Your Michelin solutions for LIEBHERR®
TYRE USE

Comparison between bias and radial tyres

Classification of earthmover Michelin tyres

Different earthmover Michelin tyres tread

• Tread depths
• Tread compounds
• Tread patterns

EARTHMOVER TYRES FOR QUARRY AND CONSTRUCTION

Tyres for loaders

Tyres for articulated dump trucks

Tyres for cranes and special machines
COMPARISON BETWEEN BIAS AND RADIAL TYRES

Bias or cross ply construction

The casing is made up of several criss-crossed plies.
The crown is not stabilized.

The crown and sidewalls are formed by the same ply structure.
The tread is affected by flexing of the sidewalls, resulting in:
- deformation of the tyre contact area on the ground
- movement in the tread contact area.
The casing plies tend to “scissor” in relation to each other.

Disadvantages:
- accelerated wear
- less grip
- increased fuel consumption

The crown and sidewalls are formed by the same ply structure.
The tread is unaffected by the flexing of the sidewalls, so there is:
- less deformation of the tyre contact area on the ground
- less movement in tread contact area
- no movement between casing plies.

The MICHELIN® X® radial

The casing has only one radial ply.
The crown is stabilized by several plies.

Advantages:
- long tyre life
- outstanding traction on all types of surface
- lower fuel consumption due to lower rolling resistance
- improved comfort
- increased resistance to punctures / flats
- increased resistance to heating
- protect property and persons
According to their aspect ratio

The wide diversity of earthmover machines and their uses requires the development of numerous ranges of tyres. Earthmover tyres differ from those mounted on cars or commercial vehicles by:

- Their size and weight
- Their tread depths are proportionally greater
- More reinforcements to deal with the harsher conditions of use

There are several families of earthmover tyres, characterized by their aspect ratio \( H/S \) (ratio in % between the height of the sidewall \( H \) and the section width of the tyre \( S \)).

\[ H = \text{standard section height} \quad S = \text{standard section width} \]

**100 series (standard)**

The H/S ratio is approximately equal to 1.

The nominal section width is expressed in inches with 3 decimal places.
Examples: 18.00 R 33
Tyres for rigid trucks, handling equipment, etc...
The aspect ratio is not indicated in the size designation.

**80 series**

The H/S ratio is approximately equal to 0.80.

The nominal section width is expressed in:
- Inches or fractions of an inch
Examples: 8.25 R 15, 20.5 R 25
- or
Examples: 59/80 R 63
Tyres for rigid trucks, articulated dumpers, loaders, handling equipment, etc...
The aspect ratio is not indicated in the size designation.

**65 series**

The H/S ratio is approximately equal to 0.65.

The nominal section width is expressed in inches or millimeters, followed by the number 65.
Examples: 35/65 R 33, 750/65 R 25
Tyres for large loaders, articulated trucks, etc...

**90 series**

The H/S ratio is approximately equal to 0.90.

The nominal section width is expressed in inches followed by the number 90.
Example: 50/90 R 57
Tyres for rigid trucks

Other series of tyres are also available: 95 series, 75 series, etc.
According to their tread depths

The tread depth ‘SUPER, D1, D2’ is sometimes indicated on the sidewall tyre.

**Different Michelin earthmover tyre compounds**

**Type A4:**
Particularly resistant to cuts, tread tearing and abrasion on very rough surfaces.

**Type A:**
Particularly resistant to cuts, tread tearing and abrasion at average speeds which are higher than those for A4 (above).

