

MICHELIN TECHNICAL DATA



HANDLING, PORT, AIRPORT AND INTERMODAL TIRES

2019

June 2019 edition





MICHELIN TECHNICAL DATA

*HANDLING, PORT, AIRPORT
AND INTERMODAL TIRES*

CONTENT CHAPTER

<i>TIRE RANGE CHART</i>	<i>PAGE 4</i>
<i>PRODUCT PRESENTATION</i>	<i>PAGE 7</i>
<i>TIRES CHARACTERISTICS</i>	<i>PAGE 17</i>
<i>GENERAL INFORMATION</i>	<i>PAGE 37</i>

TIRE RANGE CHART



**MICHELIN®
XZR®**



**MICHELIN®
XZM®**



**MICHELIN®
XZM™ 2+**



**MICHELIN®
X STACKER® 2**



**MICHELIN®
X STACKER® 2 LC**



**MICHELIN®
X-STRADLE®**



**MICHELIN®
X-STRADLE® 2**



**MICHELIN®
X TERMINAL-T™**



NOTES

Lined area for notes, consisting of numerous horizontal dotted lines.



MICHELIN TECHNICAL DATA

*HANDLING, PORT, AIRPORT
AND INTERMODAL TIRES*

PRODUCT PRESENTATION

MICHELIN XZR	<i>PAGE 8</i>
MICHELIN XZM	<i>PAGE 9</i>
MICHELIN XZM 2+	<i>PAGE 10</i>
MICHELIN X STACKER 2	<i>PAGE 11</i>
MICHELIN X STACKER 2 LC	<i>PAGE 12</i>
MICHELIN X-STRADDLE 2	<i>PAGE 13</i>
MICHELIN X TERMINAL-T	<i>PAGE 14</i>

MICHELIN XZR



**THE SOLUTION FOR AIRPORT
GROUND SUPPORT EQUIPMENT
WITH AN EXCEPTIONAL
TOTAL COST OF OWNERSHIP**



For Forklifts, Sweepers & Other Specific Machines



An extremely robust casing with steel-belted Radial casing instead of usual textile solutions

Exceptional grip with multi-block tread pattern and high void-to-lug ratio



SPEED

Tread pattern & rubber compounds engineered for cooler running
Capable of reaching up to 50 km/h (31 mph) under intense usage conditions



LONGEVITY/ ROBUSTNESS

RUBBER COMPOUNDS AND SPECIFIC TREAD PATTERN

Maximize lifetime and minimize maintenance requirements
Very strong bead area and sidewalls with an extremely robust casing



COMFORT

THE TREAD DESIGN

Provides continuous contact with the ground, avoiding vibrations

A REAL INNOVATION IN TUBELESS TIRE SYSTEMS, THE TUBELESS BEAD SEAL IS A DEVICE THAT ALLOWS A MICHELIN® TUBELESS TIRE TO BE FITTED TO A TUBE-TYPE RIM

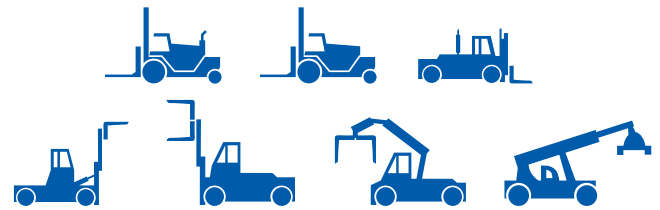


All sizes comply with International standards currently in force regarding antistatic properties.
For use in all industries where there is a risk of combustion or explosion: chemical, petrochemical, paint, ...

MICHELIN XZM



**SWITCH FOR
A LONGER LIFE!**



For Forklifts up to 16T



HIGH PROTECTION

Reinforced crown and
sidewalls for limited
downtime



RADIAL TECHNOLOGY

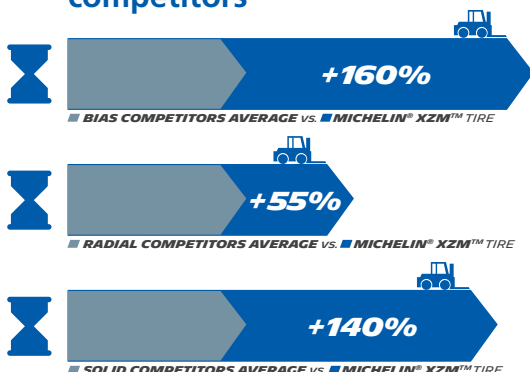
The sidewall and tread
function separately



LONG TIRE LIFE

Massive tread pattern and
two protection bands on sidewalls
designed for long tire life and
optimized cost per hour

Increase tire life: From +50%
to +160% in hours vs. premium
competitors¹



The crown is
stabilized by
several plies.

The steel casing
has one
Radial ply.

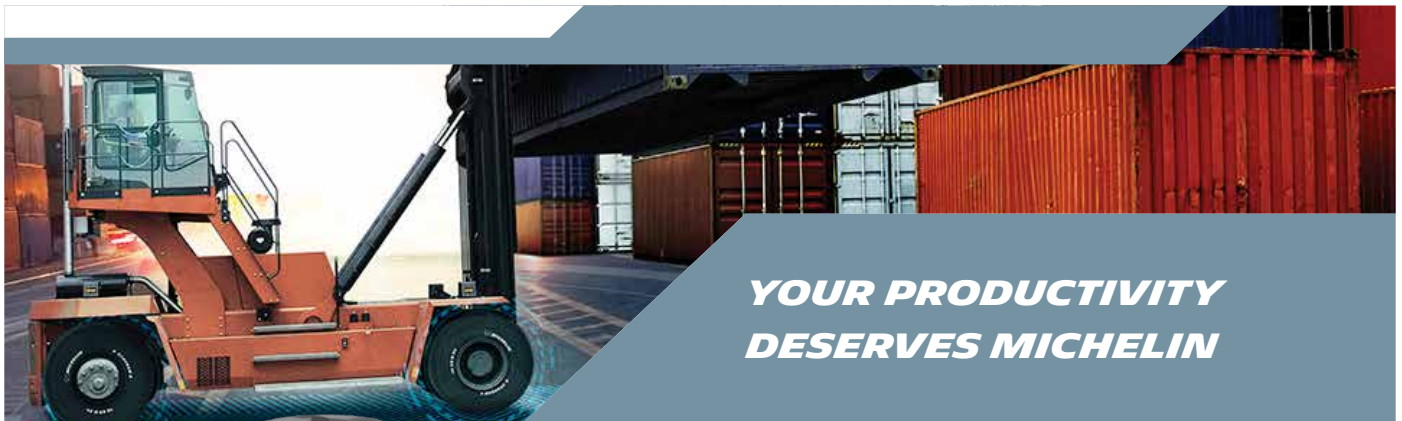


¹Field study in real life conditions made by Michelin for 2 years 2009-2011, on 60 forklifts in Europe (UK/Germany) same tire size and same usage on existing MICHELIN® XZM™ range vs. premium competitors: Continental



All sizes comply with International standards currently in force regarding antistatic properties.
For use in all industries where there is a risk of combustion or explosion: chemical, petrochemical, paint, ...

MICHELIN XZM 2+



**YOUR PRODUCTIVITY
DESERVES MICHELIN**



Highly resistant
to impact and
puncture

15% longer service
life¹—massive tread,
wear-resistant, low-
abrasion rubber



COMFORT

Radial technology



For Forklift Trucks



PRODUCTIVITY

**EXTENSIVE SPEED
CAPABILITY**

15% longer service life¹



STRENGTH

**REINFORCED-CROWN
ARCHITECTURE**

Highly resistant to impact
and puncture

¹Compared with the same sized MICHELIN® XZM® tire under normal use.

MICHELIN X STACKER 2

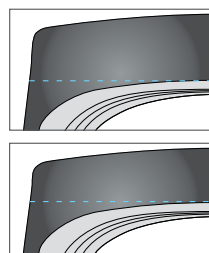


**MAXIMIZE THE UPTIME
OF YOUR REACH STACKER**



RUN FASTER¹

Adapted tread depth to run faster
+40% distance per hour



90mm MICHELIN X STACKER 18.00 R 25



72mm MICHELIN X STACKER 2 18.00 R 25



For Reach Stackers



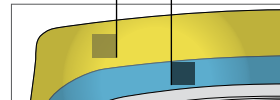
LAST LONGER²

7% longer wear life

A dual compound to run faster and for longer wear life and for longer wear life

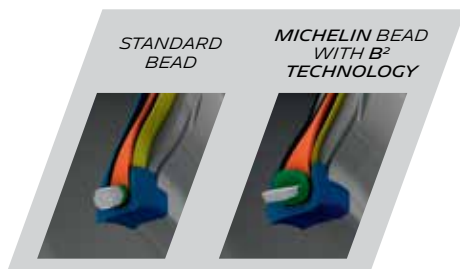
THE MICHELIN DUAL COMPOUND:

Type 1 rubber with high wear-resistance | Type 2 rubber with high heat-resistance



MORE ROBUST¹

Improved overall robustness
of the tire



STANDARD BEAD

MICHELIN BEAD WITH B² TECHNOLOGY

Higher crown endurance⁽¹⁾
with new improved structure

Excellent bead endurance
with the introduction
of **B² Technology**



¹Compared to MICHELIN® X STACKER® 18.00R25 tire.

²Compared to MICHELIN® X STACKER® 18.00R25 tire, average performance by port site. Projected improvement in wear life based on field performance in customer port sites.

MICHELIN X STACKER 2 LC



**STACKS UP IN
PERFORMANCE**



For Reach Stackers

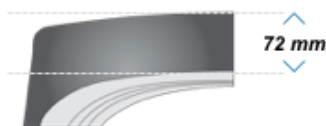


MORE ROBUST¹

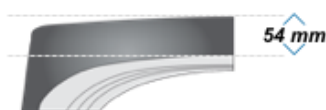
Designed to address very severe usages (speed, load combination) on reach stacker's rear axle

- Less rubber for a cooler tire
- More internal air volume for an improved resistance to load

MICHELIN® X STACKER 2 18.00 R 25



MICHELIN® X STACKER 2 LC 18.00 R 25



+8.6%
INTERNAL AIR
VOLUME ⁽²⁾

-25%
TREAD
THICKNESS⁽³⁾

¹ Compared to 18.00 R 25 MICHELIN® X STACKER® 2 tire. Less rubber for a cooler tire and more internal air volume for an improved resistance to load.

² 18.00 R25 MICHELIN® X STACKER® 2 tire air volume is 465 Liters an 18.00 R 25 MICHELIN® X STACKER® 2 LC tire air volume is 505 liters.

³ 18.00 R25 MICHELIN® X STACKER® 2 tire tread depth is 72 mm and 18.00 R25 MICHELIN® X STACKER® 2 LC tire tread depth is 54 mm.

MICHELIN X-STRADDLE 2



**MOVING CONTAINERS
FURTHER AND FASTER**



For Straddle Carriers



**HIGH LOAD
CAPACITY**

**CARRY UP TO
17.85 TONS¹ BETWEEN
15 AND 22 KPH**

Due to +20% tire inner air volume²



**RUN
FASTER³**

**DRIVE UP TO 9 MILES
IN AN HOUR AND 22M/H
MAX SPEED**

Due to a cooler running tire⁴



**RUN
FURTHER⁵**

UP TO +15% TIRE LIFE⁵

Due to a new tread design
with 8% more rubber and
an improved crown and
bead durability⁴



SIMPLICITY

**CAN BE FITTED ON BOTH
11.25 AND 13.00 RIMS⁶**

Due to a new bead area design

¹ At the nominal pressure of 10 bars, vs 15.75 Tons for MICHELIN® X-STRADDLE® 2 450/95 R 25. And carry 17 Tons from 22km/h to 25km/h.

² Compared to MICHELIN® X-STRADDLE® 16.00R25 and MICHELIN® X-STRADDLE® 2 450/95R25 tires.

³ Compared to MICHELIN® X-STRADDLE® 480/95R25: max distance of 12 kilometers in one hour and 30 mi/h max speed.

⁴ Compared to MICHELIN® X-STRADDLE® 480/95R25 tire.

⁵ Compared to MICHELIN® X-STRADDLE® 480/95R25 tire, average performance by port site. Projected improvement in tire life based on field performance in customer port sites of the MICHELIN® X-STRADDLE® 2 450/95R25 tire size compared to the MICHELIN® X-STRADDLE® 16.00R25 tire (the 450/95R25 is an equivalent size of the 16.00R25), that included individual design improvements incorporated into the MICHELIN® X-STRADDLE® 2 480/95R25 tire.

⁶ Measuring rim: 13.00/2.5 and approved rim: 11.25/2.0 (MICHELIN® Data Book 2016)

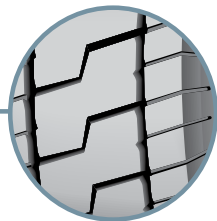
MICHELIN X TERMINAL-T



**KEEP YOUR MACHINE ON
THE MOVE AND KEEP
YOUR TIRE BUDGET
UNDER CONTROL**



For airport tractors, port tractors, tractors and trailers



VERSATILITY

Same size and same tread
for all the axles (front and rear)
Reduction of stocks



SAFETY & RELIABILITY

High level of transversal
and longitudinal grip
Excellent performance on
wet ground
Tubeless tire
Anti-static properties



PRODUCTIVITY

Low downtime and dedicated
to terminal tractors



LESS FUEL CONSUMPTION

Environmentally friendly



MICHELIN TECHNICAL DATA

*HANDLING, PORT, AIRPORT
AND INTERMODAL TIRES*

TIRES CHARACTERISTICS

8"	<i>PAGE 18</i>
9"	<i>PAGE 19</i>
10"	<i>PAGE 21</i>
12"	<i>PAGE 22</i>
15"	<i>PAGE 24</i>
20"	<i>PAGE 28</i>
22.5"	<i>PAGE 30</i>
24"	<i>PAGE 31</i>
25"	<i>PAGE 32</i>
33"	<i>PAGE 35</i>

TIRE LOADS IN KG AND IN LB

8"

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 111A5 5.00 R 8 Tubeless ⁽¹⁰⁾	110208 86381	15 9.3	137 5.4	463 18.2	212 8.3	1407 55.4	23 29	164 6.5	9 2.4	3 1/4 I	3.00D 3.50 D
Bar			6								
Psi			87								145
Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE											
STATIC			1230 2712			1420 3131					1650 3638
<= 10 KM/H			1060			1230					1420
<= 6 MPH			2337			2712					3131
25 KM/H			810			940					1090
15 MPH			1786			2073					2403
35 KM/H			750			870					1010
22 MPH			1654			1918					2227
Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL											
<= 10 KM/H			1060			1230					1420
<= 6 MPH			2337			2712					3131
25 KM/H			1060			1230					1420
15 MPH			2337			2712					3131
35 KM/H			1020			1180					1370
22 MPH			2249			2602					3021

