

# NEURO HiSWING R+

Adaptive with Microprocessor-Controlled Hydraulics



**24mm system width**

max. total weight\*  
unilateral up to approx. 150 kg/330 lbs  
with supporting joint  
up to approx. 170 kg/374 lbs

\* Use the Orthosis Configurator.

## Safe and Flexible in Every Situation

The **NEURO HiSWING R+** enables fast reactions to different terrains and safety in every situation thanks to its easy control. By selecting a mode in the **User app**, patients can adjust the orthosis to their requirements and effortlessly negotiate changing terrains.

### Easy Handling

- |            |                                                                                                                      |
|------------|----------------------------------------------------------------------------------------------------------------------|
| Zero Mode  | - to reset the lower leg-to-plumb line angle to the basic position<br>e.g. for walking uphill and downhill           |
| Relax Mode | - for situations in which the orthosis is to be used e.g. as a free moving orthosis                                  |
| Stair Mode | - to adjust the lower leg-to-plumb line angle to the physiological ankle joint angle when walking up and down stairs |

### Various Control Options

Using the **User app** on a smartphone or smartwatch (iOS/Android) or with the Bluetooth® remote control



### Function Video

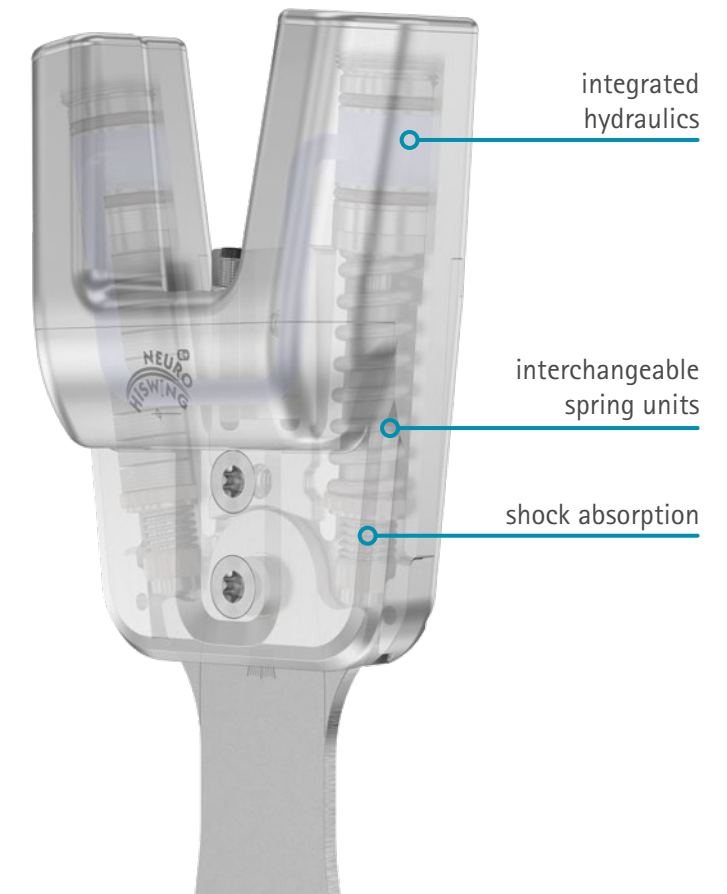
Scan the QR Code for more information

## NEURO HiSWING R+ An Innovation in Orthotics

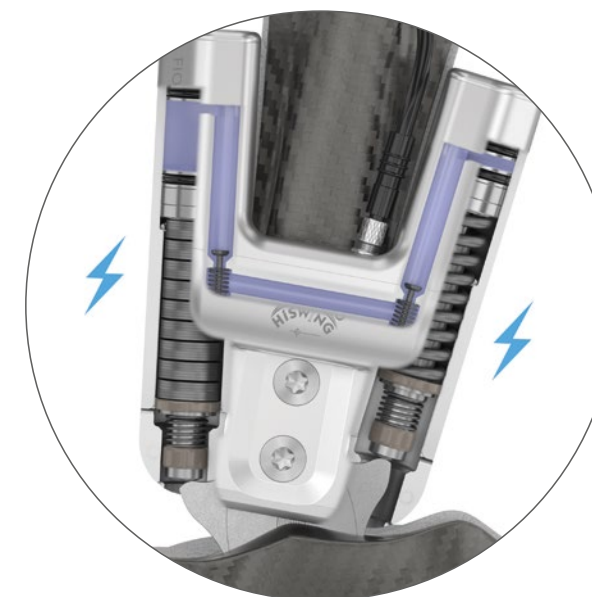
The **NEURO HiSWING R+** is a microprocessor-controlled system ankle joint that can respond easily to changing situations. In its basic alignment, it is adjusted to level ground. Thanks to its integrated hydraulic component, the **NEURO HiSWING R+** can also negotiate hilly terrains and stairs with ease. The easy control and fast reactions enable safe and natural walking on different surfaces.

