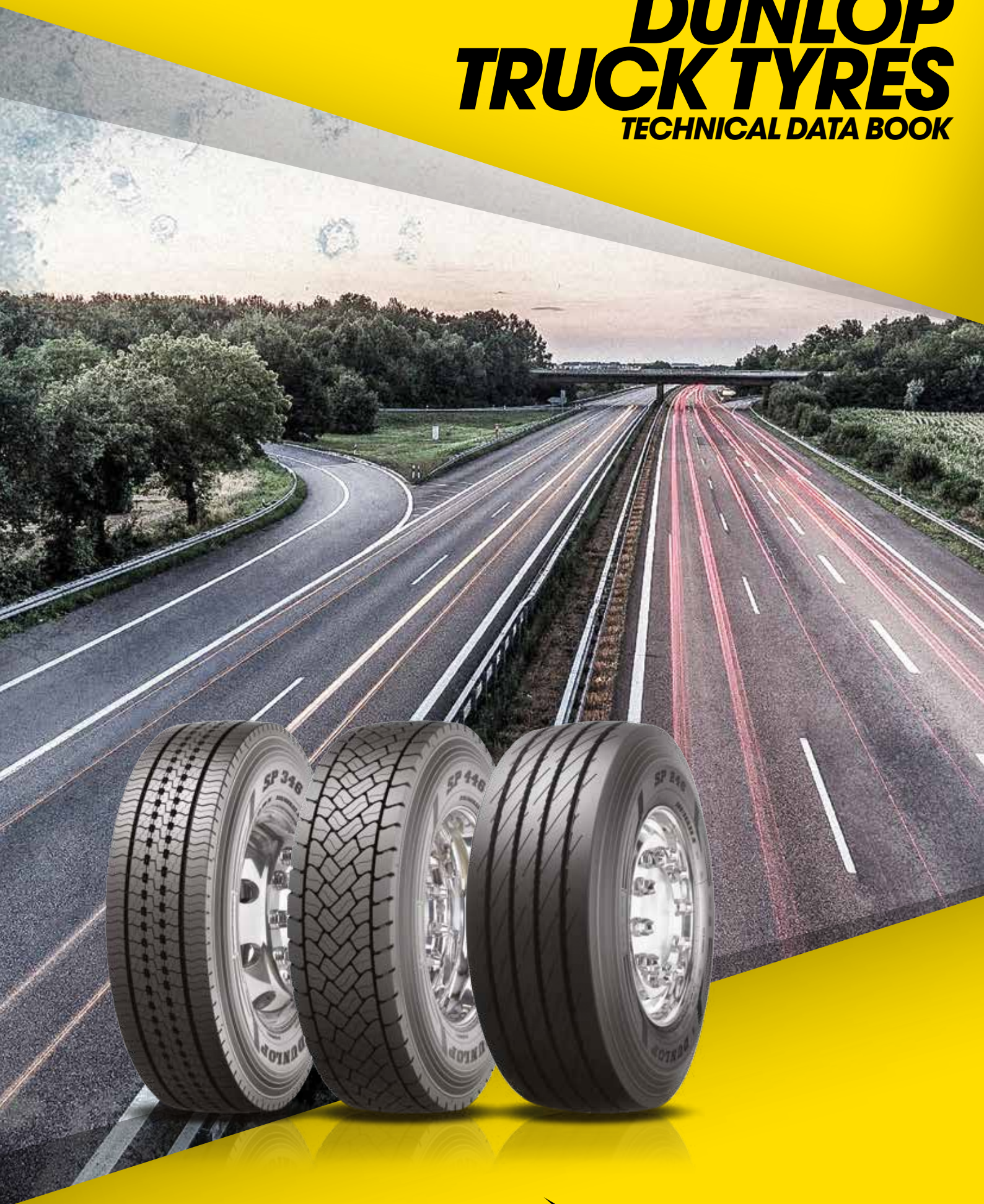
DUNLOP TRUCK TYRES

TECHNICAL DATA BOOK



DUNLOP

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ON ROAD TYRE RANGE

LEGEND

M+S	M+S (Mud and Snow) indicates that a tyre has better snow tradion than a regular tyre (see details on page 54)
	3PMSF (Three Peak Mountain Snowflake) indicates that a tyre has passed a minimum performance threshold requirement on snow (see details on page 54)
TreadMax	TreadMax retreads are produced exclusively in-house and utilise the same casing, tread pattern and materials as new tyres - resulting in a similar to new tyre performance (see details on page 38)
FRT	FRT (Free Rolling Tyre) indicates that the tyre should only be fitted to free rolling axles, such as trailer applications (see details on page 54)

TYRE RANGE

DUNLOP
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ON ROAD TYRE RANGE

Steer axle tyres

SP346 22.5˝

LATEST GENERATION STEER TYRE FOR ALL ON ROAD APPLICATIONS.

Thanks to the latest technology materials, a stiffer design and deeper sipe profile, the SP346 tyre features an improved mileage combined with excellent winter performance resulting in a decreased operational cost.

The SP346 tyre carries both the M+S and 3 Peak Mountain Snow Flake symbol providing winter mobility, rolling resistance and reduced external noise.

SP346 22.5˝ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
295/60R22.5	150/147 (149/146)	K (L)		C	C	72	M+S
295/80R22.5	154/149	M	HIGH LOAD	C	B	71	M+S
315/60R22.5	154/148	L	HIGH LOAD	B*	B*	72 *	M+S
315/70R22.5	156/150	L	HIGH LOAD	C	B	73	M+S
315/80R22.5	156/150 (154/150)	L (M)		C	B	73	M+S
385/55R22.5	160 (158)	K (L)		(**)	(**)	(**)	M+S
385/65R22.5	160 (158)	K (L)		B	B	73	M+S TreadMax

*Provisional label grades on August 2016. **Under development.

Drive axle tyres

SP446 22.5˝

LATEST GENERATION DRIVE TYRE FOR ALL ON ROAD APPLICATIONS.

The new SP446 tyre is designed to deliver improved mileage and outstanding traction in both summer and winter conditions.

It features an optimised tread shape and special bi-compound, giving improved mileage and better fuel efficiency. The SP446 tyre also has a directional tread design, which offers enhanced traction and low noise emission.

SP446 22.5˝ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
295/60R22.5	150/147 (149/146)	K (L)		C	C	72	M+S TreadMax
295/80R22.5	152/148	M		D	C	72	M+S
315/60R22.5	152/148	L		C	B	71	M+S
315/70R22.5	154/150 (152/148)	L (M)		C	C	71	M+S TreadMax
315/80R22.5	156/150 (154/150)	L (M)		C	C	72	M+S TreadMax

ON ROAD TYRE RANGE

Trailer axle tyres

SP246 22.5´´

FRT

LATEST GENERATION TRAILER TYRE FOR ALL ON ROAD APPLICATIONS.

The latest trailer SP246 tyre features optimised mileage, improved load index (385/65R22.5) and lateral stability.

The trailer completes the line by carrying the M+S symbol providing winter mobility and excellent grip in all seasons. The Dunlop SP246 has been developed for a multitude of applications, from delivery service, short and regional haul distribution, to long haul transport.

SP246 22.5´´ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
385/55R22.5	160 (158)	K (L)		(*)	(*)	(*)	M+S
385/65R22.5	164 (158)	K (L)	HIGH LOAD	(*)	(*)	(*)	M+S

**Under development.*

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ON ROAD TYRE RANGE

Steer axle tyres

SP344 22.5˝

STEER TYRE FOR ON ROAD APPLICATIONS.

The "on road transport" steer axle SP344 tyres in 22.5˝ sizes have been specifically developed for a multitude of applications, from delivery service, short and regional haul distribution operations to long haul transport.

The combination of specific technology materials, dedicated tread pattern features and a robust carcass result in excellent mileage performance and even wear type combined to good handling and braking on wet surfaces.

SP344 22.5˝ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
275/70R22.5	148/145	M		D	C	71	M+S
315/60R22.5	152/148	L		C	C	71	M+S
385/55R22.5	160 (158)	K (L)		B	B	71	M+S

SP344 17.5˝/19.5˝

REGIONAL HAUL STEER TYRE.

The SP344 regional haul steer tyres are specifically designed to suit today's demanding delivery and regional haul service requirements. It provides excellent handling and wet braking performances combined with high mileage.

The specific technology tread compound adds low rolling resistance, resulting in reduced fuel consumption. Combined with the robust carcass construction, these features make the SP344 an ideal fitment to increase fleet efficiency in regional haul service conditions.

SP344 17.5˝/19.5˝ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
205/75R17.5	124/122	M		D	C	72	M+S
215/75R17.5	126/124	M		D	C	73	M+S
225/75R17.5	129/127	M		D	C	72	M+S
235/75R17.5	132/130	M		D	C	72	M+S
245/70R17.5	136/134	M		D	B	71	M+S
265/70R17.5	139/136	M		D	B	73	M+S
245/70R19.5	136/134	M		D	C	72	M+S
265/70R19.5	140/138	M		D	C	72	M+S
285/70R19.5	146/144 (140/137)	L (M)		C	C	72	M+S
305/70R19.5	148/145	M		C	C	72	M+S

ON ROAD TYRE RANGE

Drive axle tyres

SP444 22.5˝

DRIVE TYRE FOR ON ROAD APPLICATIONS.

The "on road transport" drive axle SP444 tyres in 22.5˝ sizes have been specifically developed for a multitude of applications, from delivery service, short and regional haul distribution operations to long haul transport.

The combination of specific technology materials, dedicated tread pattern features and a robust carcass result in excellent mileage performance and even wear type combined to good traction and braking on wet surfaces.

All season capabilities are assured through the superb winter traction performances of the drive design SP444.

SP444 22.5˝ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS					
275/70R22.5	148/145	M		D	C	79	M+S	
295/60R22.5	150/147 (149/146)	K (L)		D	C	78	M+S	TreadMax
315/60R22.5	152/148	L		E	D	77	M+S	TreadMax

SP444 17.5˝/19.5˝

REGIONAL HAUL DRIVE TYRE.

The SP444 regional haul drive tyres are specifically designed to suit today's demanding delivery and regional haul service requirements. It provides excellent traction (M+S marked), wet braking and handling performances combined with high mileage.

The specific technology tread compound combines damage resistance, excellent mileage and low rolling resistance, resulting in improved fuel consumption and efficiency. Together with the robust carcass construction, these features make the SP444 an ideal fitment to increase fleet efficiency in regional haul service conditions.

SP444 17.5˝/19.5˝ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS					
205/75R17.5	124/122	M		E	C	74	M+S	
215/75R17.5	126/124	M		D	C	73	M+S	
225/75R17.5	129/127	M		E	B	74	M+S	
235/75R17.5	132/130	M		E	D	74	M+S	
265/70R17.5	139/136	M		D	C	74	M+S	
245/70R19.5	136/134	M		D	D	74	M+S	
265/70R19.5	140/138	M		D	C	73	M+S	
285/70R19.5	146/144 (140/137)	L (M)		D	D	74	M+S	
305/70R19.5	148/145	M		D	D	75	M+S	

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ON ROAD TYRE RANGE

Trailer axle tyres

SP244 22.5´´

FRT

TRAILER TYRE FOR ON ROAD APPLICATIONS.

SP244 trailer tyres have been developed for a multitude of applications, from delivery service, short and regional haul distribution, to long haul transport.

The combination of specific technology materials, dedicated tread pattern features and a robust carcass results in high mileage, even wear type, low cost per km – in a variety of road transport operations. Thanks to a wide tread pattern, a significant increase of the wearable rubber volume and a dedicated tread compound, the SP244 presents high mileage potential. Its five massive ribs and its robust design offer an excellent resistance against shoulder wear and improved robustness during cornering manoeuvres. The use of latest technology carcass and belt materials, combined with the dedicated tread compound and tyre geometry, result in enhanced damage resistance and consequently retreadability.

SP244 22.5´´ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
385/55R22.5	160 (158)	K (L)		B	B	70	M+S
385/65R22.5	160 (158)	K (L)		C	B	71	M+S

SP252 19.5´´

FRT

TRAILER TYRE FOR LONG HAUL APPLICATIONS.

Wide footprint for even ground pressure distribution and wear pattern. Very cost efficient due to high mileage potential, casing strength, and low rolling resistance. Dedicated sidewall compounds improve resistance to impact damage.

The design allows innovative, low profile tyre sizes in order to improve cargo volume of megatrailers.

SP252 19.5´´ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
435/50R19.5	160	J		B	C	71	M+S

ON ROAD TYRE RANGE

Trailer axle tyres

SP252 Low Platform Trailer 17.5˝/19.5˝

FRT

TRAILER TYRE FOR REGIONAL HAUL APPLICATIONS.

The wide and deep tread with high wearable rubber volume gives excellent mileage performance.

The dedicated rib geometry provides an even wear type by regular distribution of footprint pressure. The large grooves with specifically designed geometry reduce stone holding and allow for good water evacuation capabilities in wet conditions.

SP252 LOW PLATFORM TRAILER 17.5˝ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
215/75R17.5	135/133	J		C	C	69	M+S
235/75R17.5	143/141 (144/144)	J (F)		C	C	70	M+S
245/70R17.5	143/141	J		C	C	69	M+S
245/70R19.5	141/140	J		C	C	70	M+S
265/70R19.5	143/141	J		C	C	71	M+S
285/70R19.5	150/148	J		B	D	70	M+S

SP241 19.5˝

FRT

TRAILER TYRE FOR REGIONAL AND LONG HAUL APPLICATIONS.

Five straight ribs provide low noise level, high mileage potential and even wear pattern.

The casing and tread profile guarantee even ground pressure distribution and constant characteristics throughout the complete tyre life. Special heavy duty bead construction and tread compound to withstand high loads and stresses.

