

A large, stylized globe in shades of green and blue, showing the continents of Asia, Australia, and parts of Africa and Europe. It is centered on the page and serves as a background for the text.

---

INTELLECTUAL PROPERTY REPORT

---

TERUMO CORPORATION

## 1. FOREWORD

Terumo got its start in 1921 as Japan's first manufacturer of glass mercury thermometers. In the ensuing years, Terumo developed its business as Japan's first producer of disposable plastic syringes and needles, and with the first Japanese production of soft blood bags, the world's first hollow-fiber oxygenator, digital thermometers, and angiographic catheters. Terumo has captured a high market share in these and other fields where it operates. In venturing into more advanced domains in recent years, including the development and sale of drug-eluting stents and an implantable left ventricular assist system (artificial hearts), Terumo is enhancing its business portfolio as it continues to develop as a global healthcare device company.

At first glance, the individual products in Terumo's wide-ranging lineup may appear to have little in common. These products, however, are all underpinned by Terumo's relentless pursuit of biocompatibility, elemental technologies centered on materials technology driven by each product's distinct characteristics, and technological prowess in production capabilities. Two examples here are

Terumo's hydrophilic coating (M Coat), which is used on interventional guide wires to achieve improved penetration depth, and super elastic metal alloy technology. Both technologies have been incorporated into the recently commercialized "Tazuna" and "Hiryu" PTCA balloon catheters, and the "Runthrough NS" PTCA guide wire. These products are good examples of innovations enabled through the fusion of Terumo's elemental technologies.

Along with strengthening its hand in these elemental technologies, the Company constantly strives for efficient organizational management and to raise the skill level of the individuals comprising its organization. At the same time, Terumo actively utilizes patents, utility models, industrial designs, trademarks and other intellectual property right systems, working diligently to enhance the value of these collective intellectual assets. Terumo's commitment to intellectual property allows these assets to play a key role in spurring the Company's ongoing development. This report is an introduction to the intellectual property that supports Terumo.

## 2. TERUMO'S TECHNOLOGY

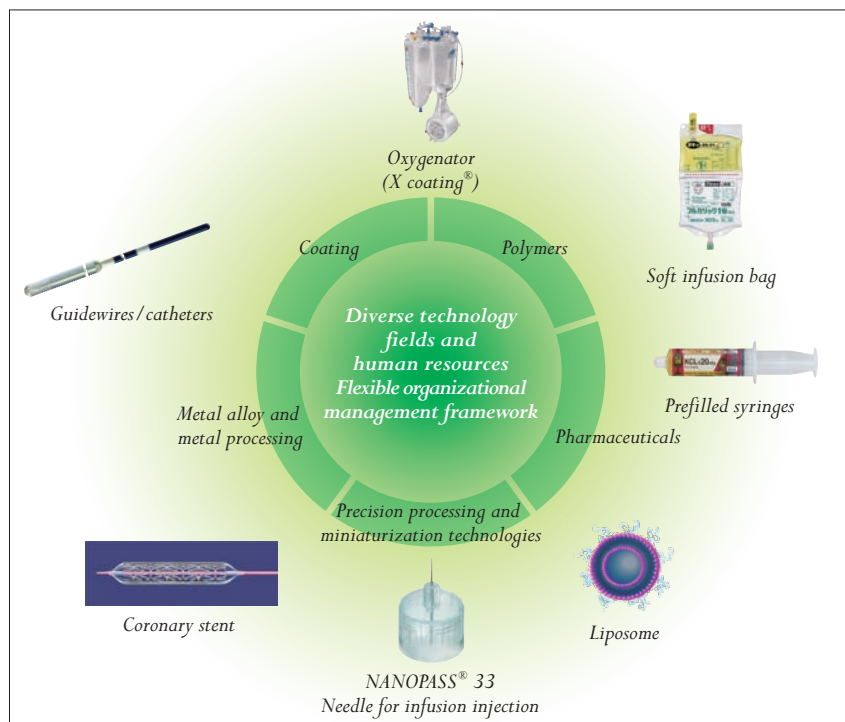
### Continuous Technological Improvement

Medical devices are gaining new ground every day. Accordingly, Terumo strives continuously to research and develop advanced, innovative devices. By the same token, there are a number of product fields that have already begun to mature in terms of functionality and structure. Boosting the added value of products, by applying and entrenching related technologies in peripheral fields, is vital to maintaining a competitive edge amid intensifying competition between companies, reductions in official reimbursement prices\*, and other growing sources of market adversity.

