SPINAL CORD INJURIES AND THEIR CONSEQUENCES.

Level of injury.	Most commonly paralyzed group of muscles.	Adaptation possibility.	Recommended ALREH stander.
C5	Flexors of the elbow joint. Cervical muscles. Shoulder muscles.	No possibility of independent movement. Only standing up and passive walking are available.	Master Dynamic Static Plus or Master Dynamic Active Drive
C6	Wrist extensors.	No possibility of independent movement. Only standing up and passive walking are available.	Master Dynamic Static Plus or Master Dynamic Active Drive
C7	Elbow extensors.	No possibility of independent movement. Only standing up and passive walking are available.	Master Dynamic Static Plus + Reha Gym or Master Dynamic Active Drive + Reha Gym
C8	Finger flexors.	Limited possibility of independent movement. Standing up, passive walking and limited active balancing are available.	Master Dynamic Static Plus + Reha Gym or Master Dynamic Active + Reha Gym
Th1	Abductors of the little finger	Limited possibility of independent movement. Standing up, passive walking and limited active balancing are available.	Master Dynamic Static Plus + Reha Gym or Master Dynamic Active + Reha Gym

Th6	Thoracic and back muscles.	Possibility of independent movement. Active walking is available	Master Dynamic Active Plus + Reha Gym or Master Dynamic Active Drive + Reha Gym
Th11	Pelvis and lower limb muscles.	Full independence. Active walking is available.	Master Dynamic Active Plus + Reha Gym or Master Dynamic Active Drive + Reha Gym or Master Dynamic Classic or Master Dynamic Classic Drive
L2	Flexors of the hip joints.	Full independence. Active walking using dynamic orthosis is available.	Master Dynamic Classic or Master Dynamic Classic Drive
L3	Extensors of the knee joints.	Full independence. Active walking using dynamic orthosis is available. Walking using orthopedic orthosis and crutches is available.	----------
L4	Flexors of the tarsal joints.	Full independence. Walking using orthopedic orthosis without crutches is available.	----------

OTHER DISEASES RESULTING IN PARAPLEGICS OR QUADRIPLEGICS.

Disease	Paralyzed group of muscles.	Adaptation possibility.	Recommended ALREH stander
Cerebral mechanical injury	Depends on the kind of injury.	Depends on the injury and paralyzed group of muscles.	Paraplegics: Master Dynamic Active Plus + Reha Gym or Master Dynamic Active Drive + Reha Gym Quadriplegics: Master Dynamic Static/Plus or Master Dynamic Active Drive (passive walking)
Spina bifida	Usually paralyzed lower parts of the body.	Usually full independence, relatively good body conditions, usually osteoporosis and sometimes feet deformities.	Paraplegics: Master Dynamic Classic or Master Dynamic Classic Drive or Master Dynamic Active Plus + Reha Gym or Master Dynamic Active Drive + Reha Gym
Cerebral palsy	It depends on the depth of the patient's disability	It depends on the depth of the patient's disability	Depends how deep is the disease
Multiple sclerosis	Depends on the stage of the disease in which the patient is.	In the early stages, usually full independence. In the next stages, usually paraplegics or quadriplegics.	Depends, how deep is the disease Master Dynamic Active Plus + Reha Gym or Master Dynamic Active Drive + Reha Gym or Master Dynamic Static/Plus + Reha Gym

Muscular dystrophy	Depends on the stage of the disease in which the patient is.	In the early stage full independence. In the last stage usually paraplegics or tetraplegics.	Depends, how deep is the disease Master Dynamic Active Plus + Reha Gym or Master Dynamic Active Drive + Reha Gym or Master Dynamic Static/Plus + Reha Gym
Cancer diseases.	A very complex problem	It depends on the depth of the patient's disability	Depends, how deep is the disease Master Dynamic Active Plus + Reha Gym or Master Dynamic Active Drive + Reha Gym or Master Dynamic Static/Plus + Reha Gym or Master Dynamic Static Plus/Walker Plus
Paresis (stroke + cerebral haemorrhage)		It depends on the depth of the patient's disability	Master Dynamic Static Plus/Walker Plus

