

2008

MICHELIN

classictyres



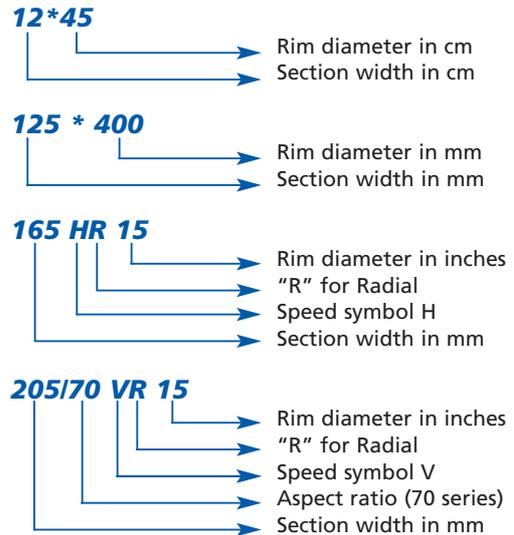
MICHELIN

A better way forward

Tyre sizes and designations



Tyre width (mm) Aspect ratio "R" for Radial rim diameter load index tread pattern maxi speed 270 km/h
 speed symbol VR > 210 km/h



Load indices and speed symbols

Most of the tyres bear instructions for use such as the load index (number) and the speed symbol (letter). The load index indicates the maximum load per type. The speed symbol indicates the maximum authorised speed.

Load index	Load per type (kg)	Speed symbol	Speed (kph)								
62	265	75	387	88	560	101	825	114	1180	J	100
63	272	76	400	89	580	102	850	115	1215	K	110
64	280	77	412	90	600	103	875	116	1250	L	120
65	290	78	425	91	615	104	900	117	1285	M	130
66	300	79	437	92	630	105	925	118	1320	N	140
67	307	80	450	93	650	106	950	119	1360	P	150
68	315	81	462	94	670	107	975	120	1400	Q	160
69	325	82	475	95	690	108	1000	121	1450	R	170
70	335	83	487	96	710	109	1030	122	1500	S	180
71	345	84	500	97	730	110	1060	123	1550	T	190
72	355	85	515	98	750	111	1090	124	1600	H	210
73	365	86	530	99	775	112	1120	125	1650	V	240
74	375	87	545	100	800	113	1150			W	270
										Y	300
										VR	>210
										ZR	>240

Tube type and Tubeless

• **Tube type** : inner tube separate from tyre.

• **Tubeless** : inner tube incorporated into the tyre. Needs an airtight rim.

However, on vintage cars, if the rims are not airtight, we can allow the fitting of certain TL tyres with a special inner tube.

When this is possible, the corresponding tube is given in the tables.



Foreword

Authenticity and technological know-how

Michelin today offers a range of tyres for classic cars which will fit a number of vehicles made between the Thirties and the end of the Seventies.

Michelin expertise...

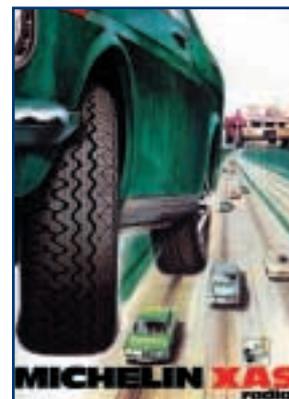
Michelin's choice of continuous innovation and technological leadership can be found in this Collection range. These tyres benefit from the progress made in grip on rubber mixings. However, the dynamic characteristics of these tyres remain entirely appropriate in association with those of the vehicles of time. Made in small production runs, often by hand, these tyres call on the technical skills and the know-how of the finest craftsmen.

... in keeping with the standards of the age

The technological excellence of this range goes hand in hand with the historical authenticity of the vehicles. These tyres, reproducing the exact configuration of the model of the time in terms of size, tread pattern and aspect ratio thus ensure that the vehicle remains entirely in keeping with the period.

In this way, Michelin, by offering you a tyres which is both safe and historically accurate, intend to make their contribution to safeguarding, promoting and perpetuating motoring heritage.

Availability of our tyre range on line
www.michelin-passion.com





Tyres of the Thirties

Tyres of the Thirties

Cross-ply tyres with bead wires

Replacing beaded edge tyres, cross-ply tyres with bead wires formed the second generation of detachable tyres. These tyres benefited from two major innovations : the introduction of carbon black and the appearance of textile wire cords in the tyre carcass.