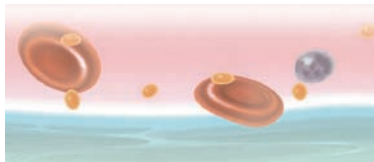
One example here is Terumo's oxygenator. During heart surgery, this device temporarily stands in for the lungs in delivering oxygen to the blood. To prevent triggering an immune reaction due to direct contact between a non-human foreign object and the blood, the part of Terumo's oxygenator in contact with blood incorporates a technology known as "X coating," which suppresses the adsorption and denaturing of blood corpuscles and plasma proteins. Such technologies are contributing substantially to improvements in product performance. Consequently, Terumo's oxygenator has garnered a 50% market share in Japan, and more than a 30% market share in the United States and Asia (according to Terumo's research).

Moreover, these technologies help to enhance Terumo's intellectual property portfolio, enabling the Company to retain a level of dominance over products from other companies.

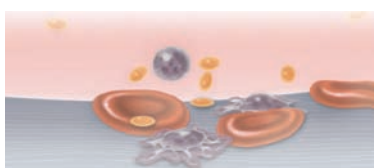
\* As part of measures to restrain healthcare costs in Japan, the government implements biennial revisions to government reimbursements for drugs, medical treatment and medical equipment covered by the national health insurance scheme.



■ X coating®



X coating®  
Minimizes blood corpuscle adsorption, suppressing their activation



Non-coating  
Substantial blood corpuscle adsorption and shape distortion, triggering the blood's immune response

Two elements are critical to development of these products—the materials themselves, and a wealth of experience and technology relating to compatibility between materials and the body. Such elements are characteristic of Terumo, a company with comprehensive technologies that extend beyond any single specific domain, and are vital elements in supporting the strength of Terumo products.

**Production Technologies**

Another major pillar supporting the high quality of the Company's products is Terumo's production technologies, backed by a track record stretching over many years.

At its plants, Terumo is building a high-quality production framework based on extensive quality assurance, as well as verified materials and production technologies. To this end, domestic and overseas plants not only work to accumulate technologies and expertise pertaining to their respective product lines, but incorporate cross-cutting systems to support production in terms of equipment and materials at each plant.

Furthermore, each plant not only considers the cost balance with respect to product design, but seeks constantly to develop and secure cheaper, safer and higher quality materials. In tandem, Terumo promotes greater efficiency in manufacturing processes, for example, improving the precision injection of the infusion liquid sealed in its soft infusion bags, in a bid to reduce production costs through better production technologies. Where sterilization technology is concerned, each plant is an expert in the sterilization processes optimal for its products, be it sterilization via high

pressure steam, ethylene oxide gas, gamma radiation, microwave, or other available method. Plants select the most effective sterilization method that also avoids distortion of the materials based on repeated evaluation and inspection. At the same time, plants strive to maintain and enhance quality by conducting R&D to determine materials that are most compatible with pharmaceutical agents, and that prevent material degradation that can result from sterilization.

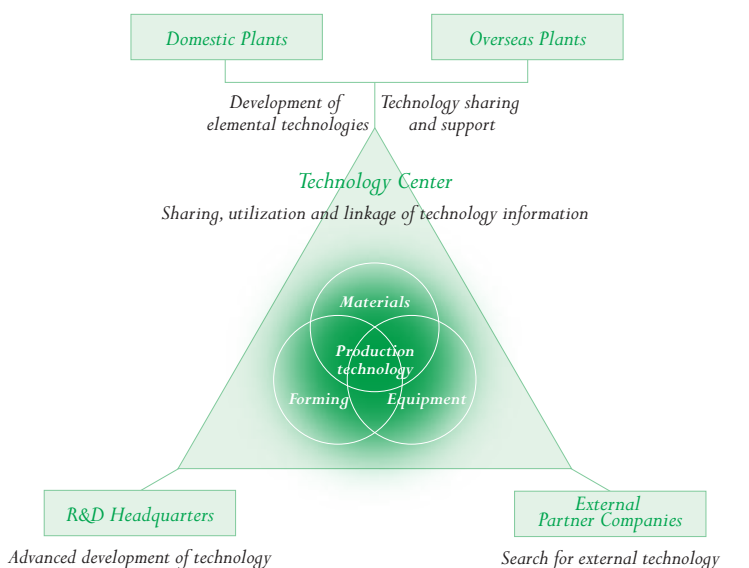
While these efforts behind the Company's products are not highly visible, they occupy an important place among Terumo's intellectual assets. Handed down from veteran engineers to their younger colleagues at the Company's production sites, these assets accumulated and inherited over the years firmly support the creation of Terumo products.