USER´S CHARACTERISTICS

Item.	Body parameter.	Limits and opportunities.
1	Body height.	Usually body height is an advantage. The taller the patient is, the easiest walking in Alreh dynamic stander. - body height/pelvis width > 5,25 – walking very easy - body height/pelvis width ~ 4,50 – walking a little difficult - body height/pelvis width ~ 4,00 – walking difficult - body height/pelvis width < 4,00 – walking very difficult
2	Body weight.	Big body weight always limits the possibility of unaided standing up. Big body weight always results in bigger pelvis width which makes walking more difficult.
3	Physical condition.	Bad physical conditions always limits the possibility of unaided standing up and active walking. Good physical conditions give the opportunity of independent using of dynamic stander.
4	Trunk	Good trunk stability is a big advantage as it enables the user active walking. Bad trunk stability enables only passive walking.
5	Arms	Strong arms are big advantages as this enables the patient unaided transfer the body wro wheelchair seat to stander seat and unaided standing up. with strong arms walking is very easy.
6	Wrist	Nonactive wrist are usually a result of high level spinal cord damages. Walking is more difficult. Very often only passive walking is possible.
7	Hips deformities.	Hips deformities very often limits the usage of dynamic standers. In case of hip contracture special deep corset is required.
8	Feet deformities.	Feet deformities are always a disadvantage. Very often this require custom made orthopaedic footwear, custom made platforms or special custom made orthotic systems.
9	Knee deformities.	Small knee contructure require only appropriate knee holder adjustments but serious knee deformities require special custom made orthotic systems.

10	Scoliosis.	Scoliosis is always a disadvantage and limits the possibility of usage the dynamic standers. Very often usage of special orthopedic corsets is required.
11	Pelvis width.	As in pt.1-2, small pelvis width is a big advantage and results in easy walking. Big pelvis width is always disadvantage and makes walking more difficult.
12	Pelvis depth.	Small pelvis depth is always an advantage as it enables the patient to keep vertical position of the whole body. Big pelvis depth requires special custom made corset. In other case gravity center is moved to the back (is behind) the corset hip joint axis and as a result walking is very difficult.
13	Bedsores.	Bedsores are always a disadvantage and limits the dynamic stander usage or require special custom made upholstery.

STANDERS FOR DYNAMIC WALKING/STEPPING

There are four models of ALREH dynamic standers for walking /stepping.

Master Dynamic Classic and Master Dynamic Classic Drive – standers without lifting system.

Master Dynamic Active Plus and Master Dynamic Active Drive – standers with lifting system and Reha Gym system.

Master Dynamic Classic - dynamic stander for stepping, designed for active rehabilitation of disabled people with paresis or paralysis of lower limbs. Recommended for the users **fit and strong enough** to change the sitting position in a wheelchair to upright position in stander unaided or with small aid of healthy person. Low body weight and very good physical condition is required.

Master Dynamic Active Plus - dynamic stander for stepping, equipped with lifting system and RehaGym system, designed for active rehabilitation of disabled people with paresis or paralysis of lower limbs when a user **is not fit and strong enough** to change the sitting position in a wheelchair to upright position in stander unaided.
Contrary to Master Dynamic Classic this stander does not require good physical condition and body weight is not big obstacle.

Master Dynamic Classic Drive – the most advanced dynamic stander for walking/stepping, equipped with patented kinematics system which enable the user to make steps combined with scating (like on scating rollers).
A kind of sport stander designed for active rehabilitation of disabled people with paresis or paralysis of lower limbs.
Recommended for the users **fit and strong enough** to change the sitting position in a wheelchair to upright position in stander unaided or with small aid of healthy person. Low body weight and very good physical condition is required.
Walking is very easy!

Master Dynamic Active Drive - dynamic stander for stepping, equipped with patented kinematics system which enable the user to make steps combined with scating (like on scating rollers), equipped with unique lifting system and RehaGym system, a kind of sport stander designed for active rehabilitation of disabled people with paresis or paralysis of lower limbs when a user is not fit and strong enough to change the sitting position in a wheelchair to upright position in stander unaided.
Contrary to Master Dynamic Classic Drive this stander does not require good physical condition and body weight is not big obstacle.
Walking is very easy!

