h/p/cosmos®

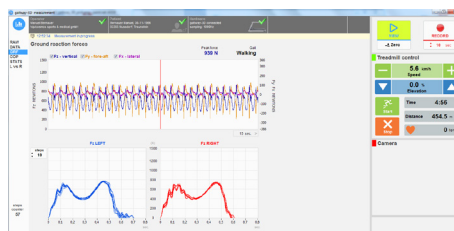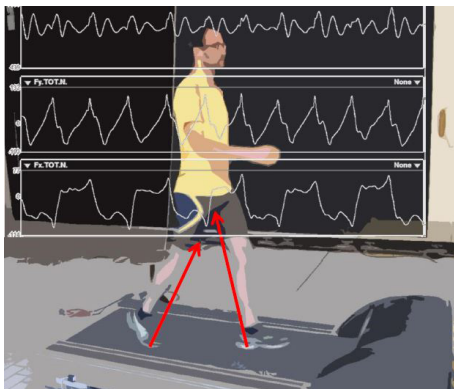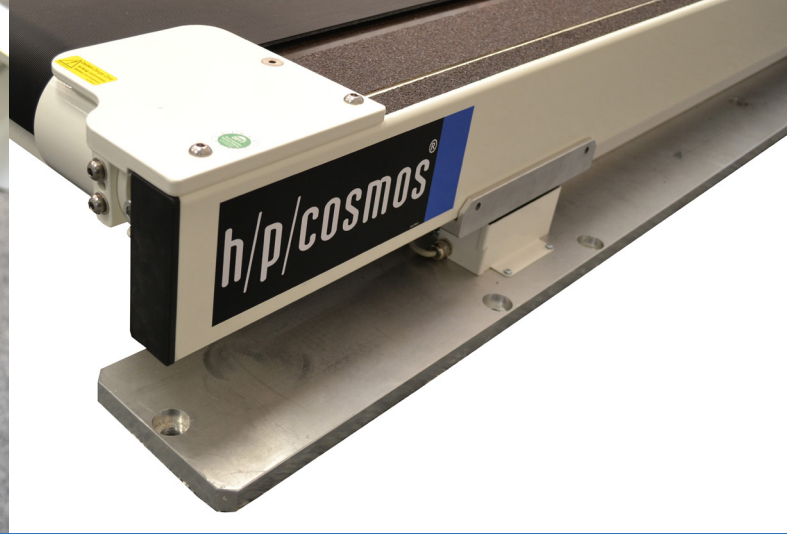F_z F_y M_z M_y M_x F_x

gait analysis

gaitway 3D

instrumented treadmill
for 3D gait analysis with 3 component force measurement
powered by

Arsalis

ahead of time®

Gaitway 3D

In summary, the new gaitway-3D is a joint design by h/p/cosmos and Arsalis. It measures the ground reaction forces and torques in three directions and comes in three different sizes: each size is optimized for a range of speeds.

The gaitway-3D offers a rigid construction to record optimal quality signals. The functionalities include a patient weighing scale, a recording of the ground reaction forces at rates up to 10 kHz, left and right force measurement for the vertical force during walking and an extensive list of biomechanical parameters of normal and pathological gaits.

The system also offers biofeedback for gait rehabilitation and performance training. The software is designed for Windows 7, 8, 10 and following. Automatic updates allow and easy expansion of the functionalities and customer support.

Applications

▮ Biomechanics
▮ Sports Science and Research
▮ Exercise training

Functionalities

▮ Online feedback to user (e.g. for training facilities)
▮ Data recording & analysis (e.g. for research facilities)
▮ Patient evaluation* (e.g. for clinical trial facilities)

Measured and computed signals

▮ 3D Force (F_z, F_y, F_x)
▮ Center of Pressure (Op_x, Op_y)
▮ Moments (M_x, M_y)
▮ Frictional Torque (T_z)
▮ Belt speed

