

Sporty handling, first-class snow grip

The new Nokian WR A4 winter tyre to tame the Central European winter



The sporty new Nokian WR A4 from the world's northernmost tyre manufacturer optimally combines high-performance handling and reliable winter grip. Functional Performance Siping and the Performance Traction Silica rubber compound are the inventor of the winter tyre's state-of-the-art innovations that master all the elements of the Central European winter and rapid temperature changes. They ensure absolutely balanced driving in snow storms, slush, heavy rain or sun-scorched asphalt that welcomes faster driving. Inspired by nature, the Centipede Siping on the centre rib is the latest winter grip innovation from the product development champions at Nokian Tyres. The jagged 3D sipes that resemble a centipede grip the surface, maximising snow grip and stable handling.

The size selection of this premium winter tyre for high-performance vehicles covers sizes from 16 to 21 inches and speed ratings from H (210 km/h) up to W (270 km/h). The versatile selection also includes sizes for modern electric cars, such as the Tesla Model S. The special products in the selection employ Flat Run technology, and many products are marked XL

for the highest possible load capacity in that particular size.

During the past winter, Central European drivers were already able to enjoy the Nokian WR D4 with its class A wet grip rating in many sizes and the Nokian Weatherproof All-Weather tyre for year-round use. The new Nokian WR A4 complements Nokian Tyres' Central European winter tyre selection, which is one of the widest and most modern in the business. This uncompromising winter tyre represents the new generation that follows the Nokian WR A3. The full size selection of this new premium product will be available to consumers in the autumn of 2016.

Tested safety

The improved snow and slush grip properties of the sporty Nokian WR A4 are the result of over four years of development. The tread patterns, structures and rubber compounds represent Finnish state-of-the-art expertise and they have required thousands of hours of computer modelling, laboratory comparisons and authentic testing in varying conditions. More than half of Nokian Tyres' product development costs are spent on relentless testing around the world.

The safety properties of the Nokian WR A4, a champion of varying winter weather, were fine-tuned at Nokian Tyres' own "White Hell" testing centre in the arctic winter of Ivalo, Lapland. The unique slushplaning test method available on our Nokia test track allowed us to bring the slush properties of

the tyre to a new level. The exemplary wet and dry road properties were refined on Central European test tracks in Germany and Spain.

Reliable, care-free driving

The Nokian WR A4 has an asymmetrical tread pattern that allows it to steer precisely and responsively on bare roads and slush alike. The excellent handling and mastery of all the elements of winter is based on several innovations and, in particular, on the **Functional Performance Siping** technology, where each area, tread block and sipe of the stylish tread pattern has its own, computer optimised role. The stiff outer shoulder, the **Centipede Siping** in the centre area and the zone-optimised siping that also works with full effect on the inner shoulder all form a controlled combination that allows the Nokian WR A4 to roll safely and comfortably.



- In the new Nokian WR A4 winter tyre, state-of-the-art technology truly serves functionality as well as the needs of the driver. It steers as precisely as a summer tyre on dry and wet autobahns or in the busy urban traffic. In case of snowfall, it retains logical grip both in thick snow and in the ever-dangerous slush. You can always rely on it to bring you home safely, says Product Development Manager **Olli Seppälä** from Nokian Tyres.

The sturdy and stiff outer shoulder ensures stable, controllable handling at higher speeds. The different-sized tread blocks cannot move as speed increases, as they are closely tied to each other with the support lifts. The 3D lock siping of the tread blocks improves lateral stiffness.

The Nokian WR A4 responds quickly and precisely to steering and maintains a comfortable noise level. This is the quietest Central European winter tyre in Nokian Tyres' range.

Maximum snow grip – Centipede Siping



The centre area is dominated by a sturdy longitudinal rib consisting of tread blocks with jagged sipes that resemble the footprints of a centipede. The staggered 3-dimensional **Centipede Siping** offers maximum contact surface and works with full effect at different turning angles, increasing grip on snow and slush and improving control.

