

***SPORT MAXX RACE 2
PRESS EVENT***



MIREVAL 11-12th July, 2017



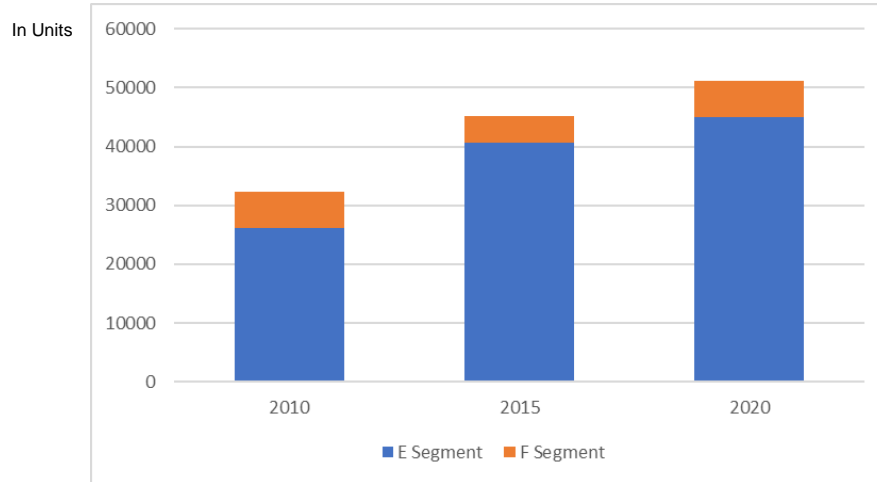
Eddy Geerdink

Director Marketing Execution EMEA

Market overview



HIGH-END SPORTS VEHICLE SALES EUROPE 2010 - 2020



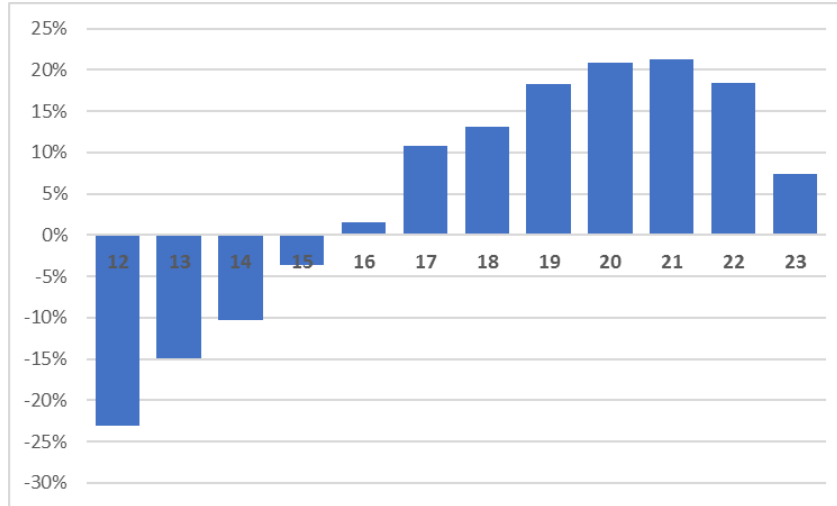
	CAGR* 2015 - 2020	vehicle examples
E	2,1%	Porsche 911, Jaguar F-Type, Audi R8, BMW 6-Series, Mercedes Benz SL
F	6,4%	Ferrari F12, Lamborghini Huracan, Aston Martin Vanquish, McLaren Super Series

*CAGR: average growth rate over a specific amount of time

- **High-End sports vehicle sales showing strong growth since 2010 and expected to continue over the next 5 years**