SP241 19.5˝ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
425/55R19.5	160	J		C	C	71	

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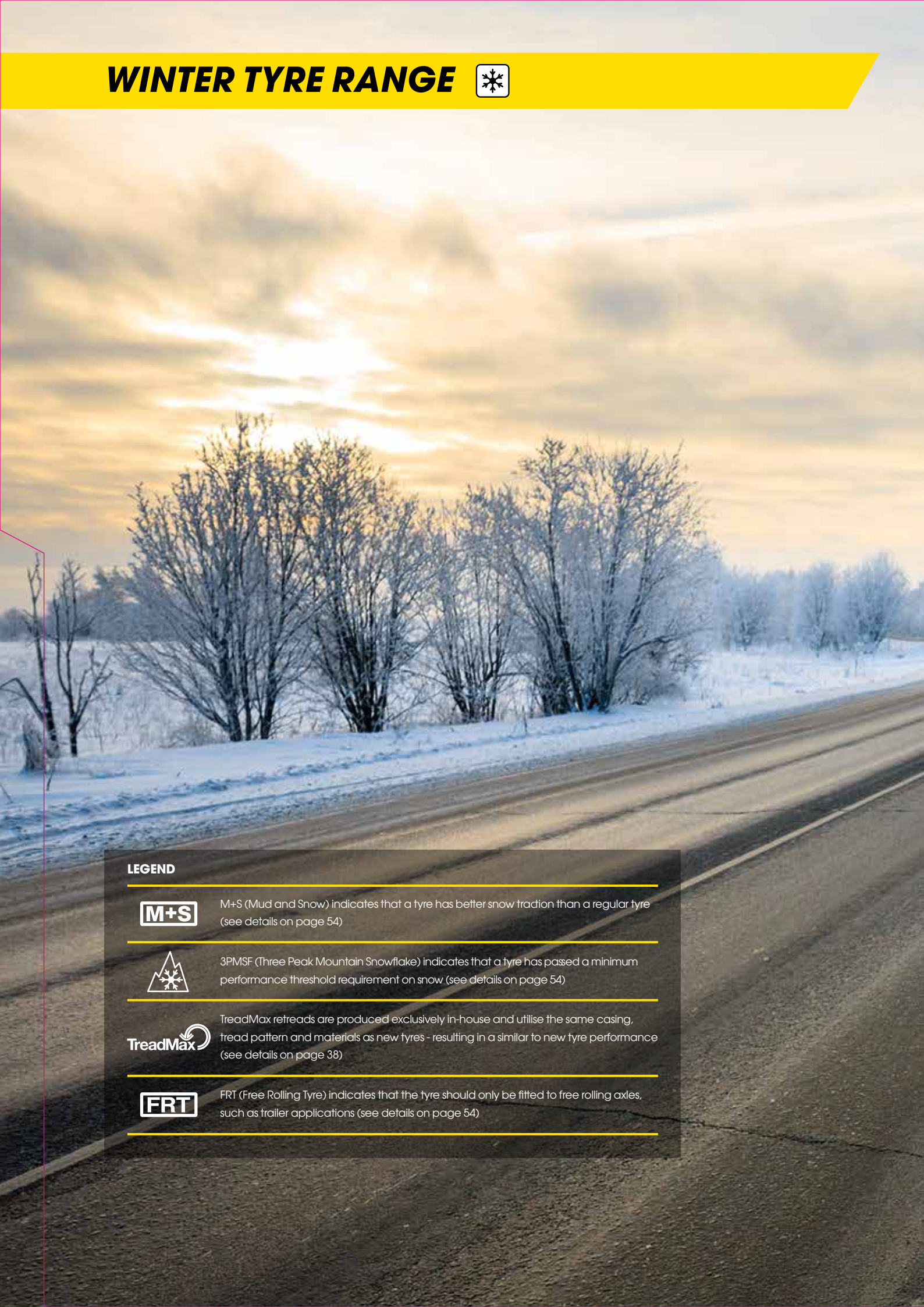
WINTER TYRE RANGE



LEGEND

M+S	M+S (Mud and Snow) indicates that a tyre has better snow tradion than a regular tyre (see details on page 54)
3PMSF	3PMSF (Three Peak Mountain Snowflake) indicates that a tyre has passed a minimum performance threshold requirement on snow (see details on page 54)
TreadMax	TreadMax retreads are produced exclusively in-house and utilise the same casing, tread pattern and materials as new tyres - resulting in a similar to new tyre performance (see details on page 38)
FRT	FRT (Free Rolling Tyre) indicates that the tyre should only be fitted to free rolling axles, such as trailer applications (see details on page 54)


DUNLOP
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WINTER TYRE RANGE

Steer axle tyres

SP362 22.5´´

STEER AXLE TYRES FOR WINTER APPLICATIONS.

Centreline blocks combined with solid shoulders provide excellent winter traction and grip on snowy, icy roads. In addition, the bladed tread pattern provides outstanding braking performance on wet surfaces.

Excellent steering and handling capabilities allow usage as an all position tyre on coaches.

SP362 22.5´´ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
295/80R22.5	152/148	L		D	B	72	M+S
315/70R22.5	154/150 (152/148)	K (L)		C	B	72	M+S
315/80R22.5	156/150 (154/150)	K (L)		C	B	73	M+S
385/65R22.5	160 (158)	K (L)		C	B	74	M+S

WINTER TYRE RANGE

Drive axle tyres

SP462 22.5´´

DRIVE AXLE TYRE DESIGNED FOR WINTER APPLICATIONS.

The SP462 winter traction drive tyre is specifically designed to cope with severe winter conditions. It provides excellent traction on snowy and icy roads.

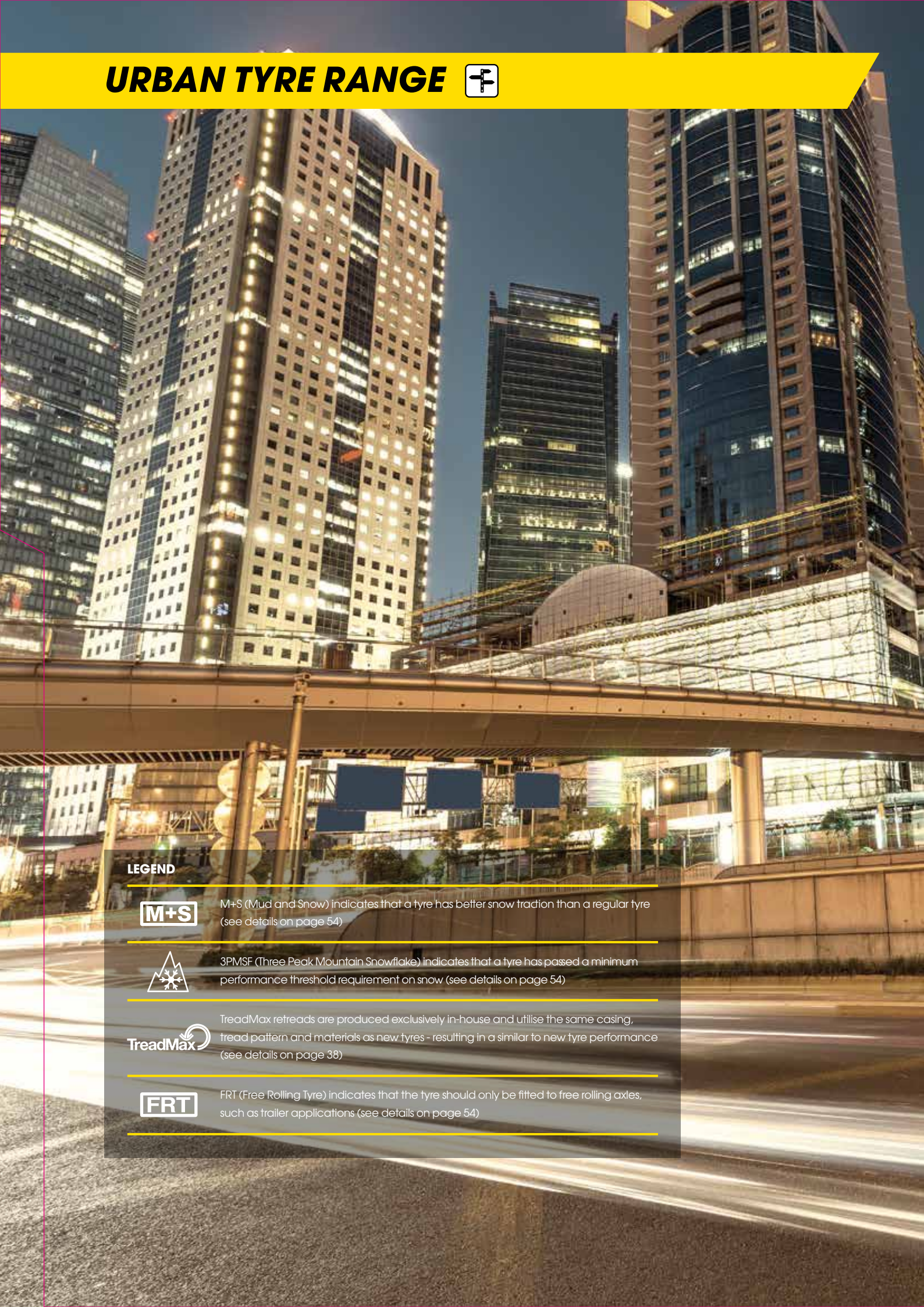
The dedicated block tread design, using latest technology blading and tread compounds combines excellent winter traction performances with high mileage and even wear.
Combined with the 'state of the art' robust carcass construction, the SP462 provides all features required for today's truck's winter operations.

SP462 22.5´´ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
295/80R22.5	152/148	L		E	C	74	M+S
315/70R22.5	154/150 (152/148)	K (L)		D	B	73	M+S
315/80R22.5	156/150 (154/150)	L (M)		D	B	74	M+S

DUNLOP
FOREVER FORWARD

URBAN TYRE RANGE



LEGEND

M+S — M+S (Mud and Snow) indicates that a tyre has better snow traction than a regular tyre (see details on page 54)

3PMSF (Three Peak Mountain Snowflake) indicates that a tyre has passed a minimum performance threshold requirement on snow (see details on page 54)

TreadMax — TreadMax retreads are produced exclusively in-house and utilise the same casing, tread pattern and materials as new tyres - resulting in a similar to new tyre performance (see details on page 38)

FRT — FRT (Free Rolling Tyre) indicates that the tyre should only be fitted to free rolling axles, such as trailer applications (see details on page 54)


DUNLOP
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URBAN TYRE RANGE

Steer axle tyres

SP372 City 22.5´´

SP372* CITY / SP372 CITY

HIGH LOAD

STEER AND ALL POSITION AXLE TYRE FOR URBAN BUSES.

The Dunlop SP372 City tyre, developed to cope with the multiple requirements of today's urban transport operations.

The tyre has been developed for use on steer axle and all position usage. The robust and wide 5-rib tread pattern results in high mileage performance, the frequent blading provides excellent braking and traction on wet and snowy roads.

The SP372 City tyres are designed for all season use and consequently are M+S marked. Reinforced sidewalls mean enhanced kerb scuffing resistance. The use of a dedicated, abrasion resistant tread compound in combination with the dedicated tread pattern results in high mileage performance, even wear type and low noise generation.

SP372 CITY 22.5´´- SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
275/70R22.5	148/145 (152/148)	J (E)	SP372* CITY	D	C	69	M+S TreadMax
275/70R22.5	148/145 (152/148)	J (E)		E	C	71	M+S
275/70R22.5	150/145 (152/148)	J (E)	HIGH LOAD	D	C	71	M+S
315/60R22.5	152/148 (152/148)	J		D	C	71	M+S

URBAN TYRE RANGE

Drive axle tyres

SP472* City 22.5´´

DRIVE AXLE ALL SEASON TYRE FOR URBAN BUSES.

The latest Dunlop SP472* City All Season tyre, developed to cope with the multiple requirements of today's urban transport operations.

The tyre has been developed for drive axle use in operations where excellent traction is required. The robust, bladed tread pattern has been specifically developed to provide superb traction and braking on wet and snow covered roads, combined with high mileage, even wear and low noise.

The SP472* City tyres are designed for all season use and consequently are M+S marked. Reinforced sidewalls mean enhanced kerb scuffing resistance.

SP472* CITY 22.5´´- SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
275/70R22.5	148/145 (152/148)	J (E)		E	C	71	M+S

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FOREVER FORWARD

MIXED SERVICE TYRE RANGE

LEGEND

M+S — M+S (Mud and Snow) indicates that a tyre has better snow tradion than a regular tyre (see details on page 54)

3PMSF (Three Peak Mountain Snowflake) indicates that a tyre has passed a minimum performance threshold requirement on snow (see details on page 54)

TreadMax — TreadMax retreads are produced exclusively in-house and utilise the same casing, tread pattern and materials as new tyres - resulting in a similar to new tyre performance (see details on page 38)

FRT — FRT (Free Rolling Tyre) indicates that the tyre should only be fitted to free rolling axles, such as trailer applications (see details on page 54)


DUNLOP
FOREVER FORWARD

MIXED SERVICE TYRE RANGE

Steer axle tyres

SP382 22.5´´

SP382 22.5
5-RIB VERSION

SP382 22.5
4-RIB VERSION

THE SP382 MIXED SERVICE STEER TYRE IS SPECIFICALLY DESIGNED TO SUIT TODAY'S 'MIXED SERVICE' FLEET OPERATORS.

It provides excellent mileage while featuring an excellent damage resistant construction and pattern. Traction on wet and unpaved roads as well as a robust tread design are the main features of the SP382.

Two design versions are available, the 4-rib version for standard aspect ratio sizes and the 5-rib version for low aspect ratio sizes. Developed using the latest technologies in view of compounds and carcass geometry, the SP382 also provides a superb durability and consequently retreadability.

SP382 22.5´´- SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
13R22.5	156/150 (154/150)	G (K)	4-RIB VERSION	D	B	68	M+S
315/80R22.5	156/150	K	5-RIB VERSION	D	B	69	M+S
385/65R22.5	160 (158)	K (L)	5-RIB VERSION	C	B	69	M+S

Drive axle tyres

SP482 22.5´´

SPECIALIST DRIVE AXLE TYRE FOR USE IN ON/OFF ROAD APPLICATIONS AND CONSTRUCTION.

The SP482 features latest technology compounds and materials in view of providing best mileage combined with excellent damage resistance and traction properties to mixed service fleet operators.

The deep radial shoulder grooves combined with the centreline rib allow for excellent traction characteristics and handling.

The specific groove geometry is designed to reduce stone holding and to provide good self-cleaning properties.

SP482 22.5´´- SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
13R22.5	156/150 (154/150)	G (K)		E	B	74	M+S
315/80R22.5	156/150	K		D	B	74	M+S

MIXED SERVICE TYRE RANGE

Trailer axle tyres

SP282 22.5´´

FRT

TRAILER TYRE FOR HEAVY DUTY ON/OFF ROAD APPLICATIONS.

The SP282 mixed service trailer tyre is specifically developed to cope with the demanding requirements of today's truck operations.

Its robust and damage resistant design, combined with the special wear resistant tread compound, the stone penetration protectors and the deep tread pattern result in excellent performance of the tyre in mixed service operations.

SP282 22.5´´ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
385/65R22.5	160 (158)	J (K)		C	B	72	M+S

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OFF ROAD TYRE RANGE

LEGEND

M+S	M+S (Mud and Snow) indicates that a tyre has better snow tradion than a regular tyre (see details on page 54)
	3PMSF (Three Peak Mountain Snowflake) indicates that a tyre has passed a minimum performance threshold requirement on snow (see details on page 54)
TreadMax	TreadMax retreads are produced exclusively in-house and utilise the same casing, tread pattern and materials as new tyres - resulting in a similar to new tyre performance (see details on page 38)
FRT	FRT (Free Rolling Tyre) indicates that the tyre should only be fitted to free rolling axles, such as trailer applications (see details on page 54)


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OFF ROAD TYRE RANGE

Drive axle tyres

SP492 22.5´´

DRIVE AXLE TYRE FOR DEMANDING OFF ROAD APPLICATIONS.