The **NEURO HiSWING R+** offers the following advantages to the patient:

- easy handling with the **User app**
- safe walking on different terrains
- high level of comfort when sitting
- expending less effort when climbing stairs
- wearing shoes with different heel heights
- standing and walking without shoes
- can be combined with other FIOR & GENTZ system joints



## Integrated Hydraulics



Once the spring units are relieved, the hydraulic valves open and the desired lower leg-to-plumb angle can be set via the **User app** (e.g. on an incline). The user app indicates when the correct angle for the incline has been reached.

Unique in orthotics: Thanks to the hydraulic components, the patient can adjust the lower leg-to-plumb line angle independently as required via the **User app** or gesture control and then reliably restore the basic alignment set by the orthotist.





Finally, with the NEURO HiSWING R+, steep paths are no longer a challenge. I can easily adjust it to any incline.

## NEURO HiSWING R+ Flexible in Every Situation

### Walking Uphill and Downhill Safely

Thanks to integrated hydraulics, an orthosis with a NEURO HiSWING R+ system ankle joint can easily be adjusted to inclines or slopes. The Zero mode allows for the lower leg-to-plumb angle to be adjusted as required so that the body's centre of gravity is above the supportive area of the foot. This makes it easier to walk uphill and improves stability when walking downhill. The Zero mode can be activated via smartphone, smartwatch or gesture. The system joint can then be reset to level ground in Zero mode.

### Wearing the Orthosis with Heels of Different Heights or without Shoes

The NEURO HiSWING R+ system ankle joint can be flexibly adjusted to different heel heights with the Zero mode and even allows for the orthosis to be worn without shoes. The foot piece of the NEURO HiSWING R+ orthosis attaches to the foot using a simple hook-and-loop fastener. A slip-resistant sole ensures safety when walking.

### Sitting Comfortably

Patients can activate the Relax Mode of the NEURO HiSWING R+ in situations in which they want the system ankle joint to move freely. The system ankle joint can now be moved without resistance in plantar flexion and dorsiflexion direction. Thus, a complete relaxation of the orthosis leg is achieved when sitting and the patient can easily put on or take off the orthosis. In combination with an automatic system knee joint, only the Zero and Stair modes are available.

### Walking Up and Down Stairs Safely

Even strenuous hurdles, such as long and steep staircases, can be negotiated safely with the NEURO HiSWING R+.

If the Stair mode is activated, the patient can adjust the lower leg-to-plumb line angle to the value set in the workshop before walking up or down stairs. By increasing the lower leg angle, the body's centre of gravity is optimally shifted towards the supportive area of the foot. This shift makes walking up stairs easier and ensures a stable and safe balance when walking down stairs.

Innovation  
in Orthotics

## Joint Control with Gestures

The NEURO HiSWING R+ is the world's first ankle joint that enables patients to activate the Zero mode using one or more gestures in addition to the app.



### Foot Rotation

The foot must be lifted and then rotated outwards and back inwards.



