NeuroOrthopaedics – lower extremity
Medical devices for drop foot

Quality for life

Information for technicians and therapists
The right device for every user

Around the world, the numbers of users who could benefit from modern medical devices are rising. A wide range of different solutions which help users live safer, more mobile lives is available particularly in cases where the muscles which raise and lower the foot fail or are weakened. But not every orthosis and/or approach is right for every patient. It’s important to consider each patient individually, and their respective requirements and wishes should be taken into account when selecting the right medical device. With this brochure, our aim is to provide you with a guideline which can support you in determining the right orthosis. Of course, a brochure can only offer approximate recommendations – the art of making the right selection is still up to you.

Special needs, such as a change in requirements due to successful rehabilitation, for example, are an important part of treatment or treatment planning, which you alone as the provider can assess together with your treatment team. So-called Fit Kits, which let you make a direct comparison between various functions, designs and degrees of hardness, are available for the key medical devices to offer you objective assistance as you select a device. These give you the opportunity to work with proof of the devices’ functions, so you can justify the treatment you have provided your patient.
Differentiation within the product portfolio

- Mild weakness of the knee extensors (2–4)
  - Stronger support for knee extension
  - Higher energy return in forefoot area

- Strong support for the gait cycle
  - Plantar flexor weakness (0–4)
  - Mild weakness of the knee extensors (fatigue) 3–5
  - Valgus-varus instability of the knee
  - High energy return

- Support for the gait cycle
  - Plantar flexor weakness (3–5)
  - Normal knee extensors
  - Moderate energy return
  - Mild valgus-varus instability of the knee
  - Low energy return
  - Stability in knee joint

- Support for the gait cycle
  - Plantar flexor weakness (3–5)
  - Normal knee extensors
  - Moderate energy return
  - Mild valgus-varus instability of the knee
  - Low energy return
  - Stability in knee joint

- Therapeutic benefits, correction of supination
  - Normal plantar flexors
  - Normal knee extensors
  - No energy return
  - Stability in knee joint

- Normal plantar flexors
  - Normal knee extensors
  - No energy return
  - Stability in knee joint

- In case of dorsiflexor weakness
  - No energy return
  - Can be worn without footwear
  - Almost full proprioception

- Normal stability
- Low stability

*Only in case of damage to the central nervous system.
**Short-term use.
GoOn
Ankle-foot orthosis for lifting the foot in neutral position

Patients with mild conditions affecting the dorsiflexor musculature often find conventional ankle-foot orthoses (AFOs) too bulky. Their acceptance of the device is low, particularly when they also have to adapt to wearing new or different footwear.

The GoOn acts as an entry-level option for users, helping them to become familiar with wearing a device and the benefits it offers. This orthosis helps the user to hold their foot in a neutral position, walk more safely and avoid tripping. Users can also wear the orthosis without footwear. Thanks to the device’s dorsal spring, the sole of the shoe never comes into contact with the orthosis. This allows the user to wear practically any lace-up shoe, and even wear shoes with different heel heights. The spring filaments mean that the lifting force can be adjusted as required: the foot is gently guided and held in a torsionally stable manner. In contrast, similar systems that employ simple elastic bands lack this direct contact with the foot.

Benefits at a glance

- Universal size for all users (adult size)
- Front support attached directly to the foot prevents the device from migrating
- Easy handling and soft materials for high user acceptance
- Can be worn with or without footwear, regardless of heel height.
  If the orthosis is worn without footwear, an additional hook-and-loop closure is required (included in scope of delivery)
- High proprioception as the orthosis does not cover the heel and forefoot
- Pads and straps can be easily changed and washed
Indications
Dorsiflexor weakness caused by
• Fatigue syndrome
• Problems with balance
• Dementia
• Parkinson's disease
• Stroke
• Traumatic brain injuries
• Multiple sclerosis
• Neuromuscular atrophy
• Peroneal palsy

Contraindications
• Lower leg spasticity
• Moderate to severe oedema
• Leg ulcers
• Foot deformities
• Instability of the ankle joint in M/L direction
• Instability of the knee joint in A/P and M/L directions

Mode of action
• Light support for dorsiflexor weakness

Art. no. 28U70

<table>
<thead>
<tr>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Universal</td>
</tr>
</tbody>
</table>
The 28U90 ankle-foot orthosis raises the forefoot and provides flexible limitation for plantar flexion in case of peroneal weakness.

