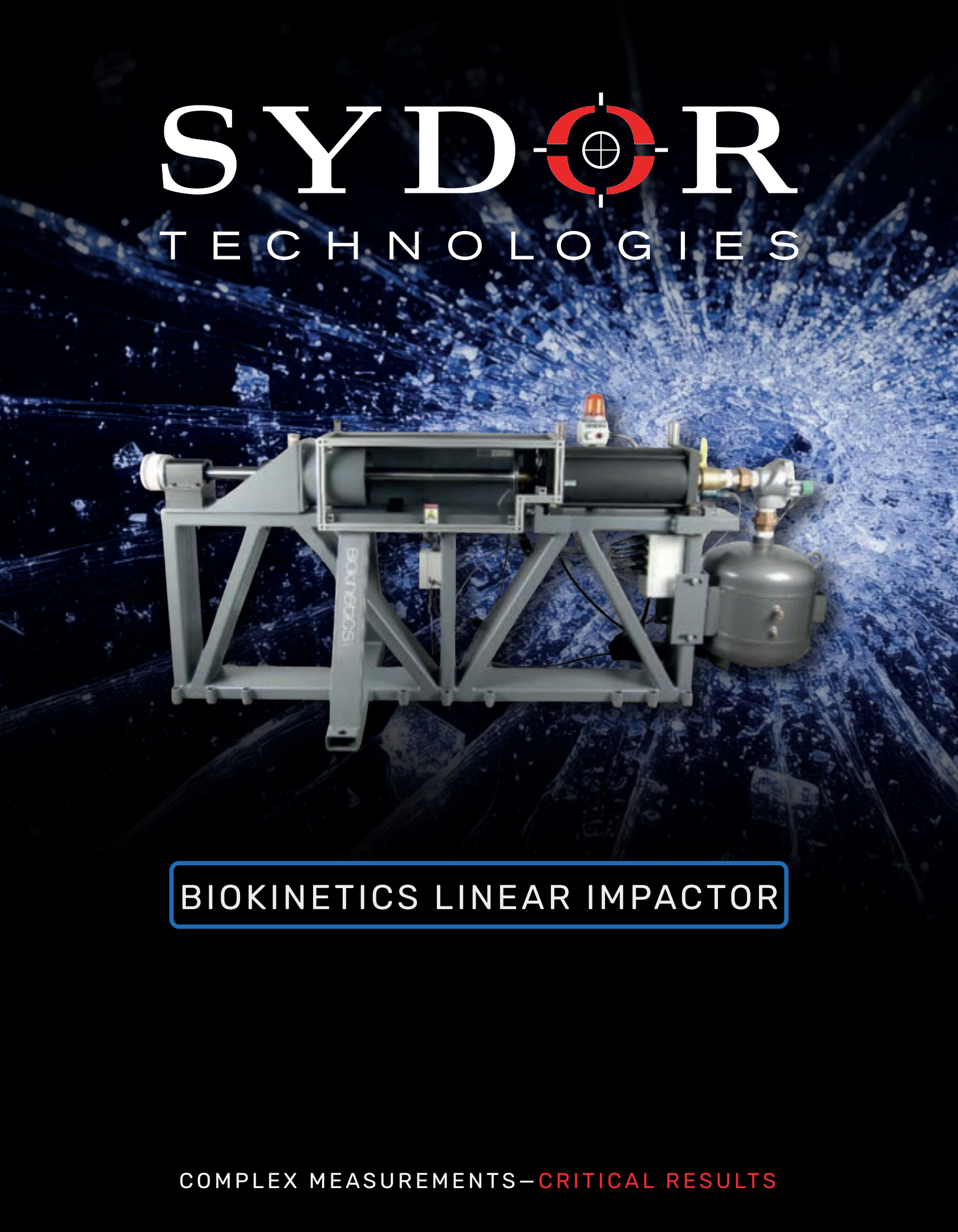
SYDOR TECHNOLOGIES



BIOKINETICS LINEAR IMPACTOR

COMPLEX MEASUREMENTS—CRITICAL RESULTS

FEATURES

- Remote velocity control panel that spans 3-13 m/s
- 5-axis adjustable target table with translation section and vertical, lateral, and tilt adjustments
- Compatible with a variety of headforms
- Meets NFL Linear Impactor and NOCSAE Pneumatic Ram (ND-081) football helmet test protocols

APPLICATIONS

- Helmet Performance Assessment
- Body Padding Performance Assessment

ABOUT THE BIOKINETICS LINEAR IMPACTOR

The linear impactor was originally designed to simulate head-to-head collision between two NFL football players as a means of evaluating helmet effectiveness. While helmet tests are traditionally done using drop towers, the extreme closing speeds of player-to-player hits makes a drop test not feasible. The helmet being evaluated is positioned on the test headform, typically a Hybrid III automotive head and neck, instrumented to record linear and angular head acceleration as well as upper neck forces and torques.

The machine is charged with a pre-determined set pressure to achieve a desired speed and the impact ram is propelled into the helmeted headform. The advantage of this system is that the headform is free to deflect and rebound in a natural way to study complete head kinematics.

This system has been demonstrated to be both repeatable and reliable and is adaptable to other situations where bodily impacts are desired in the 5-13 m/s range. The impacting face may be replaced with other rigid or semi-rigid surfaces to simulate a broad range of impact conditions. The headform may be replaced with other parts of a test mannequin or perhaps a dedicated torso membrane. This machine has been used to evaluate everything from football helmets to passenger bus window glazing in rollover situations.

PRODUCT SPECIFICATIONS

- Impact Energy: < 1200 J
- Impact Speed: < 13 m/s ± 0.1 m/s
- Impactor Mass: 14 kg
- Velocity Gate: Dual beam fiber optic
- Operating Pressure: < 125 psi
- Air Flow: < 20 l/m (0.7 cfm)
- Pressure Vessel: 57 liters (15 gallons)
- Linear Impactor + Table Dimensions: W 4000 x D 940 x H 1040 mm
- Linear Impactor + Table Weight: 570 kg
- Target Table + Headform Dimensions: W 1350 x D 915 x H 1220 mm
- Target Table + Headform Weight: 115 kg
- Electrical: 120 VAC @ 60 Hz / 240 VAC @ 50 Hz, 800 W max
- Warranty: 1 year limited

Biokinetics

Sydor Technologies is a proud distributor for Biokinetics

COMPLEX MEASUREMENTS—CRITICAL RESULTS