MIT THE KING

MARANGONI INDUSTRIAL TYRES

INDUSTRIAL & MPT TYRES
TECHNICAL DATA BOOK 2024

MARANGONI BY FERENTINO

MARANGONIINDUSTRIALTYRES.IT

SPECIALIST STRENGTH

The quality of the compounds used is essential in the solid industrial tyre sector.

TREAD COMPOUND
Resistant to wear and tear, guarantees excellent grip on wet or slippery surfaces (e.g. oil stains).

CUSHION COMPOUND
Central compound, lowers operating temperature and ensures low rolling resistance.

+LIFE

+COMFORT

+SAVING

+STABILITY

BASE 2
Extremely hard material that reduces deformation and supports the load while preserving bead stiffness and preventing the tyre from coming off the rim.

BASE 1
Ensures the tyre remains attached to the rim over time: the metal rings inside the tyre adhere perfectly to the metal. Perfect coupling to the rim: easy to fit and remove.

SPECIAL - S

This version was designed and developed especially for loaders and produced in the 20 and 24 inch sizes. It is constructed using compounds which are particularly resistant to tearing. The tyre stands out for its resistance to wear and tear, jolts, cuts and abrasions, as well as for its high rigidity that provides stability to the vehicle and, therefore, to the load. Used for vehicles which carry loads, usually in environments with extreme conditions, such as scrap yards and dumps.

HIGH CAPACITY - HL

This is a tyre designed with a highly rigid structure in comparison to standard tyres. It is constructed with extremely hard compounds that are able to maintain all the other physical and mechanical characteristics to excellent levels. The distinguishing feature of Super-elastic and Cushion tyres is their ability to sustain high loads with minimal deformation. It is widely used in situations where it is of paramount importance to maintain the stability of the vehicle and, therefore, of the load. It is also utilised in other specific cases. Contact a MARANGONI INDUSTRIAL TYRES technician for advice before choosing this version.

NO MARKING - NM

This is a light coloured tyre, designed not to leave dark marks on the ground surface. It is constructed with a yellow mixture, containing no dark substances. It's use is recommended in environments where cleanliness is of great importance, for example in the pharmaceutical, food and beverage, and electronic industries, or anywhere light coloured floors must stay clean.
Available in yellow, white and gray.

ANTISTATIC - AS

This tyre was designed to release the static electricity accumulated by the vehicle onto the ground. It is constructed with special additives which perform this action while maintaining all the other physical and mechanical characteristics to excellent levels. It is typically used in paint and solvent factories, in gas tank deposits, in environments with easily flammable fine dust particles or in environments where the accumulation of static electricity can cause explosions. In all of these cases, the use of this tyre increases safety levels. The AS Super-elastic and Cushion tyres are in compliance with the ISO/DIS 2883 standards. A certificate of conformity shall be provided upon customers' request.

NEW

ANTISTATIC NO MARKING - AS-NM

This is a fully no marking & electrically conducting compound, constructed and designed using years of expertise. It is essential for changing needs in modern warehouse environments.
Available in yellow only.

INNOVATIVE SOLUTIONS

SUPER-ELASTIC **ELTOR® E3** INTEGRATED LOADER SYSTEM

The MARANGONI INDUSTRIAL TYRES integrated loader system is ideal for all stressful situations in which the machines have to work in a stationary position, travelling just short distances and carrying particularly heavy loads (scrap yards, landfills, timber yards, etc.).

TYRE
square and compact pattern less vertical deformation
MORE STABILITY

COMPOUND
resistant to cuts and tears
+ LIFE

TREAD
designed to transmit
MORE TRACTION

SPACER
prevents infiltration of debris and other similar objects

REINFORCED RIM WITH FLAT BOTTOM CHANNEL
increased thickness
no aeration or inflation valve holes
STURDIER
perfect coupling to the tyres
MORE SOLIDITY

ELTOR® E3 TYRE
High stability tyre designed to withstand very high loads. The reinforced sidewall limits vertical deformation and protects against accidental impact.
The compounds used guarantee maximum resistance to cuts and tears and consequently longer life. The tread is designed to improve traction in all working conditions.

RING PROTECTOR
The spacer perfectly traces the profile of the MARANGONI INDUSTRIAL TYRES Eltor® E3 tyre sidewall, thus preventing infiltration of debris and the like.

RIM
The reinforced rim with flat bottom channel, designed especially to mount MARANGONI INDUSTRIAL TYRES solid tyres, solves all skidding problems.
Especially robust due to increased thickness and elimination of the aeration holes and the hole for the inflation valve.

