



# THE CLEVER **THERAPY**

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***tyromotion***



THIS IS **TYROMOTION**  
**TYROSOLUTION** – THE CONCEPT.

AREAS OF **APPLICATION**

— **IN HOSPITALS**  
**IN THERAPY CENTERS**  
**AT HOME**

OUR **PRODUCTS**

— **AMADEO®**  
**DIEGO®**  
THE **PABLO®** SYSTEM.  
**TYMO®**  
**TYROSTATION**  
**TYROS®** – THE SOFTWARE.

**TYRO'S WORLD** – THE NETWORK.

OUR **VISION**

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to contact the tyromotion sales department or office@tyromotion.com

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mation, please write to: office@tyromotion.com

# THIS IS TYROMOTION

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TYROMOTION GMBH is one of the world-wide leading manufacturers and distributors of robot- and computer-assisted therapy units for the rehabilitation sector. The company focusses on the development of novel technologies based on the use of powerful mechatronic systems for rehabilitation. These systems help physicians and therapists to reach their goal of guiding their patients through the rehabilitation process faster and in a more motivating way. Today the innovative therapy units of **TYROMOTION GMBH** are being used in rehabilitation centers and clinics world-wide.

By now, the company with headquarters in Graz has additional branch establishments in Germany and the USA, furthermore also two therapy centers (**TYROMOMENTUM**) in Schweinfurt, Germany, and in Graz, Austria. The distribution network extends across the entire globe.

TYRO LINKED



*Information about the **TYROMOMENTUM** therapy centers  
in Austria and Germany»*



# tyrosolution

**tyroS**  
THE SOFTWARE.



**DIEGO®**



THE **PABLO®** SYSTEM.



**TYMO®**



**TYROSTATION**



**AMADEO®**

## TYROSOLUTION THE CONCEPT.

TYROSOLUTION offers a concept for the use of robot- and computer-assisted therapy units for all phases of rehabilitation. Flexible therapy applications and the individual adjustability of the therapy units ensure optimum completion of your patient treatment.

TYROSOLUTION offers physicians and therapists more possibilities for an efficient and motivating rehabilitation program tailored to the requirements of in-patient, out-patient and in-home treatment.

### AMADEO® – FINGER-ARM REHABILITATION

- > Robot-assisted therapy
- > Integrated, real-time bio feedback
- > Passive, assistive and active therapy
- > Continuous and ergonomic stimulation of the grasping movement

### DIEGO® – ARM-SHOULDER REHABILITATION

- > Robot-assisted therapy
- > Uni- and bilateral application
- > Active and passive therapy based on "active gravity compensation"
- > Natural movements in 3D space

### PABLO® SYSTEM – HAND-ARM REHABILITATION

- > Computer-aided sensor technology
- > Measurements of the strength of fingers and hand (extension and flexion)
- > Measurements of the scope of movement for the entire upper extremity
- > Suitable for in-patient, out-patient and in-home therapy

### TYMO® – REHABILITATION FOR THE ENTIRE BODY

- > Computer-assisted sensors
- > Static and dynamic measurement and therapy options
- > It can be used with the patient standing, sitting and supporting himself/herself
- > Suitable for in-patient, out-patient and in-home therapy



# AREAS OF **APPLICATION**

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## WHY? **tyromotion**

The system solution for hospitals is characterized especially by flexible use and simple handling. Furthermore the therapy units complement each other to form a complete solution for the treatment of the upper extremities.

### CLEVER:

- SAVES MORE TIME due to short introduction periods for therapy units and software
- A WELL-MATCHED CONCEPT for the upper extremities covers the portfolio
- EASY AND INTUITIVE USE of the therapy units enable efficient treatment

### FLEXIBLE:

- Well-conceived assessments, interactive therapies and a reporting and documentation system for a WELL-FUNDED BASIS OF DECISION-MAKING
- The units are suited for neurological and orthopedic patients of all age groups and so enable TREATMENT OF A DIVERSIFIED TARGET GROUP
- Therapy units can be employed for in-patient or out-patient applications and are therefore very FLEXIBLE TO USE

### MOTIVATING:

- Therapy that is motivating and measureable at the same time becomes an EXPERIENCE
- FAST AND UNCOMPLICATED THERAPY
- Maximum therapeutic benefits IN A MINIMUM OF TIME

## IN HOSPITALS

*“TYROSOLUTION enables us to provide diversified support for all phases of rehabilitative therapy. We especially appreciate the flexible use for the upper extremities in the clinic!”*

Prim. Dr. Walter Kreuzig  
Clinic management, private clinic Laßnitzhöhe, Austria





# IN THERAPY CENTERS

*“AMADEO® and the PABLO® system enable me as a therapist to document and retrieve the success and progress achieved by a patient at any time. This makes it easier to draw up reports for physicians and health insurance funds.”*

Daniel Ramming  
Management, therapy center  
Autonomie Ergotherapie, Germany

The TYROSOLUTION concept in therapy centers: Here it is all about assistance for therapists and the opportunity to further expand the range of therapy services.

