1/2010

HEAVY

NOKIAN HEAVY TYRES´ CUSTOMER MAGAZINE

"THE RIGHT ATTITUDE AND MINDSET ARE THE KEYS TO SUCCESS"

>2

nokian HEAVY TYRES

BEHIND THE WHEEL

RESULTS FROM THE RIGHT ATTITUDE

Arto Töyrylä is driving a brand new Valmet 860.4 forwarder.

– This is my fourth machine of the same brand; the previous one was even of the same model. However, thanks to the balanced bogie design, this machine differs drastically from its predecessor. It holds a firm grip on the ground even in tough places and is more reliable to drive.

Töyrylä works as a harvesting contractor in Asikkala, central Finland. His customer is one of the leading Finnish timber producers and refiners, Versowood.

– It's the goal that keeps you going. There must be a pay day at the end of each month, Töyrylä says.

– I don't really understand the common talk about continuous stress, though. I believe that the right attitude and mindset are the keys to feeling good at any work.

With a big enough harvester and forwarder, you will get the job done. Depending on the contract and distance, Töyrylä delivers 250–300 cubic metres of wood to the roadside per day.

Behind the wheel	Arto Töyrylä
Machine	Valmet 860.4 Introduced in January 2010
Tyres	Nokian Forest King F 710/45-26.5
What	Harvesting for Versowood
Where	Asikkala, central Finland

Markus Hentonen

Continuous renewal

Market operators are starting to regain their trust in positive economic development. The utilisation rates of heavy machinery are increasing, and the demand for tyres has gone up. The quick economic recovery has also led to an increase in the prices of many raw materials. Even with the increased demand, we aim to guarantee tyre availability for our customers.

In the challenging conditions of last year, we placed a solid focus on developing our services and products. We diversified our logistics and customer service concepts. We will continue to search for new ways of operating. In this issue, we introduce a tyre leasing system which is being piloted at the Port of Rauma.

In addition to enhanced customer service, we have focused on product development. We accelerated our R&D programmes in a controlled manner, expanded the range of the radial Nokian Forest Rider and launched the all-new Nokian Nordman Forest product family. All these, among other measures, have strengthened our position as the leading forestry tyre manufacturer in the world.

This spring we asked our customers to give us feedback on our activities. We would like to thank all respondents. The feedback emphasised the same topics that have come up in mutual discussions with many customers lately. Both positive and negative points were expressed, and we value both equally.

We will further develop our activities on the basis of this feedback. We will pay particular attention to the support provided for customers and the flawlessness of our activities at all levels. We want our customers to be able to rely on the good performance of their tyres and have all the help that is needed in problem situations as soon as possible.

Key elements in our activities – both in product development and customer service – include quick responses, active listening and readiness to help. All renewals we make aim at making our customers happy, today, tomorrow and always.

Jarmo Puputti
Managing Director
Nokian Heavy Tyres

NOKIAN HEAVY TYRES is one of the world's leading manufacturers of special tyres. Its key product segment is forestry tyres. Other important products are special tyres for agricultural machinery and a variety of industrial machine tyres.

What makes Nokian Heavy Tyres unique is its familiarity with extreme driving conditions and its respect for nature. We also lead a continuous, close dialogue with our customers.

We are passionate about developing even more functional solutions and tools for forest, field, road, terminal and mine work. Relying on our persistence and creativity, we can ensure you safe and efficient work. We provide flexible service in all cases to help you achieve your goals.

Nokian heavy tyres are sold in both the OE and replacement markets. The company works in close co-operation with original equipment manufacturers. Nokian Heavy Tyres Ltd. is part of the Nokian Tyres Group.




HEAVY
Nokian Heavy Tyres
customer magazine

Heavy
16.6.2010
issue 1/2010

PUBLISHER Nokian Heavy Tyres Ltd.
Pirkkalaistie 7
P.O. Box 20
FI-37101 Nokia
Tel. +358 10 401 7000
fax +358 10 401 7318
www.nokianheavytyres.com

EDITOR-IN-CHIEF Teemu Sainio
Nokian Tyres Plc,
Marketing and Communications
Tel. +358 10 401 7296
teemu.sainio@nokiantyres.com

CONTENT PRODUCTION
Communication Agency
Selander & Co, Inc
Tel. +358 3 222 9088

LAYOUT Vanto Design Oy

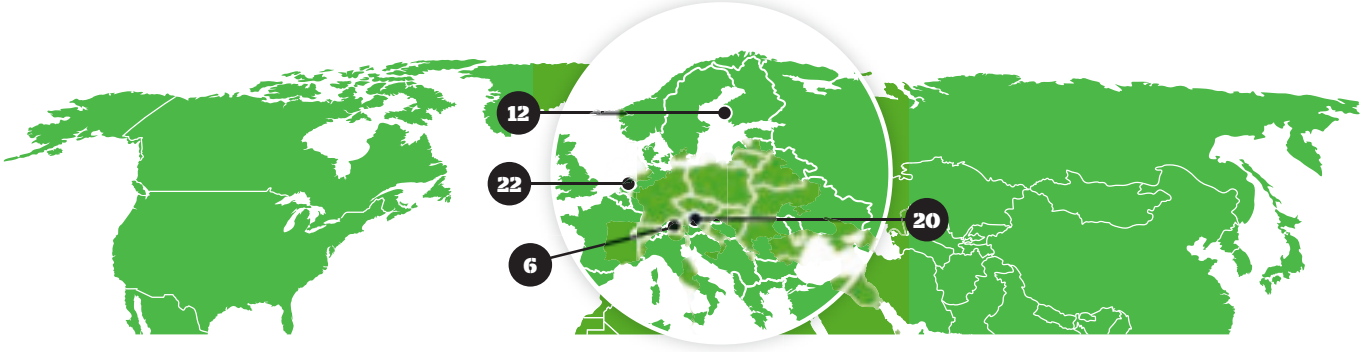
PRINTING Hämeen Kirjapaino Oy

The cover photo of forestry contractor Arto Töyrylä by Markus Henttonen.

Contents

Novelties for forestry machines

The heavy tyre offering will expand with new special tyres: The Nokian Forest Rider tyre range will be expanded, the Nokian Forest King TRS LS-2 special tyre has received a stronger structure, and new sizes are available for the Nokian Nordman Forest.



FROM THE EDITOR

The new Heavy digs deep

The everyday work of a contractor, future challenges in machine manufacture, the passion to develop better and better products. Revamped down to a new name, this customer magazine digs even deeper into the worlds of special tyre users and developers. Heavy finds and features interesting people and partners. It depicts opinions and experiences from around the world. We have also revamped our website to facilitate the comparison between different products and help in choosing the right tyres. In addition, you can now subscribe to the latest news direct to your e-mail. We always want to offer the best user experience – in the forest, on the field, at a harbour and online. Respond and win a prize! Participate in our competition on page 23.