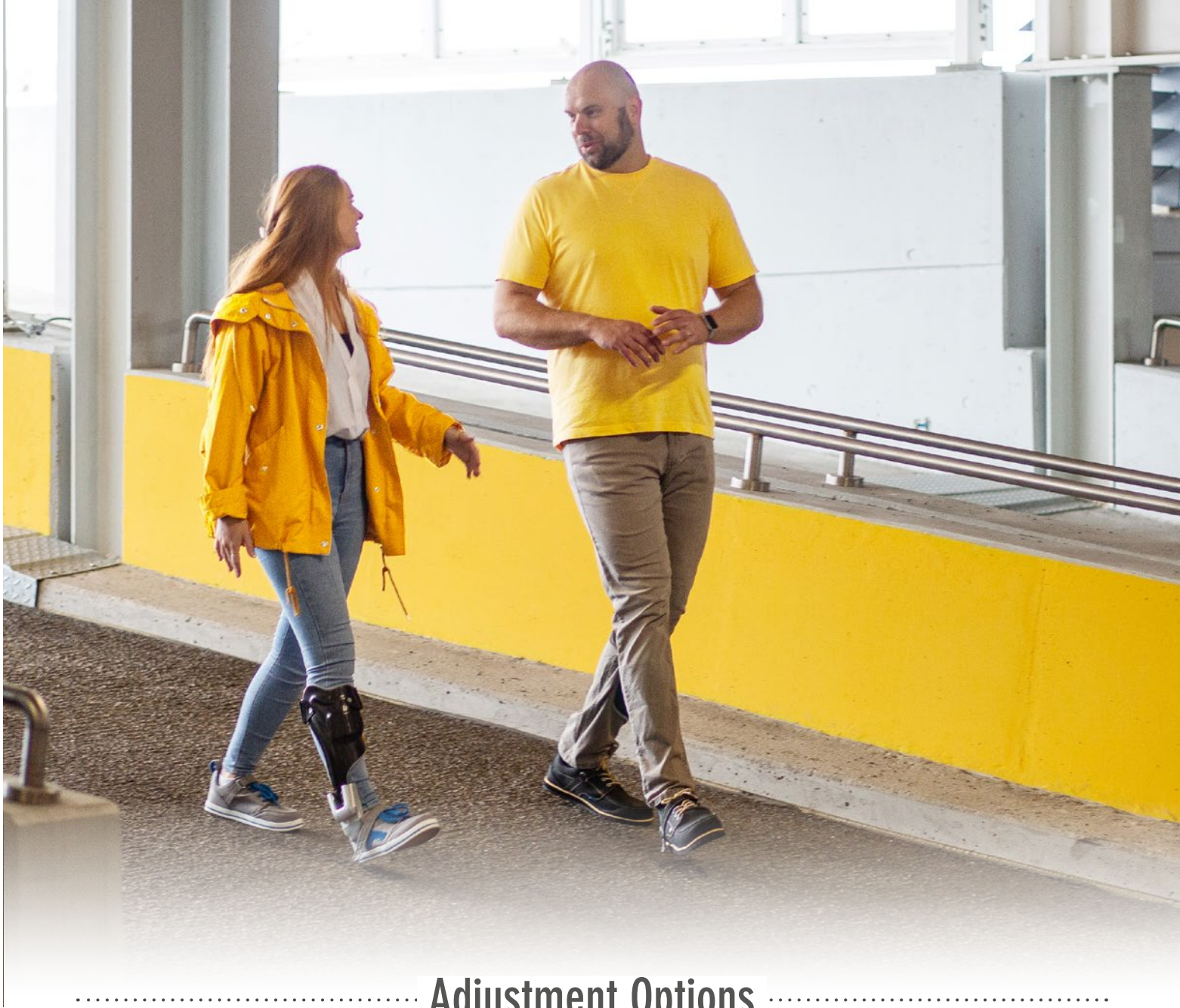
### Sole Tap

The foot must be lifted briefly and then tapped on the floor again with the flat sole.



### Toe Tap

The foot must be lifted briefly and the tip of the toes tapped on the floor.



## Adjustment Options

### Adjustment of the Orthosis' Alignment in the Workshop

Thanks to the adjustable design of the NEURO HiSWING R+ system ankle joint, the orthosis can be adjusted to the patient's requirements. The basic position is set in the Expert app.

### Adjustment of the Lower Leg-to-Plumb Line Angle by the Patient

The lower leg-to-plumb line angle can be adjusted, if necessary (e.g. when walking uphill or climbing stairs). There are different modes available in the User app.

### Variable Spring Force

The spring force in plantar flexion and dorsiflexion can be adjusted to the patient's requirements thanks to the exchangeable precompressed spring units from our product

range. The product range consists of a total of five different spring units, with spring forces ranging from normal to extra strong and a range of motion from 15° to 5°. The spring units are the well-proven, silent NEURO SWING 2 models.





# Advantages of a Treatment with a System Joint of the NEURO SWING Product Range

The system joints of the NEURO SWING product range are particularly well suited for patients with a weakness of the dorsiflexors and plantar flexors. Their dynamic features help patients to stand and walk safely and to maintain their balance without being dependent on other devices.

The additional special features of some of the system joints of the NEURO SWING product range provide advantages in different environments. For example, some can be used in or around water while others can be adjusted to steep terrain by the patients themselves.

Furthermore, thanks to their adjustment options, the system joints allow a long-term, high-quality and individually adapted treatment as they can be can be adjusted to changes resulting from the course of the disease at any time.

