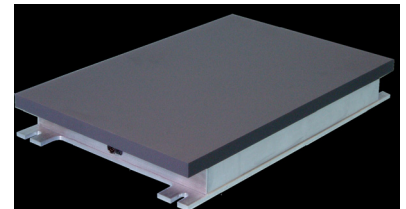


## 3D-FORCE PLATES

**Bertec Corporation's** line of high tech 3D force plates and instrumented tread mills are designed to meet any application. They are one of the main measurement components of biomechanical or gait labs. The product range is from 3D force plates to treadmills with two separate belts to guarantee the accurate acquisition of all vertical and shear forces in gait and walking. One of **Bertec's** unique features is providing the customer with almost any kind of customized solution like 4-belt-treadmills with integrated force plates for diverse veterinarian applications or miniature and over size plates for studies with mice or horses.

### 3D- Ground reaction force plates for clinical, sports science and veterinarian gait and jump analyses

- **Bertec** force plates are perfectly designed for gait analysis, rehabilitation of stroke patients, orthopaedic patients, wearers of prostheses and all patients with muscular or movement dysfunctions.
- **Bertec's** product line comprises very robust models designed for heavy workloads (measurement range up to 20 kN) or highly strained use in sports medicine, sprinting or jump training or in rehabilitation of severe injuries.
- **Bertec** force plates are ideal in the area of research with animals. For the measurement of horses, cattle, pigs, dogs, cats, rats or birds the force plate will be adapted to the individual requirements and will therefore be custom made.
- All force plates are compatible with all major 3D kinematic systems. A highly efficient but easy to use software enables the acquisition of digital data and the direct conversion into common file formats.
- The high class processing and quality of **Bertec** force plates is guaranteed by a 7 year warranty including all additionally connected electronic devices.
- **Bertec** is the sole manufacturer to guarantee a cross-talk free measurement with only 6 constant calibration factors due to an internally integrated calibration matrix. Drifting and re-calibration during measurements will be eliminated. This extremely simplifies the connection to e.g. 3D kinematic systems.



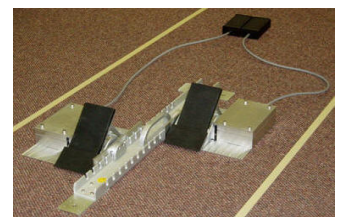
Standard force plate for gait analysis



Special dual-plate for small animals

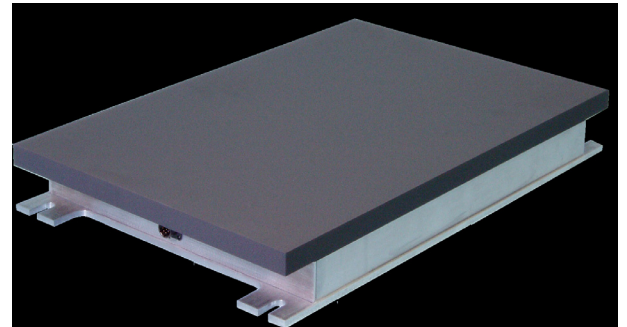


Miniature platform for veterinarian medicine

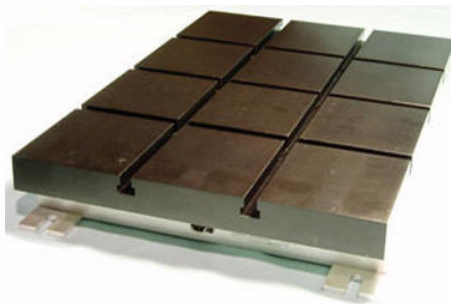


Instrumented sprint starting blocks

## Technical Specifications:



- Completely drift-free, highly accurate strain gage technology for measurement of X-, Y-, Z- forces and momentum.
- High-precision detection due to integrated A/D-conversion.
- Excellent resolution and range with natural frequency up to 850 Hz
- Multiple output options due to diverse amplifier technology
- Analog and/or digital output options with the choice for 4 different amplifying factors.
- **Bertec** utilizes a digital pre-amplifier system which is not susceptible to transmission noises. Therefore the use of longer than standard cables is possible without introducing error due to external noise.
- No overlapping of channels guarantees ideal genuine collection of data.
- Bertec is the only force plate manufacturer to offer top mounting capabilities in the force plates which allows for the mounting of force plates into floor recess with no clearance around the edges. This allows the clients to install the force plates with the fewest changes to the physical environment and incur the lowest possible installation costs.
- Simplified calibration due to entry of only one calibration factor per measuring dimension.
- All models possess an extremely high natural frequency (up to 850 Hz depending on the model)



Customized solution with milled mounting notch for additional accessories

- Standard feature is a honeycomb technology aluminum top (thickness: 2,5 cm)
- Seamless mounting into the ground due to special mounting plate.
- Complete compatibility with all 3D kinematic- and NORAXON telemetry-systems
- No maintenance required, therefore 7 years of warranty

## Instrumented Treadmill with integrated Force Plates

The main advantage of instrumented treadmills is the simple performance of gait and walking analyses if space conditions are too small. A long course for walking is not necessary any more as well as numerous repetitions of the measuring to detect valid double steps. The continuous recording of gait double steps allows the automation of gait sequences and simplifies the integration of 3D kinematic systems.