Teemu Sainio
Editor-in-chief

Taking care of the unique forest

With an estate of 5,000 hectares, Castell is a major forest owner in Austria. The company uses only its own harvesters and forwarders. Since the beginning of this year, the company has been using the radial Nokian Forest Rider tyres that have added efficiency to harvesting.

The Castell–Castell estate is situated in the northern part of Austria near the border with Bavaria. The family has owned a little over 5,000 hectares of forest since the late 19th century. **Bernhard Mitterbacher**, CEO of the Forest Adminitration of the Castell-Castell family leads us through the forest of full-grown spruce. Contrary to many other estates, the property is in one compact block, which helps in the planning and daily work as no machine needs to leave the property when going to or coming from an assignment.

Managing risks

The climate is ideally suited to growing spruce and this species is the mainstay of the production, and in the stands too; today, about 80% are spruce, 10% white pine, 10% other (mostly broadleaves). The extreme weather conditions of recent years have left their traces in the forest. Storms, icy rain and heavy snow have all taken their toll, so the management is trying to diversify the risk as the forest needs to be healthy and productive for nearly 100 years.

– A forecast for this long a period is impossible. We have to take every precaution so that later generations have stable and robust trees to work with, explains Mitterbacher.

> Young stands are being enriched with beech, larch, Douglas fir and oak.

Therefore, the young stands are being enriched with beech, larch, Douglas fir and oak. Spruce should be reduced to about half of the mass in the forest. Another serious pest is the bark beetle, which thrives on weak spruce. Weakness comes from hidden wind damage, lack of rain or other damage. The staff are constantly on the lookout for signs of a possible mass expansion of this insect.

Harvesting with own equipment

The proper tools for dealing with these natural problems are the forest machines. The estate is the only big forest owner in Austria that owns its own harvester/forwarder combinations and does nearly all cutting with their own machines. They were at the forefront of using a highly mechanized system, contracting the first harvesters and forwarders from Sweden as early as 1983, a time when no one in Austria seriously thought this technique would be so important in the future. Castell bought its first harvester in 1996, when the management saw the full potential of the machines and held on to the belief that estate-owned harvesters can be profitable.

– We may have the best conditions out of all the bigger private forest owners in Austria »

Walter Lang is very satisfied with the radial Nokian Forest Rider tyres – they give excellent traction.

Wide base tyres offer good stability of the machine when cutting heavy trees.

for this kind of operation. Optimum terrain, best tree species mix and optimum size – it all fits together. Therefore, our own machines are competitive against the machines of entrepreneurs on the free market, says Mitterbacher who is known for his exact management methods.

Radial tyres are the best choice

Castell owns an excavator-based harvester (Königstiger, "King Tiger") for extracting the big spruce trees out of the naturally grown "rejuvenation cones" as they are called in German. But most of the work is done with a wheeled machine - since December 2009, a John Deere 1270 E series. These two harvesters are complemented by two 1210 E series forwarders bought new in December 2009. And here Nokian comes into play: when discussing the purchase of these three-wheel machines there was the question of choosing the best tyres for them. Tight as the overall financial situation is everywhere, the decision for Nokian Forest Rider was made with heavy support from Forestree, who represent Nokian Heavy Tyres in Austria. Forestree´s country-wide known executive **Raoul Narodoslavsky** convinced the Castell buyer that the relatively new radial technology would be the best choice for his requirements. A more flexible structure guarantees maximum traction and more driving comfort.

> "After one winter of work, every tread bar on each of the six tyres is complete."

No need for chains

The machine operators are content with the new tyres. **Walter Lang** works with the 1270 E and he praises the new tyres.

– They give better traction in the skidding rows, which have no gravel surface. The climbing abilities are significantly better than he has experienced – no need for traction chains any more.

He noted that with the new tyres there are practically no wood splinters between the tyre and the rim. Another improvement is that after one winter of work every tread bar on each of the six tyres is complete, no cutouts or breakages are evident.

Manuel Huber is the driver of the 1210 E and he tells us the same: only improvements, no disadvantages against the old technology.

– You can tell if a tyre is good when you have used it for about 5,000 hours. After one winter there are only 1,000 hours on the clock, so a final verdict cannot be made. But if the tyres keep their promise, we will surely be very satisfied with them, Walter Lang says. ■

Austrian Forestry

Austria is a forest country with more than 48% of the area covered with trees, about 4 Mio. hectares. The main tree species is spruce (54%), the second most important beech (10%). Broadleaved trees are getting more important. As a result of the historic developments most of the Austrian forest is in private hands. Biggest landowners are the state with 10 %, followed by the city of Vienna (water protection forests) and Mayr-Melnhof. Most of the 250.000 forest owners are farmers with forest holdings smaller than 2 ha. Therefore mobilization of wood for sawmilling and paper industry is very difficult as only the bigger forest owners harvest in regular intervals. The high demand for pellets has brought a significant upturn in wood harvest from small scale forests. 2009 Austria delivered about 17 Mill. m³ of wood, 55% of it for sawmills, 18% for pulp, paper and boards and the rest for energy production. 84% of the harvested wood is SPF (spruce pine fir).

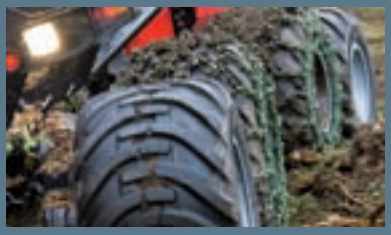
As Austria is a very mountainous country, the possibilities for harvester and forwarder are limited. According to the statistics, only 16% were cut by harvesters, nearly half of the wood was delivered by ground pull meaning being cut by chain saw mostly.

Austrian Forest Law forbids clearcuts bigger than 2 ha altogether. Clearcuts bigger than 0,5 ha need to be approved by the authorities. Thinnings must leave tress whose crowns cover more than 60% of the soil to prevent erosion. Stands younger than 60 years must not be cut except in rare occasions. Many stands protect human habitation, traffic routes or are in need of special management. Therefore there are many "protection forests" which should help against natural catastrophes. Extreme weather conditions and pest organisms take their toll and lead to a considerable forced harvest of nearly half the sold amount of wood annually.

At the woodyard of the Castell holding: The forwarder brings timber for temporary storage.

