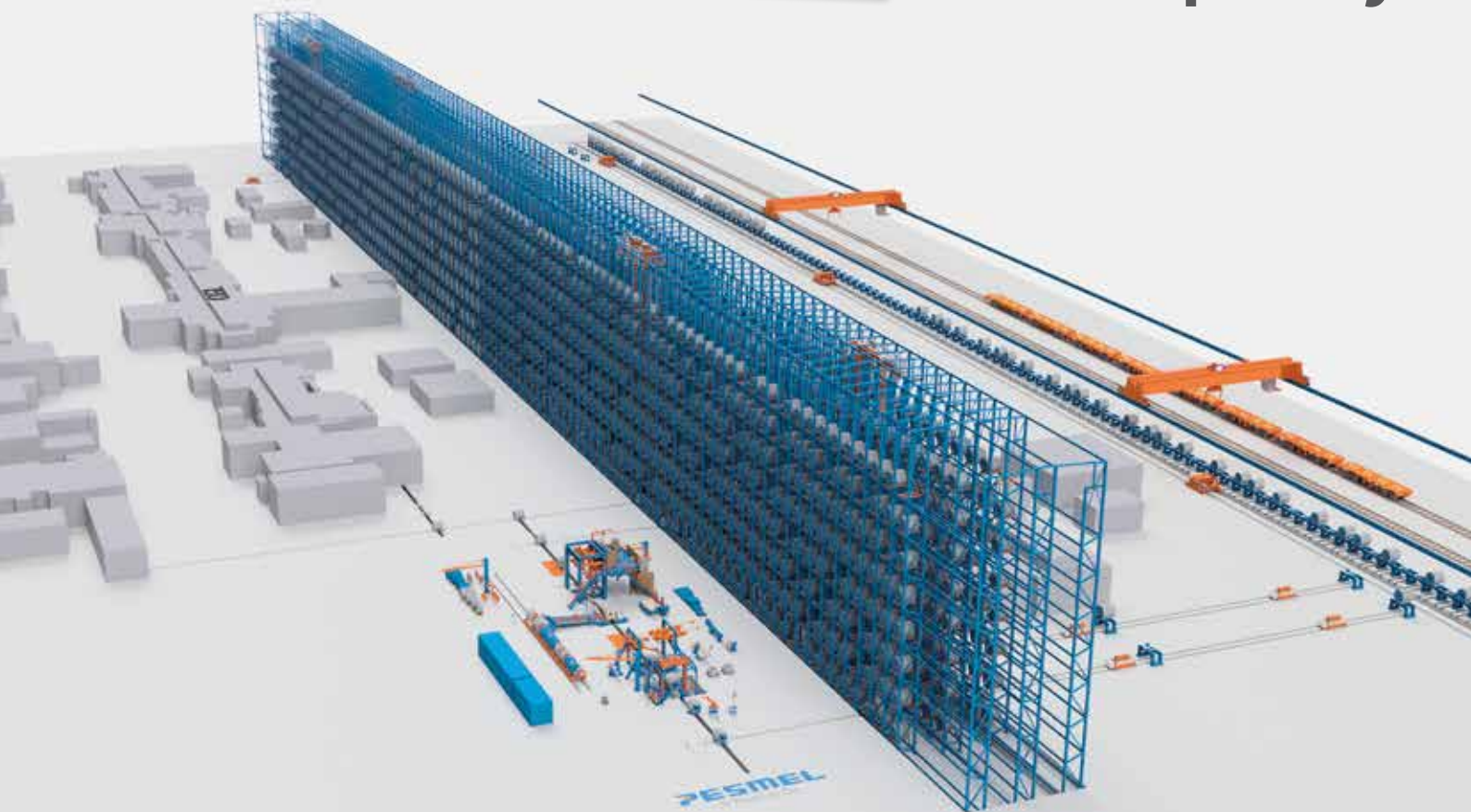


# NewsFlow

2018 • Metal



**Pesmel**  
40 years  
of quality



**Ideal Material Flow How<sup>®</sup>**  
integration at  
**Outokumpu**

From warehousing  
to a distribution center:  
**optimal internal logistics**

**PESMEL**

# NewsFlow

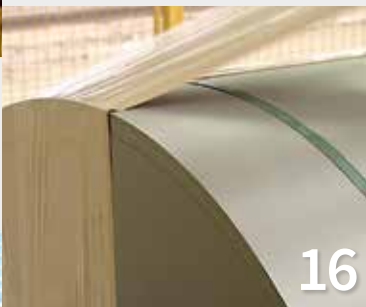
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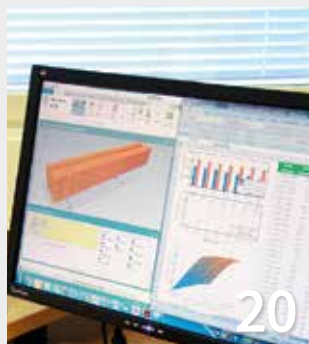
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**Publishing year:** 2018



Tony Leikas,  
President and CEO,  
Pesmel Oy

PHOTO: PEKKA NIEMI

## Editorial

Pesmel is celebrating its 40th birthday this year. We are moving towards “middle age,” with a lot of experience and knowledge of material handling systems and our customers’ businesses. In this magazine, we think back over the past four decades (page 4) and introduce some of our people and departments in more detail. It is great to see that we still have the same enthusiastic and innovative spirit as we did in the early years.

In recent years, our long-term work with highly automated packing systems has paid off and gained global attention among discerning customers. Between 2014 and 2017, we delivered 18 complex and demanding automated packing lines. One example of such a packing line in this magazine is the delivery to VAMA (page 16). This amount of deliveries and great references has significantly strengthened our position in the market. We also want to be proud of our products, and so we have carried out lots of research work and studies together with our customers, in theory and in practice, to ensure that we offer the best moisture protection on the market.

Pesmel's packing lines – and especially our storage systems – offer a golden opportunity to develop the manufacturing business even further by focusing on the internal logistics of mills. Turning the storage facility into an automated delivery center and focusing on developing material flows results in big savings. The article on page 12 focuses on this topic. Designing and implementing automated internal logistics is our core competence, and we feel we have a lot to offer our customers in terms of experience and practical knowledge in this field.

During this period of growth, we have put our own focus on system software and software development. In recent years, the ICT department has grown two to three times faster than other departments, and we have allocated over 5 percent of our turnover to research and development in the past two years. We believe that when we put resources into machine and software development, we are investing for the future – as do our customers.

Tony



# 40 PESMEL YEARS

Pesmel will turn 40 at the end of 2018. The company has reached a respectable age, but is as innovative and passionate about creating new engineering solutions as ever.

## THE EARLY YEARS

Pesmel was founded by two sets of brothers, **Hannu** and **Jari Mäki-Rahkola**, and **Pekka** and **Pauli Rahkola**. They first provided electrical installations for both consumers and companies, but machine industry was on their minds from the start. It all really kicked off when Jari started working full-time at Pesmel in 1980.

Quite soon, the Rahkola brothers moved on to other challenges, selling Pesmel to Hannu and Jari, who became the face, body and soul of the company.

Jari Mäki-Rahkola and Hannu Mäki-Rahkola 1980



“When the operating personnel heard that there is programmable logic in the equipment, they believed that no less than an engineer could use it. However, the only thing to use in automated equipment was a switch that had to be turned when the equipment was started. This problem has been eliminated by involving the operating personnel in the trial run.” (Hannu Mäki-Rahkola, presentation on the automation of a storage and conveyor system for parceled goods, 1984)

Ekokem 1984



## 1980s: THE BEGINNING OF AUTOMATION KNOW-HOW

Pesmel's first machine workshop was in a barn in 1981, where Pesmel took its first steps as a pioneer in material handling. In the early 80s, wired relay technology was becoming obsolete with the arrival of the first programmable logic controllers. Hannu quickly learned about PLCs to get a head start over the competition.

