

Hip Orthosis DynaCox[®] evolution



User Manual



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◆ Product Description

The DynaCox evolution hip orthosis combines the proximal effect of a bandage (proprioception) and the integrated stabilising elements of an orthosis working according to the three-point-principle.

The elastic, fully-fashioned knitted fabric ensures an even compression and optimal wearing comfort as well as completing the force system required to limit flexion. The ROM-Flex joint allows the adjustment of flexion or extension movements in steps of 15°.

The TRI-Flex joint is limited to a maximum flexion of 70°. Extension is not limited.

The modular design allows for quick treatment and full adaptability.

The DynaCox evolution hip orthosis is approved for clinical and domestic use.

◆ Indication

- After repositioning of luxated hip joint
- Instability after Total Hip Replacement (THR)
- Muscle imbalance

◆ Contra-Indication

- Inappropriate bony alignment due to position of prosthesis or acetabulum

◆ Function

- Safeguarding surgical results
- Dislocation prophylaxis
- Early functional motion therapy

◆ Description

The DynaCox evolution has a modular design. The orthosis can be fitted individually to each patient, and can be combined with any bandage size.

DynaCox® evolution with TRI-Flex Joint, including Bandage

REF left	REF right	Size	Circumference (cm)	
			Hip	Thigh*
23 600 101 00	23 600 201 00	S	70 - 85	40-52
23 600 102 00	23 600 202 00	M	85 - 100	48-60
23 600 103 00	23 600 203 00	L	100 - 120	56-68
23 600 104 00	23 600 20400	XL	115 - 135	62-76
23 600 105 00	23 600 205 00	XXL	130 - 150	65-80

DynaCox® evolution with ROM-Flex Joint, including Bandage

REF left	REF right	Size	Circumference (cm)	
			Hip	Thigh*
23 600 101 01	23 600 201 01	S	70 - 85	40-52
23 600 102 01	23 600 202 01	M	85 - 100	48-60
23 600 103 01	23 600 203 01	L	100 - 120	56-68
23 600 104 01	23 600 204 01	XL	115 - 135	62-76
23 600 105 01	23 600 205 01	XXL	130 - 150	65-80

Bandage Sizes (REFs refer to individual bandages without orthosis components)

DynaCox® evolution Bandage, left	DynaCox® evolution Bandage, right	Size	Circumference (cm)	
			Hip	Thigh
23 601 101 00	23 601 201 00	S	70 - 85	40-52
23 601 102 00	23 601 202 00	M	85 - 100	48-60
23 601 103 00	23 601 203 00	L	100 - 120	56-68
23 601 104 00	23 601 204 00	XL	115 - 135	62-76
23 601 105 00	23 601 205 00	XXL	130 - 150	65-80

*Consider thigh circumference when patient's hip circumference is close to next smaller or larger size.

We recommend the use of a spare bandage (REF 23 601 XXX XX) and a spare set of pads (REF 23 602 020 00) when the DynaCox evolution has to be worn for an extended period of time.

◆ Safety

- Before using this device an individual adaptation of the orthosis and a familiarisation in its use by an orthotist or experienced orthopaedic technician according to the medical instructions is essential.
- Incorrect selection, adaptation, application and/or failure to monitor the correct fit of this device can cause health damage.
- Never wear the orthosis on broken skin.
- Check orthosis for damage (such as loose connections, fasteners, belts, etc.) each time it is put on.
- Should any performance malfunctions (like an apparent reduction in or lack of corrective action) be suspected, immediately call an orthotist or experienced orthopaedic technician.
- The orthosis must be checked for function, correct fit and possible damage by an orthotist or orthopaedic technician at regular intervals.
- Should the product have been subject to disproportionately strong forces, it must be checked for possible damages by an orthopaedic technician before further use.
- Sharp edges or the like, which may occur when machining the product, must be deburred in order to avoid skin injuries.
- Intolerable pressure caused by the orthosis may cause skin injuries or a disturbance in the blood supply and must be avoided.

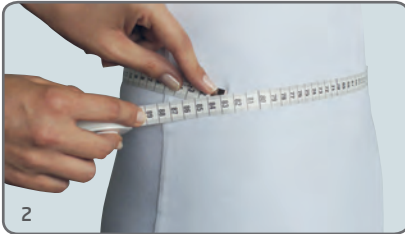
Due to the required individual adaptation (product-dependent forming and/or machining) of the orthosis it is not suitable for reuse by other persons!

◆ Application/Adjustment

Please note: The DynaCox evolution can be applied either with the patient standing or lying. The following instructions will point out the differences between these two types of application.