Master Dynamic Active Drive is strongly recommended to people with deep disability (quadriplegics) and their caregivers who would like to benefit of passive walking.

What is active walking ?

When the user is in upright position in stander , his feet are placed on platforms, knees protected in knee holders, pelvis protected in a corset, his hands are active and he can move the upper part of his trunk, the following activities are available:
By moving the trunk to the left and to the right (one move per one second) after some time
the runners with platforms start to move above the floor – **this is balancing.**

When the user pull the hand handle of this runner which is above the floor a little up, the runner move forward. When he does the same with the next runner, he starts to walk – **this is walking forward.**

When the user push the hand handle of this runner which is above the floor a little down, the runner move to the back.
When he does the same with the next runner **he starts to walk backwards.**

When the user pull the hand handle of this runner which is above the floor a little aside, the runner turn .
When he does the same with the next runner **he starts to turn around.**

When hands are completely inactive only **passive walking** is possible.

What is passive walking?

When the user is a tetraplegic and his hands are inactive the healthy person can make the stander balancing and by means of hand handles makes steps forward and turn around. Walking backwards is difficult.

HOW TO CHOOSE THE DYNAMIC STANDER FOR THE PATIENT?

How to choose the stander Master Dynamic series?

1. All the standers which enable the disabled person to stand up or to move in upright position can be divided into two groups:
   - standers for kids
   - standers for teenagers and adults
2. There are so many standers for kids that it is impossible to describe all of them in brief. Each one is designed for strictly defined group of children and have some advantages. Usually because of low body weight there is no problem with standing up a kid. The most important is that the device should be nice, comfortable for kid and suitable to his disease and rehabilitation applied.
3. Dynamic standers for kids which enable them to walk, especially those with good kinematics (walking forward, backwards and turn around), is a new idea of rehabilitation because kid is forced to think during walking and additionally **walking is always more interesting than standing.**
4. Completely different situation is with teenagers and adult disabled people. Because of physical condition, body weight , body deformities etc. , the most important is how the user will be transfered from wheelchair or from bed to the stander. Is the user is self dependent or he/she must be given assistance of healthy person each time? How many healthy people must be engaged to aid disabled person to stand up ?
5. The stander must be adjusted to the body parameters, physical condition and users needs and expectations. Many disabled people do not want even try to stand up because they never did this and are afraid to discredit himself, so it is very important to give them such solution that convince them to try.
   Standing up must be easy safe and comfortable.
6. The next important issue is the place the stander will be used.

Is there enough place for wheelchair and other equipment?
Is it easy to move the stander from one place to another one?
If there is a problems, how to avoid them?

7. The next issue is the possibility of getting up from the wheelchair to a standing position without the help of another person and performing a large amount of sit-ups, sit-ups a half, and thus exercising mobility of all joints (ankle, knee and hip) and exercising strength of all parties of torso muscles.

After careful analysis all the above the user or his carer have to decide what is most important for him, where and when he expects the problems can occur.

KIDS				
Recommended Alreh stander	Kid characteristics			
	Body weight Body height	Disease	Acceptable body deformities	Acceptable physical condition
MD Classic CL 120 MD Classic CL 140 MD Classic Drive CL 140 AD MD Active Plus LS 140 + RG MD Active Drive LS 140 AD + RG	100–125cm/15–25kg 120–145cm/20–40kg	Paraplegics of the following origin: - mechanical spinal cord injury - mechanical brain injury - spina bifida - cerebral palsy, - muscle dystrophy	Acceptable small feet, knee, hip contructure Acceptable.small scoliosis or small lordosis . Acceptable.small difference in legs length (2 cm)	Good physical condition. Good trunk stability. Fit both hands. Low spasticity. Full mental contact.
MD StaticClassic VL 120 MD Static Plus VS 140 + RG	100–125cm/15–25kg 120–145cm/20–40kg	Paraplegics and tetraplegics of the following origin: - mechanical spinal cord injury, - mechanical brain injury - cerebral palsy, - muscle dystrophy	Acceptable middle feet, knee, hip contructure Acceptable.middle scoliosis or small lordosis Acceptable.difference in legs length (up to 10 cm) (orthopedic footwear required.)	No limits.
MD Walker Classic WL 120: WL 140 MD Walker Plus WS 140 + RG	100–125cm/15–25kg 120–145cm/20–40kg	Paresis of lower limbs of the following origin: - mechanical spinal cord injury L level - mechanical brain injury - cerebral palsy,	Acceptable small feet, knee, hip contructure (orthopedic footwear recommended). Acceptable.small scoliosis or small lordosis . Acceptable.small difference in legs length (orthopedic footwear recommended).	Middle physical condition. Good upper trunk stability. Fit both hands. Full mental contact.

