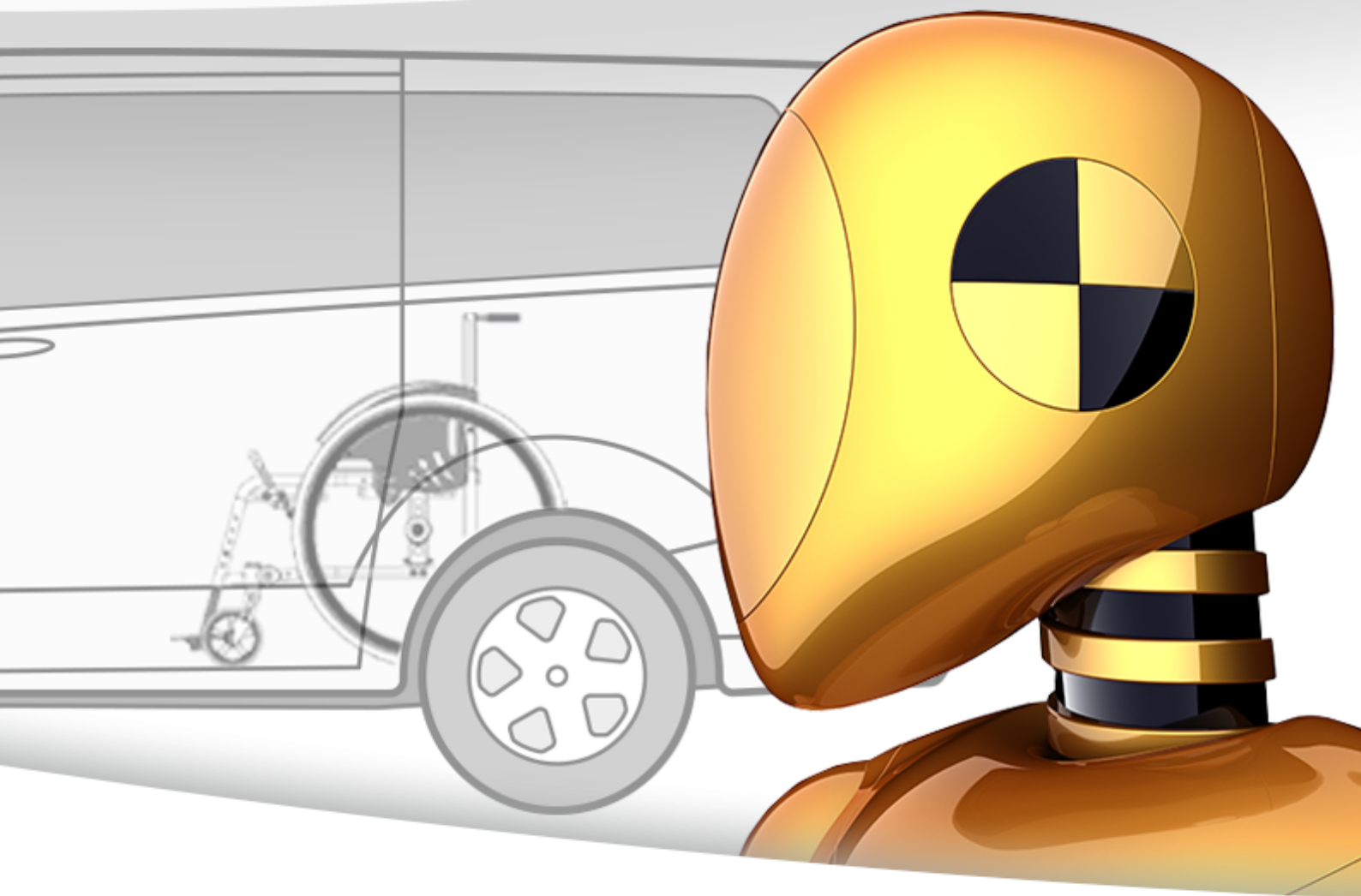


# Instructions for wheelchair transport in motor vehicles



## **Imprint**

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## **Revision status**


2019-07-22

## **Technical status**

Technical changes and misprints reserved. The pictures in this Instructions for use can differ from the actual equipment components. However, a corresponding conduction is possible.

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<b>1</b>	<b>General information</b>	<b>5</b>
1.1	Preface	5
1.2	Signs and symbols	5
<b>2</b>	<b>General safety information</b>	<b>6</b>
<b>3</b>	<b>Applicable standards</b>	<b>8</b>
<b>4</b>	<b>Handling</b>	<b>9</b>
4.1	General securing of wheelchairs during transport in motor vehicles	9
4.2	Addresses of manufacturers of restraint systems	10
<b>5</b>	<b>SORG release list</b>	<b>11</b>
5.1	Current models	11
5.2	Discontinued models	11
<b>6</b>	<b>Model-specific connections</b>	<b>12</b>
6.1	General information	12
6.2	Mio and Mio Move	12
6.3	Vector	14
6.4	Vector BSA	16
6.5	Jump alpha	18
6.6	Jump beta	20
6.7	Jump beta BSA	22
6.8	Tilty Vario	24
6.9	Loop <sup>SORG</sup>	25
6.10	Loop <sup>SORG</sup> RS	26



# 1 General information

## 1.1 Preface

In order to ensure greater safety and protection when transporting a wheelchair user in a motor vehicle, you will find important information in this document regarding:

- SORG wheelchairs approved as seats in motor vehicles,
- wheelchair transport,
- wheelchair restraint systems,

and illustrations of the attachment points on SORG wheelchairs to which the hooks, belts or carabiners of the wheelchair restraint systems must be attached.

All products manufactured by SORG Rollstuhltechnik that have been successfully tested in accordance with ISO 7176-19 and consequently approved as seats for transport in a motor vehicle are marked in the product literature with the icon shown here. There is also a tick symbol on the nameplate of successfully tested models. A release list with all models and their connection can be found in the following chapters.



The majority of our models are available with a factory-fitted SORG restraint system (power node) with a possible connection for a lap belt.

If you use a restraint system made by another manufacturer, please contact the manufacturer to establish whether this is suitable for transport in a motor vehicle. The valid attachment guidelines can then be found in the manufacturer's description.

The characteristics of wheelchairs (good handling, high functionality and reduced weight) mean that they can never achieve the stable properties of a fixed seating system in a vehicle, which is why this kind of system still provides the best protection for the occupants. We therefore recommend, whenever possible, using the seating systems that are firmly bolted to the vehicle and the accompanying seat belts and to make sure that the user uses them.

## 1.2 Signs and Symbols



**ATTENTION!** Warning note for personal safety aspects, of utmost importance



Correct or proper setting / use



**Reference** to additional/ further literature



Impermissible or incorrect setting / use

**(A); (B)**

Reference from text to detail



Steps to be done on both sides



**NOT ALLOWED**

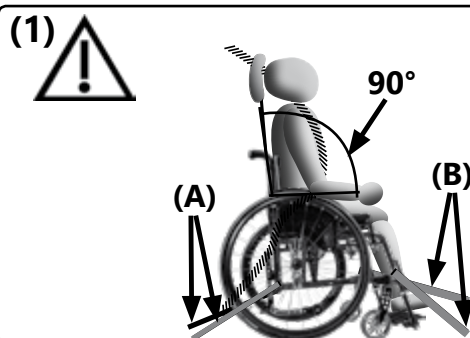
## 2 General safety information

Only models that have successfully passed a crash test in accordance with ISO 7176-19 may be used as seats in motor vehicles. Successfully tested models are labelled with the symbol for the attachment point on the affixed nameplate. The specific configuration determines whether the individual model can be transported.

Please check whether your model is custom-made because it may not be suitable for use as a seat in a motor vehicle. If this is the case, the symbol for the attachment point will be missing from the nameplate and the wheelchair will be marked with a warning, represented by the crossed-out symbol for the attachment point.

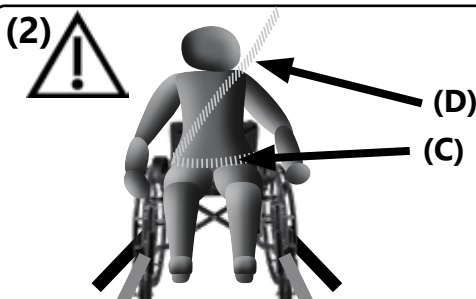
When using the wheelchair as a seat in a motor vehicle, only the positions marked with the symbol for the attachment point should be used. These can usually be found at the rear left and right and at the front left and right.

The wheelchair must be fixed with a 4-point wheelchair restraint system anchored to the vehicle in accordance with ISO 10542. This can take the form of carabiner hooks, S-shaped hooks or plug-in fasteners. The wheelchair restraint system must be securely fastened and used in accordance with the user manual of the manufacturer. **(1A+B)**



If the wheelchair is equipped with a back angle-adjustment or tilt mechanism, the occupant must sit in an upright position at a 90° back angle during transport. Leg supports that can be elevated must be adjusted to the lowest position.