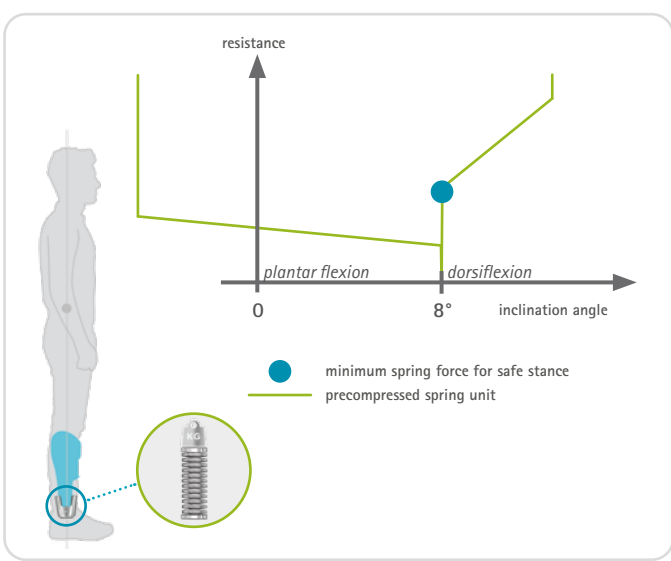
## NEURO SWING – Overview of System Ankle Joints

|                                                                           |  |  |  |  |  |
|---------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                                                                           | steel/<br>titanium                                                                | steel/<br>titanium                                                                | carbon                                                                            | titanium                                                                          | titanium                                                                           |
| precompressed spring units                                                | +                                                                                 | +                                                                                 | +                                                                                 | +                                                                                 | +                                                                                  |
| All adjustments can be made separately. They do not influence each other. |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |
| adjustable alignment                                                      | +                                                                                 | +                                                                                 | +                                                                                 | +                                                                                 | +                                                                                  |
| adjustable range of motion                                                | +                                                                                 | +                                                                                 | –                                                                                 | +                                                                                 | +                                                                                  |
| variable spring force                                                     | +                                                                                 | +                                                                                 | +                                                                                 | +                                                                                 | +                                                                                  |
| integrated shock absorption                                               | –                                                                                 | +                                                                                 | –                                                                                 | +                                                                                 | +                                                                                  |
| water-resistant                                                           | –                                                                                 | –                                                                                 | +                                                                                 | –                                                                                 | –                                                                                  |
| plug + go Modularity                                                      | +                                                                                 | +                                                                                 | –                                                                                 | +                                                                                 | –                                                                                  |
| inwards and outwards bent joint versions                                  | +                                                                                 | +                                                                                 | –                                                                                 | +                                                                                 | +                                                                                  |
| weight, e.g. system width 20mm (titanium + carbon)*                       | 156g                                                                              | 189g                                                                              | 104g                                                                              | 380g                                                                              | 424g                                                                               |
| * without spring units                                                    |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                    |



You can find more information on all system joints of the NEURO SWING product range on the corresponding product pages in the download section of the FIOR & GENTZ website.

# NEURO SWING Making a Big Difference due to Precompressed Spring Units



## Safe and Free-Handed Standing and Walking

The main purpose of an orthosis for a calf muscle weakness is to restore safety when standing and walking without depending on additional walking aids. For this purpose, the orthosis must activate the forefoot lever that has been lost due to the weakened calf muscles in order to provide the required resistance to counteract the body weight. Only the precompressed spring units used in the system joints of the NEURO SWING product range offer a basic resistance at the required level.

If the basic resistance is overcome during movement, the resistance increases with increasing dorsiflexion due to the additional compression of the spring unit. By individually combining two spring units, different basic resistances can be used in both directions of movement. This way a high basic resistance required in the direction of dorsiflexion can be combined with a low basic resistance in the direction of plantar flexion. The diagram above shows two examples of typical spring characteristics of precompressed spring units with a tibial progression of 8°.



You can find detailed information on the topic of 'Problems of Conventional Fittings' on the FIOR & GENTZ website using the example of non-precompressed spring units and jointless orthoses.

## Variable Spring Force

We provide a total of five different spring units for each system width, with forces ranging from normal to extra strong and a range of motion from 15° (normal) to 5° (extra strong).

