



GOODYEAR Winter Press Event



GOODYEAR

MADE TO FEEL GOOD.



120 YEARS OF INNOVATION



Eddy Geerdink

Director Marketing Execution

Goodyear Europe, Middle East & Africa



GOODYEAR Winter Press Event Program



#GoodyearWinter

January 30th

18:30 – 19:30	Product presentation/Q&A
19:30 – 21:00	Snowmobile safari
21:00 – 22:30	Dinner in Kota
22:30 – 23:00	Bus transfer to hotel

January 31st

07:00 – 07:30	Breakfast
07:30 – 07:45	Bus transfer to test track, group split
07:45 – 08:00	Safety instructions
08:00 – 11:00	Workshop rotations (45 min each): 1. Ice handling 2. Snow grip 3. Slalom & braking challenge 4. Co-pilot experience
11:00 – 11:15	Farewell
11:15 – 12:00	Departure, bus transfer to Ivalo airport
12:00 – 13:00	Check-in, security
13:00 – 15:00	Charter flight to Helsinki, lunch in plane



Welcome to the Goodyear Arctic Center in Ivalo

Why are you here today?

“To step in the shoes of a winter tire test driver”

Goodyear opens the doors of its Arctic Center in Ivalo to:

1.	2.	3.
Provide an insight in the winter tire market	Unveil the research and development that goes into our award-winning winter tires	Test winter tires yourself



Jerome Delu

Project Leader

Consumer Winter & All-Season Tires



GOODYEAR

INNOVATION CENTER



Global Research & Development Network



Colmar-Berg,
Luxembourg



Hanau, Germany



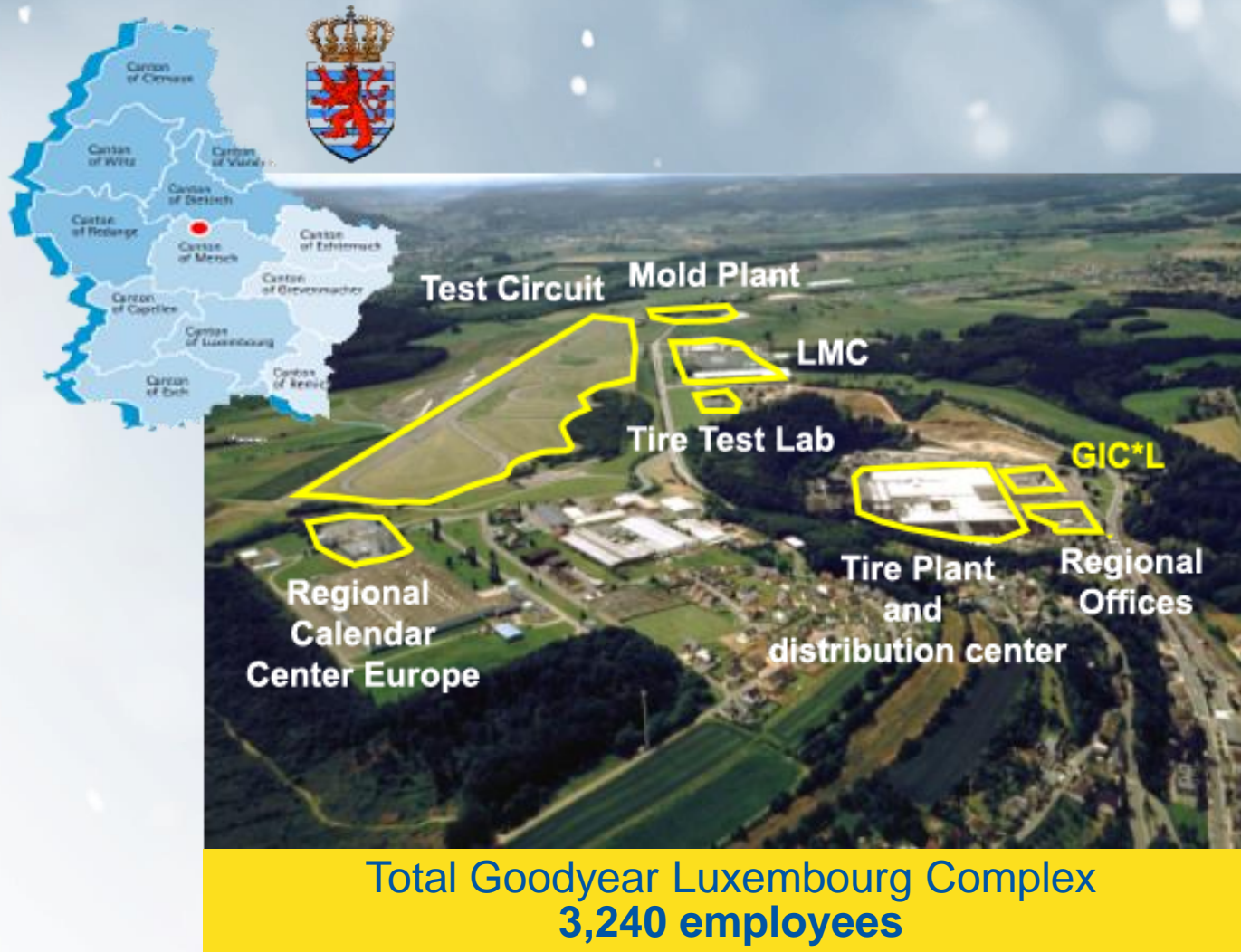
Dalian/Pulandian, China



Akron, Ohio USA



Goodyear complex in Colmar-Berg



- In the Goodyear Innovation Center Luxembourg (GIC*L) we employ over **1000 technicians, engineers and scientists** from more than **40 different nationalities**
- GIC*L is part of the Goodyear Luxembourg complex, responsible for designing, engineering, manufacturing and distributing Goodyear tires across EMEA
- We have access to our own testing circuit and tire test lab to ensure our tires meet the highest requirements

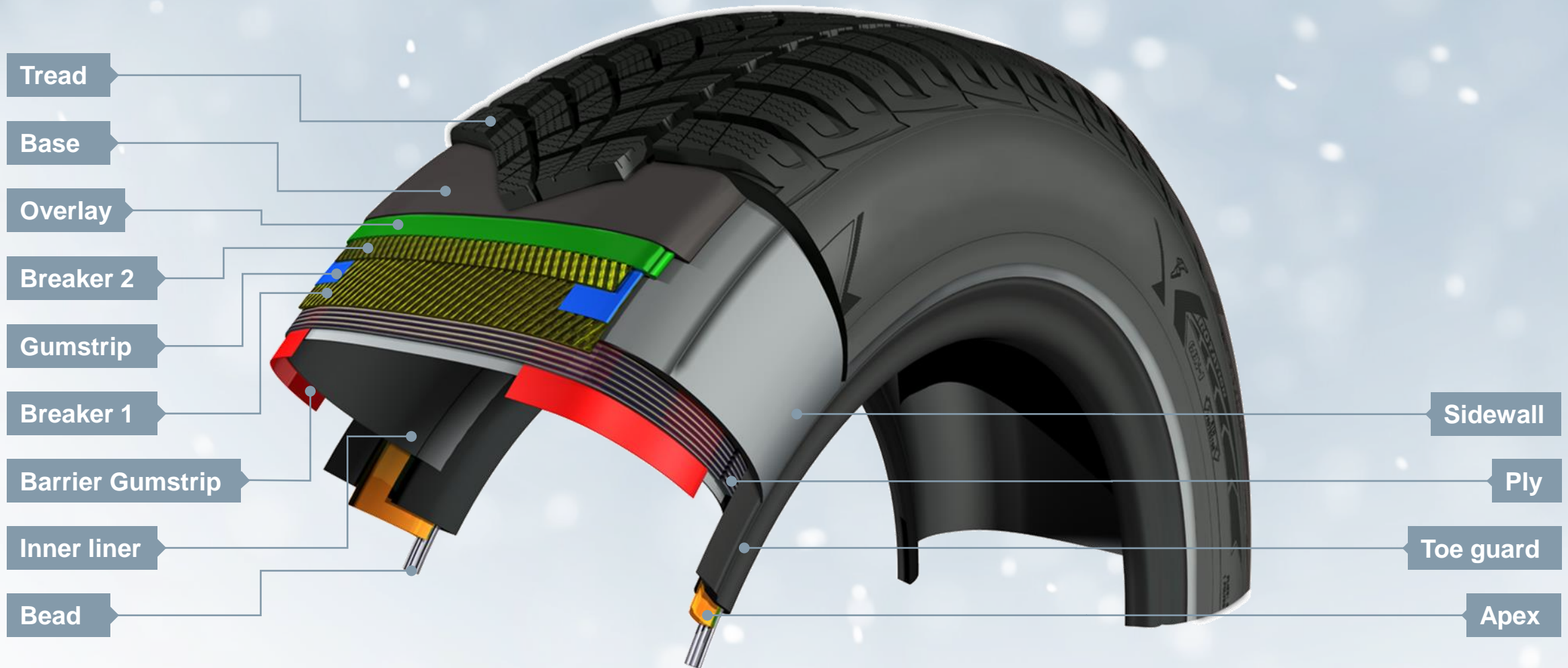
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Did you know...