The SP492 off road drive tyre is specifically designed to meet the toughest off-road service conditions.

It provides excellent traction combined with high damage resistance. Through the use of latest technology tread compound and deep profile depth, the SP492 also provides excellent mileage performance. The SP492 thus combines excellent efficiency and performance characteristics for fleets operating in off road service conditions.

SP492 22.5´´ - SIZE LINE UP AND TYRE LABEL RESULTS

SIZE	LOAD INDEX	SPEED SYMBOL	COMMENTS				
13R22.5	156/150 (154/150)	G (J)		E	B	75	M+S

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TECHNICAL DATA

TECHNICAL DATA

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TYRE TECHNICAL DATA

Tyre dimensions and load inflation table

							TYRE DIMENSIONS**				MAX LOAD		
SIZE	DUNLOP DESIGN	LOAD/SPEED INDEX	SINGLE POINT MARKING*	ADDITIONAL MARKINGS/ COMMENTS			OVERALL DIAMETER (MM) (+/- 1.5%)	OVERALL SEC. WIDTH (MM) (+/- 1.5%)	STAT. LOADED RADIUS (MM)	ROLLING CIRCUMF. (MM)	NOMINAL INFLATION (BAR)	SINGLE AXLE LOAD (KG)	DUAL AXLE LOAD (KG)
17.5'' SIZES - 70 SERIES													
245/70R17.5	SP344	136/134 M		M+S			792	257	368	2418	8.50	4480	8480
	SP444	136/134 M		M+S	❄		793	258	368	2421	8.50	4480	8480
	SP252	143/141 J		M+S		FRT	796	255	363	2430	8.75	5450	10300
265/70R17.5	SP344	139/136 M		M+S			819	265	379	2500	8.00	4860	8960
	SP444	139/136 M		M+S	❄		822	265	380	2509	8.00	4860	8960
17.5'' SIZES - 75 SERIES													
205/75R17.5	SP344	124/122 M		M+S			758	211	354	2314	7.50	3200	6000
	SP444	124/122 M		M+S	❄		760	210	355	2320	7.50	3200	6000
215/75R17.5	SP344	126/124 M		M+S			777	217	360	2372	7.00	3400	6400
	SP444	126/124 M		M+S	❄		778	217	361	2375	7.00	3400	6400
	SP252	135/133 J		M+S		FRT	776	212	359	2369	8.50	4360	8240
225/75R17.5	SP344	129/127 M		M+S			788	233	365	2405	7.25	3700	7000
	SP444	129/127 M		M+S	❄		790	233	366	2411	7.25	3700	7000
235/75R17.5	SP344	132/130 M		M+S			806	239	374	2460	7.75	4000	7600
	SP444	132/130 M		M+S	❄		808	239	375	2466	7.75	4000	7600
	SP252	143/141 J	(144/144 F)	M+S		FRT	804	241	367	2454	8.75	5450	10300
19.5'' SIZES - 50 SERIES													
435/50R19.5	SP252	160 J		M+S		FRT	921	430	423	2811	9.00	9000	
19.5'' SIZES - 55 SERIES													
425/55R19.5	SP241	160 J				FRT	963	421	441	2920	9.00	9000	
19.5'' SIZES - 70 SERIES													
245/70R19.5	SP344	136/134 M		M+S			848	246	393	2589	8.25	4480	8480
	SP444	136/134 M		M+S	❄		851	246	394	2598	8.25	4480	8480
	SP252	141/140 J		M+S		FRT	848	255	389	2589	8.50	5150	10000
265/70R19.5	SP344	140/138 M		M+S			867	260	402	2647	7.75	5000	9440
	SP444	140/138 M		M+S	❄		870	260	403	2656	7.75	5000	9440
	SP252	143/141 J		M+S		FRT	872	269	402	2662	8.50	5450	10300
285/70R19.5	SP344	146/144 L	(140/137 M)	M+S			895	291	412	2732	9.00	6000	11200
	SP444	146/144 L	(140/137 M)	M+S	❄		901	291	415	2750	9.00	6000	11200
	SP252	150/148 J		M+S		FRT	902	292	414	2753	9.00	6700	12600
305/70R19.5	SP344	148/145 M		M+S			927	290	428	2830	8.50	6300	11600
	SP444	148/145 M		M+S	❄		931	290	430	2842	8.50	6300	11600
22.5'' SIZES - 55 SERIES													
385/55R22.5	SP346	160 K	(158 L)	M+S			993	382	458	3009	9.00	9000	
	SP246	160 K	(158 L)	M+S		FRT	994	386	456	3012	9.00	9000	
	SP244	160 K	(158 L)	M+S		FRT	994	386	456	3012	9.00	9000	
22.5'' SIZES - 60 SERIES													
295/60R22.5	SP346	150/147 K	(149/146 L)	M+S	❄		928	304	430	2814	9.00	6700	12300
	SP446	150/147 L	(149/146 L)	M+S	❄		937	289	437	2856	9.00	6700	12300
	SP444	150/147 K	(149/146 L)	M+S			936	292	433	2836	9.00	6700	12300

M+S — M+S (Mud and Snow) indicates that a tyre has better snow traction than a regular tyre (see details on page 54)

❄ — 3PMSF (Three Peak Mountain Snowflake) indicates that a tyre has passed a minimum performance threshold requirement on snow (see details on page 54)

FRT — FRT (Free Rolling Tyre) indicates that the tyre should only be fitted to free rolling axles, such as trailer applications (see details on page 54)

HIGH LOAD — High Load indicates that the tyre is able to carry increased weight compared to a standard load bearing truck tyre

RIM DATA			LOAD VARIATION													
					TYRE PRESSURE IN BAR/PSI											
RECOMM. RIM WIDTH	PERMITTED RIMS	MIN. DUAL SPACING	LOAD INDEX	SINGLE/DUAL MOUNTING	5.0 BAR	5.5 BAR	6.0 BAR	6.5 BAR	7.0 BAR	7.25 BAR	7.5 BAR	7.75 BAR	8.0 BAR	8.25 BAR	8.5 BAR	8.75 BAR	9.0 BAR
					73 PSI	80 PSI	87 PSI	94 PSI	102 PSI	105 PSI	109 PSI	112 PSI	116 PSI	120 PSI	123 PSI	127 PSI	131 PSI
7.50	6.75-7.50	279	136	S	2930	3160	3390	3610	3840	3940	4050	4160	4270	4370	4480		
			134	D	5550	5990	6420	6840	7260	7470	7670	7880	8080	8280	8480		
			143	S	3480	3760	4030	4300	4560	4690	4820	4950	5070	5200	5330	5450	
			141	D	6580	7100	7620	8120	8620	8860	9100	9350	9590	9830	10060	10300	
7.50	6.75-8.25	295	139	S	3340	3600	3860	4120	4370	4490	4620	4740	4860				
			136	D	6150	6640	7120	7590	8050	8280	8510	8740	8960				
6.00	5.25-6.75	231	124	S	2310	2500	2680	2850	3030	3110	3200						
			122	D	4340	4680	5020	5350	5680	5840	6000						
6.00	6.00-6.75	239	126	S	2600	2800	3010	3200	3400								
			124	D	4890	5280	5660	6030	6400								
			135	S	2850	3080	3300	3520	3730	3840	3940	4050	4150	4260	4360		
			133	D	5390	5820	6240	6650	7050	7260	7450	7650	7850	8050	8240		
6.75	6.00-6.75	254	129	S	2750	2970	3180	3390	3600	3700							
			127	D	5200	5610	6020	6410	6810	7000							
6.75	6.75-7.50	262	132	S	2820	3040	3260	3470	3690	3790	3900	4000					
			130	D	5350	5780	6190	6600	7010	7210	7400	7600					
			143	S	3480	3760	4030	4300	4560	4690	4820	4950	5070	5200	5330	5450	
			141	D	6580	7100	7620	8120	8620	8860	9100	9350	9590	9830	10060	10300	
14.00	14.00-15.00		160	S	5620	6070	6510	6940	7360	7570	7780	7990	8190	8390	8600	8800	9000
13.00	13.00-14.00		160	S	5620	6070	6510	6940	7360	7570	7780	7990	8190	8390	8600	8800	9000
6.75	6.75-7.50	270	136	S	3000	3240	3470	3700	3930	4040	4150	4260	4370	4480			
			134	D	5680	6130	6570	7010	7440	7650	7860	8070	8270	8480			
			141	S	3370	3640	3900	4160	4410	4530	4660	4780	4910	5030	5150		
7.50	6.75-7.50	279	140	D	6540	7060	7570	8070	8560	8810	9050	9290	9530	9760	10000		
6.75	6.75-7.50	295	140	S	3520	3800	4070	4340	4610	4740	4870	5000					
			138	D	6650	7170	7690	8200	8700	8950	9200	9440					
			143	S	3560	3850	4120	4400	4670	4800	4930	5060	5190	5320	5450		
7.50	7.50-8.25		141	D	6740	7270	7800	8310	8820	9070	9320	9570	9810	10060	10300		
8.25	7.50-9.00	318	146	S	3750	4050	4340	4620	4910	5050	5190	5320	5460	5600	5730	5870	6000
			144	D	7000	7550	8100	8630	9160	9420	9680	9940	10190	10450	10700	10950	11200
			150	S	4190	4520	4840	5160	5480	5640	5790	5940	6100	6250	6400	6550	6700
			148	D	7870	8500	9110	9710	10310	10600	10890	11180	11470	11750	12040	12320	12600
9.00	8.25-9.00	343	148	S	4120	4450	4770	5080	5390	5550	5700	5850	6000	6150	6300		
			145	D	7590	8190	8780	9360	9930	10210	10490	10770	11050	11330	11600		
11.75	11.75-12.25	343	160	S	5620	6070	6510	6940	7360	7570	7780	7990	8190	8390	8600	8800	9000
9.00	9.00-9.75	329	150	S	4190	4520	4840	5160	5480	5640	5790	5940	6100	6250	6400	6550	6700
			147	D	7690	8290	8890	9480	10060	10350	10630	10910	11190	11470	11750	12030	12300

* Additional Service Description based on UNECE Regulation N° 54 located on the sidewall of the tyre in a circle close to the principal Service Description. Load/speed variations do not apply to the additional Service Description.

** Measured tyre dimension using the Dunlop recommended rim.

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TYRE TECHNICAL DATA

Tyre dimensions and load inflation table

							TYRE DIMENSIONS**				MAX LOAD		
SIZE	DUNLOP DESIGN	LOAD/SPEED INDEX	SINGLE POINT MARKING*	ADDITIONAL MARKINGS/ COMMENTS			OVERALL DIAMETER (MM) (+/- 1.5%)	OVERALL SEC. WIDTH (MM) (+/- 1.5%)	STAT. LOADED RADIUS (MM)	ROLLING CIRCUMF. (MM)	NOMINAL INFLATION (BAR)	SINGLE AXLE LOAD (KG)	DUAL AXLE LOAD (KG)
315/60R22.5	SP346	154/148 L		M+S	3PMSF	HIGH LOAD	955	309	442	2935	9.00	7500	12600
	SP344	152/148 L		M+S			957	311	443	2900	9.00	7100	12600
	SP372C	152/148 J		M+S			961	314	446	2912	9.00	7100	12600
	SP446	152/148 L		M+S	3PMSF		965	308	450	2947	9.00	7100	12600
	SP444	152/148 L		M+S			969	311	449	2936	9.00	7100	12600
22.5'' SIZES - 65 SERIES													
385/65R22.5	SP346	160 K	(158 L)	M+S	3PMSF		1077	380	499	3293	9.00	9000	
	SP362	160 K	(158 L)	M+S	3PMSF		1078	378	496	3266	9.00	9000	
	SP382	160 K	(158 L)	M+S			1078	376	496	3266	9.00	9000	
	SP246	164 K	(158 L)	M+S		HIGH LOAD FRT	1083	386	498	3281	9.00	10000	
	SP244	160 K	(158 L)	M+S		FRT	1084	386	502	3285	9.00	9000	
	SP282	160 J	(158 K)	M+S		FRT	1091	376	498	3275	9.00	9000	
425/65R22.5	SP281	165 K				FRT	1124	430	518	3406	8.25	10300	
22.5'' SIZES - 70 SERIES													
275/70R22.5	SP344	148/145 M		M+S			968	277	452	2955	9.00	6300	11600
	SP372*C	148/145 J	(152/148 E)	M+S	3PMSF		974	272	456	2973	9.00	6300	11600
	SP372C	150/145 J	(152/148 E)	M+S	3PMSF	HIGH LOAD	972	273	457	2976	9.00	6700	11600
	SP372C	148/145 J	(152/148 E)	M+S	3PMSF		974	272	456	2973	9.00	6300	11600
	SP444	148/145 M		M+S			974	277	455	2973	9.00	6300	11600
	SP472*C	148/145 J	(152/148 E)	M+S	3PMSF		976	275	459	2985	9.00	6300	11600
315/70R22.5	SP346	156/150 L		M+S	3PMSF	HIGH LOAD	1014	313	470	3106	9.00	8000	13400
	SP344	154/150 L	(152/148 M)	M+S			1014	315	471	3095	9.00	7500	13400
	SP362	154/150 K	(152/148 L)	M+S	3PMSF		1020	314	469	3114	9.00	7500	13400
	SP446	154/150 L	(152/148 M)	M+S	3PMSF		1015	313	473	3093	9.00	7500	13400
	SP462	154/150 K	(152/148 L)	M+S	3PMSF		1025	314	472	3129	9.00	7500	13400
22.5'' SIZES - 80 SERIES													
295/80R22.5	SP346	154/149 M		M+S	3PMSF	HIGH LOAD	1055	303	491	3212	8.50	7500	13000
	SP362	152/148 L		M+S	3PMSF		1056	294	489	3223	8.50	7100	12600
	SP446	152/148 M		M+S	3PMSF		1060	303	494	3215	8.50	7100	12600
	SP462	152/148 L		M+S	3PMSF		1064	297	494	3248	8.50	7100	12600
315/80R22.5	SP346	156/150 L	(154/150 M)	M+S	3PMSF		1084	315	502	3294	8.50	8000	13400
	SP362	156/150 K	(154/150 L)	M+S	3PMSF		1083	316	500	3306	8.50	8000	13400
	SP382	156/150 K		M+S			1087	315	502	3318	8.50	8000	13400
	SP446	156/150 L	(154/150 M)	M+S	3PMSF		1088	316	507	3294	8.50	8000	13400
	SP482	156/150 K		M+S			1089	315	503	3324	8.50	8000	13400
	SP462	152/148 L		M+S	3PMSF		1064	297	494	3248	8.50	7100	12600
22.5'' SIZES - STANDARD SERIES													
13R22.5	SP382	156/150 G	(154/150 K)	M+S			1127	316	523	3440	8.75	8000	13400
	SP482	156/150 G	(154/150 K)	M+S			1133	318	522	3458	8.75	8000	13400
	SP492	156/150 G	(154/150 J)	M+S			1140	318	526	3480	8.75	8000	13400