One of the first deliveries with a modest logic was a stacking machine for Rauma-Repola in 1980. Slowly, the machine industry side expanded, with automation increasingly involved. The electrical department grew simultaneously.

The first notable delivery was an extensive waste handling system for Ekokem in 1984, which included an innovative Ex zone.

“There wasn't much knowledge of Ex zones in Finland. We investigated thoroughly and created one as part of the very first, very big waste material handling systems,” says Jari Mäki-Rahkola. “The performance of the facility was our first real test.”

On the electrical engineering side, the biggest project was at the Shemyakin Institute in Moscow, which employed 25 electricians for a year in 1988-1989.

“Compared to the Ekokem project's Ex zone and dirty surroundings, this was the opposite. Shemyakin is a bio-organic chemistry institute with cleanrooms. We always say that we take the most difficult projects,” says Jari.

In the 80s, Pesmel had many big machinery projects in the Soviet Union. At the end of the 80s, Pesmel built a film wrapping machine for Metsä-Serla, and another for Rauma-Repola. After that, there was a break in deliveries – the innovation came too early.

“We were ahead of our time,” says Jari. “Customers didn't believe that you could wrap paper products with anything else than paper. At the turn of the decade, we were like missionaries preaching about film wrapping. When the change happened, it was of course a benefit for us that we already had the solution ready.”

In the mid-80s, Pesmel employed programmers, and Hannu and Jari focused on sales and running the company.

“In the 80s our ‘engineering drive’ was born. With the people we had, we felt that nothing was impossible,” says Jari.



1990s: ECONOMIC DEPRESSION AND STRONG COMMITMENT

“Without the 80s boom, we probably wouldn’t have survived the 90s,” says Jari.

The financial crisis that Finland faced and the fall of the Soviet Union were tough for Pesmel: Hannu and Jari didn’t pay themselves any salary, some people worked on partial salary, and others were laid off. These measures helped them through three hard years.

“We survived three years, but we wouldn’t have made it through a fourth,” says Hannu Mäki-Rahkola.

The first international contract was a film wrapping machine for the Aussedat Rey in France. After this, many more projects followed, for example the first wrapping machine delivery to East Asia in 1993.

After the recession, digitalization moved forward. Drafting tables were replaced when computer-aided design took off. Pesmel had already gained a position at the forefront of automation, and the increased use of automated process handling systems made it possible for the company to grow. Here, Pesmel also became aware of the possibilities of digitalization. Competitors had to outsource automation design, whereas Pesmel had their own resources.

“The principle has always been that we kept whatever we got, whether it was money or people,” says Hannu. “Our people are extremely committed, which makes it possible for us to gain more experience, which in turn makes possible to develop new things.”

“Our people are engineering-driven. That spirit has always been overwhelmingly in the development of technology,” says Jari.

During the 90s, Pesmel made acquisitions. Pesmel AS is a production facility in Estonia, acquired in 1996. AWA Advanced Warehouse Automation delivered warehouses for the paper and metal industries, and later merged with Pesmel. Cimcorp manufactures automated robotic solutions for intralogistics in many industries, and Pesmel complements the deliveries by building the needed conveyors.



Aussedat Rey 1992

2000 & 2010: TRUE GLOBALIZATION

In the 2000s, Pesmel’s quality system was certified. Projects for the metal industry started to grow and expand to Europe, with warehouse projects for Outokumpu strongly influencing this. There were many deliveries for the parceled goods industry, and exports grew to 80% of sales. Also, the IT design department developed in huge steps.

“The financial crisis of 2008 hit sales, and Pesmel had to rethink its position in the world,” says **Tony Leikas**, CEO of Pesmel. “We reorganized the company: the core remained, but functions were renewed.”

In 2011, Pesmel renewed its strategy considerably, selecting the customer branches in which they wanted to operate: paper and metal.

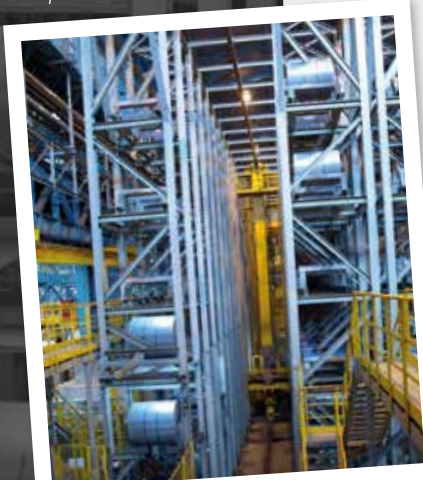
“We are at our best in highly automated systems: internal logistics, packing and warehouse solutions. In these we are competitive; they are demanding, and that suits Pesmel well,” says Tony.

In the early 2010s, Pesmel’s focus was on Asia. In 2014, 75% of the turnover came from India and China.

“We have moved from machinery and small production lines to comprehensive systems thanks to digitalization and our ICT knowhow. We have succeeded in genuinely integrating machines and ICT, because we have all the needed resources and knowledge in-house,” says Tony.

Pesmel has been growing strongly since 2013, and in 2017 the company’s turnover exceeded EUR 50 million.

“Currently we deliver to the Americas, Asia and Europe. We have become truly global.”



CSC Taiwan 2010

# We know the flow

SPAREPARTS  
please contact:  
service@pesmel.com



SPARE PARTS



MAINTENANCE



HELPDESK



FLOWCARE 2.0



UPGRADES

**PESMEL**

**Europe**  
Mr. Ari Mäkinen  
Tel. +358 207 009 639  
ari.makinen@pesmel.com

**Indonesia**  
Mr. Rasiman Aguspen  
Tel. +62 811 807226  
rasiman@pesmel.com

**China**  
Ms. Jeany Liu  
Tel. +86 13006161741  
jeany.liu@pesmel.com

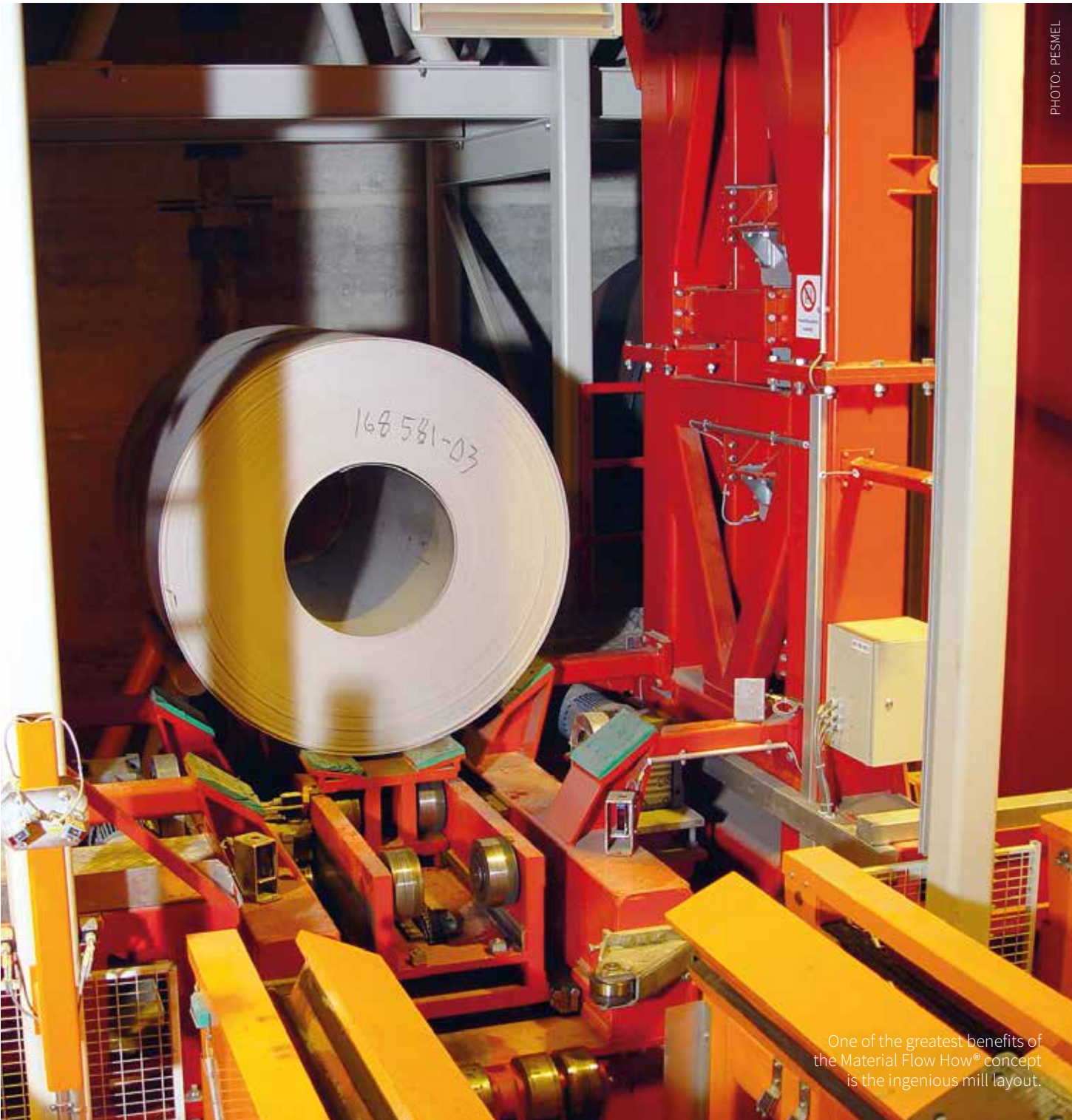
**Taiwan**  
Mr. Alex Lin  
Tel. +886 (0) 928716391  
alex.lin@pesmel.com

