MULTI-AXIAL SUBASSEMBLAGE TESTING STAND FOR LARGE-SCALE HYBRID SIMULATIONS

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Hybrid Simulation at a Glance


\[ M\ddot{u} + C\dot{u} + R(u) = -MTa_g(t) \]
## Multi-Axial Subassemblage Testing Setup

<table>
<thead>
<tr>
<th>DOF</th>
<th>Load Capacity</th>
<th>Disp. Capacity (with arms)</th>
<th>Disp. Capacity (w/o arms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>± 2000 kN</td>
<td>± 600 mm</td>
<td>± 600 mm</td>
</tr>
<tr>
<td>Y</td>
<td>± 2000 kN</td>
<td>± 600 mm</td>
<td>± 600 mm</td>
</tr>
<tr>
<td>Z</td>
<td>± 10000 kN</td>
<td>± 600 mm</td>
<td>± 600 mm</td>
</tr>
<tr>
<td>Rx (roll)</td>
<td>± 21000 kNm</td>
<td>± 8.13 degrees</td>
<td>± 18.43 degrees</td>
</tr>
<tr>
<td>Ry (pitch)</td>
<td>± 30000 kNm</td>
<td>± 5.71 degrees</td>
<td>± 14.03 degrees</td>
</tr>
<tr>
<td>Rz (yaw)</td>
<td>± 25520 kNm</td>
<td>± 4.71 degrees</td>
<td>± 14.03 degrees</td>
</tr>
</tbody>
</table>
Multi-Axial Subassemblage Testing Setup

http://www.stojadinovic.ibk.ethz.ch/research/selected-research-projects/multi-axial-subassemblage-testing.html
Multi-Axial Subassemblage Testing Setup

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Architecture of the Co-Simulation

- WINDOWS PC
- INDEL SERVER
  (PYTHON, C++ API)

- ETHERCAT
- LAN/WAN

- INDEL RT-MACHINE

- ETHERCAT

- ACTUATOR CONTROLLER

https://www.indel.ch/en/
thank you