



User Guide

**KINOVA<sup>®</sup>**  
***Dynamic***  
***arm support 0110***

**KINOVA**  
Achieve Extraordinary

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# Introduction

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## What is an arm support?

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*A dynamic arm support is an assistive technology product that helps people with limited arm and shoulder function to move their arms and hands more easily. The device has a number of potential benefits.*

A dynamic arm support is an assistive technology product which allows people with limited arm and shoulder function to move their arms and hands more freely. This facilitates many kinds of daily activities, such as using a computer or eating.

The arm support can also be used by people without limits in arm or shoulder function as an ergonomic support for performing repetitive tasks in the workplace.

Arm supports use spring mechanisms to compensate for the weight of the user's arm. Without having to expend energy to hold up the weight of the arm, people with limited function can move their arm more easily. This can help maintain the muscles and joints of the user and improve quality of life by allowing users to be more independent.

## Use of arm support and normal use definition

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*The arm support is designed for an intended scope and environment of use. There are some limitations that apply, and potential contraindications for use. A health professional can help determine if the device is right for a given user.*

### Intended scope of use

The arm support device does not take over any arm function. The user makes the movements himself, using his own strength. The device only supports part of the weight of the arm, making it easier to perform the movement. The device supports the arm through all movements within a three dimensional region. Actions performed while using the arm support are the responsibility of the user.

### Limitations

The arm support is intended to be used to help support arm movements during typical, everyday activities at home, in public, or in a typical office environment. The arm support is **not** intended to be used while driving an automobile or operating other heavy equipment, or for carrying out tasks involving dangerous tools or materials.

### Contraindications

There are certain potential contraindications for using the device:

- Excessive tremors or spasms of the arm, which would be amplified by increased mobility
- Presentation of musculoskeletal or joint injuries having a functional link with mobility of the upper limb
- Absence or insufficient level of muscle tone or motor control
- Presentation of proprioception problems
- Absence or significant insufficiency of distal motor functions of the upper limb

A case by case evaluation by a health professional is necessary to evaluate whether the device is a good fit and if so, to determine how to integrate of the device in the course of care of the individual.

### Acceptable environment of use

The arm support is not to be used or stored outside the proper operation and storage temperature range as described in the product specifications.

The product is generally intended for indoor use, but can also be used outdoors. Be careful however when using the device outdoors. The black parts of the structure can heat up if the device is used in bright sunshine on a hot day, and metallic parts can become uncomfortable to touch on cold days. The device should be wiped down if accidentally exposed to rain to limit damage to metal parts.

## Symbols used in this guide

*Explanation of symbols used in the guide.*

The following symbols are used in this manual:



Pinch point.



Warning / Caution

## Specifications

*Basic specifications of the arm support.*















**Table 1: Specifications**



Device weight	Device with brace	1.80 kg
	Device with brace and table clamp	2.73 kg
Arm weight compensation range		1.0 kg to 5.1 kg (2.2 lbs to 11.2 lbs)
Maximum payload		5.5 kg (12.1 lbs)
Device structure size (W x D x H)		17 cm x 10 cm x 85 cm
Device structure material		die cast aluminum
Operating temperature range		-10°C to 40°C
Storage temperature range		-10°C to 40°C

