Instruction Manual

MOTOmed viva2, Motomed gracile 12
MOTOmed letto2

RECK MOTOmed® – valid for device class II – status May 2012

GB Please use the MOTOmed only after you have read the instruction manual. If you should not understand the language of the present version, please request the instruction manual in your native language.

DE Benutzen Sie das MOTOmed erst, nachdem Sie die Gebrauchsanweisung gelesen haben. Sollten Sie die vorliegende Sprachversion nicht verstehen, fordern Sie bitte eine Anleitung in Ihrer Landessprache an.

FR Avant de commencer votre entraînement MOTOmed, veuillez lire les instructions d'utilisation. Si ces instructions d'utilisation ne correspondent pas à votre langue, n'hésitez pas à nous demander une autre traduction.

ES Utilice el MOTOmed sólo después de haber leído las instrucciones de uso. Si no entiende el idioma de la presente versión, por favor exija un manual en su lengua nacional.

PT Use o MOTOmed somente, depois de ter lido as instruções de operação. Em caso que você não compreenda a língua desta instrução, peça por favor uma orientação em sua língua nacional.

IT Per un ottimo funzionamento del MOTOmed leggere le istruzioni per l'uso. Se riscontrate qualche difficoltà riguardo la vostra lingua madre consultate il vostro servizio assistenza.

NL Neem uw MOTOmed pas in gebruik nadat u de gebruiksaanwijzing hebt gelezen. Indien de gebruiksaanwijzing niet overeenstemt met uw moedertaal, aarzel dan niet ons te contacteren en een andere taalversie aan te vragen.

SV Använd MOTOmeden endast, efter du har läst fungerande anvisningen. Om dig bör inte förstå den tillgängliga språkversionen, förfrågan var god a vägledning i ditt nationella språk.

DK MOTOmed må først anvendes, når brugsanvisningen er gennemlæst. Forstår du ikke vedlagte brugsanvisning, rekvirer en dansk vejledning hos ProTerapi.

PL Przed skorzystaniem z urządzenia MOTOmed prosimy zapoznać się z instrukcją obsługi. Jeśli instrukcja obsługi jest napisana w języku obcym żądajcie Państwo instrukcji w języku przez Państwa znanym.

RU Используйте МОТОмед только после того, как прочитаете инструкцию по эксплуатации. Если Вам не понятен язык, на котором написана иструкция, запросите, пожалуйста, одну на родном языке.

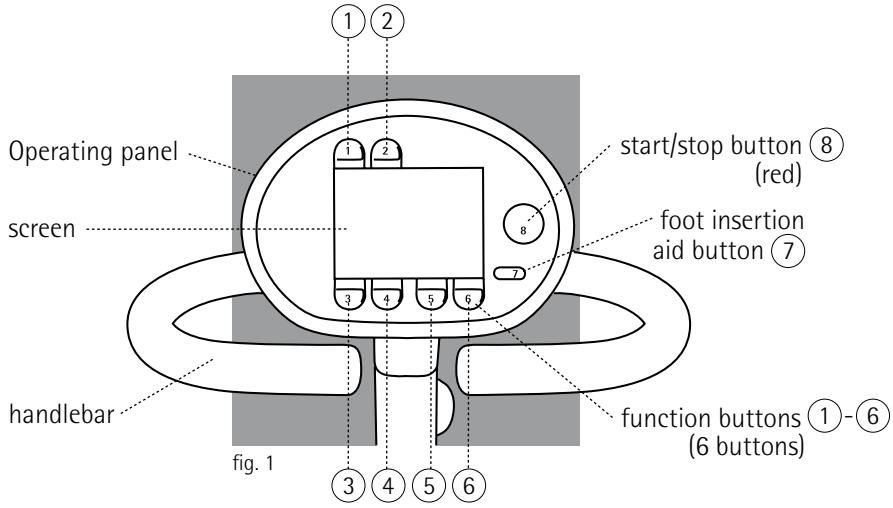

1
2
Operating panel
screen
start/stop button 8
(red)
foot insertion
aid button 7
handlebar
function buttons 1 - 6
(6 buttons)
3
4
5
6

fig. 1

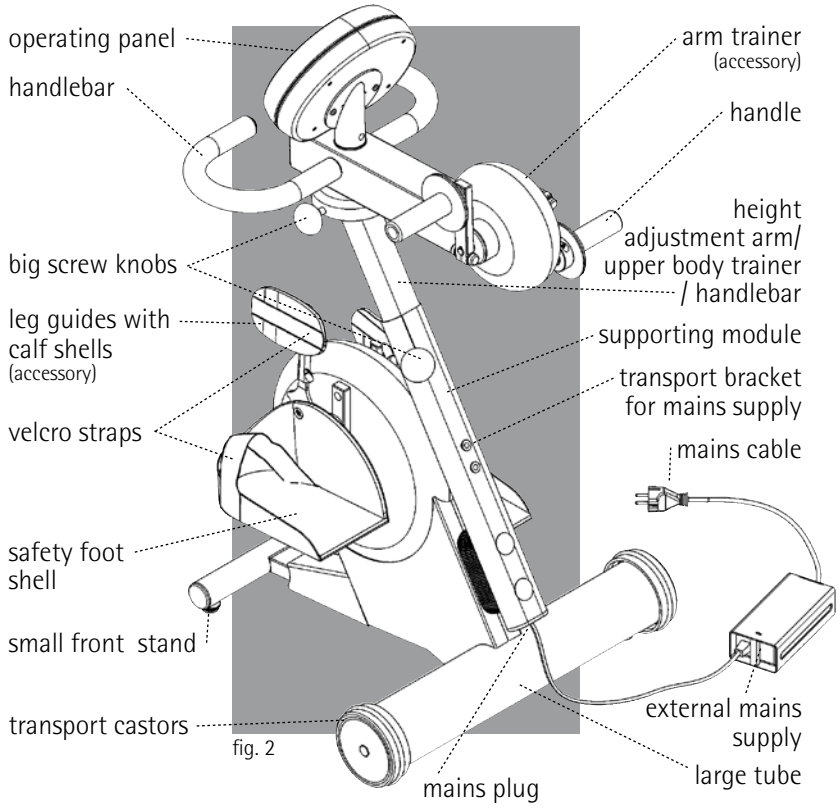

operating panel
handlebar
arm trainer
(accessory)
handle
height
adjustment arm/
upper body trainer
/ handlebar
big screw knobs
leg guides with
calf shells
(accessory)
supporting module
transport bracket
for mains supply
velcro straps
mains cable
safety foot
shell
small front stand
transport castors
external mains
supply
large tube
mains plug

fig. 2

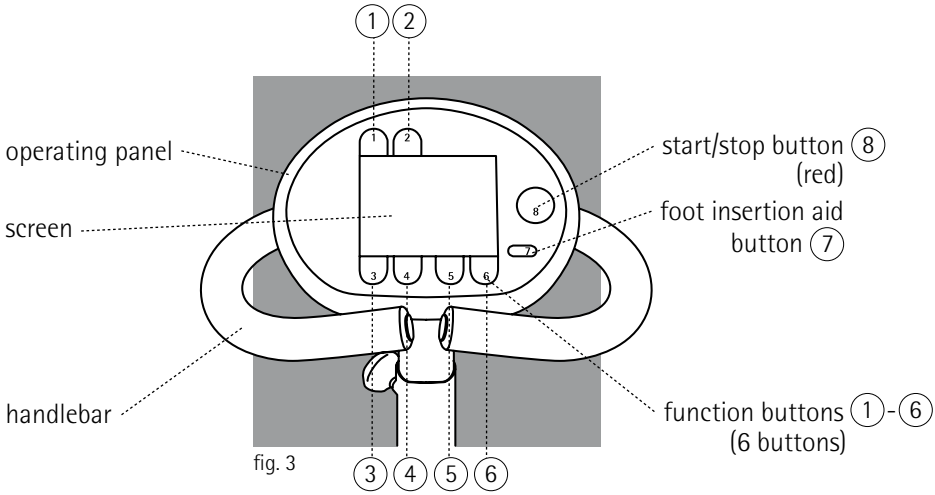

1
2
operating panel
screen
handlebar
start/stop button 8
(red)
foot insertion aid
button 7
function buttons 1-6
(6 buttons)
3
4
5
6

fig. 3

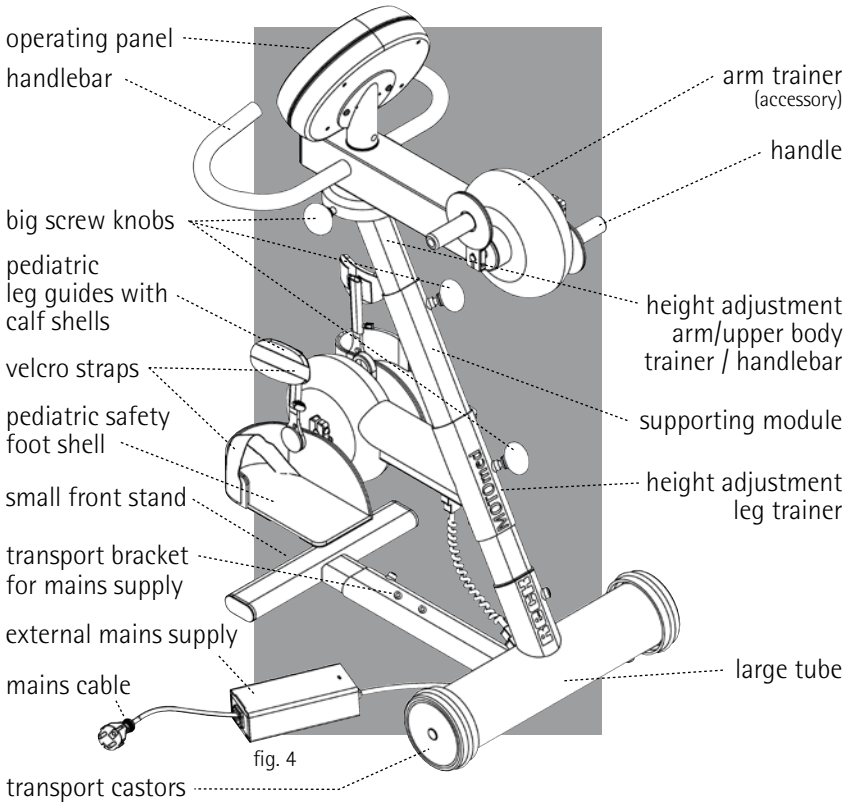

operating panel
handlebar
arm trainer
(accessory)
handle
big screw knobs
pediatric
leg guides with
calf shells
height adjustment
arm/upper body
trainer / handlebar
velcro straps
supporting module
pediatric safety
foot shell
height adjustment
leg trainer
small front stand
transport bracket
for mains supply
external mains supply
mains cable
large tube
transport castors
MOTOmed