TEENAGERS				
Recommended Alreh stander	User characteristics			
	Body weight Body height	Disease	Acceptable body deformities	Acceptable physical condition
MD Classic CL 160 MD Classic Drive CL 160 AD	145–165cm/40–60kg	Paraplegia of the following origin: - mechanical spinal cord injury, - mechanical brain injury - spina bifida - cerebral palsy, - muscle dystrophy	Acceptable small feet, knee, hip contracture . Small scoliosis or small lordosis acceptable. Acceptable small difference in legs length (2 cm) . More than 2cm – orthopedic footwear required.	Good physical condition. Good trunk stability. Fit both hands. Low spasticity. Full mental contact.
MD Active Plus LS 160 + RG MD Active Drive LS 160 AD + RG	145–165cm/40–60kg	Paraplegia of the following origin: - mechanical spinal cord injury, - mechanical brain injury - spina bifida - cerebral palsy, - muscle dystrophy	Acceptable small feet, knee, hip contracture . Acceptable small scoliosis or small lordosis . Acceptable small difference in legs length (2 cm) . More than 2cm – orthopedic footwear required.	Good, middle or low physical condition. Good, middle or low trunk stability. Fit hands – active walking. Unfit hands – passive walking Low or medium spasticity. Full mental contact.
MD Static Classic VL 160	145–165cm/40–60kg	Paraplegia and tetraplegia of the following origin: - mechanical spinal cord injury, - mechanical brain injury - cerebral palsy, - muscle dystrophy	Acceptable small feet, knee, hip contracture acceptable. Acceptable small scoliosis or small lordosis acceptable. Acceptable difference in legs length - up to 10 cm , (orthopedic footwear required.)	Good physical condition. Good trunk stability. Fit both hands. Low spasticity. Full mental contact.
MD Static Plus VS 160 + RG	145–165cm/40–60kg	Paraplegia and tetraplegia of the following origin:	Acceptable middle feet, knee, hip contracture .	No limits.

		- mechanical spinal cord injury, - mechanical brain injury - cerebral palsy, - muscle dystrophy	Acceptable middle scoliosis or small lordosis . Acceptable difference in legs length - up to 10 cm , (orthopedic footwear required.)	
MD Walker Classic WS 160	145–165cm/40–60kg	Paresis of lower limps of the following origin: - mechanical spinal cord injury, - mechanical brain injury - cerebral palsy,	Acceptable small feet, knee, hip contructure (orthopedic footwear recommended). Acceptable small scoliosis or small lordosis . Acceptable small difference in legs length (orthopedic footwear recommended).	Good and middle physical condition. Good upper trunk stability. Fit both hands. Full mental contact.
MD Walker Plus WS 160 + RG	145–165cm/40–60kg	Paresis of lower limps of the following origin: - mechanical spinal cord injury, - mechanical brain injury - cerebral palsy,	Acceptable small feet, knee, hip contructure (orthopedic footwear recommended). Acceptable small scoliosis or small lordosis . Acceptable small difference in legs length (orthopedic footwear recommended).	Good, middle or bad physical condition. Good , middle or bad upper trunk stability. Fit both hands. Full mental contact.

