Mini Frac

MINI FRAC HYDRAULIC FRACTURING SYSTEM

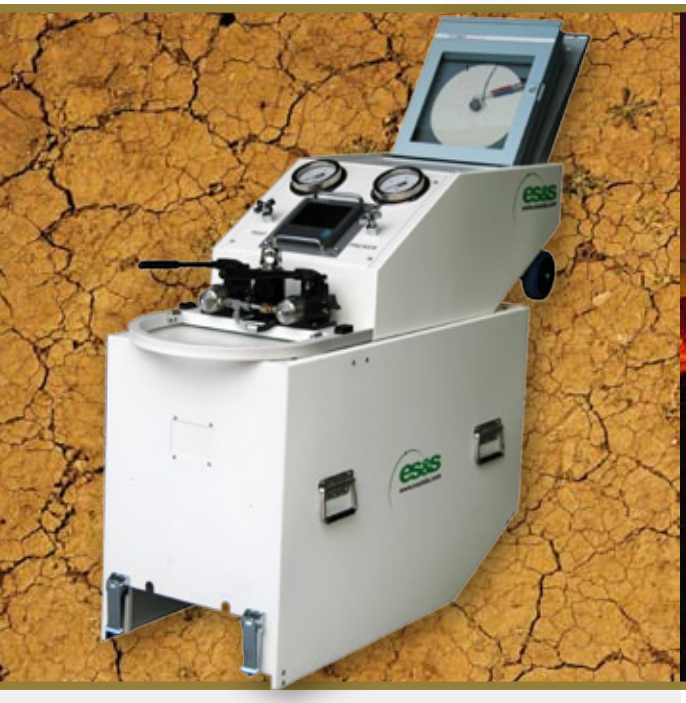
SYSTEM

FEATURES

- Fully self contained & portable system on wheels
- Dual hand pumps for test & packer pressurisation
- Light weight transport case
- Laboratory test frame included
- Dual chart recorder system with mechanical & removable electronic recorder & power pack
- Twin hydraulic hose mounted on heavy duty steel reel
- Robust & reliable
- Operates at high pressures
- Impression tool with integrated electronic compass for orientation
- Operational depth of request
- IS version
- Larger size packers available on request

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
- Larger and deeper models on request



The ES&S CSIRO* Minifrac system is a low cost Hydraulic Fracturing tool for determining stress in applications where a quick a quick 2D measurement is sufficient. Hydraulic fracturing measuring techniques produce a biaxial stress measurement.

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 suitable for use in Collieries. Our standard dual recorder systems features a quick release removeable electronic & power pack for operations in dangerous environments. The Minifrac does not contain aluminium or plastic, making it conducive for operation in explosive environments.

es&s www.esands.com

MADE IN AUSTRALIA

ISO 9001 CERTIFIED

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TECHNICAL SPECIFICATIONS

CSIRO MINI FRAC

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

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

LAB LOAD FRAME

Hydraulic Cylinder	Enerpac mini cylinder
Max Pressure	35 MPa
Core Lengths	Max 100mm

MINIFRAC MODULE

L x W x H	130 x 45 x 65 cm
Weight with cover	102 kg
Weight without cover	60 kg
Weight of Reel with 100m hose	48 kg

*** 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 a robust transportation case.The system has been designed to be self contained and easily transported to site in an underground mine. System options include both recorder types. Mechanical / electronic chart / electronic chart with data logger and additional hose for deeper testing.

MINIFRAC MODULE

Pressurisation & Recording System

Comprising:

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

DOWNHOLE EQUIPMENT

- 2 Fracturing tools
- 2 impression tools with integrated digital compass
- 1 test pipe
- 100m twin hydraulic hose with reel