Nürburgring Nordschleife: Aremberg Corner

YOKOHAMA

The Yokohama Rubber Company, Limited

5-36-11 Shinbashi, Minato-ku, Tokyo 105-8685 Japan
Corporate Planning Department
+81-3-5400-4630
http://www.yokohamatire.jp/
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Made in Germany

Love Driving.

Tires that match your car's performance potential.

Performance in tune with your own heart.

You love your car, and you love pushing it to the limit.

We created ADVAN just for you. ADVAN.

The sum total of Yokohama's passion and uncompromising technology.

Always moving forward. Always innovating.

ADVAN

ADVAN
Sport V105

Concept-01

ADVAN
The Name Given only to Tires that Can Take on Nürburgring. And Win.

Harsh hardly describes Nürburgring.
Yet only those who have rounded the ring time after time,
only those who know each curve, each crack, each cobblestone,
only those few can evolve into truly high-level performance.
Its only natural that Nürburgring became
the starting place for ADVAN Sport V105 development.

Nürburgring. A Hallowed Ground where Goblins Dwell.

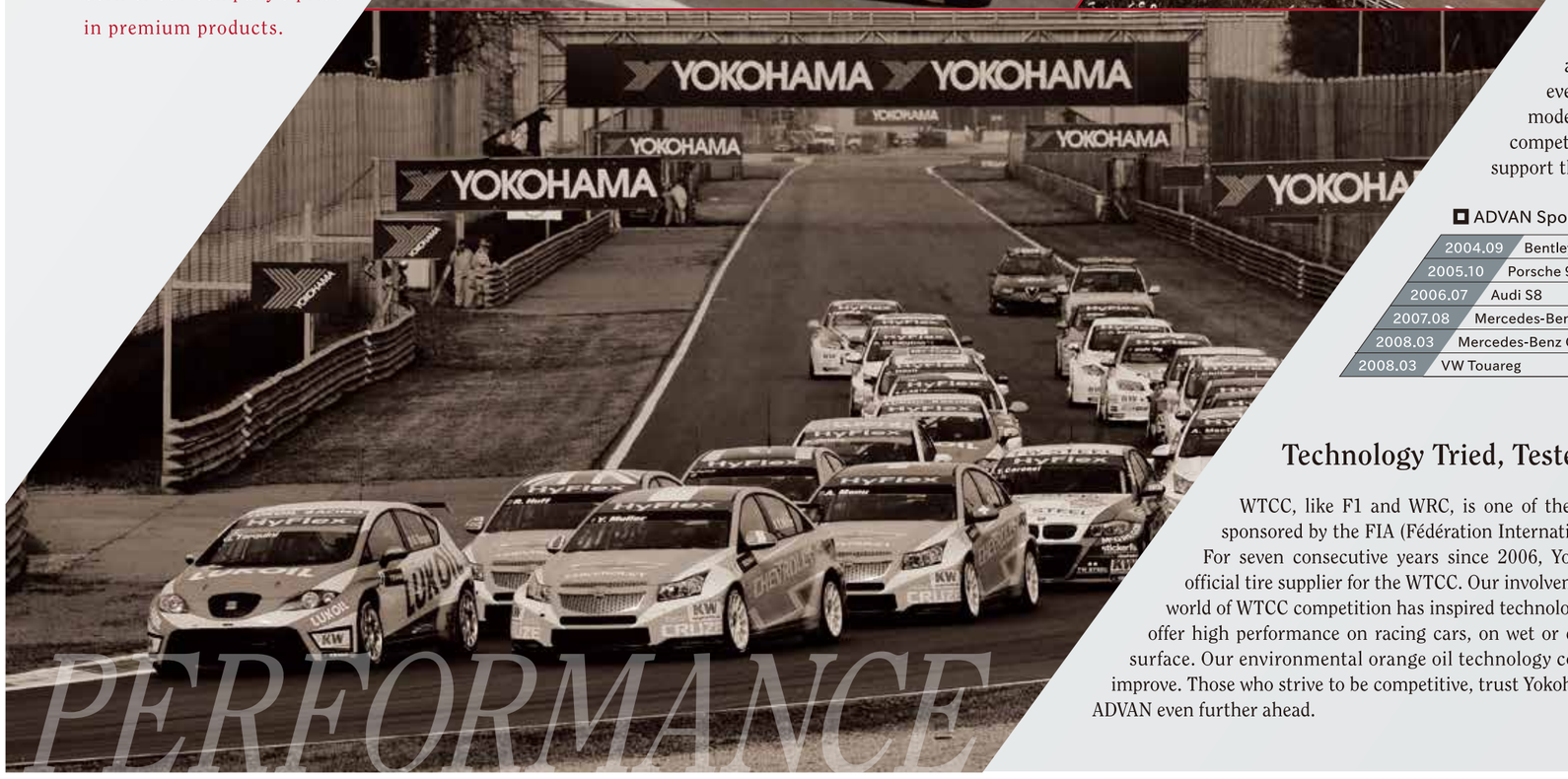
For the world's car manufacturers the Nordschleife (north ring of Nürburgring) is hallowed ground. It's one of the roughest, toughest circuits in the world. No wonder they say, "Goblins live there." Over a total length of 20.8 km, there are corners of all kinds, 172 of them, to be exact. Elevation varies by some 300 meters. Most of the corners are blind, and that demands emergency braking and quick steering, which puts cars and their tires through hell. This course gives tires some tough problems to overcome and that discipline helps us make better tires.