ADULTS				
Recommended Alreh stander	User characteristics			
	Body weight Body height	Disease	Acceptable body deformities	Acceptable physical condition
MD Class CL 180, CL 190 MD Classic Drive CL 180 AD CL 190 AD	160–180cm/60–80kg 185–195cm/80–90kg	Paraplegia of the following origin: - mechanical spinal cord injury, - mechanical brain injury - spina bifida - cerebral palsy, - muscle dystrophy - sclerosis multiples	Acceptable small feet, knee, hip contructure . Small scoliosis or small lordosis . Acceptable small difference in legs length (2 cm) . More than 2cm – orthopedic footwear required.	Very good physical condition. Low body weight. Good trunk stability. Fit both hands. Low spasticity. Full mental contact.
MD Active Plus. LS 180, LS 190 + RG MD Active Drive LS 180 AD LS 190 AD + RG	160–180cm/60–80kg 185–195cm/80–90kg	Paraplegia of the following origin: - mechanical spinal cord injury, - mechanical brain injury - spina bifida - cerebral palsy, - muscle dystrophy - multiples sclerosis	Acceptable small feet, knee, hip contructure . Acceptable small scoliosis or small lordosis . Acceptable small difference in legs length (2 cm) More than 2cm – orthopedic footwear required.	Good, middle or low physical condition. Good, middle or low trunk stability. Fit hands – active walking. Unfit hands – passive walking Low or medium spasticity. Full mental contact.
MD Static Classic VL 180 VL 190	160–180cm/60–80kg 185–195cm/80–90kg	Paraplegia of the following origin: - mechanical spinal cord injury, - mechanical brain injury - spina bifida - cerebral palsy, - muscle dystrophy - sclerosis multiples	Acceptable small feet, knee, hip contructure . Acceptable small scoliosis or small lordosis . Acceptable small difference in legs length (2 cm) . More than 2cm – orthopedic footwear required.	Very good physical condition. Low body weight. Good trunk stability. Fit both hands. Low spasticity. Full mental contact.

MD Static Plus VS 180, VS 190 + RG	160–180cm/60–80kg 185–195cm/80–90kg	Paraplegia and tetraplegia of the following origin: - mechanical spinal cord injury, - mechanical brain injury - cerebral palsy, - muscle dystrophy - sclerosis multiples	Acceptable middle feet, knee, hip contructure . Acceptable middle scoliosis or small lordosis . Acceptable difference in legs length - up to 10 cm , (orthopedic footwear required.)	No limits.
MD Walker Classic VL 180; VS 190	160–180cm/60–80kg 185–195cm/80–90kg	Paresis of lower limps of the following origin: - mechanical spinal cord injury, - mechanical brain injury - cerebral palsy, - sclerosis multiples	Acceptable small feet, knee, hip contructure (orthopedic footwear recommended). Acceptable small scoliosis or small lordosis . Acceptable small difference in legs length (orthopedic footwear recommended).	Good physical condition. Low body weight Good upper trunk stability. Fit both hands. Full mental contact.
MD Walker Plus WS 180; WS 190 + RG	160–180cm/60–80kg 185–195cm/80–90kg	Paresis of lower limps of the following origin: - mechanical spinal cord injury, - mechanical brain injury - cerebral palsy,	Acceptable small feet, knee, hip contructure (orthopedic footwear recommended). Acceptable small scoliosis or small lordosis. Acceptable small difference in legs length (orthopedic footwear recommended).	Good, middle or bad physical condition. Good , middle or bad upper trunk stability. Fit both hands. Full mental contact.

BENEFITS OF USING ALREH DYNAMIC STANDERS

Recommended usage of Master Dynamic Active Plus in treatment and prevention of the following diseases.

Item.	Disease or disturbance.	Possibilities of use.
1	Improvement of cardiovascular system.	+ + +
2	Treatment of orthostatic hypotensive syndrome.	+ + +
3	Treatment and prevention of venous stasis and venous thrombosis.	+ + +
4	Improvement of respiratory system.	+ + +
5	Prevention against pulmonary embolism.	+ + +
6	Osteoporosis	+ + -
7	Urinary drainage..	+ + +
8	Prevention against bedsores, bedsores treatment	+ + -
9	Improvement of bowel function.	+ + +
10	Treatment of miction disturbances.	+ + +
11	Treatment of defecation disturbances.	+ + +
12	Improvement of psychological condition.	+ + +
13	Osteoporosis treatment.	+ + -
14	Prevention against muscle atrophy, muscle atrophy treatment	+ + +
15	Contracture treatment , prevention against contracture..	+ + +
16	Improvement of feet, knee and hip joints movement.	+ + +