**India**  
Mr. JS Srikumar  
Tel. +91 9600 183 772  
srikumar.js@pesmel.com

**North America**  
Mr. Patrick Jones  
Tel. +1 (920) 248 3878  
patrick.jones@pesmel.com



# IDEAL MATERIAL FLOW HOW® with superb internal logistics at Outokumpu



Pesmel is all about smooth internal logistics that seamlessly connects the production process and storage operations, without any bottlenecks or unnecessary steps. Outokumpu's RAP5 cold rolling, annealing and pickling line in Tornio, Finland, represents the perfect union between storage and production.

In ideal internal logistics, storage is not just storage. Instead, a storage facility is a carefully designed internal distribution center that forms an integral part of the production process and ensures a fast and flexible material flow, increasing the production output of the whole mill a notch or two. Pesmel's ideal solution achieves this through an ingenious mill layout where storage facilities are built right next to the processing line from start to finish. Pesmel and Outokumpu share a long history. Pesmel has delivered high-bay storage solutions and packing lines to several Outokumpu production units in Finland, Sweden and the Netherlands. Recently, the two have also been working together in software development.

## Built for maximum efficiency

At Outokumpu's RAP5 line, in operation since 2003, the production process is integrated with a single long high-bay storage facility that offers great capacity in a simple layout. The facility is more than 500 meters long, 30 meters high and 7.5 meters wide, and it houses up to 2,000 coils with a total weight of 60,000 tonnes. After more than ten years of operation, this solution's level of integration is still unmatched anywhere in the world, which clearly demonstrates Outokumpu's position as a pioneer of advanced production technology and concepts. The storage capacity can be flexibly adjusted for various product types and coils that are at different stages of the production process. The same storage system houses the hot-rolled coils used as raw material for the line, all the cold-rolled coils waiting for the next processing phase, and finished and packed products ready for delivery. This removes the need for many separate storage units located around the mill complex.

The streamlined process and real-time control help eliminate delivery errors and shorten lead times considerably. Optimal material flow can be maintained with a smaller buffer. Furthermore, the storage solution uses no cranes that could damage the coils. Instead, coils are always lifted from below with cushioned elevators, which ensures the flawless condition of the final product. The lack of overhead cranes also means a safer working environment for the staff.

## The integrated internal logistics and production process

In this integrated solution, the machinery automatically moves the coils to and from the production line as they go through various processing phases. The entire system is very simple: three elevators and approximately ten transfer carriages are able to manage all operations.

The figure below describes the joint process of the RAP5 line and the integrated high-bay distribution center. Hot-rolled coils arrive at the production line on a special carriage that holds four coils, and are automatically unloaded into storage.

When the RAP5 line is ready for the coil, the elevators and carriages quickly bring it to the right place, and processing begins. During production, the coil may move between storage and the production line several times, depending on the specific process chosen for each coil.

After the cold-rolling process for the coil is complete, it enters Pesmel's packing line, also built right next to the high-bay facility to complete the ideal layout. The packed coil returns to the same high-bay complex to wait for delivery. Finally, the coil is automatically loaded into a transfer carriage and taken to the appropriate means of transport – in Tornio, this is most often a ship waiting at the mill's own port. •





# Accelerated packing at Outokumpu Tornio with a new TEW machine

Pesmel delivered a modern through-eye wrapping machine to Outokumpu's mill in Tornio, Finland, in 2016. This was another successful project in the long, shared history of Outokumpu and Pesmel.

In a machine using through-eye wrapping (TEW) technology, the wrapping carriage travels through the center of the coil, which slowly rotates on its supports at the same time. The stretch film is kept tight, and no materials are wasted. The result is a precise and reliable package that will effectively protect the coil from dirt and moisture during transportation.

TEW technology is not new to Outokumpu's Tornio mill, but it became necessary to modernize wrapping station 2 when the previous machine was approaching the end of its service life. Errors and downtime were becoming more frequent. The packing line required a technological update.

## An important upgrade

The new machine has the same basic purpose and functionality as the old one, but the operability and availability took a major turn for the better.

"The operability of the previous machine had dropped to a level that was unacceptable for an automated system," explains **Kimmo Räävi**, who is responsible for finishing and internal logistics operations at the Tornio mill. "The new machine may not seem that different, but its flexibility and advanced technology have considerably improved our daily work."

"Instead of pneumatics, we now have electric motors," says **Mika Niva** from the Tornio mill, listing the improvements brought about by the modernization. "The carriage keeps the stretch film tight throughout the process, which means steady pressure instead of repeated yanks. The modern film cassettes also make the operators' life easier."

"The electric motors made the system more precise, and the tighter film effectively keeps moisture away during transportation," Räävi continues. "We have achieved the packaging improvements we wanted, but we also want to continue working with Pesmel to add crêpe paper under the stretch film to manage any internal moisture."



"The replacement schedule was challenging, but the work was completed on time."

PHOTOS: PESMEL



An old packing line gets a technological update.



The new machine packs approximately 12 coils per hour, and Outokumpu is happy with its reliability.

## A happy team

"Wrapping station 2 is part of the production and delivery chain," says Räävi. "It was important that the machine replacement didn't risk any customer deliveries. The work was carried out simultaneously with the annual maintenance of the RAP5 line in 2016. The schedule was challenging, but all the work was completed on time, and we started up the system together with the RAP5 production line."

The actual installation work was preceded by test runs carried out at Pesmel's production unit in Estonia. Outokumpu's Mika Niva and **Seppo Juopperi**, who have often worked with Pesmel before, went to Estonia to observe the testing and to learn more about Pesmel's products. The visit was very interesting and offered new perspectives, even for an experienced packing line specialist.

"The tests confirmed that the machine would work very well for us," says Juopperi.

The machine now packs approximately 12 coils per hour, and the team is happy with its reliability.