The user must be additionally secured with a fixed lap belt **(2C)** approved for transport in accordance with ISO 10542 and a vehicle-anchored shoulder belt **(2D)** so that the risk of head and upper body injuries can be minimised to the greatest extent possible.



The seat belts must not be twisted during use, nor must they be guided over any structural components, which would keep them away from the body. They have to be tight and firm. The lap belt buckle must be positioned between the pelvic bones (as close to the centre as possible). The buckle tongues on the lap belt for fastening the shoulder belt should be located as far towards the outside of the pelvis as possible.

All belts used for transport must be regularly inspected for damage.

A headrest suitable for transport must be used.

In accordance with ISO 7176-19, the wheelchair must only be used as a forward-facing seat in motor vehicles. Do not transport with the wheelchair facing sideways.

## 2 General safety information

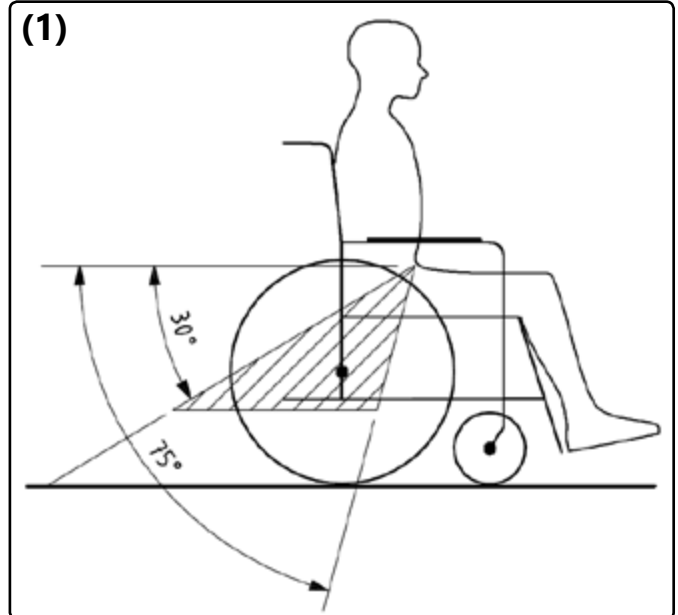
⚠ Any braking devices fitted to the wheelchair must be in the braked position when the wheelchair is transported in the motor vehicle.

⚠ Add-on components such as therapy tables or steering and pushing aids, which are not designed for transport in motor vehicles, must be stowed and secured separately.

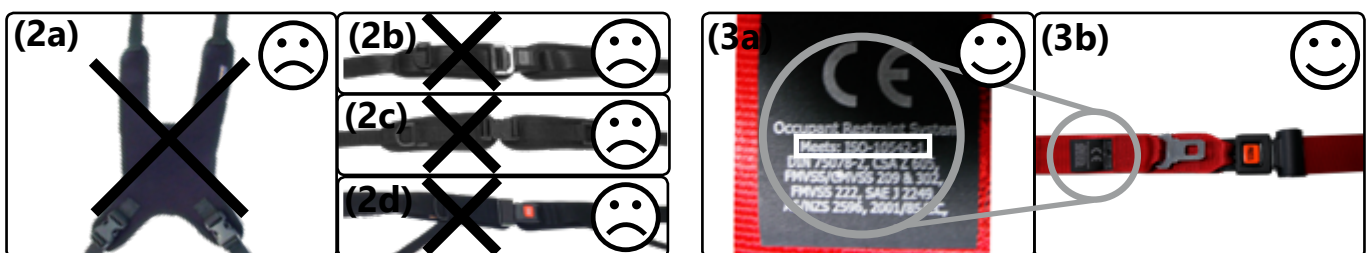
⚠ The lap belt should be positioned at an angle of 30-75° on the body. We recommend the steepest possible angle within this predefined zone.

⚠ Any third-party systems that are fitted (e.g. additional attachments, back systems, etc.) must be approved for transport in motor vehicles by the respective manufacturer.

⚠ No modifications are permitted to the attachment points for wheelchair transport in motor vehicles or to the wheelchair frame.



⚠ Unless labelled as in accordance with ISO 10542, any other positioning or restraint system used by the passenger does not constitute a replacement for the passenger restraint system. **(2+3)**



⚠ The belt buckles used in the passenger restraint system must be positioned in such a way that they cannot be released by wheelchair components in the event of an accident.

⚠ After a collision, immediately contact your authorised dealer to check the wheel assembly, frame and brakes and have any damage repaired by a specialist without delay.

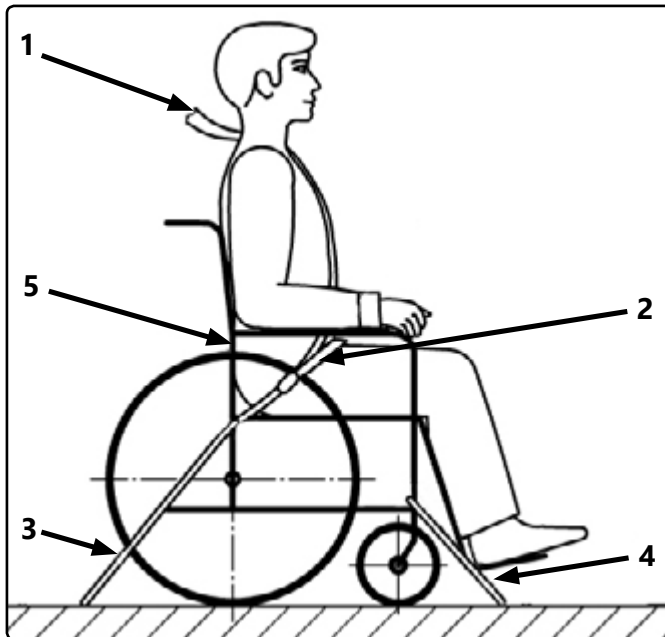
⚠ We strongly recommend that you read the notes regarding the back height in relation to the seat depth (see Chapter 6).

### 3 Applicable standards

The following standards must be adhered to when transporting wheelchairs and persons in motor vehicles:

- **DIN EN 12183:** Requirements for manual wheelchairs.
- **ISO 7176-19:** Frontal crash requirements of the wheelchair so that it can be approved as a seat in a motor vehicle.
- **ISO 10542-1:** Requirements and test methods for the wheelchair fastening and passenger restraint system.
- **DIN 75078-2:** Requirements for wheelchair accessible vehicles (WAVs).

*Illustration of wheelchair restraint system (WRS) and passenger restraint system (PRS):*



**1+2 Passenger restraint system:**  
Diagonal shoulder belt and lap belt in accordance with ISO 10542-1

**3 Wheelchair restraint system:**  
Rear retaining belts incl. anchorage to the vehicle in accordance with ISO 10542-1

**4 Wheelchair restraint system:**  
Front retaining belts incl. anchorage to the vehicle in accordance with ISO 10542-1

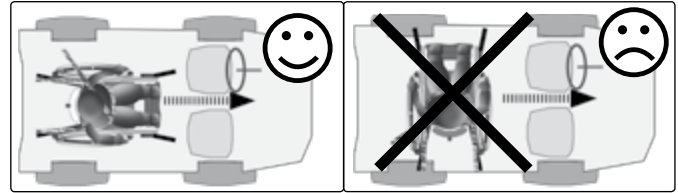
**5 Wheelchair:**  
Manual wheelchair in accordance with DIN EN 12183 and ISO 7176-19



## 4.1 General securing of wheelchairs during transport in motor vehicles

- **Position the wheelchair:**

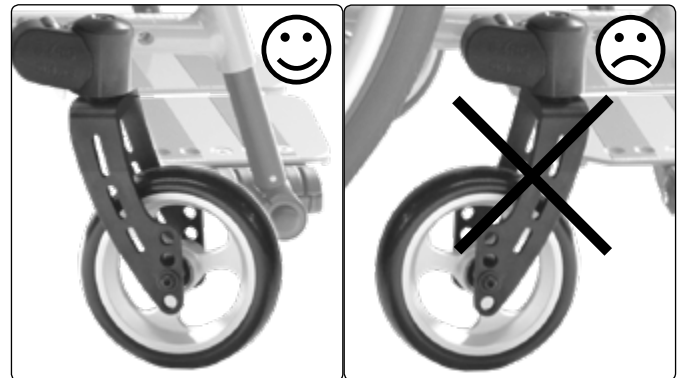
- Position the wheelchair at the position provided in the vehicle in the direction of travel.



- When doing so, ensure the occupant is sitting upright at 90° (see Figure 1 Page 6).

