



# MANUAL

## THE WILMER® STRETCHING ORTHOSIS

Product from the **WILMER®** line  
Part of the **IMS** series



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**USER**



**PRODUCT INFORMATION**



**PROFESSIONAL**

# WILMER STRETCHING ORTHOSIS INFORMATION FOR THE USER

*The WSO (Wilmer Stretching Orthosis) is a lightweight arm orthosis. The orthosis has a number of features around the elbow, and optional, wrist and hand. This guide explains more about the causes of reduced strength around the elbow, the consequences and the operating principle of the elbow orthosis.*

## WHEN A WSO?

The stretching orthosis is developed for people who struggle to stretch their elbow. Not being able to stretch the arm properly leads to a loss of function of the arm, pain and discomfort. If the arm is not extended for a longer period, shortening of the muscles can occur whereby stretching is even more difficult. This is called a contracture.

## CAUSES OF ELBOW STRETCHING DIFFICULTIES

Not been able, or having difficulties to stretch the elbow can have many reasons. These include the effects of disfunctioning triceps, responsible for extending the arm, or muscle contracture (shortened muscle) caused by spasticity.

## HOW DOES THE WSO WORK?

The WSO contains a spring mechanism that helps to stretch your arm. The spring force of the stretching mechanism can be adjusted to a wide range of settings, so that the required moment of force around the elbow can be set exactly. The WSO will be individually made for your arm. These combined characteristics makes this lightweight orthosis one of the most comfortable in his kind: just enough strength, but not too much, in a well-fitted orthosis.

## TREATMENT IS NECESSARY

In order to restore some functional capabilities to the arm, to prevent contractures or reduce pain, treatment is necessary.

The treatment of contractures asks for a low load stretching, resulting in long term stresses on the internal (viscoelastic) structures of the elbow. This leads to permanent lengthening at relatively low loading levels.



Figure 1: The Wilmer stretching orthosis

## Advantages of the WSO

- ✓ Minimal limitation of normal arm mobility.
- ✓ Can be worn underneath clothing.
- ✓ High comfort of wearing, through the open and light construction.

## THE WSO FOR YOU?

Our clinical experts will be happy to evaluate with you what the best solution is in your case.

Contact us now to learn about the options to get a WSO in your region.

Your local orthotist and physiatrist can also indicate whether the WSO is a viable option in the treatment of your situation.

If you want more information about the wrist orthosis, or if you are wondering if the WSO could benefit you, call us today on +31 (0)53 430 28 36 or email us [info@ambroise.nl](mailto:info@ambroise.nl).

# WILMER STRETCHING ORTHOSIS PRODUCT INFORMATION

## WSO MODELS

The stretching orthosis is available in two models.

The **standard model** supports only the affected elbow, but leaves the hand and fingers free.

The **hand model** not only supports the forearm but also the hand and wrist by means of a hand support (figure 2) in cases of poor wrist and hand control.

All models are available in one size, **left** and **right** and should be individually adapted for perfect fitting.

The stretching orthosis is usually worn on the medial side, but can also be worn as a night splint in a lateral version, so while sleeping there is minimal interference of the orthosis with the body.

The standard model is suitable for upper arm lengths of at least 160 mm (measured from center elbow till armpit). And a minimal length of the forearm of at least 190 mm (measured from center elbow till wrist). Different sizing is available upon request.

## ITEM NUMBERS

Standard model left: 250025

Standard model right: 250026

Hand model left: 250023

Hand model right: 250024

## DONNING AND DOFFING THE WSO

The WSO is preferably worn underneath clothing, but can be worn over clothing. In that case the orthosis slips somewhat easier. Slide the orthosis on the affected arm, the upper pelottes should rest on the biceps and wrist. The elbow is positioned between the pelottes at the bottom side of the orthosis. See figure 1. Let the hand rest in the hand support in case you chose for the hand model. (figure 2)

## MAINTENANCE WSO

The WSO can be cleaned with a damp cloth. Frequent maintenance extends the life of the entire product. Replacing simple and



Figure 2: The Wilmer stretching orthosis with hand extension.

relatively cheap parts in time contributes to wear reduction on expensive and difficult to replace parts. That is why we recommend to make an appointment for maintenance at least once a year.

Required maintenance is important for continued high wearing comfort by replacing parts that are in direct contact with the skin, for example the pelottes and hand support.

## REPLACEMENT OF SPARE PARTS

It may occur that parts of the orthosis need to be replaced. Of course you can order these from us. Please contact us and we will send a replacement part.

## ADJUSTING THE ORTHOSIS

If you have the feeling the orthosis is too tight (pinches) or too loose (slips) it is important that the orthosis will be properly fitted.