A modern tire consists of roughly
25 different components



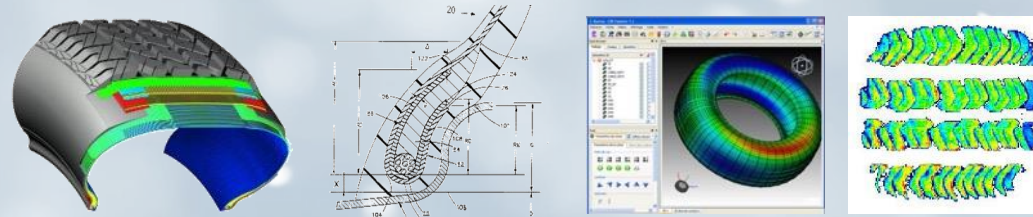
Today's tire: an introduction





Technical know-how

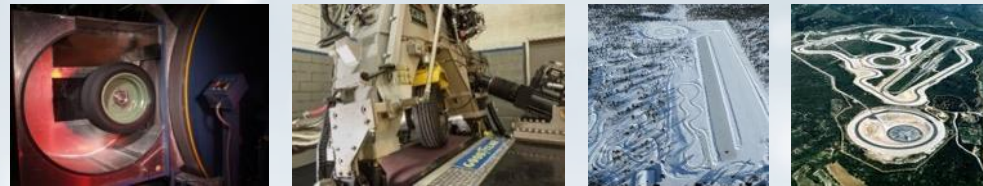
Tire Engineering & Design



Materials & Compounding Science



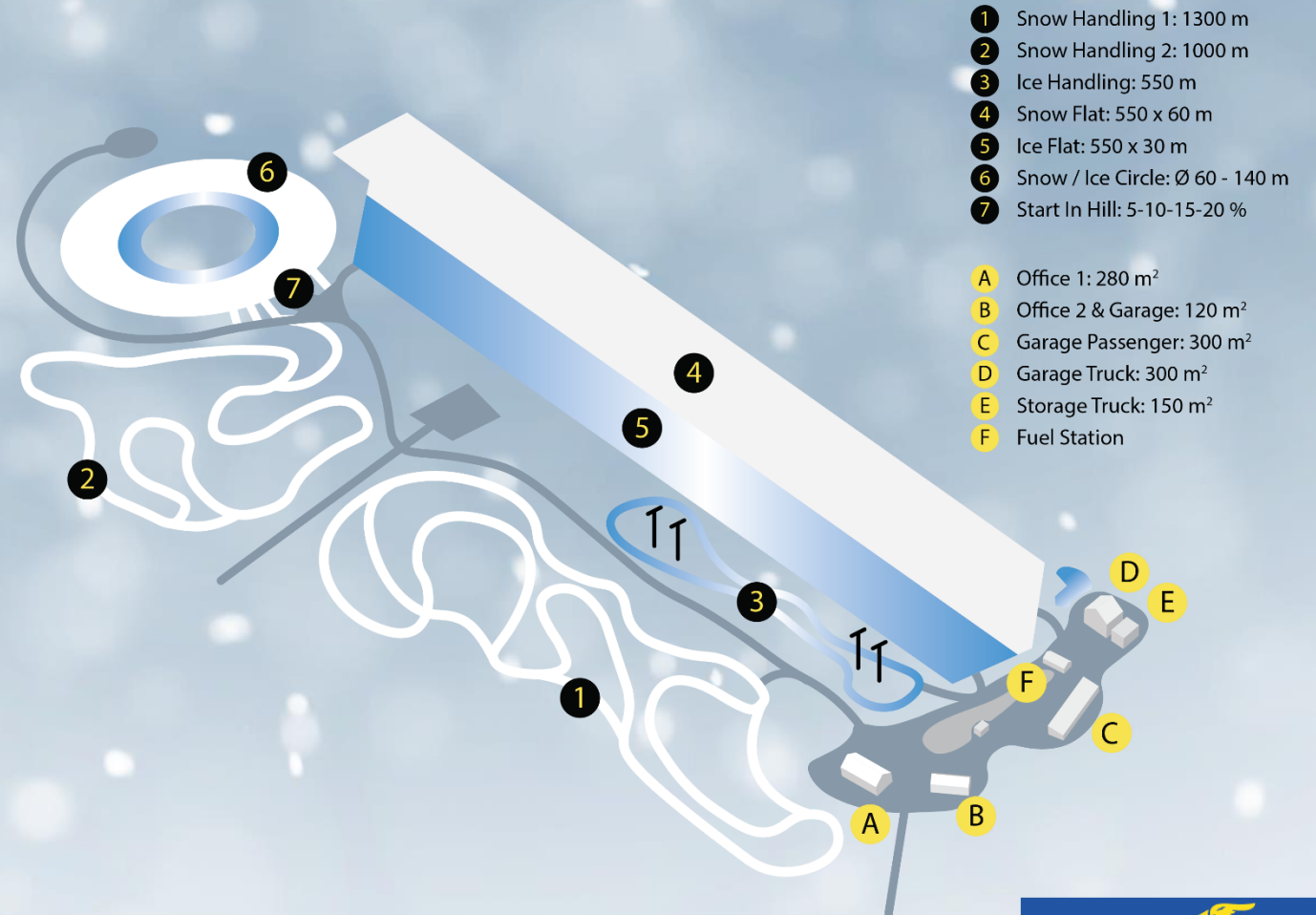
Tire Performance Evaluation Indoor & Outdoor





Goodyear Arctic Center Ivalo

- Testing facility: opened in December 2014
- 25 hectares proving grounds
- Ideal location:
 - 300 km north of the Arctic Circle
 - Winter micro climate
- Snow and ice testing from November to April.





Arctic proving grounds mission



1.

Produce quality test data to support new product development

- Objective and subjective tests
- Car, Light and Heavy Truck



2.

Support our customers

- Car manufacturers: joint tests
- Magazine tests, launches
- Goodyear R&D: development of new innovations



3.