◆ Taking measurements

- 1) The starting point in the pelvis area is the greater trochanter.
- 2) Measure the hip circumference (about 6 cm above the greater trochanter).



- 3) Note down the measurement.

◆ Pre-Adjusting the Orthosis Component

To keep the application time as short as possible for the patient, please make all adjustments on the orthosis component without the bandage. Only connect the orthosis component with the bandage when all of the following pre-adjustments have been completed.

Checking the Condylar Clasp for Appropriate Fit

- 1) The DynaCox comes with two different pads for the condylar clasp, i.e. a thicker and a thinner one.



- 2) With the thicker pad attached to the inside of the condylar clasp, hold the condylar clasp in position on the patient's leg (on the affected side), and see whether this configuration fits for the patient. Should the condylar clasp now be too narrow for your patient's leg, replace the pad with the thinner one.



Adjusting the ROM-Flex Joint

Please note: Always only open one of the stop screws at a time.

- 1) Upon delivery the ROM-Flex joint is set to 60° flexion and extension.
- 2) To change the range of motion, completely unscrew one of the stop screws.



- 3) The current angle value can be seen on the scale on the joint.
- 4) Place the stop screw in one of the threads so that the desired flexion or extension can be achieved. Now tighten the screw again.
- 5) Flexion and extension can be adjusted in increments of 15°.
- 6) Unscrew the second stop screw and repeat the process.
- 7) Tighten this stop screw as well to finish the adjustment of the joint.

TRI-Flex Joint

The TRI-Flex joint is limited to a maximum flexion of 70°. Extension is not limited.

Pre-Adjusting the Lateral Bars

- 1) Hold the orthosis alongside the patient's affected leg for orientation.
- 2) Now insert the upper lateral bar into the Click&Lock closure on the pelvic panel. Adjust the length of the bar so that the upper edge of the femur panel sits directly under the greater trochanter. At the same time, the pivot point of the orthosis' joint should be positioned congruently with the anatomical pivot point of the hip joint.



- 3) Secure the upper bar's position by only pushing the Click&Lock closure in until it touches the pelvic panel, but do not push the latch all the way into the cut-out on the panel. Do not lock the closure completely yet, so it remains possible to make adjustments later on, if needed.



- 4) Now insert the lower lateral bar into the Click&Lock closure on the femur panel. The condylar pad at the lower end of the bar should sit laterally above the patient's condyles.



- 5) Now secure the lower bar's position by only pushing the Click&Lock closure in until it touches the femoral panel but do not push the latch all the way into the cut-out on the panel. Do not lock the closure completely yet, so it remains possible to make adjustments later on, if needed.
- 6) **Please note:** The adjustment area of the lateral bars is defined by the holes in the bar. At all settings, short or long, one of the holes in the bar still must be caught by the pin on the latch of the Click&Lock closure. Do not extend the bar to a length that will not allow the pin of the closure to lock into one of the holes. Please make sure that the assembly is accurate before putting the orthosis on the patient.



To set the bar to the smallest length possible, the bar can be pushed into the femoral panel until it touches the upper, inner edge of the panel.



Do not close the Click&Lock closure completely yet. However, please be aware that, when later closed, the Click&Lock closure will only sit flush against the orthosis if the pin on the latch catches one of the holes in the bar.

In case the Click&Lock closure cannot be locked completely later on, try to push or pull the bar up or down a little while the Click&Lock closure is already closed, so the pin can lock into the next hole.

- 7) Now adjust the position of the condylar pads. Do so by pushing the pads along the tongue-and-groove joint between condylar clasp and condylar pad. This way, the pads can be moved into a more anterior or posterior position. Secure the position by tightening the hexagon socket screw.



- 8) In case your patient's leg circumference is very wide, it may be necessary to tilt the condylar brace in order to achieve a good fit. To do this, loosen the hexagon socket screw connecting the lateral bar with the condylar clasp. Take care to loosen, but to not remove the screw. It is now possible to tilt the condylar brace "upwards" by seven degrees. After the position of the condylar brace has been adjusted, tighten the screw again.



- 9) The position of the condylar pads can be adjusted step by step, by pushing the pads further to the front or the back of the condylar brace.



Please do not lock the position of the condylar pads for the time being, so it remains possible to make adjustments later on, if needed.

The condylar pads should be positioned medially and laterally above the patient's condyles.

Please refer to the table below as a guide when adjusting the width of the pelvic brace as described in the following steps. However, the exact adjustment should always be defined by the orthotist or experienced orthopaedic technician who is fitting the brace.

