

# Lokomat<sup>®</sup>

## Enhanced Functional Locomotion Therapy



The Lokomat<sup>®</sup> is a robotic gait training system that offers effective and motivating locomotion therapy for gait-impaired patients following stroke, spinal cord injury, cerebral palsy and multiple sclerosis and other neurological diseases and injuries. Beside the standard robotic gait equipment, the Lokomat offers enhanced training features such as Augmented Feedback, which improves the patient's motivation and compliance. Furthermore, the Lokomat provides research, assessment and reporting tools that support the therapist. Individual adaptations to the patient's needs and abilities as well as the Pediatric training option complete the Lokomat product family.

## Gait Training with the Lokomat®

The Lokomat is designed to support the locomotion therapy of gait impaired patients who have suffered strokes, spinal cord injuries, traumatic brain injuries, multiple sclerosis or neurological disorders. Despite the patient's disorder, research suggests that the neural plasticity of the brain is retained and new connections can be made through intensive, repetitive movements. These exercises assist the gradual reorganization of the brain, which subsequently allows the restoration of movement and functionality to the affected parts. The Lokomat enhances this process and improves the therapy outcome by providing highly intensive, individualized training in a motivational environment of constant feedback.

The Lokomat provides patients with repetitive, effective and motivating gait training. The patient obtains sensory information through stepping on the treadmill, which is an important contributor to motor relearning. Besides all scientific reasons, the possibility to walk highly motivates the patients by giving them the sensation and emotion of walking.

### The advantages of the Lokomat® are:

- longer and more intensive training sessions compared to manual treadmill training
- real-time feedback for a higher motivation and compliance
- physiological gait pattern provided by individually adjustable orthosis, guidance and weight support
- assessment and reporting functionality for an easy measurement of the patient's progress

The Lokomat has established itself as an effective method for improving over-ground walking function in patients suffering from neurological diseases and injuries<sup>1</sup>. It is developed in close collaboration with leading clinical and scientific partners according to the latest findings in neurorehabilitation.

### The Lokomat® features are:

- The robotic gait orthoses guide the patient's legs on the treadmill according to a pre-programmed physiological gait pattern. The guidance can be individually adjusted to the patient's abilities and can be reduced according to the patient's improvement.
- The dynamic body weight system Levi offers partial and continuously adjustable unloading to optimize the physiological gait pattern. The Levi is easy to use via a remote control and operates in real time during the training.
- As feedback is essential for motivation and motor relearning all Lokomat products provide a feedback on the current gait activity of the patient. The patient's activity during the training is continuously recorded and displayed for the different phases of the walking as well as for different joints.

## Product Overview

Covering individual needs of patients, therapists and clinics the Lokomat product line includes two different products, the LokomatPro and the LokomatNanos. Both devices are developed for in-patient and out-patient locomotion training with therapeutic assistance. They fit into a usual therapy room and don't require any additional installation.

**We are proud to present a new version of the LokomatPro as of March 2011\*. The LokomatPro version 6 features a new and more compact design and is equipped with the Augmented Feedback and a touch screen as a standard. In the future, upgrading options (e.g. additional degrees of freedom, sophisticated control, higher gait speed) will extend the LokomatPro version 6 as a sophisticated gait training device that supports the therapists and the patients in reaching their therapy goals.**

For more details and a comparison of the LokomatPro version 6 with version 5 please see the table on the right. The LokomatPro version 6 will be commercially available as of March 2011 (depending on national registration procedures).

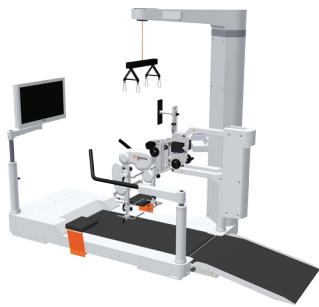
<sup>1</sup> For a publication list visit <http://www.hocoma.com/en/products/lokomat/lokomatRpro/literature/automated-therapy/>

\*depending on national registration procedures

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## Lokomat®Pro

The LokomatPro offers expert training tools within automated locomotion therapy. It improves the training efficiency compared to manually assisted therapy<sup>1</sup> by providing a wide range of functionality in addition to the basic Lokomat features:



- The Augmented Feedback enhances the patient's motivation with instructive, challenging and interactive exercises in virtual environments  
⇒ **new: automatically included in LokomatPro version 6!**
- A touch screen offers the therapist an easy control of the LokomatPro functions.
- The optional Pediatric Orthoses allow functional locomotion therapy for small children.
- The Assessment Tools provide ongoing assessment of motor functions and allow monitoring of the recovery progress and precise evaluation of the patient's abilities.
- The force sensors included in the orthoses support the Augmented Feedback and Research Tools with exact measuring of the patient's strength.
- The LokomatPro can easily be switched from automated to manual training.
- The Research Tools, data recording and export functionality offer easy data inquiry for therapy progress reporting or clinical studies.
- Further upgrading options will be available for the LokomatPro version 6 in the future:  
⇒ **e.g. additional degrees of freedom, sophisticated control, higher gait speed**

## Lokomat®Nanos

The LokomatNanos offers all basic training modality as listed left in "The Lokomat features".



	LokomatPro version 5	LokomatPro version 6	LokomatNanos
<b>Dimensions (l x b x h)</b>	400 cm x 185 cm x 279 cm**	330 cm x 170 cm x 239 cm	280 cm x 153 cm x 239 cm
<b>Application</b>	<ul style="list-style-type: none"> <li>• Robotic gait training (pediatric and adult)</li> <li>• Manual gait training</li> <li>• Research</li> </ul>	<ul style="list-style-type: none"> <li>• Robotic gait training (pediatric and adult)</li> <li>• Manual gait training</li> <li>• Research</li> </ul>	<ul style="list-style-type: none"> <li>• Robotic gait training with adults</li> </ul>
<b>Upgrade Options</b>			
Pediatric Orthoses	Yes, optional	Yes, optional	No
<b>Features</b>			
Body Weight Support	Levi or Lokolift	Levi: Automatic adjustment and data storage	Levi: Mechanical adjustment
Augmented Feedback	Yes, optional	Yes, included	No
Biofeedback	Yes	Yes	Limited
Guidance Force	Yes	Yes	Limited
Training programs	Yes	Yes	No
Assessment Tools	Yes	Yes	No
Research Tools	Yes	Yes	No
Reporting Tool	Yes	Yes	No

\*\*LokomatPro version 5 with Woodway treadmill and Levi Body Weight Support



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## Product Disclaimer

**All Hocoma products are medical devices and must be used in strict adherence to the User Manual; failure to do so may result in serious personal injury.** It is strongly recommended that you regularly consult Hocoma's website ([www.hocoma.com/legalnotes](http://www.hocoma.com/legalnotes)) for the latest available information. Please contact Hocoma should you have any questions.

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