

# Armon Elemento



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## Foreword

This manual has been written for the owners and operators of the Armon Elemento. It contains general instructions on operation, precautionary practices, maintenance and parts information.



Before using the product please make sure that you read the complete manual thoroughly and become familiar with the controls as well as the accessories. This is essential for your own safety and in order to maximize the use, functionality, efficiency and lifespan of your unit.

Specifications put forth in this manual were in effect at the time of publication. However, owing to Armon Products BV's policy of continual improvement, changes to these specifications may be made at any time without obligation on the part of Armon Products BV.

## Symbols used in this manual



**ATTENTION!** Read these parts extra carefully for they contain warnings.



: end-of-life; information about disposal at the end of the useful life of the product.

## In general

The Armon Elemento is an electronically controlled mechanical arm support. It has a unique mechanism that compensates the weight of the users arm. Thereby the arm feels weightless. People with limited strenght can then use the strength they have got left to lift their arm again. The weight compensation is electronically steplessly adjustable through the controls.

The arm supports do not take over any function. They only support the arm. The user makes the movements himself, using the strength he's got left. This is good for the muscles and joints of the user. Our products follow all the movements and support the arms in a 3D area.

The Armon Elemento can compensate an arm weight from appr. 900 gram up to appr. 4200 gram. The Elemento light can compensate an arm weight from appr. 600 gram up to appr.2500 gram. It is possible to mount all types of Armon braces.

The Armon Elemento weighs approximately 6100 gram.

## Intended use

The Armon Elemento is an electronically controled dynamic arm support for users who are (still) able to independently level their arm and should only be used to support the weight of an arm with a maximum weight of 4500 grams.

Left, right or both arms can be supported. It is important to choose the right brace for optimal functionality.

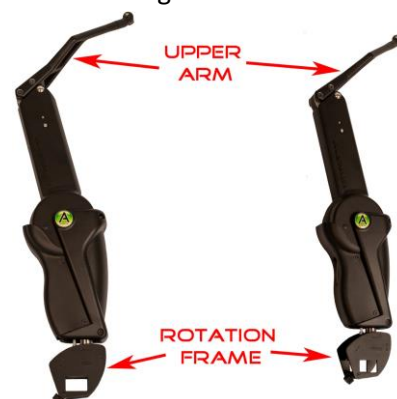
The Armon Elemento can be mounted on a wheel chair, working chair or on a stand.

The Armon Elemento can also be used as an arm support in working situations to lighten strenuous working conditions and thus preventing arm, neck and shoulder injuries.

## Parts of the Armon Elemento

The Armon Elemento has a rotation frame which is also the mouting point.

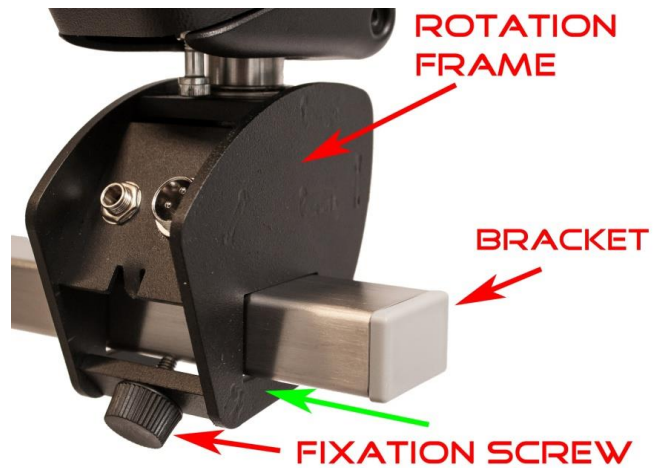
The end of the upper arm is where the brace is mounted.



## Mounting of the Armon Elemento

You can mount the Elemento simply by sliding it onto a bracket or the universal connector. You can then fixate it on the right position by turning the fixation screw in a clockwise direction. Make sure the screw is tightened firmly before using the Elemento.