The ADVAN Base in Europe

Yokohama's set up its Nürburgring development base in the early 1980s. Since then, this no-holds-barred environment has honed our development skills and helps us create some of the world's best tires. And we've repeated the cycle many times over. Of course, Yokohama's development team doesn't measure success by lap times. Instead, they pursue high-speed stability, braking performance, handling, and much more. At all times, they are quietly and objectively analyzing just what a high-performance tire should offer. They must know Nürburgring completely. Because that's the crucible of high-performance tires that can take anything the world can throw at them.

Going Forward. Leading the New ADVAN

Nürburgring brings out the demand
for high performance tires
that premium cars and
motorsport teams require.
ADVAN is Yokohama's
flagship brand,
born of our company's pride
in premium products.



PERFORMANCE

The tire preferred by the world's foremost car manufacturers

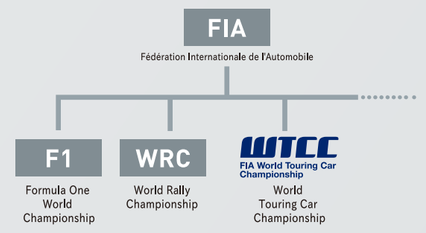
Top car manufacturers like Porsche, Bentley, Audi, and Mercedes-Benz have always made ADVAN the top choice for original equipment tires on their flagship models. Of course, they demand high performance. But that's just the beginning. Tires must deliver a comfortable ride, and be eco-friendly. Within these specifications, the V105 offers everything premium car manufacturers want and need when developing new models. The technologies that come from a passion to win, whatever the field of competition. Trust in quality. Continuing innovation. These are the qualities that support the partnership between Yokohama and the best of the world's car industry.

■ ADVAN Sport: Original Equipment for Major Car Manufacturers

2004.09	Bentley Continental GT	2009.05	Audi Q7
2005.10	Porsche 911 Carrera	2009.07	Mercedes-Benz C-Class
2006.07	Audi S8	2010.08	Porsche Cayenne
2007.08	Mercedes-Benz CL63/CL65 AMG/ML65 AMG	2011.01	Audi A7
2008.03	Mercedes-Benz C63 AMG	2011.05	Mercedes-Benz CLS-Class/SLK-Class
2008.03	VW Touareg	2011.12	Mercedes-Benz SL-Class

Technology Tried, Tested and Improved in FIA WTCC Competition.

WTCC, like F1 and WRC, is one of the world championships sponsored by the FIA (Fédération Internationale de l'Automobile). For seven consecutive years since 2006, Yokohama has been the official tire supplier for the WTCC. Our involvement in the high-stakes world of WTCC competition has inspired technology to develop tires that offer high performance on racing cars, on wet or dry tracks, and on any surface. Our environmental orange oil technology continues to evolve and improve. Those who strive to be competitive, trust Yokohama tires. This pushes ADVAN even further ahead.



Concept-03

Far Superior Maneuverability. Without Sacrificing Comfort. ADVAN Sport V105

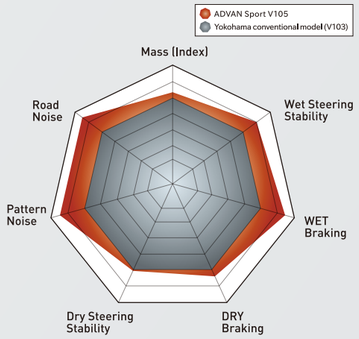
Today's high-performance cars must be more than just fast and maneuverable.
Along with secure handling, they must also offer a quiet comfortable ride.

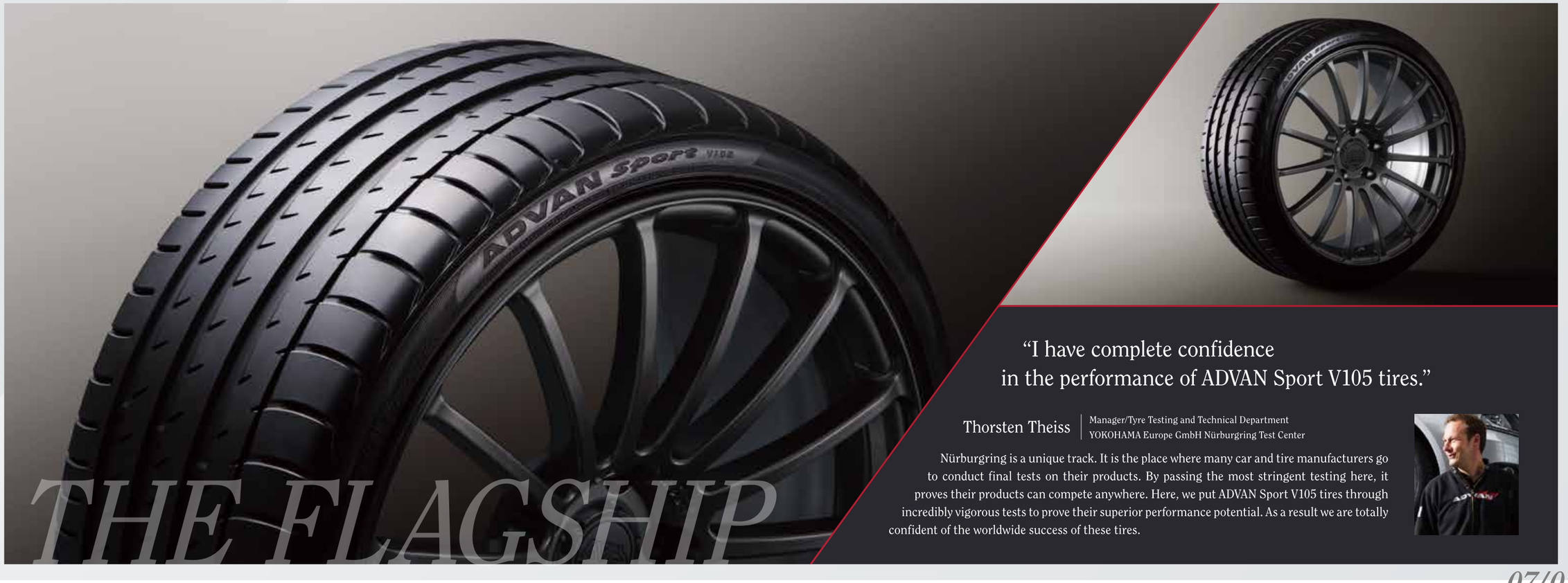
ADVAN Evolves together with the World's Premium Cars.

