

ABB engineers receive prize from Swedish king

Three radiantly happy and proud ABB engineers received this year's Marcus Wallenberg Prize – a prestigious international technology prize – from Swedish King Carl XVI Gustav at a ceremony yesterday, held at the Grand Hotel in Stockholm. ABB engineers Jouni Ikäheimo, Vesa Kajander and now-retired Bengt Welin accepted the prize for their pioneering work with the direct operation of paper-making machines. The three have constituted the driving force behind the new technology that entails significant capabilities for new machine and process configurations in papermaking.

"Receiving the Marcus Wallenberg Prize, after having worked with operating systems for papermaking machines for 24 years, is the most special moment in my entire career. It feels like we've really accomplished something and it's been well worth the time we've put in," says Vesa Kajander, project manager for development of direct operating systems for papermaking machines at ABB Oy's Process Industry division since 2000 and an innovator in the field of permanent magnet motors.

The purpose of the Marcus Wallenberg Prize, which among other things consists of a cash award of SEK 2 million, is to encourage scientific advances in the forestry industry, in a wide context. Each year, about 500 organizations from all over the world are invited to nominate candidates for the prize, which is now being awarded for the 26th time.

Bengt Welin has been the global business manager for papermaking machines' operating systems and is an innovator in the field of direct operation of papermaking machines. He submitted the project proposal for direct operation to ABB management in May 1995.

"For me, the Marcus Wallenberg Prize is the biggest recognition there is for new development in the papermaking industry," says Bengt. "I've worked with operating systems for papermaking machines and electrification systems for nearly 40 years. In principle, I've lived with direct operation for papermaking machines since the project proposal was submitted in 1995, until the first installation on a papermaking machine in 1999 and the commercial breakthrough at the beginning of 2000.

"The prize is also an acknowledgment for all employees at ABB, people in the

papermaking industry and process suppliers, as well as the consultants who have contributed to the project," Bengt adds.

Jouni Ikäheimo – design and production manager for permanent magnet motors at ABB Oy's Motors division since 1998 and an innovator in the field of permanent magnet motors – and his two colleagues, developed a system that constitutes a radical renewal of the traditional and century-old drive technology. The new technology is based on permanent magnet, synchronous motor technology and is an innovation of the breakthrough order on the industrial scale.

Bengt explains the advantages and mentions that direct operation produces better driving torque characteristics, very accurate speed regulation and high efficiency, and eliminates the need for gearboxes, pulse generators and auxiliary equipment. It provides the freedom to create new innovative machine and process configurations that are less space demanding and have simpler machinery layouts with fewer components, while at the same time, there are fewer setup tasks and lower investment costs. Furthermore, the innovation provides improved operability with fewer web breaks, higher availability with fewer mechanical faults and lower maintenance requirements. It also provides higher overall efficiency with minimal idle time and reduced life cycle costs.

Systems based on direct operation have environmental advantages regarding energy and oil consumption, machinery noise and operator safety. If direct operation was implemented on all papermaking machines with wire widths of over five meters, for example, energy consumption could be potentially reduced by about 400 GWh in Europe and more than 1,200 GWh worldwide. This can be translated into savings of the magnitude of one coal-fired power plant in Europe and two globally.

"This year's prize is an excellent example of innovative new thinking and entrepreneurship that enable significant reductions of energy consumption and climate-impacting emissions, while at the same time, the cost of producing paper can be decreased," said Marcus Wallenberg, chairman of the Marcus Wallenberg Foundation, in a speech during the ceremony.

Vesa Kajander reflects on the project and how important it is with its new approaches. "This is a shining example – things are often done in the same way as they've always been done before. We succeeded in waking up machinery builders and getting them to open their eyes to new solutions, even beyond the papermaking industry."