


Bertec[®] Fully Instrumented Treadmill v5 (FIT5) Product Details and Specifications

Fully Instrumented Treadmill Technical Specifications		
System Software	Bertec FIT5 Software	
Features	<ul style="list-style-type: none"> - Real-time data view graph - Data Collection at 1000 Hz sample rate - Data export to CSV file - Protocol builder for custom device playlists - Data capture via trigger from third party software such as Motion Capture - Remote Control API using Python 	
System Options	<ul style="list-style-type: none"> - Incline base - Instrumented Handrails - Overhead Support Structure 	
Force Accuracy, % Applied Load	0.210 ± 0.117	
Crosstalk, % Applied Load	Fx in Fz:	0.126 ± 0.071
	Fy in Fz:	0.102 ± 0.053
COP Accuracy, mm (in)	COPx:	0.844 ± 0.448 (.033 ± 0.017)
	COPy:	0.891 ± 0.545 (.035 ± 0.021)
Data Output Method	Analog via BNC/Bare wire Digital via USB	
Data Output Rate, Hz	1000	
Max Load, N (lb) (per treadmill belt)	Fx:	2,500 (550)
	Fy:	2,500 (550)
	Fz:	5,000 (1,100)
Max Moment, Nm (lb-ft) (per treadmill belt)	Mx:	4,000 (3000)
	My:	2,000 (1,500)
	Mz:	2,000 (1,500)

Fully Instrumented Treadmill Technical Specifications		
Natural Frequency, Hz	Standard	Fx: 75 Fy: 70 Fz: 170
	Incline	Fx: 30 @ 0 deg incline, 15 @ 10 deg incline Fy: 50 Fz: 80
Instrumented Treadmill System Weight, kg (lb)	Standard	483 (1,065)
	Incline	827 (1,825)
Treadmill Dimensions (L x W x H) m, (in)	Standard	2.05 x 1.39 x 0.39 (81.1 x 54.6 x 15.3)
	Incline	2.05 x 1.39 x 0.62 (81.1 x 54.6 x 24.3)
Treadmill Step Height, m (in)	Standard	0.39 (15.3)
	Incline	0.62 (24.3)
Total Height of Treadmill w/ Support Structure, m (in)	Standard	2.57 (101.2)
	Incline	2.80 (110.2)
Speed Range, m/s (mph)	0-11.5 (25)	
Acceleration, m/s ² (ft/s ²)	0-25 (0-82)	
Number of Belts	2	
Size of Belts, m (in) per belt	1.75 x 0.5 (70 x 20)	
Size of walking surface	1.75 x 1.0 (70 x 40)	
*Incline Angle Range (deg)	0-15	
*Incline Speed	Variable, 25s duration for max 0-15deg motion	
Power Consumption	North America	208V 3phase, 30amp max
	International	400V 3phase, 15amp max
Heat Output, BTU/hr	Nominal	11,000
	Max	20,000
Regulatory Standards Met	IEC 61010-1 Safety IEC 61326-1 EMC	
Motor Specs	Beckhoff Automation Type Continuous Torque Peak Torque Stall Torque	Permanent Magnet Servomotor 6.5 Nm 74.2 Nm 21.1 Nm

* Optional

Main Components	Product Image	Features
Instrumented Treadmill		<ul style="list-style-type: none"> – Bertec FIT consists of two parallel 0.5m (20") wide treads – Each tread contains an embedded 6-component force plate – Each tread is controlled separately
Amplifier		<ul style="list-style-type: none"> – Dual output amplifier (Digital – USB, Analog – BNC/Bare wire) – AM6800 able to be digitally synchronized among themselves – external input for triggered data collection
Electronics Control Cabinet		<ul style="list-style-type: none"> – The cabinet houses the power electronics, motor drive units, and safety circuitry – Locking door for safety – The cabinet is connected to a PC via an ethernet cable – Isolates Electrical noise away from sensitive data circuitry
Overhead Support Structure		<ul style="list-style-type: none"> – Ensures subject safety using a harness attached to the structure – Users can be comfortable and confident during testing – Load rated up to 272kg (600lbs)
Safety Harness		<ul style="list-style-type: none"> – Available in 3 sizes: S, M, L – Max weight: S – 45 kg (100lbs), M – 136 kg (300lbs), L – 204kg (450lbs)
Incline Base		<ul style="list-style-type: none"> – Up to 15 degrees of pitch – Uphill and downhill movements (facing rear of treadmill)
Instrumented Handrails		<ul style="list-style-type: none"> – Measures 3 component forces applied to each handrail (Fx, Fy, Fz) – Independent measurement of left and right handrails – 225kg (500lb) capacity

Main Components	Product Image	Features
E-Stop		<ul style="list-style-type: none"> – Emergency stop button tethered to the controlled cabinet – Prevents further belt or incline movement when pressed until system is re-enabled – Uses dedicated hardware safety circuitry for dependability – Up to 2 E-Stops can be used for additional subject safety

Power Requirements

System must have a dedicated outlet/power source.

Location	Voltage/Phase (V)	Current Phase (A)	Frequency	Plug on Treadmill
North America	208±10%	30 A	60 Hz	15-50P
Japan	200±10%	30 A	50/60 Hz	15-50P
Rest of World	400±10%	15 A	50 Hz	532P6W

Operating Environment

These systems are suitable for use in the patient environment.

Temperature: +15° C to +35° C (+59° F to +95° F)

Rel. Humidity: 30 to 90%, non-condensing

Air Pressure: 600 hPa to 1060 hPa

Operations at temperatures below -20° C (-4° F) or above +60° C (+140° F) may cause damage

Operating Mode

Warm-up time: 30 minutes

Mode of Operation: Continuous

Shipping Information

Package Quantity: 4 crates
Package Dimensions - L x W x H - Weight:

(2x) Treadmill Crate - 2.15 x 0.67 x 0.1 m (85" x 27" x 24") - 225kg (500lbs) each

(1x) Incline Crate - 1.6 x 1.6 x 0.84 m (63" x 63" x 33") - 450kg (1000lbs)

(1x) Treadmill Electronics Crate - 1.32 x 0.97 x 0.76 m (52" x 38" x 30") - 180kg (400lbs)

Standards

Safety: IEC 61010-1;
EMC: IEC 61326-1

Storage and Handling

Temperature: -20° C (-4° F) or above +60° C (+140° F)

Rel. Humidity: <90%, non-condensing

Air Pressure: 500 hPa to 1060 hPa

Installation Information

Installed on site by Bertec Technicians

Can be installed ground mounted, or in pit for flush mounting with flooring surface. Contact Bertec for more information on site preparation.

Power Requirements: Dedicated Power Outlet or Hardwired to Electrical Panel

All doorways and elevators must be at least 0.9m (35") wide.

User Manual provided (translated)

Quick Start Guide provided (English)

Training Videos available online (English)

