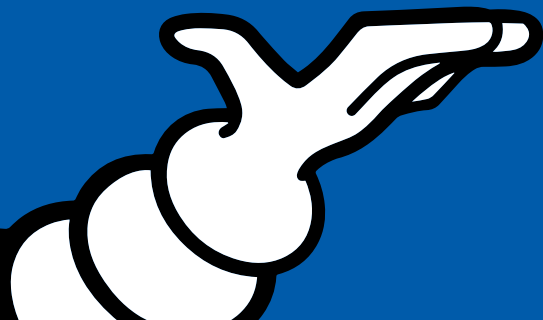




2018-2019
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TECHNICAL DATA BOOK

MICHELIN TRUCK AND BUS TYRES



The purpose of this manual is to provide useful information to help obtain maximum performance at minimum cost per kilometre. This manual will assist fleets to increase their tyre knowledge and covers the full life cycle of the tyres: selection, vehicle characteristics that affect tyre performance, maintenance and tyre life extension through regrooving and retreading.

MICHELIN tyres are designed for a specific use as detailed in this catalogue. Any other use constitutes abnormal usage. However, in some cases, Michelin may waive the specific use conditions and limits and allow for a derogation. Michelin disclaims any liability for any abnormal use of our tyres in the absence of any specific written permission.

MICHELIN products are manufactured from high quality materials to high tolerances, ensuring a uniform and consistent performance. Correct application, fitting, inflation and regular inspection of the product is essential to safe and efficient operation.

MICHELIN Remix and the tyre designations mentioned are trademarks of Michelin.

This manual gives Michelin recommendations for optimum use of tyres, nevertheless, please refer to the regulation of each country for local operation.

For further information about any of the products in this document, contact your local Michelin representative or refer to the Michelin website: trucks.michelin.co.uk

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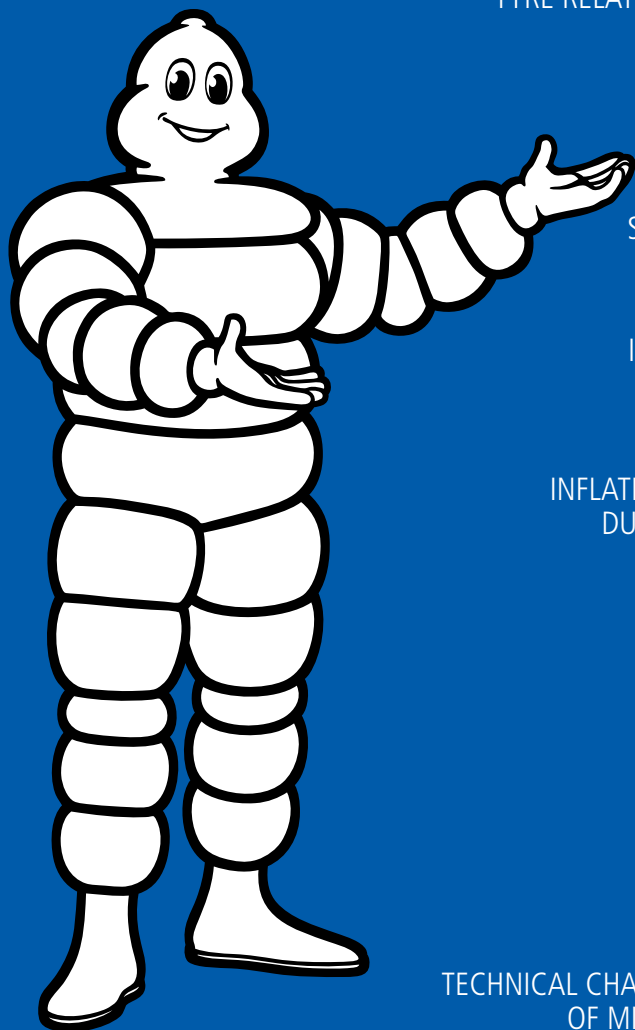
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TYRE RELATED GUIDANCE

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FITTING NEW TYRES

For optimised tyre performance Michelin recommends mounting tyres with the same tread pattern on the same axle. If this is not possible, Michelin advises mounting dual tyres of the same type. This can vary from country to country according to local regulation.

European Union commission regulation (EU) No 458/2011 of 12 May 2011 requires that all the tyres mounted on same axle of a vehicle, should be of the same type or construction.

Fitting tyres with different tread patterns is allowed provided they have:

- the same brand
- the same size
- the same structure (radial or diagonal)
- the category of use (road, special, snow)
- sufficient speed capacity
- sufficient load capacity for the plated weights of the vehicle axle

Please refer to the regulations of each country for specific fitment.



FITTING REGROOVED TYRES

Regulations permit the fitting of regrooved tyres on all axles of commercial vehicles, including for the transport of persons or hazardous materials, provided certain other criteria are met in relation to the dimension of the tyre and the regrooving pattern and method.

See regrooving section on pages 79 to 123 for more detail.



Possible mounting for regrooved truck tyres

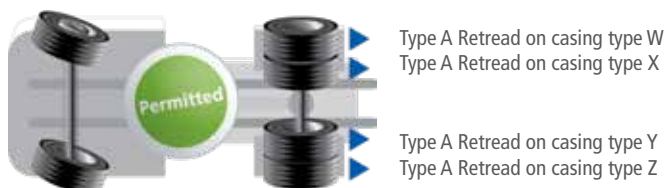
FITTING RETREADED TYRES

MICHELIN Remix tyres are designed and manufactured to be used on drive axles and trailer axles to drive, trailer and tag axles. Michelin does not recommend mounting retreaded tyres on the front steer axle of motor vehicles. As an example, it is therefore possible to use a retreaded tyre on a second axle of a 8x4 truck or a tag axle.

EXAMPLE OF A UNIFORM FITMENT (RETREAD - RETREAD) ON THE AXLE

- Michelin recommends that the technical characteristics of the retreaded tyres fitted to a vehicle must be the same:
 - retread brand
 - tyre size
 - tyre structure
 - speed rating and tyre load indices
 - tyre tread pattern
- It is **NOT ADVISED** to mount retreaded tyres from different retreaders on the same axle, regardless of the make of the casing.
- It is **ADVISED** to mount retreaded tyres from the same retreader regardless of the make of the casing.

Example of uniform retread fitment

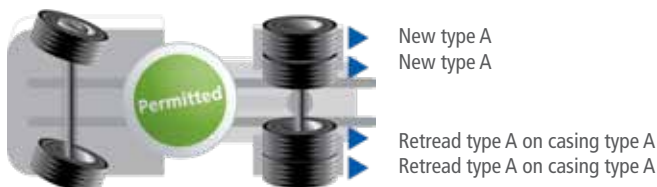


EXAMPLE OF A MIXED FITMENT (NEW - RETREAD) ON THE AXLE

Michelin recommends that its tyres should only be mixed on the same axle if:

- **The retreaded and new tyres are of the same brand.**
- **The make of the casing is the same on new and retreaded tyres.**
- **The following technical characteristics of the retreaded and new tyres on the same axle are identical:**
 - tyre dimensions
 - structure (radial or diagonal)
 - speed rating and load indices
 - tread type (road, all-terrain, snow – M+S marking)

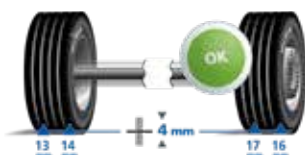
Diagram of axles for new/retreaded combination



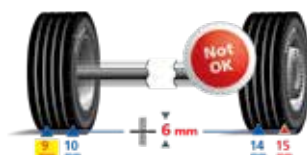
DEPTHS OF TREAD PATTERN ACROSS THE SAME AXLE

Michelin advises that the difference between the depths of the main grooves on a dual fitment or on a drive axle fitted with dual or single tyres must not exceed 5mm at the same phase of life (regrooved/non regrooved). This advice does not apply to non driven axles fitted with single tyres, although the legal requirement of the country of operation must be taken into consideration.

Example 1: maximum difference on the axle: **acceptable for ≤ 5 mm**



Example 2: maximum difference on the axle: **not recommended for > 5 mm**



For a regrooved tyre, the depth of the regroove should be taken away from the remaining tread pattern depth before making this comparison.

PRODUCT LIFE

Tyres are constructed using various types of material and rubber compounds, having performance properties essential to the proper functioning of the tyre itself. These component properties evolve over time. For each tyre, this evolution depends upon many elements such as weather, storage conditions and conditions of use (load, speed, inflation pressure, maintenance, etc.) to which the tyre is subjected throughout its life. This service related evolution varies widely so that accurately predicting the serviceable life of any specific tyre in advance is not possible.

That is why, in addition to regular inspections and inflation pressure maintenance by operators, Michelin recommends that tyres, including spare tyres, should be inspected regularly by a qualified tyre specialist, such as a tyre dealer, who will assess the tyre's suitability for continued service.

Tyres which are in use for 5 years or more from their date of manufacture should continue to be inspected by a specialist at least annually. It is recommended that tyres 10 years or older should be fitted only on Drive or Tag/Trailer axles.

Operators are strongly encouraged to be aware not only of their tyres' visual condition and inflation pressure but also of any change in dynamic performance such as increased air loss, noise or vibration, which could be an indication that the tyres need to be removed from service.

The date when a tyre was manufactured is located on the sidewall of each tyre. Operators should locate the code on the tyre which begins with the letters DOT and ends with the week and year of manufacture. For example a DOT code ending in "2016" indicates a tyre made in the 20th week (May) of 2016.

Failure to follow these recommendations may lead to a reduction in the performance of your vehicle and cause it to respond abnormally and/or a tyre malfunction could pose a safety risk to drivers and others. Michelin shall not be responsible under any circumstances for damage that occurs as a result of and/or during use that does not comply with its guidelines.



TYRE WEAR REMOVAL CRITERIA

































The minimum remaining tread depth limits defined by each country per the chart below are defined to optimise tyre mileage potential while keeping safe operations. To that end Michelin offers tyres with high levels of performance throughout their service life and therefore recommends to keep the tyres in service until the legal limit for wear has been reached.

In addition, tyre mileage potential can be optimised by keeping the tyre in service for longer by regrooving when necessary.

Each millimetre of tread rubber can give up to 35,000 km or 3 months of service*.

If the minimum tread wear limit has been reached, the tyres must be removed and replaced.

MAIN EUROPEAN MINIMUM TREAD DEPTH REGULATIONS

| Country | Minimum Tread Depth | Country | Minimum Tread Depth |
|--|--|---|--|
|  Austria | 2.0 mm |  Lithuania | 2.0 mm for coaches and buses carrying more than 8 passengers |
|  Belgium | 1.6 mm |  Luxembourg | 1.0 mm for towed vehicles 1.6 mm for motor vehicles |
|  Bulgaria | 1.6 mm |  Netherlands | none |
|  Croatia | 1.6 mm |  Norway | 1.6 mm |
|  Czech Republic | 1.6 mm |  Poland | 3.0 mm for coaches reaching speeds of 100 kph 1.6 mm for other vehicles |
|  Denmark | 1.0 mm |  Portugal | 1.0 mm |
|  Eurasian EU ⁽¹⁾ | 2.0 mm for coaches and buses 1.0 mm for other trucks |  Romania | 1.6 mm |
|  Finland | 1.6 mm |  Serbia | 2.0 mm |
|  Estonia | 1.6 mm |  Slovakia | 1.6 mm |
|  France | 1.0 mm |  Slovenia | 1.6 mm |
|  Germany | 1.6 mm |  Spain | none |
|  Greece | 2.0 mm |  Sweden | 1.6 mm ⁽²⁾ |
|  Hungary | 1.6 mm for tyres with a diameter ≤ 750 mm 3.0 mm for tyres with a diameter > 750 mm |  Switzerland | 1.6 mm |
|  Ireland | 1.6 mm |  Turkey | 1.6 mm |
|  Italy | 1.6 mm |  Ukraine | 2.0 mm for coaches and buses 1.0 mm for other trucks |
|  Latvia | 1.6 mm |  UK | 1.0 mm |

(1) Eurasian Economic Union: Armenia, Belorussia, Kazakhstan, Kyrgyzstan, Russia

(2) Outer tyres in dual configuration. No min. depth unless in winter.

Provided for informational purposes only, may be subject to changes in local regulations.

* Internal Michelin source.

TYRE REPAIRS

It is dangerous to ignore a damaged tyre.

MICHELIN truck tyres can be repaired under certain conditions; this possibility is planned in at the design stage. However, not all kinds of damage can be repaired.

Repairing a tyre is a job for trained and qualified professionals. The tyre repairer always has sole responsibility for the accuracy and quality of the work done on the tyre.

Repair must always be preceded by removal of the tyre and a complete inspection both internally and externally spelling change required, by a professional.














If any damage is found which cannot be repaired, such as over flexing of the casing owing to deflated or severely under inflated running, the tyre must not be repaired.

WINTER REGULATIONS IN EUROPE

Understanding winter tyre symbols:

The M+S symbol is a manufacturer's independent statement based on their own non-regulatory standards.

The Alpine (3PMSF) symbol is awarded if the tyre passes a traction test in winter conditions performed in accordance with UNECE Regulation 117. The test results are tangible and comparable. 3PMSF is the only real standard for measuring winter mobility.

| Country | Minimum Tread Depth | Legislated use of tyres marked M+S or 3PMSF | Use of Chains | Defined Winter Period |
|---|---|--|---|---|
|  Austria | 5 mm Radial & 6 mm bias | Yes. Drive axles only. | Allowed for min 2mm drive tyres. | 1 Nov - 15 Apr for Trucks and 1 Nov - 15 Mar for Coaches. |
|  Belgium | 1.6 mm | No. | Allowed in winter conditions | |
|  Bosnia & Herzegovina | 4 mm | Yes. Drive axles only. | Obligation to carry chains, shovel and bag of sand. | 15 Nov-15 Apr |
|  Bulgaria | 4mm | No | Obligation to carry chains from 1 Nov - 31 Mar | 15 Nov - 1 Mar |
|  Croatia | 4 mm | Yes. Drive axles only. | Use of chains on summer tyres on drive axle if the vehicle is driving on winter roads defined by law. | When roads covered or expected to have snow/slush/ice. |
|  Czech Republic | 6 mm for drive axles. 1.6 mm for all others. | Yes. Drive axles only. | Allowed in winter conditions. Mandatory when signs indicate. | 01 Nov-31 Mar or when road signs dictate. |
|  Denmark | 1 mm | No. | Chains and studded tyres allowed from 01 Nov-15 Apr. | |
|  Eurasian EU ⁽¹⁾ | 4 mm | Yes. All axles. | Allowed. | Basic period is 1 Dec -28 Feb. But any Federation subject is able to enlarge this period if needed. |
|  Finland | Winter 2016 & 2017: 1.6 mm. Winter 2017 & 2018 : 5.0 mm for drive axle, 3.0 mm for all others. | Winter 2016 & 2017: No. Winter 2017 & 2018: Yes. Drive axles only. | Allowed in winter conditions. | 01 Dec-01 Mar Studded tyres can be used 1 Nov -31 Mar |
|  France | 1 mm | No. | Allowed. | Studded tyres can be used from the Saturday before 11 Nov to last Sunday of March. |
|  Germany | 1.6 mm | Yes. ⁽²⁾ | Allowed. Speed limited to 50 km/h. | When roads covered or expected to have snow/slush/ice. |
|  Greece | 2mm for drive, 1.6 for all others. | No. | When signs indicate. | Mandatory use of chains when signs indicate. |
|  Hungary | 1.6 mm if tyre size is <750mm 3 mm if tyre size is >750mm | No. | When signs indicate. | |
|  Ireland | 1.6mm | No. | Not mandatory | No period defined. |

| Country | Minimum Tread Depth | Legislated use of tyres marked M+S or 3PMSF | Use of Chains | Defined Winter Period |
|--|--|---|---|--|
|  Italy | 1.6 mm | Yes. Drive axles only. | Mandatory if no M+S/3PMSF marked tyres when signs indicate. | Not defined. |
|  Kosovo | 4 mm | Yes. Drive axles only. | Mandatory in winter conditions. | When roads covered or expected to have snow/slush/ice. |
|  Luxembourg | 1.6 mm | Yes. Drive axles only. | Allowed in winter conditions. | When roads covered or expected to have snow/slush/ice. |
|  Macedonia | 6mm for drive axle, 4 mm for all others. | Yes. All axles. | For axles without tyres with M+S marking and min. 4 mm. Should have as well shovel and bag of sand. | 15 Nov - 15 Mar |
|  Montenegro | 4 mm | Drive axles only. | Chains, shovel and sand bag when there is snow on the road. | 1 Nov - 1 Apr |
|  Netherlands | 1.6 mm | No. | Not allowed. | |
|  Norway | 5 mm | 3PMSF mandatory from 01.01.2020 for drive and steer axle. | Allowed with requirement to carry 3-7 sets depending on number of axles. | 15 Nov - 31 Mar |
|  Poland | 1.6 mm (3 mm for coaches) | No. | Mandatory. | |
|  Portugal | 1mm | No. | Mandatory. | Not defined. |
|  Romania | 4 mm | Yes. | Allowed on drive axles. | 1 Nov - 31 Mar |
|  Serbia | 4mm | Yes. Drive axles only. | Chains mandatory for at least 2 drive wheels. | 1 Nov - 1 Apr |
|  Slovakia | 3mm | Yes. Drive axles only. | Allowed in winter conditions. Mandatory when signs indicate. | 1 Nov - 31 Mar |
|  Slovenia | 4 mm | Yes. Drive axles only. | Allowed if no M+S/3PMSF. Min 3 mm | 15 Nov - 15 Apr |
|  Spain | Tread depth visible in main grooves. | 4mm | When signs indicate. | No period, truck and bus traffic can be stopped by the authorities depending on road conditions. See Exception in ⁽³⁾ . |
|  Sweden | 5mm, all position on truck only 1.6 mm on trailer. | Yes. Drive axles only. | Allowed. | 1 Dec - 1 Apr |
|  Switzerland | 1.6 mm | No. | When signs indicate. | |
|  Turkey | 4 mm | Yes. Drive axles | Allowed. | 1 Dec - 1 Apr |
|  Ukraine | 1 mm (2 mm for coaches) | Yes. | Allowed. | NA |
|  UK | 1 mm | No. | Not mandatory. | 1 Dec - 1 Apr |
|  Other EU countries | 1.6mm | No. | When signs indicate | Chains or winter tyres can be required when signs indicate. |

Provided for informational purposes only, may be subject to changes in local regulations,

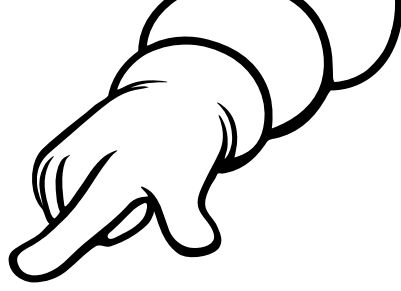
(1) Eurasian Economic Union: Armenia, Belorussia, Kazakhstan, Kyrgyzstan, Russia.

(2) 3PMSF for drive axle tyres and from July 2020 for steer axle tyres mandatory. If tyres are manufactured before 2018, M+S marking is valid for winter use until 30 Sept 2024.

(3) Exception: some vehicles can be authorised to circulate during winter red level alert, such as buses and coaches but it's mandatory to have:

- Tyres with 3PMSF on all axles. - Tyres with more than 4 mm remaining tread depth
- A certificate that guarantees that the tyres are 3PMSF - A sticker with a visible icon on the windscreens
- For small trucks 3PMSF tyres can be replaced by chains





CHOOSING THE MOST SUITABLE TYRE

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Choosing the most suitable tyre | p.16

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MICHELIN tyre range | p.22

INTRODUCTION TO HOW COMMERCIAL VEHICLE TYRES ARE USED

The choice of tyre must comply with local legislation and be in line with the tyre specification recommended by the vehicle manufacturer, the tyre manufacturer (size, load and speed ratings, construction etc.)

- The tyre's conditions of use have to be taken into consideration to ensure that its performance meets the expectations of the vehicle operator.
- In the case of a modification to the original tyre specification, it is advisable to make sure that the solution proposed complies with the current legislation, the technical constraints of the vehicle, the conditions of use and the manufacturer's recommendations (refer to the regulations in force in the country of operation). In some countries, vehicles modified in this way need to obtain official authorisation.
- Any second-hand or worn tyre or one which has been involved in an accident must be checked very carefully by a professional before being fitted in order to guarantee the user's safety and compliance with the regulations in force (see tyre care page 30).
- Incorrect use or the wrong choice of tyre may also contribute to premature failure of certain mechanical components.

CHOOSING THE MOST SUITABLE TYRE

To ensure optimum safety, reliability and business efficiency it's important to fit the correct tyre specification. This can be done by observing certain selection criteria.

STEP 1: DETERMINE THE CORRECT TYRE SIZE

- The tyre size must be approved by the vehicle manufacturer and the load index should be equal or greater than the maximum permitted axle load.
- The maximum permitted axle load is given by the vehicle manufacturer in relation to the regulations in force. Fitting this axle with tyres which can support a greater load does not mean that a load homologated by the vehicle manufacturer can be exceeded.
- For each tyre size there are one or more corresponding approved wheel rim sizes: consult the ETRTO "Standard Manual" and/or the vehicle manufacturer's recommendations.
- Fitting a tyre on a non-approved wheel rim can lead to damage to the wheel and/or the tyre, a footprint which is less than optimum and abnormal flexing of the casing which can be prejudicial to safety, handling, grip and tyre service life.

STEP 2: CHOOSE THE CORRECT TYRE

- The MICHELIN commercial vehicle tyre offer comprises of six tyre ranges designed and adapted to each business application and ready to help you optimise your operating costs.
- To select the right tyre, we have to take into account the type of use and the benefits of each range.

| | | |
|---|------------------|--|
|  | X LINE™ | Designed for long distance, high average speed, international journeys, constant speed. |
|  | X MULTI™ | Designed for national and regional operations on all types of roads. |
|  | X WORKS™ | Designed for roads, in and around worksites and quarries. |
|  | X COACH™ | Designed for people transportation for long and short distance on all types of roads. |
|  | X INCITY™ | Designed for journeys in urban and suburban driving. |
|  | X FORCE™ | Designed for specialised, civil or military vehicles mostly driven on off-road surfaces. |

STEP 3: IDENTIFY THE RIGHT BENEFIT

- MICHELIN tyres offer different benefits depending on the operators specific needs.

STEP 4: SELECT THE RIGHT TREAD PATTERN

- There are rules which HAVE TO BE followed when selecting the tread patterns of your tyres.

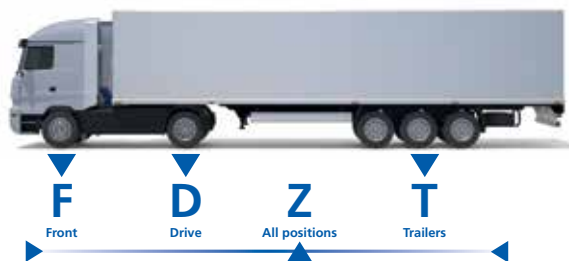


Diagram of tyre position code

Examples

X® MULTI™ F = **F** for Front
 X® LINE ENERGY™ D or X® COACH™ XD = **D** for Drive
 X® MULTI™ T = **T** for Trailers
 X® INCITY™ XZU = **Z** for All positions

■ Associated risks if the 4 steps are not followed

| Tyre functions | | |
|---|--|--|
| Carry the load | Defined by the vehicle characteristics: axle load | |
| Ability to carry the load at maximum speed | Defined by the vehicle characteristics: maximum speed of vehicle | |
| Travel on different road surfaces | According to the conditions of use | |
| Steer the vehicle | According to the conditions of use By providing feedback to the driver about the conditions of use | |
| | Special feature of front axle: specially adapted tread pattern and uniformity | |
| Provide a comfortable ride | Special feature of front axle tyres: specially designed tread and uniformity | |
| Transmit braking forces | Braking: related to the vehicle's braking system. The front axle is put under considerable strain during emergency braking. Braking with a retarder is carried out by the drive axle. | |
| | | |
| Long life for optimised business efficiency | In relation to mileage performance | |
| | In relation to the vehicle's fuel consumption | |

| | Associated risks of using inappropriate tyres |
|--|--|
| | An under-sized tyre under load will overheat. This may lead to rapid deterioration of the tyre on the road which may even go so far as a sudden loss of inflation pressure. The tyre footprint will not be optimised, which can affect handling and grip: steering, traction and braking maybe affected. Retreading may be compromised. Service life will be reduced. |
| | An under-sized tyre travelling at speed will overheat. This may lead to rapid deterioration of the tyre on the road which can result in a sudden loss of inflation pressure. Retreading may be compromised. Service life will be reduced. |
| | <p>A tyre which is not suitable for the position or use may:</p> <ul style="list-style-type: none"> – overheat: as in the case of an urban tyre used on long motorway journeys. – deteriorate: as with the tread of a long distance tyre which is used on unsurfaced roads. <p>In the latter case, a tyre showing deep-seated damage must be examined by a specialist to determine whether it can continue in use, can be repaired or needs to be withdrawn from service. Note that if the reinforcing plies are exposed they will deteriorate: a tyre with this kind of damage is considered unfit for use under the terms of the Construction and Use Regulations (1986). This damage may lead to rapid deterioration of the tyre on the road and can result in sudden total deflation. Retreading may be compromised. Service life will be reduced.</p> |
| | On the Steering axle, fitting a tyre which is not suitable for the position or use may result in less precise steering, depending on the state of the road surface and the speed. This may prejudice complete control of the vehicle. |
| | The tyres on the Steering axle are the first ones in contact with the road surface ahead. Tyres designed for this axle must give a steady feedback of information on changes in the condition of the road surface, such as a fleeting reduction in grip, for example. A tyre not designed for this axle may be less progressive or filter out certain information on changes in the road surface. |
| | The Steering axle is particularly sensitive to tyre uniformity: link with the steering wheel, position near the driver, etc. Tyres intended for this axle are specially designed to meet this criterion and also have tread patterns adapted to optimise this function. A tyre not designed for the Steering axle will have a poorer response to this function. |
| | Under emergency braking, a major transfer of load is exerted on the Steering axle: the tyres on this axle therefore have a crucial role to play in the vehicle's stopping distance. The braking performance of a tyre not designed for the Steering axle may not be as good when it is fitted in this position. When braking with retarder systems, the tread and casing of Drive axle tyres are very much brought into play: an unsuitable tyre will be less effective in transmitting the torque and service life will also be reduced. |
| | Vehicle acceleration is provided by the tyres on the Drive axle only: an unsuitable tyre will be less effective in transmitting torque and it's service life will be reduced. |
| | The tyres must be suited to the axle and the use of the vehicle: a tread pattern not suited to the axle or a range unsuitable for the use will not give the mileage performance corresponding to the tyre's potential. |
| | The tyres on a commercial vehicle have a major impact on the vehicle's fuel consumption. The choice of range and tread pattern will have an effect on fuel consumption. For some uses, it is possible to optimise consumption by using tyres with low rolling resistance. The rolling resistance of tyres reduces as the tyres become worn: replacing a tyre before it is completely worn* results in a loss of potential fuel savings. |

*What is considered a completely worn tyre changes with local legislation. UK legislation must be adhered to in relation to completely worn tyres.

OTHER RECOMMENDATIONS

■ For fitments on a steering axle we must

Use primarily "F" or "Z" tread patterns. These tread patterns have been designed for use on the steer position. Michelin does not recommend mounting retreaded tyres on the front steer axle of motor vehicles. As an example, it is therefore possible to use a retreaded tyre on a second axle of a 8x4 truck or a tag axle.

■ When fitting tyres on a drive axle we must

Use tyres with "D" or "Z" tread patterns exclusively. "D" tread patterns are designed for the specific conditions of drive axles like torque and grip. Tyres with a "Z" tread pattern can be fitted on drive axles, but the compromise likely in mileage performance needs to be considered carefully. "D" tread patterns offer optimised performance in the areas of traction and tyre longevity when compared to the "Z" tread patterns.

■ To equip a trailer axle we must

Use tyres with "T" or "Z" tread patterns exclusively. These tread patterns are designed for the specific conditions of trailer axles like scrubbing or high mileage on the centre axles. Tyres with "T" tread patterns bear load indices and speed ratings suited to trailers or semi-trailers. When fitting tyres with "Z" tread patterns check that the load and speed ratings comply with the needs of the axle.

Tyres with "T" tread patterns made by MICHELIN in Europe bear the "FRT" (Free Rolling Tyre) marking, standardised by the ETRTO so "T" tread patterns must never be used on front steer or drive axles.

■ Tyres marked FRT

The term FRT is defined in ECE Regulation 54 Revision 2 Corrigendum 1 dated 3 December 2004 (paragraph 3.1.15):

"The inscription "FRT" (Free Rolling Tyre) is applicable for tyres designed for the equipment of trailer axles and axles of motor vehicles other than front steering and drive axles."

Michelin also apply the FRT marking to MICHELIN Remix tyres.

Michelin does not recommend the fitment of any Michelin Group trailer tyres to the Front Steer axle and Drive axle positions.

Michelin shall not be held liable for the consequences of any damage or injury caused by the use of tyres contrary to their recommendations.
Please see your local Michelin representative for the use of other tyre types.



MICHELIN TYRE RANGE



X LINE™

Designed for long distance, high average speed, international journeys, constant speed.



X LINE™
ENERGY™ F



XFA 2
ENERGY™



X ENERGY™ XF



X LINE™
ENERGY™ Z



XZA 2 ENERGY™



X LINE™
ENERGY™ D2



X LINE™
ENERGY™ D



XDA 2+
ENERGY™



X LINE™
ENERGY™ T



XTA 2
ENERGY™



XTA 2+ ENERGY™
(445/45 R 19.5)



XTA
(315/80 R22.5)



X COACH™

Designed for people transportation for long and short distance on all types of roads.



