Strategic Directions International, Inc.
INSTRUMENT BUSINESS OUTLOOK
Strategic Information for the Analytical & Life Science Instrument Industry

2014 IBO Industrial Design Awards

Each August, ***IBO*** selects the winners of the ***IBO*** Design Awards, recognizing the industrial design of analytical instruments, laboratory equipment (page 6) and portable instruments (page 7) that are notable for their enhancement of the user experience. The accomplishments are aesthetic in terms of the product's visual appeal and novelty, yet the industrial design also serves the product's function, increasing its usability and utility, and by extension, the brand's value. Criteria include creativity, functionality and aesthetics. Performance is not evaluated. This year's winners exhibit a range of novel approaches that, in many cases, reinvent the familiar. In doing so, they meet users' evolving needs and advance instrument technology.

Shimadzu's EDX-7000/8000 ED-XRF Spectrometer

Gold Award

Shimadzu's EDX-7000/8000 energy-dispersive– (ED) XRF spectrometer is the winner of ***IBO***'s 2014 Gold Award for analytical instrument industrial design. The system's round front and streamlined profile set it apart from the boxier and heavier-looking designs of other benchtop ED-XRF systems, making the system approachable and distinctive. The simple displays under and above the lid and the lid's handle guide the user's interaction. Design features used to make the system appear more compact include the coloring, indentation around the front-bottom section, a slight incline on the lid and sharp angles on the back sides.

The EDX-7000/8000 measures 460 x 360 x 590 mm (18 x 14 x 23 in), weighs 45 kg (99 lb) and is priced at $76,000–$88,000. The system has a larger workspace than the previous product, which was 20% wider, to accommodate samples as large as 300 x 100 x 275 mm (12 x 4 x 11 in).

The appearance of the system is important for both consistency and to distinguish the system, according to Terry Adams, vice president of Marketing at Shimadzu Scientific Instruments. "We wanted to develop an instrument that maintained some similarity to our other instruments, specifically the EDX-GP and EDX-720, for a consistent image across the product line. At the same time, the goal was to create a forward-looking instrument that would appeal to laboratory personnel seeking a modern, sleek-looking ED-XRF spectrometer that offers the features and functions needed in today's advanced lab."

The black-and-white color scheme, smooth exterior, curved front and sloped profile address this requirement, creating a modern, uncomplicated appearance. "The EDX-7000/8000 has a large box-shaped chamber. This created a bit of a challenge as we wanted a front-cover design with a round shape to avoid a stereotypical analytical-equipment feeling," explained Mr. Adams. "We were also careful not to disturb the aesthetics even if the front door is opened. Beyond that, the challenge was to decrease the footprint, while incorporating a large sample chamber so all types of analyses could be done." The system works with solids, liquids and powders.

Specific features increase usability. "As a part of its outside design, the EDX-7000/8000 features a high-visibility LED lamp. When x-rays are generated, an x-ray indicator at the rear of the instrument and an 'X-RAYS ON' lamp at the front turns on, so that the instrument status can be monitored even from a distance. This increases safety," said Mr. Adams. Integrated into the instrument's form, the lamp is both subtle and recognizable. The compact footprint also incorporates other features. "In addition, the door is easy to open/close, it includes an electronically cooled semiconductor detector that reduces operating costs and maintenance requirements, and

features a sample-observation camera that enables precise sample positioning for easier analysis," he said

ProteinSimple's Wes Simple Western System

Silver Award

The winner of ***IBO***'s 2014 Silver Award for analytical instrument industrial design is ProteinSimple's Wes Simple Western system. Designed as a lower-volume instrument in ProteinSimple's family of systems for modernized Western blotting, Wes performs protein separation by size using capillary electrophoresis and immunoassays. It runs up to 25 samples in a three-hour period.

Wes measures 360 x 570 x 360 mm (14 x 22 x 14 in) and weighs 23 kg (50 lb). ProteinSimple worked with Studio Red on the product's industrial design. Wes utilizes a prefilled microplate and capillary cartridge to minimize hands-on time and waste.