Source: IHS Automotive – Sport E and F segment - Europe

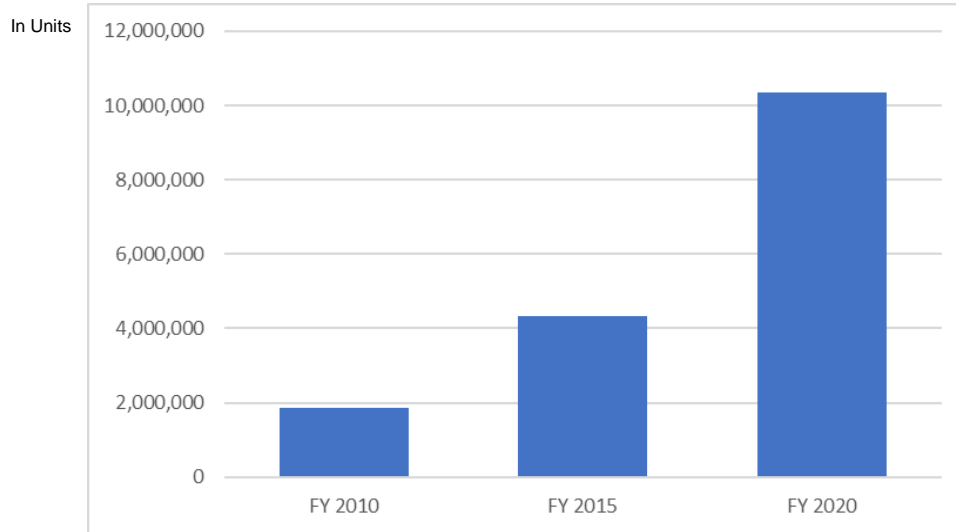
TIRE INDUSTRY FORECAST CAGR, BY RIM SIZE EUROPE 2015 - 2020



- ▶ **19" and 20" rim sizes ('UUHP' segments) are expected to be two of the fastest growing segments in the Passenger Car segment**

Source: ETRMA Europool – Passenger Car - Europe + Turkey; and Goodyear estimates

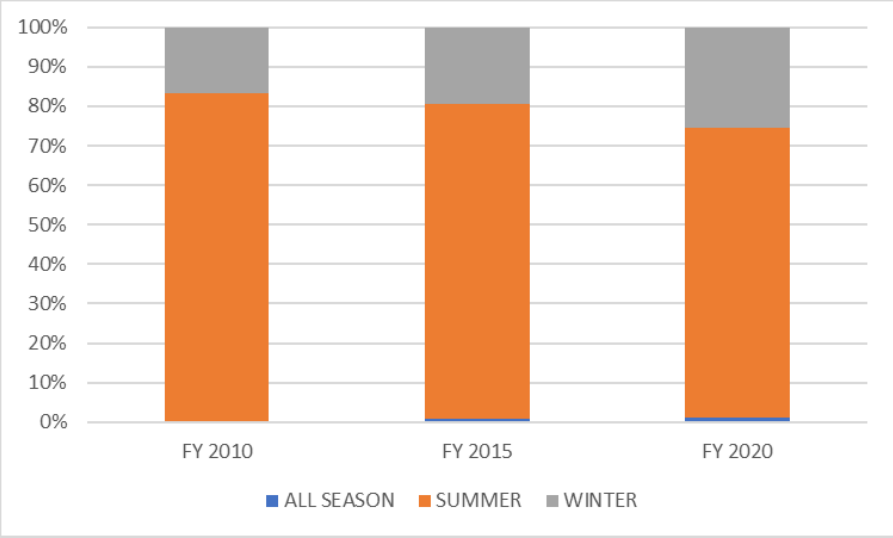
TIRE INDUSTRY VOLUME, RIM SIZE 19" AND ABOVE EUROPE 2010 - 2020



- ***'UUHP' segment expected to grow by almost x5 between 2010 and 2020***

Source: ETRMA Europool – Passenger Car - Europe + Turkey; and Goodyear estimates

**TIRE INDUSTRY SHARE, RIM SIZE 19" AND ABOVE, BY SEASON
EUROPE 2010 - 2015**



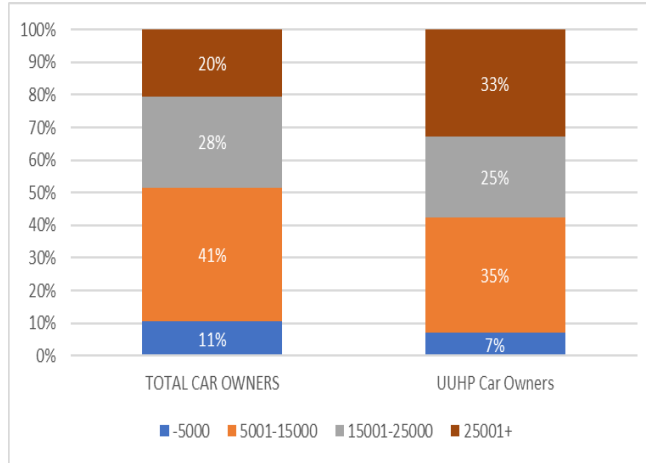
➤ **Summer continues to dominate the 'UUHP' Passenger Car segment but winter is expected to gain share**

