



3d kinematic tower

MARKERLESS 3D MOTION CAPTURING



3D KINEMATIC TOWER - MARKERLESS MOTION ANALYSIS

German Engineering since 1988



Comprehensive visualization of live tracked postural data



Live view and tracking of the subject on a mercury® med treadmill

The 3D kinematic tower offers markerless motion analysis integrated into the treadmill environment. The system is a perfect add-on to new installations and also a valuable retrofit to existing treadmill systems, adding a new dimension to gait and movement assessment.

A new dimension in movement analysis

The h/p/cosmos 3D kinematic tower brings advanced markerless motion analysis directly to the treadmill environment. Developed on the foundation of h/p/cosmos' experience in treadmill manufacturing and service since 1988, the system offers a streamlined solution for clinical, rehabilitation and sports applications.

Compact design, easy setup

Designed as a self-contained unit positioned in front of the treadmill, the 3D kinematic tower enables fast installation and immediate use. No additional tables or peripheral equipment are required, while extra monitors or displays can be connected if desired.

Comprehensive markerless motion tracking

A high-performance 3D camera integrated into the tower captures movement without markers, sensors, or time consuming preparation. In real time, the system measures and visualizes: hip, knee, and ankle joint angles, hip abduction, hip and knee flexion, ankle dorsiflexion, range of motion, joint symmetry and asymmetry as well as postural alignment. These capabilities expand movement analysis beyond pressure measurement alone, providing valuable insights into functional biomechanics and gait patterns.