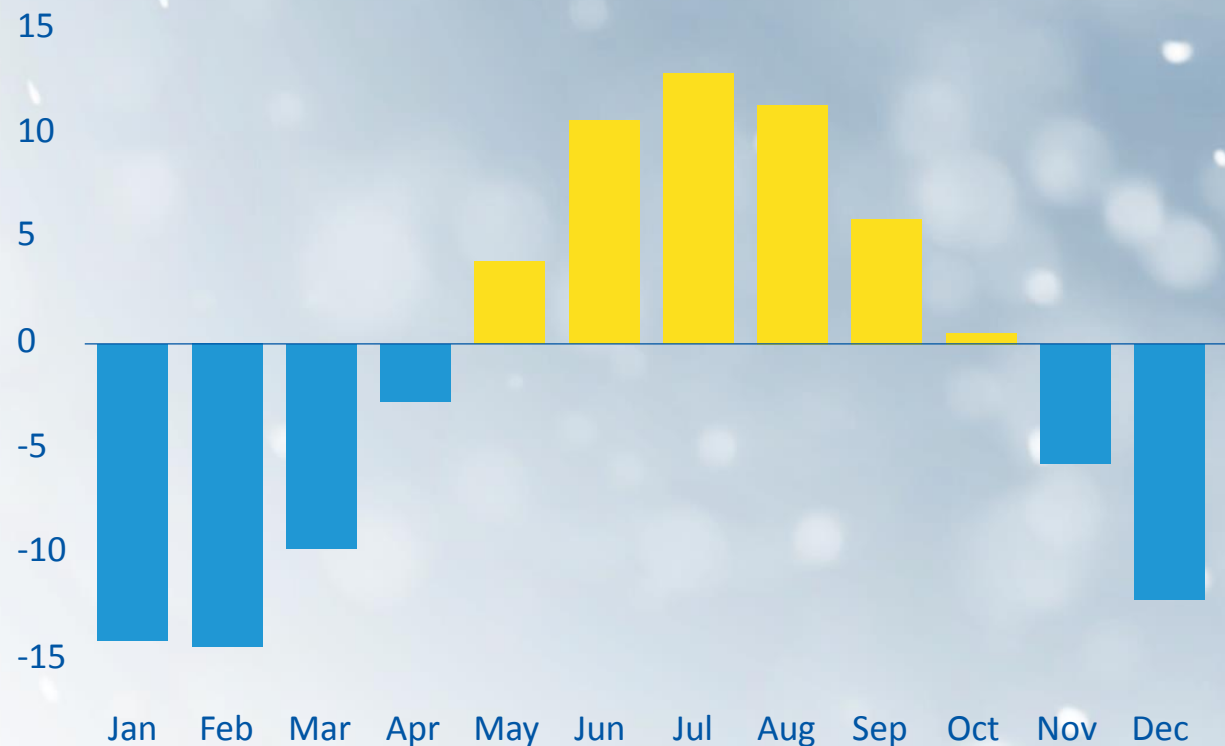
Develop and maintain our facilities

- Continuously improve safety, quality and efficiency of Goodyear testing facilities



General info: arctic proving grounds

Average temperature Ivalo



- Up to 10 drivers and 20 associates on site
 - Test drivers
 - Logistics coordinators
 - Instrumentation specialists
 - Tire fitters
- Passenger and truck testing able to test 240 tires per day
- Subjective and objective tests performed from mid-November until early April



General info: types of testing

Subjective testing

Subjective ratings (1-10) given by test driver for different criteria. Based on precise testing procedures and experienced drivers' judgment

- Traction
- Braking
- Lateral grip
- Steering tendency
- Steering precision
- Throttle release

Objective testing

Criteria are being graded based on data provided by onboard instrumentation

- Braking distance
- Lap time
- Tire wear



Eddy Geerdink

Director Marketing Execution

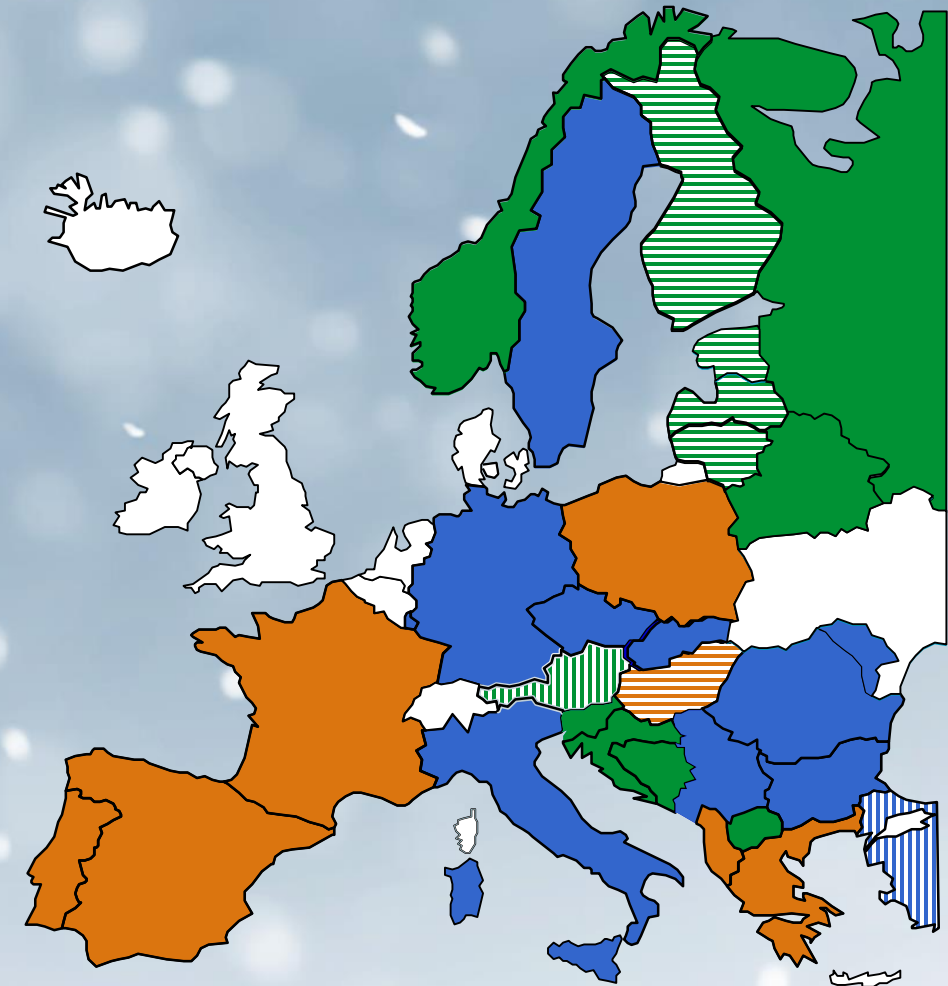
Goodyear Europe, Middle East & Africa



Winter tire rules across Europe

In all countries with current laws the reference to winter tires is M+S*. Some countries refer to M+S and/or 3PMSF.

-  Mandatory winter tires throughout a **fixed period** and on **all roads**, irrespective of weather conditions.
-  **Upon winter conditions**, requirements for winter tires and/or other winter equipment.
(N.B. Some countries couple winter conditions with a period. Some countries also limit these requirements to specific roads).
-  Requirements limited to **specific roads** (e.g. with a road sign, mountain roads), and **winter equipment** (alternatives to winter tires such as chains are allowed).
-  Exclusively for passenger cars.
-  Exclusively for commercial vehicles.

