

ABB PillowBlock tension measurement systems – quality tension measurement for quality tension control

Keeping the tension constant in web processes is essential for high product quality and productivity. By **Martin Ottosson**, Market Communication Manager, Force Measurement, ABB Sweden

In paper and board mills, in a wide range of converting operations and in plants processing textiles, plastics, rubber or almost any web material you can think of, you'll find ABB PillowBlock tension measurement systems. The performance of the PillowBlock load cells is unsurpassed for applications characterised by heavy rolls, high speeds and severe conditions – in some instances they're the only viable option. The key reason is the operating principle. ABB PillowBlock load cells produce signals as a result of magnetic change, which frees them from the inevitable limitations and design compromises of measurement technologies relying on some form of physical movement.

The result is a load cell that combines strong, low-impedance signal output with an exceedingly stiff and rugged construction. A reliable, high-performance load cell with exceptional resistance to vibration, overloads, extreme temperatures and otherwise harsh environments. A complete PillowBlock measuring system consists of appropriately sized load cells and tension electronics. A junction box is sometimes used to simplify the cabling and reduce cabling costs.

ABB offers two different types of PillowBlock load cells: one design intended for conventional vertical force measurement, and a second, unique design that measures only the horizontal force component resulting from web tension on a roll. Several models and nominal loads are available



ABB Force Measurement has supplied Holmen Paper AB Braviken, Norrköping, Sweden with, in total, 40 Pressductor PillowBlock Load Cells

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in standard stainless steel constructions as well as in acid-resistant and mill-duty versions. The user-friendly digital signal-processing electronics provides a high level of functionality to cover a wide range of applications.

THE PRESSDUCTOR® DIFFERENCE

Like ABB's other load cells based on Pressductor® Technology, PillowBlock Load Cells rely on electro-magnetic changes in the transducer, not on physical movement, to sense fluctuations in web tension. The Pressductor® Technology operating principle provides exceptional improvements in load cell performance characteristics, including reliability

(notably absence of drift), durability, repeatability, and wider measurement range. Machined from a solid block of steel, the load cells are rugged and stiff, affording high overload protection as well as an extended measurement range above the nominal capacity. And they won't contribute to machine vibration, even at high speeds. Since the transducer action – the magnetic flux – takes place inside a steel core, environmental factors like dirt or fluids can't degrade performance and reliability. Furthermore, low transducer impedance – less than a couple of ohms – helps eliminate susceptibility to radio-frequency and electromagnetic interference. For more info visit www.abb.com/pressductor.

TENSION MEASUREMENT

CASE STUDY

Holmen Paper Braviken's paper machines, calenders and winders are running with Pressductor PillowBlock load cells providing accurate web tension measurement

Holmen Paper's operation in Braviken, Sweden has successfully installed Pressductor PillowBlock load cells in their paper machines, calenders and winders.

Since the very start of the Braviken paper operations in 1977, ABB's Pressductor load cells have been installed in the paper machines and calendars and are still running with accuracy and reliability.

In addition to the good load cell quality there have, over the years, been improvements of the tension electronics. Now, in order to learn more about the development in tension electronics the mill management gives a push for training of the products and systems.

As Mr. Mats Alfredsson, Manager Electric and Control Systems and Mr. Peter Othberg, Group Manager, put it: "The more knowledge we and the operators have about the PFEA Tension Electronics and the Pressductor load cells, the sooner Holmen Paper Braviken will exchange into new modern tension electronics as well as into further developed ABB load cells. We always want to keep our staff in the frontline and also updated on the latest developments; this will favour our maintenance organisation in the most efficient way."

Holmen Group produces almost 2.5 million tonnes of paper and paperboard. Holmen Group is Europe's fifth largest producer of printing paper with a total capacity of 1,900,000 tonnes per year. When it comes to virgin fibre board, Holmen is Europe's third biggest producer with an annular capacity of 530,000 tonnes. The annular production capacity for sawn timber is 860,000 cubic meters.