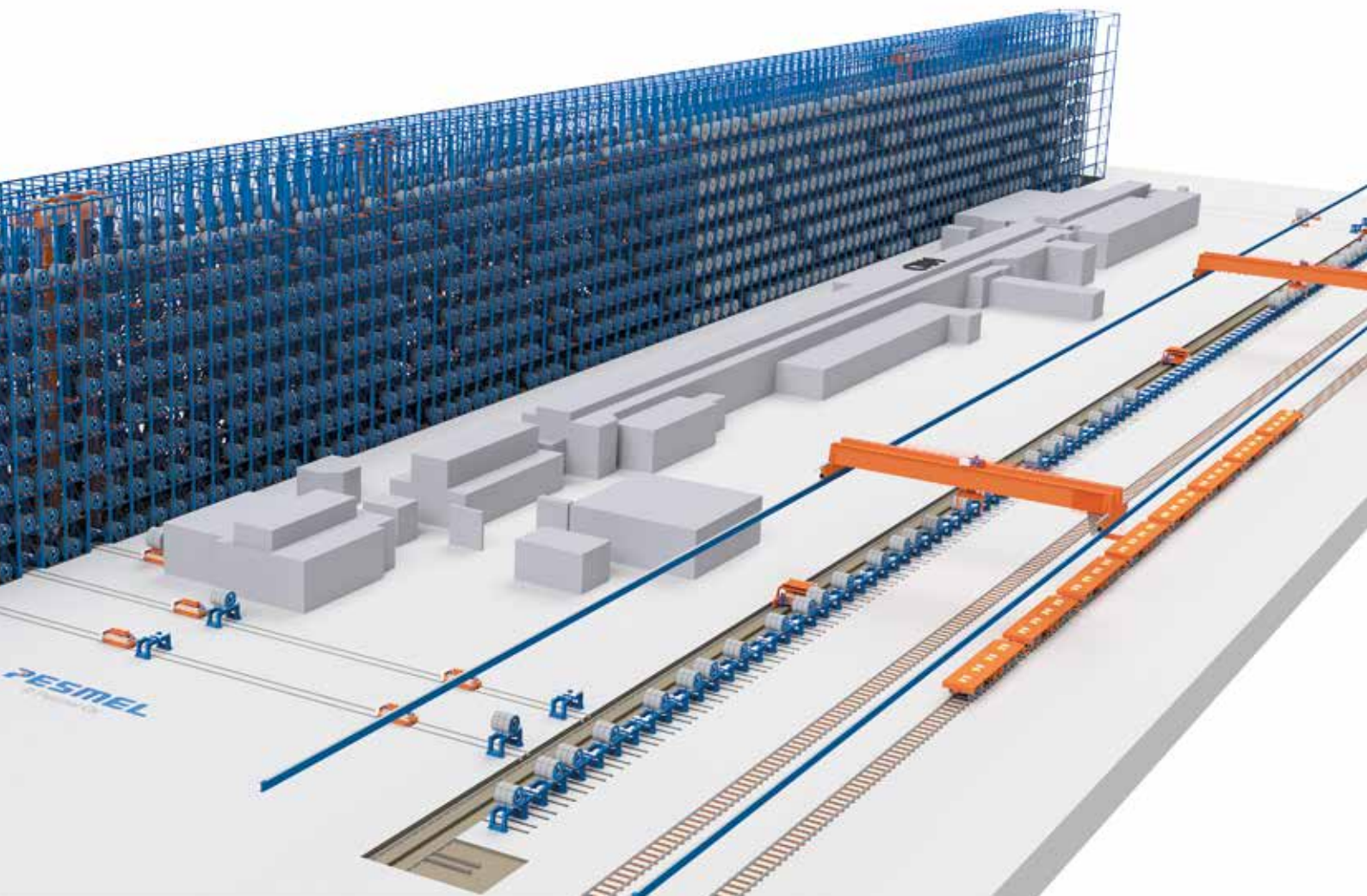
"The old machine needed almost weekly maintenance to keep it running properly," says Niva. "The new one barely needs any work at all – two or three times a year at most."

Smooth cooperation is important when replacing machines in mills, which all have their own safety rules and practices. Pesmel and Outokumpu planned the project carefully together to make sure it followed Outokumpu's way of working – even though the schedule was tight. Work permits, safety gear and access control all required attention in the early phases of the project. With speedy decision-making and the right attitude, the teams quickly resolved all the issues, the installation work was completed on time, and another successful chapter has been added to the shared history of Pesmel and Outokumpu. •



# From warehousing to a distribution center: developing your business through internal logistics

Continuous development of production and delivery processes is a given in today's manufacturing business. To assist in this effort, Pesmel will provide you with new perspectives and help you to develop your operations starting from the very heart of your operations: the internal logistics.



In the development of production processes, operations and best practices, there comes a point when all the major leaps have been made. All the systems seem to be running smoothly, but you may have a nagging feeling that something more could still be done.

You are probably right. By optimizing your internal logistics, you can for example turn your traditional storage areas into an automated distribution center that will serve your production process and streamline your customer deliveries with a level of effectiveness that you may not have believed possible. The impact of better internal logistics will be felt in all your operations from smooth production to increased sales.

“Managing and developing material flows offers great potential for taking important steps in developing many aspects of your operations,” says **Tony Leikas**, CEO of Pesmel. “The main idea is to eliminate all the bottlenecks and to ensure smooth material flow throughout the mill.”

## Countless opportunities for improvement

Storage as an automated distribution center boosts your mill's efficiency. This potential actually allows you to achieve many far-reaching benefits and to create a powerful and dynamic distribution center that is optimized according to your priorities and can be modified when your operations change. This will open up opportunities for improvement all the way up to your strategy and business models. In today's world continuous development is essential, and a modern WMS (Warehouse Management System) provides even more potential for setting up and fine-tuning the mill logistics.

“Material flows form a flexible link between the mill, customers and entire markets,” Leikas points out. “This flexibility allows the development of any area that connects to the distribution center.”

“Managing and developing material flows offers great potential for taking important steps in developing many aspects of your operations.”



PHOTO: PEKKA NIEMI

## Efficient production and 15% sales increase

You can boost your production operations through better synchronization with internal logistics. For example, with the help of automated storage you can optimize the size of your production batches for each process separately. This will help you to achieve the best possible utilization rate and a higher production output.

Adjusting material flows to follow the market cycle is one of the areas where significant results can be achieved. When you know the regular market cycle for your products, you can use historical data to modify your operations and production plans. Automated storing and logistic functions will help you to follow the cycle and ensure that you always have the right amount of products ready for delivery. An efficient distribution center will enable a proactive approach to customer needs and help you to revamp your whole sales and production strategy. As a result, sales increases of 15% have been reported – without any increase in total storage volumes.

Similarly, the efficiency of transportation operations can be improved by considering the schedules of trains and road transports, for example, and

matching them with smart delivery center operations through the WMS. The enhanced delivery chain will further increase your sales.

## Pesmel provides the expertise

Pesmel doesn't only have the expertise and resources to design complete internal logistics and delivery center systems that function with unparalleled efficiency – we also understand your business. Our experts will help you find ways to improve various aspects of your operations, and build optimal systems for a new mill or help improve an existing unit with modern logistics. Whether you have clear plans or just a hunch that something could be done to your material flows to benefit your business operations, together we can establish an effective plan to reach your objectives.