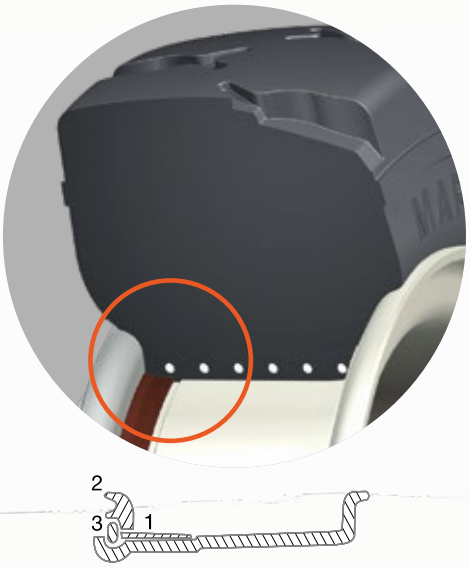
SUPER-ELASTIC **ELTOR FIX®**

FIX - Bead structure consist of a special border made of highly resistant rubber; guarantees a perfect fit on the rim with no need for fastening rings.

ELTOR FIX®
FOR QUICK AND EASY INSTALLATION

FOR BEAD FIX VERSION

ELTOR® STANDARD (NON FIX)
FOR FITTING ON INDUSTRIAL MULTIPIECE RIMS



FOR BEAD NON-FIX VERSION
Movable rimparts 1, 2 and 3.

RIMS FOR FIX SOLID TYRES

- Fit all sizes of FIX Solid Tyres from 8” to 20”.
- Available for all standard applications.
- Adaptable to most custom applications.

INDUSTRIAL MULTIPIECE RIMS

- Fit all sizes of Industrial Tyres from 8” to 24”.
- Available for all standard and heavy duty (20 and 24”) applications.
- Multipiece design includes 2 or 3 piece components or base wheel for the FIX type applications.
- Fit tube type tyres as well as NON FIX solid tyres.
- Designed for easy tyre installation and precise fitment.

SPLIT RIMS (DIVIDED TYPE)

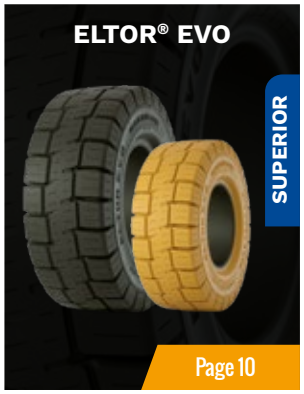
- Designed for easy tyre installation and precise fitment without press.

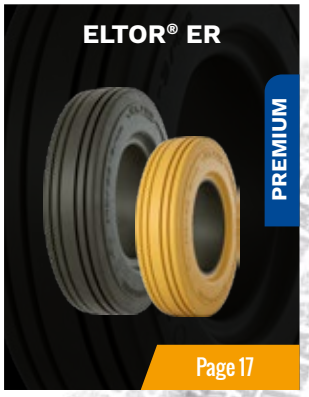
WHEELS FOR POB CUSHION TYRES

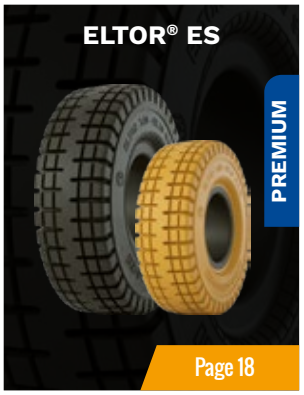
- Fit all sizes of press on band cushion from 6,5” to 22”.
- Available for all standard applications.
- Adaptable to most custom applications.

SPECIALISED RANGE

SUPER-ELASTIC







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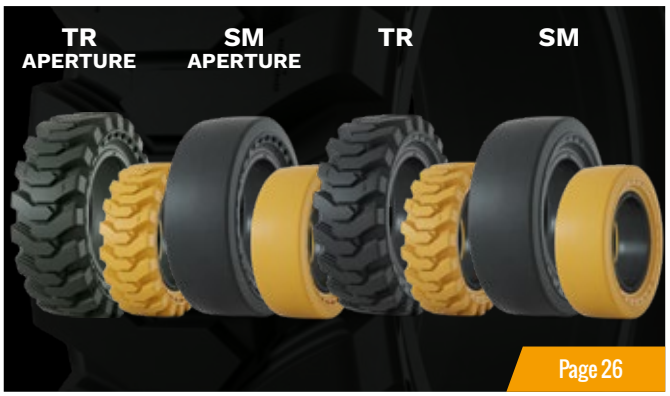