- Grip remains firm and logical. The driver can easily sense the grip limits, which especially facilitates quick evasions on roads that are made slippery by snow or slush. The rib also has hinges at the ends of the blocks, which reduces block movement. This lowers

rolling resistance, which in turn improves fuel efficiency and wear resistance, Seppälä says.

The inner shoulder's fan-like rib pattern with functional tread blocks and **Blade Grooves** efficiently routes the snow and slush away from the contact surface. The sipes staggered at different angles provide effective longitudinal grip and acceleration grip on snow, in particular. Wide longitudinal grooves offer lateral grip. The excellent winter grip is further improved by the block pattern that is shaped on the inner shoulder side of the centre rib. It is partially equipped with hinges and sipes. The small, heavily siped tread blocks are grooved so that every other sipe is attached on the left and every other on the right.

More winter safety, excellent handling

The shoulder blocks of this grip champion have strong and dense siping that is tailored for each tread block and lowers when heading towards the shoulder from the centre.

- The precise design improves grip on snow as well as the driving feel required for cornering and lane changes. The tread blocks are also supported by strong **Groove Lifts**, which increase stiffness and improve handling, Seppälä says.

The edges of the longitudinal grooves on the Nokian WR A4, a reliable performer in any winter weather, have **Snow Claws** which improve longitudinal grip especially on snow. Tests indicate that the Nokian WR A4 offers first-class grip and handling on dry and wet roads. The largest improvements have been achieved on snow, where grip and handling are up by over 5% when compared to the Nokian WR A3.

Effective aquaplaning prevention – Coanda Technology

Water is also a common element on Central European winter roads. Grooves on the road particularly increase the risk of aquaplaning. The new Coanda Technology combats the risk of aquaplaning. An element was constructed on the edge of the tread blocks on the Nokian WR A4's inner and outer shoulders that allows water flow to be more effectively routed into the transverse grooves. The removal of water and slush is also expedited by the polished longitudinal grooves – and, for the first time, also the polished transverse grooves that accelerate the flow of water.

The Performance Traction Silica rubber compound ensures exemplary grip

The tread compound of the new product uniquely combines the Nokian Hakkapeliitta type rubber compound designed for the demanding and cold Northern winter and a silica-based compound that provides excellent performance in milder weather. The end result is the **Performance Traction Silica** rubber compound, an entirely new design that contains functional elastomers, natural rubber, silica and canola oil and offers peak features for both snow grip and wet grip.





The natural rubber and canola oil in this unique compound that is fine-tuned for sporty driving ensure that the excellent winter grip properties remain the same, even as temperatures change and the kilometres add up. The lightly rolling tread pattern and high-tech winter compound can be felt in the excellent wear resistance and fuel savings. The Nokian WR A4 has extremely low rolling resistance, better fuel economy and lower hazardous emissions than its traditional competitors.

Comfortable and quiet driving

In addition to safety, driving comfort is also an essential part of a positive driving experience. The precisely optimised tread structure and new innovations ensure that the Nokian WR A4 has a calm and quiet road contact at different speeds and on different road surfaces.

Silent Sidewall Technology improves driving comfort. The tailored special rubber compound between the sidewall and tread actively filters the sound and vibration originating from the driving surface, preventing the passage of sound waves that irritate the human ear through the sidewall into the rim and further into the passenger compartment.

A special Clinch rubber compound was also developed for the Nokian WR A4's bead area near the tyre. It also effectively minimises interior noise in the vehicle by damping the vibrations from the tyre body.

Winter Safety Indicator increases safety and driving comfort

Good tyres are a prerequisite for smooth winter driving. The tread has the **Driving Safety Indicator (DSI)**, developed and patented by Nokian Tyres, which improves winter safety; it also comes with the snowflake symbol of the **Winter Safety Indicator (WSI)**.

The additional fields on the sidewall information area improve safety and comfort. During a tyre change, the information area can be used to record the correct inflation pressures, the usage location as well as the tightening torque of the wheel nuts. Correct tyre pressure makes the car's steering more precise, reduces tyre damage and saves on fuel costs.

