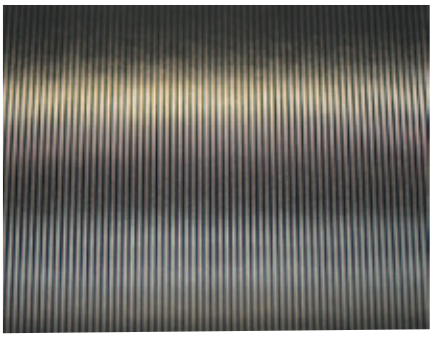
SPECIAL REPRODUCTION

apr

AKTUELLE PAPIER-RUNDSCHAU

CROSSMEDIA-INFORMATION FÜR ENTSCHEIDER DER PAPIERWIRTSCHAFT

2013 | Nr. 03
www.apr.de



View of the G-cover of UPM Hürth coated with hard metal

Nipco roll of UPM Hürth, covered with new Gcover of Karhula – In the photo: Ralf Blankartz (left) and Johann Stimke of UPM Hürth

[TITELSTORY]

"G-GROOVE" – GROOVED STAINLESS STEEL COVER FOR RICHTER KARHULA PRESS ROLLS

Grooved stainless steel press roll covers are particularly suited for high dynamic loads as well as high machine speeds and line pressures, yet also for high chemical, thermal and particular abrasive exposures.

But the most essential advantage of the so-called G-Covers is the maximal and constant drainage capacity. Yet its economic use does not start only where grooved polymer roll covers hit their limits, rather it comes to bear much earlier depending on the use conditions.

Grooved stainless steel covers since 1971

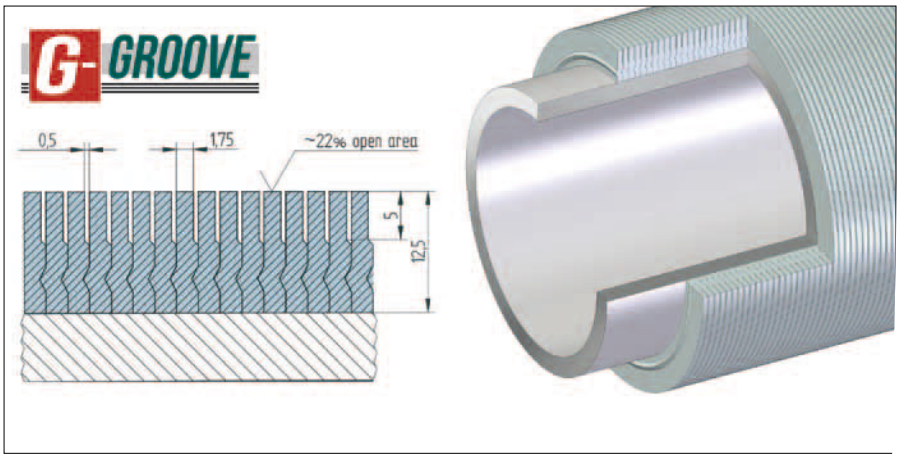
Grooved stainless steel covers for the press section were developed by the paper machine manufacturer Ahlstrom in the Finish factory of Karhula as early as in 1971. These covers were patented and marketed as the so called A-cover. For this A-cover, roll tubes were cladded with thick stainless steel plates. In the process, the plates were rolled into shells with an internal diameter matching the external diameter of the press roll body, and they were then welded onto the roll tube. Subsequently, the drainage grooves were milled into the stainless steel cover.

Based on the great success, the Metso paper group, still under its old name Valmet, also developed a grooved stainless steel cover shortly thereafter, for which however a precision milled, highly corrosion resistant stainless steel band was wound vertically onto the roll tube. The grooves are created automatically in this procedure from the special geometry. In terms of fabrication processes the covers called G-covers proved to be more advantageous and were therefore introduced in the new manufacturing process at Karhula following to the takeover of the factory by Metso in the year 1987. Three suppliers worldwide After the patent rights expired, Voith Paper developed an accordant G-cover. The first G-cover of its own production was used in 2007 in a new newsprint paper machine of Holmen Paper in Madrid .Today Metso, Voith as well as the independent, former Metso factory in Karhula (represented by the company Richter/Düren) are worldwide the only three suppliers of G-covers on press rolls. The covers are suitable for both conventional as well as deflection compensating rolls.

