

TACTILE PRESSURE INDICATING SENSOR FILM

APPLICATIONS IN THE AUTOMOTIVE SECTOR

Engine Area

Valve cover gasket

- ▶ Inspect sealing performance of valve cover gaskets

Air filter/Oil filter

- ▶ Observe contact pressure of filter part attachments

Gasket/O-ring

- ▶ Measure sealing performance of gaskets, seals, and O-rings in the exhaust manifold

Head gasket

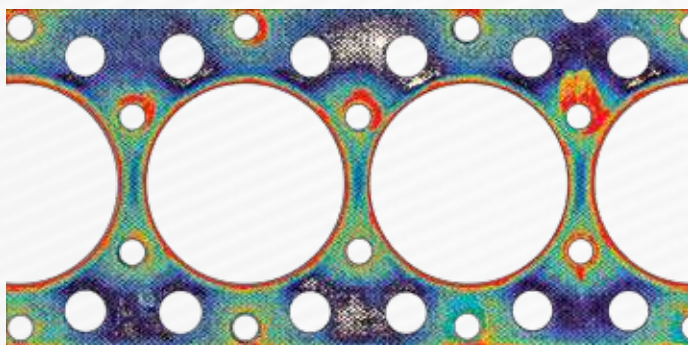
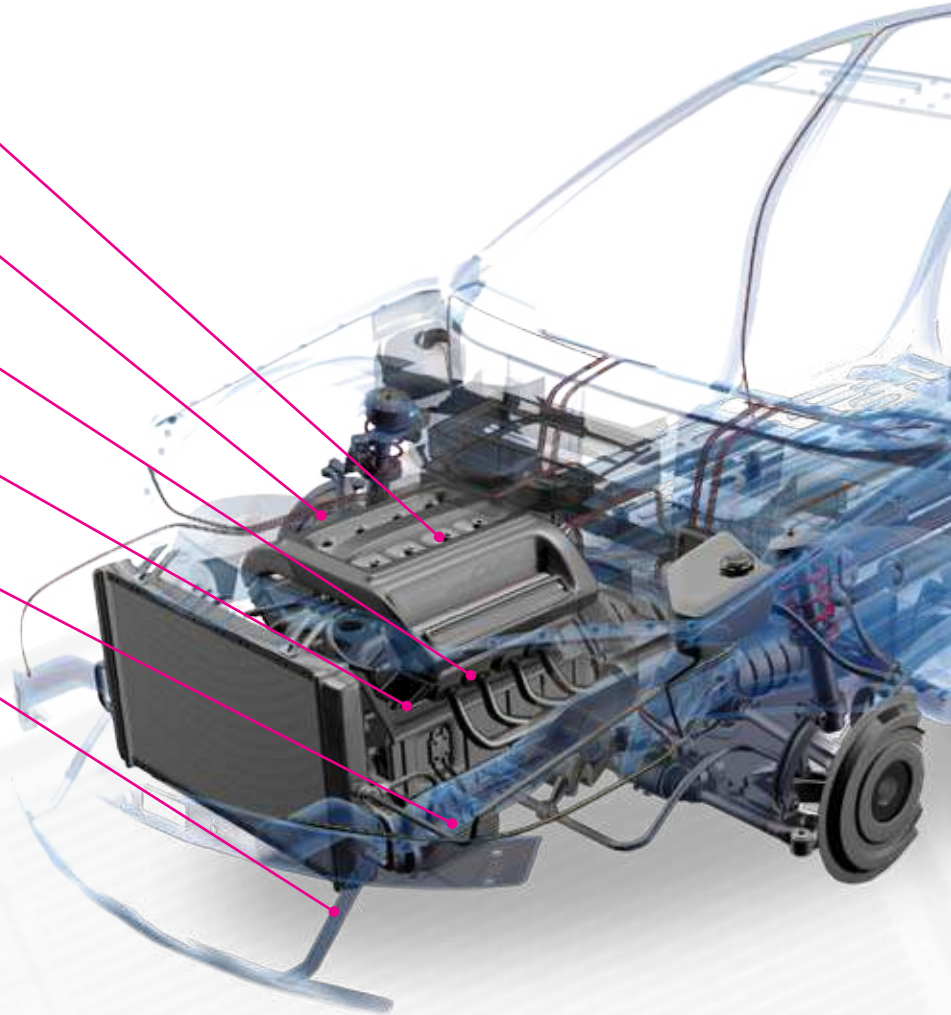
- ▶ Inspect sealing performance of cylinder head gaskets