fig. 4

MOTOmed letto2

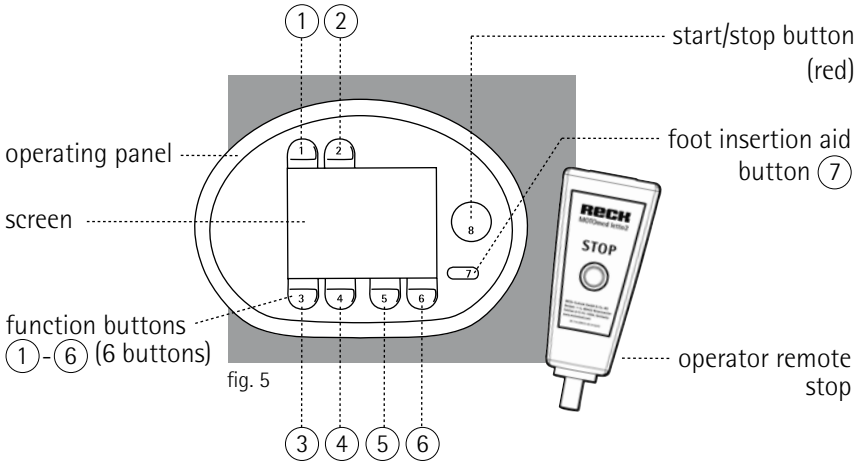


fig. 5

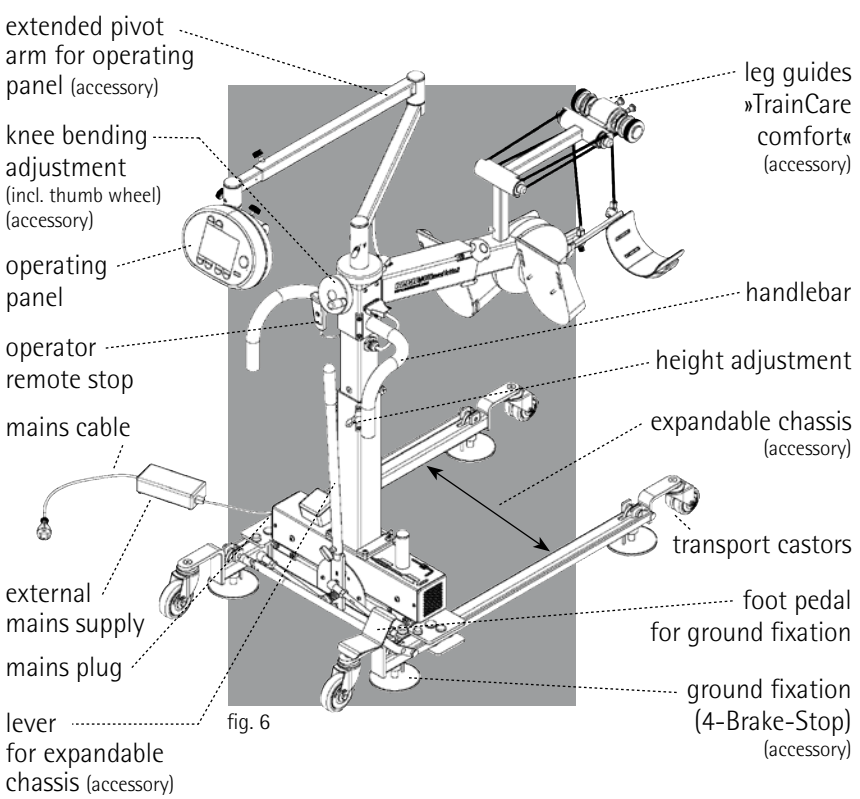


fig. 6

MOTOmed letto2 leg/arm

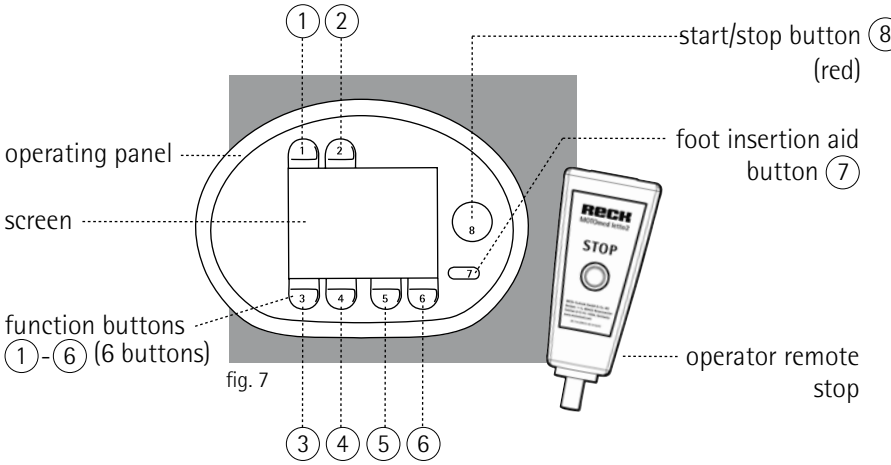


fig. 7

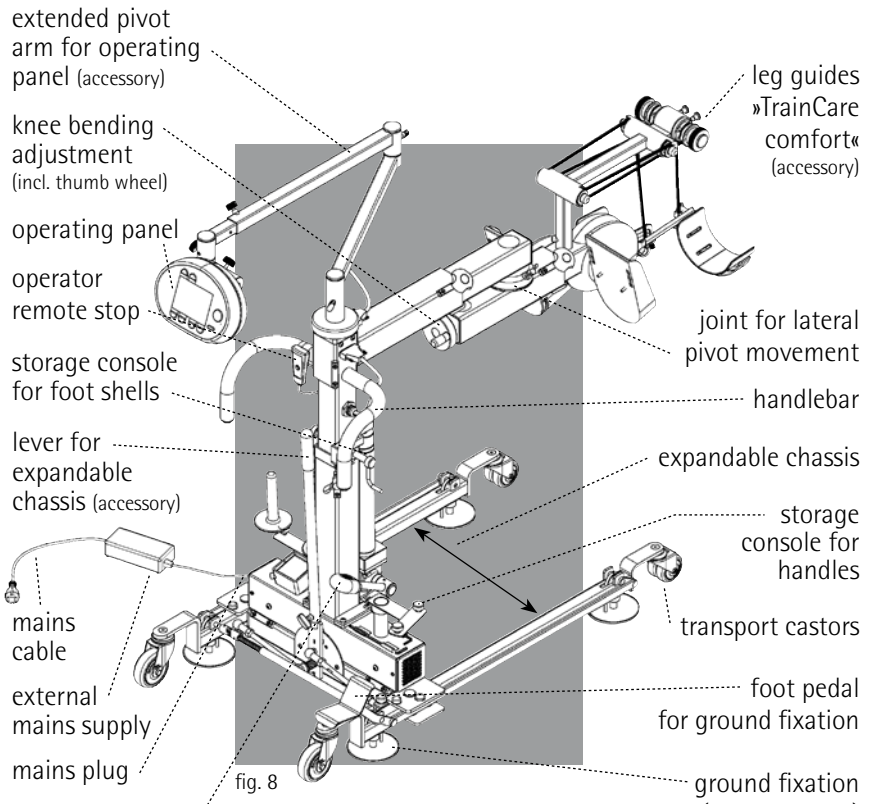


fig. 8

Gentle, modern and sophisticated...

Congratulations! You have made an excellent choice by purchasing your MOTOmed. This movement therapy device provides out-standing performance. An innovative quality product »made in Germany« by RECK Company, supported by the latest computer technology.

The MOTOmed is an intelligent, motor-assisted movement therapy device. Enjoy the daily benefits of this therapy.

This instruction manual will help you to get to know the MOTOmed. It guides you through the functions and offers suggestions and hints on how to use your new movement therapy system to gain optimal benefit from the training. Before starting the training, please follow
see page 77 the *safety precautions* indicated in chapter 11.

see page 76 If you have furtherquestions or comments, please do not hesitate to call your MOTOmed representative or the RECK customer service team. We are happy to assist you.

Enjoy the training with your MOTOmed!

page # Introduction 1

Application

The MOTOmed is suitable only for the active, motor-assisted and passive movement of lower and upper extremities while seated or in supine position. During the training the MOTOmed can be operated via operating panel. The MOTOmed is mobile and therefore can be used at various locations.

Conventional use

MOTOmed viva2 / MOTOmed gracile12
During the training the user is seated in front of the device in a safe wheelchair or in a stable chair (without castors), with a sufficiently high back support.
Make sure to sit up straight and that the wheelchair (or chair) is secured properly in order to prevent tilting over.
It is not allowed to use the MOTOmed in a standing position. The MOTOmed must be placed on a firm, non-slippery surface. The position of the MOTOmed must not be changed during the training.

Not applicable are some specific power wheelchairs, standing chairs and sport wheelchairs with a large stem or with foot rests that cannot be folded or removed.

Under special circumstances the MOTOmed viva2/gracile12 can also be used in supine position.

MOTOmed letto2/letto2 leg/arm
Training in supine position from a bed unit using the MOTOmed letto2. Please make sure the MOTOmed letto2 is secured by using its bed fixation or ***ground fixation (accessory, item no. 159)*** and that the legs of the user are fastened securely inside the foot shells. Brakes have to be applied to the bed and it has to be fixed.

Once the MOTOmed letto2 is positioned to the bed, no additional adjustments shall be made to the bed (height, position,...).

Special bed units (treatment chairs) that are not accessible with the MOTOmed are unsuitable or require the addition of special accessories. Please use the MOTOmed letto2 leg/arm on beds that are only accessible sideways.

In general
MOTOmed use is only permitted in accordance to measures and safety precautions indicated in this instruction manual, with the consent of a physician / therapist, and with no contraindications found. Settings and changes besides the regular operation with the operating panel may only be done if the arm and leg trainer pedals are not moving and the arms and legs, respectively, are not fixed to the MOTOmed.

Disclaimer of warranty

The manufacturer does not assume liability for consequences of:

- improper and inappropriate use
- neglect of instruction manual
- willful damage and reckless use
- over intensive training
- use of unsuitable wheelchairs, chairs, or bed units
- use without prior consultation of a responsible physician and therapist
- attachment of unauthorized accessories
- repair or other interference by any person not authorized by the manufacturer

Therapy goals

Prevention, reduction, and improvement of the consequences of loss or lack of movement, mainly in the following medical conditions

Indications (diseases)

- (spastic) paralysis or neuromuscular conditions with primary loss of function in the leg(arm)-mobility (e.g. due to stroke, multiple sclerosis, paraplegia post-polio-syndrome, Parkinson's disease, traumatic brain injury, infantile cerebral palsy, spina bifida)
- restrictions of orthopedic nature such as rheumatism, osteoarthritis, knee / hip replacement, condition after a joint injury
- cardiovascular and metabolic illnesses (e.g.. arteriosclerosis, diabetes mellitus type2,hypertension, pAVK, osteoporosis)
- additions to therapy measures e.g. with dialysis patients, chronically obstructive bronchitis and patients with minimal overall physical performance
- circulatory disorders in the legs and organs
- other medical conditions resulting in limitations in movement and becoming confined to bed

Contraindications

Subject exclusion from intervention due to contraindications was not reported in any of the correlating medical studies.

Risk analysis and long term experience in the field of movement therapy show that patients with the following indications are required to consult their doctor and therapist before starting the training: Fresh joint injuries, joint replacements/prosthetics, fresh ligament reconstruction, fresh knee- and hip prosthetics, knee and joint arthritis, joint stiffness, extreme muscle shortening, extreme limb deformation, increased danger of hip and shoulder luxation

(e.g. sub luxation in shoulder), acute thrombosis, decubitus and very strong osteoporosis.

The therapeutic benefits versus the possible risk for a patient must be determined by the patient and by the treating doctor or therapist. Therefore, the MOTOmed therapy shall only be started after consulting the treating doctor or therapist.

Negative side effects

negative side effects from training with the MOTOmed movement therapy devices have not been reported **and are not known.** No negative side effects caused by MOTOmed Movement Therapy were reported in any study. There have been studies where patients aborted the therapy (for organizational, health or other reasons...), still there was no study that reported either an association between the abortion and the intervention, or negative effects on the user caused by the intervention.

Residual risk:
MOTOmed movement therapy device is based on the function of electric motors that drive leg and arm trainer pedals with defined forces. The electrical and functional safety is guaranteed by the manufacturer by means of comprehensive measures, therefore the residual risk is minimal if all safety measures are followed. However, it must be considered that in case of careless use, ignoring the safety measures or general misuse the rotating pedals can cause injuries. If a user is not able to follow the safety measures or cannot recognize and prevent hazardous situations, we strongly recommend to allow use only under supervision.

see page 77

When using the MOTOmed please follow the prevailing safety precautions in chapter 11.

page

Therapy Suggestions

2

Overall user instructions and training suggestions

Before using the MOTOmed viva2 please consult your doctor and therapist in order to adjust your training program and the duration of your training sessions to your individual state of health.

In order to achieve full therapy benefits, regular training with the MOTOmed is essential. In the beginning, you should not engage in sessions lasting longer than 10 - 15 minutes. It is rather recommended to train 2-3 times per day for approximately 5 -10 minutes. After about one week you can gradually increase the duration of training, the resistance level, and speed according to individual condition and well-being.

Always start your training with passive motion (legs or arms are moved by the motor) to warm-up. If you are able to train actively, do your first sessions at a low resistance level. Avoid overstraining. When training actively it is recommended to train with a low resistance level for a longer time rather than training shorter with a high resistance level.

MOTOmed viva2 / MOTOmed gracile12
Pay attention to proper seating/laying position during the training, especially when using the arm/upper body trainer. The wheelchair or chair should be aligned to the MOTOmed. You should be sitting upright, back straight, while leaning on the back support of the chair or wheelchair. In case of slippery grounds a ***chair fixation (item no. 513)*** is recommended, in order to avoid the chair from moving backwards .

MOTOmed letto2 / MOTOmed letto2 leg/arm
Please assure the user's legs are positioned correctly into foot shells and into ***»TrainCare comfort« leg guides (item no. 168).*** The user has to lay down on the bed aligned to the MOTOmed letto2 or MOTOmed letto2 leg/arm.

The range of motion of the knee and hip joints depends on the distance between the crank and the user. The chair position to the MOTOmed should be adjusted according to the flexibility of your joints. Try to prevent over stretching or locking the knee joints by starting the training in small intervals.

When using the arm/upper body trainer make sure that the elbow joints are never fully stretched during the course of the training. Please also adjust the position of the arm/upper body trainer to the user's body height.

If you lack support due to the effects of paralysis it is absolutely essential to use *leg guides* and if applicable *forearm shells (item no. 556 or 556K)*.

see p. 44, 52, 56
see pages 48, 55

How do I train appropriately?

Do you have any questions about the MOTOmed training?
Are there any difficulties with the MOTOmed ?
Please call your MOTOmed representative or the RECK Company, phone +49 7374 18-85. We are pleased to assist you.

see page 76

Instructions in case of cramps (spasms)

If you are affected by cramps (spasticity), slow and regular movement with the MOTOmed is essential.

Particularly in the beginning, it is recommended to train at a slow speed. This setting is especially useful to loosen up the muscles. You will notice that this form of training helps to reduce spasticity.

If you are inhibited by spasticity or you have sensitive tendons, joints or ligaments the *MovementProtector with SpasmControl* should always be turned on (a green flash symbol ↯ is shown on the display). In case of a cramp (spasticity) or another form of resistance, the *MovementProtector* stops the motor automatically.
The pedals move in the reverse direction and the *SpasmControl* reacts according to the therapeutic principle (antagonistic inhibition) - it detects the movement direction where the spasm can be eased. That way muscles are relaxed and tensions are relieved. This back and forth motion continues until the spasm has eased.

During the training the integrated *MovementProtector* automatically adapts to the stiffness of your muscles (muscle tone) in your legs/ arms. Therefore, *the MovementProtector* is always optimally sensitive.

see pages 44, 52
see page 56

For better leg support in case of spasticity, the ***leg guides with calf shells*** or the ***»TrainCare comfort«leg guides*** are a required additional component. These provide secure leg hold, safely support the lower legs, and enable a physiologically natural leg position during the course of the training.