WHY?  
**tyromotion**

- > **SPACE-SAVING CONCEPT**  
for smaller therapy rooms as well
- > Suitable for **MOBILE USE**
- > **SAVES MORE TIME** through well-funded documentation and reporting
- > **MORE OPTIONS** for a wide variety of symptoms



# AT HOME

*“TYROSOLUTION has convinced me with the easy handling and the therapy options it provides.”*

Peter David Lloyd  
Stroke patient, Australia

## WHY? *tyromotion*

As a result of the flexible application options, TYROSOLUTION can be integrated especially easily in everyday life – this makes therapy motivating and varied.

- > **SELF-EVALUATION** and the possibility of writing reports for the attending physician and therapist
- > The simple software enables **UNCOMPLICATED OPERATION**
- > **MOTIVATING THERAPY** and **FLEXIBLE USE** in a familiar environment
- > **ADDITIONAL THERAPY OPTIONS** based on cognitive training



# OUR **PRODUCTS**

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## REHABILITATION ROBOTICS.

Many studies underline the importance of brain plasticity and its therapeutic potential in neurological disorders. Theories of cortical reorganization after brain lesion advise the use of early, intensive, repetitive, and context-related exercise as optimal strategies to promote motor relearning and minimize motor deficit.

AMADEO® allows an easy and reproducible treatment of acute, subacute, and chronic patients with moderate to severe upper limb paresis. The therapy system involves all core elements of motor learning (external focus, biofeedback, repetition, shaping, and motivation), as well as different therapies (e.g. passive repetitive movement, task-orientated training, cognitive aspects), and much more.

### CLINICAL STUDIES

The positive effect of the robot-assisted approach in the early phase of recovery was demonstrated. Moreover, a reduction of sensorimotor impairment and a recovery on quality of life was found. Also the management of spasticity can be more effective if the rehabilitation treatment starts in the acute phase. A large clinical use of Amadeo originates from the good participation of the patients and absence of side effects. (Sale et al. 2012)

Robotic therapy for hand paresis after stroke is safe and feasible. (Stein et al. 2011)

### ADVANTAGES OF THERAPY ROBOTICS

Compared with conventional therapies, an advantage of robotic devices is based on an increase in repetitions during arm training due to the increase of motivation and also the opportunity for independent practicing. Therefore, assistive training devices, allow a therapy paradigm which is intensive, frequent and repetitive, and accords to the principles of motor learning. (Mehrholz et al. 2012)

#### > ASSIST-AS-NEEDED

DIEGO® allows due to the active-gravity-compensation, even patients with severe arm paresis can perform functional and task-orientated therapy.

#### > BILATERAL, SYMMETRIC, AND UNILATERAL THERAPY

(Coupar et al. 2010, Stoykov et al. 2009)

The bilateral arm support enables patients to train daily living tasks in a natural way. Therefore, the individually adjustable and dynamically controlled assistance for both arms contributes to the improvement of independent daily living.

REFERENCES: Coupar F, Pollock A, van Wijck F, Morris J, Langhorne P. (2010). Simultaneous bilateral training for improving arm function after stroke (Review). The Cochrane Library.

Mehrholz J, Händrich A, Platz T, Kugler J, Pohl M. (2012). Electromechanical and robot-assisted arm training for improving generic activities of daily living, arm function, and arm muscle strength after stroke (Review). The Cochrane Library.

Sale P, Lombardi V, Franceschini M. (2012). Hand robotics rehabilitation: feasibility and preliminary results of a robotic treatment in patients with hemiparesis. Stroke Research and Treatment. 2012:820931.

Stein J, Bishop L, Gillen G, Helbok R. (2011) Robot-assisted exercise for hand weakness after stroke: A pilot study. American Journal of Physical Medicine & Rehabilitation. 90(11):887-94.

Stoykov ME, Lewis GN, Corcos DM. (2009). Comparison of bilateral and unilateral training for upper extremity hemiparesis in stroke. Neurorehabilitation and Neural Repair. 23(9):945-53.



# AMADEO®

## FINGERS IN MOVEMENT.



### FINGER-HAND REHABILITATION

With AMADEO®, we succeeded in creating a system for all phases of neurological rehabilitation. In patients with a limited scope of movement of individual fingers or the entire hand, the targeted exercises performed with the therapy unit help to improve motor and sensory functions. As a result of the therapy program that is tailored to their individual needs, patients quickly regain more quality of living. Therapists can select passive, assistive and active variants from the different modules depending on the progress achieved in the course of therapy.