Oil pan

- ▶ Ensure uniform seal across oil pan

Chassis

- ▶ Measure contact pressure and distribution uniformity during spot welding



Surface Pressure Profile Map of Head Gasket

Electronics

LCD Display

- ▶ Measure contact pressure of ACF bonding machine for LCD panel or touch panel
- ▶ Check roller pressure uniformity when attaching cover glass/OCA to touch panel

PCB & Heat Sinks

- ▶ Measure lamination pressure during manufacture of PCB
- ▶ Evaluate heat sink/heat source interface contact pressures

Windshield Wiper

- ▶ Measure contact pressure and distribution of wiper blade against windshield

Clutch

- ▶ Measure contact pressure and distribution of clutch plates
- ▶ Evaluate sealing performance of clutch cover

Brake

- ▶ Measure contact pressure and distribution of brake shoe against rotor

Transmission

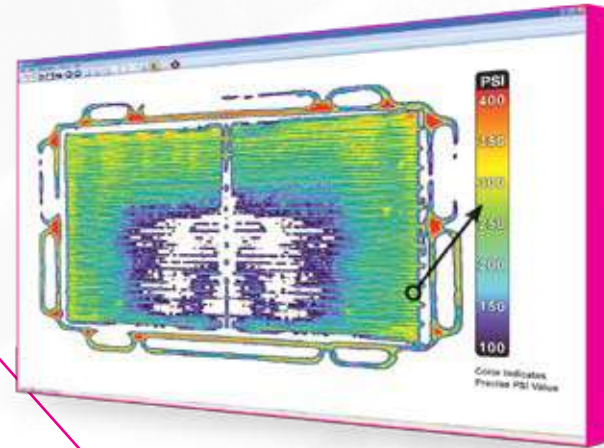
- ▶ Measure contact pressure between gear teeth
- ▶ Evaluate gasket and o-ring seals

Plastic parts (Bumper, Dashboard, etc.)

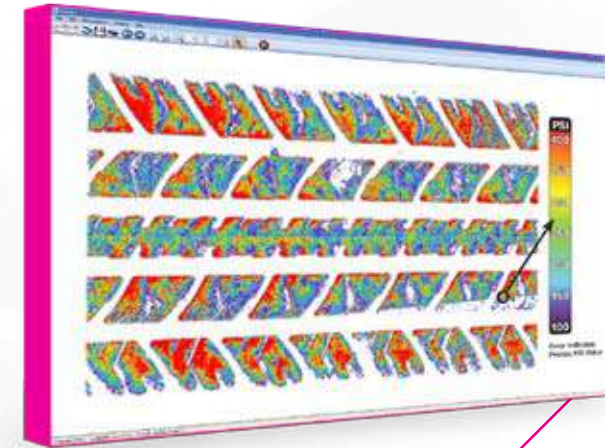
- ▶ Measure contact pressure and distribution of mold platens during injection molding process