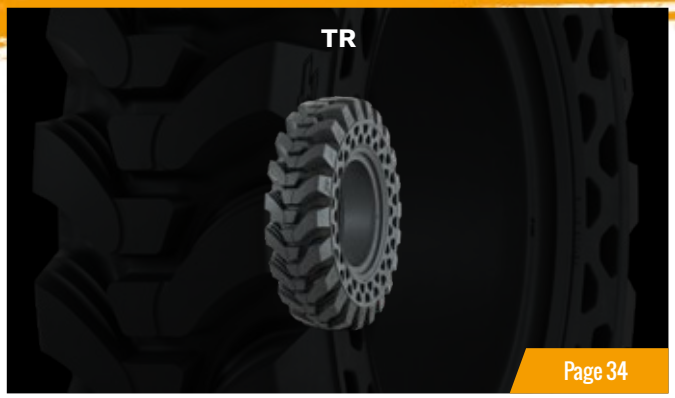
PRESS ON BAND

CUSHION MARANGONI

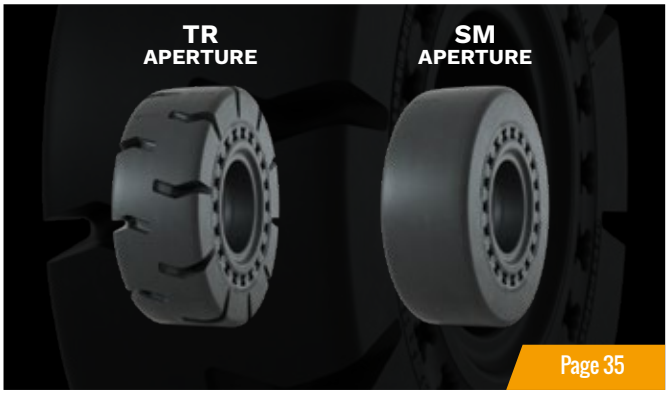
PRESS ON BAND

CUSHION FORZA

TELEHANDLER



FLEX MASTER



CONVENTIONAL PNEUMATIC INDUSTRIAL TYRES

CONVENTIONAL PNEUMATIC SKID STEER TYRES

FOR SMALL-SIZED MACHINES

CONVENTIONAL PNEUMATIC TYRES FOR INDUSTRIAL TRACTORS

FOR CONSTRUCTION AND ROAD WORKS

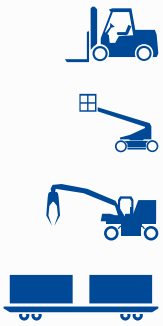
MULTI-PURPOSE CONVENTIONAL PNEUMATIC TYRES

FOR MANUFACTURING MACHINES

FORZA F1

FORZA F1 NO MARKING

QUALITY



NM
no marking

S
special

- The quality alternative for normal requirements and standard applications.
- Good traction.
- Low rolling resistance.
- High reliability.