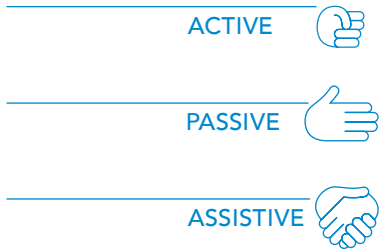
### THE CLEVER THERAPY UNIT

The patented mechanism of AMADEO® imitates the natural grasping movement and imprints it on the patient's hand. As simple as this step may seem, the processing and the healing process of the body are extremely ingenious. The brain, stimulated by the movements of hand and fingers, starts to reorganize and/or rearrange motor functions, stimulated by the movements of hands and fingers. In the process, the intensive training with a high frequency of grasping movements especially promotes the learning process. In the course of the task-oriented training with AMADEO®, the demands can be stepped up continuously. The unit always supports exactly the intensity that means training at the patient's individual limit of performance.

AMADEO® improves the motor skills as well as the power of fingers and/or hand, and reduces spasticity. In that way, it helps the patients to win back the natural scope of movement of their hands as far as this is possible. The varied training und the clearly structured feedback evaluations are very motivating for the patients.

### – 5 ADVANTAGES AT A GLANCE –

- 1 Continuous and ergonomics simulation of grasping movements
- 2 Ideal for all phases of neurological rehabilitation in the form of active, assistive and passive therapies
- 3 Enables the measurement of the isometric force and of the scope of movement for the upper and lower extremities
- 4 Integrated real-time bio feedback
- 5 High degree of flexibility and simple to use



## THERAPY WITH AMADEO®

### ACTIVE, ASSISTIVE AND PASSIVE TRAINING.

After the finger pads have been fixed on the finger tips and thumbs, automated movement sequences are performed. Depending on the degree of neurological damage, the patient can be treated either merely passively or actively. His/her therapist defines a personalized program.

- 1 CPM THERAPY – the passive hand is stimulated
- 2 ASSISTIVE THERAPY – active training at the individual limit of performance
- 3 INTERACTIVE THERAPY – active training in a virtual environment based on the goal-oriented performing of different tasks

### MEASUREMENT

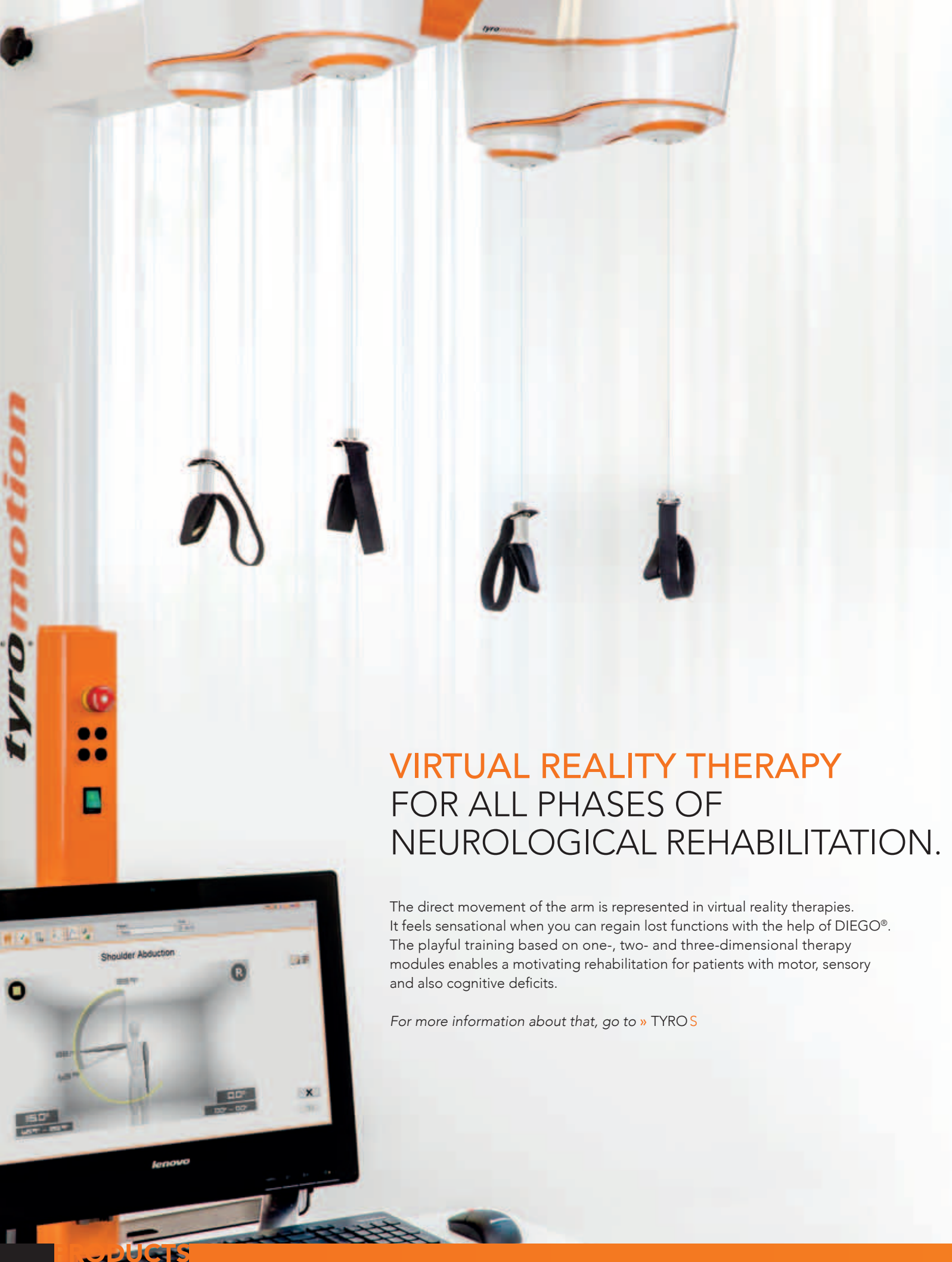
Real-time bio feedback enables the patient to track the movement sequences acoustically and visually. The integrated sensors enable the quantitative registration and evaluation of the applied finger forces and the scope of movement. The therapy progress becomes measurable and can easily be explained to the patient.

