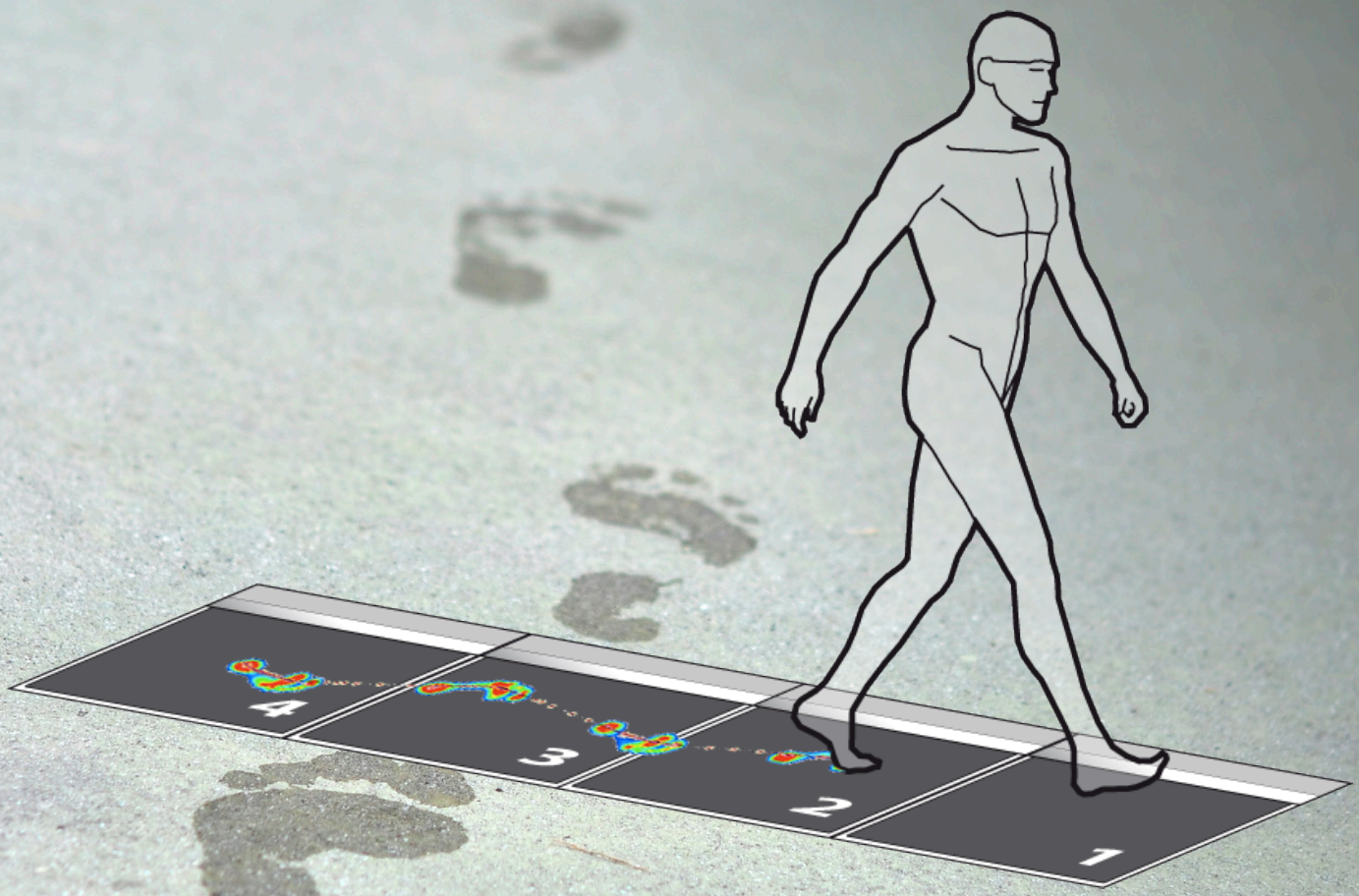
BTS P-WALK

Complete solution for the evaluation of plantar pressures and spatial-temporal gait parameters