Increased service life

The incorporation of wires into the bead in 1925 led to an improvement in tyre retention on the rim. These tyres also benefited from two major innovations prior to their creation :

- the introduction of carbon black in 1917 which led to a five-fold increase in tyre service life
- the appearance of layers of textile wire cords parallel with each other in the tyre's carcass, which gave rise to the so-called "cablé" tyre in 1919 and the "cablé confort" in 1923, the first low pressure car tyre (2.5 bars 36 psi).

In the category of cross-ply tyres with bead wires, we currently market two products :



DOUBLE RIVET

"Double rivet" is in fact the name of a tread pattern which first saw the light of day with the first generation of tyres for motor cars, beaded edge tyres. This tread pattern was retained for first tyres with bead wires in 1925. This tread pattern, with its old-fashioned appearance, was truly revolutionary at the time. It was also the inspiration for the first radial tyres.



SUPERCONFORT

Resulting from research which led to even lower pressures and slower wear, Michelin brought out a very low pressure tyre in 1932, the "Superconfort". 1935 saw the launch of the "Superconfort Stop S" the first tyre with a heavily siped tread pattern, specially designed for wet surfaces. At the time, Michelin was the only manufacturer who knew how to make this type of tyre with the famous wavy "zigzag" sipes, which greatly improve safety because of the excellent grip they give. As its name suggests, the "Superconfort Stop S" tyre offers exceptional comfort, in addition to its performance on the road.



The cross-ply wired-on tyres

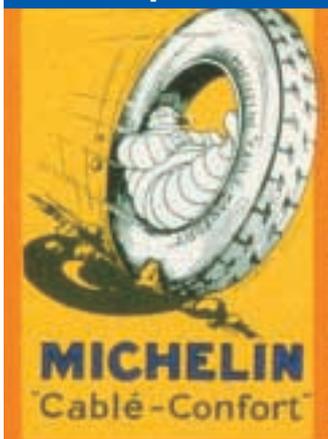
Seat	Tyre Sizes	Tread pattern	Section width (mm)	Overall diameter (mm)	Rolling circ. (mm)	Rims (cm)	Pressures (bars) and corresponding loads per type (in kg)				Tubes
							2b	2,5b	3,0b	3,5b	
15	4.25/4.40 X 15	SCSS	110	596	1785	2.50 - 2.75	217	260	301	340	15 CB 13
40	130/140 X 40	SCSS	157	706	2150	110/140	422	504	583	660	16 E 13
40	150/160 X 40	SCSS	172	730	2180	150/160	452	541	626	708	16 F RET
17	6.50/7.00 X 17	DR	194	789	2367	3.25 - 5.00	566	677	783	886	17/18 H RET ▲▲
45	12 X 45	DR	143	728	2175	11-12 X 45	328	392	453	513	18 C RET ▲
45	13 X 45	DR	151	738	2205	13-14 X 45	347	415	480	543	or
45	14 X 45	DR	155	738	2205	13-14 X 45	356	426	493	557	18/19 CD RET ▲▲
45	15/16 X 45	DR	184	794	2382	15-16 X 45	511	610	706	797	
18	4.75/5.25 X 18	DR	146	750	2242	2.50 - 3.50	331	396	458	513	17/18 E RET ▲▲
18	5.50 X 18	DR	158	786	2290	3.00 - 4.50	425	508	587	660	
18	6.00/6.50 X 18	DR	175	790	2362	3.00 - 5.00	511	610	706	797	17/18 H RET ▲▲
19	4.00/4.50 X 19	DR	128	738	2214	2.50 - 3.50	283	338	391	422	18/19 CD RET ▲▲
19	4.75/5.00 X 19	DR	143	768	2304	2.50 - 3.50	353	422	489	550	or 19 CR ■
19	5.25/6.00 X 19	DR	168	805	2400	3.00 - 5.00	444	531	614	708	19/20 H RET ▲▲
20	6.50/7.00 X 20	DR	197	862	2577	3.62 - 5.00	585	700	810	916	or
21	5.50/6.00 X 21	DR	174	855	2556	2.75 - 4.00	499	597	690	797	20 H ■
21	7.00 X 21(33-6.75)	DR	198	904	2703	3.62 - 5.00	658	786	909	1029	

▲ valve with right angle bend

▲▲ valve offset

■ centre valve

Inflation pressures of cross-ply tyres



Normal use

- Maximum speed is 150 kph. (94 mph)
- The inflation pressure has to be between 2 and 3.5 bars.
- To get the best out of your tyres, use the pressure which corresponds to the actual (measured) load on each tyre (fully-loaded vehicle).

Special service conditions

Whenever the vehicle is to be used at speeds or with loads or pressures that are outside the above recommendations, first consult our Technical Department whose address and telephone number are on the back of the catalogue.