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 113A5 150/75 R 8 Tubeless ⁽¹⁰⁾	110087 55004	15 9.3	151 5.9	424 16.7	194 7.6	1287 50.7	16 20.2	174 6.9	8 2.1	4.33 R	
Bar			6								
Psi			87								145
Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE											
STATIC			1240 2734			1480 3263					1740 3837
<= 10 KM/H			1070			1280					1500
<= 6 MPH			2359			2822					3308
25 KM/H			820			980					1150
15 MPH			1808			2161					2536
35 KM/H			760			910					1070
22 MPH			1676			2007					2359
Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL											
<= 10 KM/H			1070			1280					1500
<= 6 MPH			2359			2822					3308
25 KM/H			1070			1280					1500
15 MPH			2359			2822					3308
35 KM/H			1030			1230					1440
22 MPH			2271			2712					3175

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZR 125A5 180/70 R 8 Tubeless ⁽¹⁰⁾	110069 64585	15 9.3	170 6.7	454 17.9	205 8.1	1371 54	19 23.9	196 7.7	11 2.9	4.33 R	
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb)	MECHANICAL HANDLING, CYCLIC SERVICE										
STATIC			1890				2190			2500	
			4167				4829			5513	
<= 10 KM/H			1630				1890			2150	
<= 6 MPH			3594				4167			4741	
25 KM/H			1250				1450			1650	
15 MPH			2756				3197			3638	
35 KM/H			1160				1350			1530	
22 MPH			2558				2977			3374	
Machine - Use (kg - lb)	COUNTERBALANCED LIFT TRUCK, LOAD WHEEL										
<= 10 KM/H			1630				1890			2150	
<= 6 MPH			3594				4167			4741	
25 KM/H			1630				1890			2150	
15 MPH			3594				4167			4741	
35 KM/H			1570				1820			2070	
22 MPH			3462				4013			4564	

9"

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZR 121A5 6.00 R 9 Tubeless	110206 68425	25 15.5	164 6.5	530 20.9	241 9.5	1605 63.2	10 12.6	192 7.6	18 4.8	4.00E	
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb)	MECHANICAL HANDLING, CYCLIC SERVICE										
STATIC			1590				1890			2190	
			3506				4167			4829	
<= 10 KM/H			1370				1630			1890	
<= 6 MPH			3021				3594			4167	
25 KM/H			1050				1250			1450	
15 MPH			2315				2756			3197	
35 KM/H			980				1160			1350	
22 MPH			2161				2558			2977	
40 KM/H			940				1120			1300	
25 MPH			2073				2470			2867	
50 KM/H			890				1050			1220	
31 MPH			1962				2315			2690	
Machine - Use (kg - lb)	COUNTERBALANCED LIFT TRUCK, LOAD WHEEL										
<= 10 KM/H			1370				1630			1890	
<= 6 MPH			3021				3594			4167	
25 KM/H			1370				1630			1890	
15 MPH			3021				3594			4167	
35 KM/H			1320				1570			1820	
22 MPH			2911				3462			4013	

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ^{(2) (3)} Recommended Rim	Others Approved ^{(2) (3)} Rim
XZM 121A5 6.00 R 9 Tubeless ⁽¹⁰⁾	110204 50734	15 9.3	164 6.5	539 21.2	248 9.8	1641 64.6	24 30.2	192 7.6	15 4	4.00E	
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE											
STATIC			1590			1890				2190	
			3506			4167				4829	
<= 10 KM/H			1370			1630				1890	
<= 6 MPH			3021			3594				4167	
25 KM/H			1050			1250				1450	
15 MPH			2315			2756				3197	
35 KM/H			980			1160				1350	
22 MPH			2161			2558				2977	
Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL											
<= 10 KM/H			1370			1630				1890	
<= 6 MPH			3021			3594				4167	
25 KM/H			1370			1630				1890	
15 MPH			3021			3594				4167	
35 KM/H			1320			1570				1820	
22 MPH			2911			3462				4013	

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ^{(2) (3)} Recommended Rim	Others Approved ^{(2) (3)} Rim
XZM 134A5 200/75 R 9 Tubeless ⁽¹⁰⁾	110090 79749	15 9.3	208 8.2	534 21	240 9.4	1610 63.4	22 27.7	239 9.4	19 5	6.00E	
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE											
STATIC			2270			2750				3210	
			5005			6064				7078	
<= 10 KM/H			1950			2370				2760	
<= 6 MPH			4300			5226				6086	
25 KM/H			1500			1820				2120	
15 MPH			3308			4013				4675	
35 KM/H			1390			1690				1970	
22 MPH			3065			3726				4344	
Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL											
<= 10 KM/H			1950			2370				2760	
<= 6 MPH			4300			5226				6086	
25 KM/H			1950			2370				2760	
15 MPH			4300			5226				6086	
35 KM/H			1880			2280				2650	
22 MPH			4145			5027				5843	

TIRE LOADS IN KG AND IN LB

10"

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZR 128A5 6.50 R 10 Tubeless	110207 79365	25 15.5	184 7.2	578 22.8	264 10.4	1753 69	11 13.9	217 8.5	23 6.1	5.00F	5.50F

Bar		6				8					10
<i>Psi</i>		87				116					145

Machine - Use (kg - lb) **MECHANICAL HANDLING, CYCLIC SERVICE**

STATIC		1930 4256				2310 5094				2720 5998	
<= 10 KM/H <= 6 MPH/H		1660 3660				1990 4388				2340 5160	
25 KM/H 15 MPH		1280 2822				1530 3374				1800 3969	
35 KM/H 22 MPH		1180 2602				1420 3131				1670 3682	
40 KM/H 25 MPH		1140 2514				1360 2999				1610 3550	
50 KM/H 31 MPH		1080 2381				1290 2844				1520 3352	

Machine - Use (kg - lb) **COUNTERBALANCED LIFT TRUCK, LOAD WHEEL**

<= 10 KM/H <= 6 MPH/H		1660 3660				1990 4388				2340 5160	
25 KM/H 15 MPH		1660 3660				1990 4388				2340 5160	
35 KM/H 22 MPH		1600 3528				1910 4212				2250 4961	

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 128A5 6.50 R 10 Tubeless ⁽¹⁰⁾	110213 54636	15 9.3	186 7.3	587 23.1	270 10.6	1786 70.3	27 34	217 8.5	20 5.3	5.00F	5.50F

Bar		6				8					10
<i>Psi</i>		87				116					145

Machine - Use (kg - lb) **MECHANICAL HANDLING, CYCLIC SERVICE**

STATIC		1930 4256				2310 5094				2720 5998	
<= 10 KM/H <= 6 MPH/H		1660 3660				1990 4388				2340 5160	
25 KM/H 15 MPH		1280 2822				1530 3374				1800 3969	
35 KM/H 22 MPH		1180 2602				1420 3131				1670 3682	

Machine - Use (kg - lb) **COUNTERBALANCED LIFT TRUCK, LOAD WHEEL**

<= 10 KM/H <= 6 MPH/H		1660 3660				1990 4388				2340 5160	
25 KM/H 15 MPH		1660 3660				1990 4388				2340 5160	
35 KM/H 22 MPH		1600 3528				1910 4212				2250 4961	

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 142A5 225/75 R 10 Tubeless ⁽¹⁰⁾	110089 59673	15 9.3	220 8.7	591 23.3	264 10.4	1779 70	24 30.2	259 10.2	25 6.6	6.50F	
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb)	MECHANICAL HANDLING, CYCLIC SERVICE										
STATIC		2800 6174				3430 7563				4010 8842	
<= 10 KM/H <= 6 MPH		2410 5314				2960 6527				3450 7607	
25 KM/H 15 MPH		1850 4079				2270 5005				2650 5843	
35 KM/H 22 MPH		1720 3793				2100 4631				2460 5424	
Machine - Use (kg - lb)	COUNTERBALANCED LIFT TRUCK, LOAD WHEEL										
<= 10 KM/H <= 6 MPH		2410 5314				2960 6527				3450 7607	
25 KM/H 15 MPH		2410 5314				2960 6527				3450 7607	
35 KM/H 22 MPH		2320 5116				2840 6262				3320 7321	

12"

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZR 136A5 7.00 R 12 Tubeless	110210 62234	25 15.5	193 7.6	661 26	302 11.9	2006 79	11 13.9	230 9.1	32 8.5	5.00S	
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb)	MECHANICAL HANDLING, CYCLIC SERVICE										
STATIC		2320 5116				2750 6064				3390 7475	
<= 10 KM/H <= 6 MPH		1990 4388				2370 5226				2920 6439	
25 KM/H 15 MPH		1530 3374				1820 4013				2240 4939	
35 KM/H 22 MPH		1420 3131				1690 3726				2080 4586	
40 KM/H 25 MPH		1370 3021				1620 3572				2000 4410	
50 KM/H 31 MPH		1290 2844				1530 3374				1890 4167	
Machine - Use (kg - lb)	COUNTERBALANCED LIFT TRUCK, LOAD WHEEL										
<= 10 KM/H <= 6 MPH		1990 4388				2370 5226				2920 6439	
25 KM/H 15 MPH		1990 4388				2370 5226				2920 6439	
35 KM/H 22 MPH		1920 4234				2280 5027				2800 6174	

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 136A5 7.00 R 12 Tubeless ⁽¹⁰⁾	110195 71359	15 9.3	196 7.7	671 26.4	309 12.2	2043 80.4	28 35.3	230 9.1	24 6.3	5.00S	

Bar	6	8	10
Psi	87	116	145

Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE

STATIC	2320	2750	3390
	5116	6064	7475
<= 10 KM/H	1990	2370	2920
<= 6 MPH	4388	5226	6439
25 KM/H	1530	1820	2240
15 MPH	3374	4013	4939
35 KM/H	1420	1690	2080
22 MPH	3131	3726	4586

Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL

<= 10 KM/H	1990	2370	2920
<= 6 MPH	4388	5226	6439
25 KM/H	1990	2370	2920
15 MPH	4388	5226	6439
35 KM/H	1920	2280	2800
22 MPH	4234	5027	6174

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 145A5 250/60 R 12 Tubeless	358151 07263	15 9.3	254 10	616 24.3	280 11	1865 73.4	27 34	293 11.5	30 7.9	8.00G	

Bar	6	8	10
Psi	87	116	145

Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE

STATIC	3060	3700	4380
	6747	8159	9658
<= 10 KM/H	2640	3190	3770
<= 6 MPH	5821	7034	8313
25 KM/H	2030	2450	2900
15 MPH	4476	5402	6395
35 KM/H	1880	2270	2690
22 MPH	4145	5005	5931

Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL

<= 10 KM/H	2640	3190	3770
<= 6 MPH	5821	7034	8313
25 KM/H	2640	3190	3770
15 MPH	5821	7034	8313
35 KM/H	2540	3070	3630
22 MPH	5601	6769	8004

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 152A5 250/75 R 12 Tubeless ⁽¹⁰⁾	110108 51744	15 9.3	256 10.1	688 27.1	311 12.2	2078 81.8	28 35.3	294 11.6	38 10	8.00G	
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb)	MECHANICAL HANDLING, CYCLIC SERVICE										
STATIC			3730			4570				5370	
			8225			10077				11841	
<= 10 KM/H			3220			3930				4620	
<= 6 MPH			7100			8666				10187	
25 KM/H			2470			3020				3550	
15 MPH			5446			6659				7828	
35 KM/H			2290			2800				3290	
22 MPH			5049			6174				7254	
Machine - Use (kg - lb)	COUNTERBALANCED LIFT TRUCK, LOAD WHEEL										
<= 10 KM/H			3220			3930				4620	
<= 6 MPH			7100			8666				10187	
25 KM/H			3220			3930				4620	
15 MPH			7100			8666				10187	
35 KM/H			3090			3780				4440	
22 MPH			6813			8335				9790	

15"

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 143A5 7.00 R 15 Tubeless ⁽¹⁰⁾	110211 85869	15 9.3	196 7.7	733 28.9	337 13.3	2230 87.8	28 35.3	235 9.3	30 7.9	5.5	6.0
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb)	MECHANICAL HANDLING, CYCLIC SERVICE										
STATIC			3075			3600				4090	
			6780			7938				9018	
<= 10 KM/H			2665			3120				3540	
<= 6 MPH			5876			6880				7806	
25 KM/H			2050			2400				2725	
15 MPH			4520			5292				6009	
35 KM/H			1895			2220				2520	
22 MPH			4178			4895				5557	
Machine - Use (kg - lb)	COUNTERBALANCED LIFT TRUCK, LOAD WHEEL										
<= 10 KM/H			2665			3120				3540	
<= 6 MPH			5876			6880				7806	
25 KM/H			2665			3120				3540	
15 MPH			5876			6880				7806	
35 KM/H			2560			3000				3405	
22 MPH			5645			6615				7508	

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 146A5 7.50 R 15 Tubeless ⁽¹⁰⁾	110214 62488	15 9.3	212 8.3	771 30.4	357 14.1	2352 92.6	30 37.8	254 10	38 10	6.0	6.5
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE											
STATIC		3300 7277				3930 8666				4530 9989	
<= 10 KM/H		2840				3380				3900	
<= 6 MPH		6262				7453				8600	
25 KM/H		2180				2600				3000	
15 MPH		4807				5733				6615	
35 KM/H		2020				2410				2780	
22 MPH		4454				5314				6130	
Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL											
<= 10 KM/H		2840				3380				3900	
<= 6 MPH		6262				7453				8600	
25 KM/H		2840				3380				3900	
15 MPH		6262				7453				8600	
35 KM/H		2730				3250				3750	
22 MPH		6020				7166				8269	

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 153A5 8.25 R 15 Tubeless ⁽¹⁰⁾	110218 56370	15 9.3	240 9.4	835 32.9	385 15.2	2543 100.1	33 41.6	280 11	46 12.2	6.5	7.0 7.5
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE											
STATIC		4010 8842				4760 10496				5520 12172	
<= 10 KM/H		3450				4100				4750	
<= 6 MPH		7607				9041				10474	
25 KM/H		2650				3150				3650	
15 MPH		5843				6946				8048	
35 KM/H		2460				2920				3380	
22 MPH		5424				6439				7453	
Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL											
<= 10 KM/H		3450				4100				4750	
<= 6 MPH		7607				9041				10474	
25 KM/H		3450				4100				4750	
15 MPH		7607				9041				10474	
35 KM/H		3320				3940				4570	
22 MPH		7321				8688				10077	

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 149A5 225/75 R 15 Tubeless ⁽¹⁰⁾	110079 55324	15 9.3	225 8.9	708 27.9	322 12.7	2144 84.4	25 31.5	259 10.2	34 9	7.0	
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE											
STATIC		3480 7673				4230 9327				4910 10827	
<= 10 KM/H		2990				3640				4230	
<= 6 MPH		6593				8026				9327	
25 KM/H		2300				2800				3250	
15 MPH		5072				6174				7166	
35 KM/H		2130				2590				3010	
22 MPH		4697				5711				6637	
Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL											
<= 10 KM/H		2990				3640				4230	
<= 6 MPH		6593				8026				9327	
25 KM/H		2990				3640				4230	
15 MPH		6593				8026				9327	
35 KM/H		2880				3500				4070	
22 MPH		6350				7718				8974	