Source: ETRMA Europool – Passenger Car - Europe + Turkey; and Goodyear estimates

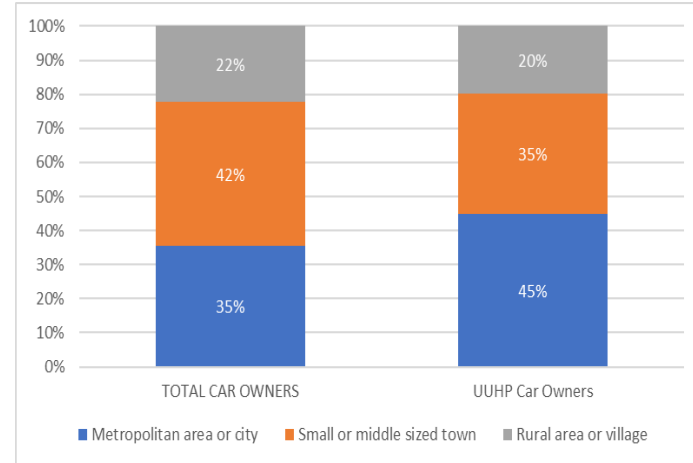


UUHP DRIVERS USE THEIR CAR MORE THAN THE AVERAGE DRIVER

Average kilometers per year



Living area

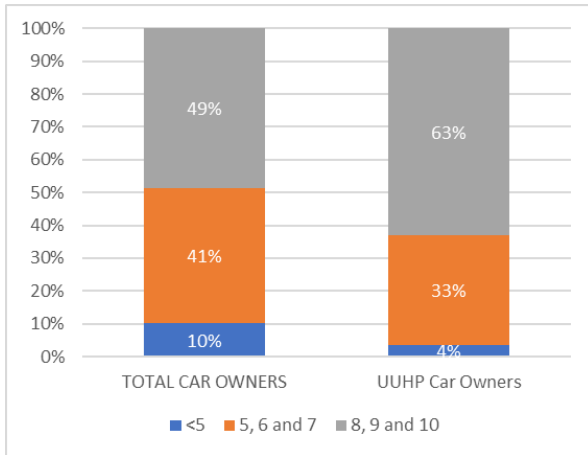


- ▶ ***'UUHP' drivers use their car more than the average driver and tend to live more in larger metropolitan areas/cities***

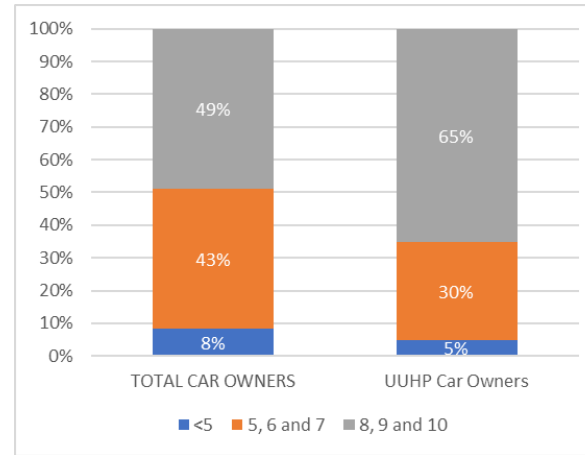
Source: Shopper Research 2014 – IPSOS. Study on 7,000 car owners in UK, France, Italy, Spain, Poland, and Russia.

UUHP DRIVERS ARE LOOKING FOR THE BEST AND MOST ADVANCED TIRES

“My tire should have achieved excellent magazine test results”



“My tires should have the latest technology”



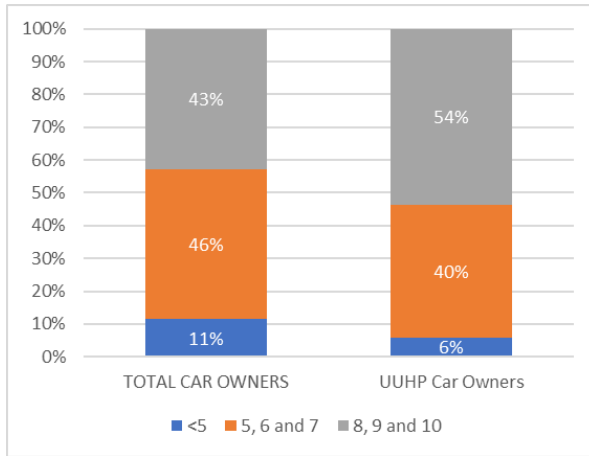
Note: Ratings from 1 to 10, where 1 is not important and 10 very important.