The revolutionary X tyre



A revolutionary construction for unrivalled performance

With its X tyre with radial casing plies, Michelin set out to conquer the world with a considerable advance in technology. Its revolutionary construction for the time had the special feature of separating the sidewall function from the crown function.

Michelin Innovation

The first major innovation from Michelin, the radial tyre was first marketed as the "X" tyre in 1949. At that time, Lancia was the first car manufacturer to fit the X tyre as original equipment on the Aurelia model. From 1955 onwards, radial technology became more popular and the majority of European car manufacturers opted for the radial solution. The X could be fitted to cars of very different categories, from the original and popular 2 CV or Beetle to the fascinating Mercedes 190SL or Facel Vega.

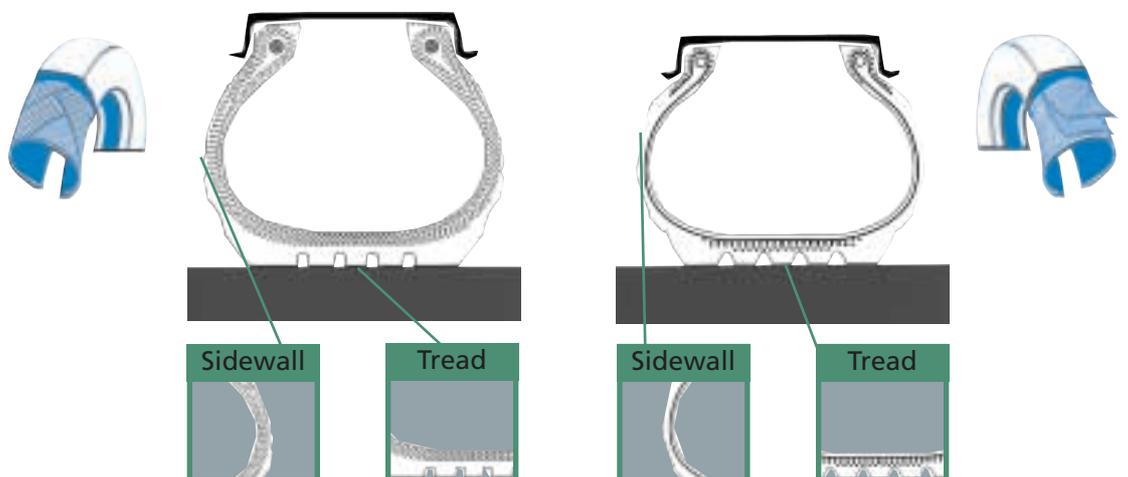


Radial Technology

The advantages of the radial tyre compared with the cross-ply tyre could be clearly seen in all areas :

- greater safety (road-holding, grip, braking)
- economical to use (double the mileage, considerable reduction in fuel consumption)
- increased comfort thanks to the flexibility of the sidewalls. In the Fifties, the superiority of the X tyre was such that a number of racing drivers adopted it, although Michelin was not officially involved in any racing.

Technical information





X and evolutions

Seat (inch) or (mm)	Sizes	Tread pattern	TT TL *	Load index speed symbol	Section width (mm)	Overall Diameter (mm)	Rolling circ. (mm)	Rims inches or mm)	Tubes
13	6.40 SR 13	ZX	TT	87 S	177	642	1952	4,0 4,5 5,5	13 F 13
	7.25 R 13	X	TT	90 S	180	654	1988	5,0 5,5 6,0	13 F 13
15	125 R 15	X	TL	68 S	127	588	1787	3,0 3,5 4,0	15 CB 13
	135 SR 15	ZX	TL	72 S	137	600	1821	3,5 4,0 4,5	15 CB 13
	135 R 15	M+S 89	TL	72 Q	137	600	1821	3,5 4,0 4,5	15 CB 13
	145 SR 15	XZX	TL	78 S	147	616	1873	3,5 4,0 5,0	15 E 13
	165 SR 15	XZX	TL	86 S	167	646	1967	4,0 4,5 5,5	15 E 13
400 mm	125 R 400	X	TT	69 S	130	619	1882	125 135	16 C 13
	135 R 400	X	TT	73 S	138	631	1918	125 135 145	16 C 13
	145 R 400	X	TT	79 S	142	649	1973	145 155	16 E 13
	155 R 400	X	TT	83 S	150	660	2006	145 155 165	16 E 13
	165 R 400	X	TT	87 S	162	677	2059	155 165 185	16 F Ret
	185 R 400	X	TT	91 S	185	707	2149	165 185	16 F Ret
16	5.50 R 16	X	TT	84 H	172	690	2088	3,5 4,0 5,0	16 F Ret
	185 R 16	X	TT	92 S	180	707	2139	4,5 5,5 6,0	16 F Ret
	6.00 R 16	Pilote X	TT	88 W	190	708	2152	4,0 4,5 5,5	16 F Ret

TT = tube type

TL = tubeless

Cross-ply : This cross-section shows the single-concept structure of the cross-ply tyre.

