

Curiosity has been a driving force throughout mankind's history. One manifestation of the inquisitive human mind is technological development, and progress will continue to be made here as long as man preserves his desire to innovate and find new solutions. So it is with ABB. Driven by the desire to understand and improve, we are constantly striving to develop new materials, new products and new solutions for our customers around the world.

In this issue: Extended automation in manufacturing; a new microdrive and an intelligent MV circuit-breaker; how magnetic forces and advanced algorithms combine to control the casting speed of molten steel; new force-sensing robot technology; ABB research in the areas of high-current vacuum interruption, high-impedance fault detection and nanotechnology; how customers benefit from basic IIT certification of our products, and much more.



Customer-oriented R&D – the key to sustainable leadership in technology



ABB's leading position in automation and power technology is deeply rooted in the company's commitment to R&D and innovation. Our customers endorse this commitment through their unwavering trust in ABB products, systems and solutions, and their reliance on our technologies solving their problems and adding value to their business.

ABB's credentials include more than 100 years of continuous innovation – the basis for leadership in areas like power systems, power electronics, control and optimization, microelectronics, wireless communication, mechatronics and software. In what is sometimes a turbulent business climate, we remain focused on our R&D targets as a way of ensuring long-term growth and profitability. ABB believes that successful industrial research is built on being both business-driven *and* at the cutting edge of development.

One way we get more business out of each dollar spent is by constantly increasing the efficiency of our R&D. We

transfer technologies and products from R&D to our business faster than ever. Our patent portfolio is also more focused, and continues to grow in strategic areas. Higher efficiency is achieved by coordinating R&D work in two global labs and through a portfolio that is fully in line with our business. Strategic planning, prioritization and management all bear the hallmark of close cooperation between our labs and best business practices.

Industrial IT remains a cornerstone of our R&D work. It is ABB's vision of the future of industry, merging process technologies and factory automation systems into a single information system. Customers benefit from the industry's broadest fully integrated portfolio of products, systems and services. ABB also utilizes the power of the new IIT technologies to increase the efficiency of internal processes, such as engineering, manufacturing, supply management and customer services.

In this issue of *ABB Review* we share with you some of the innovative technologies used in new ABB products and systems along with their benefits for customers.

For example in automation: An article shows how new force control technology lets industrial robots perform highly sensitive tasks, like assembling gearboxes for cars; we introduce the world's most compact drive unit; and you will read how the flow of molten steel can be controlled to make casting faster.

From the transmission area, we report on a new tool for modeling high-cur-

rent arcs in vacuum interrupters, and on compact, medium-voltage switchgear that combines interruption, measuring and protection capability. Controlling electrical energy stored in huge batteries – and breaking world records along the way – is yet another topic we look at.

When it comes to the cutting-edge technologies that will determine our success in the future, we work closely with leading universities. Take a look at our participation in MIT's Leaders for Manufacturing program, or at our collaborations in the area of nanotechnology.

Looking beyond R&D's contributions to the development of new technologies, a new *Review* section called 'Innovative Engineering' gives space to ABB engineers' ingenuity in adapting existing solutions to urgent customer problems. Reports in this issue take you to Brazil and the Swiss Alps, and outline ABB's role in an attempt by British enthusiasts on the world electric land speed record.

Be inspired by ABB technology and innovation, and how they are being applied.

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