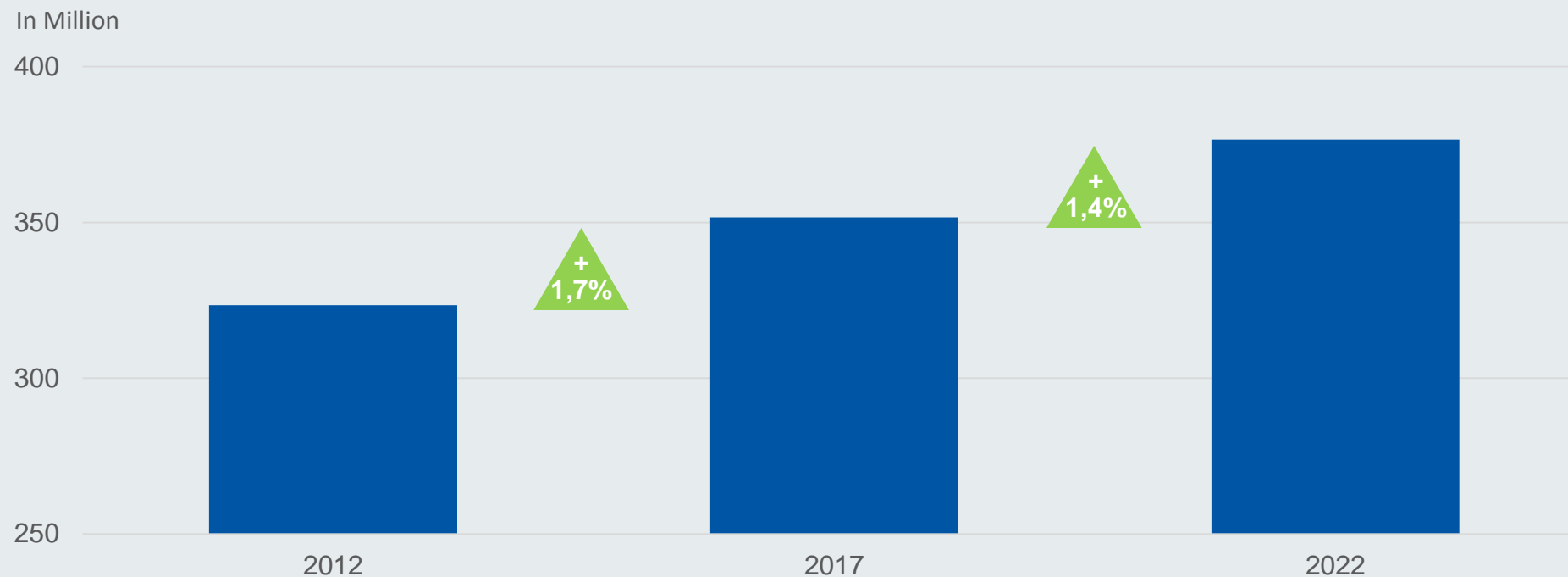


*Except Germany as of Jan. 1 2018



Market insights – Car park evolution 2012 - 2022

Car park forecast - Europe



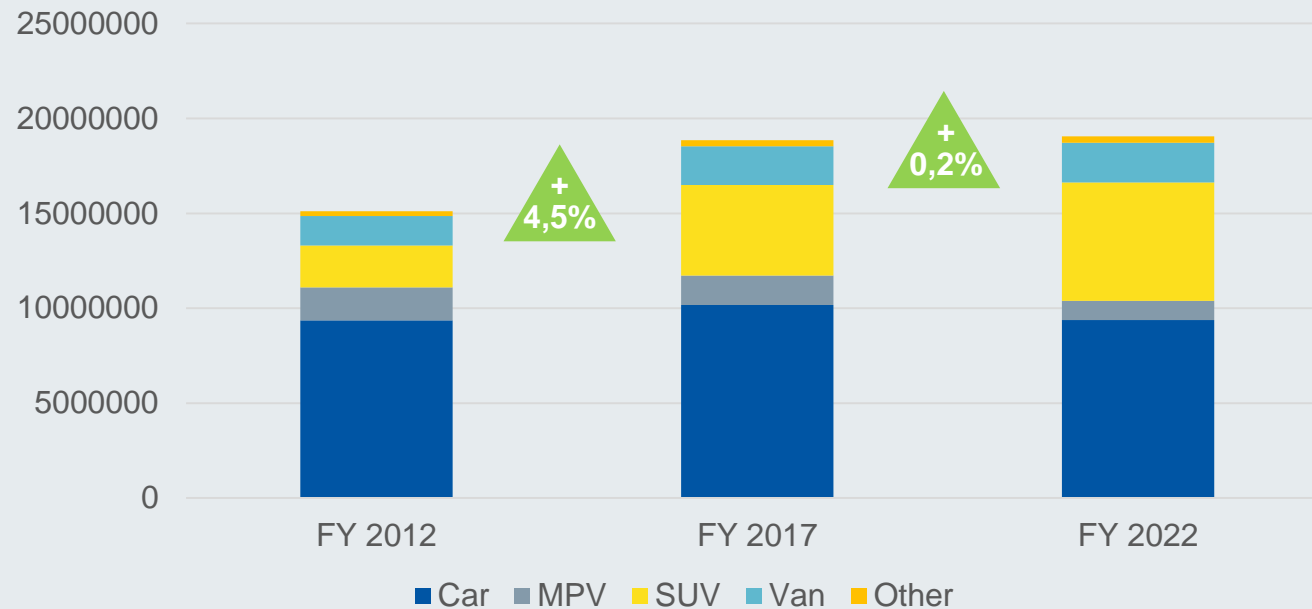
Stable growth of the car park in Europe

Source: IHS Automotive – World Parc Data December 2017
Countries: Europe (including Turkey, excluding Russia/CIS).



Market insights – Light vehicle sales evolution 2012 - 2022

Light vehicle sales forecast – Europe



CAGR* 2012- 2022

Car	0.0%
MPV	-5.2%
SUV	10.9%
Van	3.1%
Other	2.5%
Total growth	2,3%

Note: other includes pick-ups and sport vehicles

SUV is the fastest growing light vehicle segment in Europe (CAGR +10.9%)

Source: IHS Automotive – Light Vehicle Sales Forecast October 2017

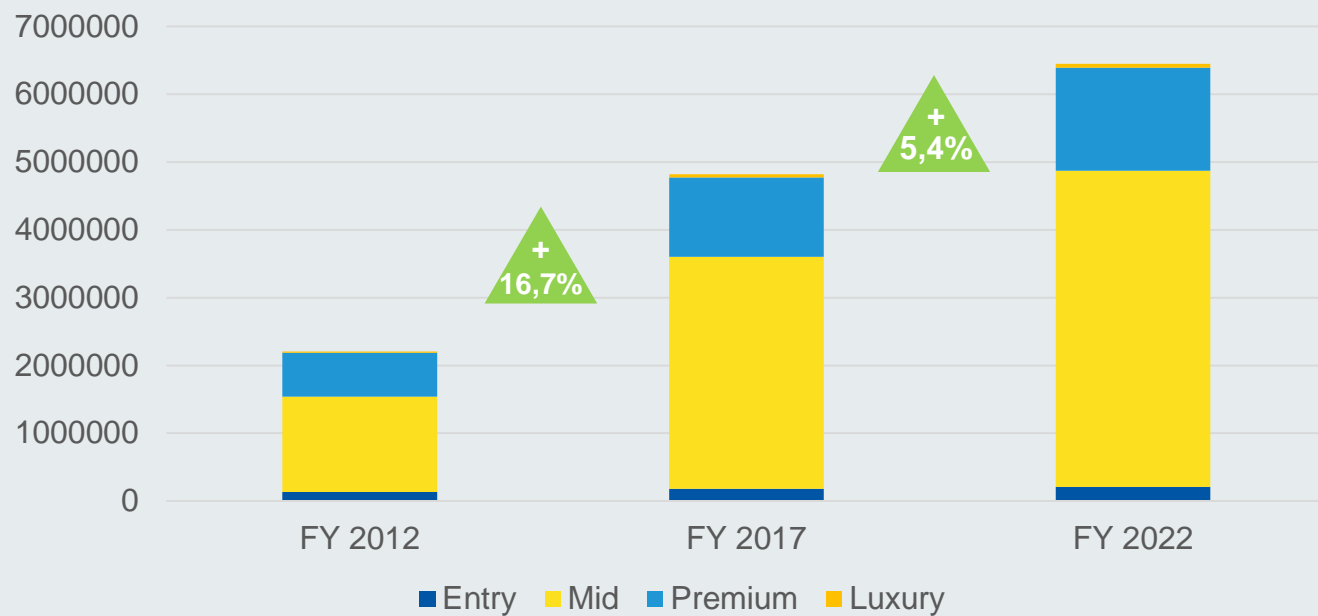
Countries: Europe (including Turkey, excluding Russia/CIS).

* Compound Annual Growth Rate from 2012 to 2022.



Market insights – SUV vehicle sales evolution 2012 - 2022

SUV new vehicle sales forecast by segment – Europe



CAGR* 2012 - 2022		Vehicle examples
Entry	4.3	Skoda Yeti, Renault Captur, Dacia Duster
Mid	12.8	Fiat 500X, Peugeot 2008, Renault Captur, Volkswagen Tiguan
Premium	8.9	Volvo XC60, BMW X1, Mercedes-Benz GLA , Audi Q2
Luxury	10.7	Bentley Bentayga, Maserati Levante, Porsche Macan

SUV sales showing strong growth in all brand and model tiers
Mid tier segment growing most (**CAGR 12.8%**)

Source: IHS Automotive – Light Vehicle Sales Forecast January 2018
Countries: Europe (including Turkey, excluding Russia/CIS).
* Compound Annual Growth Rate from 2012 to 2022.



