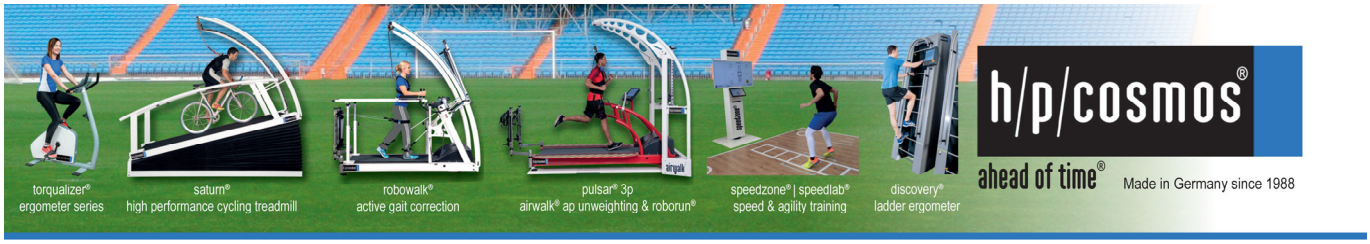
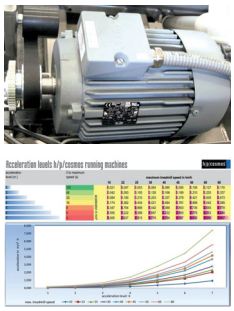


USPs | Why do users choose h/p/cosmos® systems

The right solutions for applications in training, testing, research and rehabilitation

h/p/cosmos® has the worldwide biggest portfolio by far of standard treadmill and ergometer systems with options, supplies and also custom-made solutions for fitness, sports, athletics, biomechanics, medicine, therapy and science. Full scale of various treadmill running deck sizes from standard 150/50cm up to oversize 450/300cm. Speed from standard 0 … 22 km/h up to high speed 80 km/h for cycling on treadmills. Elevation from 0 … 25% up to -35…+35% for special applications. From normal running deck to instrumented versions with 3 component force (F_z,F_x,F_y), torque (M_z,M_x,M_y) & pressure distribution for biomechanics applications. So you will always choose for the right manufacturer.

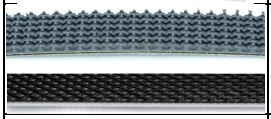


Highest performance for excellent accuracy and dynamics in acceleration and deceleration

Depending on the size h/p/cosmos® has extremely powerful, maintenance free and high-capacity drive motors of 2.2, 3.7, 11.0 or even 30.0 kW. This is necessary for propelling athletes in sprint applications or performance diagnostics, for speeding up very thick, heavy and extremely durable running belts and also for perturbation applications with programmable extreme accelerations. The drive motor of the saturn® model with 11 kW for example and the heavy rollers provide exceptional dynamics, precision and smoothness. The accuracy of the speed is on average 0.148 % (average deviation of 0.044 km/h, measured both with no load and under load with runners of 78 and 94 kg).
How much is 1%? How important is 1%? How important is data validity? Often fractions of seconds decide between winning and losing. The scores of the Olympic Games and other competition show this fact clearly. Accurate time measurement, strong drive systems and high accuracies for treadmills and other measuring instruments are prerequisites and an integral part of a successful training control - no matter if you are a competitive or a recreational athlete. For sport-specific training methods and athletic preparation tests (e.g. shuttle run, T-test, sprints, performance diagnostics, etc.) measurements are very important also to see the impact of changing training plans, fitness and performance levels as well as change in motion and running styles. Comparing with other equipment: **Same size and speed does not mean same performance!** Only precise and valid data are worth it to integrate into the training routine and training planning.

