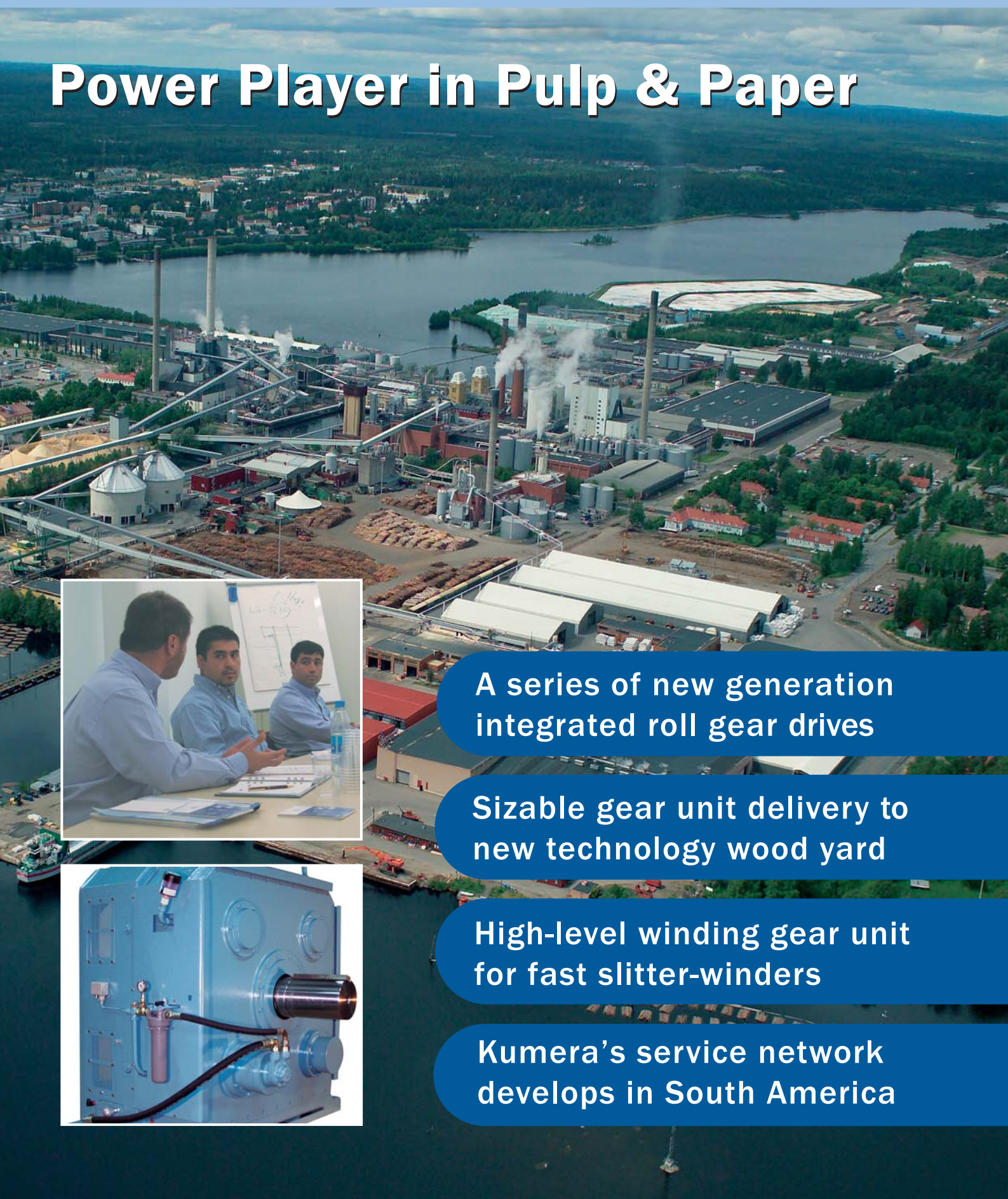


# KumerAction

KUMERA News 1/2007

PulPaper 2007

## Power Player in Pulp & Paper



A series of new generation integrated roll gear drives

Sizable gear unit delivery to new technology wood yard

High-level winding gear unit for fast slitter-winders

Kumera's service network develops in South America

## A new generation of roll gear units from Kumera Drives Oy

*Kumera Drives Oy is developing a new, technologically advanced series of roll gear units for all paper machine rolls. The new roll gear units will operate integrated into the drives of paper machine wire, press and dryer section rolls.*

The project is based on the experience obtained from design and development of earlier manufactured and delivered gear units.