► **‘UUHP’ drivers are looking for the best and most advanced tires**

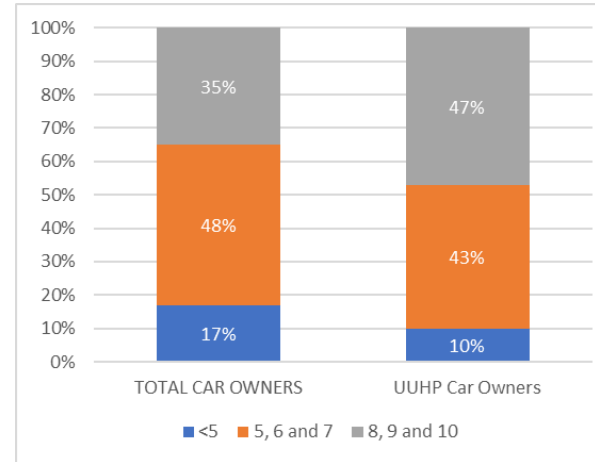
Source: Shopper Research 2014 – IPSOS. Study on 7,000 car owners in UK, France, Italy, Spain, Poland, and Russia.

THIRD PARTY REFERRAL FROM EXPERTS KEY FOR UUHP DRIVERS

“My tire should be recommended by professional institutions”



“My tire should be recommended by the tire dealer”



Note: Ratings from 1 to 10, where 1 is not important and 10 very important.

- **Third party referral from experts is very important for ‘UUHP’ drivers when purchasing tires**

Source: Shopper Research 2014 – IPSOS. Study on 7,000 car owners in UK, France, Italy, Spain, Poland, and Russia.

FROM RACE TO ROAD



 **DUNLOP**
FOREVER FORWARD

Michael Bellmann
Senior Marketing Manager DACH

Dunlop Motorsport



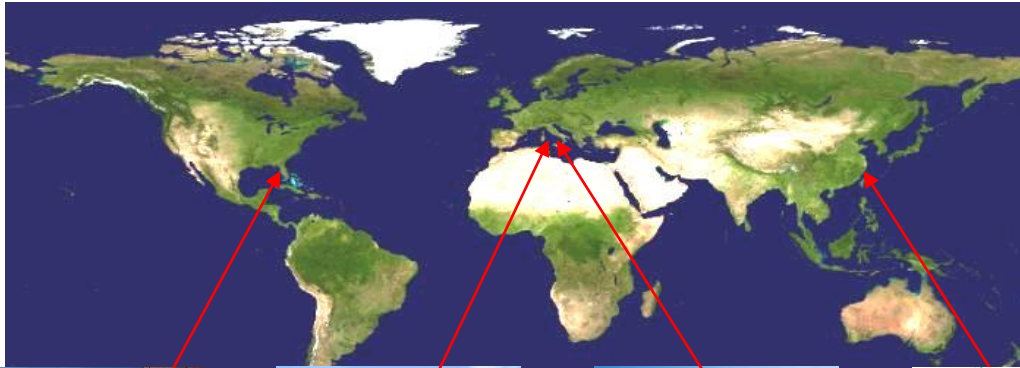
**MISSION: SUPPORT OUR PARTNERS TO
WIN THE MOST DEMANDING RACES IN THE WORLD**



GLOBAL TECHNOLOGY

Four Development Centres

A global pool of specialists creating a network of competencies for optimum technical support