Cross-ply vs. radial

Based on their structure, tyres are traditionally divided into two categories: cross-ply tyres and radial tyres.



Cross-ply tyres have generally been considered more durable for forestry machines. The reverse side is that the more rigid structure makes the tyre more vulnerable to vibration, which affects driving comfort.

Radial tyres have a more flexible structure. Their typical special characteristics include maximum traction due to a wide contact area, good self cleaning properties and less vibration. Thanks to the wider contact area, radial tyres have a lower surface pressure than cross-ply tyres.

Patented reliability: Nokian Forest Rider and side-puncture protection

The Nokian Forest Rider is a unique forestry tyre in many ways. The patented side-puncture protection, combined with the radial structure, enhance its durability to the same level with the traditional cross-ply tyres. At the same time, the benefits remain: excellent traction and top-class driving response and comfort.

Low rolling resistance increases in significance

In the future, Nokian Tyres will increasingly focus on the energy economies of tyres. Magazine tests already indicate that Nokian tyres feature a lower rolling resistance than many of their competitors.

The rolling resistance of tyres accounts for as much as one-fifth in a passenger car's fuel consumption. Low rolling resistance can reduce the car's fuel consumption up to one-half a litre per one hundred kilometres. This translates into 12 g less CO2 emissions per kilometre.

A low rolling resistance is also an important feature for electric and hybrid vehicles, because it extends these vehicles' electric driving range. On the other hand, in heavy machines that can be used for more than 10–12 hours per day, the tyre's impact on fuel consumption and exhaust fume emissions plays an increasing role in purchase decisions.

The tyre's structure and material selections influence its rolling resistance. Novelties to be expected include the new generation of silica compounds and steel belt structures that generate less heat when driving and, consequently, reduce the rolling resistance. According to Nokian Tyres' estimates, in 2015 the best passenger car tyres will probably lower fuel consumption by 5 percent more than the best tyres of today without compromising any safety features. ■

» More information:
www.nokiantyres.com/environment

Added efficiency and reliability to forests and harbours

The heavy tyre offering will expand with new special tyres in the summer and autumn. The Nokian Forest Rider family of radial tyres with excellent traction properties will be complemented with two new members tailored for cut-to-length machines and sized 600/50R24.5 and 710/70R34.

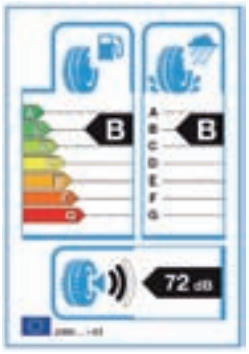
The sturdy Nokian Forest King TRS LS-2 special tyres will feature a further reinforced structure. Their increased load-bearing capacity and the tubeless structure add reliability and efficiency to demanding special use, for example, with soil cultivators and large skidders. The new load-bearing category for sizes 28L-26 and 30.5L-32 is 26 PR , earlier 16/18 PR.

Nokian Nordman Forest tyres offer a cost-efficient alternative particularly for older forestry machines or machines in need of a basic overhaul. Technical solutions proven in authentic working conditions guarantee efficient moving. They are durable and reliable to use. These cross-ply tyres will also perform without surprises in various harvesting tasks. The new sizes, 600/65-34 and 700/55-34, provide a good grip and running capacity for six-wheeled forwarders and harvesters. Also available sizes 600/55-26.5 and 710/45-26.5.

The new Nokian HTS Straddle adds stability to straddle carriers

The new radial tyre Nokian HTS Straddle revolutionises the work and working conditions of harbour straddle carrier operators. This carefully tested and uniquely stable tyre offers exceptional driving comfort and facilitates the transfer of massive containers. It makes the work controlled and safe. The

EU classification will facilitate tyre selection



The new EU regulation that will soon be introduced will make it easier for consumers to compare the environmental effects of different tyres. By the beginning of November 2012, all passenger car tyres sold in the European Union must be equipped with a label indicating their rolling resistance, wet grip and noise levels. The new regulations concern passenger car, van, truck and bus tyres.

The classification system is similar to that of the energy efficiency markings of household appliances. Tyres' energy efficiency is expressed in classes from A to G; for example, a C-class tyre reduces an average car's fuel consumption by some 2–3 per cent in comparison with a D-class tyre. The best tyres on the market at the moment would belong to class C.

Nokian Tyres has already tested the prototype of a new summer tyre that achieves more than 50% lower rolling output than summer tyres featuring the current technology. This prototype tyre would nearly make it to efficiency class A. ■

Nokian heavy tyres have been designed for demanding conditions. The tyres function reliably, for example, in the 530 metre deep Mir diamond mine in Yakutia, Russia.

first available size of this highly wear resisting and durable special tyre with low rolling resistance is 16.00R25.

Furthermore, the offering of environmental friendly flotation radial tyres designed for agricultural use is also expanding. The Nokian ELS Radial features special properties tailored for slurry tankers. Thanks to the large contact area, the low-profile radial tyre imposes considerably less surface pressure on the field than corresponding cross-ply tyres. The high load-bearing capacity adds efficiency to professional contracting. The steel belt structure enhances puncture resistance, particularly in terrain with sharp rocks. New sizes: 650/65R30.5, 750/60R30.5, 750/50R34, 850/50R30.5, 850/45R34, 800/60R34. Also steel belted 650/65R26.5, 650/60R34, 710/55R34, 800/50R34. ■

All heavy tyres to be equipped with Tyre Pressure LED

The pressure indicator that helps notice sudden drops in tyre pressure is now available for all Nokian special tyres tailored for heavy machines. Tyre Pressure LED is a led light fitted in the valve. If the tyre pressure of a forestry machine, for example, drops by 0.6 bar, the led indicator starts to flash.

The right tyre pressure can generate significant savings of time and money through avoiding unnecessary tyre puncture and other defects. With the pressure indicator, tyre pressure checks are needed less often.

New website for Heavy Tyres

Nokian Heavy Tyres has opened a new, more versatile website. The new site contains more information on products and instructions for selecting tyres. The front page features the tyre selector that shows the right alternatives for different areas and purposes of use.

In addition, the site contains news and test information from the world of heavy tyres, and information on Nokian Heavy Tyres as a company. Furthermore, there is a new site for customers in North America.

The fresh look of the site is in line with the Nokian Tyres Group's general visual guidelines. See the site at www.nokian-heavytyres.com. You can, for example, subscribe to NHT news by e-mail!

Every week, the Port of Rauma is visited by 25 vessels on their way to such destinations as Baltimore and Jacksonville in the United States. The most important clientele of the port consists of paper industry representatives. New possibilities related to energy products, such as the import of wood chips and export of pellets, are currently being explored.