AMADEO® in moving pictures»

TYRO LINKED







## VIRTUAL REALITY THERAPY FOR ALL PHASES OF NEUROLOGICAL REHABILITATION.

The direct movement of the arm is represented in virtual reality therapies. It feels sensational when you can regain lost functions with the help of DIEGO®. The playful training based on one-, two- and three-dimensional therapy modules enables a motivating rehabilitation for patients with motor, sensory and also cognitive deficits.

For more information about that, go to » [TYRO S](#)

# DIEGO® TRAINING IN SPACE.

 ACTIVE

 PASSIVE

 ASSISTIVE



ARM-SHOULDER REHABILITATION

DIEGO® helps patients and therapists with the often difficult training for regaining lost arm function in the neurological and orthopedic field. DIEGO® enables patients to regain the ability to perform natural, habitual motions by means of passive and active therapies. Arm straps serve to fix the patient uni- or bilaterally to the unit quite easily. As a result, motions can be performed in the three-dimensional scope of movement. Therapy with DIEGO® ensures a varied, motivating and targeted rehabilitation process.



PUTTING ARMS INTO MOTION

Active weight relief makes this possible even for patients in an early state of rehabilitation. Active weight relief enables motion sequences that are as natural as possible even with patients who have only little arm function. Furthermore DIEGO® scores with its bi-manual function which enables patients to use both arms, while most units today still only enable the use of one arm at a time. This comes very close to the everyday movements performed by a person.



### – 5 ADVANTAGES AT A GLANCE –

- 1 Active, assistive and passive therapy options in all phases of rehabilitation
- 2 Versatile thanks to wall installation or mobile frame
- 3 Targeted training of the individual arms by means of uni- and bimanual training
- 4 A therapy unit for all phases of rehabilitation – thanks to active weight relief
- 5 The free 3D scope of movement helps the patient to regain natural movements fast



# THE PABLO® SYSTEM.

The PABLO® SYSTEM offers new perspectives and variants for motor rehabilitation on the function and activity levels. The system solution comprises:

The PABLO® SENSORGRIFF enables the measurement of forces for all types of grips, such as cylinder grip and pincer grip. By means of integrated position sensors, the unit also measures the range of movement of an arm. The PABLO® SENSOR HANDLE is simply connected with the USB interface of a PC or notebooks.

The PABLO® MULTIBALL trains pronation and supination of the forearm as well as extension and flexion of the wrist. It offers well-aimed application options, for example for patients with flaccid hemiparesis for the upper extremities, in an early phase of rehabilitation already.

The PABLO® MULTIBOARD is used for the repetitive training of individual or several joints of the affected extremities, optionally with a distal or proximal approach.



## HAND-ARM REHABILITATION

The PABLO® SYSTEM with its very compact and convenient design offers a package of options that help patients with motor deficits of hands or arms to get moving. The PABLO® SYSTEM, developed in cooperation with physicians and therapists, is a solution that combines measurement and therapy.

