The hole drilling rosette method for residual stress measurement

The hole-drilling method (ASTM Standard E837) relies on stress relaxation when a hole is drilled into the centre of a rosette strain gage such as that shown below. When the material is removed by drilling, the extent of the strain relief is monitored by the gages and the direction and magnitude of the principal stresses can be calculated. A special high speed air turbine drill (shown above) is used to first locate the drill to within 0.001” of the rosette centre and then to remove material to a controlled depth. At each depth increment, the strain relief on each of the gages is measured and converted into stress. As subsequent material removals occur, the stress distribution as a function of depth can be estimated.

Contact
Mr. Mario Saraceni, PhD
Mobile phone: +39 349 7180505
m.saraceni@enginlab.it
www.enginlab.it