



# Goodyear

# Truck Tires

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## Technical Data Book

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- Tire Range and Application Map
- Technical Data
- regrooving Guidelines
- Tire Technology




















































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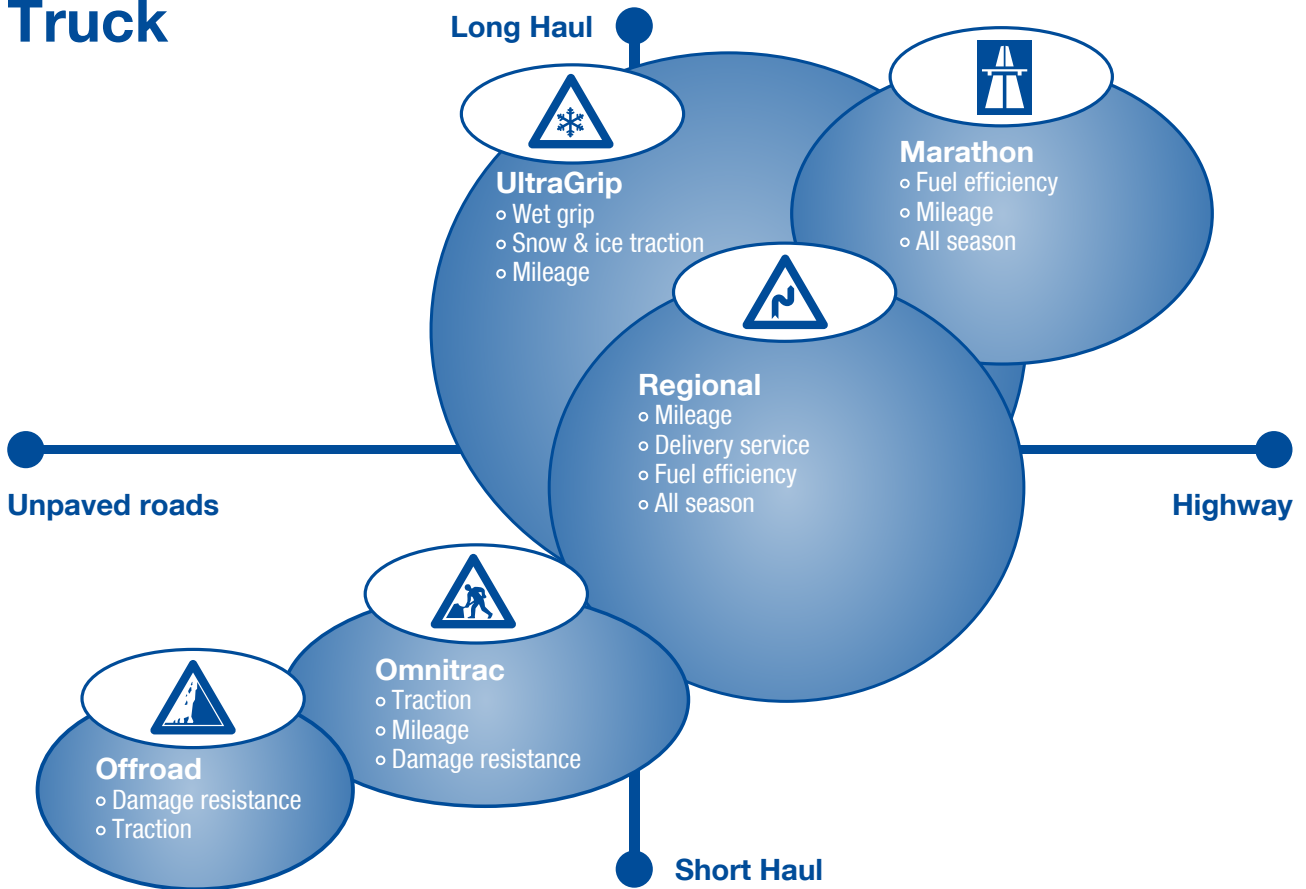
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# Truck Tire Range and Application Map

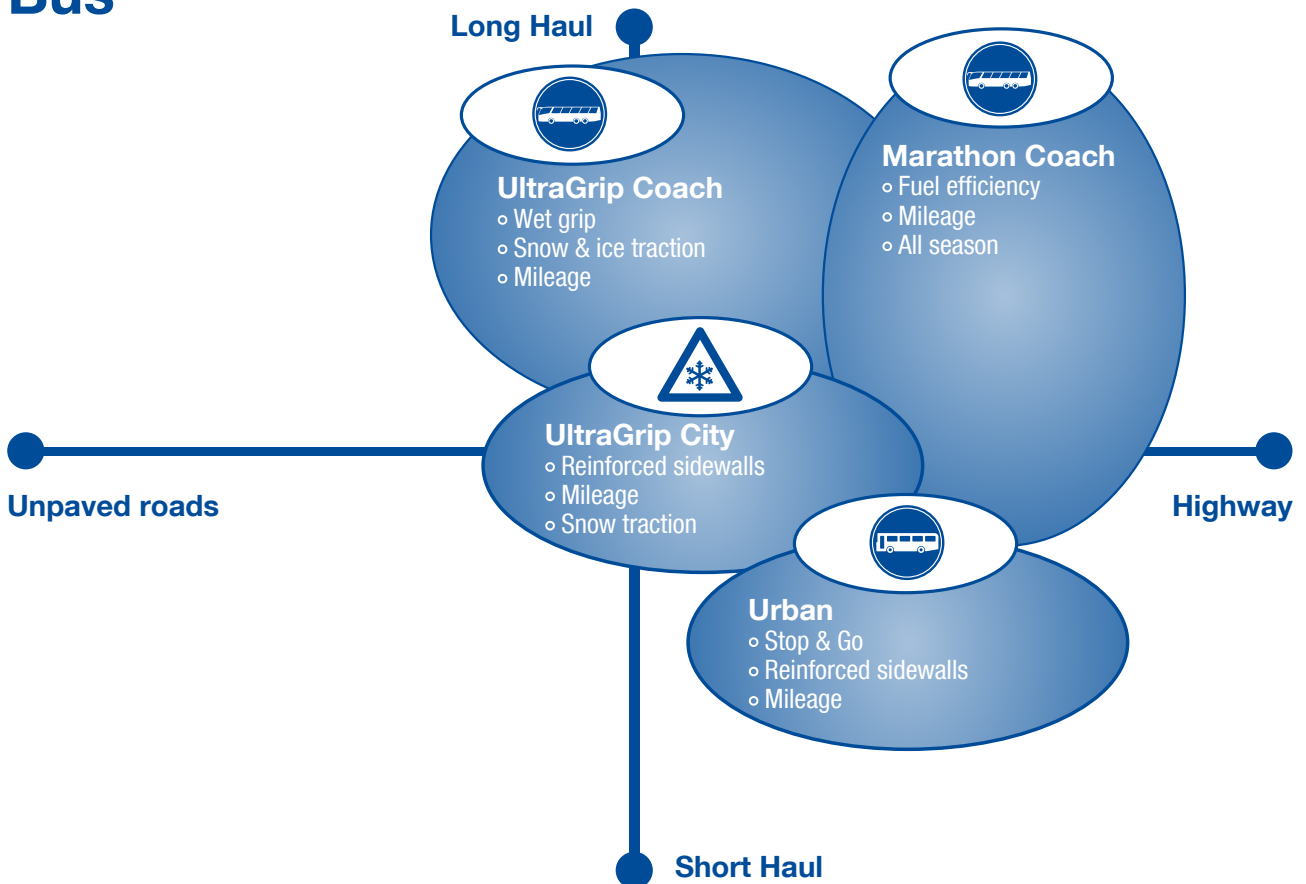
	Steer	Drive	Trailer	
<b>Marathon</b> 	LHS II  LHS II+ 	LHS II 50 series  LHS LR8 	LHD II  LHD II+  LHD 495/45R22.5 	LHT II 435/50R19.5  LHT II 65 and 55 series  LHT+ 455/40R22.5  LHT 265/55R19.5 
<b>Regional</b> 	RHS II  RHS II 17.5 and 19.5 	RHD II + / RHD II  RHD II 17.5 and 19.5 	RHT II  RHT II 17.5 and 19.5 	
<b>Omnitrac</b> 	MSS II  MSS 75 and 90 series 	MSD II  MSD II 385/55R22.5  MSD II 495/45R22.5 	MST II 	
<b>Offroad</b> 	MSS II  MSS 75 and 90 series 	ORD 14.00R20  ORD 90 and 85 series  ORD 85 series 	MST II 	
<b>Urban</b> 	UrbanMax MCA 	UrbanMax MCA  UrbanMax MCD Super Single  UrbanMax MCD Traction 		
<b>Coach</b> 	Marathon Coach 	Marathon Coach  UltraGrip Coach 		
<b>UltraGrip</b> 	WTS 5-rib  WTS 6-rib 	WTD 	WTT 	



# Truck



# Bus



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# Long Haul Tire Range







# Marathon LHS II+ / LHS II



Marathon LHS II + features a dedicated tread compound using the new technology Sileflex designed to lower the fuel consumption and emissions while keeping wet grip performance and mileage potential at a premium level.



- Wide tread, 5 rib layout (6 rib for 65, 55 and 50 series) for excellent mileage, even wear and good handling/stability
- “Flexomatic Blades” and “Edge Blading” on grooves for excellent braking on wet, even wear and high mileage
- Latest technology carcass geometry and materials for reduced weight, enhanced damage resistance, durability and retreadability
- Low rolling resistance (-7% vs LHS II)\*

\* Internal evaluation performed by Goodyear Innovation Center Luxembourg in 2011 on 315/70R22.5

## Technical Data



Size	Load Index Speed Symbol	Comments	
275/70R22.5	148/145 M	LHS II version	C B 70
295/60R22.5	150/147 K (149/146 L)	LHS II version	C B 71
295/80R22.5	152/148 M		C B 70
	154/149 M	High load version	B B 70
305/70R22.5	152/148 L (150/148 M)	LHS II version	C C 70
315/60R22.5	152/148 L		C B 71
	154/148 L	High load version	C B 72

Size	Load Index Speed Symbol	Comments	
315/70R22.5	154/150 L (152/148 M)		B C 71
	156/150 L	High load version	B B 71
315/80R22.5	156/150 L (154/150 M)		B B 70
	158/150 L	High load version	B B 70
355/50R22.5	154 K (152 L)		B B 72
375/50R22.5	156 K	LHS II version	B B 71
385/55R22.5	160 K (158 L)		C B 72
385/65R22.5	160 K (158 L)		C B 72

# Marathon LHS LR8



Specifically designed for usage in hot countries, the LHS LR8 pattern provides high mileage combined with high steering precision and driver comfort. The dedicated carcass construction and tread compound suit the demanding requirements of the severe service requirements in hot country areas (e.g, Middle East and Africa).



- Dedicated construction and tread compound for hot countries usage
- Reduced rolling resistance for additional fuel savings
- Low rolling noise

## Technical Data



Size	Load Index Speed Symbol	Comments	
11R22.5	148/145 M		C B 70

Size	Load Index Speed Symbol	Comments	
12R22.5	152/148 L		C B 71

# Marathon LHD II+ / LHD II



Marathon LHD II + features a dedicated tread compound using the new technology Silefex designed to lower the fuel consumption and emission while keeping good wet traction performance and mileage potential at a premium level.



- Wide tread with large shoulder ribs for excellent mileage, traction and braking as well as even wear pattern
- “3D-BIS” waffle blade technology for traction and braking performance and improved handling and stability
- Latest technology carcass geometry and materials for reduced weight, enhanced damage resistance, durability and retreadability
- Reduced rolling resistance (-7% vs LHD II)\*



\* Internal evaluation performed by Goodyear Innovation Center Luxembourg in 2011 on 315/70R22.5

## Technical Data



Size	Load Index Speed Symbol	Comments	
275/70R22.5	148/145 M	LHD II version	D C 74
295/55R22.5	147/145 K		C D 73
295/60R22.5	150/147 K (149/146 L)	LHD II version	C C 74
295/80R22.5	152/148 M		C C 74
305/70R22.5	152/148 L (150/148 M)	LHD II version	D C 73

Size	Load Index Speed Symbol	Comments	
315/60R22.5	152/148 L		C C 73
315/70R22.5	154/150 L (152/148 M)		C C 75
315/80R22.5	156/150 L (154/150 M)		C C 74
495/45R22.5	169 K	LHD version	C C 72

# Marathon LHT II



The Marathon LHT II has been developed to support fleet efficiency and reduce cost per km. It features super low rolling resistance (up to 26% improvement\*) combined to improved mileage performance, good braking on wet and low noise emissions. Additional payload through reduced tire weight is another feature of the new generation tires.



- Fuel savings
- Excellent mileage
- Good braking on wet
- Increased payload
- Good durability and retreadability

\* TUV report : No 76242917

## Technical Data



Size	Load Index Speed Symbol	Comments	
265/55R19.5	141/140 J (142/142 G)	LHT Version	C C 73
435/50R19.5	160 J		A C 71
11R22.5	148/145 J (146/143 L)	LHT Version	C C 68
275/70R22.5	152/148 J (148/145 L)		C C 70

Size	Load Index Speed Symbol	Comments	
385/55R22.5	160 K (158 L)		A C 70
385/65R22.5	160 K (158 L)		B C 72
435/50R22.5	164 J	LHT Version	B D 70
455/40R22.5	160 J	LHT+ Version	C C 72

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# Regional Haul Tire Range









# Regional RHS II 22.5



The latest generation regional haul steer tire coping with the demanding requirements of modern regional haul service, dedicated for high mileage and a wide application range. The combination of a specifically developed tread pattern with an innovative high silica content tread compound results in excellent mileage performance, excellent wet braking, even wear and reduced rolling resistance.



- Wide tread, 5 rib pattern, groove edge blading, for excellent mileage, even wear and superb handling and stability
- High density, flexomatic blading, for outstanding braking on wet surfaces combined with high mileage
- New technology, high silica tread compound, for high mileage combined with reduced rolling resistance, good tear and damage resistance

## Technical Data



Size	Load Index Speed Symbol	Comments			
11R22.5	148/145 L		C	B	69
12R22.5	152/148 L		C	B	70
13R22.5	156/150 L (154/150 L)		D	C	70
275/70R22.5	148/145 M		D	B	71
295/60R22.5	150/147 K (149/146 L)		C	B	70
295/80R22.5	152/148 M		C	B	72
	154/149 M	High load version	C	B	69
305/70R22.5	153/150 L (150/148 M)		C	B	70

Size	Load Index Speed Symbol	Comments			
315/60R22.5	152/148 L		C	B	70
	154/148 L	High load version	C	B	71
315/70R22.5	154/150 L (152/148 M)		C	B	71
	156/150 L	High load version	C	B	70
315/80R22.5	156/150 L (154/150 M)		C	B	70
	158/150 L (154/150 M)	High load version	C	A	70
385/65R22.5	160 K (158 L)		C	B	71
	164 K (158 L)	High load version	B	B	71

# Regional RHS II 17.5 and 19.5



The latest generation of 17.5" and 19.5" steer tires, featuring KMax Technology – a combination of latest technology design and construction features.

The wide, 5 rib tread pattern, with high density flexomatic blading results in excellent mileage performance, good handling and stability as well as good braking on wet. Latest technology tread compounds, carcass and belt materials assure good durability and retreadability of these steer tires.

RHS II in 17.5" & 19.5" sized tires are developed for a wide application range, covering today's multiple service types in regional and distribution operations.



- Wide, 5 rib tread pattern for high mileage, good handling and even wear
- Flexomatic blading on center ribs, for improved braking on wet and mileage
- Rib edge blading on outer grooves result in even wear pattern and better wet braking
- Specifically developed groove geometries result in reduced stone holding

## Technical Data



Size	Load Index Speed Symbol	Comments			
9.5R17.5	129/127 M		D	C	71
205/75R17.5	124/122 M		E	D	72
215/75R17.5	126/124 M		E	C	72
225/75R17.5	129/127 M		E	B	72
235/75R17.5	132/130 M		E	C	72
245/70R17.5	136/134 M		D	B	71

Size	Load Index Speed Symbol	Comments			
265/70R17.5	139/136 M		D	C	72
245/70R19.5	136/134 M		E	C	72
265/70R19.5	140/138 M		D	C	72
285/70R19.5	146/144 L (144/142 M)		D	C	71
305/70R19.5	148/145 M		D	C	72

# Regional RHD II + / RHD II 22.5"



The latest generation regional haul drive tire coping with the demanding requirements of modern regional haul service. The tire is designed for high mileage and a wide application range and features KMax Technology developed to increase mileage performances without compromising other tire characteristics.

RHD II + brings a further improvement in mileage, handling and wear type thanks to a tuned tread pattern configuration. It suits a wide application range, from long haul to local delivery.



- Wide tread, 5 rib directional pattern, for excellent mileage, even wear and superb handling and stability
- Special, directional groove tapers, highly bladed pattern, for improved wet braking and mileage performances, excellent traction and winter grip
- New technology, high silica tread compound, for high mileage combined with good tear and damage resistance
- Dedicated carcass geometry, latest technology carcass materials resulting in enhanced robustness, durability and retreadability
- RHD II +: up to 10% improvement in mileage vs RHD II pending on the application

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	
11R22.5	148/145 L		D C 78
12R22.5	152/148 L		E C 78
13R22.5	156/150 L (154/150 M)		D C 78
275/70R22.5	148/145 M		D D 77
295/60R22.5	150/147 K (149/146 L)		D D 75

Size	Load Index Speed Symbol	Comments	
295/80R22.5	152/148 M	RHD II+ tread pattern	D C 77
305/70R22.5	153/150 L (150/148 M)		D C 77
315/60R22.5	152/148 L		D C 77
315/70R22.5	154/150 L (152/148 M)	RHD II+ tread pattern	D C 76
315/80R22.5	156/150 L (154/150 M)	RHD II+ tread pattern	D C 76

# Regional RHD II 17.5 and 19.5



A new generation of 17.5" and 19.5" drive tires, featuring KMax Technology – a combination of latest technology design and construction features.

The wide tread pattern, featuring a high net to gross center area, with 3D BIS blading, results in high mileage, good all season traction performance and even wear type. Latest technology tread compounds, carcass and belt materials assure good durability and retreadability of these drive tires.

RHD II in 17.5" & 19.5" sized tires are developed for a wide application range, covering today's multiple service types in regional and distribution operation.