In case of strong cramps (spasticity) when using the MOTOmed viva2/ gracile12, the use of a ***wheelchair stabilizer (item no. 8 or 8K)*** or a ***chair fixation with stabilizer (item no. 511 or 524)*** is recommended.

Under special circumstances, during passive training (e.g. osteoporosis or very strong spasticity) the maximum motor power for legs and arms can be set from the start menu by pushing the buttons »setup« and then »device settings«.

low motor power:	e.g. osteoporosis
high motor power:	e.g. increased stiffness due to spasticity or rigor (Parkinson's)

We recommend to consult your physician and therapist before adjusting the motor power.

page

Setup, Transport

3

Setup

see page 76

Please contact your MOTOmed representative in cases of transportation damage to the package or the MOTOmed device.

Unpack the MOTOmed and place it on the carriage or the stand.

Unpack the operating panel, in case it is not mounted on yet. Place it onto the bracket so that the connectors interlock. Fix the operating panel with the two screws enclosed. Check and tighten all Allen screws and locking lever with the enclosed Allen key.

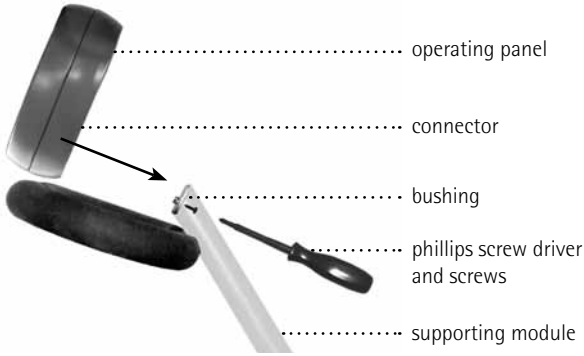


fig. 9

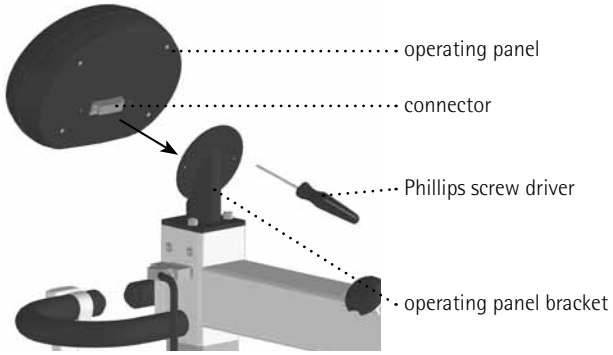


fig. 10

Prior to use, a safety inspection needs to be performed on the MOTOmed in order to prevent accidents. In case the user is not in the condition to conduct the inspection, the care giver is to do so. Additional instructions for the visual inspection can be found in chapter 12.

MOTOmed viva2 / MOTOmed gracile12

In case an *arm/upper body trainer (item no. 250 or 599)* is attached, please pull out the foot stand for approx. 15 cm / 6 in. Keep a minimal insertion of 10 cm / 4 in. order to ensure optimal safety. In order to adjust the front leg of the device carefully tilt the MOTOmed backwards, loosen the two Allen screws at the bottom, and pull out the front leg. After completing adjustment, retighten the Allen screws. You can find an Allen key at the bottom of the device.

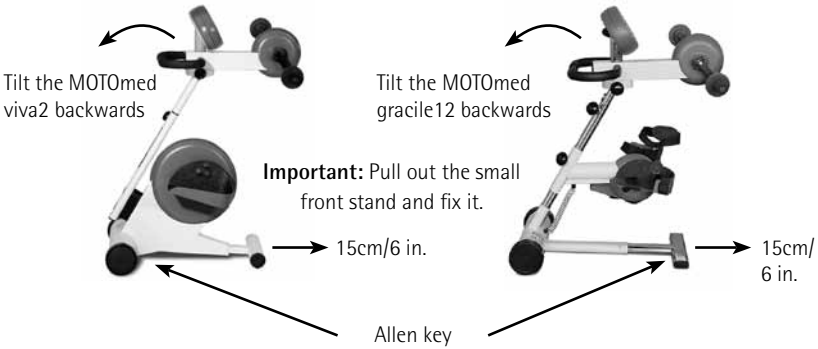


fig. 11/12

Even those MOTOmed viva2/gracile12 devices that include a handlebar, the front stand can be pulled out as described above, in order to ensure a high safety.

Stand-by mode

To initiate the device, the MOTOmed needs to be externally connected to the mains by the use of the included external power supply (PMP120F-17). Please connect the mains cable of the external power supply to the power outlet, and connect the connectors of the external power supply to the MOTOmed. The MOTOmed should be positioned in a reasonable distance to the wall socket so that it can be un/plugged easily.

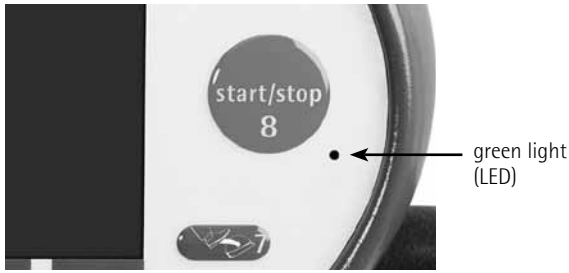


fig. 13

The green light (LED) next to the »start/stop« button (8) on the operating panel will start flashing. The screen powers on and the message »device initialization, please wait« appears. Please do not touch the pedals or the foot shells during this process; otherwise the safety test will fail. After that the start screen appears and the green flashing disappears.

The MOTOmed is made for continuous stand-by mode. The mains cable is to be pulled when repairing, cleaning or transporting the MOTOmed.

In order to save energy, the MOTOmed turns into stand-by mode a few minutes after the training.

Transport

The MOTOmed is equipped with two or four large castors for easy transport within a building.

MOTOmed viva2 / MOTOmed gracile12

To move the MOTOmed viva2/gracile12 (see page 3 and 4 fig. 2, fig. 4), hold the handlebar or the arm trainer and tilt it backwards until you can easily pull or push the MOTOmed on its large castors. In order to prevent damages during transport, the power cable is to be completely removed.
The external power supply can be fixed to the transport holder.

MOTOmed letto2 / MOTOmed letto2 leg/arm

For the transportation loosen the foot pedal of the ground fixation (see page 5 and fig. 6, fig. 8) and hold the MOTOmed letto2 / letto2 leg/arm on the handlebar. Make sure all adjustable or swiveling parts are in transport position. Now you can easily move the MOTOmed letto2 / letto2 leg/arm. In order to prevent damages during transport, the power cable is to be completely removed.

fig. 14

fig. 15

If you have to pull (never push) the MOTOmed over any small bumps, make sure that both castors move simultaneously (parallel) over the bump. Do not move the MOTOmed castors across uneven ground (e.g. cobblestones). In both cases, damage to the casing of the MOTOmed and the inside electronic components could result.

For longer distances on even ground you should use a trolley (or any other pushcart) in order to protect the MOTOmed viva2/gracile12.

If the MOTOmed letto2 is equipped with an ***expandable chassis (accessory, item no.160)*** transport is only permitted if rails are in alignment, in order to prevent the MOTOmed letto2 from tilting over. Also pay attention that the large castors are aligned in movement direction for transporting the MOTOmed.

Positioning of the MOTOmed letto2 / MOTOmed letto2 leg/arm

Position the MOTOmed letto2 or the MOTOmed letto2 leg/arm to the bed unit as described in section »fixing the MOTOmed to the bed«. Subsequently, position the feet of the user into the foot shells (section »foot insertion«).

see page 39

see page 36

Due to its special construction, the *MOTOmed letto2 leg/arm* can be used for leg training or arm/upper body training. The bed unit can be fastened to the foot part of the bed, to the right or left side, depending on the space available and the type of bed being used (fig. 16).

fig. 16

During the training, you shouldn't use the electrical or manual height adjustment of the bed unit.

By means of the penal you can start or finish the training. All functions can be adjusted via operating panel. Each operating step will appear on the display and selections will be confirmed with a beep sound.

page

Training prearrangements

4

Operating panel

Connectors of the operating panel

see page 71

The following connectors are available for the operating panel:

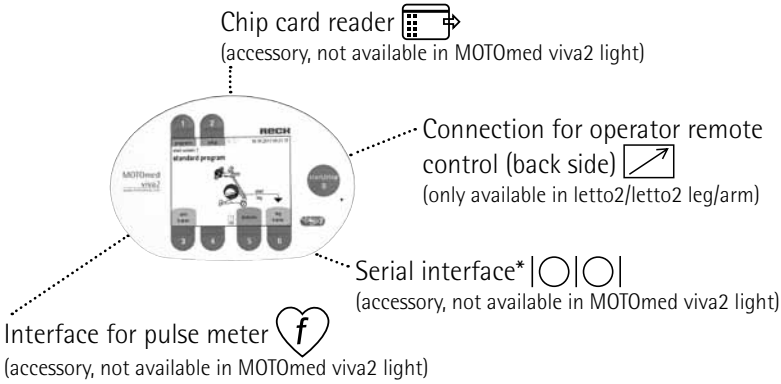


fig. 17

* The serial interface must only be used for following purposes:

- Using FES devices of the Hasomed company, which are designed to be combined with the MOTOmed.
- Connection of the MOTOmed interface for games

Operating modes

The MOTOmed provides two different operatingmodes (not available in the MOTOmed viva2 light).

The **»standard mode«** is suitable for most MOTOmed users and offers a simple and quick access to the basic functions and settings which are needed for a regular use of the MOTOmed movement therapy. The **»expert mode«** is designed for advanced MOTOmed users and therapists who want to edit the standard programs and create special device settings. While in the expert mode you can load additional program packages, change the existing programs and save these changes permanently. Additionally, you have access to all settings of the MOTOmed.

Access to the standard mode and expert mode:
When you plug in the mains cable into the wall socket, the MOTOmed will automatically boot up and go into the »standard mode«.
Having the MOTOmed in the stand-by-mode (black display, continuous green LED start light), you can select if you want to start the MOTOmed in the standard mode or the expert mode:

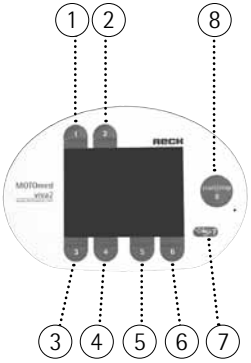


fig. 18

1. Standard mode:
Push the red »start/stop« button (8).
This is how you can start the training.

2. Expert mode:
When the display is black, push the buttons (1) (1) (2) in quick succession.

Further information about functions and the set up options of the two MOTOmed viva2 modes can be read in the user manual (713/W2558), or the MOTOmed viva2 light user manual (713.3/W517).

MOTOmed viva2 / MOTOmed gracile12 leg trainer

Preparation
If possible, place the MOTOmed with the large tube facing a wall. Sit in a wheelchair or in a stable chair in front of the MOTOmed within a suitable distance to the device - the legs need to move freely but the knee joints must not be stretched out completely at any time while training.

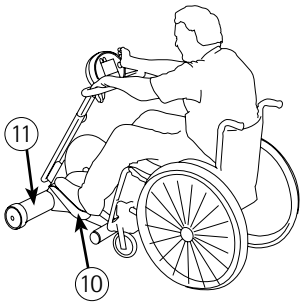


fig. 19

Make sure the wheelchair or chair is secured to avoid tilting or slipping.

Foot insertion and securing aid (if needed)

Press the long button (7) »insertion aid« (7) when the MOTOmed is in stand-by mode (black screen and constant green light). By »pushing and holding« the buttons (6) »pedals forward« or (5) »pedals backward« you can move the foot shells (10) (fig. 19) to the lower position for convenient leg insertion, one after the other. Now fasten your feet and legs with the Velcro straps or the *self-operating foot holders (item no. 506 or 598)*.

Arm/upper body trainer

Preparation

Before using the arm/upper body trainer it is important to pull out the front leg about 15 cm/6 in. (ensure a minimum insertion of 10 cm/ 4 in.). This improves the stability of the MOTOmed which is essential for the arm/upper body training. Please ensure that you do not place too much strain on one side of the handle, i.e. when standing up: do not lean yourself onto the handlebar, since this could cause the MOTOmed to tip over.

You can do both, active and passive training, with the arm/upper body trainer.

fig. 20 **1** leg training **2** swivel the arm/ upper body trainer **3** arm/upper body training

The integrated handlebar of the arm trainer can be used to hold on during leg training. To do arm/upper body training, please take the feet off the foot shells and swivel the arm/upper body trainer clockwise by 180 degrees. Please follow these steps:

1. Open the two screw knobs located underneath the arm/upper body trainer and swivel the arm/upper trainer clockwise by 180 degrees. After that, tighten the screw knobs again
2. In order to adjust a suitable height of the arm/upper body trainer, please open the screw knob on the supporting module, adjust it to the desired height and tighten the screw knob again.
   Please ensure a minimum insertion of 10 cm/4 in.

Please make sure to be seated with a distance to the MOTOmed viva2/ gracile12 so that the arms are not stretched completely; the elbow joint should always be slightly bent. The arm trainer has to be set on chest level or slightly below. For optimal seating position please consult your therapist and doctor.

Hint: The body has the tendency to bend down, especially in elderly people. Training in reverse direction can help to improve the upper body posture. Regular backward arm training is recommended as part of your training program.