**Indications**
Dorsiflexor weakness in case of
- Peroneal paralysis
- Stroke
- Traumatic brain injury
- Multiple sclerosis
- Neuromuscular atrophy

**Mode of action**
- Passive, flexible limitation of plantar flexion
- Dynamic foot repositioning

**Benefits at a glance**
- Thin-walled polypropylene design
- Long sole for exact guidance of the foot and good pressure distribution
- Lightweight
- Calf pad with closure for left or right-handed fastening of the orthosis
- Calf pad and closure are easy to replace and wash

**Art. no. 28U90**

<table>
<thead>
<tr>
<th>Side</th>
<th>Shoe size</th>
<th>Overall height (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L/R</td>
<td>35–37</td>
<td>30.0</td>
</tr>
<tr>
<td>L/R</td>
<td>37–39</td>
<td>33.0</td>
</tr>
<tr>
<td>L/R</td>
<td>39–41</td>
<td>34.5</td>
</tr>
<tr>
<td>L/R</td>
<td>41–44</td>
<td>39.0</td>
</tr>
<tr>
<td>L/R</td>
<td>44–47</td>
<td>41.5</td>
</tr>
</tbody>
</table>
Malleo Neurexa pro
Effective correction of the lower leg muscles

The Malleo Neurexa pro is a thermoplastic ankle-foot orthosis for correcting dorsiflexor weakness which can be worn throughout the day and at night thanks to its special design.

**Indications**
Suitable for dorsiflexor weakness, especially associated with acute supination of the foot due to spasticity, e.g. in case of
- Stroke
- A traumatic brain injury
- Multiple sclerosis
- Neuromuscular atrophy or
- Isolated peroneal paralysis

**Mode of action**
- For the treatment of users with an acute supination position of the foot and/or with beginning or emerging spasticity
- The special routing of the closure straps with the combination of the elastic pronation strap ensures effective correction, even with acute hypertonicity of the lower leg musculature
- The elastic strap can yield to the pressure when spasticity occurs and, once it relaxes, resume holding the foot in the neutral position

**Art. no. 28U50**
Order no.: Article number–side & shoe size | Example for ordering: 28U50=L41-44

<table>
<thead>
<tr>
<th>Side</th>
<th>Shoe size</th>
</tr>
</thead>
<tbody>
<tr>
<td>L/R</td>
<td>35–37</td>
</tr>
<tr>
<td>L/R</td>
<td>37–39</td>
</tr>
<tr>
<td>L/R</td>
<td>39–41</td>
</tr>
<tr>
<td>L/R</td>
<td>41–44</td>
</tr>
</tbody>
</table>

**Benefits at a glance**
- Can be worn without footwear (but not barefoot)
- Dynamic pronation strap for correction of supination position
- Can be worn as day and night orthosis
The WalkOn Flex lifts the foot and facilitates a relatively high level of mobility.

### Benefits at a glance
- Physiological rollover
- Proven high durability
- Glass/carbon fibre composite for high flexibility
- Allows forefoot loading for climbing stairs and squatting
- High level of wearer comfort due to low weight and open heel
- Calf strap made of climate-regulating padding for improved skin hygiene and wearer comfort
- Slim, discreet design
- Easy to don and doff
- Sole can be trimmed to size
- Optional 28Z10 lateral pronation strap
**Indications**

Dorsiflexor weakness (also with mild spasticity) in case of
- Peroneal paralysis
- Stroke
- Traumatic brain injury
- Multiple sclerosis
- Neuromuscular atrophy

This orthosis is particularly recommended in cases where dorsiflexion capacity decreases following sustained activity (muscle fatigue). The WalkOn Flex is suitable for indoor and outdoor use by users who have a stable ankle joint and no impairment of motor control of the knee. The spiral design allows a certain degree of movement in pronation and supination and natural torsion at heel strike.