Our specialists will analyze your business data to pinpoint useful development actions and utilize powerful tools such as 3D models and simulation to bring the ideas to life. The models include interfaces with other systems, letting you see how the internal logistics system and the delivery center connect to other operations, and how to get the most out of these connections. •



2006

2007

2008

2010

2011

2014

2014

2016

2016

2017

2017

HINDALCO INDUSTRIES LIMITED  
Packing line for aluminium coils

UTTAM GALVA Ltd.  
Steel coil packing line

JINDAL STEEL  
Slit Coils Packing Line

UTTAM GALVA STEEL LIMITED  
Fully automatic sheet packing line

JSW Ltd.  
Configuration study of automatic  
storage retrieval system

HINDALCO  
Coil packing line

JSW Ltd.  
Yard Management System for  
CRM2 including vertical storage  
and coil handling system

BHUSHAN STEEL Ltd.  
Coil packing line for cold rolled  
galvanized and color coated coils

JSW – JINDAL SOUTH WEST STEEL Ltd.  
Coil handling system

JSW – JINDAL SOUTH WEST STEEL Ltd.  
Coil carriages

# Pesmel India

Pesmel's Indian operations began in 2005, and the local office was established in 2007 in New Bombay. We asked **Jagannathan Rajagopalan**, who has been with Pesmel since 2004 and is the Managing Director of Pesmel South Asia, about the growth of our operations in India.



**P**esmel India started with two local engineers in 2007, and by 2010 had increased the strength to 12, with the objective of offering local support during the project installation, after-sales service, and annual maintenance contracts. Local support and after-sales service are as necessary parts of doing business in India as in any other country, for day-to-day communication and for training the customer's employees in the job, as well as to keep ready spare parts and, in some cases, packing consumables so as to be able to supply to the customer in time when the need arises. We are also developing Pesmel India to handle operation and maintenance contracts for packing lines, which has become a prerequisite for selling packing lines in India, where customers want all the operations, maintenance and consumables to be handled by the supplier.

Automation and digital control systems have been seen as very important in Asia. Pesmel solutions were able

to beat the competition mainly with their advanced digital automation – even though most local competitors call their systems “automatic,” they still require a lot of manpower. While automation may initially seem costly, it always wins if you include the total lifecycle cost in the calculation. When you explain the system to senior management, they understand that we offer higher value than the alternatives that require a lower level of initial investment. Connections to the corporate level are therefore important.

## Two orders got things moving

Setting up the local office was preceded by two significant deals. The first was with the aluminum producer Hindalco, where meetings started in 2005 and concluded with an order for a semi-automatic packing line at the end of 2006. This was a tough order to get, as we first had to establish the contacts and create trusted relationships without any Indian references. Creativity was also required

in tailoring the solution. We convinced the customer that the equipment served the purpose, and it has been reliable and is still performing well.

Our second order in India, a totally automated packing line for Uttam Galva Steel, was won in 2007. This order was a major turning point for Pesmel in India, and made it necessary to establish an Indian subsidiary. The order was for a full-scale packing line. The Uttam Galva Steel order also functioned as a good reference for us in India, and we obtained many new orders after it.

## Optimizing customer value

Customers select our systems for the overall value. That is the key to doing business in Asia, and especially in India: building confidence and creating value for our equipment and systems. Value is created by things such as the return on investment, savings on packing consumables, quality, reliability, flexibility, the advantages for the

operators, the advantages for their customers, and total safety.

To ensure that we can optimize the value we deliver for customers, we build partnerships in the marketing phase by acting as consultants for customers. This way, we gain a deep understanding of their needs. As part of the partnerships, we also offer extensive training services. By building strong contacts with our customers, we provide additional value in the early phases of the design and planning process, by helping them outline requirements and specifications for future investments. This way, we are also able to offer the best value for each customer's specific needs. However, only by performing well though all phases, from sales to delivery, can you get the next deal.

## The future for Pesmel in India

Indian legislation requires every delivery to include some items that have been manufactured in India. Some customers have their own

manufacturing operations and produce such items themselves using our drawings and supervision, which of course makes sense for non-dynamic items. Pesmel's local office also plays an important role in this respect, organizing the local supply of some items and providing supervision and maintenance support.

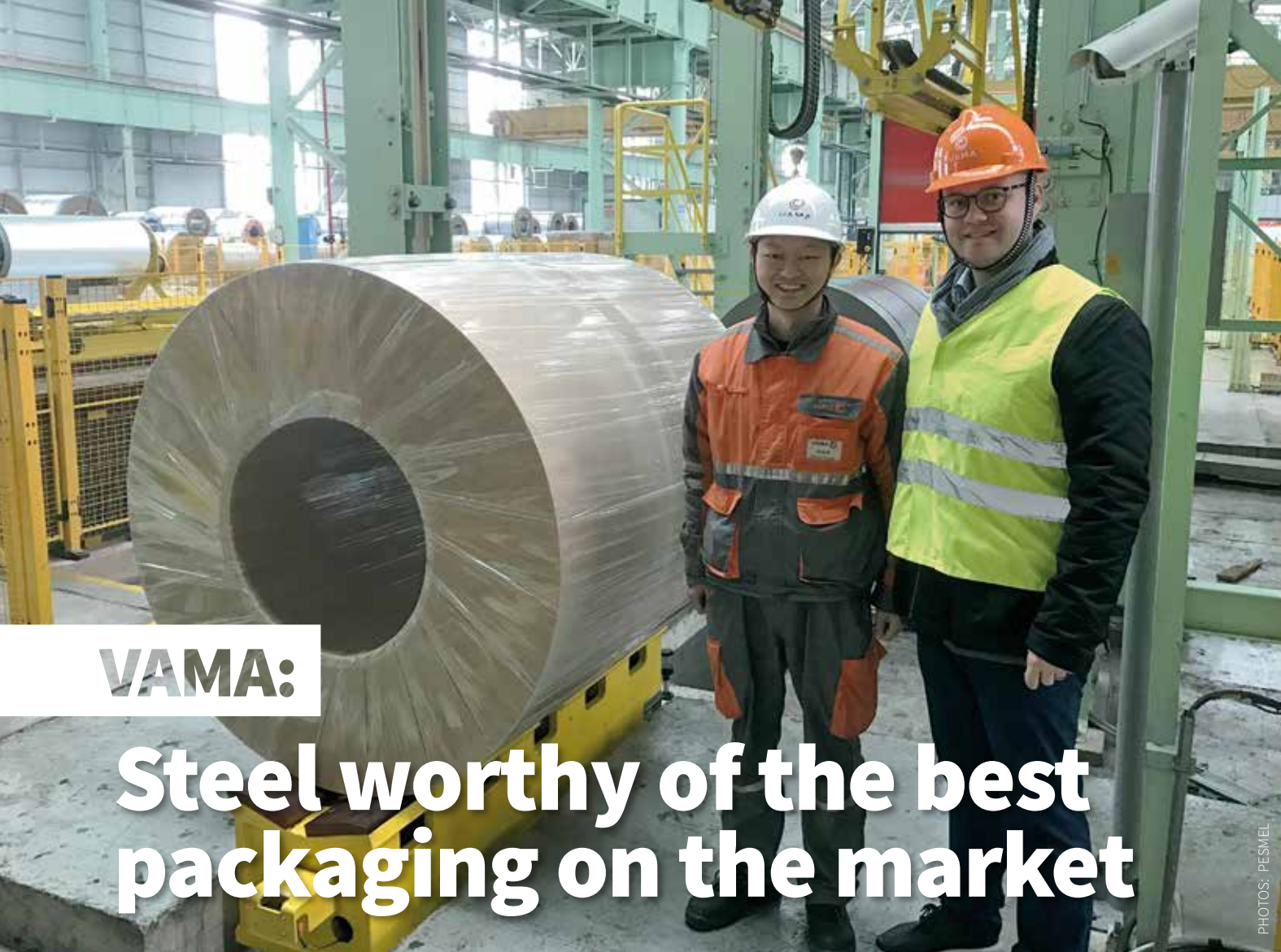
We currently have ongoing projects with JSW Bellary for CRM2 and a hot-rolling mill, Tamil Nadu Paper Mill unit 2, and Hindalco Hiracud, and we are working towards new projects at JSW Tarapur, JSW Wasind, JSW Dolvi and Tata Kalinga Steel.