OEM portfolio evolution



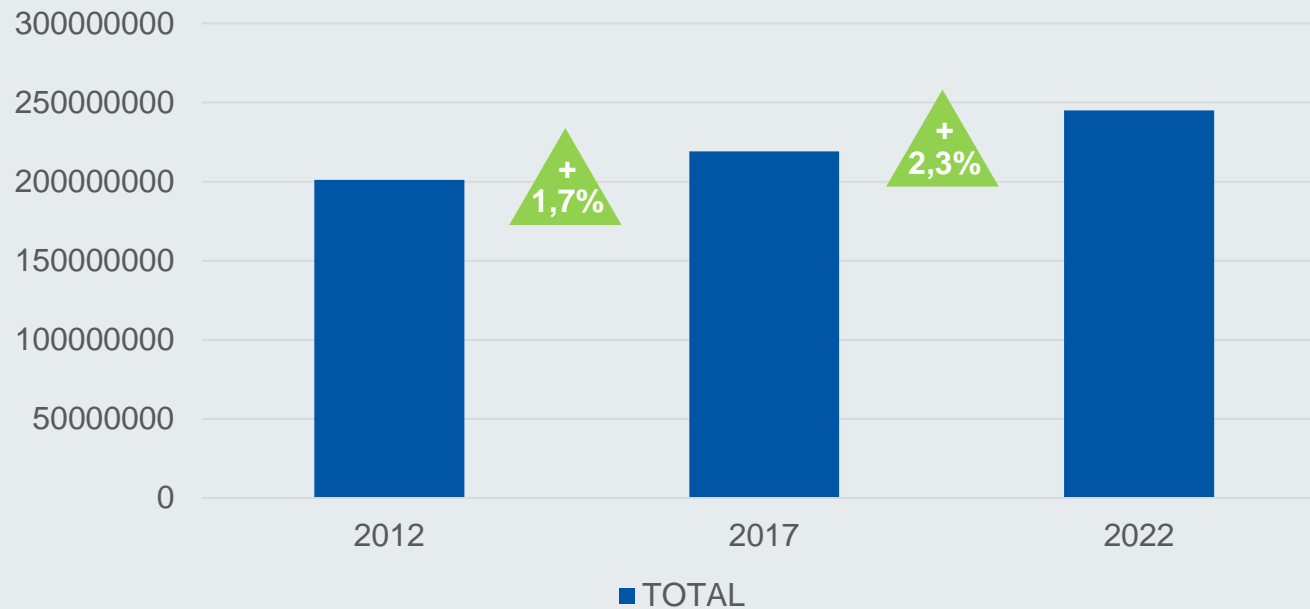
SUV/4x4 models becoming more prominent in OEMs product offering

Source: : IHS Automotive – Light Vehicle Sales Forecast October 2017 – Europe + Middle East Africa.

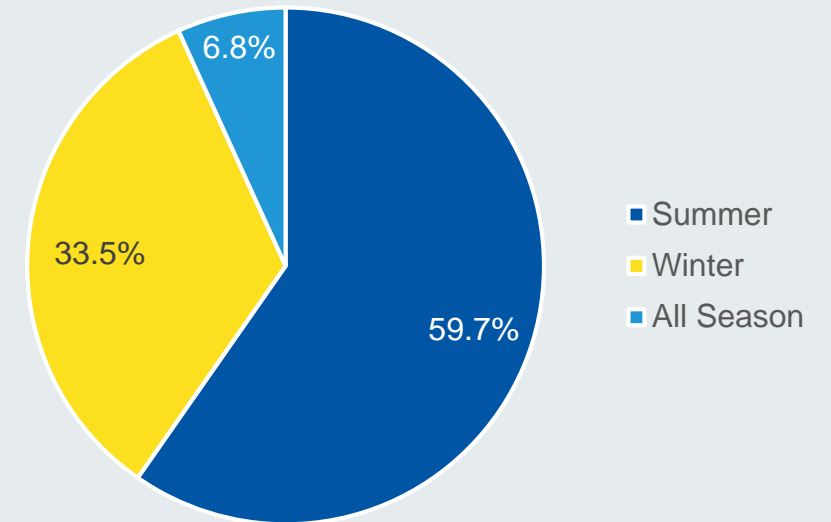


Market Insights – Total tire market 2012 -2022

Tire Industry Evolution - Europe



2017 Europe Tire Industry by Seasonality



Tire market in Europe is expected to grow 2.0% (CAGR*) from 2012 to 2022
Winter accounts for a third of the tire market in Europe

Source: Goodyear Estimates.

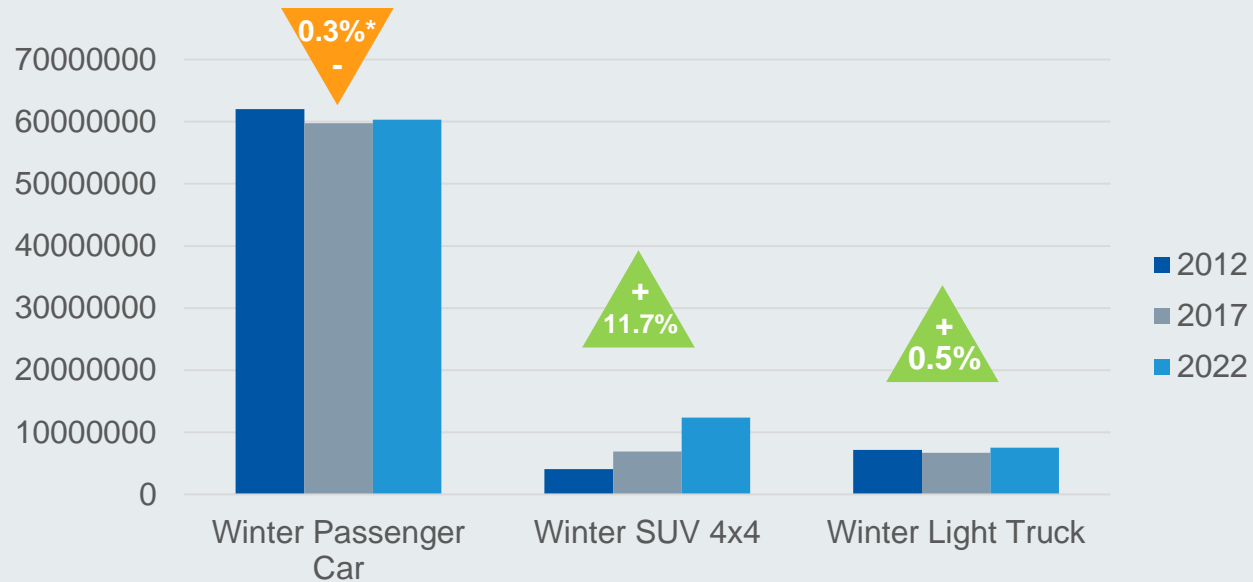
Countries: Europe (incl. Turkey, excluding Russia/CIS).

