

NeuroOrthopaedics – upper extremities

Medical devices for deficiencies in the arm-shoulder-hand region



Quality for life



Effectively supporting rehabilitation of the hand and shoulder

Strokes or other injuries to the central and peripheral nervous system can lead to functional disturbances and deficiencies in the upper extremities. Ottobock offers the Omo and Manu Neurexa plus as well as the H200 Wireless system products for the targeted rehabilitation of the hand and shoulder. Indications for the Omo Neurexa plus include shoulder pain and shoulder dysfunction, while the Manu Neurexa plus supports control of the hand, wrist and fingers. For the first time, combining the two products to form a shoulder- elbow-hand orthosis also makes it possible to significantly enhance functionality.

The H200 Wireless works on the basis of functional electrical stimulation (FES). Focusing on opening and closing the hand makes it possible to consciously control the muscles of the affected hand through a natural gripping movement.

Omo Neurexa plus – correct arm positioning

The arm is taken care of so the patient can better concentrate on gait training.¹



The Omo Neurexa plus facilitates active rehabilitation by correctly positioning the arm without limiting arm movement.

Patients with hemiplegia frequently experience shoulder pain and dysfunction. In case of flaccid paralysis, the humeral head is often poorly positioned (subluxation); this can result in pain, reflexive muscle dysfunction and secondary joint damage. The Omo Neurexa was the first product in our Neurexa line for stroke therapy.

¹ Clinical and Gait Analysis Data on the Omo Neurexa Shoulder Orthosis. Orthopädie Technik, issue 3/2009.

Function and effects

For patients who have had a stroke or injuries to the central or peripheral nervous system, the load-relieving Omo Neurexa plus orthosis can reduce pain. It also offers the possibility of improving the posture and gait pattern by increasing sensorimotor control and supporting the shoulder joint and arm.

The Omo Neurexa plus consists of two parts – a shoulder cuff and a forearm cuff. The two cuffs are connected to one another by a pair of straps. The Omo Neurexa plus positions the humeral head precisely inside the socket of the shoulder joint. This is a prerequisite for the physiological, pain-free interplay of the three true and two false joints of the pectoral girdle during movement.

The Omo Neurexa plus also supports the arm in an extended position with a slight outward rotation. This counteracts the development of the typical spastic pattern consisting of flexion and internal rotation.

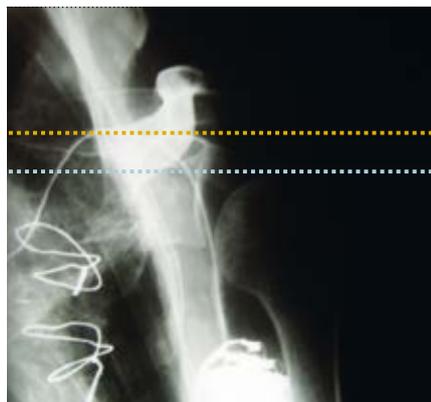
Re-establishing the physiologically correct position of the shoulder joint prevents excessive strain on the capsules, ligaments, tendons, nerves and muscles as well as secondary osteoarthritis – and therefore the resulting pain. Functional motor rehabilitation in accordance with the diagnosis can commence as soon as pain is eliminated.

A repositioning of the humeral head, pain relief and the positioning the upper extremity to counteract spasticity facilitate the free functional treatment and activity of the pectoral girdle and the arm (see x-ray images). A muscle stimulation pad can be easily attached to the inner surface of the shoulder orthosis using a hook-and-loop closure. This offers the option of providing weakened muscles with additional stimulation. These include, for example, the rhomboideus, the lower trapezius or the upper latissimus dorsi.

Indications

Shoulder pain and dysfunction (including subluxation) after stroke, in case of hemiplegia, following intervertebral disc prolapse in the cervical spine, injuries of the brachial plexus, peripheral nerve damage, etc.