Flexible handrail and design concept with options, accessories and upgrade options

Different applications require different designs and safety options. A safety arch with harness and chest belt system including quick stop and fall prevention system give necessary confidence to athletes, trainers, exercise physiologists and also to patients, therapists and doctors to improve performance during exercise and tests.
With most h/p/cosmos treadmill models the operator is able to change handrail designs depending on applications or upgrade to different versions and features. Also adjustable handrails (width and height) or arm support for gait training are available.
The patented robowalk® expander, which can be even retrofitted / upgraded at a later stage, provides necessary concentric, eccentric and lateral forces for stimulation, perturbation, support or walking and running style correction.
Extra wide footboards and special designed short sprint handrails allow ergonomic and safe operation during jump-on and jump off in sprint and hyper-speed trainings and tests. For 3D motion capture systems and video analysis detachable handrails are important.
The airwalk® ap unweighting system developed and manufactured by h/p/cosmos is not only for rehabilitation at low speed with 360° rotations but also for balance, perturbation and overspeed or co-ordination training.
Wheelchair ramps or wheelchair stabilizers allow safe and ergonomic mounting, dismounting or even operation with sports wheelchairs on oversize treadmills for training and/or performance diagnostics.
Various unweighting vests, harnesses, shorts or chest belts in different sizes and for different applications are available.
Watch various application videos on the h/p/cosmos application manuals: download 1 download 2 download 3
Like not all vehicles can serve all needs, the same applies for treadmills and the various design requirements.



Different running belts for different applications. Running belts for running may have structured surface while running belts for cycling must have low rolling resistance. For use with ski-poles again different running belts with very thick structure of up to 10mm are recommended to have non-slip characteristics even when they are getting wet and even during uphill skating / climbing and ***double-pole push tests*** to utilize maximum performance also with arms and upper body. **Its all about grip!** h/p/cosmos has all belts.

Connectivity, interface, compatibility and integration with other systems

Connectivity of treadmills and ergometers with host ECG, VO2max, CPET, Motion Capture Systems, Video, EMG, IMUs, Ergometry and Fitness Software and other systems are crucial for success, data validity and Cybersecurity. EN 62304 & ISO 14971 standards validation.
h/p/cosmos provides excellent system integration with most reputable manufacturers via coscom® v4 interface through RS232, LAN / RJ45, USB, HDMI, optionally Bluetooth®, NFC/RFID, WiFi, FTMS for great connectivity with ECG stress test and VO2 max. CPET Cardiopulmonary Exercise Testing equipment and fitness testing equipment. Even coscom_v4.dll is free for download: www.coscom.org

Software features, multi-tasking, cognitive skills, perturbation, Stroop-Test

The new MCU6 software features optional Stroop Test, dual tasking, cognitive skills, country flags, capitals, “word salad” and mathematic tasks in various levels and has included test profiles / protocols such as Bruce, modified Bruce, Graded Test, Naughton, Cooper, Balke, Super Balke, Ellestad A, Ellestad B, Gardner, UKK 2 km WalkTest, Conconi, Ramp, Fitkids, Chester Treadmill Walk, VO2 / 10k, VO2 / 11k, VO2 / 12k, VO2 / 14k, various Interval Tests incl. progressive interval, various Pyramid Tests, Hochfelln mountain protocol, etc.
See the demo video and workshop of some features: download video | video of MCU6 workshop

ahead of time® with innovations: virtual split belt feature or perturbation modules on gaitway® 3d

With the experience and specialization since 1988 h/p/cosmos has always developed latest and innovative technology for the benefit of athletes, patients, scientists, researchers and operators. The new gaitway® 3d feature: „Virtual Split Belt“™: The speeds for left leg and right leg can be adjusted in different ranges during contact gait phases. Fast acceleration of the sophisticated h/p/cosmos treadmill drive systems, which is also used for the optional perturbation mode of the new h/p/cosmos MCU6 treadmills, allow the changes of speeds to virtually simulate 2 different belt speeds but with the great benefit of having a single belt treadmill deck. download video or join our webinars