X COACH™
HL Z



X COACH™ XD



X WORKS™

Designed for roads, in and around worksites and quarries.



X WORKS™ Z



X WORKS™
HD Z



XZY 2



XZY 3



X WORKS™ D



X WORKS™
HD D



XDY 3



XDY+



X WORKS™ T



XTY 2



X MULTI™

Designed for national and regional operations on all types of roads.



X INCITY™

Designed for journeys in urban and suburban driving.



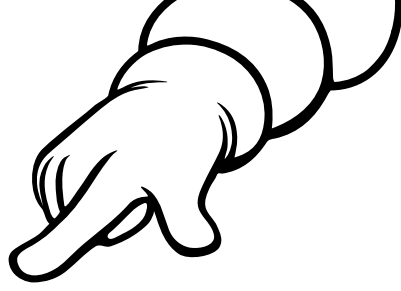
X FORCE™

Designed for specialised, civil or military vehicles mostly driven on off-road surfaces.



MICHELIN





OPERATING INSTRUCTIONS

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INTRODUCTION TO TYRE FITTING

Before commencing the tyre fitting process the conformity and compatibility of the tyre with the wheel and the vehicle must be established. Correct tyre fitting, carried out with the recommended methods of work and in line with the safety rules in force, helps to ensure that the tyre will be used to its full potential.

GENERAL PRECAUTIONS

- The operators must always be equipped with their usual protective clothing (ear defenders, gloves, safety shoes, etc.).
- The operators must be correctly trained for the work they are carrying out and use appropriate equipment.
- The vehicle must be stationary with its engine switched off and must be correctly stabilised (parking brake, chock, axle stands, etc.).

FITTING PRECAUTIONS

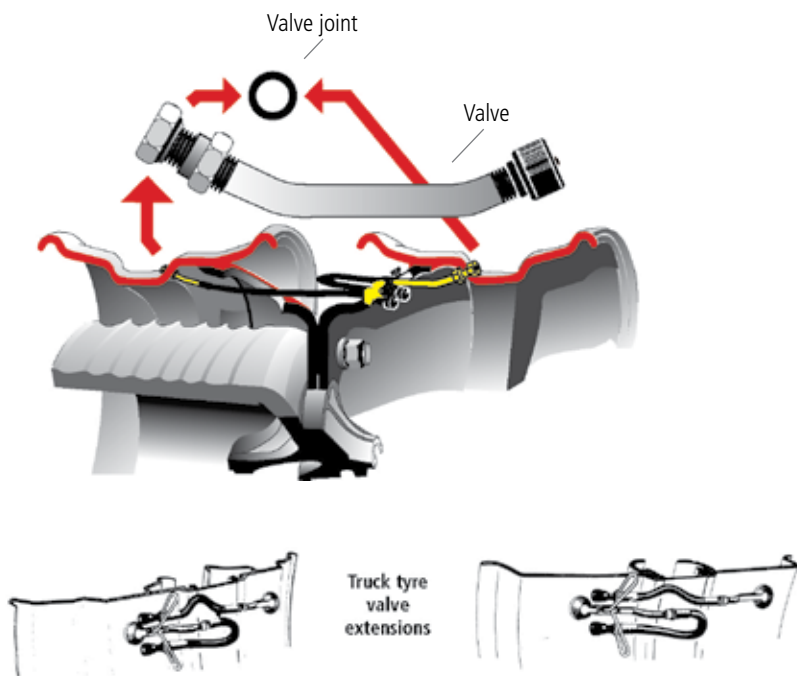
- Make sure that the wheel and its components are suitable, clean and in good condition.
- Check the compatibility of tyre and wheel, tyre and vehicle and tyre and use.
- Respect the positions, fitting direction, direction of rotation and any relevant instructions when mentioned on the tyre sidewalls.
- Make sure that the inside of the tyre is clean, dry and free of foreign matter. For a tyre which has already been used on the road, check carefully that the inside of the tyre does not show any signs of having run under-inflated (mottling, dislocation).
- Change the valve seal for tubeless wheels or the tube and flap for tube type wheels.
- Make sure that the tyre is centred on the rim during the inflation operation.
- Inflate the tyre safely to the manufacturer's suggested operating pressure. Make sure that all of the components are correctly in place. Never stand facing a fitted tyre. Stand in line with the tread, at least 3 metres away. Always use an inflation cage where possible.
- All of these precautions must be used for both new tyres and tyres that have already been used on the road.
- We recommend fitting tyres on wheels with protected valves for vehicles equipped with disc brakes to prevent the risk of the valve being damaged by an object jammed between the brake and the wheel.

Incorrect tyre and wheel fitting may lead to damage to tyres and vehicles and injury to persons (serious or even fatal injury).

VERIFICATION OF VALVES

Because of ageing and the high temperature linked to brakes, valve seals and inflation extensions are to be replaced each time a tyre is changed. A valve cap in excellent condition is essential for maintaining an air-tight seal.

Sealing diagram for dual tyre configuration



In these assemblies, always fit the valve facing each other.



Fixing clamps
for Truck tyre
valve
extensions



INFLATION PRESSURE IN WORKSHOP

- **This must be carried out by trained competent personnel using the correct equipment. Incorrect fitting can result in damage to the tyre (may not be visible at the time of fitting), tube or wheel.**
- **The cold tyre inflation pressure must be defined in relation to the load, speed and condition of use.**
- **Michelin recommends inflating the tyre in a safety cage.**
- **The inflation must be carried out in 2 stages :**

- 1st stage:

- pre-inflate to 1.5 bar (22 PSI),
- general inspection of the tyre.

The presence of blisters or deformations will necessitate the de-mounting of the tyre to be examined by a tyre specialist.

- 2nd stage:

- inflate the tyre to the required pressure,
- during inflation, the tyre must be placed vertically in an inflation cage, or a suitable secure area.

- **The operator must position himself in line with the tread band during inflation.**
- **At all times whilst inflating, stand at least 3 metres from the fitted assembly in line with the tread band.**



BALANCING

It is important to ensure that tyres are correctly balanced, as this:

- plays a part in high tyre mileage performance
- protects the mechanical parts from premature wear
- ensures a comfortable ride

If balancing is required, Michelin recommends dynamic balancing using weights applied to the wheel.

WHEEL INSTALLATION ON VEHICLE

After fitting the wheel on the vehicle, the wheel nuts must be tightened with a calibrated torque device to the torque setting defined by the vehicle manufacturer. The correct wheel tightening process is essential to maintain wheel security, and along with it your safety.

WHEELS CONDITION

- The condition of all wheels should be regularly checked. Any cracked wheel or rim should be replaced.
- Wheels or rims should not be repaired by welding.
- If a welding operation has to be undertaken, the tyre must be removed from the rim. If this is not done, there is a serious risk of explosion.
- The tyre should only be refitted when all items have returned to ambient temperature.
- Before any welding on the vehicle chassis or in proximity of the tyres, the tyre and wheel assemblies should be removed from the vehicle.
- Before removing divided wheel assemblies from a vehicle, it is recommended that the tyres are deflated.

BEFORE MOUNTING / WHEEL ASSEMBLY, THE FOLLOWING MUST BE OBSERVED

■ Clean:

- the support surfaces of the hub and wheel
- the wheel studs and nuts

■ Check:

- the condition of the fixing holes (deformation, cracks, etc.)
- the condition of the studs (deformation, state of threads, etc.)
- the condition of the nuts (deformation, state of threads, etc.)
- corrosion and any paint, removing with a wire brush if necessary
- any burrs, loose or flaky surfaces, on the metal

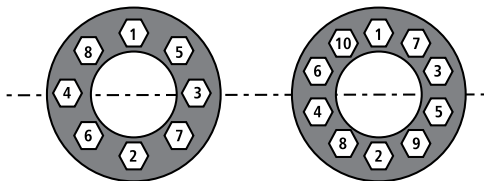
■ Lubricate:

- the threads of the wheel nuts with a drop of oil
- never lubricate the mating face of nuts or washers



■ Final tightening torque:

- Use a calibrated torque device.
- Follow the methods recommended by the vehicle manufacturer and their recommended tightening torques.
- The nuts should be tightened alternately diagonally according to the number of nuts as per the illustration below. The diametrically opposite rotational sequence ensures that the mating faces are pulled together squarely and evenly.
- Tightening to the correct torque with a calibrated torque device makes the wheel easier to remove in the event of a puncture, does not distort the studs and helps to ensure safe operation.



Over-tightening is often just as harmful as not tightening enough and can result in:

- deformation and/or cracking of wheel studs,
- distortion of wheel nut threads which may even lead to wheels loosening,
- ovalisation of drums, etc.

After a period of thirty minutes, or after 50 – 100 kilometres of use, the wheel nuts should be rechecked for tightness using a calibrated torque device. When the retorquing is carried out, the nuts should not be slackened off and then retightened. They should simply be checked.

TYRE CARE

Tyres must be examined regularly. When doing this, make sure that the vehicle is stationary, the engine is switched off and it is completely immobilised before any inspection.

CARE OF TYRES

- Tyres on a vehicle must be checked regularly, taking particular care to check:
 - the tread, for signs of abnormal wear, cuts, deformations and embedded foreign objects (stones, bolts, nails etc.),
 - the sidewalls for cuts, impact damage (caused by pot-holes, riding kerbs, etc.), rasping due to kerbing, and abnormal deformations.

- Causes of vehicle handling problems such as steering wheel vibrations, pulling to left or right, etc. should also be investigated.
- If loss of pressure occurs, it is imperative to stop as quickly as possible, as running underinflated causes thermal degradation of the tyre components.
- The tyre should be removed from the rim, and the reason for the loss of pressure determined.
- Any damage must be examined by a tyre professional who is capable of determining if a repair is necessary or possible.
- Repairs must be undertaken by a tyre specialist, who will accept responsibility for the repair.
- Before any repair, the interior of the tyre must be examined to ensure that no degradation has occurred.

TYRE INSPECTION AND RECOMMENDATIONS

■ Tyre wear on the steering axles of motor vehicles



■ Observations

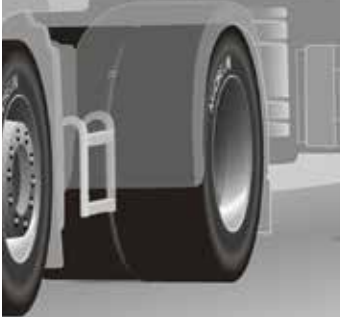
- The front nearside tyre normally wears more quickly than the front offside tyre on a truck driving on the left.
- The front nearside tyre often has more pronounced wear on the outer fitted shoulder due to the camber of the road and the number of roundabouts.

SOLUTION: to even out front tyre wear if necessary turn tyres on the rim when half worn and interchange left to right. Regroove at the appropriate time. Michelin advises against fitting retreaded tyres on the front steer axles of motor vehicles.

Note: for advice on Antisplash™ tyres see page 35.



■ Tyre wear on the drive axle



■ Observations

- As a general rule, both the inner tyres have more pronounced wear on the tread shoulder, on the inner side of the chassis.
- Several factors are involved: camber angle, type of suspension, use of the engine brake, the route conditions and the axle load.

SOLUTION: to even out wear and take advantage of the full potential of the four tyres by integrating regrooving, follow the advice below:

- Switch the inner and outer tyres round (twin fitment)
- Turn the two inner tyres on their rims whilst observing direction of rotation
- Regroove with 3 to 4 mm of tread remaining

Fit retreaded tyres on drive axles in rear position.
For directional tyres see page 34.



■ Wear on trailer axle tyres (semi-trailer with three fixed axles)



■ Observations

As a result of lateral scrubbing whilst cornering and maneuvering, the wear rate of the tyres fitted on the 3 axles is not uniform:

- The 1st axle is moderately affected by scrubbing and will therefore have a level of wear mid-way between that of the 2nd and 3rd axles.
- The 2nd axle, with virtually no stresses, has a very low degree of wear.
- The 3rd axle has more rapid wear because it is most affected by scrubbing linked to the geometry of the vehicle.

SOLUTION: to even out wear and take advantage of the full potential of both tyres by integrating regrooving, follow the advice below:

Tyre rotation:

- Turn the tyres on their rims on the 1st and 3rd axles when approximately 50% worn.

Regroove (at 3 - 4mm remaining tread pattern depth):

- On 1st axle use of regrooved tyres is possible depending on use.
- On 2nd axle use of regrooved tyres is usually recommended.
- On 3rd axle use of regrooved tyres is not normally recommended.

3rd axle tyres may be regrooved and fitted to the 2nd axle.

For trailers and semi-trailers, MICHELIN Remix tyres can be fitted in any position.



TYRE ROTATION AND TURNING ON THE RIM**■ What is it?**

Tyre rotation is an operation consisting of removing the tyre from one position on the vehicle and refitting it in another position.

Turning on the rim is an operation consisting of removing the tyre from the rim and refitting it the other way round.

These two operations can increase tyre longevity by about 20%*.

Example: wear on the drive axle tyres

Some truck tyres have a direction of rotation which should be complied with at the start of the tyre's life to optimise all round performance. In this case, when rotating tyres, it may be necessary to also turn on their rims to maintain the recommended direction of rotation.

THE ANTISPLASH™ TYRE

The Antisplash™ system is designed to be effective on the outside of the vehicle. The words "Outer Side" are marked in several languages on the sidewall of 385/65 R 22.5 tyres with the Antisplash™ system.

– 385/65 R 22.5 and 315/70 R 22.5 tyres

For reasons of space requirements, 385/65 R 22.5 Antisplash™ and 315/70 R 22.5 Antisplash™ tyres must not be turned on their rims.

– 385/55 R 22.5 tyres

It is possible to turn these tyres on their rims. If it is required, it is essential to check that the Antisplash™ is not in contact with any mechanical parts. To do this, the clearances must be checked with the wheels in all steering positions (from full left lock to full right lock) taking account of the variations in geometry when the vehicle is in dynamic use. It would also be advisable to contact the vehicle manufacturer for their comments.

WHEEL ALIGNMENT

By measuring and adjusting wheel angles on a vehicle, fuel costs and tyre wear are reduced. This leads to better economy and environment for everyone. It also means improving safety in taking up less space with a vehicle traveling on highway with correctly aligned wheels.

PRECAUTIONS FOR TYRE REMOVAL

■ When removing the wheel from the vehicle

If the tyre is part of a dual fitment or if the rim shows obvious damage, the tyres:

- Must be deflated by removing the valve core before the fitted unit is removed from the vehicle.
- Comply with the vehicle manufacturer's recommendations and instructions.

■ Removing the tyre with the wheel still fitted to the vehicle

Michelin does not recommend this practice which should only be used if it is not possible to remove the wheel. In this case, deflate the tyre completely by removing the valve core.



STORAGE AND HANDLING

■ Conditions for good tyre storage:

- Clean, dry, temperate and well-ventilated premises, sheltered from direct sunlight and bad weather.
- Storage rooms should not contain any equipment generating ozone such as fluorescent lighting, mercury vapour lamps, electrical machines or other equipment which may produce sparks or other electrical discharges.
- Well away from any chemical substance, solvent or hydrocarbon likely to alter the nature of the rubber.
- Well away from any object which might penetrate the tyre (metal spike, wood, etc.).
- Products should be stored in a relaxed condition free from tension, compression or other deformation since these may cause cracking or permanent distortion.
- Rotation of stocks: to avoid deterioration, storage time must be minimised. Stocks should be issued from the stores in rotation so that those remaining in storage are of the latest manufacture or delivery.
- Storage:
 - For short term storage (up to 4 weeks) tyres can be stacked horizontally, one on top of another, on wooden pallets but the height of the stacks should not exceed 1.2 metres. After 4 weeks, the tyres should be re-stacked, reversing the order of the tyres. When fitted on rims, tyres should be stored inflated in an upright position or in a single layer on shelf racks.
 - For long term storage, tyres should be stored upright in a single layer on shelf racks with at least 10cm clearance above the floor. To avoid deformation, it is advisable to rotate them once a month.
- Tubes:
 - Tyre inner tubes should either be slightly inflated, dusted with talcum and placed in the tyres or stored in a deflated condition in small stacks max. 50cm – in the compartments of shelf racks with a level bottom. Slatted pallets are not suitable since they might apply pressure at particular points.
 - If tubes are supplied by the manufacturer in cartons or wrapped in film, they should be left in these because the packing provides some degree of protection against contamination, oxygen and the effects of light.
- Flaps:
 - Flaps should preferably be placed with the tubes inside tyres, but if stored separately, they should be laid flat on shelves free from contamination, dust, grease and moisture. Never suspend them – this can cause deformation and elongation.

■ When handling tyres and accessories, operators must:

- Apply the company's safety instructions.
- Be equipped with their usual protective equipment for handling.
- Use instruments and equipment which will not damage the tyres.

ADDITIONAL MICHELIN STORAGE INFORMATION

- Stored tyres which reach five years of age, should be examined by competent personnel to determine their suitability for further service.
- It is strongly recommended that fitted tyres which are to be stored should be inflated with Nitrogen. If air is used then it must be as dry as possible before it enters the tyre. Ensure that a valve cap is fitted to the valve.
- Tyres on vehicles resting on the ground should be at the normal pressure for the vehicle. Every six months, that pressure should be checked and corrected as necessary. Every four months, the tyres should be rotated $\frac{1}{4}$ turn. The tyres should be driven for a distance every year until any "flat spotting" disappears.
- Tyres on vehicles suspended off the ground should be deflated to approximately half the normal pressure for the vehicle.
- Spare tyres in storage should also be deflated to approximately half the normal pressure for the vehicle.
- A procedure must be established to ensure that tyres which have been in storage at reduced pressure, are correctly re-inflated when they are returned to service.
- Any tyre which has been stored, should be visually inspected by competent personnel before entering or re-entering service.



RECOGNITION OF TYRE WEAR AND DAMAGE



FEATHERED RAPID ABNORMAL WEAR



1 | OBSERVATION

Presence of feathering at the edge of the tread blocks, more evident on one side than the other.

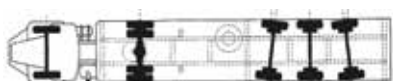
2 | PROBABLE CAUSE(S)

Scuffing whilst running, caused by incorrect alignment of the wheels (toeing in or toeing out) or axle misalignment.

■ Alignment of the front axle



■ Incorrect axle alignment



3 | TIPS

TYRE

Can be kept on the vehicle if it meets legal requirements.

VEHICLE

Adjust vehicle geometry (parallelism/alignment) according to vehicle manufacturer's specifications.

In some cases, such wear exposes rubber with a different colour and texture.



HEEL AND TOE



1 | OBSERVATION

Occurring mainly on tyres with block type treads. The leading edge of each block is sharply defined, with the trailing edge excessively worn.

2 | PROBABLE CAUSE(S)

- The forces exerted on the tyre from increasingly powerful accelerating and braking torques. (Affected by application, frequent stopping and surface texture).
- Inappropriate inflation pressures for the load carried by the tyre.

3 | TIPS

TYRE

Check the pressure when the tyre is cold and adjust it if necessary.
It may be possible to keep the tyre on the vehicle if legal requirements are met.
Permutate the tyres to even out wear.



SLOPED WEAR



1 | OBSERVATION

Smooth and regular wear sloping from one side to another without feathering.

2 | PROBABLE CAUSE(S)

Excessive wheel camber.

Flexing of the axle under the weight of the load.

(This may be more pronounced on the inner tyre of a twinned assembly).

3 | TIPS

TYRE

Turn on the rim.

Check pressures when tyre is cold and alter as necessary.

VEHICLE

Check the vehicle geometry.

Check the load is distributed evenly across the axle.

In some cases, such wear exposes rubber with a different colour and texture.



CENTRE WEAR



1 | OBSERVATION

Wear more pronounced in the centre of the tread than on the shoulders.

2 | PROBABLE CAUSE(S)

Overinflation.

3 | TIPS

TYRE

Check the inflation pressures when tyres are cold and re-establish according to conditions of use.



ROUNDED WEAR



1 | OBSERVATION

Wear more pronounced on shoulders than in the centre of the tread.

2 | PROBABLE CAUSE(S)

Tyre underinflated or overloaded.

3 | TIPS

TYRE

Find the cause of the underinflation and resolve it. (Start by checking for pressures, punctures, valve caps, valve stems etc.).

Weigh each axle of the loaded vehicle and adjust the pressures accordingly.

It may be possible to keep the tyre on the vehicle if legal requirements are met.

In some cases, such wear exposes rubber with a different colour and texture.



WAVY/LUMPY WEAR



1 | OBSERVATION

Wavy wear affecting half or more of the tread.

2 | PROBABLE CAUSE(S)

Wear or play in the suspension or steering systems. Imbalance, incorrect fitting. Incorrect twinning. Twins with different inflation pressures. Severe pitching of the vehicle.

Heavy loads and a high centre of gravity.

3 | TIPS

TYRE

Check fitting, concentricity and balance etc.

Check inflation pressure adjust for conditions of use, check twinned tyres.

VEHICLE

Check and if necessary repair the suspension and steering systems.

In some cases, such wear exposes rubber with a different colour and texture.

► Refer to page 53





SHOULDER WEAR



1 | OBSERVATION

Circumferential wear to one shoulder, where shoulder is partially or completely worn away.

2 | PROBABLE CAUSE(S)

Severe pitching of the vehicle, perhaps due to high centre of gravity.
Prolonged running at a pressure which is inappropriate for the load or use.

3 | TIPS

TYRE

Check and adjust pressures according to the conditions of use.

In some cases, such wear exposes rubber with a different colour and texture.



"TRAMLINE" WEAR



1 | OBSERVATION

An area of more or less circumferential wear affecting only part of tread width.

2 | PROBABLE CAUSE(S)

Undemanding usage on straight roads and motorways.
(Sign of slow wear rate).

3 | TIPS

TYRE

Ensure the appropriate tyre for the application is being used.
Tyre may be kept on the vehicle if legal requirements are met and handling is not affected.
Check pressures and permutate tyres if appropriate.

In some cases,
such wear exposes
rubber with a
different colour
and texture.

► Refer to page 53





DROPPED ELEMENT WEAR



1 | OBSERVATION

Isolated circumferential wear of one rib of the tread pattern.

2 | PROBABLE CAUSE(S)

Undemanding usage on straight roads and motorways. (Sign of slow wear)
Incorrect pressures.

3 | TIPS

TYRE

Check that the appropriate tyre for the application is being used.
Tyre may be kept on the vehicle if legal requirements are met and handling is not affected.
Check pressures and permutate if appropriate.

In some cases, such wear exposes rubber with a different colour and texture.



ECCENTRIC WEAR



1 | OBSERVATION

Diametrically opposed maximum and minimum tread wear rates.

2 | PROBABLE CAUSE(S)

Tyre eccentrically fitted to the rim. Rim eccentrically fitted to the hub.
Imbalance in rotating assemblies.

3 | TIPS

TYRE

Check concentricity of fitted tyre with rim.
Perform dynamic balancing.

VEHICLE

Check runout of rotating assemblies (rim, brake drum etc).

In some cases,
such wear exposes
rubber with a
different colour
and texture.

► Refer to page 53





1 | OBSERVATION

Very localised wear, the size and shape of which resembles that of the contact patch.
Possible presence of circumferential scratches and cuts to the rubber.

2 | PROBABLE CAUSE(S)

Locking of the wheel(s) caused by excessive braking or defects to the braking system.

3 | TIPS

TYRE

Remove from vehicle according to severity.

VEHICLE

Check the braking system if the localised wear is not attributable to excessive braking.



TEARS IN THE GROOVE



1 | OBSERVATION

Tears in the base of the tread groove.

2 | PROBABLE CAUSE(S)

Repetitive crossing or mounting of protruding objects (kerbs, rail tracks etc.).

Frequent manoeuvring on the spot. Hot tyres are particularly sensitive to this type of damage.

3 | TIPS

TYRE

May be left on the vehicle if legal requirements are met.

Remove if damage is deep.

Check pressures.

VEHICLE

Avoid obstacles as much as possible and if not proceed with care.

Avoid manoeuvring on the spot.



MULTIPLE CUTS



1 | OBSERVATION

Multiple cuts all around the tread.

2 | PROBABLE CAUSE(S)

Running on coarse surfaces, sites and quarries.

Overinflation and damp surfaces exacerbate this type of damage.

3 | TIPS

TYRE

Use the correct tyre for the application.

Ensure correct pressures.



DETACHMENT OF THE CROWN



1 | OBSERVATION

Detachment of the crown plies which can eventually lead to complete disintegration of the structure of the tyre.

2 | PROBABLE CAUSE(S)

Prolonged use in an underinflated and/or overloaded condition causing abnormal heat build up in the crown area.

3 | TIPS

TYRE

Regularly check pressures.
Avoid overloading.



DETERIORATION OF THE RUBBER



1 | OBSERVATION

Change in the state of the rubber on the tread or sidewalls. The rubber becomes soft, and sticky and the sipes might close up. The change to the state of the rubber might be accompanied by a strong smell of hydrocarbons.

2 | PROBABLE CAUSE(S)

Tyre stored in contact with a hydrocarbon.

3 | TIPS

TYRE

Remove from vehicle and dispose of it.
Check storage conditions.

VEHICLE

Check for and eliminate any leakage of hydrocarbons.
Avoid parking in areas with hydrocarbon spillages.



APPEARANCE OF A DIFFERENT RUBBER ASPECT IN THE TREAD BAND



1 | OBSERVATION

Different rubber aspect with no cut to tread rubber.

2 | PROBABLE CAUSE(S)

Use beyond normal tread limits or abnormal wear.

3 | TIPS

TYRE

Tyres should be replaced before this point is reached.

Manage tyre use to maintain best MICHELIN Remix potential and prevent potential structural damage by excessive wear.



RUBBER CRACKING



1 | OBSERVATION

Superficial cracks to the rubber of the sidewall.

2 | PROBABLE CAUSE(S)

Age, exposure to UV light (sunlight) close-up exposure (even for a couple of hours) to a source of ozone: an arc welding tool, electric motors etc.

3 | TIPS

TYRE

May be left on vehicle if legal requirements are met.

Store tyres in an area protected from ozone emissions and UV light.



CONTACT BETWEEN TWINS



1 | OBSERVATION

Deterioration of the sidewall caused by contact between twinned tyres (with or without casing rupture).

2 | PROBABLE CAUSE(S)

Contact between two tyres causing circumferential wear to the sidewalls can lead to premature removal.

Contact can result from underinflation, overloading, insufficient clearance between tyres when fitted.

3 | TIPS

TYRE

Check the pressures and adjust them according to the load. Respect the minimum distance required between twinned tyres.

VEHICLE

Follow the wheel recommendations of the manufacturer.



RUBBER DETACHMENT



1 | OBSERVATION

Detachment of rubber from the sidewall following infiltration of pressurised air.

2 | PROBABLE CAUSE(S)

Accidental perforation of the airtight interior lining before fitting (e.g. staple etc.) during fitment (e.g. by a tyre lever).

Accidental perforation from the exterior with the perforating object staying in place.

3 | TIPS

TYRE

Remove from vehicle, do not repair or retread. Check method of fitting and labelling to avoid repeat.

VEHICLE

Check rims are clean and in a good condition.



RUPTURE OF THE CASING PLY



1 | OBSERVATION

Regular circumferential rupture to the sidewall.

2 | PROBABLE CAUSE(S)

Prolonged running with inadequate inflation pressure.

Prolonged running overloaded.

Running with different pressures on twins.

Poor twinning.

3 | TIPS

TYRE

Inflate to the correct pressures, avoid overloading, check twinned tyres.



IMPACT/PINCHING



1 | OBSERVATION

Rupture of the cables with cuts to sidewall rubber.

2 | PROBABLE CAUSE(S)

Severe impact on an obstacle (kerb, stones, holes) causing the sidewall to be pinched between the rim and the obstacle. This type of damage is more likely when the tyre is underinflated or overloaded.

3 | TIPS

TYRE

Remove from the vehicle and hand over to a specialist for possible repair after thorough investigation.



BEAD DAMAGE



1 | OBSERVATION

Damage to the bead toe or the 'heel' caused during fitting or removal.

2 | PROBABLE CAUSE(S)

Poor use of fitting and removal tools, or tools in poor condition.

3 | TIPS

TYRE

Remove tyre from service and dispose of it.
Follow all fitting and removal instructions carefully.
Ensure all tools are in good condition.



DETERIORATION



1 | OBSERVATION

Deterioration of the bead seat and/or the bead heel caused by foreign matter (rust, grit).

2 | PROBABLE CAUSE(S)

Rim in poor condition (corroded). Lack of precautions taken on fitting (dirty fitting area etc.).

3 | TIPS

TYRE

Clean the rim. If the rim is in poor condition replace it.
Maintain fitting areas properly.
Follow all fitting instructions correctly.



HEAT BUILD UP



1 | OBSERVATION

Change of the state of the rubber: blue, sticky, broken, bakelised. Unwrapping of the bead components.

2 | PROBABLE CAUSE(S)

Extreme increase in temperature in the bead area often caused by malfunction of the braking system or prolonged braking.

3 | TIPS

TYRE

Remove tyre from service and dispose of it.

VEHICLE

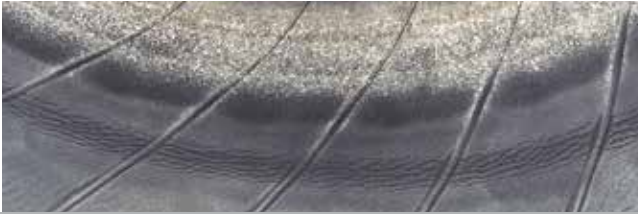
Check the braking system of the entire vehicle.
Avoid prolonged heavy braking in descent.
Follow driving and safety regulations.

If the tyre is subjected to abnormally high temperatures, stop the vehicle in an open area, keep people far away from the vehicle – particularly the tyres – and then deflate after it has cooled down.