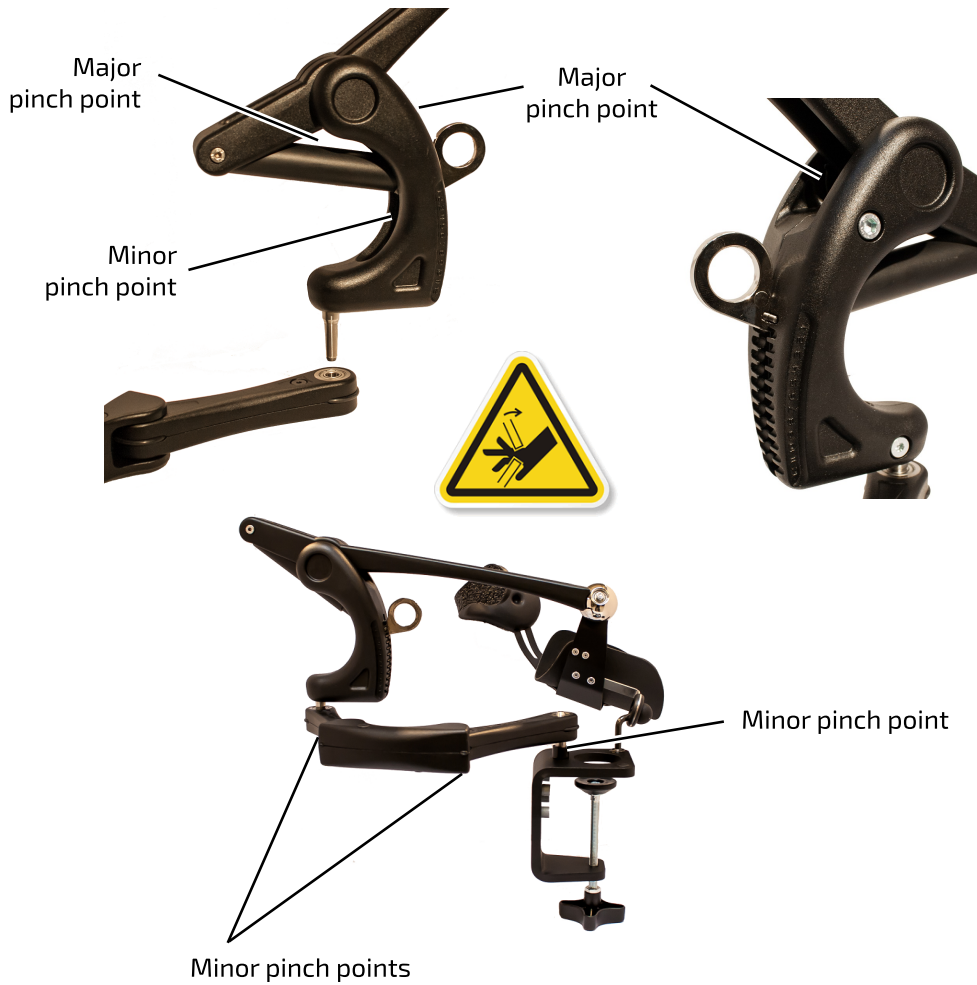
## Arm support safety and warnings


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*Important considerations for safe and effective use of the arm support.*

-  The arm support works with a spring compensation mechanism, which provides the force for compensation. When the upper arm of the arm support is lowered, the tension in the spring can cause the arm support to return to its upwards position if unloaded. When removing your arm from the support, do so slowly and carefully. Set the brace eyelet (if present for the brace) or have someone hold the upper arm of the arm support so that it doesn't spring up too suddenly.
-  Do not exceed the maximum payload for the arm support. Exceeding the maximum compensation can impact the product's expected life span.
-  Use of the arm support should be implemented progressively. The use of the device will allow more motion, new movements, new muscle activation and increased articular movement. To prevent soreness or possible injury, time of use of the arm support should be increased progressively and temporarily reduced if pain or discomfort is experienced. The goal is to let the body adapt while this progression is done. It is important to integrate the device into the lifestyle and the care path of the user in collaboration with the clinical staff responsible for the user.
-  Children using the arm support need to be trained in a controlled environment under parental supervision.
-  When the arm support is in the parked position, make sure your arm is placed properly in the brace, with weight applied on the support, before removing the brace from the parking hook.
-  When the arm support is not in use, always bring the upper arm segment of the arm support back into its most upwards position so that there is no tension on the springs.
-  Each day before using the arm support, it is recommended to give the arm support a quick check over to confirm that the brace is properly installed and that the device adequately supports the arm. Check the braces for any foam or silicone pad deterioration. If there has been too much wear, the brace may have to be replaced.
-  Do not use a third party brace with the arm support. Use only one of the approved brace models, with brace selection and adjustment carried out under the guidance of health professionals.
-  The arm support may only be used for the intended purposes as described in the product documentation. Any type of use which is not specified in this manual will be considered as improper use. The customer is solely responsible for material damage and injury of persons resulting from improper use.
-  Assembly, commissioning and maintenance should only be carried out by trained professionals.
-  Under no circumstance should you dismantle or remove screws from the arm support. The warranty is void in such a case.
-  Do not use the arm support in environments exposed to corrosion hazards.