**Synergies Among Group Companies Produce Enhanced Development Capabilities**

The Terumo Group today has a globe-spanning network as a result of corporate purchases, joint ventures and the establishment of companies overseas. Another of the distinctive features of the Terumo Group is that each of the Group companies possesses outstanding technological capabilities.

For example, U.S.-based MicroVention Inc., has advanced technological capabilities in embolization coils for treating brain aneurysms pertaining to easy coil

■ Framework for Accumulation and Utilization of Technologies



AZUR for peripheral blood vessels

delivery to affected areas of the brain and a proprietary hydrogel coating. We combined these technologies with Terumo's proprietary technologies to develop a new product for peripheral blood vessel-related applications called "AZUR," sales of which have already begun in the United States.

Similarly, Vascutek LTD., a company headquartered in Scotland, has long been recognized as one of the world's top manufacturers of artificial vascular grafts. "Rapidax," an artificial vascular graft for haemodialysis sold outside of Japan, was the first product developed through combining Vascutek's own highly histotropic porous materials with Terumo's proprietary elastomer membrane materials that use no biologically derived proteins. Combining the technologies of both companies enabled the development of an artificial vascular graft with both superior capacity to return to its original shape, and excellent biocompatibility.

In 2008, Terumo Clinical Supply Co., Ltd. became a new member of the Terumo Group. The convergence of the company's own well-established technology in the area of radiology, including angiographic catheters and microcatheters, with Terumo's technological strengths in cardiology is expected to give rise to even more outstanding products.

As these examples illustrate, Terumo is interested in far more than merely acquiring technology, enhancing its merchandise lineup, and expanding market share. Leveraging the characteristics of each Group company, and at times cross-fertilizing their mutual technologies, Terumo is putting in place a framework

capable of developing unique products. The achievements of this framework are the results of effective Group management on the technological side, which is another Terumo Group strength.

### Drugs & Devices—Combining Medical Device and Pharmaceutical Technologies

One of Terumo's distinctive strengths is its ability to create greater added value by combining the pharmaceutical-related technology it possesses with medical device technology.

"FULCALIQ," which today commands the top share of the high-caloric transfusion agent market in Japan (according to Terumo's research), is a product born from the fusion of a three-chambered bag developed by Terumo, and the dispensing technology for gathering nutrients required for the high-caloric transfusion liquid used to fill it.

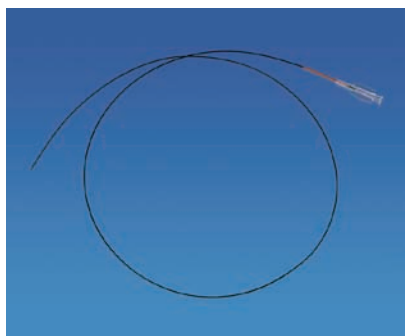
In prefilled syringes, the replacement of conventional glass syringes with those from plastic has propelled Terumo to the front of this market in Japan. In development of these products, which were intended to be stored for ready use when needed, Terumo had to find a way to inhibit any denaturation or degradation in the drug agents filled in the syringes in order to ensure that the products would remain usable for a certain expiry period. This task required that the syringes, as containers, possess the functionality needed to prevent the outside atmosphere from affecting the drug agent (for example, gas and light impermeability). After solving this issue by bringing together materials technologies honed

over the years, Terumo's prefilled syringes have grown into a business that has captured the attention of pharmaceutical companies worldwide.

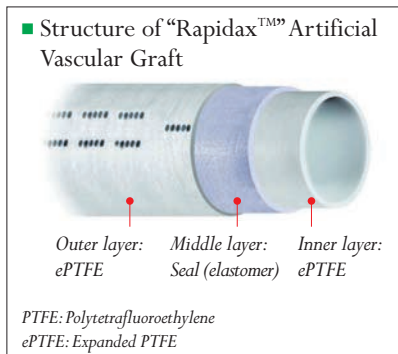
Such integration of medical device and pharmaceutical technologies will be a key point in future medical device development. Going forward, Terumo stands committed to developing new devices and pharmaceuticals to deliver to the frontlines of medicine by combining technologies.