Size Adjustment Pelvic Brace		
Hip Circumference (cm), Orthosis WITH Bandage	Hole on Posterior Belt, Counted from the Middle of the Belt	Hole on Anterior Belt, Counted from the Middle of the Belt (Buckle)
76	1	1
78	1	1
81	2	1-2
84	2	1-2
87	3	1-2
90	3	1-2
93	4	2
96	4	2
99	5	2-3
102	5	3
105	6	3-4
108	6	4
111	7	4-5
114	7	5
117	8	5-6
120	8	6
123	9	6-7
126	9	7
129	10	7-8
132	10	8
135	11	8-9
138	11	9
141	12	9-10
144	12	10
147	13	10-11
150	13	10-12
153	13	12-13

Please note: The numbers in the 2nd and 3rd column denote the hole in the belt into which the outer peg of the pelvic panel should be locked to achieve a good fit. Ideally, the adjustment on the right and left end of either belt should be kept symmetrical.

Pre-Assembling the Pelvic Brace

- 1) The pelvic brace consists of four components:
- an anterior belt (recognisable by the central buckle)
 - a posterior belt (recognisable by the sticker „UP/INSIDE“)
 - two pelvic panels (marked left and right)
- The width of the hip brace can be adjusted by changing the length of the anterior and posterior belt. Take the hip measurement as an orientation when initially adjusting the belts.



- 2) Remove the pads from the pelvic panels, and adjust the posterior belt so that the lateral Click&Lock closures and the lateral bars are positioned on the lateral femoral centre line.



- 3) Detach the posterior belt from the two pegs on the pelvic panel.
- 4) Pull or push the posterior belt to the desired length.
- 5) Snap the pegs on the pelvis panel back into the holes on the belt to secure the

adjustment. Please make sure to first snap the inner, then the outer peg into place.



- 6) Repeat the process on the other end of the posterior belt.
- 7) Now adjust the anterior belt. Detach the belt on one side from the two pegs on the pelvic panel.
- 8) Pull or push the anterior belt to the desired length.
- 9) Snap the pegs on the pelvic panel back into the holes on the belt to secure the adjustment. Please make sure to first snap the inner, then the outer peg into place.
- 10) Repeat the process on the other end of the anterior belt.
- 11) If the patient is very slender, it can be helpful to shorten the posterior and anterior belt after attaching them on the pelvic panels. To do so, cut the belts with a suitable pair of scissors (Part number for tool set: 23.600.990.00). Please make very sure that the pelvic brace has been adjusted properly before shortening the belts.



- 12) Now put the pads back into the pelvic panels.

Attaching the Orthosis Component to the Bandage

- 1) Open the central buckle on the anterior belt.
- 2) Attach the orthosis component to the bandage by pushing the pelvic brace through the loop on the back of the bandage. Start by feeding the end of the pelvic brace that will later be placed on the unaffected side of the patient into the loop.



- 3) Now insert the femoral panel into the pocket on the bandage.



- 4) Close the zipper of the bandage over the lower lateral bar.



- 5) Close the hook-and-loop fastener on the upper end of the pocket on the bandage.



◆ Fitting the Orthosis on the Patient Applying the Brace with the Patient Standing

Please note: The patient should be standing with slightly abducted legs to allow for easier adjustment of the DynaCox evolution.

- 1) When putting the brace on the patient, the upper edge of the femoral panel should be placed directly below the greater trochanter, and lateral bars should be positioned on the lateral femoral centre line.
- 2) Close the bandage's pelvic hook-and-loop closure.



- 3) Now put the condylar brace around the patient's leg, and check the position of the condylar pad. The position of the condylar pads can be adjusted step by step, by pushing the pads further to the front or the back of the condylar clasp.



- 4) Secure the position of the condylar pads by tightening the Allen head screws. Take care not to tighten the screws too much (1Nm).



- 5) Now close the pelvic brace of the orthosis component. If necessary, adjust the length of the anterior and posterior belt again. Minimal adjustments can also be made with the straps to the right and the left of the central buckle on the anterior belt.



- 6) Close the condylar clasp by feeding the hook-and-loop strap into the strap guide and closing it.



- 7) Close the thigh section of the bandage.



The loop strap of the hook-and-loop closure on the bandage can be shortened with a suitable pair of scissors (REF 60 011 000 00). Make sure to cut between the scored lines when shortening the strap.

- 8) Re-check the correct fit of the orthosis.
- 9) Once a correct fit has been achieved, secure the Click&Lock closures on the femoral panel and the hip brace.

