

THE NETHERLANDS

TEST REPORT

Concerning ISOFIX anchorages systems, ISOFIX top tether anchorages and I-size seating positions in accordance with ECE Regulation number 145.00 supplement 2.

Test report number : RDW-145R-0141807

0.1. Make : Renault / Mercedes-Benz / Nissan

0.2. Type : XFKT (L2)

0.3. Category of vehicle : M1 (SH)

0.4. Name and address of the manufacturer : Tripod Mobility B.V.
Collseweg 10
5674 TR Nuenen
The Netherlands

Applicability : All results in this report relate only to the tested system, that is assessed as representative for the vehicle type to be approved.
See documentation: "XFKT-2018/858-00116" dated 11 October 2024, 124 pages

Statement of conformity : The tests have been carried out in accordance with the requirements laid down in the above-mentioned Regulation and have been supervised by RDW as a category B technical service.

The tested system complies with the stated requirements of the above-mentioned Regulation.

Test(s) supervised on : 10 June 2024

Test(s) supervised by : R.T.F.W. Callaars

On behalf of the head of RDW
Technical Service, authorized by:



R.T.F.W. Callaars RDW

Type approval inspector
Zoetermeer (NL), 11 October 2024



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Reason for testing

1st Stage vehicle modified to wheelchair accessible vehicle (cat. SH)

Worst case description

The base vehicle has been modified to a wheelchair accessible vehicle with a lowered floor and wheelchair position including a OEM 2nd row and a 3rd row with two single seats. The OEM 2nd seat row, including ISOFIX-anchorage is re-used.

General information of representative test object

Make and type of the vehicle : Renault / Mercedes-Benz / Nissan XFKT (L2)
 Vehicle category : M1 (SH)
 Type of bodywork : AF (multi-purpose vehicle)
 Number of seating positions : Max. 6 (including one wheelchair position)
 Max. 7 (excluding wheelchair position)

Seating position	Location of	ISOFIX anchorages [vehicle/seat structure]	ISOFIX top tether [vehicle/seat structure]	i-Size seating [yes/no]
1 st seating row	Centre	--	--	--
	Passenger	N/A	N/A	N/A
2 nd seating row	Left hand side	See 1 st stage approval	See 1 st stage approval	N/A
	Centre	See 1 st stage approval	See 1 st stage approval	N/A
	Right hand side	See 1 st stage approval	See 1 st stage approval	N/A
3 rd seating row	Left hand side	N/A	N/A	N/A
	Centre	--	--	--
	Right hand side	N/A	N/A	N/A

General test information

Test performed by/ at : OEM
 Place : Tripod Mobility B.V.
 Collseweg 10
 5674 TR Nuenen
 The Netherlands
 Date : 10 June 2024
 Supervised by : R.T.F.W. Callaars



Used test equipment

Item	Required accuracy	Identification
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All used equipment meets the requirements laid down in ISO 17025:2017 and critical equipment has been subject to functional checks, in accordance with the RDW-policy set forth in document AI 3-001 1.

Remarks

No actual tests performed, the OEM 2nd seat row has been re-used and tested according UNECE R14.09 (described in test report RDW-14R-0141801) to verify that the OEM 2nd row still meets these requirements after the modifications. ISOFIX anchorages are not adversely affected as these are integrated in the 2nd seat row construction. Therefore, for all items unaffected by the modification see approval(s)/ test report(s) listed in stage 1 approvals. Relevant data and approval(s) valid for donor vehicle and completed vehicle if applicable:

<u>Make</u>	<u>Type</u>	<u>Approval</u>
Renault	RFK	E2*145R00/??*20423*..
Mercedes-Benz	MFK	E2*145R00/??*20421*..
Nissan	NFK	E2*145R00/??*20422*..

5. Specifications

5.2. General specifications

5.2.1. Any ISOFIX anchorages system and any ISOFIX top tether anchorage, installed or intended to be installed, for ISOFIX child restraint systems, as well as the vehicle floor contact surface of any i-Size seating positions, shall be so designed, made and situated as to:

5.2.1.1. Any ISOFIX anchorages system and any top tether anchorage, as well as the vehicle floor contact surface of any i-Size seating positions, shall enable the vehicle, in normal use, to comply with the provisions of this Regulation.