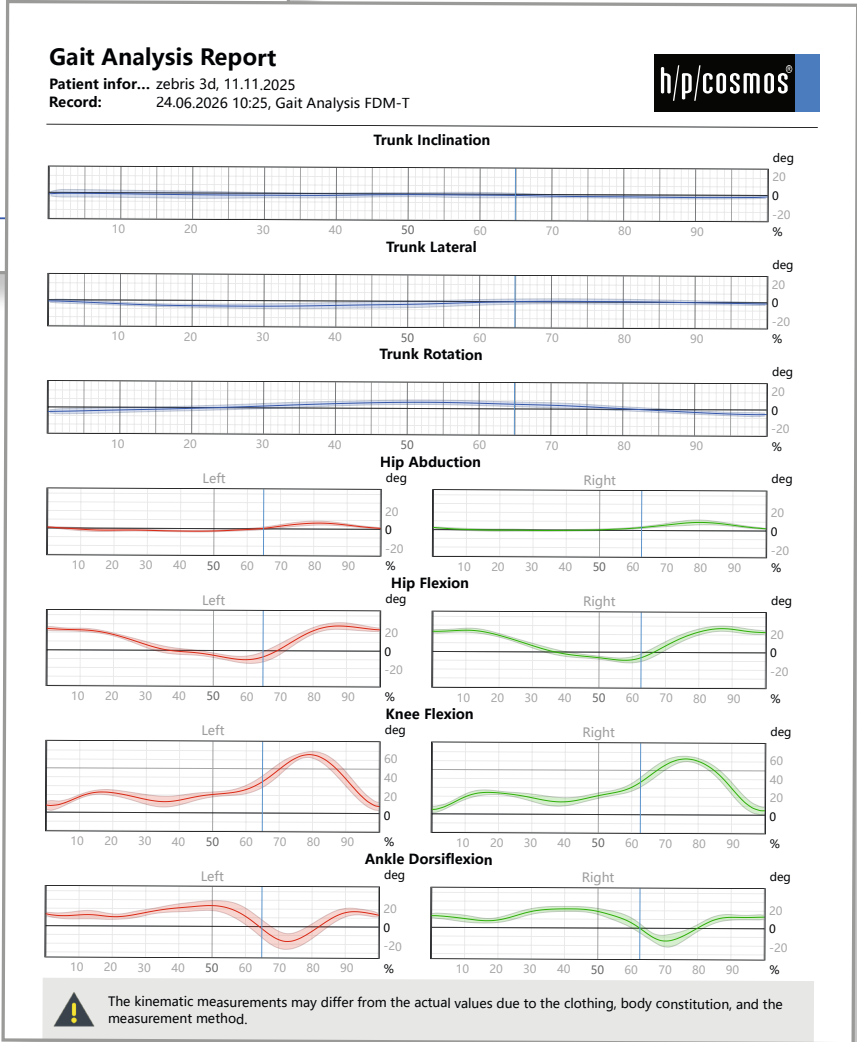
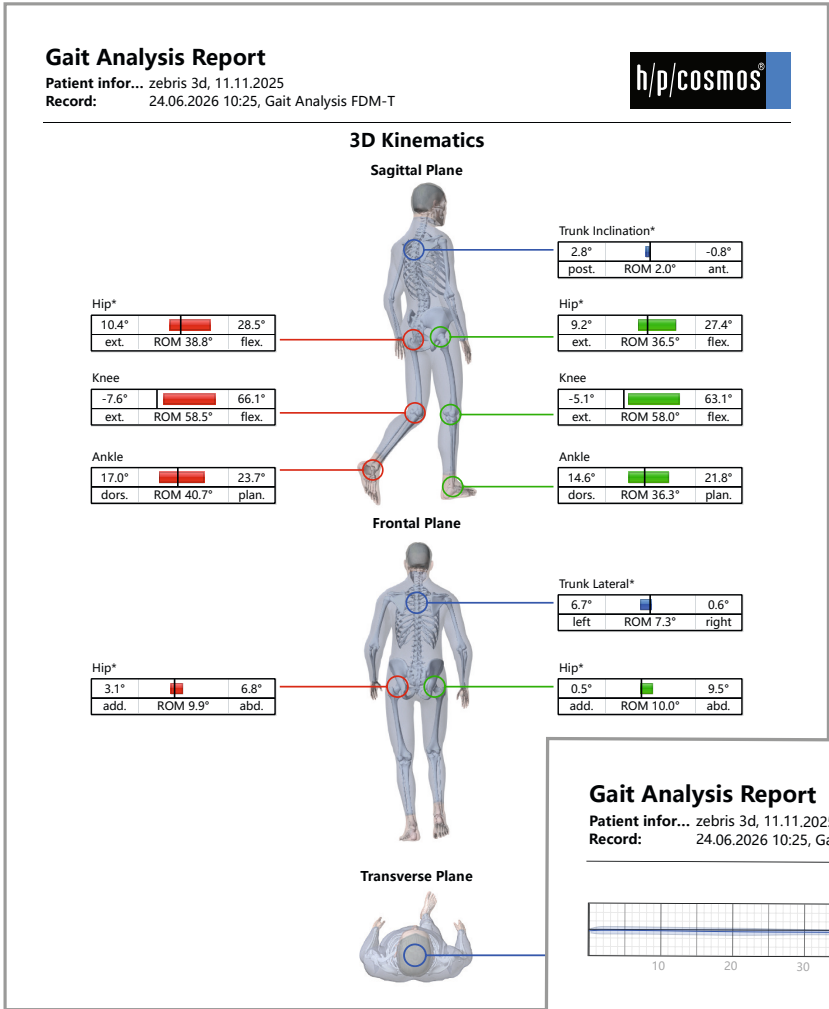
Enhanced Visualization and Feedback

The software can display a male or female skeletal model superimposed on the subject, making movement patterns easier to understand and interpret. In addition, digital "mirror training" provides immediate visual feedback, supporting rehabilitation, gait retraining and performance optimization.

Seamless integration with zebris systems

The 3D kinematic tower can be used as an add-on to new systems or integrated easily into existing zebris systems. Simply connect the device and select the additional camera within the software. An included inclinometer supports the accurate calibration. For unrestricted visibility of the subject from the camera, treadmill models with lateral UserTerminal positions (e.g. mercury® or quasar®) are recommended.

SAMPLE REPORTS



Every assessment can be reviewed combining video and analysis data. Comprehensive reports allow a quick analysis.