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 153A5 250/70 R 15 Tubeless ⁽¹⁰⁾	110075 50988	15 9.3	250 9.8	736 29	333 13.1	2224 87.6	28 35.3	288 11.3	39 10.3	7.5	7.0
Bar		6				8				10	
Psi		87				116				145	
Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE											
STATIC		3780 8335				4670 10297				5520 12172	
<= 10 KM/H		3250				4020				4750	
<= 6 MPH		7166				8864				10474	
25 KM/H		2500				3090				3650	
15 MPH		5513				6813				8048	
35 KM/H		2320				2860				3380	
22 MPH		5116				6306				7453	
Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL											
<= 10 KM/H		3250				4020				4750	
<= 6 MPH		7166				8864				10474	
25 KM/H		3250				4020				4750	
15 MPH		7166				8864				10474	
35 KM/H		3130				3870				4570	
22 MPH		6902				8533				10077	

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 165A5 315/70 R 15 Tubeless ⁽¹⁰⁾	110109 85047	15 9.3	321 12.6	839 33	373 14.7	2520 99.2	35 44.1	369 14.5	74 19.6	8.0	

Bar	6	8	10
Psi	87	116	145

Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE

STATIC	5370 11841	6570 14487	7780 17155
<= 10 KM/H	4620	5660	6700
<= 6 MPH	10187	12480	14774
25 KM/H	3550	4350	5150
15 MPH	7828	9592	11356
35 KM/H	3290	4030	4770
22 MPH	7254	8886	10518

Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL

<= 10 KM/H	4620	5660	6700
<= 6 MPH	10187	12480	14774
25 KM/H	4620	5660	6700
15 MPH	10187	12480	14774
35 KM/H	4440	5440	6440
22 MPH	9790	11995	14200

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 170A5 355/65 R 15 Tubeless ⁽¹⁰⁾	003789 81758	15 9.3	355 14	842 33.1	376 14.8	2532 99.7	35 44.1	408 16.1	83 21.9	9.75	

Bar	6	8	10
Psi	87	116	145

Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE

STATIC	6190 13649	7630 16824	9060 19977
<= 10 KM/H	5330	6565	7800
<= 6 MPH	11753	14476	17199
25 KM/H	4100	5050	6000
15 MPH	9041	11135	13230
35 KM/H	3800	4670	5550
22 MPH	8379	10297	12238

Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL

<= 10 KM/H	5330	6565	7800
<= 6 MPH	11753	14476	17199
25 KM/H	5330	6565	7800
15 MPH	11753	14476	17199
35 KM/H	5130	6310	7500
22 MPH	11312	13914	16538

TIRE LOADS IN KG AND IN LB

20"

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 160A5 9.00 R 20 Tubeless ⁽¹¹⁾	110185 87259	15 9.3	271 10.7	1033 40.7	481 18.9	3157 124.3	33 41.6	325 12.8	99 26.2	7.0	6.5 7.0T 7.33V 7.5 B 7.0 B 7.5 B6.5 B7.5

Bar	6	8	10
Psi	87	116	145

Machine - Use (kg - lb)	MECHANICAL HANDLING, CYCLIC SERVICE															
STATIC		4840 10672									5800 12789					6800 14994
<= 10 KM/H <= 6 MPH/H		4160 9173									5000 11025					5850 12899
25 KM/H 15 MPH		3200 7056									3840 8467					4500 9923
35 KM/H 22 MPH		2970 6549									3560 7850					4170 9195
40 KM/H 25 MPH		2850 6284									3420 7541					4010 8842

Machine - Use (kg - lb)	COUNTERBALANCED LIFT TRUCK, LOAD WHEEL															
<= 10 KM/H <= 6 MPH/H		4160 9173									5000 11025					5850 12899
25 KM/H 15 MPH		4160 9173									5000 11025					5850 12899
35 KM/H 22 MPH		4000 8820									4800 10584					5620 12392

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 166A5 10.00 R 20 Tubeless ⁽¹¹⁾	110014 42890	15 9.3	295 11.6	1068 42	495 19.5	3257 128.2	35 44.1	354 13.9	117 30.9	7.5	7.0 7.0T 7.33V 8.0 8.0V 8.00V 8.0V B 7.0 B 7.5 B 8.0

Bar	6	8	10
Psi	87	116	145

Machine - Use (kg - lb)	MECHANICAL HANDLING, CYCLIC SERVICE															
STATIC		5740 12657									6850 15104					8010 17662
<= 10 KM/H <= 6 MPH/H		4940 10893									5890 12987					6890 15192
25 KM/H 15 MPH		3800 8379									4530 9989					5300 11687
35 KM/H 22 MPH		3520 7762									4200 9261					4910 10827
40 KM/H 25 MPH		3390 7475									4040 8908					4720 10408

Machine - Use (kg - lb)	COUNTERBALANCED LIFT TRUCK, LOAD WHEEL															
<= 10 KM/H <= 6 MPH/H		4940 10893									5890 12987					6890 15192
25 KM/H 15 MPH		4940 10893									5890 12987					6890 15192
35 KM/H 22 MPH		4750 10474									5660 12480					6630 14619

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 169A5 11.00 R 20 Tubeless ⁽¹¹⁾	110189 74767	15 9.3	294 11.6	1092 43	504 19.8	3325 130.9	38 47.9	353 13.9	124 32.8	8.0	7.33V 7.5 8.0V 8.00V 8.0V 8.5 8.50V 8.5V B 8.0 B 8.5 B7.5

Bar	6	8	10
<i>Psi</i>	87	116	145

Machine - Use (kg - lb) **MECHANICAL HANDLING, CYCLIC SERVICE**

STATIC	6260 13803	7510 16560	8760 19316
<= 10 KM/H <= 6 MP/H	5390 11885	6470 14266	7540 16626
25 KM/H 15 MPH	4140 9129	4970 10959	5800 12789
35 KM/H 22 MPH	3830 8445	4600 10143	5370 11841
40 KM/H 25 MPH	3690 8136	4430 9768	5170 11400

Machine - Use (kg - lb) **COUNTERBALANCED LIFT TRUCK, LOAD WHEEL**

<= 10 KM/H <= 6 MP/H	5390 11885	6470 14266	7540 16626
25 KM/H 15 MPH	5390 11885	6470 14266	7540 16626
35 KM/H 22 MPH	5180 11422	6220 13715	7250 15986

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 176A5 12.00 R 20 Tubeless ⁽¹¹⁾	110082 78891	15 9.3	324 12.8	1136 44.7	522 20.6	3453 135.9	40 50.4	389 15.3	184 48.6	8.5	8.0 8.50V 8.5V 9.0 9.00V B 8.5 B8.5

Bar	6	8	10
<i>Psi</i>	87	116	145

Machine - Use (kg - lb) **MECHANICAL HANDLING, CYCLIC SERVICE**

STATIC	7710 17001	9220 20330	10730 23660
<= 10 KM/H <= 6 MP/H	6630 14619	7930 17486	9230 20352
25 KM/H 15 MPH	5100 11246	6100 13451	7100 15656
35 KM/H 22 MPH	4720 10408	5650 12458	6570 14487
40 KM/H 25 MPH	4540 10011	5430 11973	6320 13936

Machine - Use (kg - lb) **COUNTERBALANCED LIFT TRUCK, LOAD WHEEL**

<= 10 KM/H <= 6 MP/H	6630 14619	7930 17486	9230 20352
25 KM/H 15 MPH	6630 14619	7930 17486	9230 20352
35 KM/H 22 MPH	6380 14068	7630 16824	8880 19580

TIRE LOADS IN KG AND IN LB

22.5"

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
X-TERMINAL T 168A8 280/75 R 22.5 Tubeless ⁽¹²⁾	004371 33193	20 12.4	279 11	995 39.2	447 17.6	3000 118.1	31 39.1	326 12.8	85 22.5	8.25	
Bar			6								
Psi			87								145
Machine - Use (kg - lb) TERMINAL TRACTOR											
STATIC			5350 11797					6900 15215			8450 18632
5 KM/H 3 MPH			5060 11157					6450 14222			7840 17287
10 KM/H 6 MPH			4370 9636					5800 12789			7280 16052
25 KM/H 15 MPH			4200 9261					5300 11687			6300 13892
40 KM/H 25 MPH			3750 8269					4675 10308			5600 12348

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
X-TERMINAL T 175A8 310/80 R 22.5 Tubeless ⁽¹²⁾	278144 03379	20 12.4	307 12.1	1084 42.7	483 19	3257 128.2	30 37.8	355 14	116 30.6	9.0	
Bar			6								
Psi			87								145
Machine - Use (kg - lb) TERMINAL TRACTOR											
STATIC			6890 15192					8655 19084			10420 22976
5 KM/H 3 MPH			6160 13583					7910 17442			9660 21300
10 KM/H 6 MPH			5930 13076					7450 16427			8970 19779
25 KM/H 15 MPH			5080 11201					6420 14156			7760 17111
40 KM/H 25 MPH			4450 9812					5675 12513			6900 15215

TIRE LOADS IN KG AND IN LB

24"

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 178A5 12.00 R 24 Tubeless ⁽¹⁰⁾	110296 42105	15 9.3	325 12.8	1238 48.7	570 22.4	3766 148.3	40 50.4	390 15.4	208 55	8.5	8.50V 9.0 9.00V B 8.5

Bar	6	8	10
Psi	87	116	145

Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE

STATIC	7710 17001	9520 20992	11330 24983
<= 10 KM/H <= 6 MPH	6630 14619	8190 18059	9750 21499
25 KM/H 15 MPH	5100 11246	6300 13892	7500 16538
35 KM/H 22 MPH	4720 10408	5830 12855	6940 15303

Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL

<= 10 KM/H <= 6 MPH	6630 14619	8190 18059	9750 21499
25 KM/H 15 MPH	6630 14619	8190 18059	9750 21499
35 KM/H 22 MPH	6380 14068	7880 17375	9380 20683

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 193A5 14.00 R 24 Tubeless ⁽⁹⁻¹⁵⁾	084179 93269	15 9.3	383 15.1	1416 55.7	641 25.2	4280 168.5	63 79.4	460 18.1	247 65.3	10.0	10.00 WA 10.00W

Bar	6	8	10
Psi	87	116	145

Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE

STATIC	12540 27651	15100 33296	17370 38301
<= 10 KM/H <= 6 MPH	10790 23792	13000 28665	14950 32965
25 KM/H 15 MPH	8300 18302	10000 22050	11500 25358

Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL

<= 10 KM/H <= 6 MPH	10790 23792	13000 28665	14950 32965
25 KM/H 15 MPH	10790 23792	13000 28665	14950 32965

TIRE LOADS IN KG AND IN LB

25"

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM 200A5 16.00 R 25 Tubeless ⁽¹⁵⁾	123781 61590	15 9.3	443 17.4	1531 60.3	695 27.4	4634 182.4	71 89.4	532 20.9	326 86.1	11.25/2.0	13.00/2.0
Bar			6			8				10	
<i>Psi</i>			87			116				145	
Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE											
STATIC			15600			18225				21000	
			34398			40186				46305	
<= 10 KM/H			13520			15800				18200	
<= 6 MPH			29812			34839				40131	
25 KM/H			10400			12150				14000	
15 MPH			22932			26791				30870	
Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL											
<= 10 KM/H			13520			15800				18200	
<= 6 MPH			29812			34839				40131	
25 KM/H			13520			15800				18200	
15 MPH			29812			34839				40131	

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
X-STRADDLE 2 202A7 450/95 R 25 Tubeless ⁽¹⁶⁻¹⁸⁾	278967 38706	15 9.3	422 16.6	1510 59.4	670 26.4	4530 178.3	50 63		342 90.4	11.25/2.0	13.00/2.0
Bar			6			8				10	
<i>Psi</i>			87			116				145	
Machine - Use (kg - lb) STRADDLE CARRIER											
22 KM/H			10630			13150				15750	
14 MPH			23439			28996				34729	
25 KM/H			10125			12525				15000	
15 MPH			22326			27618				33075	
35 KM/H			9370			11590				13875	
22 MPH			20661			25556				30594	

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
X-STRADDLE 200A5 16.00 R 25 Tubeless ⁽⁸⁻¹⁵⁾	788305 17688	12 7.5	431 17	1510 59.4	676 26.6	4545 178.9	49 61.7	535 21.1	342 90.4	11.25/2.0	10.0/2.0 13.00/2.0
Bar			6			8				10	
<i>Psi</i>			87			116				145	
Machine - Use (kg - lb) PORT HANDLING											
22 KM/H			9900			12300				14700	
14 MPH			21830			27122				32414	
25 KM/H			9440			11720				14000	
15 MPH			20815			25843				30870	
30 KM/H			9085			11280				13475	
19 MPH			20032			24872				29712	

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
X-STRADDLE 206A5 480/95 R 25 Tubeless ⁽¹⁵⁾	237120 89482	12 7.5	477 18.8	1553 61.1	687 27	4655 183.3	50 63	585 23	400 105.7	13.00/2.5	
Bar			6			8				10	
<i>Psi</i>			87			116				145	
Machine - Use (kg - lb) STRADDLE CARRIER											
22 KM/H			11970			14900				17850	
14 MPH			26394			32855				39359	
25 KM/H			11400			14200				17000	
15 MPH			25137			31311				37485	
30 KM/H			10975			13670				16355	
19 MPH			24200			30142				36063	

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
X-STRADDLE 2 206A7 480/95 R 25 Tubeless ⁽¹⁶⁾	653072 07011	15 9.3	467 18.4	1553 61.1	687 27	4655 183.3	50 63	580 22.8	410 108.3	13.00/2.5	11.25/2.0 [1.7]

Bar		6				8				10	
Psi		87				116				145	

Machine - Use (kg - lb) STRADDLE CARRIER

22 KM/H		11970				14900				17850	
14 MPH		26394				32855				39359	
25 KM/H		11400				14200				17000	
15 MPH		25137				31311				37485	
35 KM/H		10545				13135				15725	
22 MPH		23252				28963				34674	

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM2+ 207A5 18.00 R 25 Tubeless ⁽¹⁴⁾	230783 98640	10 6.2	503 19.8	1668 65.7	751 29.6	5032 198.1	78 98.3	612 24.1	470 124.2	13.00/2.5	15.00/2.5

Bar		6				8				10	
Psi		87				116				145	

Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE

STATIC		18380				22280				26250	
		40528				49127				57881	
<= 10 KM/H		15930				19180				22750	
<= 6 MPH/H		35126				42292				50164	
25 KM/H		12250				14750				17500	
15 MPH		27011				32524				38588	

Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL

<= 10 KM/H		15930				19180				22750	
<= 6 MPH/H		35126				42292				50164	
25 KM/H		15930				19180				22750	
15 MPH		35126				42292				50164	

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
X STACKER 207A5 18.00 R 25 Tubeless ⁽¹⁷⁾	545441 21861	5 3.1	463 18.2	1666 65.6	757 29.8	5043 198.5	90 113.4	556 21.9	460 121.5	13.00/2.5	15.00/2.5

Bar		6				8				10	
Psi		87				116				145	

Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE

STATIC		18380				22280				26250	
		40528				49127				57881	
<= 10 KM/H		15930				19180				22750	
<= 6 MPH/H		35126				42292				50164	
25 KM/H		12250				14750				17500	
15 MPH		27011				32524				38588	

Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL

<= 10 KM/H		15930				19180				22750	
<= 6 MPH/H		35126				42292				50164	
25 KM/H		15930				19180				22750	
15 MPH		35126				42292				50164	

TIRE LOADS IN KG AND IN LB

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾ (3) Recommended Rim	Others Approved ⁽²⁾ (3) Rim
X-STACKER2 207A5 18.00 R 25 Tubeless	101475 26910	7 4.3	501 19.7	1656 65.2	750 29.5	5006 197.1	72 90.7	612 24.1	465 122.9	13.00/2.5	15.00/2.5

Bar	6	8	10
Psi	87	116	145

Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE

STATIC	18380 40528	22280 49127	26250 57881
<= 10 KM/H	15930	19180	22750
<= 6 MP/H	35126	42292	50164
25 KM/H	12250	14750	17500
15 MPH	27011	32524	38588

Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL

<= 10 KM/H	15930	19180	22750
<= 6 MP/H	35126	42292	50164
25 KM/H	15930	19180	22750
15 MPH	35126	42292	50164

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾ (3) Recommended Rim	Others Approved ⁽²⁾ (3) Rim
X-STACKER2 LC 207A5 18.00 R 25 Tubeless	042180 09186	11 6.8 if load per tire <=17.5 t	501 19.7	1656 65.2	750 29.5	5006 197.1	54 68	612 24.1	465 122.9	13.00/2.5	15.00/2.5
		10 6.2 if load per tire >17.5 t									

Bar	6	8	10
Psi	87	116	145

Machine - Use (kg - lb) MECHANICAL HANDLING, CYCLIC SERVICE

STATIC	18380 40528	22280 49127	26250 57881
<= 10 KM/H	15930	19180	22750
<= 6 MP/H	35126	42292	50164
25 KM/H	12250	14750	17500
15 MPH	27011	32524	38588

Machine - Use (kg - lb) COUNTERBALANCED LIFT TRUCK, LOAD WHEEL

<= 10 KM/H	15930	19180	22750
<= 6 MP/H	35126	42292	50164
25 KM/H	15930	19180	22750
15 MPH	35126	42292	50164

Machine - Use (kg - lb) AGV PORT

<= 10 KM/H	15930	19180	22750
<= 6 MP/H	35126	42292	50164
25 KM/H	15930	19180	22750
15 MPH	35126	42292	50164

TIRE LOADS IN KG AND IN LB

33"

COMMERCIAL DESCRIPTION	CAI MSPN	Max. dist./ hour km mile	e mm inch	D mm inch	R' mm inch	RC mm inch	Tread depth mm 32rd	Dual Spacing mm inch	Cap. liter gallon	Measuring ⁽²⁾⁽³⁾ Recommended Rim	Others Approved ⁽²⁾⁽³⁾ Rim
XZM2+ 214A5 18.00 R 33 Tubeless ⁽¹⁴⁾	305696 98655	10 6.2	503 19.8	1841 72.5	826 32.5	5547 218.4	78 98.3	604 23.8	520 137.4	13.00/2.5	
Bar		6				8				10	
<i>Psi</i>		87				116				145	
Machine - Use (kg - lb)	MECHANICAL HANDLING, CYCLIC SERVICE										
STATIC		22500 49613				27000 59535				31800 70119	
<= 10 KM/H <= 6 MPH/H		19500 42998				23400 51597				27560 60770	
25 KM/H 15 MPH		15000 33075				18000 39690				21200 46746	
Machine - Use (kg - lb)	COUNTERBALANCED LIFT TRUCK, LOAD WHEEL										
<= 10 KM/H <= 6 MPH/H		19500 42998				23400 51597				27560 60770	
25 KM/H 15 MPH		19500 42998				23400 51597				27560 60770	

INDUSTRIAL TIRES

The information provided herein is for informational purposes only and may not be used or relied upon for legal or statutory action. For technical and safety reasons, a tire should never be used beyond the limits of the technical specifications for which it has been approved and all relevant recommendations as provided herein should be followed. Michelin is not responsible for any use, fitting, storage, maintenance, or handling outside stated recommendations.

MICHELIN® tires are designed for a specific use as defined in this catalog. Any other use constitutes an abnormal use. However, in some circumstances, Michelin may issue a waiver which will specify the conditions and the permitted operational limits for a specific application. If a tire is to be used differently than what it is designed for, please consult your nearest Michelin Representative for further guidance. **Michelin expressly denies any responsibility for any abnormal use of its tires or any use different from the tire's intended design in the absence of express written permission (derogation) from an authorized Michelin Representative.**

Further, correct usage and maintenance are necessary to achieve proper performance and to maximize life. Therefore, it is recommended that users adhere to all safety and usage recommendations. However, you must note that these recommendations may be subject to more restrictive local legal and/or regulatory requirements.

Specifically, tire load and pressure tables included in this book are classified according to the various applications of machines. In the load and pressure tables, the shaded boxes indicate the normalized values. These values reflect optimal use, the best balance of performances. Again, these values are given for informational purposes only and may not be used for legal or statutory actions.

Finally, unless otherwise specified, MICHELIN® off-the-road, industrial, and compact tires comply with internationally accepted standards that are established by TRA (Tire and Rim Association), ETRTO (European Tire and Rim Technical Organisation), JATMA (Japan Automobile Tire Manufacturers Association), and/or ISO (International Standards Organisation). Among other things, the standards encompass load capacity, inflation pressure, overall diameter, overall width, and related valves and rims. Some minor differences may exist between these standards.

SPECIFIC APPLICATIONS

Please note that tires for mechanical handling equipment used in areas where there is a high risk of fire or explosion, such as the chemical and petrochemical industries, must meet certain standards concerning their electrical resistivity. When the electrical resistance measured according to ISO 16292 or WDK 110 standards is lower than 10^6 Ohms, then the tire is called 'dissipative' and its sidewall features the following symbol.



PERFORMANCE

Any and all tire performance claims or comparisons contained herein are for informational purposes only to aid in the selection of a tire and **do not** constitute any form of performance guarantee or warranty. Individual results may vary. Such information may not be used as a basis for any performance guarantee or warranty claim.

Following publication, the information herein is subject to change in Michelin's sole discretion.

MICHELIN TECHNICAL DATA

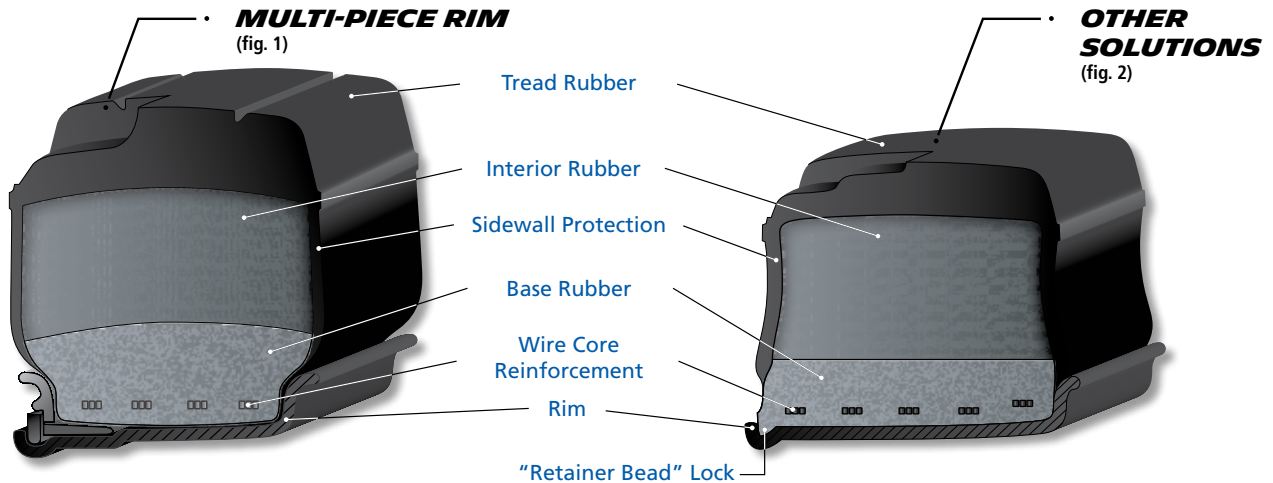
HANDLING, PORT, AIRPORT AND INTERMODAL TIRES

GENERAL INFORMATION

TIRE CONSTRUCTION	PAGE 38
THE SOLID TIRE (SOLID RUBBER TIRE, PNEUMATIC SHAPED SOLID, PPS)	PAGE 38
GENERAL INFORMATION	PAGE 39
THE DIFFERENT TIRE FAMILIES	PAGE 39
THE DIFFERENT TIRE SIZE DESIGNATIONS	PAGE 39
TIRE MARKING	PAGE 40
LOAD INDEX AND SPEED SYMBOL	PAGE 41
READING GUIDE FOR PRESSURE, LOAD AND USAGE TABLES	PAGE 41
MICHELIN RADIAL TIRES FOR MATERIAL HANDLING	PAGE 42
CYCLIC SERVICE	PAGE 42
ADVICE AND RECOMMENDATIONS ON THE USE OF MICHELIN INDUSTRIAL TIRES	PAGE 43
INSERTS AND SOLID FILLS	PAGE 43
NITROGEN INFLATION	PAGE 43
OTHER MICHELIN RADIAL TIRES USED FOR MECHANICAL HANDLING	PAGE 44
CONDITIONS OF USE	PAGE 44
COMPONENTS USED WITH MICHELIN INDUSTRIAL AND HANDLING TIRES	PAGE 45
MICHELIN TUBELESS BEAD SEAL 8" TO 20" RIMS	PAGE 45
APPROVED RIMS	PAGE 47
APPROVED RIMS FOR INDUSTRIAL TIRES	PAGE 48
FLAP + TUBE SOLUTION	PAGE 49
FLAP + TUBE SOLUTION 24" & 25" RIMS	PAGE 50
CORNER SEAL SOLUTION FOR SMALL INDUSTRY ON 20" RIMS	PAGE 50
O-RINGS SOLUTION	PAGE 50
SEALS FOR HANDLING TIRES AND RIMS	PAGE 51
VALVES AND ASSOCIATED ACCESSORIES	PAGE 52
APPROXIMATE LOOSE MATERIAL DENSITIES UNITS OF MEASURE AND CONVERSION TABLES	PAGE 56
UNITS OF MEASURE AND CONVERSION TABLES	PAGE 56
FOOTNOTES & CAUTION	PAGE 57

TIRE CONSTRUCTION

THE SOLID TIRE (SOLID RUBBER TIRE, PNEUMATIC SHAPED SOLID, PPS)



The whole tire is made of rubber. It is generally composed of at least three different rubber compounds.

According to the type of wheel, the construction of the tire can

- Look like a pneumatic tire, but can be fitted to a multi-piece rim (fig. 1)
- Enable, so that once in place, it will lock auto-lock (fig. 2). An extension to its base (called the retainer bead) is positioned in the rim groove normally provided for receiving the locking ring.

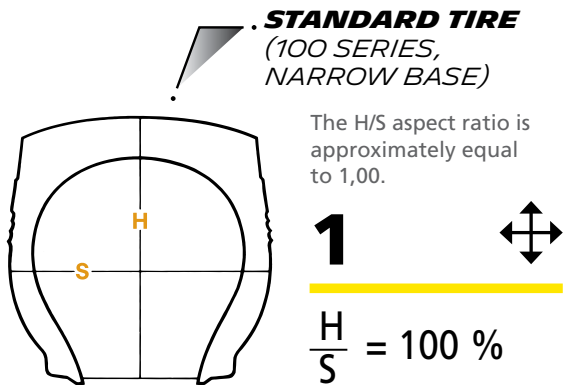
Removable parts of the wheel not being provided make it more difficult to retrofit other pneumatic solutions.

GENERAL INFORMATION

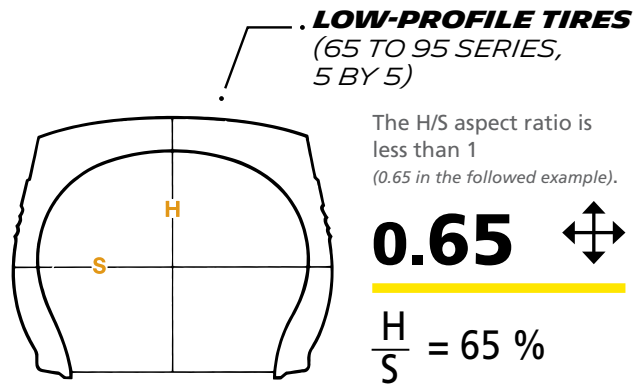
THE DIFFERENT TIRE FAMILIES

There are different tire families categorized by the aspect ratio H/S: (the ratio in % between the sidewall height and the tire width).

H = standard section height **S** = standard section width



The section width, given in inches, is a whole number
e.g.: 12.00 R 20
or the section width, given in inches, is a whole number followed by a fraction.
e.g.: 8.25 R 15
The aspect ratio is not indicated in the size designation.



The nominal section width is expressed as a measurement in millimeters followed by the aspect ratio 65 to 95 (65 in the example).
e.g.: 355/65 R 15



THE DIFFERENT TIRE SIZE DESIGNATIONS

EQUIVALENT MARKINGS						EXPLANATION							
Ø of rim (inches)	BIAS MARKING		RADIAL MARKING	METRIC TIRE SIZE DESIGNATION	RADIAL MARKING	Ø EXT. (INCH)	SECTION WIDTH (INCHES)	SECTION WIDTH (MM)	ASPECT RATIO H/S	Ø OF RIM (INCHES)	LOAD INDEX	SPEED SYMBOL	PLY RATING (BIAS TIRE)
4	4.80 - 4	4.00 - 4					4.00			4			
8	4.80 - 8	4.00 - 8					4.00			8			
	5.70 - 8	5.00 - 8	5.00 R 8				5.00			8	111	A5	10 PR
	15 x 4 - 8			125/75 - 8		15	x 4,5	125	175	8			16 PR
	16 x 6 - 8			150/75 - 8	150/75 R 8	16	x 6	150	175	8	113	A5	16 PR
9	18 x 7 - 8	18 x 7		180/70 - 8	180/70 R 8	18	x 7	180	170	8	125	A5	16 PR
	21 x 8 - 9			200/75 - 9	200/75 R 9	21	x 8	200	175	9	134	A5	16 PR
10	6.90 - 9	6.00 - 9	6.00 R 9				6.00			9	121	A5	12 PR
		6.50 - 10	6.50 R 10				6.50			10	128	A5	14 PR
12	23 x 9 - 10			225/75 - 10	225/75 R 10	23	x 9	225	175	10	142	A5	20 PR
		7.00 - 12	7.00 R 12				7.00			12	136	A5	16 PR
	23 x 10 - 12			250/60 - 12	250/60 R 12	23	x 10	250	160	12			18 PR
15	27 x 10 - 12			250/75 - 12	250/75 R 12	27	x 10	250	175	12	152	A5	20 PR
		7.00 - 15	7.00 R 15				7.00			15	143	A5	16 PR
		7.50 - 15	7.50 R 15				7.50			15	146	A5	16 PR
	28 x 9 - 15	8.15 - 15		225/75 - 15	225/75 R 15	28	x 9	225	175	15	149	A5	16 PR
		8.25 - 15	8.25 R 15				8.25			15	153	A5	18 PR
			250 - 15	250/70 - 15	250/70 R 15			250	170	15	153	A5	18 PR
			300 - 15	315/70 - 15	315/70 R 15			315	170	15	165	A5	22 PR
				355/65 - 15	355/65 R 15			355	165	15	175	A5	28 PR

TIRE MARKING



For special conditions usage, please consult us.