MARBLING



1 | OBSERVATION

Presence of marbling and creasing of the interior lining in the flexion zone.

2 | PROBABLE CAUSE(S)

Running underinflated or overloaded.

3 | TIPS

TYRE

Remove tyre from vehicle and dispose of it.

Important: never reinflate a tyre that has been running underinflated without first removing it and examining the interior.



DISLOCATION



1 | OBSERVATION

Dislocation and holes in the interior lining, even ending in complete dislocation and rupture of the casing.

2 | PROBABLE CAUSE(S)

Prolonged running underinflated or overloaded.

3 | TIPS

TYRE

Remove tyre from vehicle and dispose of it. Inflate replacement tyres to correct pressure.

Check the pressures regularly. Find out why the pressures were low (puncture, valve, rim etc).



DAMAGE CAUSED BY ELECTRICAL ARCING



1 | OBSERVATION

Electricity can cause localised burns to the rubber and in certain cases it can even cause damage to the cables, break the bead core and form small holes.

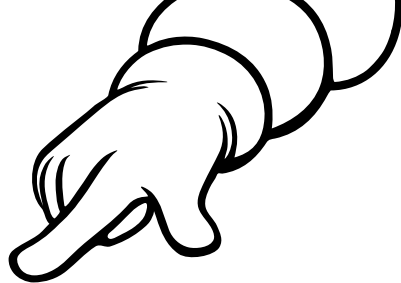
2 | PROBABLE CAUSE(S)

The electricity arcs due to the proximity of the vehicle to a source of electricity or lightning.

3 | TIPS

TYRE

Remove all the tyres from the vehicle or the complete tractor and trailer assembly and send for analysis.



INFLATION PRESSURE DURING SERVICE

Inflation pressure | p.66

Reasons for inflation | p.68
pressure check

Important precautions | p.69

The influence of inflation pressure | p.70
on tyre mileage

The influence of inflation pressure | p.70
on fuel consumption

Inflation pressure chart | p.71

INFLATION PRESSURE

Choosing and maintaining the correct inflation pressure is key for optimum performance.

■ The tyre is the sole point of contact between the vehicle and the road surface.

It is crucial to the safety both of users and goods transported. For a given load and type of work, in clearly defined conditions, there is only one suitable inflation pressure.

The pressure of the air in the tyre is crucial to its correct operation: it is this pressure which both supports and moves loads or people:

- Safely
- Durably
- Economically
- Comfortably

However, in the surveys conducted by Michelin, pressure emerges as one of the maintenance points which is often not monitored and maintained as well as it should be.

■ Pressure and safety

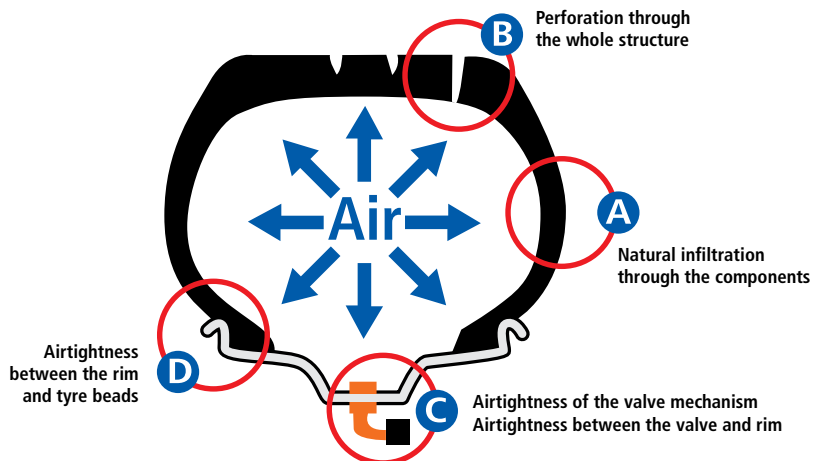
Incorrect tyre pressure has a negative impact on certain basic aspects of safety performance such as:

- Casing strength
- Vehicle stability and handling
- Levels of grip and traction
- Sensitivity to kerbing

■ Variation in inflation pressure

A tyre may lose pressure for various different reasons:

Airtightness of the wheel rim (e.g. cracks or welds).



Apart from on-board monitoring systems, regular pressure checks with a calibrated pressure gauge is the most common method for detecting possible air leaks.

REASONS FOR INFLATION PRESSURE CHECK

■ **Pressure checks should be made on all the tyres on the vehicle:**

- If the inflation pressure is too low, the result is an abnormal rise in running temperature which may lead to damage to the internal components. This damage is irreversible and may cause the destruction of the tyre and rapid deflation.
- The consequences of running with insufficient pressure in the tyres are not necessarily immediate and may even become apparent after the pressure has been corrected.
- The spare tyre should also be checked.
- Tyre pressures must be checked on cold tyres regularly or when the vehicle is serviced, using a calibrated pressure gauge.
- Insufficient inflation pressure also greatly increases the risk of aquaplaning.
- Over-inflation can cause rapid and irregular wear and increased sensitivity to impact (tread damage, casing failure).
- Even if tyres are inflated with nitrogen, the pressure still needs to be checked regularly.

In terms of nominal inflation pressure of between 6 and 9 bar

| | | |
|--|--|---|
| Under-inflation of up to 0.5 bar Over-inflation of up to + 0.5 bar (7 PSI) | Increased safety. Greater longevity. Reduce fuel consumption. | ACCEPTABLE PRESSURE Correct as soon as possible to the suggested level. |
| Under-inflation between - 0.6 and - 1 bar (8 to 14.5 PSI) | Reduced longevity. Increased irregular wear. Increased fuel consumption. | TEMPORARILY ACCEPTABLE PRESSURE Correct immediately and monitor. |
| Under-inflation of more than - 1 bar (14.5 PSI) | Rapid deterioration in use with risk of rapid deflation, reduced stability and grip. Reduction in longevity. Increase in fuel consumption and irregular wear. | UNACCEPTABLE PRESSURE Demount and inspect the interior for runflat damage. If mounted in dual configuration: demount and inspect adjacent mounted assembly. |

In all circumstances the pressures recommended by the manufacturer of the vehicle or tyre must be observed. Tyre inflation pressures must always be appropriate for the load and tyre use.

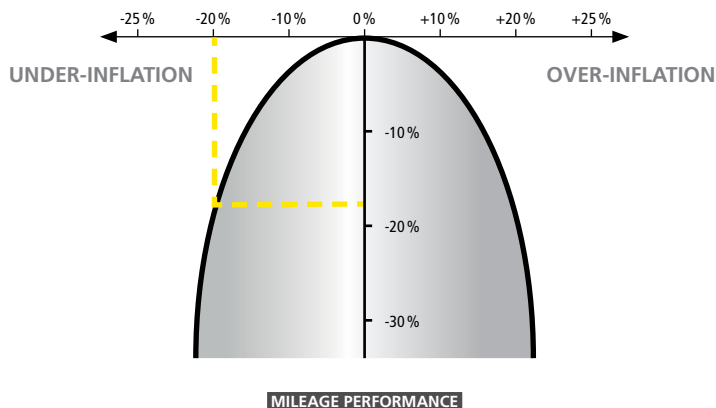
IMPORTANT PRECAUTIONS

- Tyre pressures must be checked on cold tyres at ambient temperature. The pressure increases in use: never reduce the pressure of a tyre while it is hot.
- Never re-inflate a tyre which has been running underinflated without a thorough inspection both inside and out.
- Under inflation could result in the tyres running at abnormally high temperatures, leading to thermal degradation of the tyres' components'. The degradation is irreversible and can result in a rapid deflation of the tyre.
- Under-inflation leads to:
 - An increase of rolling resistance and thus vehicle's fuel consumption
 - A reduction in tyre service life (mileage)
 - An impact on vehicle handling and safety
 - A reduction in casing resistance which limits the potential of retreading
- Over-inflation reduces:
 - Safety and ride comfort
 - Grip
 - Tyre service life (mileage), particularly on drive axles tyres
- Tyre pressures greater than 10 Bar (145 PSI) are not recommended for normal highway operations.
- Inflation pressures on cold tyres which are more than 0.6 bar (8 PSI) below the suggested values must be corrected immediately.
- The regulations in force in the country of use are to be observed in all cases.
- Use an accurate, regularly calibrated pressure gauge and handle it with care.
- If the pressure in a tyre checked when hot is lower than the suggested pressure, the tyre must be removed and checked, complying with the safety instructions.
- If one tyre appears considerably hotter than the others, it must also be removed and checked complying with the safety instructions.
- The inflation pressures of the tyres on the same axle should normally be about the same.
- The pressure should be checked 24 hours after a tyre has been fitted.
- Tyres for commercial vehicles should be inflated to a pressure relevant to the load, speed and conditions of use.
- Guidelines on pressures are shown in the load/pressure tables.
- Using the correct pressure is essential to the safe operation of the tyre.
- The valve cap is the primary air seal and must always be fitted (NB. The valve core acts as a one way valve to allow the tyre to be inflated; it should not be treated as a seal).



THE INFLUENCE OF INFLATION PRESSURE ON TYRE MILEAGE

A tyre under-inflated by 1.5 bar (22 PSI) may lead up to a 10% mileage loss.

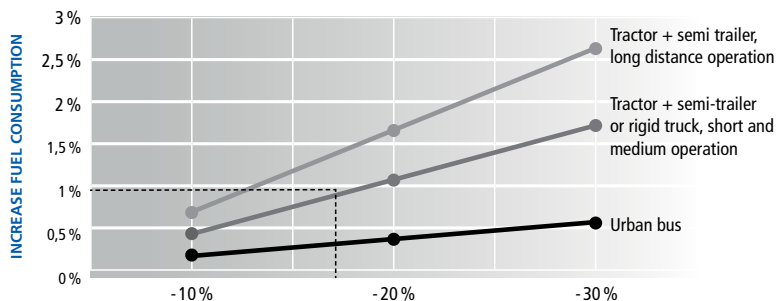


THE INFLUENCE OF INFLATION PRESSURE ON FUEL CONSUMPTION

Inflation pressure has a proven influence on fuel consumption. An unsuitable inflation pressure increases tyre rolling resistance and thus vehicle's fuel consumption.

Under-inflation of 1.5 bar = 1 % increased fuel consumption*

Increased fuel consumption of tyre at 7.5 bar for recommendation of 9 bar or 17% under-inflated



UNDER-INFLATION IN RELATION TO SUGGESTED NOMINAL PRESSURE
INFLUENCE ON 22.5" RIM TRUCK TYRE

* Internal Michelin source.

INFLATION PRESSURE CHART

The cold tyre inflation pressures indicated in the table below are for guidance purposes pending weighing of the vehicle for setting optimum pressures. They do not cover all conditions of use and should be discussed with your Michelin representative before being put into use with your vehicles.




For tyre sizes and types of vehicles not indicated, please contact your Michelin representative.

RECOMMENDATIONS

- Check the tyre pressures regularly when the tyres are cold at ambient temperature or after the vehicle has stopped for several hours.
- NEVER DEFLATE HOT TYRES.



72 | INFLATION PRESSURE (PSI) DURING SERVICE




| | | Transportation of goods | | | | | |
|-------------------|------------|---|----|---|--------------|---|---------------|
| | | Road | | | | | |
| | | Tractor units | | | Semi-trailer | | |
| | | 4x2 | | 6x2 | | 1-2 or 3 axle | |
| | |  | |  | |  | |
| Type size | Load index | S | D | S | L | D | All positions |
| 205/65 R 17.5 XTL | 129/127J | | | | | | 130 |
| 205/75 R 17.5 XTL | 124/122M | | | | | | |
| 215/75 R 17.5 XTL | 126/124M | | | | | | |
| 215/75 R 17.5 XTL | 135/133J | | | | | | 125 |
| 225/75 R 17.5 XTL | 129/127M | | | | | | |
| 235/75 R 17.5 XTL | 132/130M | | | | | | |
| 235/75 R 17.5 XTL | 143/141J | | | | | | 125 |
| 245/70 R 17.5 XTL | 136/134M | | | | | | |
| 245/70 R 17.5 XTL | 143/141J | | | | | | 125 |
| 265/70 R 17.5 XTL | 138/136M | | | | | | |
| 265/70 R 17.5 XTL | 140/136M | | | | | | |
| 9.5 R 17.5 X | 143/141J | | | | | | 125 |
| 245/70 R 19.5 XTL | 136/134L-M | | | | | | |
| 245/70 R 19.5 XTL | 141/140J | | | | | | 125 |
| 255/60 R 19.5 XTL | 143/141J | | | | | | 130 |
| 265/70 R 19.5 XTL | 140/138L-M | | | | | | |
| 265/70 R 19.5 XTL | 143/141J | | | | | | 125 |
| 285/70 R 19.5 XTL | 146/144L-M | 105 | 95 | | | | |
| 285/70 R 19.5 XTL | 150/148J | | | | | | 125 |
| 305/70 R 19.5 XTL | 147/145M | 105 | 95 | | | | |
| 445/45 R 19.5 XTL | 160J-K | | | | | | 130 |
| 10 R 22.5 X | 144/142K-L | 105 | 95 | | | | |
| 255/70 R 22.5 XTL | 140/137M | | | | | | 115 |
| 275/70 R 22.5 XTL | 148/145L-M | | | | | | 125 |

These are nominal pressures for guidance purposes only and should be confirmed by contacting your local Michelin representative who may arrange for the vehicle to be weighed to confirm optimum cold inflation pressure for your conditions of use.

S = Steer / L = Lift / D = Drive / T = Tag

(A) When fitting to the front steering axle: load on the axle = pressure. Example: 7.5 tons = 7.5 bars, 8 tons = 8.0 bars, 9 tons = 9.0 bars. (B) For 2 axles rear, otherwise 9.0 bars. (C) For tyres in single formation: 7.1 tons = 8.5 bars. (D) If assembling with simple axle: 8 tons = 9.0 bars. (E) For axle load 10 Tons, otherwise for 9 Tons = 8 bars.

74 | INFLATION PRESSURE (PSI) DURING SERVICE




| | | Transportation of goods | | | | | | |
|-----------------------|------------|---|----|---|-----|----|---|---------|
| | | Road | | | | | | |
| | | Tractor units | | | | | Semi-trailer | |
| | | 4x2 | | 6x2 | | | All positions | |
| | |  | |  | | |  | |
| Type size | Load index | S | D | S | L | D | 2 axles | 3 axles |
| 275/70 R 22.5 XTL | 152/148J | | | | | | 100 | 130 |
| 275/80 R 22.5 XTL | 149/146L | | | | | | | |
| 11 R 22.5 X | 148/145L | | | | | | 100 | 115 |
| 11 R 22.5 X | 142/142J | | | | | | 100 | 115 |
| 12 R 22.5 X | 152/148K-L | | | | | | | |
| 12 R 22.5 X | 152/149I | | | | | | | |
| 295/60 R 22.5 XTL | 150/147K-L | 130 | 95 | | | | | |
| 295/80 R 22.5 XTL | 152/148M | 125 | 90 | 125 | 110 | 85 | | |
| 305/70 R 22.5 XTL | 152/150L | 130 | 95 | | | | | |
| 315/60 R 22.5 XTL | 152/148L | 130 | 95 | | | | | |
| 315/60 R 22.5 XF TL | 154/148L | 130 (C) | | 130 (C) | | | | |
| 315/70 R 22.5 XTL | 154/150L | 130 | 90 | 130 | 110 | 90 | | |
| 315/70 R 22.5 XTL | 156/150L | 130 (D) | 90 | 130 (D) | | | | |
| 315/80 R 22.5 XTL | 156/150L | 125 | 85 | 125 | 110 | 85 | | |
| 355/50 R 22.5 XTL | 156K | 130 | | 130 | | | 130 | 130 |
| 13 R 22.5 X | 156/150L | | | | | | | |
| 385/55 R 22.5 XTL | 158L-160J | 110 (A) | | | | | 115 | 130 |
| 385/65 R 22.5 XTL | 158L-160J | 110 (A) | | | | | 115 | 130 |
| 385/65 R 22.5 XTL | 164k | 130 (E) | | | | | 115 (E) | 130 |
| 455/45 R 22.5 XTL | 160J | | | | | | | 130 |
| 425/65 R 22.5 XTL | 165K | | | | | | 100 | 125 |
| 445/65 R 22.5 XTL | 169K | | | | | | 100 | 125 |
| 495/45 R 22.5 XOne TL | 169K | | | | | | | |

These are nominal pressures for guidance purposes only and should be confirmed by contacting your local Michelin representative who may arrange for the vehicle to be weighed to confirm optimum cold inflation pressure for your conditions of use.

S = Steer / L = Lift / D = Drive / T = Tag

(A) When fitting to the front steering axle: load on the axle = pressure. Example: 7.5 tons = 7.5 bars, 8 tons = 8.0 bars, 9 tons = 9.0 bars. (B) For 2 axles rear, otherwise 9.0 bars. (C) For tyres in single formation: 7.1 tons = 8.5 bars. (D) If assembling with simple axle: 8 tons = 9.0 bars. (E) For axle load 10 Tons, otherwise for 9 Tons = 8 bars.

76 | INFLATION PRESSURE (PSI) DURING SERVICE





| | | Transportation of goods | | | | |
|---------------------------|------------------|---|----|---|----|---|
| | | Mixed / Sites | | | | |
| | | Tractor | | | | Semi-trailer |
| | | 4x2 | | 6x4 | | 1-2 or 3 axle |
| | |  | |  | |  |
| Tyre size | Load index | S | D | S | D | All positions |
| 235/75 R 17.5 X TL | 143/141J | | | | | |
| 265/70 R 19.5 X TL | 143/141J | | | | | 115 |
| 305/70 R 19.5 X TL | 147/145J | | | | | |
| 10 R 22.5 X TL | 144/142K | | | | | |
| 275/70 R 22.5 X INCITY TL | 148/145J | | | | | |
| 11 R 22.5 X TL | 148/145K | | | | | |
| 11 R 22.5 X INCITY TL | 148/145J | | | | | |
| 12 R 22.5 X TL | 152/148K | | | | | |
| 295/80 R 22.5 X TL | 152/148K | 125 | 90 | 125 | 85 | |
| 295/80 R 22.5 X INCITY TL | 152/148J | | | | | |
| 305/70 R 22.5 X INCITY TL | 153/150J | | | | | |
| 315/80 R 22.5 X TL | 156/150K | 125 | 85 | 125 | 80 | |
| 13 R 22.5 X TL | 156/154/151/150K | | | | | |
| 385/65 R 22.5 X TL | 160K | 130 (A) | | | | 130 |
| 425/65 R 22.5 X TL | 165K | | | | | 130 |
| 445/65 R 22.5 X TL | 169K | | | | | 130 |

These are nominal pressures for guidance purposes only and should be confirmed by contacting your local Michelin representative who may arrange for the vehicle to be weighed to confirm optimum cold inflation pressure for your conditions of use.

S = Steer / L = Lift / D = Drive / T = Tag

(A) When fitting to the front steering axle: load on the axle = pressure. Example: 7.5 tons = 7.5 bars, 8 tons = 8.0 bars, 9 tons = 9.0 bars. (B) For 2 axles rear, otherwise 9.0 bars. (C) For tyres in single formation: 7.1 tons = 8.5 bars. (D) If assembling with simple axle: 8 tons = 9.0 bars. (E) For axle load 10 Tons, otherwise for 9 Tons = 8 bars.

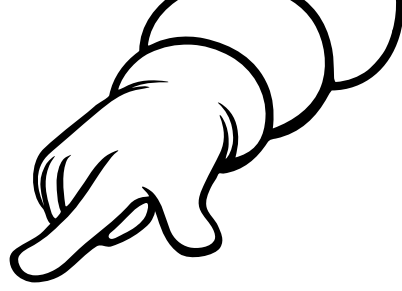
78 | INFLATION PRESSURE (PSI) DURING SERVICE

| | | Transportation of people | | | | | | | | | |
|---------------------------|------------|---|-----|---|---|---|---|-----|---|---|---|
| | | Coach | | | | | Urban buses | | | | |
| | | 4x2 | | 6x2 | | | 4x2 | | Articulated | | |
| | |  | |  | | |  | |  | | |
| | | S | D | S | D | T | S | D | S | T | D |
| 205/75 R 17.5 X TL | 124/122M | 95 | 90 | | | | 95 | 95 | | | |
| 215/75 R 17.5 X TL | 126/124M | 95 | 90 | | | | 95 | 95 | | | |
| 225/75 R 17.5 X TL | 129/127M | 95 | 90 | | | | | | | | |
| 235/75 R 17.5 X TL | 132/130M | 95 | 90 | | | | 105 | 105 | | | |
| 245/70 R 19.5 X TL | 136/134M | 110 | 95 | | | | 115 | 115 | | | |
| 265/70 R 19.5 X TL | 140/138M | 110 | 110 | | | | 115 | 115 | | | |
| 305/70 R 19.5 X TL | 147/145M | | | | | | | | | | |
| 275/70 R 22.5 X TL | 148/145L-M | 125 | 105 | | | | 130 | 125 | | | |
| 275/70 R 22.5 X INCITY TL | 148/145J | | | | | | 130 | 125 | | | |
| 275/70 R 22.5 X INCITY HL | 150/145J | | | | | | 130 | 130 | | | |
| 295/80 R 22.5 X TL | 152/148L-M | | | | | | 125 | 115 | | | |
| 295/80 R 22.5 X COACH HLZ | 154/149M | | | | | | 125 | 115 | | | |
| 295/80 R 22.5 X INCITY TL | 152/148J | | | | | | | | | | |
| 305/70 R 22.5 X INCITY TL | 150/147J | | | | | | 130 | 125 | | | |
| 315/60 R 22.5 X TL | 152/148J | | | | | | 130 | | | | |
| 315/80 R 22.5 X TL | 156/150L | | | | | | | | | | |
| 455/45 R 22.5 X One XDU | 166J | | | | | | | | | | |
| 495/45 R 22.5 X One XDU | 169J | | | | | | | | | | |

These are nominal pressures for guidance purposes only and should be confirmed by contacting your local Michelin representative who may arrange for the vehicle to be weighed to confirm optimum cold inflation pressure for your conditions of use.

S = Steer / L = Lift / D = Drive / T = Tag

(A) When fitting to the front steering axle: load on the axle = pressure. Example: 7.5 tons = 7.5 bars, 8 tons = 8.0 bars, 9 tons = 9.0 bars. (B) For 2 axes rear, otherwise 9.0 bars. (C) For tyres in single formation: 7.1 tons = 8.5 bars. (D) If assembling with simple axle: 8 tons = 9.0 bars. (E) For axle load 10 Tons, otherwise for 9 Tons = 8 bars.



REGROOVING

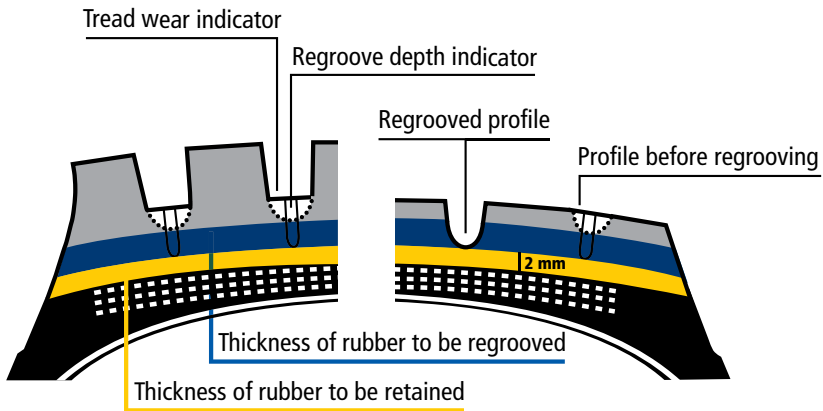
| | |
|--|------|
| General principles | p.80 |
| Advantages of regrooving | p.81 |
| Regrooving in practice | p.82 |
| Technical requirements | p.83 |
| Regrooving steer patterns for drive | p.84 |
| Regrooving dimensions | p.85 |
| Main European regulations on regrooving | p.86 |
| Regrooving patterns | p.87 |

GENERAL PRINCIPLES

Regrooving involves removing rubber from the layer of existing rubber to restore tread pattern depth.

All MICHELIN tyres applicable for regrooving, are marked "REGROOVABLE" on the tyre sidewall.

The technique is recommended by ETRTO*. Right from the design stage, Michelin provides a sufficient thickness of rubber to allow regrooving without adversely affecting the tyre strength or robustness.

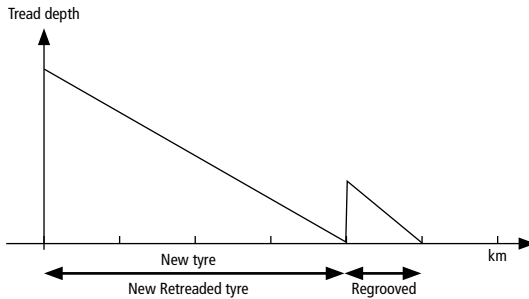


* European Tyre and Rim Technical Organisation.

ADVANTAGES OF REGROOVING

MORE MILEAGE

By re-establishing the tyre's tread pattern again, regrooving extends the mileage potential of the tyre by up to 25% for both new and Michelin Group tyres which can be retreaded.

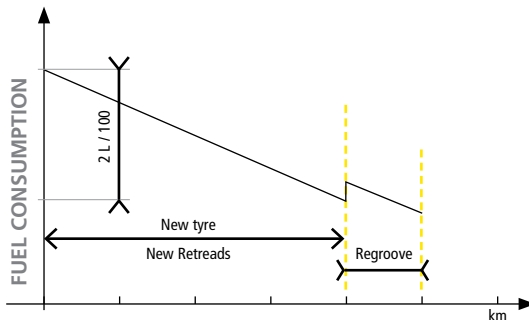


MORE FUEL SAVINGS

Saves up to 2 litres of fuel every 100 km** compared with new tyres.

Rolling resistance decreases while the tread depth decreases during use, therefore regrooving is carried out when the tyre has its lowest rolling resistance. Regrooving enables the use of the tyre for longer in its most fuel efficient condition.

The potential 25% extra mileage provided by regrooving is obtained as indicated below when fuel consumption is at its lowest.



** 1.94 litre/100 km independently witnessed and certified in June 2007 on a unit equipped with regrooved MICHELIN ENERGY™ tyres and a unit equipped with non-regrooved MICHELIN ENERGY™ tyres.

IMPROVED TRACTION

Better road grip to help improve the safety of your vehicle. Regrooving creates a deeper tyre tread pattern depth, which improves your road grip and safety. On wet roads, regrooved tyres offer improved transversal grip and approximately 10% higher traction than similarly worn tyres that have not been regrooved*.

REDUCTION OF ENVIRONMENTAL IMPACT



Lower CO₂
emissions



Less waste



Fewer
materials

- **By reducing your fuel consumption and extending mileage potential, regrooving is good for the environment.**

Regrooving extends the life of your tyres when they are using the least amount of fuel.

- **By extending the life of new and retreaded MICHELIN tyres by up to 25%, you could save one tread for every four tyres you regroove.**

Regrooving does not affect Michelin retreading; carried out in accordance with our recommendations it has no adverse effect on the product regarding the strength of the crown block or casing.

REGROOVING IN PRACTICE

It is the operators responsibility to ensure that regrooving is carried out in accordance with the tyre manufacturers' recommendations (pattern, depth, blade, etc.).

- **Regrooving when there is 2 to 4 mm of tread left makes it possible to:**



- Re-establish the tread pattern.
- Adjust the depth of regrooving to ensure that there is always a 2 mm depth of undertread rubber when the tyre no longer has a regroove depth indicator showing.

*Internal Michelin source : test conducted on polished concrete.

■ Regrooving that is too deep

Can cause damage to the tyre resulting in premature removal from service and compromising retreading; exposing the plies beneath the tread is prohibited.

■ Do not regroove if:

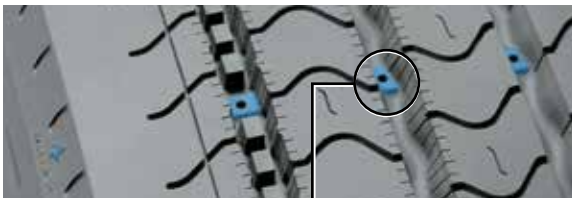
The tread pattern shows signs of significant accidental damage: penetrations, cuts, tearing, etc. In this condition there is a risk of oxidation of the metallic reinforcing plies: damage of this nature could lead to rapid deterioration of the tyre whilst in service, possibly leading to rapid deflation.

■ Manage regrooved tyres stock:

To minimise vehicle down time, due to the action of regrooving, we advise that you have a stock of built up regrooved tyres.

TECHNICAL REQUIREMENTS

1. Regrooving should only be carried out in a well ventilated place with a tool which has an electrically heated blade.
2. The width and depth of the regrooving is given for each tyre size and type of tread pattern. We suggest that a rounded blade be used. It should be noted that because of the rounded profile of the blade the regroove width will reduce slightly as the tyre wears further after regroove.
3. Before regrooving, the tyre should be examined to ensure that it is in good condition. Any damage or unsatisfactory repair should be repaired correctly. If the tread shows evidence of hacking, multiple cuts or tearing of the tread blocks, then regrooving is not recommended.
4. Tread depths should be taken at several places around the tyre. The cut depth of the regrooving blade must be related to the minimum tread depth found. On recent tread patterns, a regroove depth indicator located in the tread wear indicator enables the blade to be set at the optimum depth.



Regroove depth indicator

5. The depth of the blade can also be adjusted using a special gauge.



6. The regrooving diagrams and optional regrooving diagrams can be found on pages 87 to 123 for each tread pattern. Regrooving must be made for each groove with a tread wear indicator.

7. Where a tyre has worn abnormally it is technically acceptable to regroove that part of the worn tread provided sufficient of the original pattern is visible prior to regrooving.