The nuclear power plant construction site at Olkiluoto is in the port's area of influence, and many project deliveries are made via Rauma. In addition, the Port of Rauma is planning to construct a new container yard. The port operator Rauma Stevedoring provides ship loading, unloading and distributing yard services for customers in 16 different European ports. In the Port of Rauma, Stevedoring has recently invested, for example, in a terminal control system that optimises the amount of driving. The harbour yard is two kilometres long, so unnecessary trips add up to long distances.

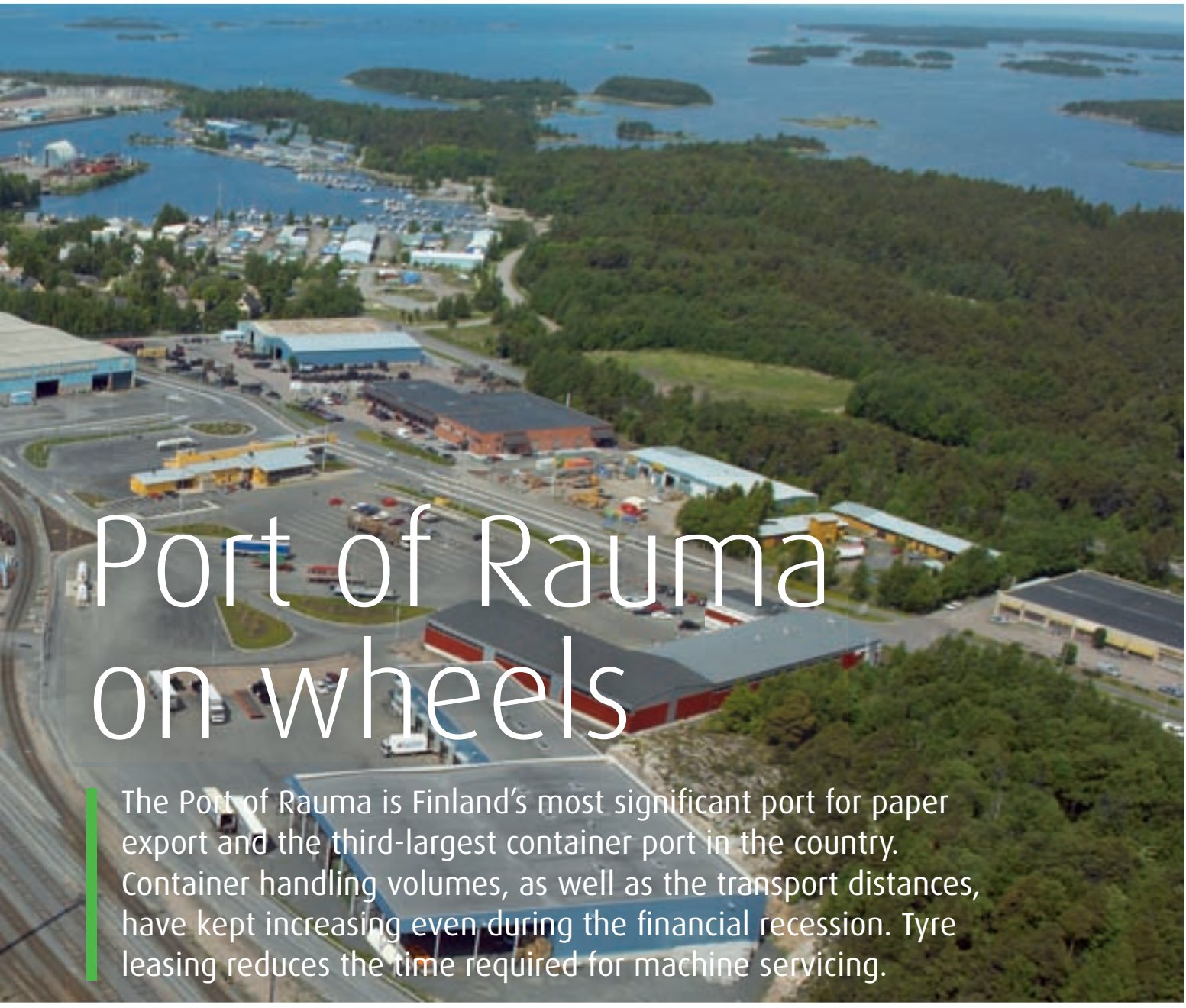
– Forklifts transport the contents of 150 railway wagons to the warehouse every day. The rails do not extend to the dock, so wheel transportation is needed between the quay and railway, explains **Petri Viinikkala** who is in charge of machine servicing at Rauma Stevedoring.

The Port focuses on preventive maintenance

The Port of Rauma has two container quays, but sometimes there are three container vessels at the same time. This means that one of them needs to be operated at a greater distance. As there is no reserve machinery, the utilisation rate and reliability of machines is crucial for flawless transportation – and port operations in general. The preventive maintenance and upkeep of machinery plays an important role. A member of Nokian Tyre group, tyre chain Vianor is the Port's partner in tyre servicing. It brings new tyres to the Port area and takes discarded ones away.

In 2009, Stevedoring and Nokian Heavy Tyres entered into a co-operation agreement on tyre leasing for a couple of reach stackers and their 18.00–25 size tyres. In this form of co-operation, the tyres used on the machines belong to the tyre manufacturer who is, consequently, responsible for ensuring that the port operations are not interrupted due to tyre damage. The tyre provider charges a fee based on the hours driven on the tyres.

– Tyre costs account for one-third of the total machinery costs, which makes tyres the



Port of Rauma on wheels

The Port of Rauma is Finland's most significant port for paper export and the third-largest container port in the country. Container handling volumes, as well as the transport distances, have kept increasing even during the financial recession. Tyre leasing reduces the time required for machine servicing.

second-biggest cost item after fuel costs. Before, we invested in new tyres, but now we only pay for the use of tyres. We trust the tyre provider's commitment to timely deliveries, which will also help us save costs, Viinikkala tells us.

Tyre condition is the provider's responsibility

The durability of tyres and upcoming tyre replacement needs are estimated on the basis of hours driven and tread measurements carried out in conjunction with the periodical machine servicing. Before, the operator had to make sure that new tyres were ordered far enough in advance before the replacement became necessary; now the tyre provider has assumed responsibility for monitoring tyre condition and controlling production. Vianor informs the operator of the upcoming tyre replacement. According to the agreement, the tyres are equipped with pressure watches.