	Position of wear indicator
MICHELIN®	Manufacturer
355	Nominal section width in mm (S = 355 mm)
65	Tire aspect ratio (H/S = 0,65)
R	Radial construction.
15	Nominal diameter of rim to which tire should be fitted (15 inches)
STABIL'X	Old name of the family being deleted
XZM	XZM range name
Tubeless	Tire with no tube
170	Load Index
A5	Speed Symbol: 25 km/h
CYCLIC	Cyclic use (see explanation on following pages)
Radial X	Indication of tire structure
	Electrical conductivity tire class 1

For more details concerning : choice of tire, use of tire, fitting, operation pressure and storage and maintenance, consult USE AND MAINTENANCE GUIDE FOR MICHELIN EARTHMOVER TIRES.



LOAD INDEX AND SPEED SYMBOL

Industrial and handling tires bear a Load Index and a Speed Symbol.

The **LOAD INDEX** is a numerical code from international standard tires, which indicates the reference load capacity.

LOAD INDEX	LOAD IN KG	LOAD INDEX	LOAD IN KG	LOAD INDEX	LOAD IN KG	LOAD INDEX	LOAD IN KG	LOAD INDEX	LOAD IN KG	LOAD INDEX	LOAD IN KG
100	800	120	1400	140	2500	160	4500	180	8000	200	14000
101	825	121	1450	141	2575	161	4625	181	8250	201	14500
102	850	122	1500	142	2650	162	4750	182	8500	202	15000
103	875	123	1550	143	2725	163	4875	183	8750	203	15500
104	900	124	1600	144	2800	164	5000	184	9000	204	16000
105	925	125	1650	145	2900	165	5150	185	9250	205	16500
106	950	126	1700	146	3000	166	5300	186	9500	206	17000
107	975	127	1750	147	3075	167	5450	187	9750	207	17500
108	1000	128	1800	148	3150	168	5600	188	10000	208	18000
109	1030	129	1850	149	3250	169	5800	189	10300	209	18500
110	1060	130	1900	150	3350	170	6000	190	10600	210	19000
111	1090	131	1950	151	3450	171	6150	191	10900	211	19500
112	1120	132	2000	152	3550	172	6300	192	11200	212	20000
113	1150	133	2060	153	3650	173	6500	193	11500	213	20600
114	1180	134	2120	154	3750	174	6700	194	11800	214	21200
115	1215	135	2180	155	3875	175	6900	195	12150	215	21800
116	1250	136	2240	156	4000	176	7100	196	12500	216	22400
117	1285	137	2300	157	4125	177	7300	197	12850	217	23000
118	1320	138	2360	158	4250	178	7500	198	13200	218	23600
119	1360	139	2430	159	4375	179	7750	199	13600	219	24300

The reference load corresponds to the load index of the designation.

The **SPEED SYMBOL** is a numerical code from international standard tires, which indicates the maximum speed at which the tire can carry a load corresponding to its load index, under specified conditions.

SPEED SYMBOL	A1	A2	A3	A4	A5	A6	A7	A8	B	C	D	E	F	G	J	K	L
Speed (km/h)	5	10	15	20	25	30	35	40	50	60	65	70	80	90	100	110	120

READING GUIDE FOR PRESSURE, LOAD AND USAGE TABLES

The shaded box of load/pressure tables is the value defined by the industry standards.

Up to this limit, the tire works in an optimal zone leading to a better balance of performance.

The use of MICHELIN® tires outside the specification of load/pressure/use tables must be validated by your Michelin Representative.

The MICHELIN® Radial tires used in Mechanical Handling and presented in this document are designed for a cyclic service. This is defined as **mechanical handling, cyclic service**.

MICHELIN RADIAL TIRES FOR MATERIAL HANDLING

CYCLIC SERVICE

The **CYCLIC SERVICE** covers applications where tires are not used continually at the load indicated by the load index and at the speed indicated by the speed symbol. They usually operate one way loaded and one way empty: (Typically forklift truck, straddle carrier and terminal tractors. *This list is not exhaustive*).

In addition, in the case of counterbalance forklift trucks, the steering wheels (rear axles) are at maximum load when the machine is empty, and the drive wheels (front axles) at maximum load when the machine is laden. In the latter case, the front axle called **"Counterbalanced lift truck-load carrying wheel,"** the tire is rated to carry up to 130% of the reference load.

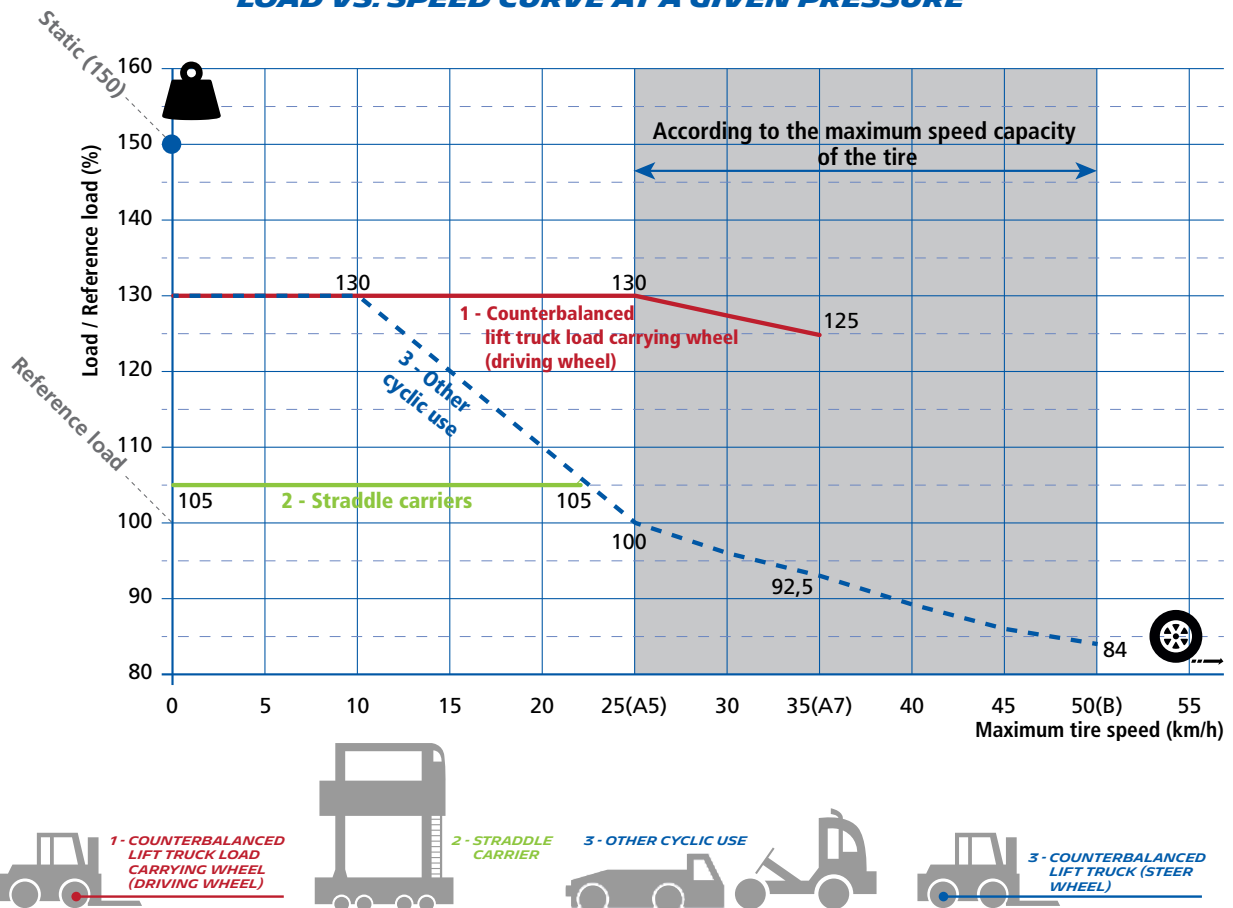
The Counterbalanced lift truck (steer wheel) falls under the **other cyclic use**.

It is not possible for a tire to operate carrying more than 130% of the reference load. For **Straddle Carrier** use, this maximum limit is 105%.

Below this limit, the load table provides information on the evolution of the load according to the maximum speed of the vehicle, for a given pressure.

The graph below shows the basic design of these tables.

LOAD VS. SPEED CURVE AT A GIVEN PRESSURE



It is imperative:

- Not to exceed the maximum speed of the tire (marked on the tire and/or specified in this document).
- Not to exceed the permitted maximum distances in one hour indicated in the tables presented in this document.
- At the time of fitting, it is vital to check the markings, in order to make sure that the tire is suitable for operation at the maximum allowed vehicle speed and load.

In the case where the maximum speed of the machine exceeds the tire Speed Symbol, it is necessary to consult your local Michelin Representative. In the case of acceptance, the load capacity of the tire will be reduced.

ADVICE AND RECOMMENDATIONS ON THE USE OF MICHELIN INDUSTRIAL TIRES

INSERTS AND SOLID FILLS

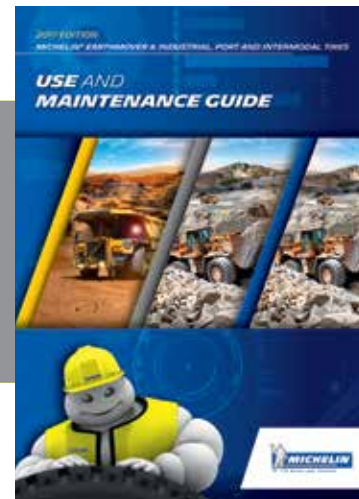
Inserts and solid fills are sometimes used in lieu of air or nitrogen. This technique is adapted for specific uses.

Some performance is reduced (lower operating speed) and the comfort of the driver of the machine downgraded significantly.

Their implementation requires qualified personnel.

The preceding information is extracted from the **USE AND MAINTENANCE GUIDE FOR MICHELIN® EARTHMOVER TIRES.**

For more details, consult our website www.michelinearthmover.com OR YOUR MICHELIN REPRESENTATIVE.



NITROGEN INFLATION

INTRODUCTION

Under most circumstances, the air inflation is suitable for our tires and allows them to work in the best conditions.

WHEN SHOULD NITROGEN INFLATION BE RECOMMENDED ?

Nitrogen, an inert and stable gas with a larger molecule, diffuses more slowly than oxygen through rubber, limiting the risk of oxidation of different parts of the tire (rubber, cables, etc.). It also slows the loss of inflation pressure.

Nitrogen inflation is recommended when working under the following conditions:

- Areas where there is a risk of explosion
- Working with or in areas involving high-temperature liquids (e.g., foundries, glass works, etc.)
- Working in areas where there is a risk of electrical discharge (close to high tension cables, etc.)
- Working where overheating of a tire has been caused by:
 - Intensive driving (speed, distance, intensity of the cycles)
 - Excessive overheating of a mechanical unit (transmission or brakes for example)

Nitrogen inflation is a well-adapted solution for use with mechanical handling equipment.

EQUIPMENT NECESSARY

To install an effective inflation system, Michelin recommends:

- 2 gas bottles of compressed nitrogen
- 1 nitrogen regulator
- An inflation tool in compliance with local regulations.

CAUTION:

Nitrogen inflation equipment should only be used by properly trained individuals. A properly functioning regulator must always be used and all manufacturer's instructions followed. Failure to do so can lead to personal injury.

SUPPLIERS: Contact your local specialist in compressed gases.

VOLUME OF NITROGEN NECESSARY TO INFLATE A TIRE

The quantity of nitrogen necessary to inflate a tire is proportional to its internal volume and the inflation pressure required.

The volumes of the industrial tires are shown in the following tables (characteristics of MICHELIN® Industrial Tires).

Example: 250 / 70 R 15 XZM TL

Interior volume is 39 liters.

For a pressure of 10 bars, the quantity of nitrogen needed is: $39 \times 10 = 390$ liters.

OTHER MICHELIN RADIAL TIRES USED FOR MECHANICAL HANDLING

CONDITIONS OF USE

The range of MICHELIN® industrial tires has been specifically designed to equip industrial machines. The sizes are specific to these machines and their work; the loads and speeds correspond to standardized figures.

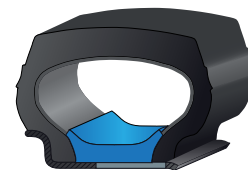
Each time tires need to be fitted to mechanical handling equipment, the following rules should be followed:

- 1°) When the tire size exists in the industrial tire range, the industrial tire must be used.
- 2°) When size does not exist in the industrial tire range, it may be necessary to consult other tire ranges (Agriculture, Truck or Earthmover), whose characteristics are compatible.

In all cases, contact your Michelin Representative who will be able to guide you on the best solution. Technical validation will be provided by Michelin Representative for these uses.

COMPONENTS USED WITH MICHELIN INDUSTRIAL AND HANDLING TIRES

MICHELIN TUBELESS BEAD SEAL 8" TO 20" RIMS SOLUTION FOR XZM



RIM & TIRE SIZE			MICHELIN TUBELESS BEAD SEALS (TBS) (INDIVIDUAL PACKAGING)		
RIM Ø (INCHES)	RIM WIDTH (INCHES)	TIRE SIZE	DESCRIPTION	VALVE REF. + PLASTIC PLUG R2110 (*)	CAI (TBS + VALVE + PLUG)
8	3.00 D 3 1/4 I	5.00 R 8	80 TL 8	R 2160	102150
	4.33 R	150/75 R 8 180/70 R 8	110 TL 8	R 2102	613972
9	4.00 E	6.00 R 9 ⁽¹⁾	100 TL 9	R 2160	102151
	6.00 E	200/75 R 9	150 TL 9	R 2102 + (*)	102182
10	5.00 F	6.50 R 10 ⁽¹⁾	125 TL 10	R 2102	102183
	6.50 F	225/75 R 10	165 TL 10	R 2102 + (*)	102184
12	5.00 S	7.00 R 12 ⁽¹⁾	125 TL 12	R 2161	522788
	8.00 G	250/60 R 12 250/75 R 12	200 TL 12	R 2102 + (*)	787198
15	5.5	7.00 R 15	140 TL 15	R 2102	454346
	6.0	7.00 R 15 7.50 R 15	150 TL 15	R 2102 + (*)	702507
	6.5	7.50 R 15 8.25 R 15	165 TL 15	R 2102 + (*)	575769
	7.0	8.25 R 15 225/75 R 15 250/70 R 15	175 TL 15	R 2102 + (*)	260511
	7.5	250/70 R 15	190 TL 15	R 2102 + (*)	464164
	8.0	315/70 R 15	200 TL 15	R 2102 + (*)	609679
	9.75	355/65 R 15	250 TL 15	R 2102 + (*)	026320
20	7.0	9.00 R 20 10.00 R 20	175 TL 20	R 2102 + (*)	102087
	7.5	9.00 R 20 10.00 R 20 11.00 R 20	190 TL 20	R 2102 + (*)	102083
	8.0	10.00 R 20 11.00 R 20 12.00 R 20	200 TL 20	R 2102 + (*)	102085
	8.5	11.00 R 20 12.00 R 20	215 TL 20	R 2102 + (*)	102086

(1) Exists also in XZR pattern

FITTING WITH CORNER SEAL ON MULTI-PIECES FLAT BASE OR 5° TAPER BEAD 2 SEATS RIMS : REFER TO 50

TUBELESS BEAD SEAL DEFINITION

The TBS is a special device allowing the fitment of tubeless tires as tubeless on tube-type rims. It consists of a ring of special rubber, which is placed inside the tire and fits between the tire beads. It ensures the airtightness of the wheel and tire assembly.