Flexible configurations

To meet individual customer requirements, the 3D kinematic tower can be configured. For users already operating a modern h/p/cosmos computer system, the basic package includes the tower, integrated camera and display. For customers with less performable systems, we highly recommend the “upgrade” package that also includes a modern high performance computer.



3D KINEMATIC TOWER - RETROFIT CONFIGURATION „BASIC“ (NO PC)

pos.	qty.	order number	product description
1.	1	cos104912	h/p/cosmos satellite kinematic tower; satellite tower with 50" TV and 3D camera (no PC included!)
2.	1	cos102522va04	transport

E & OE. Subject to alterations without prior notice. The illustrations may show accessories and items of optional equipment which are not part of standard specification or the recommended configuration. Subject to our general terms of trade: www.hpcosmos.com



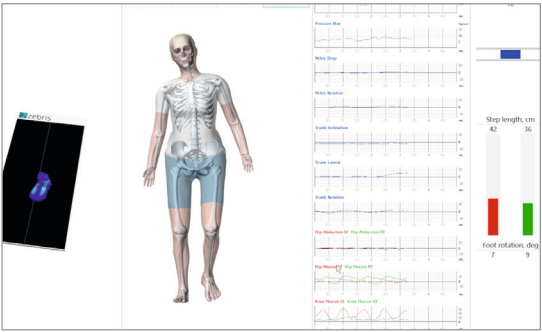
3D KINEMATIC TOWER - RETROFIT CONFIGURATION „UPGRADE“ (WITH PC)

pos.	qty.	order number	product description
1.	1	cos104911	h/p/cosmos satellite kinematic tower; satellite tower with PC, 50" TV and 3D camera
2.	1	cos102522va04	transport

E & OE. Subject to alterations without prior notice. The illustrations may show accessories and items of optional equipment which are not part of standard specification or the recommended configuration. Subject to our general terms of trade: www.hpcosmos.com



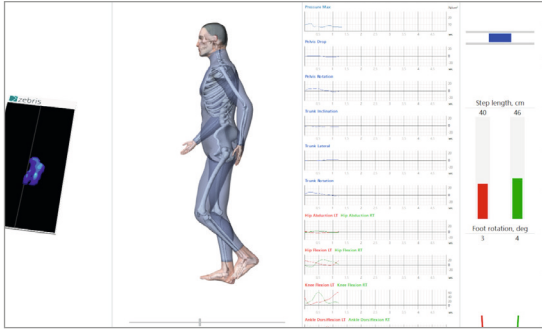
The setup of the tower must be done in a defined distance from the treadmill.



Live view of female skeletal avatar with adjustable angle and simultaneous pressure distribution measurement.



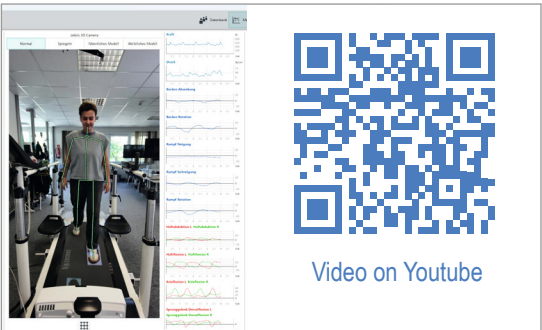
The exact inclination of the camera has to be transferred to the software using the supplied inclinometer.



