The MAST uses an FT100 controller with TestSuite MPE and DOF control software

The MAST has 4× vertical 1 MN and 4× horizontal 500 kN Actuators

6 Degrees of Freedom:
- X,Y,Z: that can be Force or Displacement
- \( R_x, R_y, R_z \): that can be an Angle or Moment

The Mast stroke capacity:
- Translational (X,Y,Z): ±250 mm
- Rotational (RX,RY,RZ): ±7 deg

The Mast moment capacity:
- \( R_x, R_y \) (Roll,Pitch): 4.5 MN.m
- \( R_z \) (Yaw): 3.55 MN.m
1 Strong Floor 4 Vertical Actuators
2 L-shape Reaction Wall 5 Removable Support Stands
3 MAST Crosshead
1 Strong Floor
2 L-shape Reaction Wall
3 MAST Crosshead
4 Vertical Actuators
5 Removable Support Stands
MAST – Cutaway View: Base

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<table>
<thead>
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<tbody>
<tr>
<td>1</td>
<td>Strong Floor</td>
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<td>2</td>
<td>L-shape Reaction Wall</td>
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<td>3</td>
<td>MAST Crosshead</td>
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<td>4</td>
<td>Vertical Actuators</td>
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<tr>
<td>5</td>
<td>Removable Support Stands</td>
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</table>
MAST – Specimen Dimension Limit (with support stands)
MAST – Specimen Dimension Limit (w/o support stands)

Specimen (big)
3.5m × 3.5m
MAST – Elevation View: Vertical Travel Limit

Current level

Upper limit

Mid-stroke

Lower Limit

0.5m

3.1m

1m

Strong Floor

Crosshead Z-direction Range

Upper limit

Mid-stroke

Lower Limit
MAST – Plan View: Crosshead Drawing

* Depth: 1 m
MAST – Plan View: Crosshead with Strong Floor
MAST – Specimen Mounting Configuration

1 Strong Floor
2 L-shape Reaction Wall
3 MAST Crosshead
4 Vertical Actuators
5 Removable Support Stands
6 Test Specimen
7 Specimen-to-Crosshead interface fixture
8 Specimen-to-floor interface fixture
9 Fixture-to-Crosshead Fasteners (M24 Post-tensioned All-threads)
10 Fixture-to-Floor Fasteners (M24-M50 Post-tensioned All-threads)
MAST – Travel Speed Limit

- MAST Can move at the rate of up to $40 \text{ mm/s}$ in $X$ and $Y$ direction.