**Mode of action**

- Enables a largely symmetrical and fluid physiological gait with natural heel strike and controlled rollover in the heel and forefoot area
- Its energy return supports foot movement in the early swing phase and reduces compensatory movements such as hip hike
- Supports dorsiflexion (ground clearance)
- Prevents uncontrolled foot contact and foot slap in the early stance phase
- Promotes external rotation of the foot at heel strike
The WalkOn Trimable lifts the foot and also stabilises the ankle joint.

### Benefits at a glance

- Proven high durability
- Carbon fibre prepreg material for moderate energy return
- Allows forefoot loading for climbing stairs and squatting
- High level of wearer comfort due to low weight and open heel
- Calf strap made of climate-regulating padding for improved skin hygiene and wearer comfort
- Slim, discreet design
- Easy to don and doff
- Sole can be trimmed to size
- Optional 28Z10 lateral pronation strap

<table>
<thead>
<tr>
<th>Art. no. 28U23</th>
<th>Order no.: Article number=side &amp; shoe size</th>
<th>Example for ordering: 28U23=L45–48</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side</td>
<td>Shoe size</td>
<td>Overall height (cm)</td>
</tr>
<tr>
<td>L/R</td>
<td>36–39</td>
<td>35</td>
</tr>
<tr>
<td>L/R</td>
<td>39–42</td>
<td>36</td>
</tr>
<tr>
<td>L/R</td>
<td>42–45</td>
<td>37</td>
</tr>
<tr>
<td>L/R</td>
<td>45–48</td>
<td>39</td>
</tr>
</tbody>
</table>
**Indications**
Dorsiflexor weakness (mild to moderate spasticity) in case of
- Peroneal paralysis
- Stroke
- Traumatic brain injury
- Multiple sclerosis
- Neuromuscular atrophy

The WalkOn Trimable is suitable for indoor and outdoor use for patients with no or only mild impairment of motor control of the knee. Its design also allows for some instability of the knee joint. Axis deviation in the ankle joint can be accommodated by using an appropriate insole.

**Mode of action**
- Enables a largely symmetrical and fluid physiological gait with natural heel strike and controlled rollover in the heel and forefoot area
- Its energy return supports foot movement in the early swing phase and reduces compensatory movements such as hip hike
- Supports dorsiflexion (ground clearance)
- Prevents uncontrolled foot contact and foot slap in the early stance phase, while providing some support for knee flexion
- Limits plantar flexion and supination when worn with a sturdy shoe

---

28U11 WalkOn – same indication and mode of action but without a trimmable sole
WalkOn Reaction

Dynamic appearance

The WalkOn Reaction facilitates dorsiflexion and the use of ground reaction forces to influence the knee and ankle joint.

**Benefits at a glance**

- Highly dynamic properties (use of ground reaction force)
- Proven high durability
- Carbon fibre prepreg material for high energy return
- Shin pad made of climate-regulating padding for improved skin hygiene and wearer comfort
- High wearer comfort due to low weight and open heel and the anatomically designed frontal support element
- Pads and closures are combined: in other words, all fabric parts can be washed and replaced
- Slim, discreet design (no orthosis in the lateral area of the ankle)
- Asymmetrical design promotes easy, intuitive handling
- Sole can be trimmed to size
- 28Z10 lateral pronation strap for correcting instability in the foot and ankle area included in the scope of delivery

### Art. no. 28U24

<table>
<thead>
<tr>
<th>Side</th>
<th>Shoe size</th>
<th>Overall height (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L/R</td>
<td>36–39</td>
<td>33.3</td>
</tr>
<tr>
<td>L/R</td>
<td>39–42</td>
<td>35.5</td>
</tr>
<tr>
<td>L/R</td>
<td>42–45</td>
<td>37.7</td>
</tr>
<tr>
<td>L/R</td>
<td>45–48</td>
<td>40</td>
</tr>
</tbody>
</table>

Order no.: Article number=side & shoe size | Example for ordering: 28U24=L45–48
**Indications**
- Dorsiflexor weakness, without or with moderate spasticity
- For slight impairment of the foot lowering musculature and slight impairment of knee extension
- To support knee extension or flexion during the mid-stance phase and during toe-off or heel strike
- The frontal support element makes it possible to effectively influence the knee joint with the help of ground reaction forces
- The support element is noticeably longer, making it possible to exert greater influence on deviations of the frontal axis in the knee and ankle joint

The indication frequently occurs after a stroke, traumatic brain injury, multiple sclerosis, neuro-muscular atrophy or peroneal paralysis.