ADVAN tires are for high speeds. But in the near future, high performance will mean a lot more than just going fast. By keeping up with the evolution of the world's premium cars, we can see a trend — a total balance of sportiness and overall comfort. Following this Yokohama develops new tires — tires proved at Nürburgring. Only the best tires carry the ADVAN name.

Driving Performance that Exceeds Even V103 (predecessor tire).

ADVAN Sport V105 tires are based on our V103 tires that earned great popularity, especially in Europe. The secret to that popularity was total balance that perfectly matched the "comfort even at high speed" characteristics of premium cars. V105 tires maintain that concept, and take it to the next level. More than just sporty. More than just comfortable. Setting new standards in sporty performance and quiet comfort. Developed to support the totally balanced performance of premium cars while achieving greater steering stability and control than V103 tires.





"I have complete confidence in the performance of ADVAN Sport V105 tires."

Thorsten Theiss | Manager/Tyre Testing and Technical Department
YOKOHAMA Europe GmbH Nürburgring Test Center

Nürburgring is a unique track. It is the place where many car and tire manufacturers go to conduct final tests on their products. By passing the most stringent testing here, it proves their products can compete anywhere. Here, we put ADVAN Sport V105 tires through incredibly vigorous tests to prove their superior performance potential. As a result we are totally confident of the worldwide success of these tires.

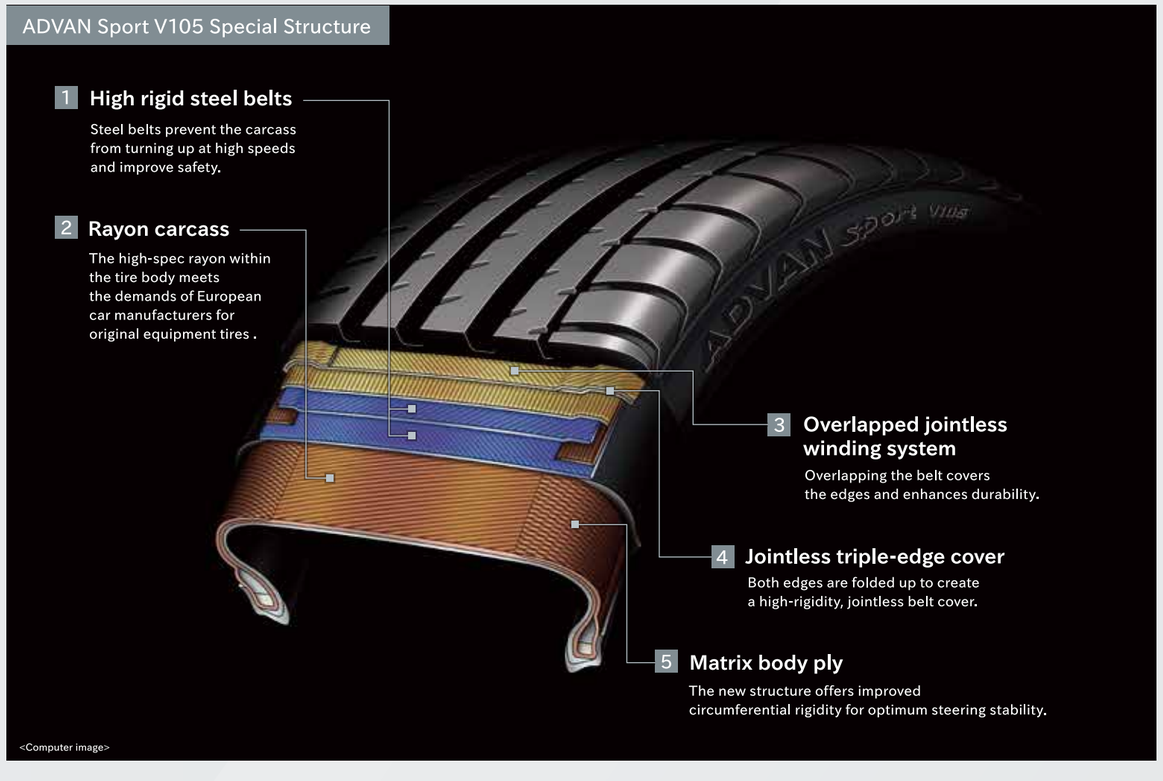
Construction

All-new Construction Delivers Even Greater Performance.