M+S — M+S (Mud and Snow) indicates that a tyre has better snow traction than a regular tyre (see details on page 54)

3PMSF — 3PMSF (Three Peak Mountain Snowflake) indicates that a tyre has passed a minimum performance threshold requirement on snow (see details on page 54)

FRT — FRT (Free Rolling Tyre) indicates that the tyre should only be fitted to free rolling axles, such as trailer applications (see details on page 54)

HIGH LOAD — High Load indicates that the tyre is able to carry increased weight compared to a standard load bearing truck tyre

RIM DATA			LOAD VARIATION													
					TYRE PRESSURE IN BAR/PSI											
RECOMM. RIM WIDTH	PERMITTED RIMS	MIN. DUAL SPACING	LOAD INDEX	SINGLE/DUAL MOUNTING	5.0 BAR	5.5 BAR	6.0 BAR	6.5 BAR	7.0 BAR	7.25 BAR	7.5 BAR	7.75 BAR	8.0 BAR	8.25 BAR	8.5 BAR	8.75 BAR	9.0 BAR
					73 PSI	80 PSI	87 PSI	94 PSI	102 PSI	105 PSI	109 PSI	112 PSI	116 PSI	120 PSI	123 PSI	127 PSI	131 PSI
9.00	9.00-9.75	344	154	S	4690	5060	5420	5780	6130	6310	6480	6650	6830	7000	7160	7330	7500
			152	S	4440	4790	5130	5470	5810	5970	6140	6300	6460	6620	6780	6940	7100
			148	D	7870	8500	9110	9710	10310	10600	10890	11180	11470	11750	12040	12320	12600
11.75	11.75-12.25		164	S	6250	6740	7230	7710	8180	8410	8640	8870	9100	9330	9550	9780	10000
			160	S	5620	6070	6510	6940	7360	7570	7780	7990	8190	8390	8600	8800	9000
13.00	12.25-14.00		165	S	6900	7450	7980	8510	9030	9290	9540	9800	10050	10300			
7.50	7.50-8.25	303	150	S	4190	4520	4840	5160	5480	5640	5790	5940	6100	6250	6400	6550	6700
			148	S	3940	4250	4550	4860	5150	5300	5440	5590	5730	5880	6020	6160	6300
			145	D	7250	7820	8390	8940	9490	9760	10030	10290	10560	10820	11080	11340	11600
9.00	9.00-9.75	351	156	S	5000	5390	5780	6170	6540	6730	6910	7100	7280	7460	7640	7820	8000
			154	S	4690	5060	5420	5780	6130	6310	6480	6650	6830	7000	7160	7330	7500
			150	D	8370	9040	9690	10330	10960	11270	11580	11890	12200	12500	12800	13100	13400
8.25	8.25-9.00	326	154	S	4910	5290	5680	6050	6420	6600	6790	6970	7140	7320	7500		
			149	D	8500	9180	9840	10490	11130	11450	11760	12070	12380	12690	13000		
			152	S	4640	5010	5370	5730	6080	6250	6420	6590	6760	6930	7100		
			148	D	8240	8890	9540	10170	10790	11090	11400	11700	12000	12300	12600		
9.00	9.00-9.75	351	156	S	5230	5650	6050	6450	6850	7040	7240	7430	7620	7810	8000		
			150	D	8760	9460	10140	10810	11470	11800	12120	12450	12770	13080	13400		
			152	S	4640	5010	5370	5730	6080	6250	6420	6590	6760	6930	7100		
8.25	8.25-9.00	326	148	D	8240	8890	9540	10170	10790	11090	11400	11700	12000	12300	12600		
9.00	9.00-9.75	351	156	S	5110	5520	5920	6310	6690	6880	7070	7260	7450	7630	7820	8000	
			150	D	8560	9240	9910	10560	11210	11530	11850	12160	12470	12780	13090	13400	

* Additional Service Description based on UNECE Regulation N° 54 located on the sidewall of the tyre in a circle close to the principal Service Description. Load/speed variations do not apply to the additional Service Description.

** Measured tyre dimension using the Dunlop recommended rim.

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RETREAD INFORMATION AND REGROOVING GUIDELINES

RETREAD & REGROOVING

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RETREAD INFORMATION

Why retreading?

Reason 1

RETREADING GIVES A TYRE MULTIPLE LIVES

New Dunlop tyres feature high quality casings, produced with the latest technology and materials, and an intelligent construction. Excellent durability and damage resistance properties further add to their performance. Thanks to these features, Dunlop tyres last longer, plus tyre life does not need to end after it is worn! Our new tyres are made as an ideal basis for regrooving and retreading.

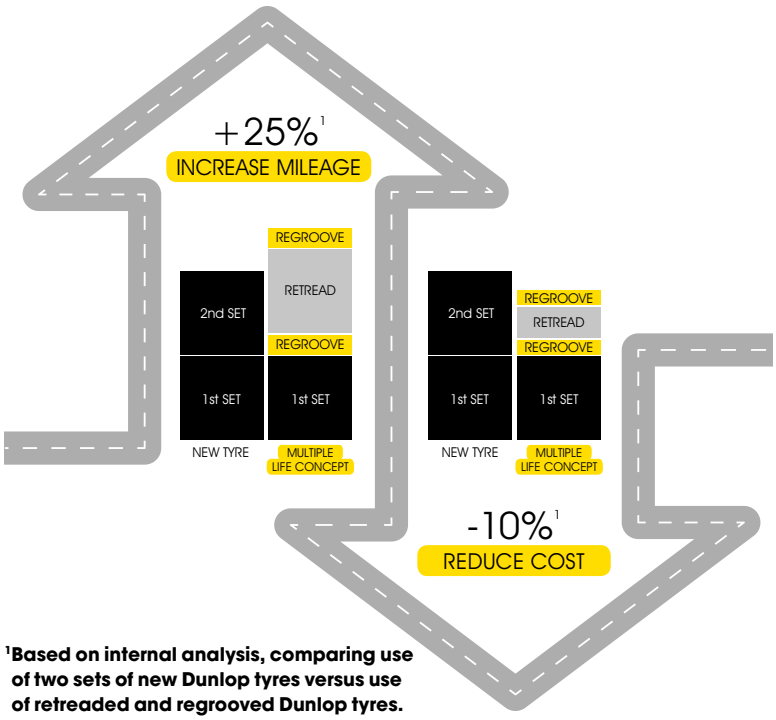
TreadMax

1. USE NEW TYRES FROM DUNLOP'S EXTENSIVE RANGE
2. REGROOVING INCREASES MILEAGE POTENTIAL
3. RETREAD YOUR CASING, UTILISING ONE OF B RETREADING SOLUTIONS
4. REGROOVE THE RETREADED TYRES FOR EXTRA MILEAGE

Reason 2

RETREADS SUBSTANTIALLY REDUCE OPERATING COSTS

When compared to buying new tyres again after the first lifecycle of a new tyre, retreading and regrooving offers a substantial cost reduction. On the one hand, the price of a Dunlop retreaded tyre lies between 50% and 70% than that of a new tyre. On the other hand, it increases mileage. Moreover, by using more retreads, increasing the retread ratio and increasing the use of suitable cases of worn tyres, fleets can reduce their overall annual operational costs even further.



[1]Based on internal analysis, comparing use of two sets of new Dunlop tyres versus use of retreaded and regrooved Dunlop tyres.

Reason 3

DUNLOP RETREAD PERFORMANCE IS SIMILAR TO NEW TYRES

It may come as a surprise that the performance of Dunlop retreaded tyres is similar to that of new tyres.
However, knowing that the team that develops Dunlop's new tyres also develops the retreads, and that the design profile of retreads is identical to the new tyre, it simply makes sense.

Moreover, the compound used is carefully selected to ensure top-level performance, as you can expect from any premium Dunlop product.

Reason 4

RETREADING HAS A POSITIVE IMPACT ON THE ENVIRONMENT

Prolonging the lifespan of a tyre by retreading has a positive impact on the environment in several ways. Retreads use fewer raw materials, produce less waste (both during manufacturing and because casings are re-used) and mean less energy waste.

For example, producing a retread consumes about 66% less oil than the production of a new tyre.

DUNLOP
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REGROOVING INFORMATION

Truck tyre regrooving

Since the pneumatic tyre was patented by John Boyd Dunlop in 1888, many technology developments by Dunlop have led to the current high standards of vehicle technology. Providing a continuous succession of innovations, Dunlop is today an important partner of the automotive industry.

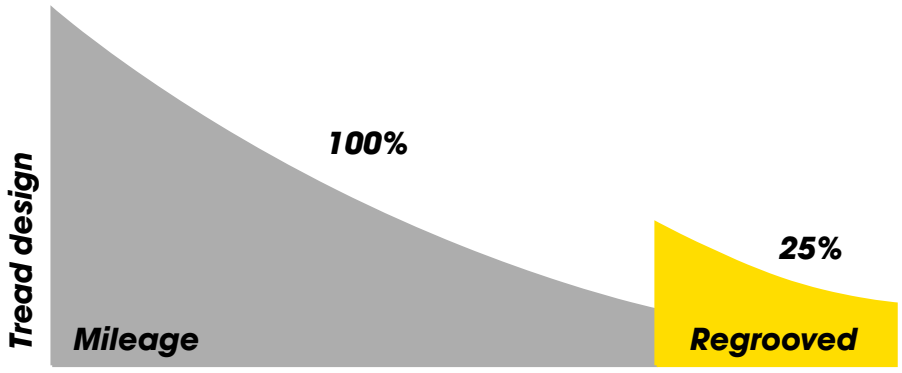
Cost efficiency is especially important for commercial vehicle operations. To allow the use of the complete potential of modern truck tyres, all Dunlop truck tyres are regroovable.

These guidelines provide all the required information for the correct regrooving of truck tyres and thus will support the regrooving specialist to execute Dunlop truck tyre regrooving in the most efficient manner.

Regrooving basics

1. **A regrooved tyre is a tyre, 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 tyres 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, Dunlop tyres can, in principle, be mounted on all wheel positions. However, since it has become standard practice for users to normally fit new tyres on front axles, the regrooved tyres will usually be mounted on the rear axles or trailer positions**
6. **Tyres which are heavily damaged in the tread area (e.g. rib tearing, multiple cutting and chipping) should not be regrooved but retreaded.**

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



All Dunlop truck tyres are designed to allow regrooving and thus increase the mileage potential and consequently improve cost efficiency for the fleets.

25%* increased mileage for 10% additional cost

***Average value calculated on 2 tyre lives as part of the Multiple Life Concept. Actual results are not guaranteed and may differ based on external factors such as but not limited to road conditions, driving behaviour and temperature**

RECOMMENDATIONS AND PARAMETERS

Regrooving recommendations

1. **Under NO circumstances should the tyre be completely worn before regrooving. It is strongly recommended to regroove when 3-6mm of the original design is still left.**
2. **Determine the blade setting depth for each individual tyre 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' + 3mm maximum regrooving depth.

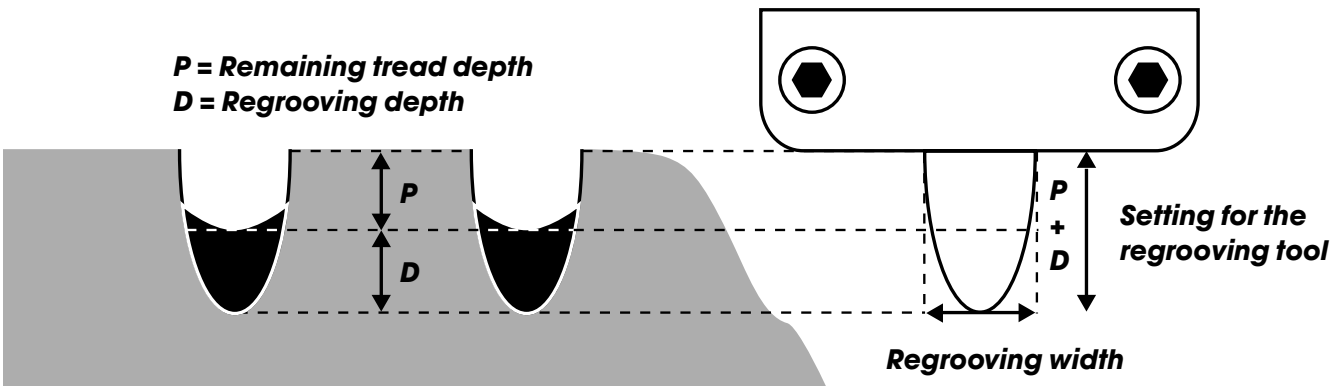
   This will maintain a 3mm gauge under the regrooved tread.
3. **While regrooving, hold the cutter so that the underside of the cutting head is flush against the tread surface.**
4. **The maximum regrooving depth is 3mm for all Dunlop truck tyres.**
5. **If the wear is irregular, probing of the remaining undertread gauge is necessary to ensure that 3mm of undertread will remain after regrooving.**

Regrooving Dunlop remould tyres

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

Regrooving parameters

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



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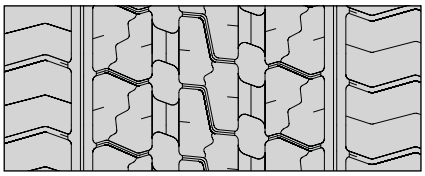
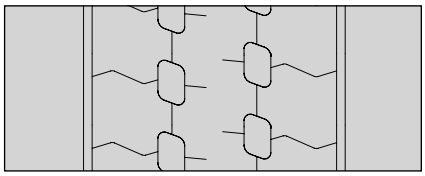
ON ROAD

SP346 22.5˝

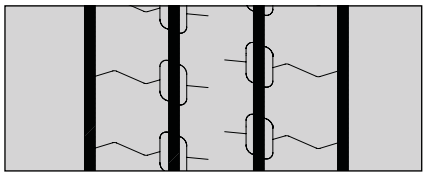
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



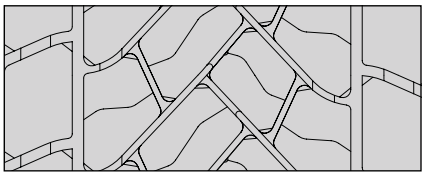
80% worn



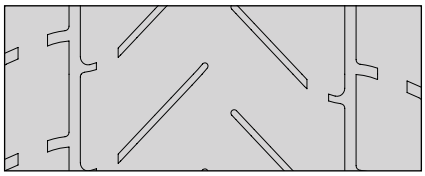
Regrooved tyre tread

SP446 22.5˝

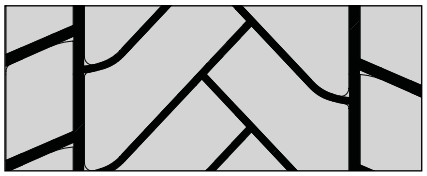
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



