

Biax Experiment (revised. 16 Aug 2022)

For Current Calibrations: ~gfps/group/cjm38/default/Calibrations/

Exp. Name: p5772
 Operators: Wood, Eijsink
 Temperature (°C): _____
 Relative Humidity (%): _____

Date/Time: 29/08/2022
 Hydraulics start: 5504.7
 Hydraulics end: 5514.3
 Data Logger Used/Control File: 16 chan, p5772-ctrl

Purpose/Description: _____

Sample Block Used and Thickness with no Sample:

49.7 mm x 45.2 mm

____ Steel 5x5 cm, _____ mm SDS Vessel 5x5 cm, _____ mm
 ____ Steel 10x10 cm, _____ mm _____ AC-DDS Vessel 5x5 cm, _____ mm
 ____ Acoustic Blocks _____ _____ Non-AC DDS Vessel 5x5 cm, _____ mm

Sample Gouge/Material Preparation:

Material: Granitoid, 60 grit rough
 Particle Size, Distribution: _____
 Benchtop Sample Thickness [mm]: 37.0 mm
 Pre-Compaction Sample Thickness [mm]: _____
 Post-Compaction Sample Thickness [mm]: _____

	Block 1	Block 2
Empty Block Weight [g]		
Weight of Material Used [g]		
Sample Block Weight [g]		
Weight of Gouge [g]		

Load cells:

(MN/m²) Contact Area [m]: 0.0022231381 0.00222836

Load cell name	Calibrations (mV/kN)	Target stress (MPa)	Init. Voltage	Volt. @ load
44 mm H	LG: 12.894 HG: 120.955	Hor: <u>4, 20</u> Calibration: (V/MPa) 0.00222836 Exp was run in high gain	<u>0.035</u>	<u>1,191 ; 5,815</u>
44 mm V	LG: <u>13.074</u> HG: <u>120.365</u>	Vert: Calibration: (V/MPa)		

Vessel Pressure:

Pore Fluid: De-aerated H₂O

Calibrations (V/MPa)	Pressures (MPa)	Initial Voltage	Voltage @ Load
LG: 0.145 HG: <u>1.51</u>	PpA: <u>1, 1.5, 2.5</u>	0.132	<u>6.55</u> <u>1, 642</u>
LG: 0.143 HG: <u>1.46</u>	PpB: <u>0.5</u>	-0.112	<u>0.618</u> <u>2,397</u>
Gain : 0.1456	Pc: <u>15, 3</u>	0.0026	<u>0.439, 2.187</u>
LG: NA HG: NA	Pdiff: <u>0.02</u>		

Displacement Transducers

Horz. DCDT		Vert. DCDT	
Long Rod	Short Rod	Long Rod	Short Rod
Low Gain: <u>1.556mm/V</u>	1.352mm/V	Low Gain: <u>2.820mm/V</u>	0.963mm/V
High Gain: <u>0.756mm/V</u>	<u>0.658mm/V</u>	High Gain: <u>0.568mm/V</u>	0.488mm/V

Horz On-Board DCDT		Vert. On-Board DCDT	
Biax	Vessel	Biax	Vessel
Low Gain: <u>1.165mm/V</u>	0.837mm/V	Low Gain: <u>1.263mm/V</u>	0.963mm/V
High Gain: <u>0.578mm/V</u>	<u>0.416mm/V</u>	High Gain: <u>0.633mm/V</u>	0.488mm/V

Horizontal Servo Settings:

P: _____ Datten: _____
 I: _____ Feedback: _____
 D: _____ E-gain: _____

Vertical Servo Settings:

P: _____ Datten: _____
 I: _____ Feedback: _____
 D: _____ E-gain: _____

Chilled water at HPS

1. Temp In (°F): _____
 2. Pres. In (psi): _____
 3. Temp Out (°F): _____
 4. Pres. Out (psi): _____
 5. Flow (lpm): _____

Chiller Unit

6. Panel Temp (°F): _____
 7. Panel Pres. (psi): _____
 8. Near Pres. In (psi): _____
 9. Near Pres. Out (psi): _____

Process water at Chiller

10. Temp In (°F): _____
 11. Pres. In (psi): _____
 12. Temp Out (°F): _____
 13. Pres. Out (psi): _____

Hyd. Power Supply (HPS)

14. Tank Temp (°C): _____ 15. Temp. Out (°C): _____ 16. Pres. Out (psi): _____

1150 apply normal stress - 4 MPa

2970 P_c to 3 MPa

4200 $P_p A \rightarrow 1 \text{ MPa}$, saturate

12330 NS to 20 MPa

P_c to 15 MPa

Vortex shedding part 1 (0.5, 1, 2 MPa differentials from A \rightarrow B)

~~# $P_p A$ 1 - 2.5 MPa~~

~~# $P_p B$ (2 MPa, 1.5, 0.5) (P_p diff)~~

$P_p A$ 1 MPa \rightarrow [1 \rightarrow 1.5 - 2.5] MPa

$P_p B$ 0.5 MPa

67000 valve open between $P_p A$ & $P_p B$ [run 1: 0.5 MPa, run 2: 1 MPa, run 3: 2 MPa]

$P_p A$ \downarrow 0.5 MPa

$P_p B$ \uparrow 1.5 MPa

$P_p B$ \uparrow 3 MPa

P_c vertical force ca 15 MPa \sim 25 kN

144500 Increase $P_p A + P_p B$, begin NS osc.

220000 Vert. run-in until some stress, Vert. LC to LG.

2520000 \rightarrow Raphael hitting DCDT

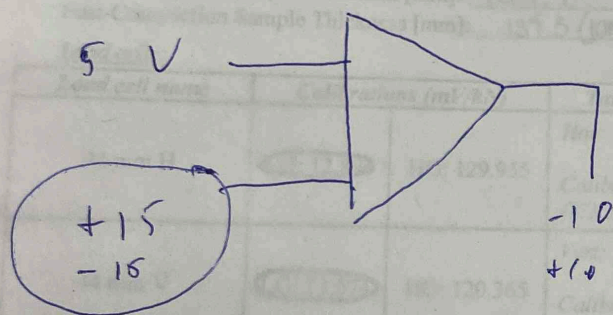
3192320 V.DCDT offset, shear

3195500 $P_p A$ increase for slip.

3805000 remove shear load, decreasing $P_p A + P_p B$

Max Experiment - revised 26 Aug 2022

Date/Time: August 23, 2022
 Hydraulics start: 8:45 AM
 Hydraulics end:
 Data Logger Used/Control File:



Cell name	Calibration (mV/V)	Pressure (MPa)	Int. Voltage	Volts	Rec #
	129.935	10.175	-0.824	5600	
	129.363	10.175	-0.8012	7500	
			-0.8045	7800	
			-0.7921	63600	
			-0.7880	65762	
			-0.7843	66604	
			-76251	872000	
			-7607	14500	
			-7580	96100	
			-7536	97800	

R12