: see 1st stage approval

Any ISOFIX anchorages system and ISOFIX top tether anchorage which could be added on any vehicle shall also comply with the provisions of this Regulation ⁽¹⁾

: see 1st stage approval

5.2.1.2. ISOFIX anchorages system and ISOFIX top tether anchorage resistance are designed for any ISOFIX child restraint systems of group of mass 0; 0+; 1 as defined in UNECE R44

: see 1st stage approval

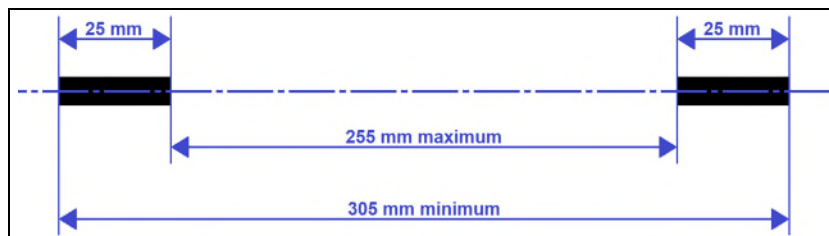
5.2.1.3. An ISOFIX anchorage system, ISOFIX top tether anchorage and vehicle floor contact surface of i-Size seating positions shall be designed for i-Size child restraint system of integral class as defined in UNECE R129

: see 1st stage approval

5.2.2. ISOFIX anchorage systems, design and positioning:

5.2.2.1. Any ISOFIX anchorages system shall be 6 mm ± 0.1 mm diameter transverse horizontal rigid bar(s) which cover(s) two zones of 25 mm minimum effective length located on the same axis as defined below

: see 1st stage approval



5.2.2.2. Any ISOFIX anchorages system installed on a vehicle seating position shall be located not less than 120 mm behind the design H-point measured horizontally and up to the centre of the bar:

- Front passenger seat

: N/A

- Rear outboard passenger seat

: see 1st stage approval

- Rear center passenger seat

: --

⁽¹⁾ Consequently, such anchorages shall be described on the application document for type approval.

- 5.2.2.3. For any ISOFIX anchorages system installed in the vehicle, it shall be possible to attach either the ISOFIX child restraint fixture "ISO/F2" or "ISO/F2X" ⁽²⁾ : see 1st stage approval
- i-Size positions shall accommodate ISOFIX child restraint fixtures "ISO/F2X", and "ISO/R2" together with the support leg installation assessment volume ⁽³⁾ : N/A
- In addition, i-Size positions shall accommodate the child restraint fixture of class ISO/B2 ⁽⁴⁾ : N/A
- 5.2.2.4. The bottom surface of the fixture mentioned in item 5.2.2.3. shall have attitude angles within the following limits: : see 1st stage approval
- (a) Pitch: $15^{\circ} \pm 10^{\circ}$
- (b) Roll: $0^{\circ} \pm 5^{\circ}$
- (c) Yaw: $0^{\circ} \pm 10^{\circ}$
- For i-Size positions, providing the limits specified above are not exceeded, it is acceptable for the shortest support-leg length, according to the support-leg foot assessment volume, to result in a pitch angle greater than would otherwise be imposed by the vehicle seat or structure ⁽⁵⁾⁽⁶⁾ : see 1st stage approval
- 5.2.2.5. ISOFIX anchorage systems shall be permanently in position or storable ⁽⁷⁾ : see 1st stage approval
- 5.2.2.6. Each ISOFIX low anchorage bar (when deployed for use) or each permanently installed guidance device shall be visible, without the compression of the seat cushion or seat back ⁽⁸⁾ : see 1st stage approval
- As an alternative to the above requirement, the vehicle shall be permanently marked adjacent to each bar or guidance device : see 1st stage approval
- This marking shall consist in one of the following, at the choice of the manufacturer: see 1st stage approval
- Pictogram ⁽⁹⁾ with a diameter of minimum 13 mm ⁽¹⁰⁾
 - The word "ISOFIX" in capital letters of at least 6 mm height
- 5.2.2.7. The requirements of item 5.2.2.6. do not apply to the i-Size seating position. i-Size seating positions shall be marked according to item 5.2.4.1. : N/A

⁽²⁾ "ISO/F2" or "ISO/F2X" are described in UNECE R16 Annex 17, Appendix 2.