- + + + unlimited usage
- + + - almost unlimited usage
- + - - limited usage
- **- - - no usage**

TYPICAL REHABILITATION EXERCISES / REHABILITATION PROGRAM

Item	Stage.	Exercises description.	Amount applied.
1	**Initial stage:** **(Standing up)** Patient must be able to stand up unaided or with an assistance of healthy people.	**Master Dynamic Classic:** Standing up from wheelchair unaided or with an assistance of healthy person: - placing feet on the platforms - placing knee in knee supports - standing up - locking the rear part of the corset - seating down in reverse order **Master Dynamic Active Plus; Active Drive** - placing feet on the platforms - changing siting position from wheelchair seat to the stander seat - placing knee in knee supports - fastening the pelvis belt - releasing the locking system - standing up - locking the rear part of the corset - seating down in reverse order	Depending the body condition, this exercise should start from 1-2 in the first days of training and can be finished after patient and his caregiver will be fluent enough to stand up and sit down safely and comfortably. 3 – 10 standing up and sitting down 3 times a day
2	**First stage:** **(Adaptation to an upright position)** Patient must be able to keep an upright position, stabilize his trunk, grip hand handles and adopt his respiratory and cardiovascular system to new, standing position.	In standing up position patient should grip the hand handles and try to keep his trunk in vertical position with chest support. In standing up position patient should grip the hand handles and try to keep his trunk in vertical position without chest support. The patient attempts to get up to standing position and return to the seating position unaided, using Reha Gym system.	5 – 10 x (05min – 5min) 5 x 3-5 half sit-ups and sit-ups
3	**Second stage.** **(Balancing)**	In standing up position patient should grip the hand handles and try to keep his trunk in vertical position without chest support.	When the patient is fluent enough to control the position of his trunk and his hands, he can start to make balancing.

	Patient tries to learn balancing.	In standing up position patient grips the hand handles and tries to move his trunk from the left to the right (1 move per 1 second) until the runners start to lift above the floor (3 – 5cm). The patient attempts to get up to standing position and return to the seating position unaided, using RehaGym system.	Depending the body condition the exercises should be done in several series: balancing - 1min brake - 2 min or more Total amount applied: 2-5 series at the beginning 10 series 3 times a day after 3-6 months 5 x 5-10 half sit-ups and sit-ups
4	**Third stage.** **(Walking)** Patient tries to walk forward and turn around.	In standing up position patient grips the hand handles and tries to move his trunk from the left to the right (1 move per 1 second) until the runners start to lift above the floor (3 – 5cm). When the hand handle of the runner which is lifted above the floor is pulled up the runner is moved forward. When the hand handle of the runner which is lifted above the floor is pulled aside the runner is turned around.. The patient attempts to get up to standing position and return to the seating position unaided, using RehaGym system.	Depending the body condition: 3 x 15 – 30min or more. 5 x 10 half sit-ups and sit-ups
5	**Forth stage.** **(Walking)** Patient tries to walk backwards.	In standing up position patient grips the hand handles and tries to move his trunk from the left to the right (1 move per 1 second) until the runners start to lift above the floor (3 – 5cm). When the hand handle of the runner which is lifted above the floor is pulled up the runner is moved forward. When the hand handle of the runner which is lifted above the floor is pulled aside the runner is turned around.. When the hand handle of the runner which is lifted above the floor is pulled down the runner is moved backwards. The patient attempts to get up to standing position and return to the seating position unaided, using RehaGym system.	As above + 10 x 30sec walking backwards 10 x 10 half sit-ups and sit-ups

6	**Sixth stage.** **(daily life work)** Patient tries to do selected daily life activities in standing position.	In standing up position patient is walking forward, backwards and turns around. Additionally he is trying to do daily life activities in kitchen, bathroom, he can make physical exercises as well. The patient attempts to get up to standing position and return to the seating position unaided, using RehaGym system.	Depending the body condition: min. 30 – 90 min in standing up position - balancing - walking - other activities 10 – 20 x 10 half sit-ups and sit-ups