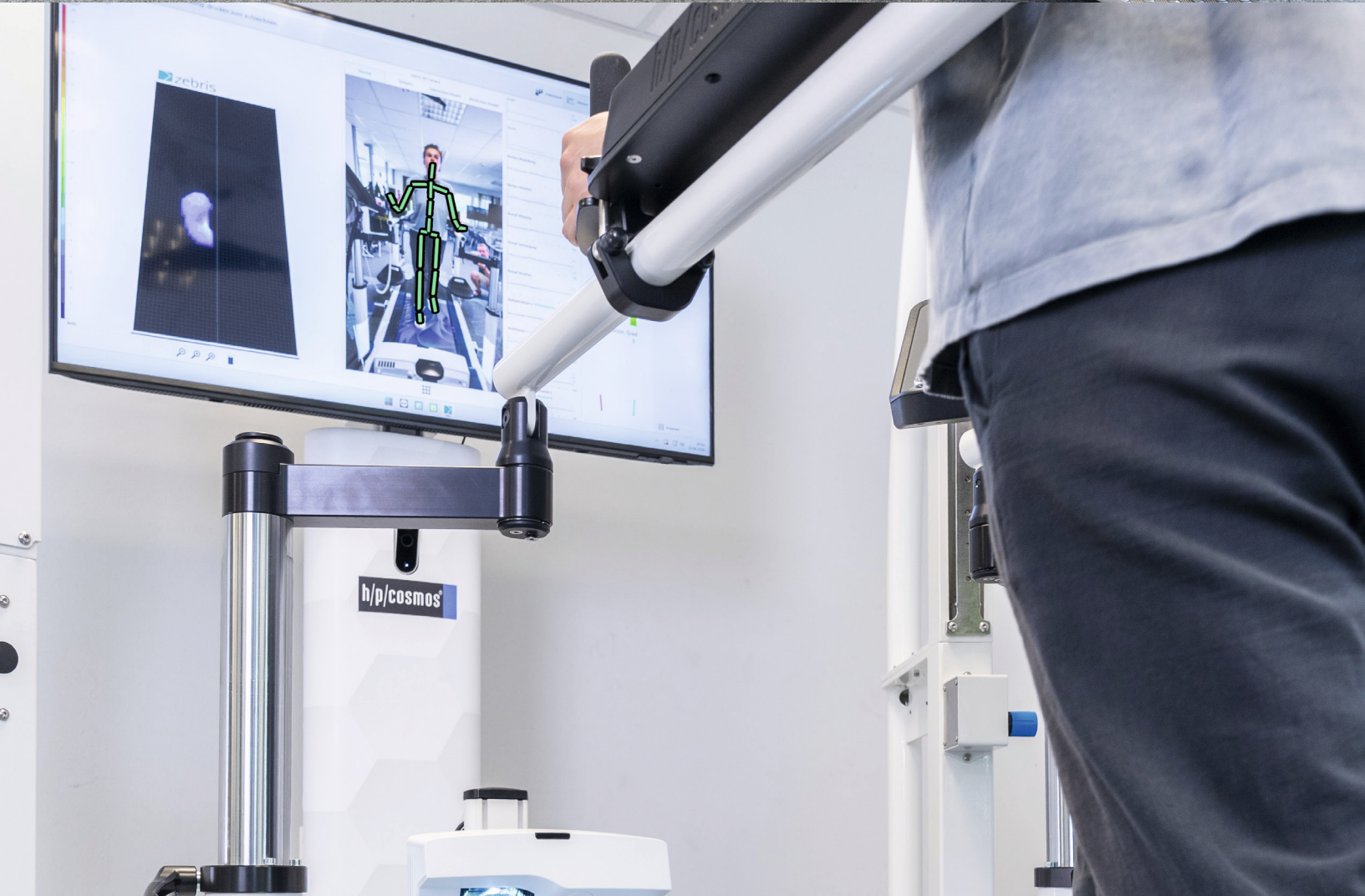
Live view of male skeletal avatar with adjustable angle and simultaneous pressure distribution measurement.