Valves and plug can be ordered separately, if required.

RANGE (for fitment with XZM TL up to and including 20")



Never reuse O-rings, valve seals or the valves themselves!

*See approved rims 47

SIZE MARKINGS

Example of marking:
110 TL 8 (for 4.33R - 8 rim)

110: indicates the width of the TBS in mm

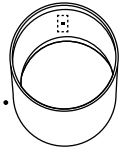
TL for a tubeless tire

8 indicates the rim diameter in inches

The choice of TBS depends on the width of the rim on which the tire is to be fitted.

The allowed rim width(s) are indicated on each tubeless bead seal.

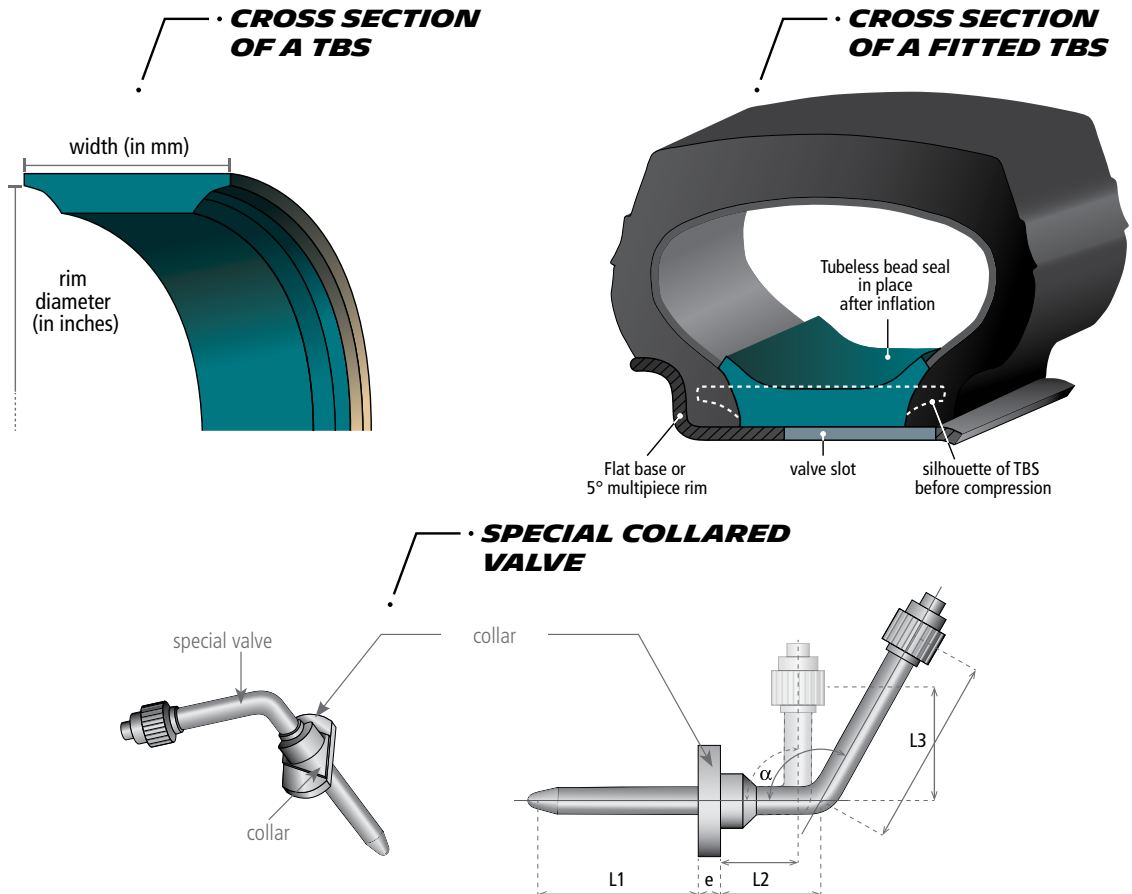
TUBELESS BEAD SEAL



TBS fitted on wheels with width less than 6 inches have a chimney where the valve will be positioned.

TBS for wheels with width greater than or equal to 6 inches have two chimneys; one central and the other offset to allow correct positioning relative to the valve sleeve. The chimney which is not used by the valve is sealed with a plastic plug (supplied by the TBS).

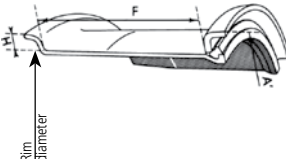
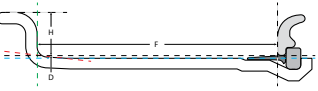
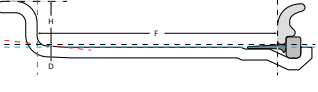
PRINCIPLE



Valves for TBS	REF.	CAI	α	L1	L2	L3	e	collar
Small valve, small collar	R2160	564220	94°	37 mm	18 mm	25 mm	3 mm	11 x 24 mm
Small valve, standard collar	R2102	563008	94°	37 mm	16 mm	25 mm	5 mm	14 x 25 mm
Large valve, standard collar	R2161	158244	94°	36,5 mm	11 mm	55 mm	5 mm	14 x 25 mm

Plug	REF.	CAI
	R2110	579048

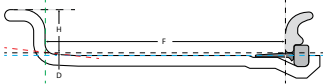
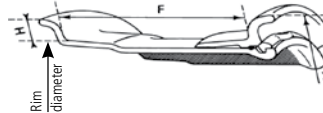
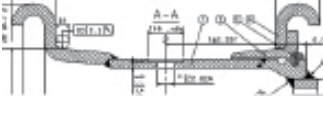
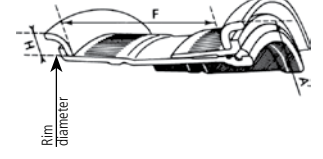
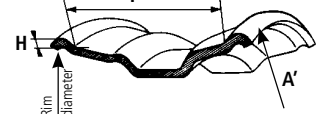
APPROVED RIMS

RIM TYPES	RIM DESIGN.	F MM INCHES	H ⁽¹³⁾ MM INCHES	D ^(13B) MM INCHES		RIM R/A ^(**)	TIRE SIZES	SEAL				
								INCHES	TL	TT		
FLAT-BASE RIMS 	8 - 4.33 R	110 4.3	28,5 1.1	209,2	202,4	R	180/70 R 8	None				
	15 - 6.00 S	152,4 6.0	33,3 1.3	387,0	381,0	R	7.50 R 15					
	20 - 7.33 V	186 7.3	44 1.7	511,2	508,0	A	9.00 R 20 XZM	R 1443 Tyran (A 20)	2	2		
	20 - 8.00 V	203 8.0	44 1.7			A	10.00 R 20 XZM		2	2		
	20 - 8.50 V	216 8.5	44 1.7			A	11.00 R 20 XZM		2	2		
	20 - 9.00 V	228,5 9.0	44 1.7			A	10.00 R 20 XZM		2	2		
	20 - 9.00 V	216 8.5	44 1.7			A	11.00 R 20 XZM		2	2		
	20 - 9.00 V	228,5 9.0	44 1.7			A	12.00 R 20 XZM		2	2		
	24 - 8.50 V	216 8.5	44 1.7	612,8	609,6	A	12.00 R 24 XZM	G25	2	2		
	24 - 9.00 V	228,5 9.0	44 1.7			A	12.00 R 24 XZM	G25	2	2		
24 - 10.00 W	254 10.0	51 2.0	A			14.00 R 24 XZM						
5° TAPER BEAD 2-SEAT RIMS  (removable bead seat, split)	20 - B 6.5	165 6.5	38 1.5	512,8	512,8	A	9.00 R 20 XZM	R 1443 Tyran (A 20)	NA	2		
	20 - B 7.0	178 7.0	38 1.5			A	9.00 R 20 XZM		NA	2		
	20 - B 7.5	190,5	43			A	10.00 R 20 XZM		NA	2		
		7.5	1.7			A	9.00 R 20 XZM		NA	2		
	20 - B 8.0	203	43			A	10.00 R 20 XZM		NA	2		
		8.0	1.7			A	11.00 R 20 XZM		NA	2		
	20 - B 8.5	216	45,5			A	10.00 R 20 XZM		NA	2		
		8.5	1.8			A	11.00 R 20 XZM		NA	2		
	24 - B 8.5	216 8.5	45,5 1.8				A		12.00 R 20			
	5° TAPER BEAD 2-SEAT RIMS (ADVANCED RIM)  (removable bead seat, split)	8 - 3.00 D	76 3.0			18 0.7	202,4		202,4	A	5.00 R 8	None
8 - 3 1/4 I (divided rim)		82,5 3.2	16 0.6	R	5.00 R 8							
8 - 5.00 F		127 5.0	22,5 0.9	202,4	202,4	R	180/70 R 8					
9 - 4.00 E		101,5 4.0	20 0.8	227,8	227,8	R	6.00 R 9					
10 - 5.00 F		127 5.0	22,5 0.9	253,2	253,2	R	6.50 R 10					
10 - 5.50 F		140 5.5	22,5 0.9			A	6.50 R 10					
10 - 6.50 F		165 6.5	22,5 0.9			R	225/75 R 10					
12 - 5.00 S (and divided rim)		127 5.0	31,5 1.2	308,8	308,8	R	7.00 R 12					
12 - 8.00 G		203 8.0	28 1.1	304,0	304,0	R	250/75 R 12					
15 - 5.5		139,5 5.5	30,5 1.2	387,4	387,0	R	7.00 R 15					
15 - 6.0		152,5	33			A	7.00 R 15					
		6.0	1.3			R	7.50 R 15					
15 - 6.5		165	35,5	A	7.50 R 15							
		6.5	1.4	R	8.25 R 15							
15 - 7.0		178	38	R	225/75 R 15							
	7.0	1.5	A	8.25 R 15								
			A	250/70 R 15								
15 - 7.5	190,5 7.5	40,5 1.6	387,4	387,0	R	250/70 R 15	None					
15 - 8.0	203 8.0	43 1.7			R	315/70 R 15						
15 - 9.75	247,5 9.7	38 1.5			R	355/65 R 15						

** R = Recommended - A = Allowed

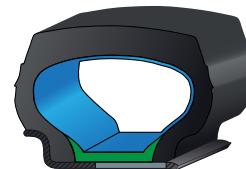
*See page 57 for footnotes.

APPROVED RIMS FOR INDUSTRIAL TIRES

RIM TYPES	RIM DESIGN.	F MM INCHES	H ⁽¹⁵⁾ MM INCHES	D ^(13B) MM INCHES		RIM R/A ⁽¹⁴⁾	TIRE SIZES	SEAL		
								TL	TT	
5° TAPER BEAD 2-SEAT RIMS (ADVANCED RIM)  (removable bead seat, split)	20 - 6.5	165 6.5	35,5 1.4	514,4	514,0	A	9.00 R 20 XZM	None	NA	0
	20 - 7.0	178 7.0	38 1.5			R	9.00 R 20 XZM	None	NA	0
						A	10.00 R 20 XZM	None	NA	0
	20 - 7.0 T	177,8 7.0	38,1 1.5			R	9.00 R 20 XZM	None	NA	0
						R	10.00 R 20 XZM	None	NA	0
	20 - 7.5	190,5 7.5	40,5 1.6			A	9.00 R 20	None	NA	0
						R	10.00 R 20	None	NA	0
						A	11.00 R 20	None	NA	0
	20 - 8.0	203 8.0	43 1.7			A	10.00 R 20	None	NA	0
						R	11.00 R 20	None	NA	0
						A	12.00 R 20	None	NA	0
	20 - 8.0 V	203 8.00	27,5 1.1			R	10.00 R 20 XZM	None	NA	2
						R	11.00 R 20	None		
	20 - 8.5	216 8.5	45,5 1.8			A	11.00 R 20 XZM	None	NA	0
						R	12.00 R 20 XZM	None		
20 - 8.5 V	216 8.5	44,4 1.7	R	11.00 R 20	None					
			R	12.00 R 20	None					
20 - 9.0	228,5 9.0	48,5 1.9	A	12.00 R 20 XZM	None	NA	0			
24 - 8.5	216 8.5	45,5 1.8	A	12.00 R 24 XZM	G25	NA	2			
24 - 9.0	228,5 9.0	48,5 1.9	A	12.00 R 24 XZM	G25	NA	2			
24 - 10.0	254 10.0	50,8 2.0	R	14.00 R 24 XZM	None	NA	0			
5° TAPER BEAD-SEAT RIMS (3 PIECES)  (*) New wheels have additional marking "IF." The IF flanges feature an Integrated Flange, suited for Radial tires. The width of the flange is larger.	24 - 10.00 WA	254 10.0	51 2.0	614,4	R	14.00 R 24 XZM	Sulla (OR 3-25)	1	0	
	25 - 11.25/2.0 IF ^(*)	284 11,2	51 2,0	635,0	R	16.00 R 25	Sulla (OR 3-25)			
	25 - 13.00/2.5 IF ^(*)	330 13.0	63,5 2,5		R	18.00 R 25				
TAPER BEAD-SEAT RIMS (3 PIECES) 	24 - 10.00 WA	254 10.0	51 2.0	614,4		14.00 R 24 XZM	Sulla (OR 3-25)			
5° TAPER BEAD-SEAT RIMS (5 PIECES) 	25 - 11.25/2.0	284 11.2	51 2.0	635,0	R	16.00 R 25	Sulla (OR 3-25)			
	25 - 13.00/2.0	330 13.0	51 2.0		A	16.00 R 25				
	25 - 13.00/2.5	330 13.0	63,5 2.5		R	18.00 R 25				
			R		480/95 R 25					
	25 - 15.00/2.5	381 15.0	63,5 2.5	A	18.00 R 25					
	33 - 13.00/2.5	330 13.0	63,5 2.5	838,2	R	18.00 R 33	Strix (OR 3-33)			
15° TAPER DROP-CENTER RIMS 	22.5 x 8.25	209,5 8.25	12.7 0.5	571,5	A	280/75 R 22.5 XTT	None			
					R	310/80 R 22.5 XTT (except AIM Zone)				
	22.5 x 9.00	228.6 9.00	12.7 0.5		R	310/80 R 22.5				

** R = Recommended - A = Allowed

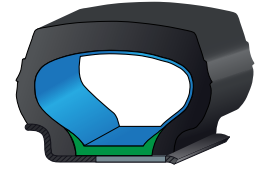
*See page 57 for footnotes.