Please note: Only close the Click&Lock closures by pushing against the latch with your thumbs and SIMULTANEOUSLY creating counter pressure with your fingers. This will ensure that neither the leg nor the hip of the patient are subjected to any possibly harmful pressure.



- 10) It may be necessary to open the central buckle of the pelvic brace again in order to be able to push the latches of the Click&Lock closures into position.
- 11) **Please note:** When closed, the Click&Lock closure will only sit flush against the orthosis if the pin on the latch catches one of the holes in the bar.
- 12) In case the Click&Lock closure cannot be locked completely, push or pull the

bar up or down a little, so the pin can lock into the next hole.

- 13) After pushing the latches flush against the orthosis, any unintended opening of the DynaCox evolution will not be possible anymore. To open the Click&Lock closures, insert an Allen key into the opening on the backside of the closure, and push the latch open.



Technician`s advice:

In case there is a high degree of atrophy, doubling the padding may be helpful to achieve a proper fit. Additional pads can be ordered with the part number 23.602.020.00.

Applying the Brace with the Patient Lying

Please note: In order to make the process as simple as possible for both patient and orthotist or experienced orthopaedic technician, accurately pre-adjusting the DynaCox evolution is especially important when fitting the orthosis on a patient who is lying.

- 1) During the application, the patient should be lying on her/his back.
- 2) Together with the bandage, pass the pelvic brace under the lumbar region of the patient.



- 3) Position the DynaCox evolution in a way that places the upper edge of the femoral panel directly under the greater trochanter, and that the lateral bars are positioned on the lateral femoral centre line.

- 4) Close the bandage's pelvic hook and loop closure.



- 5) Now close the pelvic brace of the orthosis component. If necessary, adjust the length of the anterior and posterior belt again.



Minimal adjustments can also be made with the straps to the right and the left of the central buckle on the anterior belt.



- 6) Now put the condylar section around the patient's leg, and check the position of the condylar pads. The position of the condylar pads can be adjusted step by step, by pushing the pads further to the front or the back of the condylar brace.



- 7) Secure the position of the condylar pads by tightening the Allen head screws. Take care not to tighten the screws too much (1Nm).



- 8) Close the condylar brace by feeding the hook-and-loop strap into the strap guide and closing it.



- 9) Close the thigh section of the bandage.



The loop strap of the hook-and-loop closure on the bandage can be shortened with a suitable pair of scissors (Part number for tool set: 23.600.990.00). Make sure to cut between the scored lines when shortening the strap.



- 10) Re-check the correct fit of the orthosis.

- 11) Once a correct fit has been achieved, secure the Click&Lock closures on the femoral panel and the hip brace.

Please note: Only close the Click&Lock closures by pushing against the latch with your thumbs and SIMULTANEOUSLY creating counter pressure with your fingers. This will ensure that neither the leg nor the hip of the patient are subjected to any possibly harmful pressure.



- 12) It may be necessary to open the central buckle of the pelvic brace again in order to be able to push the latches of the Click&Lock closures into position.
- 13) **Please note:** When closed, the Click&Lock closure will only sit flush against the orthosis if the pin on the latch catches one of the holes in the bar. In case the Click&Lock closure cannot be locked completely, push or pull the bar up or down a little, so the pin can lock into the next hole.
- 14) After pushing the latches flush against the orthosis, any unintended opening of the DynaCox evolution will not be possible anymore. To open the Click&Lock closures, insert an Allen key into the opening on the backside of the closure, and push the latch open.



◆ Material

Bandage:	Orthosis Component:
48% Polyester	steel splints
36% CoolMax®	PA 6
16% Spandex	PE

◆ Comfort/Hygiene

An undershirt or T-Shirt should be worn under the DynaCox evolution. Underwear should be worn over the DynaCox evolution.

◆ Compatibility

The DynaCox evolution may not be combined with products other than those mentioned in this instruction manual.

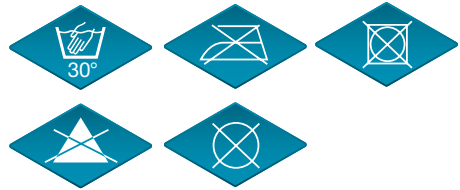
◆ Storage/Disposal

This product does not contain any environmentally hazardous substances. It can be disposed of with household refuse.

◆ Product Care/Cleaning/Maintenance

We recommend the use of a spare bandage when the DynaCox evolution is worn for an extended period of time (REF 23 601 XXX XX).

- Hand wash
- Do not iron
- Do not tumble dry
- Do not bleach
- Do not dry clean
- Wipe orthosis component with a damp cloth to clean



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