Durability, Reliability, Economic Lifetime, Warranty, ROI Return of Investment

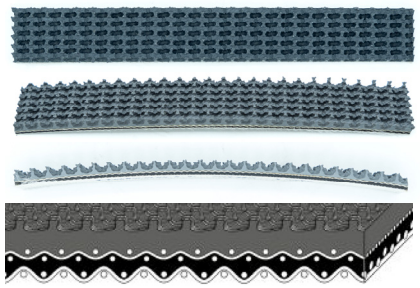
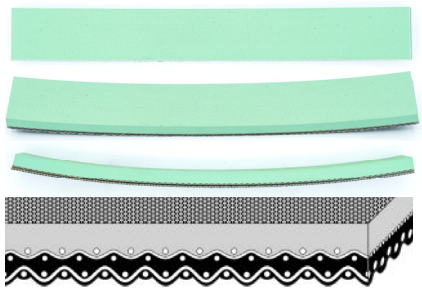
h/p/cosmos for a lifetime and built to last. Most other devices have an economic lifetime of 5 to 7 years based on the manufacturer’s manuals. h/p/cosmos treadmills have an economic lifetime of 10 years plus another 10 years (20 years in total) after some preventive component replacements after 10 years of age. Many h/p/cosmos treadmills are even in use for 30 years. Furthermore, h/p/cosmos offers 20 years of warranty for the main drive motor and frame for almost all treadmill models.
h/p/cosmos treadmills are outstanding in reliability, durability and return of investment! Almost all spare parts are available for decades.

Regulatory compliance for the safety and security of users and buyers.

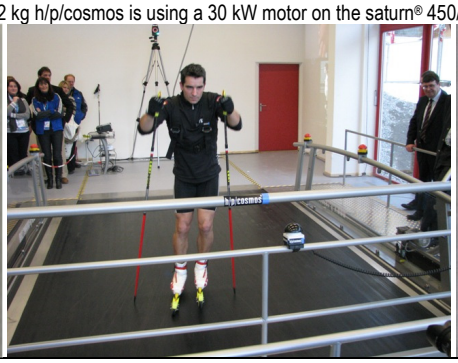
Already in the year 1990 the first h/p/cosmos treadmill has been tested in the laboratory of the TÜV SÜD Product Service in Munich. h/p/cosmos has been certified to ISO 9001 since 1998 followed by the EN ISO 13485 certification that represents the requirements for a comprehensive management system for medical devices. In Nov. 2022 h/p/cosmos got the MDR certification (EU) 2017/745 awarded.

h/p/cosmos® treadmill running belt types

It is impossible that 1 treadmill belt serves all needs, similar to a vehicle, where also different tires are needed!

#	various h/p/cosmos running belts	specs and material	applications and lifetime*	treadmill models
1.		• Flexam, PVC on running surface • non-slip, good grip • 2.4 mm thick with good grip profile • hardness 80 shore A • antistatic ISO 21178	• walking and running very long lifetime of approx. 5 to 15 years even in commercial use h/p/cosmos article no. cos101798	h/p/cosmos® models pluto lt® pluto® incl. med versions other models on request
2.		• rubber on running surface • non-slip, high grip structure • 5.2 mm thick pyramid profile with additional shock absorption • antistatic • UL 94 HB	• walking and running very long lifetime of approx. 8 to 20 years even in commercial use h/p/cosmos article no. cos10276-02	h/p/cosmos® models stratos® | mercury® locomotion® quasar® | pulsar® venus® | saturn® venus® 200/75 venus® 200/100 saturn® 250/75 saturn® 250/100 saturn® 300/75 saturn® 300/100 incl. med versions
3.		• rubber on running surface • non-slip, good grip • 2.0 mm thick • antistatic EN 12882 • low rolling resistance • high temperature resistance even with high point loads from wheels and friction on a small area • special metal running deck gliding plate with cooling and automatic lubrication	• walking and running • cycling with bikes, hand bikes and wheelchairs • inline roller skates very long lifetime of approx. 8 to 20 years even in commercial use h/p/cosmos article no. cos13573-01	h/p/cosmos® models like venus® and saturn® venus® 200/75r venus® 200/100r saturn® 250/75r saturn® 250/100r saturn® 250/125r saturn® 300/75r saturn® 300/100r incl. med versions other models on request
4.		• rubber on running surface • non-slip, good grip • 6.0 mm thick, green surface • low rolling resistance high temperature resistance even with high point loads from wheels and friction on a small area • limited ski-pole blade/tip use* • special metal running deck gliding plate with cooling and automatic lubrication	• walking and running • cycling with bikes, hand bikes and wheelchairs • inline roller skates • roller-ski with ski poles and limited metal tip / blade use very long lifetime of approx. 8 to 12 years even in commercial use h/p/cosmos article no. cos13581-01	h/p/cosmos® models like venus® and saturn® range venus® 200/75rs venus® 200/100rs saturn® 250/75rs saturn® 250/100rs saturn® 250/125rs saturn® 300/100rs saturn® 300/125rs the "s" is an upgrade option incl. med versions other models on request
5.		• rubber on running surface • non-slip, good grip • 10 mm thick, black surface • low rolling resistance high temperature resistance even with high point loads from wheels & friction on a small area • limited ski-pole blade/tip use* • special metal running deck gliding plate with cooling and automatic lubrication • hardness 60±5 shore A DIN 53505	• walking and running • cycling with bikes, hand bikes and wheelchairs • inline roller skates • roller-ski with ski poles and limited metal tip / blade use very long lifetime of approx. 8 to 12 years even in commercial use h/p/cosmos article no. cos16636	h/p/cosmos model saturn® 450/300rs called "The Beast"