[V105-specific matrix body ply]

Technical Points

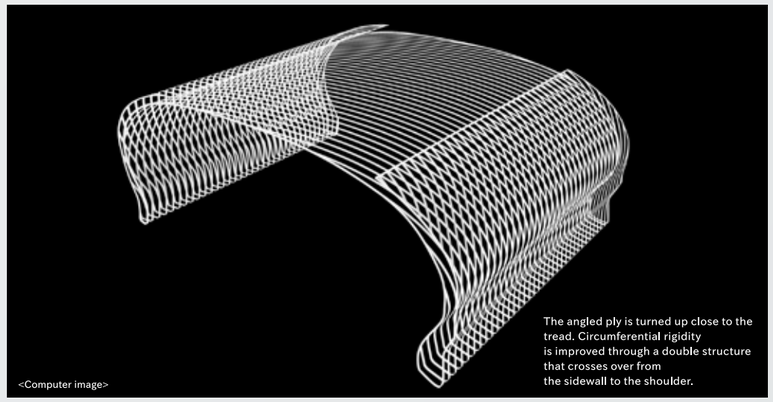
- New construction results in much more secure handling.
- Perfected tire rigidness gives an excellent and comfortable ride.
- Inherits the basic technology from the V103, a favorite in Europe.



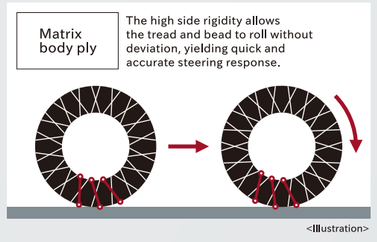
Newly Developed Matrix Body Ply Improves Steering Stability

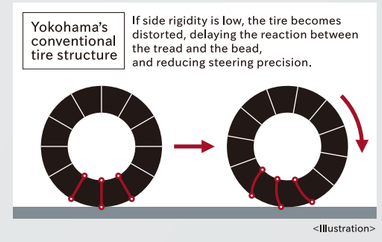
The angled ply is turned up close to the tread. Circumferential rigidity is improved through a double structure spanning the cover from sidewall to shoulder, enhancing steering precision without diminishing ride comfort. It also improves dry grip by maintaining contact with the road surface.

■ V105 Special Matrix Body Ply



■ Anti-twisting





High-rigidity Rayon Body Ply is Less Susceptible to Heat.

Thanks to the high-rigidity rayon body ply the V105 is more resistant to heat, ensuring maneuvering and superior steering stability.

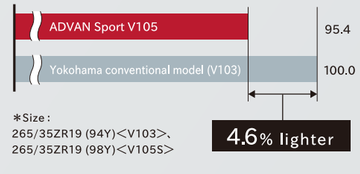
■ Rayon body ply characteristics

Low temperature dependence resists changes in ply characteristics → Improved maneuvering and steering stability

The New Structure Reduces Tire Weight by 4.6%*

Precise tuning of all materials and structures minimizes weight while maintaining stability. Reducing upsprung weight means enhanced adhesion, steering response, and ride comfort.

■ Tire weight improvement



*Size :
265/35ZR19 (94Y)<V103>、
265/35ZR19 (98Y)<V105S>

Pattern & Profile

Potential Refined in Europe

[V105 pattern & profile]

Technical Points

- Asymmetrical, non-directional tread pattern proved on wet and dry surfaces alike.
- Optimized contact shape achieves greater grip.
- Optimized pitch, in and out, minimizes noise.

Asymmetrical Pattern Strengthens Wet and Dry Performance

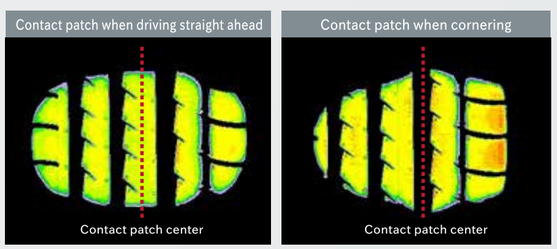
Three very thick grooves and a thinner groove make up the special asymmetrical, non-directional tread patterns. Developed jointly with a leading European car manufacturer, this pattern strengthens both wet and dry grip. The block area on the outboard side is wider to enhance dry performance while the groove area is increased on the inboard side to maximize wet performance.

■ Inner and outer portions are carefully calculated for better wet and dry performance.

Optimized Contact Area Results in a Very Powerful Grip.

To achieve a powerful grip, designers optimized and enlarged the contact -patch and added large blocks and large grooves. To further improve wet surface performance, the main groove stays at the centerline of the contact patch when turning. That layout exhibits superior water shedding characteristics when cornering.

■ Pattern layout that enhances cornering on wet surfaces



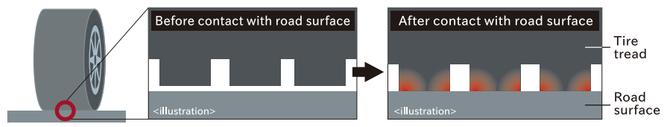
Newly developed “Mound Profile” Improves High-speed Stability.

With the newly developed profile, the cross-sectional shape is flatter and each block has subtle “R-shapes” on the five circumferential rips that vary slightly depending on location from shoulder to center. This careful profile precisely controls the ground contact pressure of the blocks, improving safety at high speeds by expanding the tire contact patch.

■ The cross-sectional shape of the protruding ribs achieves uniform contact pressure.