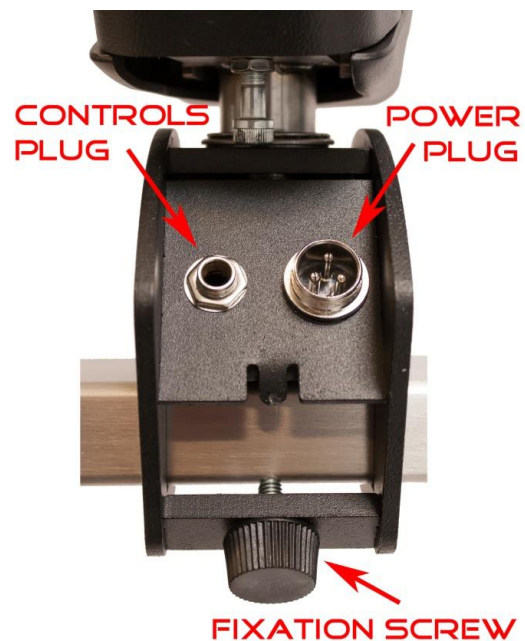
For dismounting, follow the above steps in a reverse order. Before dismounting the Elemento make sure that the power and control cables are pulled out of the rotation frame. See the following page.



## Placing the power cable

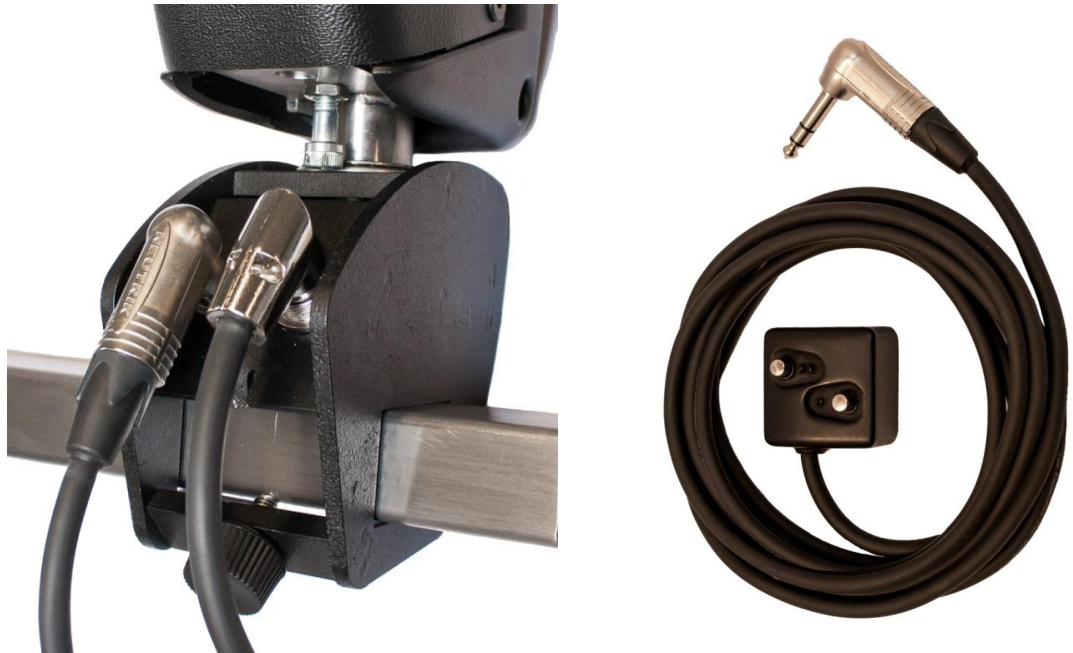
The Elemento is an electronically controlled armsupport. The Elemento has to be connected to a 24 volt battery. This can be the battery of a work chair, an electrical wheelchair or another 24 volt battery. The power cable plug goes into the left opening of the rotation frame.