- **Attach the tensioning belts:**

- Fasten the front tensioning belts attached to the vehicle floor to the marked restraint points on the wheelchair. The belts may run at an angle of max. 60° from the horizontal here (see Chapter 6: Model-specific connections).
- Turn the casters of the wheelchair forwards.
- Attach the two rear tensioning belts to the marked restraint points on the wheelchair. The belts may run at an angle of max. 45° from the horizontal here.



Tension the belts in accordance with the manufacturer's instructions (see Chapter 6: Model-specific connections).

- **Lock the brakes:**

- Activate the braking system(s) of the wheelchair.

- **Fasten the lap and shoulder belts:**

- Tighten the lap belt of the passenger restraint system attached to the wheelchair. The lap belt must run between 45° and 75° from the horizontal. A steeper angle (>75°) would be preferable. It must fit tightly and firmly without compromising user comfort. (see Figure 1 Page 7).
- After being connected to the lap belt, the shoulder belt of the motor vehicle must lie flat and tight against the occupant's body over the shoulder and across the chest.

- **After positioning, you must check whether:**

- the wheelchair restraint system is fastened in the correct position and whether the belts are tightened,
- all belt buckles are tightly fastened,
- the positioning of the lap belt over the pelvis is correct,
- the positioning of the shoulder belt is correct,
- a headrest is used which is suitable for transport in motor vehicles.

## 4.2 Addresses of manufacturers of restraint systems

We can recommend the following manufacturers of restraint systems in accordance with ISO 10542:

### **AMF-BRUNS GmbH & Co.KG**

Hauptstrasse 101  
26689 Apen  
Tel.: (+49) 0 44 89 - 72 71 00  
Fax: (+49) 0 44 89 - 72 72 15  
Email: info@amf-bruns.de

### **Q'Straint Europe**

72-76 John Wilson Business Park  
Whitstable, Kent, CT5 3QT  
UK  
Tel: +44 (0) 1227 773035  
Fax: +44 (0) 1227 770035  
Email: info@qstraint.co.uk

## 5.1 Current models

Below you will find an overview of the models approved for transport in motor vehicles in accordance with ISO 7176-19. Please observe the following restrictions as well as the recommendations for back height (see Chapter 6):

Model	Do not transport when configured with the following components/assemblies
Mio (Design 2018) Type No. 911	<ul style="list-style-type: none"> <li>● Lightweight headrest</li> <li>● retractable back extension</li> <li>● TARTA-back</li> </ul>
Mio Move	<ul style="list-style-type: none"> <li>● Lightweight headrest</li> <li>● retractable back extension</li> <li>● TARTA-back</li> </ul>
Vector	<ul style="list-style-type: none"> <li>● Back angle-adjustment with gas pressure spring</li> <li>● retractable back extension</li> <li>● TARTA-back</li> </ul>
Vector BSA	<ul style="list-style-type: none"> <li>● Back angle-adjustment with gas pressure spring</li> <li>● retractable back extension</li> <li>● TARTA-back</li> </ul>
Jump alpha	<ul style="list-style-type: none"> <li>● Back angle-adjustment with gas pressure spring</li> <li>● retractable back extension</li> <li>● TARTA-back</li> </ul>
Jump beta	<ul style="list-style-type: none"> <li>● Back angle-adjustment with gas pressure spring</li> <li>● retractable back extension</li> <li>● TARTA-back</li> </ul>
Jump beta BSA	<ul style="list-style-type: none"> <li>● Back angle-adjustment with gas pressure spring</li> <li>● retractable back extension</li> <li>● TARTA-back</li> </ul>
Tilty Vario	<ul style="list-style-type: none"> <li>● Wheel base extension</li> <li>● retractable back extension</li> </ul>
Loop <sup>SORG</sup>	<ul style="list-style-type: none"> <li>● -</li> </ul>
Loop <sup>SORG</sup> RS	<ul style="list-style-type: none"> <li>● retractable back extension</li> </ul>

## 5.2 Discontinued models

Any discontinued models must only be used with a restraint system from AMF Bruns GmbH ("power nodes").

Model	Do not transport when configured with the following components/assemblies
Mio Type No. 910	<ul style="list-style-type: none"> <li>● Firm curved back plate model 3 (non-growable)</li> <li>● All Mio models with serial number below 227850 (conversion to steel back angle <b>required</b>)</li> </ul>
Kika	<ul style="list-style-type: none"> <li>● Wheel base extension</li> <li>● All Kika models with serial number below 226044 (conversion to gas pressure spring lockable <b>required</b>)</li> </ul>
Tilty abdu/ Tilty II	<ul style="list-style-type: none"> <li>● Back angle-adjustment with gas pressure spring</li> <li>● Caster adapter made of plastic (conversion to metal caster adapter <b>required</b>)</li> </ul>
Siro II	<ul style="list-style-type: none"> <li>● Back angle-adjustment with gas pressure spring</li> <li>● Plastic caster adapter (conversion to metal caster adapter <b>required</b>)</li> <li>● Wheel base extension</li> </ul>
Trend	<ul style="list-style-type: none"> <li>● Back angle-adjustment with gas pressure spring</li> <li>● Plastic caster adapter (conversion to metal caster adapter <b>required</b>)</li> <li>● Wheel base extension</li> </ul>
Skater	<ul style="list-style-type: none"> <li>● Back angle-adjustment with gas pressure spring</li> <li>● Plastic caster adapter (conversion to metal caster adapter <b>required</b>)</li> <li>● Wheel base extension</li> </ul>

# 6 Model-specific connections

## 6.1 General information

Information on the attachment points of approved SORG products can be found in this section. These points are labelled with the corresponding hook stickers. Attachment at points that are not designated is prohibited.



The following illustrations show the front and rear right sides of each model. The restraint system must be fitted on the right, left, front and back sides. The illustrations may differ depending on the configuration of the model.

The connection is shown in the following example using a hook. The fastening can also be made using carabiners, belts etc.

Please also consult the tables for each model with the recommendations for the back height of the wheelchair when it is intended to be used as a seat for transport in a motor vehicle (recommended: , not recommended: ).

## 6.2 Mio and Mio Move



*Strong recommendation back height Mio:*

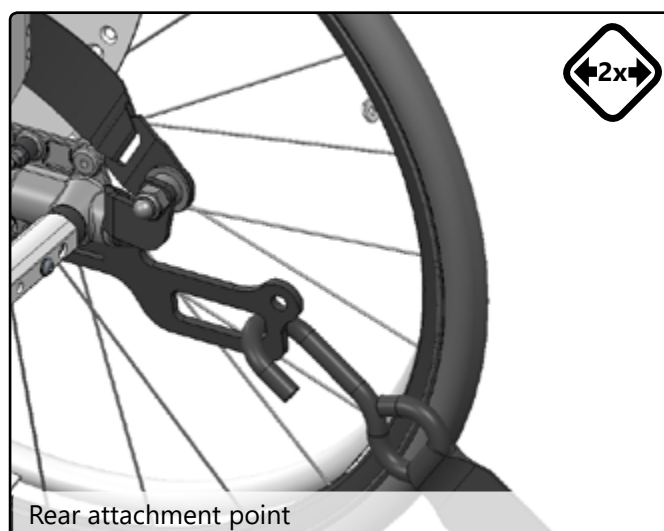
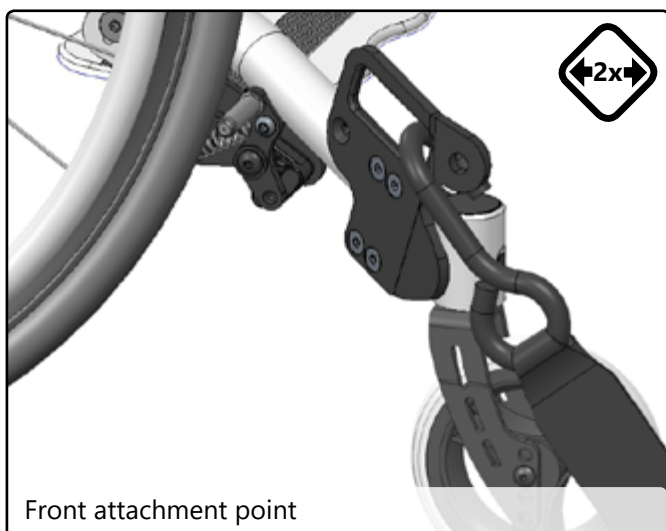
		Seat depth (cm)									
		18	20	22	24	26	28	30	32	34	36
Back height (cm)	20	✓	✓	✗	✗	✗	✗	✗	✗	✗	✗
	22.5	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗
	25	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗
	27.5	✓	✓	✓	✓	✓	✗	✗	✗	✗	✗
	30	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
	32.5	✓	✓	✓	✓	✓	✓	✓	✓	✗	✗
	35	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

