



# MANUAL WILMER CARRYING ORTHOSIS

Part of the WILMER® product line

---

Twekkeler Es 24, 7547 SM Enschede, The Netherlands  
+31 53 4302836 | [info@ambroise.nl](mailto:info@ambroise.nl) | [www.ambroise.nl](http://www.ambroise.nl)  
[www.youtube.com/AmbroiseHolland](http://www.youtube.com/AmbroiseHolland) | [www.facebook.com/AmbroiseHolland](http://www.facebook.com/AmbroiseHolland)

---



**USER**



PRODUCT



PROFESSIONAL

# WILMER CARRYING ORTHOSIS USER INFORMATION

The WILMER Carrying Orthosis is intended for people suffering from a (partially) dislocated shoulder (shoulder (sub)luxation). This often painful situation prevents proper functional use of the affected arm. The arm hangs from its capsule and ligaments and in time dislocates further and further.

## WHEN TO USE A WILMER CARRYING ORTHOSIS?

The carrying orthosis is developed for people suffering from a (partially) paralysed arm where the nerves innervating the muscles around the shoulder are damaged. As a result the full weight of the arm needs to be carried by the ligaments and capsule of the shoulder joint. A constant loading like this results in a (sub)luxation of the shoulder joint, leading to pain and discomfort. Because the muscles in the arm are no longer active usually oedema formation in hand, fingers and forearm can be seen.

## CAUSES OF SHOULDER MUSCLE DYSFUNCTION

The cause of shoulder (sub)luxation, in most cases, is a paralysis of the muscles around the shoulder as a result of brain injury, like stroke, or a Brachial Plexus lesion. The latter is a damaged nerve node, positioned behind the clavicle, that innervates almost all muscles in the arm. When this nerve node gets damaged (for example when breaking the clavicle) this usually results in serious muscle failure in the arm, amongst others around the shoulder. Clavicle breakages are frequent with falling on the shoulder, for example in bicycle or motorcycle accidents. On top of shoulder muscle failure often also muscle failure around the elbow, wrist and hand can be seen.

## THE WILMER CARRYING ORTHOSIS

The carrying orthosis is the only orthosis in the world that effectively neutralises a shoulder (sub)luxation.

Thanks to the smart balancing construction the arm pushes itself upwards, bringing the shoulder back into its joint position again.



Figure 1: WILMER Carrying Orthosis

### The benefits of the WCO

- ✔ Effective neutralisation of shoulder subluxation.
- ✔ Reduced chance on oedema formation in hand, fingers and forearm.
- ✔ Reduced pain and discomfort in arm and shoulder.
- ✔ No neck loading.
- ✔ Only minor limitation of arm mobility.
- ✔ Can be worn fully underneath clothing.
- ✔ High wearing comfort partly because of open and lightweight construction.

## TREATMENT IS NECESSARY

In general a shoulder (sub)luxation is a permanent condition. If a (sub)luxation remains untreated, the shoulder will gradually increase its drop out of position. This is usually a highly painful situation. On top of that the arm can hardly be used functionally. An orthosis is necessary to prevent further increase of the (sub)luxation, to reduce pain and to regain some of the arm functions.

## HOW DOES THE CARRYING ORTHOSIS WORK?

Treating the shoulder (sub)luxation by wearing a sling may reduce loading on the ligaments and capsule, it doesn't neutralise the (sub)luxation itself. On top of that a sling needs to be worn over clothing, highly limits arm mobility and loads the neck.

The use of the WILMER Carrying Orthosis does lead to effective neutralisation of the (sub)luxation. The Carrying Orthosis suspends the arm close to the elbow (see Figure 2), leading

to a slight misbalance of the weight of the forearm in reference to the weight of the upper arm. When the forearm is directed downwards by gravity, the upper arm is, at the same time, pushed upwards, leading to the head of the upper arm finding its support in the shoulder joint again.