The 3d kinematic tower in a fully equipped setup



Quick introduction video of the h/p/cosmos 3d kinematic tower



h/p/cosmos® treadmills	order number	running surface l/w	speed	elevation	power supply *	UserTerminal display	CE
pluto® lt med	cos31002	150 / 50 cm	0 ... 22 km/h	0 ... 25 %	200 ... 240 Volt AC 1~ / 16 Amp.	no	CE 0123
pluto® med	cos31022	150 / 50 cm	0 ... 22 km/h	0 ... 25 %	200 ... 240 Volt AC 1~ / 16 Amp.	10,1" touch & keyboard	CE 0123
pluto® ef med (emotion fitness touch-display)	cos31012	150 / 50 cm	0 ... 22 km/h	0 ... 25 %	200 ... 240 Volt AC 1~ / 16 Amp.	7" touch	CE 0123
stratos® med	cos31032	150 / 50 cm	0 ... 22 km/h	0 %	200 ... 240 Volt AC 1~ / 16 Amp.	10,1" touch & keyboard	CE 0123
mercury® med	cos31042	150 / 50 cm	0 ... 22 km/h	0 ... 25 %	200 ... 240 Volt AC 1~ / 16 Amp.	10,1" touch & keyboard	CE 0123
stellar® med, with UserTerminal 10,1" TouchPro	cos30003-01va02	170 / 65 cm	0 ... 25 km/h	0 %	230 Volt AC 1~ / 15 Amp.	10,1" touch & keyboard	CE 0123
quasar® med, with UserTerminal 10,1" TouchPro	cos30003-01va02	170 / 65 cm	0 ... 25 km/h	0 ... 28 %	230 Volt AC 1~ / 15 Amp.	10,1" touch & keyboard	CE 0123
stellar® med 190/65, with UserTerminal 10,1" TouchPro	cos30004-01va06	190 / 65 cm	0 ... 25 km/h	0 %	230 Volt AC 1~ / 15 Amp.	10,1" touch & keyboard	CE 0123
pulsar® med, with UserTerminal 10,1" TouchPro	cos30004-01va02	190 / 65 cm	0 ... 25 km/h	-25 ... +25 %	230 Volt AC 1~ / 15 Amp.	10,1" touch & keyboard	CE 0123

Treadmills for climate chambers available on request (for all sizes as an option at extra charge for climatic conditions from -35°C ... +55°C and 20% ... 95% humidity) with external UserTerminal.

h/p/cosmos® neurological rehabilitation treadmills	order number	with adjustable handrails, therapists seats on both sides and foot rest				UserTerminal display	CE
locomotion® 150/50 DE med	cos30001-01va02	150 / 50 cm	0 ... 10 km/h	-25 ... +25 %	230 Volt AC 1~ / 15 Amp.	15,6" touch	CE 0123
locomotion® 190/65-3p DE med	cos30024va04	190 / 65 cm	0 ... 25 km/h	-25 ... +25 %	400 Volt AC 3~ / 15 Amp.	15,6" touch	CE 0123

h/p/cosmos® high performance treadmills	order number	running surface l/w	speed	elevation	power supply *	UserTerminal display	CE
quasar® med 3p, with MCU5 (6 displays)	cos30003va26	170 / 65 cm	0 ... 40 km/h	0 ... 28 %	400 Volt AC 3~ / 15 Amp.	yes	CE 0123
pulsar® lt 3p med, with MCU5	cos30004va02	190 / 65 cm	0 ... 40 km/h	-25 ... +25 %	400 Volt AC 3~ / 15 Amp.	no	CE 0123
pulsar® med 3p, with MCU5 (6 displays)	cos30004va04	190 / 65 cm	0 ... 40 km/h	-25 ... +25 %	400 Volt AC 3~ / 15 Amp.	yes	CE 0123

h/p/cosmos® oversize treadmills	order number	running surface l/w	speed	elevation	power supply *	UserTerminal display	CE
venus® 200/75	cos30005-01va05	200 / 75 cm	0 ... 40 km/h	-35 ... +35 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
venus® 200/75 r	cos30005-01va06	200 / 75 cm	0 ... 40 km/h	-35 ... +35 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
venus® 200/100	cos30006-01va05	200 / 100 cm	0 ... 40 km/h	-35 ... +35 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
venus® 200/100 r	cos30006-01va06	200 / 100 cm	0 ... 40 km/h	-35 ... +35 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
saturn® 250/75	cos30007-01va05	250 / 75 cm	0 ... 40 km/h	-27 ... +27 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
saturn® 250/75 r	cos30007-01va06	250 / 75 cm	0 ... 40 km/h	-27 ... +27 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
saturn® 250/100	cos30008-01va05	250 / 100 cm	0 ... 40 km/h	-27 ... +27 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
saturn® 250/100 r	cos30008-01va06	250 / 100 cm	0 ... 40 km/h	-27 ... +27 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
saturn® 250/125 r	cos30009-01va03	250 / 125 cm	0 ... 40 km/h	-27 ... +27 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
saturn® 300/75	cos30010-01va05	300 / 75 cm	0 ... 40 km/h	-27 ... +27 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
saturn® 300/75 r	cos30010-01va06	300 / 75 cm	0 ... 40 km/h	-27 ... +27 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
saturn® 300/100	cos30011-01va05	300 / 100 cm	0 ... 40 km/h	-27 ... +27 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
saturn® 300/100 r	cos30011-01va06	300 / 100 cm	0 ... 40 km/h	-27 ... +27 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123
saturn® 300/125 r	cos30012-01va03	300 / 125 cm	0 ... 40 km/h	-27 ... +27 %	400 Volt AC 3~ / 32 Amp.	15" touch	CE 0123