FLAP + TUBE SOLUTION

RIM & TIRE SIZE			FLAPS (FITTING ONLY ON FLAT BASE RIM OR SEMI DROP CENTER RIM 1 OR 2 TAPERED BEADS SEAT 5°) (PACKAGING = 5)		TUBES (FOR RIMS WITH OFFSET HOLE, PLEASE USE CONVENIENT FLAPS AND TUBES)					
RIM Ø (INCHES)	Ø WIDTH RIM RECOM- MENDED (INCHES)	TIRE SIZE	DESCRIPTION	CAI	DESCRIPTION (PACKAGING)	VALVE TYPE	ETRTO / TRA REF.	MI REF.	CAI	
8	-	125/75 R 8	-	-	8B (60)	WITHOUT (UPLR1548)	-	-	101003	
						SINGLE BEND	V3-02-5	1003	101004	
	3.00 D 3 1/4 I 3.50 D	5.00 R 8	83-8 L E	437837	8CG (32)	WITHOUT (UPLR R1548)	-	-	101011	
	4.33 R	150/75 R 8	-	-		SINGLE BEND	V3-02-2	570	101013	
8	4.33 R	180/70 R 8	-	-	8D (32)	WITHOUT (UPLR R1548)	-	-	101021	
						SINGLE BEND	V3-02-2	570	101022	
9	4.00 E	6.00 R 9	110-9 LD E	387950	9F (16)	WITHOUT (UPLR R1548)	-	-	101039	
	6.00 E	200/75 R 9	-	-		SINGLE BEND	V3-02-2	570	101040	
10	5.00 F 5.50 F	6.50 R 10	150-10 LD E	299713	10F (16)	WITHOUT (UPLR R1548)	-	-	101047	
	6.50 F	225/75 R 10	-	-		SINGLE BEND	V3-02-23	1012	101049	
12	5.00 S	7.00 R 12	125-12 LD E	243961	12H (16)	WITHOUT (UPLR R1548)	-	-	101077	
	8.00 G	250/60 R 12	-	-		DOUBLE BEND	V3-04-1	578	101078	
	8.00 G	250/75 R 12	-	-	12KD (*) (16)	DOUBLE BEND	V3-04-1	578	101123	
15	5.5 6.0	7.00 R 15	15x6.00 E	843437	15/16F (16)	SINGLE BEND	V3-02-2	570	101071	
	7.0	225/75 R 15	15x7.50 E	904287						
	6.0 6.5	7.50 R 15	15x6.00 E	843437	15/16J (16)	WITHOUT (UPLR R1548)	-	-	101107	
						SINGLE BEND	V3-02-2	570	101106	
	7.0 7.5	250/70 R 15	15x7.50 E	904287		DOUBLE BEND	V3-05-1	1221	101146	
	6.5	8.25 R 15	15x6.00 E	843437	15K (12)	WITHOUT (UPLR R1548)	-	-	101124	
						SINGLE BEND	V3-02-9	1156	101128	
	7.0		15x7.50 E	904287		DOUBLE BEND	V3-05-1	1221	101126	
15	8.0	315/70 R 15	15x7.50 E	904287	15P (7)	WITHOUT (UPLR R1548)	-	-	510208	
						TRIPLE BEND	V3-06-5	582	510204	
20	9.75	355/65 R 15	See TBS	-	See TBS	-	-	-	-	
	7.0 7.5	9.00 R 20	20x7.50 E	320222	20M (9)	WITHOUT (UPLR R1548)	-	-	101149	
							SINGLE BEND	V3-02-12	1157	101153
			20x7.50 EM	627065			TRIPLE BEND	V3-06-3	581	101154
	7.0 7.5 8.0	10.00 R 20	20x7.50 E	320222	20N (7)	WITHOUT (UPLR R1548)	-	-	101158	
							SINGLE BEND	V3-02-14	1158	101161
			20x7.50 EM	627065			TRIPLE BEND	V3-06-5	582	101162
	7.5 8.0 8.5	11.00 R 20	20x8.50 E	162318	20P (6)	WITHOUT (UPLR R1548)	-	-	101171	
							SINGLE BEND	V3-02-14	1158	101173
			20x8.50 EM	726102			TRIPLE BEND	V3-06-5	582	101174
							FIXED	TR78A	TR78A	008811
	8.0 8.5	12.00 R 20	20x8.50 E	162318	20Q (5)	WITHOUT (UPLR R1548)	-	-	101190	
						SINGLE BEND	V3-02-15	1338	101185	
						SINGLE BEND	V3-02-14	1158	101192	
20x8.50 EM			726102			TRIPLE BEND	V3-06-5	582	101193	

(*) 12KD, CAI 101123, offset valve: 20 mm



FLAP + TUBE SOLUTION 24" & 25" RIMS

RIM & TIRE SIZE			FLAPS (FITTING ONLY ON FLAT BASE RIM OR SEMI DROP CENTER RIM 1 OR 2 TAPERED BEADS SEAT 5°) (PACKAGING = 5)		TUBES (FOR RIMS WITH OFFSET HOLE, PLEASE USE CONVENIENT FLAPS AND TUBES)				
RIM Ø (INCHES)	Ø WIDTH RIM RECOMMENDED (INCHES)	TIRE SIZE	DESCRIPTION	CAI	DESCRIPTION (PACKAGING)	VALVE TYPE	ETRTO / TRA REF.	MI REF.	CAI
24	8.5 9.0 8.5V 9.00V	12.00 R 24	24/25x8.50 E	018130	24Q (4)	WITHOUT (UPLR R1548)	-	-	101194
						TRIPLE BEND	V3-06-5	582	101196
	10.00W 10.00WA 10.0	14.00 R 24			24/25T (3)	WITHOUT (UPLR R1548)	-	-	514507
						SINGLE BEND	V3-02-17	752	514503
					24/25T AM (3)	SINGLE BEND	V3-02-3	576	514500
						SINGLE BEND	V5-04-1 TRJ650	1837	101781
25	11.25/2.0 13.00/2.0	16.00 R 25	-	-	24/25V AM (1)	SINGLE BEND	V5-04-1 TRJ650	1837	101811
		450/95 R 25				25W AM (1)	SINGLE BEND	V5-04-1 TRJ650	1837
	11.25/2.0 13.00/2.5	480/95 R 25			25W AM (1)	SINGLE BEND	V5-04-1 TRJ650	1837	101871
		18.00 R 25			25W AM (1)	SINGLE BEND	V5-04-1 TRJ650	1837	101871

CORNER SEAL SOLUTION FOR SMALL INDUSTRY ON 20" RIMS

RIM Ø (INCHES)	RIM WIDTH (INCHES)	TIRE SIZE	DESCRIPTION	MICHELIN REF.	CAI	PACKAGING
20	7.33V - 8.00V 8.50V - 9.00V B6.5 - B7.0 7.0T - B7.5 B8.0 - 8.0V B8.5 - 8.5V	9.00 R 20 10.00 R 20 11.00 R 20 12.00 R 20	A 20 TYRAN	R 1443	553004	30

O-RINGS SOLUTION

RIM Ø (INCHES)	Ø WIDTH RIM RECOMMENDED (INCHES)	TIRE SIZE	DESCRIPTION	MICHELIN REF.	CAI	PACKAGING
24	10.00W 10.00WA 10.0	14.00 R 24	OR 3-25 SULLA	R1437	553200	20
25	11.25/2.0 13.00/2.0	16.00 R 25				
	11.25/2.0 13.00/2.0	450/95 R 25				
	11.25/2.0 13.00/2.5	480/95 R 25				
	13.00/2.5 15.00/2.5	18.00 R 25				

TUBE MARKINGS

Example: 1: 24/25 T 2: 25 W AM

The first two numbers indicate the bead seat (rim) diameter of the tire into which the tube can be fitted.

(In the first example, the tube may be fitted in 24- and 25-inch tires. In the second example, the tube may be fitted only in 25-inch tires.)

The first letter corresponds to the section width of the tube (internal width of the tire), this ranges from A to Z, with A being the smallest (in the examples above, T and W indicate that the tubes are designed for fitting into tires of relatively large section width).

Sometimes, a second letter provides additional information: B, E, F and H, which indicate intermediate widths.

The third and fourth letters are an indication of the valve type.

AM indicates that the tube is fitted with an American valve base, R1946 (TRA SP4000) and a valve stem R1837 (TRJ 650).

D would indicate that the valve is offset.

T would indicate a tractor tube fitted with an air-water valve, ex. type TR 218A.

Explanation on valves and valve bases are given on subsequent pages.

FLAP MARKINGS

Flaps which contain the letter "D" in their description have an offset valve hole (e.g.: 125-12 LD). Check before fitting or centering the valve hole on the rim.

Example 1: 83-8 LE

The first number indicates the profile width of the flap expressed in mm. In this example, the profile width of the flap is 83 mm.

The second number indicates the tire seat diameter expressed in inches, with which the flap to is be used.

In this example, the flap may be used with 8-inch tires.

The letter L indicates that the edges are tapered.

Letters correspond to the last generation of flaps.

Example 2: 20 x 8.50 E

The first number indicates the tire seat diameter, expressed in inches, with which the flap is to be used.

In this example, the flap may be used with 20-inch tires.

The second number indicates the overall width of the flap (width + height), in inches.

In this example, the overall width of the flap is 8.50 inches.

Letters correspond to the last generation of flaps.

Example 3: 16-24/25

The first number indicates the total width of the flap (includes height of edges), expressed in either mm or in inches.

In the example above, the width of the flap is 16 inches. The second number indicates the rim diameter or the tire bead seat (rim) diameter in inches, with which the flap is to be used. In this example, the flap may be used with 24- and 25-inch tires.

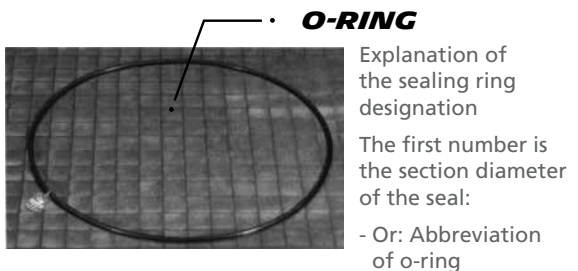
Additional letters may be used to provide supplementary information. For example, the significance of different letters is as follows:

L—the edges are tapered, B—the flap has a reinforcing boss around the valve position, S—the flap is reinforced, D—offset hole for valve.

SEALS FOR HANDLING TIRES AND RIMS

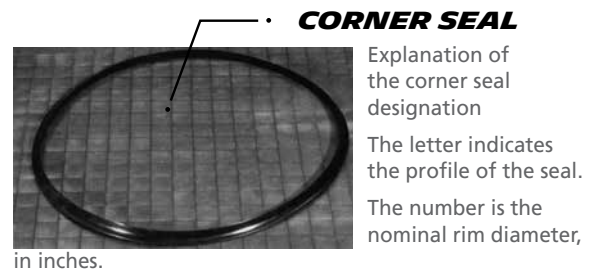
NAME	DESIGNATION	REFERENCE	C.A.I.	TYPE	REMARKS
Tyran	A 20	R 1443	553 004	Corner seal	for 20" tires
Heupo	OR 2 - 25	R 1438	553 201	O-ring	for 25" rim (3 pieces not IF) or for 24" rim 10.00VA
Sulla	OR 3 - 25	R 1437	553 200	O-ring	for 25" rim (3 pieces IF or 5 pieces) or for 24" 10.00WA
Strix	OR 3 - 33	R 1440	553 203	O-ring	for 33" rim

SEAL DESCRIPTION



- Imperial number: value expressed in 1/8 of inch (3 = 3/8)
- Decimal number: value expressed in mm (6.6 = 6,6 mm)

The second number is the nominal bead seat diameter, expressed in inches.



Note:

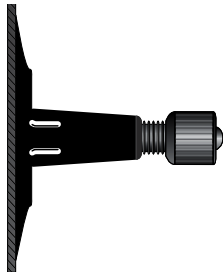
Approval for use of corner seals MUST BE obtained from Michelin.

VALVES AND ASSOCIATED ACCESSORIES

FOR INDUSTRIAL AND HANDLING TIRES AND RIMS

IN ALL CASES, THE VALVE CAP IS ESSENTIAL BECAUSE IT HELPS MAINTAIN THE CLEANLINESS OF THE MECHANISM AND ENSURE AIR TIGHTNESS OF THE VALVE.

CAR TUBE-TYPE STRAIGHT VALVE

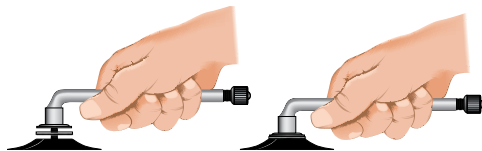


VALVE MARKINGS

The valve is circular and is marked in accordance with ETRTO standards, starting at the top of the valve, and in the following order:

- NAME (or trademark) of the valve manufacturer and his reference number
- ETRTO reference number

FITTING A UNIVERSAL VALVE ON A MICHELIN® TUBE WITH A VALVE BASE



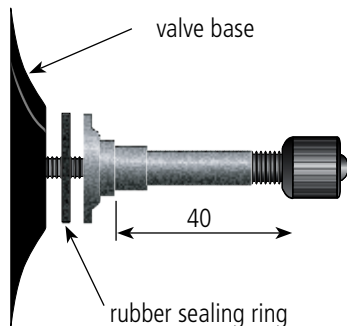
- 1 - Position the sealing ring on the valve.
The sealing ring must be clean and dry.
- 2 - Hand tighten the valve until it just touches the sealing ring.
- 3 - Tighten the valve for a further two turns.
- 4 - To orientate the valve in the desired position, tighten further.



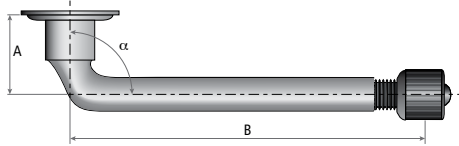
IMPORTANT: never unscrew the valve to the desired position.

SMALL TRUCK UNIVERSAL STRAIGHT VALVE

Fitted to MICHELIN® tubes for the occasional equipment Tube-Type on 5° and 15° non-U-taper, drop center rim.