The compact system boasts a glossy exterior finish, streamlined design and bold color scheme, designed to communicate the brand's message and the system's ease of use. "Our brand, ProteinSimple, dictates a simple user experience. Everything we do is guided by seven words: simple, fresh, friendly, happy, unexpected, energetic, and young," explained John Proctor, PhD, director of Marketing at ProteinSimple. "We used these guiding words to define the experience we wanted the user to have and used the vision of that experience to drive the design, look and feel of instrument we now call Wes."

The system's physical and aesthetic priorities were driven by the technology's ability to simplify Western blotting and provide high-quality data. "Physically, it had to be simple to operate and take up minimal bench space. The prefilled plate and capillary cartridge make the user interaction very simple," said Dr. Proctor. "Aesthetically, we wanted it to be a centerpiece of the lab with strong representation of the ProteinSimple brand. Wes's high-gloss, sleek exterior and bright, ProteinSimple orange door, helped accomplish that goal."

To create a distinct appearance, the high-gloss finish is automotive paint. Orange and blue are the company's colors, and the blue ties back to the coloring of the company's previous systems. In fact, as Dr. Proctor said, "Wes is the first truly ProteinSimple-branded instrument." Adding to the striking look is the 90°-angled side with no draft, or taper from the mold. "From an engineering point of view, to create the sleek nature of Wes we had to create a design with no draft on any of the vertical exterior walls. This is uncommon in the scientific instrumentation industry for molded parts and required side pulls on every single side of the molds used to create the exterior."

A design challenge was keeping light out of the system. "The door design was also quite challenging due to the extreme light-tight requirements of the chemiluminescence assay while maintaining good, intuitive user access." The orange door pops open to insert the microplate.

Wes's appearance has been integral to its marketing. "The industrial design of Wes has been extremely important to marketing and selling Wes. Because of his sleek and eye-catching exterior finish, people are naturally drawn to him," said Dr. Proctor. "Everyone wants to have something so aesthetically pleasing in their lab."

Daylight Solutions' Spero IR Microscopy Platform

Bronze Award

Daylight Solutions' Spero mid-IR hyperspectral imaging platform is the winner of ***IBO***'s 2014 Bronze Award for analytical instrument industrial design. The Spero's round shape and clean surfaces are a change from traditional microscopy designs and communicate simplicity and accessibility, utilizing design cues from consumer products.

Designed around the company's Quantum Cascade Laser technology, the Spero provides real-time IR imaging and can produce 3-D hyperspectral data "cubes" in minutes.

The system measures 406 x 673 x 600 mm (16 x 27 x 26 in) and weighs 54 kg (120 lb). Daylight Solutions worked informally with Bould Design on the instrument's industrial design. The Spero's industrial design was intended to make an impact, as the company is new to this market, and the product competes against established FTIR microscopy technology, according to Matt Barre, Business Development manager at Daylight Solutions "We were looking to stand out a bit, while still being comfortable and approachable and intuitive," he told ***IBO***.

The design started with the laser, said Mr. Barre. "The design was based around 'how do we fit the laser into a nice integrated package?'" The laser sits under the stage, and its size dictated the instrument's width and depth. Making the system compact was a challenge but important to end-user markets, particularly clinical settings. "We wanted it to be compact and integrated—to fit on a desktop. Most of the existing instruments take up most of a large lab table," explained Mr. Barre.

A compact and integrated system is a contrast to the multiple components that make up many FTIR microscopes. "We thought we could take our technology and make a nice, compact, integrated instrument that could allow us to get into some of these new applications that have not been practical before." Also contributing to the compact footprint is that liquid nitrogen is not required to cool the camera.

The system's design was also intended to communicate simplicity through a smooth exterior, except for the power button and sliders. "The slider concept is maintaining some of that familiarity for people that are used to doing microscopy," said Mr. Barre. Although familiar microscopy components are integrated, the system eschews the look of a microscope, including the eyepiece. Instead, that functionality is included in the software, indicative of how the software influenced the hardware design. "The tight integration of the hardware and the software and the software experience drove some of the hardware decisions."

The greatest challenge was the curves, as the exterior is metal, not plastic, according to Mr. Barre. "[It was] definitely a challenge to get those complex shapes and rounded corners into metal," he said. Features to increase functionality include a large open area for easy sample access and the ability to pop the objectives in and out to suit users' requirements.