Ohio, USA



Colmar, Luxembourg



Hanau, Germany



Pulandian, China

TEST TRACKS AROUND THE WORLD

Ohio, USA



Texas, USA



Luxembourg



Brasil



Wittlich, Germany

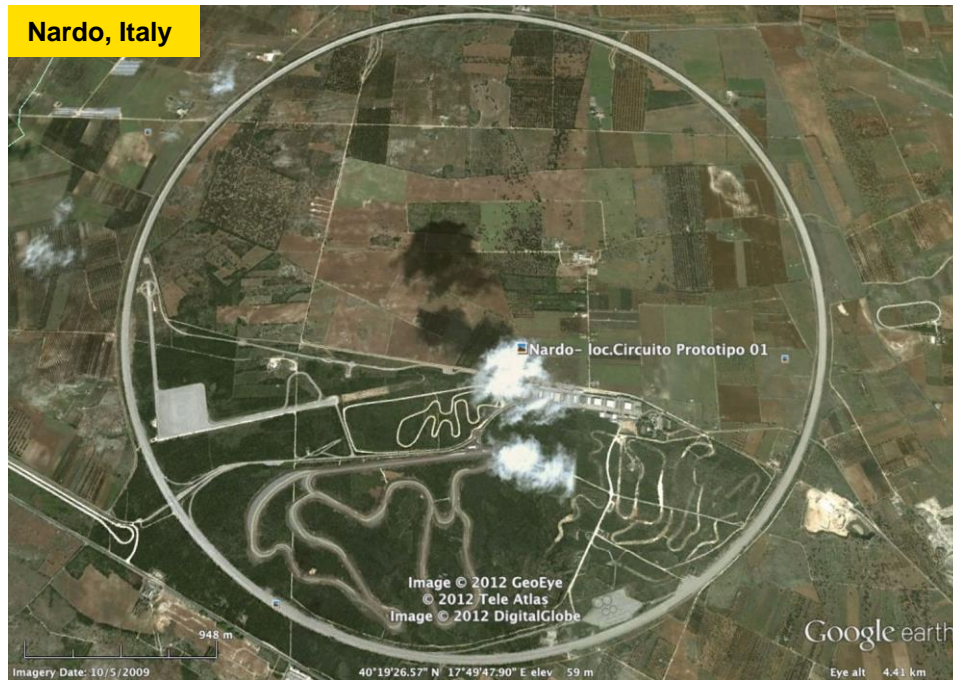


Mireval, France



EXTERNAL PROVING GROUNDS

Nardo, Italy



Papenburg, Germany

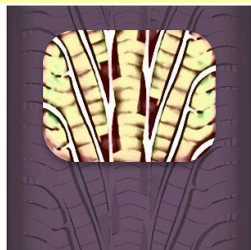


Idiada, Spain



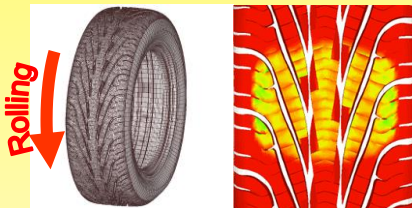
VIRTUAL TESTS – COMPUTER AIDED ANALYSIS TO ACCELERATE TIRE DEVELOPMENT

STATIC



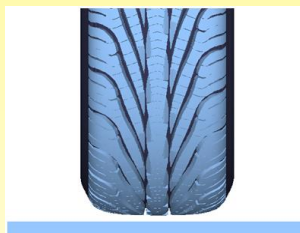
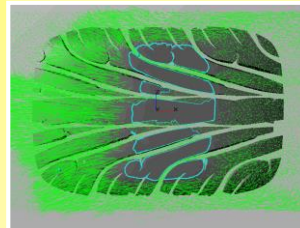
Tire footprints

DYNAMIC



Heat generation

INTERACTION WITH FLUIDS



Footprint
transformation

COMPARISON: REQUIREMENTS & PERFORMANCE CRITERIA

- Development criteria for different tire categories
 - *Road tires need a balanced performance to cope with various conditions*
 - *Motorsport tires are customized tires for maximum performance*

	Ultra High Performance (UHP)	Super Sport ('UUHP')	Motorsport
Mileage	20.000 km	< 20.000 km	20 – 1.000 km
Handling, subjective	++++	+++++	++++
Comfort	++++	+	-
Performance, dry (Grip)	++++	+++++	+++++ (Slick/Dry)
Performance, wet (Grip)	++++	+++	+++++ (Wet tires)
Legal requirements	yes	yes	no