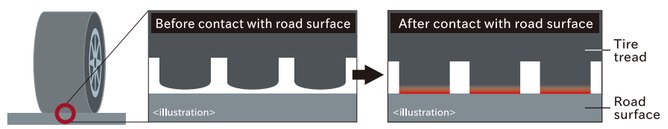
Yokohama Conventional Models

When the tire makes contact with the road surface, pressure is exerted on both edges of the rib section, resulting in disproportionate ground contact pressure.



ADVAN Sport V105

Optimized the cross-sectional shape of the tread to ensure proportionate ground contact pressure on the road surface.



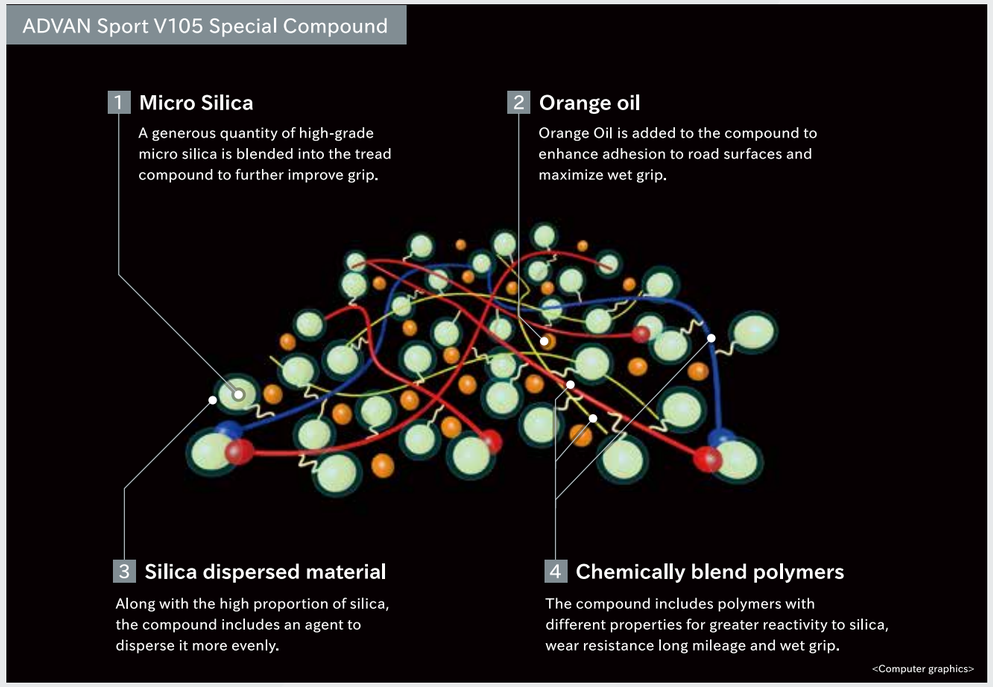
Compound

Evolutionary Progress
Comes from Challenging the Critical Limits.

[V105 Special Compound]

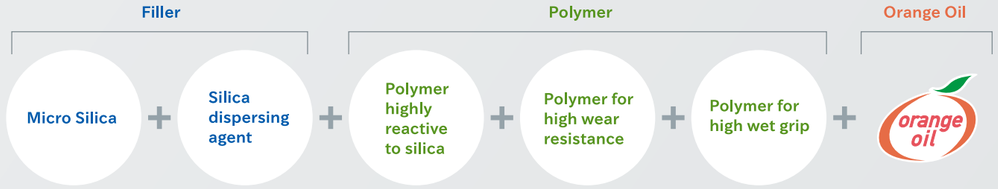
Technical Points

- A new compound co-developed with one of the world's premier car manufacturers.
- Achieved even better grip characteristics with micro silica and silica dispersant.
- Contains a mixture of the same orange oil used in official WTCC tires.



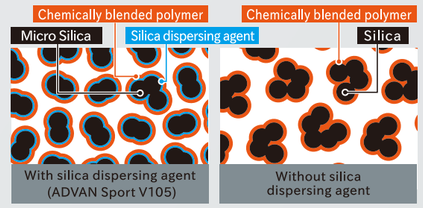
The Compound a Leading Car Manufacturer Found Ideal

The compound for V105 tires was developed with the cooperation of a leading European car manufacturer, and the objective was to achieve a very high level of performance. At the beginning, the staff was given the objective of "making the best rubber in the world." They did simulations that mixed and balanced many ingredients, looking for the ideal mixture. The new compound developed shows gripping power never achieved before.



Enhancing Grip Performance V105 Tire Compounds Mark First Use of Silica Dispersing Agent

With the increased volume of micro silica, Yokohama used a silica dispersing agent for the first time. This helps micro silica disperse more easily and evenly, further improving the already high wet-grip performance.