*Compound Annual Growth Rate



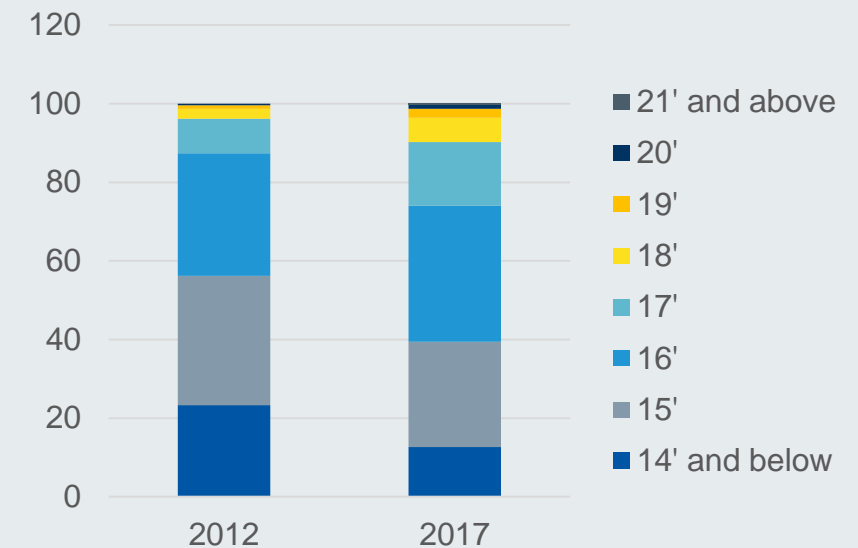
Market insights – Winter tire market 2012-2022

Winter Tire Market Evolution by Vehicle Segment - Europe



CAGR* from 2012 to 2022.

Winter Tire Market Evolution by RIM 2012-2017



Passenger cars account for the bulk of winter sales in Europe, while SUV/4x4 grows the fastest
Trend towards higher RIM sizes

Source: Goodyear Estimates.

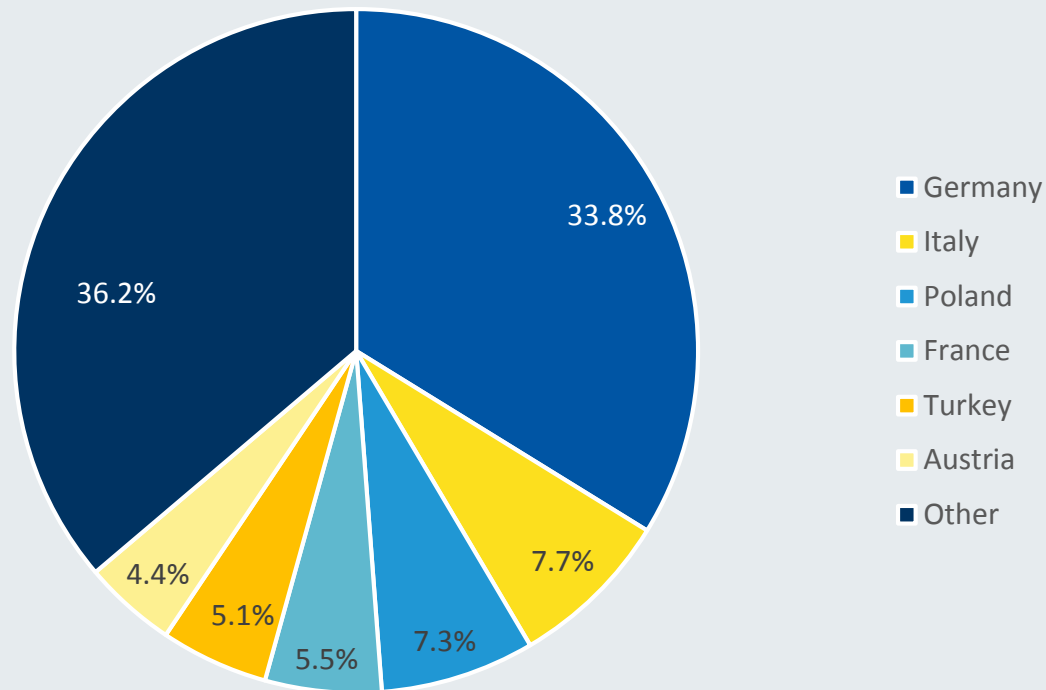
Countries: Europe (incl. Turkey, excluding Russia/CIS).

*Compound Annual Growth Rate



Winter industry country mix - 2016

Winter industry country mix - Europe



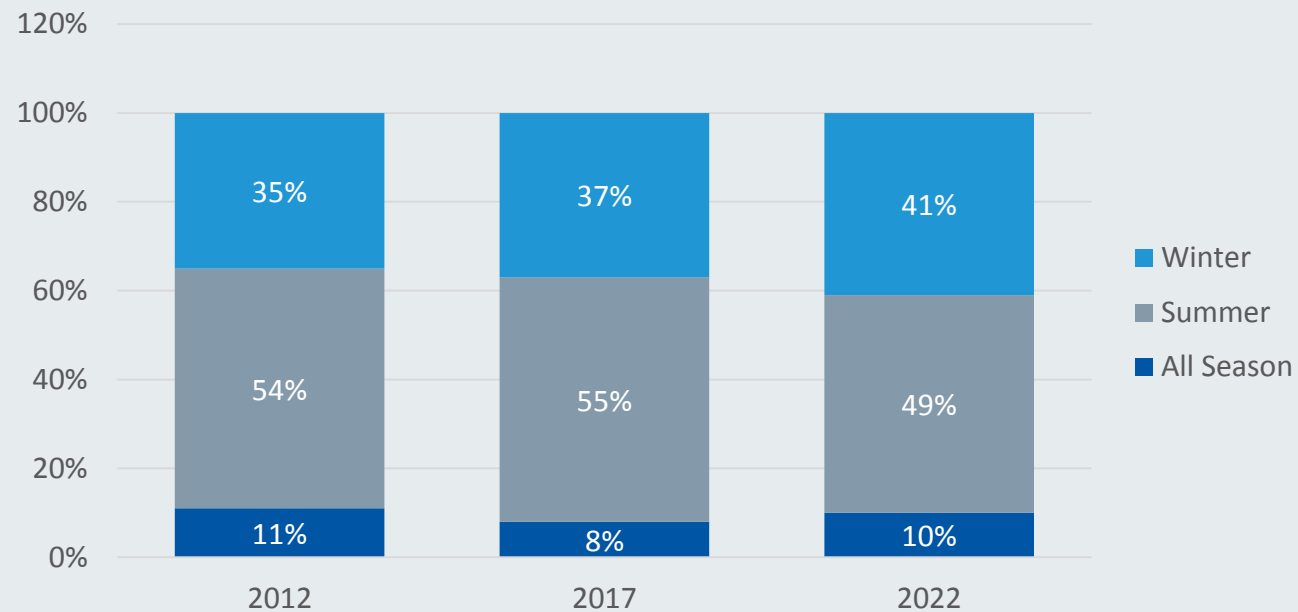
Germany accounts for the **largest share** of the winter industry in Europe

Source: ETRMA Europool. December 2017.
Countries: Europe (including Turkey, excluding Russia/CIS).



Market insights – SUV / 4x4 tire market: seasonal split 2012 - 2022

SUV/4x4 tire market split by season evolution



SUV/4x4 winter biggest growth 2022 vs 2012 (CAGR*: +11.7)

Source: Goodyear Estimates.

Countries: Europe (incl. Turkey, excluding Russia/CIS).

*Compound Annual Growth Rate



Joachim Meis

Marketing Product Manager

Goodyear Europe, Middle East & Africa



Winter tire requirements



SNOW	handling
	lateral grip
	under/over steering
	traction
	longitudinal grip
	torque transmission
	braking
	lap time

ICE	handling
	lateral grip
	under/over steering
	traction
	longitudinal grip
	torque transmission
	braking
	lap time

WET	handling
	lateral grip
	under/over steering
	braking

DRY	handling
	lateral grip
	under/over steering
	braking
	comfort

ENVIRONMENT	rolling resistance
	grip
	noise (interior/exterior)
	mileage
	protrusion (stud)
	retention (stud)

LEGAL	ECE
	3PMSF
	...