- A wide tread pattern with high net-to-gross area, resulting in excellent mileage, good handling and even wear type.
- The high density blading combined to the specific block distribution in the center ribs results in excellent traction performance and all season capabilities.
- Latest technology 3D BIS blades for improved traction and braking on wet and wintry roads.
- Specifically designed groove geometries to reduce stone holding

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	
9.5R17.5	129/127 M		E C 71
205/75R17.5	124/122 M (126/124 G)		E D 73
215/75R17.5	126/124 M		E C 72
225/75R17.5	129/127 M		E B 74
235/75R17.5	132/130 M		D B 73
245/70R17.5	136/134 M		E B 73

Size	Load Index Speed Symbol	Comments	
265/70R17.5	139/136 M		D D 73
245/70R19.5	136/134 M		D C 74
265/70R19.5	140/138 M		D B 74
285/70R19.5	146/144 L (144/142 M)		D C 75
305/70R19.5	148/145 M		D D 73

# Regional RHT II



Goodyear RHT II (22.5") offers a superb mileage performance thanks to its multi radius cavity shape and its high wearable rubber volume associated to an innovative tread compound which offers resistance to groove cracking and tread chunking.



- Superb mileage potential (+30% vs RHT\*) and wear evenness
- Excellent robustness and high resistance in shoulder wear
- Reduced stone catching and resistant to groove cracking
- Low rolling resistance for fuel efficiency
- High wet grip level

\* Based on mileage evaluation in two fleets in Spain and in France from 2010 to 2011

## Technical Data



Size	Load Index Speed Symbol	Comments	
385/55R22.5	160 K (158 L)		B B 71
385/65R22.5	160 K (158 L)		B B 71
	164 K (158 L)	High Load version	B C 71

Size	Load Index Speed Symbol	Comments	
425/65R22.5	165 K		B B 72
445/65R22.5	169 K		B B 72

# Regional RHT II low platform



Goodyear RHT II (17.5" / 19.5") has been developed to cover the various low platform trailer applications like car transportation in long and regional haul services. This new tread pattern provides improved mileage potential and shoulder wear robustness.



- Excellent mileage potential (+9% vs Marathon LHT 1pt\*) and even wear profile
- Excellent robustness and damage resistance provided by the 4-rib pattern and the strong shoulder ribs
- Reduced stone catching and resistant to groove cracking

\*Based on mileage evaluation in a car transportation fleet in Germany from 2010 to 2011

## Technical Data



Size	Load Index Speed Symbol	Comments	
9.5R17.5	143/141 J		C B 70
205/65R17.5	129/127 K (130/130 J)		C B 71
215/75R17.5	135/133 J		C C 69
235/75R17.5	143/141 J (144/144 F)		C B 69
245/70R17.5	143/141 J (146/146 F)		B C 69

Size	Load Index Speed Symbol	Comments	
245/70R19.5	141/140 J		C B 70
265/70R19.5	143/141 J		C B 70
285/70R19.5	150/148 J		B B 71
435/50R19.5	160 J	22.5" pattern RFID	B C 73





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# Mixed Service Tire Range







# Omnitrac MSS II



The Goodyear Omnitrac MSS II features a wide tread, 4-rib and 5-rib pattern for excellent mileage and even wear, combining latest technology materials and design features. Its robust tread pattern provides high mileage in on road use and good damage resistance. The specific groove layouts ensure good self cleaning and reduced stone holding.



- Excellent mileage, even wear pattern
- Improved on/off road braking
- Good damage resistance and stability
- Reduced stone holding/drilling, good self cleaning
- Excellent durability and retreadability

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	
12.00R20TT	154/150 K		C B 71
12.00R24TT	160/156 K		C B 71
265/70R19.5	143/141 J (140/138 L)		D B 71
11R22.5	148/145 K	MSS pattern	D B 70
12R22.5	152/148 K		C B 70
13R22.5	156/150 K		D B 70

Size	Load Index Speed Symbol	Comments	
275/70R22.5	148/145 K		D B 72
295/80R22.5	152/148 K	5-rib	D B 71
315/80R22.5	156/150 K	5-rib	D B 70
385/65R22.5	160 K (158 L)	5-rib	C B 73
325/95R24	162/160 K	TL, can be used as TT as well	C B 71





# Omnitrac MSS 445/75R22.5 and 375/90R22.5

The Goodyear Omnitrac MSS 445/75R22.5 and 375/90R22.5 are especially designed for high load vehicles in mixed service and on-road applications.



- Specific tear- and wear-resistance
- Added protection against cuts, chipping and chunking
- Excellent traction, handling
- Increased cargo payload and flotation characteristics

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	
375/90R22.5	164/160 G		C B 70

Size	Load Index Speed Symbol	Comments	
445/75R22.5	170 J		C B 71

# Omnitrac MSD II



The Omnitrac MSD II with a specifically developed robust tread pattern provides excellent traction in on and off road conditions, high mileage in on road use and good damage resistance. The specific groove layouts ensure good self cleaning and reduced stone holding.



- Excellent traction and braking
- High mileage, even wear pattern
- Improved on/off road braking
- Excellent self cleaning
- Enhanced traction on unpaved surfaces
- Improved traction on mud
- Excellent durability and retreadability

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	
12.00R20TT	154/150 K		E B 73
12.00R24TT	160/156 K		D B 73
12R22.5	152/148 K		D B 72
13R22.5	156/150 K		E B 73

Size	Load Index Speed Symbol	Comments	
295/80R22.5	152/148 K		E B 73
315/80R22.5	156/150 K		E B 74
325/95R24	162/160 K	TL, can be used as TT as well	D B 73

# Omnitrac MSD II Super Single



1st in industry – “Super Single” drive axle tires for mixed service/ construction site applications. The super single range is the best alternative to “dual mounted” drive axle tire fitments on mixed service trucks. The tread pattern is specifically developed to provide excellent traction and braking on mud and wet surfaces, combined to good damage resistance.



- Light weight super single mixed-service drive tire
- Wide tread providing an excellent mileage
- Slalom centerline groove for improved on/off-road braking and traction
- Good stone drilling resistance and groove self cleaning
- Excellent durability and retreadability

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments			
385/55R22.5	160 K		C	C	73 )))

Size	Load Index Speed Symbol	Comments			
495/45R22.5	169 K		C	D	74 )))



# DuraSeal (Omnitrac MSS II / MSD II)



Goodyear's patented "DuraSeal Technology" – the tire that repairs itself. A built-in layer of sealant material seals punctures up to a diameter of 6mm in the tire crown area, allowing the vehicle to continue running without pressure loss and with no effects on other tire performances. Ideal for mixed service applications (e.g. construction vehicles, concrete mixers, waste disposal vehicles) to minimize vehicle downtime risk and thereby improving your fleet's efficiency.



- Seals crown area punctures up to 6mm diameter
- Sealing properties are retained throughout tire life, even after retreading - for maximum efficiency
- Punctures can be repaired at retread stage for continuous sealing properties

"DuraSeal" tires are available in Omnitrac MSS II and MSD II patterns

## Technical Data



Size	Load Index Speed Symbol	Comments	
13R22.5	156/150 K		E B 73
315/80R22.5	156/150 K		E B 74

Size	Load Index Speed Symbol	Comments	
385/65R22.5	160 K (158 L)		C B 73

# Omnitrac MST II



Goodyear MST II features a wide tread and multi radii cavity for even wear and a mileage increase of 14%.\* A Zig-Zag centerline groove and off-set block edge design offer an improved on/ off road traction and massive centerline ribs increase the damage resistance.



- Excellent mileage, increased resistance to cuts, chipping and chunking
- Excellent wet grip
- Self-cleaning
- Excellent traction and resistance to chunking
- Increased durability and retreadability



\*Based on mileage performance of the MST II 385/65R22.5 compared to the Goodyear MST 385/65R22.5 in two fleets in Germany and in Belgium from 2009 to 2011.

## Technical Data



Size	Load Index Speed Symbol	Comments	
385/65R22.5	160 J (158 K)		C B 72

Size	Load Index Speed Symbol	Comments	
445/65R22.5	169 K	in preparation	



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# Offroad Tire Range



# Offroad ORD

The Goodyear Offroad ORD is a specific tire for off-road applications. It provides excellent damage resistance and enhanced traction properties even on soft or sandy surfaces.










- Secure off-road traction and high mileage
- Exceptional resistance to tearing and cutting
- Excellent resistance to stone holding and self-cleaning ability

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	  
12.00R20TT	154/150 G		E B 76 
12.00R24TT	160/156 G		D C 75 
12R22.5	152/148 J		E B 75 

Size	Load Index Speed Symbol	Comments	  
13R22.5	156/150 G (154/150 J)		E B 76 
325/95R24	162/160 G		D C 75 

# Offroad ORD 14.00R20, 375/90R22.5 and 365/85R20

Originally developed for special military, airport fire brigade and road maintenance applications, the Goodyear Offroad ORD gives excellent off-road traction, stone holding resistance and balanced wear around the circumference.









- Optimum durability and retreadability
- Exceptional off-road traction and cutting resistance
- Resistance to tearing and cutting for more kilometres
- Self-cleaning to avoid stone holding and increase traction

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	  
14.00R20	164/160 G		D B 76 
365/85R20	164 J		D B 75 

Size	Load Index Speed Symbol	Comments	  
375/90R22.5	164/160 G		E B 74 



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# Urban Tire Range





FOCH CATHEDRALE

717

*tan*  
BusWay

535BYN 44





# UrbanMax MCA



The MCA municipal tire, featuring UrbanMax Technology, a combination of latest technology tread pattern and state of the art materials.

UrbanMax MCA tires are specifically developed to provide excellent mileage in “stop & go” applications. In addition it provides good braking and traction on wet. MCA tires are usable as steer or as all position tires on municipal vehicles. All season use possible (M+S marked).



- Wide tread, 5 robust ribs, for superb mileage and even wear
- Centerline blocks with edge and flexomatic blading for good braking on wet and all season capability.
- Reinforced sidewalls, with wear indicators, to resist to curb scuffing and enhanced durability and damage resistance
- Regroovable and retreadable

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	
265/70R19.5	140/138 L		D C 72
11R22.5	148/145 J (152/148 E)		E C 72
275/70R22.5	148/145 J (152/148 E)		E C 71

Size	Load Index Speed Symbol	Comments	
295/80R22.5	152/148 J (154/150 E)		E C 70
315/60R22.5	152/148 J		D C 71



# UrbanMax MCD Traction



The MCD Traction municipal drive tire, featuring UrbanMax Technology, a combination of latest technology tread pattern and state of the art materials. UrbanMax MCD Traction tires are specifically developed to provide excellent traction, both in normal and winter applications (M+S marked). In addition it provides superb mileage, good braking. MCD Traction tires are specifically designed for drive axle use on municipal vehicles.



- 6 row block type pattern for excellent traction performance, even in winter conditions
- The wide tread with deep profile depth ensures excellent mileage performance, even wear
- Reinforced sidewalls, with wear indicators, to resist to curb scuffing and enhanced durability and damage resistance
- Regroovable and retreadable

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	
275/70R22.5	148/145 J (152/148 E)		E B 72

# UrbanMax MCD Super Single



Specifically designed super single tire for urban bus applications. The 455/45R22.5 is an alternative to dual mounted 275/70R22.5 tires, providing more inside space, reduced weight and lower rolling resistance.



- Reduced weight
- Lower Rolling Resistance
- Increased inside space

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	
455/45R22.5	166 J		C C 73

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# Coach Tire Range





# Marathon Coach



Asymmetric pattern dedicated for all position fitment on long haul and intercity coach applications. Providing excellent mileage, resistance to shoulder wear and high comfort level.



- Excellent mileage potential and even wear
- Excellent Ride/Handling and Comfort
- High resistance to irregular wear and tread cracks
- Low noise level
- Reduced rolling resistance
- Excellent wet skid performance
- Long lasting carcass & tire life

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments			
295/80R22.5	154/149 M		C	B	69

Size	Load Index Speed Symbol	Comments			
315/80R22.5	156/150 L (154/150 M)		B	B	69

# Ultragrip Coach



Specific high blade density winter traction drive tire for long haul and intercity coaches. Decoupled blocks and high tear resistance compound lead to a combination of mileage performance and snow traction.



- High grip/traction on snowy/icy road
- Extended mileage
- Even wear profile
- Road handling & lateral stability
- Stone damage & cut resistances
- Robust shoulder rib

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments			
295/80R22.5	154/149 M		D	C	72

Size	Load Index Speed Symbol	Comments			
315/80R22.5	156/150 L (154/150 M)		D	C	73

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# Winter Tire Range







# UltraGrip WTS



The UltraGrip WTS steer axle tire provides a wide, deep tread pattern, specific “Z” blades and a specific technology tread compound, resulting in excellent mileage and traction and braking on wet, snow and ice roads.

WTS City design includes as well reinforced sidewall for better damage resistance in urban applications.



- Excellent braking and traction on wet and snow
- Superb lateral grip, handling and steering stability
- High mileage, even wear pattern
- Usable as “all position” fitment

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments			
12R22.5	152/148 K (150/146 L)		D	B	73
275/70R22.5	148/145 J (152/148 E)	City version	E	C	73
295/60R22.5	150/147 K (149/146 L)		C	C	71
295/80R22.5	152/148 L		D	B	73
315/60R22.5	152/148 L		C	B	73

Size	Load Index Speed Symbol	Comments			
315/70R22.5	154/150 K (152/148 L)		C	C	73
315/80R22.5	156/150 K (154/150 L)		C	B	72
355/50R22.5	154 K (152 L)		D	B	73
385/55R22.5	160 K (158 L)		C	B	73
385/65R22.5	160 K (158 L)		C	B	75





# UltraGrip WTD



The UltraGrip WTD drive axle tire is designed to provide outstanding traction on snowy, icy roads while featuring dedicated technology tread compounds and carcass constructions. The WTD tire is dedicated for use in severe winter conditions. With a specific blading technology, traction, stability and braking are improved while still providing high mileage performance.

WTD City design includes as well reinforced sidewall for better damage resistance in urban applications.



- Excellent winter traction and braking (snow and ice)
- Superb lateral grip, handling and steering stability
- High mileage, even wear pattern

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	
12R22.5	152/148 K		E C 72 ))
275/70R22.5	148/145 J (152/148 E)	City version	E D 73 ))
295/60R22.5	150/147 K (149/146 L)		D C 74 ))
295/80R22.5	152/148 L		E C 75 ))

Size	Load Index Speed Symbol	Comments	
315/60R22.5	152/148 L		E D 74 ))
315/70R22.5	154/150 K (152/148 L)		E C 74 ))
315/80R22.5	156/150 L (154/150 M)		D B 74 ))

# UltraGrip WTT



Goodyear UltraGrip WTT truck tire range has been developed to cope with today's demanding winter transport operations. This trailer axle tire features excellent performance in winter conditions, keeping fleet efficiency at maximum level by providing good mileage and all season capability.

The 265/70R19.5 UltraGrip WTT winter trailer tire complements the steer and drive tire range, for specific severe winter conditions. The WTT was developed for the use on paved national roads as well as on unpaved and forest roads. The high level of carcass robustness against external damages meets the needs of latter application.



- 4-rib design for massive rib distribution and excellent damage resistance
- Wide tread width for an extended mileage and a good lateral stability
- Excellent snow / mud traction thanks to staggered blocks and semi-open shoulders

M+S

## Technical Data



Size	Load Index Speed Symbol	Comments	
265/70R19.5	143/141 J		D B 72 ))

# Technical Data







# Trucks, Tractors and Buses

Size	Design	LI&SS (2nd LI&SS)	OD (mm)	Max. OD (mm)	SD (mm)	Max. SD (mm)	SLR (mm)	RCCF (mm)	Min. DSP	Tube	Flap	Rec. Rim	Poss. Rim widths
<b>17.5" sizes - 70 series</b>													
245/70R17.5	RHS II, RHD II	136/134 M	789	803	248	258	364	2406	270	-	-	6,75	6.75/7.50
265/70R17.5	RHS II, RHD II	139/136 M	817	831	262	272	376	2492	295	-	-	7,50	6.75/7.50/8.25
<b>17.5" sizes - 75 series</b>													
205/75R17.5	RHS II	124/122 M	753	765	204	212	353	2297	230	-	-	6,00	5.25/6.00
	RHD II	124/122 M (126/124 G)											
215/75R17.5	RHS II, RHD II	126/124 M	767	779	211	219	359	2339	237	-	-	6,00	6.00/6.75
225/75R17.5	RHS II, RHD II	129/127 M	783	797	226	235	366	2388	254	-	-	6,75	6.00/6.75
235/75R17.5	RHS II, RHD II	132/130 M	797	811	233	242	372	2431	262	-	-	6,75	6.75/7.50
<b>17.5" sizes - standard series</b>													
9.5R17.5	RHS II, RHD II	129/127 M	842	857	240	250	391	2568	261	-	-	6,00	6.00/6.75
<b>19.5" sizes - 70 series</b>													
245/70R19.5	RHS II, RHD II	136/134 M	839	853	248	258	389	2559	270	-	-	6,75	6.75/7.50
	MCA	136/134 L											
265/70R19.5	RHS II, RHD II	140/138 M	867	881	262	272	401	2644	295	-	-	7,50	6.75/7.50
	MCA	140/138 L											
	MSS II	143/141 J (140/138 L)	867	881	262	272	396	2644	295	-	-	7,50	7.50/8.25
285/70R19.5	RHS II, RHD II	146/144 L (144/142 M)	895	911	283	294	413	2730	311	-	-	7,50	8.25/9.00
305/70R19.5	RHS II, RHD II	148/145 M	923	941	305	317	424	2815	343	-	-	9,00	8.25/9.00
<b>22.5" sizes - 45 series</b>													
455/45R22.5	MCD	166 J	982	998	466	471	458	2995	-	-	-	15,00	
495/45R22.5	LHD, MSD II	169 K	1018	1036	499	519	473	3085		-	-	17,00	
<b>22.5" sizes - 50 series</b>													
355/50R22.5	LHS II+, WTS	154 K (152 L)	928	942	361	375	435	2812				11,75	
375/50R22.5	LHS II	156 K	948	964	374	389	444	2872		-	-	11,75	11.75/12.25
<b>22.5" sizes - 55 series</b>													
295/55R22.5	LHD II+	147/145 K	896	908	292	304	420	2733	329	-	-	9,00	9.00/9.75
385/55R22.5	LHS II+, WTS	160 K (158 L)	996	1012	386	401	456	3028		-	-	11,75	11.75/12.25
	MSD II	160 K											
<b>22.5" sizes - 60 series</b>													
295/60R22.5	LHS II, LHD II, RHS II, RHD II, WTD, WTS	150/147 K (149/146 L)	926	940	292	304	435	2806	335	-	-	9,00	9.00/9.75
315/60R22.5	LHS II+, LHD II+, RHS II, RHD II, WTS, WTD	152/148 L	950	966	313	326	445	2879	344	-	-	9,75	9.00/9.75
	MCA	152/148 J											
	LHS II+ HL, RHS II HL	154/148 L											

