DE-EE-0007345
D4.1
Device Design and Fabrication Drawings
M3 Wave, LLC
MODEL: APEX Baseline 1:5

QTY needed: 2
Contact: Mike Morrow
(971) 770-6626

20.3”

4.95”

71.7”

Not to scale
Caisson Closeup

Hard points (4 each caisson)
Will be used for bolting weights
And for mounting vertical lift struts

3.25” dia thru hole

Threaded ½”-13 thru (16 PLCS per caisson)

Hardpoints can be FRP with threaded inserts or
can be metal plates (with threaded holes) affixed to FRP main structure

Not to scale
• Caisson walls are approximately 0.25” thick.
  
  • Precise wall thickness not critical. +/-0.1” if possible

• 0.8” dia exhaust ports (26 plcs each caisson)
  
  • +/-0.07” dia

• Caissons can be made as unibody structure and then mounted to frame or entire APEX can be integrated structure.

Not to scale
• If feasible, please add threaded attach locations to underside of frame
  • any pattern, any bolt size.
  • These are for flexibility in mounting instrumentation and additional structure on subsequent tests.
• Actual locations are not critical, although left-right and aft-fore symmetry should be maintained.
  • Approximate desired locations are indicated by arrows.

Not to scale
• If feasible, please add threaded attach locations to underside of frame
  • any pattern, any bolt size.
  • These are for flexibility in mounting instrumentation and additional structure on subsequent tests.
• Actual locations are not critical, although left-right and aft-fre symmetry should be maintained.
  • Approximate desired locations are indicated by arrows.

Not to scale
NOTE:
1. Q FLY = 1 LAYER E-G10210 QUADRANAL Roving 3425 G/30.2
2. SM FLY = 1 COMPLETE CYCLE OF FILLAMENT WINDING, 955 YD/SC, 6 S STRAND/SC
3. G FLY = 1 LAYER 5.8 G/SCND WEFT UNDERCURLATIONAL Roving, LAPPED MIN. 2"
4. FILLAMENT WINDING TO BE AT 75° WIND ANGLE
Final concepts for modeling and scale testing
1. Default
2. Default w/Lift Rig
3. Skeleton
4. Skeleton with Lift Rig
5. Default with Suction Pile
6. **Skeleton with Suction Pile**
1:5 scale device in tank on bottom. Brown area is sediment basin (basin is 36ft long, 12ft wide).
4 steel pipes on each caisson are joined at a steel plate above the wet zone. Two plates are joined by a cross-structure which interfaces to a lift mechanism on trolley. Rotation is either part of lift mech OR lift mech can be turned and re-clamped to trolley.
More views

Rotation via shifting lift cross bar on trolley rail