The Carrying Orthosis is equipped with a shoulder cap that leaves the neck unloaded. The design of the Carrying Orthosis allows it to be worn fully underneath clothing. There is only a mild limitation of arm mobility. The predominantly horizontal position of the forearm reduces the chance on oedema formation. The Carrying Orthosis is also used post-operatively to reduce loading of the shoulder joint, for instance after surgery on the humerus head or to prevent oedema formation after breast surgery resulting in a damaged lymph system.

### COULD THE WILMER CARRYING ORTHOSIS BENEFIT YOU?

If you're interested in additional information on the carrying orthosis, or if you want to find out if the carrying orthosis could benefit you, please feel free to contact us. You can phone us at +31 53 430 28 36 or email us: [info@ambroise.nl](mailto:info@ambroise.nl). One of our clinical experts is more than happy to discuss the best solution for your problems with you. And we're more than happy to see how we can realise a well fitted Carrying Orthosis for you, provided that this will be a suitable option in your case. Your local orthotist or specialist should also be able to provide additional information on the applicability of the WILMER Carrying Orthosis in your case.

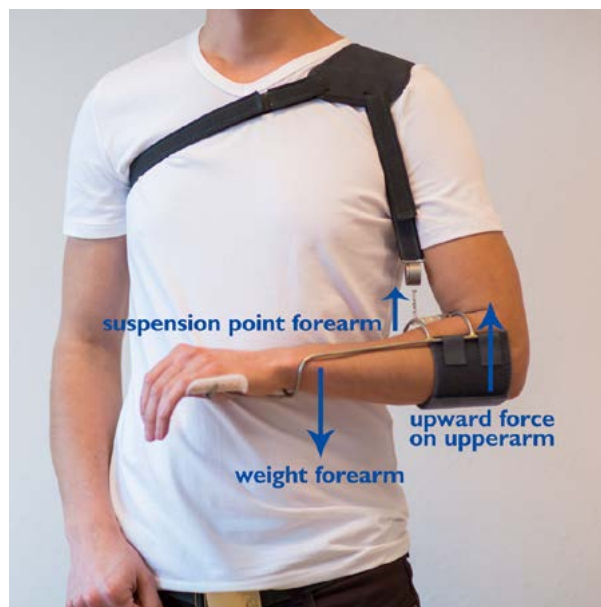


Figure 2: Working principle WILMER Carrying Orthosis

# WILMER CARRYING ORTHOSIS PRODUCT INFORMATION

## WILMER CARRYING ORTHOSIS MODELS

The WILMER carrying orthosis **standard unit** supports the paralyzed arm, wrist and hand (fig 5). Also available are the **hands-free unit** which optimally supports the paralyzed arm and wrist ensuring optimal hand and finger mobility (fig 6), and the **wrist-free unit** which optimally supports the paralyzed arm ensuring optimal wrist, hand and finger mobility (fig 3).

All units are available in **normal** and **large** sizes and in **left** and **right** models.

**Normal sized** models support forearms between 23 and 29 cm of length and between 23 and 29 cm of forearm circumference (fig 4).

**Large sized** models support forearms between 23 and 29 cm of length and between 28 and 34 cm of forearm circumference (fig 4).

Weight: forearm brace: 170 gr; shoulder cap: 80 gr

## DONNING AND DOFFING THE CARRYING ORTHOSIS

The carrying orthosis is preferably worn underneath clothing, but can be worn on top of clothing. The orthosis slips somewhat easier in that case. The orthosis can be unlocked by pulling out the Vertex (F. figure 3). After that the arm can be extended, for instance to facilitate donning and doffing clothes. It requires a certain amount of training to get accustomed to donning and doffing the orthosis. Allow yourself some time for that. Please take a look at our donning and doffing instruction video on the Ambroise YouTube channel.

[www.youtube.com/AmbroiseHolland](http://www.youtube.com/AmbroiseHolland)

## MAINTENANCE OF THE CARRYING ORTHOSIS

The shoulder harness can be hand washed. Please remove the straps from the orthosis. Make sure to close the Velcro in order to prevent cloth from sticking to it. You can use a laundry bag at temperatures of max 30°C.