Rec. Inf. (bar)	Single Dual	LI	5.0	5.5	6.0	6.25	6.5	6.75	7.0	7.25	7.5	7.75	8.0	8.25	8.5	8.75	9.0
8,50	s	136	2940	3170	3400	3510	3620	3730	3840	3950	4060	4170	4270	4380	4480		
8,50	d	134	5550	5990	6420	6640	6850	7060	7270	7470	7680	7880	8080	8280	8480		
8,00	s	139	3340	3610	3870	3990	4120	4250	4370	4500	4620	4740	4860				
8,00	d	136	6160	6640	7120	7360	7590	7830	8060	8290	8510	8740	8960				
7,50	s	124	2320	2500	2680	2770	2860	2950	3030	3120	3200						
7,50	d	122	4340	4690	5020	5190	5360	5520	5680	5840	6000						
	s	126	2460	2660	2850	2940	3040	3130	3220	3310	3400						
	d	124	4630	5000	5360	5540	5710	5890	6060	6230	6400						
7,00	s	126	2600	2810	3010	3110	3210	3310	3400								
7,00	d	124	4890	5280	5660	5850	6040	6220	6400								
7,25	s	129	2750	2970	3190	3290	3400	3500	3600	3700							
7,25	d	127	5210	5620	6020	6220	6420	6620	6810	7000							
7,75	s	132	2820	3050	3260	3370	3480	3590	3690	3800	3900	4000					
7,75	d	130	5360	5780	6200	6400	6610	6810	7010	7210	7410	7600					
7,50	s	129	2680	2890	3100	3200	3300	3410	3510	3610	3700						
7,50	d	127	5070	5470	5860	6050	6250	6440	6630	6820	7000						
8,25	s	136	3010	3240	3480	3590	3710	3820	3930	4050	4160	4270	4380	4480			
8,25	d	134	5690	6140	6580	6800	7010	7230	7440	7650	7860	8070	8280	8480			
7,75	s	140	3530	3810	4080	4210	4350	4480	4610	4750	4880	5000					
7,75	d	138	6650	7180	7700	7950	8210	8460	8710	8950	9200	9440					
8,50	s	143	3570	3850	4130	4270	4400	4540	4670	4800	4940	5070	5200	5330	5450		
8,50	d	141	6740	7280	7800	8060	8320	8570	8820	9070	9320	9570	9820	10060	10300		
9,00	s	146	3750	4050	4340	4490	4630	4770	4910	5050	5190	5330	5470	5600	5740	5870	6000
9,00	d	144	7000	7560	8100	8370	8640	8900	9170	9430	9680	9940	10200	10450	10700	10960	11200
8,25	s	144	3760	4050	4350	4490	4630	4770	4920	5060	5190	5330	5470	5600			
8,25	d	142	7110	7670	8220	8490	8760	9030	9300	9560	9830	10090	10350	10600			
8,50	s	148	4130	4450	4770	4930	5090	5240	5400	5550	5700	5860	6010	6160	6300		
8,50	d	145	7590	8190	8780	9080	9360	9650	9940	10220	10500	10780	11060	11330	11600		
9,00	s	166	6630	7150	7670	7920	8180	8430	8670	8920	9170	9410	9650	9890	10130	10370	10600
9,00	s	169	7250	7830	8390	8670	8950	9220	9490	9760	10030	10300	10560	10820	11090	11350	11600
9,00	s	154	4690	5060	5430	5610	5780	5960	6140	6310	6490	6660	6830	7000	7170	7340	7500
8,50	s	152	4650	5020	5380	5560	5730	5910	6080	6260	6430	6600	6770	6940	7100		
9,00	s	156	5000	5400	5790	5980	6170	6360	6550	6730	6920	7100	7290	7470	7650	7830	8000
9,00	s	147	3850	4150	4450	4600	4750	4890	5030	5180	5320	5460	5600	5740	5880	6030	6150
9,00	d	145	7250	7830	8390	8670	8950	9220	9490	9760	10030	10300	10560	10820	11090	11350	11600
9,00	s	160	5630	6070	6510	6730	6940	7150	7370	7580	7780	7990	8200	8400	8600	8800	9000
8,50	s	158	5560	6010	6440	6650	6860	7070	7280	7490	7700	7900	8100	8300	8500		
9,00	s	150	4190	4520	4850	5010	5170	5330	5480	5640	5800	5950	6100	6250	6410	6560	6700
9,00	d	147	7690	8300	8900	9190	9490	9780	10060	10350	10640	10920	11200	11480	11760	12030	12300
9,00	s	149	4070	4390	4700	4860	5020	5170	5320	5470	5620	5770	5920	6070	6210	6360	6500
9,00	d	146	7500	8100	8680	8970	9250	9540	9820	10100	10380	10650	10930	11200	11470	11740	12000
9,00	s	152	4440	4790	5140	5310	5480	5650	5810	5980	6140	6300	6470	6630	6790	6950	7100
9,00	d	148	7880	8500	9110	9420	9720	10010	10310	10600	10890	11180	11470	11760	12040	12320	12600
9,00	s	154	4690	5060	5430	5610	5790	5960	6140	6310	6490	6660	6830	7000	7170	7340	7500

# Trucks, Tractors and Buses

Size	Design	LI&SS (2nd LI&SS)	OD (mm)	Max. OD (mm)	SD (mm)	Max. SD (mm)	SLR (mm)	RCCF (mm)	Min. DSP	Tube	Flap	Rec. Rim	Poss. Rim widths
<b>22.5" sizes - 65 series</b>													
385/65R22.5	LHS II+, RHS II, MSS II, WTS	160 K (158 L)	1072	1092	389	405	496	3248		-	-	11,75	11.75/12.25
	RHS II HL	164 K (158 L)											
<b>22.5" sizes - 70 series</b>													
275/70R22.5	LHS II, LHD II, RHS II, RHD II	148/145 M	958	974	276	287	445	2922	303	-	-	7,50	7.50/8.25
	MSS II	148/145 K											
	MCA, MCD Traction, WTS City, WTD City	148/145 J (152/148 E)											
305/70R22.5	LHS II, LHD II	152/148 L (150/148 M)	1000	1018	305	317	463	3050	334	-	-	8,25	8.25/9.00
	RHS II, RHD II	153/150 L (150/148 M)											
<b>22.5" sizes - 75 series</b>													
315/70R22.5	LHS II+, LHD II+, RHS II, RHD II+154/150 L (152/148 M)	1014	1032	312	318	468	3093	351	-	-	9,00	9.00/9.75	
	WTS, WTD	154/150 K (152/148 L)											
	LHS II+ HL, RHS II HL	156/150 L											
<b>22.5" sizes - 80 series</b>													
445/75R22.5	MSS	170 J	1240	1266	444	462	570	3782		-	-	14,00	13.00/14.00
<b>22.5" sizes - 80 series</b>													
295/80R22.5	LHS II+, LHD II+, RHS II, RHD II+	152/148 M	1044	1062	298	310	487	3184	326	-	-	8,25	8.25/9.00
	MSS II, MSD II	152/148 K											
	MCA	152/148 J (154/150 E)											
	WTS, WTD	152/148 L											
	LHS II+ HL, RHS II HL, Marathon Coach, Ultragrip Coach	154/149 M											
315/80R22.5	LHS II+, LHD II+, RHS II, RHD II+, Marathon Coach, Ultragrip Coach, WTD	156/150 L (154/150 M)	1076	1096	312	318	500	3282	351	-	-	9,00	9.00/9.75
	MSS II, MSD II	156/150 K											
	WTS	156/150 K (154/150 L)											
	LHS II+ HL	158/150 L											
	RHS II HL	158/150 L (154/150 M)											
<b>22.5" sizes - 90 series</b>													
375/90R22.5	MSS II, ORD	164/160 G	1248	1276	369	387	573	3806		-	-	11,75	
<b>22.5" sizes - standard series</b>													
11R22.5	LHS LR8	148/145 M	1050	1070	279	290	489	3203	305	-	-	7,50	7.50/8.25
	RHS II, RHDII	148/145 L											
	MSS	148/145 K											
	MCA	148/145 J (152/148 E)											
12R22.5	LHS LR8, RHS II, RHD II	152/148 L	1084	1104	300	312	504	3306	329	-	-	8,25	8.25/9.00
	MSD II, MSS II, WTD	152/148 K											
	WTS	152/148 K (150/146 L)											
	ORD	152/148 J											
13R22.5	RHS II, RHD II	156/150 L	1124	1146	312	326	521	3428	351	-	-	9,00	9.00/9.75
	MSS II, MSD II	156/150 K											
	ORD	156/150 G (154/150 J)											



<b>Rec. Infl. (bar)</b>	<b>Single Dual</b>	<b>LI</b>	<b>5.0</b>	<b>5.5</b>	<b>6.0</b>	<b>6.25</b>	<b>6.5</b>	<b>6.75</b>	<b>7.0</b>	<b>7.25</b>	<b>7.5</b>	<b>7.75</b>	<b>8.0</b>	<b>8.25</b>	<b>8.5</b>	<b>8.75</b>	<b>9.0</b>
9,00	s	160	5630	6070	6510	6730	6940	7150	7370	7580	7780	7990	8200	8400	8600	8800	9000
8,50	s	158	5560	6010	6440	6650	6860	7070	7280	7490	7700	7900	8100	8300	8500		
9,00	s	164	6250	6750	7230	7470	7710	7950	8180	8420	8650	8880	9110	9330	9560	9780	10000
9,00	s	148	3940	4250	4560	4710	4860	5010	5160	5300	5450	5590	5740	5880	6020	6160	6300
9,00	d	145	7250	7830	8390	8670	8950	9220	9490	9760	10030	10300	10560	10820	11090	11350	11600
9,00	s	152	4440	4790	5140	5310	5480	5650	5810	5980	6140	6300	6470	6630	6790	6950	7100
9,00	d	148	7880	8500	9110	9420	9720	10010	10310	10600	10890	11180	11470	11760	12040	12320	12600
9,00	s	152	4440	4790	5140	5310	5480	5650	5810	5980	6140	6300	6470	6630	6790	6950	7100
9,00	d	148	7880	8500	9110	9420	9720	10010	10310	10600	10890	11180	11470	11760	12040	12320	12600
9,00	s	150	4190	4520	4850	5010	5170	5330	5480	5640	5800	5950	6100	6250	6410	6560	6700
9,00	d	148	7880	8500	9110	9420	9720	10010	10310	10600	10890	11180	11470	11760	12040	12320	12600
9,00	s	153	4570	4930	5280	5460	5630	5800	5980	6150	6310	6480	6650	6810	6980	7140	7300
9,00	d	150	8380	9040	9690	10010	10330	10650	10960	11280	11590	11890	12200	12500	12810	13110	13400
9,00	s	154	4690	5060	5430	5610	5790	5960	6140	6310	6490	6660	6830	7000	7170	7340	7500
9,00	s	156	5000	5400	5790	5980	6170	6360	6550	6730	6920	7100	7290	7470	7650	7830	8000
9,00	d	150	8380	9040	9690	10010	10330	10650	10960	11280	11590	11890	12200	12500	12810	13110	13400
8,50	s	152	4650	5020	5380	5560	5730	5910	6080	6260	6430	6600	6770	6940	7100		
8,50	d	148	8250	8900	9540	9860	10170	10480	10790	11100	11400	11710	12010	12310	12600		
8,00	s	170	8240	8900	9540	9850	10170	10480	10790	11100	11400	11700	12000				
8,50	s	152	4650	5020	5380	5560	5730	5910	6080	6260	6430	6600	6770	6940	7100		
8,50	d	148	8250	8900	9540	9860	10170	10480	10790	11100	11400	11710	12010	12310	12600		
8,50	s	154	4910	5300	5680	5870	6060	6240	6430	6610	6790	6970	7150	7330	7500		
8,50	d	150	8770	9460	10150	10480	10820	11150	11480	11800	12130	12450	12770	13090	13400		
	d	149	8510	9180	9840	10170	10490	10820	11130	11450	11770	12080	12390	12700	13000		
8,50	s	156	5240	5650	6060	6260	6460	6660	6850	7050	7240	7440	7630	7820	8000		
8,50	d	150	8770	9460	10150	10480	10820	11150	11480	11800	12130	12450	12770	13090	13400		
8,50	s	154	4910	5300	5680	5870	6060	6240	6430	6610	6790	6970	7150	7330	7500		
8,50	d	150	8770	9460	10150	10480	10820	11150	11480	11800	12130	12450	12770	13090	13400		
7,50	s	164	7230	7810	8370	8650	8920	9200	9470	9740	10000						
7,50	d	160	13020	14050	15060	15560	16060	16550	17040	17520	18000						
8,50	s	148	4130	4450	4770	4930	5090	5240	5400	5550	5700	5860	6010	6160	6300		
8,50	d	145	7590	8190	8780	9080	9360	9650	9940	10220	10500	10780	11060	11330	11600		
8,50	s	152	4650	5020	5380	5560	5730	5910	6080	6260	6430	6600	6770	6940	7100		
8,50	d	148	8250	8900	9540	9860	10170	10480	10790	11100	11400	11710	12010	12310	12600		
8,50	s	152	4650	5020	5380	5560	5730	5910	6080	6260	6430	6600	6770	6940	7100		
8,50	d	148	8250	8900	9540	9860	10170	10480	10790	11100	11400	11710	12010	12310	12600		
8,00	s	150	4610	4970	5330	5500	5680	5850	6030	6200	6370	6540	6700				
8,00	d	146	8240	8900	9540	9850	10170	10480	10790	11100	11400	11700	12000				
8,75	s	156	5120	5520	5920	6120	6310	6510	6700	6890	7080	7260	7450	7640	7820	8000	
8,75	d	150	8570	9250	9910	10240	10570	10890	11210	11530	11850	12170	12480	12790	13100	13400	
8,50	s	154	4910	5300	5680	5870	6060	6240	6430	6610	6790	6970	7150	7330	7500		
8,50	d	150	8770	9460	10150	10480	10820	11150	11480	11800	12130	12450	12770	13090	13400		

# Trucks, Tractors and Buses

Size	Design	LI&SS (2nd LI&SS)	OD (mm)	Max. OD (mm)	SD (mm)	Max. SD (mm)	SLR (mm)	RCCF (mm)	Min. DSP	Tube	Flap	Rec. Rim	Poss. Rim widths
<b>20" &amp; 24" sizes - standard series</b>													
12.00R20	MSS II, MSD II	154/150 K	1122	1146	313	319	513	3422	360	12.00R20	20R8.5	8,50	7.33V/7.5
	ORD	154/150 G											B7.5/8.0 8.0V/B8.0 8.5 8.5V/B8.5 9.0/9.0V
14.00R20	ORD	164/160 G	1238	1268	370	377	564	3776	426	-	-	10,00	9.0/10.00V 10.00W
12.00R24	MSS II, MSD II	160/156 K	1226	1250	313	319	567	3739	360	12.00R24	24R8.5	8,50	8.5V/B8.5/9.0/9.0V
	ORD	160/156 G											
<b>20" sizes - 85 series</b>													
365/85R20	ORD	164 J	1128	1152	364	379	518	3440				10,00	
<b>24" sizes - 95 series</b>													
325/95R24	MSS II, MSD II	162/160 K	1226	1250	313	319	567	3739	360	12.00R24	24R8.5	8,50	8.50V/B8.5
	ORD	162/160 G											9.0/9.00V

<b>Rec. Infl. (bar)</b>	<b>Single Dual</b>	<b>LI</b>	<b>5.0</b>	<b>5.5</b>	<b>6.0</b>	<b>6.25</b>	<b>6.5</b>	<b>6.75</b>	<b>7.0</b>	<b>7.25</b>	<b>7.5</b>	<b>7.75</b>	<b>8.0</b>	<b>8.25</b>	<b>8.5</b>	<b>8.75</b>	<b>9.0</b>
8,50	s	154	4910	5300	5680	5870	6060	6240	6430	6610	6790	6970	7150	7330	7500		
8,50	d	150	8770	9460	10150	10480	10820	11150	11480	11800	12130	12450	12770	13090	13400		
7,50	s	164	7230	7810	8370	8650	8920	9200	9470	9740	10000						
7,50	d	160	13020	14050	15060	15560	16060	16550	17040	17520	18000						
8,50	s	160	5890	6360	6820	7040	7270	7490	7710	7930	8150	8360	8580	8790	9000		
8,50	d	156	10470	11300	12110	12510	12910	13310	13700	14090	14480	14870	15250	15630	16000		
8,00	s	164	6870	7410	7950	8210	8470	8730	8990	9250	9500	9750	10000				
8,50	s	162	6220	6710	7190	7430	7670	7910	8140	8370	8600	8830	9060	9280	9500		
8,50	d	160	11780	12710	13630	14080	14530	14970	15420	15850	16290	16720	17150	17580	18000		