Utilising the internal strengths of Kumera Corporation guarantees cost efficiency and short delivery times for the products. When parts critical from the delivery point of view, such as the gear housing and its internal components, are manufactured in the Corporation's own production plants, the manufacturing time can be kept as short as possible.

The roll gear units to be manufactured will also be test-run under load at high speeds, so that the quality of the end product can be ensured.

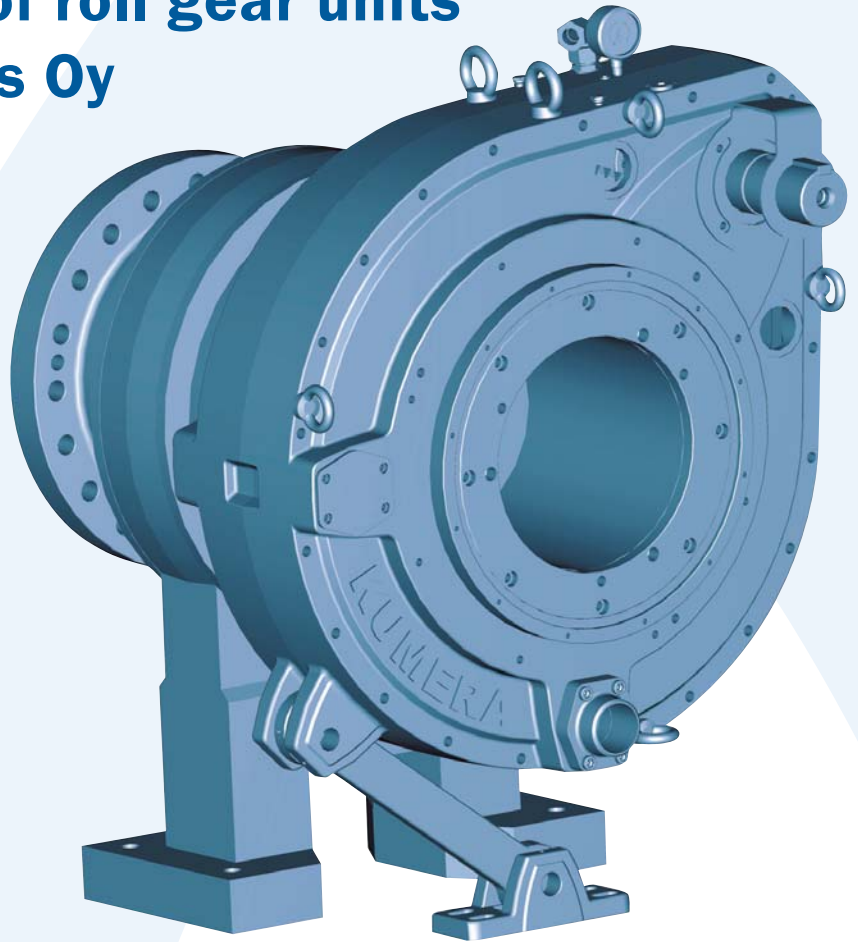
### Customer-friendly solution

As starting points for the development of a new set of roll gear units we have used solutions based on the requirements of paper machine applications as well as customer needs. The aim is to develop gear units integrated with paper machine rolls, with the following characteristics:

- \* operational reliability
- \* maintenance-free
- \* simple construction
- \* vibration-free
- \* light construction
- \* industrial design

Operational reliability is achieved through the careful design of gear units and their components and through tight quality assurance. This means that the roll gear units work flawlessly and thus guarantee the high availability of the paper machine.

Maintenance-free means that the op-



erators can forget about the existence of the roll gear units and can concentrate on running the machine.

A simple construction makes maintenance easy.

Freedom from vibration is utterly important, especially when the machine is being run at full speed.

Lightness of construction makes installation of the gear unit onto the roll as well as its removal easy.

The point of industrial design is to achieve a structure that simplifies the installation and maintenance of the gear unit and collects as little dirt as possible and is easy to clean.

In product development, Kumera Drives Oy uses new 3D and CAM tools. Utilising the parametric characteristics of the 3D CAD software takes the design process of the gear units and their components up to a completely new dimension. 3D also enables the full-scale utilisation of CAM in the manufacturing process of roll gear housings and other parts.

In order to ensure product quality and functionality, a so-called Failure Mode Effect Analysis (FMEA) is carried out on the product, as well as on the entire product development process. It is used to chart the probability of different malfunctions and the seriousness of the damages caused to the process. Thereby it is possible to identify the parts and characteristics that must be especially focused on during the product development process.