Further oversize treadmills and specialised running machines with custom dimensions and specifications available on request.

Treadmills for climate chambers available on request (for all sizes as an option at extra charge for climatic conditions from -35°C ... +55°C and 20% ... 95% humidity) with external UserTerminal.

h/p/cosmos® biomechanics treadmills	with pressure measurement plates & gait analysis software (medical PC & printer not included)					UserTerminal display	CE
stratos® med	cos31032	150 / 50 cm	0 ... 22 km/h	optional	200 ... 240 Volt AC 1~ / 16 Amp.	10,1" touch & keyboard	CE 0123
+ gaitway 3d med biomechanic-upgrade + 3 component (Fx,y,z) force measurement, requires additional subframe: [cos102999_subframe] / [cos102999_subframe_elev], with or without elevation	cos102999_150-50_MCU6va02						
stellar® med, with UserTerminal 10,1" TouchPro	cos30003-01va06	170 / 65 cm	0 ... 25 km/h	optional	230 Volt AC 1~ / 15 Amp.	10,1" touch & keyboard	CE 0123
+ gaitway 3d med biomechanic-upgrade + 3 component (Fx,y,z) force measurement, requires additional subframe: [cos102999_subframe] / [cos102999_subframe_elev], with or without elevation	cos102999_170-65_MCU6va02						

Further biomechanic upgrades for example with pressure distribution sensor plates, see gaitway, noraxon, zebris.

h/p/cosmos® torqualizer® med ergometer series	order number	brake system	power range** optionally 750 W	rpm 1/min speed range	power supply *	max. user weight	CE
torqualizer® med 1200 with UserTerminal 10,1" TouchPro	cos30021va02	hybrid	25 ... 1000 watts **	15 ... >140 rpm **	100 ... 240 volts AC / 6 Amp.	200 kg	pending
torqualizer® cycle ef med 900	cos30021ef-med900	hybrid	15 ... 500 watts	15 ... 140 rpm	grid independent (cordless)	150 kg	CE 0633
torqualizer® arm ef med 900 stand model incl. crank lever adjustable in length	cos30030ef-med900	hybrid	15 ... 500 watts	15 ... 140 rpm	grid independent (cordless)	150 kg	CE 0633
torqualizer® arm ef med 900 wall model incl. crank lever adjustable in length	cos30030ef-med900-wm	hybrid	15 ... 500 watts	15 ... 140 rpm	grid independent (cordless)	150 kg	CE 0633
torqualizer® recumbent ef med 900	cos30031ef-med900	hybrid	15 ... 500 watts	15 ... 140 rpm	grid independent (cordless)	150 kg	CE 0633
torqualizer® cross ef med 900	cos30032ef-med900	hybrid	(15) 100 ... 500 watts	15 ... 140 rpm	grid independent (cordless)	150 kg	CE 0633
torqualizer® stair ef med 900	cos30033ef-med900	hybrid	sinking rate	4 ... 27 m/min	grid independent (cordless)	150 kg	CE 0633

* We recommend a dedicated line 3 phase power connection (400 Volt AC3~N/PE 50/60 Hz 16 to 32A fuse) and 3-phase device for high speed, fast acceleration, special applications and for heavier subjects due to higher performance. For all single phase powered treadmills the natural performance limitations of single phase voltage supply apply due to the law of physics. For professional performance diagnostics, athletic training and high performance applications we strongly recommend running machines with 3-phase voltage power supply from model size min. pulsar® 3p, venus® or saturn®. ** measured and calibrated up to 900 watts. Depending on gearings and revolutions per minute. Tolerances may occur on loads above 900 watts.