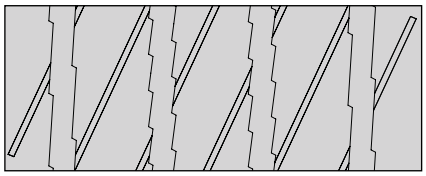
80% worn



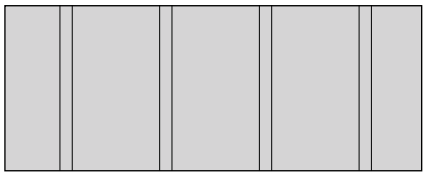
Regrooved tyre tread

SP246 385/55R22.5

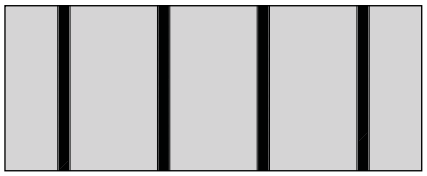
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



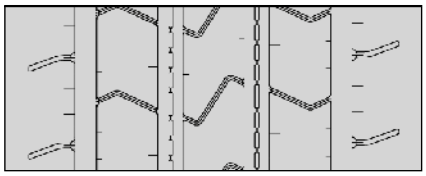
80% worn



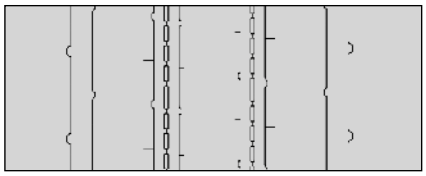
Regrooved tyre tread

SP344 22.5˝

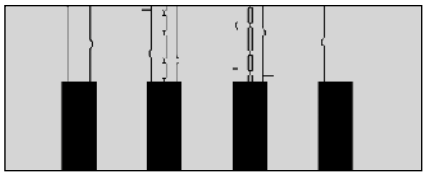
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



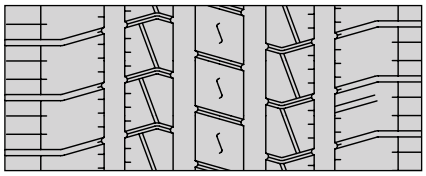
80% worn



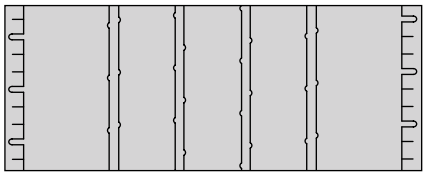
Regrooved tyre tread

SP344 17.5˝ AND 19.5˝

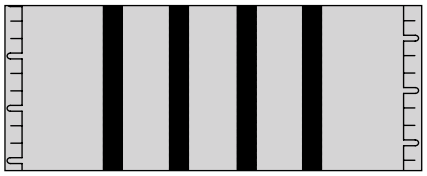
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



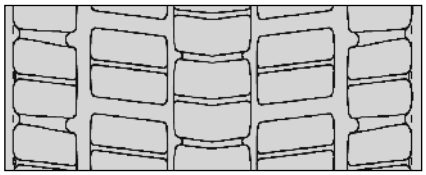
80% worn



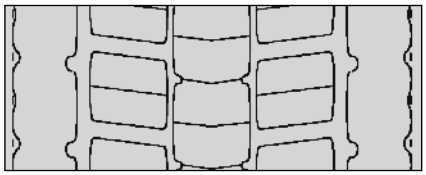
Regrooved tyre tread

SP444 22.5˝

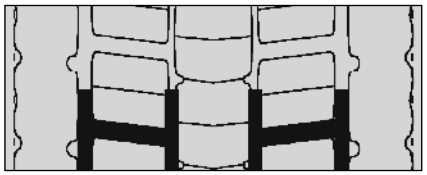
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



80% worn

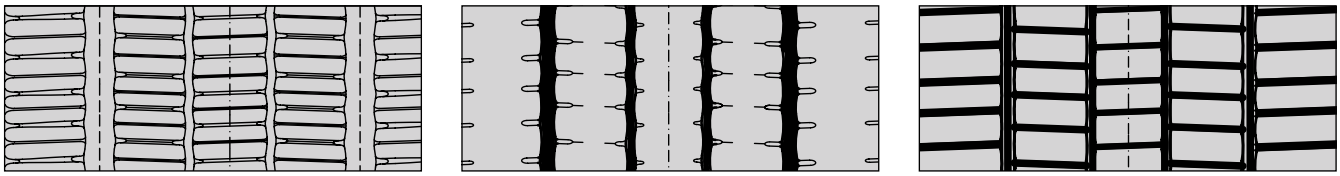


Regrooved tyre tread

ON ROAD

SP444 17.5˝ AND 19.5˝

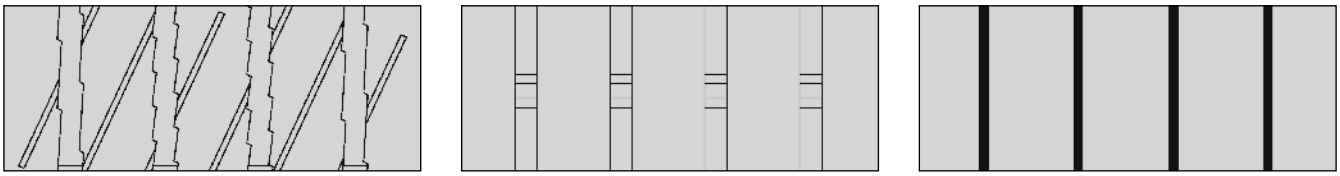
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread | 80% worn | Regrooved tyre tread

SP244 22.5˝

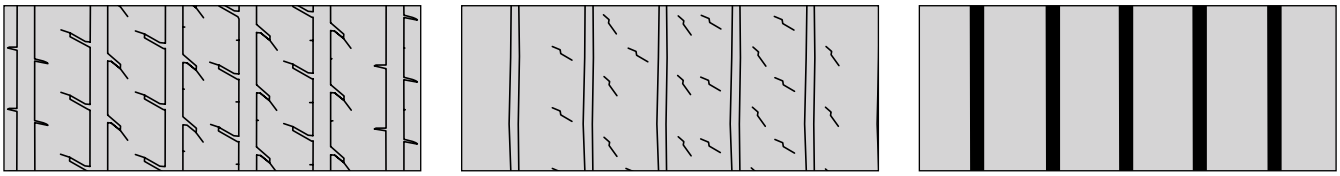
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread | 80% worn | Regrooved tyre tread

SP252 435/50R19.5

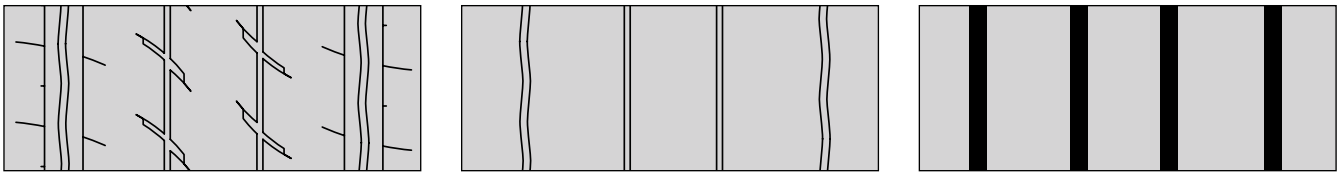
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread | 80% worn | Regrooved tyre tread

SP252 LOW PLATFORM TRAILER 17.5˝ AND 19.5˝

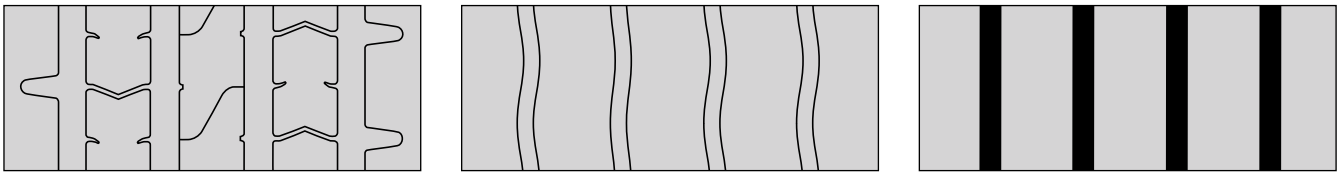
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread | 80% worn | Regrooved tyre tread

SP241 425/55R19.5

Maximum regrooving depth 3mm, regrooving width 6-8mm.



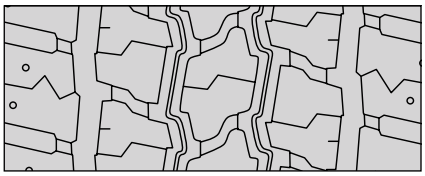
New tyre tread | 80% worn | Regrooved tyre tread

DUNLOP
FOREVER FORWARD

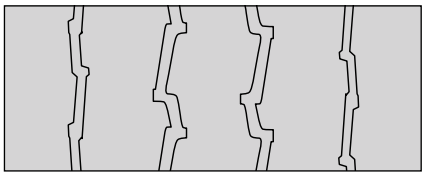
WINTER

SP362 22.5˝

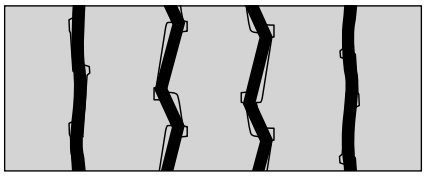
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



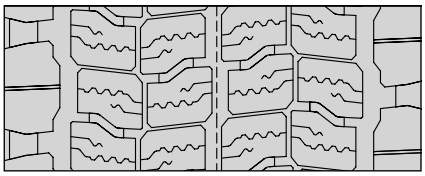
80% worn



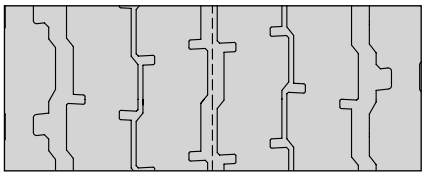
Regrooved tyre tread

SP462 22.5˝

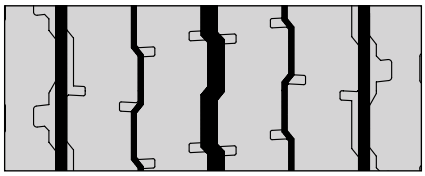
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



80% worn

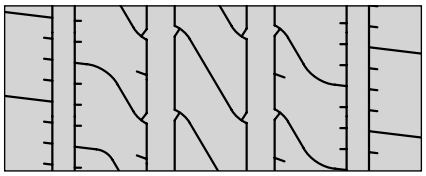


Regrooved tyre tread

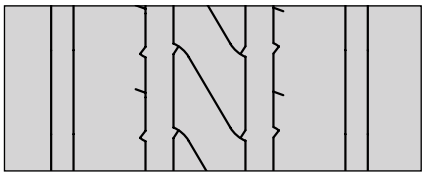
URBAN

SP372 CITY 22.5˝

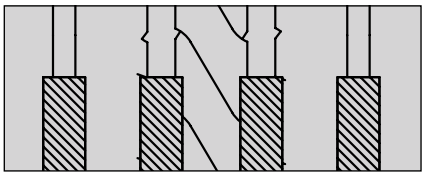
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



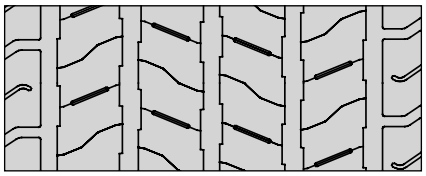
80% worn



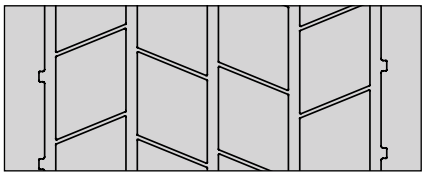
Regrooved tyre tread

SP472* CITY 275/70R22.5

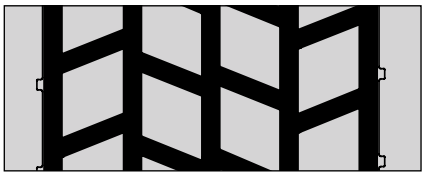
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



80% worn

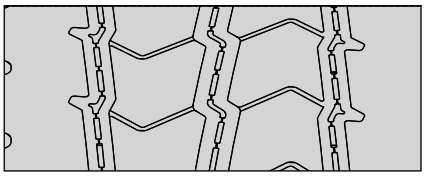


Regrooved tyre tread

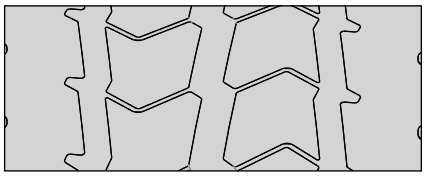
MIXED SERVICE

SP382 4 RIB 22.5´´

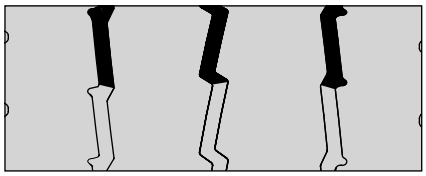
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



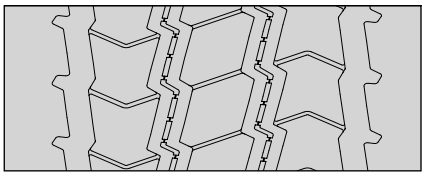
80% worn



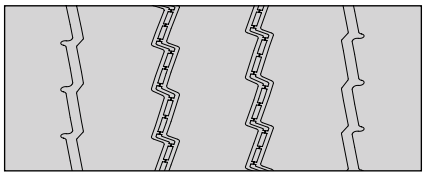
Regrooved tyre tread

SP382 5 RIB 22.5´´

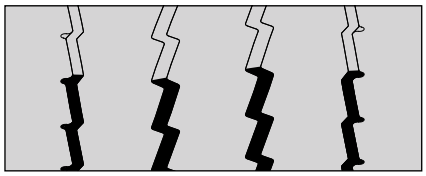
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



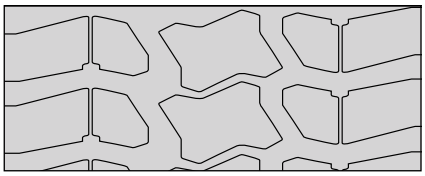
80% worn



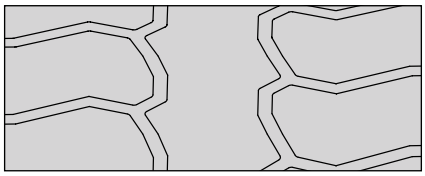
Regrooved tyre tread

SP482 22.5´´

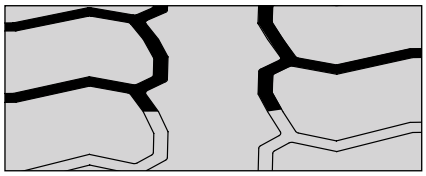
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



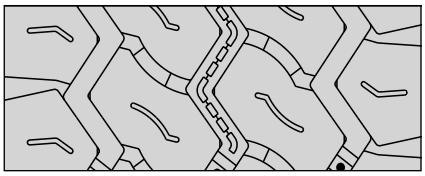
80% worn



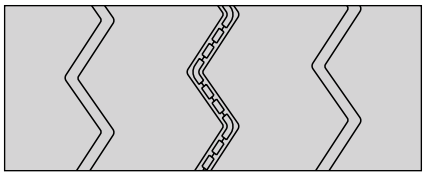
Regrooved tyre tread

SP282 385/65R22.5

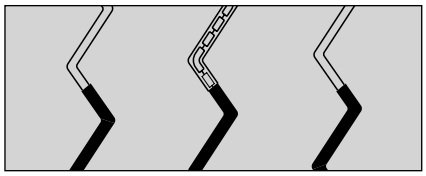
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



80% worn

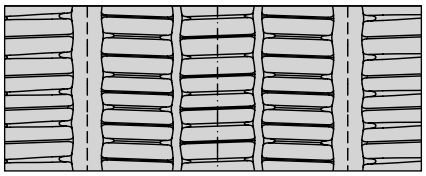


Regrooved tyre tread

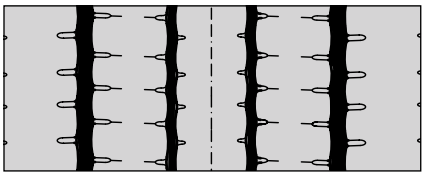
OFF ROAD

SP492 13R22.5

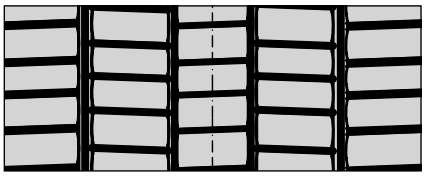
Maximum regrooving depth 3mm, regrooving width 6-8mm.