**Mode of action**
- Enables a largely symmetrical and fluid physiological gait with support for knee extension and flexion, depending on what is needed
- Its energy return supports toe-off and heel strike, thus reducing compensatory movements such as hip hike
- Supports dorsiflexion (ground clearance)
- Prevents uncontrolled foot contact and foot slap at heel strike and supports knee extension during toe-off
- When standing, the alignment of the orthosis influences the statics in the frontal and sagittal plane
- In conjunction with the lateral pronation strap, it is possible to reduce varus deviation of the foot and ankle and supination of the forefoot. This should always be supported by a corrective insole
WalkOn Reaction plus
Greater stability for the knee joint

The WalkOn Reaction plus is the extension of the WalkOn Reaction and can be used on patients who require greater stiffness of the dynamic forefoot characteristics.

<table>
<thead>
<tr>
<th>Art. no. 28U25</th>
<th>Side</th>
<th>Shoe size</th>
<th>Overall height (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>L/R</td>
<td>36–39</td>
<td>33.3</td>
<td></td>
</tr>
<tr>
<td>L/R</td>
<td>39–42</td>
<td>35.5</td>
<td></td>
</tr>
<tr>
<td>L/R</td>
<td>42–45</td>
<td>37.7</td>
<td></td>
</tr>
<tr>
<td>L/R</td>
<td>45–48</td>
<td>40</td>
<td></td>
</tr>
</tbody>
</table>

Benefits at a glance

- Spring bar with Dyneema reinforcement
- Highly dynamic properties (use of ground reaction force)
- Proven high durability
- Carbon fibre prepreg material for high energy return
- Shin pad made of climate-regulating padding for improved skin hygiene and wearer comfort
- High wearer comfort due to low weight and open heel and the anatomically designed frontal support element
- Pads and closures are combined: in other words, all fabric parts can be washed and replaced
- Slim, discreet design (no orthosis in the lateral area of the ankle)
- Asymmetrical design promotes easy, intuitive handling
- Sole can be trimmed to size
- 28Z10 lateral pronation strap for correcting instability in the foot and ankle area included in the scope of delivery
**Indications**

- For dorsiflexor weakness, without or with mild to moderate spasticity
- Suitable in case of additional loss of the foot lowering musculature and/or slight to moderate weakness of the knee extensors (extension of the knee joint against gravity should be possible, muscle strength level 3 according to Janda).
- Also suitable in case of foot deformities that can be corrected with the 28210 pronation strap and insoles.
- In addition to the functions of the WalkOn Reaction, the WalkOn Reaction plus is suitable for users who achieve a higher level of activity and therefore require greater support for knee extension.

We recommend testing the various stiffness levels using the 28T3/4 Fit Kits in order to obtain the best possible functionality for the user.

**Mode of action**

- Enables a largely physiological gait with higher stiffness than the familiar WalkOn Reaction; this means that even more effective support for knee extension and flexion can be provided thanks to the special forefoot characteristics and more powerful spring force
- Its energy return supports toe-off and heel strike, thus reducing compensatory movements such as hip hike
- Supports dorsiflexion (ground clearance)
- Prevents uncontrolled foot contact and foot slap at heel strike and supports knee extension during toe-off
- When standing, the alignment of the orthosis influences the statics in the frontal and sagittal plane
The WalkOn Reaction junior is based on the WalkOn Reaction plus, it features highly dynamic properties. The ankle-foot orthosis uses the ground reaction force to significantly improve the user’s gait pattern. It is geared towards children, who require greater support than that provided by traditional dorsiflexion assist orthoses.