Position of the humeral head



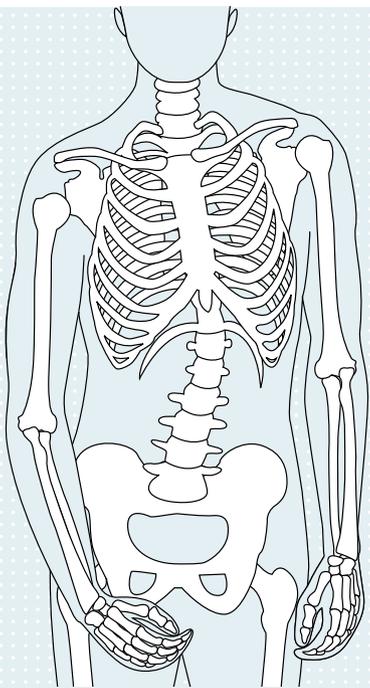
Without Omo Neurexa plus

Humeral head dislocated, see upper edge of blue line



With Omo Neurexa plus

Humeral head repositioned in the joint, see upper edge of yellow line



• Posture without Omo Neurexa plus

Features

- Positively influences the proprioceptors, which can in turn have a positive effect on the sensorimotor system
- The orthosis can also be worn during arm and shoulder training sessions
- A silicone band on the inside prevents slipping, thus ensuring the functionality of the orthosis
- Press buttons in different colours make the orthosis easy to use
- Thanks to the special design, donning and doffing with one hand is possible following the corresponding training (depending on the patient's individual physical capabilities)
- The climate-regulating material ensures excellent wearer comfort
- The special textile structure supports the positioning of the orthosis and helps prevent slipping
- Soft edges prevent chafing and sores
- Muscle stimulation pad made of silicone
- Machine washing at 40 °C is recommended
- Increased effectiveness for repositioning of the shoulder in combination with the Manu Neurexa plus

Supports and centres the shoulder joint

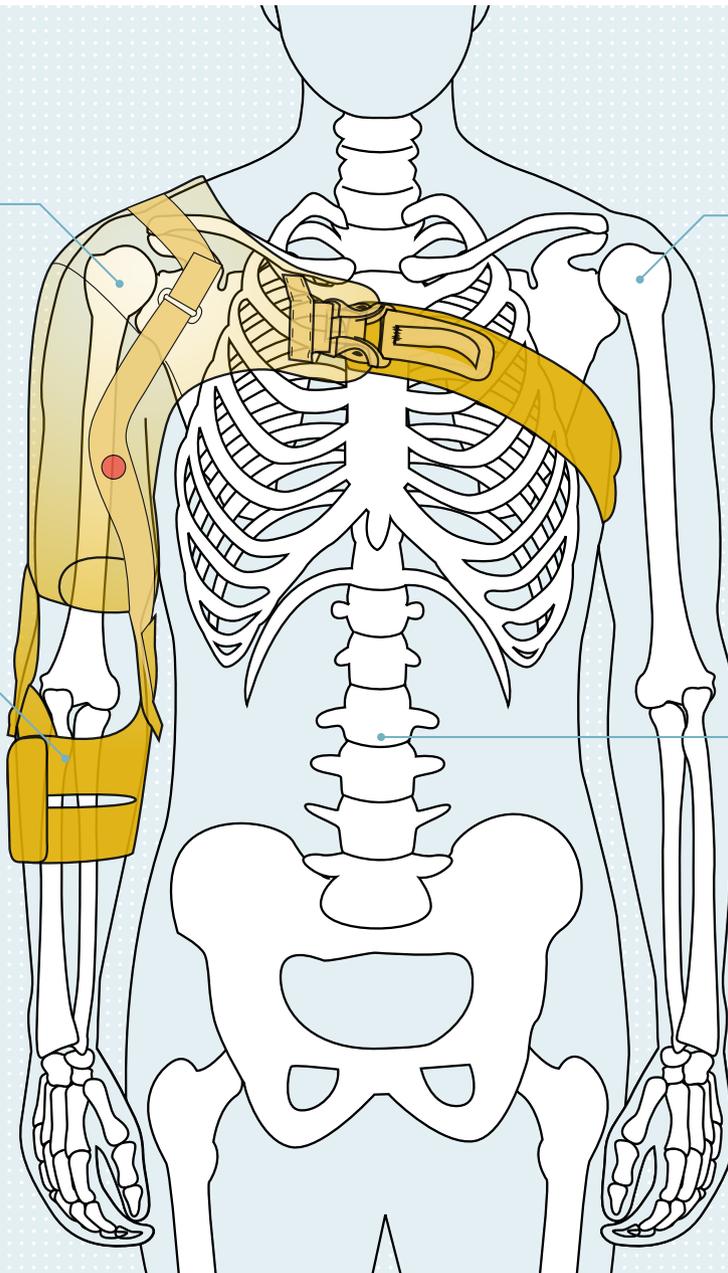
Corrects subluxation and internal rotation while arm remains freely movable