From bead to bead, four layers (at least) of textile fabric extend from one sidewall to the tread, going over to the other sidewall. The sidewalls and tread are not differentiated. The detailed picture portrays the overlapping cords. These make up a thick mass of innumerable superimposed layers which represent as many areas of friction.

A consequence of this is the appearance of "shearing" motions. The longitudinal cross-section shown on the bottom left-hand side illustrates the shearing effect between the superimposed layers.

Radial : One can easily see the specialisation of the functions of sidewall/casing and tread. The sidewalls are made up of single layer of textiles plies, and so are not affected by the "shearing" phenomenon. The textile layer, like the rubber layer covering it, is thin and is therefore flexible. The considerable flexibility of the sidewalls results in better handling as well as fuel savings.

As for the tread, it is made rigid through a triangulation effect brought about by combining the casing layer with two layers of steel cord bracing plies (3 for the X tyre). The rigidity of the crown reduces wear of the tyres and improves road-holding.



Driving precision

XAS tyre : driving precision



From its launch in 1965, the XAS remained the reference tyre until the end of the 70s. The first tyre with an asymmetrical tread pattern, the inside and outside of the XAS work differently to give the car a good balance.

Asymmetrical, just like a foot is.

Michelin made more progress by differentiating the many elements that form the tyre, leading to the creation of the XAS, the first tyre with an asymmetrical tread pattern. The XAS was constructed taking into account the different kinds of work done by the shoulders, sidewalls and different parts of the crown, depending on whether they are on the inside or outside relative to the car. Just like a person's foot is asymmetrical, the inside and outside of a tyre work differently to give the car good balance and sure handling.

Like running on rails

This major progress allows the XAS tyre to give :

- remarkable stability,
- exceptional road holding on bends,
- previously unknown levels of grip in all conditions.

The first production tyre designed to run at 210km/h, (131mph), its exceptional performance naturally led to the XAS being used in racing, in Formula France as from 1968, circuit racing, rallies and hill climbs.



Pneu TB : a race tyre for the road

The Seventies, ever onward... As motor sport technology evolved so a special tyre was required. For the amateur racer the TB in its intermediate compound form, known as the 15, provided the best compromise between a race tyre and a multi-purpose product. It returns with an additional card up its sleeve: today, the TB range is road legal.



TB 5F and TB 5R : the king of the dry road

We have now added TB 5 F and B 5 R. This uncompromising tyre has a semi slick tread pattern for the ultimate in dry performance. The TB 5 F has a soft compound and the TB 5 R a medium compound. These tyres are fully road legal.



XAS and evolutions

Seat (inches)	Sizes	Tread pattern	TT TL *	Load index speed symbol	Section width (mm)	Overall diameter (mm)	Rolling circ. (mm)	Rims (inches)	Tubes
13	155 HR 13	XAS FF	TT	78 H	157	582	1775	4,0 4,5 5,5	13 D 13
	165 HR 13	XAS et FF	TT	82 H	167	600	1824	4,0 4,5 5,5	13 D 13
	185 HR 13	XAS FF	TT	88 H	186	625	1906	4,5 5,5 6,5	13 F 13
14	165 HR 14	XAS	TT	84 H	167	626	1903	4,0 4,5 5,5	14 D 13
	185 HR 14	MXV-P	TL	90 H	188	650	1976	4,5 5,5 6,5	14 F 13
15	155 HR 15	XAS et FF	TT	82 H	157	630	1915	4,0 4,5 5,0	15 E 13
	165 HR 15	XAS	TT	86 H	167	646	1964	4,0 4,5 5,5	15 E 13
	180 HR 15	XAS	TT	89 H	175	680	2067	4,5 5,0 5,5	15 E 13
	185 HR 15	XVS-P	TL	93 H	188	674	2049	4,5 5,5 6,0	15 F 13
	185 VR 15	XVS	TL	93 V	186	675	2059	4,5 5,5 6,0	15 F 13
	235/70 HR 15	XVS	TL	101 H	234	711	2155	6,5 7,0 8,5	15 J 13