BTS Biomedical

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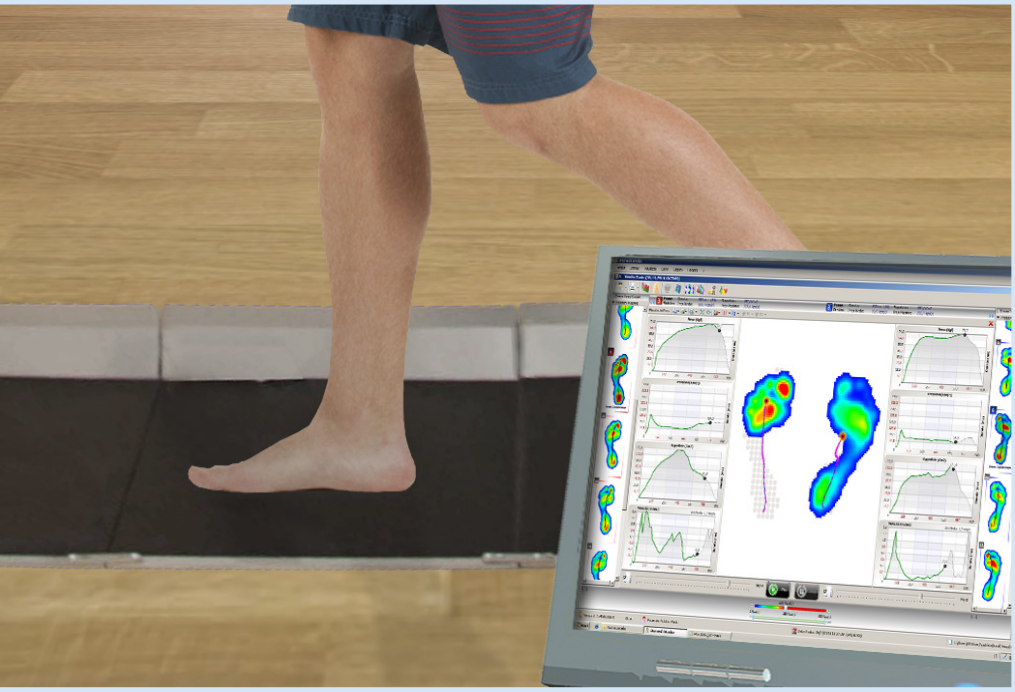
BTS P-WALK is the ideal solution to treat pathologies related to balance and gait disorders.

The system is composed by multiple pressure platforms that join in a sensorized walkway which allows a functional gait analysis, through the static and dynamic measurement of plantar pressures and step forces.
The system extrapolates from the data acquired all the spatial-temporal gait parameters required to perform a diagnosis or to define a training strategy.

BTS P-WALK is an intuitive and easy-to-use solution. The quick to execute tests that do not require any subject's preparation, together with the automatic report generation make BTS P-WALK suitable for a wide range of applications: prevention, diagnosis and follow-up of rehabilitative or pharmacological intervention.



Plantar pressures analysis
BTS P-WALK allows the evaluation of plantar pressures distribution and forces both, in static phase during the deambulation, providing quantitative information about the static and dynamic plantar support for the individualization of plantar overloads, rotations and postural asymmetries.

Spatial-temporal parameters analysis
The spatial-temporal gait parameters are a powerful and easy-to-use tool for the functional evaluation of neurological and orthopedic patients, allowing the objective analysis of motor capabilities and treatments results.

Stabilometric analysis
The stabilometric analysis allows the evaluation of the subject balance level by measuring the COP (center of pressure) position and the quantification of his postural oscillation while he is in standing position.
The stabilometric test performed with and without postural deprogramming (i.e. with opened and closed eyes) allows the evaluation of oculomotor, vestibular, occlusal and proprioceptive interferences.
If performed in monopodalic support, it allows the assessment of the proprioception of the osteo-joint apparatus.

Comparison with normative data
It includes normative data for an automatic comparison of acquired parameters with 'healthy' class allowing an immediate visual result showing the difference between the patient and the average.

Refundable exam
Reimbursement codes related to postural, balance and movement evaluation are included in the list of national health institutions, such as CPT in US, DRG in EU or NHS within UK. Institutes and healthcare practitioners affiliated with major medical insurance plans can have reimbursement provided for such exams.

