

For more information on our products,  
services and capabilities visit:  
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Over the past 3 decades, Sigra has found solutions to problems associated with the ground in the fields of mining, civil and petroleum engineering. To do this it has had to innovate both in the ultimate solutions provided but also in the testing techniques it uses, the analysis applied and theory behind the analysis.

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Sigra has built up a suite of field and laboratory tools which are backed by analysis techniques and software. Much of the equipment and many of the techniques have been developed in-house to provide clients appropriate measurements and analysis beyond that specified in any Standard.

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Sigra is unique - it provides the chain of measurement, analysis and design which delivers solutions.



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Manufacturing

Field Services

Laboratory

Design

Consulting

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Mining

Civil

Petroleum

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## Manufacturing

Sigra designs and manufactures a range of products. The majority of Sigra's field measuring systems and laboratory equipment is designed and manufactured in-house.

Products Include:

- Packers
- Well control systems
- Managed pressure drilling systems
- Data loggers

## Field Services

Sigra conducts field testing and installs long term monitoring systems for mining exploration, major civil infrastructure projects and petroleum operations.

### Rock Stress Measurement

- Overcoring
- Diagnostic Hydrofracture
- Borehole Breakout

### Permeability & Directional Permeability

- Drill Stem Testing
- Injection & Falling Head Testing

### Gas Content

- Core Desorption
- Chip Desorption
- Gas Capture without Coring
- Gas Capture Core Barrel

### Long Term Monitoring

- Deep and Shallow Well Pressure and Movement Monitoring

## Laboratory

Sigra has developed world leading methods to determine the mechanical properties of rock, measure gas in coals and shales, and measure properties of drilling muds and cement grouts.

### Rock Mechanics

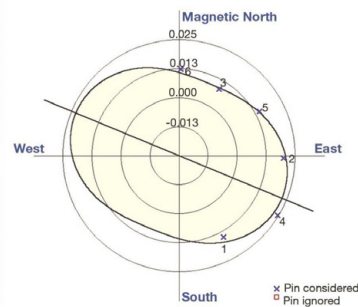
- Uniaxial Compressive Strength
- Uniaxial Modulus and Poisson's Ratio
- Triaxial Modulus and Poisson's Ratio
- Hydrostatic Fragment Testing for Modulus
- Transverse and Axial Tensile Testing
- Toughness Testing

### Gas Measurement

- Laboratory Isotherms
- Core Permeability
- Carbonate Content
- Shrinking with Desorption
- Coal Moisture and Proximate Analysis

### Fluids

- Drilling Mud Rheology
- Cement Grout Rheology
- Gas Flow Meter Calibration



## Design & Consulting

Sigra employs Mining, Mechanical, Civil, Chemical Electronic and Software Engineers to provide cross-disciplinary design capabilities.

### Coal Mining

- Bord and Pillar Development
- Wongawilli Extraction
- Longwall Extraction
- Outburst Control

### Metalliferous Mining

- Long Hole Open Stope Mining
- Narrow Vein Mining
- Block Caving

### Civil Engineering

- Slope stabilisation and design
- Foundations
- Tunnels
- Caverns

### Petroleum

- Reservoir Assessment
- Production Design
- Coal Seam Gas

### Groundwater

- Groundwater Production
- Well Field Design
- Dewatering

