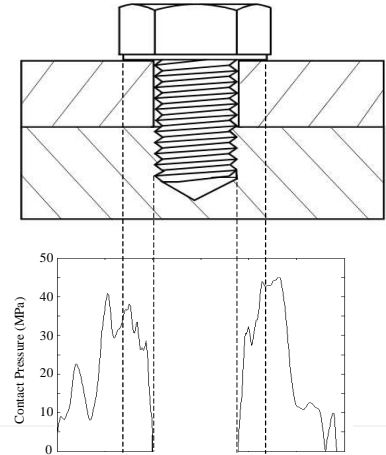
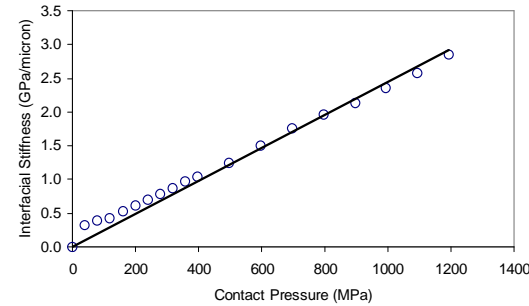
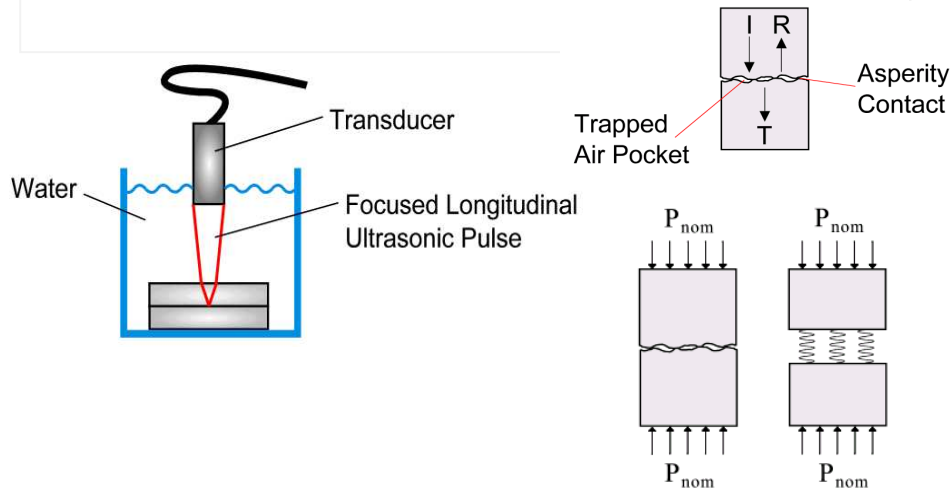


# Ultrasonic Contact Measurement

## Ultrasound and Rough Surfaces

- Real surfaces are not smooth
- Contact between surfaces is on an asperity scale
- Ultrasound is transmitted at asperity junctions and reflected at air gaps
- Measurement of reflection coefficient for a contact



## Contact Pressure

- Spring model used to relate ultrasonic reflection to interface stiffness
- Interface stiffness is proportional to contact pressure
- Calibration experiments
- Contact pressure determined using ultrasonic reflection data
- Example – bolted joint