* TT = tube type

TL = tubeless

TB 15

Sizes	ETRTO* Sizes	Overall diameter (mm)	Rolling circ. (mm)	Rims**	Section width/rims mm/inches
16/53 - 13	175/60 R 13 72 V	536	1640	5 to 6 pouces	189 / 6
20/53 - 13	225/45 R 13 77 V	533	1635	7 to 8,5 pouces	231 / 8
15/60 - 15	170/65 R 15 77 V	601	1847	5 to 6 pouces	185 / 6
18/60 - 15	215/55 R 15 79 V	612	1885	6 to 7,5 pouces	224 / 7
23/62 - 15	270/45 R 15 86 V	625	1923	8,5 to 10,5 pouces	268 / 9
26/61 - 15	295/40 R 15 87 V	615	1891	10 to 11,5 pouces	288 / 10
29/61 - 15	335/35 R 15 93 V	621	1903	11 to 13 pouces	330 / 11,5

* ETRTO : European Tyre and Rim Technical Organisation

**For competition use, one inch wider is possible

TB 5 F (soft) and TB 5 R (medium)

Sizes	ETRTO* Sizes	Overall diameter (mm)	Rolling circ. (mm)	Rims**	Section width/rims mm/inches
16/53 - 13 TB 5 F	185/55 R 13 72 V	531	1625	5 to 6,5 pouces	195 / 6
20/53 - 13 TB 5 F	245/40 R 13 77 V	531	1625	8 to 9,5 pouces	252 / 9
18/60 - 15 TB 5 F	225/50 R 15 79 V	605	1857	6 to 8 pouces	230 / 7
18/60 - 15 TB 5 R	225/50 R 15 79 W	605	1857	6 to 8 pouces	230 / 7
23/62 - 15 TB 5 F	270/45 R 15 86 W	620	1903	8,5 to 10,5 pouces	278 / 9
23/62 - 15 TB 5 R	270/45 R 15 86 W	620	1903	8,5 to 10,5 pouces	278 / 9
26/61 - 15 TB 5 F	285/40 R 15 87 W	610	1871	9,5 to 11 pouces	291 / 10
26/61 - 15 TB 5 R	285/40 R 15 87 W	610	1871	9,5 to 11 pouces	291 / 10
29/61 - 15 TB 5 R	335/35 R 15 93 W	616	1890	11 to 13 pouces	341 / 11,5

* ETRTO : European Tyre and Rim Technical Organisation

**For competition use, one inch wider is possible





Pushing back the boundaries XWX tyre : pushing back the boundaries

The only radial tyre which could be fitted on the fastest cars in the world in the 70's, the XWX gives these high speed vehicles outstanding road holding and remarkable grip.

A construction designed to reach 300 kph (186 mph)

The special features of the XWX mean that it gives remarkable performance, combining speed, driving pleasure and safety. The original design of its internal construction, together with its flexible carcass give exceptional comfort when travelling at very high speeds. Being a VR category tyre, the XWX can be used at speeds in excess of 210 kph (131 mph) ; with a maximum speed of 270 kph (155 to 186 mph).

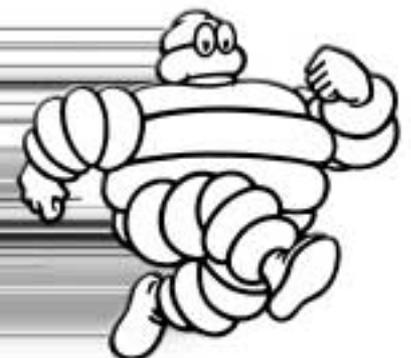


Dream cars

At the end of the 60's, Germany and Italy were the leaders in the European motorway development programme. They were also the main producers of cars which could reach speed in excess of 200 km/h, (124 mph). The wide asphalt strips and the absence of speed limits offered a privileged few the opportunity to make full use of the performance of these "super-cars" at speeds which would be unthinkable today.

- The Lamborghini Miura (1966), Ferrari 365 (1965), Maserati Ghilbi (1966) ; de Tomaso Pantera (1970) and Porsche 911 Carrera RS (1972) were the undisputed stars, but the large German saloons like the Mercedes 300 SE 6,31 (1968) and BMW 3.0 SI (1971) also made a strong impression.
- The French were also in the frame with the Citroën SM (1970) as were the British with the legendary Jaguar V12 E-Type (1970) and Aston Martin DBS (1967).

Informed observers will note that this exceptional performance was achieved on tyres of the same width as those that fit today's very sensible saloons.