New tyre tread



80% worn



Regrooved tyre tread

DUNLOP
FOREVER FORWARD

TYRE TECHNOLOGY

DUNLOP
FOREVER FORWARD

TYRE TECHNOLOGY

TYRE CONSTRUCTION AND TERMINOLOGY

Truck tyres 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 tyre quality and price, but is primarily a direct consequence of the actual running conditions of the tyre. In order to be able to optimise these conditions, it is essential to first of all be familiar with the construction characteristics of a tyre and to understand its mechanical properties.

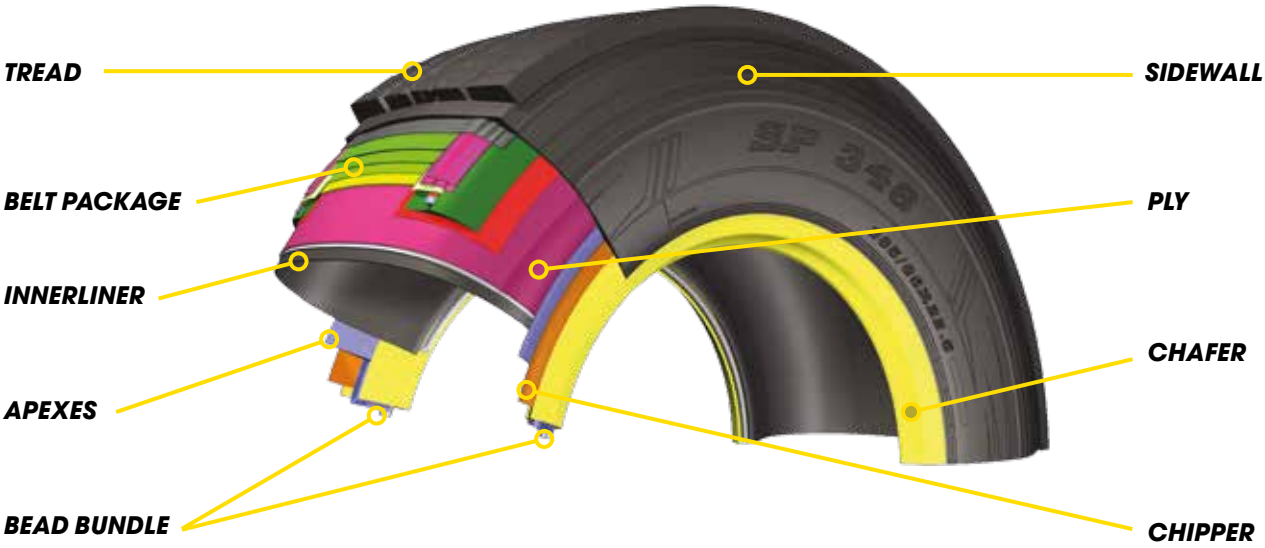
It will also be advisable to have a basic knowledge of vehicle dynamics and to recognise the importance of environmental factors such as road design and ambient temperature.

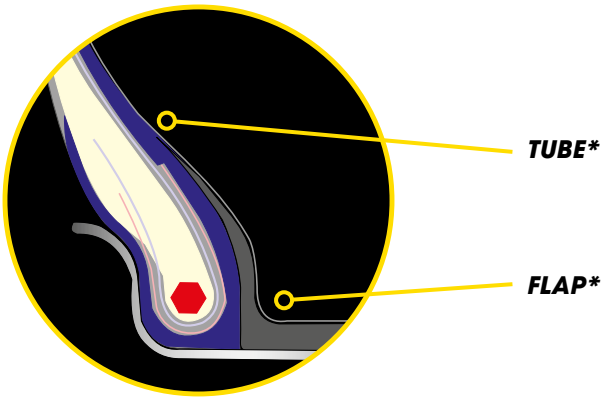
This brochure is designed to convey these elementary rules and guidelines and to therefore help minimise fleet operating expenses. For further clarifications and updated facts and figures, please consult your truck tyre specialist.

Tyre construction

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

FEATURES





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.**

***Only applicable to tube type tyres**

Tyre terminology

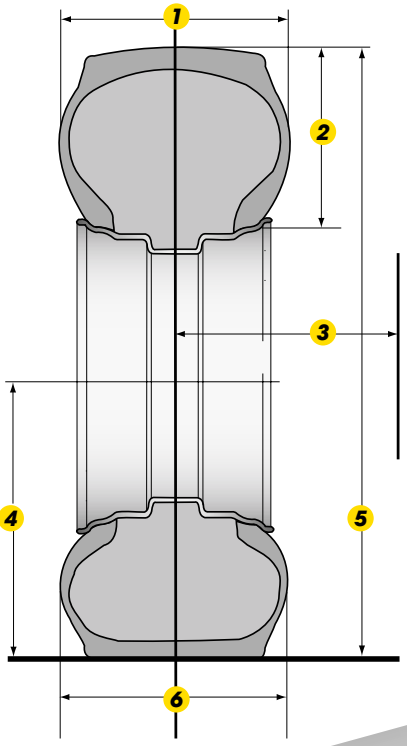
- ***TREAD***
  Provides primarily traction and wear and protects the carcass underneath.
- ***BELT***
  Multiple, low angle, steel cord layers provide strength to the tyre, stabilise the tread and prevent penetrations into the carcass.
- ***SIDEWALL***
  Provides protection for the ply and withstands 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 tyre under operating pressure.
- ***INNERLINER***
  A layer of rubber in tubeless tyres specially compounded to prevent loss of air.
- ***BEAD BUNDLE***
  The steel bead bundle properly seats and seals the tyre 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 tyres.
- ***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 tyres.

Tyre dimension definitions

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

1. ***SECTION WIDTH (SW)***
   The width of the inflated tyre section, excluding any lettering or decoration.
2. ***SECTION HEIGHT (SH)***
   The distance from the bead seat to the outer tread contour of the inflated tyre at centreline.
3. ***MINIMUM DUAL SPACING***
   The minimum recommended distance between centrelines of dual mounted tyres to avoid kissing in the flex area.
4. ***STATIC LOADED RADIUS (SLR)***
   The standing height from the road surface to the axle centre under nominal tyre load/ inflation conditions.
5. ***OUTSIDE DIAMETER (OD)***
   The diameter of an unloaded tyre, 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 (SW).**

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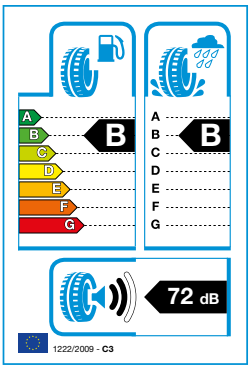
TRUCK TYRE LABEL

What is it?

On 1st November 2012, the European Union introduced legislation to ensure that any truck tyre sold within the EU is accompanied by a Tyre Label. The label provides the customer with information regarding the tyre's performance in the following categories: fuel efficiency, wet grip and exterior noise.

The label information is clear and informative and represents the energy efficiency of the tyre, with 'A' being the heighest performing and 'G' the lowest.



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

What does change?

Dealers have to provide information about the tyre 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

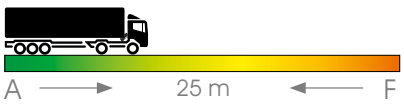
A = Most fuel efficient tyre F = Least fuel efficient tyre (Class G will not be used for truck tyres)

A rolling tyre 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 tyre deformation requires less energy, less fuel and, in turn, less CO^2 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 tyres 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 tyres)



Tyres 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 tyres could be up to 30% shorter braking distance. This means for a typical truck driving at 80km/h up to 25m shorter braking distance.**

NOISE EMISSION / EXTERIOR

NOISE Measured in decibels (dB) Three classes

A tyre'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 tyre, 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 tyre the more environmental-friendly it is.

*** Calculations based on tests made by the Goodyear Dunlop Innovation Centre 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 labelling at a glance

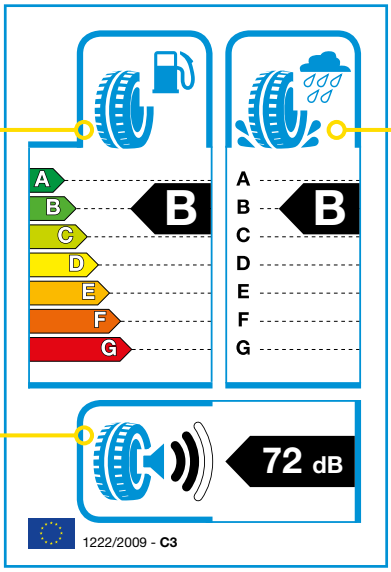
£5,700

Possible annual saving generated by choosing A-class rolling resistance tyres instead of F-class tyres*

A F

25m

Difference of braking distance between an A and F-class for a typical truck driving at 80km/h



4x

The difference between external rolling noise from 1 to 3 black waves is roughly four times the noise level

Calculation based on tests made by the Goodyear Dunlop Innovation Centre Luxembourg 2012.

Not the full story. What's not covered?

While we're completely in favour of the introduction of tyre labelling, 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, tyres are more than simply black and round; they're a complex piece of engineering. It's therefore important to look at the bigger picture.

- Tyre labelling 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 1000km → fuel price £1.20/litre = £57.00/1000km → 100,000km mileage/year = £5,700 savings/year.

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TYRE MARKINGS

Size markings

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

Service description

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

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

Free Rolling Tyre (FRT)

'FRT' stands for 'Free Rolling Tyre' and is a legal marking according to the UNECE Regulation No. 54, which indicates that the tyre is specifically designed and intended for the equipment of trailer axles and axles of motor vehicles other than front steering and all drive axles.

Therefore these trailer tyres marked 'FRT' should be used exclusively on trailer axles and axles of motor vehicles other than front steering and all drive axles and should not be fitted in any other position.

Dunlop will not warrant and cannot be held accountable for any potential liability claim involving FRT tyres fitted outside these recommendations.

Winter tyre markings: M+S and 3PMSF

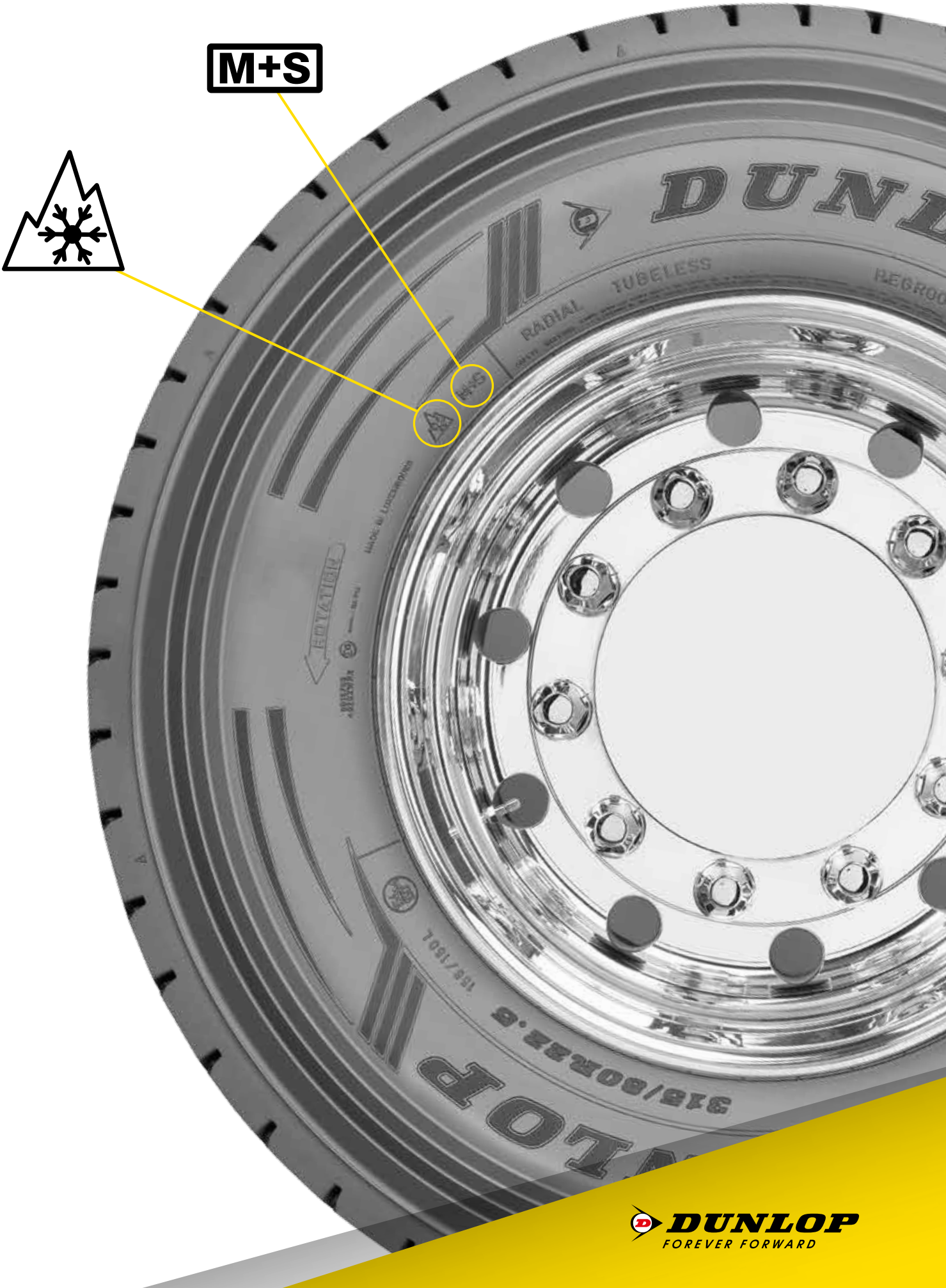
M+S (also M.S. or M&S) has been the widely used marking on winter tyres, stipulated in EU legislation.[1]

On 1 November 2012 Regulation 117 made a new marking official in the EU – the '*Alpine*' symbol, or the Three Peak Mountain Snowflake ('3PMSF'). Unlike the M+S marking, the 3PMSF can only be legally used if the tyre passes a minimum performance threshold requirement on snow, the so called 'snow grip index'.