11. Indications and contraindications for using dynamic standers.

Item.		**Disease origin.**
1	**Indications**	Disease resulting in paraplegia. - Spinal cord injury - Cerebral injury - Spina bifida - Cerebral palsy - Sclerosis multiples - Muscle dystrophy - Paresis (stroke + cerebral haemorrhage)
2	**Contraindications**	Severe mental disease. States preceding heart attack States preceding cerebral stroke Advanced osteoporosis Deep feet deformities Deep hip joints deformities
3	**Relative contraindications**	General bad body condition Big body weight Deep tetraplegia Week respiratory system Osteoporosis Degenerative changes Bedsores which are in direct contact with the stander Big spasticity

TECHNICAL DATA:

Measurement Card - Basic body parameters:

Item.	Body parameter.	Why this parameter is important?	Method of measurement.
1	Body weight.	1. According to body weight we select appropriate gas spring force. 2. On the basis of body weight, age and sex it is possible to estimate other body parameters	Lack of special requirements. All kind of measurements are acceptable. **+ - 3kg**
2	Body height.	According to body height and body weight we select the stander size.	1. Patient should wear the shoe in which he will use the stander. 2. Put the patient on the floor or on the bed. **He should lie on his back.** 3. Measure the distance from top to his shoe sole.
3	Distance from shoe sole to knee axle.	1. Patient's heel is supported by rear wall of the platform but his shank is usually supported a little below knee-cap. 2. This distance is important to properly set up the position of knee holder.	1. Patient should wear the shoe in which he will use the stander. 2. Put the patient on the floor or on the bed. **He should lie on his back.** 3. Measure the distance from his shoe sole to knee axle.
4	Distance from shoe sole to hip joint axle	According to this distance we set up the stander height.	1. Patient should wear the shoe in which he will use the stander. 2. Put the patient on the floor or on the bed. **He should lie on his back.** 3. Measure the distance from his shoe sole to hip joint axle. **Never measure this distance in siting position on wheelchair!!!**
5	Distance from shoe sole to shoulder ban axle.	According to this distance and information about trunk stability we set up the height of trunk side shields and position of chest support.	1. Patient should wear the shoe in which he will use the stander. 2. Put the patient on the floor or on the bed. **He should lie on his back.** 3. Measure the distance from his shoe sole to shoulder

			ban axle.
6	Pelvis width.	1. According to pelvis width we set up corset width which results in final runners width. 2. When corset is to tight patient is unable to transfer his body from wheelchair set to stander seat. 3. When corset is to wide it is more difficult for the patient to make balancing which results in runners lifting above the floor.	1. Put the patient on the floor or on the bed. **He should lie on his side.** 2. Put horizontally a line on the upper hip. 3. Measure the distance from the floor/bed surface to the bottom part of the line.
7	Pelvis depth.	1. According to pelvis depth we set up corset depth. 2. When depth is to small it is impossible to lock the rear part of the corset. 3. When depth is to big patient's pelvis is moved to the back and walking is more difficult. **4. The more vertical patient's body the easiest balancing and walking.**	1. Put the patient on the floor or on the bed. **He should lie on his back.** 2. Put horizontally a line on his stomach in hip axis. 3. Measure the distance from the floor/bed surface to the bottom part of the line.
8	Shoe size.	According to shoe number we check the platform size.	Measure to outer sole length and sole width close to heel and metatarsus.
9	Information about feet deformities.	1. On the basis of this information we are able to design special custom made orthotic system. 2. We always recommend to buy custom made orthopedic footwear.	**This measurement has to be done by experienced physiotherapist.**
10	Information about knee deformities.	1. On the basis of this information we set up knee holders and adjust their position. 2. It is not recommended that knee holder push the knee cap. 3. Knee holder should be always perpendicular to the patient's shank. 4. In case of serious knee deformities special custom made orthotic system should be used.	**In case of serious knee deformities this measurement has to be done by experienced physiotherapist.**