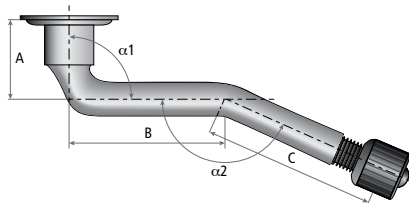


TRUCK-TYPE, UNIVERSAL SINGLE-BEND VALVE



Michelin code	ETRTO Designation	A		B		α°
		mm	inches	mm	inches	
570	V3-02-2	22,5	0.89	43	1.69	120
576	V3-02-3	33	1.30	44,5	1.75	95
752	V3-02-17	20,5	0.81	156,5	6.16	90
1012	V3-02-23	30	1.18	65	2.56	90
1021	V3-02-10	20,5	0.81	115	4.53	94
1156	V3-02-9	20,5	0.81	99,5	3.92	94
1157	V3-02-12	20,5	0.81	132	5.20	94
1158	V3-02-14	20,5	0.81	138,5	5.45	94

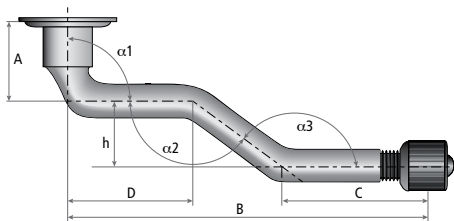
TRUCK-TYPE, UNIVERSAL DOUBLE-BEND VALVE



Michelin code	ETRTO Designation	$\alpha1^\circ$	$\alpha2^\circ$
578	V3-04-1	90	140

A		B		C	
mm	inches	mm	inches	mm	inches
20.5	0.81	32	1.26	37	1.46

TRUCK-TYPE, UNIVERSAL TRIPLE-BEND VALVE

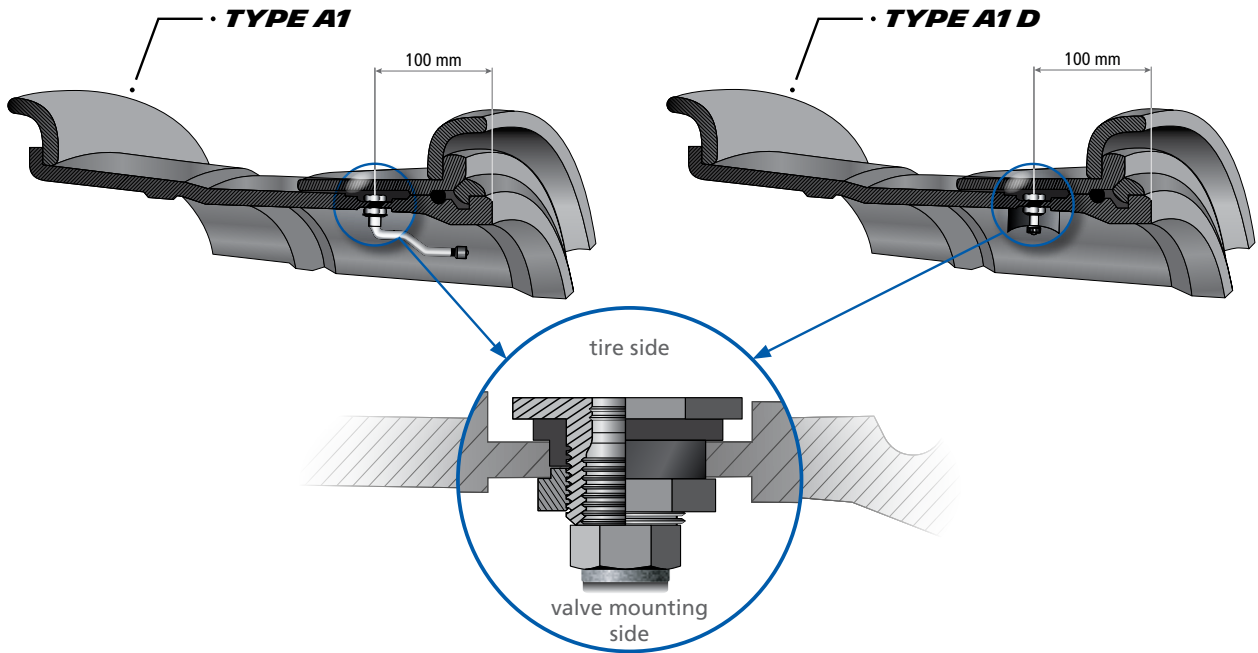


Michelin code	ETRTO Designation	$\alpha1^\circ$	$\alpha2^\circ$	$\alpha3^\circ$
582	V3-06-5	90	139	139

A		B		C		D	
mm	inches	mm	inches	mm	inches	mm	inches
20,5	0.81	131	5.16	49	1.93	62,5	2.46

TYPES OF TUBELESS EARTHMOVER VALVES

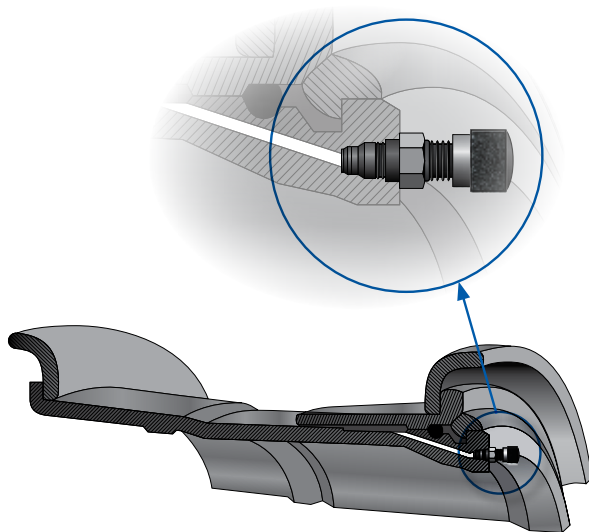
TYPE A1 VALVE



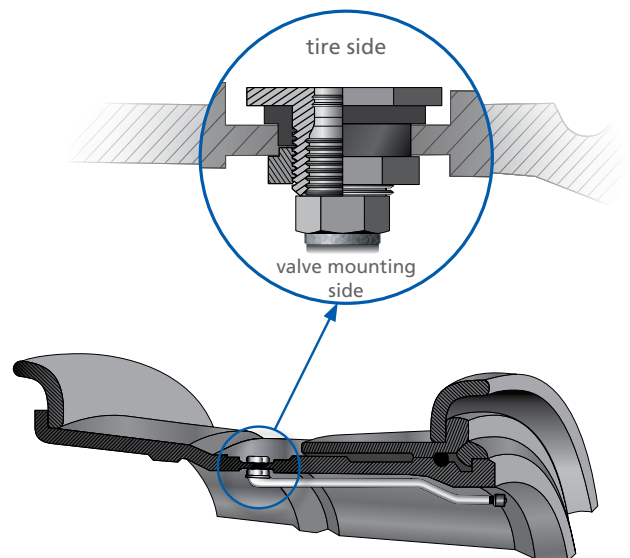
VALVE COMBINATION TYPE A4

Comprised of two TYPE A1 valves, both set at 100 mm from the rim edge, to enable water filling.

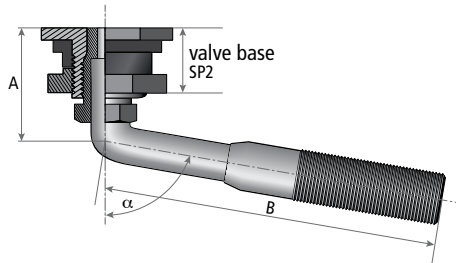
VALVE TYPE A2



VALVE TYPE A3



EARTHMOVER TUBELESS VALVE (AMERICAN, TRA STANDARD)



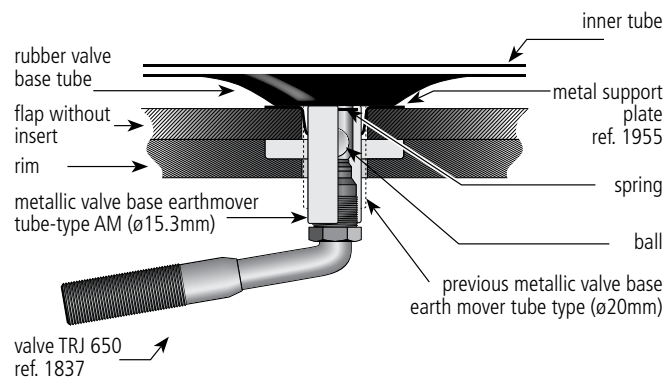
Michelin code	TRA code	ETRTO Designation	A		B		α°
			mm	inches	mm	inches	
R 1837	TRJ 650	V5-04-1	27	1.08	79	3.12	100°

Valves used on a SP2 American valve base [20.5 mm (0.8 inch) diameter hole] and also on AM tubes.

VALVE BASE

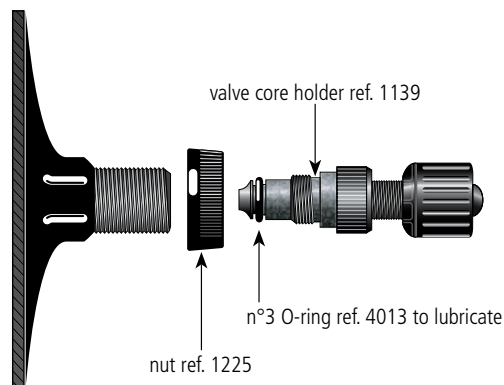
ACTUAL VALVE

(mounting with tube)



AIR AND WATER AGRICULTURAL-TYPE VALVE BASE

Allows tire to be water-filled.
Valve with core holder 1139 and plastic nut ref. 1225



ref. 1224 code TR 218A

APPROXIMATE LOOSE MATERIAL DENSITIES UNITS OF MEASURE AND CONVERSION TABLES

UNITS OF MEASURE AND CONVERSION TABLES

MEASUREMENT	ABBREVIATION	CONVERSION FACTOR	ABBREVIATION	MEASUREMENT	CONVERSION FACTOR	ABBREVIATION
TORQUE						
pound-foot	lb ft	x 0.1383	= m kg	kilogramme metre	x 7.233	= lb ft
kilogramme metre	m kg	x 9.81	= m N	Newton metre	x 0.102	= m kg
LENGTH						
inch	in	x 0.0254	= m	metre	x 39.37	= in
foot	ft	x 0.3048	= m	metre	x 3.281	= ft
yard	yd	x 0.9144	= m	metre	x 1.0936	= yd
mile	ml	x 1.6093	= km	kilometre	x 0.6214	= ml
LOAD						
pound	lb	x 0.4536	= kg	kilogramme	x 2.205	= lb
long ton (G.B.) 2240 lb	lg ton	x 1.016	= t	metric tonne	x 0.984	= lg ton
short ton (U.S.) 2000 lb	sh ton	x 0.907	= t	metric tonne	x 1.103	= sh ton
DENSITY						
pound per cubic foot	lb/cu ft	x 16.0184	= kg/m ³	kilogramme/m ³	x 0.625	= lb/cu ft
pound per cubic yard	lb/cu yd	x 0.5933	= kg/m ³	kilogramme/m ³	x 1.686	= lb/cu yd
PRESSURE						
kilo-pascal	kPa	x 0.01	= bar	bar	x 100	= kPa
atmosphere (at sea level)	atm	x 0.986	= bar	bar	x 1.014	= atm
pound per square inch	P.S.I.	x 0.0703	= kg/cm ²	kilogramme/cm ²	x 14.22	= P.S.I.
pound per square inch	P.S.I.	x 0.069	= bar	bar	x 14.513	= P.S.I.
pound per square inch	P.S.I.	x 0.068	= atm	atmosphere	x 14.7	= P.S.I.
pound per square inch	P.S.I.	x 6.895	= kPa	kilo Pascal	x 0.145	= P.S.I.
POWER						
french horse power	C.V.	x 0.7355	= KW	kilowatt	x 1.36	= C.V.
horse power	H.P.	x 0.7457	= KW	kilowatt	x 1.34	= H.P.
french horse power	C.V.	x 0.98	= H.P.	horse power	x 1.014	= C.V.
VOLUME/CAPACITY						
cubic foot	cu ft	x 0.02832	= m ³	cubic metre	x 35.31	= cu ft
cubic yard	cu yd	x 0.7646	= m ³	cubic metre	x 1.308	= cu yd
gallon (U.S.)	gal	x 3.7854	= l	liter	x 0.2642	= gal
TEMPERATURE						
degree fahrenheit	°F	- 32 et x (5/9)	= °C	degree Celsius	x (9/5) et + 32	= °F

FOOTNOTES & CAUTION

- (2) See page 40..... explanation of the different characteristics
- (3) See page 47 & 48..... rim characteristics
- (8) to be discontinued
- (9) the 24-10.00 VA rim is not allowed with the 14.00 R 24 XZM 193A5 tire,
- (10).....all machines fitted with XZM tires to 12.00 R 24 must not exceed 15 km in one hour, and peak speed is limited to 35 km/h
- (11)..... Tall machines fitted with 20" XZM tires must not exceed 15 km in one hour, and peak speed is limited to: 35 km/h peak speed for Forklift truck 40 km/h peak speed for Terminal tractors and RORO tractors
- (12)..... terminal tractors fitted with X TERMINAL-T tires must not exceed 20 km in one hour in cyclic use, and peak speed is limited to 40 km/h
- (14).....all machines fitted with XZM2 and XZM2+ tires must not exceed 10 km in one hour in cyclic use, and peak speed is limited to 25 km/h
- (15).....all machines fitted with XZM tires > 12.00 R 24 must not exceed 15 km in one hour and are limited to 25 km/h peak speed
- (16)..... straddle carriers fitted with X-STRADDLE tires must not exceed 12 km in one hour, and peak speed is limited to 30 km/h
- (17).....straddle carriers fitted with X-STRADDLE2 tires must not exceed 15 km in one hour, and peak speed is limited to 35 km/h
- (18)..... all machines fitted with X-STACKER tires must not exceed 5 km in one hour in cyclic use and are limited to 25 km/h peak speed
- (13).....The removable flange must be continuous along its circumference, with no opening
- (13B)Diameter: Left column, fixed side; right column, removable side.

All MICHELIN® industrial tubeless tires marked "MAY BE USED WITH A TUBE" can be fitted with tube and flap.

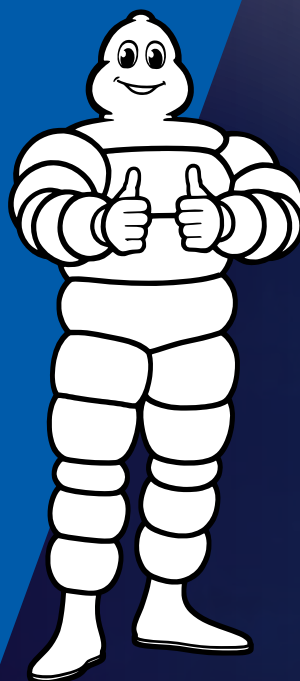
All values shown in these tables are maximums and should not be exceeded.

NOTES

Multiple horizontal dotted lines for writing notes.

NOTES

A series of horizontal dotted lines spanning the width of the page, intended for taking notes.



2019

June 2019 edition

**MICHELIN
TECHNICAL DATA**

**HANDLING, PORT, AIRPORT
AND INTERMODAL TIRES**

HEADQUARTERS

Manufacture Française des Pneumatiques Michelin
partnership limited by shares with capital of 504 000 004 €
Registered office: Place des Carmes Déchaux - 63040 CLERMONT-FERRAND Cedex 9 - FRANCE
Tel.: +33(0)4 73 32 20 00

855 200 507 RCS Clermont-Ferrand



MICHELIN