



HEADSAFE IMPACT TESTER

Headform for Recreational Surface Testing

Buyer's Guide





HeadSAFE Impact Tester (HIT) Field Kit

HIT Headform and TSR PRO-HB, 500 g (rechargeable)

Case

Tripod hoist, 500 lb capacity

Electromagnetic release for HeadSAFE Impact Tester (HIT)

Leveling rod, rectangular, fiberglass; 16" L (Specify US or Metric)

TSR Control Software

Cable, TSR: DB15M to USB (1 m)

Tile, rubber playground surface





HeadSAFE Impact Tester (HIT) Field Kit , No Tripod

HIT Headform and TSR PRO-HB, 500 g (rechargeable)

Case

Electromagnetic release for HeadSAFE Impact Tester (HIT)

Leveling rod, rectangular, fiberglass; 16" L (Specify US or Metric)

TSR Control Software

USB Cable

Tile, rubber playground surface





HeadSAFE Impact Tester (HIT)

HIT Headform and TSR PRO-HB, 500 g (rechargeable)

Case

TSR Control Software

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Tile, rubber playground surface





HIT KIT OPTIONS

	HIT Field Kit with Tripod	HIT Field Kit without Tripod	HIT
HIT Headform and TSR PRO-HB, 500 g (rechargeable)	•	•	•
USB Cable	•	•	•
TSR Control Software	•	•	•
Pelican Case	•	•	•
Playground Surface	•	•	•
Leveling Rod	•	•	
Magnetic Release	•		
Tripod	•		



COMPETITOR COMPARISON

	HeadSAFE Impact Tester	Competitor
ASTM F1292 Compliant	•	•
EN 1177 Compliant	•	•
AS 4422 Compliant	•	•
Calculates HIC Score, GMax, Impact Velocity & Fall Height	•	•
Sensor Type	Piezoresistive* (DC-response)	Piezoelectric**
Software generated ASTM/EN/AS compliant reports	•	•
Cable-Free	•	•
ASTM Compliant 14 ft tripod	•	•
Field Kit	Magnetic Release w/ remote Tripod Reference Mat Leveling Rod Case Software	Handheld Control Unit Tripod Reference Mat Leveling Rod Case Software

*Piezoresistive accelerometers measure down to zero hertz so they can also be used to accurately calculate velocity or displacement information . Meets SAE J211 requirement for HIC calculations.

**AC coupled, not recommended for applications where velocity and displacement data are needed. Does not measure static accelerations and generally can't measure vibrations below a few hertz.



SENSOR COMPARISON

	Competitor (Piezoelectric)	DTS (Piezoresistive)
Drop 1 - Impact Velocity (m/s)	19.7	19.6
Drop 2 - Impact Velocity (m/s)	19.7	19.6
Drop 3 - Impact Velocity (m/s)	19.7	19.6
Drop 1 - Gmax (G)	162	156.5
Drop 2 - Gmax (G)	166	161.3
Drop 3 - Gmax (G)	161	162.3
Drop 1 - HIC	976	904.3
Drop 2 - HIC	1003	913.3
Drop 3 - HIC	955	924.9
Min HIC	955	904.3
Max HIC	1003	924.9
HIC Deviation	24.06	10.33
HIC Max-Min Spread	48	20.6

- Two common sensor technologies used in playground surface safety measurement:
 - Piezoelectric Accelerometers:** AC-response sensors useful for measuring higher frequency vibration.
 - Piezoresistive Accelerometers:** DC-response sensors useful for measuring shock events, especially where integration to velocity is important.
- Competitor uses **Piezoelectric** sensors which have inherent problems:
 - No DC response. SAE J211 requires DC response for calculation of HIC values.
 - While peak acceleration can be accurately and consistently measured, integrated velocity measurements are inconsistent due to hysteresis of piezo-electric accelerometers in high negative jerk (change in acceleration) environments.
- DTS HeadSAFE Impact Tester uses **Piezoresistive** Sensors:
 - Designed for shock and acceleration measurement, 100% compliant with SAE J211 HIC requirements for DC response.
 - Engineered based on over 25 years of experience in crash safety and biomechanics testing.
 - Delivers tighter, more reliable measurements for playground surface evaluation.