In summary, absolute teamwork between Pesmel in Finland and India is the key to integrating technology with extended service to keep existing customers happy and win new ones. •

Ready to find the best solutions for you: Managing Director Jagannathan Rajagopalan (on the right) with Deputy Director J.S. Srikumar (middle) and Account & Finance Manager Raghvendra Thakur (on the left). The complete current line-up of Pesmel India is listed below.

Abhishek Kumar, PLC Engineer  
Vaibhav Baviskar, PLC Engineer  
Jothimani, PLC Engineer  
Chetan Wajantri, Mechanical Engineer  
Srikant Mondal, Mechanical Engineer  
Gaurav Mittal, PLC Engineer  
Raghvendra, Accountant  
Gopinath, Marketing – Mechanical Engineering  
Uday Shankar, Sr. Engineer – PLC Engineer  
Sathishkumar, PLC Engineer  
V Mohan, Mechanical Engineer  
Abhinaya Kumar D. Patil, Mechanical Engineer  
Nikhil Hariharan, Trainee – Mechanical Engineer  
Arjunan Singaram, Resident Project Manager  
Srikumar, Deputy Director  
Jagannathan Rajagopalan, Managing Director Pesmel South Asia





**VAMA:**

# Steel worthy of the best packaging on the market

Valin ArcelorMittal Automotive Steel (VAMA) supplies top-quality steel for lighter and safer cars in China's Hunan Province. With VAMA, Pesmel is continuing its strong entry into the Chinese metal industry.

In the relatively limited market for highly automated packing lines, Pesmel is able to offer unparalleled capacity. In a mill with a total annual capacity of 1.5 million tonnes, a fast and efficient packing process is an obvious necessity. The line was installed in 2014 and reached full-speed production operation after the turn of the year.

When product quality is of top importance, poor packing is not an option. VAMA's clients in the automotive industry look for high-performance materials that help reduce the weight of vehicles, increase their safety, provide resistance to corrosion, and keep the total cost of vehicle ownership in check. Steel that is able to deliver all these qualities is well worth protecting with the best packaging.

In addition to actual engineering and installation, Pesmel provides training and complete after-sales services, with spare parts and servicing of the systems. As well as fast delivery, this also ensures extremely high availability; for VAMA, Pesmel guaranteed availability of 98%.

## The Pesmel solution

VAMA is a joint venture between Valin Steel and Arcelor Mittal, established to produce high-end steel for the automotive industry, which is a growing field in Hunan Province. At VAMA, hot-rolled coils from other mills go through the pickling and tandem cold-rolling mill, and then continue to either the mixed continuous annealing line (mixed CAL) or continuous galvanizing line (CGL). The process may also include an inspection or further processing phase. Finally, Pesmel's high-capacity packing line wraps the coils in safe and secure packages, ready for any form of transportation.

Pesmel's extremely efficient through-eye wrapping (TEW) process ensures watertight packages that protect the coils from corrosion caused by external humidity or internal moisture. To neutralize the effect of internal moisture condensing on the coil surface in changing temperatures, the package has a layer of crêpe paper against the coil, inside the PE stretch film. The paper absorbs moisture away from the coil, and also protects the PE film from any sharp metal edges.

“The package can be used to accentuate the quality of the product.”

Mechanical protection for the coil is provided by outer and inner body wrapping using metal and plastic, and by headers and edge protectors. These keep the coil safe from accidents while they are lifted, moved and transported to customers.

Each coil must be visually inspected when it enters the packing line. For VAMA, Pesmel built a camera system for this purpose, with monitoring in the control room. This further reduces the number of personnel required to manage the packing line.

Automated packing lines not only save work: they also save materials. The machine always cuts the material just right, and makes no shift-end mistakes. The most demanding phases are fully automatic, which also brings dramatic improvements to the safety of employees. With coils that weigh up to 40 tonnes, the risks can be weighty as well.

## A neat package speaks for itself

At VAMA, different coil packing configurations are used for different purposes. Coils delivered within the same province do not require as careful protection as those sent overseas. This resulted in the development of two basic packing concepts, Domestic and Export. The Domestic concept leaves some steps out. For example, the crêpe paper is not required if the coil is only being transported a short distance over land.

“We are able to effectively protect the coils against any weather conditions,” says **Teemu Kolkka**, who was in charge of Pesmel's delivery. “The system parameters also allow the operators to select materials and adjust variables, such as overlapping and the tightness of the PE film, to suit the specific purpose.”

Pesmel's packing line keeps the products safe, and it also protects the manufacturer's image. A tidy coil package is both functional and attractive, and immediately conveys an image of high quality.

“You don't pack valuable gifts in a plastic bag,” Kolkka points out. “The package can be used to accentuate the quality of the product, and products packed in Pesmel's packing lines always look their best.”

## A shared process

Pesmel puts great weight on working closely together with customers. The design process is always a joint effort, but what makes Pesmel truly stand out is its agility – and the willingness to go the extra mile to ensure flawless performance. The VAMA packing lines were thoroughly tested at Pesmel's production facilities in Estonia with packing materials brought in from China as well as Europe to see which would work best and meet the requirements of both VAMA and its customers.

Before commissioning in China, a team of operators flew in to be trained in Finland and Estonia for two weeks. The intensive practical training helped speed up commissioning and the launch of production operations at the mill.

As an agile supplier, Pesmel has already established operations in China to ensure best service for the market and to provide local manufacturers with easy access to high-capacity internal logistics and packing systems. The local presence will serve both existing and new customers in the area, facilitating system upgrades and the construction of new packing lines. •



When product quality is of top importance, poor packing is not an option.



The systems and solutions that Pesmel produces are complex – and the projects themselves are complex, too. Good project management is essential in making sure that everything proceeds according to plan and without hiccups. *NewsFlow* spoke to **Teemu Kolkka**, general manager of the project department, about Pesmel's new project management tool, M-Files, and how it is improving things for Pesmel – and its customers.

# Complex projects need top-class project management



## What kinds of projects are your team involved with?

My team work on delivery projects. We are divided between two sectors, paper and metal, and our customers are paper producers, converters and metal producers. Our delivery projects can be greenfield or brownfield projects, or revamps. My department deals with all the green- and brownfield projects, but some revamp projects are handled by the service team. All our greenfield and brownfield projects follow a standardised project model.

## Can you describe how your project model works?

Projects all start with an internal kick-off meeting where the sales manager hands over the contract and concept to the project manager. We have a rule that this has to happen within seven days of the contract being signed or permission to start project being received.

Next is the pre-engineering phase, which lasts about six weeks. In the first three weeks, we fix the general arrangement layout, start-up information and the scope of supply for the detailed design as a list of deliverables in M-Files. This also involves a customer kick-off meeting, where we visit the customer with the project team, we show them our project model, we agree on how we will communicate and exchange documents, and we settle the plan and schedule. After our own acceptance meetings for the scope, documentation and budget, we move to the design phase.

Then is the detailed engineering phase, which is divided into mechanical, electrical, and automation and ICT. From there it goes to purchasing, and after that comes manufacturing, monitored in M-Files by Deliverables and Works, with their progress and milestones in relation to the project

schedule. There, we cut the steel and do the welding and so on, and that happens mainly in Estonia. We try to make our systems so they are modules, so that you can easily install and transport them. All systems from Pesmel are machine-tested, and we have a protocol for that. We can do full layout tests as well, depending on the customer need and complexity of the system.

Then we dismantle it, put it into containers or trucks, and ship it to the customer. That's basically the phases at our end. We can do the installation as well, or we can supervise the installation. Then we have the commissioning phase, and after that we can basically say, "Now you can start production." The whole process up to delivery can take from six months to two years.

## Can you give us some examples of what a typical project is like?

Our two main types are packing lines and storage systems. Packing lines are typically the internal packing lines in mills. Customers usually want to improve quality and safety, speed up their packaging process, increase capacity, and find savings.