-  Do not immerse the arm support in water. When cleaning the outside of the arm support, a moistened towel shall be used.
-  Be aware of finger pinching. There are potential pinch points on the arm support. There is one major pinch point, where the upper arm and the enclosure for the spring on the base come together. This point is labeled with a sticker. There are also a few minor pinch points. Never stick your fingers in any cavity of the product. Make sure people around you, particularly children, do not put their fingers near any of the pinch points. Be aware of pinch points when transporting the arm support.



-  Do not use the device in contact with broken or irritated skin.

## Arm support warranty

*Certain actions will void warranty coverage.*

The arm support is covered by a warranty of 1 year. Warranty claims shall be voided if:

- Conditions specified in the user manual are ignored.
- The device is used outside the normal use definition.
- Any part of the device is modified or opened.
- The device is improperly set up.

# Assembly and installation

## Components

The arm support comes in a box with four main components. Some assembly is required to install the device.

The arm support consists of the following main components:

- Table clamp
- Links
- Base with adjustment ring and upper arm
- Brace



**Figure 1: Arm support (right arm setup shown)**

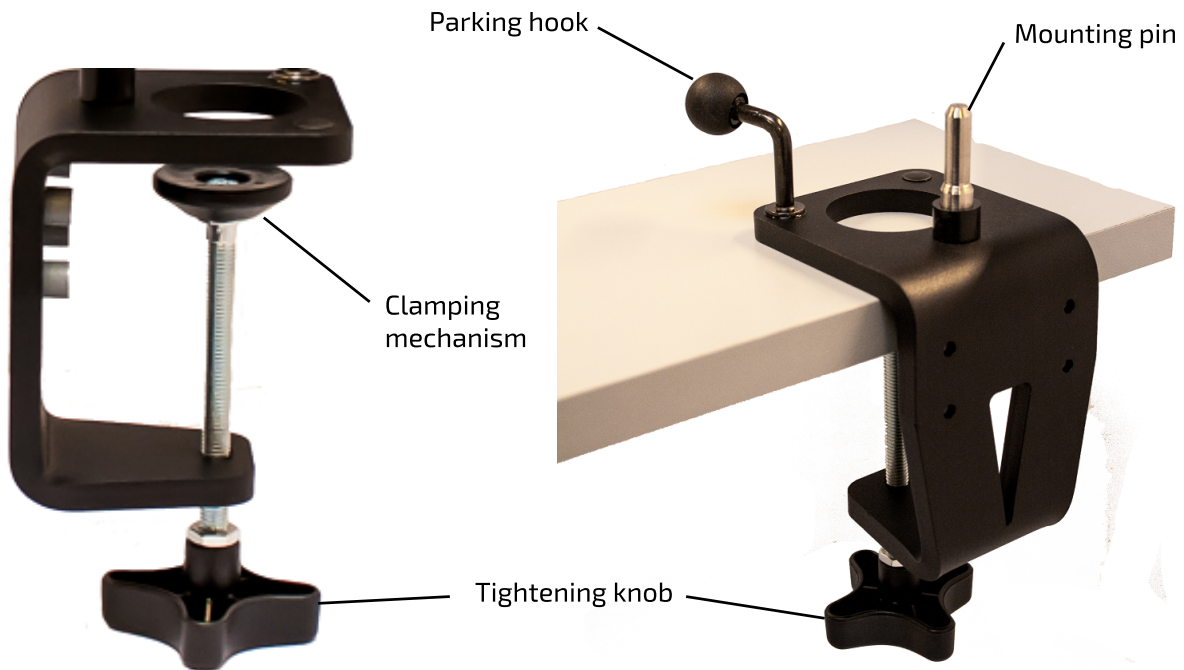
The arm support is delivered in a box, partially unassembled, in the four main parts.

The arm support needs to be set up and assembled.



**Note:** After unboxing and setting up the arm support, make sure to save the packaging. This will be useful for transport of the arm support, whether for your own use or if needed for servicing.