NOTES:

- a) MICHELIN Remix tyres are to be regrooved to the same pattern and tread as the corresponding first life regrooved pattern (see pages 87 to 123) unless otherwise stated.
- b) All regrooving widths given are approximate.
- c) In cases where severe lateral scrubbing is encountered, particularly on multi-axle operation, it may be found that accidental damage to the tread rubber could be aggravated by regrooving.
- d) To regroove any MICHELIN tyre not shown in this booklet please contact your Michelin representative for advice.

REGROOVING STEER PATTERNS FOR DRIVE

Whilst Michelin recommends regrooving steer truck and bus tyres for steer use, not all users will regroove their front axle tyres and continue to use them on front axles and not all countries accept the use of regrooved tyres on front axles.

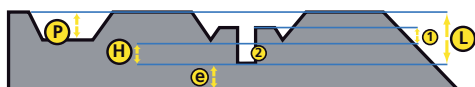
In this case it means that operators are not achieving the tyres' full mileage potential, particularly in cases where the vehicle is a 4x2 configuration and the regrooved tyre cannot, therefore, be fitted to a mid lift or second steer axle. In order to facilitate the use of our latest ranges of 22.5" X® LINE™ Energy™ Z, X® MultiWay 3D XZE and 22.5", 19.5" and 17.5" X® MULTI™ Z tyres fully within the Michelin four lives offer we have approved patterns for these tyres that will enable operators to regroove and use these tyres on drive axles offering better grip and traction capabilities.

The specific regrooving diagrams are given as an option for each of the applicable tyre sizes.

REGROOVING DIMENSIONS

The regrooving dimensions that we indicate are theoretical values covering most cases. We recommend measuring the tread band in the most worn zone to assess the thickness of rubber remaining above the crown plies.

Cross-section of a tyre



P Depth remaining before regroove

H Theoretical height of regrooving

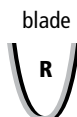
L Blade setting: $L = P + H$

We recommend that you measure **L** with a depth gauge

e Thickness of rubber to be kept after regrooving: **2 mm**

1 Height of the wear indicator

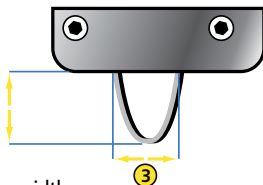
2 Recess indicating the regrooving depth



Regrooving blade

Setting the depth of the blade

$$L = P + H$$



3 Regrooving width

MAIN EUROPEAN REGULATIONS ON REGROOVING

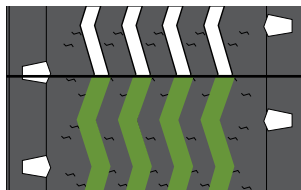
| Country | Restrictions on mounting regrooved tyres |
|---|--|
|  Austria | Prohibited on all front axles of all trucks |
|  Belgium | None |
|  Bulgaria | Prohibited on all front axles of all trucks |
|  Croatia | None |
|  Czech Republic | Prohibited on front axles of coaches and buses |
|  Denmark | None |
|  Eurasian EU (1) | Prohibited on all front axles of all trucks |
|  Finland | None |
|  Estonia | None |
|  France | None |
|  Germany | Prohibited on front axles of coaches reaching speeds of 100 kph |
|  Greece | None |
|  Hungary | Prohibited on front axles of coaches |
|  Ireland | None |
|  Italy | None |
|  Latvia | None |
|  Lithuania | None |
|  Luxembourg | None |
|  Netherlands | None |
|  Norway | None |
|  Poland | Prohibited on single axles on coaches reaching speeds of 100 km/hr |
|  Portugal | None |
|  Romania | None |
|  Serbia | None |
|  Slovakia | None |
|  Slovenia | None |
|  Spain | None |
|  Sweden | None |
|  Switzerland | None |
|  Turkey | None |
|  Ukraine | Prohibited on all front axles of all trucks |
|  UK | None |

Provided for informational purposes only, may be subject to changes in local regulations.



Designed for long distance, high average speed, international journeys, constant speed.

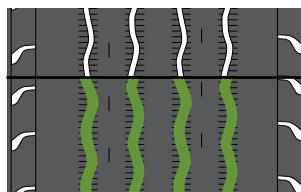
XZA



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|--------------|-------------------|------------------------------|-----------------|
| 8 R 17.5** | 3 mm | 8 mm | R3 |
| 8.5 R 17.5** | | | |
| 9.5 R 17.5 | 3 mm | 6 to 8 mm | R3 |
| 10 R 17.5 | | | |

**3 grooves.

XZA 2 ENERGY™



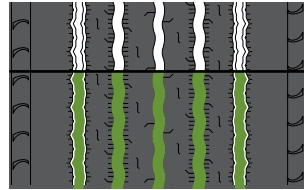
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------------|-------------------|------------------------------|-----------------|
| 275/70 R 22.5 | 4 mm | 7 to 8 mm | R3 |
| 295/60 R 22.5** | 3 mm | 6 to 8 mm | R3 |
| 295/80 R 22.5 | 4 mm | 8 to 10 mm | R3 |
| 305/70 R 22.5** | 4 mm | 8 to 10 mm | R4 |
| 315/60 R 22.5 | 3 mm | 6 to 8 mm | R3 |

**5 grooves.



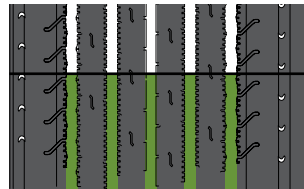
Designed for long distance, high average speed, international journeys, constant speed.

X[®] ENERGY[™] XF



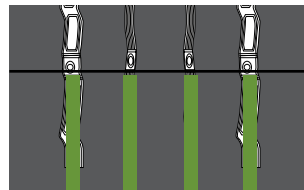
| Tyre size | Regrooving depth * | Approximate regrooving width | Suggested blade |
|---------------|--------------------|------------------------------|-----------------|
| 315/60 R 22.5 | 3 mm | 6 to 8 mm | R3 |

XFA 2 ENERGY[™] ANTISPLASH[™]



| Tyre size | Regrooving depth * | Approximate regrooving width | Suggested blade |
|---------------|--------------------|------------------------------|-----------------|
| 385/55 R 22.5 | 3 mm | 8 to 10 mm | R3 |

X[®] LINE[™] ENERGY[™] Z



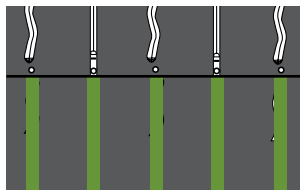
| Tyre size | Regrooving depth * | Approximate regrooving width | Suggested blade |
|---------------|--------------------|------------------------------|-----------------|
| 315/70 R 22.5 | 3 mm | 8 mm | R3 |
| 315/80 R 22.5 | 3 mm | 8 to 10 mm | R3 |

*The depth of the groove should always be checked before regrooving, see details on pages 83-84.



Designed for long distance, high average speed, international journeys, constant speed.

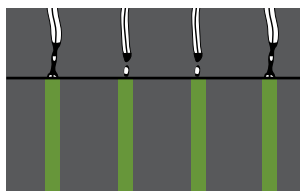
X[®] LINE[™] ENERGY[™] Z



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/60 R 22.5 | 3 mm | 6 to 8 mm | R3 |
| 315/60 R 22.5 | | | |
| 355/50 R 22.5 | | | |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.

X[®] LINE[™] ENERGY[™] F



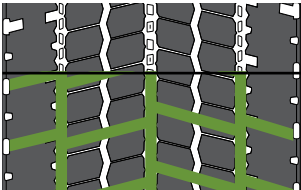
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------------|-------------------|------------------------------|-----------------|
| 385/55 R 22.5** | 3 mm | 8 to 10 mm | R3 or R4 |
| 385/65 R 22.5 | 3 mm | 8 to 10 mm | R3 |

**5 grooves.



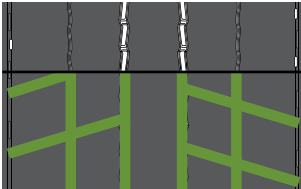
Designed for long distance, high average speed, international journeys, constant speed.

XDA 2+ ENERGY™



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 275/70 R 22.5 | 4 mm | 7 to 8 mm | R3 |
| 305/70 R 22.5 | 4 mm | 7 to 8 mm | R3 |
| 315/60 R 22.5 | 3 mm | 7 to 8 mm | R3 |

X® LINE™ ENERGY™ D

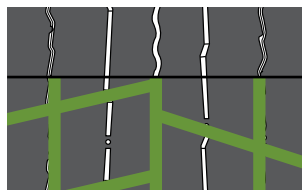


| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/60 R 22.5 | 3 mm | 7 to 8 mm | R3 |
| 315/60 R 22.5 | | | |
| 315/70 R 22.5 | | | |
| 315/80 R 22.5 | | | |



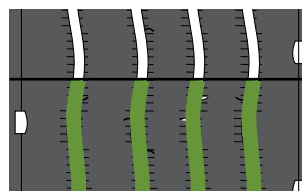
Designed for long distance, high average speed, international journeys, constant speed.

X[®] LINE[™] ENERGY[™] D2



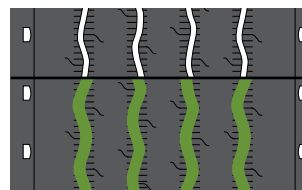
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 315/70 R 22.5 | 3 mm | 7 to 8 mm | R3 |

XTA



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------|-------------------|------------------------------|-----------------|
| 7.50 R 15 | 3 mm | 6 to 8 mm | R3 |
| 8.25 R 15 | | | |

XTA 2 ENERGY[™]



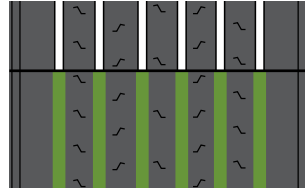
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 275/70 R 22.5 | 3 mm | 6 to 8 mm | R3 |
| 285/70 R 19.5 | | | |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



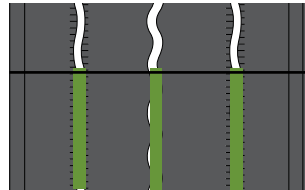
Designed for long distance, high average speed, international journeys, constant speed.

XTA 2+ ENERGY™

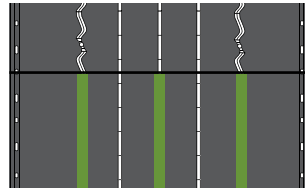


| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 445/45 R 19.5 | 3 mm | 8 to 10 mm | R3 |

X® LINE™ ENERGY™ T



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 215/75 R 17.5 | 3 mm | 6 to 8 mm | R3 |
| 235/75 R 17.5 | | | |
| 245/70 R 17.5 | | | |
| 265/70 R 19.5 | | | |
| 445/45 R 19.5 | 3 mm | 8 to 10 mm | R3 |



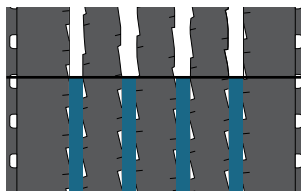
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 385/55 R 22.5 | 3 mm | 8 to 10 mm | R3 |
| 385/65 R 22.5 | | | |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



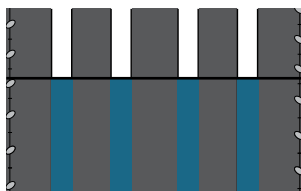
Designed for national and regional operations on all types of roads.

XZE



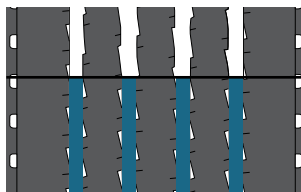
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------|-------------------|------------------------------|-----------------|
| 8.25 R 20 | 3 mm | 8 to 10 mm | R3 |

XZE 2



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 205/75 R 17.5 | 3 mm | 7 to 8 mm | R3 |
| 12.00 R 20 | 3 mm | 8 to 10 mm | R4 |
| 13 R 22.5 | 4 mm | 8 to 10 mm | R4 |

XZE 2+



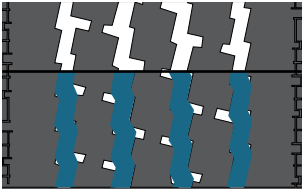
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 305/70 R 19.5 | 3 mm | 7 to 8 mm | R3 |
| 275/80 R 22.5 | 4 mm | 7 to 8 mm | R3 |
| 305/70 R 22.5 | | | |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



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XFN 2+



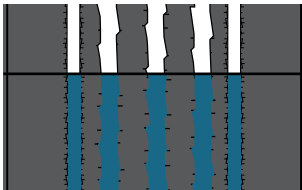
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 315/80 R 22.5 | 3 mm | 6 to 8 mm | R3 |

XFN 2 ANTISPLASH™



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 315/70 R 22.5 | 3 mm | 7 to 8 mm | R3 |
| 385/55 R 22.5 | 3 mm | 8 to 10 mm | R3 |
| 385/65 R 22.5 | 4 mm | 8 to 10 mm | R3 |

XF 2 ANTISPLASH™



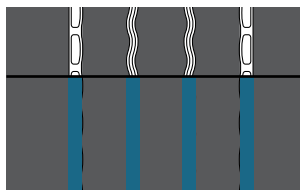
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 385/65 R 22.5 | 4 mm | 8 to 10 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



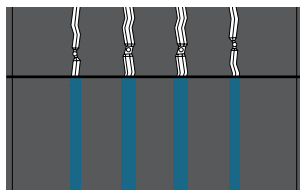
Designed for national and regional operations on all types of roads.

X[®] MULTIWAY[™] 3D XZE



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/80 R 22.5 | 3 mm | 8 to 10 mm | R3 |
| 315/70 R 22.5 | | | |
| 315/80 R 22.5 | | | |

X[®] MULTIWAY[™] HD XZE



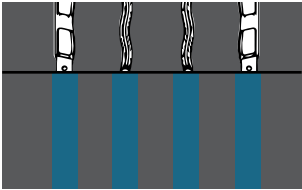
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 385/65 R 22.5 | 3 mm | 8 to 10 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.

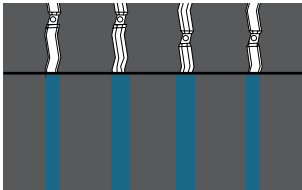


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X® MULTI™ Z



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 205/75 R 17.5 | 2 mm | 7 to 8 mm | R3 |
| 215/75 R 17.5 | | | |
| 225/75 R 17.5 | | | |
| 235/75 R 17.5 | | | |
| 245/70 R 17.5 | | | |
| 265/70 R 17.5 | | | |
| 245/70 R 19.5 | 3 mm | 8 to 10 mm | R4 |
| 265/70 R 19.5 | | | |
| 285/70 R 19.5 | | | |



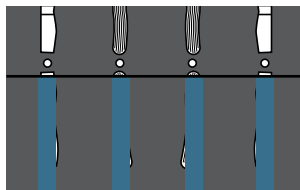
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 11 R 22.5 | 3 mm | 8 to 9 mm | R3 |
| 12 R 22.5 | 3 mm | 8 to 9 mm | R3 |
| 275/70 R 22.5 | 4 mm | 7 to 8 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.

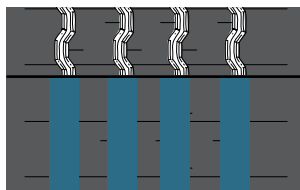


Designed for national and regional operations on all types of roads.

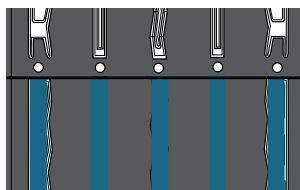
X[®] MULTI[™] Z



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 305/70 R 22.5 | 3 mm | 8 to 9 mm | R3 |



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 275/80 R 22.5 | 3 mm | 4 to 6 mm | R3 |



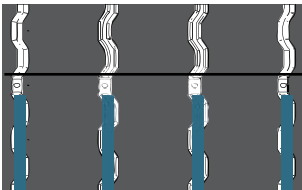
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 315/70 R 22.5 | 3 mm | 8 to 10 mm | R3 or R4 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.

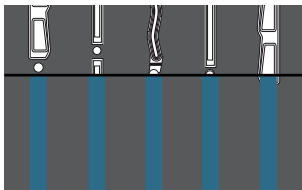


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X® MULTI™ HD Z

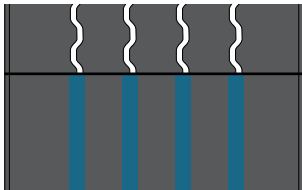


X® MULTI™ ENERGY™ Z



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 315/70 R 22.5 | 3 mm | 8 to 10 mm | R3 or R4 |

X® MULTI™ F



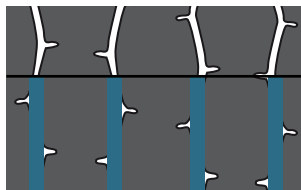
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 385/55 R 22.5 | 3 mm | 8 to 10 mm | R3 or R4 |
| 385/65 R 22.5 | 3 mm | 8 to 10 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



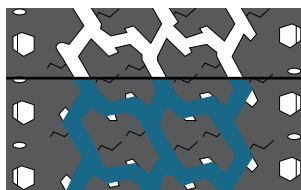
Designed for national and regional operations on all types of roads.

X® MULTI™ WINTER Z



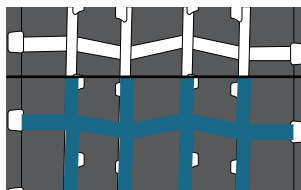
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/80 R 22.5 | 3 mm | 8 to 10 mm | R3 |

XT4



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------|-------------------|------------------------------|-----------------|
| 10 R 22.5 | 4 mm | 7 to 8 mm | R3 |

XDE 2



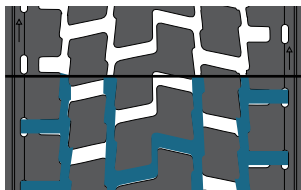
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 205/75 R 17.5 | 3 mm | 7 to 8 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



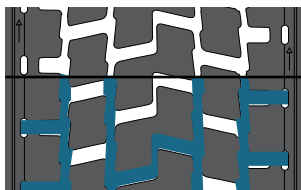
Designed for national and regional operations on all types of roads.

XDE 2



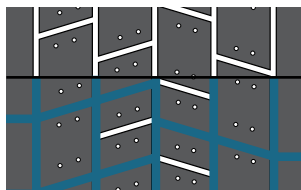
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------|-------------------|------------------------------|-----------------|
| 13 R 22.5 | 4 mm | 7 to 8 mm | R3 |

XDE 2+



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 305/70 R 19.5 | 4 mm | 8 to 10 mm | R4 |
| 12 R 22.5 | 3 mm | 11 to 12 mm | R4 |
| 275/80 R 22.5 | 4 mm | 7 to 8 mm | R3 |
| 305/70 R 22.5 | | | |
| 315/80 R 22.5 | | | |

X® MULTIWAY™ 3D XDE



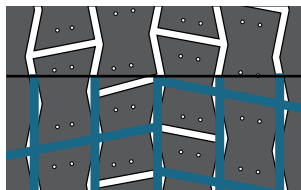
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 315/70 R 22.5 | 3 mm | 6 to 8 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



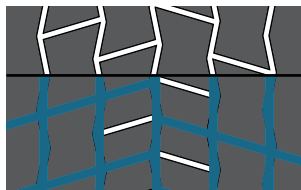
Designed for national and regional operations on all types of roads.

X® MULTIWAY™ 3D XDE



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/80 R 22.5 | 3 mm | 8 to 10 mm | R3 |
| 315/80 R 22.5 | | | |

X® MULTIWAY™ XD



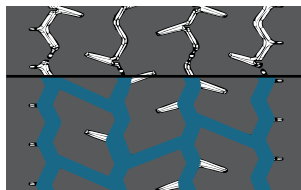
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/60 R 22.5 | 3 mm | 6 to 8 mm | R3 |
| 315/60 R 22.5 | | | |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.

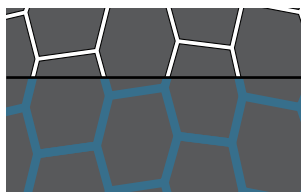


Designed for national and regional operations on all types of roads.

X[®] MULTI[™] D



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 205/75 R 17.5 | 2 mm | 7 to 8 mm | R3 |
| 215/75 R 17.5 | | | |
| 225/75 R 17.5 | | | |
| 235/75 R 17.5 | | | |
| 245/70 R 17.5 | | | |
| 265/70 R 17.5 | | | |
| 245/70 R 19.5 | 3 mm | 8 to 10 mm | R4 |
| 265/70 R 19.5 | | | |
| 285/70 R 19.5 | | | |



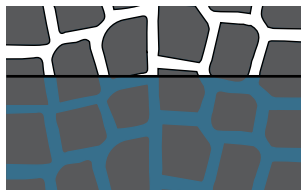
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 11 R 22.5 | 3 mm | 7 to 8 mm | R3 |
| 12 R 22.5 | | | |
| 275/70 R 22.5 | 4 mm | 7 to 8 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.

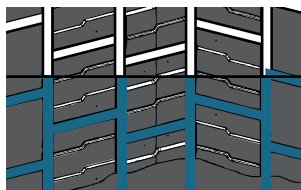


Designed for national and regional operations on all types of roads.

X[®] MULTI[™] D

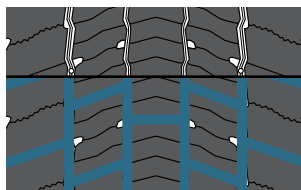


| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 275/80 R 22.5 | 3 mm | 7 to 8 mm | R3 |



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/60 R 22.5 | 3 mm | 6 to 8 mm | R3 |
| 315/60 R 22.5 | | | |
| 315/70 R 22.5 | | | |

X[®] MULTI[™] ENERGY[™] D



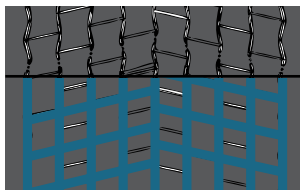
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 315/70 R 22.5 | 3 mm | 6 to 8 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



Designed for national and regional operations on all types of roads.

X[®] ONE[™] MULTI[™] D



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 495/45 R 22.5 | 3 mm | 6 to 8 mm | R3 |

XDW ICE GRIP



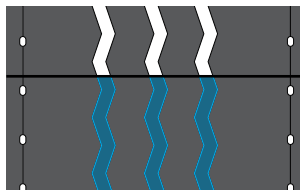
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 245/70 R 19.5 | 3 mm | 6 to 8 mm | R3 |
| 265/70 R 19.5 | | | |
| 11 R 22.5 | | | |
| 12 R 22.5 | | | |
| 275/70 R 22.5 | | | |
| 295/80 R 22.5 | 4 mm | 6 to 8 mm | R3 |
| 315/70 R 22.5 | 3 mm | 6 to 8 mm | R3 |
| 315/80 R 22.5 | 4 mm | 6 to 8 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.

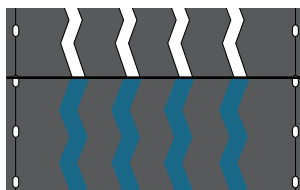


Designed for national and regional operations on all types of roads.

XTE 2



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 9.5 R 17.5 | 3 mm | 6 to 8 mm | R3 |
| 245/70 R 19.5 | | | |
| 265/70 R 19.5 | | | |
| 285/70 R 19.5 | | | |
| 11 R 22.5 | | | |



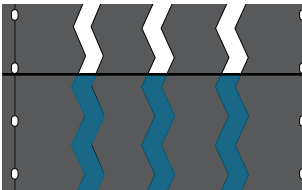
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 425/65 R 22.5 | 4 mm | 8 to 10 mm | R3 or R4 |
| 445/65 R 22.5 | 4 mm | 8 to 10 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



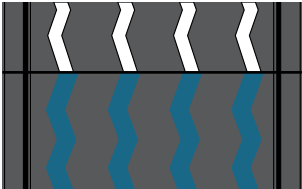
Designed for national and regional operations on all types of roads.

XTE 2+



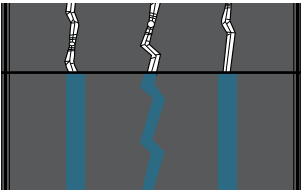
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 215/75 R 17.5 | 3 mm | 6 to 8 mm | R3 |
| 235/75 R 17.5 | | | |
| 245/70 R 17.5 | | | |

XTE 3



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 385/65 R 22.5 | 3 mm | 8 to 10 mm | R3 |

X[®] MAXITRAILER[™]



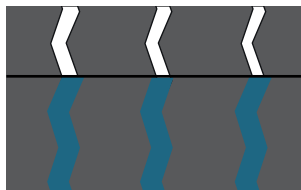
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 205/65 R 17.5 | 3 mm | 6 to 8 mm | R3 |
| 255/60 R 19.5 | | | |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.

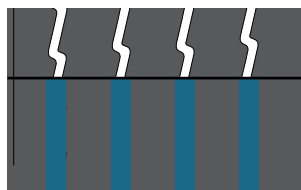


Designed for national and regional operations on all types of roads.

X[®] MULTI[™] T

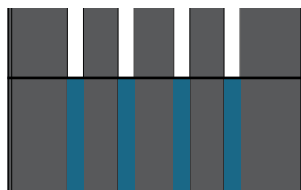


| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 245/70 R 17.5 | 3 mm | 6 to 8 mm | R3 |



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 385/55 R 22.5 | 3 mm | 8 to 10 mm | R3 |
| 385/65 R 22.5 | 3 mm | 8 to 10 mm | R3 or R4 |

X[®] MULTI[™] T2



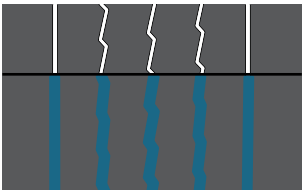
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 385/55 R 22.5 | 3 mm | 8 to 10 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



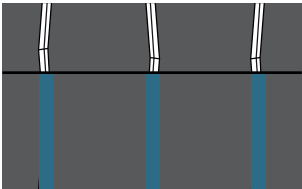
Designed for national and regional operations on all types of roads.

X[®] ONE[™] MAXITRAILER[™] +

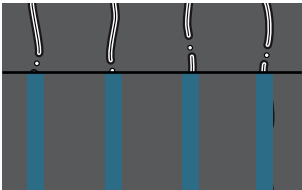


| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 455/45 R 22.5 | 3 mm | 8 to 10 mm | R3 |

X[®] MULTI[™] WINTER T



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 245/70 R 17.5 | 3 mm | 6 to 8 mm | R3 |



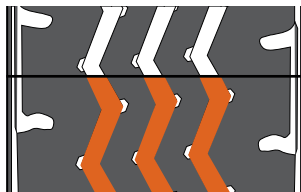
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 385/65 R 22.5 | 3 mm | 8 to 10 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



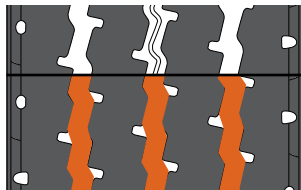
Designed for roads, in and around worksites and quarries.

XZY



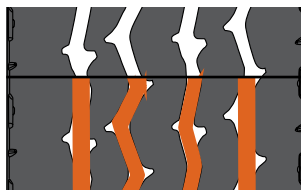
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|------------|-------------------|------------------------------|-----------------|
| 9.5 R 17.5 | 3 mm | 6 to 8 mm | R3 |
| 10 R 22.5 | 4 mm | 8 to 10 mm | R3 |

XZY 2



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|------------|-------------------|------------------------------|-----------------|
| 12.00 R 20 | 3 mm | 8 to 10 mm | R4 |
| 12 R 22.5 | 4 mm | 8 to 10 mm | R4 |

X[®] WORKS[™] XZY



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 315/80 R 22.5 | 4 mm | 8 to 10 mm | R3 or R4 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



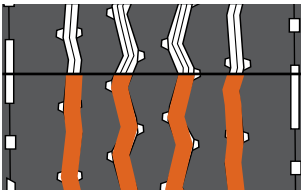
Designed for roads, in and around worksites and quarries.

X[®] WORKS[™] XZY



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------|-------------------|------------------------------|-----------------|
| 13 R 22.5 | 3 mm | 8 to 10 mm | R3 or R4 |

X[®] WORKS[™] Z



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/80 R 22.5 | 4 mm | 8 to 10 mm | R4 |



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 13 R 22.5 | 3 mm | 8 to 10 mm | R4 |
| 315/80 R 22.5 | | | |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



Designed for roads, in and around worksites and quarries.

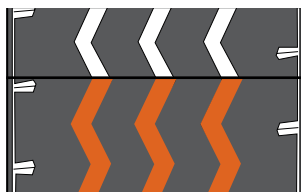
X[®] WORKS[™] HD Z



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------------|-------------------|------------------------------|-----------------|
| 13 R 22.5 | 3 mm | 8 to 10 mm | R3 or R4 |
| 315/80 R 22.5** | 4 mm | 8 to 10 mm | R3 |

**4 grooves.

X[®] WORKS[™] XZ



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-------------|-------------------|------------------------------|-----------------|
| 325/95 R 24 | 4 mm | 8 to 10 mm | R4 |

XDY



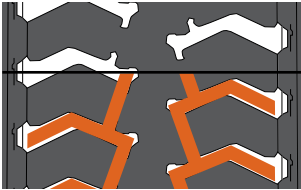
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|------------|-------------------|------------------------------|-----------------|
| 12.00 R 20 | 4 mm | 6 to 8 mm | R3 or R4 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



Designed for roads, in and around worksites and quarries.

XDY +



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|--------------|-------------------|------------------------------|-----------------|
| 295/80 R22.5 | 4 mm | 6 to 8 mm | R3 |

XDY 3



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------|-------------------|------------------------------|-----------------|
| 11 R 22.5 | 4 mm | 6 to 8 mm | R3 or R4 |
| 12 R 22.5 | | | |

X[®] WORKS[™] XDY



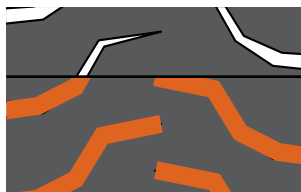
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 13 R 22.5 | 3 mm | 6 to 8 mm | R3 |
| 315/80 R 22.5 | 4 mm | 6 to 8 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



Designed for roads, in and around worksites and quarries.