**Type B4:**
Compromise solution between abrasion resistance and average speed on rough surfaces.

**Type B:**
Higher resistance to internal heat generation on surfaces which are not particularly rough.

**Type C4:**
Adapted to running on long cycles at high speeds on well-maintained roads.

**Type C:**
Very high resistance to high average speeds on long cycles run on well-maintained roads.

**Tread pattern**

<table>
<thead>
<tr>
<th>Code</th>
<th>Tread pattern</th>
<th>Application</th>
</tr>
</thead>
<tbody>
<tr>
<td>C1</td>
<td>SMOOTH</td>
<td>Compactor</td>
</tr>
<tr>
<td>E1</td>
<td>RIBBED</td>
<td>Transport</td>
</tr>
<tr>
<td>E2</td>
<td>TRACTION</td>
<td></td>
</tr>
<tr>
<td>E3</td>
<td>ROCK</td>
<td></td>
</tr>
<tr>
<td>E4</td>
<td>ROCK (deep tread)</td>
<td></td>
</tr>
<tr>
<td>E7</td>
<td>FLOTATION</td>
<td></td>
</tr>
<tr>
<td>G1</td>
<td>RIBBED</td>
<td>Grader</td>
</tr>
<tr>
<td>G2</td>
<td>TRACTION</td>
<td></td>
</tr>
<tr>
<td>G3</td>
<td>ROCK</td>
<td></td>
</tr>
<tr>
<td>G4</td>
<td>ROCK (deep tread)</td>
<td></td>
</tr>
<tr>
<td>G5</td>
<td>FLOTATION</td>
<td></td>
</tr>
<tr>
<td>L2</td>
<td>TRACTION</td>
<td>Loader</td>
</tr>
<tr>
<td>L3</td>
<td>ROCK</td>
<td>Bulldozer</td>
</tr>
<tr>
<td>L4</td>
<td>ROCK (deep tread)</td>
<td></td>
</tr>
<tr>
<td>L5</td>
<td>ROCK (very-deep tread)</td>
<td></td>
</tr>
<tr>
<td>L3S</td>
<td>SMOOTH</td>
<td></td>
</tr>
<tr>
<td>L4S</td>
<td>SMOOTH (deep tread)</td>
<td></td>
</tr>
<tr>
<td>L5S</td>
<td>SMOOTH (very-deep tread)</td>
<td></td>
</tr>
</tbody>
</table>

In addition, Michelin provides complementary identification to most earthmover tyres:

T = Traction, R = Rock, V = speed, F = Flotation, P = Multi purpose, S/R = Smooth/Rock

e.g.: L3T “Normal tread depth tyre (L3; Standardized identification code) where traction is needed (T; Michelin code)”
Tyre performance

As a result of a close partnership with the machine manufacturers and long experience with the users in the field, MICHELIN tyres are developed with a single objective: maximising the efficiency of your loader when carrying out everyday tasks.

Customised offer

For extreme usage requiring a high level of protection, it is possible to fit tyres for underground mining machines to your loader. Your MICHELIN representative is available to discuss the best solution with you.

Michelin offer for Liebherr

Tyre size | XSNOPLUS | XTLA | XHA | XHA2 | XLD D1 | XLD D2 | XMINE D2 | XLD 65
---|---|---|---|---|---|---|---|---
L2 | RT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓
L2 | RT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓
L3 | RT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓
L3 | RT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓
L4 | RT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓
L5 | RT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓
L5 | RT | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓

(1) evaluation based mainly on the inertia of rotating masses

(2) For the L580, L580 Log Handler only

Michelin tyres are not approved on block handling machines

Resistance to damage | Traction on soft ground | Mobility (Distance h) | Long service life | Fuel saving (1)
Tyres for articulated dump trucks

- Rental machine
- Public works
- Infrastructure building sites (roads, railways, canals, dams etc.)
- Road building
  - Use in quarries or mines

MULITPURPOSE USE ON MOBILE BUILDING SITES

INTENSIVE USE ON LONG-TERM BUILDING SITE

- XADN / XADN +
- XAD 65
- X-SUPER TERRAIN / X-SUPER TERRAIN +
**Tyre performance**

| Tyre performance | Traction on soft ground | Rotation | Resistance to damage | Long service life | Speed capacity | Fuel saving (1) |
|------------------|--------------------------|----------|----------------------|------------------|---------------|----------------|---|
| XADN / XADN +    | ✓                        | ✓        | ✓                    | ✓                | ✓             | ✓              |   |
| XAD 65           | ✓                        | ✓        | ✓                    | ✓                | ✓             | ✓              |   |
| X-SUPER TERRAIN / X-SUPER TERRAIN + | ✓                  | ✓        | ✓                    | ✓                | ✓             | ✓              |   |

(1) evaluation based mainly on the inertia of rotating masses.