Prefilled Syringes



Sniper® Microcatheter

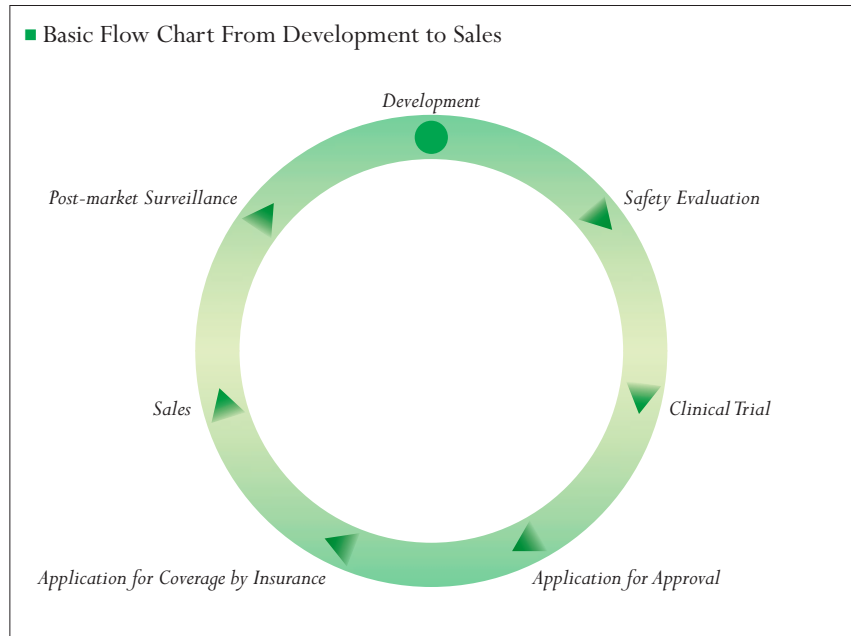


### 3. ORGANIZATIONAL CAPABILITIES: THE LINK IN TRANSLATING TECHNOLOGIES INTO PRODUCTS

Medical devices represent the integration of an extremely diverse range of elemental technologies from a host of scientific disciplines, including physiology, biochemistry, pharmacology, cell technology, polymer technology, metal processing, and electronics. Because of their use within the human body, regulatory authorities in Japan and elsewhere have set the bar for safety exceptionally high for approving the manufacture and sale of these devices.

As discussed earlier, the Terumo Group has a variety of elemental technologies, with the bulk of its human resources possessing an advanced level of specialist knowledge. However, to stay ahead in the fiercely competitive medical devices industry and deliver new products to the public briskly and steadily, the Company must have an organization framework capable of integrating existing in-house elemental technologies into concrete product development, controlling the flow linking these products to sales, and dealing with the very rigorous approvals process specific to medical devices.

Terumo has its own evaluation center that has the capacity to evaluate devices along physical, chemical and biological dimensions. The evaluation center can gather the necessary experimental data for R&D activities by the R&D Center and each plant, enabling a non-clinical trial, the stage that precedes clinical trials, to be performed in-house. This capacity has the added merit of enabling Terumo to acquire expertise in bringing a diverse range of technologies to bear in performing safety evaluations.



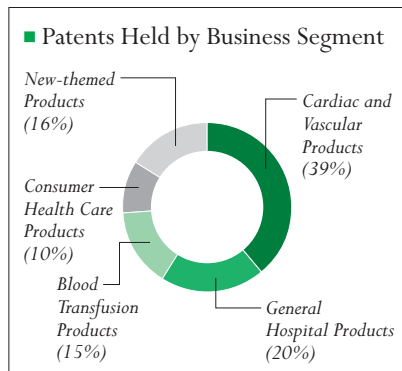
In addition to this, numerous departments are functionally interlinked from the earliest stages of development, allowing for efficient conversion into viable products. These departments include those that coordinate clinical trials, those responsible for submitting applications in compliance with foreign and domestic pharmaceutical affairs laws and negotiating with approval bodies, those that research and administrate post-market product effectiveness and safety matters, and an intellectual property department charged with the search and procurement of intellectual property rights.

Terumo has honed this organizational framework that can smoothly support processes from product development through to sales, in the course of business activities over its long history as a healthcare device company. As such, this framework makes up a vital part of the intellectual assets that support Terumo's strengths.

#### 4. INTELLECTUAL PROPERTY RIGHTS: ACQUISITION, PROTECTION AND STRATEGIC UTILIZATION

The protection and strategic management of intellectual property rights are the lifelines of any manufacturer. Taking patents as an example, Terumo currently holds roughly 3,000 patent rights in Japan and in other countries. In the fiscal year ended March 31, 2009, the Company applied for over 300 patents in Japan and over 100 patents outside of Japan. As operations become more global, the number of patent application filings outside Japan is rising, with Terumo scheduled to file more applications this fiscal year than in the previous one.

Terumo's Intellectual Property Department forms close ties with development personnel from the earliest stages of development. By mapping out the Company's own patents and those of other firms for each product, the department analyzes strengths and weaknesses to determine the best development path forward, and the intellectual property rights that should be acquired. By continuing to build Terumo's portfolio of intellectual property rights and to support R&D activities, the department strives to enhance rights that will enable Terumo to win out against global competition. Particularly in the United States,



the world's largest medical devices market, Terumo is determined to further bolster measures given the market's key importance to its patent strategies, and the presence of U.S. and European competitors that hold a host of patents there.