XWX - XDX - XDX

Seat (inches)	Sizes	Tread pattern	TL *	Load index speed symbol	Section width (mm)	Overall diameter (mm)	Rolling circ. (mm)	Rims (inches)	Tubes
13	185/70 VR 13	XDX	TL	86 V	189	590	1815	5,0 5,5 6,5	13 E 13
	205/70 VR 13	XDX	TL	91 V	209	618	1879	5,5 6,0 7,5	13 F 13
14	205 VR 14	XWX	TL	89 W	208	686	2085	5,0 6,0 7,5	14 H 13
	205/70 VR 14	XWX	TL	89 W	209	644	1958	5,5 6,0 7,5	14 F 13
	215/70 VR 14	XWX	TL	92 W	221	658	2000	6,0 6,5 7,5	14 H 13
15	185/70 VR 15	XWX	TL	89 V	189	641	1949	5,0 5,5 6,5	15 E 13
	205/70 VR 15	XWX	TL	90 W	209	669	2034	5,5 6,0 7,5	15 F 13
	215/70 VR 15	XWX	TL	90 W	221	683	2076	6,0 6,5 7,5	15 F 13
	225/70 VR 15	XWX	TL	92 W	228	697	2140	6,0 8,0	15 J 13
	255/45 VR 15	MXW	TL	93 W	255	611	1875	8,5 10,0	without

TL = Tubeless

Pilot Sport



Seat (inches)	Sizes	Tread pattern	TL *	Load index speed symbol	Section width (mm)	Overall diameter (mm)	Rolling circ. (mm)	Rims (inches)	Tubes
16	225/50 ZR 16	Pilot Sport	TL	92 Y	242	642	1928	6,0 7,0 8,0	without
	255/50 ZR 16	Pilot Sport	TL	100 Y	276	672	2019	7,0 8,0 9,0	without

TL = Tubeless



An other revolution

TRX tyres : an other revolution

The first "low profile" tyre

The invention of the TRX by Michelin in 1975 permitted a more even distribution of tension in the whole tyre casing, which is where the name of TR standing for "Tension Repartie" ("distributed tension") comes from. The TRX won renown in Formula 1 racing with Renault and Prost and in the world rally championship on the Audi Quattro, 205 Turbo 16 and R5 Turbo.

The result of extensive research...

For the first time, the tyre and its rim complemented one another perfectly, working as a single unit. The rim underwent a fundamental transformation, the essential characteristic of which was a flatter, lower flange. This new design of the rim and tyre bead resulted in a gradual curvature of the casing, without the "S" shaped flexing inherent in traditional designs.



... For real directional control

Thanks to this innovative construction, the TRX tyre offers better directional stability and makes a great contribution to the active safety of the vehicle, thanks to its exceptional handling close to the limit, especially when cornering.

- Remarkable grip thanks to the ideal distribution of pressure in the contact patch.
- Excellent comfort due to increased useful flexing zone.
- New look to the tyre/wheel assembly and the heavily sculpted tread pattern.

The era of Car Safety

The 70's saw the dawn of increased awareness of the importance of vehicle safety. In many countries it became compulsory to wear seat belts and speed limits were introduced on main roads and motorways.

For the tyre, this led to improvements in grip, more precise steering, increased stability and better levels of comfort, thus avoiding excessive driver fatigue on long journeys.

This decade witnessed the advent of high performance vehicles capable of covering hundreds of miles in one go, with exceptional levels of safety and comfort, such as the BMW 7 series (1977), 5 and 3 series which followed the same trend, CX 2400 GTI (1977), 604 (1975), R30...

Sports cars also benefited from this progress. Examples were the Ferrari 308 GTS and GTB (1977) and 512 BB (1976), Alpine A310 V6 (1976), Renault 5 Turbo (1979), M 635 (1984), 205 Turbo16 (1985)...

All these cars (and many others) had the Michelin TRX fitted as original equipment, and still can today, with a tyre true to that era, but manufactured using today's techniques and materials.