However, M+S remains as a permitted marking, but not legally linked to a minimum guaranteed performance in winter conditions. M+S tyres have better snow traction than regular tyres but do not necessarily pass the snow grip threshold legal requirement to qualify for the new three-peak snowflake identification.

[1] Council Directive 92/23/EEC of 31 March 1992 relating to tyres for motor vehicles and their trailers and to their fitting.

Most of Dunlop truck and bus tyres are marked with the *M+S* symbol and some of them already qualify for the new *3PMSF* marking.



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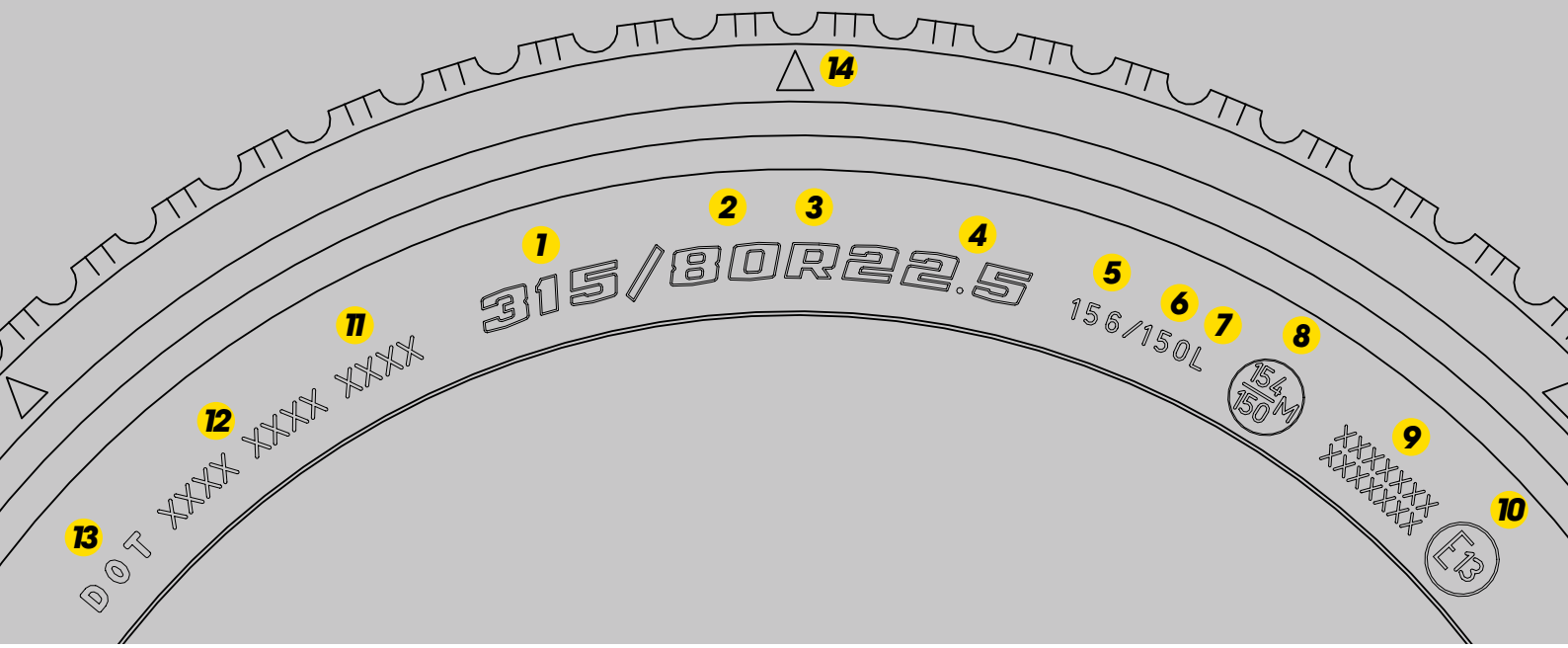
SIZE DEFINITIONS

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

13	/		**R**	**22.5**	**156/150**	**G**
SECTION WIDTH IN INCHES			R-RADIAL	RIM DIAMETER IN INCHES	LOAD INDEX (SINGLE/DUAL MOUNTED)	SPEED SYMBOL
295	/	**80**	**R**	**22.5**	**152/148**	**M**
SECTION WIDTH IN MM		ASPECT RATIO	R-RADIAL	RIM DIAMETER IN INCHES	LOAD INDEX (SINGLE/DUAL MOUNTED)	SPEED SYMBOL
385	/	**65**	**R**	**22.5**	**160**	**K**
SECTION WIDTH IN MM		ASPECT RATIO	R-RADIAL	RIM DIAMETER IN INCHES	LOAD INDEX (SINGLE MOUNTED)	SPEED SYMBOL



The position of the major tyre markings are as shown;

1. **Tyre Section width (mm or inches)**
2. **Aspect ratio SH / SW**
3. **Radial construction (R=Radial)**
4. **Rim Diameter (inches)**
5. **Single Load Index (Max. load per tyre - single tyre)**
6. **Dual Load Index (Max. load per tyre - dual mounted)**
7. **Speed Symbol**
8. **Single point marking - alternative load indices when used with alternative speed**
9. **ECE Homologation and noise number - indicates that the tyre conforms to ECE regulations**
10. **Issuing country of ECE homologation**
11. **Date code (week, year)**
12. **Manufacturing Code**
13. **DOT (Department Of Transportation) - legal marking for the US market**
14. **TWI - Tread Wear Indicator**

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

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

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LOAD INDEX AND SPEED SYMBOL

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

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

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

Special purpose tyres, 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).

VARIATION IN LOAD CARRYING CAPACITY (%) SPEED SYMBOL

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 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	+5.0	+7.0	+7.0	+7.0	+7.0	+7.0	+2
75	+2.5	+5.5	+5.5	+5.5	+5.5	+5.5	-1
80	0	1.0	+1.0	+4.0	+4.0	+4.0	0
85		2.0	+3.0	+3.0	+3.0	+3.0	0
90		0	+3.0	+2.0	+2.0	+2.0	0
95			+1.0	+1.0	+1.0	+1.0	0
100			0	0	0	0	0
110				0	0	0	0
120					0	0	0
130						0	0

NOTE: **Increment to be applied in the absence of any specific agreement with the tyre manufacturer. These increments do only apply to the "nominal" load/speed indices.**

INTERACTION OF LOAD AND SPEED

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

LOAD INDICES AND CORRESPONDING LOAD CARRYING CAPACITIES IN KG

LI	KG	LI	KG	LI	KG	LI	KG	LI	KG	LI	KG	LI	KG	LI	KG
61	257	75	387	89	580	103	875	117	1285	131	1950	145	2900	159	4375
62	265	76	400	90	600	104	900	118	1320	132	2000	146	3000	160	4500
63	272	77	412	91	615	105	925	119	1360	133	2060	147	3075	161	4625
64	280	78	425	92	630	106	950	120	1400	134	2120	148	3150	162	4750
65	290	79	437	93	650	107	975	121	1450	135	2180	149	3250	163	4875
66	300	80	450	94	670	108	1000	122	1500	136	2240	150	3350	164	5000
67	307	81	462	95	690	109	1030	123	1550	137	2300	151	3450	165	5150
68	315	82	475	96	710	110	1060	124	1600	138	2360	152	3550	166	5300
69	325	83	487	97	730	111	1090	125	1650	139	2430	153	3650	167	5450
70	335	84	500	98	750	112	1120	126	1700	140	2500	154	3750	168	5600
71	345	85	515	99	775	113	1150	127	1750	141	2575	155	3850	169	5800
72	355	86	530	100	800	114	1180	128	1800	142	2650	156	4000	170	6000
73	365	87	545	101	825	115	1215	129	1850	143	2725	157	4125	171	6150
74	375	88	560	102	850	116	1250	130	1900	144	2800	158	4250	172	6300

The Load Index denotes the maximum load a given tyre can carry at the maximum speed as indicated by the speed symbol.

SPEED INDICES AND CORRESPONDING MAXIMUM SPEED CAPABILITY

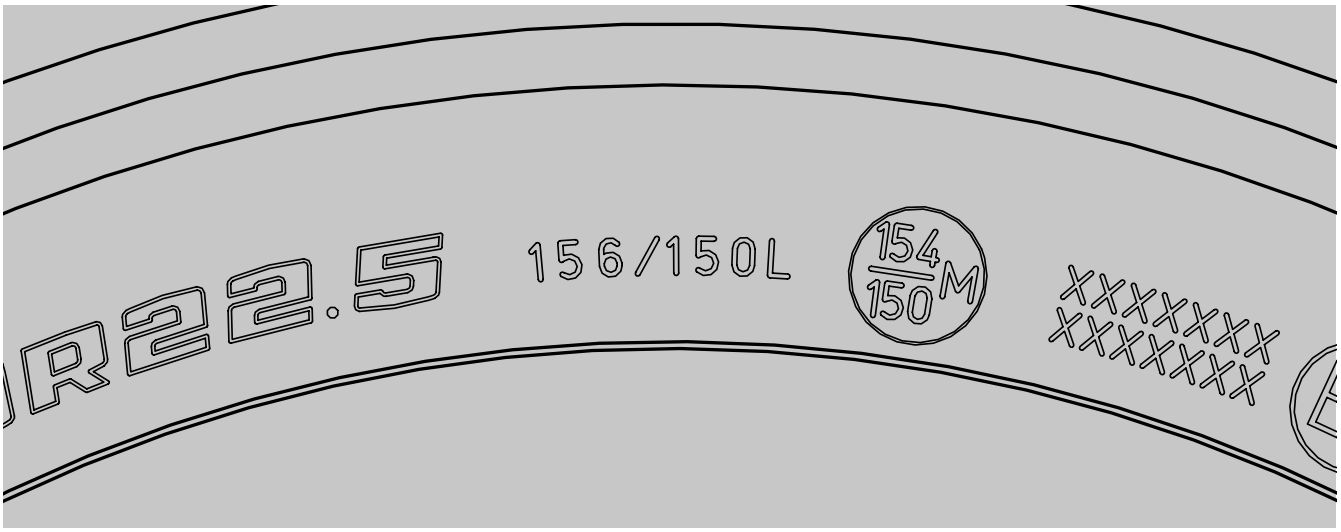
SI	V MAX.	SI	V MAX.	SI	V MAX.	SI	V MAX.	SI	V MAX.
B	50	E	70	J	100	M	130	Q	160
C	60	F	80	K	110	N	140	R	170
D	65	G	90	L	120	P	150	S	180

The Speed symbol denotes the maximum speed at which a given tyre can carry the load indicated by the load index.

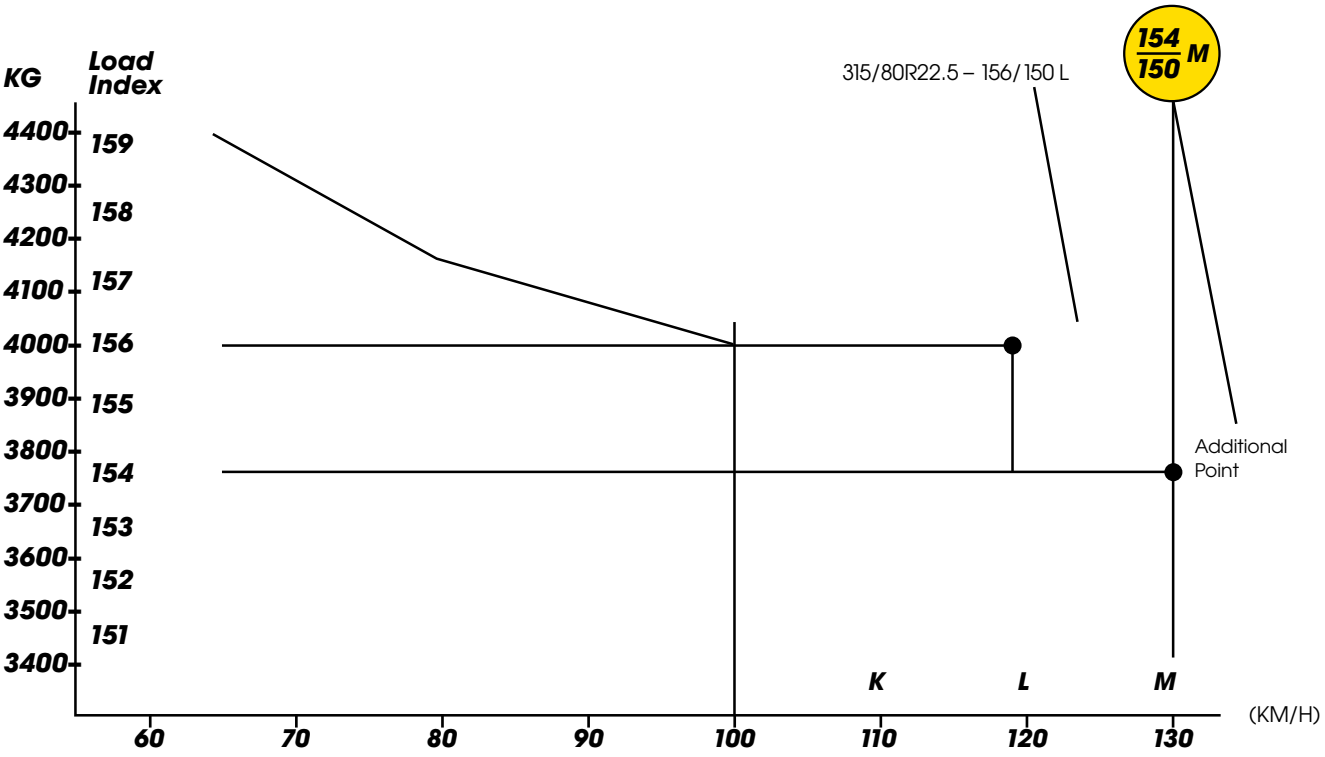
ADDITIONAL LOAD/SPEED MARKINGS

The tyre 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.**



NOTES CONCERNING ‘VARIATIONS IN LOAD CAPACITY WITH SPEED (%)’

(Below notes refer to the ETRTO (European Tyre 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 tyres in dual fitments is twice the load carrying capacity in single up to 40km/h. Bonus loads will not be permitted for speeds of 40km/h and above if the wheel axles are rigidly fixed to the body of vehicle.**

- ***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 are mainly foreseen for long distances and are designed for the 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 tyre, when the average speed does not exceed 40km/h.