Facilitates active rehabilitation

The patient does not have to concentrate on their arm, and can focus fully on the proper gait

Inhibits pathological movement patterns

Improves body posture and gait pattern



• Posture with Omo Neurexa plus



• Application by the therapist or O&P professional

Use and field of application

The Omo Neurexa plus is recommended for use at even an early stage in rehabilitation, along with functional and specific muscle training and physiological movement of the arm. However, the orthosis is an excellent medical device later in the rehabilitation process as well.

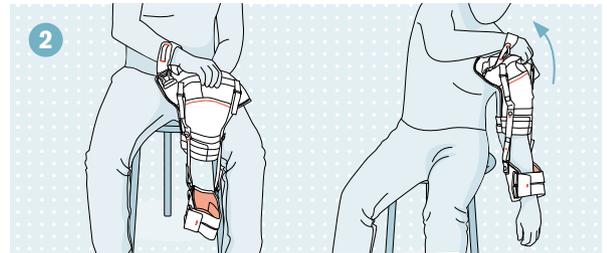
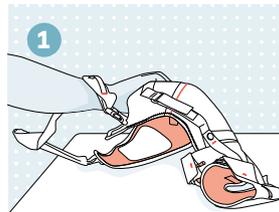
The Omo Neurexa plus must be adapted to the patient by a therapist or O&P professional. The initial donning of the orthosis should be performed by the therapist or O&P professional. Depending on the severity of the disability, the patient may be able to apply the orthosis themselves. Prior to doing so, the patient, as well as their carers and relatives, must be provided with detailed instructions regarding the proper use of the orthosis.

