



GDS Shear System Analysis

Shearbase System

Electro-mechanical Dynamic Cyclic Simple Shear

Variable Direction Dynamic Cyclic Simple Shear

Multi-Direction Dynamic Cyclic Simple Shear

GDSSS

EMDCSS

VDDCSS

MDDCSS

LOAD / STRESS:

Maximum Axial Load:	10kN (Standard 5kN)	10kN (Standard 5kN)	10kN	10kN
Maximum Shear Load:	Simple Shear 2.5kN	10kN (Standard 5kN)	5kN	5kN
Maximum Axial Frequency:	0.01Hz	5Hz	5Hz	5Hz
Maximum Shear Frequency:	0.01Hz	5Hz	5Hz	5Hz
Cell Pressure Available:	No	No	No	Yes
Maximum Cell Pressure:	N/A	N/A	N/A	1MPa
2 nd 'Y' Shear Axis Available:	No	No	Yes	Yes
Maximum 'Y' Axis Load:	N/A	N/A	5kN	5kN
Maximum 'Y' Axis Frequency:	N/A	N/A	5Hz	5Hz
Load Control Available:	Yes (On both axis)	Yes (On both axis)	Yes (On all axis)	Yes (On all axis)
Nominal Force Accuracy:	<0.1% of Maximum Load Rating	<0.1% of Maximum Load Rating	<0.1% of Maximum Load Rating	<0.1% of Maximum Load Rating
Shear Force Accuracy:	<0.1% of Maximum Load Rating	<0.1% of Maximum Load Rating	<0.2% of Maximum Load Rating"	<0.2% of Maximum Load Rating

DISPLACEMENT / STRAIN:

Displacement Control Available:	Yes (On both axis)	Yes (On both axis)	Yes (On both axis)	Yes (On both axis)
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VDDCSS-CP

Shear Displacement Accuracy:

0.3% FSO

0.1%

0.1%

0.1%

Shear Displacement LVDT:

Upgrade option

± 10mm - 0.1%

± 10mm - 0.1%

± 10mm - 0.1%

“Y” Axis Displacement Accuracy:

N/A

N/A

0.1% FSO

0.1% FSO

“Y” Axis Force Accuracy:

N/A

N/A

0.2% FSO

0.2% FSO

Normal Force Load Cell Resolution:

0.001kN

0.0001kN

0.0001kN

0.0001kN

Shear Force Load Cell Resolution:

0.001kN

0.0001kN

0.0001kN

0.0001kN

Axial Displacement Accuracy:

0.3% FSO

0.1% FSO

0.1% FSO

0.1% FSO

Axial Displacement Range:

Stepper Motor: 30mm
Tx: 25mm

Encoder: 30mm
LVDT: +/-2.5mm

Encoder: 30mm
LVDT: +/-2.5mm

Encoder: 40mm
LVDT: +/-2.5mm

Shear Displacement Range:

Stepper Motor: 40mm
Tx: ±25mm

Encoder: 40mm
LVDT: +/-10mm

Encoder: 40mm
LVDT: +/-2.5mm

Encoder: 40mm
LVDT: +/-10mm

“Y” Axis Displacement Range:

N/A

N/A

Encoder: 40mm
LVDT: +/-2.5mm

Encoder: 40mm
LVDT: +/-10mm

FEATURES:

Computer Controllable:

Yes (Via GDSLAB)

Yes (Via GDSLAB)

Yes (Via GDSLAB)

Yes (Via GDSLAB)

Electro-mechanically Controlled:

Yes

Yes





Yes

Yes



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	GDSSS	EMDCSS	VDDCSS	VDDCSS-CP
Custom Wave Forms Available:	Not available	Yes	Yes	Yes
Custom Wave Form (Points Available):	No	1000	256	256
Back Pressure Control Available:	No	No	Yes	Yes
Dynamic Control Available:	No	Yes on both axis, for displacement & load control	Yes on all axis, for displacement & load control	Yes on all axis, for displacement & load control
Static Control Available:	Yes on both Axis	Yes on both Axis	Yes on all Axis	Yes on all Axis
Pre-programmed waveforms:	Yes (Via keypad control)	Yes	Yes	Yes
Maximum Data Save Points Per Cycle:	N/A	1000	500	500
Control Frequency During Testing From Control Unit:	1 point per second	5000 points per second	500 points per second	500 points per second
Number of Channels on Data Acquisition Unit:	N/A (No data acquisition unit required for standard set-up)	8 (LEMO Type Connectors)	12 (DIN Type Connectors)	12 (DIN Type Connectors)
GENERAL:				
PC Connection Type:	USB	USB	USB	USB
Sample Sizes Available:	Up to 70mm Simple Shear Up to 100mm Direct Shear	Up to 100mm	Up to 100mm	Up to 100mm



				
GDS Shear System Analysis	Shearbase System	Electro-mechanical Dynamic Cyclic Simple Shear	Variable Direction Dynamic Cyclic Simple Shear	Confined Variable Direction Dynamic Cyclic Simple Shear
	GDSSS	EMDCSS	VDDCSS	VDDCSS-CON
Data Acquisition Type:	In-built load, 2 x Digi RFM for standard transducers	8 Channel DCS	3 x 4 channel ELDCS	3 x 4 channel ELDCS
GDSLAB Compatible:	Yes	Yes	Yes	Yes
Size (WxDxH):	0.27 x 0.64 x 0.7m	0.42 x 0.77 x 1.2m	0.58 x 0.80 x 1.15m	0.9 x 0.9 x 2.35m
Weight:	50kg		200kg	
Average FootPrint:	660 x 220mm	1m x 1m	1m x 1m	1.2m x 1.2m
Direct Shear Upgrade:	Yes	Yes	No	No
Bender Elements Upgrade:	Yes	Yes	Yes	Yes
Unsaturated Testing:	No	No	No	Yes
Upgradeable to Local Strain Measurement:	Yes	Yes	No	No
Notes:				

Note: Due to continued development, specifications may change without notice.