FROM RACE TO ROAD

SPORT MAXX RACE 2



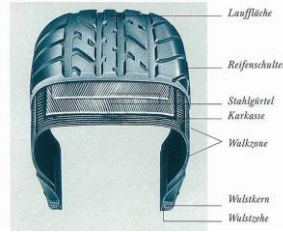
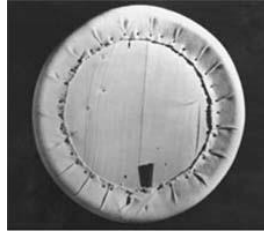
 ***DUNLOP***
FOREVER FORWARD

Helmut Fehl

Lead Engineer Sport Maxx Race 2



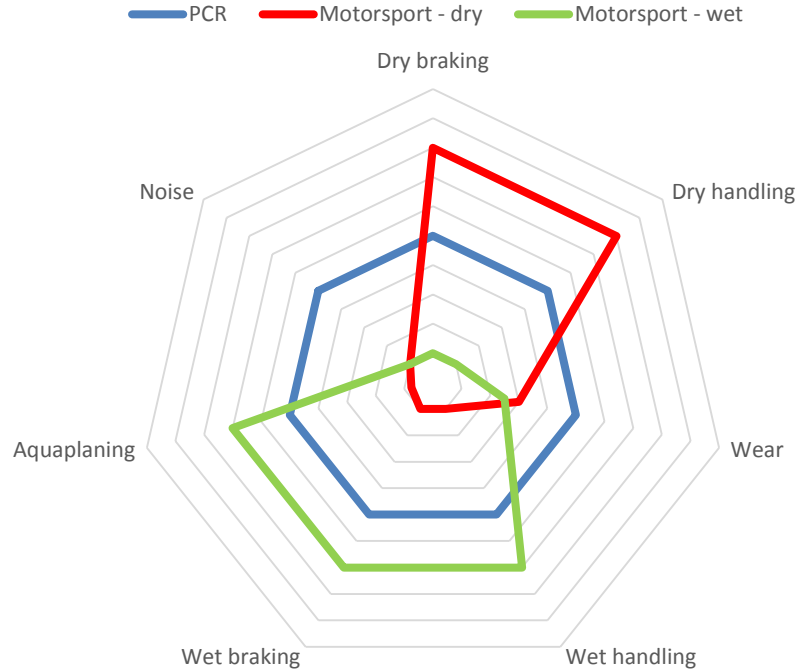
HOW TIRES EVOLVED OVER 125 YEARS



Model year	1888	1972	2017
Brand	DUNLOP	DUNLOP	DUNLOP
Reinforcement	Cotton	Rayon, Steel	Hybrid Overlay
Load capacity	~50 kg	~1.000 kg	~1.000 kg
Max speed	~20 km/h	~ 210 km/h	~330 km/h
Mileage	< 1.000 km	~10.000km	< 20.000km
Medium	Air	Air	Air

- **Basic mechanism of tires has not changed over last 125 years: the air is carrying the load!**

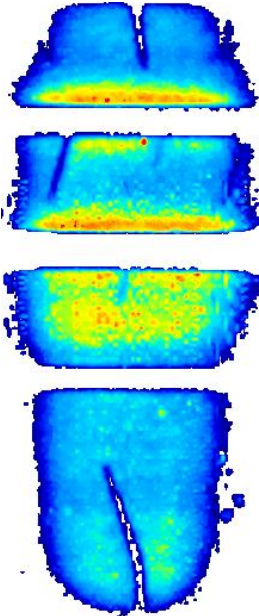
PERFORMANCE SPECTRUM



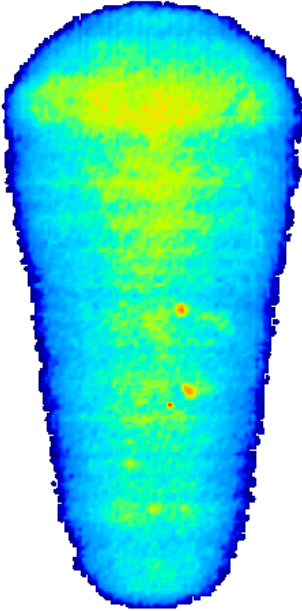
- **Road tires must maintain a balanced performance in the spectrum**
- **Not all drivers are race-drivers**
- **There is no pit-stop to change from slick to wet or adjust the inflation pressure “on the go”**