The power cable has a plug at one end that goes into the Elemento and two wires at the other end to connect to the battery. Red is positive, black is negative. The positive wire has a fuse. Make sure this is connected.



## Placing the controls cable

You can adjust the level of compensation with the controls. The controls cable has a plug on one end that goes into the Elemento and the controls on the other end. The controls plug goes into the left opening of the rotation frame.



## Braces

Armon Products has four different types of braces and every type is available in three different sizes. The brace is the part where you put your arm in. It is the connection between the arm support and the user. The braces are exchangeable between all our arm supports.



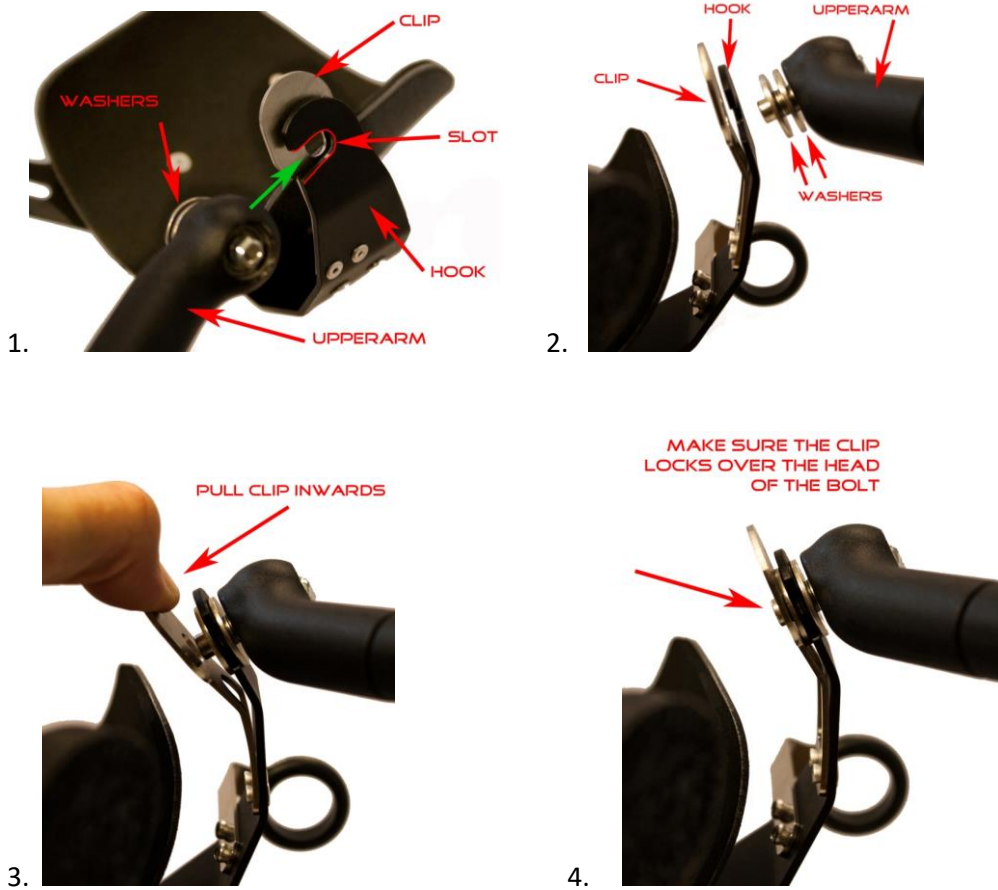
The braces available in ascending order of functionality:



The more advanced the brace, the more functionality you can achieve with this brace. The right individual adjustment of your brace should only be done by qualified and therefore trained specialists.

## Attaching the brace

All our braces are exchangeable between all our arm supports. You can easily attach and detach them. See the pictures and explanation below.



1/2 Hold the brace with the slot pointing in the direction of the washers.

3 Pull back the clip inwards until the hook can be positioned completely over the spindle.

Slide the hook completely over the spindle between the washers and release the clip

4 Make sure the clip locks over the head of the spindle. The head of the spindle should cross through the middle hole of the clip.