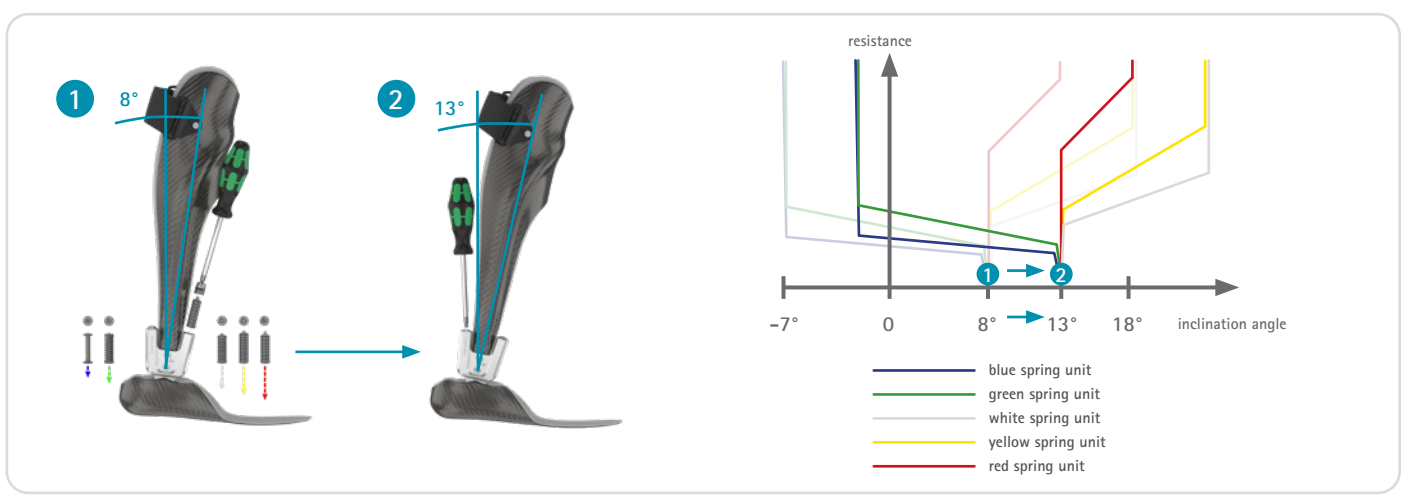
The spring unit with the yellow colour marking and “very strong” spring force offers a basic resistance with a 10° range of motion, which usually is enough to counteract the body weight appropriate for the system width.

The spring unit with the red colour marking and the “extra strong” spring force and 5° range of motion almost doubles the basic resistance compared to the spring unit with the yellow colour marking. It can be used for patients with a crouch gait, for example.

The spring unit with the blue colour marking and the “normal” spring force and 15° range of motion is usually used for patients with a peroneal palsy and a low activity level. It is strong enough to lift the foot in swing phase and counteract stumbling.

The spring unit with the green colour marking and “medium” spring force and 15° range of motion can not only be used to control the foot lifting but also the plantar flexion and knee flexion in loading response. This spring unit is often used for patients with a peroneal palsy and a higher activity level.

The spring unit with the white colour marking and the “strong” spring force and 10° range of motion can be used to reduce the basic resistance compared to the spring unit with the yellow colour marking and increase it in comparison to the spring unit with the green colour marking.



## Independent Adjustment Options

The system joints in the NEURO SWING product range offer five colour-coded, interchangeable spring units with various spring forces. The diagram above uses coloured spring characteristics to show the basic resistance of the spring units. If the lower leg-to-plumb line angle is changed (z. B. 1 -> 2), these spring characteristics shift. The adjustment of the tibial inclination does not change the basic resistance and spring force of the selected spring unit. This clearly shows that the various settings work independently of each other. The original NEURO SWING system ankle joint was the first ankle joint to allow such independent adjustment and this unique advantage remains an integral part of the system joints of the NEURO SWING product range today.

The spring effect of the NEURO SWING system joints can be adjusted to optimise the resistance in both directions of movement of the ankle joint to counteract both the body weight and the weakness of the calf and foot lifting muscles. The tibial inclination, as starting point for the specific resistances, can easily be adjusted with two alignment screws. This adjustment option allows defining a stable position and a secure stance.



You can find more information on the functions of the NEURO SWING system ankle joints on the FIOR & GENTZ website's product pages of the system joints.

## Individual Adjustment

Adaptable adjustments, exchangeable spring units or even a conversion to another system joint with plug + go modularity enable a quick response at any time in the event of gait changes.

## Calculation of the Spring Force

The FIOR & GENTZ Orthosis Configurator determines, based on the muscle strength, the spring force with the corresponding precompression that is best suited for the needs of your patients.





Would you like to produce an orthosis with a  
**NEURO HiSWING R+** system ankle joint for your patient?

Use the Orthosis Configurator to independently select the necessary system components for an orthosis with the **NEURO HiSWING R+**. The Orthosis Configurator determines the appropriate system components using patient data and taking the load capacity into account.



**Orthosis  
Configurator**  
[www.orthosis-configurator.com](http://www.orthosis-configurator.com)