Winter tire portfolio

Winter ❄️



UltraGrip 9



**UltraGrip
Performance Gen1**

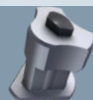


**UltraGrip Performance
SUV Gen1**



Cargo UltraGrip 2

Winter Studded ❄️



UltraGrip Ice Artic



**UltraGrip Ice Artic
SUV**

Winter Ice ❄️



UltraGrip Ice 2



**UltraGrip Ice
SUV**

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Size kit extension

Name	Full tire size	SOS estimated	Possible vehicle fitments
UltraGrip Performance Gen-1	205/55R17 91H ROF	01-Dec-18	Audi A3, JaguarXE
UltraGrip Performance Gen-1	235/40R18 95V XL	01-Sep-15	Ford Focus, Porsche Cayman
UltraGrip Performance Gen-1	215/45R18 93V XL	01-Sep-18	Mercedes CLA, Peugeot 5008
UltraGrip Performance Gen-1	225/40R19 93W XL	01-Aug-18	Jaguar XE, Audi TT
UltraGrip Performance Gen-1	255/40R20 101V XL	01-Jul-18	Porsche Panamera, Audi A7
UltraGrip Performance Gen-1	265/45R20 108V XL	01-Jun-18	Mercedes GLE, Porsche Macan
UltraGrip Performance Gen-1	225/50R18 99V XL	01-Jun-18	Infiniti Q50, Mini Countryman
UltraGrip Performance Gen-1	225/50R18 99V XL ROF	01-Jun-18	Audi A6, BMW X1
UltraGrip Performance Gen-1	225/40R18 92V XL ROF	01-Jun-18	VW Golf GTI/GTD, BMW 3-series
UltraGrip Performance Gen-1	245/50R18 104V XL ROF	01-Jun-18	Jaguar XJ, Porsche Panamera
UltraGrip Performance Gen-1	275/40R21 107V XL	01-May-18	Audi Q7, VolvoXC90
UltraGrip Performance Gen-1	255/45R20 105V XL Self-Sealant	01-May-18	Renault Espace, Tesla Model X
UltraGrip Performance Gen-1	235/45R19 99V XL	01-May-18	Ford Kuga, Volvo V60 Cross Country
UltraGrip Performance Gen-1	225/45R19 96V XL	01-May-18	BMW X1, Nissan Qashqai
UltraGrip Performance Gen-1	235/35R19 91W XL	01-May-18	Audi R8, VW Scirocco
UltraGrip Performance Gen-1	225/40R18 92W XL	01-May-18	Audi A3, Mercedes C-class AMG
UltraGrip Performance Gen-1	215/40R18 89V XL	01-May-18	Seat Ibiza, BMW 1-series
UltraGrip Performance Gen-1	235/50R17 100V XL	01-May-18	Ford Mondeo, Cadillac CTS
UltraGrip Performance Gen-1	225/45R18 95V XL ROF	01-May-18	Mercedes C-class, BMW 4-series Cabrio
UltraGrip Performance Gen-1	295/35R21 107V XL	01-May-18	Mercedes GLE, Porsche Cayenne
UltraGrip Performance Gen-1	215/65R16 102H XL	01-Apr-18	Audi Q3, Chrysler Jeep Renegade
UltraGrip Performance Gen-1	155/70R19 84T	01-Apr-18	BMW i3
UltraGrip Performance Gen-1	275/40R22 107V XL	01-Apr-18	Range Rover Sport
UltraGrip Performance Gen-1	245/45R20 103V XL	01-Apr-18	Chevrolet Camaro Cabrio, VolvoV90
UltraGrip Performance Gen-1	255/45R20 105V XL	01-Mar-18	Renault Espace, VolvoXC60

Size line-up will be increased with 25 new sizes



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Size kit extension

Pattern	Full tire size	SOS estimated	Possible vehicle fitments
UltraGrip Performance SUV Gen-1	215/70R16 104H XL	01-Dec-18	Peugeot 4008, Ford Ranger
UltraGrip Performance SUV Gen-1	265/50R20 111V XL	01-Nov-18	Infiniti FX, Chrysler Grand Cherokee
UltraGrip Performance SUV Gen-1	255/50R20 109V XL	01-Nov-18	Range Rover Velar, Jaguar F-Pace
UltraGrip Performance SUV Gen-1	275/50R20 109V	01-Oct-18	Mercedes G-Model, Bentley Bentayga
UltraGrip Performance SUV Gen-1	255/55R19 111V XL	01-Aug-16	Jaguar F-Pace, Range Rover Velar
UltraGrip Performance SUV Gen-1	265/50R19 110V XL	01-Jul-18	Porsche Cayenne, Tesla Model X
UltraGrip Performance SUV Gen-1	235/55R18 104H XL	01-Jul-18	Volvo V90, VW Tiguan
UltraGrip Performance SUV Gen-1	235/55R19 105V XL	01-Jul-16	Audi Q5, Volvo XC60
UltraGrip Performance SUV Gen-1	225/55R19 99V	01-Jun-18	Nissan X-Trail, Renault Koleos
UltraGrip Performance SUV Gen-1	255/55R20 110V XL	01-Jun-18	Land Rover Discovery 5
UltraGrip Performance SUV Gen-1	215/55R18 99V XL	01-May-18	Mercedes GLA, Renault Kadjar
UltraGrip Performance SUV Gen-1	225/60R18 104V XL	01-Apr-18	BMW X3, Nissan X-Trail
UltraGrip Performance SUV Gen-1	265/60R18 114H XL	01-Mar-18	Chrysler Grand Cherokee, VW Amarok
UltraGrip Performance SUV Gen-1	235/60R17 106H XL	01-Mar-18	Audi A8, Mercedes GLK
UltraGrip Performance SUV Gen-1	215/60R17 100V XL	01-Jan-18	Chrysler Jeep Cherokee, Audi Q3

Size line-up will be increased with 15 new sizes



Winter OE fitments



Audi
A4



Audi
A8



Audi
Q7



Volkswagen
TOURAN



Renault
SCENIC



BMW
1-SERIES



BMW
5-SERIES



BMW
6-SERIES GT



BMW
7-SERIES



BMW
X6



BMW
MINI



Rolls Royce
PHANTOM



Ford
C-MAX



Ford
S-MAX



Ford
GALAXY



MERCEDES-BENZ
A-CLASS



MERCEDES-BENZ
B-CLASS



MERCEDES-BENZ
CLA



MERCEDES-BENZ
CLS



MERCEDES-BENZ
E-CLASS



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Endorsed by independent tests



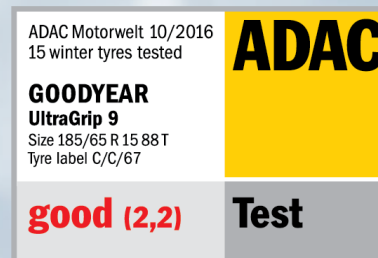
“Goodyear’s UltraGrip Performance Gen-1 has exceptional grip and its handling is very precise on wet, while keeping a balanced performance on dry”

Sport Auto, November 2017



“Very good performance on snow, optimal for reducing risk of aquaplaning and offers precise steering on dry roads”

Auto Bild allrad, November 2017



“Very balanced winter tire, with lowest fuel consumption. Does extremely well on snow and has great performance on wet.”

ADAC, October 2016





Eddy Geerdink

Director Marketing Execution tires

Goodyear Europe, Middle East & Africa



Workshop overview



Workshop overview

Workshop 1

Snow circle



Workshop 2

Ice handling



Workshop 3

Slalom + braking



Workshop 4

Co-pilot experience





Q&A

Please address any questions you might have to our speaker panel:

- **Jérôme Delu,**
Project Leader Consumer Winter & All-Season Tires
- **Eddy Geerdink,**
Director Marketing Execution Tires
- **Joachim Meis,**
Marketing Product Manager



Thank you



#GoodyearWinter

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All information is available on:

<http://news.goodyear.eu/events/goodyear-winter-press-event-jan-30-feb-01>

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Appendix



Overview Europe Legislation **Passenger** Winter Tires



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Total obligations

Estonia	1 Dec - 1 March	4 M+S tires with min 3mm TD. Studded tires allowed between 15 Nov. and 31 March.
Finland	1 Dec - end of Feb	M+S tires with min 3mm tread depth (TD). The law applies also to foreigners traveling in the country.
Lithuania	10 Nov - 1 April	M+S tires with min 3mm TD. Summer tires with min 3mm TD plus chains allowed.
Latvia	1 Dec - 1 March	M+S tires with min 4mm TD.
Slovenia	15 Nov - 15 March	4 M+S tires with min 3mm TD. Summer tires with min 3mm TD plus chains allowed. Winter tires obligation for tourists only if snow on the roads.
Bosnia and Herzegovina	15 Nov – 15 April	4 M+S tires with min 4mm TD. Summer tires with min 4mm TD plus chains allowed.
Macedonia	15 Nov – 15 March	4 M+S tires with min 4mm TD. Summer tires with min 4mm TD plus chains allowed. The law applies also to traveling foreigners.
Norway	15 Nov – 31 March	M+S/3PMSF tires with min 3mm TD . The law applies also to foreigners traveling in the country.
Croatia	15 Nov – 15 April	4 M+S tires with min 4mm TD. Summer tires with 4mm TD plus chains allowed.
Montenegro	15 Nov – 31 March	At least M+S tires on drive axle.