# Trailers

Size	Design	LI&SS (2nd LI&SS)	OD (mm)	Max. OD (mm)	SD (mm)	Max. SD (mm)	SLR (mm)	RCCF (mm)	Min. DSP	Tube	Flap	Rec. Rim	Poss. Rim widths
<b>17.5" sizes - 65 series</b>													
205/65R17.5	RHT II	129/127 K (130/130 J)	711	721	204	212	329	2154	235	-	-	6,00	6.00/6.75
<b>17.5" sizes - 70 series</b>													
245/70R17.5	RHT II	143/141 J (146/146 F)	789	803	248	258	360	2406	270	-	-	6,75	6.75/7.50
<b>17.5" sizes - 75 series</b>													
215/75R17.5	RHT II	135/133 J	767	779	211	219	351	2324	237	-	-	6,00	6.00/6.75
235/75R17.5	RHT II	143/141 J (144/144 F)	797	811	233	242	363	2431	262	-	-	6,75	6.75/7.50
<b>17.5" sizes - standard series</b>													
9.5R17.5	RHT II	143/141 J	842	857	240	250	381	2568	261	-	-	6,00	6.00/6.75
<b>19.5" sizes - 50 series</b>													
435/50R19.5	LHT II, RHT II	160 J	931	949	438	456	422	2840		-	-	14,00	14.00/15.00
<b>19.5" sizes - 55 series</b>													
265/55R19.5	LHT	141/140 J (142/142 G)	787	799	264	275	368	2400	297	-	-	8,25	
<b>19.5" sizes - 70 series</b>													
245/70R19.5	RHT II	141/140 J	839	853	248	258	385	2559	270	-	-	6,75	6.75/7.50
265/70R19.5	RHT II, WTT	143/141 J	867	881	262	272	401	2644	295	-	-	7,50	7.50/8.25
285/70R19.5	RHT II	150/148 J	895	911	283	294	408	2730	318	-	-	8,25	8.25/9.00
<b>22.5" sizes - 40 series</b>													
455/40R22.5	LHT II+	160 J	936	950	453	471	439	2855				15,00	
<b>22.5" sizes - 50 series</b>													
435/50R22.5	LHT	164 J	1008	1026	438	456	460	3074		-	-	14,00	
<b>22.5" sizes - 55 series</b>													
385/55R22.5	LHT II, RHT II	160 K (158 L)	996	1012	386	401	456	3038		-	-	11,75	11.75/12.25
<b>22.5" sizes - 65 series</b>													
385/65R22.5	LHT II, RHT II	160 K (158 L)	1072	1092	389	405	496	3248		-	-	11,75	11.75/12.25
	MST II	160 J (158 K)											
	RHT II HL	164 K (158 L)											
425/65R22.5	RHT II	165 K	1124	1146	430	447	518	3406		-	-	13,00	13.00/14.00
445/65R22.5	RHT, MST II	169 K	1150	1174	454	472	529	3485		-	-	14,00	13.00/14.00
<b>22.5" sizes - 70 series</b>													
275/70R22.5	LHT II	152/148 J (148/145 L)	958	974	276	287	445	2922	303	-	-	7,50	7.50/8.25
<b>22.5" sizes - standard series</b>													
11R22.5	LHT	148/145 J (146/143 L)	1050	1070	279	290	489	3203	305	-	-	7,50	7.50/8.25

Rec. Infl. (bar)	Single Dual	LI	5.0	5.5	6.0	6.25	6.5	6.75	7.0	7.25	7.5	7.75	8.0	8.25	8.5	8.75	9.0
9,00	s	129	2320	2500	2680	2770	2860	2940	3030	3120	3200	3290	3370	3460	3540	3620	3700
9,00	d	127	4380	4730	5070	5230	5400	5570	5730	5890	6050	6220	6380	6530	6690	6850	7000
9,00	s	130	2380	2570	2750	2840	2930	3020	3110	3200	3290	3380	3460	3550	3640	3720	3800
9,00	d	130	4750	5130	5500	5680	5860	6040	6220	6400	6570	6750	6920	7090	7270	7440	7600
8,75	s	143	3490	3760	4040	4170	4300	4430	4560	4690	4820	4950	5080	5200	5330	5450	
8,75	d	141	6590	7110	7620	7870	8130	8370	8620	8870	9110	9350	9590	9830	10070	10300	
8,75	s	146	3840	4140	4440	4590	4740	4880	5020	5170	5310	5450	5590	5730	5870	6000	
8,75	d	146	7670	8280	8880	9170	9470	9760	10040	10330	10610	10890	11170	11450	11730	12000	
8,50	s	135	2860	3080	3300	3410	3520	3630	3740	3840	3950	4050	4160	4260	4360		
8,50	d	133	5390	5820	6240	6450	6650	6860	7060	7260	7460	7660	7850	8050	8240		
8,75	s	143	3490	3760	4040	4170	4300	4430	4560	4690	4820	4950	5080	5200	5330	5450	
8,75	d	141	6590	7110	7620	7870	8130	8370	8620	8870	9110	9350	9590	9830	10070	10300	
8,75	s	144	3580	3870	4150	4280	4420	4560	4690	4820	4960	5090	5220	5350	5480	5600	
8,75	d	144	7160	7730	8290	8560	8830	9110	9370	9640	9910	10170	10430	10690	10950	11200	
8,75	s	143	3490	3760	4040	4170	4300	4430	4560	4690	4820	4950	5080	5200	5330	5450	
8,75	d	141	6590	7110	7620	7870	8130	8370	8620	8870	9110	9350	9590	9830	10070	10300	
9,00	s	160	5630	6070	6510	6730	6940	7150	7370	7580	7780	7990	8200	8400	8600	8800	9000
9,00	s	141	3220	3480	3730	3850	3970	4100	4220	4340	4460	4570	4690	4810	4920	5040	5150
9,00	d	140	6250	6750	7230	7470	7710	7950	8180	8420	8650	8880	9110	9330	9560	9780	10000
9,00	s	142	3320	3580	3840	3960	4090	4220	4340	4460	4590	4710	4830	4950	5070	5190	5300
9,00	d	142	6630	7150	7670	7920	8180	8430	8670	8920	9170	9410	9650	9890	10130	10370	10600
8,50	s	141	3370	3640	3900	4030	4160	4290	4410	4540	4660	4790	4910	5030	5150		
8,50	d	140	6550	7060	7570	7820	8070	8320	8570	8810	9050	9290	9530	9770	10000		
8,50	s	143	3570	3850	4130	4270	4400	4540	4670	4800	4940	5070	5200	5330	5450		
8,50	d	141	6740	7280	7800	8060	8320	8570	8820	9070	9320	9570	9820	10060	10300		
9,00	s	150	4190	4520	4850	5010	5170	5330	5480	5640	5800	5950	6100	6250	6410	6560	6700
9,00	d	148	7880	8500	9110	9420	9720	10010	10310	10600	10890	11180	11470	11760	12040	12320	12600
9,00	s	160	5630	6070	6510	6730	6940	7150	7370	7580	7780	7990	8200	8400	8600	8800	9000
9,00	s	164	6250	6750	7230	7470	7710	7950	8180	8420	8650	8880	9110	9330	9560	9780	10000
9,00	s	160	5630	6070	6510	6730	6940	7150	7370	7580	7780	7990	8200	8400	8600	8800	9000
8,50	s	158	5560	6010	6440	6650	6860	7070	7280	7490	7700	7900	8100	8300	8500		
9,00	s	160	5630	6070	6510	6730	6940	7150	7370	7580	7780	7990	8200	8400	8600	8800	9000
8,50	d	158	5560	6010	6440	6650	6860	7070	7280	7490	7700	7900	8100	8300	8500		
9,00	s	164	6250	6750	7230	7470	7710	7950	8180	8420	8650	8880	9110	9330	9560	9780	10000
8,25	s	165	6910	7450	7990	8250	8520	8780	9040	9290	9550	9800	10050	10300			
9,00	s	169	7250	7830	8390	8670	8950	9220	9490	9760	10030	10300	10560	10820	11090	11350	11600
9,00	s	152	4440	4790	5140	5310	5480	5650	5810	5980	6140	6300	6470	6630	6790	6950	7100
9,00	d	148	7880	8500	9110	9420	9720	10010	10310	10600	10890	11180	11470	11760	12040	12320	12600
9,00	s	148	3940	4250	4560	4710	4860	5010	5160	5300	5450	5590	5740	5880	6020	6160	6300
9,00	d	145	7250	7830	8390	8670	8950	9220	9490	9760	10030	10300	10560	10820	11090	11350	11600
8,50	s	148	4130	4450	4770	4930	5090	5240	5400	5550	5700	5860	6010	6160	6300		
8,50	d	145	7590	8190	8780	9080	9360	9650	9940	10220	10500	10780	11060	11330	11600		
8,50	s	146	3930	4240	4550	4700	4850	4990	5140	5290	5430	5580	5720	5860	6000		
8,50	d	143	7130	7700	8250	8530	8800	9070	9340	9600	9870	10130	10390	10650	10900		

# Regrooving Guidelines







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# Regrooving Guidelines

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Depending on conditions of use and maintenance, Goodyear's high-quality tire casings can give each tire multiple lives (new, regrooved, retread, regrooved retread) lowering operating costs.

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## Regrooving basics

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1. A regrooved tire is a tire, either new or retreaded, on which the tread pattern has been renewed or a new tread pattern has been produced by cutting into the tread deeper than the original moulded groove depth.
2. The regrooving of truck tires should be entrusted solely to fully trained operators.
3. Only proven regrooving tools with electrically heated blades should be used.
4. A minimum of remaining undertread rubber is essential to avoid damage at the top breaker belt, groove cracking and/or stone damage.
5. If regrooved according to the recommendations outlined in this manual, Goodyear tires can, in principle, be mounted on all wheel positions. However, since it has become standard practice for users to normally fit new tires on front axles, the regrooved tires will usually be mounted on the rear axles or trailer positions.
6. Tires which are heavily damaged in the tread area (e.g. rib tearing, multiple cutting and chipping) should not be regrooved but retreaded.

All tires that are marked 'Regroovable' in the sidewall areas have extra undertread thickness for regrooving purposes.

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## Regrooving recommendations

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1. Under NO circumstances should the tire be completely worn before regrooving. It is strongly recommended to regroove when 3 to 6 mm of the original design is still left.
2. Determine the blade setting depth for each individual tire as follows:
  - a) Measure the remaining groove depth AT THE POINT OF LOWEST TREAD DEPTH;
  - b) Set the blade in the cutter head to the 'minimum remaining groove depth' + 3 mm maximum regrooving depth. This will maintain a 3 mm gauge under the regrooved tread.
3. While regrooving, hold the cutter so that the underside of the cutting head is flush against the tread surface.
4. The maximum regrooving depth for all Goodyear tires is 3 mm.
5. If the wear is irregular, probing of the remaining undertread gauge is necessary to ensure that 3 mm of undertread will remain after regrooving.

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## Regrooving Goodyear remould tires

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Provided that the retreading process is on Goodyear casings carried out by Goodyear Authorised Retreader, Goodyear remould tires may be regrooved to the same pattern as the new tire, with a maximum regrooving depth of 3 mm.

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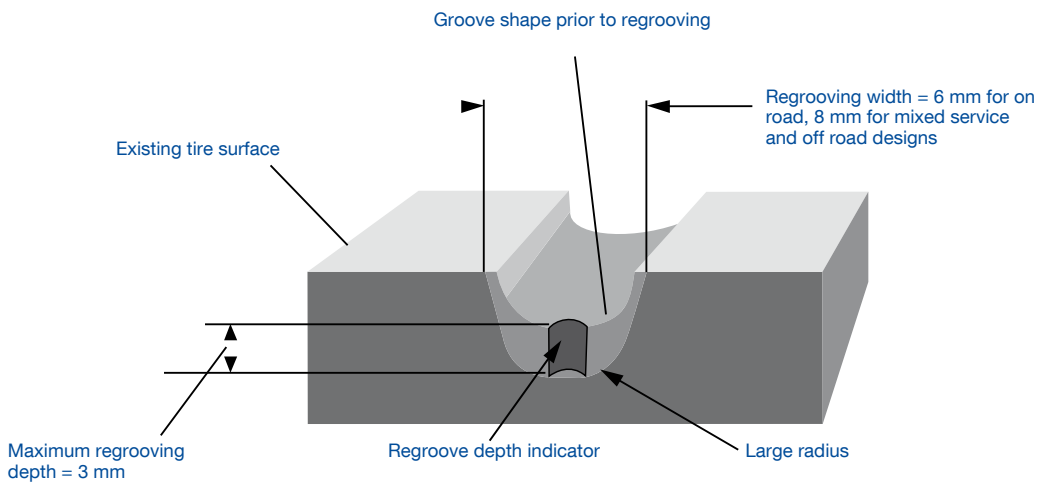
## Regrooving parameters

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Regroove Goodyear truck tires when there is still sufficient tread depth. Suggested remaining tread depths are: 3-4 mm for regular highway use; 5-6 mm in operating conditions where penetration damage is likely.

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Regrooving depth indicators are moulded into the tire design. They allow regrooving tools to be set to the optimum depth.

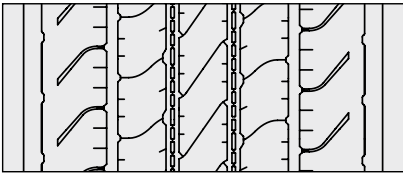




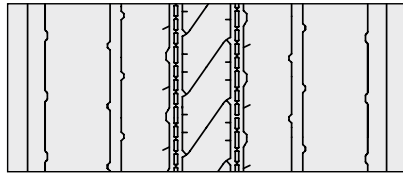
# Marathon

## Marathon LHS II / LHS II+ 22.5

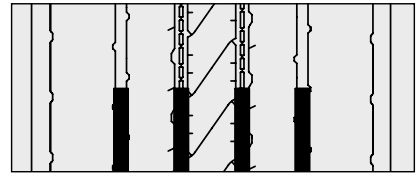
New tire tread



80% worn



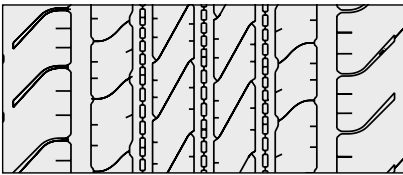
Regrooved tire



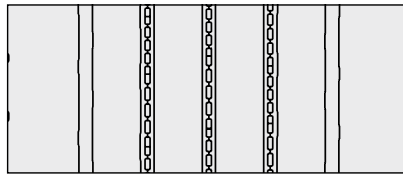
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Marathon LHS II 65, 55 and 50 series

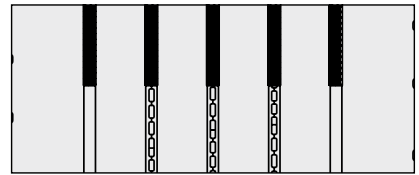
New tire tread



80% worn



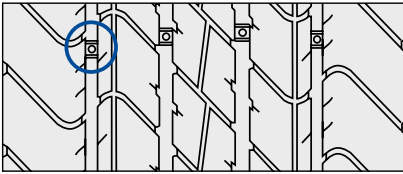
Regrooved tire



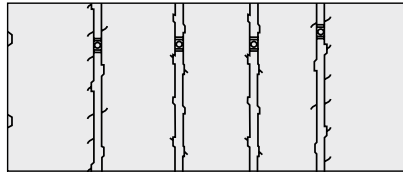
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Marathon LHS LR8

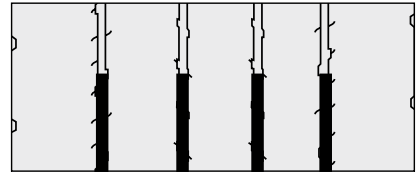
New tire tread



80% worn



Regrooved tire

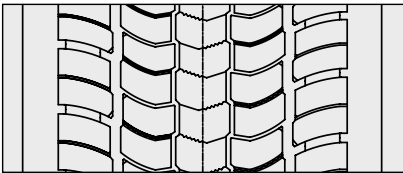


Maximum regrooving depth 3 mm, regrooving width 6 mm. Retreadable by Goodyear TreadMax.

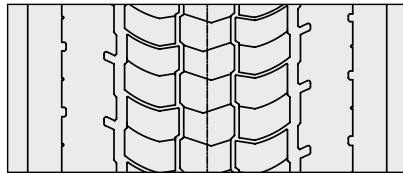
O = Regrooving depth indicators

## Marathon LHD II / LHD II+ 22.5

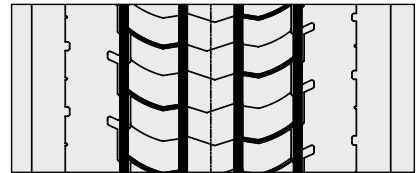
New tire tread



80% worn



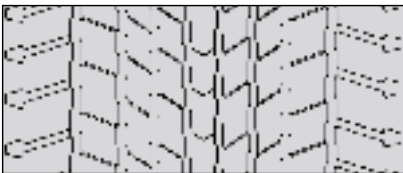
Regrooved tire



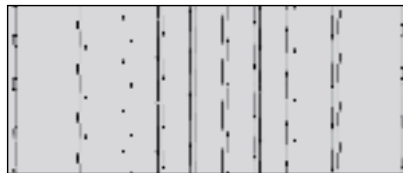
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Marathon LHD Super Single 495/45R22.5

New tire tread



80% worn



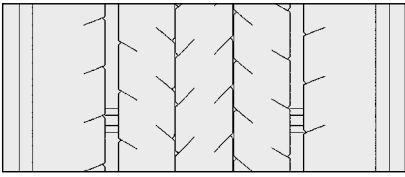
Regrooved tire



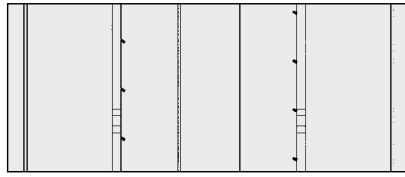
Maximum regrooving depth 3 mm, regrooving width 6 mm. Retreadable by Goodyear TreadMax.