Spatial-temporal gait parameters

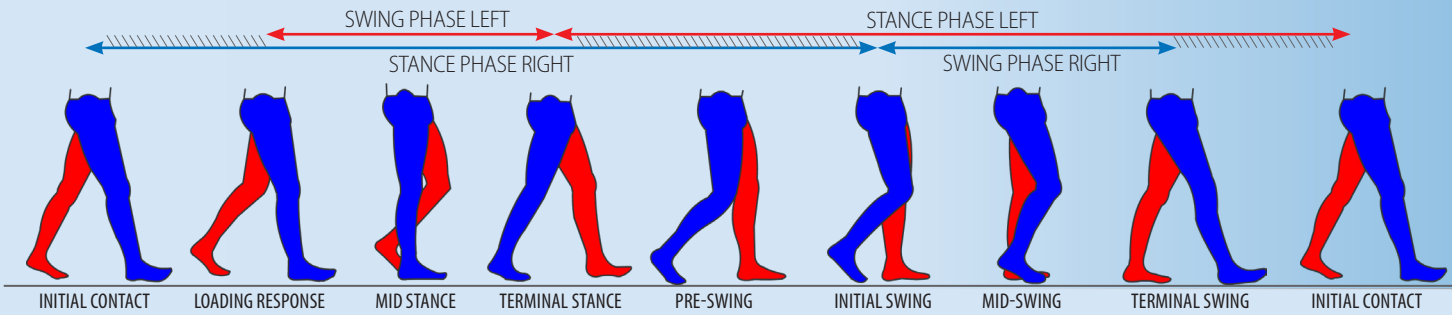
- speed,
- cadence,
- step length,
- stride length,
- step width,
- gait cycle duration,
- stance duration,
- swing,
- single and double support

They quantify:

- functional motor residuals of hemiplegic patients; the purpose is to plan a correct rehabilitation obtaining the best functional recovery with significant effects on everyday life;
- deambulation capacity in orthopedic patients to support the decision of surgical intervention and to evaluate the treatment efficacy (LCA reconstruction, knees arthroplasty, etc...);
- motor strategy changes in elder subjects to prevent injuries related to fall.

"When you cannot measure, when you can't express numbers, you've done small steps to the science stage, whatever it is".

ARISTOTELE



Applications and software features:

Application in neurologic field

The hemiparetic subject gait is characterized by reduction of speed, cadence and step length:

	NORMAL SUBJECT	HEMIPARETIC SUBJECT
SPEED	68.5+/- 6.7 m/min	44.0+/-22.9 m/min
CADENCE	102.8+/- 5 stps/min	84.8+/- 22.4 stps/min
STEP LENGTH	1.3+/- 0.1 m	1.1+/- 0.6 m

Moreover, there is an asymmetry in the different step phases and an increaseed energy expenditure.

Parkinson disease

Spatial-temporal gait parameters are indicators of rehabilitation treatment efficacy, especially the pharmacological one.
In fact it has been demonstrated in literature how the spatial parameters (as the step length) are for example DOPA-dependent, unlike the temporal parameters (such as stance and swing phase duration) that are DOPA-resistant.

Prevention of the fall risk in elder subjects

It has been demonstrated in literature that differences in mean values of some gait parameters, compared to reference values, such as reduced speed and stride length and increased double support time, are associated with fear of falling and are the result of an adaptation to a gait pattern that searches for a safer walking approach. But, when these parameters show short-term variability, verificable with measurement each 3 mounths, they become an indipendent predictive facor of falling.

Orthopedics application

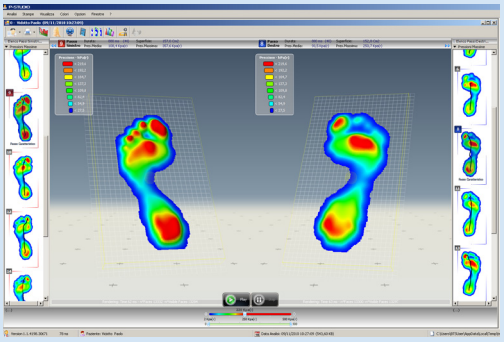
Gait parameters are adopted as useful information to plan the rehabilitation maximizing the functional recovery, preventing overloads of the prosthetic components and averting postural alterations and complications.
Moreover the gait parameters support the evaluation of the treatment of knee arthroplasty.