Partial Obligations for Winter Tires

Austria	1 Nov – 15 Apr + winter conditions	Winter tires with min 4 mm TD.
Bulgaria	15 Nov – 1 March	M+S with min 1.6mm TD or summer tires with 4.0mm TD
Czech Republic	1 Nov – 31 March + winter conditions	4 M+S tires with min 4mm TD. Summer tires plus chains allowed.
Germany	Winter conditions	Winter tires produced as of as of DOT 0118 must be marked with the 3PMSF symbol. M+S tires that have been produced no later than December 31 2017 (DOT 5217) may be operated on vehicles until September 30, 2024. POR tires are exempted from the regulation.
Luxembourg	Winter conditions	4 M+S tires. The law applies also to foreigners.
Romania	Winter conditions	Tire with M+S marking with minimum 1,6mm TD.
Slovakia	15 Nov – 31 March + winter conditions	M+S tires with min 3mm TD. Summer tires plus chains allowed.
Sweden	1 Dec – 31 March + winter conditions	M+S tires with min 3mm TD.
Kosovo	Winter conditions	4 M+S tires (chains allowed).
Turkey	1 Dec – 1 April + winter conditions	M+S and/or 3PMSF on highways and inter-city roads. City /city roads to likely to follow. Chains allowed but not substitutable for winter tires. Winter tires min 1.6 mm TD.
Italy	15 Nov – 15 April+ winter conditions	Winter tires min 1,6mm TD. Chains allowed.
Serbia	1 Nov – 1 April + winter conditions	4 M+S tires with min 4mm TD. Summer tires with 4mm TD plus chains allowed.
Moldova	1 Dec. – 31 March + ice/snow	4 M+S/chains with min 1,6mm TD. Chains allowed.
Russia	Dec - Feb	M+S and/or 3PMSF with min 4mm TD. Summer tires with 4mm TD plus chains allowed.

Partial Obligations for Winter Tires – In certain regions

France	Based on road signs	No requirement for winter tires, but obligation for chains where road indication (winter tires recommended).
Spain	Depending on weather conditions and roads	No requirement for winter tires, but obligation for chains where road indication (winter tires recommended).
Albania	When winter conditions, depending on region/road	Compulsory chains in certain regions. This obligation applies to truck drive axles and trailers.

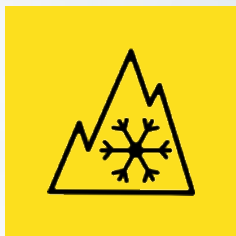
Relevant Countries but with No Requirements for Winter Tires

Albania	No requirement but compulsory snow chains in certain localities.
Belgium	No requirement.
Denmark	No requirement.
Greece	No requirement but mandatory in case of police indication.
Hungary	No requirement but compulsory where ice/ snow/ road indication.
Ireland	No requirement.
Kosovo	Recommendation when winter conditions.
The Netherlands	No requirement. Chains are prohibited.
Poland	No requirement for but compulsory where road indication.
Portugal	No requirement for winter tires, but obligation for chains where road indication.
Switzerland	No requirements for winter tires, but possible fines for drivers with summer tires obstructing traffic or causing accidents in snow conditions, as well as insurance companies' policies to refuse full reimbursement for accidents caused with summer tires in winter conditions.
UK	Chains are allowed on roads covered with ice and snow. They are prohibited on roads which are clear or only partially covered.
Ukraine	No requirement.



Legal requirements

A winter tire (or “snow tire” according to Directive 92/23/EEC) is defined as a “*tire the tread pattern and structure of which are primarily designed to ensure in mud and fresh or melting snow a performance better than that of a normal tire. The tread pattern of a snow tire generally consists of groove (rib) and/or solid-block elements more widely spaced than on a normal tire*”. The marking for snow tires according to mentioned law had been M+S (or M.S, M&S).



UNECE Regulation 117, implemented in the EU since November 2012 through Regulation (EC) 661/2009, distinguishes between a “**snow tire**” marked as M+S (M.S, M&S) and a “**snow tire for use in severe snow conditions**”. The latter is marked both with M+S and a new three-peak snowflake symbol. This category should meet a minimum level of performance on snow (snow grip) in order to be marked with the snowflake symbol.



However, M+S will also remain an allowed marking, but not linked by law to a minimum guaranteed performance in winter conditions.



Overview Europe Legislation **Commercial** Winter Tires



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Total requirements

Bosnia and Herzegovina	15 Nov – 15 April	M+S tires on driving axles with min 4mm TD. Summer tires with min 4mm TD plus chains allowed.
Macedonia	15 Nov – 15 March	M+S tires on driving axles with min 6mm TD. The law applies also to traveling foreigners.
Norway	15 Nov – 31 March	Winter tires mandatory on all axles (chains allowed but obligation to have min. 3 to 7 sets of chains depending on number of axles) with 5mm as min. TD.
Croatia	15 Nov – 15 April	M+S tires on drive axle with min 4mm TD or summer tires with min 4mm TD + chains on drive axle
Montenegro	15 Nov – 31 March	At least M+S tires on drive axle.
Slovenia	15 Nov – 15 March	M+S tires on driving axles with min 3mm TD. Summer tires with min 3mm TD plus chains allowed.

Partial Obligations for Winter Tires

Austria	1 Nov – 15 Apr	At least on drive axle min 5mm TD for radial/6mm TD for tires.
Czech Rep	1 Nov – 31 March + winter conditions	M+S tires on driving axles with min 6mm TD.
Germany	Winter conditions	3PMSF required on drive axles. A grace period for 3PMSF on front steer axles is given until July 1, 2020. Winter tires produced as of as of DOT 0118 must be marked with the 3PMSF symbol. M+S tires that have been produced no later than December 31 2017 (DOT 5217) may be operated on vehicles until September 30, 2024.
Luxembourg	Winter conditions	M+S tires on driving axles. Summer tires on all axes with min 6mm TD + chains allowed.
Romania	When snow/ice	M+S tires on drive axle with min 6mm TD.
Slovakia	15 Nov – 31 March + winter conditions	M+S tires with min 3 mm TD.
Sweden	1 Dec – 31 March + winter conditions	M+S and/or 3PSFS on drive axles with min 5mm TD.
Turkey	1 Dec – 1 April + winter conditions	M+S and/or 3PMSF on drive axles of trucks, tow trucks, tankers, buses. Min. 4mm for trucks, tow trucks, tankers, buses, trailers and semi-trailers. Chains allowed but not substitutable for winter tires.
Serbia	1 Nov – 1 April + winter conditions	M+S tires on driving axles with min 4mm TD. Summer tires with 4mm TD plus chains (at least on driving axle for commercial vehicles) allowed.
Moldova	1 Dec – 31 March + ice/snow	M+S on drive axle with min 1,6mm TD. Chains allowed.
Russia	Dec – Feb	M+S and/or 3PMSF all axles min 4mm TD.
UK	Oct - March	Minimum depth 1,6mm
Finland	1 December – end of February	Minimum depth 5mm on drive axles, with the exception of steering drive axles. On the other axles and on all axles of the trailer or towed drawn with the above-mentioned vehicles tires shall have a depth of at least 3.0 mm.