MOTOmed letto2 / MOTOmed letto2 leg/arm

MOTOmed letto2

Preparation

Positioning procedure with the standard chassis and fixation with bed mount: Position the MOTOmed by attaching it to the foot part of the bed. Loosen the wing screw of the height adjustment (1) and slide it up as high as possible until the bed mount (2) is above the foot part of the bed. Loosen the wing screw at the handlebar (3) and lower the bed mount of the MOTOmed letto2 to lock to the foot part of the bed. Subsequently, adjust the height setting of the device so that the safety foot shells do not streak the bed during operation. Pay attention to lock the castors. Then refasten the wing screws (1) and (3) (fig. 21, fig. 22) and fix the brakes of the castors on the rail (not shown).

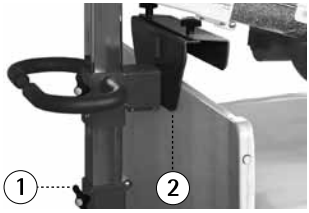


fig. 21

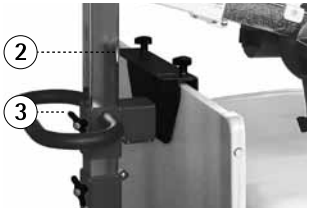


fig. 22

Positioning with expandable chassis (item no. 160) and locking with ground fixation (item no. 159): Position the MOTOmed letto2 in front of the bed unit. Loosen the fixing screw of the height adjustment ❶ and slide the crank ❷ to the tip. For proper positioning, please use the operating lever ❹ adjustments on the expandable chassis ❸ with wider and smaller options. Once the MOTOmed letto2 is positioned correctly, lock the ground fixation (4-Brake-Stop) ❺, by pushing the red part of the foot pedal. To release the ground fixation push the green part ❻ of the foot pedal.

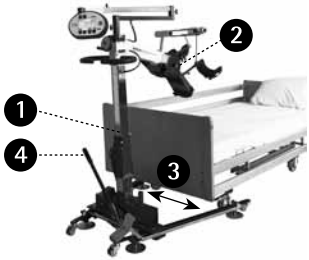


fig. 23

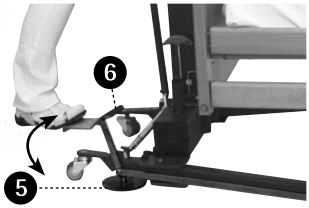


fig. 24

fig. 25

Positioning of the feet into the safety foot shells: Insert the feet in the (4) safety foot shells and fasten them with Velcro straps (5).

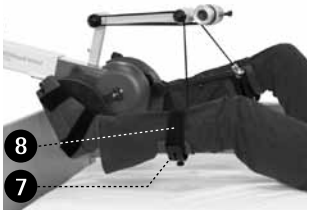


fig. 26

Leg guides TrainCare comfort (item no. 168): For a secure position of the lower leg and to prevent the knee from over stretching, insert the legs into the TrainCare comfort **7** and fasten those with the Velcro straps **8**.

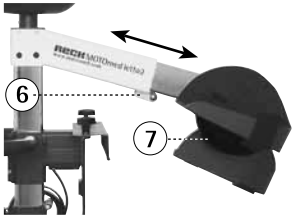


fig. 27

Knee bending adjustment: Before inserting the legs (6) loosen both wing screws of the longitudinal adjustment and move the crank (7) toward the user or away from him. After that, retighten the wing screws.

fig. 28

Rotary operating panel with operator remote stop: Rotate the operating panel (8) towards the user to provide access to the operator remote stop (9). Pay attention that the cable does not come in the training area of the foot shells.

MOTOmed letto2 leg/arm

Preparation

Attaching the foot shells (fig. 29): In case the hand grips are attached to the MOTOmed, please remove those and attach the foot shells instead ❶. The quick release option requires no tools for exchange. Open the red safety clip ❷ in order to loosen the fixation. Remove the hand grips and attach the foot shells ❶. Lock the red safety clip to fix them into position again ❷.

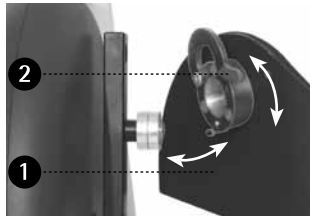


fig. 29

Adjustment of rotary arm with pedals (fig. 30): Before positioning the unit to the bed you need to adjust the rotary arm with pedals ❸. If you are going to use the unit from the foot part of the bed, the pedals need to be pivoted straight. Depending on right or left side application, the rotary arm needs to be adjusted to the right or left side, adapting to the user's position. To adjust the rotary arm to a required position, unscrew the thumb screw ❹ and pull the bolt ❺. Now you can adjust the rotary arm ❸ to the required position. The bolt ❺ will snap back in automatically and the rotary arm ❸ will be in place. Retighten the thumb screw ❹. Use the knee bending adjustment with thumb wheel (manually) ❻ (fig. 34) to bring foot shells ❼ into the training position ❽.

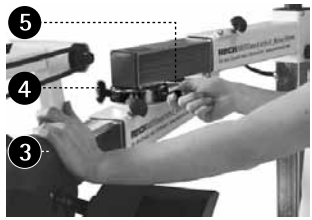


fig. 30

Proper positioning of the MOTOmed letto2 leg/arm(fig. 31): The rotary arm ❸ should be positioned centrally to the bed (width). If used from a bed side, the MOTOmed can be adapted to the bed width ❾ by means of the star knob. For this purpose loosen the star knob ❾, extend the

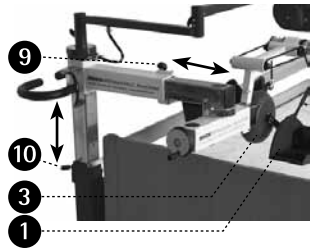


fig. 31

arm length accordingly and tighten the star knob ❾ again.

Adjusting the optimal training height(fig. 32, fig. 33): At the minimum height please ensure that the foot shells ❶ do not abrade the mattress when in its lowest position. use the foot pedal ⓫ to lift the the rotary arm. In order to lower the rotary arm slowly raise the foot pedal ⓫. Make sure to tighten the wing screw of the vertical base arm for optimal stability. When accessing the bed from the foot part, the expandable chassis (accessory, item no. 160) can be adjusted to the bed width ⓬ by control lever.

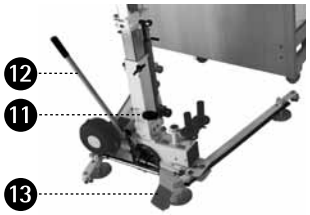


fig. 32

During height adjustment you must not touch or come close to the hydraulic cylinder.
Due to safety precautions, constricting the the rail inward is not possible.

High stability by ground fixation (fig. 32): The ground fixation can be locked by pushing the red part of the foot pedal. ⓭ This ensures high stability, even during active training. To release the ground fixation push the green part of the foot pedal ⓭.

Inserting and securing legs and feet: (fig. 33): Before starting up the device, push button (7) »foot insertion« on the MOTOmed operating panel to activate the foot insertion aid. Push and hold this button (5)/(6) until one of the foot shells have reached the ❶ the desired position. In order to insert the second leg push button (5) or (6) again to position the foot shells appropriately. Insert the feet of the user into the foot shell ❶ and, if applicable, also into the »TrainCare comfort« leg guides ⓮ (item no. 168). secure the legs with the Velcro straps ⓯.

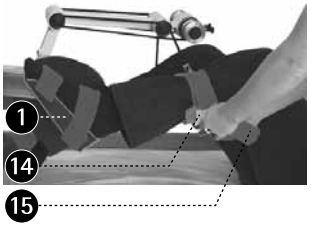


fig. 33

Note: Do not shift or reposition the MOTOmed after completing the leg insertion.

Knee bending adjustment - knee flexion adjustment: The extend of the knee flexion can be adjusted by the manual thumb wheel **7** (fig. 34). When using the electrical knee flexion adjustment (not shown), start the MOTOmed by pushing button (3) or (6) (fig. 18) and pause by pushing button (8). Please ensure the knee joints of the user are slightly bent at all times during the training (when in the farthest foot shell position).

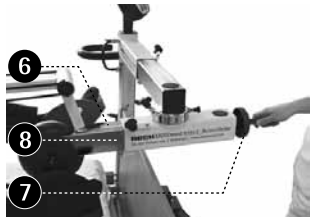


fig. 34

Arm/upper body training

For arm/upper body training, the MOTOmed letto2 leg/arm (fig. 35) should be positioned to the side of the bed. Remove the foot shells and attach the hand grips. The following operation with the arm/upper body trainer is identical to the leg training. After preparation of the arm/upper body trainer (attaching the handles, proper positioning and fixation of the MOTOmed) induce the hands to the handles and fasten them in accordance to applicable accessories (e.g. wrist cuffs (item no. 562), hook grip (item no. 567), etc.). Once set up is complete, make sure the user elbows are always slightly bend (test the position in the farthest pedal position).


fig. 35

End of training

End of training / analysis

Push the red »start/stop« button twice to end the training (8). After 10 seconds the training analysis will pop up automatically. Here you can see (among other values) how long you have trained passively (with motor) and actively (with own muscle strength).

Removing feet from foot shells

For an easier exit, push button (7) »  « to remove your feet. After you have removed your feet, push the red »start/stop« button (8) twice to switch off the MOTOmed.

page

Accessories

* Standard equipment

5

Accessories MOTOmed viva2

item no. 501

Safety foot shells

The standard foot shell provides two pedal radius settings for adjustment of the range of movement of the ankle joints. With a special spanner you are able to remove the foot shell (or pedal) from the pedal crank and screw it into the second hole of the pedal crank. You may request this spanner at the RECK Company if required.

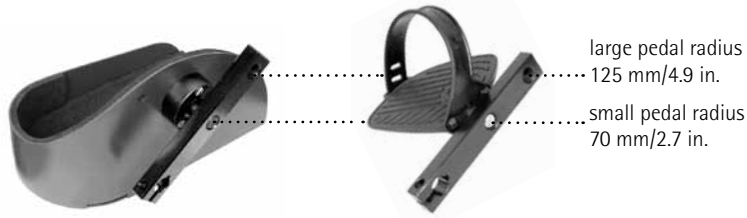


fig. 36

Please be aware that this is a left-hand thread (loosen clockwise) and please ensure that you have mounted both the left and right side foot shell on the same pedal radius. Tighten the pedal bolts, check, and retighten regularly.

If you wish to change the pedal radius frequently, we recommend the accessory ***pedal radius quick adjustment (item no. 507).***

The foot shells can be individually adjusted to the user's needs, e.g. with outward rotation, height adjustable, etc ...
Your MOTOmed representative will be happy to assist you.

item no. 502

Leg guides with calf shells

The leg guides with calf shells are formed in order to enable an easier fixation to the shell. Due to their flexible shape they can easily be adjusted to the lower leg.

The calf shells (fig. 37/38) need to rest against the calves for an optimal guidance and hold of the legs. Loosen the wing screw and adjust the height according to the user's physique.

see page 33

Make sure that the minimum insertion of 3 cm/1.2 in. is maintained. As soon as you have positioned the feet into the foot shells, wrap the Velcro straps around the calves.

Make sure the Velcro straps are securely wrapped around the calves (fig. 38).

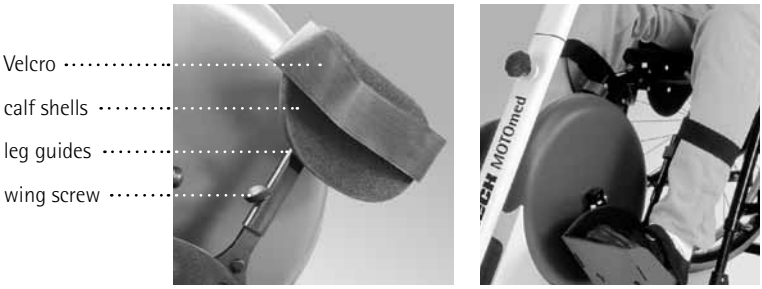


fig. 37/38

If the wing screws become loose, noise will occur. Please tighten the wing screws.

item no. 506

Self-operating foot holders

They help you to fasten and remove your feet easily and independently.

fig. 39

Open the foot holders and insert your feet. After that lift the foot holders up and then aside, make sure the foam rolls are positioned properly. Lastly, lock it with the operating lever (feel a slight pressure).

Adjusting the spring pressure of the foam roll

The pressure of the foam roll can be adjusted by tightening (counter-clockwise) or loosening (clockwise) the set screw at the bottom of the foot holder.

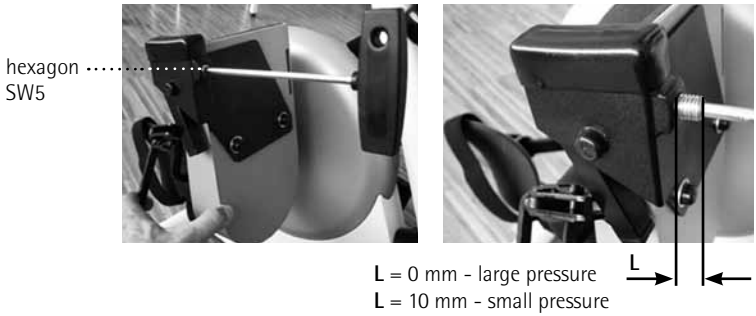


fig. 40/41

The position of the set screw must not exceed 10 mm / 0.4 in.!

item no. 507

Pedal radius quick adjustment

With the pedal radius quick adjustment, you are able to adjust the range of motion/ pedal radius of the foot shells. The pedal radius is adjustable on both sides in four levels and can also be set between those levels if required.