## Marathon LHT II 22.5

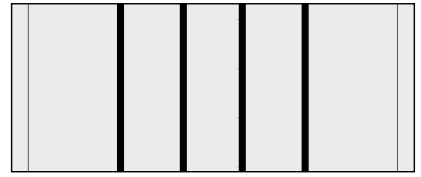
New tire tread



80% worn



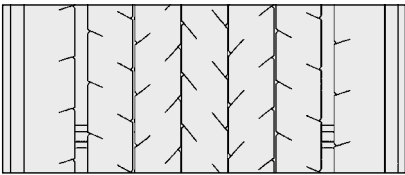
Regrooved tire



Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Marathon LHT II 435/50R19.5

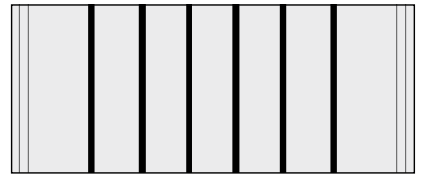
New tire tread



80% worn



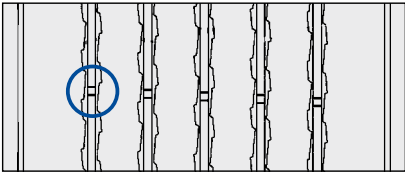
Regrooved tire



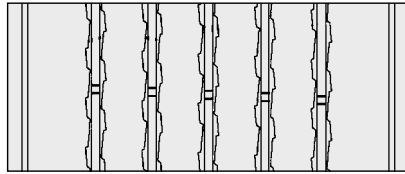
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Marathon LHT 435/50R22.5

New tire tread



80% worn



Regrooved tire



Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

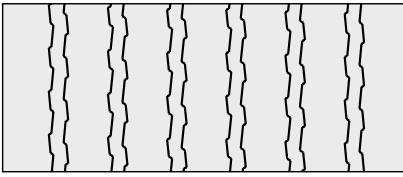
O = Regrooving depth indicators



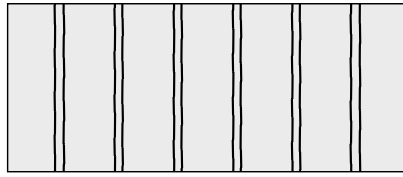
# Marathon

## Marathon LHT+ 455/40R22.5

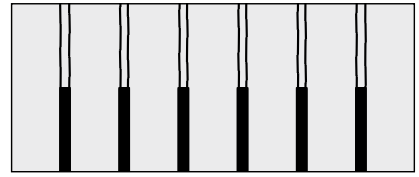
New tire tread



80% worn



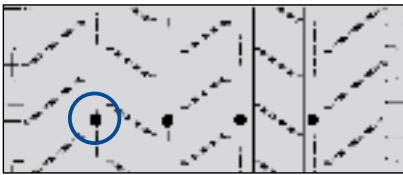
Regrooved tire



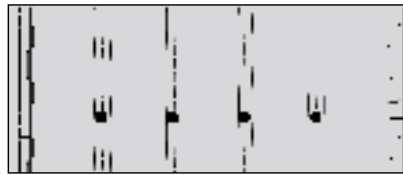
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Marathon LHT 265/55R19.5

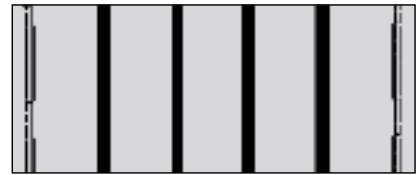
New tire tread



80% worn



Regrooved tire



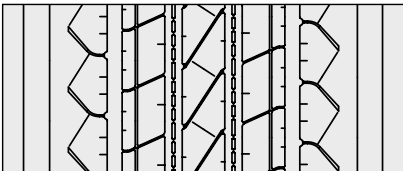
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

O = Regrooving depth indicators

# Regional

## Regional RHS II 22.5

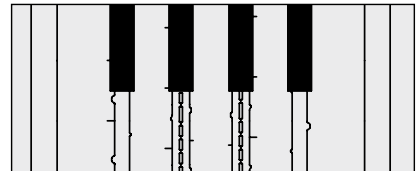
New tire tread



80% worn



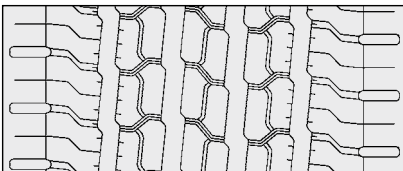
Regrooved tire



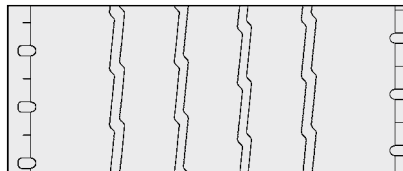
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Regional RHS II 17.5 and 19.5

New tire tread



80% worn



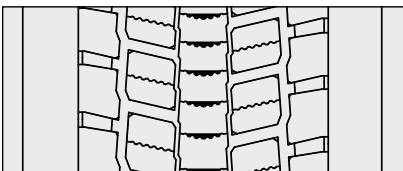
Regrooved tire



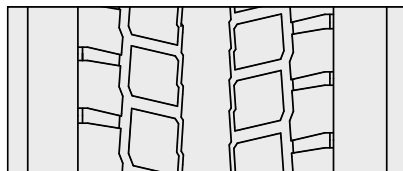
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Regional RHD II / RHD II+ 22.5

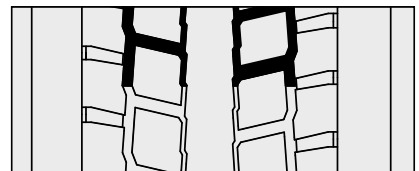
New tire tread



80% worn



Regrooved tire

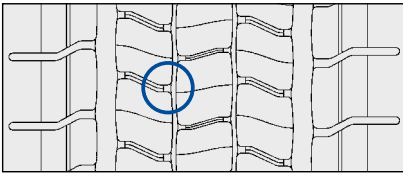


Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

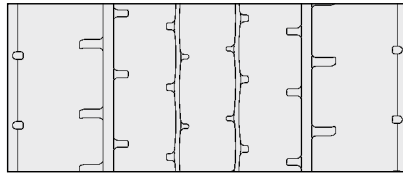


## Regional RHD II 17.5 and 19.5

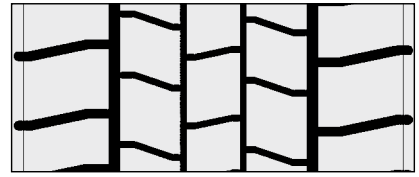
New tire tread



80% worn



Regrooved tire

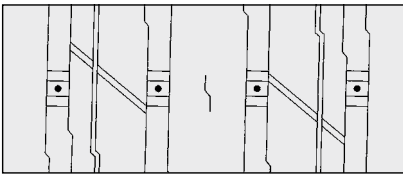


Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

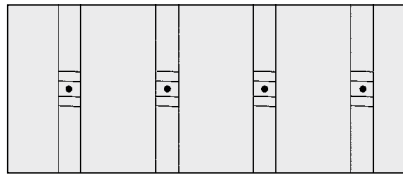
O = Regrooving depth indicators

## Regional RHT II

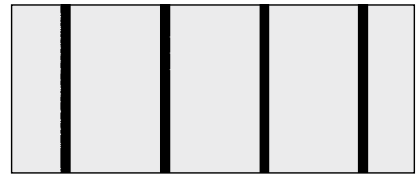
New tire tread



80% worn



Regrooved tire

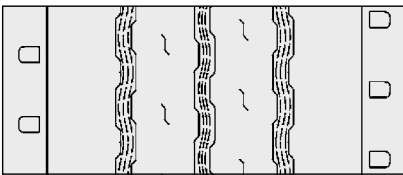


Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

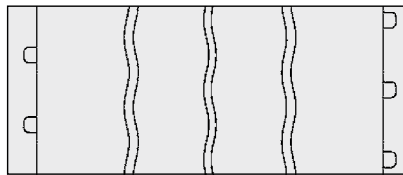
O = Regrooving depth indicators

## Regional RHT II low platform

New tire tread



80% worn



Regrooved tire



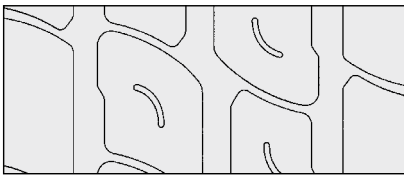
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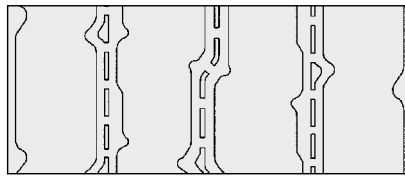
# Omnitrac

## Omnitrac MSS II 4 ribs

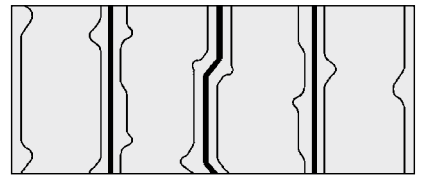
New tire tread



80% worn



Regrooved tire

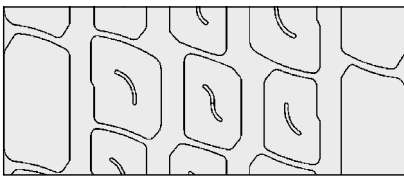


Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

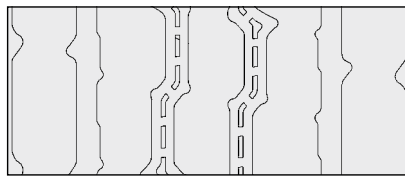
O = Regrooving depth indicators

## Omnitrac MSS II 5 ribs

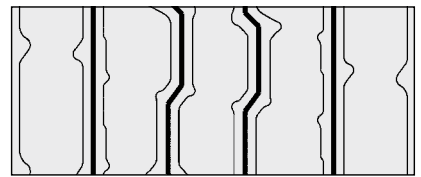
New tire tread



80% worn



Regrooved tire

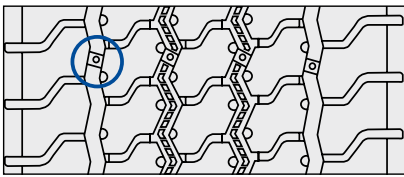


Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

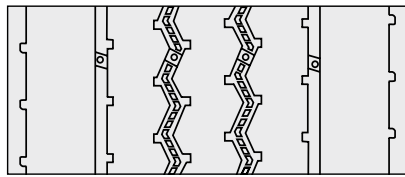
O = Regrooving depth indicators

## Omnitrac MSS 75 and 90 series

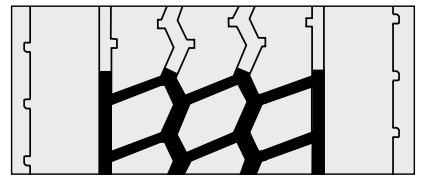
New tire tread



80% worn



Regrooved tire

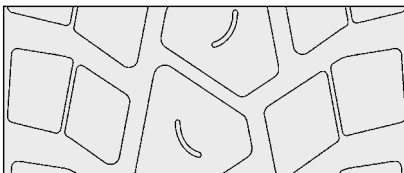


Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

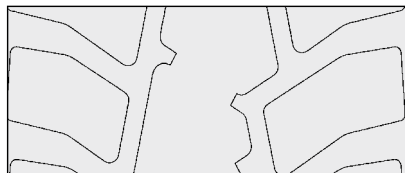
O = Regrooving depth indicators

## Omnitrac MSD II

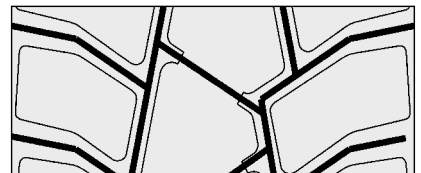
New tire tread



80% worn



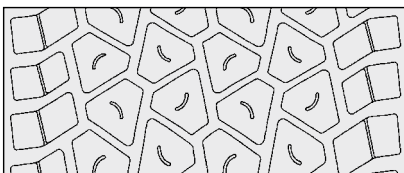
Regrooved tire



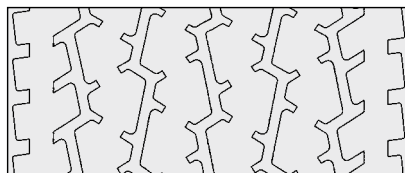
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Omnitrac MSD II 495/45R22.5

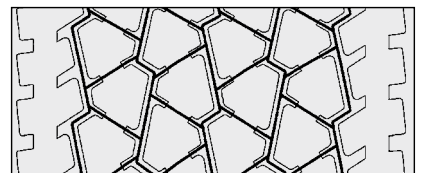
New tire tread



80% worn



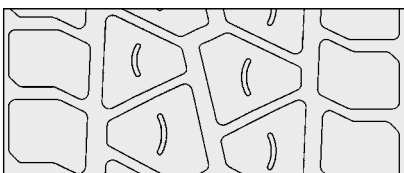
Regrooved tire



Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Omnitrac MSD II 385/55R22.5

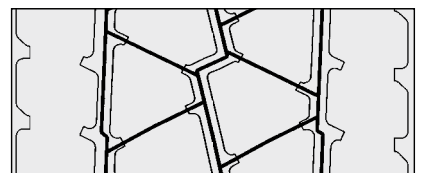
New tire tread



80% worn



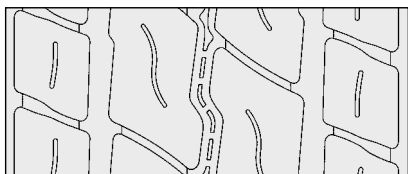
Regrooved tire



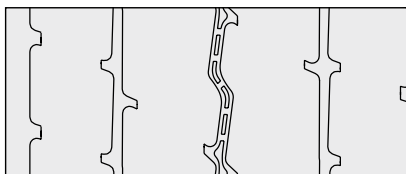
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## Omnitrac MST II

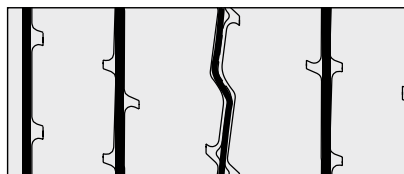
New tire tread



80% worn



Regrooved tire



Maximum regrooving depth 3 mm, regrooving width 8 mm. Retreadable by Goodyear TreadMax.

O = Regrooving depth indicators

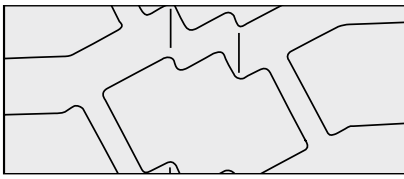




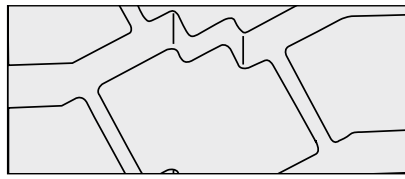
# Offroad

## Offroad ORD

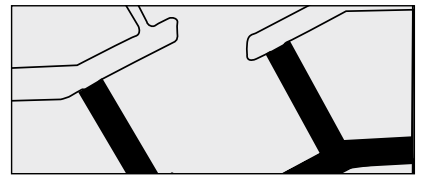
New tire tread



80% worn



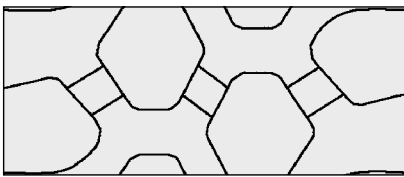
Regrooved tire



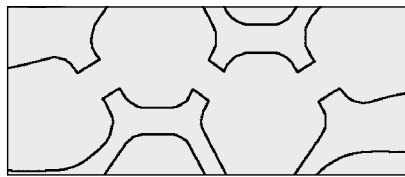
Maximum regrooving depth 3 mm, regrooving width 8-10 mm. Retreadable by Goodyear TreadMax.

## Offroad ORD 90 and 85 series

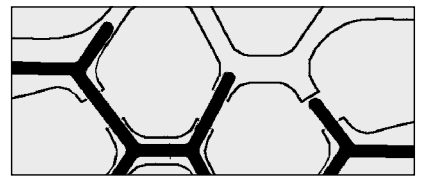
New tire tread



80% worn



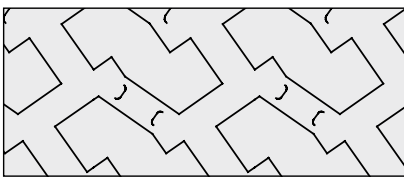
Regrooved tire



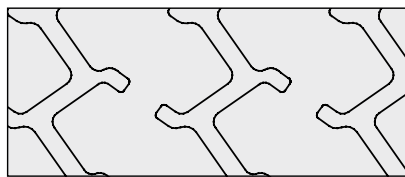
Maximum regrooving depth 3 mm, regrooving width 8-10 mm. Retreadable by Goodyear TreadMax.

## Offroad ORD 14.00R20

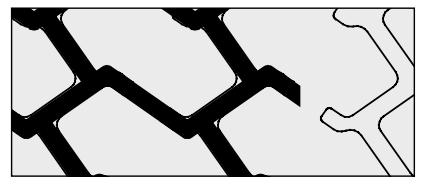
New tire tread



80% worn



Regrooved tire



Maximum regrooving depth 3 mm, regrooving width 8-10 mm. Retreadable by Goodyear TreadMax.



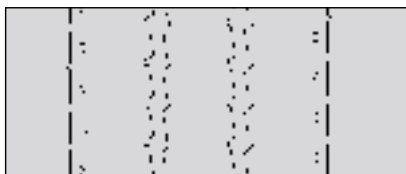
# Urban

## UrbanMax MCA

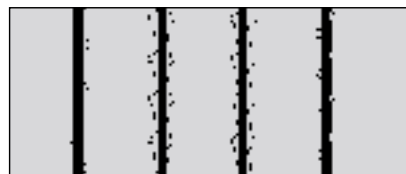
New tire tread



80% worn



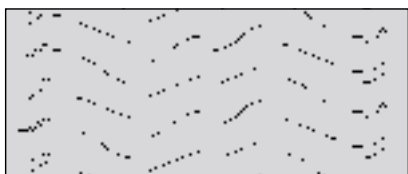
Regrooved tire



Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## UrbanMax MCD Traction

New tire tread



80% worn



Regrooved tire



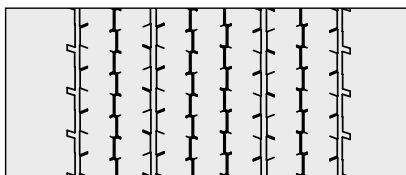
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## MCD Super Single

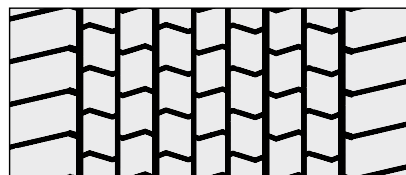
New tire tread



80% worn



Regrooved tire



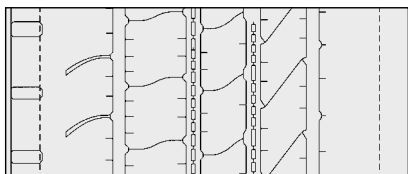
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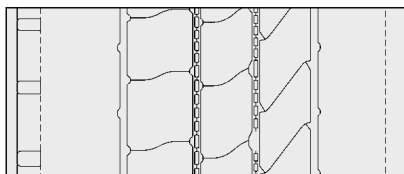
# Coach

## Marathon Coach

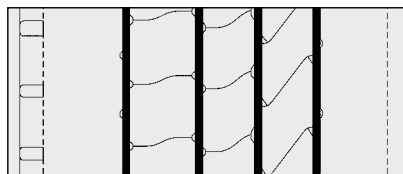
New tire tread



80% worn



Regrooved tire

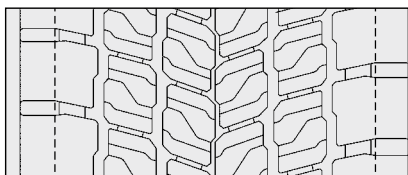


Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

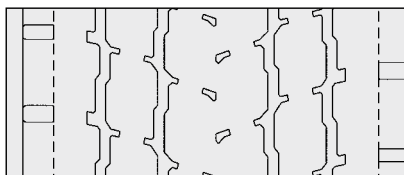
# Ultragrip Coach

## UltraGrip Coach

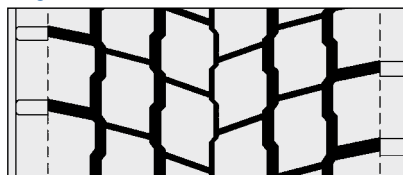
New tire tread



80% worn



Regrooved tire



Maximum regrooving depth 3 mm, regrooving width 6-10 mm. Retreadable by Goodyear TreadMax.