– We expect to see a reduction in the number of interruptions caused by tyre damage, which will free our resources to other tasks. When it comes to tyres, the tyre manufacturer and provider is surely a better expert than the customer. I believe that expanding this co-operation will generate added value for us and the tyre manufacturer alike, Viinikkala says. ■

There are more than two hundred machines working in the Port of Rauma, with more than 1,500 tyres rolling under them, Petri Viinikkala tells us.

Matti Valli Port of Rauma & Matti Valli

Baltic Sea – the blue artery of freight traffic

The Baltic Sea is one of the busiest sea routes in the world. Of all the countries around the Baltic Sea, Finland is the most dependent on marine transportation – from the Central European perspective, Finland is like an island. More than 82.5 million tonnes of cargo pass through Finnish ports annually.

As much of 15 percent of the world's sea freight transportation takes place on the Baltic Sea. This means that at any moment an average of 2,000 ships are sailing the sea.

The economic recession of 2009 hit the Baltic Sea ports hard. In a survey conducted by the Centre for Maritime Studies, almost two out of three ports reported a decline in their cargo turnover. However, most of the ports believe that the cargo volumes will increase in 2010.

Competition between ports is fierce, and more than one-half of ports believe that it will become even tougher in the near future. Ports seek a competitive edge from specialisation and networking and take measures of various sizes to enhance their efficiency. ■

Sources:
The Finnish Transport Agency, Helcom, Centre for Maritime Studies, University of Turku

Plugi.fi / Viatseslav Robtsenkov

The Baltic Sea is a busy shipping route and also a very sensitive natural area. The Baltic region states' joint goals for improving the marine environment of the Baltic Sea are outlined in the Baltic Sea Action Plan by the Baltic Marine Environment Protection Commission (Helcom).

Top Finnish government officials – including the President – and the Baltic Sea Action Group (BSAG) launched a joint initiative to join the forces of the public, private and third sector for the benefit of the Baltic Sea. A culmination point of the initiative was the Baltic Sea Action Summit that took place in Helsinki in February 2010. The summit participants, such as Baltic Sea states, private companies and civil organisations, made their concrete commitments to the Baltic Sea. The commitments can be financial or based on activity, as long as they are in line with the Baltic Sea Action Plan. For example, several logistics companies, municipalities on the shore of the Baltic Sea, ports, as well as the Finnish and Swedish Shipowners' Associations made their commitments.

The Sleipner system gets tracks on wheels

Moving an excavator by driving it on its tracks is slow, because the machine can only move at a speed of a few kilometres per hour. The transfer system developed by the Finnish company Sleipner makes machine transfers easier and much faster: depending on the conditions, the maximum speed is 10–20 km/h. The additional capacity released for actual work thanks to quicker transfers is approximately 100–250 hours per year per machine, depending on the usage.

The inventor of the Sleipner system is **Ossi Kortesalmi** from Tornio, northern Finland. Working in the northern mines, he started developing the idea of transporting excavators more fluently.

One tyre alternative offered with Sleipner is the Nokian HTS E-4 (sizes 16.00-25, 18.00-25 and 18.00–33) up to the size category of 250 tonnes. This tyre type is also used for container and materials handling in harbours, goods terminals and industrial sites.

– The Nokian tyre is a good choice. We have delivered about a dozen devices equipped with Nokian tyres to several different countries. The demands for the tyres are high, because they must bear maximum loads even in the hot equator areas, Kortesalmi tells us.

Sleipner Oy

The Sleipner device was developed in the demanding conditions of the Finnish Lapland. One device is working close to home at the Agnico-Eagle gold mine in Kittilä.

Simple principle

Wear and tear caused by driving on tracks generates significant costs in excavator use. The Sleipner system helps at least double the service life of tracks. In addition, driving on tracks is also unpleasant – boring and noisy – for the driver. On rubber wheels, the transfer proceeds quietly and free of vibration harmful for the machine and operator.

The operating principle of the Sleipner system is simple and reliable: One end of the crawler is driven on the Sleipner unit, then the bucket is put on the dump truck and the other end of crawler tracks is lifted up using a boom. In this way, the excavator is like a trailer pulled by the dump truck that is also used for loading it.

Nearly 40 Sleipner units are deployed around the world, from Lapland to Australia and Chile, at such sites as opencast quarries and earthmoving sites. The system is available in different models for excavators of different weights, ranging from 50 tonnes to 400 tonnes.

The units are manufactured as contract manufacture in co-operation with component suppliers. Sleipner is a successful example of how a small company, relying on co-operation between individuals and companies, can develop an idea into an internationally competitive product. ■

Straddle carriers work 24/7

The Finnish company TTS Liftec Oy produces straddle carriers that enable exceptionally efficient logistics in challenging industrial environments. Such work also puts high demands on machine tyres.

– Our straddle carriers represent Finnish engineering, and the product is unique in the world, says **Hannu Kukkola**, Sales Support from TTS Liftec Oy. The straddle carrier is an efficient device for moving loads of up to 30 tonnes in cramped warehouse premises. It carries the cargo between its tyres, below the cabin.

– The straddle carrier is particularly suitable for situations where you have little room but much to move, Kukkola explains.

The straddle carriers are designed for process-like transportation activities that continue around the clock on all days of the week.

– Safe operation and good manoeuvring properties are essential characteristics. Even though our business with Nokian Heavy Tyres is of relatively small scale, we have always been served well, Kukkola compliments.

The straddle carrier SC-30 ready for delivery from the plant.

Hard work for tyres

At present, straddle carriers are mainly used at steelworks in the Nordic countries. The average operating area of a straddle carrier is no larger than one square kilometre, but one carrier may move a distance longer than one hundred kilometres during a standard eight-hour shift. A straddle carrier can easily complete 5,000–6,000 operating hours per year. In addition to durability, straddle carriers must be quick and agile.

Due to the heavy loads and high speed, straddle carriers need high-quality tyres. Loads are transferred between plant hangars, which means that the tyres must withstand continuous variation in temperature and function equally well indoors and outdoors, on asphalt and gravel. Some loads carried between the straddle carrier's tyres may feature temperatures higher than 600 degrees, and there is no time for cooling off.

– We must be able to trust the tyres in all conditions, Kukkola points out.

TTS Liftec uses the Nokian HTS E-4 special tyre on its straddle carriers.

– This sturdy cross-ply tyre with a rigid body improves the straddle carrier's steering properties and fulfils the high operational demands, Kukkola says. ■

Martti Vaalahti

Nokian Heavy Tyres' technical customer service offers advice and guidance for tyre users around the world so that they can use their tyres for a long time with a high output but no worries. In this section, **Jouni Hietamäki**, "Doctor Heavy", answers tyre users' questions and tells us how to make the most of heavy tyres.