Sizes

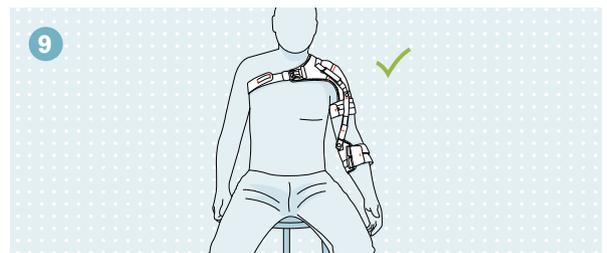
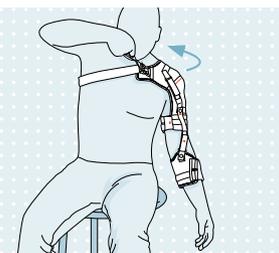
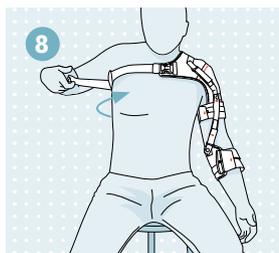
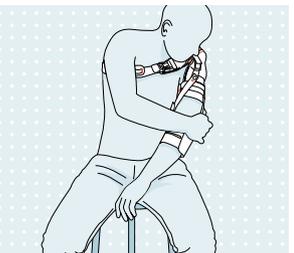
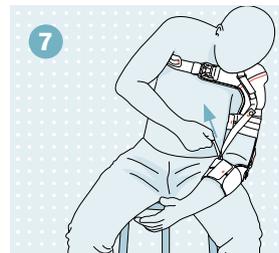
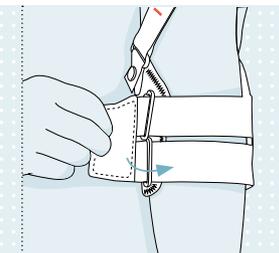
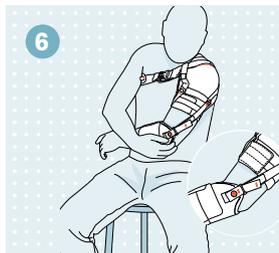
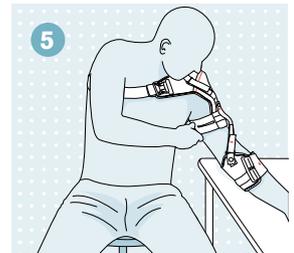
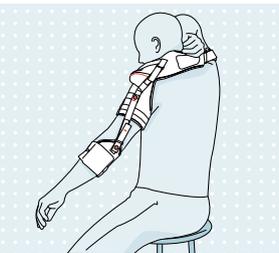
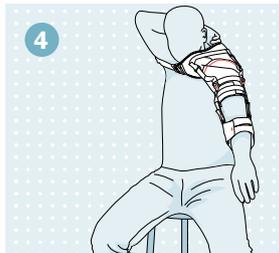
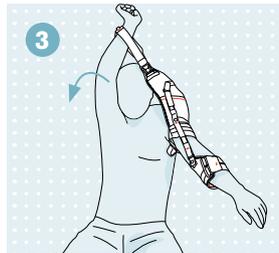
Proper sizing and application are key factors in achieving optimal functionality. The product is available in six sizes (XXS–XL) for the right and left sides.

Article number	Size	Circumference (cm)
5065N	XXS	73–78
	XS	79–86
	S	87–94
	M	95–102
	L	103–110
	XL	111–118

• Measure the circumference above the chest, as indicated in the illustration.



• Can be put on independently by the patient



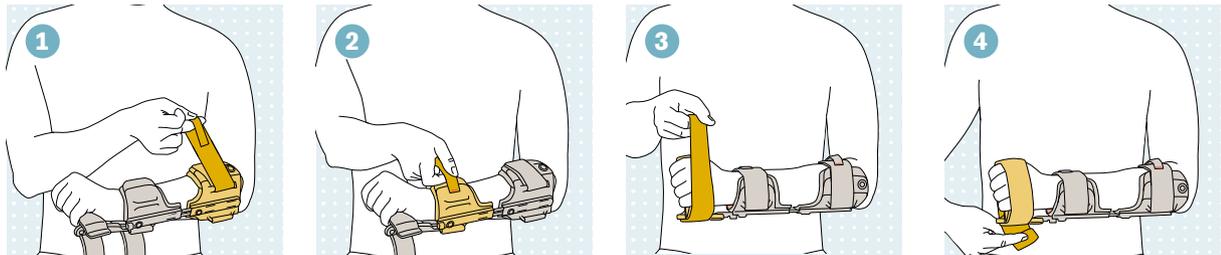
Manu Neurexa plus – support for the wrist and hand

The Manu Neurexa plus sets a new standard for wrist orthoses. It supports the function and/or the positioning of the wrist, hand and finger structures. The orthosis is primarily suitable for patients who have lost control over their wrist, hand and fingers due to a neurological disorder.

Function and effects

The Manu Neurexa plus stabilises and supports the wrist and hand in a natural, neutral position. This encourages active movement, since the more the hand is used and the earlier rehabilitation is started, the more mobility is restored.

- Relieves the wrist in the appropriate functional position with continuous adjustment
- Limits the movement of the hand in the palmar direction
- The hand can be held with either palmar or volar support
- Supports the patient's gripping ability
- Can relieve pain
- Can prevent malpositioning
- Suitable for overnight positioning in combination with the 28P31 hand support rest
- Increased effectiveness for repositioning of the shoulder in combination with the 5065N=* Omo Neurexa plus



Application of the Manu Neurexa plus

Indications

Pareses of the forearm and hand muscles, e.g. in case of hemiplegia resulting from a stroke, after an intervertebral disc prolapse in the cervical spine, brachial plexus injuries; spasticities up to grade 1 on the Ashworth scale are permissible.