Please follow these steps when changing the pedal radius:

1. First stop the pedal movement of the MOTOmed by pushing the red »start/stop« button (8) twice.
2. Remove feet from the foot shells.
3. Pull the mains cable to prevent unwanted power-on during the pedal radius adjustment.

4a. By pulling up the snap knob the foot shell can be slid along the pedal crank and can be set at any one of the 4 positions/levels (primarily loosen the Allen screw). You can find an Allen key at the bottom of the device.

4b. Stageless/continuous adjustment: Using the Allen screw, the foot shells can be set at any position on the pedal crank.
5. Adjust the other foot shell accordingly.
6. Please make sure the pedal radius of both sides is matching!
7. Plug in the MOTOmed.

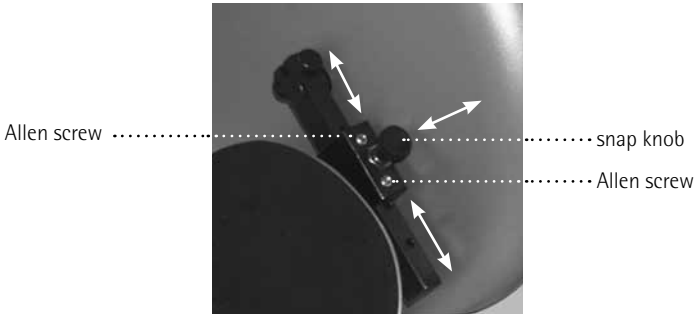


fig. 42

Loose Allen screws may cause noise. After tightening the Allen screw the noise should cease. We recommend retightening the Allen screws on a regular basis.

item no. 250

Arm/upper body trainer active/passive

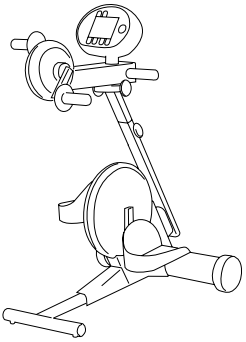


fig. 43

You can find a detailed description of the arm/upper body trainer in chapter 4 on page 34.

item no. 556

Forearm shells with arm cuffs

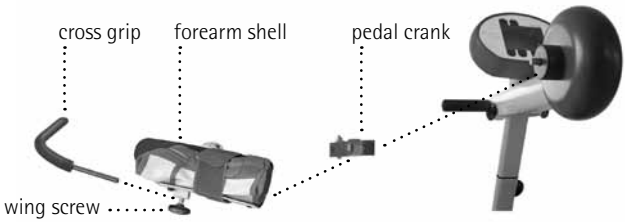


fig. 44

The forearm shells can only be used in combination with the ***arm/ upper body trainer (item no. 250 and 218).*** In order to allow some lateral mobility for the forearms, the shells have a pivot for horizontal movement. The position of the cross grip/hand rest of the forearm shell can be adjusted in all directions by loosening the wing screw (please ensure a minimum insertion of 2.5 cm/1 inch). Securely retighten the wing screw. The grip range for forearm shells consists of three different models: ***Cross hand grips (item no. 560), ball shaped hand rests (item no. 558) and vertical hand grips (item no. 559).***

fig. 45

item no. 560 item no. 558 item no. 559

It is important to make sure that the hands (and fingers) are fixed in a way that they are not touching the pedal cranks. Training with forearm shells **may only be conducted under supervision.** For retrofit of the forearm shells, please open the Allen screw at the ball bearing. You can find an Allen key at the bottom of the device. Do not forget to tighten the Allen screw again after attaching the forearm shells.

item no. 562

Hand fixation with wrist cuffs

The hand fixation with wrist cuff enables quick and simple attachment to the arm/upper body trainer of weak or paralyzed handsto the arm/ upper body trainer, the handlebar, or any hand fixation for that matter.

fig. 46

item no. 534

Ankle joint control with fix bar scale

The fix bar scale enables an exact and repetitive adjustment of the ankle joint movement. Therefore, this variant is suitable for clinics/ facilities that have to frequently change the adjustments according to each user. The left and right side can be adjusted independently from each other.

fig. 47

Please carefully adjust the range of motion of the ankle joint movement. The range of motion should be very low at the beginning of the training and can be increased only slowly. Please avoid overstraining. Please consult with your physician and therapist before using the ankle joint control in order to find an optimal range of motion. Some measurement data may show an unclear reading on the display due to the use of the ankle joint control.

Accessories MOTOmed gracile12

Height adjustment of the pedal axle ranging from 26 to 46 cm/10.4 to 18.4 in. (from the ground floor)

The MOTOmed gracile12 is the first and unique movement therapy device for children with adjustable pedal axle and foot shell height. Thus, adjustment to the needs of children is perfectly optimized. Thus, adjustment can be made without tools in seconds.

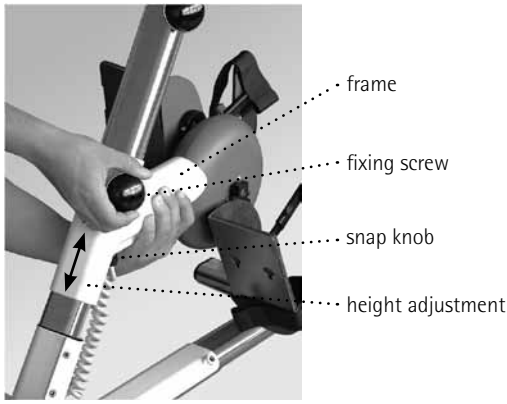


fig. 48

Height adjustment should be carried out while the MOTOmed gracile12 is shut off and with no feet inserted.

1. Stop the pedal movement of the MOTOmed gracile12.
2. Remove the feet from the pediatric foot shells.
3. Hold the body of the device firmly.
4. Loosen the screw knob.
5. Pull the snap button and adjust the MOTOmed gracile12 to the suitable height.
6. Securely tighten the screw knob after the adjustment.

item no. 585

Pediatric Safety Foot

The pediatric foot shells (inside measurement: width: 10.5 cm/4.1 in., length: 21.7 cm/8.5 in.) are softly padded and have a large side panel for foot and ankle protection.

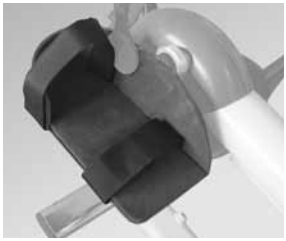


fig. 49

The pediatric safety foot shells provide a secure hold of the feet. This is particularly important for people with (complete) paralysis and for people with spasticity.

The high side panel supports fixing the feet and protects against the rotating pedal crank at the same time.
The specific padding allows for a comfortable and slip-proof training.

The pediatric foot shells come as standard with Velcro straps at the ankle and toe level.

The foot shells can be individually adjusted to the user's needs, e.g. with outward rotation, height adjustment, etc.
see page 76 **Your MOTOmed representative will be happy to assist you.**

item no. 545

Pediatric leg guides with calf shells

fig. 50/51

You can find a detailed description of the leg guides on page 44, see item no. 502.

2-stage pedal radius adjustment

The pedal radius can be decreased (3.5 cm/1.4 in.) and increased (7 cm/2.8 in.) with an Allen key within seconds.

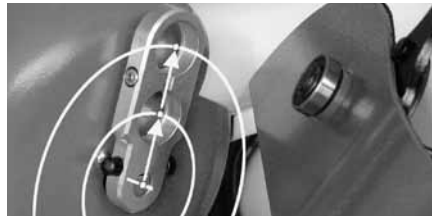


fig. 52

Adjustment of the pedal radius

The pedal radius should only be adjusted while having the MOTOmed gracile12 switched off and the feet not inserted.

1. Stop the pedal movement of the MOTOmed gracile12.
2. Remove the feet from the pediatric foot shells.
3. Open the Allen screw of the 2 level pedal radius adjustment.

4. Remove the pediatric foot shells out of the preset opening on the pedal crank. Place it into the previous open pedal radius position and change the pedal radius as desired.
5. Tighten the Allen screw securely again.
6. Repeat this procedure on the other side. Please make sure that the same pedal radius is adjusted on both sides.
7. Please make sure again that the Allen screws have been tightened on both sides.

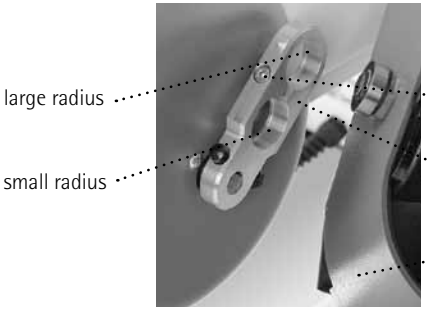


fig. 53

Please note for pedal radius adjustment:

1. Tighten the Allen screw on the ball bearing ring firmly so that the foot shell sits firmly in the ball bearing.
2. Make sure to tighten the Allen screw only as firmly as it allows continuous rotation of the foot shells.
   Procedure: Hold the foot shell in horizontal position and let it spin. If the foot shell swings approximately 1-2 times and then stops, the Allen screw is tightened correctly. If the Allen screw is tightened too firmly, the ball bearing tension ring can press too tight against the ball bearing of the foot shell so that it can hardly be moved and rotated, or not at all.
3. Insufficiently tightened Allen screws of the ball bearing ring are not subject to warranty coverage by RECK-Technik GmbH & Co. KG.

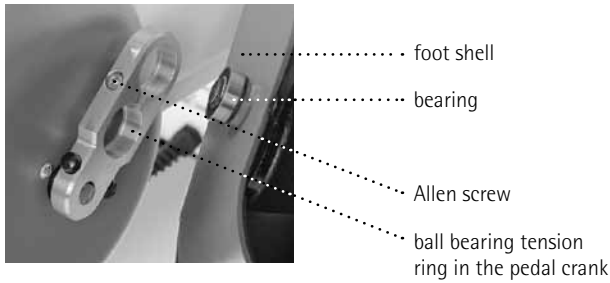


fig. 54

If you wish to change the pedal radius frequently, we recommend the special accessory *3-level pedal radius quick adjustment (item no. 588.*

item no. 598

Self-operating foot holder

fig. 55

You can find a detailed description of the self-operating foot holder on page 45, see item no. 506.

item no. 588

Pedal radius quick adjustment

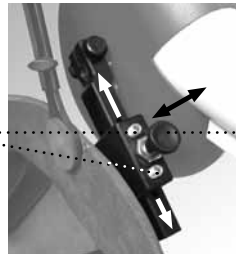


fig. 56

You can find a detailed description of the pedal radius quick adjustment on page 46, see item no. 507.

item no. 599 **Arm/upper body trainer active/passive**

fig. 57

You can find a detailed description of the arm/upper body trainer in chapter 4 on page 34.

item no. 556K **Pediatric forearm shell with arm cuffs**

fig. 58

You can find a detailed description of the pediatric forearm shells on page 48, see item no. 556.

MOTOmed letto2 Accessories

item no. 168

»TrainCare comfort« leg guides with calf shells

The »TrainCare comfort« leg guides (fig. 59) support the lower legs and prevent them from unintentional moving to the side, as they also prevent the knee joints from overstretching and blocking.

For paralyzed or comatose patients it is absolutely vital to use the »TrainCare comfort« leg guides.

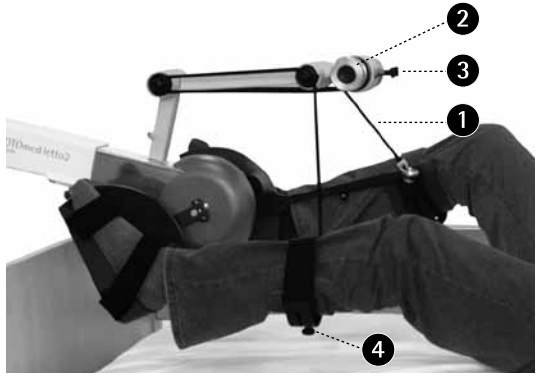


fig. 59

The support strength level of the »TrainCare comfort« leg guides can be individually adjusted on each leg guide separately, thus differing from one side to the other. Stronger weight support is necessary, depending on the position of the user or the weight of the legs. To increase the support, please wind up the expander ❶ by turning the expander coil ❷ until the expander is fastened strong enough to prevent an over stretching of the knees.

Pulling in the snap-knob ❸ decreases the tension of the expander again. Please hold firmly the corresponding expander coil ❷ and pull slowly the snap-in knob. With no expanders, the risk prevails that the leg guides (incl. inserted legs) are at risk of dropping down abruptly.

Depreciation caused by frequent use may cause the expanders ❶ of the »TrainCare comfort« leg guides to break which may cause injuries. Therefore, please inspect the expanders and

replace if needed on a regular basis. The manufacturer and its distributors do not assume liability for damages caused by negligence of maintenance.

The calf shell rotary adjustment ❹ (fig. 59) is individually settable on the right or the left side.
The rotary adjustment can be set to offer best possible hold to the patient's legs while training with the MOTOmed letto2. This prevents lateral sliding of the legs.

To set the rotary adjustment, please switch off the MOTOmed letto2 and pull the mains plug. Open the two fixing screws on the backside of the rotary adjustment ❹. Set the angle of the rotary adjustment on both sides and retighten the fixing screws.