The PABLO® SYSTEM offers well-founded therapeutic intervention options on the function and activity levels and is ideally suited for in-patient as well

as out-patient and in-home treatment of adults and children with motor deficits of a neurological and also of an orthopedic origin.

The shared software TYRO<sup>S</sup> is reflected here as well. As the centerpiece of the system, the therapeutically coordinated software offers targeted exercises with PABLO® as well as a reporting and documentation system for therapeutic purposes. Interactive therapy games make the PABLO® SYSTEM a motivating measurement and treatment system.

## – 5 ADVANTAGES AT A GLANCE –

- 1 Based on the latest neuro-scientific findings
- 2 Motor deficits of neurological and orthopedic origin can be treated
- 3 Suitable for in-patient, out-patient and in-home therapy
- 4 Exciting and motivating therapy modules
- 5 Suitable for children and adults

TYRO LINKED



«PABLO® in moving pictures»



# TYMO®

## THERAPY ON BOARD.



## TYMO® IN REHABILITATION – MEASURING & THERAPEUTIC APPLICATIONS.

TYMO® can be used statically, with an elastic support and as a movement board with selective movement axes. These functions are considered in the measuring programs and therapy modules. As a result, the respective deficits of a patient can be considered in an extremely individualized manner.

**Static measurement and therapy:** force and weight distributions can be measured and trained in a playful manner with the patient standing, sitting and supporting himself/herself.

**Dynamic measurement and therapy:** When a rolling element is placed underneath it, TYMO® is mobile and can be used to analyze and train the ability of patients to preserve their equilibrium and/or to keep their balance.

The individually adjustable software TYRO<sup>S</sup> with its playful design enables training at the motor and sensory limit of performance of each individual patient and additionally enables complete follow-up and documentation.

For more information about that, refer to » TYRO<sup>S</sup>

### REHABILITATION FOR THE WHOLE BODY

TYMO® impresses above all with its versatility, and it meets all requirements for training and improving equilibrium, balance and postural control as well as active employment of force and supporting activities of the upper extremities.

TYMO® offers a wide variety of different applications. The pre-set initial positions (supporting oneself, sitting and standing) can be complemented by the therapist at will, with the result that there are no limits to the wide variety of applications of TYMO®.

As a result of its slim design and the wireless connection to the computer, TYMO® can be used for in-patient, out-patient and in-home settings. TYMO® is suited for treating neurological and orthopedic patients of all age groups. The individually adjustable software with its playful design enables training at the motor and sensory limit of performance of each individual patient.

TYRO LINKED



TYMO® in moving pictures»



ACTIVE



– 5 ADVANTAGES AT A GLANCE –

- 1 *Easy to use due to the shared software – this enables short introduction periods*
- 2 *Static and dynamic measurements and/or therapies can be performed*
- 3 *Can be used for in-patient, out-patient and in-home therapy*
- 4 *Very flexible application options for the upper and lower extremities*
- 5 *Well-conceived assessments, interactive therapies and a well-founded reporting and documentation system*



# TYROSTATION

## PABLO® AND TYMO® COMBINED.

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### EFFICIENCY IN THERAPY

TYROSTATION is a system solution for PABLO® SYSTEM and TYMO®. This stationary unit creates space in your therapy room and you have all units ready to hand – nothing stands in the way of efficient therapy any more.

The height can be optimally adjusted to the patient and consequently also makes it possible for wheelchair users to work on TYROSTATION.

### A WELL-CONCEIVED SYSTEM

The clever storage options for PABLO® belts and PABLO® pads create space for the things that are really important for therapy: space for motivation and fun! The lateral trays for the TYMO® 2D and 3D rolling elements are always ready to hand for patients or therapists.

Everything has been taken into consideration – in addition to sitting on it, the stool can also be used as a support surface for sitting exercises with TYMO®.

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### – 5 ADVANTAGES AT A GLANCE –