**Benefits at a glance**

- Highly dynamic properties (use of ground reaction force)
- Carbon fibre prepreg material for high energy return
- High wearer comfort due to low weight and open heel and the anatomically designed frontal support element
- Shin pad made of climate-regulating material for improved skin hygiene and wearer comfort
- Combination with additional dynamic ankle-foot orthoses (DAFOs) possible
- All fabric parts can be washed and replaced
- Sole can be trimmed to size
- Can be worn with sturdy standard shoes

<table>
<thead>
<tr>
<th>Art. no. 28U25</th>
<th>Order no.: Article number=side &amp; shoe size</th>
<th>Example for ordering: 28U25=L24-27</th>
</tr>
</thead>
<tbody>
<tr>
<td>Side</td>
<td>Shoe size</td>
<td>Height (cm)</td>
</tr>
<tr>
<td>L/R</td>
<td>24 – 27</td>
<td>20.5</td>
</tr>
<tr>
<td>L/R</td>
<td>27 – 30</td>
<td>24.5</td>
</tr>
<tr>
<td>L/R</td>
<td>30 – 33</td>
<td>27</td>
</tr>
<tr>
<td>L/R</td>
<td>33 – 36</td>
<td>29.4</td>
</tr>
</tbody>
</table>
**Indications**

- Infantile cerebral palsy
- Dorsiflexor weakness, without or with mild to moderate spasticity
- Hemiparesis, diparesis

**Mode of action**

- Supports lifting of the foot
- Promotes dynamic rollover
- Increases the stride length by improving muscle dynamics
- Promotes exterior rotation of the foot at heel strike
- Promotes a physiological gait pattern
- Reduces the risk of falling
WalkOn Fit Kits

Fit Kits are available for all WalkOn orthoses to allow you to select the optimal orthosis for your patient. Using these trial orthoses, you can determine the right treatment for your patient in just a short time.

In the case of the orthoses that primarily support only dorsiflexion and do not have a direct effect on knee joint function, the Fit Kits consist of pooled sizes, four orthoses in all, that cover all the required function tests. This applies to the 28U11 WalkOn (28T1N Fit Kit), the 28U23 WalkOn Trimable (28T1N Fit Kit) and the 28U22 WalkOn Flex (28T2 Fit Kit).

The Fit Kits for the 28U24 WalkOn Reaction (28T3 Fit Kit), 28U25 WalkOn Reaction plus (28T4 Fit Kit) and the 28U25 WalkOn Reaction junior (28T5 Fit Kit) each consist of eight orthoses so you can compare all functions and draw the correct conclusions from testing.
WalkOn product range
Selection tool

Muscle status according to Janda

<table>
<thead>
<tr>
<th>Article number</th>
<th>Side</th>
<th>Shoe size</th>
</tr>
</thead>
<tbody>
<tr>
<td>WalkOn 28U11</td>
<td>left</td>
<td>L36-39</td>
</tr>
<tr>
<td>WalkOn Flex</td>
<td>left</td>
<td>L36-39</td>
</tr>
<tr>
<td>WalkOn Trimable</td>
<td>left</td>
<td>L36-39</td>
</tr>
<tr>
<td>WalkOn Reaction 28U23</td>
<td>left</td>
<td>L42-45</td>
</tr>
<tr>
<td>WalkOn Reaction plus 28U25</td>
<td>left</td>
<td>L45-48</td>
</tr>
<tr>
<td>WalkOn Reaction plus 28U25</td>
<td>right</td>
<td>R45-48</td>
</tr>
</tbody>
</table>

Insoles are generally recommended

Tip
28Z10 Pronation strap
The L300 Go stimulation system was designed for the gait rehabilitation of users with dorsiflexor weakness and is based on the principle of functional electrical stimulation (FES). It also provides support for instability of the knee and can be used for children as well as adults. Depending on the user’s individual needs, it is available as an independent lower leg system (L300 Go), as a combined lower leg and thigh system (L300 Go and L300 Go Plus Upgrade) and as an independent thigh system that uses a foot sensor (L300 Go Plus Stand Alone). Thanks to 3D motion detection, multi-channel stimulation, Bluetooth programming and a user app for mobile devices, this external stimulation system offers impressive features.