Headlight

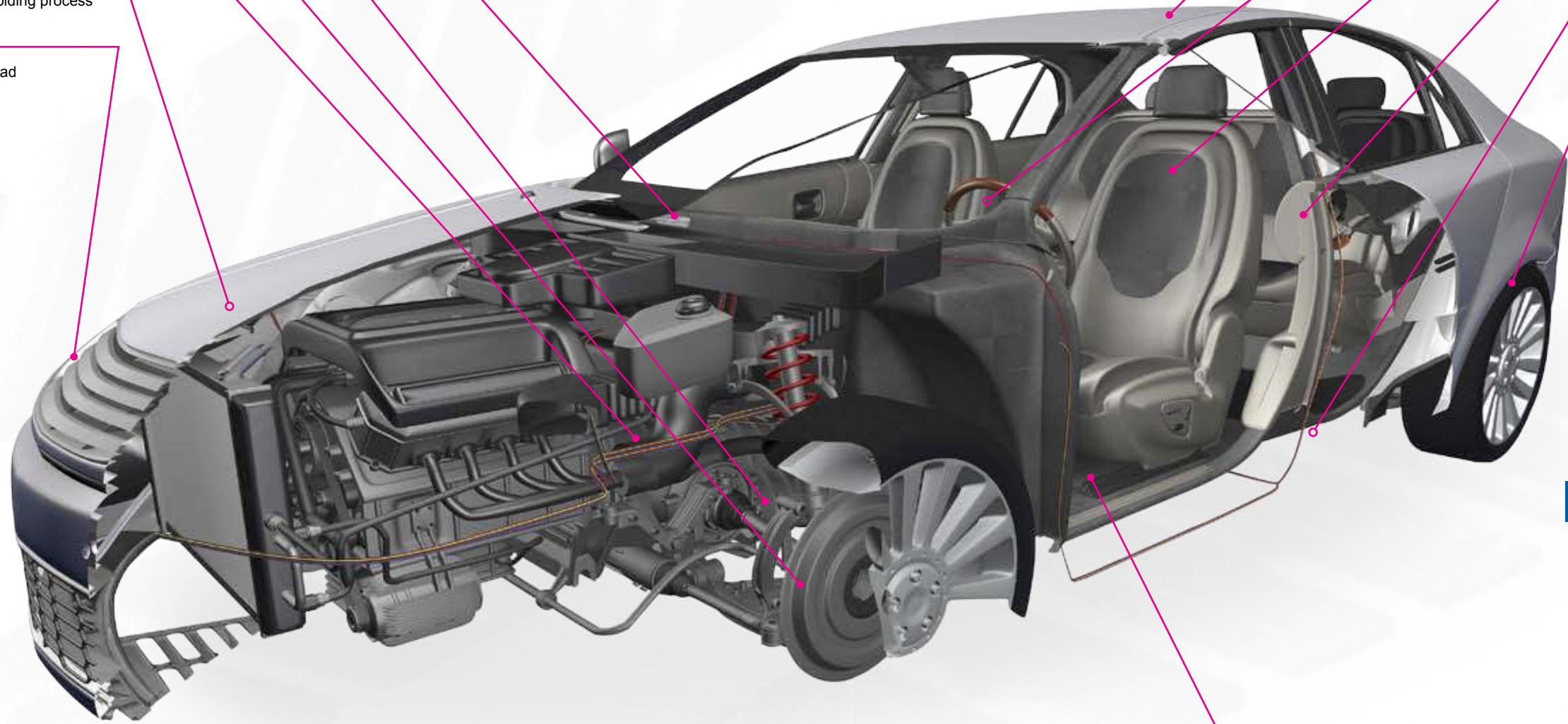
- ▶ Measure contact pressure of head light attachment



Surface Pressure Profile Map of Fuel Cell Interface



Surface Pressure Profile Map of Tire Tread Design



Body

- ▶ Check contact pressure of electrodes in spot/projection welding
- ▶ Measure contact pressure and distribution of presses used to form metal and plastic body parts

Air bag

- ▶ Measure impact pressure against air bag

Seat

- ▶ Measure contact pressure in test dummy research applications

Door

- ▶ Validate contact pressure of weatherstrips on doors

Exhaust

- ▶ Check tightening pressure of catalytic converter, and between exhaust manifolds and muffler's flanges

Tire

- ▶ Check adhesion and molding pressure during manufacture of tire
- ▶ Measure contact pressure of tire tread footprint