Before restarting the MOTOmed letto2, make sure the set angles offer sufficient leg hold. Lateral sliding of the legs is to be avoided. Plug in the mains plug into the wall socket again.

item no. 159

Ground fixation

The ground fixation guarantees highest level of stability of the MOTOmed letto2 without any mechanical/physical connection to the bed unit.

fig. 60

Position the MOTOmed letto2 to the bed unit as close and centered as possible and push the red side of the foot pedal ❶ (fig. 60) to fix the MOTOmed in place. To release the ground fixation push the green side of the foot pedal.

item no. 160

Expandable chassis

For an ideal positioning use the lever of the expandable chassis to adjust its width to fit all common bed models or therapy chairs.

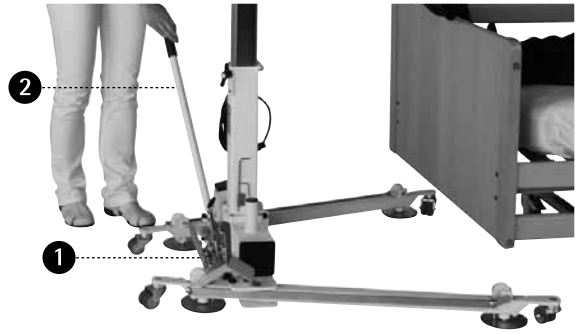


fig. 61

When the ground fixation is open, slightly pull ❷ the lever in your direction and shift it to the left side to expand the width of the track, or to the right side to reduce it. Snap the lever into a desired position and bring the device to the bed unit in a desired training position.

For security reasons, constricting the track width inward on the MOTOmed letto2 leg/arm model is not possible.

item no. 162

Knee bending adjustment (manual)

The distance between the rotary arm and the user can be adjusted by thumb wheel. That allows for adjustment of the knee bending during the training.

fig. 62

Rotating 1 to the right side leads to more bending while rotation to the left side leads to more flexion. You can find a scale on the horizontal arm 2 that shows the different levels of knee bending. At first, please set the rotary arm on the start position. There is also an electric version of the knee bending adjustment available.

item no. 166

Extended pivot arm for operating panel

Those users capable of training independently can profit from the interactive trainings feedback on the MOTOmed display (biofeedback).

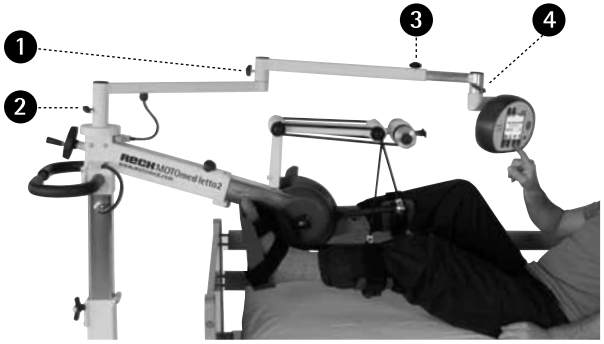


fig. 63

Loosen the fixing screws 1/2. Position the operating panel into the right position and tighten the fixing screws again. Loosening the fixing screws 4 allows for tilting up the operating panel. If the pivot arm is too short, loosen the fixing screws 3 and pull-out the pivot arm to extend it for up to an additional 30 cm/11in.

The use of a operator remote stop is mandatory if the device is not equipped with a pivot arm for operating panel, and if the training is unsupervised. The user needs to be able to independently interrupt or discontinue the training session.

item no. 173

Hydraulic height adjustment

For a comfortable and effortless height adjustment by foot pedal (standard equipment on the MOTOmed letto2 leg/arm model).

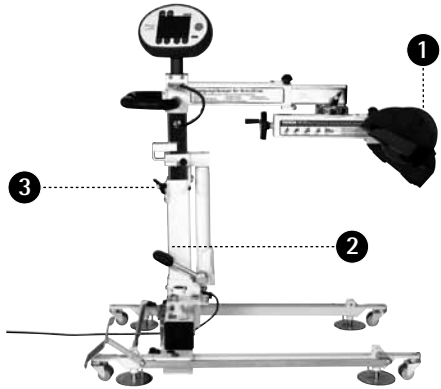


fig. 64

Loosen the fixing screw 3 at the vertical base arm. The rotary arm 1 is hydraulically pumped up to a desired position by repeatedly activating the foot pedal 2. To lower the rotary arm please lift the foot pedal a little. Then retighten the fixing screw 3 at the vertical base arm.

item no. 556

Forearm shells with arm cuffs

fig. 65

You can find a detailed description of the forearm shells with arm cuffs on page 48, see item no. 556.

item no. 562

Hand fixation with wrist cuffs

fig. 66

You can find a detailed description of the hand fixation with wrist cuffs on page 49, see item no. 562.

item no. 149

Ankle joint control with fix bar scale

fig. 67

You can find a detailed description of the ankle joint control with fix bar scale on page 49, see item no. 534.

General information

Only the use of original parts of the RECK Company is permitted. Additional accessories are shown in the current product overview. Individual product adjustments are available upon request. Please see page 76 contact your MOTOmed representative or the RECK Company contacts in chapter service.
If the user is cognitively or physically limited, and unable to determine the need for additional parts, a care giver is to make the adaption prior to starting the training.

page

Troubleshooting

6

Safety instructions for troubleshooting

Only authorized qualified personnel is allowed to carry out repairs on the MOTOmed. For security reasons, please pull the mains cable from the outlet before starting the maintenance.
In cases of unlisted malfunctions, or if you have any questions, please refer to the RECK customer service department or to an authorized MOTOmed representative.

see page 76

The MOTOmed runs unevenly, or makes noises

Please check the following points:

1. Are the wing screws of the leg guides securely tightened?
2. Is the pedal radius set on the same level on both sides?
3. Is the pedal radius set too wide for the level of mobility of the operator? This leads to an uneven user-specific run.
4. Are all Allen screws of the pedal radius quick adjustment tightened correctly?
5. Please check the seating position and posture of the user. You should sit upright and in a straight alignment with the MOTOmed. When training from the bedside, the head part of the bed should be situated a little upward and the user should lay in straight alignment to the MOTOmed. The distance between you and the MOTOmed should be such that the legs are not stretched completely at any time.
6. With hemiplegic patients, pedal movement may be uneven due to the unevenly affected body sides (especially when using a low gear).
7. In case of uneven run without feet inserted, authorized qualified personnel is to examine the drive belt.
8. A range of motion of the ankle joint that is set too far can cause an uneven run - please reduce the range of motion.

The MOTOmed is not working at all or the operating panel is not reacting

Please check the connection of the operating panel. The mains plug needs to be properly connected to the socket. Please also verify that the power supply connection by the external power supply to the MOTOmed device is correct. Please also check the functionality of your wall socket (by plugging in another electronic device).

The MOTOmed stops and generates an error message

Simple error

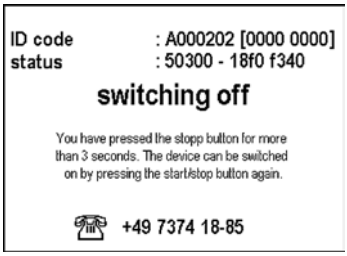


fig. 68 *example of display of a simple error*

In most cases a simple error, can be cleared by pushing the »start/stop«-button (8) and restarting the device. The individual device settings will not be lost. If the restart did not solve the problem, please disconnect the MOTOmed from the power supply (disconnect the mains) for a short while and start the MOTOmed again. Please check the listing of the displayed error code if you can find the cause and the solution of the error in the following overview and follow the instructions. If the error reoccurs, please contact your MOTOmed representative or the technical support department at the RECK Company.

Electronic error

Any electronic error requires disconnection of the power supply (unplug the MOTOmed). The individual device settings will not be lost.

Please use the generated error code to detect and follow the instructions to fault resolution within the following overview of error descriptions. If the error occurs repeatedly, please contact the technical support at the RECK Company or an authorized local partner.

see page 76

Overview of the most important error messages

The most important error codes are listed below. Referring the displayed error codes from the MOTOmed display, you may find information and solutions for the problem in this chart.
If the displayed error code is not listed and a restart or a short disconnection from the mains does not solve the problem, please contact the technical support department at the RECK Company or an authorized MOTOmed representative.

see page 76

Error code	MOTOmed reaction	Possible cause	Hints for troubleshooting
A000140 »over-heating«	Error message appears during the training.	Overheating of device due to: Blocking of pedal crank. - Continuous training at a high muscle tone. - Defect temperature sensor.	Disconnect the mains cable and allow for a device cool down of at least 15 minutes. Thereafter reconnect the device.
A000150 »Motor blocking«	Error message appears during the training.	- With activated SpasmControl feature more than 15 spasms are detected subsequently. - If the motor is blocking for more than 60 seconds with turned off SpasmControl.	Check if the pedals are moving freely. Restart the device by pushing the red »start/stop« button again. In case of high muscle tone, you can try increasing the motor power.
A000202 »Emergency-Stop«	Error appears after pushing the »start/stop« button.	The »start/stop« button was pushed for 3 seconds or more.	Restart the device by pushing the red »start/stop« button again. Alternatively, you can disconnect and reconnect by pulling the mains cable.

Cleaning, Care, Recycling

Before cleaning the MOTOmed, the device must be unplugged from the mains (electric outlet) so that the power supply is completely disconnected.

Clean the surface of your MOTOmed with a soft, moist cloth. It is absolutely crucial that no water enters the device.

If several persons use the MOTOmed, parts that may get in touch with sensible body areas (e.g. open wounds, risk of decubitus) must be cleaned regularly and disinfected with a common disinfectant.

Never use caustic, corroding or solvent cleansing agents and pay attention to not damaging the stickers on the MOTOmed.

Recycling

The MOTOmed is a high-quality all-metal construction:
It is long lasting, environmentally compatible and recyclable.
Users are required to dispose of such used electrical and electronic devices in accordance to EC regulations 2002/96/EG-WEEE (Waster Electrical and Electronic Equipment).
Please contact your MOTOmed representative for any questions.

Technical Specifications, Symbols

Dimensions and Weight (basic model)	**viva2**	**gracile12**	**letto2**
height	94 cm/37 in.	76 - 100 cm/ 29 - 39 in.	124 - 156 cm/ 48.8 - 61.4 in.
width	60 cm/23.6 in.	45 cm/17.7 in.	68 cm/27 in.
depth	56 cm/22 in.	63 - 85 cm/ 24.8 - 33.5 in.	111 cm/44 in.
display measurements	11.3 x 8.5 cm/ 4.5 x 3.4 in.	11.3 x 8.5 cm/ 4.5 x 3.4 in.	11.3 x 8.5 cm/ 4.5 x 3.4 in.
weight: leg trainer only	32 kg/70.6 lbs	24 kg/53 lbs	
leg and arm/upper body trainer	42 kg/92.6 lbs	33 kg/70.5 lbs	
weight: letto2			83 kg/183 lbs
letto2 leg/arm			100 kg/220,5 lbs

Power requirements (mains voltage, mains frequency)

external mains supply PMP120F-17	100 - 240 V~/max. 120 VA 47 - 63 Hz
type of battery*	CR1220

Input power

in stand-by	max. 7 watt or 22 VA
at max. motor power	max. 175 VA

Ambient conditions

temperature	+5 to +40° C/41 to 104° F
humidity	15% to 93%, relative humidity, non condensing
air pressure	700hPa - 1060hPa
operation height	< 2000m/6 600 ft. above sea level

Ambient conditions for storage and transport

temperature	-25 to +70° C/-13 to 158° F
humidity	70% to 93%, relative humidity, non condensing
air pressure	not applicable

System of protection

IP20

Classification	Protection class II, Type BF
According to MPG	II a
According to MDR (SOR/98-282)	II
NBOG Code	1108 active rehabilitation devices
FDA product code	BXB - exerciser powered
Maximum user weight	135 kg/300lb (with the gracile12: 90 kg/ 200 lbs)

* battery only available if the optional chip card reader is installed. Battery exchange may only be carried out by authorized persons!

The handles are PVC coated (depending on the model). Pulling the mains plug guarantees an all-phase power switch off.

Symbol description - general

Device protection class II

Type BF application parts

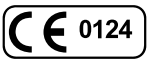
Applied parts which are in contact with the user during standard use and which are therefore subject to special safety criteria.
The following accessories (type BF) may be attached to the MOTOmed and must be maintained on a regular basis:

- operating panel
- handlebar
- handles
- foot shells
- leg guides with calf shells
- operator remote stop (only for MOTOmed letto2/ letto2 leg/arm)

IP20

The MOTOmed complies with the safety class IP20, against the ingression of solids or liquids.

Follow the instruction manual.



The MOTOmed meets the medical device 93/42/EWG standards

Year of manufacture of the MOTOmed (e.g. 2011)

Pay attention to proper disposal directions
WEEE-reg.-no. DE 53019630

SN

Serial number of the device

Do not push, lean on, or pull the MOTOmed sideways.

Do not step inside the MOTOmed and do not train in a standing position.

Do not allow any liquids on the MOTOmed:
Use the device only in a dry state.

MEDICAL - GENERAL MEDICAL EQUIPMENT
AS A ELECTRICAL SHOCK, FIRE AND
MECHANICAL HAZARDS ONLY IN
ACCORDANCE WITH ANSI/AAMI
ES60601-1 (2005) and CAN/CSA-C22.2
No. 601601-1 (2008)
4RN9

The MOTOmed viva2/gracile12/letto2 was tested by the UL test institution according to current medical standard 60601-1.

see page 32

Symbol description - connectors of the operating panel

insert identification card

serial interface

remote control

heart rate

Maximum user weight for the gracile12: 90 kg/ 198 lbs

Warranty

In accordance to legal regulations, the RECK Company will provide warranty coverage on metal and manufacturer malfunctions.