## WEARING INSTRUCTIONS

Open chest strap (A). Stick the arm through the suspension strap (B). Position shoulder cap (C) on the shoulder. Close strap on the chest (A). Make sure the shoulder harness leaves the head of the humerus completely free. Make sure the inside of the shoulder cap doesn't interfere with the neck. Slide forearm through frame (D+E) and close wrist strap (E). Adjust space between arm and frame using the Velcro closures (D+E). Push the knob on the Vertex to unlock and pull the hook (F) out. Connect the hook to the armframe (G). Suspension strap (B) should be adjusted to horizontally level out the forearm. Placing the suspension point of the Vertex (F) closer to the upper arm increases upward action of the carrying orthosis and vice versa.

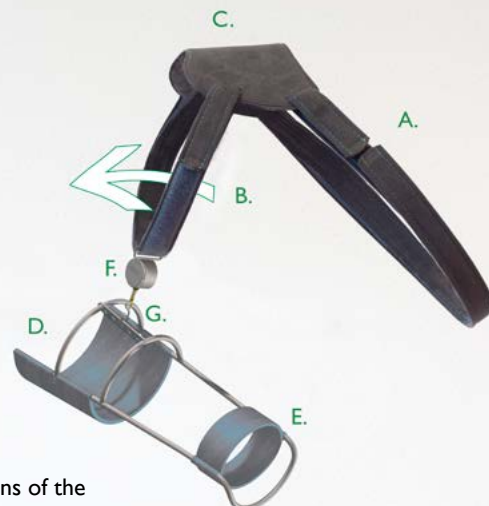


Figure 3: Wearing instructions of the WILMER2 Carrying Orthosis, wrist free unit.

Parts in direct contact to the skin that need to be washed regularly are more sensitive to wear and need to be replaced more often.

Additional parts of the orthosis can be cleaned using a damp cloth.

## ORDER ITEM NUMBERS

250003 | WCO, Carrying Orthosis, standard (hand support), large, left  
 250004 | WCO, Carrying Orthosis, standard (hand support), large, right  
 250005 | WCO, Carrying Orthosis, standard (hand support), normal, left  
 250006 | WCO, Carrying Orthosis, standard (hand support), normal, right

250007 | WCO, Carrying Orthosis, hands free unit, large, left  
 250008 | WCO, Carrying Orthosis, hands free unit, large, right  
 250009 | WCO, Carrying Orthosis, hands free unit, normal, left  
 250010 | WCO, Carrying Orthosis, hands free unit, normal, right

250011 | WCO, Carrying Orthosis, wrist free unit, large, left  
 250012 | WCO, Carrying Orthosis, wrist free unit, large, right  
 250013 | WCO, Carrying Orthosis, wrist free unit, normal, left  
 250014 | WCO, Carrying Orthosis, wrist free unit, normal, right

## 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.

## ADAPTING THE ORTHOSIS

If you feel that the orthosis is too tight or too loose, then it is important that your orthosis is brought back into shape for you.

