# *GRIP*™ SYSTEM

## tactile grip force & pressure measurement

The *Grip* system measures and evaluates static and dynamic pressures from grasping objects. The system provides detailed pressure profiles, forces, and graphical displays for quantitative analysis of various haptic applications. Whether used to improve design for a more ergonomically sound product, study carpal tunnel and repetitive motion syndrome, or analyze the human hold on various tools and sports equipment, the *Grip* system is an ideal tool for pressure and force measurement.

The *Grip* system uses a thin, high-resolution sensor that can be used directly on a hand or built into a glove. With one Cuff either the right or left hand can be studied. With two Cuffs, both hands can be measured simultaneously. Each sensor has eighteen sensing regions that can be individually positioned over important anatomic sections of the fingers and palm. Gaps between the sensing areas allow the joints to be avoided, move freely, and not interfere with grip measurement. Each sensing region has multiple sensing elements (sensels) for localized identification of pressure points on the hand.
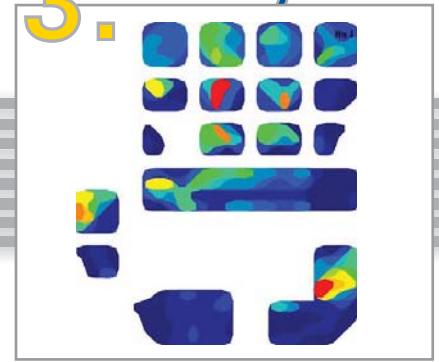
## 1. Connect
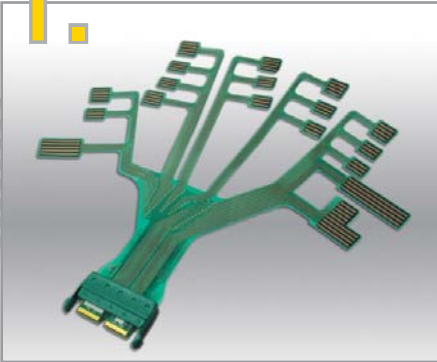


## 2. Capture



## 3. Analyze



## KEY FEATURES

- Simultaneous measurement of left and right hands
- High scanning rates of up to 750 Hz (tethered version)
- Numerous independent sensing elements for localized detection of pressure points
- One subject can grip several objects, in many ways once the hand is instrumented
- Detection of peak pressure areas
- Paper-thin sensor does not affect the grip "feel"
- Sensors are durable and reusable

## APPLICATIONS

- Ergonomics
    - Vibration Studies
    - Carpal tunnel syndrome
    - Heavy lifting
- Improve product design
    - Consumer goods
    - For the elderly and physically disabled
- Analyze grip in sports applications
    - Baseball bat
    - Golf club
    - Tennis racquet
- Robotics

# KEY SOFTWARE FEATURES

- Display real-time and recorded data as 2-D and 3-D images
- Capture dynamic pressure events
- Play-back pressure "movies"
- Display data frame-by-frame
- Graph and analyze real-time or stored data (Pressure, Force, Area)
- Isolate, compare and analyze data from different locations on the sensor
- Display Center of Force and its trajectory
- Display peak pressure image
- View and compare multiple test results simultaneously
- Ability to attach a digital image to each frame of a Tekscan movie
- Export data files in ASCII format
- Save data files as AVI movies
- Available in several languages including English, French, Spanish, German and more. Contact us for a full list.
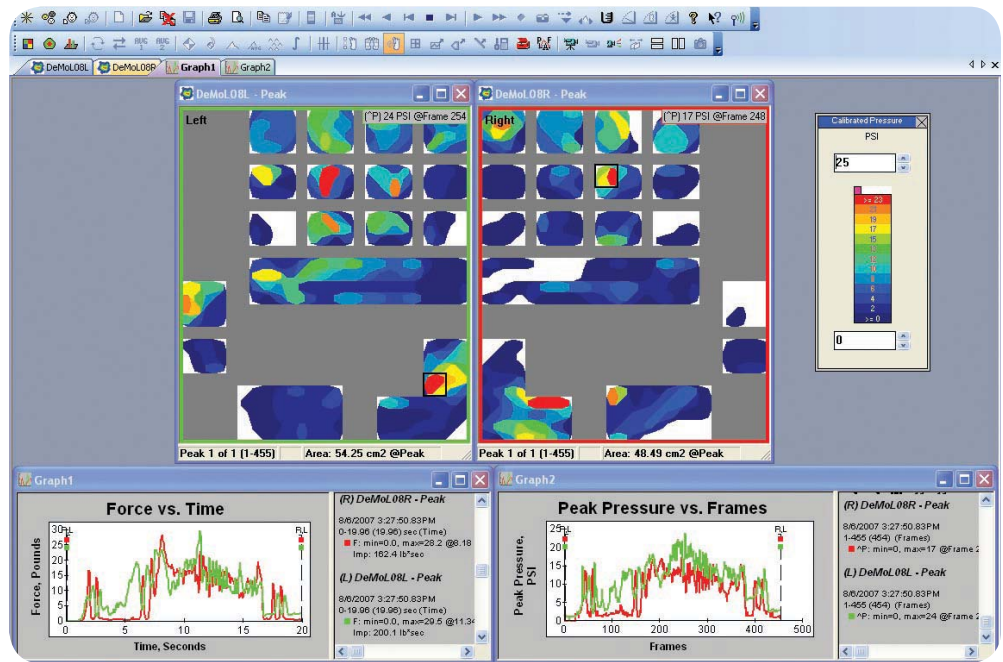


Example of grip pressure data while subject operated an industrial floor polisher

## Grip Sensor Specifications

| | |
|---|---|
| Sensor Technology | Resistive |
| Pressure Range | 0-50 psi |
| Sensor Thickness | 0.15 mm (0.007 in.) |
| Sensel Density | 6.2 sensels per square centimeter (40.0 sensels per square inch) |
| Sensing Area | 5 independent fingers, each containing multiple sensing regions (18 regions total) |
| No. of Sensing Elements | 349 |

# CONNECTION TYPES

The *Grip* system is available tethered, or untethered for increased mobility and range of measurement. Your intended application will determine which connection type is best suited for your requirements.

## System Specifications

| Connection Type | Tethered | Wireless | Datalogger |
|---|---|---|---|
| Scan Speed | Up to 750 Hz | Up to 200 Hz | Up to 600 Hz |
| Maximum Distance | Up to 100 ft (30.5 m) | Up to 328 ft (100 m) | Unlimited |

## Tekscan

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