Optional: Hand support rest

- The optional hand support rest provides additional support for the fingers and hand. Particularly intended for use during therapy or at night as a night positioning orthosis.
- One universal size
- Includes pads and closures
- Size and side can be easily adjusted with scissors
- Tool-free click system for converting the hand orthosis into a positioning orthosis



Features

- Only one universal size and side
- Thanks to its special design, the user can put on the orthosis themselves with just one hand, depending on their capabilities
- The wrist, which can be fixed in any position, allows the orthosis to be flexibly adapted to the hand
- Improved mobility (functional position)
- Optional hand support rest for positioning the fingers/hand
- Unique option to combine with the Omo Neurexa plus
- Lightweight design covers as little skin as possible for increased patient acceptance
- Climate-regulating material of the pads ensures excellent wearer comfort
- The pads are machine washable at 40 °C

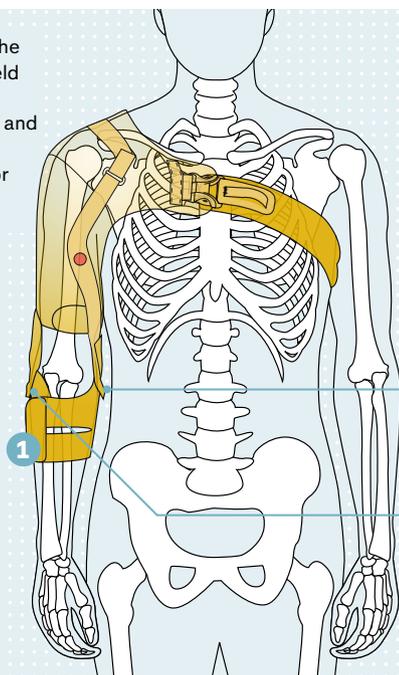


Unique option to combine the Omo and Manu Neurexa plus

The Omo and Manu Neurexa plus are the first orthoses that offer extended functionality when combined with one another. The shoulder-elbow-wrist-hand orthosis (SEWHO) achieves even

better repositioning and stronger external rotation of the shoulder. This results in an improved shoulder position, and spasticities are prevented.

The forearm cuff **1** of the Omo Neurexa plus is held around the forearm by DogSkin textile material and a silicone strap. The orthosis does not shift or twist as a result.

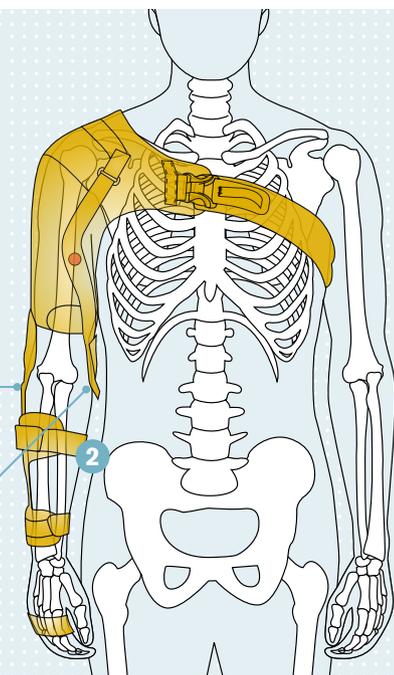


• Omo Neurexa plus

The Manu Neurexa plus **2** is attached to the Omo Neurexa plus by connecting buttons instead of the forearm cuff **1**. It provides significantly more effective control of rotation and the level of relief as the anatomical factors are brought into play. The hand is rotated slightly outwards, and, thanks to the positioning of the thumb, the relieving effect is simultaneously directed up to the shoulder via the bony structure.