Operating two independant belts simultaneously as well as two separate force plates the customer is able to measure and analyze 3-dimensional ground reaction forces of both legs, right and left separately. This is the basis for biomechanical modelling as for e.g. inverse dynamics.



Standard model with 2 belts and 2 6-dimensional force plates

## Technical Specifications

- 2 independantly operated belts with approx. 170 x 40 cm walking area per belt
- 2 independant, 6-dimensional **Bertec** high quality force plates
- Range: 5000 N vertical and 2500 N horizontal
- Belt friction forces are eliminated due to Bertecs' high-end construction.
- Analog und digital outputs with optional amplification factors
- Belt speed freely adjustable between 0 and 24 Km/h as well as change of direction
- Adjustable and removable handrails
- Option: Lifting/securing of patients
- Optional: Belt inclination up to 15°



Optional: integrated belt inclination

## Customized Solutions

For veterinarian applications **Bertec** provides customized solutions for any requirements:

- Miniature treadmills for very small animals
- 4-band-/4-force-plate-models for quadrupeds
- Oversize treadmills for horses, cows etc.



Customized solution: model for quadrupeds

## Specifications for Standard Models FP4060 – 07-1000/2000

Parameter	07 - 1000 Specifications				07 - 2000 Specifications			
	English Units		S.I Units		English Units		S.I Units	
	Value	Units	Value	Units	Value	Units	Value	Units
Width (x)	15.75	in	400	mm	15.75	in	400	mm
Length (y)	23.62	in	600	mm	23.62	in	600	mm
Height	2.95	in	75	mm	2.95	in	75	mm
Mass	90	lb	40	kg	90	lb	40	Kg
Fx, Fy Load Capacity	500	lb	2500	N	1000	lb	5000	N
Fz Load Capacity *	1000	lb	5000	N	2000	lb	10000	N
Fx, Fy Overload Capacity (50%FSO)	750	lb	3750	N	1500	lb	7500	N
Fz Overload Capacity (50%FSO)	1500	lb	7500	N	3000	lb	15000	N
Mx Capacity	11500	lb-in	1500	N-m	23500	lb-in	3000	N-m
My Capacity	7500	lb-in	1000	N-m	15500	lb-in	2000	N-m
Mz Capacity	5500	lb-in	750	N-m	11500	lb-in	1500	N-m
Mx Overload Capacity	17500	lb-in	2250	N-m	35000	lb-in	4500	N-m
My Overload Capacity	11500	lb-in	1500	N-m	23500	lb-in	3000	N-m
Mz Overload Capacity	8500	lb-in	1125	N-m	17500	lb-in	2250	N-m
Fx, Fy Natural Frequency	550	Hz	550	Hz	550	Hz	550	Hz
Fz Natural Frequency	350	Hz	340	Hz	350	Hz	340	Hz
Fx, Fy Sensitivity	0.10	lb / mV	0.44	N / mV	0.20	lb / mV	0.89	N / mV
Fz Sensitivity	0.20	lb / mV	0.89	N / mV	0.40	lb / mV	1.78	N / mV
Mx Sensitivity	2.36	lb-in / mV	0.27	N-m / mV	4.72	lb-in / mV	0.53	N-m / mV
My Sensitivity	1.58	lb-in / mV	0.18	N-m / mV	3.15	lb-in / mV	0.36	N-m / mV
Mz Sensitivity	1.18	lb-in / mV	0.13	N-m / mV	2.36	lb-in / mV	0.27	N-m / mV
Crosstalk Fx -- Fy	0	% (**)	0	% (**)	0	% (**)	0	% (**)
Crosstalk Fx, Fy -- Fz	0	% (**)	0	% (**)	0	% (**)	0	% (**)
Crosstalk Fz -- Fx, Fy	0	% (**)	0	% (**)	0	% (**)	0	% (**)
Linearity	+/- 0.2	%FSO	+/- 0.2	%FSO	+/- 0.2	%FSO	+/- 0.2	%FSO
Hysteresis	+/- 0.2	%FSO	+/- 0.2	%FSO	+/- 0.2	%FSO	+/- 0.2	%FSO
Center of Pressure Error - CoPx, CoPy	+/- 0.04	in	+/- 1.0	mm	+/- 0.04	in	+/- 1.0	mm

(\*) Load Capacity can be customized (\*\*) Crosstalk is internally corrected

The 4060-07 model comes standard with a solid 1" thick Aluminum top.

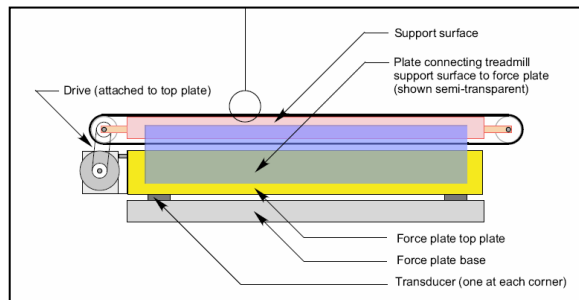
All Bertec plates have excellent Resolution.



Bertec balance plates have **no Crosstalk**, which results in **true readings**.



The 4060-07 model has higher **Natural Frequency** than AMTI to meet your clinical and research demands.



Artefact free measurements due to special construction