# 6 Model-specific connections

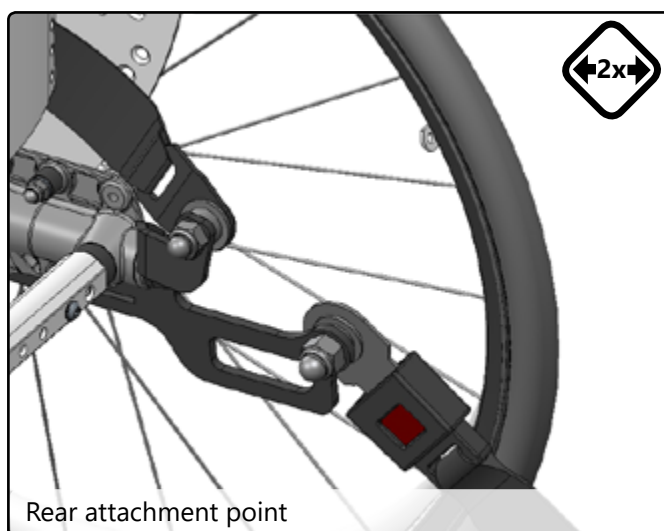
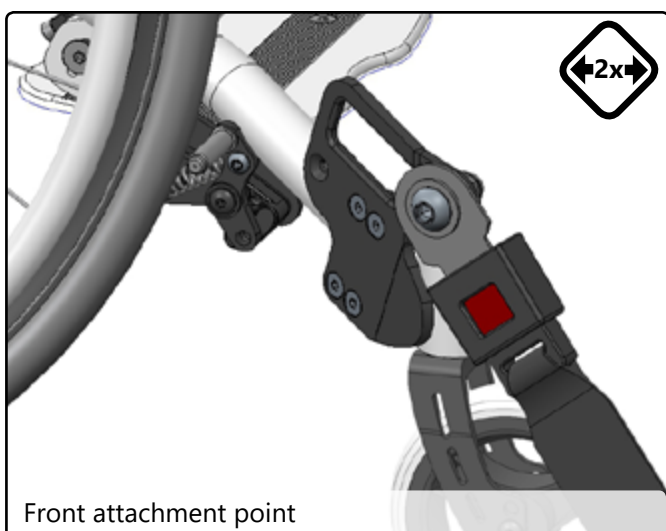
Strong recommendation back height **Mio Move**:

		Seat depth (cm)									
		18	20	22	24	26	28	30	32	34	36
Back height (cm)	25	✓	✓	✓	✓	✗	✗	✗	✗	✗	✗
	30	✓	✓	✓	✓	✓	✓	✓	✗	✗	✗
	35	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	45	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Connection to restraining eyelets:



Connection to buckle tongues:



## 6.3 Vector

CRASH TESTED  
ISO 7176-19



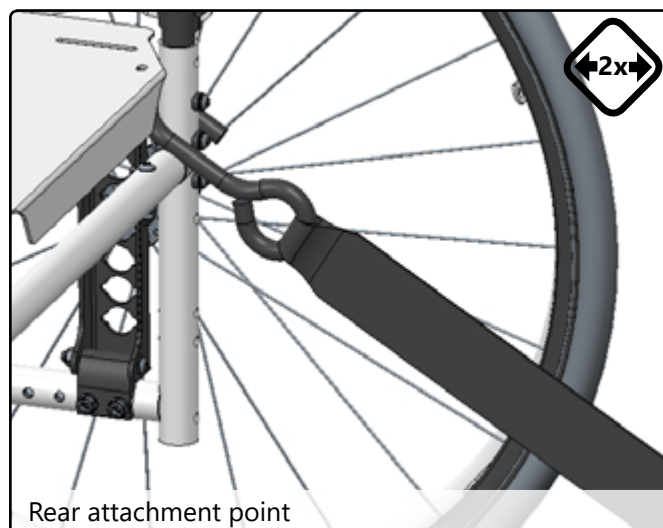
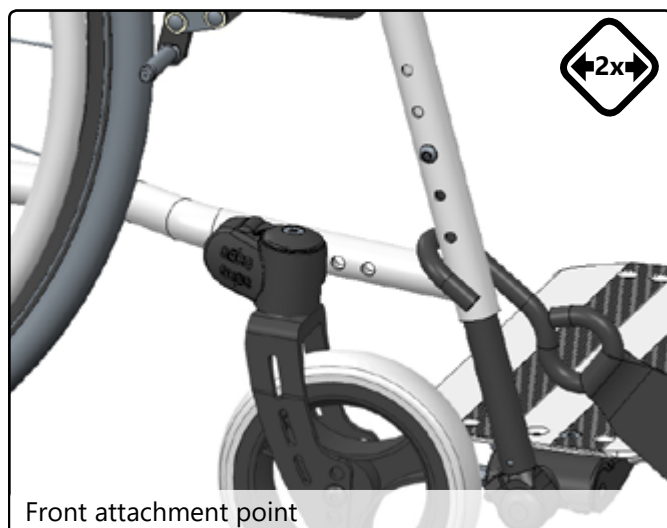
# Vector



Strong recommendation back height:

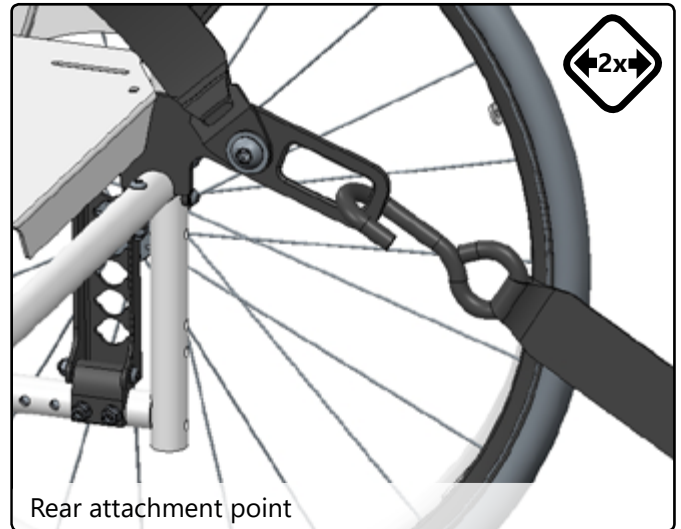
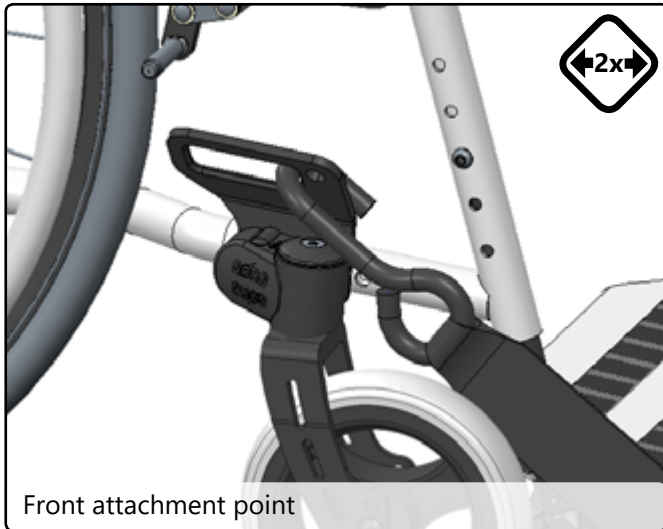
		Seat depth (cm)												
		26	28	30	32	34	36	38	40	42	44	46	48	50
Back height (cm)	25	×	×	×	×	×	×	×	×	×	×	×	×	×
	30	✓	✓	✓	×	×	×	×	×	×	×	×	×	×
	35	✓	✓	✓	✓	✓	×	×	×	×	×	×	×	×
	40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	45	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Connection to the frame:



## 6 Model-specific connections

Connection to restraining eyelets:



# 6 Model-specific connections

## 6.4 Vector BSA

CRASH TESTED  
ISO 7176-19



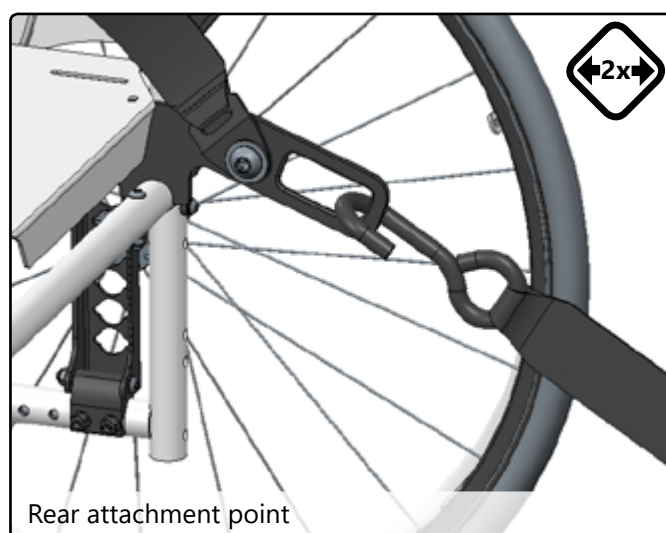
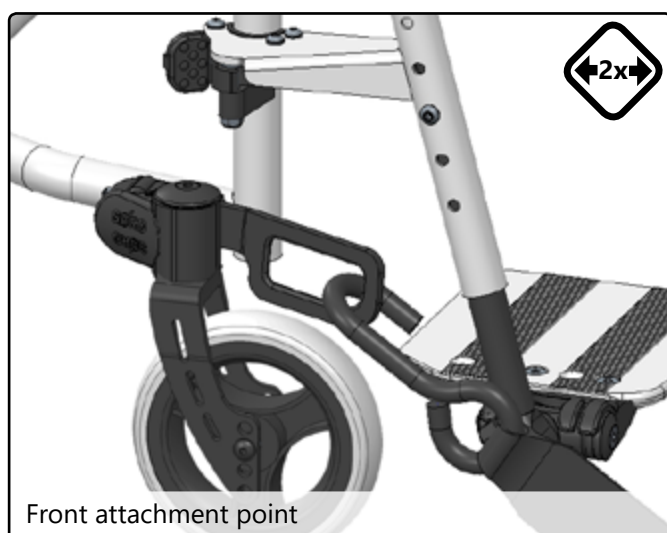
# Vector BSA



Strong recommendation back height:

		Seat depth (cm)												
		26	28	30	32	34	36	38	40	42	44	46	48	50
Back height (cm)	25	x	x	x	x	x	x	x	x	x	x	x	x	x
	30	✓	✓	✓	x	x	x	x	x	x	x	x	x	x
	35	✓	✓	✓	✓	✓	x	x	x	x	x	x	x	x
	40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	45	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

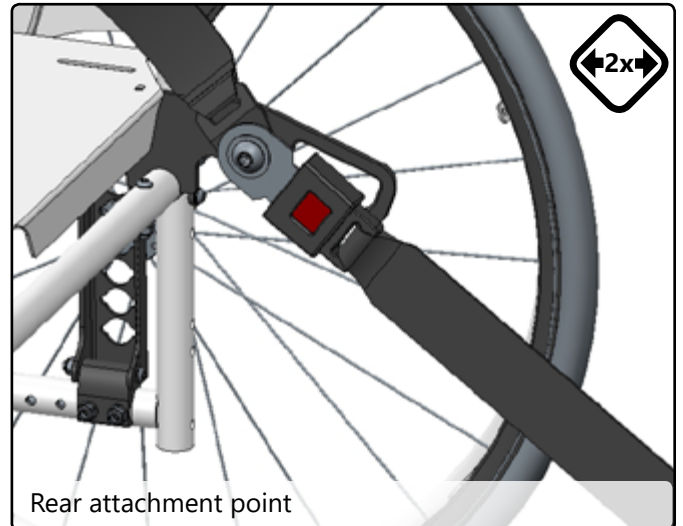
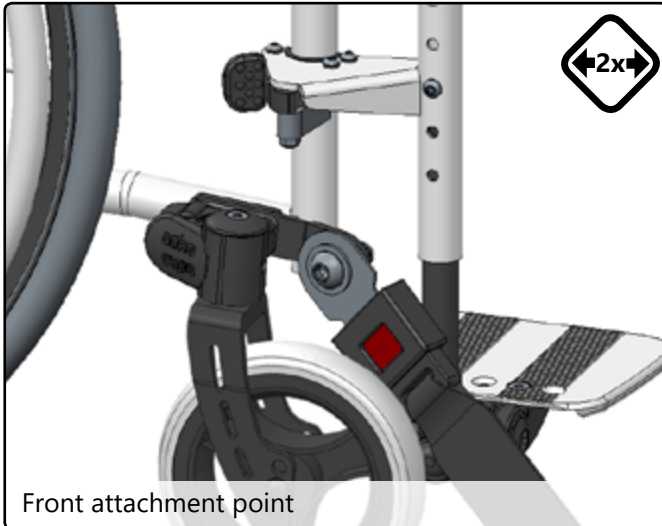
Connection to restraining eyelets:



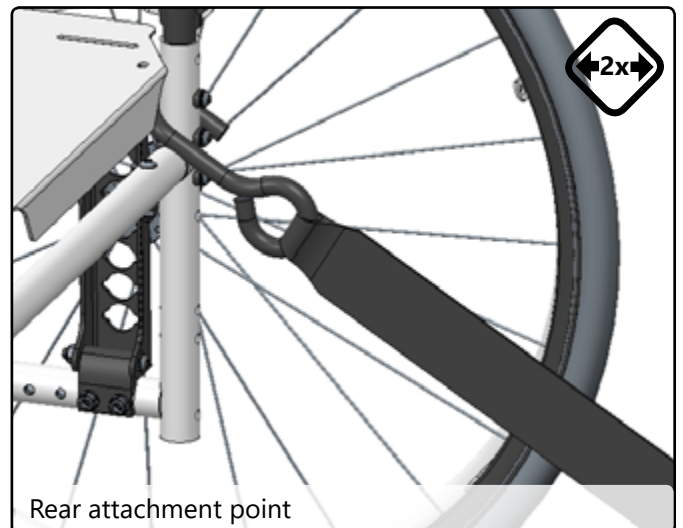
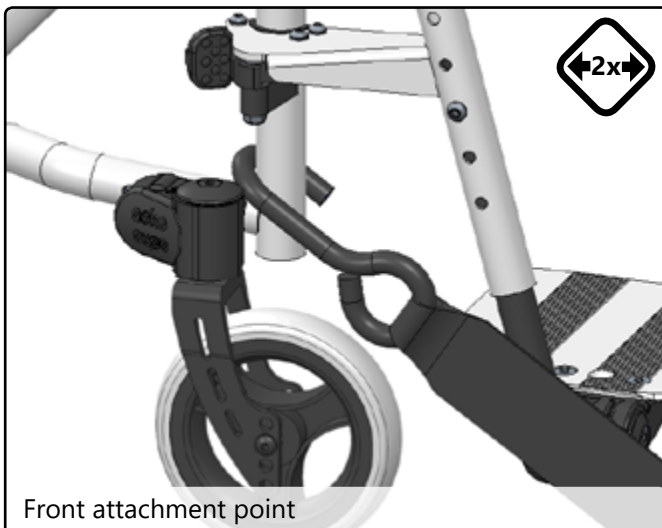


## 6 Model-specific connections

Connection to buckle tongues (only possible with seat depth 34 or 36):



Connection to the frame:



## 6.5 Jump alpha

CRASH TESTED  
ISO 7176-19



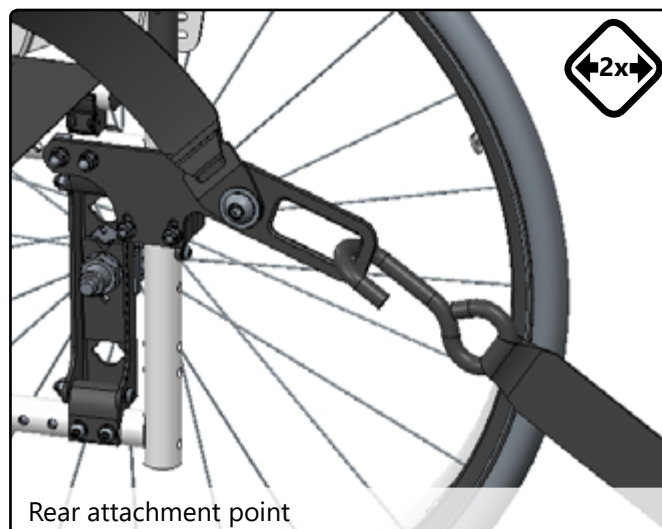
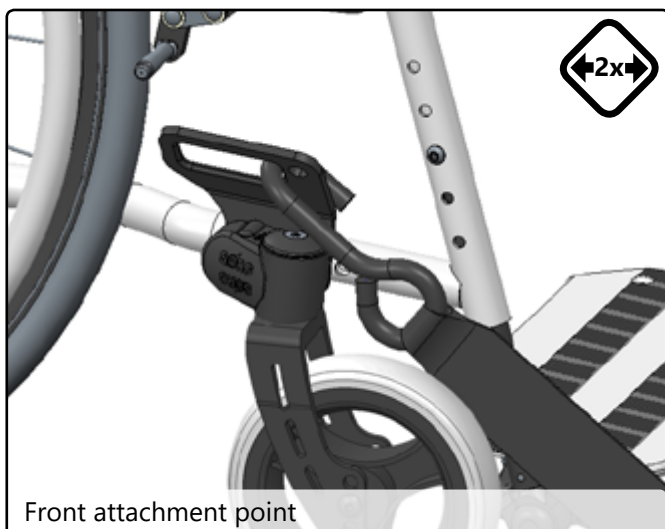
# Jump alpha