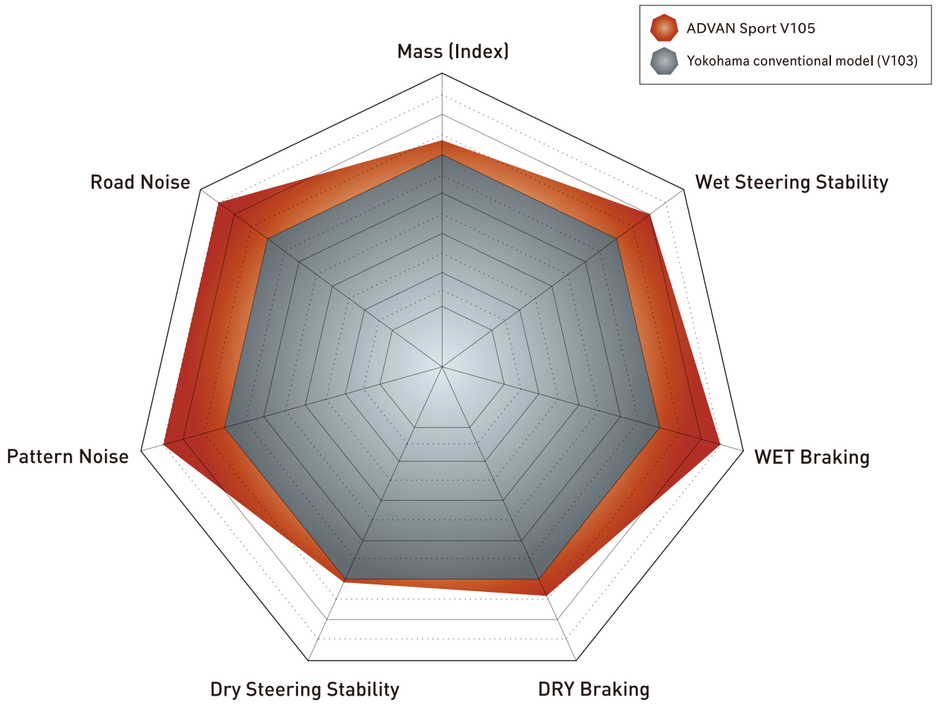
Compound Combines Polymers with 3 Different Functions

The V105 compound combines three polymers with differing properties—a highly reactive polymer with a strong chemical bond to silica, a polymer to enhance wet grip without increasing rolling resistance, and a polymer to improve the wear resistance of rubber. The compounding ratio was optimized for ultimate performance.

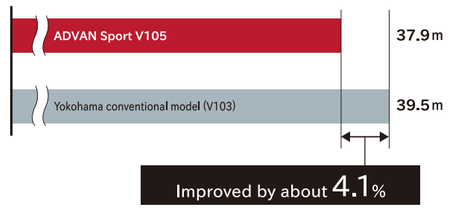
Adding Orange Oil, the Basic Technology to Increase Wet Gripping Power

Minute micro-level irregularities exist between a tire and the road surface. Orange oil makes the rubber more pliable, improving tire adhesion, and thus enhancing grip. Tires using orange oil compounding technology are supplied to the FIA WTCC and many other motorsports races where they consistently demonstrate outstanding performance.

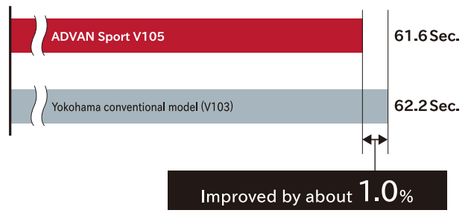
Performance Data



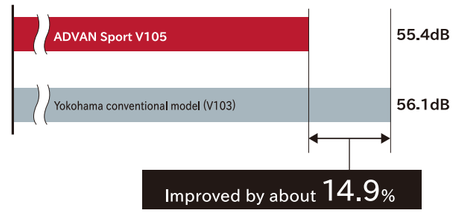
Dry Braking



Dry Steering Stability

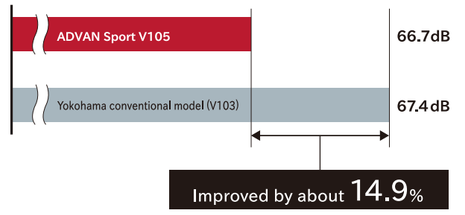


Pattern Noise



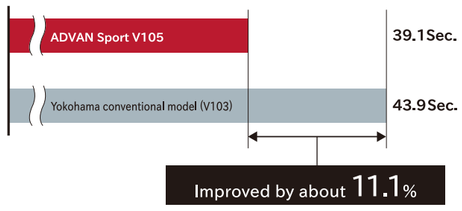
※Based on calculating the noise energy reductions from differences in sound pressure

Road Noise

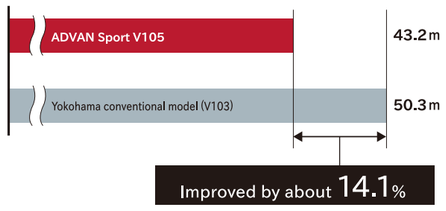


※Based on calculating the noise energy reductions from differences in sound pressure

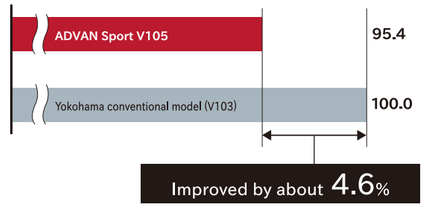
Wet Steering Stability



Wet Braking



Mass (Index)