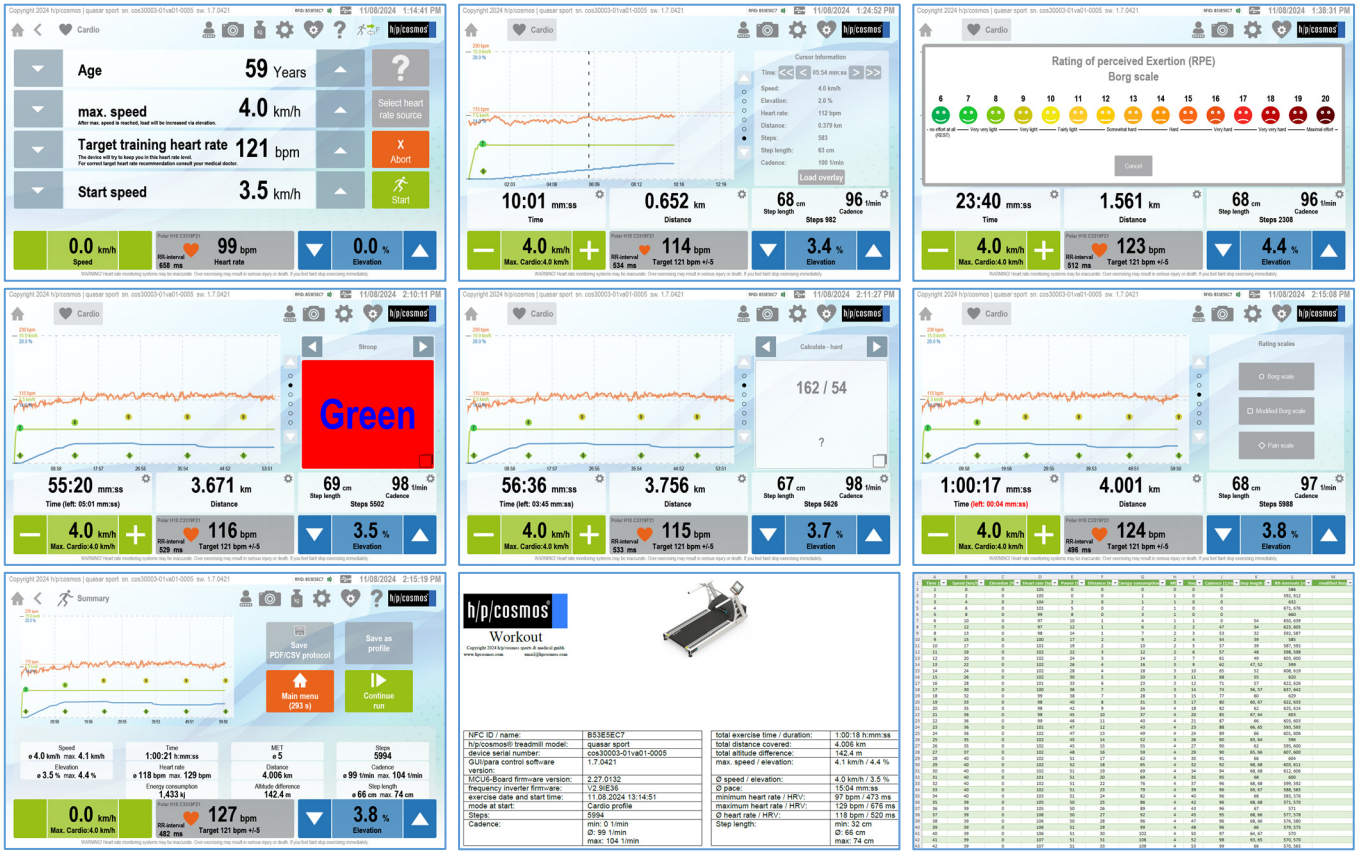
For use with ski-poles again different running belts with very thick structure of up to 10mm are recommended to have non-slip characteristics even when they are getting wet and even during uphill skating / climbing and ***double-pole push tests*** to utilize maximum performance also with arms and upper body. **It's all about grip!**
During these *double poling push treadmill tests* and during *ski skating at inclines* high power pushes with great force at difficult angles to the belt occur.
Outdoor the athletes insert the steel blades into ice/snow. On the treadmill it is important that they can insert the ski pole tip (blade) at least so some extent into the running belt and the belt has non-slip characteristic. Otherwise only little force can be used with the ski poles and upper body muscles are not in full use.
Athletes on the treadmill are sweating a lot and the running belt gets wet from sweat. During such condition the cheap treadmill belts get very slippery.
Cheap treadmills use mainly thin PVC belts or similar and cannot use metal tips/blades. They use rubber adapters for the poles. If slipping with ski-poles or with roller uphill on the treadmill belt, the training and tests do not show realistic results.
For the 10 mm thick running belt with a belt weight of 402 kg h/p/cosmos is using a 30 kW motor on the saturn® 450/300rs "ski simulator treadmill"!