11	Information about hip deformities.	1. On the basis of this information we set up corset depth and position of the chest support.	**In case of serious knee deformities this measurement has to be done by experienced physiotherapist.** In case of hip contructure measurement should be done as follows: 1. Put the patient on the floor or on the bed. **He should lie on his stomach.** 2. Put horizontally a line on upper part of his pelvis. 3. Measure the distance from the floor/bed surface to the bottom part of the line.
12	Information about feet discrepancies.	1. On the basis of this information we choose the platforms depth and put the foot a little up to correct this deformity. 2. When one leg is shorter than the second one one platform is loaded much more than the other one and balancing and walking is much more difficult. **3. We always recommend patients to use custom made orthopedic footwear.**	**This measurement has to be done by experienced physiotherapist..**
13	Information about spasticity.	This information enables us to select for the patient suitable stander.	----------
14	Information about bedsores.	This information enables us to offer the patient custom made upholstery in order to avoid pressure on this body parts.	----------
15	Information about age.	This information enables us to refuse to sell the dynamic stander to the patient who could have serious osteoporosis.	

STANDER PARAMETERS

Item.	Stander parameter.	Why this parameter is important?	Method of measurement.
1	Stander height.	We set up the stander in such way that the distance from the platform surface to the corset horizontal joint will be similar to the distance from the sole of patient's footwear to his hip axis. **Only then walking is very easy.**	Measure the distance from platform surface to the corset horizontal joint.
2	Corset width.	Corset width should be as tight as possible but it have to be possible to insert an open hand between patient hip and corset side shield. **The wider the corset the more difficult walking.**	Measure the distance between the corset side shields. (In guarantee card we measure the distance between corset metal side parts).
3	Corset depth.	Corset width should be as tight as possible but it have to be possible to insert an open hand between patient hip and corset side shield. **The deeper the corset the more difficult walking.**	Measure the distance between the corset front and rear shields. (In guarantee card we measure the distance between corset metal front and rear parts).
4	Position of knee holder	The shank should be supported a little below knee cap – **knee holder height.** The leg should be straight as much as possible. The more knee bend the more force on the shank and more difficult walking - k**nee holder depth.** The knee holder should not excessively press the inner or outer side of the shank – **knee holder depth.**	We measure only knee holder height. Measure the distance between the platform surface and the knee holder fixing screw. Other adjustment we recommend to do with the patient (after we stand him up for the first time).
5	Platform position.	Patient's heel is supported by the rear part of the platform. During standing up patient's body should be in vertical position. **Platforms moved to the back can result in knee bending.** **Platforms moved to the front result in excessive pressure on the shank. .**	We measure the distance from the rear wall of the platform to the lever joint.
6	Hand handle position.	Hand handle can be moved to the back and to the front and turned around horizontal axis.	We recommend to do this adjustment with patient.

		In standing up position patient's trunk should be vertical, arms a little bend in elbows and hands should grip the hand handles.	
7	Seat position.	Low seat position - very easy to move from wheelchair to stander seat but during standing up but because of the gap between the crotch and seat patient's pelvis moves to the back. High seat position - a little difficult to move from wheelchair to the stander seat but patient's pelvis do not move to the back.	We recommend to do this adjustment with patient.
8	Chest support position.	Patient should not lie on the chest support even when he is unable to keep his trunk in vertical position.	We recommend to do this adjustment with patient.
9	Side trunk shields position.	When patient is able to keep his trunk in vertical position the trunk shields should be in their lowest position. When patient is unable to keep his trunk in vertical position the trunk shields should be in their highest position.	We recommend to do this adjustment with patient.
10	Gas springs force.	Gas springs force depends patient's body weight and body height.	It is always calculated on the basis of patient's body weight and stander height.
11	Total runners width.	Some people want to walk along the whole home from one room to the another one. In this case it is important to know if the door width is is enough. The smaller total runners width the easier walking. The bigger total runner width the more difficult walking.	We measure the distance between front outer rubber feet. Runners parallel to each other, stabilization rood perpendicular to both runners.
12	Rubber feet height.	The difference in height between the inner and outer rubber feet and total runners width influence the easiness of balancing. The smallest total runners width the smallest difference between inner and outer feet height.	We calculate the feet height on the basis of measurement card.