Strong recommendation back height:

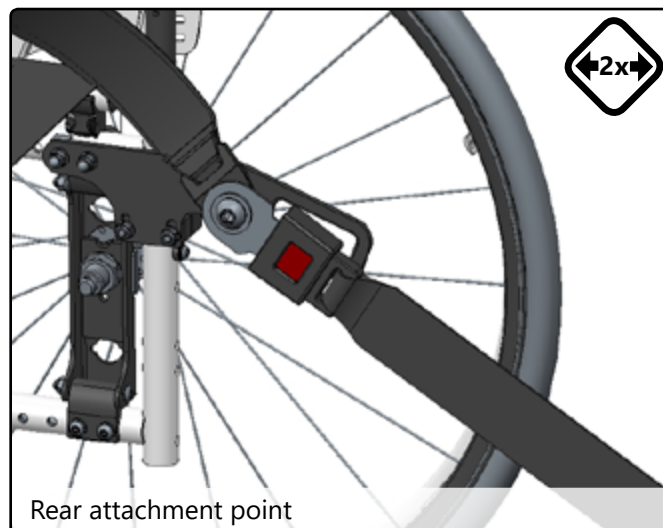
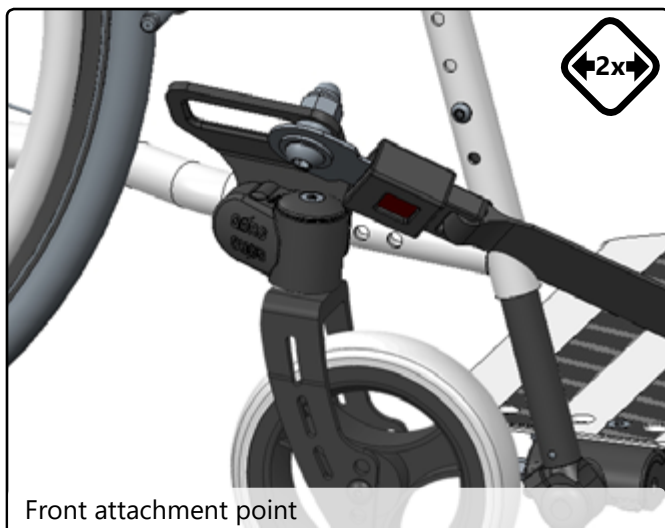
		Seat depth (cm)								
		22	24	26	28	30	32	34	36	38
Back height (cm)	25	✓	✓	✗	✗	✗	✗	✗	✗	✗
	30	✓	✓	✓	✓	✓	✗	✗	✗	✗
	35	✓	✓	✓	✓	✓	✓	✓	✓	✓
	40	✓	✓	✓	✓	✓	✓	✓	✓	✓
	45	✓	✓	✓	✓	✓	✓	✓	✓	✓

Connection to restraining eyelets:

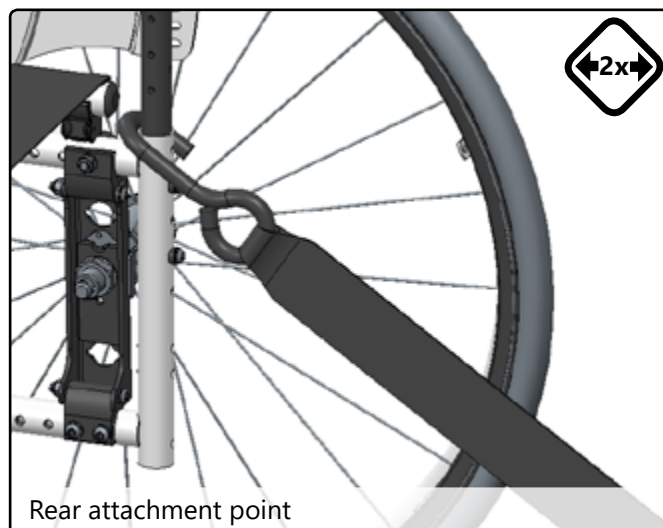
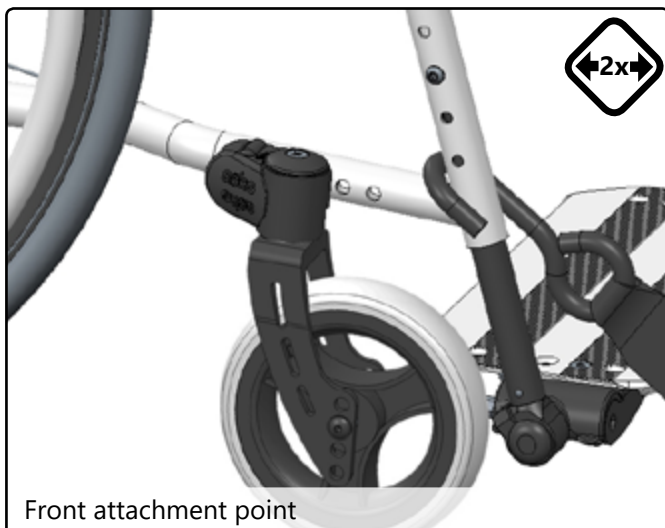


## 6 Model-specific connections

### Connection to buckle tongues:



### Connection to the frame:



# 6 Model-specific connections

## 6.6 Jump beta

CRASH TESTED  
ISO 7176-19



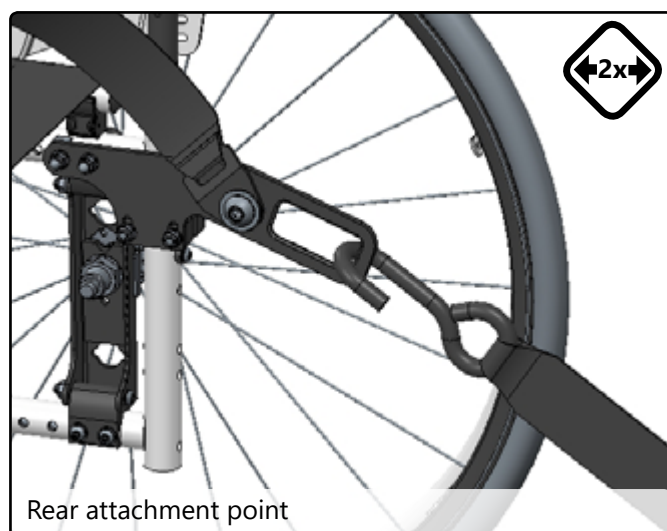
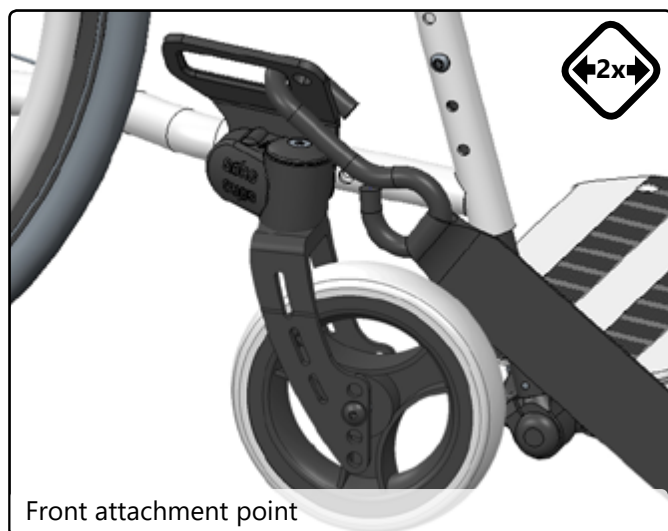
# Jump beta



Strong recommendation back height:

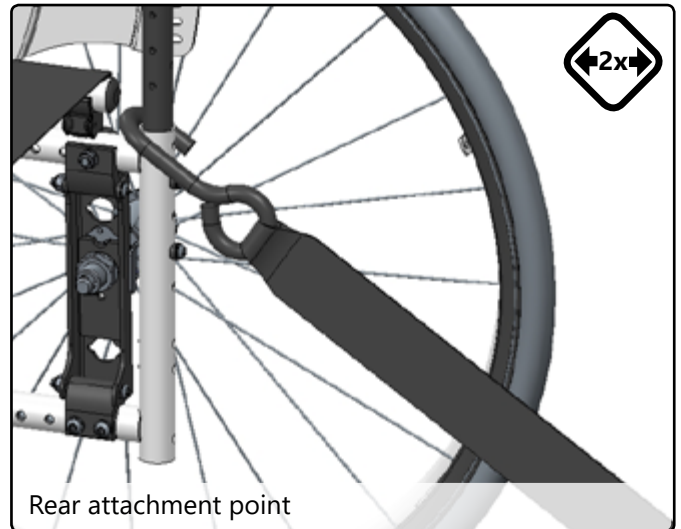
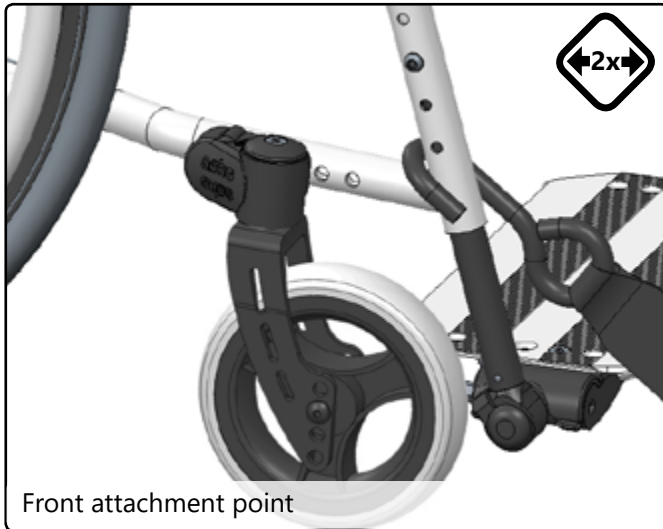
		Seat depth (cm)									
		32	34	36	38	40	42	44	46	48	50
Back height (cm)	25	x	x	x	x	x	x	x	x	x	x
	30	x	x	x	x	x	x	x	x	x	x
	35	✓	✓	x	x	x	x	x	x	x	x
	40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	45	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Connection to restraining eyelets:



## 6 Model-specific connections

Connection to the frame:



## 6.7 Jump beta BSA

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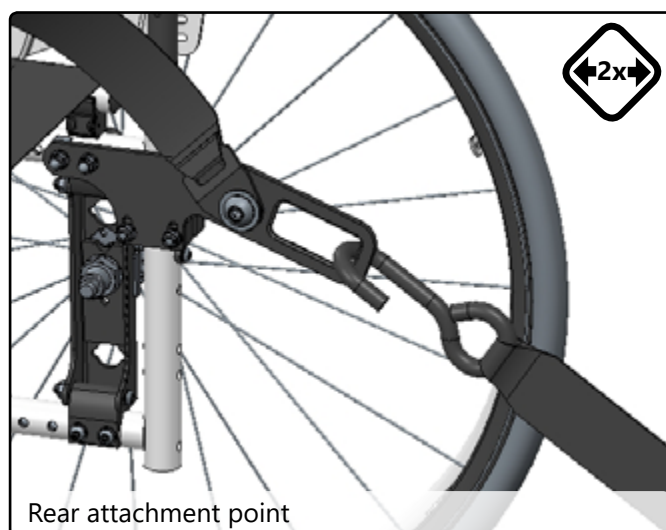
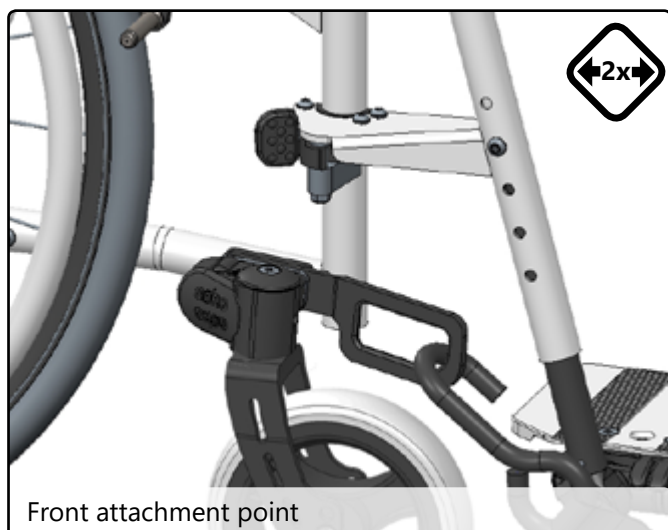
# Jump beta BSA



Strong recommendation back height:

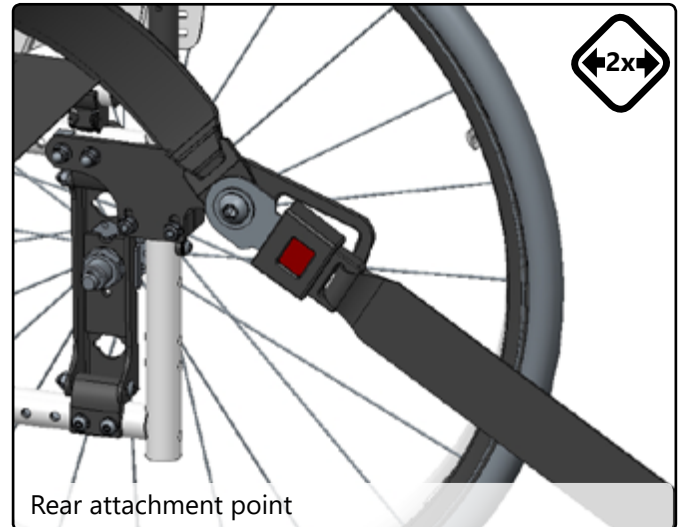
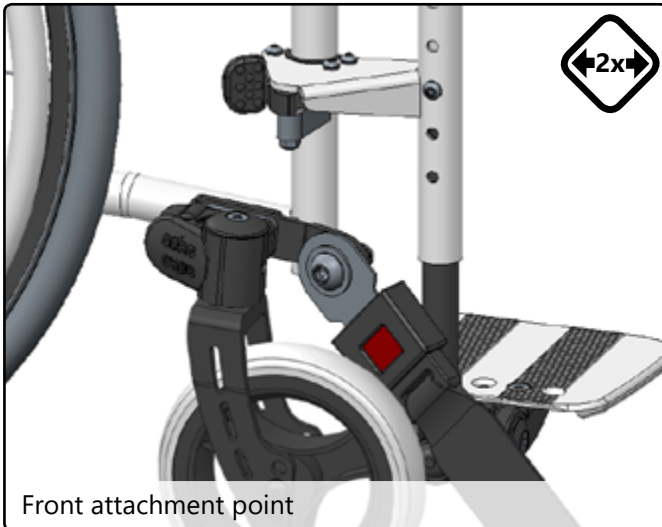
		Seat depth (cm)									
		32	34	36	38	40	42	44	46	48	50
Back height (cm)	25	×	×	×	×	×	×	×	×	×	×
	30	×	×	×	×	×	×	×	×	×	×
	35	✓	✓	×	×	×	×	×	×	×	×
	40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	45	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

Connection to restraining eyelets:

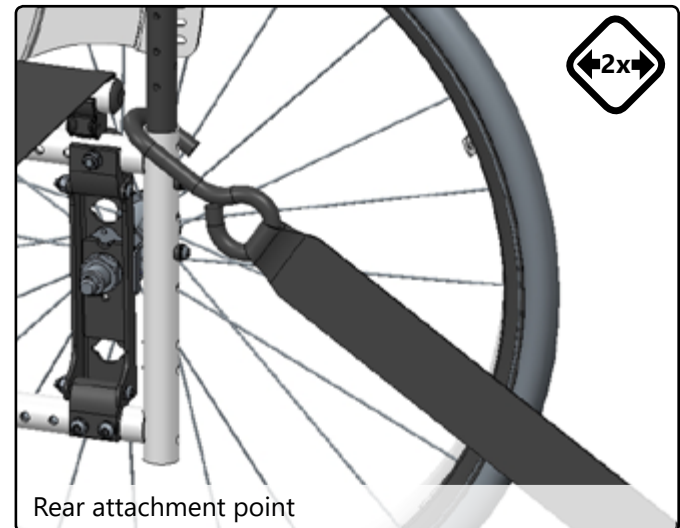
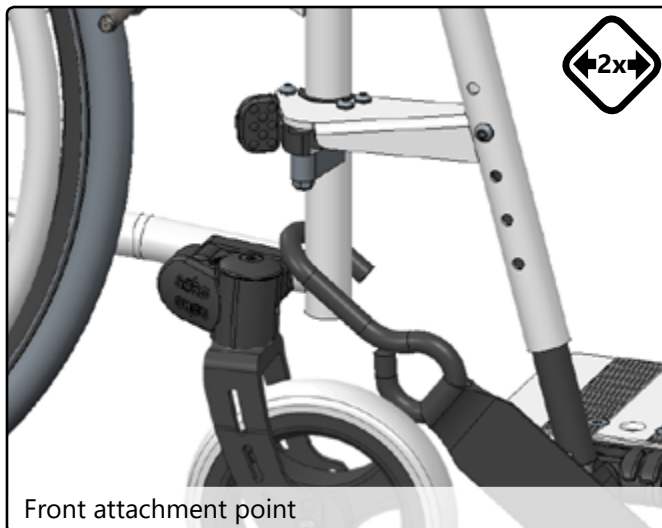