*Lifetime is based on observations since company establishment in 1988 and is based on normal regular maintenance. Lack or negligence of maintenance or misuse may result in shorter lifetime or even in damage of belt and deck.

phone +49 86 69 86 42 0 email@hpcosmos.com author: fh

Attractive new features for MCU6 UserTerminal for the new h/p/cosmos® treadmill & torqualizer® 1200 ergometer series



1. Stroop Test, dual tasking, cognitive skills, country flags, capitals, “word salad” and mathematic tasks in various levels
2. perceived exertion with BORG, modified BORG and pain scale
3. cursor function for scanning data second by second and comparing with overlay file
4. optional upgrade to gaitway® 3d including 3-component force (Fz, Fx, Fy), torque, pressure distribution (incl. foot rotation and roll-off analysis etc), “virtual split-belt” function and interface combination with 3D Motion Capture (MoCap), EMG ElectroMyoGraphy, video, IMU Inertial Measurement Unit, etc. (not for torqualizer® ergometer)
5. optional auto-speed control upgrade and software via Microgate Optogait LED bars so the speed is controlled automatically based on the position of the runner or cyclist
6. optional perturbation mode (not for torqualizer ergometer)
7. optional metronome function for acoustic cueing (not for torqualizer® ergometer)
8. step count, step length and step frequency / cadence function and display (not for oversize treadmills and not for torqualizer® ergometer)
9. screenshot function (.PNG) for point of interest saves picture of the screen on USB stick and in the summary report
10. new scales for the graphs of load/heart rate parameters and Poincare HRV display
11. treadmill/ergometer serial numbers and firmware version in the screen
12. summary report export in PDF and .csv spread sheet with 1 button only
13. new summary report in table form with valuable data for better traceability and data management, also including now the screenshots made during the tests and exercise.
14. exported files (PDF, .CSV) with clear file name proposal incl. date code, treadmill model name and serial number, etc.
15. step count, step length and step frequency (cadence) function and display
16. changeable displays e.g. with count down display for various parameters
17. included exercise profiles scalable and editable and free memory space for user defined exercise profiles
18. included test profiles / protocols such as Bruce, modified Bruce, Graded Test, Naughton, Cooper, Balke, Super Balke, Ellestad A, Ellestad B, Gardner, UKK 2 km WalkTest, Conconi, Ramp, Fitkids, Chester Treadmill Walk, VO2 / 10k, VO2 / 11k, VO2 / 12k, VO2 / 14k, various Interval Tests incl. progressive interval, various Pyramid Tests, Hochfelln mountain protocol, etc.
19. optional import of GPS/GPX data to convert to treadmill profile
20. personalization with customer logo in screen and in PDF workout print, personalized screensaver