Storage systems are bigger investments, with more focus on construction. Storage can be intermediate, or for finished goods. They are automated warehouses that use conveyors or

overhead cranes to move the goods. We've done systems for roll, bales, coils, and pallets, as well as some products from other industries. For storage systems, the idea is to minimise the footprint, so we build high, and we make it fully automatic and minimise handling. We can build single-lane, multi-lane and deep-lane systems. The project management for storage systems is also more complicated, keeping track of all the construction aspects.

## Can you tell us something about your new project management tool?

We can have dozens of projects ongoing at a time, and our projects are complex, so excellent project management is essential. To manage all this and to handle all the documentation, schedules and workload, we need a good system. We noticed some years back that the way we were handling documentation was old-fashioned. We examined different documentation handling systems and did some studies and benchmarking, and we concluded that M-Files was the best choice.

We changed our documentation storage system to M-Files, which took a year and a half. And then we started to look at what else we could do with it. We ended up changing our CRM tool to M-Files, and then our project management. We started to implement all our different documents and

schedules, which had all been static, so for example, a change made in the workshop didn't automatically come to here. We found that M-Files could do all of it for us.

M-Files has been customised for us a bit to fit our project model. We can see every phase of every project. It's all implemented here according to our process, with every checkpoint and milestone. In the first stage of a project, the project manager uses M-Files to build a project plan. First we put the main phases there, and then each phase has the work that needs to be done to complete deliverables, which are things we supply to the customer, along with the milestones and meetings, as a schedule. It is also possible to use offline and portable devices, which means you can take your key data with you when you travel to customer sites that don't have internet access. This lets customers see in reality how the project execution is built up, what the actual progress is, or where open issues need to be agreed in order to move forward.

It can generate tasks automatically, and it also shows us who is doing what for every step. For example, who is doing the electrical and automation design, and how far they've got. Other nice features are that you can set alarms and the reporting features for different levels and needs.

## What benefits has M-Files brought for you and for customers?

For us, the main benefits are visibility and automation. It centralises all the information in one place. It improves visibility in the entire project, right down to task level. We can see the current status of every element of every project, which really helps with keeping projects flowing. The automation means that information gets sent and moved automatically. Tasks can also be set automatically, which helps a lot with resourcing. And all the documents are connected to the system, so we can jump straight to the right design documents, maintenance manual, or spare parts list of that particular design (deliverable), for example.

For customers, it means that we don't need to reinvent the wheel. Everything stored in the system has metadata attached. We can create reports for customers easily by pulling metadata about any aspect of the project. So it's easier and quicker to keep them fully informed about the status of projects as well.

We've been using it like this for around eight months now, and we're really happy with it. It's really helping us move towards where we want to be as a company to improve our own project delivery chain for our customers. •



*We can see the current status of every element of every project, which really helps with keeping projects flowing.*

– Teemu Kolkka



# Simulation helps ensure optimal operation

Pesmel has been using 3D modeling to demonstrate the functionality of its material flow systems for quite some time. Advanced simulation is now taking the process of designing complex systems to a new level.

Intelligent simulation brings the shared vision of Pesmel and the customer to life during the design process, allowing testing of complex systems and removal of possible bottlenecks before the construction phase even begins. This saves costs and speeds up the launch of full production operations.

## An integral part of the design process

"Simulation should be introduced into the process as early as possible," says Pesmel's simulation specialist Eero Anttila. "It produces valuable information that can help to tweak the sales process and make sure that the customer only invests in a system that is truly optimal."

The simulation model uses actual data from the customer's existing or planned production system, including the dimensions of products and the storage facilities, as well as the speed, acceleration and capacity of transport devices. Interfaces with other systems complete the model, and repeated validation rounds ensure that the model represents a fully functional system.

## Hard facts beat intuition

Test runs carried out with the completed model help to ensure that the planned system has adequate capacity and to find the best operating practices. Weeks or even months of operations can be simulated in mere minutes, broadening the perspective and

revealing bottlenecks that would otherwise only emerge over longer periods of time. The model can also be adjusted to test alternative solutions, and uncertainties can be introduced into the model to establish their impact.

"Simulation provides a realistic overview of the system," says Anttila. "It's very important for both the customer and the designers to be able to see the system in action." The detailed input parameters and the authentic rendition of the mill's actual processes, complete with correct timing, produce a level of accuracy that cannot be achieved with other design tools.

In addition to the intended operation of the system, unwanted scenarios can be also simulated. Experiments can, for example, include component failures. The impact of these failures can then be analyzed, and appropriate precautions taken.

## Customer involvement for maximum benefit

The model is always built in close cooperation with the customer. Each simulation process begins with a specific issue, such as the need to know whether the capacity of the system is large enough, or if the planned layout works for the facility or process.

The customer provides information and understanding of the usage of the system, and the team decides on the appropriate level of detail for the model. It's vital for the customer to be actively involved throughout the process: to gain maximum benefit, the designers and the customer work together to find the right questions as well as the best ways to answer them. •

# Second generation of FlowCare getting ready for business

Pesmel is currently piloting the FlowCare 2.0 service package, which includes a range of new services giving customers easy access to spare parts, services, and documentation.

Instant access to up-to-date documentation anywhere, any time; a handy support ticket system that accelerates the service process; an online store that showcases the exact parts and services that you require; a virtualized twin of your Material Flow How® system, allowing test runs of new features and troubleshooting before the problems even occur. These are the main building blocks of the new advanced FlowCare software package included for free in Pesmel deliveries.

The first version of FlowCare was a detailed data collection and remote supervision system designed to speed up maintenance, assist in preventing unplanned outages, and enhance the further improvement of the system. The data collection system can be implemented as an online service directly involving Pesmel, or as a local service with data only available to the customer. The updated version adds important new features that provide a major boost to Pesmel's ability to serve customers.

## Putting the IoT to good use

New technological developments have opened up many possibilities for online services based on the Internet of Things. Pesmel's software development team has eagerly seized this opportunity.

"Many similar services have become part of consumers' everyday lives all around the world," says Marko Nousiainen, director of engineering and R&D at Pesmel. "We want to make these services available in the B2B world as well. We are continuously looking into new ways of working with our customers to ensure that the processes are smooth

and that the customers gain the maximum benefit from the services."

## New additions to the service package

FlowCare 2.0 includes a set of new services designed to make life easy for customers. A customized online store for spare parts and services always includes exactly those products that the customer's systems might need. Later, the system will also offer proactive recommendations, helping customers keep track of their needs.

The online store is available through Pesmel's customer portal. Another customized service utilizing the same channel is the document library, a centralized storage location for all the documentation related to the customer's systems. The document library ensures that up-to-date documentation is available at all times, without the need for tedious rounds of updates to multiple copies on paper stored in different locations – but paper copies of documentation are, of course, also available when required.

Pesmel's support systems will also enter a new era with FlowCare 2.0. Existing support will be boosted by a service ticket system and enhanced 24/7 support. With an online data collection system in place, Pesmel's service specialists can access customer data directly and start solving problems immediately.

## Enhanced commitment from Pesmel

FlowCare 2.0 is a symbol of Pesmel's continuous development efforts and its willingness to serve customers more



## FlowCare 2.0

- Data collection
- Online store for spare parts and services
- Document library
- Support tickets
- 24/7 online support

effectively and to deepen the post-delivery relationship. The new software allows Pesmel to look after the delivered hardware better than ever, as well as adding a new area of maintenance services: software development and updates will be an important part of the overall service.

As an additional benefit, the service package gives Pesmel the opportunity to further develop its products based on combined data from customer systems and the online store. As a result, customers will benefit from the increased fault tolerance of new generations of Pesmel's systems. Advanced information systems drive value for everybody. •



"Simulation provides a realistic overview of the system," says Eero Anttila from Pesmel.