X[®] WORKS[™] D



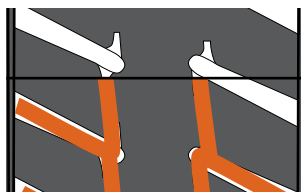
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 13 R 22.5 | 3 mm | 6 to 8 mm | R4 |
| 315/80 R 22.5 | | | |

X[®] WORKS[™] HD D



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 13 R 22.5 | 3 mm | 6 to 8 mm | R3 |
| 315/80 R 22.5 | 4 mm | 6 to 8 mm | R3 |

X[®] WORKS[™] XD



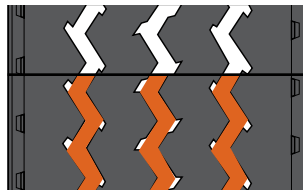
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-------------|-------------------|------------------------------|-----------------|
| 325/95 R 24 | 4 mm | 8 to 10 mm | R4 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



Designed for roads, in and around worksites and quarries.

XTY 2



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 265/70 R 19.5 | 3 mm | 8 to 10 mm | R4 |
| 275/70 R 22.5 | 4 mm | 8 to 10 mm | R4 |

XZY 3



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 11 R 22.5 | 3 mm | 8 to 10 mm | R4 |
| 445/65 R 22.5 | 4 mm | 10 to 12 mm | R4 |



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 385/65 R 22.5 | 4 mm | 10 to 12 mm | R4 |
| 425/65 R 22.5 | | | |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



Designed for roads, in and around worksites and quarries.

X[®] WORKS[™] T



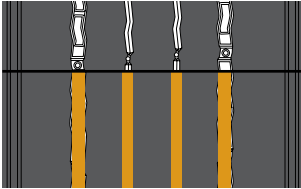
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 385/65 R 22.5 | 3 mm | 10 to 12 mm | R4 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



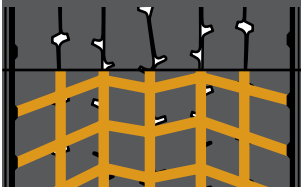
Designed for people transportation for long and short distance on all types of roads.

X® COACH™ HL Z



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/80 R 22.5 | 3 mm | 8 to 10 mm | R3 |

X® COACH™ XD



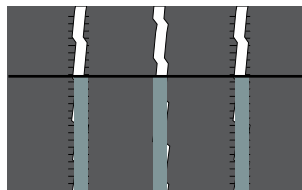
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/80 R 22.5 | 3 mm | 6 to 8 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



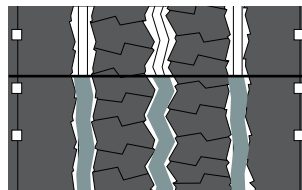
Designed for journeys in urban and suburban driving.

X[®] INCITY™ Z



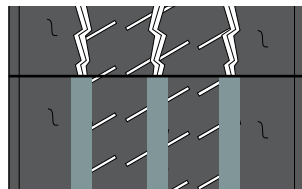
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 11 R 22.5 | 4 mm | 8 to 10 mm | R4 |
| 305/70 R 22.5 | 3 mm | 7 to 8 mm | R3 |

XZU 2T



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 305/70 R 22.5 | 3 mm | 8 to 10 mm | R3 |

XZU 3



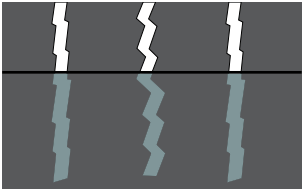
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------|-------------------|------------------------------|-----------------|
| 11 R 22.5 | 4 mm | 8 to 10 mm | R4 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



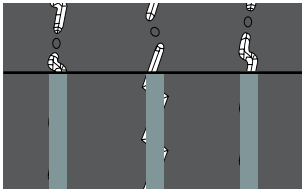
Designed for journeys in urban and suburban driving.

X[®] INCITY[™] XZU 3+



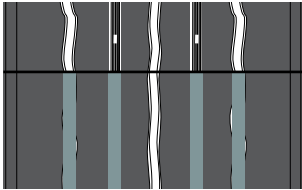
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 295/80 R 22.5 | 4 mm | 6 to 8 mm | R3 |

X[®] INCITY[™] XZU



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 275/70 R 22.5 | 4 mm | 8 to 10 mm | R3 or R4 |

X[®] INCITY[™] HL Z



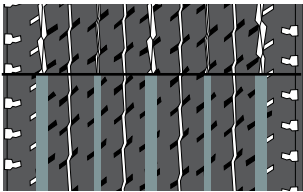
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 275/70 R 22.5 | 4 mm | 5 to 6 mm | R2 or R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



Designed for journeys in urban and suburban driving.

X[®] ONE[™] XDU



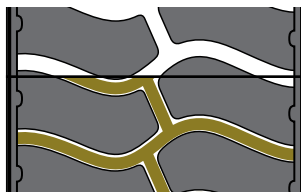
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 455/45 R 22.5 | 3 mm | 6 mm | R3 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



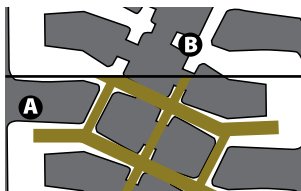
Designed for specialised, civil or military vehicles mostly driven on off-road surfaces.

X® FORCE™ 2 / XZL 2



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------------|-------------------|------------------------------|-----------------|
| 395/85 R 20 | 3 mm | 8 to 10 mm | R3 |
| 395/90 R 560 TR | 4 mm | 10 to 12 mm | R4 |
| 415/80 R 685 TR | | | |

X® FORCE™ ML / XML



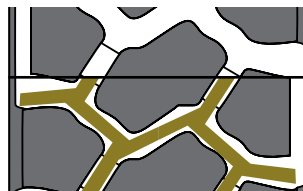
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------------|-------------------|------------------------------|-----------------|
| 325/85 R 16 | 4 mm | 9 to 10 mm | R3 or R4 |
| 12.00 R 20 | 4 mm | A = 20 mm B = 10 to 12 mm | R4 |
| 14.00 R 20 | | | |
| 395/85 R 20 | 4 mm | A = 20 mm B = 10 mm | R4 |
| 475/80 R 20** | 4 mm | A = 20 mm B = 10 to 12 mm | R4 |
| 395/90 R 560 TR | | | |
| 415/80 R 685 TR | | | |

**5 grooves.



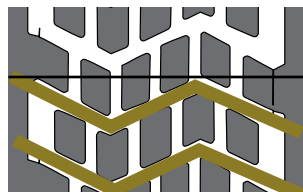
Designed for specialised, civil or military vehicles mostly driven on off-road surfaces.

X® FORCE™ ZH / XZH2R



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 13 R 22.5 | 4 mm | 12 to 14 mm | R4 |
| 315/80 R 22.5 | | | |

XS



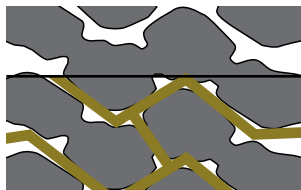
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|--------------------------------|-------------------|------------------------------|-----------------|
| 14.00 R 20 | 4 mm | 8 to 10 mm | R3 |
| 24 R 20.5 | 4 mm | 8 to 10 mm | R3 or R4 |
| 525/65 R 20.5 (20.5 R 20.5) | | | |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



Designed for specialised, civil or military vehicles mostly driven on off-road surfaces.

X[®] FORCE™ Z / XZL



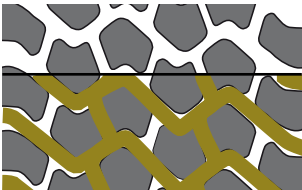
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|--------------------------|-------------------|------------------------------|-----------------|
| 255/100 R 16 (9.00 R 16) | 3 mm | 10 to 12 mm | R4 |
| 325/85 R 16 | 3 mm | 10 mm | R4 |
| 10.00 R 20 | 4 mm | 10 to 12 mm | R4 |
| 11.00 R 20 | 4 mm | 11 to 13 mm | R3 |
| 12.00 R 20 | 4 mm | 10 to 12 mm | R4 |
| 14.00 R 20 | 3 mm | 10 to 12 mm | R4 |
| 16.00 R 20 | 4 mm | 10 to 12 mm | R4 |
| 275/80 R 20 (10.5 R 20) | 4 mm | 10 to 12 mm | R3 |
| 335/80 R 20 (12.5 R 20) | 4 mm | 10 to 12 mm | R4 |
| 365/80 R 20 (14.5 R 20) | | | |
| 365/85 R 20 | | | |
| 395/85 R 20 | | | |
| 13 R 22.5 | | | |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



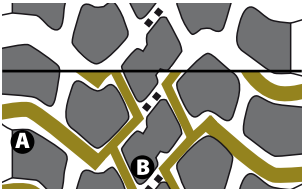
Designed for specialised, civil or military vehicles mostly driven on off-road surfaces.

XZL



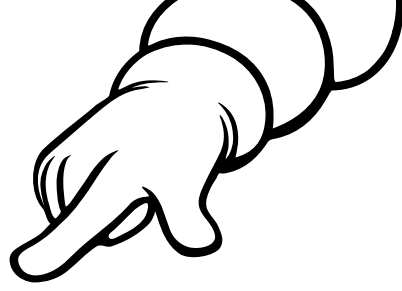
| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|-----------|-------------------|------------------------------|-----------------|
| 24 R 21 | 4 mm | 10 to 12 mm | R4 |

XZL (WB)



| Tyre size | Regrooving depth* | Approximate regrooving width | Suggested blade |
|---------------|-------------------|------------------------------|-----------------|
| 445/65 R 22.5 | 4 mm | A = 20 mm B = 8 to 10 mm | R3 or R4 |

*The depth of the regroove should always be checked before regrooving, see details on pages 83-84.



RETREADING

Principles of retreading | p.126
MICHELIN Remix

Benefits of retreading | p.126

PRINCIPLES OF RETREADING MICHELIN REMIX



A forerunner in the field, at MICHELIN we have been retreading tyres for almost a century, continuously developing our innovative technology. MICHELIN Remix enjoys the advantages of the same industrial processes as used in the manufacture of our new tyres. Our experts use high technology methods (radiography and shearography) to ensure the reliability of MICHELIN Remix retreading. A pledge of quality and safety. MICHELIN Remix factories are all ISO 9001 and ISO 14001 certified, delivering optimised management of quality and environmental performance respectively.

By choosing to retread your tyres with MICHELIN Remix, you benefit from Michelin's extensive expertise to ensure that your tyres have a long lifespan.

- Remanufacture similar to a new tyre.
- Multiple tread pattern options.

BENEFITS OF RETREADING

■ Reduce your running costs

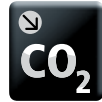
- Reduction in the cost per kilometre.
- Regroovability is assured.
- Excellent retreadability.
 - Tyres retreaded by the MICHELIN Remix process give levels of performance similar to new tyres, at approximately 60% of the cost.
 - Constant regrooving thickness.
 - Nearly 9 out of 10 MICHELIN casings are accepted for retreading, which reduces the number of scrap tyres.

■ Benefit from our pledge of quality and reliability

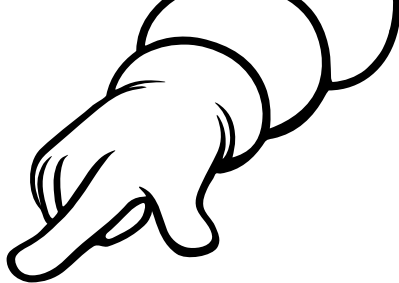
- Performance similar to that of a new tyre.
- Same performance in relation to safety, qualities of grip, damage resistance, handling and road-holding.
 - MICHELIN Remix retreading is carried out with the same materials used for the production of our new tyres.
 - MICHELIN Remix tyres make use of all of the latest innovations, including Regenion technology.
 - MICHELIN Remix tyres are only manufactured using MICHELIN casings.

■ Protect the environment by reducing your waste

- Reduction in the number of new tyres used.
- Less scrap to be processed.
- Up to 45 kg* of raw materials saved per MICHELIN Remix tyre.
- Assured traceability, simplified management.
- The casing represents about 70% of the weight of a tyre. By retreading it, the raw materials used are considerably reduced, as a large proportion of the original materials is kept.



Michelin does not recommend fitting retreaded tyres on the front steer axle of motor vehicles. As an example, It is therefore possible to use a retreaded tyre on a second axle of a 8x4 truck or a tag axle.



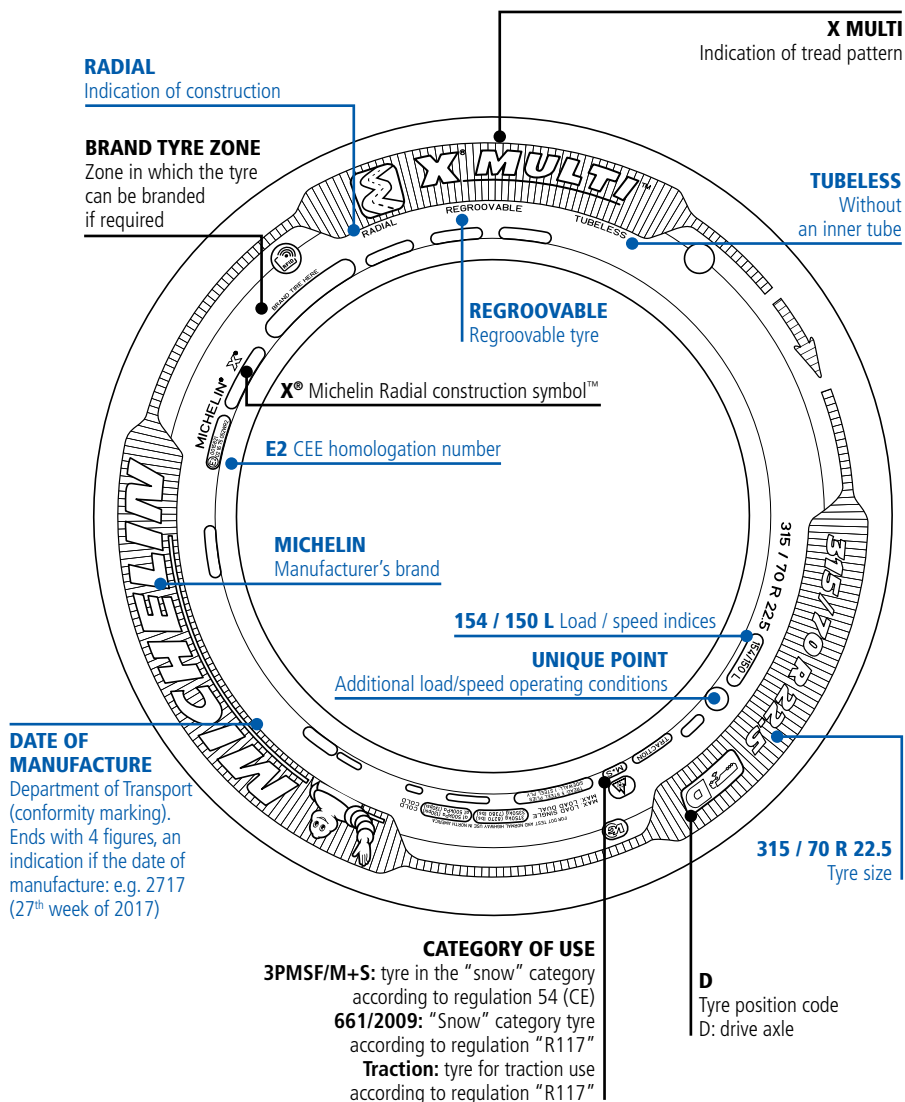
TECHNICAL CHARACTERISTICS OF MICHELIN TYRES

Truck and bus tyre markings | p.130

Name of MICHELIN tyres | p.131

Technical specifications | p.132

TRUCK AND BUS TYRE MARKINGS



NAME OF MICHELIN TYRES

- Michelin uses the following naming convention for its tyres:



These designations identify the environment in which the tyre is used. In some cases product designations will also include an option which expresses an additional benefit of the product to meet the specific needs of the haulier. For example:



| Ranges | Options | Position |
|----------------|---------------------------------|--------------------|
| LINE™ | ENERGY™: fuel efficiency | F: Front |
| MULTI™ | GRIP: all-season grip | D: Drive |
| WORKS™ | WINTER: winter conditions | T: Trailer |
| FORCE™ | ICEGRIP: grip in icy conditions | Z: Multi Positions |
| INCITY™ | HD: heavy duty | |
| COACH™ | HL: heavy loads | |

This list is subject to change.

- Older MICHELIN naming convention:



- Older trade name:

A: Long distance
 E: Regional
 Y: On/Off Road
 L: Off Road
 U: Urban



TECHNICAL SPECIFICATIONS

■ Load capacity indices and speed category symbols

| Index | Load kg | Index | Load kg | Index | Load kg | Index | Load kg |
|------------|---------|------------|---------|------------|---------|------------|---------|
| 100 | 800 | 123 | 1550 | 146 | 3000 | 169 | 5800 |
| 101 | 825 | 124 | 1600 | 147 | 3075 | 170 | 6000 |
| 102 | 850 | 125 | 1650 | 148 | 3150 | 171 | 6150 |
| 103 | 875 | 126 | 1700 | 149 | 3250 | 172 | 6300 |
| 104 | 900 | 127 | 1750 | 150 | 3350 | 173 | 6500 |
| 105 | 925 | 128 | 1800 | 151 | 3450 | 174 | 6700 |
| 106 | 950 | 129 | 1850 | 152 | 3550 | 175 | 6900 |
| 107 | 975 | 130 | 1900 | 153 | 3650 | 176 | 7100 |
| 108 | 1000 | 131 | 1950 | 154 | 3750 | 177 | 7300 |
| 109 | 1030 | 132 | 2000 | 155 | 3875 | 178 | 7500 |
| 110 | 1060 | 133 | 2060 | 156 | 4000 | 179 | 7750 |
| 111 | 1090 | 134 | 2120 | 157 | 4125 | 180 | 8000 |
| 112 | 1120 | 135 | 2180 | 158 | 4250 | 181 | 8250 |
| 113 | 1150 | 136 | 2240 | 159 | 4375 | 182 | 8500 |
| 114 | 1180 | 137 | 2300 | 160 | 4500 | 183 | 8750 |
| 115 | 1215 | 138 | 2360 | 161 | 4625 | 184 | 9000 |
| 116 | 1250 | 139 | 2430 | 162 | 4750 | 185 | 9250 |
| 117 | 1285 | 140 | 2500 | 163 | 4875 | 186 | 9500 |
| 118 | 1320 | 141 | 2575 | 164 | 5000 | 187 | 9750 |
| 119 | 1360 | 142 | 2650 | 165 | 5150 | 188 | 10000 |
| 120 | 1400 | 143 | 2725 | 166 | 5300 | 189 | 10300 |



■ Speed index

| Speed Index | Speed | |
|-------------|-------|------|
| | mph | km/h |
| D | 40 | 65 |
| E | 43 | 70 |
| F | 50 | 80 |
| G | 56 | 90 |
| J | 62 | 100 |
| K | 68 | 110 |
| L | 74 | 120 |
| M | 81 | 130 |
| N | 87 | 140 |

Before fitting, it is essential to verify the various markings to make sure that the tyre corresponds properly to the maximum load and speed capacities of the vehicle and/or the regulations in force.

■ Speed / Load / Tyre pressure combinations

The load and inflation pressure limits indicated in the section "Dimensional data truck tyres" correspond to operating speeds of 130, 120, 110, 105, 100, 80 or 65 km/h depending upon tyres and / or sizes. These limits of load and tyre pressure can vary depending on the speed.

| Speed in km/h | Load capacity variation (%) | | | | | | Pressure adjustment (%) |
|------------------|-----------------------------|---------------|----------------|----------------|----------------|----------------|-------------------------------|
| | F (80km/h) | G (90km/h) | J (100km/h) | K (110km/h) | L (120km/h) | M (130km/h) | |
| 0 | +150 | +150 | +150 | +150 | +150 | +150 | +40 |
| 5 | +110 | +110 | +110 | +110 | +110 | +110 | +40 |
| 10 | +80 | +80 | +80 | +80 | +80 | +80 | +30 |
| 15 | +65 | +65 | +65 | +65 | +65 | +65 | +25 |
| 20 | +50 | +50 | +50 | +50 | +50 | +50 | +21 |
| 25 | +35 | +35 | +35 | +35 | +35 | +35 | +17 |
| 30 | +25 | +25 | +25 | +25 | +25 | +25 | +13 |
| 35 | +19 | +19 | +19 | +19 | +19 | +19 | +11 |
| 40 | +15 | +15 | +15 | +15 | +15 | +15 | +10 |
| 45 | +13 | +13 | +13 | +13 | +13 | +13 | +9 |
| 50 | +12 | +12 | +12 | +12 | +12 | +12 | +8 |
| 55 | +11 | +11 | +11 | +11 | +11 | +11 | +7 |
| 60 | +10 | +10 | +10 | +10 | +10 | +10 | +6 |
| 65 | +7.5 | +8.5 | +8.5 | +8.5 | +8.5 | +8.5 | +4 |
| 70 | +5.0 | +7.0 | +7.0 | +7.0 | +7.0 | +7.0 | +2 |
| 75 | +2.5 | +5.5 | +5.5 | +5.5 | +5.5 | +5.5 | +1 |
| 80 | [0] | +4.0 | +4.0 | +4.0 | +4.0 | +4.0 | 0 |
| 85 | | +2.0 | +3.0 | +3.0 | +3.0 | +3.0 | 0 |
| 90 | | [0] | +2.0 | +2.0 | +2.0 | +2.0 | 0 |
| 95 | | | +1.0 | +1.0 | +1.0 | +1.0 | 0 |
| 100 | | | [0] | 0 | 0 | 0 | 0 |
| 110 | | | | [0] | 0 | 0 | 0 |
| 120 | | | | | [0] | 0 | 0 |
| 130 | | | | | | [0] | 0 |

The coefficients given in the above table are for information purposes only. Do not exceed a maximum cold tyre inflation pressure of 10.0 Bars (145 PSI).

For any modification to the basic load limits, please contact your Michelin representative.



■ Unique point

A number of truck tyre sizes carry a second load speed index marked on the sidewall. This is known as the "Unique Point" and is located after the main load index as shown below. For these sizes, the "Unique Point" provides additional load speed operating conditions in order to satisfy particular requirements.

The unique point loads & pressures are given in the technical specification tables pages 136 to 167.

IMPORTANT: load variances based on speed do not apply to the additional dual/ twinned load index / speed symbol of the unique point.



Please check local legislation to ensure that use of the unique point complies with regulations in force.

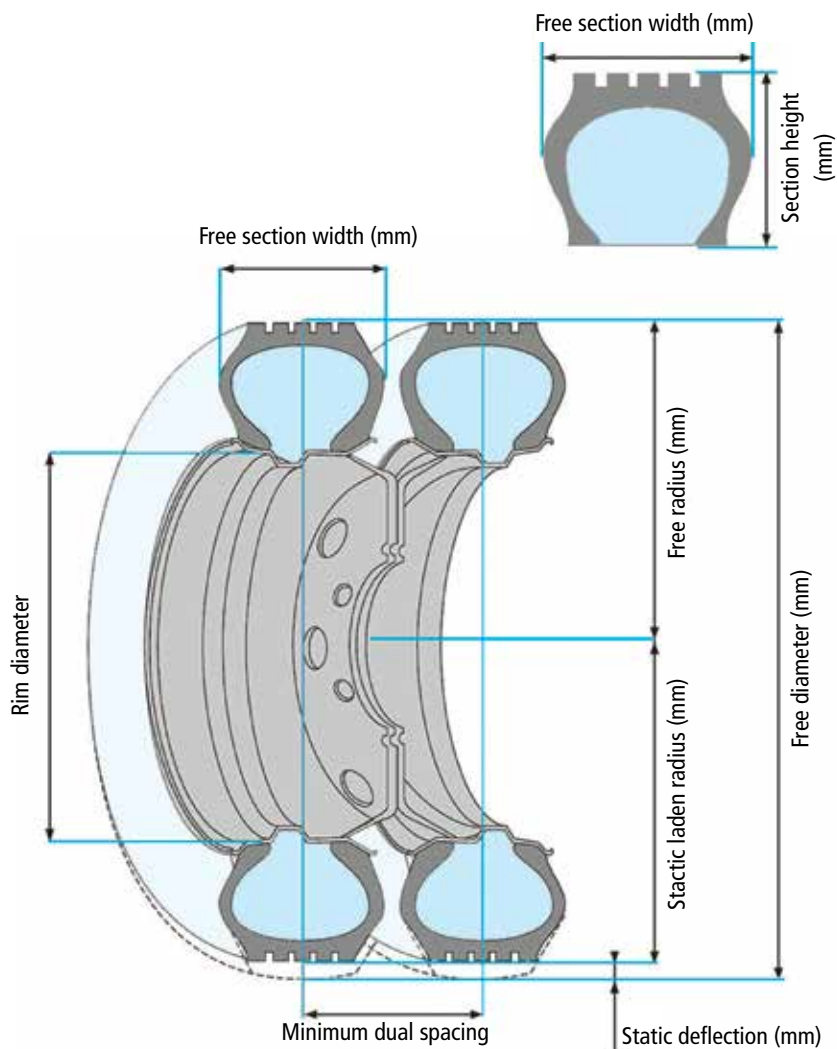
Example of load and speed indices:



















Example of load and speed indices with a unique point marking:




















■ Dimensional tyre data given in technical specifications pages 136 to 167





















| Tyre size | Tread pattern | Type | M+S | 3PMSF  | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹⁾ | Free section width S (mm) ¹⁾ | Free diameter D (mm) ¹⁾ | Static laden radius R' (mm) ¹⁾ | Rolling circumference (mm) ¹⁾ | Minimum dual spacing E (mm) ¹⁾ |
|--------------------------|-----------------|------|-----|---|----|---|---|---|----|------------------|--|------------------------|--|---|------------------------------------|---|--|---|
| | | | | | |  |  |  | dB | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | |
| RIM DIAMETER 9 INCHES | | | | | | | | | | | | | | | | | | |
| 6.00 R 9 | XTA | TT | | | 10 | NA | NA | NA | NA | 109/108F | S 2060 D 4000 | 8.00 | 179 | 163 | 530 | 244 | 1610 | 185 |
| RIM DIAMETER 12 INCHES | | | | | | | | | | | | | | | | | | |
| 7.00 R 12 | XTA | TT | | | 12 | E | B |  | 66 | 125/123F | S 3300 D 6200 | 8.00 | 212 | 194 | 661 | 304 | 2010 | 220 |
| RIM DIAMETER 15 INCHES | | | | | | | | | | | | | | | | | | |
| 7.50 R 15 | XTA | TT | | | 16 | D | B |  | 66 | 135/133G | S 4360 D 8240 | 8.50 | 234 | 210 | 769 | 355 | 2340 | 238 |
| 8.25 R 15 | XTA | TT | | | | C | B |  | 66 | 143/141G | S 5450 D 10300 | 8.50 | 260 | 232 | 834 | 381 | 2547 | 263 |
| RIM DIAMETER 17.5 INCHES | | | | | | | | | | | | | | | | | | |
| 8.5 R 17.5 | XZA | TL | | | | E | C |  | 66 | 121/120L | S 2900 D 5600 | 6.25 | 221 | 200 | 802 | 372 | 2447 | 227 |
| 9.5 R 17.5 | XTE 2 | TL | | | | C | B |  | 67 | 143/141J | S 5450 D 10300 | 8.50 | 257 | 230 | 846 | 386 | 2560 | 260 |
| | XZY | TL | | | | D | C |  | 69 | 129/127L | S 3700 D 7000 | 7.00 | 250 | 228 | 840 | 388 | 2559 | 258 |
| 10 R 17.5 | XZA | TL | | | | D | C |  | 66 | 134/132L | S 4240 D 8000 | 7.50 | 266 | 241 | 861 | 397 | 2620 | 273 |
| 205/65 R 17.5 | X MAXI TRAILER | TL | | | | C | B |  | 67 | 129/127J | S 3700 D 7000 | 9.00 | 225 | 208 | 711 | 330 | 2177 | 236 |
| 205/75 R 17.5 | X MULTI D | TL | ✓ | ✓ | | D | C |  | 70 | 124/122M | S 3200 D 6000 | 7.20 | 230 | 210 | 755 | 351 | 2295 | 238 |
| | X MULTI Z | TL | ✓ | ✓ | 14 | D | B |  | 70 | 124/122M | S 3200 D 6000 | 7.20 | 232 | 210 | 755 | 350 | 2304 | 238 |
| 215/75 R 17.5 | X LINE ENERGY T | TL | | | | B | B |  | 68 | 135/133J | S 4360 D 8240 | 8.50 | 238 | 215 | 772 | 357 | 2368 | 243 |
| | X MULTI D | TL | ✓ | ✓ | | D | C |  | 69 | 126/124M | S 3400 D 6400 | 6.90 | 236 | 216 | 775 | 359 | 2350 | 245 |