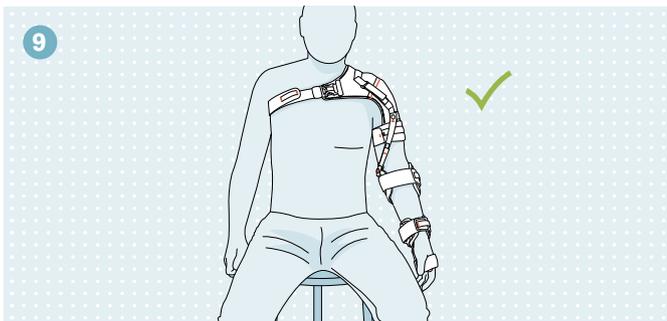
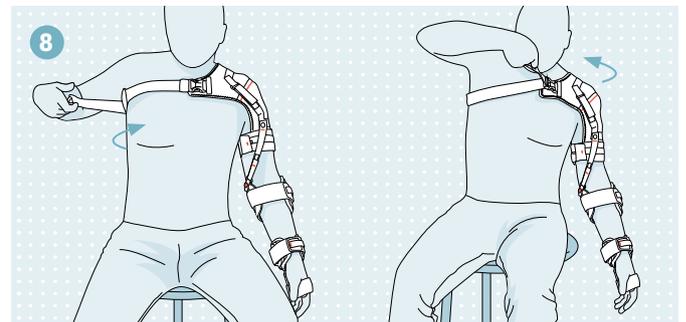
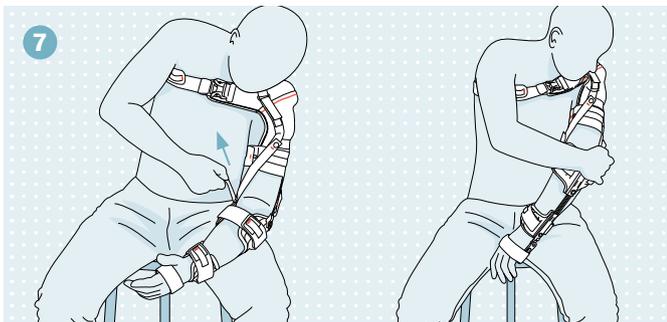
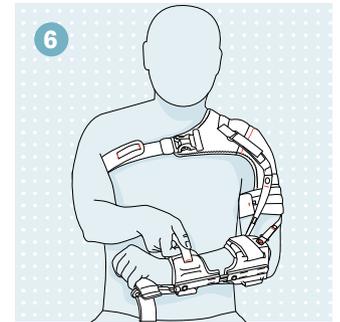
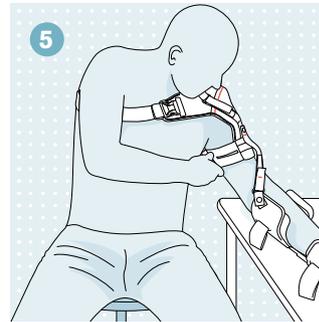
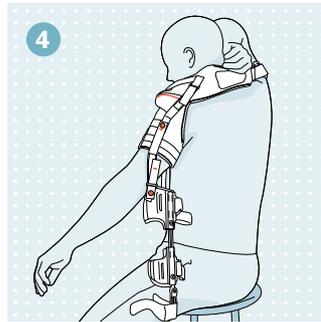
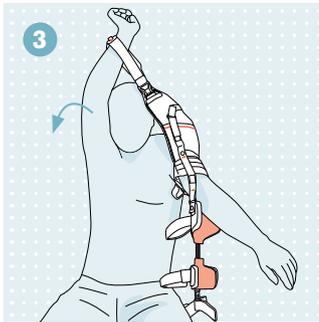
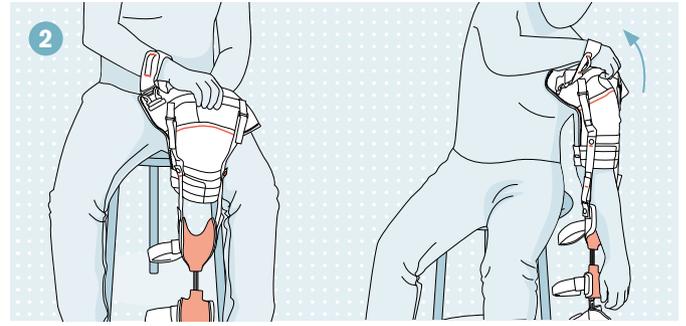
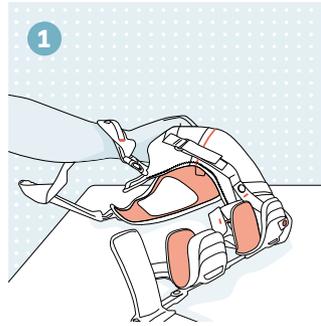