TRX

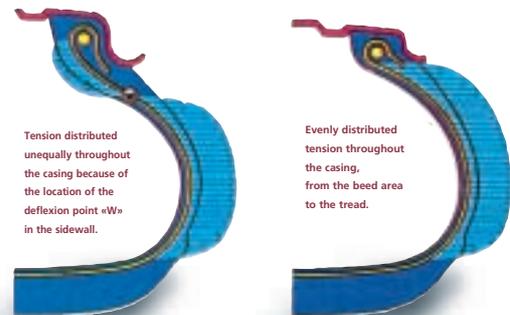
Seat (mm)	Sizes	Tread pattern	TL *	Load index speed symbol	Section width (mm)	Overall diameter (mm)	Rolling circ. (mm)	Rims (mm)
340	190/55 VR 340	TRX	TL	81 V	191	550	1672	120TR 135TR 165TR
365	220/55 VR 365	TRX	TL	92 V	218	607	1845	135TR 150TR 180TR
390	190/65 HR 390	TRX	TL	89 H	191	638	1945	120TR 135TR 165TR
	210/55 VR 390	TRX	TL	91 V	219	631	1918	135 TR 150 TR 180 TR
	220/55 VR 390	TRX	TL	93 W	227	642	1952	
	200/60 VR 390	TRX	TL	90 V	206	640	1946	120 TR 135 TR 165 TR
	240/55 VR 390	TRX	TL	89 W	239	654	1988	150TR 165TR 195TR
415	240/45 VR 415	TRX GT	TL	94 W	253	640	1925	195TR 210TR 225TR
	240/55 VR 415	TRX	TL	94 W	239	679	2064	150TR 165TR 195TR
	280/45 VR 415	TRX	TL	91 Y	281	667	2028	225TR 240TR 255TR

TL = tubeless

The TRX , a radial tyre with Even Tension,

Is a new stage in the development of radial technique : the casing and the rim are designed together and adapted to the specific needs of the vehicle.

This new tyre reconciles two mutually exclusive qualities : Greater comfort (formerly the prerogative of the high, supple sidewalls) and more responsive handling (formerly the prerogative of the low, rigid sidewalls).





Vintage tubes

Tyres sizes	Tubes sizes	Valve
700X80 - 700X85 - 710X90	710-90 RET 2030	Straight <p>2030 R 2005</p> <p>Wooden wheels Steel wheels</p>
750X85 - 760X90	760-90 RET 2030	
860X85 - 815X105 - 36X4	840-90 RET 2030	
1010X90 - 1020X120 - 1150X65	1010-90 RET 2030	
765X105 - 820X120 - 775X145	820-120 RET 2030 R 2005	
880X120 - 935X135 - 895X135 - 835X135 33X4 - 32X4,5 - 33X5	880-120 RET 2030 R 2005	
1025X185	935-135 RET 2031	Single bend valve <p>Michelin valve ref 1466 + single bend extension ref 1197 (delivered with tube)</p>
715X115 - 720X120 - 730X130 - 11X45 12X45 - 13X45 - 14X45 - 15/16X45	18 C RET	
150/160X40 - 165 et 185X400 - 5,50 et 6,00X16	16 F RET	
4,5 à 600X17 - 5,50X18	17/18 E RET	
715X115 - 720X120 - 730X130 - 11 à 16X45 4,00/5,00X19	18/19 CD RET	
6,50/7,00X17 - 6,00/6,50/7,00X18	17/18 H RET	
4,50 à 5,50X20 - 4,40/5,50X21	20/21 CD RET	
5,00 à 7,00X21 - 5,00 à 7,00X19	19/20 H RET	
775X145 - 15/16/17X5		





Safety Guidelines. Use of the Competition Clients Car Tires. Michelin Group

1° - Introduction:

We recommend that you follow the safety and use guidelines provided below. These guidelines apply upon satisfaction of any more stringent regulatory requirements, developed or prescribed by competition, raid or circuit organizers with respect to tires.

Non-compliance with these guidelines or operating procedures can lead to improper equipment or mounting and cause premature tire wear and tear.

The use of circuits with high banking in the turns imposes specific tires and/or operating conditions. Prior to any use contact the Michelin technical department within the Circuit business: phone: +33(0)4 73 30 43 75. Information is available on our websites (www.michelinsport.com & michelin-passion.com)

2° - Recommendations:

Before-use checklist

- Tire selection must correspond to vehicle equipment, as defined by the vehicle maker and manufacturer.
- Make sure that all tires on the same axle are of the same type (brand, commercial name or industrial reference, dimensions, structure).

Prior to mounting make sure that:

- the diameter of the rim corresponds exactly to the inside diameter of the tire.
- the width of the rim corresponds to that recommended by the manufacturer or, failing that, to the standards cited (ETRTO, TRA, JATMA, etc.)
- the rim type (tubeless, tube type) corresponds to the type of tire.
- the rim is in good condition and does not present wear-and-tear (cracks, deformation, etc.) and the valves are in proper condition and if not, have them replaced.
- the tires have not been repaired and the valves are in proper condition and if not, have them replaced

3° - Valves:

- Follow the instructions for use provided by the manufacturers (adjustment and compatibility with the rim, type of alloys, geometry).
- Routinely screw down the valve cap It protects the valve mechanism and ensures the complete sealing of the tire assembly.
- Make sure that the valve is in good condition (no ovalization, no impact trace, etc.).
- Regularly check torque settings of screwed-in valves.