New Nokian WR A4 – Forget the Forecasts

- Advanced winter grip on dry, wet and snow-covered roads due to Functional Performance Siping
- Extremely stable and balanced high-speed performance
- Maximum comfort

Main innovations:

Functional Performance Siping. More winter grip, better steering feel. Each tread block and sipe in the stylish tread pattern has a precise shape and role, and this can be felt in the excellent grip and handling properties. The stiff outer shoulder, the Centipede Siping in the centre area and the zone-optimised siping all form a controlled combination that allows the Nokian WR A4 to roll safely and comfortably in varying Central European winter weather.



Centipede Siping. Maximum snow grip, precise handling. The centre area is dominated by a sturdy longitudinal rib consisting of tread blocks with jagged sipes that resemble the footprints of a centipede. The staggered 3-dimensional Centipede Siping offers maximum contact surface and works with full effect at different turning angles, increasing grip on snow and slush and improving control.

Performance Traction Silica rubber compound. Precise grip, excellent wear resistance, low fuel consumption. The rubber compound, which contains natural rubber, silica and canola oil, ensures excellent winter grip. This state-of-the-art compound innovation also improves driving stability and wear resistance. Canola oil provides tear strength. Tear strength makes the tyre extremely resistant to wear, impacts and punctures. The large amounts of natural rubber and rapeseed oil ensure that the excellent winter grip properties remain the same even as temperatures change and the kilometres add up. Extremely low rolling resistance results in low fuel consumption.

Groove Lifts. Excellent handling. The tread blocks on the tyre shoulders are supported by steep groove lifts that increase stiffness and improve handling.

Snow Claws. Strong snow grip. Snow Claws were shaped on the longitudinal grooves of the tread blocks to provide much-needed grip on winter roads. Snow Claws grip the surface relentlessly on soft snow and in soft terrain.

Nokian Tyres Coanda Technology. Effective aquaplaning prevention. The curved, ramp-like design of the tread blocks on the inner and outer shoulder guides and accelerates the flow of water from the longitudinal grooves into the transverse grooves. The excellent aquaplaning prevention properties are retained, even as the tyre wears down.

Silent Sidewall Technology. More driving comfort. The tailored special rubber compound between the sidewall and tread actively filters the sound and vibration originating from the driving surface, preventing the passage of harmful sound waves that irritate the human ear through the sidewall into the passenger compartment.

Special Clinch rubber compound. Optimised durability, lower rolling noise. The rubber compound presses flexibly against the wheel flange, providing the bead area with more durability. The innovation also effectively minimises the interior noise, since it dampens the vibrations from the tyre body, preventing them from passing into the tyre and further inside the vehicle.

Polished Grooves. Safety and elegance. The polished longitudinal and lateral grooves facilitate the removal of snow and slush.

Product photos: www.nokiantyres.com/NokianWRA4

View video: <https://youtu.be/XhxQRgdxWiA>

Read more:

Nokian Tyres - The world's first winter tyre with an AA rating
www.nokiantyres.com/innovation/research-and-development/top-aa-category/



Nokian Hakkapeliitta R2 Nokian Tyres - State-of-the-art green winter tyre technology for electric cars

www.nokiantyres.com/innovation/research-and-development/top-aa-category/nokian-hakkapeliitta-r2-the-world-s-first-winter-tyre-with-an-a-energy-rating/

Testing in extreme conditions

www.nokiantyres.com/innovation/testing/

At the top of winter tyre testing: Ivalo Testing Center – White Hell

<http://youtu.be/UEGUTw7KHxE>

World's first winter tyre with pop-out studs

www.nokiantyres.com/company/news-article/nokian-tyres-the-world-s-first-nonstudded-winter-tyre-with-studs/

Nokian Hakkapeliitta 8: World record for the fastest car on ice, 335.713 km/h:

www.nokiantyres.com/innovation/testing/fastest-on-ice/fastest-on-ice-2013/

How was the world's first winter tyre invented?

www.nokiantyres.com/first-winter-tyres

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