*Size:265/35ZR19(94Y)<V103>, 265/35ZR19(98Y)<V105S>

● WET Steering Stability <Test Method> Lap time taken when driving around wet low μ (slippery) handling course. <Test Conditions> Tire size: 265/35R19 (94Y) (V103), 265/35ZR19 (98Y) (V105S), Rim size: 19x9JJ, Air pressure 260 kPa (front) 240kPA (rear), Load: Approximately 2 passengers, Vehicle: Audi A8 Quattro 06 model (GH-4EBFMF, 4200cc, 4WD),Water depth: 2-3mm <Test Results> V103 [43.9"], V105S [39.1"] ● WET Braking <Test Method> Test braking on test course (asphalt surface); vehicle with GPS-equipped measuring instruments. <Test Conditions> Tire size: 265/35R19 (94Y) (V103), 265/35ZR19 (98Y) (V105S) Rim size: 19x9JJ, Air pressure: 260 kPa (front) 240kPA (rear), Load: Approximately 2 passengers, Vehicle: Audi A8 Quattro 06 model (GH-4EBFMF, 4200cc, 4WD), ABS on, Speed: 100km/h, Water depth: 1mm <Test Result> V103 [50.3m], V105S [43.2] ● DRY Braking <Test Method> Test braking on test course (asphalt surface); vehicle with GPS-equipped measuring instruments. <Test Conditions> Tire size: 265/35R19 (94Y) (V103), 265/35ZR19 (98Y) (V105S) Rim size: 19x9JJ, Air pressure: 260 kPa (front) 240kPA (rear), Load: approximately 2 passengers, Vehicle: Audi A8 Quattro 06 model (GH-4EBFMF, 4200cc, 4WD), ABS on, Speed: 100km/h <Test Results> V103 [39.5m], V105S [37.9m] ● DRY Handling <Test Method> Time tests on the handling course at test track. <Test Conditions> Tire size: 265/35R19 (94Y) (V103), 265/35ZR19 (98Y) (V105S) Rim size: 19x9JJ, Air pressure: 260 kPa (front) 240kPA (rear), Load: Approximately 2 passengers, Vehicle: Audi A8 Quattro 06 model (GH-4EBFMF, 4200cc, 4WD), Trial distance: 1,465m <Test Results> V103 [62.2"], V105S [61.6"] ● Pattern Noise <Test Method> Measure interior noise as test vehicle runs at test course. <Test Conditions> Tire size: 265/35R19 (94Y) (V103), 265/35ZR19 (98Y) (V105S) Rim size: 19x9JJ, Air pressure: 260 kPa (front) 240kPA (rear), Load: Approximately 2 passengers, Vehicle: Audi A8 Quattro 06 model (GH-4EBFMF, 4200cc, 4WD) <Test Results> V103 [Noise at passenger side ear position of driver:56.1dB], V105S [Noise at passenger side ear position of driver: 55.4dB] ● Road noise <Test Method> Measure interior noise as test vehicle runs road noise test course. <Test Conditions> Tire size: 265/35R19 (94Y) (V103), 265/35ZR19 (98Y) (V105S) Rim size: 19x9JJ, Air pressure: 260 kPa (front) 240kPA (rear), Load: Approximately 2 passengers, Vehicle: Audi A8 Quattro 06 model (GH-4EBFMF, 4200cc, 4WD) <Test Results> V103 [Noise at passenger side ear position of driver: 67.4dB], V105S [Noise at passenger side ear position of driver: 66.7 dB]

Computation formula for calculating the noise energy reductions from differences in sound pressure is: Noise energy reduction ratio (%) $= \left(\frac{1}{10^{\frac{\text{sound pressure difference}}{10}}} - 1\right) \times 100$

FAQ & Size

Q What are the characteristics of the ADVAN Sport V105?

In response to the current trend among high-powered premium cars, that is, “Ever faster, ever more comfortable,” we aimed to create an evolution of the V103, already the choice of Mercedes-Benz, Bentley, Audi, Porsche, and other premium car makers. Our research and development center at Nürburgring, Germany, set about the task in cooperation with a European car manufacturer. V105 tires, the result of rigorous testing and development, take driving performance, superior comfort, and safety to levels even higher than the popular V103. In other words, the overall performance of V105 tires takes a step beyond. Even before the V105 went on the market, car manufacturers involved in its development already specified V105 tires for their new models.

Q Is the ADVAN Sport V105 you are presenting today any different from the ADVAN Sport V105 tires found on new cars?

The V105 tires we are introducing now have been further tuned compared to those on new cars already. As our flagship sports tire, the V105 should contribute to higher performance in every way. The pattern number is V105S.

Q How has ADVAN Sport V105 evolved vis-à-vis ADVAN Sport V103?

Dry or wet, at high speeds, the new tire offers greatly improved tracking stability.

Q What vehicles does the ADVAN Sport V105 tire target?

Our targets include Porsche, Mercedes-Benz, Audi, the BMW M Series, and others.

Q About the tire sizes, from how many inches to how many inches? In all, how many tire sizes will you offer? And will there be any more in the future?

At the moment, we offer V105 tires from 16 to 19 inches, a total of 33 sizes (including those already specified as OE tires). We will add sizes in 2013, to a total of 60 sizes.

Q What is “Matrix Body Ply?” What effect does it have?

This construction was developed for racing and rallying, which require the ultimate in tire performance. Conventional radial plies run 90 degrees across the tire, but this construction puts the cords of the plies at an angle, which gives them “tension.” Trusses used in building construction would be an apt example, as they form a triangle, making the whole steadier and more rigid without adding weight. Conventionally, tires are made more rigid by adding more elements, but this adds to the weight of the tire as well. Using plies with slanted cords, results in greater rigidness without greater weight. Unsprung weight is reduced, which contributes to improving both steering response and ride comfort. As the plies contact the road at an angle, not straight across, the tires are less likely to twist, and the tire “envelops” the road surface, resulting in a larger contact patch. This, of course, means higher overall performance.