Careful pressure maintenance saves time and money

How is the right tyre pressure determined?
The tyre pressure is determined on the basis of the load to be carried and usage target.

Machine-specific pressure recommendations are based on the most demanding usage conditions, as well as on the power and traction capacity of the machine. This ensures that the tyre functions normally even when the load is distributed unevenly between the tyres on steep slopes. In addition, we can offer tyre and tyre pressure recommendations relying on our extensive experience.

Complying with the pressure recommendation helps you ensure that your tyre achieves the planned service life.

How do I maintain the right pressure?
Good inflation pressure maintenance is the only way to ensure the tyre's reliability in all situations. We recommend a visual check every day or whenever you work with the machine. You can also use the led-based pressure indicator that warns you with a flashing light when the tyre pressure is below the recommended level.

Tyre pressure should always be checked in vehicle service, such as oil change, even though the visual check gave no reason to suspect lowered pressure. It´s hard to see pressure drop down from the sidewall of the sturdy forestry tyre.

A slowly starting leak can cause sidewall damage or initiate tube damage even before the pressure change is reflected in the driving properties.

Also remember to ensure that your pressure gauge is in good condition.

How does the pressure indicator work?
Tyre Pressure LED is a useful device that reduces the need to measure tyre pressure using a gauge. With the pressure indicator, it is impossible to miss the pressure drop.

The pressure indicator is a led light fitted in

Tyre Pressure LED will warn of dropping tyre pressure.

the tyre valve. If the tyre pressure of the forest machine drops by 0.6 bar, the light starts to flash. In order to ensure that the flashing light can be noticed at a glimpse. The black valve cap is replaced with white one so the flashing can be seen outside. This simple solution saves time and money!

The pressure indicator will warn of dropping tyre pressure.

How can I get a pressure indicator for my tyres?

Please, contact Nokian Heavy Tyres' customer service.

What happens if the tyre pressure is too low?

Low pressure can lead to sidewall damage and chafing against the rim. It can also cause the tyre to rotate on the rim or damage the tube.

When working in cold conditions, you must remember that the air inside the tyre shrinks when it freezes, which lowers the tyre pressure. You can inflate the tyres to a slightly higher pressure for the winter season.

What happens if the tyre pressure is too high?

Excessively high pressure weakens the tyre's puncture resistance, i.e. sharp puncture can penetrate the tyre more easily. Moreover, it deteriorates the tyre's ability to rolling over cleats or obstacles: when passing over an obstacle, the tyre does not give in, which increases the vibration and shaking experienced by the machine operator.

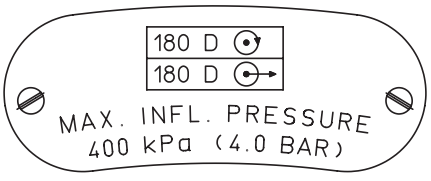
When the tyre pressure is too high, it takes longer for the tyre to reach the operating temperature, and its service life shortens. Excessive pressure causes a similar burden to the tyre as overpressure in the hydraulic system.

Furthermore, excess tyre pressure is also a safety risk. The maximum pressure defined by the manufacturer may only be exceeded slightly in order to adjust to cold weather!

Example: Forest tyre size 700/55-34, standard pressure 2.4 bar
Pressure down from the excessive 4.0 bar to the standard 2.4 bar

- 80% improvement in puncture resistance
- 50% improvement in "swallowing" ability.

The maximum pressure for seating the tyre on the rim is indicated on the sidewall of the tyre.



The maximum pressure of the tyre can be found on the sidewall of the tyre.

What else do I need to take into consideration?

- With chains we recommend using machine-specific inflation pressures.
- With tracks we recommend using maximum inflation pressure of tyre.
- When transporting tyres it is recommended to reduce inflation pressure, due to safety reasons such as the fire explosion hazard.
- The pressure for seating on the rim is indicated on the sidewall of the tyre. When mounting the tyre on the rim, you must not exceed the pressure indicated on the label, 2.5 bar. If the tyre doesn't seat on the rim, detach the tyre and rim from each other and find out the reason for the problem. The same point can also be stated as follows: "Warning: never exceed 35 psi in seating beads".

What should I do if tyre pressure drops?

Find out why this happens. If the tube is leaking slowly, have the tyre fixed immediately in order to avoid greater damage.

What should I do if a tyre is damaged?

Try to prevent the damage from spreading, for example, by lightening the load. If the damage can be fixed, this should be done as soon as possible in order to achieve the tyre's normal service life. Avoid driving on flat tyres.

A puncture, for example, does not always leave a clear mark on the tyre, even though the tube was damaged. Try to find out the cause of the damage immediately.

After the repair, make sure that there are no uneven spots inside the tyre or on the rim, because such spots make the tube vulnerable for new damage.

» Ask more about tyres:
www.nokianheavytyres.com
heavytyres@nokiantyres.com

Reinforced paws take you to the forest even when it's wet

The increased need for harvesting in the summertime has driven machine designers to develop forestry machines that are also suitable for terrain with poor load-bearing capacity. Metsäteho Oy tested various tyre and track solutions in marshy terrain in central Finland, in autumn 2009.

Teemu Vainionpää checks the tyre pressure of Nokian Forest Rider in John Deere 1110D.

There are significant harvesting reserves on soil with poor load-bearing capacity and a need to exploit these reserves for the forest industry and as energy sources. At the same time, the optimal harvesting season has become shorter, and many of the past few summers have been very rainy, says **Kalle Kärhä**, special researcher from Metsäteho Oy.

– Companies have been conducting a lot of research and developed their equipment. In addition to different track solutions, one novelty on the market is the radial Nokian Forest Rider forestry tyre that enables driving with lower tyre pressure without damaging the tyre.

Metsäteho Oy is a research and development company owned by leading Finnish forest-industry companies. It wanted to test different machine and equipment options in similar conditions. The test area was in a spruce forest. The surface was peaty soil with poor load-bearing capacity, but it was not particularly soft.

Ponsse Wisent

The test results showed that lower tyre pressure significantly enhances harvesters' terrain properties. However, tyre pressure can only be adjusted within the recommended range given by the manufacturer.

– Lower tyre pressure means lower load-bearing capacity. This must be taken into account when planning the loads, notes **Teemu Vainionpää**, Product Development Engineer from Nokian Heavy Tyres.

– Between harvester with tracks and harvester with lowest air pressure the depression of the soil was in the same level. The smallest depressions were left by 8- and 4-wheeled harvesters driving with minimal tyre pressure, as well as a harvester with solid tracks, Kärhä tells us.