# UltraGrip

## UltraGrip WTS

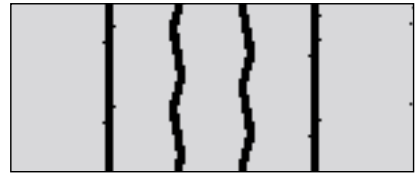
New tire tread



80% worn



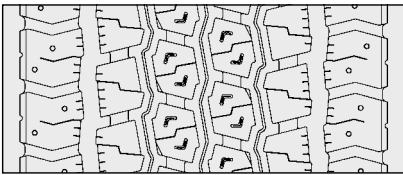
Regrooved tire



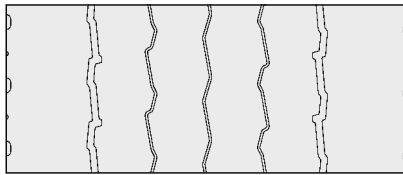
Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

## UltraGrip WTS 6-rib

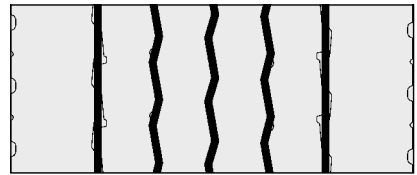
New tire tread



80% worn



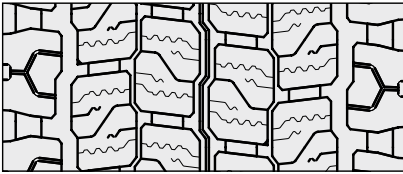
Regrooved tire



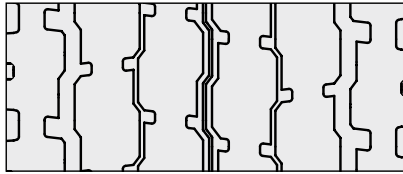
Maximum regrooving depth 3 mm, regrooving width 6-10 mm. Retreadable by Goodyear TreadMax.

## UltraGrip WTD

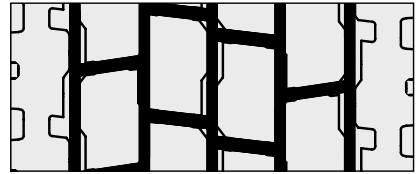
New tire tread



80% worn



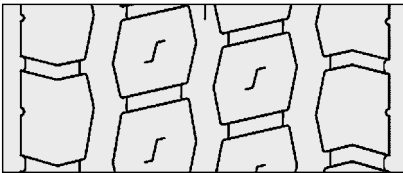
Regrooved tire



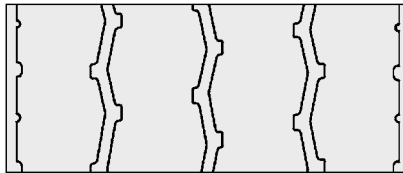
Maximum regrooving depth 3 mm, regrooving width 6-10 mm. Retreadable by Goodyear TreadMax.

## UltraGrip WTT

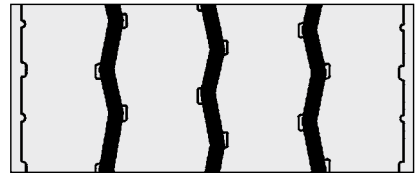
New tire tread



80% worn



Regrooved tire



Maximum regrooving depth 3 mm, regrooving width 6-8 mm. Retreadable by Goodyear TreadMax.

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# Tire Technology







# Tire construction and tire terminology

Truck tires are a high value investment whose performance potential can be dramatically influenced by a multitude of service parameters – which can be globally identified as operating and maintenance conditions. In other words, the true cost per kilometre is not only a function of the tire quality and price, but is primarily a direct consequence of the actual running conditions of the tire. In order to be able to optimise these conditions, it is essential to first of all be familiar with the construction characteristics of a tire and to understand its mechanical properties.

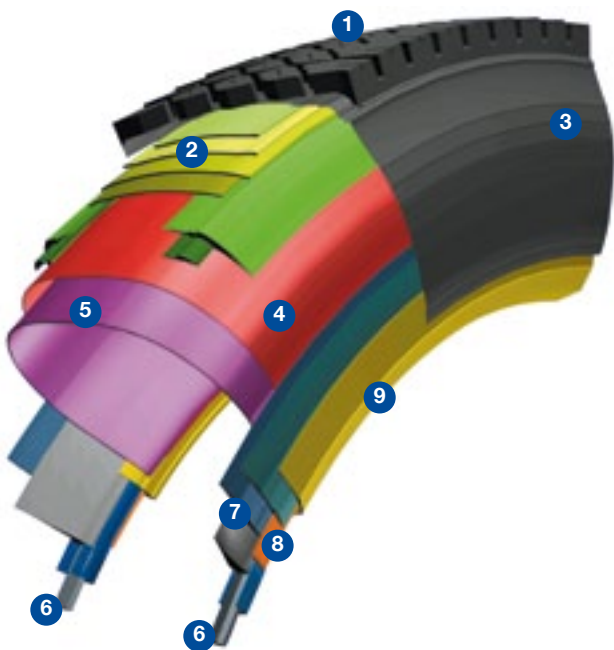
It will also be advisable to have a basic knowledge of vehicle dynamics and to recognise the importance of environmental factors such as road design and ambient temperature.

This brochure is designed to convey these elementary rules and guidelines and to therefore help minimize fleet operating expenses. For further clarifications and updated facts and figures, please consult with your Goodyear truck tire specialist.

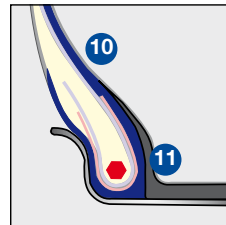
## Tire construction

(Figure 1)

The commercially available tire is a composite product, made up from rubber compounds and textile, steel synthetic reinforcements. The major components of the Goodyear radial ply, steel carcass and belt tire are described below.



Tube-Type



### Features

- 1 Tread
- 2 Belt Package
- 3 Sidewall
- 4 Ply
- 5 Innerliner
- 6 Bead Bundle
- 7 Apexes
- 8 Chipper
- 9 Chafer
- 10 Tube\*
- 11 Flap\*

\* Only applicable to tube type tires

NOTE: Whilst every care has been taken in the production of this publication, no responsibility can be accepted for any loss or damage arising out of undetected errors or mis-printing which may have occurred.



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## Tire terminology

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- **Tread**  
Provides primarily traction and wear and protects the carcass underneath.
- **Belt**  
Multiple, low angle, steel cord layers provide strength to the tire, stabilise the tread and prevent penetrations into the carcass.
- **Sidewall**  
Provides protection for the ply and withstands flexing and weathering.
- **Ply**  
The radial (90°) ply transmits all load, braking and steering forces between the wheel and the road and withstands the burst loads of the tire under operating pressure.
- **Innerliner**  
A layer of rubber in tubeless tires specially compounded to prevent loss of air.
- **Bead bundle**  
The steel bead bundle properly seats and seals the tire on the rim and maintains it in position.
- **Apex**  
Rubber filler in the bead and lower sidewall area to provide progressive transition from the stiff bead area into the flexible sidewall.
- **Chafer**  
A layer of hard rubber that resists erosion of the bead zone by the rim flange.
- **Tube\***  
A separate air chamber, compounded to prevent loss of air, inserted into tube-type tires.
- **Flap\***  
A rubber band placed between tube and rim. Protects the tube from chafing and prevents damage to the tube by the rim.

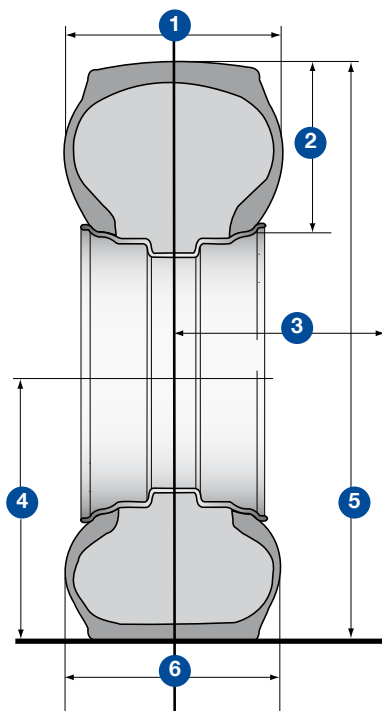
\*Only applicable to tube type tires.

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## Tire dimension definitions

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Tire companies throughout the world are members of regional tire manufacturers associations (ETRTO for Europe), which establish tire dimensions and tolerances, load carrying capacities and inflation pressures for the different tire categories and sizes. The basic tire and rim dimension nomenclature is explained below.



- 1 Section Width (SD)**  
The width of the inflated tire section, excluding any lettering or decoration.
- 2 Section Height (SH)**  
The distance from the bead seat to the outer tread contour of the inflated tire at centerline.
- 3 Minimum Dual Spacing**  
The minimum recommended distance between centerlines of dual mounted tires to avoid kissing in the flex area.
- 4 Static Loaded Radius (SLR)**  
The standing height from the road surface to the axle center under nominal tire load/inflation conditions.
- 5 Outside Diameter (OD)**  
The diameter of an unloaded tire, mounted on its recommended rim and inflated to recommended pressure.
- 6 Loaded Section Width (LSW)**  
The width of the loaded cross-section.

### Aspect Ratio

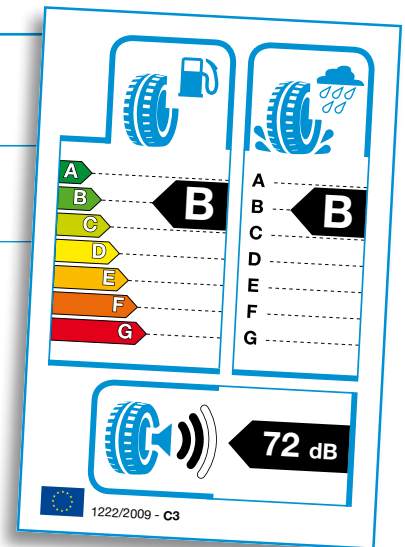
The section height (SH) expressed as a percentage of the section width (SD).

# Truck Tire Label

## What is it?

Thanks to new legislation, commercial vehicle operators are to be helped in choosing their tyres. Tire labeling, which the European Union introduces on 1st November 2012, will ensure that tires sold in the EU are accompanied by data related to their fuel efficiency, wet grip and exterior noise.

Clear and informative, the label information resembles that on existing energy efficiency labels with A being the highest performing and G the lowest.



Label values shown are for illustrative purposes only. Values for a certain tire line/size may vary.

## What does change?

Dealers have to provide information about the tire label to the buyer at the time of purchase.

This can be done in two different ways:

- By including the information on the receipt
- By handing over a separate note

## What does it mean?



**FUEL EFFICIENCY / ROLLING RESISTANCE**  
**A = Most fuel efficient tire**  
**F = Least fuel efficient tire**  
 (Class G will not be used for truck tires)

A rolling tire deforms and dissipates energy, and is one of the resistive forces acting on a vehicle. The energy that is lost in this way is known as 'rolling resistance' and directly impacts on fuel consumption and the environment. With lower rolling resistance the tire deformation requires less energy, less fuel and, in turn, less CO<sub>2</sub> is emitted. A win-win situation.

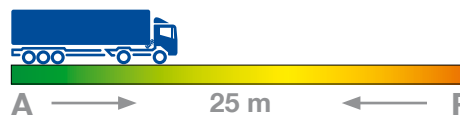
Effects may vary according to the vehicle and driving conditions. However, the difference between a complete set of new A-class and F-class tires could reduce a truck's fuel consumption by up to 15%.\*



**WET GRIP / BRAKING**  
**A = Shortest braking distance**  
**F = Longest braking distance**  
 (Class G will not be used for truck tires)

Tires with excellent grip in the wet have shorter braking distances on slippery roads, essential for safety.

Effects may vary according to the vehicle, driving conditions and test method adopted. However, in the case of full braking, the difference between A-class and F-class tires could be up to 30% shorter braking distance. This means for a typical truck driving at 80 km/h up to 25 m shorter braking distance.\*\*



**NOISE EMISSION / EXTERIOR NOISE**  
 Measured in decibels (dB)  
 Three classes

A tire's exterior noise grading is expressed in decibels (dB) and accompanied by one, two or three sound waves on the label.

One wave corresponds to the quietest tire, three to the noisiest. In fact, three waves is the current limit, while two meets future laws and one is a further 3dBs below. The quieter the tire the more environmental-friendly it is.

\* Calculations based on tests made by the Goodyear Innovation Center Luxembourg 2012. For more details see verso.

\*\* The calculation is based on a typical truck with semi-trailer operating at 40 tonnes GTW.

## Benefits of the labeling at a glance



## Not the full story. What's not covered?

While we're completely in favour of the introduction of tire labeling, it's essential to remember that it doesn't tell customers everything they need to know. So while it's a great starting point for customers to get information that is comparable, reliable and objective, it's by no means exhaustive. After all, tires are more than simply black and round; they're a complex piece of engineering. It's therefore important to look at the bigger picture.

- Tire labeling only covers fuel efficiency, wet grip and exterior noise.
- Key criteria such as mileage performance, traction and retreadability are not covered.
- Winter conditions are not taken into consideration.

\*The calculation is based on the following assumption: Average fuel consumption of vehicle 32.3l/100km → 323l/1000km → 14.7% potential savings = 47.5l less fuel consumption per 1000 km → fuel price 1.50 EUR/liter = 71.25 EUR/1000km → 100,000 km mileage/year = 7,125 EUR savings/year.



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# Tire markings

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## Size markings

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There are various forms of tire size marking and these differ in order to differentiate between tire types. The size markings should be treated the same as a part number on a vehicle, so the motorist should ensure that the tires on his vehicle carry the precise markings indicated in the vehicle handbook or are an approved alternative fitment.

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## Service description

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In accordance with the European regulation (ECE-R54), all tires intended for commercial vehicles will be marked with a "Service Description" located near to the tire size marking. This consists of a code which indicates operating limits of load and speed and includes a "load index" for single and dual tire fitment and a "speed symbol" (e.g. 156/150 L).

An additional marking may be used to show the corresponding tire loads for an alternative higher speed or for an alternative higher load. This additional marking will be placed in a circle.

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## Size definitions

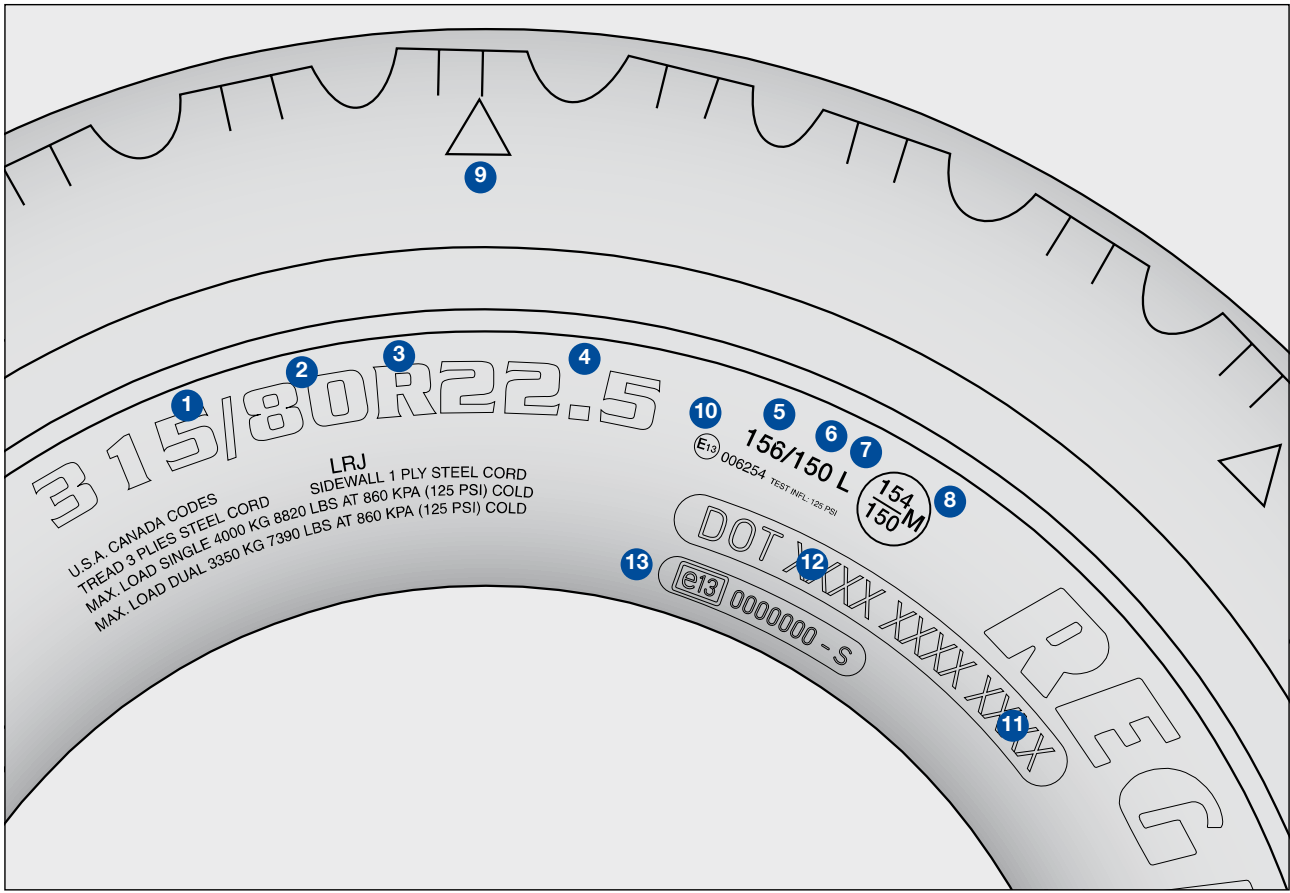
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Listed below are the size designations that are being used on truck tires. With each size is an explanation of what each component describes.