The **table clamp** provides a means to install the arm support on a table top.



The table clamp can be easily and quickly attached to and detached from a table top using a **clamping mechanism** and **tightening knob**.

A **mounting pin** on the table clamp provides a stable mounting point for the arm support.

A **parking hook** provides a place to park the brace when the arm support is not in use or while putting the arm into the brace.

The **links** provide for smooth freedom of movement horizontally.

The **base** and **upper arm** support the weight of the arm vertically with an adjustable spring mechanism while also allowing freedom of movement vertically. The upper arm also provides a mounting point for the **brace**.

The **brace** provides a sling in which to securely but comfortably place the user's upper arm and elbow. The brace comes in several different models.

## Mounting and assembling the arm support

*Steps are required to mount and assemble the arm support in the area where it will be used. A clamp is used to provide a stable mounting point on a table, and then the arm support can be assembled and mounted.*

### About this task

The arm support is used mounted to a table top. There is some assembly and setup required to clamp the arm support to the table top and assemble the pieces that come in the shipping box.

### Procedure

1. Begin by placing the table clamp on a solid horizontal surface. By turning the knob you can loosen or tighten it. Make sure the table clamp is tightened firmly before proceeding with placing the links.

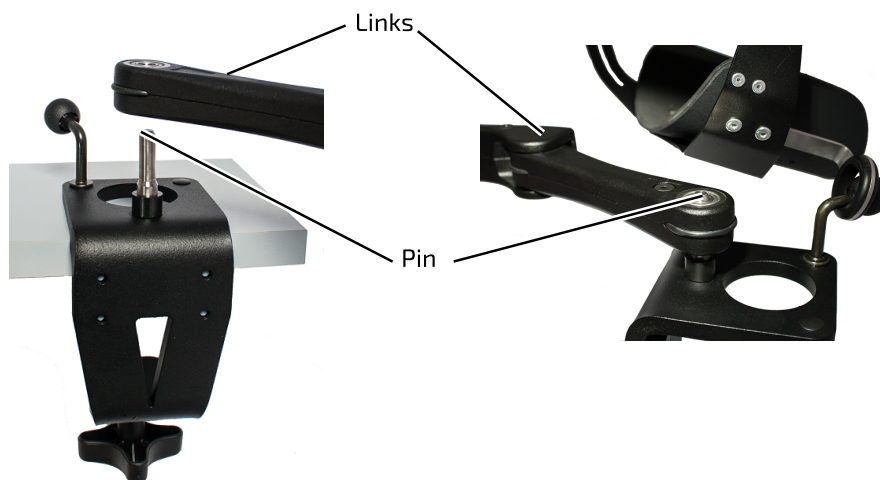
**Note:** Take care when the clamp is to be placed on a surface sensitive to scratches. In this case, a protective layer should be placed on the fragile surface before tightening the clamp.





2. Place the links on top of the pin of the table clamp. You do this by sliding the bearings on one end of the links over the pin of the table clamp.

**Note:** It is important that the pin goes **all the way through** the links to avoid damaging the bearings.



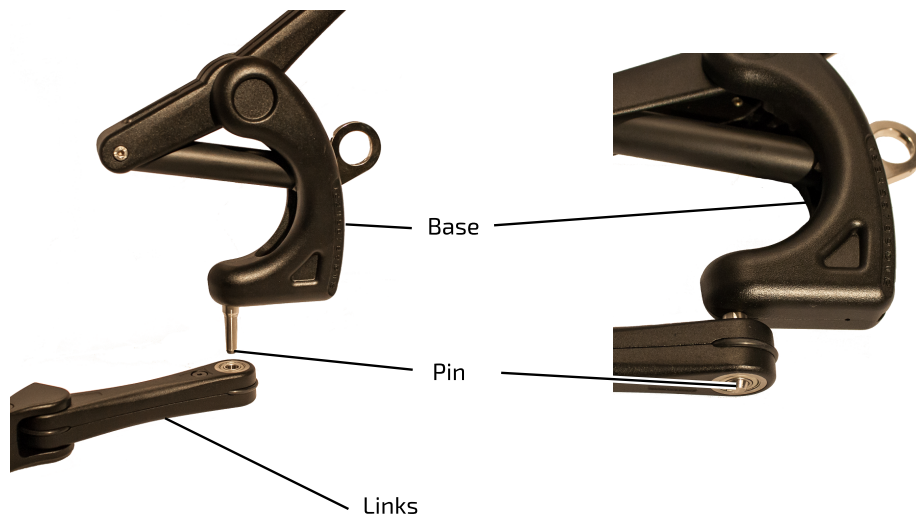
**Note:** The placement will depend on which arm the device needs to be configured to support. The middle part of the links must go on the outside for the particular arm configuration. The arm support is delivered configured for a right-handed or left-handed user, with the compatible left- or right-handed brace.