Diabetic foot

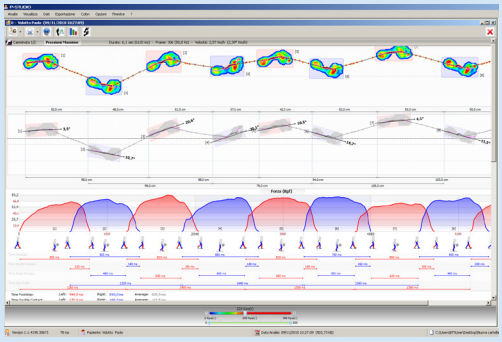
In diabetic patients with pheriferal neurophaties a plantar pressures analysis is fundamental to prevent or correct attitudes that will facilitate feet ulceration.

BTS P-STUDIO

Is an n easy-to-use but complete software for the analysis of plantar pressures and of spatial-temporal gait parameters.
It Includes normative data for all the acquired parameters.



Plantar pressuses analysis



Spatial-temporal parameters analysis

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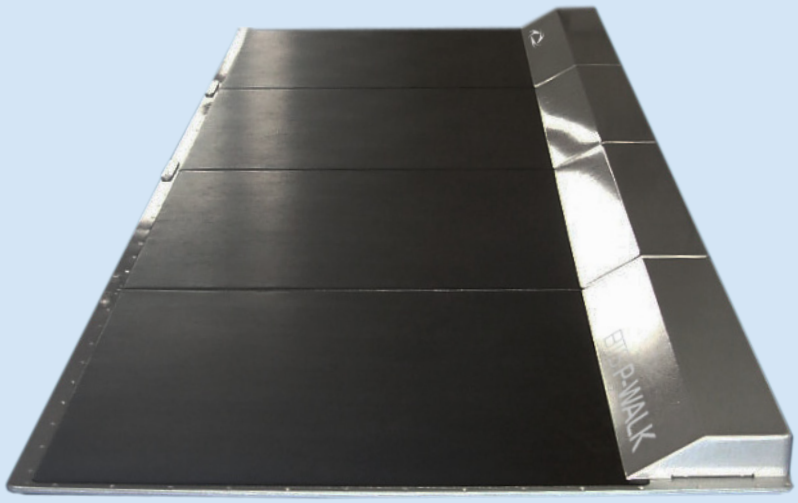
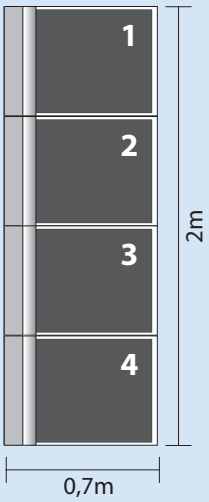


Components and accessories	Std. Equipment	Add-on
1 multiple pressure platforms system – 4 modules*	●	
Workstation		●
BTS P-STUDIO Software	●	
Multiple pressure platforms – 4 additional modules		●
Up to 2 webcam for video recording		●

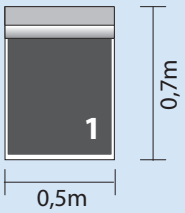
Supporto e training	
Installation, first training and activities start-up	●
Helpdesk - 3 months	●
Customer support all inclusive	●

Technical features**	
Dimensions	minimum size (single module) 700x500x5mm maximum size (standard configuration) 700x2000x5mm maximum size (with additional modules) 700x4000x5mm
Sensors Number	standard configuration 9.216 with additional modules 18.432
Sensors Type	resistive
Connectivity	USB2
Certification	CE

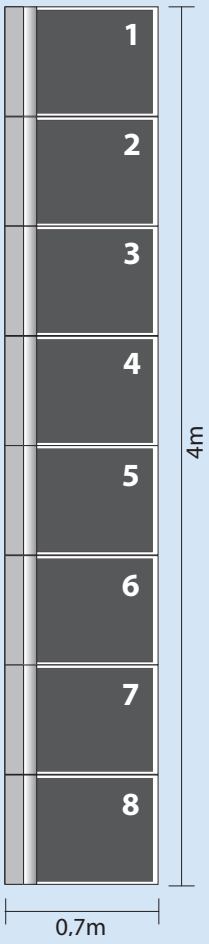
Standard Configuration



Single module



Add-on Modules Configuration



Configurations
BTS P-WALK is available in different configurations thanks to its modularity

*
Single module version available.

**
Technical specifications and components are subject to change without prior notice.

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