

CSIRO Mini Frac

MINI FRAC HYDRAULIC FRACTURING SYSTEM

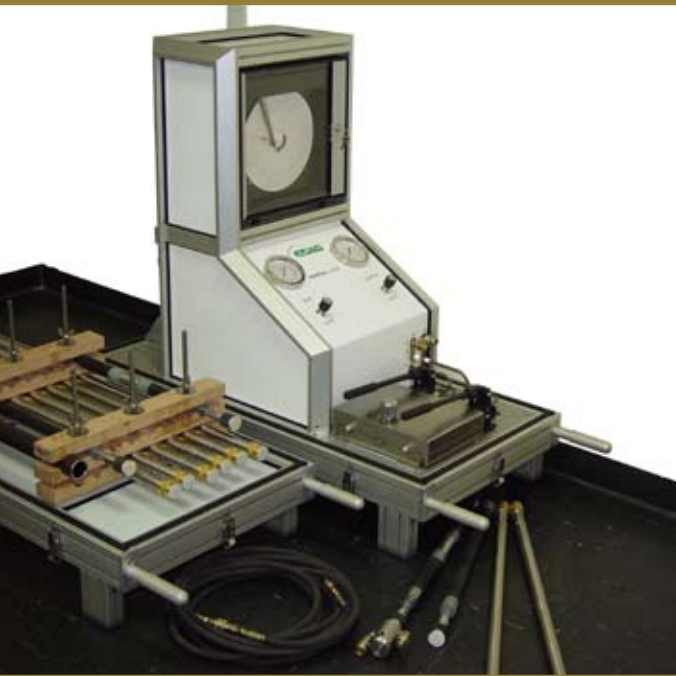
FEATURES

- IS version available
- Fully self contained & portable system
- Dual hand pumps for test & packer pressurisation
- Light weight transport case
- Laboratory test frame
- Mechanical or electronic chart recorder
- Larger sizes available on request
- Dual hydraulic lines
- Robust & reliable
- Operates at high pressures

APPLICATIONS

- Suitable for hydraulic fracturing
- Stress determination for mining & civil applications
- Tunneling & underground excavation industry
- Coal mining & petroleum industry
- Used in small low cost E-size holes 38mm diameter

SYSTEM



The ES&S CSIRO* Minifrac system is a low cost Hydraulic Fracturing tool for determining stress in applications where less precise measurements are required. Hydraulic fracturing produces 2D results.

The Minifrac system has been used for stress determination projects including the M5 Tunnels Sydney Australia, the MacArthur River Mine NT Australia, Torino Limestone Caverns Torino Italy and the National Institute of Rock Mechanics India.

The CSIRO Minifrac system is available in an IS version for use in Collieries.



es&s www.esands.com



TECHNICAL SPECIFICATIONS

MINIFRAC TOOL

Diameter	36mm
Overall Length	620mm
Test Section Length	160mm
Weight	2.4kg
Max Packer Pressure (ideal test conditions)	35MPa

IMPRESSION PACKER

Diameter of Collars	36mm
Diameter of Packer	34mm
Diameter when wrapped	37mm
Overall Length	620mm
Active Length	500mm
Weight	2.4kg
Max Packer Pressure (ideal test conditions)	Typically greater than 20MPa

INSTALLATION RODS

Hydraulic Cylinder	Enerpac RC50
Max Pressure	35 MPa
Core Lengths	Max 100mm

Type	Hand pumps - 2 stage (2 x Enerpac P142)
Max Pressure	40MPa
MaxFlow Rate	200ml/min
Tank Capacity	4 Litre
Fluid	Water/soluble oil Biodegradable oil

PRESSURE PUMPS

LAB LOAD FRAME

Hydraulic Cylinder	Enerpac RC50
Max Pressure	35 MPa
Core Lengths	Max 100mm

TRANSPORT CASE

MODULE 1 L x W x H	2080 x 600 x 590cm
Weight	125kg
MODULE 2 L x W x H	1690 x 600 x 1160cm
Weight	90kg

* Commonwealth Scientific and Industrial Research Organisation Australia

OPERATING PRINCIPLE

Hydraulic fracturing involves the isolation of part of a borehole using an inflatable straddle packer and the subsequent pressurisation of the hole until the wall rock fractures. If an axial fracture is produced, the pressure record obtained during the test can be used to determine the magnitudes of the secondary principal stresses in the plane normal to the test hole axis.

The Minifrac System is supplied in two robust transportation modules. Each module has been designed to be self-contained and easily transported to site in an underground mine. System options include choice of recorder type i.e. mechanical/ electronic chart/electronic chart with data logger and additional installation rods for deeper testing.

MODULE 1

Installation & Test Tools

Comprising:

- Transportation Case base & cover
- 8 x Installation Rods (1.5M each)
- 2 x Fracturing Tools
- 2 x Impression Tools
- 1 x Test Pipe

MODULE 2

Pressurisation & Recording System

Comprising:

- Transportation Case base & cover
- Hydraulic Tank with Dual Hand Pumps
- Instrument Panel with Test & Packer Manifolds
- 2 x Pressure Gauges (40 MPa) Recorder & Pressure Sensors
- 2 x Vent Valves
- 2 x Test & Packer Hoses (5M each)
- Laboratory Test Frame
- Operation Manual & Interpretation Guide
- Spares Kit