QUALITY

F1 FR

Ø	TYRE SIZE (inches)	PROFILE	RIM SIZE	TYRE DIMENSIONS (1) W (mm) ± 2%	TYRE DIMENSIONS (1) D (mm) ± 2%	WEIGHT (kg) ± 2%	LOAD CAPACITY (KG) AT MAX SPEED (KM/H) (2) CARRYING WHEEL 25 km/h	LOAD CAPACITY (KG) AT MAX SPEED (KM/H) (2) STEERING WHEEL 25 km/h	TRAILERS (3) 25 km/h	TRAILERS (3) 10 km/h	TRAILERS (3) 6 km/h
4”	4.00-4	F1	2.50C-4	100	300	6,4	535	412	412	485	535
8”	4.00-8	F1	3.00D-8	100	403	10,5	950	730	730	860	950
	4.00-8	FIX F1	3.00D-8	100	403	10,8	950	730	730	860	950
	4.00-8 Ferentino **NEW**	FR	3.00D-8	100	403	10,50	950	730	730	860	950
	4.00-8 Ferentino **NEW**	FR	3.75-8	121	407	12,20	1.010	775	775	915	1.010
	15x4½-8 (125/75-8)	F1	3.00D-8	108	372,5	9,0	1.040	800	800	945	1.040
	15x4½-8 (125/75-8)	FIX F1	3.00D-8	108	372,5	9,2	1.040	800	800	945	1.040
	15x4½-8 (125/75-8)	F1	3.25D-8	107	372,5	9,4	1.040	800	800	945	1.040
	5.00-8	F1	3.00D-8	119	451,4	15,4	1.415	1.090	1.090	1.285	1.415
	5.00-8	FIX F1	3.00D-8	119	451,4	15,8	1.415	1.090	1.090	1.285	1.415
	16x6-8 (150/75-8)	F1	4.33R-8	145	412,5	15,3	1.495	1.150	1.150	1.360	1.495
	16x6-8 (150/75-8)	FIX F1	4.33R-8	145	412,5	15,5	1.495	1.150	1.150	1.360	1.495
	18x7-8 (180/70-8)	F1	4.33R-8	149	450,2	18,9	2.145	1.650	1.650	1.945	2.145
	18x7-8 (180/70-8)	FIX F1	4.33R-8	149	450,2	19,1	2.145	1.650	1.650	1.945	2.145
9”	140/55-9	F1	4.00E-9	130	380	9,7	1.170	900	900	1.060	1.170
	140/55-9	FIX F1	4.00E-9	130	380	10,0	1.170	900	900	1.060	1.170
	6.00-9	F1	4.00E-9	135	527	24,2	1.885	1.450	1.450	1.710	1.885
	6.00-9	FIX F1	4.00E-9	135	527	24,4	1.885	1.450	1.450	1.710	1.885
	21x8-9 (200/75-9)	F1	6.00E-9	175	521	31,9	2.755	2.120	2.120	2.500	2.755
	21x8-9 (200/75-9)	FIX F1	6.00E-9	175	521	32,4	2.755	2.120	2.120	2.500	2.755
10”	6.50-10	F1	5.00F-10	160	572	33,5	2.340	1.800	1.800	2.125	2.340
	6.50-10	FIX F1	5.00F-10	160	572	33,8	2.340	1.800	1.800	2.125	2.340
	200/50-10	F1	6.50F-10	185	455	23,5	2.470	1.900	1.900	2.240	2.470
	200/50-10	FIX F1	6.50F-10	185	455	23,4	2.470	1.900	1.900	2.240	2.470
	23x9-10 (225/75-10)	F1	6.50F-10	192	579	43,3	3.445	2.650	2.650	3.125	3.445
	23x9-10 (225/75-10)	FIX F1	6.50F-10	192	579	43,5	3.445	2.650	2.650	3.125	3.445
12”	7.00-12	F1	5.00S-12	168	653	45,3	2.920	2.240	2.240	2.645	2.920
	7.00-12	FIX F1	5.00S-12	168	653	45,8	2.920	2.240	2.240	2.645	2.920
	23x10-12 (250/60-12)	F1	8.00G-12	227	579	46,3	3.770	2.900	2.900	3.420	3.770
	23x10-12 (250/60-12)	FIX F1	8.00G-12	227	579	46,8	3.770	2.900	2.900	3.420	3.770
	27x10-12 (250/75-12)	F1	8.00G-12	227	672	68,2	3.900	3.000	3.000	3.540	3.900
	27x10-12 (250/75-12)	FIX F1	8.00G-12	227	672	68,9	3.900	3.000	3.000	3.540	3.900
	315/45-12	F1	10.00G-12	275	574	56,0	4.485	3.450	3.450	4.070	4.485
	315/45-12	F1 FIX	10.00G-12	275	574	56,5	4.485	3.450	3.450	4.070	4.485
15"	7.00-15	F1	5.5-15	170	723	56,3	3.445	2.725	2.725	3.215	3.545
	7.00-15	F1 FIX	5.5-15	170	723	56,8	3.445	2.725	2.725	3.215	3.545
	7.00-15	F1	6.0-15	170	723	56,5	3.445	2.725	2.725	3.215	3.545
	7.00-15	F1 FIX	6.0-15	170	723	57,0	3.445	2.725	2.725	3.215	3.545
	8.25-15	F1	6.5-15	205	814	84,6	4.750	3.650	3.650	4.300	4.750
	8.25-15	FIX F1	6.5-15	205	814	85,5	4.750	3.650	3.650	4.300	4.750
	28x9-15 (225/75-15)	F1	7.0-15	207	689	55,9	3.445	2.650	2.650	3.125	3.445
	28x9-15 (225/75-15)	FIX F1	7.0-15	207	689	57,0	3.445	2.650	2.650	3.125	3.445
	250-15 (250/70-15)	F1	7.0-15	207	715	62,9	4.745	3.650	3.650	4.310	4.745
	250-15 (250/70-15)	FIX F1	7.0-15	207	715	63,5	4.745	3.650	3.650	4.310	4.745
	250-15 (250/70-15)	F1	7.5-15	207	715	63,0	4.745	3.650	3.650	4.310	4.745
	250-15 (250/70-15)	FIX F1	7.5-15	207	715	63,6	4.745	3.650	3.650	4.310	4.745
	300-15 (315/70-15)	F1	8.0-15	251	816	104,2	5.850	4.500	4.500	5.310	5.850
	300-15 (315/70-15)	FIX F1	8.0-15	251	816	105,1	5.850	4.500	4.500	5.310	5.850
	28x12½-15 (355/45-15)	F1	9.75-15	275	706	84,0	5.690	4.375	4.375	5.165	5.690
	28x12½-15 (355/45-15)	FIX F1	9.75-15	275	706	85,0	5.690	4.375	4.375	5.165	5.690
	355/65-15 (350-15)	F1	9.75-15	297	816	124,9	7.800	6.000	5.450	6.430	7.085
	355/65-15 (350-15)	FIX F1	9.75-15	297	816	125,8	7.800	6.000	5.450	6.430	7.085
20”	9.00-20	F1	6.5-20	232	991	133,3	5.400	4.500	4.500	4.905	5.400
	9.00-20	F1	7.0-20	232	991	138,5	5.400	4.500	4.500	4.905	5.400
	10.00-20	F1	7.0-20	230	1.018	151,7	6.000	5.000	5.000	5.450	6.000
	10.00-20	F1	7.5-20	230	1.018	155,0	6.000	5.000	5.000	5.450	6.000
	10.00-20	F1	8.0-20	230	1.018	158,5	6.000	5.000	5.000	5.450	6.000
	11.00-20 Ferentino **NEW**	F1	8.0-20	254	1.050	175,00	6.540	5.450	5.450	5.940	6.540
	12.00-20	F1	8.0-20	230	1.110	193,0	7.560	6.300	6.300	6.865	7.560
	12.00-20	F1	8.5-20	230	1.110	199,0	7.560	6.300	6.300	6.865	7.560
24”	12.00-24 Ferentino **NEW**	F1	8.5-20	281	1.183	236,00	8.040	6.700	6.700	7.305	8.040