Holmen Paper is a business area within the Holmen Group. The head office is situated in Norrköping. They are one of the leading manufacturers of wood-containing printing paper in Europe with paper mills in Norrköping, Sweden, Hallstavig, Sweden and Madrid, Spain.

Total production capacity amounts to 1.9 million tonnes a year. Total turnover is approximately SEK 8.1 billion. Average number of employees is 2,000.

Holmen Paper produces wood-containing printing paper, mainly for magazines, catalogues, supplements, advertising matters, books, daily newspapers and telephone directories. Holmen Paper offers quality products, excellent service and qualified technical advice to daily newspapers, retailers, telephone directory companies, publishers and magazine publishers. They continuously strive to strengthen their position as a dedicated partner. Close communication with their customers' results in better products and new value added solutions.

For more information, visit www.holmen.com.



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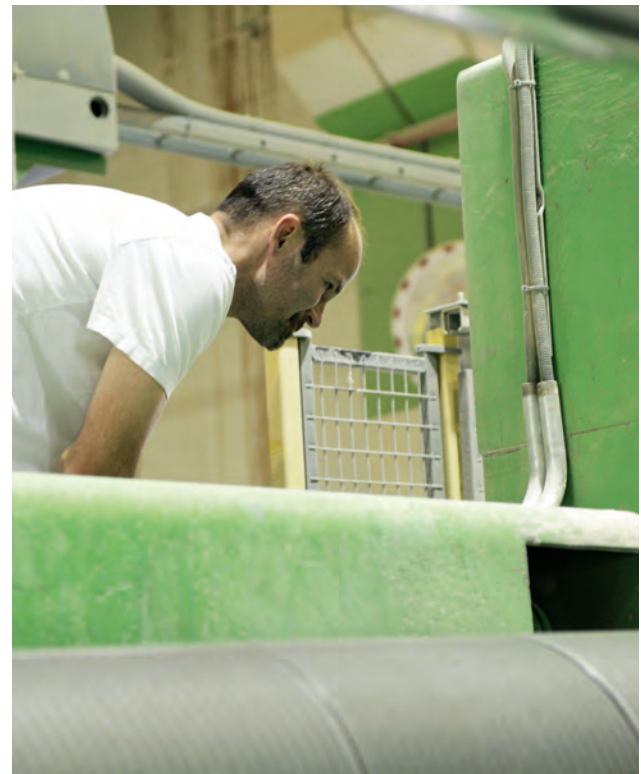
WHAT HAS BEEN ACHIEVED?

We ask Mr. Mats Alfredsson, Manager Electric and Control Systems and Mr. Peter Othberg, Group Manager, who concordantly express their opinion about the ABB Pressductor load cell installations:

“We are happy with the Pressductor installations. The ABB load cells have been installed since the start of the operations and we have positive things to say about them. ABB’s Pressductor load cells are robust and durable with stable signals for stable measurement. Ever since the Pressductor PillowBlock load cells were installed and commissioned in 1977 they have been running well.

“The PFEA tension electronics is working well. The display is easy to operate and there are many functions to take advantage of. Our ambition is that the entire service and maintenance organisation should have more skills about the ABB load cells and tension electronics. In general, the ABB load cells have been running well and we feel secure of the stable measurements that we achieve from the load cells day after day, month after month, year after year.”

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FACTS ON HOLMEN PAPER BRAVIKEN SITE:
HOLMEN PAPER AB BRAVIKEN, NORRKÖPING, SWEDEN
Capacity: 750,000 t/year
Export: > 80 %
Workforce: 580
Products, brands: Wood-containing printing paper, mainly for magazines, catalogues, supplements, advertising matters, daily newspapers and telephone directories.
Braviken’s best known papers include white and coloured newsprint, among others the pink paper that is used by the financial press and sports press.
Applications: Paper machines, calenders and winders
ABB load cells installed: Pressductor PillowBlock Load cells, model PFTL 101A/101B, are the most common load cells installed