**ATTENTION!** If you are not comfortable or sure how to properly place your arm into the Brace, please contact your supplier. If you are not able to independently level your arm when the compensation force drops out, you should not be using this product.

## Placing the arm

Place the arm in the brace in the following way:



- The underarm should lay in the brace
- The upper arm should be placed against the upper arm support, not far above the elbow.
- The elbow should be free.
- The upper arm support consists out of non allergic rubber with a stainless steel frame in it that can be bent in any direction so that it is the most comfortable for the user

## Adjusting the force

You can adjust the level of compensation (force) of the Elemento steplessly, to compensate the weight of every arm. This can be done with or without the arm placed in the Elemento.

You adjust the force using the controls. Dimensions of the controls: length width height: 40 x 40 x 25 mm. The controls (without cable) weigh approximately 50 gram. Thereby it is easy to mount it somewhere by using velcro.



The control has two buttons:

- One dot: more compensation
- Two dots: less compensation

**User maintenance:**

The Armon Elemento does not require any particular maintenance except for cleaning.

**Troubleshooting:**

The Armon Elemento has been designed and manufactured using highly advanced technology and first class components to ensure a reliable and efficient performance. However, should you meet with any operational problems; it is recommended that you consult your local Armon Products distributor.

**CAUTIONS:**

- Only Armon Products BV authorized technicians may carry out service on the internal parts of the equipment.
- For repairs and further information, contact your local Armon Products dealer or authorised service centre.

**Installation:**

The installation of the Armon Elemento should only be done by qualified and therefore trained specialists. These specialists will receive a certificate after completing a training. To ensure the quality of the installation and individually made brackets, their training and certificate should be updated on a yearly bases. This is to ensure proper use and complete safety for the patient.

**Safety:**

- The arm support works with a spring compensation mechanism. Hence it gets the energy for the compensation out of springs. When the upperarm of the arm support is down in any way, there will be tension on the springs. When the arm support isn't used, always bring the upper arm of the arm support back into its most upwards position so that there is no tension on the springs.
- When getting the arm support out of a 'parked' position, make sure the arm is placed properly in the brace, and therefore the compensation force sufficiently compensated, before you start moving the arm support out of its parked position.
- Always be aware of the tension of the springs when the upper arm is in a downwards position.
- The arm support may only be used for the proposed purpose. 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; Armon Products will not be liable under any circumstance.
- Assembly, commissioning and maintenance should only be carried out by trained specialists.
- In any circumstance, do not open the housing of the arm support. Warranty is void in such case.
- Do not use the arm support in environments exposed to corrosion hazards.
- Protect the arm support against sand, vapours and dust.

**Liability:**

To the maximum extent permitted by applicable law, in no event will Armon Products or its suppliers or resellers be liable for any indirect, special, incidental or consequential damages arising from the use of or inability to use the product, including, without limitation, damages for loss of goodwill, work and productivity, computer failure or malfunction, or any and all other commercial damages or losses, even if advised of the possibility thereof, and regardless of the legal or equitable theory (contract, tort or otherwise) upon which the claim is based. In any case, Armon Products's entire liability under any provision of this agreement shall not exceed in the aggregate the sum of the fees paid for this product and fees for support of the product received by Armon Products under a separate support agreement (if any), with the exception of death or personal injury caused by the

negligence of Armon Products to the extent applicable law prohibits the limitation of damages in such cases.