• Connecting buttons



• Omo Neurexa plus combined with the Manu Neurexa plus

• Application of the Manu Neurexa plus with the Omo Neurexa plus





28PS200 H200 Wireless

Seizing life



In cooperation with Bioness, Ottobock is offering an extended product line for the upper and lower extremities that works on the basis of functional electrical stimulation (FES). In the area of the upper extremity, the H200 Wireless can improve the hand's active range of motion and train corresponding muscles so that they work again, even without the system.

Strokes or other disruptions of the central nervous system (CNS) can lead to long-term functional disturbances and deficiencies. Many people who are affected by this are no longer able to control their muscles, or only to a limited extent. They suffer from increased muscle spasticity, myasthenia gravis or functional limitations. Various complications can arise when the upper extremities are affected. These include contractures, oedemas, pain syndromes of the hand and shoulder, and extremity neglect (disturbed perception of the extremities) due to habitual disuse.

The H200 Wireless system stimulates the nerves in the muscles to control hand opening and closing via electric impulses. The objective is to improve the hand functions and treat limitations of the upper extremities due to injuries of the central nervous system. The H200 Wireless system can be operated independently by the patient. High patient compliance therefore supports effective treatment.

Exclusive Distributor for



Benefits

- Improving hand function and expanding the active range of motion
- Preventing and/or inhibiting atrophy due to inactivity
- Increasing local blood circulation
- Reducing muscle spasticity
- Strengthening the musculature

Indications

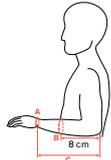
- Stroke
- Traumatic brain injury
- Partial spinal cord injuries
- Other neurological clinical pictures

Seven programmes are available for the H200 Wireless:

- 3 functional training programmes
- 3 neuroorthosis programmes
- 1 programme for motor neuromodulation

The programmes can be individually adapted to the needs of the user. A total of two programmes can be saved to the control unit as movement patterns.

For each movement pattern, it is also possible to store several programmes in a row as a single movement pattern.

	Orthosis size	A Wrist circumference (cm) distal to the ulnar styloid process	B Forearm circumference (cm) 8 cm distal from the lateral epicondyle	C Forearm length (cm) Distal wrist fold to elbow fold
	Small	Approx. 14.5–20	Approx. 17–20	Approx. 24 or less
Medium	Approx. 14.5–20	> 20	Approx. 24 or less	
Large	Approx. 17–25	> 20	Approx. 24 or more	



The H200 Wireless at a glance:

H200 Wireless orthosis

- The lightweight, comfortable and ergonomically shaped orthosis can be easily donned by the patient with one hand. Stimulation is applied exactly where it is needed.
- The wrist joint is stabilised in a functional position. The orthosis transmits electrical stimuli via five surface electrodes for optimum movement of the hand and wrist joint.
- It's easy for the technician to correctly position the electrodes thanks to specified standard settings for testing purposes

H200 Wireless control unit

- The H200 Wireless control unit is used to start and stop stimulation, as well as to adapt the intensity of the stimulation and select the stimulation programmes
- The stimulation programmes can be individually adapted for each patient with the help of the special H200 Wireless software that is installed on the clinical programming device for the H200 Wireless
- Communication between the components is wireless

Exclusive Distributor for