Q Compared to the conventional tire model, is there any difference in contact patch and friction resistance?

In developing the tire, we paid special attention to the environment, and reduction of rolling resistance was one of our goals. This resulted in a contact patch that is narrower than that of the previous (V103) model, and by maintaining rigidity, we achieved superior handling and excellent comfort characteristics. We also improved friction characteristics.

Pattern No.
V105 ADVAN Sports V105 ● Steel-belted Radial ● Tubeless ● Passenger car tires — Series: 30/35/40/45/50/55%

Inch	Series		Tire size	Outer diameter (mm)	Width (mm)	Standard rim width (inch)	Usable rim widths (inch)	Product Art.	EAN/JAN			dB	
20	30	■☆	255/30ZR20 (92Y)	662	260	9J	8½-9½	F7088	4968814839376	F	A	73	
	35	■☆	225/35ZR20 (90Y)	666	230	8J	7½-9	F7089	4968814839383	E	A	72	
19	30	■☆	255/30ZR19 (91Y)	637	260	9J	8½-9½	F5888	4968814819248	F	A	73	
		■☆	265/30ZR19 (93Y)	643	271	9½J	9-10	F7085	4968814839345	F	A	73	
		■☆	285/30ZR19 (98Y)	655	290	10J	9½-10½	F5900	4968814819361	E	A	74	
		■☆	295/30ZR19 (100Y)	661	301	10½J	10-11	F5890	4968814819262	E	A	74	
	35	■☆	225/35ZR19 88Y	641	230	8J	7½-9	F5898	4968814819347	F	A	72	
		■☆	235/35ZR19 (91Y)	647	241	8½J	8-9½	F5887	4968814819231	F	A	72	
		■☆	255/35ZR19 (96Y)	661	260	9J	8½-10	F5899	4968814819354	E	A	73	
		■☆	265/35ZR19 (98Y)	669	271	9½J	9-10½	F5889	4968814819255	E	A	73	
	40	■☆	255/40ZR19 (100Y)	687	260	9J	8½-10	F7081	4968814839307	E	A	73	
		■☆	275/40ZR19 (105Y)	703	278	9½J	9-11	F7083	4968814839321	E	A	73	
	45	■	245/45ZR19 98Y	703	243	8J	7½-9	F5897	4968814819330	F	A	71	
18	35	■☆	255/35ZR18 94Y	635	260	9J	8½-10	F5895	4968814819316	F	A	73	
		■☆	265/35ZR18 97Y	643	271	9½J	9-10½	F5896	4968814819323	F	A	73	
		▲	285/35R18 97Y MO	657	290	10J	9½-11	F5331	4968814811662	E	A	73	
			285/35R18 97Y MO	657	290	10J	9½-11	F4289	4968814793036	E	A	73	
	40	■☆	225/40ZR18 92Y	637	230	8J	7½-9	F5894	4968814819309	F	A	72	
		■☆	235/40ZR18 (95Y)	645	241	8½J	8-9½J	F7084	4968814839338	E	A	72	
		■☆	245/40ZR18 97Y	653	248	8½J	8-9½	F5209	4968814810078	E	A	72	
		▲	255/40R18 95Y MO	661	260	9J	8½-10	F5076	4968814806224	E	A	73	
		☆	255/40R18 99Y MO	661	260	9J	8½-10	F4288	4968814793029	E	A	73	
		■☆	265/40ZR18 (101Y)	669	271	9½J	9-10½	F7087	4968814839369	E	A	73	
	45	■☆	225/45ZR18 95Y	659	225	7½J	7-8½	F5891	4968814819279	E	A	72	
		■☆	245/45ZR18 100Y	677	243	8J	7½-9	F5893	4968814819293	E	A	72	
17	40		245/40R17 91W MO	628	248	8½J	8-9½	F4770	4968814801458	E	A	71	
			225/45R17 91W MO	634	225	7½J	7-8½	F4769	4968814801441	E	B	71	
	45	■☆	225/45ZR17 94Y	634	225	7½J	7-8½	F6341	4968814826031	F	A	72	
		■☆	235/45ZR17 97Y	644	236	8J	7½-9	F5892	4968814819286	F	A	72	
		■☆	245/45ZR17 99Y	652	243	8J	7½-9	F7082	4968814839314	E	A	72	
	50	■☆	205/50ZR17 93Y	638	214	6½J	5½-7½	F7086	4968814839352	E	A	72	
		■☆	225/50ZR17 98Y	658	233	7J	6-8	F7080	4968814839291	E	A	72	
16	50		225/50R16 92W MO	632	233	7J	6-8	F4768	4968814801434	E	B	71	
			225/50R16 92V MO	632	233	7J	6-8	F4924	4968814803674	E	B	71	
	55		205/55R16 91W MO	632	214	6½J	5½-7½	F4767	4968814801427	C	B	71	
			205/55R16 91V MO	632	214	6½J	5½-7½	F4923	4968814803667	C	B	71	

■ mark stands for the V105S pattern. ▲ mark stands for V105+ pattern. ☆ stands for extra road standard. Size measurements (outer diameter, width) are according to JATMA and ETRTO standards.
IMPORTANT NOTICEADVAN Sport V105 tires use asymmetrical patterns. Therefore, when mounting the tires, make sure to have the side marked OUTSIDE on the sidewall facing out. By the same token, the side marked INSIDE should be facing toward the car.
Further, it is a non-directional pattern so it does not matter which side of the car the tire is mounted on.