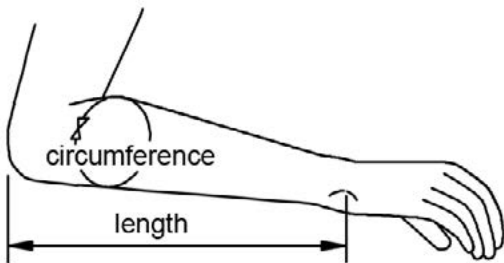


Figure 4: Measurement

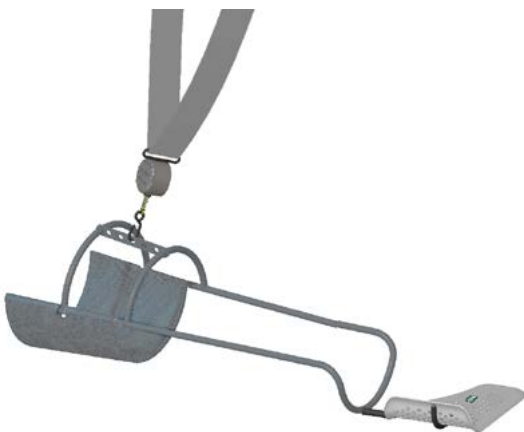


Figure 5: WILMER carrying orthosis, standard model



Figure 6: WILMER carrying orthosis, hands-free unit

# WILMER CARRYING ORTHOSIS INFORMATION FOR PROFESSIONAL

## THE ASSEMBLY KIT

- One stainless steel forearm frame
- One stainless steel wrist/hand brace
  - *standard model: including handcarrier*
  - *hands-free model: including handspoon*
  - *wrist-free model: including wrist strap*
- One spare handcarrier fitting ring
- One elbow strap
- One shoulder harness
- One pipette with glue (contains Loctite® 638)
- End caps (2x)

## FITTING DIRECTIONS

1. Adjust the shape of the forearm brace to the shape of the forearm. Keep the forearm horizontal and place the forearm brace in a position 10 mm from the upperarm, see figure 7. Use the Ambroise tools to prevent product damage. They help to effectively do the job.
2. The standard model comes with a hand extension and a hand support. Determine the position of handcarrier and determine the wrist flexion angle, see figure 8. Adjust the shape of the wrist/hand brace when necessary using the Ambroise 4/5 mm pliers, figure 11 (item order number 300180).
3. Determine the correct length of the forearm brace, see figure 9. Shorten the forearm brace tubing with a hacksaw and connect the forearm brace to the

wrist/hand brace with the glue available in the assembly kit.

4. Connect the elbow straps to the forearm brace, see figure 10. Finish off the tube by placing the end caps.
5. The shoulder cap should be positioned to leave the head of the humerus entirely free but also to not interfere with the neck at the medial side (figure 12,13,14). Place the shoulder cap symmetrically in dorsal/ventral direction. Slide the forearm through the frame. Adjust the suspension strap to horizontally level the forearm.
6. Bringing the suspension point closer to the elbow increases the upward action and will result in a stronger compensation of the subluxation. A more distal position of the suspension point will reduce the neutralisation of the subluxation. When pain increases rather than decreases, the upward action might be too strong and a more distal placement might help in reducing the pain.

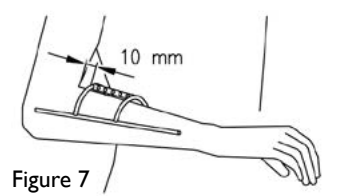


Figure 7

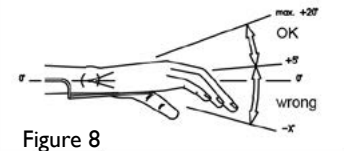
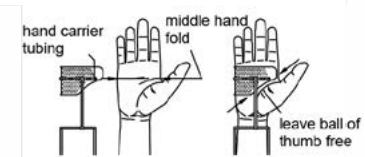


Figure 8

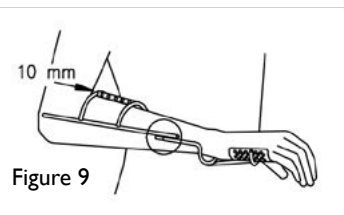


Figure 9



Figure 11: Bending pliers 4/5 mm

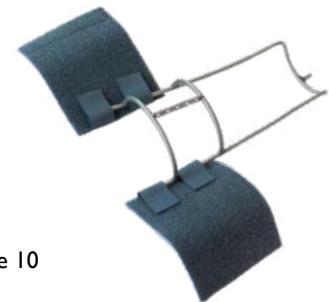


Figure 10



Figure 12: The shoulder cap is pressing the head on the humerus too much.



Figure 13: The shoulder cap is positioned ventrally too much.



Figure 14: The shoulder cap is positioned correctly.

# . Ambroise

Twekkeler Es 24, 7547 SM Enschede, The Netherlands  
tel: +31 53 4302836 | [info@ambroise.nl](mailto:info@ambroise.nl) | [www.ambroise.nl](http://www.ambroise.nl)  
[www.youtube.com/AmbroiseHolland](http://www.youtube.com/AmbroiseHolland) | [www.facebook.com/AmbroiseHolland](http://www.facebook.com/AmbroiseHolland)