Data for general indication only. For more data, please contact your Michelin representative. These values are for guidance only and under no circumstances may be used for judicial or legal motives. (1) Michelin source: measured values using Michelin preferred rim. (2) Unique point: provides additional load/speed operating conditions, in order to supply particular



















| ETRTO overall design diameter (mm) | Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------|--|--|---|------|------|------|------|------|------|------|------|------|-------|------|--|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 | |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 | |
| | | | | | | | | | | | | | | | | | |
| 540 | 4.00E | 95/95J | S 1380 | 8.00 | S | | | 1350 | 1470 | 1590 | 1710 | 1820 | 1940 | 2060 | | | |
| | | | D 2760 | | D | | | 2630 | 2860 | 3090 | 3310 | 3540 | 3770 | 4000 | | | |
| | | | | | | | | | | | | | | | | | |
| 672 | 5.00S | 122/122J | S 3000 | 8.00 | S | | | 2170 | 2360 | 2550 | 2730 | 2920 | 3110 | 3300 | | | |
| | | | D 6000 | | D | | | 4070 | 4430 | 4780 | 5140 | 5490 | 5850 | 6200 | | | |
| | | | | | | | | | | | | | | | | | |
| 772 | 6.00 | 133/132J | S 4120 | 8.50 | S | | | | 2940 | 3180 | 3420 | 3660 | 3880 | 4120 | 4360 | | |
| | | | D 8000 | | D | | | | 5560 | 6000 | 6440 | 6920 | 7360 | 7800 | 8240 | | |
| 836 | 6.50 | 141/140J | S 5150 | 8.50 | S | | | | 3680 | 3980 | 4280 | 4560 | 4860 | 5160 | 5460 | | |
| | | | D 10000 | | D | | | | 6960 | 7520 | 8080 | 8640 | 9200 | 9760 | 10300 | | |
| | | | | | | | | | | | | | | | | | |
| 802 | 5.25 | | | | S | 1970 | 2180 | 2380 | 2590 | 2800 | | | | | | | |
| | | | | | D | 3800 | 4200 | 4600 | 5000 | 5400 | | | | | | | |
| 842 | 6.00 | | | | S | | | | 3680 | 3980 | 4270 | 4570 | 4860 | 5160 | 5450 | | |
| | | | | | D | | | | 6960 | 7520 | 8070 | 8630 | 9190 | 9740 | 10300 | | |
| 842 | 6.00 | | | | S | 2270 | 2510 | 2750 | 2980 | 3220 | 3460 | 3700 | | | | | |
| | | | | | D | 4280 | 4760 | 5200 | 5640 | 6080 | 6560 | 7000 | | | | | |
| 858 | 6.75 | | | | S | | 2700 | 2960 | 3210 | 3470 | 3730 | 3980 | 4240 | | | | |
| | | | | | D | | 5090 | 5580 | 6060 | 6550 | 7030 | 7520 | 8000 | | | | |
| 711 | 6.00 | 130F | S 3800 | 9.00 | S | | | | | 2560 | 2750 | 2940 | 3130 | 3320 | 3510 | 3700 | |
| | | | | | D | | | | | 4850 | 5210 | 5560 | 5920 | 6280 | 6640 | 7000 | |
| 753 | 6.00 | | | | S | | 2120 | 2320 | 2520 | 2720 | 2920 | 3120 | | | | | |
| | | | | | D | | 3960 | 4320 | 4720 | 5080 | 5480 | 5840 | | | | | |
| 753 | 6.00 | | | | S | | 2120 | 2320 | 2520 | 2720 | 2920 | 3120 | | | | | |
| | | | | | D | | 3960 | 4320 | 4720 | 5080 | 5480 | 5840 | | | | | |
| 767 | 6.00 | | | | S | | | | 2950 | 3180 | 3420 | 3650 | 3890 | 4120 | 4360 | | |
| | | | | | D | | | | 5570 | 6010 | 6460 | 6900 | 7350 | 7790 | 8240 | | |
| 767 | 6.00 | | | | S | 2110 | 2330 | 2560 | 2780 | 3000 | 3220 | | | | | | |
| | | | | | D | 3970 | 4390 | 4810 | 5230 | 5650 | 6070 | | | | | | |

| Tyre size | Tread pattern | Type | M+S | 3PMSF | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹ | Free section width S (mm) ¹ | Free diameter D (mm) ¹ | Static laden radius R' (mm) ¹ | Rolling circumference (mm) ¹ | Minimum dual spacing E (mm) ¹ |
|---------------|------------------|------|-----|-------|----|---|---|---|----|------------------|--|------------------------|---------------------------------------|--|-----------------------------------|--|---|--|
| | | | | | |  |  |  | dB | | | | | | | | | |
| 215/75 R 17.5 | X MULTI Z | TL | ✓ | ✓ | | D | B |  | 68 | 126/124M | S 3400 D 6400 | 6.90 | 237 | 217 | 770 | 357 | 2346 | 245 |
| | XTE 2+ | TL | | | | D | B |  | 67 | 135/133J | S 4360 D 8240 | 8.50 | 236 | 215 | 777 | 359 | 2370 | 243 |
| 225/75 R 17.5 | X MULTI D | TL | ✓ | ✓ | | D | C |  | 69 | 129/127M | S 3700 D 7000 | 7.20 | 257 | 234 | 790 | 366 | 2400 | 265 |
| | X MULTI Z | TL | ✓ | ✓ | | D | B |  | 68 | 129/127M | S 3700 D 7000 | 7.20 | 255 | 233 | 787 | 365 | 2407 | 264 |
| 235/75 R 17.5 | X LINE ENERGY T | TL | | | | B | B |  | 68 | 143/141J | S 5450 D 10300 | 8.50 | 270 | 246 | 793 | 363 | 2424 | 278 |
| | X MULTI D | TL | ✓ | ✓ | 16 | D | C |  | 69 | 132/130M | S 4000 D 7600 | 7.60 | 263 | 240 | 801 | 370 | 2433 | 272 |
| | X MULTI Z | TL | ✓ | ✓ | 16 | D | B |  | 69 | 132/130M | S 4000 D 7600 | 7.60 | 243 | 241 | 799 | 371 | 2439 | 273 |
| | XTE 2+ | TL | | | | C | B |  | 67 | 143/141J | S 5450 D 10300 | 8.50 | 266 | 241 | 796 | 363 | 2410 | 273 |
| 245/70 R 17.5 | X LINE ENERGY T | TL | | | | B | B |  | 68 | 143/141J | S 5450 D 10300 | 8.50 | 270 | 246 | 793 | 363 | 2424 | 278 |
| | X MULTI D | TL | ✓ | ✓ | | D | C |  | 69 | 136/134M | S 4480 D 8480 | 8.30 | 268 | 246 | 795 | 368 | 2415 | 278 |
| | X MULTI T | TL | | | | C | C |  | 67 | 143/141J | S 5450 D 10300 | 8.50 | 264 | 239 | 796 | 363 | 2432 | 271 |
| | X MULTI WINTER T | TL | ✓ | ✓ | | C | B |  | 72 | 143/141J | S 5450 D 10300 | 8.50 | 262 | 239 | 791 | 362 | 2422 | 271 |
| | X MULTI Z | TL | ✓ | ✓ | | D | B |  | 69 | 136/134M | S 4480 D 8480 | 8.30 | 269 | 246 | 793 | 366 | 2417 | 209 |
| | XTE 2+ | TL | | | | C | B |  | 67 | 143/141J | S 5450 D 10300 | 8.50 | 266 | 241 | 796 | 363 | 2410 | 273 |

| ETRTO overall design diameter (mm) | Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------|--|--|---|------|------|------|------|------|------|------|------|------|-------|-----|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 |
| 767 | 6.00 | | | | S | 2110 | 2330 | 2560 | 2780 | 3000 | 3220 | | | | | |
| | | | | | D | 3970 | 4390 | 4810 | 5230 | 5650 | 6070 | | | | | |
| 767 | 6.00 | | | | S | | | | 2950 | 3180 | 3420 | 3650 | 3890 | 4120 | 4360 | |
| | | | | | D | | | | 5570 | 6010 | 6460 | 6900 | 7350 | 7790 | 8240 | |
| 783 | 6.75 | | | | S | 2210 | 2440 | 2680 | 2900 | 3140 | 3380 | 3600 | | | | |
| | | | | | D | 4180 | 4640 | 5080 | 5520 | 5960 | 6400 | 6840 | | | | |
| 783 | 6.75 | | | | S | 2210 | 2440 | 2680 | 2900 | 3140 | 3380 | 3600 | | | | |
| | | | | | D | 4180 | 4640 | 5080 | 5520 | 5960 | 6400 | 6840 | | | | |
| 797 | 6.75 | | | | S | | | | 3680 | 3980 | 4270 | 4570 | 4860 | 5160 | 5450 | |
| | | | | | D | | | | 6960 | 7520 | 8070 | 8630 | 9190 | 9740 | 10300 | |
| 797 | 6.75 | | | | S | | 2520 | 2760 | 3000 | 3240 | 3480 | 3720 | 3960 | | | |
| | | | | | D | | 4760 | 5240 | 5680 | 6160 | 6600 | 7040 | 7520 | | | |
| 797 | 6.75 | | | | S | | 2520 | 2760 | 3000 | 3240 | 3480 | 3720 | 3960 | | | |
| | | | | | D | | 4760 | 5240 | 5680 | 6160 | 6600 | 7040 | 7520 | | | |
| 797 | 6.75 | | | | S | | | | 3680 | 3980 | 4270 | 4570 | 4860 | 5160 | 5450 | |
| | | | | | D | | | | 6960 | 7520 | 8070 | 8630 | 9190 | 9740 | 10300 | |
| 789 | 6.75 | 144/144F | S 5600 | 8.50 | S | | | | 3680 | 3980 | 4270 | 4570 | 4860 | 5160 | 5450 | |
| | | | D 11200 | | D | | | | 6960 | 7520 | 8070 | 8630 | 9190 | 9740 | 10300 | |
| 789 | 6.75 | | | | S | | | 2850 | 3090 | 3340 | 3590 | 3840 | 4080 | 4330 | | |
| | | | | | D | | | 5390 | 5860 | 6320 | 6790 | 7260 | 7730 | 8200 | | |
| 789 | 6.75 | 146/146F | S 6000 | 9.00 | S | | | | 3680 | 3980 | 4270 | 4570 | 4860 | 5160 | 5450 | |
| | | | D 12000 | | D | | | | 6960 | 7520 | 8070 | 8630 | 9190 | 9740 | 10300 | |
| 789 | 6.75 | 144/144F | S 5600 | 8.50 | S | | | | 3680 | 3980 | 4270 | 4570 | 4860 | 5160 | 5450 | |
| | | | D 11200 | | D | | | | 6960 | 7520 | 8070 | 8630 | 9190 | 9740 | 10300 | |
| 789 | 6.75 | | | | S | | | 2850 | 3090 | 3340 | 3590 | 3840 | 4080 | 4330 | | |
| | | | | | D | | | 5390 | 5860 | 6320 | 6790 | 7260 | 7730 | 8200 | | |
| 789 | 6.75 | 144/144F | S 5600 | 8.50 | S | | | | 3680 | 3980 | 4270 | 4570 | 4860 | 5160 | 5450 | |
| | | | D 11200 | | D | | | | 6960 | 7520 | 8070 | 8630 | 9190 | 9740 | 10300 | |

| Tyre size | Tread pattern | Type | M+S | 3PMSF | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹ | Free section width S (mm) ¹ | Free diameter D (mm) ¹ | Static laden radius R' (mm) ¹ | Rolling circumference (mm) ¹ | Minimum dual spacing E (mm) ¹ |
|--------------------------|-----------------|------|-----|-------|----|---|---|---|----|------------------|--|------------------------|---------------------------------------|--|-----------------------------------|--|---|--|
| | | | | | |  |  |  | dB | | | | | | | | | |
| 265/70 R 17.5 | X MULTI D | TL | ✓ | ✓ | | D | C |  | 72 | 140/138M | S 5000 D 9440 | 7,90 | 290 | 266 | 814 | 374 | 2472 | 301 |
| | X MULTI Z | TL | ✓ | ✓ | | D | B |  | 72 | 140/138M | S 5000 D 9440 | 7,90 | 289 | 266 | 816 | 376 | 2487 | 301 |
| RIM DIAMETER 19.5 INCHES | | | | | | | | | | | | | | | | | | |
| 245/70 R 19.5 | X MULTI D | TL | ✓ | ✓ | | D | C |  | 70 | 136/134M | S 4480 D 8480 | 7,90 | 264 | 241 | 847 | 394 | 2580 | 273 |
| | X MULTI Z | TL | ✓ | ✓ | 16 | D | B |  | 68 | 136/134M | S 4480 D 8480 | 7,90 | 246 | 243 | 845 | 393 | 2583 | 275 |
| 255/60 R 19.5 | X MAXI TRAILER | TL | | | | C | B |  | 67 | 143/141J | S 5450 D 10300 | 9,00 | 277 | 256 | 805 | 373 | 2469 | 290 |
| 265/70 R 19.5 | X LINE ENERGY T | TL | | | | B | B |  | 68 | 143/141J | S 5450 D 10300 | 8,50 | 290 | 265 | 862 | 399 | 2646 | 300 |
| | X MULTI D | TL | ✓ | ✓ | | D | C |  | 71 | 140/138M | S 5000 D 9440 | 7,60 | 286 | 262 | 868 | 402 | 2638 | 297 |
| | X MULTI Z | TL | ✓ | ✓ | 14 | D | B |  | 69 | 140/138M | S 5000 D 9440 | 7,60 | 287 | 259 | 864 | 400 | 2642 | 293 |
| | XDW ICE GRIP | TL | ✓ | ✓ | | E | C |  | 72 | 140/138L | S 5000 D 9440 | 7,60 | 288 | 264 | 875 | 405 | 2670 | 299 |
| | XTE 2 | TL | ✓ | | | D | B |  | 68 | 143/141J | S 5450 D 10300 | 8,50 | 286 | 265 | 870 | 403 | 2650 | 300 |
| | XTY 2 | TL | ✓ | ✓ | | D | B |  | 70 | 143/141J | S 5450 D 10300 | 8,50 | 285 | 263 | 873 | 403 | 2660 | 298 |
| 285/70 R 19.5 | XTA 2 ENERGY | TL | | | | C | B |  | 69 | 150/148J | S 6700 D 12600 | 9,00 | 309 | 285 | 890 | 409 | 2723 | 323 |
| | X MULTI D | TL | ✓ | ✓ | | D | C |  | 72 | 146/144L | S 6000 D 11200 | 8,30 | 276 | 273 | 897 | 412 | 2720 | 309 |
| | X MULTI Z | TL | ✓ | ✓ | | C | B |  | 70 | 146/144L | S 6000 D 11200 | 8,30 | 298 | 273 | 893 | 411 | 2721 | 309 |
| | XTE 2 | TL | ✓ | | | C | B |  | 68 | 150/148J | S 6700 D 12600 | 9,00 | 311 | 285 | 894 | 409 | 2732 | 323 |
| | | | | | | | | | | | | | | | | | | |

















| ETRTO overall design diameter (mm) | Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------|--|--|---|-----|------|------|------|------|------|-------|-------|-------|-------|-------|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 |
| 817 | 7.50 | | | | S | | | 3320 | 3620 | 3900 | 4200 | 4480 | 4760 | | | |
| | | | | | D | | | 6280 | 6840 | 7360 | 7920 | 8440 | 9000 | | | |
| 817 | 7.50 | | | | S | | | 3320 | 3620 | 3900 | 4200 | 4480 | 4760 | | | |
| | | | | | D | | | 6280 | 6840 | 7360 | 7920 | 8440 | 9000 | | | |
| | | | | | | | | | | | | | | | | |
| 839 | 6.75 | 136/135J | S 4480 D 8720 | 7,90 | S | | | 2980 | 3240 | 3500 | 3750 | 4010 | 4400 | | | |
| | | | | | D | | | 5640 | 6130 | 6620 | 7110 | 7600 | 8090 | | | |
| 839 | 6.75 | | | | S | | | 2980 | 3240 | 3500 | 3750 | 4010 | 4400 | | | |
| | | | | | D | | | 5640 | 6130 | 6620 | 7110 | 7600 | 8090 | | | |
| 801 | 7.50 | | | | S | | | | | 3770 | 4050 | 4330 | 4610 | 4890 | 5170 | 5450 |
| | | | | | D | | | | | 7130 | 7660 | 8190 | 8720 | 9240 | 9770 | 10300 |
| 867 | 7.50 | | | | S | | | | 3680 | 3980 | 4270 | 4570 | 4860 | 5160 | 5450 | |
| | | | | | D | | | | 6960 | 7520 | 8070 | 8630 | 9190 | 9740 | 10300 | |
| 867 | 7.50 | | | | S | | 3140 | 3440 | 3740 | 4040 | 4340 | 4640 | 4940 | | | |
| | | | | | D | | 5920 | 6520 | 7080 | 7640 | 8200 | 8760 | 9320 | | | |
| 867 | 7.50 | | | | S | | 3140 | 3440 | 3740 | 4040 | 4340 | 4640 | 4940 | | | |
| | | | | | D | | 5920 | 6520 | 7080 | 7640 | 8200 | 8760 | 9320 | | | |
| 867 | 7.50 | | | | S | | 3140 | 3440 | 3740 | 4040 | 4340 | 4640 | 4940 | | | |
| | | | | | D | | 5920 | 6520 | 7080 | 7640 | 8200 | 8760 | 9320 | | | |
| 867 | 7.50 | | | | S | | | | 3680 | 3980 | 4270 | 4570 | 4860 | 5160 | 5450 | |
| | | | | | D | | | | 6960 | 7520 | 8070 | 8630 | 9190 | 9740 | 10300 | |
| 867 | 7.50 | | | | S | | | | 3680 | 3980 | 4270 | 4570 | 4860 | 5160 | 5450 | |
| | | | | | D | | | | 6960 | 7520 | 8070 | 8630 | 9190 | 9740 | 10300 | |
| 895 | 8.25 | | | | S | | | | | 4640 | 4980 | 5330 | 5670 | 6010 | 6360 | 6700 |
| | | | | | D | | | | | 8720 | 9370 | 10020 | 10660 | 11310 | 11950 | 12600 |
| 895 | 7.50 | 145/143M | S 5800 D 10900 | 8,30 | S | | | 3810 | 4140 | 4480 | 4810 | 5140 | 5470 | 5800 | | |
| | | | | | D | | | 7120 | 7730 | 8350 | 8970 | 9590 | 10210 | 10830 | | |
| 895 | 7.50 | 145/143M | S 5800 D 10900 | 8,30 | S | | | 3810 | 4140 | 4480 | 4810 | 5140 | 5470 | 5800 | | |
| | | | | | D | | | 7120 | 7730 | 8350 | 8970 | 9590 | 10210 | 10830 | | |
| 895 | 8.25 | | | | S | | | | | 4640 | 4980 | 5330 | 5670 | 6010 | 6360 | 6700 |
| | | | | | D | | | | | 8720 | 9370 | 10020 | 10660 | 11310 | 11950 | 12600 |

| Tyre size | Tread pattern | Type | M+S | 3PMF | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹ | Free section width S (mm) ¹ | Free diameter D (mm) ¹ | Static laden radius R* (mm) ¹ | Rolling circumference (mm) ¹ | Minimum dual spacing E (mm) ¹ |
|--------------------------|-----------------|------|-----|------|----|---|---|---|----|------------------|--|------------------------|---------------------------------------|--|-----------------------------------|--|---|--|
| | | | | | |  |  |  | dB | | | | | | | | | |
| 305/70 R 19.5 | XDE 2+ | TL | ✓ | | | E | C |  | 74 | 147/145M | S 6150 D 11600 | 8.00 | 327 | 301 | 931 | 428 | 2830 | 341 |
| | XZE 2+ | TL | | | | D | B |  | 68 | 147/145M | S 6150 D 11600 | 8.00 | 328 | 301 | 924 | 423 | 2800 | 341 |
| 445/45 R 19.5 | X LINE ENERGY T | TL | | | | A | C |  | 71 | 160K | S 9000 | 9.00 | 457 | 430 | 896 | 411 | 2754 | |
| | XTA 2+ ENERGY | TL | ✓ | | | C | B |  | 70 | 160J | S 9000 | 9.00 | 463 | 436 | 903 | 413 | 2761 | |
| RIM DIAMETER 20 INCHES | | | | | | | | | | | | | | | | | | |
| 12.00 R 20 | XDY | TT | ✓ | | 18 | E | B |  | 74 | 154/150K | S 7500 D 13400 | 8.50 | 342 | 312 | 1134 | 529 | 3470 | 353 |
| | XZY-2 | TT | ✓ | | 18 | D | B |  | 69 | 154/150K | S 7500 D 13400 | 8.50 | 348 | 315 | 1127 | 524 | 3440 | 356 |
| RIM DIAMETER 22.5 INCHES | | | | | | | | | | | | | | | | | | |
| 10 R 22.5 | XZY | TL | | | | D | B |  | 69 | 144/142K | S 5600 D 10600 | 8.00 | 271 | 244 | 1017 | 473 | 3110 | 276 |
| 11 R 22.5 | X MULTI D | TL | ✓ | ✓ | 16 | E | B |  | 75 | 148/145L | S 6300 D 11600 | 8.00 | 297 | 268 | 1066 | 496 | 3234 | 303 |
| | X MULTI Z | TL | | | 16 | D | C |  | 68 | 148/145L | S 6300 D 11600 | 8.00 | 302 | 281 | 1048 | 492 | 3267 | 314 |
| | XZY 3 | TL | ✓ | | 16 | D | B |  | 69 | 148/145K | S 6300 D 11600 | 8.00 | 303 | 275 | 1060 | 493 | 3236 | 311 |
| | XDY 3 | TL | ✓ | | 16 | E | B |  | 71 | 148/145K | S 6300 D 11600 | 8.00 | 306 | 277 | 1065 | 496 | 3250 | 314 |
| | X INCITY Z | TL | ✓ | ✓ | 16 | D | C |  | 69 | 148/145J | S 6300 D 11600 | 8.30 | 308 | 282 | 1054 | 492 | 3221 | 320 |
| 12 R 22.5 | X MULTI D | TL | ✓ | ✓ | 18 | E | C |  | 72 | 152/149L | S 7100 D 13000 | 8.50 | TBD | TBD | TBD | TBD | TBD | TBD |
| | X MULTI Z | TL | | | 18 | D | B |  | 68 | 152/149L | S 7100 D 13000 | 8.50 | 323 | 296 | 1082 | 504,5 | 3314 | 338 |
| | XDY 3 | TL | ✓ | | 16 | E | B |  | 71 | 152/148K | S 7100 D 12600 | 8.50 | 320 | 290 | 1097 | 510 | 3350 | 328 |

Data for general indication only. For more data, please contact your Michelin representative. These values are for guidance only and under no circumstances may be used for judicial or legal motives. (1) Michelin source: measured values using Michelin preferred rim. (2) Unique point: provides additional load/speed operating conditions, in order to supply particular

| ETRTO overall design diameter (mm) | Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------|--|--|---|-----|-----|------|------|-------|-------|-------|-------|-------|-------|------|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 |
| 923 | 8.25 | 148/146L | S 6300 | 8.00 | S | | | 4040 | 4400 | 4740 | 5100 | 5440 | 5800 | 6150 | | |
| | | | D 12000 | | D | | | 7640 | 8280 | 8960 | 9600 | 10280 | 10920 | 11600 | | |
| 923 | 8.25 | 148/146L | S 6300 | 8.00 | S | | | 4040 | 4400 | 4740 | 5100 | 5440 | 5800 | 6150 | | |
| | | | D 12000 | | D | | | 7640 | 8280 | 8960 | 9600 | 10280 | 10920 | 11600 | | |
| 895 | 14.00 | | | | S | | | | | 6230 | 6690 | 7150 | 7620 | 8080 | 8540 | 9000 |
| | | | | | D | | | | | | | | | | | |
| 895 | 14.00 | | | | S | | | | | 6230 | 6690 | 7150 | 7620 | 8080 | 8540 | 9000 |
| | | | | | D | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 1122 | 8.50 | 156/150G | S 8000 | 8.50 | S | | | | 5070 | 5470 | 5880 | 6280 | 6690 | 7090 | 7500 | |
| | | | D 13400 | | D | | | | 9050 | 9780 | 10500 | 11230 | 11950 | 12680 | 13400 | |
| 1122 | 8.50 | 156/150G | S 8000 | 8.50 | S | | | | 5070 | 5470 | 5880 | 6280 | 6690 | 7090 | 7500 | |
| | | | D 13400 | | D | | | | 9050 | 9780 | 10500 | 11230 | 11950 | 12680 | 13400 | |
| | | | | | | | | | | | | | | | | |
| 1020 | 6.75 | | | | S | | | 3680 | 4000 | 4320 | 4640 | 4960 | 5280 | 5600 | | |
| | | | | | D | | | 6970 | 7570 | 8180 | 8780 | 9390 | 9990 | 10600 | | |
| 1050 | 7.50 | | | | S | | | 4140 | 4500 | 4860 | 5220 | 5580 | 5940 | 6300 | | |
| | | | | | D | | | 7620 | 8290 | 8950 | 9610 | 10270 | 10940 | 11600 | | |
| 1050 | 7.50 | | | | S | | | 4140 | 4500 | 4860 | 5220 | 5580 | 5940 | 6300 | | |
| | | | | | D | | | 7620 | 8290 | 8950 | 9610 | 10270 | 10940 | 11600 | | |
| 1050 | 7.50 | | | | S | | | 4140 | 4500 | 4860 | 5220 | 5580 | 5940 | 6300 | | |
| | | | | | D | | | 7620 | 8290 | 8950 | 9610 | 10270 | 10940 | 11600 | | |
| 1050 | 7.50 | | | | S | | | 4140 | 4500 | 4860 | 5220 | 5580 | 5940 | 6300 | | |
| | | | | | D | | | 7620 | 8290 | 8950 | 9610 | 10270 | 10940 | 11600 | | |
| 1050 | 7.50 | 151/148E | S 6900 | 8.30 | S | | | | 4350 | 4700 | 5050 | 5400 | 5740 | 6090 | | |
| | | | D 12600 | | D | | | 8010 | 8650 | 9290 | 9930 | 10570 | 11220 | | | |
| 1084 | 8.25 | | | | S | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | | |
| | | | | | D | | | 8780 | 9490 | 10190 | 10890 | 11590 | 12300 | 13000 | | |
| 1084 | 8.25 | | | | S | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | | |
| | | | | | D | | | 8780 | 9490 | 10190 | 10890 | 11590 | 12300 | 13000 | | |
| 1084 | 8.25 | | | | S | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | | |
| | | | | | D | | | 8510 | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | | |

















requirements. The indicated variations in load with respect to speed do not apply to the unique point. Not all listings are available in our market and some products have been approved for sale after the printing of this brochure. Please refer to a full list of technical specifications for all our products at trucks.michelin.co.uk

| Tyre size | Tread pattern | Type | M+S | 3PMSE | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹⁾ | Free section width S (mm) ¹⁾ | Free diameter D (mm) ¹⁾ | Static laden radius R' (mm) ¹⁾ | Rolling circumference (mm) ¹⁾ | Minimum dual spacing E (mm) ¹⁾ |
|---------------|---------------|------|-----|-------|----|-----------|---|---|----|------------------|--|------------------------|--|---|------------------------------------|---|--|---|
| | | | | | | | | | | | | | | | | | | |
| 12 R 22.5 | XZY-2 | TL | ✓ | | 16 | D | B |  | 69 | 152/148K | S 7100 D 12600 | 8.50 | 328 | 291 | 1092 | 507 | 3330 | 329 |
| 13 R 22.5 | XZE 2 | TL | | | 18 | D | B |  | 68 | 156/150L | S 8000 D 13400 | 8.50 | 343 | 310 | 1122 | 520 | 3420 | 351 |
| | X WORKS D | TL | ✓ | ✓ | | C | B |  | 74 | 156/150K | S 8000 D 13400 | 8.50 | 342 | 307 | 1120 | 520 | 3400 | 347 |
| | X WORKS HD D | TL | ✓ | | 18 | D | B |  | 73 | 156/151K | S 8000 D 13400 | 8.50 | 343 | 306 | 1129 | 524 | 3430 | 349 |
| | X WORKS HD Z | TL | ✓ | | 18 | D | B |  | 69 | 156/151K | S 8000 D 13400 | 8.50 | 340 | 307 | 1122 | 523 | 3425 | 349 |
| | X WORKS XDY | TL | ✓ | | 18 | D | B |  | 73 | 156/150K | S 8000 D 13400 | 8.50 | 341 | 308 | 1130 | 525 | 3430 | 349 |
| | X WORKS XZY | TL | ✓ | | 18 | D | B |  | 68 | 156/150K | S 8000 D 13400 | 8.50 | 343 | 309 | 1122 | 520 | 3425 | 350 |
| | X WORKS Z | TL | ✓ | | | C | B |  | 69 | 156/150K | S 8000 D 13400 | 8.50 | 344 | 306.8 | 1110 | 514 | 3401 | 347 |
| | | | | | | | | | | | | | | | | | | |
| 275/70 R 22.5 | XTA 2 ENERGY | TL | | | | C | B |  | 69 | 152/148J | S 7100 D 12600 | 9.00 | 298 | 271 | 954 | 440 | 2224 | 307 |
| | X MULTI D | TL | ✓ | ✓ | 18 | D | C |  | 72 | 148/145L | S 6300 D 11600 | 9.00 | 298 | 274 | 958 | 446 | 2929 | 310 |
| | X MULTI Z | TL | | | 18 | D | B |  | 69 | 148/145L | S 6300 D 11600 | 9.00 | 302 | 278 | 959 | 447.5 | 2942 | 311 |
| | XDW ICE GRIP | TL | ✓ | ✓ | | E | C |  | 72 | 148/145L | S 6300 D 11600 | 9.00 | 299 | 275.5 | 970 | 452 | 2970 | 311 |
| | XTY 2 | TL | ✓ | ✓ | 16 | D | B |  | 70 | 148/145J | S 6300 D 11600 | 9.00 | 298 | 276 | 970 | 450 | 2960 | 312 |
| | X INCITY HL Z | TL | ✓ | ✓ | 18 | D | C |  | 70 | 150/145J | S 6700 D 11600 | 9.00 | 305 | 277 | 968 | 448 | 2953 | 314 |
| | X INCITY XZU | TL | ✓ | ✓ | 16 | D | B |  | 69 | 148/145J | S 6300 D 11600 | 9.00 | 302 | 278 | 967 | 450 | 2950 | 315 |
| 275/80 R 22.5 | X MULTI D | TL | ✓ | | 16 | E | C |  | 72 | 149/146L | S 6500 D 12000 | 8.50 | 305 | 278 | 1035 | 482 | 3162 | 315 |