With forwarders, lower tyre pressure increased the number of rounds driven, but it had no significant impact on the soil depression depth.

– The equipment used in test is not fully comparable. The radial tyres tested were 710 mm wide, whereas the track width varied from 800 mm to over 900 mm.

Wide tracks add the desired load-bearing capacity but, at the same time they require wide enough harvesting lines in the forest in order to

	Ponsse, Hannu Airavaara, Development Director	Pro Silva, Lasse Karilainen, Managing Director	John Deere, Kalle Seppi, Forestry Expert	Valmet/Komatsu Forest, Timo Ylänen, Managing Director
Tested equipment	Harvester: Ponsse Fox + Trelleborg tyres Forwarder: Ponsse Wisent 10-wheel, 710/45-26.5 Forest King F, rearmost tyres 710/40-22.5 Forest King F + tracks	Harvester: Pro Silva 910 4-wheel, 700/70-34 Forest King TRS Pro Silva 810 T, solid tracks Forwarder: Pro Silva 810 T, solid tracks	Harvester: John Deere, 6-wheel, bogie with 710/45R26.5 and 710/55R34 Forest Rider Forwarder: 1110D, 8-wheel, 710/45R26.5 Forest Rider with and without tracks	Valmet did not participate in Metsäteho's test in Pälkäne. We have monitored the results of this test, as well as other corresponding tests, and conducted our own tests on soft soil, both in Finland and abroad.
Results	The soil was relatively well-bearing during the test; the 10-wheeled forwarder could ride on softer soil. It is, nevertheless, important to ensure that the harvester does not ruin the soil first.	The test involved our four-wheel harvester and a forwarder with solid tracks. We have carried out our own tests with low tyre pressure on our harvester for 18 months without any problems. The prototype of our solid-track machine has been used for a couple of years, and it has proven to be a good solution for soft-soiled terrain.	The machines involved in the tests are owned by a private contractor; we monitored the test results slightly 'from the outside.' The test results did not include many surprises. However, it was interesting to notice how important the efficient use of harvesting waste is. The machines used in the test were slightly heavy for this purpose but they did well.	Our starting point is that a general-purpose machine should be equipped to also suit soft-soiled terrain. Many contracts also involve normal stands, so it is useful to be able to mount or remove tracks as needed. We take the need for special equipment into account already at the machine manufacture phase.
In the future	The 10-wheeled forwarder we have developed has been tested with Metsähallitus and the Finnish Forest Research Institute (Metla), and it has been stated that it is particularly suitable for soil with poor load-bearing capacity. We are pleased with the solution. Next summer will tell how extensively harvesting will be practiced on soft soils.	Our basic machine is ready, but we are surely interested in special solutions. Supplying domestic raw material for the Finnish forest industry and harvesting energywood are fully viable options as long as people step up with harvesting. All we need is to have the right machine in the right place.	No big changes are planned for our basic machines, but we will adjust our fleet according to needs. Time will tell if we have the need for special equipment. In addition to the Finnish markets, the company is also looking at other market regions in need of soft-soil products.	We are still actively looking for solutions for harvesting on soil with poor load-bearing capacity. I believe that summertime harvesting on marshy soils in Finland will increase. Many regions offer good harvesting conditions in the summer, as long as the equipment is correctly chosen and equipped. In addition to Finland, solutions for soils with poor load-bearing capacity are needed in other countries, as well.
We recommend	For harvesting on soil with poor load-bearing properties, we recommend the Ponsse Fox 8-wheeled harvester with load-bearing tracks, and our recommendation for forest transportation is the Ponsse Wisent 10W forwarder with corresponding tracks. The 8-wheeled Ponsse Dual is also suitable for soft soils.	For soft soil, we recommend our new Pro Silva 810 T machine with solid tracks that has just been taken into serial production.	For soft-soiled terrain, we recommend our six-wheeled harvester models 770D or 1070E and the forwarder models 810E or 1010 E with eight wheels, all with Olofsfors tracks. The batch processing equipment adds profitability for all thinning operations.	Our smallest forwarder, the 830.3, has been a very popular choice for harvesting on soft soil. Our latest solution is the 840 TX, a design tailored for thinning that can easily be equipped with extra broad tracks. Our lightest harvester, the 901.4, is the most suitable for soft soil, but the 901 TX and 911.4 will also perform well on such sites, as long as they are correctly equipped.

prevent damage to trees and roots.

One major finding was that the good use of harvesting waste in harvesting lines was very important thing in preventing soil depression. That's why the best working place for harvesters without tracks is place where lot of harvesting waste is available.

When using forwarder with tracks the difference between good and poor use of harvesting waste appeared only after several rounds.

Forwarders equipped with additional wheels and load-bearing tracks are well suited for harvesting even on soft soil.

The solid tracks proved to be a promising solution, especially for the harvesting of energywood on soil with poor load-bearing capacity.


John Deere 1110D

– For use with tracks, we recommend the cross-ply tyre Nokian Forest King F, which is particularly designed for use with tracks, or the radial Nokian Forest Rider that has also proven to perform well with tracks in tests, Teemu Vainionpää says.

The test soil was peaty, but due to poor drainage, even mineral soils can be soft after heavy rainfall. Therefore, machine designers have set their sights beyond the peaty Finnish soils, to the soft-soiled terrains of eastern and central Europe. ■

Jaana Beversdorf Metsäteho Oy

The human factor

Also in business, the human factor is what matters. In 1985, **Raoul Narodoslavsky** introduced himself and the Finnish tyres to the biggest Austrian tractor manufacturer, Steyr, which was just starting a dedicated division for forestry and communal services machines. Today, Steyr sells hundreds of machines on this field per year, all equipped with Nokian heavy tyres. At the same time, the good working relationship is being handed over to the new management.

Each Steyr machine is adapted to the requirements of the customer. Every tractor must get its "tailor-made shoes" — and all of them come from Finland. Nokian Heavy Tyres became the competent supplier because they were the only ones who could meet all tyre requirements then and now.

A friendly talk in the green setting. From left to right Raoul Narodoslavsky (Forestree) and the CNH representatives Xenia Eckel, August Schönhuber and David Schimpelsberger find a common topic of interest during a walk in the forest.

CLASSIC

Nokian Forest King F

The stable Nokian Forest King F with high load-bearing capacity is the safe choice when working in areas that require the use of tracks.

- Very stable cross-ply tyre for demanding forestry use
- Durable tread and side wall for excellent operating hours
- Excellent grip and high load-bearing capacity
- Very good compatibility with tracks and chains
- Scuffing ribs on the side of the tyre to reduce sidewall wear caused by tracks.
- Steel protection against punctures
- Cleans well

The former head of sales of forest and public service machines in Austria, **Reinhard Bistricky**, remembers the first contact between the companies well.