COMPARISON - FOOTPRINTS ON THE ROAD

SPORT MAXX RACE 2



SPORT MAXX Race Slick



PRODUCT POSITIONING DUNLOP SUMMER UHP PORTFOLIO

 Race Track									
 Race Track and Street									
 Pure Street Application									
Rim diameter	13"	14"	15"	16"	17"	18"	19"	20"	≥ 21"

- **Sport Maxx Race 2 is designed for sports cars with 70/30 road/track application profile**

SPORT MAXX RACE 2



Excellent dry performance for ultimate performance cars

- ▶ *Extreme grip on dry surfaces*
- ▶ *Maximized cornering stability at high G-forces*
- ▶ *Ultimate steering precision*
- ▶ *Superior high speed stability*

Internal benchmark test compared to predecessor



EXTREME GRIP ON DRY SURFACES

➤ **FEATURE**

Race derived compound

➤ **ACTION**

Improved friction between tire and road

➤ **BENEFIT**

Extreme grip on dry surfaces

Internal benchmark test compared to predecessor



MAXIMIZED CORNERING STABILITY AT HIGH G-FORCES

➤ FEATURE

Bridges in first groove

➤ ACTION

Increased lateral stiffness, block stability and bending resistance

➤ BENEFIT

Maximized cornering stability at high G-forces

Internal benchmark test compared to predecessor



ULTIMATE STEERING PRECISION

➤ FEATURE

Optimized tire contour

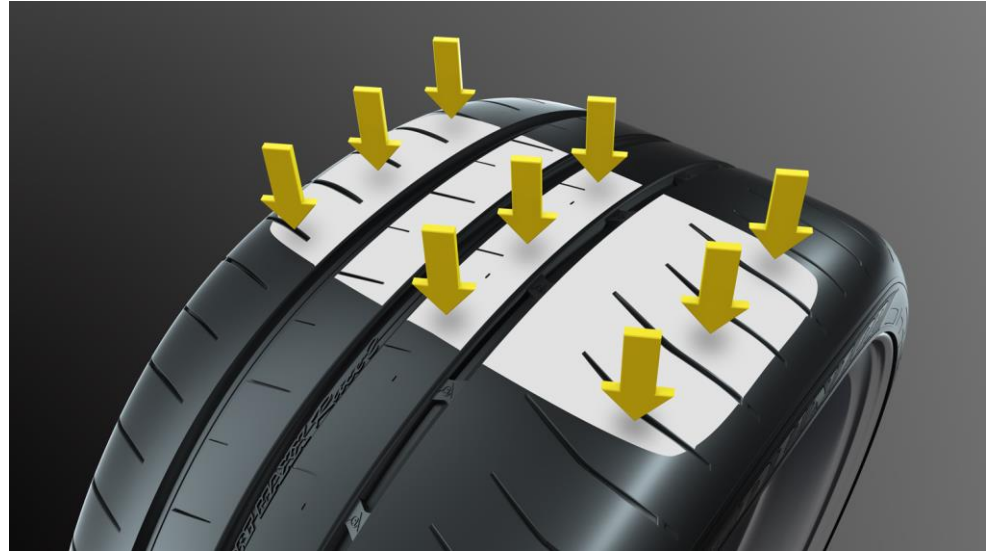
➤ ACTION

Balanced pressure distribution across the footprint

➤ BENEFIT

Ultimate steering precision

Internal benchmark test compared to predecessor



SUPERIOR HIGH SPEED STABILITY

➤ **FEATURE**

Hybrid overlay featuring aramid

➤ **ACTION**

Constant contact patch along the speed range

➤ **BENEFIT**

Superior high speed stability

Internal benchmark test compared to predecessor



SUMMARY KEY FEATURES - ACTIONS - BENEFITS

FEATURES	ACTIONS	BENEFITS
Race derived compound	Improved friction between tire and road	Extreme grip on dry surfaces
Bridges in first groove	Increased lateral stiffness, block stability and bending resistance	Maximized cornering stability at high G-forces
Optimized tire contour	Balanced pressure distribution across the footprint	Ultimate steering precision
Hybrid overlay featuring aramid	Constant contact patch along the speed range	Superior high speed stability

Internal benchmark test compared to predecessor

PORSCHE MOTORSPORT



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Jan Frank

Porsche Motorsport Road Car Performance

Lead Engineer



Q&A



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