**Note:** There is no distinct upper or lower side for the links, nor is there any distinct front or back side. The links bearings can be engaged in either of two ways for each arm side configuration.

- Place the base of the arm support on top of the other end of the links. You do this by sliding the pin of the base of the arm support into the bearings of the links.

**Note:** It is important that the pin goes all the way through the links to avoid damaging the bearings.



## Attaching the brace

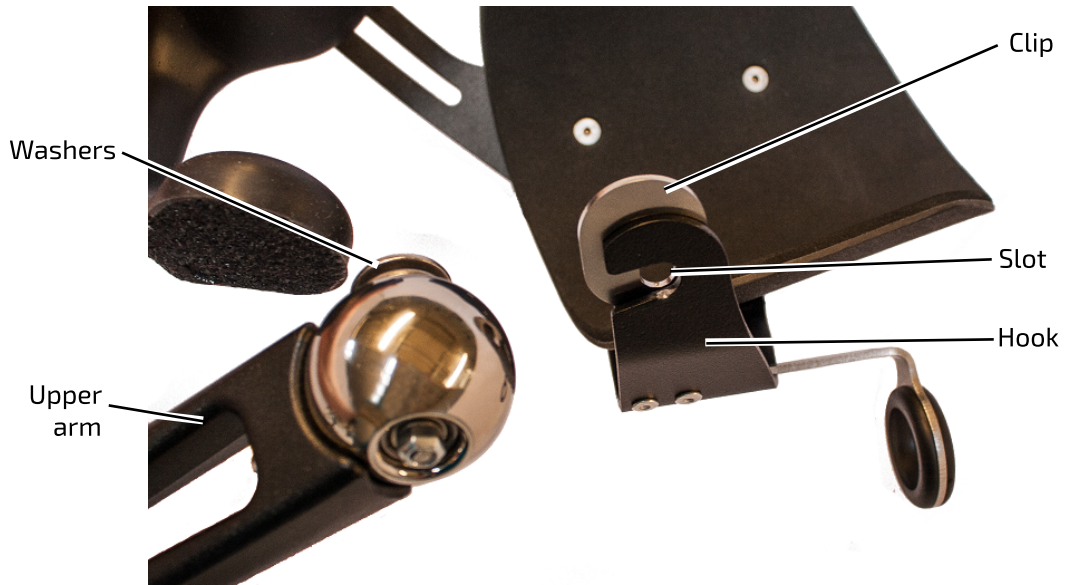
*The arm of the user is secured in a brace. The brace must be attached to the arm support as part of the installation.*

### About this task

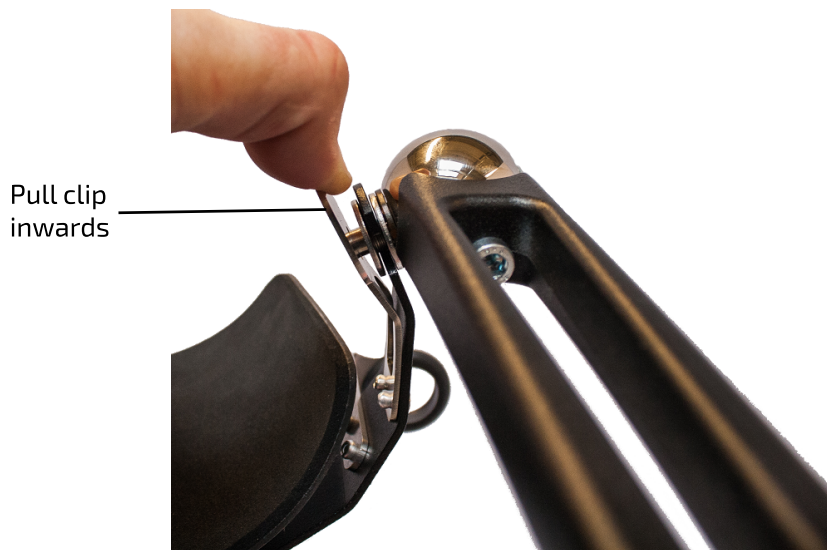
All the braces are exchangeable between all the arm supports. You can easily attach and detach them.