Data for general indication only. For more data, please contact your Michelin representative. These values are for guidance only and under no circumstances may be used for judicial or legal motives. (1) Michelin source: measured values using Michelin preferred rim. (2) Unique point: provides additional load/speed operating conditions, in order to supply particular

| ETRTO overall design diameter (mm) | Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------|--|--|---|-----|-----|-----|------|------|-------|-------|-------|-------|-------|-------|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 |
| 1084 | 8.25 | | | | S | | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | |
| | | | | | D | | | | 8510 | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | |
| 1124 | 9.00 | | | | S | | | | 5400 | 5840 | 6280 | 6700 | 7140 | 7560 | 8000 | |
| | | | | | D | | | | 9040 | 9760 | 10520 | 11240 | 11960 | 12680 | 13400 | |
| 1124 | 9.00 | | | | S | | | | 5400 | 5840 | 6280 | 6700 | 7140 | 7560 | 8000 | |
| | | | | | D | | | | 9040 | 9760 | 10520 | 11240 | 11960 | 12680 | 13400 | |
| 1124 | 9.00 | 158/152G | S 8500 D 14200 | 9.00 | S | | | | 5400 | 5840 | 6280 | 6700 | 7140 | 7560 | 8000 | |
| | | | | | D | | | | 9040 | 9760 | 10520 | 11240 | 11960 | 12680 | 13400 | |
| 1124 | 9.00 | 158/152G | S 8500 D 14200 | 9.00 | S | | | | 5400 | 5840 | 6280 | 6700 | 7140 | 7560 | 8000 | |
| | | | | | D | | | | 9040 | 9760 | 10520 | 11240 | 11960 | 12680 | 13400 | |
| 1124 | 9.00 | 158/152G | | | S | | | | 5400 | 5840 | 6280 | 6700 | 7140 | 7560 | 8000 | |
| | | | | | D | | | | 9040 | 9760 | 10520 | 11240 | 11960 | 12680 | 13400 | |
| 1124 | 9.00 | 158/152G | | | S | | | | 5400 | 5840 | 6280 | 6700 | 7140 | 7560 | 8000 | |
| | | | | | D | | | | 9040 | 9760 | 10520 | 11240 | 11960 | 12680 | 13400 | |
| 1124 | 9.00 | 158/152G | | | S | | | | 5400 | 5840 | 6280 | 6700 | 7140 | 7560 | 8000 | |
| | | | | | D | | | | 9040 | 9760 | 10520 | 11240 | 11960 | 12680 | 13400 | |
| 1124 | 9.00 | 158/152G | | | S | | | | 5400 | 5840 | 6280 | 6700 | 7140 | 7560 | 8000 | |
| | | | | | D | | | | 9040 | 9760 | 10520 | 11240 | 11960 | 12680 | 13400 | |
| 958 | 7.50 | | | | S | | | | | 4920 | 5280 | 5640 | 6010 | 6370 | 6740 | 7100 |
| | | | | | D | | | | | 8720 | 9370 | 10020 | 10660 | 11310 | 11950 | 12600 |
| 958 | 7.50 | | S 6500 D 12000 | 9.00 | S | | | | | 4360 | 4680 | 5010 | 5330 | 5650 | 5980 | 6300 |
| | | | | | D | | | | | 8030 | 8630 | 9220 | 9820 | 10410 | 11010 | 11600 |
| 958 | 7.50 | | S 6500 D 12000 | 9.00 | S | | | | | 4360 | 4680 | 5010 | 5330 | 5650 | 5980 | 6300 |
| | | | | | D | | | | | 8030 | 8630 | 9220 | 9820 | 10410 | 11010 | 11600 |
| 958 | 7.50 | | | | S | | | | | 4360 | 4680 | 5010 | 5330 | 5650 | 5980 | 6300 |
| | | | | | D | | | | | 8030 | 8630 | 9220 | 9820 | 10410 | 11010 | 11600 |
| 958 | 7.50 | | | | S | | | | | 4360 | 4680 | 5010 | 5330 | 5650 | 5980 | 6300 |
| | | | | | D | | | | | 8030 | 8630 | 9220 | 9820 | 10410 | 11010 | 11600 |
| 958 | 7.50 | | | | S | | | | | 4640 | 4980 | 5330 | 5670 | 6010 | 6360 | 6700 |
| | | | | | D | | | | | 8030 | 8630 | 9220 | 9820 | 10410 | 11010 | 11600 |
| 958 | 7.50 | 152/148E | S 7100 D 12600 | 9.00 | S | | | | | 4360 | 4680 | 5010 | 5330 | 5650 | 5980 | 6300 |
| | | | | | D | | | | | 8030 | 8630 | 9220 | 9820 | 10410 | 11010 | 11600 |
| 1012 | 7.50 | | | | S | | | | 4390 | 4740 | 5090 | 5450 | 5800 | 6150 | 6500 | |
| | | | | | D | | | | 8110 | 8760 | 9410 | 10050 | 10700 | 11350 | 12000 | |




















requirements. The indicated variations in load with respect to speed do not apply to the unique point. Not all listings are available in our market and some products have been approved for sale after the printing of this brochure. Please refer to a full list of technical specifications for all our products at trucks.michelin.co.uk

| Tyre size | Tread pattern | Type | M+S | 3PMSE | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹⁾ | Free section width S (mm) ¹⁾ | Free diameter D (mm) ¹⁾ | Static laden radius R' (mm) ¹⁾ | Rolling circumference (mm) ¹⁾ | Minimum dual spacing E (mm) ¹⁾ |
|---------------|-------------------|------|-----|-------|----|-----------|---|---|----|------------------|--|------------------------|--|---|------------------------------------|---|--|---|
| | | | | | | | | | dB | | | | | | | | | |
| 275/80 R 22.5 | X MULTI Z | TL | | | 16 | D | C |  | 69 | 149/146L | S 6500 D 12000 | 8.50 | 306 | 278 | 1019 | 474 | 3113 | 315 |
| | XZE 2+ | TL | ✓ | | 16 | D | C |  | 68 | 149/146L | S 6500 D 12000 | 8.50 | 306 | 279 | 1025 | 476 | 3130 | 316 |
| 295/60 R 22.5 | X LINE ENERGY D | TL | ✓ | ✓ | | B | B |  | 70 | 150/147K | S 6700 D 12300 | 9.00 | 323 | 298.1 | 920 | 425 | 2824 | 337 |
| | X LINE ENERGY Z | TL | ✓ | | | B | B |  | 70 | 150/147L | S 6700 D 12300 | 9.00 | 320 | 298.9 | 917 | 425 | 2822 | 338 |
| | XDA 2+ ENERGY | TL | ✓ | ✓ | | D | C |  | 73 | 150/147K | S 6700 D 12300 | 9.00 | 312 | 289 | 928 | 429 | 2830 | 330 |
| | XZA 2 ENERGY | TL | ✓ | | | C | B |  | 68 | 150/147K | S 6700 D 12300 | 9.00 | 311 | 290 | 918 | 424 | 2800 | 330 |
| | X MULTI D | TL | ✓ | ✓ | | D | C |  | 74 | 150/147L | S 6700 D 12300 | 9.00 | 323 | 300 | 928 | 432 | 2829 | 339 |
| | X MULTIWAY XD | TL | ✓ | ✓ | | E | C |  | 76 | 150/147K | S 6700 D 12300 | 9.00 | 312 | 289 | 927 | 430 | 2809 | 330 |
| | XDA 2+ ENERGY | TL | ✓ | ✓ | | D | C |  | 73 | 152/148M | S 7100 D 12600 | 8.50 | 327 | 300 | 1055 | 491 | 3215 | 339 |
| 295/80 R 22.5 | XZA 2 ENERGY | TL | | | | C | C |  | 67 | 152/148M | S 7100 D 12600 | 8.50 | 327 | 299 | 1048 | 486 | 3212 | 338 |
| | X MULTI HD Z | TL | ✓ | | | C | B |  | 69 | 152/148L | S 7100 D 12600 | 8.50 | 328 | 299 | 1053 | 490 | 3230 | 326 |
| | X MULTI WINTER Z | TL | ✓ | ✓ | 18 | D | B |  | 73 | 154/149L | S 7500 D 13000 | 8.50 | 329 | 299 | 1060 | 491 | 1771 | 335 |
| | X MULTIWAY 3D XDE | TL | ✓ | ✓ | | D | C |  | 75 | 152/148L | S 7100 D 12600 | 8.50 | 328 | 297 | 1061 | 492 | 3228 | 336 |
| | X MULTIWAY 3D XZE | TL | ✓ | ✓ | | C | B |  | 72 | 152/148M | S 7100 D 12600 | 8.50 | 328 | 297 | 1054 | 488 | 3221 | 336 |
| | XDW ICE GRIP | TL | ✓ | ✓ | | E | C |  | 72 | 152/149L | S 7100 D 12600 | 8.50 | 329 | 300 | 1066 | 496 | 3260 | 330 |
| | X WORKS Z | TL | ✓ | | 18 | D | B |  | 68 | 152/149K | S 7100 D 13000 | 8.50 | 327 | 298 | 1060 | 493 | 3239 | 326 |

Data for general indication only. For more data, please contact your Michelin representative. These values are for guidance only and under no circumstances may be used for judicial or legal motives. (1) Michelin source: measured values using Michelin preferred rim. (2) Unique point: provides additional load/speed operating conditions, in order to supply particular

| ETRTO overall design diameter (mm) | Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------|--|--|---|-----|-----|-----|------|------|------|-------|-------|-------|-------|-------|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 |
| 1012 | 7.50 | | | | S | | | | 4390 | 4740 | 5090 | 5450 | 5800 | 6150 | 6500 | |
| | | | | | D | | | | 8110 | 8760 | 9410 | 10050 | 10700 | 11350 | 12000 | |
| 1012 | 7.50 | | | | S | | | | 4390 | 4740 | 5090 | 5450 | 5800 | 6150 | 6500 | |
| | | | | | D | | | | 8110 | 8760 | 9410 | 10050 | 10700 | 11350 | 12000 | |
| 926 | 9.00 | | | | S | | | | | 4640 | 4980 | 5330 | 5670 | 6010 | 6360 | 6700 |
| | | | | | D | | | | | 8520 | 9150 | 9780 | 10410 | 11040 | 11670 | 12300 |
| 926 | 9.00 | | | | S | | | | | 4640 | 4980 | 5330 | 5670 | 6010 | 6360 | 6700 |
| | | | | | D | | | | | 8520 | 9150 | 9780 | 10410 | 11040 | 11670 | 12300 |
| 926 | 9.00 | 149/146L | S 6500 D 12000 | 9.00 | S | | | | | 4640 | 4980 | 5330 | 5670 | 6010 | 6360 | 6700 |
| | | | | | D | | | | | 8520 | 9150 | 9780 | 10410 | 11040 | 11670 | 12300 |
| 926 | 9.00 | 149/146L | S 6500 D 12000 | 8.50 | S | | | | | 4640 | 4980 | 5330 | 5670 | 6010 | 6360 | 6700 |
| | | | | | D | | | | | 8520 | 9150 | 9780 | 10410 | 11040 | 11670 | 12300 |
| 926 | 9.00 | | | | S | | | | | 4640 | 4980 | 5330 | 5670 | 6010 | 6360 | 6700 |
| | | | | | D | | | | | 8520 | 9150 | 9780 | 10410 | 11040 | 11670 | 12300 |
| 926 | 9.00 | 149/146L | S 6500 D 12000 | 9.00 | S | | | | | 4640 | 4980 | 5330 | 5670 | 6010 | 6360 | 6700 |
| | | | | | D | | | | | 8520 | 9150 | 9780 | 10410 | 11040 | 11670 | 12300 |
| 1044 | 8.25 | | | | S | | | | 4800 | 5180 | 5560 | 5940 | 6340 | 6720 | 7100 | |
| | | | | | D | | | | | 8510 | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 |
| 1044 | 8.25 | | | | S | | | | 4800 | 5180 | 5560 | 5940 | 6340 | 6720 | 7100 | |
| | | | | | D | | | | | 8510 | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 |
| 1044 | 8.25 | | | | S | | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | |
| | | | | | D | | | | | 8510 | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 |
| 1044 | 8.25 | 153/150J | S 7300 D 13400 | 8.75 | S | | | | 5070 | 5470 | 5880 | 6280 | 6690 | 7090 | 7500 | |
| | | | | | D | | | | | 9290 | 9490 | 10190 | 10890 | 11590 | 12300 | 13000 |
| 1044 | 8.25 | | | | S | | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | |
| | | | | | D | | | | | 8510 | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 |
| 1044 | 8.25 | | | | S | | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | |
| | | | | | D | | | | | 8510 | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 |
| 1044 | 8.25 | 153/150J | S 7300 D 13400 | 8.75 | S | | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | |
| | | | | | D | | | | | 8780 | 9490 | 10190 | 10890 | 11590 | 12300 | 13000 |
| 1044 | 8.25 | 154/150J | S 7500 D 13400 | 8.50 | S | | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | |
| | | | | | D | | | | | 8780 | 9490 | 10190 | 10890 | 11590 | 12300 | 13000 |

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| Tyre size | Tread pattern | Type | M+S | 3PMSF | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹⁾ | Free section width S (mm) ¹⁾ | Free diameter D (mm) ¹⁾ | Static laden radius R' (mm) ¹⁾ | Rolling circumference (mm) ¹⁾ | Minimum dual spacing E (mm) ¹⁾ |
|---------------|-----------------|------|-----|-------|----|---|---|---|----|------------------|--|------------------------|--|---|------------------------------------|---|--|---|
| | | | | | |  |  |  | dB | | | | | | | | | |
| 295/80 R 22.5 | XDY+ | TL | ✓ | | | E | B |  | 74 | 152/148K | S 7100 D 12600 | 8.50 | 328 | 300 | 1064 | 495 | 3239 | 330 |
| | X COACH HL Z | TL | | | | C | B |  | 69 | 154/149M | S 7500 D 13000 | 8.50 | 329 | 299 | 1055 | 488 | 3229 | 338 |
| | X COACH XD | TL | ✓ | ✓ | | E | C |  | 72 | 152/148M | S 7100 D 12600 | 8.50 | 329 | 300 | 1062 | 494 | 3223 | 339 |
| | X COACH Z | TL | ✓ | ✓ | | C | B |  | 71 | 154/150M | S 7500 D 6700 | 8.50 | 337 | 307 | 1052 | 486 | 3305 | 345 |
| | X INCITY XZU 3+ | TL | ✓ | ✓ | 16 | D | C |  | 70 | 152/148J | S 7100 D 12600 | 8.50 | 328 | 297 | 1056 | 491 | 3225 | 336 |
| 305/70 R 22.5 | XDA 2+ ENERGY | TL | ✓ | ✓ | | C | C |  | 73 | 152/148L | S 7100 D 12600 | 9.00 | 325 | 299 | 1002 | 466 | 3064 | 340 |
| | XZA 2 ENERGY | TL | | | 16 | C | B |  | 67 | 152/148L | S 7100 D 12600 | 9.00 | 324 | 300 | 995 | 460 | 3030 | 339 |
| | X MULTI Z | TL | ✓ | ✓ | 20 | C | C |  | 70 | 152/150L | S 7100 D 13400 | 9.00 | 333 | 308 | 1010 | 471 | 3093 | 340 |
| | XDE 2+ | TL | ✓ | | | E | C |  | 74 | 152/148L | S 7100 D 13400 | 9.00 | 325 | 301 | 1006 | 467 | 3070 | 340 |
| | X INCITY Z | TL | ✓ | ✓ | | D | C |  | 69 | 153/150J | S 7300 D 13400 | 9.00 | 338 | 312 | 1003 | 467 | 3053 | 353 |
| 315/60 R 22.5 | X ENERGY XF | TL | ✓ | | | C | B |  | 68 | 154/148L | S 7500 D 12600 | 9.00 | 340 | 316 | 950 | 439 | 2912 | 350 |
| | X LINE ENERGY D | TL | ✓ | ✓ | | B | C |  | 72 | 152/148L | S 7100 D 12600 | 9.00 | 339 | 312 | 949 | 441 | 2907 | 352 |
| | X LINE ENERGY Z | TL | ✓ | | | B | B |  | 70 | 154/148L | S 7500 D 12600 | 9.00 | 336 | 312 | 946 | 436 | 2908 | 353 |
| | XDA 2+ ENERGY | TL | ✓ | ✓ | | D | C |  | 73 | 152/148L | S 7100 D 12600 | 9.00 | 337 | 313 | 964 | 447 | 2940 | 350 |
| | XZA 2 ENERGY | TL | | | | C | B |  | 68 | 152/148L | S 7100 D 12600 | 9.00 | 335 | 314 | 953 | 441 | 2900 | 350 |
| | X MULTI D | TL | ✓ | ✓ | | D | C |  | 74 | 152/148L | S 7100 D 12600 | 9.00 | 336 | 313 | 956 | 444 | 2916 | 354 |

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| ETRTO overall design diameter (mm) | Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------|--|--|---|-----|------|------|------|-------|-------|-------|-------|-------|-------|-------|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 |
| 1044 | 8.25 | | | | S | | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | |
| | | | D | | | | 8510 | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | | | |
| 1044 | 8.25 | | | | S | | | | 5070 | 5470 | 5880 | 6280 | 6690 | 7090 | 7500 | |
| | | | D | | | | | 9290 | 9490 | 10190 | 10890 | 11590 | 12300 | 13000 | | |
| 1044 | 8.25 | 154L | S 7500 | 8.50 | S | | | | 4800 | 5180 | 5560 | 5940 | 6340 | 6720 | 7100 | |
| | | | D | | | | | 8510 | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | | |
| 1072 | 8.25 22.5 | | | | S | | | 4660 | 5070 | 5470 | 5880 | 6280 | 6690 | 7090 | 7500 | |
| | | | D | | | | 8590 | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 | | |
| 1044 | 8.25 | 154/150E | S 7500 | 8.75 | S | | | | 4800 | 5180 | 5560 | 5950 | 6330 | 6720 | 7100 | |
| | | | D 13400 | | D | | | | 8510 | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | |
| 1000 | 8.25 | 150/147M | S 6700 | 8.50 | S | | | | | 4920 | 5280 | 5640 | 6010 | 6370 | 6740 | 7100 |
| | | | D 12300 | | D | | | | | 8720 | 9370 | 10020 | 10660 | 11310 | 11950 | 12600 |
| 1000 | 8.25 | 150/147M | S 6700 | 8.50 | S | | | | | 4920 | 5280 | 5640 | 6010 | 6370 | 6740 | 7100 |
| | | | D 12300 | | D | | | | | 8720 | 9370 | 10020 | 10660 | 11310 | 11950 | 12600 |
| 1000 | 8.25 | | | | S | | | | | 4920 | 5280 | 5640 | 6010 | 6370 | 6740 | 7100 |
| | | | D | | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 | |
| 1000 | 8.25 | 150/147M | S 6700 | 8.50 | S | | | | | 4920 | 5280 | 5640 | 6010 | 6370 | 6740 | 7100 |
| | | | D 12300 | | D | | | | | 8720 | 9370 | 10020 | 10660 | 11310 | 11950 | 12600 |
| 1000 | 8.25 | | | | S | | | | | 5050 | 5430 | 5800 | 6180 | 6550 | 6930 | 7300 |
| | | | D | | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 | |
| 950 | 9.00 | | | | S | | | | | 5190 | 5580 | 5960 | 6350 | 6730 | 7120 | 7500 |
| | | | D | | | | | | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | | |
| 950 | 9.00 | | | | S | | | | | 4920 | 5280 | 5640 | 6010 | 6370 | 6740 | 7100 |
| | | | D | | | | | | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | | |
| 950 | 9.00 | | | | S | | | | | 5190 | 5580 | 5960 | 6350 | 6730 | 7120 | 7500 |
| | | | D | | | | | | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | | |
| 950 | 9.00 | | | | S | | | | | 4920 | 5280 | 5640 | 6010 | 6370 | 6740 | 7100 |
| | | | D | | | | | | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | | |
| 950 | 9.00 | | | | S | | | | | 4920 | 5280 | 5640 | 6010 | 6370 | 6740 | 7100 |
| | | | D | | | | | | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | | |
| 950 | 9.00 | | | | S | | | | | 4920 | 5280 | 5640 | 6010 | 6370 | 6740 | 7100 |
| | | | D | | | | | | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | | |

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150 | TECHNICAL CHARACTERISTICS

| Tyre size | Tread pattern | Type | M+S | 3PMSF | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹⁾ | Free section width S (mm) ¹⁾ | Free diameter D (mm) ¹⁾ | Static laden radius R' (mm) ¹⁾ | Rolling circumference (mm) ¹⁾ | Minimum dual spacing E (mm) ¹⁾ |
|---------------|-------------------|------|-----|-------|----|-----------|---|--|----|------------------|--|------------------------|--|---|------------------------------------|---|--|---|
| | | | | | | | | | dB | | | | | | | | | |
| 315/70 R 22.5 | X MULTIWAY XD | TL | ✓ | ✓ | | F | C | | 76 | 152/148L | S 7100 D 12600 | 9.00 | 337 | 314 | 962 | 447 | 2921 | 350 |
| | X LINE ENERGY D | TL | ✓ | | | B | C | | 71 | 154/150L | S 7500 D 13400 | 9.00 | 341 | 311 | 1016 | 472 | 3113 | 352 |
| | X LINE ENERGY D2 | TL | ✓ | ✓ | | A | B | | 70 | 154/150L | S 7500 D 13400 | 9.00 | 343 | 316 | 1012 | 470 | 3094 | 358 |
| | X LINE ENERGY Z | TL | | | | B | B | | 69 | 156/150L | S 8000 D 13400 | 9.00 | 349 | 316 | 1015 | 470 | 3119 | 358 |
| | X MULTI D | TL | ✓ | ✓ | | D | C | | 75 | 154/150L | S 7500 D 13400 | 9.00 | 338 | 316 | 1017 | 475 | 3103 | 358 |
| | X MULTI ENERGY D | TL | ✓ | ✓ | | C | B | | 72 | 154/150L | S 7500 D 13400 | 9.00 | 343 | 317 | 1012 | 471 | 3094 | 359 |
| | X MULTI ENERGY Z | TL | ✓ | | | B | B | | 72 | 156/150L | S 8000 D 13400 | 9.00 | 346 | 317.3 | 1015 | 469 | 3094 | 359 |
| | X MULTI Z | TL | ✓ | ✓ | | C | B | | 72 | 156/150L | S 8000 D 13400 | 9.00 | 345 | 318.2 | 1014 | 468 | 3097 | 360 |
| | X MULTIWAY 3D XDE | TL | ✓ | ✓ | | D | C | | 75 | 154/150L | S 7500 D 13400 | 9.00 | 342 | 316 | 1020 | 475 | 3109 | 358 |
| | X MULTIWAY 3D XZE | TL | ✓ | ✓ | | C | B | | 72 | 156/150L | S 8000 D 13400 | 9.00 | 345 | 317 | 1014 | 469 | 3099 | 359 |
| | XDW ICE GRIP | TL | ✓ | ✓ | | D | C | | 72 | 154/150L | S 7500 D 13400 | 9.00 | 339 | 318 | 1018 | 473 | 3110 | 350 |
| | XFN 2 ANTISPLASH | TL | ✓ | ✓ | | D | C | | 72 | 154L | S 7500 | 9.00 | 345 | 317.8 | 1018 | 471 | 3106 | 350 |
| 315/80 R 22.5 | X LINE ENERGY D | TL | ✓ | ✓ | | B | C | | 69 | 156/150L | S 8000 D 13400 | 8.50 | 350 | 316 | 1080 | 499 | 3363 | 358 |
| | X LINE ENERGY Z | TL | | | | B | B | | 69 | 156/150L | S 8000 D 13400 | 8.50 | 346 | 315 | 1075 | 496 | 3357 | 356 |
| | XTA | TL | | | | C | B | | 69 | 154/150M | S 7500 D 6700 | 8.50 | 346 | 317 | 1080 | 501 | 3296 | 350 |
| | X MULTIWAY 3D XDE | TL | ✓ | ✓ | | D | C | | 75 | 156/150L | S 8000 D 13400 | 8.50 | 350 | 318 | 1087 | 504 | 3303 | 360 |

Data for general indication only. For more data, please contact your Michelin representative. These values are for guidance only and under no circumstances may be used for judicial or legal motives. (1) Michelin source: measured values using Michelin preferred rim. (2) Unique point: provides additional load/speed operating conditions, in order to supply particular

| ETRTO overall design diameter (mm) | Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------|--|--|---|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 |
| 950 | 9.00 | | | | S | | | | | 4920 | 5280 | 5640 | 6010 | 6370 | 6740 | 7100 |
| | | | | | D | | | | | 9190 | 9880 | 10560 | 11240 | 11920 | 12600 | |
| 1014 | 9.00 | | | | S | | | | | 5190 | 5580 | 5960 | 6350 | 6730 | 7120 | 7500 |
| | | | | | D | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 |
| 1014 | 9.00 | | | | S | | | | | 5190 | 5580 | 5960 | 6350 | 6730 | 7120 | 7500 |
| | | | | | D | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 |
| 1014 | 9.00 | | | | S | | | | | 5540 | 5940 | 6360 | 6760 | 7180 | 7580 | 8000 |
| | | | | | D | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 |
| 1014 | 9.00 | | | | S | | | | | 5190 | 5580 | 5960 | 6350 | 6730 | 7120 | 7500 |
| | | | | | D | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 |
| 1014 | 9.00 | | | | S | | | | | 5190 | 5580 | 5960 | 6350 | 6730 | 7120 | 7500 |
| | | | | | D | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 |
| 1014 | 9.00 | | | | S | | | | | 5540 | 5940 | 6360 | 6760 | 7180 | 7580 | 8000 |
| | | | | | D | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 |
| 1014 | 9.00 | | | | S | | | | | 5540 | 5950 | 6360 | 6770 | 7180 | 7590 | 8000 |
| | | | | | D | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 |
| 1014 | 9.00 | | | | S | | | | | 5190 | 5580 | 5960 | 6350 | 6730 | 7120 | 7500 |
| | | | | | D | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 |
| 1014 | 9.00 | | | | S | | | | | 5190 | 5580 | 5960 | 6350 | 6730 | 7120 | 7500 |
| | | | | | D | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 |
| 1014 | 9.00 | | | | S | | | | | 5190 | 5580 | 5960 | 6350 | 6730 | 7120 | 7500 |
| | | | | | D | | | | | 9280 | 9960 | 10650 | 11340 | 12030 | 12710 | 13400 |
| 1076 | 9.00 | 154/150M | S 7500 | 8.00 | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | D 13400 | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | 154/150M | S 7500 | 8.00 | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | D 13400 | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1106 | 9.00 | | | | S | | | 5070 | 5070 | 5470 | 5880 | 6280 | 6690 | 7090 | 7500 | |
| | | | D | | | 8800 | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | | | |
| 1076 | 9.00 | 154/150M | S 7500 | 8.00 | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | D 13400 | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |

















requirements. The indicated variations in load with respect to speed do not apply to the unique point. Not all listings are available in our market and some products have been approved for sale after the printing of this brochure. Please refer to a full list of technical specifications for all our products at trucks.michelin.co.uk

| Tyre size | Tread pattern | Type | M+S | 3PMSE | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹ | Free section width S (mm) ¹ | Free diameter D (mm) ¹ | Static laden radius R' (mm) ¹ | Rolling circumference (mm) ¹ | Minimum dual spacing E (mm) ¹ |
|---------------|-------------------------|------|-----|-------|----|---|---|---|----|------------------|--|------------------------|---------------------------------------|--|-----------------------------------|--|---|--|
| | | | | | |  |  |  | dB | | | | | | | | | |
| 315/80 R 22.5 | X MULTIWAY 3D XZE | TL | ✓ | ✓ | | C | B |  | 72 | 156/150L | S 8000 D 13400 | 8.50 | 349 | 316 | 1081 | 501 | 3302 | 358 |
| | XDE 2+ | TL | ✓ | | | E | C |  | 75 | 156/150L | S 8000 D 13400 | 8.50 | 347 | 318 | 1095 | 507 | 3320 | 350 |
| | XDW ICE GRIP | TL | ✓ | ✓ | | E | C |  | 72 | 156/150L | S 8000 D 13400 | 8.50 | 348 | 315 | 1090 | 504 | 3320 | 350 |
| | XFN 2+ | TL | ✓ | ✓ | 18 | D | C |  | 72 | 156/150L | S 8000 D 13400 | 8.50 | 350 | 318 | 1082 | 501 | 3297 | 360 |
| | XZ ALL ROADS | TL | ✓ | | | C | B |  | 68 | 156/150L | S 8000 D 6700 | 8.50 | 348 | 318 | 1083 | 501 | 3331 | 360 |
| | XD ALL ROADS | TL | ✓ | | | E | B |  | 75 | 156/150L | S 8000 D 6700 | 8.50 | 347 | 318 | 1095 | 507 | 3357 | 360 |
| | X WORKS D | TL | ✓ | ✓ | | C | B |  | 75 | 156/150K | S 8000 D 13400 | 8.50 | 342 | 312 | 1072 | 498 | 3253 | 353 |
| | X WORKS HD D | TL | ✓ | | | D | B |  | 73 | 156/150K | S 8000 D 13400 | 8.50 | 348 | 317 | 1091 | 507 | 3312 | 359 |
| | X WORKS HD Z | TL | ✓ | | | C | B |  | 68 | 156/150K | S 8000 D 13400 | 8.50 | 348 | 317 | 1080 | 502 | 3308 | 359 |
| | X WORKS XDY | TL | ✓ | | | D | B |  | 73 | 156/150K | S 8000 D 13400 | 8.50 | 348 | 317 | 1091 | 506 | 3312 | 359 |
| | X WORKS XZY | TL | ✓ | | | C | B |  | 68 | 156/150K | S 8000 D 13400 | 8.50 | 349 | 317 | 1080 | 501 | 3308 | 359 |
| | X WORKS Z | TL | ✓ | | | C | B |  | 69 | 156/150K | S 8000 D 13400 | 8.50 | 342 | 312 | 1066 | 494 | 3257 | 353 |
| 355/50 R 22.5 | X LINE ENERGY Z | TL | ✓ | | | B | B |  | 70 | 156K | S 8000 | 9.00 | 379 | 359 | 935 | 434 | 2876 | |
| 385/55 R 22.5 | X LINE ENERGY F | TL | ✓ | | | A | B |  | 70 | 160K | S 9000 | 9.00 | 415 | 391 | 990 | 456 | 3047 | |
| | X LINE ENERGY T | TL | | | | A | B | | 70 | 160K | S 9000 | 9.00 | 403 | 376 | 996 | 458 | 3060 | |
| | XFA 2 ENERGY ANTISPLASH | TL | | | | C | B | | 67 | 158L | S 8500 | 9.00 | 404 | 380 | 997 | 462 | 3040 | |