(1) Sizes are intended for tyres not fitted on rims;
(2) Capacity values indicated are in reference to ELTOR tyres mounted on vehicles whose speed with no cargo is less than 25 km/h (according to E.T.R.T.O. standards);
(3) Only for interior courses inferior to 2.000 metres; if otherwise, contact dealer (according to E.T.R.T.O. standards).

SOLID TYRES - USER INSTRUCTIONS, MAINTENANCE, REPLACEMENT AND CALCULATION OF WEAR LIMITS

1) INTRODUCTION
Tyres are the only contact between the vehicle and the ground. It is therefore of paramount importance that they are maintained in good condition at all times, and that when the time comes to change them, correct replacements are done.
The tyres fitted to your vehicle as Original Equipment were selected by the vehicle and tyre manufacturers concerned taking into account the intended operations of the vehicle.
Changes in tyre type, size and load capacity should not be made without first checking with the tyre and/or vehicle manufacturer regarding possible effects on vehicle behaviour and safety.

2) FITTING AND REMOVAL OF TYRES
It is recommended that these operations be entrusted only to specialists who have the necessary equipment and expertise. Inexpert fitment may lead to personal injury and concealed damage to tyres and wheels.
No special equipment is necessary for fitting solid tyres on centrally divided conical rims, but appropriate presses and accessories are required for fitment on off-set divided conical rims, cylindrical rims and pneumatic tyre rims.
The published instructions of the tyre manufacturer must be strictly followed. Only approved proprietary tyre lubricants should be used.
To avoid damage to the base of the tyre, it must be placed on the rim concentrically and parallel to the axis. Only rims recommended by the tyre manufacturer must be used.

3) TYRE LOAD AND SPEED
Tyre load capacities are specified per tyre. Published Standards or manufacturers' Manuals should be consulted to obtain the actual values applicable to a particular application at the speed specified, up to a maximum of 25 km/h.
Load interpolation within the specified speed steps is not permitted and the speed rating of the tyre must be at least equal to the maximum speed capability of the unladen vehicle.
Continuous running should be avoided in order, to prevent excessive heat build-up which may lead to tyre break-up.