### Procedure

- The upper arm of the support slides into the slot of the hook on the brace.



2. Pull the clip on the brace inwards. While holding the clip, slide the slot of the hook on the brace so that it goes between the two washers on the end of the upper arm.



3. Release the clip, and make sure that the hole on the clip locks over the head of the bolt on the end of the upper arm. The head of the bolt should be visible through the clip.



## Placing the arm in the brace

*There are guidelines to be followed to securely place the user's arm in the brace. Some details will depend on the particular brace that is used.*

The arm should be placed in the brace in the following way:

- The lower arm should lie in the brace
- The upper arm of the user should be placed against the upper arm support, not far above the elbow

**Note:** The upper arm support consists out of hypoallergenic rubber with a stainless steel frame.

The brace is flexible and can be adjusted to the arm so that it is as comfortable as possible for the user.

- The elbow should be free



If you are not comfortable or sure how to properly place your arm into the brace, please contact your local supplier.

**Note:** It is recommended that users be assisted in putting their arm into the brace and getting their arm out of the brace.

If the brace type being used includes an arm strap, wrap the strap and pad over the user's forearm and secure the end of the strap on the velcro patch under the brace. This way the forearm is secured and can't fall out of the brace.

Brace with arm strap (left arm brace shown)



Brace with pad and strap (left arm)



Brace with pad and strap (right arm)



If the brace includes the optional wrist attachment, position the wrist of the user over the rounded support at the end of the attachment.



Bottom view



Top view

# Adjustment and configuration

## Adjusting the arm support weight compensation

The weight compensation of the device can be adjusted in steps to adjust to the user's needs and preferences.

### About this task

The arm support can be adjusted mechanically to customize the amount of compensation to the weight of the user's arm and the user's preferences.

You can adjust the force of the arm support in increments using the adjustment ring. The compensation can range between 1.0 kg and 5.1 kg. This is called the adjustment range, and allows a user to compensate for various arm weights as well as adjust to different levels of fatigue.

The chosen compensation setting makes the arm controllable in a weightless manner. Without any effort applied, the arm support positions itself, with the user's arm sitting in the brace, just above the lowest possible vertical plane of the range of motion.



Adjust the level of weight compensation by following these steps:

### Procedure

1. Pull the upper arm of the arm support upwards as shown in the diagram below.
2. Pull the ring out from the base and move the ring vertically and place it in the step of your choice.



3. Let go of the upper arm. The arm support is ready for use.

## Adjusting the arm support positioning

*The positioning of the arm support along the table edge can be adjusted easily once the arm support is installed.*

Once the arm support is installed with the brace attached, the horizontal positioning of the arm support can be adjusted to fine tune the setup for the user.

By partially loosening the tightening knob, the positioning of the setup on the table edge can be adjusted left or right.

## Replacing the brace

*The brace can easily be replaced with another Kinova brace of the same arm side.*

### About this task

Any of the available Kinova arm brace models can be used with the arm support. It is relatively straightforward to switch in a different model of brace.

**Note:** Braces are either left arm or right arm but not both. While it is possible to swap in a different model of brace, it has to be the correct arm side for the particular setup.

**Note:** Do not use a third party brace with the arm support.

### Procedure

1. Pull back the clip on the original brace away from the pin on the arm support.
2. Pull out the hook on the brace to detach the brace from the arm support.
3. Follow the normal procedure to attach the new brace.