Strengths	Opportunities
• Rugged treadmill construction	• Reduction of lab space
• State-of-the-art sensors	• Increasing technology in health sciences
• Single belt treadmill	• worldwide distribution network
• L/R vertical force decomposition algorithm	• fast and valid data acquisition in very short time
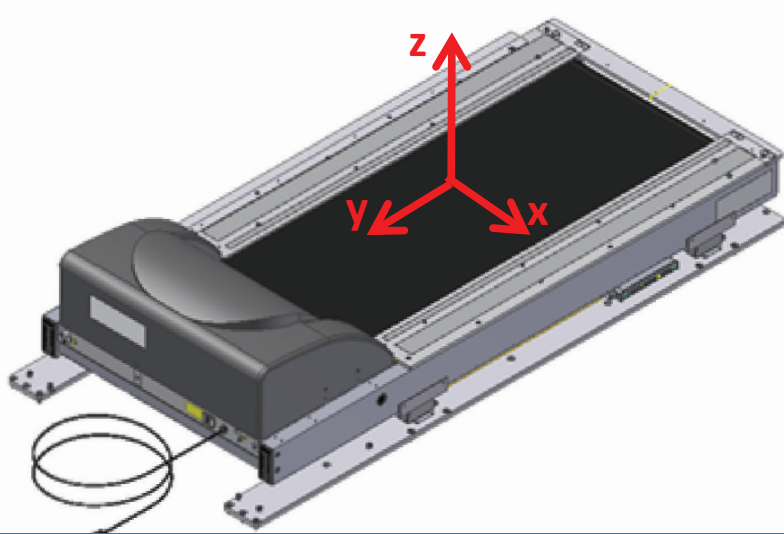
Biomechanical parameters

▐ Step length, width, frequency
▐ Swing / stance durations
▐ Contact / aerial durations
▐ Stride asymmetry
▐ Force peaks (push-off, landing)
▐ Force vector orientation
▐ Loading and unloading rate
▐ Left / Right foot for vertical force
▐ More biomechanical parameters

System performance Features

▐ Extremely wide measuring range
▐ Excellent measuring accuracy
▐ Built-in amplifier with acquisition system
▐ LAN connection
▐ Control & acquisition software included
▐ Start and stop trigger inputs and digital trigger output for integration with EMG and motion analysis systems
▐ Raw data accessible via interface
▐ Cost-effective
▐ Also available in economic 1 component ground reaction force Fz version incl. 25% inclination (h/p/cosmos treadmill gaitway III)

Software

We use two independent Software:
▐ para control®: h/p/cosmos controls the treadmill
▐ 3D-Force Plate software Arsalis: controls the force amplifier

Installation

The base frame will be bolted on the floor. Vibrations of the floor shall be avoided by preferring a location at ground floor without basement and in distance to roads wih heavy traffic or railway tracks. Vibrations of handrails and safety arch can be reduced by isolating these components from the main treadmill frame and mount them on a seperate frame.

Installation, commissioning, instruction, maintenance and repair work only to be conducted by h/p/cosmos trained and authorized personnel.
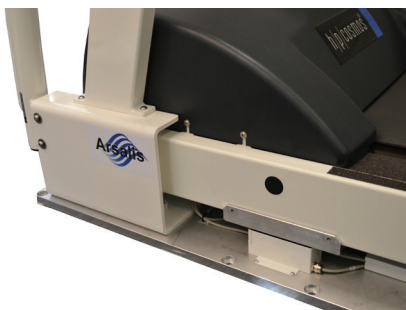
Overview

h/p/cosmos treadmill stratos® instrumented by Arsalis® is a system to measure the 3D ground reaction forces during locomotion. It is a full 3 component force and torque measurement system.

Basic treadmill model	h/p/cosmos stratos (other models on request)
Dimesions (L x W x H)	210 x 82 x 18 cm
Running surface (L x W)	150 x 50 cm (other sizes on request)
Speed range	0 ... 22.0 km/h (0 ... 6.1 m/s) (0 ... 13.6 mph)
Elevation	0% Not adjustable. Fix elevation on request.
Classification	scientific instrument device; *not for medical, not for therapeutic applications
Load range on sensors Fx, Fy, Fz	10 kN
Overload (sensors) Fx, Fy, Fz	15 kN
Interfaces	■ Built-in amplifier ■ Ethernet interface ■ Analog / Digital interface ■ Start & stop input triggers and one digital output trigger ■ Serial port RS232 (optional USB adapter) for treadmill control via coscom v3 interface
Accessories (extra charge)	■ Safety arch fall stop ■ detachable handrails ■ science port for raw speed data ■ airwalk® unweighting system ■ special speed ■ non reflecting powder coating ■ and many more