⁽³⁾ "ISO/F2" or "ISO/F2X" together with the support leg installation assessment volume are described in UNECE R16 Annex 17, Appendix 2.

⁽⁴⁾ "ISO/B2" is described in UNECE R16 Annex 17, Appendix 5.

⁽⁵⁾ It shall be possible to install the ISOFIX child restraint fixture under the increased pitch angle.

⁽⁶⁾ This item does not apply to child restraint fixtures of size ISO/B2.

⁽⁷⁾ In case of storable anchorages, the requirements relating to ISOFIX anchorages system shall be fulfilled in the deployed position.

⁽⁸⁾ The bar or the guidance device is viewed, in a vertical longitudinal plane passing through the centre of the bar or of the guidance device, along a line making an upward angle of 30 degrees with a horizontal plane.

⁽⁹⁾ 

⁽¹⁰⁾ The pictogram shall contrast with the background of the circle and the pictogram shall be located close to each bar of the system.



5.2.3. ISOFIX top tether anchorages, design and positioning:

At the request of the car manufacturer, methods described in item 5.2.3.1. and 5.2.3.2. can be used alternatively ⁽¹¹⁾

5.2.3.1. Subject to items 5.2.3.3. and 5.2.3.4., the portion of each ISOFIX top tether anchorage that is designed to bind with an ISOFIX top tether connector shall be located not further than 2000 mm far from the shoulder reference point and within the shaded zone, as described in the Regulation

: see 1st stage approval

5.2.3.2. The ISOFIX top tether anchorage zone may be alternatively located with the aid of the Fixture "ISO/F2" (B), in an ISOFIX position equipped with ISOFIX low anchorages

: see 1st stage approval

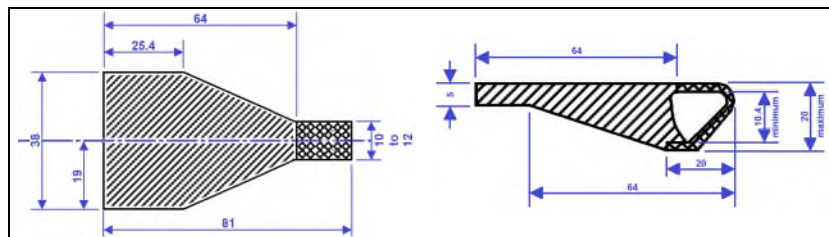
5.2.3.3. The portion of the ISOFIX top tether anchorage in a vehicle that is designed to bind with the ISOFIX top tether connector may be located outside the shaded zones referred to items 5.2.3.1. or 5.2.3.2. if a location within a zone is not appropriate and the vehicle is equipped with a routing device

: see 1st stage approval

5.2.3.4. A tether anchorage may be recessed in the seat back, provided that it is not in the strap wrap-around area at the top of the vehicle seat back

: see 1st stage approval

5.2.3.5. The ISOFIX top tether anchorage shall have dimensions to permit the attachment of an ISOFIX top tether hook as specified below



Clearance shall be provided around each ISOFIX top tether anchorage to allow latching and unlatching to it

: see 1st stage approval

All anchorages located rearward of any ISOFIX anchorages system and which could be used to attach an ISOFIX top tether hook or ISOFIX top tether connector shall be designed to prevent misuse by one or more of the following measures:

(a) Designing all such anchorages in the ISOFIX top tether anchorage zone as ISOFIX top tether anchorages

: see 1st stage approval

(b) Marking only the ISOFIX top tether anchorages using one of the symbols, or its mirror image ⁽¹²⁾

: see 1st stage approval

(c) Marking such anchorages not in accordance with (a) or (b) above with a clear indication that these anchorages should not be used in combination with any ISOFIX anchorages system

: see 1st stage approval



For each ISOFIX top tether anchorages under a cover, the cover shall be identified by one of the symbols or the mirror image of one of the symbols ⁽¹⁰⁾

: see 1st stage approval

The cover shall be removable without the use of tools

: --

⁽¹¹⁾ Method described in paragraph 5.2.3.1. can only be used if the ISOFIX position is located on a vehicle seat.