## Available brace options

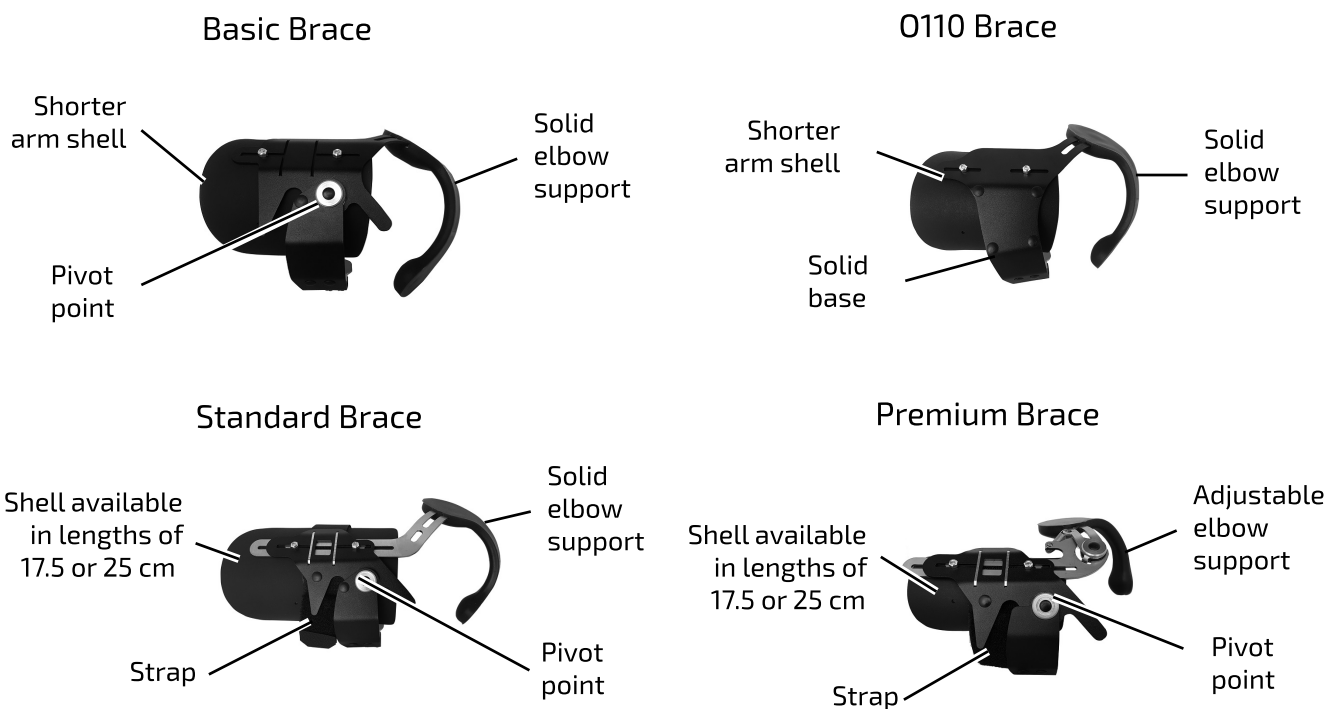
*There are four different Kinova brace options. The brace models have different functionalities and are adjustable for the needs of the user. Choice of brace and adjustment need to be done with the help of a health professional.*

The brace is the part where the arm lies. It is the connection between the arm support and the user. Kinova offers different types of braces and every type is available in different sizes. The braces are exchangeable

between different KINOVA® Dynamic arm support models.

Kinova offers four different brace models:

- Basic brace
- O110 brace
- Standard brace
- Premium brace



The more advanced the brace, the more functionality that can be achieved with the brace. Several components of the brace are adjustable to achieve a perfect personal fit.

Different brace models will be more appropriate for different users. A proper analysis of the user's needs carried out by a health professional is recommended to get the brace that is most appropriate for a user's needs.