# WILMER STRETCHING ORTHOSIS INFORMATION FOR THE PROFESSIONAL

## PRODUCT PACKAGE

- one elbow orthosis (one size; individually adjusted to shape of arm)
- one hand support + extension unit (only for hand model)
- transparent bending tool
- four rubber caps for pelotte carrier. (preassembled)
- one set polyform hinge-cover
- an additional spring for the elbow joint
- one rubber protection cap for forearm tube
- one glue tube (contains Loctite® 638)

## FITTING MANUAL

### Preparation

1. Mark on the arm, the location of the medial condyle. This is the reference for the elbow axis. Position the axis of the elbow orthosis on the medial condyle marking.

### Upper arm

2. If needed, adjust the shape of the pelotte carriers of the upper arm to the shape and size of the upper arm. Use the 4/5mm Ambroise pliers, (Figure 3, item number 300180). Remove if necessary, first the pelottes. Use the Ambroise tools to prevent the product damage. They help to effectively do the job. Make sure the upper arm tube lies on the axis of the upper arm. This will *not* be bent.

### Forearm

3. Adjust the shape of the orthosis to the shape and size of the forearm. Insert



Figure 3: Pliers

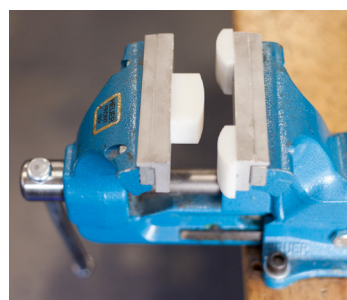


Figure 4: Bending blocks

the transparent bending tool into the forearm tubing before bending. Bend the arm orthosis in the right shape using the bending blocks in a vice. (Figure 4, item number 300129).

4. Cut the forearm tube just behind the styloid process.
5. Attach, if necessary, the rubber cap on the end of the forearm tube.
6. Position the pelotte carriers of the forearm at the desired positions. Glue the slider to the desired position using the included glue (Loctite 638). The pelotte carrier which is closest to the hinge will be positioned at the posterior side.
7. Customize the shape of the pelotte carriers to the shape and size of the forearm. Use the Ambroise pliers (Figure 3). Make sure the flat oval forearm tube is aligned to the axis of the forearm.

### Handsupport

8. In case of a hand model, the orthosis comes with a hand support + extension unit. Determine the length, position and shape of the extension and cut at the required length. Determine the alignment of the hand in the hand support with reference to the arm frame and mark this. Lock the hand support to the extension unit by pressing the Dot-Press-Lock inwards, using a regular vice. Open or close the hand support if required. (see [www.youtube.com/AmbroiseHolland](http://www.youtube.com/AmbroiseHolland) for an instruction video).

### Spring tension

9. If extension support of the arm is insufficient, the spring must be set tighter (Figure 5). If extension is compensated too much, for example when pain increases, set the spring less tight. To do this, the locking pin needs to be pulled out of the spring slide with pliers. To do that, the tension of the spring must be removed. Adjust the spring slide at the desired position and reposition the locking pin. Watch the instruction video on: [www.youtube.com/AmbroiseHolland](http://www.youtube.com/AmbroiseHolland)
10. The spring can be adjusted over a large number of settings, but can also be doubled up. The spring should be set to generate just enough extension moment, so that the flexors are not loaded too much. For the treatment of contractures long-term stresses on the internal (viscoelastic) structures, with relatively low loads lead to better plastic (permanent) elongation.
11. Time is more important than stress levels. A slightly lower spring force often leads to a much more comfortable situation so that the orthosis can be worn longer, and better results can be achieved.
12. Finally, the WSO needs to be covered. Therefore, apply the polyform padding on the medial and lateral side of the hinge-cover.
13. If requested the pelotte carriers with different sizes can be ordered. You will find a order form attached to this manual.

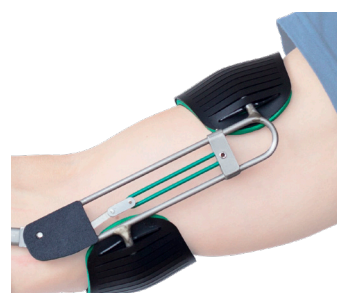


Figure 5: Spring



## DOT-PRESS-LOCK HANDEXTENSION



Follow these steps when mounting the hand support to the W2DO/ WEO/WSO.



A dot is welded to the hand support



Step 1: Position the hand in the desired angle. (pronation - supination). And mark the right angle with a marker.



Step 2: Mark also the opposite side.



Step 3: Remove the hand support from the hand extension frame, and apply the glue (Loctite® 638).



Step 4: Put the hand support back on the tube. Make sure the marked lines match.



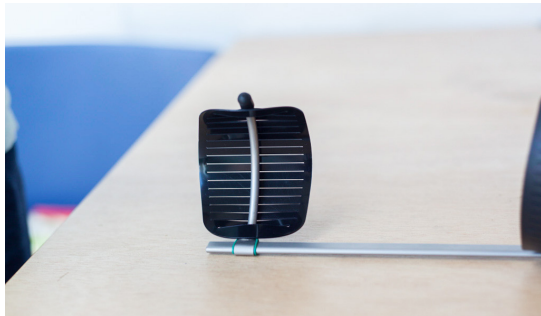
Step 5: Press the dot inwards with a vice in order to lock the hand support in place.