**Customised offer**

In order to meet to your specific needs, your MICHELIN representative can advise you on the following tyres:

- **29.5 R 25 XADN E3V TL 200E**: ideal for high speeds and long cycles.
- **29.5 R 25 XS E7 SAND TL 196E**: specifically for mobility on sand.

These products are available on special order following an analysis of your building site by your MICHELIN representative.

**Michelin offer for Liebherr**

<table>
<thead>
<tr>
<th>LIEBHERR Models</th>
<th>Tyre size</th>
<th>X-SUPER TERRAIN +</th>
<th>XADN +</th>
<th>XAD 65</th>
</tr>
</thead>
<tbody>
<tr>
<td>TA230 Litronic</td>
<td>23.5 R 25</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>750/65 R 25</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
<tr>
<td>TA240 Litronic</td>
<td>29.5 R 25</td>
<td>✓</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td></td>
<td>875/65 R 29</td>
<td></td>
<td></td>
<td>✓</td>
</tr>
</tbody>
</table>

(BOLD): current models
Tyres for cranes and special machines

Lifting and handling
Mobile cranes

Long distance transport on developed slopes: road-train, logging...

Civil and military maintenance machines
Tyre performance

### Michelin offer for Liebherr

<table>
<thead>
<tr>
<th>Models</th>
<th>Tread patterns</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>LIEBHERR Models</strong></td>
<td></td>
</tr>
<tr>
<td>LTM1030-2.1, LTM1040-2.1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>X-CRANE / X-CRANE +</td>
</tr>
<tr>
<td>385/95 R 25</td>
<td>✓</td>
</tr>
<tr>
<td>445/95 R 25</td>
<td>✓</td>
</tr>
<tr>
<td>LTM1050-3.1, LTM1055-3.2, LTM1070-4.2, LTM1095-5.1, LTM1100-4.2, LTM1090-4.1, LTM1100-5.2, LTM1130-5.1, LTM1160-5.1, LTM1200-5.1, LTM1220-5.2, LTM1250-6.1, LTM1350-6.1, LTM1400-7.1, LTM1500-8.1, LTM1750-9.1</td>
<td></td>
</tr>
<tr>
<td>385/95 R 25</td>
<td>✓</td>
</tr>
<tr>
<td>445/95 R 25</td>
<td>✓</td>
</tr>
<tr>
<td>LTM1050-3.1, LTM1055-3.2, LTM1070-4.2, LTM1095-5.1, LTM1100-4.2, LTM1090-4.1, LTM1100-5.2, LTM1130-5.1, LTM1160-5.1, LTM1200-5.1, LTM1220-5.2, LTM1250-6.1, LTM1350-6.1, LTM1400-7.1, LTM1500-8.1, LTM1750-9.1</td>
<td>525/80 R 25</td>
</tr>
<tr>
<td>525/80 R 25</td>
<td></td>
</tr>
<tr>
<td>LTM1060-3.1</td>
<td>445/95 R 25</td>
</tr>
<tr>
<td></td>
<td>525/80 R 25</td>
</tr>
<tr>
<td>LTM1300-6.2</td>
<td>445/95 R 25</td>
</tr>
<tr>
<td>LTM11200-9.1, MK63, MK88, MK100, MK110, MK140</td>
<td>385/95 R 25</td>
</tr>
</tbody>
</table>

(BOLD): current models  
(1) Max speed limited to 70 km/h