mean all of us live in a local market, and we satisfy those markets by either taking a global product or adapting a global product for a local need. The distribution of the manufacturing and the distribution of the product development around the world really adds strength to our ability and speeds our ability to satisfy customer needs.

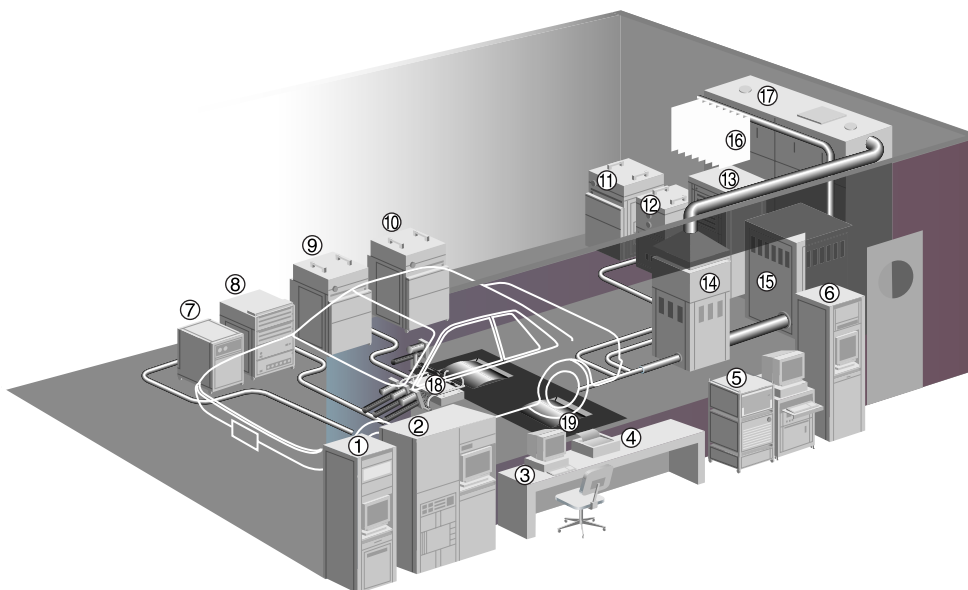
Nagano The next target, I think, is sales—it is key to globalizing. Our customers are very quickly globalizing with acquisitions and mergers, so the customer is changing very rapidly. On the product side, globalization is necessary, but at the same time we have to think about how to globalize the sales activity.

Muroga Of course we have a very strong product line based on MEXA and the CVSs (Constant Volume Sampler), but you know, we have very strong customers who are asking for very specific specifications. Whenever we wish to work with those customers, I think the best way is to bring our unique products. I think it is very important to promote those products for those customers, I'm planning to build a kind of sales support team that will assure that new products will be technically supported. Once the customer is interested, we will have a strong ability to support the customer in a technical way.

Tapp Because of Horiba's record and experience in the field, we are being asked to assume a greater level of leadership in helping the industry understand where the technology is going, what is the right technology, what is the correct solution, and then offer that solution in a production environment. It's gratifying that people understand the investments that Horiba has made both in the intellectual capital and in the product. There is a strong desire that they want Horiba to stand up and take even more of a leadership role than we have in the past.

Muroga Until now, Horiba has emphasized product manufacturing as a research and development based corporation. Now, however, Horiba is also working to meet today's demand to provide total solutions.

Nagano Originally we were an R&D company and therefore we stuck to developing the product. In the beginning of this discussion we said that the customer expected some kind of a turn-key solution from Horiba or they expect some kind of automation. So we have to take the initiative for future measurement. The key to the success of our EMD business lies in the dual concepts of “Globalization & Localization”, and the key words behind making these concepts a reality are “Power & Speed”. Our company uses its *power* to develop its businesses on a *global* scale, and emphasizes *speed* in its response to *local* needs. We are the three leaders behind the promotion of plans based on these concepts. Thank you for being here today.



1. Automobile Operation System (Controller)
2. GC/FID Type Exhaust Gas Measurement Device
3. Host Computer
4. Printer
5. Soft Ionization Mass Spectrometer
6. FTIR-Type Engine Exhaust Gas Analyzer (Analyzing Unit)
7. Engine Exhaust Gas Measurement Device (Sampling Unit: EGR)
8. Engine Exhaust Gas Measurement Device (Analyzing Unit: EGR)
9. Engine Exhaust Gas Measurement Device (Oven for Front Catalysts: EGR)
10. Engine Exhaust Gas Measurement Device (Oven for Intermediate Catalysts: EGR)
11. Engine Exhaust Gas Measurement Device (Tailpipe Oven)
12. FTIR-Type Engine Exhaust Gas Analyzer (Sampling Unit)
13. Engine Exhaust Gas Measurement Device (Analyzing Unit)
14. Fixed-Capacity Sampling Device (Mixing Unit)
15. Fixed-Capacity Sampling Device (Sampling Unit)
16. Fixed-Capacity Sampling Device (Bag Unit)
17. Dilution Air Purifier
18. Automatic Operation System (Mechanical Unit)
19. 48-inch Chassis Dynamometer

Participants in this discussion are:

Mr. Takashi Nagano,
General Manager, Engine Measurement Division (EMD),
Horiba Group, and chairperson of this discussion



“The environment surrounding automobiles and other transportation devices is growing increasingly severe. The Horiba Engine Measurement Group is helping to develop internal combustion engines and power trains that are friendly to the environment, all based on a core of exhaust gas analyzers, automation technologies, and global networks. Horiba proudly continues its contributions to the further development of automobile and transportation technologies.”

Mr. Rex Tapp,
Vice President, Engine Measurement Division, Horiba Instruments Inc.,
Ann Arbor Michigan-a sales leader in the global market.



“Horiba is recognized worldwide as a supplier of high-quality, state-of-the-art emission instrumentation. But this by itself is not enough. In the competitive environment of today, we must also exceed our customers’ expectations in sales support and service.”

Mr. Yuichi Muroga,
President, Horiba Europe GmbH, Sulzbach Germany
-a technology and management leader in a global company.



“Horiba has been working together with its customers to expand its business to a global scale, producing a wide-range of products that are compatible with worldwide standards. Our ongoing theme is to work towards globalization while, at the same time, making every effort to satisfy our customers on a local level.”

“The foundation for all of our business efforts is our goal of making efficient use of the world’s resources to meet our customers’ needs, developing close relationships with as many customers as possible. We at Horiba look forward to an ongoing and deepened interaction with our customers.”