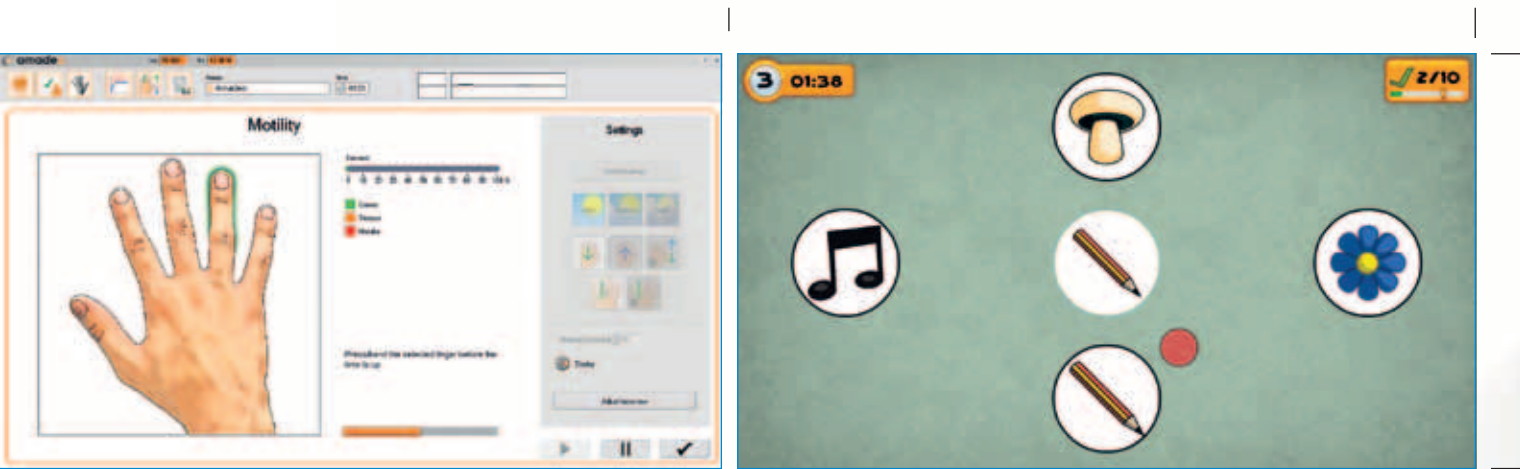
- 1 *Stored in a space-saving and safe manner*
- 2 *All units are ready to hand*
- 3 *Height-adjustable (ideal for wheelchair users)*
- 4 *Registered medical device*
- 5 *All units can be used with the **shared software** on the all-in-one PC*





# tyroS

## THE SOFTWARE.



### THE THREE CORE AREAS OF THE SOFTWARE

- 1

**ASSESSMENTS** – TYMO® can measure force, force distribution and movement. A selection of therapeutically coordinated assessments for weight transfer, symmetry and the ability to keep one's balance is made available for that purpose.

The PABLO® SYSTEM enables you to measure the active scope of movement as well as the hand force with all types of grips.

AMADEO® enables you to measure the active scope of movement of the fingers in a targeted manner and to evaluate the force of the individual fingers by means of force measurements.

The assessments with DIEGO® enable the therapist to analyze the scope of movement of the entire arm quickly.
- 2

**INTERACTIVE THERAPY** – motor, sensory and cognitive deficits can be worked on in a playful manner with a wide variety of therapy modules.
- 3

**REPORTING AND DOCUMENTATION** – In a patient documentation system, TYRO S records all individual results of medical findings and the progress of therapy in an electronic patient file which is created by the therapist at the beginning. All new findings are saved automatically and compiled into a therapy and final report with a course chart including all data by the system in the background.