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| ETRTO overall design diameter (mm) | Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------|--|--|---|-----|-----|-----|------|-------|-------|-------|-------|-------|-------|------|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 |
| 1076 | 9.00 | 154/150M | S 7500 | 8.00 | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | D 13400 | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | 154/150M | S 7500 | 8.00 | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | D 13400 | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | | | | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | | | | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | | | | S | | | | 5400 | 5840 | 6280 | 6700 | 7140 | 7560 | 8000 | |
| | | | | | D | | | | 9560 | 10320 | 11120 | 11880 | 12640 | 13400 | 14160 | |
| 1076 | 9.00 | | | | S | | | | 5400 | 5840 | 6280 | 6700 | 7140 | 7560 | 8000 | |
| | | | | | D | | | | 9560 | 10320 | 11120 | 11880 | 12640 | 13400 | 14160 | |
| 1076 | 9.00 | | | | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | | | | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | | | | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | | | | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | | | | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | | | | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | | | | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 1076 | 9.00 | | | | S | | | | 5410 | 5840 | 6270 | 6700 | 7140 | 7570 | 8000 | |
| | | | | | D | | | | 9570 | 10340 | 11100 | 11870 | 12630 | 13400 | | |
| 928 | 11.75 | | | | S | | | | | 5540 | 5940 | 6360 | 6760 | 7180 | 7580 | 8000 |
| | | | | | D | | | | | | | | | | | |
| 996 | 11.75 | 158L | S 8500 | 9.00 | S | | | | | 6230 | 6690 | 7150 | 7620 | 8080 | 8540 | 9000 |
| | | | | | D | | | | | | | | | | | |
| 996 | 11.75 | 158L | S 8500 | 8.50 | S | | | | | 6230 | 6690 | 7150 | 7620 | 8080 | 8540 | 9000 |
| | | | | | D | | | | | | | | | | | |
| 996 | 11.75 | 160J | S 9000 | 9.00 | S | | | | | 5880 | 6320 | 6760 | 7200 | 7620 | 8060 | 8500 |
| | | | | | D | | | | | | | | | | | |

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| Tyre size | Tread pattern | Type | M+S | 3PMSE | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹ | Free section width S (mm) ¹ | Free diameter D (mm) ¹ | Static laden radius R' (mm) ¹ | Rolling circumference (mm) ¹ | Minimum dual spacing E (mm) ¹ |
|---------------|-------------------|------|-----|-------|----|-----------|---|---|----|------------------|--|------------------------|---------------------------------------|--|-----------------------------------|--|---|--|
| | | | | | | | | | dB | | | | | | | | | |
| 385/55 R 22.5 | X MULTI F | TL | ✓ | ✓ | 20 | B | B |  | 72 | 160K | S 9000 | 9.00 | 406 | 3804 | 996 | 458 | 3128 | |
| | X MULTI T | TL | ✓ | | | B | B |  | 69 | 160K | S 9000 | 9.00 | 406 | 378 | 998 | 460 | 3068 | |
| | X MULTI T2 | TL | ✓ | | | B | B |  | 70 | 160K | S 9000 | 9.00 | 410 | 381 | 1001 | 461 | 3071 | |
| | XFN 2 ANTISPLASH | TL | ✓ | ✓ | | C | B |  | 72 | 160K | S 9000 | 9.00 | 407 | 380 | 998 | 459 | 3060 | |
| 385/65 R 22.5 | X LINE ENERGY F | TL | | | | B | B |  | 69 | 160K | S 9000 | 9.00 | 406 | 376 | 1066 | 494 | 3270 | |
| | X LINE ENERGY T | TL | | | | A | B |  | 69 | 160K | S 9000 | 9.00 | 406 | 377 | 1066 | 494 | 3272 | |
| | X MULTI F | TL | ✓ | | | C | B |  | 69 | 158L | S 8500 | 8.50 | 404 | 376 | 1073 | 497 | 3288 | |
| | X MULTI T | TL | ✓ | | | B | B |  | 69 | 160K | S 9000 | 9.00 | 404 | 377 | 1070 | 496 | 3286 | |
| | X MULTI WINTER T | TL | ✓ | ✓ | | C | A |  | 70 | 160K | S 9000 | 9.00 | 409 | 380 | 1070 | 495 | 3274 | |
| 385/65 R 22.5 | X MULTIWAY HD XZE | TL | ✓ | | | C | B |  | 68 | 164K | S 10000 | 9.00 | 414 | 384 | 1078 | 497 | 3309 | |
| | XFN 2 ANTISPLASH | TL | ✓ | ✓ | | D | C |  | 72 | 158L | S 8500 | 8.50 | 409 | 380 | 1074 | 498 | 3274 | |
| | XTE 3 | TL | | | | C | B |  | 69 | 160J | S 9000 | 9.00 | 407 | 378 | 1074 | 497 | 3292 | |
| | X WORKS T | TL | ✓ | | | C | B |  | 71 | 160K | S 9000 | 9.00 | 403 | 373 | 1073 | 495 | 3283 | |
| | XZY 3 | TL | ✓ | | 20 | C | B |  | 73 | 160K | S 9000 | 9.00 | 409 | 379 | 1078 | 499 | 3280 | |
| 425/65 R 22.5 | XTE 2 | TL | | | 20 | C | B |  | 69 | 165K | S 10300 | 8.50 | 449 | 421 | 1130 | 522 | 3440 | |
| | XZY 3 | TL | ✓ | | 20 | C | B |  | 73 | 165K | S 10300 | 8.50 | 453 | 421 | 1136 | 523 | 3460 | |






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| ETRTO overall design diameter (mm) | Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | |
|---------------------------------------|-------------------------------------|---------------------------|--|--|---|-----|-----|-----|------|------|------|------|------|------|-------|-------|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 |
| 996 | 11.75 | 158L | S 8500 | 8.50 | S | | | | | 6230 | 6690 | 7150 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 996 | 11.75 | 158L | S 8500 | 8.50 | S | | | | | 6230 | 6690 | 7150 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 996 | 11.75 | 158L | S 8500 | 9.00 | S | | | | | 6230 | 6690 | 7150 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 996 | 11.75 | 158L | S 8500 | 9.00 | S | | | | | 6230 | 6690 | 7150 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 1072 | 11.75 | 158L | S 8500 | 9.00 | S | | | | | 6240 | 6700 | 7160 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 1072 | 11.75 | 158L | S 8500 | 8.50 | S | | | | | 6240 | 6700 | 7160 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 1072 | 11.75 | 160K | S 9000 | 9.00 | S | | | | 5740 | 6200 | 6660 | 7120 | 7580 | 8040 | 8500 | |
| | | | D | | | | | | | | | | | | | |
| 1072 | 11.75 | 158L | S 8500 | 8.50 | S | | | | | 6240 | 6700 | 7160 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 1072 | 11.75 | 158L | S 8500 | 8.50 | S | | | | | 6240 | 6700 | 7160 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 1072 | 11.75 | | | | S | | | | | 6920 | 7440 | 7940 | 8460 | 8980 | 9480 | 10000 |
| | | | D | | | | | | | | | | | | | |
| 1072 | 11.75 | 160J | S 9000 | 9.00 | S | | | | 5740 | 6200 | 6660 | 7120 | 7580 | 8040 | 8500 | |
| | | | D | | | | | | | | | | | | | |
| 1072 | 11.75 | 158L | S 8500 | 8.50 | S | | | | | 6240 | 6700 | 7160 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 1072 | 11.75 | | | | S | | | | | 6240 | 6700 | 7160 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 1072 | 11.75 | 158L | S 8500 | 8.50 | S | | | | | 6240 | 6700 | 7160 | 7620 | 8080 | 8540 | 9000 |
| | | | D | | | | | | | | | | | | | |
| 1124 | 13.00 | | | | S | | | | 6960 | 7520 | 8080 | 8620 | 9180 | 9740 | 10300 | |
| | | | D | | | | | | | | | | | | | |
| 1124 | 13.00 | | | | S | | | | 6960 | 7520 | 8080 | 8620 | 9180 | 9740 | 10300 | |
| | | | D | | | | | | | | | | | | | |






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| Tyre size | Tread pattern | Type | M+S | 3PMSF | PR | Labelling | | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹ | Free section width S (mm) ¹ | Free diameter D (mm) ¹ | Static laden radius R' (mm) ¹ | Rolling circumference (mm) ¹ | Minimum dual spacing E (mm) ¹ |
|------------------------|----------------|------|-----|-------|----|-----------|---|--|----|------------------|--|------------------------|---------------------------------------|--|-----------------------------------|--|---|--|
| | | | | | | | | | dB | | | | | | | | | |
| 445/65 R 22.5 | XTE 2 | TL | | | 20 | C | B | | 69 | 169K | S 11600 | 9.00 | 481 | 451 | 1158 | 534 | 3520 | |
| | XZY 3 | TL | ✓ | | 20 | D | B | | 73 | 169K | S 11600 | 9.00 | 486 | 451 | 1164 | 536 | 3540 | |
| 455/45 R 22.5 | X ONE XDU | TL | ✓ | ✓ | | D | C | | 73 | 166J | S 10600 | 9.00 | 494 | 466 | 982 | 450 | 2980 | |
| 495/45 R 22.5 | X ONE INCITY D | TL | ✓ | ✓ | | D | C | | 73 | 169K | S 11600 | 9.00 | 546 | 510 | 1025 | 468 | 3120 | |
| | X ONE MULTI D | TL | ✓ | ✓ | | D | B | | 75 | 169K | S 11600 | 9.00 | 527 | 504 | 1025 | 471 | 3123 | |
| RIM DIAMETER 24 INCHES | | | | | | | | | | | | | | | | | | |
| 325/95 R 24 | X WORKS XD | TL | ✓ | | | D | B | | 72 | 162/160K | S 9500 D 18600 | 8.50 | 349 | 314 | 1230 | 569 | 3760 | 355 |
| | X WORKS XZ | TL | ✓ | | | D | B | | 73 | 162/160K | S 9500 D 18000 | 8.50 | 347 | 311 | 1223 | 566 | 3747 | 352 |







| ETRTO overall design diameter (mm) | Michelin preferred rim¹ | Unique point² | Unique point - Load (kg) per axle - Fitment S or D² | Unique point - Pressure (bar)² | Load capacity (kg) per axle at inflation pressure (bar / PSI) | | | | | | | | | | | |
|---------------------------------------|-------------------------|---------------|--|--------------------------------|---|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | | | Fitment S or D | 4.0 | 4.5 | 5.0 | 5.5 | 6.0 | 6.5 | 7.0 | 7.5 | 8.0 | 8.5 | 9.0 |
| | | | | | | 58 | 65 | 73 | 80 | 87 | 94 | 102 | 109 | 116 | 123 | 131 |
| 1150 | 14.00 | | | | S | | | | | 8040 | 8620 | 9220 | 9820 | 10420 | 11000 | 11600 |
| | | | D | | | | | | | | | | | | | |
| 1150 | 14.00 | | | | S | | | | | 8040 | 8620 | 9220 | 9820 | 10420 | 11000 | 11600 |
| | | | D | | | | | | | | | | | | | |
| 982 | 15.00 | | | | S | | | | | 7580 | 8090 | 8600 | 9130 | 9660 | 10130 | 10600 |
| | | | D | | | | | | | | | | | | | |
| 1018 | 17.00 | | | | S | | | | | 8030 | 8630 | 9220 | 9820 | 10410 | 11010 | 11600 |
| | | | D | | | | | | | | | | | | | |
| 1018 | 17.00 | | | | S | | | | | 8030 | 8630 | 9220 | 9820 | 10410 | 11010 | 11600 |
| | | | D | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | |
| 1228 | 8.50 | | | | S | | | | | 6930 | 7450 | 7960 | 8470 | 8990 | 9500 | |
| | | | D | | | | | 12160 | 13140 | 14110 | 15080 | 16050 | 17030 | 18000 | | |
| 1228 | 8.50 | | | | S | | | | | 6930 | 7450 | 7960 | 8470 | 8990 | 9500 | |
| | | | D | | | | | 12160 | 13140 | 14110 | 15080 | 16050 | 17030 | 18000 | | |

| Tyre size | Tread pattern | Type | M+S | 3PMSF  | PR  | Labelling | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹⁾ | Free section width S (mm) ¹⁾ | Free diameter D (mm) ¹⁾ | Static laden radius R' (mm) ¹⁾ | Rolling circumference (mm) ¹⁾ | Minimum dual spacing E (mm) ¹⁾ |
|-----------------------------|---------------|------|-----|---|--|---|---|----|------------------|--|------------------------|--|---|------------------------------------|---|--|---|
| | | | | |  |  |  | dB | | | | | | | | | |
| RIM DIAMETER 16 INCHES | | | | | | | | | | | | | | | | | |
| 7.50 R 16 | XS | TL | ✓ | | | | | | 116/114N | S 2500 D 4720 | 5.3 | | 214 | 826 | 384 | | |
| 11.00 R 16 | XZL | TL | ✓ | | | | | | 135K | S 4360 | 5.5 | 319 | 287 | 984 | 455 | 3000 | 242 |
| 255/100 R 16 (9.00 R 16) | XZL | TL | ✓ | | | | | | 126K | S 3700 | 4.5 | 286 | 255 | 923 | 426 | 2810 | |
| 325/85 R 16 | X FORCE Z | TL | ✓ | | | | | | 140K | S 5000 | 5.0 | 363 | 329 | 983 | 448 | 2973 | |
| | XML | TL | ✓ | | | | | | 137J | S 4600 | 4.5 | 364 | 327 | 984 | 449 | 2980 | |
| RIM DIAMETER 20 INCHES | | | | | | | | | | | | | | | | | |
| 10.00 R 20 | XZL | TT | ✓ | | 16 | | | | 146/143K | S 6000 D 10900 | 7.8 | 311 | 281 | 1060 | 493 | 3240 | 318 |
| 11.00 R 20 | XZL | TL | ✓ | | 16 | | | | 150/146K | S 6700 D 12000 | 8.0 | 330 | 299 | 1092 | 508 | 3340 | 338 |
| 12.00 R 20 | XZL | TL | ✓ | | 18 | | | | 154/149K | S 7500 D 13000 | 8.5 | 344 | 311 | 1131 | 527 | 3460 | 352 |
| | XML | TL | ✓ | | 18 | | | | 149/146J | S 6500 D 12000 | 7.2 | 339 | 308 | 1131 | 526 | 3443 | 349 |
| 14.00 R 20 | XZL+ | TL | ✓ | | 20 | | | | 164/160J | S 10000 D 18000 | 7.6 | 428 | 386 | 1258 | 578 | 3832 | 436 |
| | XML | TL | ✓ | | | | | | 153G | S 7300 | 6.2 | 421 | 383 | 1258 | 581 | 3830 | |
| | XS | TL | ✓ | | | | | | 160/157F | S 9000 D 16500 | 7.0 | 410 | 369 | 1238 | 566 | 3772 | 417 |

| Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Tube | Flap | Seal | ROAD SINGLE Load (kg/KPa) | ROAD SINGLE Pressure (bar) | ROAD SINGLE Pressure (PSI) | ROAD SINGLE Maximum Speed (km/h) | ROAD SINGLE Maximum Speed (mph) | ROAD SINGLE Footprint (cm ²) | Regrooving depth (mm) | Regrooving Width (mm) | Blade |
|-------------------------------------|---------------------------|---|--|------|-------------|----------------|---------------------------|----------------------------|----------------------------|----------------------------------|---------------------------------|--|-----------------------|------------------------------|----------|
| 6.00G | | | | 16J | 16x 6.00 | | 1250 | 5.3 | 77 | 140 | 87 | 277 | - | - | - |
| 6.50H | | | | 16P | 16x6.00 E M | LR R1967 | 2180 | 5.5 | 80 | 110 | 68 | 583 | | | |
| 6.50H | 134 J | S 4240 | | 16J | 16x6.00 E M | LR SPRAT R1014 | 1700 | 4.5 | 65 | 110 | 68 | 437 | 3,0 | 10 to 12 mm | R4 |
| 9.00 | | | | | | | 2500 | 5.0 | 72 | 110 | 68 | 564 | 3,0 | 10 mm | R4 |
| 9.00 | 134K | S 4240 | 4.5 | | | | 2300 | 4.5 | 65 | 100 | 62 | 604 | 4,0 | 9 to 10 mm | R3 or R4 |
| 7.5 | | | | 20N | 20x8.50 E | | 3000 | 7.8 | 116 | 110 | 68 | 500 | 4,0 | 10 to 12 mm | R4 |
| 8.00 | | | | 20P | 20x8.50 E | | 3350 | 8.0 | 116 | 110 | 68 | 546 | 4,0 | | |
| 8.50 | | | | 20Q | 20x8.50 E | | 3750 | 8.5 | 123 | 110 | 68 | 611 | 4,0 | 10 to 12 mm | R4 |
| 8.50 | | | | 20Q | 20x8.50 E | | 3250 | 7.2 | 105 | 100 | 62 | 787 | 4,0 | A = 20 mm B = 10 to 12 mm | R4 |
| 10.00W | 166G | S 10600 | 7.9 | 20S | 20x10.00 E | | 5000 | 7.6 | 110 | 100 | 62 | 983 | 3,0 | 10 to 12 mm | R4 |
| 10.00W | 149 K | S 6500 | 6.2 | 20S | 20x10.00 E | | 3650 | 6.2 | 90 | 90 | 56 | 935 | 4,0 | A = 20 mm B = 10 to 12 mm | R4 |
| 10.00W | | | | 20S | 20x10.00 E | | 4500 | 7.0 | 102 | 80 | 50 | 813 | 4,0 | 8 to 10 mm | R3 |

| Tyre size | Tread pattern | Type | M+S | 3PMSF  | PR  | Labelling | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹⁾ | Free section width S (mm) ¹⁾ | Free diameter D (mm) ¹⁾ | Static laden radius R' (mm) ¹⁾ | Rolling circumference (mm) ¹⁾ | Minimum dual spacing E (mm) ¹⁾ |
|--------------------------------|-------------------|------|-----|---|--|---|---|--|------------------|--|------------------------|--|---|------------------------------------|---|--|---|
| | | | | | |  |  |  dB | | | | | | | | | |
| 16.00 R 20 | XZL | TL | NO | | | | | | 173/170G | S 13000 D 24000 | 7.5 | 488 | 438 | 1343 | 609 | 4090 | 495 |
| 275/80 R 20 (10.5 R 20) | X FORCE ZL MPT | TL | ✓ | | | | | | 128K | S 3600 | 4.2 | | 277 | 940 | 433 | 2857 | |
| 335/80 R 20 (12.5 R 20) | X FORCE ZL MPT | TL | ✓ | | | | | | 150K | S 6700 | 6.5 | | 341 | 1037 | 478 | 3160 | |
| | XZL MPT | TL | ✓ | | 16 | | | | 141K | S 5150 | 4.3 | 381 | 345 | 1037 | 473 | 3140 | |
| 365/80 R 20 (14.5 R 20) | XZL MPT | TL | ✓ | | | | | | 152K | S 7100 | 6.0 | 410 | 372 | 1096 | 501 | 3330 | |
| 365/85 R 20 | XZL | TL | ✓ | | | | | | 164G | S 10000 | 7.5 | 411 | 368 | 1144 | 520 | 3460 | |
| 395/85 R 20 | XZL | TL | ✓ | | | | | | 168G | S 11200 | 8.5 | 425 | 388 | 1189 | 542 | 3600 | |
| | XZL 2 | TL | ✓ | | | | | | 168K | S 11200 | 8.5 | 429 | 388 | 1176 | 534 | 3584 | |
| | XML | TL | ✓ | | 14 | | | | 161G | S 9250 | 7.0 | 418 | 385 | 1187 | 543 | 3590 | |
| 475/80 R 20 | XML | TL | ✓ | | | | | | 166G | S 10600 | 6.0 | 526 | 480 | 1272 | 581 | 3860 | |
| RIM DIAMETER 20.5 INCHES | | | | | | | | | | | | | | | | | |
| 24 R 20.5 | XS | TL | ✓ | | | | | | 176F | S 14200 | 6.0 | 661 | 602 | 1374 | 620 | 4150 | |
| 525/65 R 20.5 (20.5 R 20.5) | XS | TL | ✓ | | 20 | | | | 173F | S 13000 | 8.0 | 558 | 521 | 1200 | 548 | 3640 | |
| RIM DIAMETER 21 INCHES | | | | | | | | | | | | | | | | | |
| 24 R 21 | XZL | TL | ✓ | | 16 | | | | 176G | S 14200 | 6.0 | 663 | 608 | 1388 | 631 | 4200 | |

| Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Tube | Flap | Seal | ROAD SINGLE Load (kg/KPa) | ROAD SINGLE Pressure (bar) | ROAD SINGLE Pressure (PSI) | ROAD SINGLE Maximum Speed (km/h) | ROAD SINGLE Maximum Speed (mph) | ROAD SINGLE Footprint (cm ²) | Regrooving depth (mm) | Regrooving Width (mm) | Blade |
|-------------------------------------|---------------------------|---|--|-------------|------------|-------|---------------------------|----------------------------|----------------------------|----------------------------------|---------------------------------|--|-----------------------|------------------------|----------|
| 10.00W | | | | 20V | 20x10.00 E | | 6500 | 7.5 | 109 | 90 | 56 | 1288 | 4,0 | 10 to 12 mm | R4 |
| 9.00 | | | | 20P15 | | | 1800 | 4.2 | 61 | 110 | 68 | 419 | 4,0 | 10 to 12 mm | R3 |
| 11.00 | | | | 20P15 | | | 3350 | 6.5 | 93 | 110 | 68 | 635 | 4,0 | 10 to 12 mm | R4 |
| 11.00 | | | | 20P15 | | | 2575 | 4.3 | 62 | 110 | 68 | 715 | 4,0 | 10 to 12 mm | R4 |
| 11.00 | | | | 20P15 | | | 3550 | 6.0 | 87 | 110 | 68 | 777 | 4,0 | 10 to 12 mm | R4 |
| 10.00W | | | | 20S | 20x10.00 E | TYRAN | 5000 | 7.5 | 109 | 90 | 55 | 857 | 4,0 | 10 to 12 mm | R4 |
| 10.00W | 161J | S 9250 | 8.5 | 20S | 20x10.00 E | TYRAN | 5600 | 8.5 | 123 | 90 | 55 | 932 | 4,0 | 18 to 20 mm | R4 |
| 10.00 | 164 L | S 10000 | 8.5 | 20S | 20x10.00 E | TYRAN | 5600 | 8.5 | 120 | 110 | 68 | 913 | 3,0 | 8 to 10 mm | R3 |
| 10.00 | | | | 20S | 20x10.00 E | TYRAN | 4625 | 7.0 | 102 | 90 | 56 | 874 | 4,0 | A = 20 mm B = 10 mm | R4 |
| 14.0V | | | | 20V | | | 5300 | 6.0 | 87 | 90 | 56 | 1141 | 4,0 | | |
| | | | | | | | | | | | | | | | |
| 18.00 | | | | 20,5 WAMD | | | 7100 | 6.0 | 90 | 80 | 50 | 1563 | 4,0 | 8 to 10 | R3 or R4 |
| 16.00 | | | | 19,5/20,5UD | | | 6500 | 8.0 | 120 | 80 | 50 | 1121 | 4,0 | | |
| | | | | | | | | | | | | | | | |
| 18.00 | | | | 21 WAM | | | 7100 | 6.0 | 87 | 90 | 56 | 1675 | 4,0 | 10 to 12 mm | R4 |

| Tyre size | Tread pattern | Type | M+S | 3PMSF  | PR  | Labelling | | | Load/speed index | Load capacity per axle (kg) Fitment Single or Dual (S or D) | Nominal pressure (bar) | Laden section width (mm) ¹⁾ | Free section width S (mm) ¹⁾ | Free diameter D (mm) ¹⁾ | Static laden radius R' (mm) ¹⁾ | Rolling circumference (mm) ¹⁾ | Minimum dual spacing E (mm) ¹⁾ |
|--------------------------|---------------|------|-----|---|--|---|---|--|------------------|--|------------------------|--|---|------------------------------------|---|--|---|
| | | | | | |  |  |  dB | | | | | | | | | |
| RIM DIAMETER 22.5 INCHES | | | | | | | | | | | | | | | | | |
| 13 R 22.5 | XZH2R | TL | ✓ | | | E | B |  72dB | 154/150G | S 7500 D 13400 | 8.0 | | 317 | 1135 | 528 | 3456 | 359 |
| | XZL | TL | ✓ | | 18 | | | | 154/150K | S 7500 D 13400 | 8.0 | 338 | 307 | 1130 | 525 | 3450 | 347 |
| 315/80 R 22.5 | X FORCE ZH | TL | ✓ | | | | | | 156/150G | S 8000 D 13400 | 8.5 | | 317 | 1088 | 503 | 3318 | 359 |
| 445/65 R 22.5 | XZL (WB) | TL | ✓ | | | | | | 168G | S 11200 | 8.0 | 486 | 448 | 1168 | 537 | 3550 | |
| RIM DIAMETER 560 MM | | | | | | | | | | | | | | | | | |
| 395/90 R 560 TR | X FORCE 2 | TL | ✓ | | | | | | 160J | S 9000 | 7.1 | | 390 | 1252 | 577 | 3807 | |
| | XML | TL | ✓ | | 14 | | | | 154K | S 7500 | 6.4 | 417 | 392 | 1256 | 582 | 3835 | |
| | X FORCE ML | TL | ✓ | | 16 | | | | 158G | S 8500 | 6.6 | | 392 | 1256 | 579 | 3823 | |
| RIM DIAMETER 685 MM | | | | | | | | | | | | | | | | | |
| 415/80 R 685 TR | X FORCE 2 | TL | ✓ | | | | | | 164J | S 10000 | 7.6 | | 402 | 1331 | 610 | 4050 | |
| | XML | TL | ✓ | | | | | | 160K | S 9000 | 6.7 | 435 | 404 | 1330 | 613 | 4072 | |
| | X FORCE ZL | TL | ✓ | | | | | | 164K | S 10000 | 7.6 | 435 | 400 | 1332 | 615 | 4080 | |

| Michelin preferred rim ¹ | Unique point ² | Unique point - Load (kg) per axle - Fitment S or D ² | Unique point - Pressure (bar) ² | Tube | Flap | Seal | ROAD SINGLE Load (kg/KPa) | ROAD SINGLE Pressure (bar) | ROAD SINGLE Pressure (PSI) | ROAD SINGLE Maximum Speed (km/h) | ROAD SINGLE Maximum Speed (mph) | ROAD SINGLE Footprint (cm ²) | Regrooving depth (mm) | Regrooving Width (mm) | Blade |
|-------------------------------------|---------------------------|--|--|---------------|------|------|---------------------------|----------------------------|----------------------------|----------------------------------|---------------------------------|--|-----------------------|------------------------------|-------|
| 9.00 | 156/ 150F | S 8000 D 13400 | | 20S | | | 3750 | 8.0 | 116 | 90 | 56 | 633 | 4,0 | 12 to 14 mm | R4 |
| 9.00 | | | | 20S | | | 3750 | 8.0 | 116 | 110 | 68 | 637 | 4,0 | | |
| 9.00 | | | | 20PD | | | 4000 | 8.5 | 123 | 90 | 56 | 591 | 4,0 | 12 to 14 mm | R4 |
| 14.00 | | | | 22.5 U AMD | | | 5600 | 8.0 | 116 | 90 | 56 | 1037 | 4,0 | A = 20 mm B = 10 mm | R4 |
| 240TR | 154K | S 7500 | | | | | 4500 | 7.1 | 103 | 100 | 62 | 914 | | | |
| 240 TR | 156 F | S 7500 D 16000 | 6.4 | | | | 3750 | 6.4 | 90 | 110 | 68 | 810 | 4,0 | A = 20 mm B = 10 to 12 mm | R4 |
| 240 TR | 156J | S 8000 | | | | | 4250 | 6.6 | 96 | 90 | 56 | 860 | 4,0 | A = 20 mm B = 10 to 12 mm | R4 |
| 230- 685TR | | | | | | | 5000 | 7.6 | 110 | 100 | 62 | 918 | 4,0 | 10 to 12 mm | R4 |
| 230 - 685TR | | | | | | | 4500 | 6.7 | 95 | 110 | 68 | 918 | 4,0 | A = 20 mm B = 10 to 12 mm | R4 |
| 230 - 685TR | | | | | | | 5000 | 7.6 | 110 | 110 | 68 | 903 | 4,0 | 10 to 12 mm | R4 |



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