<b>12</b>	<b>/</b>		<b>R</b>	<b>22.5</b>	<b>152/148</b>	<b>M</b>
Section width in inches			R-radial	Rim diameter in inches	Load index (single/dual mounted)	Speed symbol

<b>295</b>	<b>/</b>	<b>80</b>	<b>R</b>	<b>22.5</b>	<b>152/148</b>	<b>M</b>
Section width in mm		Aspect ratio	R-radial	Rim diameter in inches	Load index (single/dual mounted)	Speed symbol

<b>365</b>	<b>/</b>	<b>80</b>	<b>R</b>	<b>20.0</b>	<b>160</b>	<b>J</b>
Section width in mm		Aspect ratio	R-radial	Rim diameter in inches	Load index (single/dual mounted)	Speed symbol



The position of the major tire markings are as shown;

- 1 Tire Section width (mm or inches)
- 2 Aspect ratio SH / SD
- 3 Radial construction (R=Radial)
- 4 Rim Diameter (inches)
- 5 Load Index (Max. load per tire - single tire)
- 6 Load Index (Max. load per tire - dual mounted)
- 7 Speed Symbol
- 8 Alternative load indices when used with alternative speed
- 9 TWI - Tread Wear Indicator
- 10 ECE Homologation number
- 11 Date code (week, year)
- 12 DOT Manufacturing Code
- 13 Noise number - indicates that the tire conforms to ECE noise regulations

**USA and Canada**

In accordance with US Safety Regulation MVSS 109 for Car tires, and 119 for Truck tires, the maximum load of the tire in pounds (LBS) and its corresponding air pressure in pounds per square inch (PSI) must be shown on the tire.

Additionally, the tire must be marked D.O.T. (Department of Transportation) to insure that it conforms to all valid regulations in these countries.

# Load Index and Speed Symbol

These parameters are established by ETRTO and are the two most important service factors determining tire performance.

Load indices and speed symbols are shown on both tire sidewalls. Example: 149/145 L. The first number denotes the tire load carrying capacity in SINGLE application, while the second number refers to DUAL fitment. The letter “L” defines the maximum speed limit. Unmarked Radial tires are allowed up to a speed of 110 km/h. (Bias ply tires are confined to 100 km/h).

Retreaded tires can be run up to a maximum speed of 110 km/h, unless they are marked otherwise.

Special purpose tires, for specific heavy duty applications must have the respective speed limitations identified on the sidewall.

The speed and load service identifications below are required by the European ECE-R54 regulation. The scale below shows the relationship between the Load Index (LI) and actual load values in kilograms (kg).

## Load Index

LI	kg	LI	kg	LI	kg	LI	kg	LI	kg	LI	kg
51	195	71	345	91	615	111	1090	131	1950	151	3450
52	200	72	355	92	630	112	1120	132	2000	152	3550
53	206	73	365	93	650	113	1150	133	2060	153	3650
54	212	74	375	94	670	114	1180	134	2120	154	3750
55	218	75	387	95	690	115	1215	135	2180	155	3875
56	224	76	400	96	710	116	1250	136	2240	156	4000
57	230	77	412	97	730	117	1285	137	2300	157	4125
58	236	78	425	98	750	118	1320	138	2360	158	4250
59	243	79	437	99	775	119	1360	139	2430	159	4375
60	250	80	450	100	800	120	1400	140	2500	160	4500
61	257	81	462	101	825	121	1450	141	2575	161	4625
62	265	82	475	102	850	122	1500	142	2650	162	4750
63	272	83	487	103	875	123	1550	143	2725	163	4875
64	280	84	500	104	900	124	1600	144	2800	164	5000
65	290	85	515	105	925	125	1650	145	2900	165	5150
66	300	86	530	106	950	126	1700	146	3000	166	5300
67	307	87	545	107	975	127	1750	147	3075	167	5450
68	315	88	560	108	1000	128	1800	148	3150	168	5600
69	325	89	580	109	1030	129	1850	149	3250	169	5800
70	335	90	600	110	1060	130	1900	150	3350	170	6000

The LOAD INDEX denotes the maximum load a given tire can carry at the maximum speed as indicated by the speed symbol.

## Speed Symbol

Speed symbol	Speed (km/h)
E	70
F	80
G	90
J	100
K	110
L	120
M	130
N	140

The SPEED SYMBOL denotes the maximum speed at which a given tire can carry the load indicated by the load index.



# Interaction of Load and Speed

## Load Capacity Variations (%) as a function of Speed

Below information is based on the “European Tire and Rim Technical Organization - Standards Manual” - Load Variation with Speed section.

### Variations in Load Carrying Capacity with Speed (%)

Speed km/h	F 80 km/h	G 90 km/h	J 100 km/h	K 110 km/h	L 120 km/h	M 130 km/h	Inflation Pressure (%) <sup>*</sup> Compensation
Static	+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	+7	+7	+7	+7	+7	+2
75	+2.5	+5.5	+5.5	+5.5	+5.5	+5.5	+1
80	0	+4	+4	+4	+4	+4	0
85		2	+3	+3	+3	+3	0
90		0	+2	+2	+2	+2	0
95			+1	+1	+1	+1	0
100			0	0	0	0	0
105				0	0	0	0
110				0	0	0	0
115					0	0	0
120					0	0	0
125						0	0
130						0	0

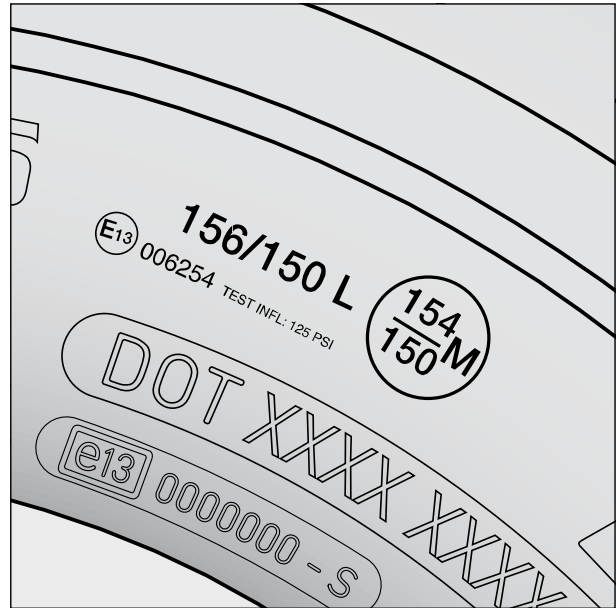
NOTES: Increment to be applied in the absence of any specific agreement with the tire manufacturer. These increments do only apply to the “nominal” load/speed indices.



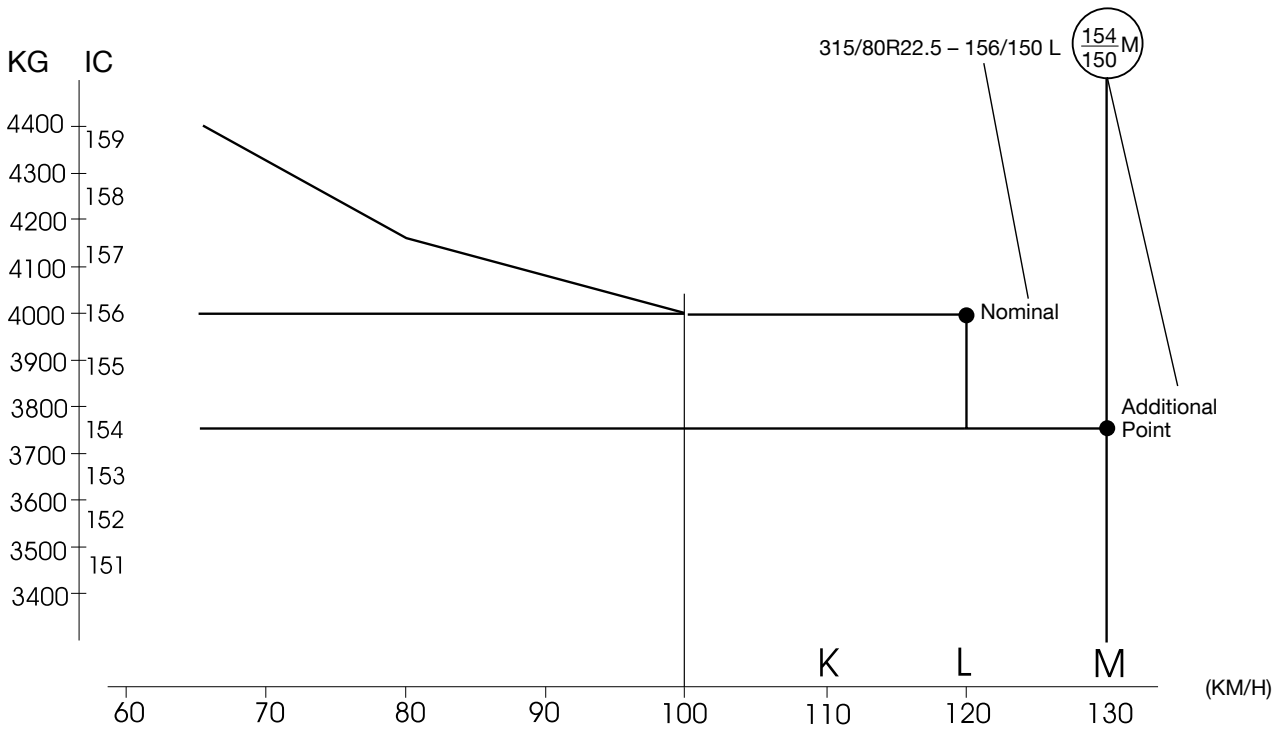
## Additional load/speed markings

The tire manufacturer has the possibility to add to the “nominal” load/speed indices an additional load/speed index with different load index and different speed index. This additional load/speed index is circled.

For other load benefits due to maximum speed variations please consult the table and notes in the “Interaction of Load and Speed” section.



NOTES: ETRTO tables apply only to nominal LI/SI marking.



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## Notes concerning “Variations in load capacity with speed (%)”

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(Below notes refer to the ETRTO (European Tire and Rim Technical Organisation) Guidelines, in case more details are required, please refer to the actual valid ETRTO Standards Manual)

- For the application being considered, “SPEED” means:
  - either the maximum speed capability of the motor vehicle
  - or any overriding national requirement/legislation for the type of motor vehicle
  - or, in case of “special applications”, the specific conditions of use.
- The load carrying capacity of tires in dual fitments is twice the load carrying capacity in single up to 40 km/h. Bonus loads will not be permitted for speeds of 40 km/h and above if the wheel axles are rigidly fixed to the body of vehicle.
- Bonus loads are not applicable for trailers and semi-trailers at speeds over 65 km/h.

- **General definitions**

Buses (Category M3 vehicles in the EU Directive) are subdivided into three classes depending on the intended type of use. Category M3 vehicles, for the carriage of passengers, have more than eight seats in addition to the driver’s seat and exceed 5 tonnes in overall weight.

**Class I**

Urban-bus or City bus – foreseen for urban use with frequent stops, these vehicles have spaces for standing passengers and allow movements of passengers.

**Class II**

Suburban bus or Interurban bus – foreseen for passenger transport within a given district, these vehicles have no specific spaces for standing passengers, but allow them to keep standing in the gangway for some distances during the trip.

**Class III**

Touring coach – These vehicles mainly foreseen for long distances, are conceived for transportation of sitting passengers only.

On the basis of the specific conditions of use of the buses designed for urban or suburban services and irrespective of their actual maximum speed capability, the following bonus loads apply:

**Class I**

+ 15% of the load indices marked on the tire, when the average speed does not exceed 40 km/h.

**Class II**

+ 10% of the load indices marked on the tire, when the operating speed is restricted to 60 km/h.

**Class III**

no bonus load Class

- For the equipment of special public service vehicles in urban and suburban applications (for instance road sweepers, fire tenders, etc.), on the basis of specific conditions of use and irrespective of the actual maximum speed capabilities of the vehicle, a bonus load of 10% applies with respect to the load indices marked on the tire.
- In any case, it is recommended to avoid the maximum permissible load capacity if the resulting inflation pressure is higher than 1000 kPa. In that case, the load capacity shall be reduced accordingly.
- It is imperative to consult Rim/Wheel Manufacturers for the choice of rims and wheels suitable for the load carrying capacities and the inflation pressures required for applications at speeds of 40 km/h and below.

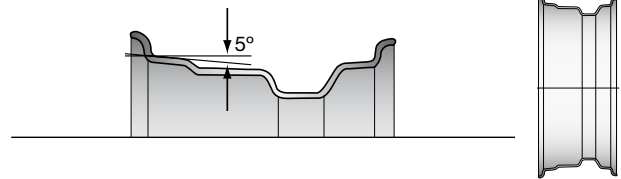
# Rims and Wheels

For truck tires, there are essentially 3 basic rim types available on the market:

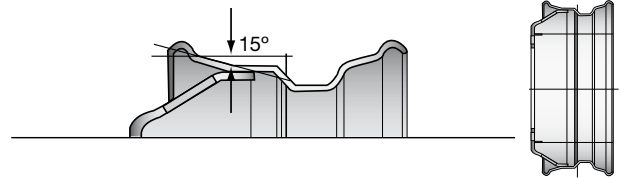
- one-piece tubeless drop center rims
- multi-piece tube-type flat base rims
- multi-piece tubeless flat base rims

## One-piece tubeless drop center

5° Drop center Rim – (13", 14", 17" etc...) symmetric and asymmetric rims for standard and low section light truck (C) tires.



15° Drop center Rim – (17.5", 19.5", 22.5" etc...) rims for standard and wide section (Low Aspect Ratio, Super Single) tires.



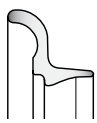
## Two and four-piece tube-type flat base

(Mainly 20") rims for high aspect ratio tires. It will be important to avoid interchanging of parts from both systems.

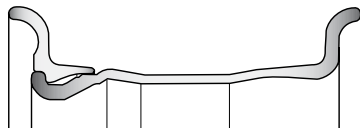


NOTE: Each system is usually identified accordingly (stamped 2P or 4P).

## Two-piece tube-type flat base



Combination Side Ring



## Four-piece tube-type flat base



Lock ring



Side ring



Bead seat band



## Four-piece tube-type flat base



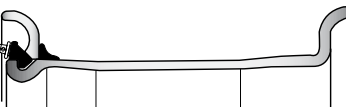
Lock ring



Side ring



Bead seat band

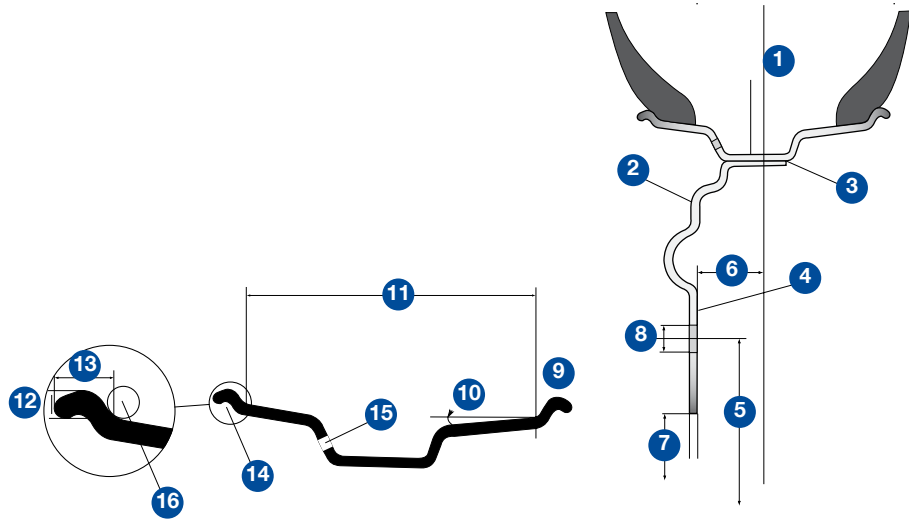


(20") rims for mainly 80-series tires. They require a new sealing gasket for each new tire.



Complete wheel details are shown below:

- 1 Drop center
- 2 Disc
- 3 Rim/disc junction
- 4 Hub contact face
- 5 Pitch (bolt) circle diameter
- 6 Offset
- 7 Center hole diameter
- 8 Stud hole diameter
- 9 Rim flange
- 10 Taper
- 11 Rim Width
- 12 Rim flange height
- 13 Rim flange width
- 14 Rim flange radius
- 15 Valve hole
- 16 Ball tape



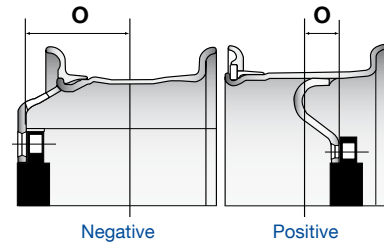
NOTE: Rim diameters can only be accurately measured by means of a special ball tape.

All wheels have a given offset (O) which does not only provide for the necessary brake drum space, but which also determines track width, kingpin offset, handling characteristics and wheel bearing load. On dual assemblies, it also influences the dual spacing.

Tire fitters and mechanics must therefore pay attention that:

- specific vehicles are fitted with the correct offset wheels.
- wheels with different offsets are not mixed up on the same axle.

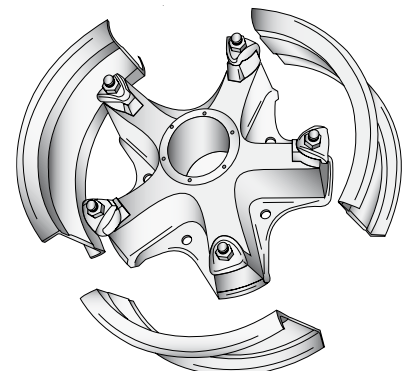
Wheel offsets can be positive, negative or zero. The offset is defined as the distance from the wheel center to the inside face of the disc (against the hub) and is called positive whenever this inside face is located outside of the centerline, negative when located inside, zero when matching the centerline exactly.



As a general maintenance rule, assembling and disassembling of multi-piece rims should only be done with specially designed tools. This will not only assure the safety of the fitter, but will also avoid usage of hammers and other inadequate equipment which could sooner or later damage or break vital rim parts. Also, for 1-piece tubeless rims, proper tooling is essential, since it will otherwise be extremely difficult or even impossible to mount such tires safely and without bead area damage.

For demountable 1- or multiple-piece spoke-type wheels, the following additional precautions should be taken:

- Contact surfaces between rim and star should not be painted to guarantee perfected centring.
- Bolts should be tightened clockwise (not crosswise) – without exceeding the recommended maximum torque given by the vehicle manufacturer.
- Bolts and clamps should be re-checked at 50-100 km after wheel fitment and re-tightened if necessary.
- In case of dual mounting, the spacer ring should be pre-centered over the centering cams (placed on spokeheads).