### – 5 ADVANTAGES AT A GLANCE –

- 1

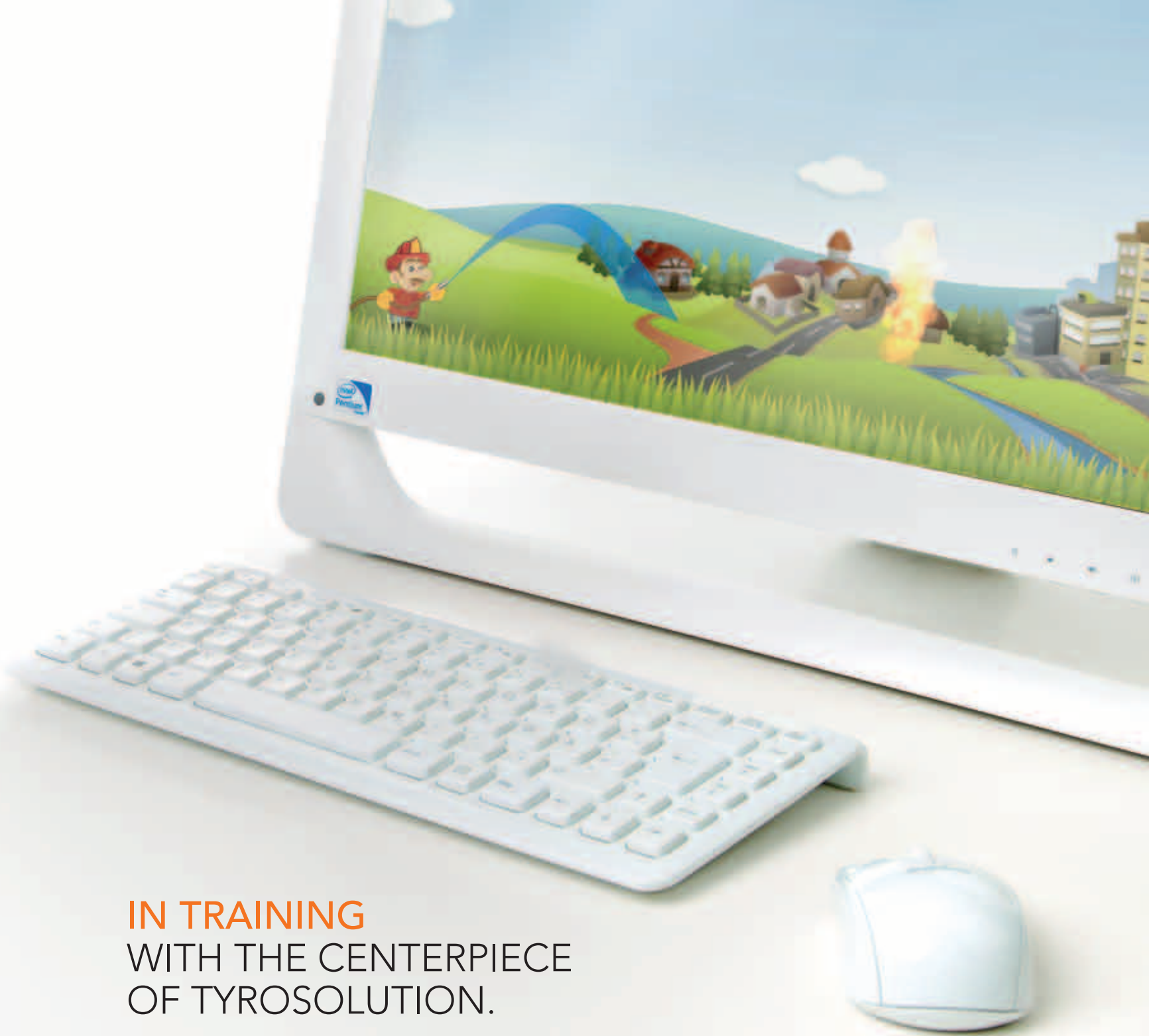
Clearly structured software enables *short introduction periods*
- 2

Well-founded *documentation and reporting system (follow-up)*
- 3

*One software evaluates all devices*
- 4

*Visual feedback for the patient*
- 5

*Can also be installed on a personal PC for in-home use*



## IN TRAINING WITH THE CENTERPIECE OF TYROSOLUTION.

The software TYRO S is a therapy software geared to TYROSOLUTION. The individually adjustable software with its playful design enables a motivating training of the motor, sensory and cognitive deficits of each individual patient and additionally enables complete follow-up and documentation. The software that is used for controlling the course of therapy was developed in close cooperation with patients, therapist and physicians, and it was complemented with cognitive therapy games of Verena Schweizer from her neurological training in cooperation with her.

TYRO S contributes many additional aspects to the therapy system, which enable therapists to cater to the individual needs of each of their patients..

APP for finger and hand training»