I. Warranty contents

During the warranty period, RECK-Technik GmbH & Co. KG, grants replacement of defective parts of the MOTOmed at no cost or repair of the device at the company premises or by an authorized MOTOmed representative/technician at no cost, provided that:

1. The claim is not about wearing parts (e.g. Velcro straps).
2. Previous maintenance (servicing, inspection, repair) was conducted only by a RECK service agent or the RECK Company in a proper manner.
3. No modifications have been made on the MOTOmed.
4. The MOTOmed has been used in accordance with the instructions and safety instructions listed in the instruction manual and has not been used inappropriately.
5. The failure is not due to wanton destruction.
6. The warranty claim is within effective time frame with proof of purchase.
7. The MOTOmed was delivered and obtained by the RECK Company or an authorized representative.

II. Warranty limitations

Warranty claims are only valid through the representative / distributor from which the MOTOmed was purchased.
see page 76 In service cases please contact your representative / distributor.
If the device was purchased through a third person (e.g. private individual), this claim expires.

III. Other

By request of the RECK Company, defective components replaced due to manufacturer or material defects are to be returned to the RECK Company after the repair.
Replaced parts become property of RECK-Technik GmbH & Co. KG.

In case of part delivery on warranty, an extension of warranty period does not come into effect.

Service

Should you have any questions we will be happy to assist you. Please call us - your questions and suggestions are always welcome.
We will gladly return your call. Please have the serial number (SN) of your MOTOmed right at hand. You can find it on the label on the large front tube of your MOTOmed.

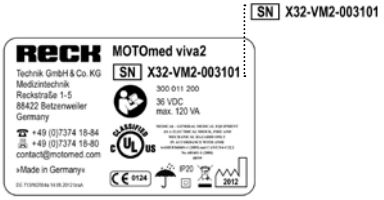


fig. 69

fig. 70/71

You can find additional information about your MOTOmed in the setup menu, point 5 »information«. This information may be useful to your MOTOmed representative.

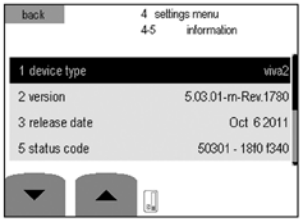


fig. 72

device type:	preset device type (viva2, viva2 light, gracile12, letto2)
version:	software version of control panel
release date:	software release date
status code:	current settings and device state, this code is required for error designation.

Your contact for Germany

Daniel Weber	phone	07374 18-530
Kurt Gobs		18-38
	fax	07374 18-462
	email:	service@MOTOmed.com

or call the free hotline
from Germany: 0800 6686633 (0800-motomed)

Your international contacts:

Thomas Schick	phone	+49 7374 18-489
Marcel Zach	phone	+49 7374 18-531
	fax	+49 7374 18-480
	email:	service@motomed.com

The RECK Company places high value on constant optimization of its products. That is why we want to hear about your experiences with the MOTOmed.
We would appreciate your feedback. Please contact us at the telephone numbers above, or by writing an e-mail or fax, either to us directly, or your local MOTOmed representative.

Recommend the MOTOmed!
If you have friends or family to whom you would like to recommend the MOTOmed, we are always happy to forward on information about our various MOTOmed Movement Therapy Devices - at no cost and non-binding.

Safety Precautions

Overall suggestions
The first time use of the MOTOmed must always be supervised by a qualified person giving instructions. Assessment of MOTOmed training in regard to your health situation as well as the time, duration, and intensity of the training periods has to be discussed with your doctor or physiotherapist before you start the training. Please pay attention to the preset adjustments of the selected MOTOmed training program when powering on.

Doing the training or inserting/ removing the feet/arms, should never be conducted without supervision by qualified persons if the user does not comprehend the functions and operations of the MOTOmed, and is individually incapable to reach, operate, and turn off the MOTOmed (particularly the arm/upper body training with forearm shells.).
Supervision during the training is recommended at ll times.
During the training, it needs to be warranted that no unauthorized persons (visitors, assistants, etc.) make changes to the bed unit, wheelchair, chair, or the MOTOmed device.

If the health condition of a patient does not allow MOTOmed training at a passive speed of 20 rpm, speed must be reduced after starting the training and saved in starting parameters.

The MOTOmed training has to be adapted to the individual health condition of the patient.
Training suggestions by the manufacturer or its distributors are given without guarantee and are non-binding. No exact instructions can be given for the use of the MOTOmed in different health situations. This applies to details of the training functions as well as settings. Settings have to be adjusted to age, height, individual situations, post-surgical health conditions and the general fitness of the user.

If there is any risk of damaging or causing injuries to the tendons, joints, or bones (e.g., users with osteoporosis, muscle shortening) you can lower the motor power according to your needs in the set up menu, under device settings (push button (2)), when you are in the start screen. In the MOTOmed viva2 light, these settings are found in the training menu.

In the menu »display and volume« at start screen information you can set the adjusted motor power to be displayed in the start screen (not available in the MOTOmed viva2 light).

Depending on the medical condition, the leg position and the setting of the *leg guides*, training is not recommended in the occurrence of skin irritation, pressure marks or other injuries. However, training may resume with a doctor's or therapist's consent, and by meeting the necessary safety precautions (insertion of buffer/cushion material etc.). A *calf shell padding* and a *Velcro padding* can be ordered as accessory.
You must consult your doctor or therapist, or assume the responsibility if you train on your own and have open wounds or are at risk to get pressure sores (e. g. due to sensitive skin tissue), particularly those body parts touching the therapy trainer (e. g. legs). The manufacturer does not assume liability for injuries caused by neglect of instructions.

There is an increased health risk if operating the device under the influence of alcohol, medication, or drugs. We advise against such use.

If experiencing any pain, nausea, circulatory weakness, the training should be discontinued right away and a doctor should be consulted. The manufacturer and its distributors do not assume responsibility for improper or over intensive use.

Users with body weight of 135-250 kg / 297-551 lbs (in gracile12: 90-150 kg / 198-330 lbs) please use stronger foot shells in order to prevent damage to the MOTOmed.

Only put your feet into the foot shells while seated (or laying down). Never step in while standing upright and by full force / weight. Do not put more than 25 kg /55 lbs (viva2) or 15 kg / 33 lbs (gracile12) (at a 7 cm / 2.8 in. pedal radius) of weight onto either pedal.

One-sided training, either with only one leg/arm or with big differences in weight of the limbs should be done only under supervision of a person in charge and only in a higher gear. In case of an amputated leg a *counterweight (item no. 535)* is required.

If you use a *magnet switch (item no. 215)* to switch off the MOTOmed, pay attention the neck band does not get tangled in the pedal crank, as this may lead to injuries.

Before starting the training with a device equipped with an *acoustic switch (item no. 216)* please ensure that the acoustic switch is not the only possible method to stop the MOTOmed.

Arm/upper body training
While doing arm training, the legs are to be out of the foot shells.

When loosening the fixing screw, the arm/upper body trainer might tilt down a bit due to its own weight.
Therefore open the fixing screw slowly and hold the arm/upper body trainer firmly in its position. When adjusting the arm trainer to its position, the arms must not be fixed to the cranks.

While height adjusting the arm trainer, pay attention to sufficient legroom. When using the leg trainer, the legs must not collide with the arm trainer.

MOTOmed letto2

see page 58 If the MOTOmed letto2 is equipped with an *expandable chassis (accessory, item no. 160)* transport is only permitted if rails are in alignment, in order to prevent the MOTOmed letto2 from tilting over.

Make sure the MOTOmed letto2 is firmly positioned to the bed unit at all times, and the brakes on the transport rolls (4-brake-stop) are locked.

Before starting the training, safely position the legs of the user. Once the MOTOmed letto2 has been positioned to the bed unit, do not operate the electrical or the manual height adjustment at any point after that.

Position the legs into the safety foot shells only when the user is laying on the back.
Do not use the MOTOmed letto2 while seated or standing, and do not place more than 13 kg / 29 lbs (at a 7 cm / 2.8 in. pedal radius) weight on one pedal.
Do not reach for the pedals, change the pedal radius, or do any other adjustments while the device is in running mode.

When training on the MOTOmed please make sure a distance is kept between the operator and the MOTOmed so that at maximum range of motion both knee joints are never fully stretched.

If the knee joints get into a overstretched position they may block the rotation of the pedals. Overstretching the knee and hip joints may also cause spasticity (cramps).

If the user's knee joints are stretching too much during the pedal movement, the distance between the user and the MOTOmed letto2 needs to be reduced.

For paralyzed or comatose patients, the inclusion of the accessory
see page 56 *»TrainCare leg guides comfort« (item no. 168)* is required. These leg guides prevent the overstretching of the knee joints, or shifting sideways of the legs.

If you have any doubts regarding the proper power connection of the MOTOmed or any other inquiries, please get in contact with our
see page 76 MOTOmed service team.

Safety and technical suggestions
Never place full weight on one side of the MOTOmed. The handle bar is only for holding onto the MOTOmed with the hands during operation. Avoid supporting your whole body to the MOTOmed, or pulling up while holding to the handlebar or the arm trainer with the whole body weight or partially. This could make the device tilt to the front or to the side and could cause injuries.

The MOTOmed must not be moved while legs or arms are inserted or secured to the device.

While the pedals/foot shells are moving, neither the user nor any other person should make any mechanical changes to the MOTOmed (pedal radius, height adjustment of handlebars or arm/upper body trainer etc.). Always make sure to pay attention to the rotating pedals when operating the buttons of the operating panel.

Never try to grab hold of any moving parts!

Please train only after you have switched on the MOTOmed.

If the red »start/stop« button (8) fails to stop the MOTOmed, immediately adjust the speed to 1 rpm and finish your training right away, or unplug the mains from the outlet. You can train again as soon as the malfunction is been eliminated.

In case of changes to the pedal length, please note that the rate of force on the cranks may change.

During transport the feeder is to be disconnected from the external power supply. During transport, the external power supply can be fixed to the transport holder.

Children should never operate the MOTOmed without supervision.

Keep animals away from the MOTOmed.

Do not leave the packaging material laying around. Plastic foils/ -bags, foam parts etc. can be hazardous toys for children.

Being an electronic medical device the MOTOmed has to comply with special EMC safety standards in regard of electromagnetic
see page 91 compatibility. During installation and operation the EMC instructions must be followed.

Please use the device only with external power supply PMP120F-17.

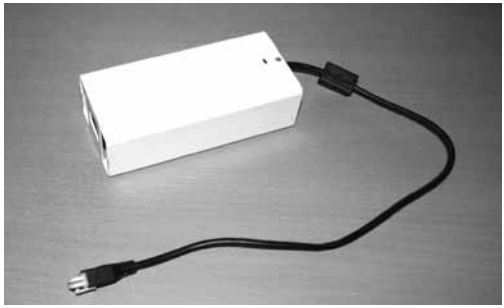


fig. 73

In order to avoid fire hazard or electrical shock the MOTOmed must never be operated if the casing has been removed. The MOTOmed must never be operated in a wet or humid environment. The MOTOmed must never be operated by any unqualified person and metal objects must never be inserted.

Portable and mobile communication devices, like mobile phones or amateur radio stations can influence the functionality of the MOTOmed. Such devices carry the symbol illustrated on the left side and can thus be recognized.

The MOTOmed is suitable for special therapeutic use. Thus, it is not suitable for high-performance sports or designing of diagnosis. In this case we recommend approved and calibrated medical ergometers or treadmills. Please note that due to inexactness of measured values, the pulse control Cardio16 (item no. 275/276) should not be used for automatic resistance level control with sensible cardiac patients.

In order to avoid overheating of the casing you must not expose the MOTOmed to long-term direct solar radiation. Further you must not block actively against the passive motion as this could damage the motor and the electronics.

The MOTOmed may not come into contact with water or steam. If an object or liquid gets into the MOTOmed you have to have it checked by qualified personnel before you can continue to use it.

Be sure to keep oil away from the drive mechanisms at any time.

In commercial facilities, the safety requirements of the Association of Commercial trade for electrical installations and equipment must be observed.

Repairs may be affected only by or under direction and supervision of individuals (qualified personnel) whose qualified training, knowledge and experience enable them to evaluate the repair and to recognize the potential effects and hazards that might result out of the repair.

The MOTOmed must only be opened by qualified and trained persons. Beforehand the device must always be unplugged from the mains socket.

Only original parts can be attached or exchanged.
Making changes to the MOTOmed without manufacturer consent is not permitted.

In the event that you pass this MOTOmed on to another person, please also enclose this instruction manual.

Security related controls according to the medicine product operator regulation (Medical Devices Act) have to be carried out at least every second year. Please pay attention to follow the most recent version of this regulation DIN EN 62353 VDE 0751,-1:2008.

Visual Inspection

Guidance for visual inspection of MOTOmed before the start of training

Your MOTOmed is a high-quality medical device and thus has been developed by by specific high safety and quality standards, in accordance to guidelines governing the production of medical devices. In compliance to legal regulations the manufacturer of a medical product is expected to provide the user with multiple safety instructions that can be found on the following pages.

Please note that the instructions do not suggest that the use of the MOTOmed makes the user at a higher risk, compared to the other daily electronic devices. More so the most instructions are a result of compliance to the particularly strict medical product regulations, to ensure user safety. In the interest of our clients we gladly and consciously comply to these regulations.

Even if some instructions seem self-explanatory and unnecessary, regardlessly we would like to ask you to carefully read the following instructional pages, in order to maintain a long-lasting and high standard MOTOmed device.

Please do the visual inspection **before** the training to ensure orderly condition of the device. The following inspections are completed in a few moments.