In tandem, Terumo is also pursuing activities designed to increase the number of in-house inventors and spur the emergence of more new technologies by further motivating developers. In 2003, the Company revised its incentive system in ways that not only recognize developers for their outstanding inventions, but put in place mechanisms for reflecting this achievement in salaries and other compensation. Furthermore, since patents and other intellectual assets have values that vary depending on the environment at the time, all such assets are regularly evaluated and utilized based on their ascribed value. Low-value or obsolete patent rights are discarded.

#### 5. TECHNOLOGIES FOR "PEOPLE-FRIENDLY HEALTHCARE" SUPPORT BRAND IMAGE

Terumo is guided by a corporate philosophy of "Contributing to society through healthcare." Our technological and organizational capabilities are based on a commitment to making "people-friendly healthcare" a reality through product development from the user's perspective. The result is that Terumo delivers products to customers that embody three key messages: improvement of patients' quality of life (less pain and minimally invasive treatment), safety, and dependability.

A recent product example is "NANOPASS 33," a needle for infusion injections that not only has the world's thinnest needle tip, but a structure that mitigates drug injection resistance. This innovation is one that helps ease the pain of many diabetics who need to self-inject insulin. To improve the safety and work efficiency of the health care professionals who work with patients, Terumo offers intravenous indwelling needles with safety mechanisms, as well as the "EXFREE" IV system and other infusion systems. The "WOMAN °C" thermometer for women and the new "PREMIAGE" brand for post-menopausal women (which currently sells blood pressure monitors) were also developed to facilitate

■ Major Patent Filing Map for Left Ventricular Assist System  
 Figures in ( ) are number of filings in Japan

- Basic patent for Terumo specified magnetic levitation type
- Structural patents (18)
- Control system patents (26) (incl. safety features)
- Total system patents (7)

■ Patent Filings for Blood Glucose Monitoring System  
 Figures in ( ) are number of filings in Japan

- Blood glucose meter tip (12)
- Piercing tool (9)
- Piercing needle tip (3)
- Blood glucose meter device (23)
- Others (accessories, etc.): 5 filings

women's daily health management, emphasizing design and ease of use as requested by female users. Terumo's concentration on intellectual assets has been critical to realizing every one of these products, created for the patients and healthcare providers, and all people that desire good health.

The relationship of trust between Terumo and its customers is built on customers' ongoing use and evaluation of these products, and our continued enhancement and improvement of even presently outstanding products. The Company's brand image, in turn, is formed from these bonds of trust.



NANOPASS® 33 needle  
for infusion injections



(Left) Terumo's C520 "WOMAN °C" thermometer

(Right) Terumo's P600 blood pressure monitor



EXFREE® IV system

## 6. PEOPLE-CENTERED MANAGEMENT

Terumo refers to its employees as "associates," and views them as assets, not as costs. We make use of our assets, and in doing so create new value. From the launch of Japan's first domestically produced glass mercury thermometer up to today, Terumo's management has created an environment conducive to transmission of technology, skills and knowledge from one associate to the next, and for skill development and other human resource training, repeatedly emphasizing the value of its people as vital components of its intellectual assets. Each associate personally carries Terumo's corporate philosophy and social mission of "Contributing to society through healthcare," understands their respective role, and consistently strives to improve their own abilities.

### Disclaimer

Among the information that Terumo discloses, forecasts of financial performance and future projections contain potential risks and uncertainty since these are forecasts and projections made by Terumo based on limited information available at the moment of disclosure. Accordingly, it should be noted that actual results may differ from those forecasts due to various factors. Factors affecting actual results include, but are not limited to, changes in economic conditions surrounding Terumo, fluctuations in foreign exchange rates, and state of competition.

Terumo Corporation  
Corporate Communications Department  
Daiichi Tekko Building 7F  
8-2, 1-chome, Marunouchi, Chiyoda-ku, Tokyo,  
100-0005, Japan  
E-mail: kouhou\_terumo01@terumo.co.jp

®: Registered Trademark  
Rapidax is a trademark of VASCUTEK LTD.  
FULCALIQ is registered trademark of Mitsubishi Tanabe  
Pharma Corporation.

Sniper is registered trademark of Terumo Clinical Supply  
Co., Ltd.

©: TERUMO CORPORATION December 2009

### ■ Contribute to Society through Healthcare



Valued connections with actual  
medical practice are important for  
making better products.



Associates create new value every day.