FINGER  
MOTION

TYRO LINKED



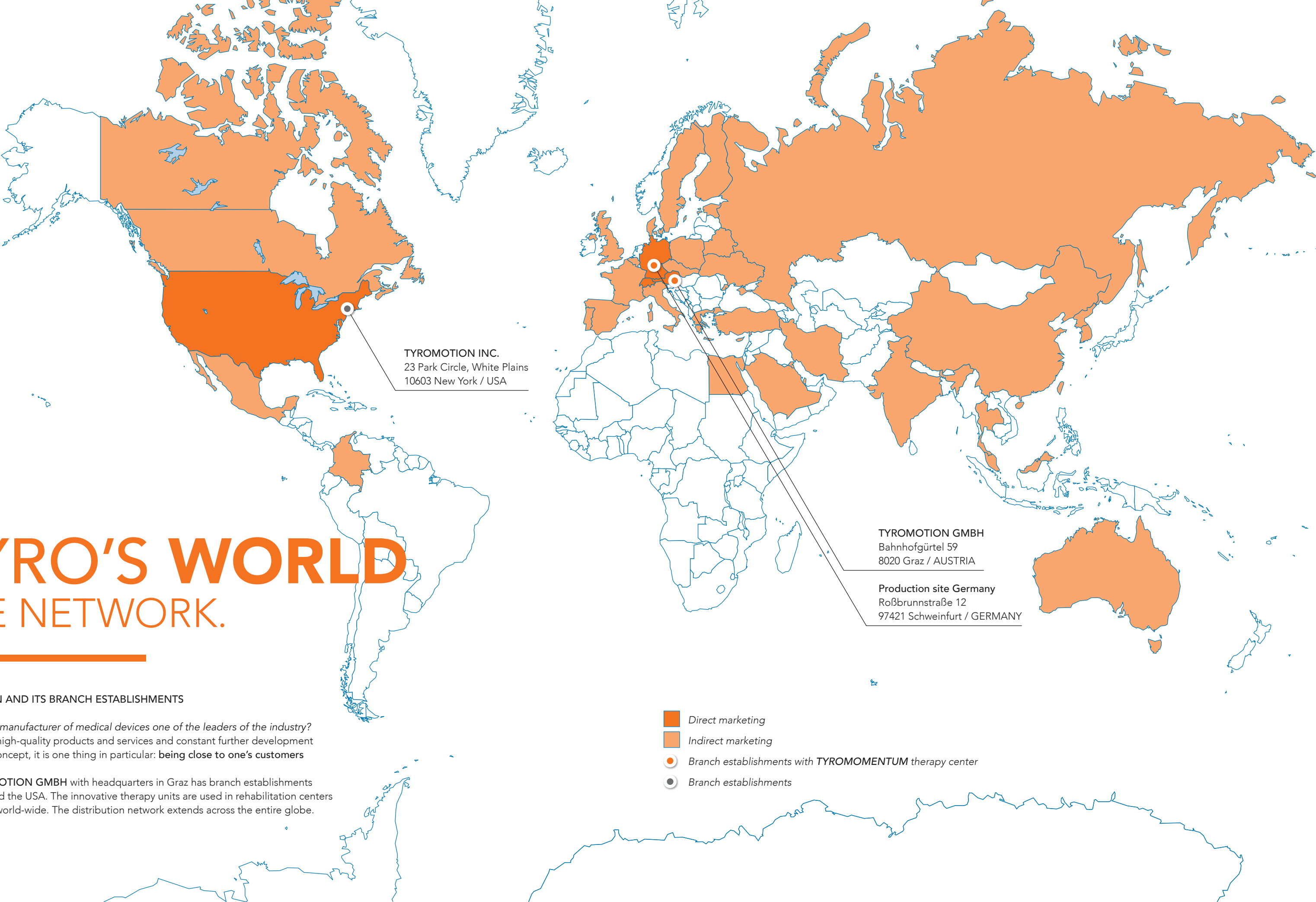
# TYRO'S WORLD

## THE NETWORK.

### TYROMOTION AND ITS BRANCH ESTABLISHMENTS

What makes a manufacturer of medical devices one of the leaders of the industry? In addition to high-quality products and services and constant further development of a solution concept, it is one thing in particular: **being close to one's customers**

Today **TYROMOTION GMBH** with headquarters in Graz has branch establishments in Germany and the USA. The innovative therapy units are used in rehabilitation centers and hospitals world-wide. The distribution network extends across the entire globe.





# OUR VISION

Every day, therapists face the challenge of identifying their patients' problems and helping them to achieve permanent therapeutic success that is of use for the patients as quickly as possible.

Especially a limited therapy period often makes it difficult for therapists to offer their patients a consistently intensive and motivating therapy.

We build on exactly this issue with our developments and create, together with therapists and their patients, innovative therapy concepts that combine the latest research results and decades of clinical experience. The objective of our company is to develop solutions, to improve the rehabilitation process on a holistic basis, and to offer the patients an optimum solution for all phases.

Our mission is to offer physicians and therapists well-conceived rehabilitation solutions and a wide range of treatment options and new perspectives. With our efforts, we do not only want to develop revolutionary ideas for the industry, but create real added value for physicians and therapists for therapy.

## CERTIFICATIONS AND AWARDS

As a developer, manufacturer and distributor, we are subject to exacting international guidelines and employ a quality management system in our company. In order to keep up to date with a view to the processes and to product and service quality at all times, we perform in-house audits and supplier audits on an ongoing basis and have our companies certified on the basis of exacting guidelines:

> **ISO 13485** (with extension for Canada – CMDCAS)

> **EWG 93/42 Annex II** (full quality assurance system)

We are glad about the national and international rewards that we get at regular intervals, such as the Design Management Europe Award or the Austrian State Award for Innovation. These acknowledgements show us that we are innovative and future-oriented not only regarding our entrepreneurial actions. For more information about our awards, go to [www.tyromotion.com](http://www.tyromotion.com)

Dr. Alexander Kollreider, DI David Ram  
Founder and CEO

STATISTICS, PUBLICATIONS  
and more, 2005–2013»





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