### L300 Go | 28FS300

<table>
<thead>
<tr>
<th>Cuff strap size</th>
<th>Lower leg circumference</th>
</tr>
</thead>
<tbody>
<tr>
<td>S</td>
<td>29–36 cm</td>
</tr>
<tr>
<td>M</td>
<td>36–42 cm</td>
</tr>
<tr>
<td>L</td>
<td>42–51 cm</td>
</tr>
<tr>
<td>Universal</td>
<td>29–51 cm</td>
</tr>
</tbody>
</table>

### L300 Go Plus Stand Alone | 28KS310

The L300 Go Plus Stand Alone consists of the thigh system and the foot sensor. The system offers support for knee instability and weakness of the thigh muscles.

### L300 Go Plus Upgrade | 28KS300

The L300 Go Plus Upgrade is used in combination with the L300 Go and offers additional support for knee instability and weakness of the thigh muscles.

### L300 Go | 28FS300

The L300 Go is applied to the leg directly below the patella and helps lift the foot in case of dorsiflexor weakness. It is also available in a children’s size.
A new learning algorithm adapts to the changes in gait dynamics and activates stimulation within 0.01 seconds – considerably faster than a blink of the eye. The L300 Go controls the amount of dorsiflexion and inversion/eversion precisely with just a single electrode. A 3-axis gyroscope and acceleration sensors monitor movement patterns in all three planes.

**Fast, intuitive set-up**
Thanks to the integrated motion detection feature and onboard controls, the foot sensor and remote control that were required for the previous model are now optional. Few components, a quick fitting mode as well as Bluetooth programming result in reduced set-up time.

<table>
<thead>
<tr>
<th>L300 Go Plus Upgrade</th>
<th>28KS300 / L300 Go Plus Stand Alone</th>
<th>28KS310</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard thigh cuff</td>
<td>Upper thigh circumference</td>
<td>Lower thigh circumference</td>
</tr>
<tr>
<td></td>
<td>53–85 cm</td>
<td>33–50 cm</td>
</tr>
<tr>
<td></td>
<td>Thigh length</td>
<td>24–35 cm</td>
</tr>
</tbody>
</table>

**Benefits at a glance**
- Fast, intuitive set-up for qualified personnel
- Multi-channel stimulation with just a single electrode
- 3D motion detection for monitoring all three planes
- Optional foot sensor and remote control
- Analysis of results based on integrated 10 m gait test
- App lets users monitor their own therapy progress
The Genu Neurexa is intended for people who experience paralysis of the leg muscles following a stroke or peripheral nerve damage. Hyperextension is prevented using a classic three-point principle.

### Art. no. 8165

Order no.: Article number= size | Example for ordering: 8165=S

<table>
<thead>
<tr>
<th>Size</th>
<th>Lower leg circumference A (cm)</th>
<th>Thigh circumference B (cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XS</td>
<td>32–35</td>
<td>38–42</td>
</tr>
<tr>
<td>S</td>
<td>35–38</td>
<td>42–46</td>
</tr>
<tr>
<td>M</td>
<td>38–41</td>
<td>46–50</td>
</tr>
<tr>
<td>L</td>
<td>41–44</td>
<td>50–54</td>
</tr>
<tr>
<td>XL</td>
<td>44–48</td>
<td>54–58</td>
</tr>
</tbody>
</table>

### Benefits at a glance

- Three-point principle, straps with guaranteed tensile strength, range of motion
- for splints can be limited, and/or continuously variable cross-strap to counteract hyperextension
- Can be used for gait training during therapy
- The joint components permit restriction of extension and flexion in 10° increments
- Circular circumferential straps
- Made of climate-regulating material, with properties that counteract heat development and extend the product’s daily duration of use
- Enhanced wearer comfort due to optimal material selection and strap arrangement
- Frontally open version makes it easy for therapists, family members and wearers to put on the orthosis
- Machine washable at 40 °C (104 °F)
**Indications**
Paresis of leg muscles resulting in hyperextension of the knee, e.g. after
- Stroke
- Intervertebral disc prolapse in the lumbar spine
- Peripheral nerve damage

**Mode of action**
- Secures and stabilises the knee joint; at the same time, the patella is stabilised, hyperextension is prevented and collateral instability is reduced
- Improves proprioception
- Supports sensorimotor function
- Promotes the reduction of oedemas and haematomas
- Can relieve pain