4) TYRE MAINTENANCE
Although solid tyres require relatively little maintenance, they should be inspected from time to time in order to check their suitability for further use.

5) TYRE REPLACEMENT
Worn or damaged tyres must be replaced in accordance with the tyre manufacturer's recommendations. Also, national legal requirements should be checked as they vary from Country to country. When replacing a tyre, special attention should be paid to the condition and suitability of the rim, as rim damage and incorrect fitment can result in tyre break-up.

6) TYRE AGEING
Tyres age even if they have not been used or have only been used occasionally. Rubber cracking may be evidence of ageing. Exposure to sunlight, heat and ozone will accelerate this process. Aged tyres should be examined by a tyre specialist to check their suitability for further use.

7) TYRE MIXING
Tyres mounted on the same axle must be of the same type and size and must have approximately the same external diameter.

8) TREAD WEAR
8.1 INTRODUCTION
The limit for the tread wear of industrial vehicles is not defined by national or international standards. Several manufacturers provide instructions solely for their products. Recommendations by tyre manufacturers should always be followed. However, in case no recommendations are provided by manufacturers, please abide by the contents published in this standard.

8.2 PURPOSE
This standard suggests tread wear limits for solid tyres used on industrial vehicles that operate under conditions that are not regulated by the Highway Code and are to be used in case no instructions are provided by the manufacturer of the vehicle or tyres. NOTE: Industrial vehicles that operate on public roads must be in order and comply with traffic circulation standards.

8.3 HAZARDS DUE TO EXCESSIVE TYRE TREAD WEAR
The hazards due to excessive tyre wear are the following:
a) Loss of load capacity that promotes the accelerated wear of the tread and leads to overheating of the tyre.
b) Loss of adhesion while accelerating or braking on unstable road conditions.
c) Hazards are heightened if the tyres mounted on the same axle are worn differently.
d) Reduction in the vehicle's stability.
e) Loss of the vehicle's directional control.
f) Uneven load on twinned tyres.

8.4 REDUCING HAZARDS
The hazards mentioned in the foregoing section can be reduced if: The tyres mounted on the same axle are built by the same manufacturer, have the same size and are worn equally (this applies to any type of tyre).

8.5 TYRE TREAD WEAR LIMITS
1) Pneumatic tyre rim sizes
Wear indicators or Kerbing Rib are recommended. Solid Rubber tyres for Pneumatic Rims may be used until the tread is worn to the wear indicator, if the tyre has such a marking, or to the top of the kerbing rib, see page IS.3 of EDI. Where there is no indicator, use the tyre until 3/4 of the original total thickness of the tyre remains.
To calculate the minimum diameter corresponding to this wear limit, measure the outside diameter of the worn tyre, the outside diameter of an unworn tyre of the same type, make and size, and the diameter of the wheel rim. The minimum permitted diameter of the worn tyre is given by the formula:

$$D_{worn} = 3/4\ (D_{new} - D_{rim}) + D_{rim}$$

where D_{worn} = the outside diameter of the worn tyre
D_{new} = the outside diameter of an unworn
D_{rim} = the diameter of the wheel rim

2) Press-on-band, cured-on-band and conical base tyres (rubber and non-rubber)
Press-on-band, cured-on and conical base tyres may be used until 2/3 of the original total radial thickness of the tyre remains, as given by the formula:

Cured-on tyres:
$$D_{worn} = 2/3\ (D_{new} - D_{rim}) + D_{rim}$$

Press-on-band and conical base tyres:
$$D_{worn} = 2/3\ (D_{new} - D_{rim} - 20) + (D_{rim} + 20)$$

Notes:
a) All dimensions are measured in millimetres.
b) The outside diameter of the tyre D_{worn} and D_{new} may be calculated by measuring the circumference of the tyre with a flexible tape, and calculating the diameter from the formula:

$$\text{Diameter} = \frac{\text{Circumference}}{\Pi}$$

TREAD WEAR INDICATOR (TWI) MARANGONI INDUSTRIAL TYRES recommends for tyres not to be worn beyond the TWI (Tread Wear Indicator) positioned on the tread of the tyre.
The height of the TWI was defined according to a study based on safety and cost savings for the user. However, in case there is no TWI, MARANGONI INDUSTRIAL TYRES recommends to replace the tyres for safety reasons when 10% of the original tread is worn.

General conditions of sales available on
WWW.MARANGONIINDUSTRIALTYRES.IT

moschini advcom

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