  Class II
  + 10% of the load indices marked on the tyre, when the operating speed is restricted to 60km/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 tyre.**

- **In any case, it is recommended that the maximum permissible load capacity is avoided if the resulting inflation pressure is higher than 1000kPa. 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 40km/h and below.**

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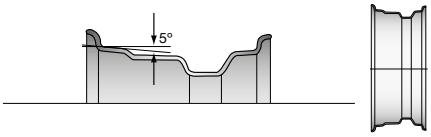
RIMS AND WHEELS

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

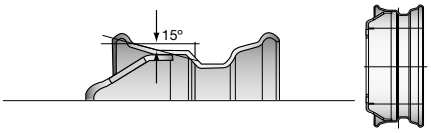
- **One-piece tubeless drop centre rims**
- **Multi-piece tube-type flat base rims**
- **Multi-piece tubeless flat base rims**

One-piece tubeless drop centre

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



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

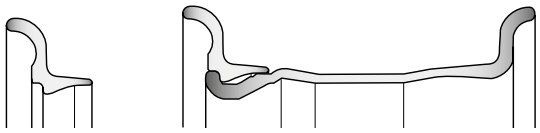


Two and four-piece tube-type flat base

(Mainly 20˝) rims for high aspect ratio tyres.
It is 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**

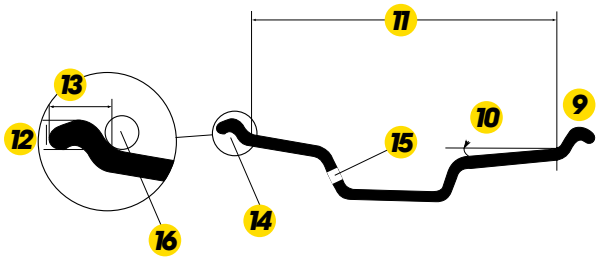
Four-piece tubeless flat base

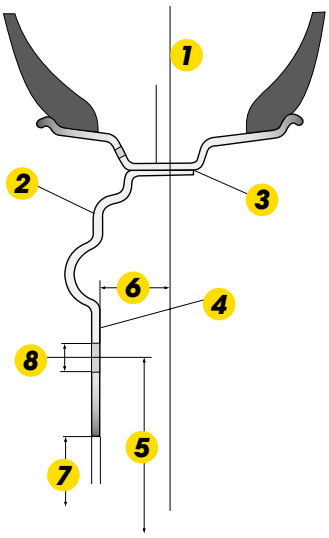
Lock Ring **Side Ring** **Bead seat band**

NOTE: **(20˝) rims for mainly 80-series tyres. They require a new sealing gasket for each new tyre.**

The position of the major tyre markings are as shown;

1. Drop centre
2. Disc
3. Rim/Disc junction
4. Hub contact face
5. Pitch (bolt) circle diameter
6. Offset
7. Centre 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. Vale hole
16. Ball tape



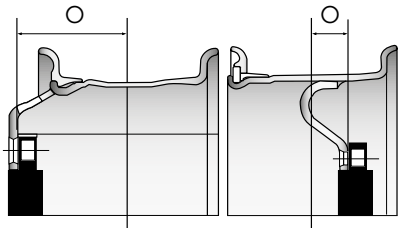


NOTE: Rim diameters can only be accurately measured by means of a special ball tape.

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.

Tyre fitters and mechanics must therefore ensure that:

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

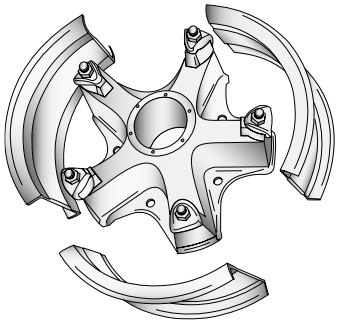


Wheel offsets can be positive, negative or zero. The offset is defined as the distance from the wheel centre to the inside face of the disc (against the hub) and is called positive whenever this inside face is located outside of the centreline, negative when located inside,

Maintenance, assembling and disassembling rules

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 tyres 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 50-100km after wheel fitment and re-tightened if necessary.
- In case of dual mounting, the spacer ring should be pre-centred over the centring cams (placed on spokeheads).

TUBES AND FLAPS

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

The higher stresses in Radial Tyres 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.

Tubes

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

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

- **There is no apparent damage**
- **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.**

NOTES: **The fitment of tubes to "tubeless" tyres is not recommended.**

Flaps

The flap is designed to:

- **Protect the tube from the roughness of the rim**
- **Prevent the tube being pinched by the component parts of multi-pieced rims**
- **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 centre rims including passenger, truck and farm, have a valve hole on the side of the well and require an off centre valve on the tube. They do not require a Flap.

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

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

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

Rim slot cover plates

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.

MEDIUM TRUCK – 20/24˝

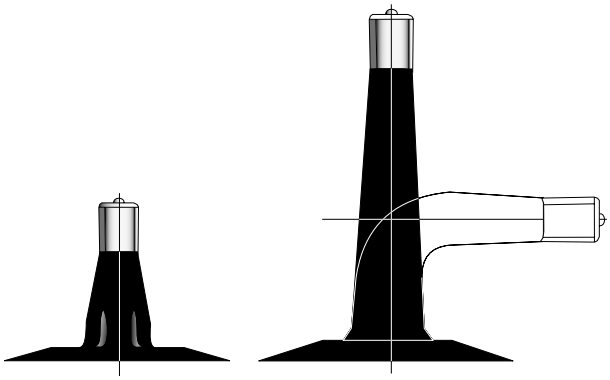
TYRE SIZE	TUBE	RIM	FLAP
12.00R20	12.00R20	8.0	20R8.5
		8.5	20R8.5
		9.0	20R9.5
14.00R20	14.00R20	10.0	20R9.0
12.00R24	12.00R24	8.0	24R8.5
		8.5	24R8.5
		9.0	24R9.0

VALVES

Three types of Inner Tube Valve exist in Commercial service:

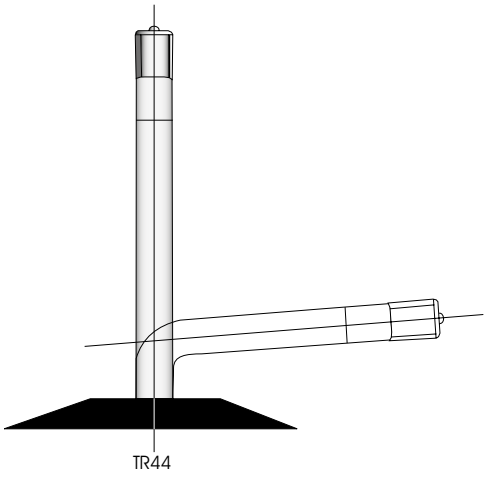
Rubber covered valves

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



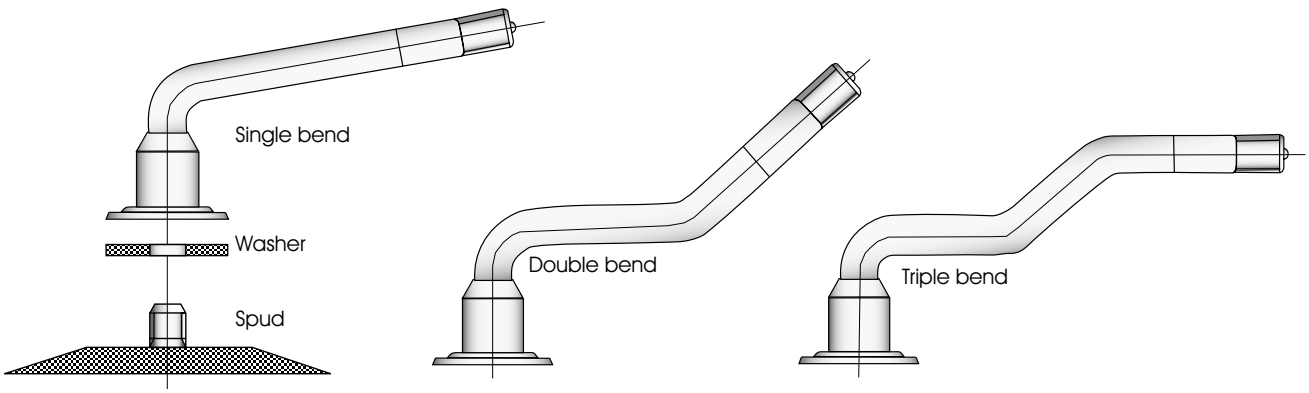
One-piece metal valves

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 pre-bent extension which screws onto the spud, using a rubber washer as the air seal.

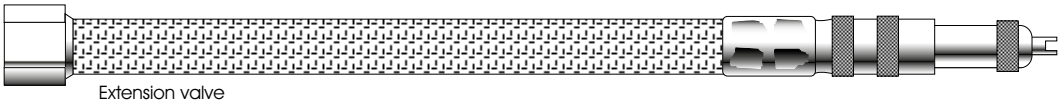


Fitting extension valves

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 tyre/tube/flap assembly, and line the extension up with the slot by tightening further.



Extension valve

Rubber washer

Valve caps

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.

Valve cores

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.

CONVERSION FROM T&RA TO REFERENCE NUMBERS

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: **Dunlop primarily manufactures truck tubes with spud/screw on extension type valves.**

RECOMMENDATIONS

Tyre selection

Tyres should be selected preferably based on the vehicle manufacturer's specifications or recommendations.
The tyre size selection is typically based on required axle loads and configurations, as well as on the maximum speed capability of the vehicles.

Tyres should be fitted to the corresponding recommended rims, as defined by the tyre manufacturer and/or by the ETRTO (European Tyre and Rim Technical Organisation) standards.

Usage of other allowed rims shall be agreed upon by the tyre and/or rim or vehicle manufacturer.

It is recommended that vehicles are equipped with tyres of the same construction type (radial or bias) on all positions, tread patterns may vary by axle (steer, drive and trailer). Dual mounted tyres should be the same construction type and of equivalent dimensions.

Tyre storage

Tyres should be preferably stored in cool, dry locations, away from direct sunlight or strong artificial light. Mounted or unmounted tyres should never be stored on oily floors or otherwise in contact with solvents, oil or grease. Nor should tyres be stored in the same or adjoining rooms with volatile solvents.

If possible, tyres should be stored vertically on treads. Unmounted tyres stacked horizontally (on sidewall) should be piled symmetrically and never so high as to cause severe distortion to the bottom tyre. Tyres that are mounted on rims but not on vehicles should follow the same recommendations as for unmounted tyres.

Mounting

Tyre mounting and demounting shall be handled preferably by experienced and trained personnel using proper tools and procedures.

A tyre which is not correctly mounted or which has been damaged will not deliver optimum performance.

Rims should be inspected prior to fitting a tyre – they should be rust free and should not be damaged or show any signs of wear and tear. Specifically, the rim flange areas should be inspected thoroughly.

It is recommended that new valves are always used when fitting new tubeless tyres, respectively new tubes and flaps in case of tube type tyres. New valve caps should be used to protect valve parts from dust, dirt and humidity and thus better protect from eventual air losses.

For lubrication, use vegetable oil based, self evaporating lubricants only or special, dedicated tyre mounting lubricants.

Check position of reference line versus rim flange for correct centring.

As correct bead seating at the rim flanges is important, the maximum 'mounting' inflation pressure may be required to assure correct seating. The maximum allowable 'mounting' inflation pressure is 150% of the maximum nominal inflation pressure of the tyre, but should not exceed 10 bar. Tyre inflation pressure should be adjusted after mounting.

Inflate tyres following the industry standard and legal safety practices.

Inflation pressure

Incorrect inflation pressure is often a cause of tyre damage. Truck and bus tyres should be inflated according to the inflation pressures as indicated in the tyre manufacturer's recommendations. Inflation pressures are typically in function of the axle loads.

Tyre inflation pressures should be checked on a bi-weekly basis. Inflation pressures are to be checked on cold tyres. The pressures indicated in the load-inflation tables always relate to 'cold' inflations at the indicated axle loads. A slight increase of inflation pressure while operating the vehicle has been accounted for in the tables and should not be adjusted.

Over-and under-inflation will not only generate irregular tread wear patterns, but can also lead to premature tyre failure.

Tyre inflation

Tyres may know a sudden air loss during inflation, releasing instant energy and possibly causing injury to the worker or a bystander. Truck and bus tyres should be inflated accordingly to the following safety rules:

1. Never work on an inflated tyre and rim assembly except for visual inspection. For other operations, it is essential to make sure that the tyre is completely deflated.
2. Used tyres should not be fitted and inflated if their previous history of use, maintenance or storage conditions are uncertain or unknown. A qualified tyre specialist should inspect the internal and external condition of the used tyres prior to application. Please consult the Tyre Information Service Bulletin from Rubber Manufacturer Association ('Passenger And Light Truck Used Tyres', Vol. 45, Number 4).
3. Ensure that the rim is correct for the tyre to be fitted.
4. Inflate the tyres in a safety cage or use a safety device. The worker should never face or stand next to the tyre when inflating tyres.
5. Use extension hose with gauge and clip on chuck.
6. Start the inflation in two steps making certain that the beads are seated correctly on the rim seat. Stop inflating the tyre at 150 kPa (1.5 bar) (1st step).
7. Inspect the tyre and ensure that there are no tyre deformations or blisters.
8. Check for proper seating of the rim parts. Ensure that the beads are correctly located against the rim flange.
9. Inflate it to the specified inflation pressure (2nd step).
10. Never inflate a tyre beyond the maximum pressure limitations indicated on the tyre sidewall or given in the tyre manufacturer documentation.

Tread depth

All countries belonging to the European Community require a minimum tread depth of 1mm, 1.6mm or 2mm, depending on their legislation. Tyres are required to have at least this much tread in the central three quarters of the tread area all the way around the tyre.

All truck and bus tyres are equipped with TWIs (Tread Wear Indicators) on a few spots around the circumference. These indicators are located in the main grooves of the tread pattern and have a height of 1.6mm from the groove bottom.

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**All information in this material was valid on its date of issuance (August 2016). Grading can vary depending on the size of the tyre.
For detailed and up to date information, please refer to your dealer or to www.dunlop.co.uk/truck
Produced by Dunlop Tyres UK
049/0912/LUX-ENG**

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