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# Tubes and Flaps

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Only use “Radial” marked tubes and flaps in Radial Tires. Preferably fit a new tube and a new flap when mounting a new tire. Due to their inherent construction, Radial Tires impose far greater local stresses on Inner tubes than Bias Tires. “Radial” marked Tubes are specially compounded to withstand these stresses and their use in Radial Tires is mandatory. “Radial” marked Tubes may also be used in Bias Tires, but in this application, unmarked Bias Tubes are perfectly satisfactory.

The higher stresses in Radial Tires render the tube more susceptible to Flap Edge Cutting, and the use of “Radial” marked flaps, specially compounded such that they will not harden excessively in service is mandatory.

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## Tubes

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Tubes are designed within well defined limits of Radial and Total Stretch. A tube too large will be liable to buckling, and to early failure. A tube too small will be stretched excessively, leading to reduced rub resistance, and poorer air retention. In an emergency, a small tube is better than a large tube, since the failure mode is less likely to be catastrophic.

In case of necessity, a tube may be reused, if,

- There is no apparent damage and
- If the tube has not grown excessively during the first life. It is suggested that for a tube to be reused, a residual radial stretch of at least 15% is required.

NOTE: The fitment of tubes to “tubeless” tires is not recommended.

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## Flaps

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The flap is designed to:

- Protect the tube from the roughness of the rim.
- To prevent the tube being pinched by the component parts of multi-pieced rims.
- To prevent the tube being pushed through the valve slot.

As a rule we can say that flaps are necessary for any rim which has a valve slot as against a valve hole.

All Drop center rims including passenger, truck and farm, have a valve hole on the side of the well and require an off center valve on the tube. They do not require a Flap.

Drop center truck rims occasionally have the valve hole on center, but these are normally only fitted with run out tubes in emergency cases which is a practice not endorsed by Goodyear.

All flat base rims with a removable flange have a valve slot extending from the centerline of the rim to the edge. These rims require a flap, and a tube with an on center valve.

All Semi Drop center rims have a short valve slot, which may be on or off center dependant on the type of rim, and upon the rim manufacturer, and require flaps and tubes with respectively on or off center valvehole, and tube valve.

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## Rim slot cover plates

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Even the best flaps, subjected as they are to high pressure and temperature, (wheel temperatures as high as 200°C have been measured on the inside rear position in City Bus service in Europe) are liable to be pushed through the rim slot in service.

Flaps are designed with fabric, or heavy rubber reinforcement in the valve slot area to overcome this problem, but for critical applications, the use of commercially available rim slot coverplates, or even a large diameter metal washer are recommended. Since the push through, and possible failure occurs next to the bead, rather than around the valve, Bridge plates, are not really effective, and their use in Europe is decreasing.

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## Medium truck – 20/24”

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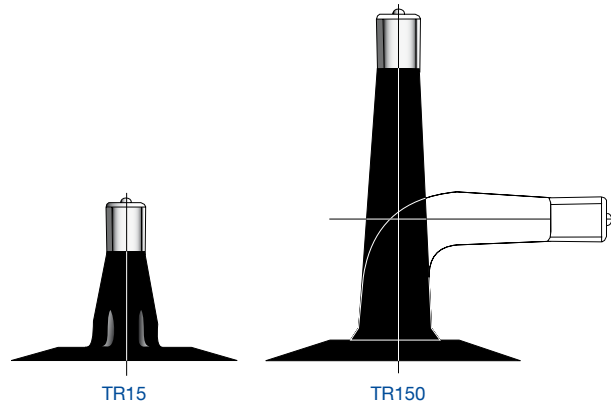
Tire size	Tube	Rim	Flap
12.00R20	12.00R20	8.0	20R8.5
		8.5	20R8.5
		9.0	20R9.5
14.00R20	14.00R20	10.0	20R9.0
12.00R24	12.00R24	8.0	24R8.5
		8.5	24R8.5
		9.0	24R9.0

# Valves

Three types of Inner Tube Valve exist in Commercial service:

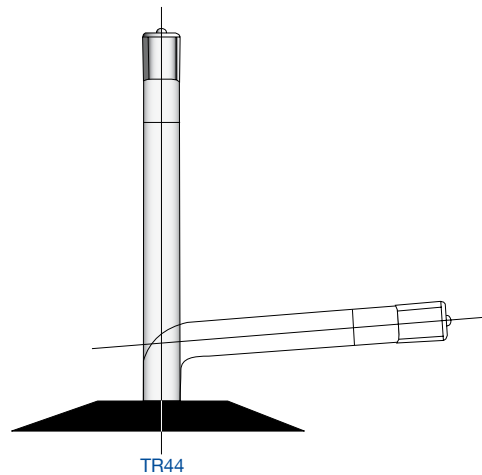
## Rubber covered valves

Rubber covered valves which may be rigid as for the TR15, or hand bendable as for the TR150.



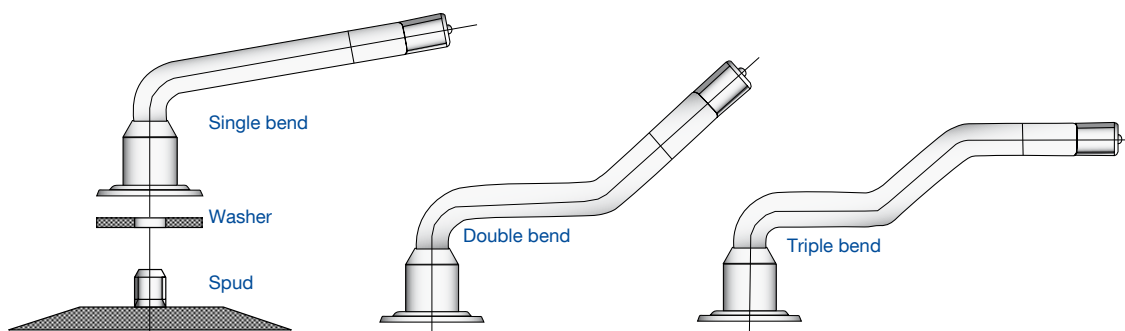
## One-piece metal valves

One-piece metal valves, such as the TR44 series. These are generally supplied with the required bent form, and may be single, double or triple bent.



## Two-piece metal valves

European style two-piece metal valves consist of a spud (a short threaded metal tube) vulcanised onto the tube and a pre-bent extension which screws onto the spud, using a rubber washer as the air seal.





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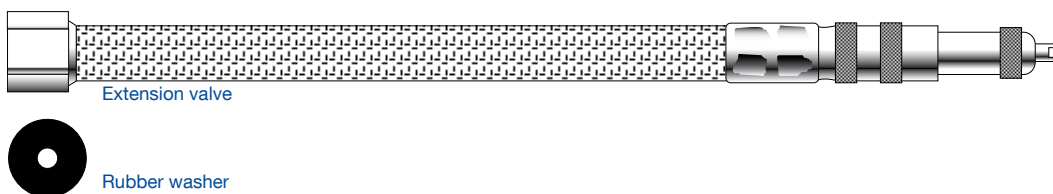
## Fitting extension valves

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Extensions are actually coded in the form V\*-\*\*-\*\*, but to avoid confusion are generally referred to as the designation of the one piece metal valve to which they are equivalent.

The weakest part of the design of the extension type valves is the rubber washer. The washer is compressed when the valve is tightened, and loses its elasticity with age. Rubber washers should never be reused since they harden and take a permanent set. Similarly, extensions should never be backed off to make them line up with the rim slots.

The correct procedure is to wind the extension onto the stem until it just contacts the washer. Take another half turn. Then mount the tire/tube/flap assembly, and line the extension up with the slot by tightening further.



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## Valve caps

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Valves must always be fitted with a valve cap.

The valve core is present to allow the internal air pressure to be measured and changed. It is the valve cap which is the primary air seal. Valve caps are always made of metal and have a rubber sealing ring. The plastic dust caps are not suitable for field service. They are designed to prevent damage to the Tube/Valve/Valve Core during transportation from point of manufacture to point of use.

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## Valve cores

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Valve cores are available in two lengths, two temperature ranges, and with either internal or external springs. Fortunately all these cores are interchangeable. It is recommended to use the short core, internal spring, heat resistant type. These are recognisable since the small rubber collar around the core is coloured red.

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## Conversion from T&RA to reference numbers

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T&RA	Single	ETRTO Double	Triple
TR75	V3.02.27		
TR76	V3.02.8		
TR78	V3.02.12	V3.04.6	V3.06.5
TR175	V3.02.10	V3.04.4	V3.06.3
TR177	V3.02.9	V3.04.3/10	V3.06.1
TR178	V3.02.14		
TR179	V3.02.15		V3.06.6
TR285			V3.07.1

NOTE: Goodyear primarily manufactures truck tubes with spud/screw on extension type valves.

# The tire manufacturing process

## Raw Materials



### Textile Industries

Early tire fabric was made from cotton fibre. Today's tire carcasses are made of fibres such as nylon, rayon, polyester, fibreglass, etc.



### Rubber Plantation

Natural rubber is obtained mainly from the Hevea tree in the form of latex which is tapped by cutting through the outer bark of the tree. Liquid latex is collected in little cups and then coagulated to obtain solid rubber. Goodyear operates its own plantations in several parts of the world.



### Chemical Industries

- Synthetic rubber is derived from crude oil.
- Carbon black, used in rubber compounds to provide increased strength, is produced mainly by burning crude oil in special furnaces.
- Other chemical ingredients such as sulphur, plasticisers, accelerators, antioxidants, etc needed in the tire manufacturing process, are supplied by various chemical industries.

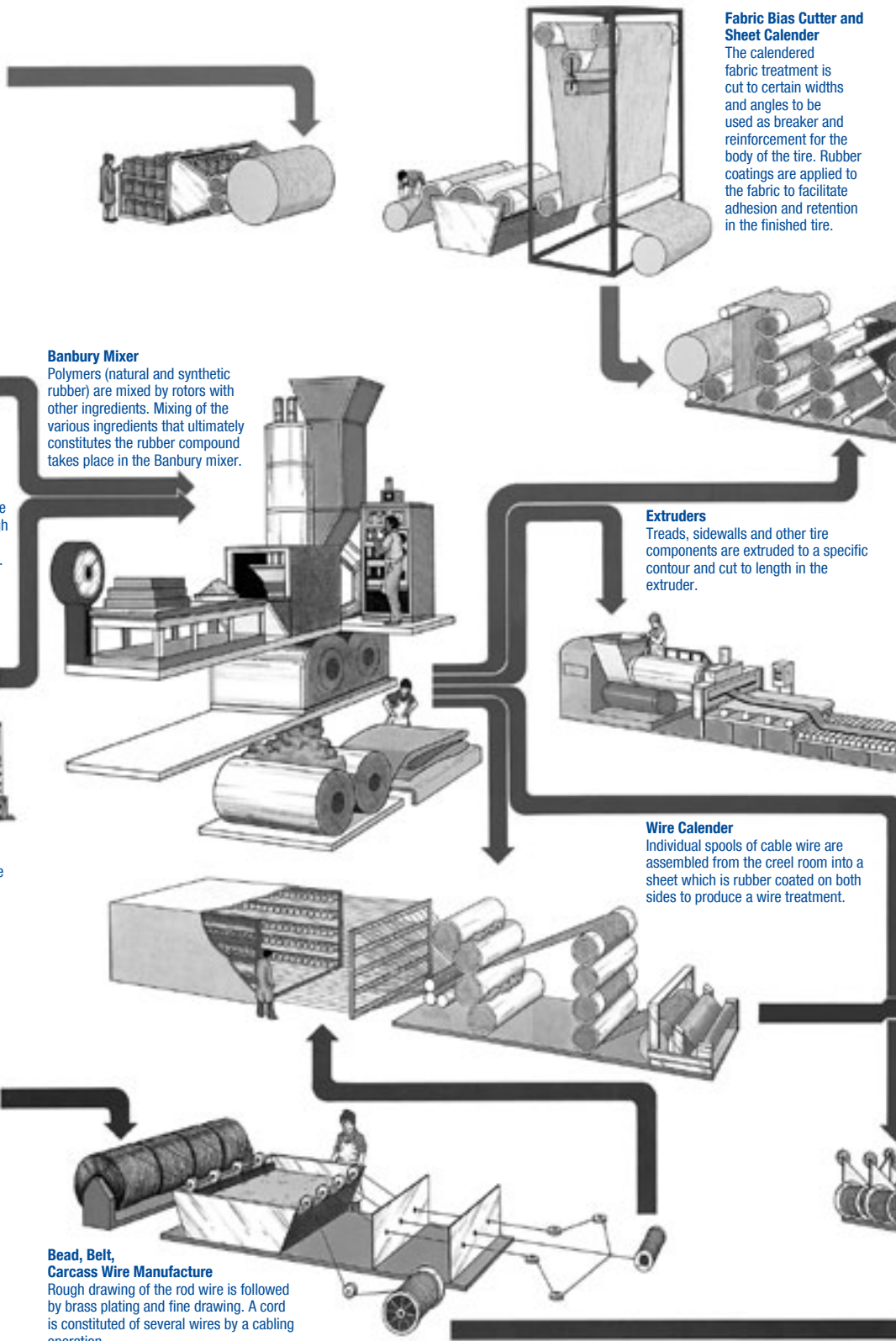


### Steel Industries

High tensile steel wire is used to constitute the bead; the rigid base of a tire. Cable wire is also used in radial tires, both for belt and carcass material.

## Fabric Manufacture

Textile fibres are twisted into cords which are woven into fabric with cords running only lengthwise and are held together by threads. The fabric is then impregnated with a special cement to improve adhesion with rubber and is then processed through the exclusive Goodyear 3T unit.



### Fabric Bias Cutter and Sheet Calender

The calendered fabric treatment is cut to certain widths and angles to be used as breaker and reinforcement for the body of the tire. Rubber coatings are applied to the fabric to facilitate adhesion and retention in the finished tire.

### Banbury Mixer

Polymers (natural and synthetic rubber) are mixed by rotors with other ingredients. Mixing of the various ingredients that ultimately constitutes the rubber compound takes place in the Banbury mixer.

### Extruders

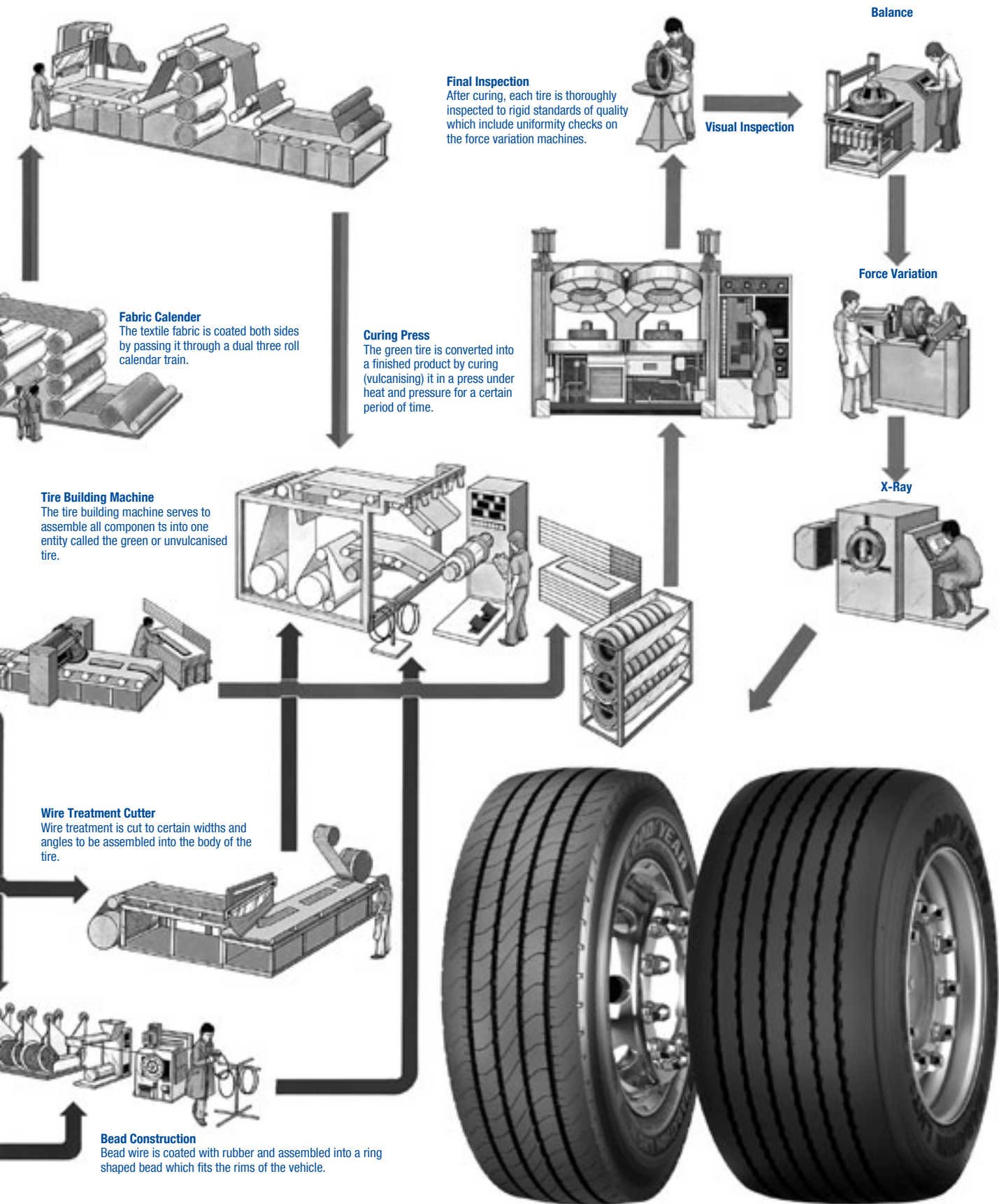
Treads, sidewalls and other tire components are extruded to a specific contour and cut to length in the extruder.

### Wire Calender

Individual spools of cable wire are assembled from the creel room into a sheet which is rubber coated on both sides to produce a wire treatment.

### Bead, Belt, Carcass Wire Manufacture

Rough drawing of the rod wire is followed by brass plating and fine drawing. A cord is constituted of several wires by a cabling operation.









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**Goodyear Dunlop Tires Operations S.A.**  
Av. Gordon Smith  
L-7750 Colmar-Berg

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**Telephone**  
(352) 8199-1  
**Telefax**  
(352) 8199 2175

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Contact your local Goodyear dealer  
for tire availability

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