4° - Tire assembly and disassembly

Tire assembly, disassembly, topping and balancing must be done on suitable good-condition equipment entrusted with qualified and trained personnel that would ensure, among other things:

- Compliance with the manufacturer and legal rules in the selection of tires.
- Preliminary examination of the outside and inside aspect of the tire by the installer.
- Compliance with tire assembly, disassembly, balancing and topping procedures.
- Proper positioning of the tire on the vehicle (left, right, front, rear).
- Proper working pressure.

Measuring equipment such as pressure gauges, dynamometric keys must be standardized and inspected at least once a year by a certified body or, failing that, by the supplier or manufacturer.

Assembly - Disassembly:

- Make sure that all assembly equipment is suitable for the type of assembly. For how to use this equipment, refer to the manufacturer's user guide. Comply with the direction of assembly for directional tires.
- Lubricate the tire rim seats and beads with a suitable product.
- For tube type assemblies (with an air tube), the dimension of the air tube must correspond to that of the tire (section and diameter) and the rim must be in a condition that can accept the air tube without damaging it.

Topping

- Important note: only use topping installations intended for that purpose. Under no circumstances can the operator remain in the immediate proximity of a tire assembly. Therefore, make sure that the compressed air hose attached to the valve is equipped with a safety clip and that it is sufficiently long for the operator to be situated outside of the trajectory of flying particles, if any, in case of an incident. Remove people not involved in the topping procedure from the location in which it is performed.
- Remove the inside of the valve, start topping and check that tire beads are properly centered with respect to the rim flange.
- If the tire beads are not properly centered, let the air out and start the entire procedure over including the lubrication step.
- Continue topping until 3.5 bars in order to obtain a good placement of the tire beads. For higher pressure, use a safety cage during tire topping.
- Replace the inside of the valve and adjust it to working pressure. Replace the cap to ensure complete sealing.

Balancing:

- Balancing the four tires is recommended for use on a circuit.
- The balancing machines must be standardized in accordance with manufacturers' recommendations.
- Specific attention must be given to the devices (cone / screw board) used for centering the assembly on the machine.

5° - Tire regrooving

- Regrooving changes the characteristics and performance of tires. This procedure requires the use of appropriate equipment and tools and compliance with instructions. Prior to any regrooving procedure, contact Michelin's technical departments: Rally: Phone. +33(0)4 73 30 40 92 Circuit: Phone. +33(0)4 73 30 43 75
- Reminder: regrooving or tread deepening of ECE R30 certified tires, i.e. those designed for use on public roads, is prohibited.

6° - Storage

- In order to preserve the characteristics and properties of tires, there are some important rules to be observed during storage. The following should be avoided:
- Direct and prolonged exposure to sunlight, sources of high heat and humidity. Long-term storage in stacks.
- The presence of solvents, lubricants, fuel and other chemical products.
- Equipment causing ozone emission (transformers, welding units, electric motors, etc.).
- The storage space must be dry, well-ventilated, without direct light and reserved for tires. Racks suitable for storing tires vertically should be used to avoid exercising pressure on the carcasses.

7° - Tire aging

- Tires age even when not used or if they are only used occasionally; excessive aging of tires may lead to loss of grip.
- Remove from usage tires presenting clear signs of aging or fatigue (cracking of the rubber of the outer tread, of the shoulder, of the bead side, deformation, etc.). When in doubt, contact a tire professional.

8° - Monitoring and maintenance

- Check tire pressure prior to any run and adjust pressure if it does not correspond to the recommended working pressure. Tire pressure must be checked they are cold (the tires have not been driven, they have not been warmed)
- Inflating tires with nitrogen does not exempt you from having to check tire pressure routinely.
- In case of unusual loss of pressure, check the outside and inside condition of the tire as well as the condition of the wheel and of the valve.
- Any visible perforation, cut or deformation must be checked in-depth by a tire professional. Never use damaged tires or tires that have run flat without the help of a professional.

9° - Terms of use

- Never treat the rubber of the outer tread chemically.
- Never use tires with unknown past.
- Make sure that the pressure, camber angle, speed and axle load values are those recommended by Michelin for the intended use (check recommendations depending on use).

Prior to any use, contact Michelin's technical departments: Rally: Phone. +33(0)4 73 30 40 92 Circuit: +33(0)4 73 30 43 75 Historical Competition: +33(0)4 73 41 75 00

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