H/P/COSMOS PRODUCT LIST (SPORTS)

sports

h/p/cosmos® treadmills	order number	running surface l/w	speed	elevation	power supply *	UserTerminal display	CE
pluto® lt sport	cos31001	150 / 50 cm	0 ... 22 km/h	0 ... 25 %	200 ... 240 Volt AC 1~ / 16 Amp.	no	CE
pluto® sport	cos31021	150 / 50 cm	0 ... 22 km/h	0 ... 25 %	200 ... 240 Volt AC 1~ / 16 Amp.	10,1" touch & keyboard	CE
pluto® ef sport (emotion fitness touch-display)	cos31011	150 / 50 cm	0 ... 22 km/h	0 ... 25 %	200 ... 240 Volt AC 1~ / 16 Amp.	7" touch	CE
stratos® sport	cos31031	150 / 50 cm	0 ... 22 km/h	0 %	200 ... 240 Volt AC 1~ / 16 Amp.	10,1" touch & keyboard	CE
mercury® sport	cos31041	150 / 50 cm	0 ... 22 km/h	0 ... 25 %	200 ... 240 Volt AC 1~ / 16 Amp.	10,1" touch & keyboard	CE
stellar®, with UserTerminal 10,1" TouchPro	cos30003-01va05	170 / 65 cm	0 ... 25 km/h	0 %	230 Volt AC 1~ / 15 Amp.	10,1" touch & keyboard	CE
quasar®, with UserTerminal 10,1" TouchPro	cos30003-01va01	170 / 65 cm	0 ... 25 km/h	0 ... 28 %	230 Volt AC 1~ / 15 Amp.	10,1" touch & keyboard	CE
stellar® sport 190/65, with UserTerminal 10,1" TouchPro	cos30004-01va05	190 / 65 cm	0 ... 25 km/h	0 %	230 Volt AC 1~ / 15 Amp.	10,1" touch & keyboard	CE
pulsar® sport, with UserTerminal 10,1" TouchPro	cos30004-01va01	190 / 65 cm	0 ... 25 km/h	-25 ... +25 %	230 Volt AC 1~ / 15 Amp.	10,1" touch & keyboard	CE
saturn® 450/300 rs sport, with UserTerminal 10,1" TouchPro	cos30013-02va01	450 / 300 cm	0 ... 40 km/h	- 4 ... +25 %	400 Volt AC 3~ / 64 Amp.	10,1" touch & keyboard	CE

h/p/cosmos® biomechanics treadmills	with pressure measurement plates & gait analysis software (medical PC & printer not included)					UserTerminal display	CE
stratos® sport	cos31031	150 / 50 cm	0 ... 22 km/h	optional	200 ... 240 Volt AC 1~ / 16 Amp.	10,1" touch & keyboard	CE
+ gateway 3d sport biomechanic-upgrade + 3 component (Fx,y,z) force measurement, requires additional subframe: [cos102999_subframe] / [cos102999_subframe_elev], with or without elevation	cos102999_150-50_MCU6va01						
stellar®, with UserTerminal 10,1" TouchPro	cos30003-01va05	170 / 65 cm	0 ... 25 km/h	optional	230 Volt AC 1~ / 15 Amp.	10,1" touch & keyboard	CE
+ gateway 3d sport biomechanic-upgrade + 3 component (Fx,y,z) force measurement, requires additional subframe: [cos102999_subframe] / [cos102999_subframe_elev], with or without elevation	cos102999_170-65_MCU6va01						
pulsar® sport 3p, with MCU5 (6 displays)	cos30004va07	190 / 65 cm	0 ... 40 km/h	optional	400 Volt AC 3~ / 15 Amp.	yes	CE
+ gateway 3d biomechanics upgrade 3 component (Fx,y,z) force measurement requires additional subframe: [cos102999_subframe] / [cos102999_subframe_elev], with or without elevation	cos102999_190-65						