⁽¹²⁾  or 

- 5.2.4. i-Size seating position requirements : N/A
Each i-Size seating position, as defined by the vehicle manufacturer, shall conform to the requirements defined in items 5.2.1. to 5.2.4.3. : --
- 5.2.4.1. Markings
Each i-Size seating position shall be permanently marked ⁽¹³⁾⁽¹⁴⁾ adjacent to the ISOFIX low anchorages system (bar or guidance device) of the respective seating position : --
- 5.2.4.2. Geometrical requirements for i-Size seating positions connected to i-Size support legs
In addition to the requirements defined in 5.2.2. and 5.2.3. it shall be verified that the upper surface of the vehicle floor (incl. trim, carpet, foam, etc.) intersects with both of the limiting surfaces in the x- and y-directions of the support leg foot assessment volume : --
- 5.2.4.3. Vehicle floor strength requirements for i-Size seating positions
The entire vehicle floor contact surface shall be of sufficient strength to withstand the loads imposed when tested : --
- 5.3. Minimum number of ISOFIX positions to be provided**
- 5.3.1. Any vehicle of category M1 must be equipped at least with two ISOFIX positions : see 1st stage approval
At least two of the ISOFIX positions shall be equipped both with an ISOFIX anchorages system and an ISOFIX top tether anchorage : see 1st stage approval
Location of the ISOFIX positions and top tether(s) : see page 3
- 5.3.2. If a vehicle is only equipped with one seat row, no ISOFIX position is required : N/A
- 5.3.3. At least one of the two ISOFIX positions systems shall be installed at the second seat row ⁽¹⁵⁾ : see page 3
- 5.3.4. Vehicles of category M₁ need to have only one ISOFIX position system if it meets the following requirements ⁽¹⁶⁾ : N/A
(a) Not more than two passenger doors; and
(b) A rear designated seating position for which interference with transmission and/or suspension components prevents the installation of ISOFIX anchorages according to the requirements of item 5.2.2.; and
(c) Having a Power to mass ratio index (PMR) exceeding 140 ⁽¹⁷⁾
(d) Having an engine developing a maximum (rated) engine power greater than 200 kW

⁽¹³⁾ 

⁽¹⁴⁾ The pictogram shall contrast with the background of the circle and the pictogram shall be located close to each bar of the system.

⁽¹⁵⁾ In case the second seat row consists of a seat or seats permanently facing rearwards, they are disregarded and this requirement then applies to the first consecutive forward facing seat row, if available.

⁽¹⁶⁾ This in combination with an airbag deactivation device (if that seating position is fitted with an airbag).

⁽¹⁷⁾ according to the definitions within UNECE R51, and with the definition of the Power Mass Ratio (PMR): $PMR = (P_n / m_t) * 1000 \text{ kg/kW}$.

- 5.3.5. If an ISOFIX anchorages system is installed at a front seating position protected with a frontal airbag, a de-activation device for this airbag shall be fitted : N/A
- 5.3.6. In case of integrated “built in” child restraint system(s) the number of ISOFIX positions to be provided shall be at least two minus the number of the integrated “built in” child restraint system(s) of mass groups 0, or 0+, or 1 : N/A
- 5.3.8.7. Convertible vehicles with more than one seat row shall be fitted with at least two ISOFIX low anchorages : N/A
- In case where an ISOFIX top tether anchorage is provided on such vehicles, it shall comply with the suitable provisions of this Regulation : N/A
- 5.3.8. If a vehicle is only equipped with one seat position per row, only one ISOFIX position is required in the passenger position : N/A
- In case where an ISOFIX top tether anchorage is provided on such vehicles, it shall comply with the suitable provisions of this Regulation ⁽¹⁸⁾ : N/A
- However where it is not possible to install even the smallest forward-facing ISOFIX fixture ⁽¹⁹⁾ in the passenger seating position, then no ISOFIX position shall be required, provided that a child restraint system is specified for that vehicle : N/A
- 5.3.9. ISOFIX positions are not required in ambulances or hearses as well as vehicles intended for use by the armed services, civil defence, fire services and forces responsible for maintaining public order : N/A
- 5.3.10. One or more of the mandatory ISOFIX positions may be replaced by i-Size seating positions : N/A

⁽¹⁸⁾ However, where it is not possible to install even the smallest forward-facing ISOFIX fixture in the passenger seating position, then no ISOFIX position shall be required, provided that a child restraint system is specified for that vehicle.

⁽¹⁹⁾ As defined in UNECE R16, Appendix 2, of Annex 17.