### All in one package

Kumera Drives Oy aims to supply not only gear units but also all other components of the power transmission chain in a complete package. All these components are then assembled into a well-functioning unit. A delivery includes the gear unit, couplings, flexible drive shafts, guards and the design of the foundation. In addition to high-quality products, the customer is also provided with the benefit of the complete availability of service and flexible product design.

## Andritz's sizable gear unit order of new technology for wood yard

At the end of 2006, Andritz Oy ordered Kumera gear units for Stora Enso Oy's new dual-line wood yard. Stora Enso is building a wood yard for its Varkaus plant, which has a chip processing line representing the latest technology. The equipment supplier is Kumera Drives Oy's long-time customer, Andritz Oy from Hollola.

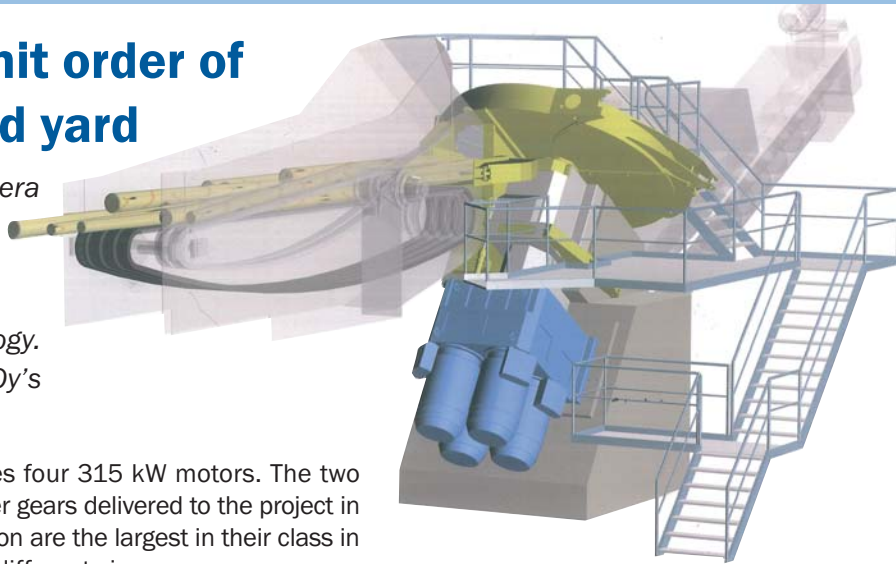
The development of a high-capacity chipper producing top-quality chips has been a challenging task for Andritz. As customers have become more demanding, Andritz has created the horizontally fed HHQ-Chipper, which incorporates a CHG-chipper gear unit manufactured by Kumera Drives Oy. This gear has been designed especially for chippers produced by Andritz. Kumera has been delivering chipper gears for many years and hundreds of references from all over the world testify to their reliability.

The chipper gear unit has been designed to withstand great loads. It incor-

porates four 315 kW motors. The two chipper gears delivered to the project in question are the largest in their class in three different sizes.

### Typical drum drive concept

The dual-line wood yard's debarking drum drives and girth gears are based on Kumera's typical drum drive concept. This concept includes segment-constructed girth gears, gear units, pinions and accessories, such as pressure lubrication units and couplings. Manufacture of girth gears and drum drives is a core skill of Kumera Drives Oy.