21. interface with RS232, LAN / RJ45, USB, HDMI, optionally Bluetooth®, NFC®/RFID, WiFi, FTMS for great connectivity with ECG stress test and VO2 max. CPET Cardiopulmonary Exercise Testing equipment and fitness testing equipment
22. digital (e.g. POLAR® H10 BLE) and analogue (5 kHz) heart rate monitoring receiver integrate
23. 10.1” capacitive TouchScreen with great haptic
24. additional hardware keyboard film in UserTerminal for safe control even with wet fingers (sweat) or with medical gloves
25. optional SmartPhone holder also retrofittable on VESA connection
26. export functions for optional settings, logfiles, error history, etc. for excellent serviceability and diagnosis
27. optional integrated speaker e.g. for acoustic cueing e.g. for metronome
28. optional h/p/cosmos para control PC Windows® software for observation and remote control from host PC
29. coscom® v4 interface protocol accessible via RS232, LAN or USB for safe excellent connectivity validated based on standards EN 62304, ISO 14971 and Cybersecurity. coscom_v4.dll available with detailed description available on www.coscom.org

... and many more features …

Available soon, some as options for MCU6 from software version 1.7. Not all features are available for all models. Ask sales@hpcosmos.com for details.

h/p/cosmos® … German engineering since 1988. ahead of time®!

Downloads:

a) video MCU6 features and screenshots during Cardio mode: https://cloud.hpcosmos.com/s/ER74WXk55jgeCkX
b) ZIP file with many MCU6 pictures and screenshots: https://cloud.hpcosmos.com/s/aDaEa9Ncp8D8sLp
c) video workshop MCU6 overview with application specialist Dr. Björn Zimmermann: https://www.hpcosmos.com/sites/default/files/uploads/videos/20240418_hpcosmos_webinar_theuserterminal_mcu6_overview_faq_0.mp4
d) video workshop MCU6 perturbation with application specialist Dr. Björn Zimmermann: https://www.hpcosmos.com/en/news/webinar-perturbation-module-gait-stability https://www.hpcosmos.com/sites/default/files/uploads/videos/20240507_hpcosmos_webinar_perturbation_mcu6_1080p.mp4
e) perturbation brochure for gait stability and fall prevention training: https://www.hpcosmos.com/sites/default/files/uploads/documents/20240510_cos01-en-pert_hpcosmos_perturbations_flyer.hi_.pdf

#perturbation #treadmill #perturbationtreadmill #StroopTest #slip #trip #slippandtrip #stumbling #FallPrevention #FallPreventionTraining #BalanceTraining #NeuroRehabilitation #GaitTraining #stability #GaitStability #balance #DualTasking #StressTest #BWSTT #ExercisePhysiology #parameters #NewFeatures #ergometry #Laufband #Stolperlaufband #Gangtraining #Gangrehabilitation #Sturzprävention #Sturzprophylaxe #Sturzvorbeugung #Sturzrisiko #MCU6 #Parkinson #quasar #pulsar #mercury #pluto #hpcosmos #cosmos #ergometer #Ergometrie

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