## 6 Model-specific connections

Connection to buckle tongues (only possible with seat depth 34 or 36):



Connection to the frame:



## 6.8 Tilty Vario

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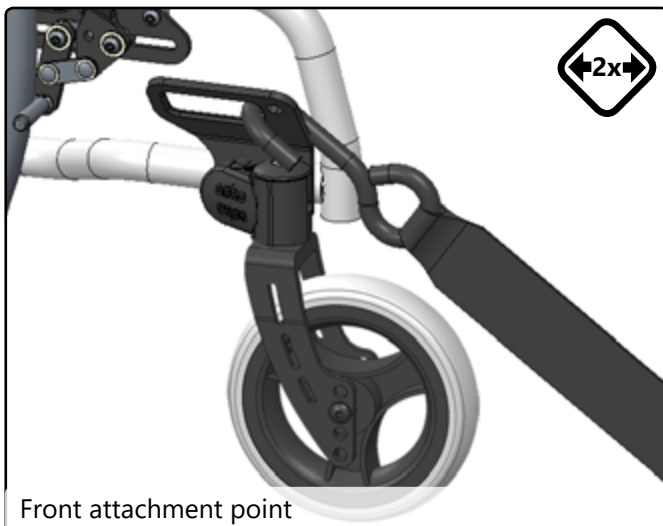
# Tilty Vario



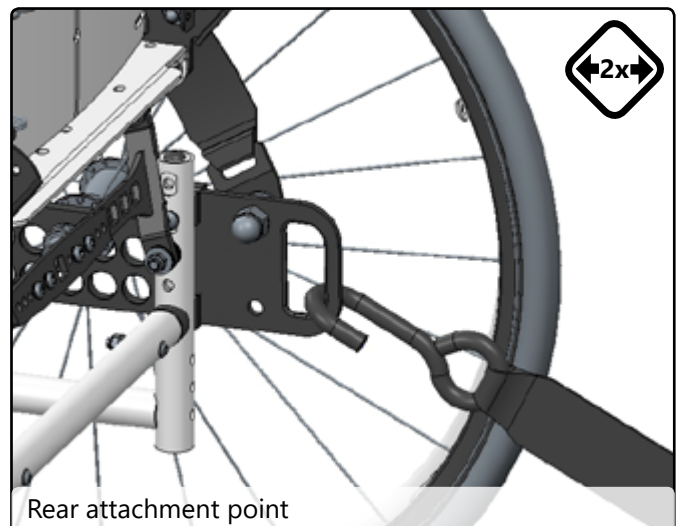
*Strong recommendation back height:*

		Seat depth (cm)								
		28	30	32	34	36	38	40	42	44
Back height (cm)	25	x	x	x	x	x	x	x	x	x
	30	✓	✓	x	x	x	x	x	x	x
	35	✓	✓	✓	✓	x	x	x	x	x
	40	✓	✓	✓	✓	✓	✓	✓	✓	✓
	45	✓	✓	✓	✓	✓	✓	✓	✓	✓
	50	✓	✓	✓	✓	✓	✓	✓	✓	✓

*Connection to restraining eyelets:*



Front attachment point



Rear attachment point



## 6.9 Loop<sup>SORG</sup>

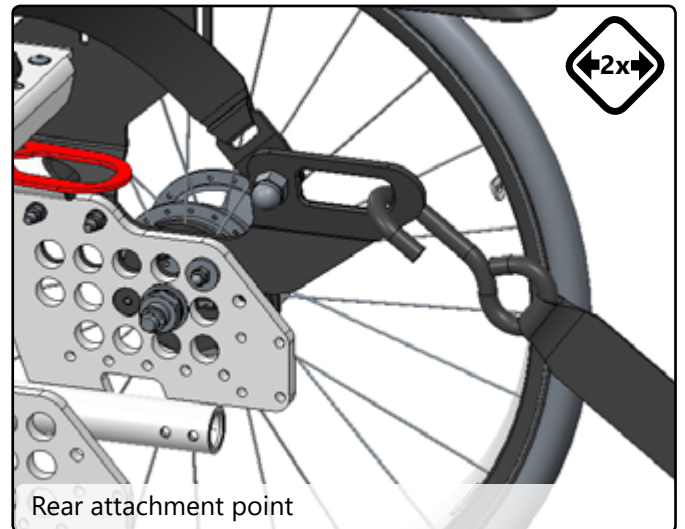
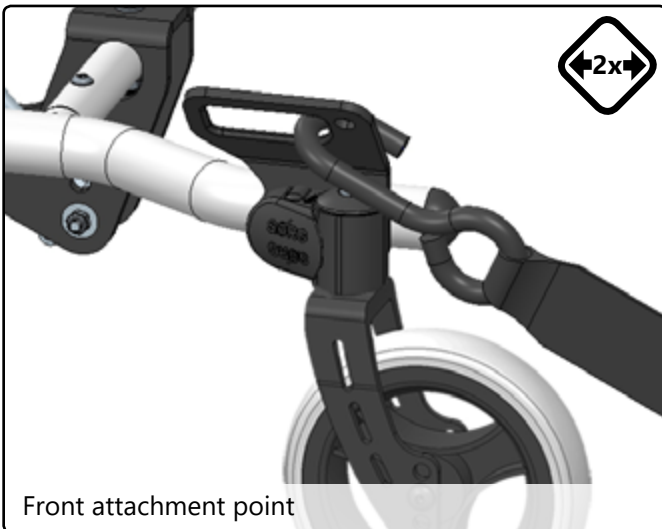
CRASH TESTED  
ISO 7176-19



# Loop<sup>SORG</sup>



Connection to restraining eyelets:



## 6.10 Loop<sup>SORG</sup> RS

CRASH TESTED  
ISO 7176-19



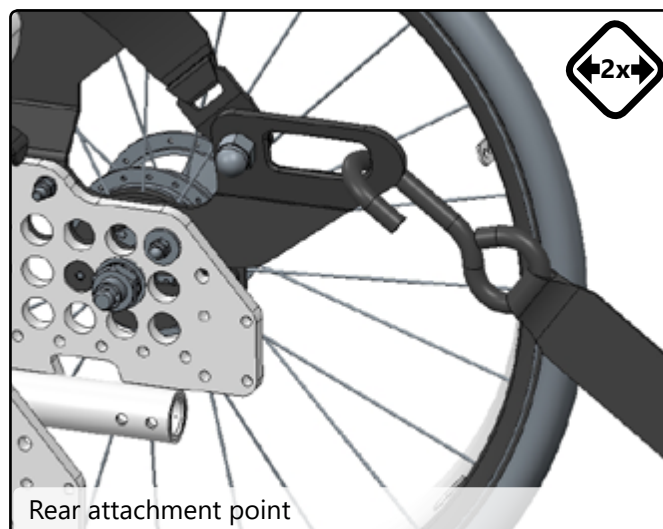
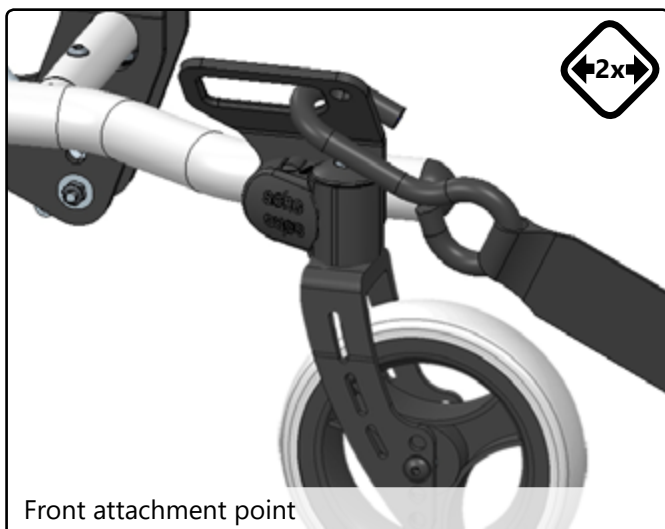
# Loop<sup>SORG</sup> RS



*Strong recommendation back height:*

		Seat depth (cm)									
		30	32	34	36	38	40	42	44	46	48
Back height (cm)	30	✓	✗	✗	✗	✗	✗	✗	✗	✗	✗
	35	✓	✓	✓	✗	✗	✗	✗	✗	✗	✗
	40	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	45	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	50	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	55	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
	60	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

*Connection to restraining eyelets:*





# Wheelchair transport instructions



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