PHOTO: PESMEL



# Meet the sales team



**Juha Suksi**  
Vice President, Metal

I've been with Pesmel for a couple of decades now. Currently, I am working to promote our Material Flow concept to our customers, showcasing our innovative and technically advanced solutions. The most rewarding part of my job is finding a good solution together with a customer, and when they select us as the supplier.

juha.suksi@pesmel.com



**Sami Koivuluoma**  
Sales Manager

I like working for Pesmel because the work is challenging. I've been here for nine years, and no two days are ever the same. I interact with customers in sales for the metals industry, and I really enjoy meeting new people and helping them turn their plans into reality.

sami.koivuluoma@pesmel.com



**Timo Lehtonen**  
Sales Manager

I've been with Pesmel for two years now. There's a lot of skilled engineers here, ready to meet customers' challenges. The biggest challenge for us is to find the optimal solution within the limits that customers set, but it's very rewarding when we do it.

timo.lehtonen@pesmel.com



**Kalle Seppälä**  
Product Engineer

I've been with Pesmel since 2016, and I've been a product engineer for a year now, providing 2D and 3D layouts and other documentation for the Metals division. Sometimes we get limited data, and I need a lot of imagination to work out how to solve problems – but being forced to think outside the box is good!

kalle.seppala@pesmel.com



**Marko Heikkinen**  
General Manager, Service

I've been at Pesmel for over a decade, and I lead the service department. The most rewarding part of my work is to have satisfied customers, and I enjoy meeting customers face to face and solving their problems. The atmosphere at Pesmel is good, and the work is challenging.

marko.heikkinen@pesmel.com



**Jani Matikainen**  
Product Group Manager, Storage Systems

I work with automated storage systems, and I've been with Pesmel for ten years. My main duties are developing concepts, and providing support for sales and projects. Juggling many different tasks can sometimes be challenging, but it's very rewarding to collaborate with customers to develop the solution they need and then to see them satisfied.

jani.matikainen@pesmel.com



**Jagannathan Rajagopalan**  
Managing Director, Pesmel South Asia and Senior Consultant, Pesmel North America

I've been working for Pesmel since 2004, with a particular focus on the metals industry. Sometimes it takes some convincing before customers understand the true savings our solutions offer on the total cost of ownership, but it's very rewarding when we succeed and see operators in steel and paper plants doing higher-value work, rather than monotonous labor.

jagannathan.rajagopalan@pesmel.com



**Jouni Räisänen**  
Sales Manager, Storage Systems

I've been working on interesting sales projects at Pesmel for nearly 15 years, helping customers find the best solutions for their warehousing challenges. The biggest challenge is usually to develop solutions that are cost competitive, and the most rewarding bit is working with customers as one team to find solutions.

jouni.raisanen@pesmel.com



**Eero Anttila**  
Data Analyzes and Simulations

I like Pesmel's international working environment and the continuous possibilities to improve myself. I work mainly in the sales phase, doing data analysis and simulations. The best part about meeting customers is encountering people from diverse backgrounds and cultures – and solving their challenges.

eero.anttila@pesmel.com



**Samu Kätänaho**  
Sales Manager

I've only been with Pesmel for a few months, but I'm already impressed with the talented team we have here designing, creating and delivering amazing, world-class solutions for customers all over the world. I really like being able to help to develop ideas and concrete solutions for my customers – ideas they may never have considered.

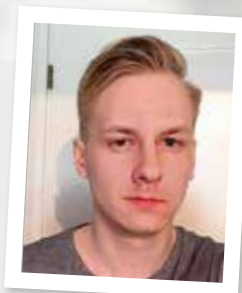
samu.katkanaho@pesmel.com



**Juha Luhtala**  
Product Group Manager

I've been with Pesmel for 15 years, managing mechanical pre-design and sales engineering, and maintaining the product portfolio and development. We have a team of professionals here who really try their best to find the perfect solution for customers, and I really like when we can demonstrate our smart, high-tech solutions and please customers.

juha.luhtala@pesmel.com



**Eero Perälä**  
Product Engineer

My main duties are creating simulations and animations, and lately I have been designing automated warehouses. I work on complex and highly automated projects that are almost always unique, and in almost every project I learn something new. It's very rewarding when my simulation or animation is helpful in closing a deal.

eero.perala@pesmel.com



**Juha Mielonen**  
Account Manager, Service

I've been working in service sales and project management for seven years now. Sometimes the situation can change quickly, but we always adapt to customer's changing needs and achieve our project goals. I really enjoy getting to know people from different cultures.

juha.mielonen@pesmel.com



**Markku Ahonen**  
Account Manager, Service

I've been working at Pesmel for four years. It's a flexible and innovative employer, and I work with an excellent team. Nowadays, the biggest challenges in my work usually relate to tight schedules, but I really like seeing happy faces on the customers' side – and in the mirror!

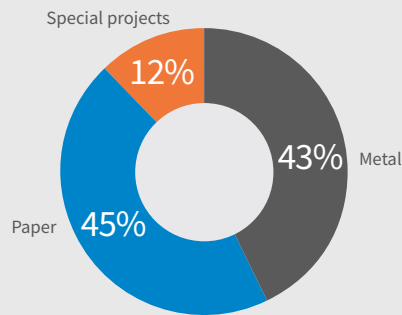
markku.ahonen@pesmel.com



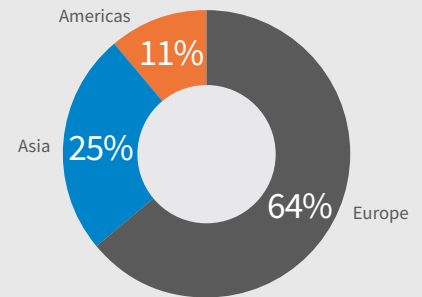
Pesmel is an international expert in material handling. The company's highly automated handling, packing and storage systems improve the mills' internal logistics as well as product quality. The company has two main customer groups: metal and paper industries.

Over the past four decades, Pesmel has delivered over 400 handling and packing projects and around 150 storage systems. The company employs over 180 professionals, of which approximately 110 are situated in Finland.

## SALES BY BUSINESS AREA 2016–2017



## REVENUE BY MARKET AREA 2016–2017



## DECADES OF DEVELOPMENT

Company established 1978

### 1980

Starting with conveyor systems development from standalone machines to total logistical systems, first packing line for paper industry

### 1990

Strong time of growth. New companies abroad, strengthening the position in paper industry, first packing line for metal industry

### 2000

Growth continues with diversification into metal industry products. Ongoing globalisation process, new subsidiaries and agencies. Audited and certified quality system ISO 9001:2000

### 2010

Pesmel assumes increasing responsibility for customer logistics and packing functions. Integrated information technology solutions that complement systems and equipment functions become more common

## CUSTOMER FIGURES

### 15%

**increase in sales**  
due to shorter delivery times and fulfilling orders others can't

### 7 day

**reduction**  
in invoicing times due to integrated software

### Average 6–10%

**increase**  
in mill efficiency

### 30%

**savings**  
in packing materials

### 1/3

**space utilisation**  
compared to traditional storage

### 0

lost orders, shipment and handling errors

## LOCATIONS



### Head Office

**Pesmel Oy**  
P.O. Box 14 (Päntäneentie 3)  
FI-61801 Kauhajokki, FINLAND  
Tel. +358 207 009 600  
pesmel@pesmel.com  
firstname.lastname@pesmel.com

### Pesmel North America LLC

Mr. Patrick Jones  
Tel. +1 920 248 3878  
patrick.jones@pesmel.com

Mr. Jagannathan Rajagopalan  
Tel. +1-972 977 0518  
jagannathan.rajagopalan@pesmel.com

### Pesmel Packing India Private Ltd.

Mr. Jagannathan Rajagopalan  
Tel. +91-93 2284 9709  
jagannathan.rajagopalan@pesmel.com

### Pesmel Taiwan Ltd.

Mr. Harry Lehto  
Tel. +886-9-2839 0547  
harry.lehto@pesmel.com

Find your local representatives: [www.pesmel.com/locations](http://www.pesmel.com/locations)