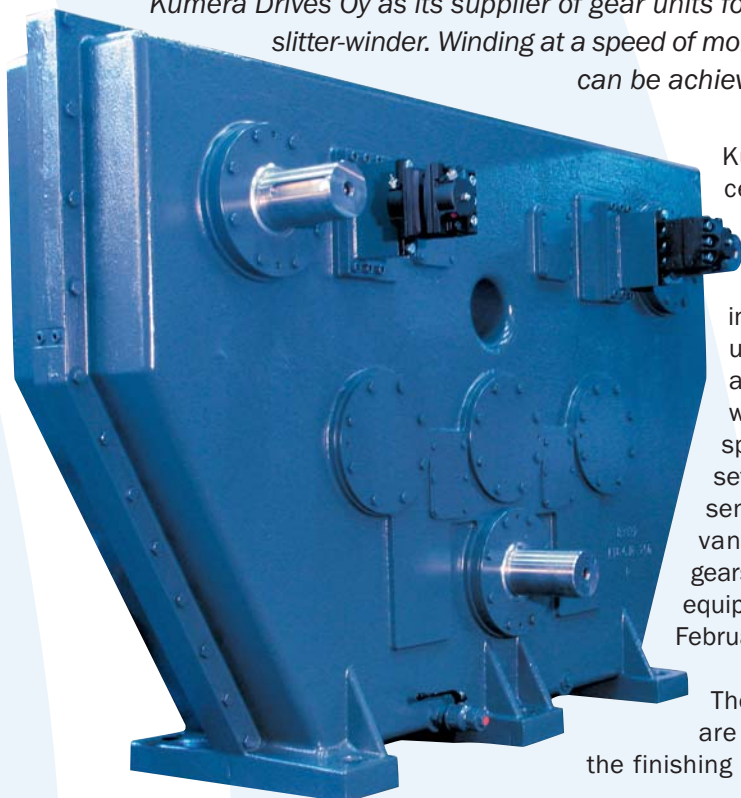


*The CHG-4x595 chipper gear unit can withstand great loads in the horizontally fed HHQ-Chipper.*

In addition to chipper gear units, girth gears and drum drives, the order includes many different gear units for wood yard conveyors and screws. The order was delivered during autumn 2006 and spring 2007.

## High-quality gear unit technology for Metso's fast slitter-winders

The paper machine manufacturer Metso Paper Oy Järvenpää has selected Kumera Drives Oy as its supplier of gear units for the world's fastest slitter-winder. Winding at a speed of more than 3,000m/min can be achieved by this machine.



Kumera Drives Oy received the order from Metso Paper Järvenpää in September last year. The order includes two LPU-series unwinding gear units and two LPW-series winding gear units and spare gear units. Both sets of gear units represent Kumera's most advanced technology. The gears were delivered to the equipment manufacturer in February 2007.

The delivered gear units are typical gear units for the finishing line. In 2006, similar

gear units were delivered to Finland, Germany, Brazil, and China. The construction of both LPU and LPW gear units is based on Kumera's reliable standard gear units.

### High standard winding gear unit

Structurally, the LPW gear is a traditional helical gear unit, with one incoming shaft and three outgoing shafts. The rotational clearance of the gear wheels is balanced between different output shafts. All gear lubrication points are separately lubricated by a water-cooled pressure lubrication unit. The brakes are integrated into the output shafts.

In design, particular attention has been paid to the smooth and noiseless running of the gear, and to its high efficiency ratio. These goals have been reached through such things as a cast-iron housing optimised by FEM vibration analysis, exact balancing of rotating parts, and advanced special gearings.



## Kumera Drives Oy's certified service partner in South America

Brazil: TPI Tecnologia e Produtos Industriais Ltda.

Chile: Maestranza Diesel Ltda.



Kumera Drives is improving its service network in South America by establishing certified service centres. The aim is to serve end-customers more efficiently and rapidly than ever before. The service personnel trained by Kumera are providing gear unit servicing, both at local service plants and at customers' sites. Kumera's service partners are also acting as local sales representatives for new equipment.

Kumera Drives Oy's certified service centres	
Brazil 	Chile 
TPI Tecnologia e Produtos Industriais Ltda. <a href="http://www.tpi-br.com">www.tpi-br.com</a>	Maestranza Diesel Ltda. <a href="http://www.md.cl">www.md.cl</a>
Location: Sao Paolo	Location: Santiago Antofagasta Concepción
Branch: pulp & paper industry	Branch: mineral industry mining industry pulp & paper industry
Local sales representative Local service centre	
<b>Products:</b> New gear units Spare gear units Spare parts Replacement gear units	<b>Services:</b> Overhauls and repairs Assemblies Supervising of Assemblies Modernizations Start-up service Technical support Training Service contracts

## Maestranza Diesel in gear unit training at Kumera

In March 2007, representatives of our new Chilean partner, Maestranza Diesel visited Riihimäki for one week's training on gear units. The course included both theory and practice at our plant.

The technicians from Maestranza Diesel considered the instruction they received on gear assembly as particularly important, as they were able to assemble gear

units under the guidance of Kumera technicians.

The expertise of Maestranza Diesel supports Kumera's business goals in the Chilean market, and a local support organisation is especially important for end-customers, both in questions regarding products and in the local servicing of gears.

In Chile, Kumera already has a broad customer base in gear units, not only in

the mining and mineral industries, but also in pulp and paper.

Maestranza Diesel Ltda is a well-known service and engineering company in Chile. The company was established in 1942. The agency agreement with Kumera Drives Oy was concluded in January 2007. In addition to Kumera, companies represented by Maestranza Diesel also include Sulzer, Rexroth, Sulair, Dana, Nash etc.

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