– Then two specialists found one another, describes also **Wolfgang Scherrer**, who was responsible for this division at Steyr for Europe until 2009.

When customer Steyr and supplier Forestree – the Austrian specialist for Nokian Heavy Tyres – meet it is clear that there is more between the persons involved than a pure business contact. The agenda is put through in a friendly atmosphere. Both sides are playing with all cards up and all problems are faced squarely.

For example, recently at the Steyr factory at St. Valentin a new type of public service tractor was delivered with wider tyres than what had been ordered. Without a loud word the whole order process was analyzed, the reason of the deviation identified. This was all done immediately at a high enough level: by the new key account manager for forest and communal service machines Europe at Steyr, **David Schimpelsberger**, and the product manager for special tractors, **August Schönhuber**, with Raoul Narodoslavsky.

At a local level, Forestree is a real partner of the Case New Holland (CNH), which Steyr is a part of now.

– Nokian is represented at two levels here. On the one hand, with the typical series equipment, which every customer can specify when ordering a machine. On the other hand, there is the very important area of special solutions. In cooperation with our technical experts every customer will get the optimum equipment as far as technical or legal limitations allow, describes Schimpelsberger.

The St. Valentin works is the competence centre for forest and communal service tractors in the whole CNH group, the research and development is carried out only on Nokian heavy tyres. For example, a small communal tractor was equipped with Nokian SUV tires on the front axle.

Great flexibility, the ability to meet all the customers' needs and fast over-the-phone service were the reasons why Nokian became the competent supplier. For example, "Steyr Trägerfahrzeug" – today Doppstadt Grizzly machine – was used as a high performance snow cutter-blower. To work in alpine regions with much light powder snow the only possible tyres were Nokian wide base tires. This solution is still in operation in the Alps and in the Himalaya.

Another milestone was the first wide base tyre tractor, which was produced in 1991. This machine is still in operation in an Austrian forest holding as the first of many with low-pressure tyres.

August Schönhuber is also very impressed about the big stock Forestree is upholding.

– When in whole Europe something cannot be obtained, Forestree as a small company is bound to have it in stock and can always deliver on short notice.

– It is our duty as a supplier to offer the best service for our customers, Raoul Narodoslavsky says.

Steyr will cooperate with Nokian Heavy Tyres in the future and promises to intensify the deals. They are planning to include a tyre pressure warning system with every forest and public service machine in the future as standard. Then the tyres would have longer duty time, the damages would be less and the customer would be more satisfied with the product. And this is also a goal in business: The customer should come back and recommend the machine — the Human factor in short. ■

Steyr

- Established in 1864
- In 1915, the company manufactured its first tractor, and in 1916, its first car
- The mass production of Steyr's tractors started in 1947
- In 2008, the company manufactured 11,500 products

Steyr is part of the Case New Holland group, which is one of the world's largest producers of agricultural machines. The CNH group has 38 production facilities around the world and it employs approximately 30,000 people.

FUTURE CLASSIC

Nokian Forest Rider

The Nokian Forest Rider is the world's first functional forestry tyre with a radial structure. The sturdy radial structure can be felt and seen as a large contact area that gives the tyre impressive grip on even slippery and difficult routes.

- The only radial tyre for CTL forestry machines
- Stable radial tyre also available for massive tractors and forestry machines
- Excellent traction capacity
- Low rolling resistance reduces fuel consumption
- Supreme driving comfort even on hard surfaces
- Cleans easily and does not damage soft soil
- Patented side puncture protection
- All sizes tubeless construction

Rhino Rocket goes

Truck pulling – also known as tractor pulling – is a sport in which a pulling sledge is pulled over a track that is 10 meters wide and 100 meters long. 100 meters equals a full pull. Stef Smits tells us more.

When more than one competitor achieves a full pull, the pulling sledge is made heavier until one team has pulled the longest distance. With 14 matches during a season, the team with the most points wins the competition.

Our team, Rhino Rocket, started with ten enthusiastic people in 2006. We are all working in or have jobs related to the agriculture or truck business. In August 2006 we started preparing our truck and during 2007 we started taking part in the NTTO national championships. NTTO is the overall organization for the truck and tractor pulling classes in the Netherlands and is connected to the European ETPC organization.

We are using an Iveco Magirus truck with an Iveco V8 engine with a capacity of 17.2 litres. We changed the engine in order to achieve more horsepower. For example, we fitted a new camshaft together with two big turbos, and flowed the cylinder heads. The fuel pump and the injectors have also been changed in order to get more power. At the moment, the engine produces 1800-1900 hp at a maximum 2900 RPM. We use 5-6 litres of gasoline during a run of 100 meters.

for the full pull

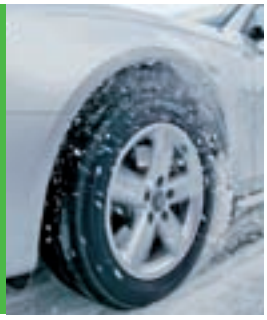
Our goal is to become the national champion in our class, and European champion in the future.

We have used the Nokian ELS 700/50R26.5 tyre right from the start in 2007. As the engine power has increased, we have wanted to improve our tyres in order to achieve more grip on the track. We have been very pleased with the Nokian tyres, so we are happy that Nokian Heavy Tyres is interested to do co-operation with our team and we have just received new specially prepared tyres based on the Country King tyre. ■

WIN WINTER TYRES!

How did you like the new Heavy magazine? Which article most interested you? Which topics would you find interesting in the future? Give us feedback and see our new website at www.nokianheavytyres.com. Navigate to the feedback form at the top of the page. All recipients participate in a drawing for one set of Nokian winter tyres.

Please, give us feedback at www.nokianheavytyres.com!



nokian
FOREST RIDER

At home in the forest

Only purified oils,
no toxic chemicals

Nokian Forest Rider has convinced the forestry machine world with its driving comfort and first-class traction. And the revolution continues. This trailblazing radial tyre is going strong, even tubeless. The patented side puncture protection makes the tyre safe and durable.

Nokian Forest Rider
– Radial tyre's top comfort and absolute traction

Nokian Heavy Tyres Ltd
P.O.Box 20
FI-37101 Nokia
Tel. +358 10 401 7000
info@nokiantyres.com

See importers worldwide: www.nokianheavytyres.com

Visit us at
the Interforst 2010 Fair
in Freigelände F6,
Stand 603/09!