Further biomechanic upgrades for example with pressure distribution sensor plates, see gateway, noraxon, zebris.

h/p/cosmos® ladder ergometer	order number	height of climb: 235cm, rung width: 49.5cm / interval: 24.4cm	power supply *	UserTerminal display	CE
discovery®	cos30014va02	"endless" ladder ergometer for climbing	230 Volt AC 1~ / 15 Amp.	yes	CE

h/p/cosmos® sprint trainer / rope traction device	order number	traction force- and traction resistance-training	power supply *	UserTerminal display	CE
comet®	cos30015va01	sprint trainer concentric/eccentric. 180 meter rope, 1-phase	230 Volt AC 1~ / 15 Amp.	yes	CE
comet® 3p	cos30015va02	sprint trainer concentric/eccentric. 180 meter rope, 3-phase	400 Volt AC 3~ / 15 Amp.	yes	CE

h/p/cosmos® torqualizer® ergometer series	order number	brake system	power** optionally 750 W	rpm 1/min speed range	power supply *	max. user weight	CE
torqualizer® 1200 with UserTerminal 10,1" TouchPro	cos30021va01	hybrid	25 ... 1000 watts **	15 ... >140 rpm **	100 ... 240 volts AC / 6 Amp.	200 kg	pending
torqualizer® cycle ef 900	cos30021ef-900	hybrid	25 ... 500 watts	15 ... 140 rpm	grid independent (cordless)	150 kg	CE
torqualizer® arm ef 900 stand model incl. crank lever adjustable in length	cos30030ef-900	hybrid	25 ... 500 watts	15 ... 140 rpm	grid independent (cordless)	150 kg	CE
torqualizer® arm ef 900 wall model incl. crank lever adjustable in length	cos30030ef-900-wm	hybrid	25 ... 500 watts	15 ... 140 rpm	grid independent (cordless)	150 kg	CE
torqualizer® recumbent ef 900	cos30031ef-900	hybrid	25 ... 500 watts	15 ... 140 rpm	grid independent (cordless)	150 kg	CE
torqualizer® cross ef 900	cos30032ef-900	hybrid	(15) 100 ... 500 watts	15 ... 140 rpm	grid independent (cordless)	150 kg	CE
torqualizer® stair ef 900	cos30033ef-900	hybrid	sinking rate	4 ... 27 m/min	grid independent (cordless)	150 kg	CE

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sports / athletics



sports
quasar®



cycling & athletics
saturn® 300/100r



performance diagnostics
pulsar® med



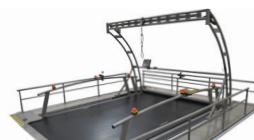
German Engineering since 1988



inline skating
saturn® 300/125r



functional training
pulsar® med + robowalk®



**cross country skiing
skating / biathlon**
saturn® 450/300rs



wheelchair
saturn® 300/125r



speed training / speedlab®
quasar® 3p



fitness
pluto® / mercury® / quasar® / pulsar®



motion analysis
quasar® med



expander training
robomove®



bike ergometer
torqualizer®



**biomechanics
gait parameters**
optogait

rehabilitation



active gait correction
robowalk® expander / mercury® med



senior fitness
mercury®



orthopaedic rehabilitation
mercury® med / arm support / airwalk® ap



cardiac rehabilitation
mercury® med



**body weight supported
treadmill therapy**
airwalk® ap / mercury® med



angiology
mercury® med



gait analysis / biomechanics
gaitway® 3d with force and pressure measurement



**cardiovascular stress
testing / CPET**
mercury® med



locomotion therapy
locomotion® med 150/50



bike ergometer
torqualizer® 1200
medical certification pending

special applications



**environmental & climate
chambers**
quasar® med with external UserTerminal



biomechanics
gaitway® 3d



military / army
quasar® special version



speed training
sprint trainer comet®



**fire fighter ladder
training & fitness**
discovery®

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