Between 1971 and 1990, more than 400 roll tubes of both conventional as well as deflection compensating rolls have been covered with A-covers in Karhula. Since Metso takeover in 1987 until the present day, more than 300 rolls or shells are fitted with G-covers in Karhula – in most cases even including a newly manufactured roll body or shell. Besides customers in the paper industry and Metso, many original equipment manufacturers, such as Voith, Küsters, Beloit, Escher Wyss have been supplied with the resistant, grooved stainless steel covers as well as complete rolls in the past. Today, most of all GapCon and Andritz Küsters are among the OEM customers. While the grooved stainless steel covers were initially used primarily in machines running at high speeds (>= 800 m/min) as are common in the production of newsprint pape , they are used today in the production of a wide range of paper types in different press concepts (independent of the manufacturer of the press). For example, in large, modern corrugated cardboard machines, G-cover is used in two consecutive shoe presses. A further field of application is shoe presses in modern pulp machines.

Low wear and tear

The G-covers from Karhula are available in the market under the name G-Groove and can not only be used as replacements of existing G-covers from Voith and Metso, but also as replacement for grooved polymer covers.



Press rolls G-cover from Karhula is a grooved stainless steel cover spooled onto a roll tube. It is used in a variety of rolls, from conven-tional rolls to shoe presses.

The low wear and tear on the G-Groove cover would automatically leads to longer running times between two grinding intervals, according to the manufacturer. The running time between two required roll intervals could moreover be considerably prolonged by the use of Wolframcarbide (Tungsten) coatings. Rolls equipped with grooved stainless steel covers are characterized by high form stability and, even at very high press loads, they keep continuously stable, open groove surfaces. Additional advantage: the already twice as large void volume remains preserved by the double groove depth of a G-cover in comparison to polyurethane, while the PU grooves lose depth with every subsequent grinding and consequently their dewatering capacity deteriorates as well. According to Jari Hämäläinen, general manager of the factory in Karhula, the constant, optimal dewatering capacity and the reduction of standstill times thus also achieved the efficient operation and maximum economic profitability in consequence.

By virtue of their high resistance to wear and tear, the grooved stainless steel covers are likewise more persuasive than polymer covers in terms of high-pressure cleaning, roll scraping and mechanical cleaning. Furthermore, they are distinguished for their greater temperature resistance, and because they do not require roll cooling since no additional temperature increases occur by flexing. In addition, they are more resistant against chemicals and water absorption. Generally cover repairs are also possible. This can even be done on site, e.g. by welding, when uncoated G-covers are used and if the damages are of a lesser degree. For greater damages, an entire "subsection" of the existing G-band can be replaced in the factory. Even with up to 25% of the entire surfaces, such a replacement can still make economically sense.

Since 1971 until today, more than 700 stainless steel groove covers have been supplied both without new roll body as well as together with new roll body directly from Karhula for press sections around the world.

Sales of the Gcover from Karhula under the brand name "G-Groove" are implemented by the company Richter from Düren in Central Europe, sales in Scandinavia are implemented directly through Karhula. The G-Groove is available, as are the corresponding covers of Voith and Metso, both as the uncoated as well as the hardmetal coated model. DB

History of the Karhula factory and the G-cover

1889 *Founding of the "Karhula workshop" as repair shop for machines for the wood and paper industry.*

1905 *The first headbox is built.*

1908 to 1911 *Construction of the first three board machines.*

1915 *Ahlstrom buys the Karhula workshop.*

1948 *Ahlstrom Karhula designs and builds the first Finish paper machine for Tervakoski.*

1948 to 1987 *Ahlstrom Karhula establishes itself worldwide as supplier of the paper industry for complete paper and pulp machines as well as their components and service.*

1971 *Ahlstrom Karhula develops and patents the grooved stainless steel press roll covers. The grooves are milled into these covers. The cover called the A-cover around the world is sold until 1988.*

1987 *Valmet (today Metso) buys the paper machine manufacture in Karhula from Ahlstrom and focuses the production on the field of roll technology, particularly swimming deflection compensating rolls.*

1988 *Valmet replaces the Ahlstrom A-covers by its own development of the G-band roller covers of spooled stainless steel band.*

1989 *The first swimming deflection compensating roll is delivered from Karhula to Kämmerer of Osnabrück.*

1995 *The first zone-controlled deflection compensating roll is designed and produced.*

1999 *Valmet changes its name to Metso.*

2000 to 2004 *Metso sells the Karhula factory to the companies Mesera and Sulzer.*

2007 *Voith has established its own G-cover production and manufactures its first, self-developed G-cover, and sells it worldwide under the name G-Flex.*

2012 *Richter Düren takes over sales and distribution for Mesera Karhula rolls and the G-groove cover in Central Europe.*

Until today more than 700 individual A- and G-covers have been applied to existing roll tubes or to roll tubes newly produced in Karhula.