Armon Products cannot be held liable for any consequence resulting from incorrect information provided by its personnel, or errors incorporated in this manual and / or other accompanying documentation (including commercial documentation). The opposing party (product's user or its representative) shall disclaim Armon Products from all claims arising from third parties, whatever nature or whatever relationship to the opposing party. Any severe incident in relation to this product should be mentioned to the manufacturer and the competent national authority

#### **Warranty:**

Warranty claims shall be voided in case:

- The conditions in the operating manual are ignored
- The appliance is used outside the described uses
- Any part of the appliance is modified or opened
- The appliance is improperly set up or incorrectly electrically connected
- Warranty does not cover cable breakage or damage to the PCB due to incorrect use.
- 

#### **Cleaning:**

When cleaning the outer part of the Armon Elemento and the brace, make sure to use a soft, clean cloth dampened with lukewarm water and a non-abrasive liquid household cleaner. The Armon Elemento is splash-proof, the brace and controls are waterproof. When cleaning do not use any chemicals or solvents



#### **CAUTIONS:**

- When cleaning the outer part of the Armon Elemento, do not use any chemicals, detergents, acid solutions, abrasive or aggressive solutions or inflammable substances.
- Use of any of the above mentioned substances or improper use of the accessories will cause irreparable damage to the equipment and the guarantee will be no longer valid. Do not spray or pour liquid on the external parts of the equipment, or into the holes on the casing.
- Do not immerse the unit into water.
- The unit must under no circumstances be opened or dismantled in order to clean or check inner parts – the Armon Elemento does not require cleaning of inner parts and in all cases, only specialized technicians of Armon Products B.V. should carry out such operations.

#### **Durability and maintenance:**

- **Expected technical lifetime:**

The Armon Elemento is designed to guarantee a technical lifetime of at least 6 years. Depending on the intensity of use and the environmental circumstances (dirt, dust, sea air, humidity etc.) the lifespan can be shortened or extended.

- **Maintenance:**

The Armon Elemento is in general a maintenance free product within the expected technical lifetime. However, wear and tear of the moving internal mechanics depends on the intensity of use and the environmental circumstances (dirt, dust, sea air, humidity etc.). Careless use or disregarding normal clean handling principles of similar products can lead to early repairs.

Inside parts can be replaced preventively in order to keep the product functioning with a high level of security. Contact your distributor for possible preventive maintenance contract terms and costs.



## End of life:



The Armon Elemento contains materials that can be recycled and/or are noxious to the environment. Specialized companies can dismantle the unit and sort out these materials. When you dispose of the unit, find out about local regulations concerning waste management.

## Technical data:

<i>Weight:</i>	6100 gram
<i>Weight compensation range:</i>	600 till 4500 gram
<i>Housing size WxDxH (in upwards position)</i>	17x10x85 cm
<i>Ingress Protection / International Protection rating:</i>	Elemento: IP 12      Controls: IP 44      Brace: IP 45
<i>Power supply:</i>	24 volts =. The Ayura is electronically protected against overvoltage >26,5 V. The Elemento will operate on undervoltage >12 V. The Elemento is protected by a 3,15 A fuse on the red positive wire against overcurrent.
<i>Power consumption:</i>	Stand-by modus (weight compensation active)      (A)= 0,03    (W)= 0,7
<i>The base mechanism of the Elemento is fully mechanical. Therefore it uses almost no power when in standby modus (when no motors are being used, but the weight compensation is available).</i>	Weight compensation force      (A)= 0,53    (W)= 12,6
<i>Housing material:</i>	Die cast aluminum and ABS plastic
<i>Unique identification of the object:</i>	SN: ELxxxxxx (product and serialnumber)
<i>Description of object:</i>	Electronically controled, mechanical arm support
<i>The object complies with the following directive:</i>	93/42EEC Medical Device Directive
<i>The object complies with the following Standards:</i>	EN ISO 22523:2006 External Orthoses IEC 60601-1 Medical Electrical Equipment
<i>The object of the declaration described above meets the demands for CE labeling:</i>	Medical Device Class I



## Armon Products

Armon Products BV develops and manufactures high end dynamic arm supports and accessories according to the highest standards of quality making use of the latest technology and fully adhering to current directives and norms.

Particular attention has been paid to the design, easy operation, function and safety of the equipment and the final result is this modern, compact unit.

### Armon stands for Innovation, Design and Durability.

**Our goals are to increase upper limb mobility, make people less dependant and improve quality of life.**

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