Test step	Necessary measures in case of fault detection during visual inspection	Explanation
1. Inspection of power supply and mains cable		
The feeder (the mains cable) is to be free from damage, e.g. abrasions, pressure points, porous and cracked spots.	In case of apparent damage, the feeder needs to be replaced. Repairing the damaged mains cable is not permitted. Therefore, you are advised to replace it with an original, tested and authorized part of the RECK Company. Therefore, please contact your RECK service partner.	A damaged mains cable may raise the risk of an electric shock, either through direct exposure to the damaged spot, or by connection to the MOTOmed casing. The use of a damaged mains cable is therefore strictly prohibited.
Is the feeder positioned so that a) it is not in contact to the device? b) it cannot be squeezed or rolled over with other objects / devices? c) it cannot be tangled in the cranks? d) it cannot be mechanically damaged in any other way? e) no person can stumble over it?	Never use a mains cable with open wires or damaged isolations! The mains cable needs to be positioned so that no person can stumble over it, and any mechanical damage can be prevented.	A damaged mains cable may raise the risk of an electric shock, either through direct exposure to the damaged spot, or by connection to the MOTOmed casing.
Is the external mains supply free of visible damage?	If there are any visible damages to the casing of the power supply (noticeable deformations of protective casing or tears in power supply casing), please promptly disconnect the mains cable from the outlet. Do not touch the power supply casing during this process. Do not use the mains cable under such circumstances and conditions. Do not engage in any repairs. Contact your MOTOmed service partner instead.	If the power supply casing is damaged, the casing loses its isolation purpose and the risk of an electric shock arises. The mains cable should therefore not be reconnected to the power supply and should be replaced promptly.

Test step	Necessary measures in case of fault detection during visual inspection	Explanation
Is the external mains supply disconnected from the transport bracket or the MOTOmed?	Position the mains supply so that it does not touch the MOTOmed.	Disconnecting and removing the mains supply of the device counts for additional safety precaution.
Is the mains plug and the mains supply freely accessible so that disconnecting from and reconnecting to the power socket can be done free of dangers?	Position the MOTOmed so that reaching and unplugging the mains cable is possible at all times.	It is repeatedly instructed in the user manual to disconnect the mains cable prior to making any adjustments. Precondition for this is free access to the electrical socket or the mains supply.
Is the mains supply positioned so that the circulating air can cool it?	Position the MOTOmed so that the heat caused by operation is freely released into the surroundings.	During operation, the MOTOmed mains supply will warm up. To prevent heat accumulation that may cause damages to the mains supply, please do not cover the device with any objects or place it by a heater.
2. Inspection of device condition		
Are the used accessories free from visible damage?	Check if faulty parts can be reconditioned or if they need to be replaced.	If parts of the device are damaged, safe functionality cannot be guaranteed.
Are the covers of the handles (if applicable) free of damage?	Suggested to have handles replaced by manufacturer service.	The plastic coating of the handles offers additional protection to the user against electrical tension.
Is the device free from debris?	Remove debris prior to operation of device and according to cleaning instructions.	The removal of debris prevents the spreading of infectious diseases.
Are the accessories fitted and suitable for the user?	Should the optionally available arm cuffs be too small or too big, please replace those by matching accessories. Accessory needs to be chosen and used with no disadvantages occurring, e.g. not irritating the skin.	Improperly chosen accessories can result in an increased risk of injury and a failure to perform the intended purpose Please do this assessment prior to starting the training. If the user is unable to independently do the assessment, the caregiver in charge must do the evaluation instead.

Test step	Necessary measures in case of fault detection during visual inspection	Explanation
If the device is equipped with an arm/upper body trainer, or if the handlebar is heavily used: Is the small front stand pulled out sufficiently?	Pull out the small foot stand sufficiently. Pay attention to keep a minimal insertion of 10 cm/4 in.	Pulling out the small front stand prevents tilting of the device.
Are all the adjustable components (motor console, arm/upper body trainer, foot stand, handlebar,...) fastened properly with a clamp screw or an Allen key? Are the screws tightened?	To ensure strong hold by retightening the clamping screws and the Allen screws.	Loose screw connections can cause detachment of parts during the course of training. Should any of the components become loose the training must be stopped immediately by pushing the stop button. Subsequently, the loose part is to be secured into proper position.
3. Review of optimal training conditions		
Is the MOTOmed positioned on even floor and is it not shaking or tilting over?	In order to prevent shaking or tilting over select a suitable training spot. Possibly, adjust the rubber stoppers on the front stand.	The device must not shake or tilt over since this may increase the risk of injury to the user / patient.
Is the floor providing enough grip so that no shifting occurs?	By choosing a slip proof floor you can ensure a safe seating and device position. For the small foot stand, suction caps are available as accessory order. An anti-slip mat that goes below the MOTOmed is available as accessory.	The MOTOmed might slip on straight floors (tiles, laminate, parquet floors etc.).
Is the chair or wheelchair positioned so that the device does not tilt over or move?	If your wheelchair tends to tilt or shift due to spasticity, or during active training, the use of a wheelchair stabilizer is recommended. Only stable and firm chairs may be used, if possible including arm rest. The use of chairs with rollers while operating the MOTOmed is not permitted.	In case of strong spasticity in the lower extremities the drive force of the pedals may cause shifting or tilting of the seat. This is to be prevented with appropriate measures in order to exclude the risk of injuries. Chairs with castors may shift during the training.

Test step	Necessary measures in case of fault detection during visual inspection	Explanation
If training from a wheelchair: Are the brakes on your wheelchair locked before starting the training?	Pull the brakes and check if the wheelchair is in a steady position.	The wheelchair must not move out of position during training.
If a power wheelchair is used for seating purposes during training: Is the wheelchair powered off and are the brakes locked?	Power off the wheelchair and pull the brakes. Subsequently check if the wheelchair is in a steady position.	The wheelchair must not move out of position during training.
Is the arm/upper body trainer swiveled backwards and secured so that the handlebar can be used to hold on to during leg training?	Swivel the arm/upper body trainer backwards before starting the leg trainer.	The handlebar offers better hold and legroom during the course of leg training.
Is suitable clothing used for the training?	Wide pants, long towels, and scarves that could get tangled in the pedal crank must not be worn (especially during arm training). Shoes with shoe laces must not be worn either. Long hair is to be pulled up into a pony tail or is to be covered up prior to doing arm/ upper body training.	Inappropriate clothing can tangle around the pedal cranks and thus result in injuries. Should garments or hair get caught in between the pedal cranks, push the stop button immediately in order stop the crank movement and to release the captured parts without any further damages.
Is the device positioned and set up so that the intended movements can be executed without hitting other objects / casing parts? During leg training, do the legs collide with the handlebar or the arm/ upper body trainer?	Make sure to have enough legroom when adjusting the height of the arm trainer. During training, the legs must not collide with the handlebar or the arm/upper body trainer. Make sure to maintain a minimal 10 cm/4 in. insertion when adjusting the height of the handlebar or the arm/upper body trainer.	To prevent injuries, the MOTOmed needs to be positioned and set up so that the user does not collide with any surrounding objects.

Test step	Necessary measures in case of fault detection during visual inspection	Explanation
Are the pedal cranks moving freely? Has the danger been excluded of capturing and tangling objects during successive training sessions?	Please remove all objects from the crank area, particularly those that may get tangled in the cranks during the pedal movement. Pay particular attention that no hair, scarfs, or jewelry pieces get caught in the pedal cranks.	Please pay attention that nothing gets caught into the motor-driven rotating components. Herewith, same precautionary measures apply as with e.g. kitchen devices or drilling machines.
Is the pedal radius the same on both sides?	Please adjust equal pedal radius on both sides if the crank length is set differently. The adjustment procedures for the crank length area described on page 44 / 52.	Uneven pedal crank lengths will cause an uneven cycle motion due to the different force effects. Please adjust equal crank length on both sides.
Are the legs or arms fastened properly during leg or arm/upper body training?	Execute the fastening of the legs / arms as indicated in the previous pages.	During the course of training, legs and arms should not move unwontedly out of the foot shells or the forearm shells.
Are any other electrical devices, that are not registered as medical products, in the patient's reach?	Please remove all other electronic devices, not authorized as medical products, from user's (patient's) reach.	Should the patient come in contact with a »low quality« mains-supplied device during the course of training, the user protection from an electric shock is is no longer guaranteed by the high standard isolation of the MOTOmed device but is determined by the properties of the »low quality« device. In order to effectively provide full medical product safety standard of the MOTOmed, all other unauthorized mains-powered medical devices are to be removed from the user's reach.

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EMC Directive

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The manufacturer states that the mains cable of the MOTOmed complies with the requirements of the EN 60601-1-2:2007-12. if the original cable that was included with the MOTOmed is not used, the electromagnetic emission increases and the immunity of the device decreases.

Manufacturer's Declaration - electromagnetic emissions

The MOTOmed is supposed to be operated in the electromagnetic environment described below. The customer or user of the MOTOmed has to guarantee the use in the appropriate environment.

Emissions test	**Compliance**	**Electromagnetic environment - guidance**
HF emissions according to CISRP 11	Group 1	The MOTOmed viva2 uses RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
HF emissions according to CISRP 11	Class B	The MOTOmed viva2 is made for the use in facilities and homes which are connected to the public mains supply which also supplies individual homes.
Harmonic emissions according to IEC 61000-3-2	Class A	
Voltage fluctuations / flicker emissions IEC 61000-3-3	complied	

Manufacturer's Declaration – electromagnetic immunity

The MOTOmed is supposed to be operated in the electromagnetic environment described below. The customer or user of the MOTOmed has to guarantee the use in the appropriate environment.

Immunity test	**IEC 60601 – test level**	**Electromagnetic environment – guidance**
Electrostatic discharges (ESD) according to IEC 61000-4-2	± 6 kV contact ± 8 kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	± 2 kV for power supply lines ± 1 kV for entry and exit lines	Mains power quality should be that of a typical commercial and/or hospital environment.
Surge IEC 61000-4-5	± 1 kV differential mode ± 2 kV common mode	Mains power quality should be that of a typical commercial and/or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11	< 5 % UT (> 95 % dip in U_T) for 1/2 period 40 % UT (> 60 % dip in U_T) for 5 periods 70 % UT (> 30 % dip in U_T) for 25 periods < 5 % UT (> 95 % dip in U_T) for 5 s 3 A/m	Mains power quality should be that of a typical commercial and/ or hospital environment. If the user of the MOTOmed requires continued operation during power mains interruptions, it is recommended to power it from an uninterruptible power supply like a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8		The magnetic fields at the supply frequency should be of typical business or hospital values.
Remark: U_T is the mains common-mode voltage prior to the application of the test level.		

Immunity test	IEC 60601 - test level	Compliance level	Electromagnetic environment - guidelines
			Portable and mobile RF communications equipment should be used not closer to any part of the MOTOmed viva2 including cables, than the recommended separation distance calculated from the equation appropriate for the frequency of the transmitter: Recommended separation distance:
Conducted RF disturbance according to IEC 61000-4-6 Radiated RF disturbance according to IEC 61000-4-3	3 V_{eff} 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	3 V_{eff} 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz	$d = 3.5/3 \sqrt{P} = 1.17 \sqrt{P}$ $d = 3.5/10 \sqrt{P} = 0.35 \sqrt{P}$ for 80 MHz to 800 MHz $d = 7.0/10 \sqrt{P} = 0.70 \sqrt{P}$ for 800 MHz to 2.5 GHz with *P* as value for the maximum output power rating of the transmitter in watts (W) according to the specifications of the manufacturer and *d* as the recommended separation distance in meters (m). Field strengths for fixed RF transmitters, as determined by an electromagnetic site survey [a] should be less than the compliance level in each frequency range.[b] Interference may occur in the vicinity of equipment marked with the following symbol. 

Note 1: At 80 MHz and 800 MHz the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

a) Field strengths from fixed transmitters, such as base stations for cordless telephones and land mobile radios, amateur radio, AM and FM radio broadcast, and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the MOTOmed is used exceeds the applicable RF compliance level above, the MOTOmed should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the MOTOmed.

b) Over the frequency range 150 kHz to 80 MHz field strength need to be less than 3 V/m.

Recommended separation distances between portable and mobile RF communications equipment and the MOTOmed

The MOTOmed is supposed to be operated in an electromagnetic environment where the RF interference is controlled. The customer or user of the MOTOmed can help avoid electromagnetic interference by keeping the separation distances between portable and mobile RF communications equipment (transmitters) and the MOTOmed - which depends on the performance of the communication device as described below.

Nominal output of transmitter	Separation distance in relation to the frequency of transmitter m		
	150 kHz to 80 MHz	80 MHz to 800 MHz	800 MHz to 2.5 GHz
W	$d = 1.17 \sqrt{P}$	$d = 0.35 \sqrt{P}$	$d = 0.70 \sqrt{P}$
0.01	0.12	0.04	0.07
0.1	0.37	0.11	0.22
1	1.17	0.35	0.70
10	3.70	1.11	2.21
100	11.70	3.50	7.00

For transmitters rated at a maximum output power not listed above, the separation distance *d* in meters (m) can be estimated using the corresponding column, where *P* is the maximum output power rating of the transmitter in watts.

(W) according to the specifications of the manufacturer.

Note 1: At 80 MHz and 800 MHz the higher frequency range applies.

Note 2: These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects and people.

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Instruction Manual

MOTOmed viva2, Motomed gracile 12
MOTOmed letto2

MOTOmed®
move differently

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