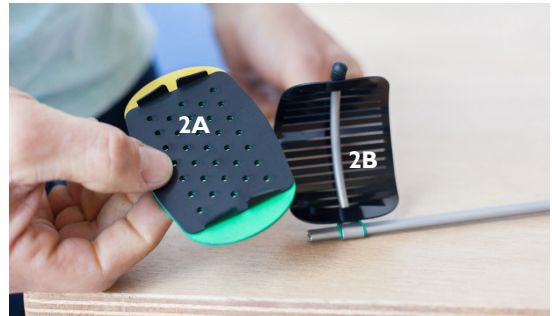
Step 6: The dot is now pressed into the tubes so the hand support is secured in place.



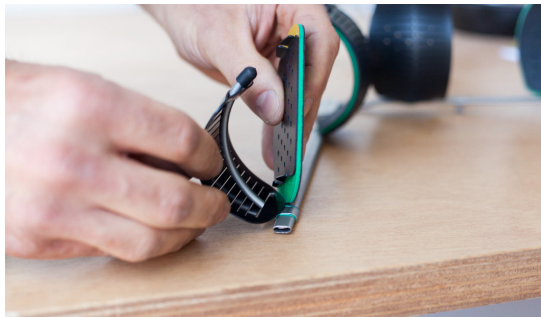
Placing pelottes. Identical for al IMS pelottes. In this series you see the application to the Wilmer Elbow Orthosis.



1. Slide the outer shell on the tube (matte side out).



2A: inner shell + 2B: outer shell.



3. Remove the yellow strip, and press the flaps of the inner shell trough the first groove of the outer shell.



4. Shape to an S-bend.



3. Press the flaps of the inner shell through the outer groove of the outer shell.



4. Push the flaps properly through the groove so they are visible on the outside.



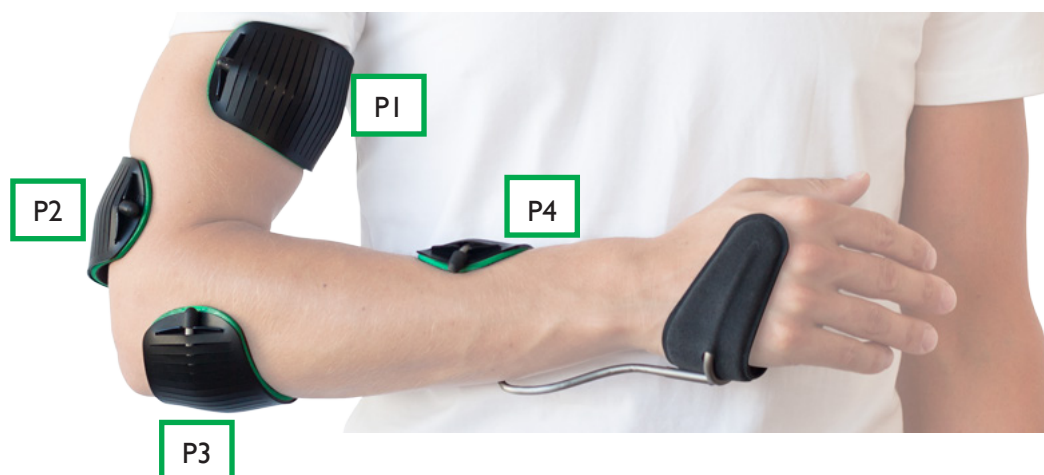
5. Remove the yellow strip so that the adhesive strip is exposed.



6. Press the adhesive strip well.

# WSO ORDER FORM SPECIAL SIZES PELOTTE CARRIERS

Mail this form to [info@ambroise.nl](mailto:info@ambroise.nl) to order differently sized pelotte carriers for your client.



Size	Pelotte size	Suitable circumference	Lower limit	Upper limit	Item code	Amount
IMS-XS	60 mm wrist	160 mm	140 mm	180 mm	250350	<input type="text"/>
IMS-S	80 mm forearm upper arm	200 mm 220 mm	180 mm 200 mm	220 mm 240 mm	250351	<input type="text"/>
IMS-M	100 mm forearm upper arm	240 mm 260 mm	220 mm 240 mm	260 mm 280 mm	250352	<input type="text"/>
IMS-L	120 mm forearm upper arm	280 mm 300 mm	260 mm 280 mm	300 mm 320 mm	250353	<input type="text"/>
IMS-XL	140 mm forearm upper arm	320 mm 340 mm	300 mm 320 mm	350 mm 360 mm	250354	<input type="text"/>

The standard WSO is assembled with pelotte carriers in size XS for the wrist and size M for the other pelotte carriers.  
If necessary, P3 and P4 can be delivered in size S, M, L and XL.  
Different sizes for P1 and P2 can be mounted on the WSO by Ambroise. Please send us what size you request by filling in this form.





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