



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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World Leaders in Computer Controlled Testing
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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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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



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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.