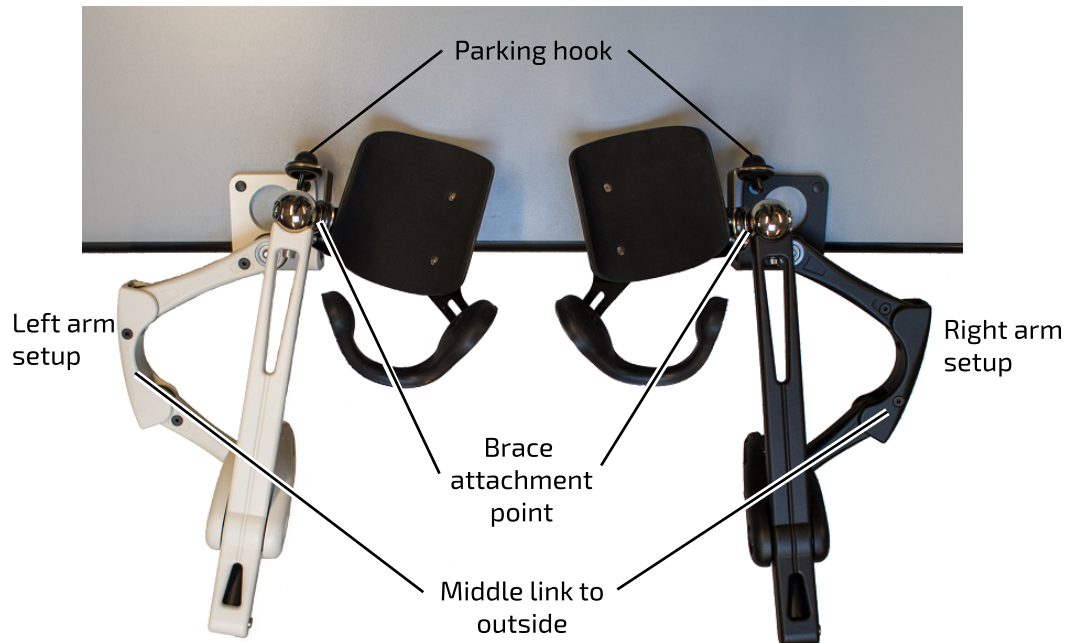
**Note:** An improperly fitted brace increases the risk that the arm can come loose from the brace and potentially lead to injury.



## Changing the arm support laterality

*The laterality of the arm support (left-handed vs right-handed) can be changed. Some configuration is required.*

The braces come in left- and right-handed models, and the arm support is set up and configured specifically for either left or right arm use based on the user's dominant hand.



In some clinical settings however, a single arm support might be shared amongst multiple users. In that case, there may be a need to change the laterality of the arm support. This is possible, but some re-configuration is involved.

Contact Kinova for more details.

# Maintenance, support, and servicing

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## Arm support cleaning

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*Describes cleaning guidelines for the arm support.*

When cleaning the outer parts of the arm support, the brace can be cleaned with a soft clean cloth dampened with lukewarm water and a non-abrasive liquid household cleaner.

The brace is waterproof.

**Note:** When cleaning the outer part of the arm support, do not use any detergents, acid solutions, abrasive or aggressive solutions or inflammable substances.

**Note:** Use of any of the above mentioned substances will cause irreparable damage to the equipment and the warranty will no longer be valid.

**Note:** Do not immerse the unit in water.

## Arm support transportation

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*Guidelines for transport of the arm support.*

At times, it may be necessary to transport the arm support to use at another location.

The product is designed to be easy to transport. However, make sure to use the original shipping box to avoid damage to the product during transport.

With reference to the installation instructions in this guide, follow the following steps to transport the arm support:

1. disassemble the arm support
2. pack the arm support components in the original shipping box for transport
3. unpack and set up the arm support at the new location.

## Technical support

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*Technical support contact for the arm support.*

For support, contact Kinova via the website support page:

<https://www.kinovarobotics.com/support>

## Product servicing and disposal

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*Instructions for servicing of the arm support.*

The arm support is covered by a warranty of 1 year.

After the warranty period, refurbishment of the device is possible.

The product can be returned temporarily to Kinova for servicing.

**Note:** The product should be returned in its original packaging.

Kinova will inspect the device and can replace / repair any components that may have worn out.

For more details, contact Kinova using the website support page:

<https://www.kinovarobotics.com/support>

There is no need too small.  
No task too great.

[kinovarobotics.com](https://kinovarobotics.com)

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