Floor mat

- ▶ Check adhesive pressure of floor mat lamination

Electric & Fuel Cell Vehicles

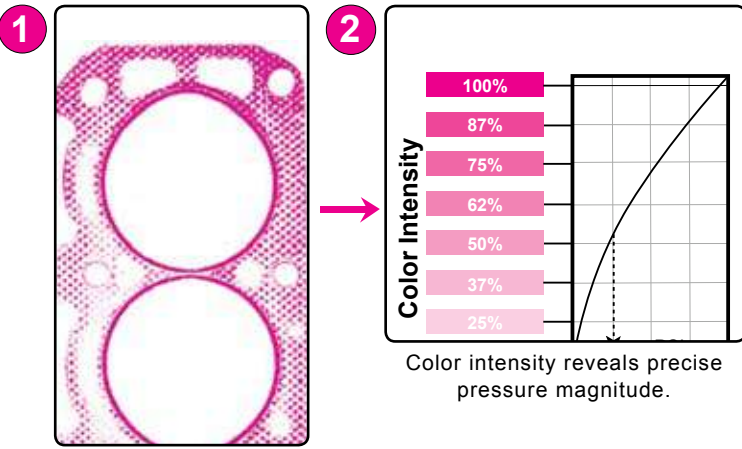
Li-ion battery

- ▶ Measure nip (roller) pressure of electrode coater
- ▶ Examine surface pressure of stacking machine for cathode, anode and separator
- ▶ Test contact pressure of tab welding machine
- ▶ Adjust alignment of heat sealing machines for aluminum lamination film

Fuel cell

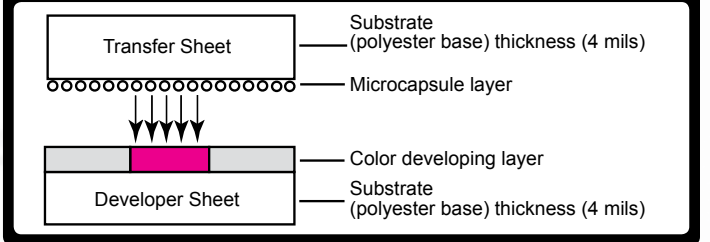
- ▶ Test fuel cell stack uniformity, separator flatness, and lamination pressure of electrolyte membrane

HOW TO INTERPRET FUJIFILM PRESCALE® IMPRESSIONS



Like Litmus paper, the color that Fujifilm Prescale® sensor film turns has significance. It is directly related to PSI (kg/cm²), and can be visually compared to our color correlation chart or scanned and quantified with one of our optional optical imaging systems.

CROSS SECTIONAL VIEW OF FUJIFILM PRESCALE® FILM



PHYSICAL SPECIFICATIONS

| | |
|-----------------------|---|
| OPERATING TEMPERATURE | 41°F to 95°F (5°C - 35°C) (much higher for brief exposure) |
| HUMIDITY RANGE | 20% to 90% RH |
| GAUGE | 4 or 8 mils |
| SPATIAL RESOLUTION | 5 to 15 microns |
| SUBSTRATE | Polyethylene Terephthalate (PET) |
| ACCURACY | ±10% visual, ±2% utilizing optional optical measurement systems |
| SHELF LIFE | 2 years |

MSDS Available Upon Request

7 Sensitivities To Accommodate A Wide Range Of Pressures

| RANGE NAME | PRESSURE RANGE | |
|-------------|---------------------|-------------------------------------|
| EXTREME LOW | 7.2 - 28 PSI | (0.5 - 2 kg/cm ²) |
| ULTRA LOW | 28 - 85 PSI | (2 - 6 kg/cm ²) |
| SUPER LOW | 70 - 350 PSI | (5 - 25 kg/cm ²) |
| LOW | 350 - 1,400 PSI | (25 - 100 kg/cm ²) |
| MEDIUM | 1,400 - 7,100 PSI | (100 - 500 kg/cm ²) |
| HIGH | 7,100 - 18,500 PSI | (500 - 1,300 kg/cm ²) |
| SUPER HIGH | 18,500 - 43,200 PSI | (1,300 - 3,000 kg/cm ²) |