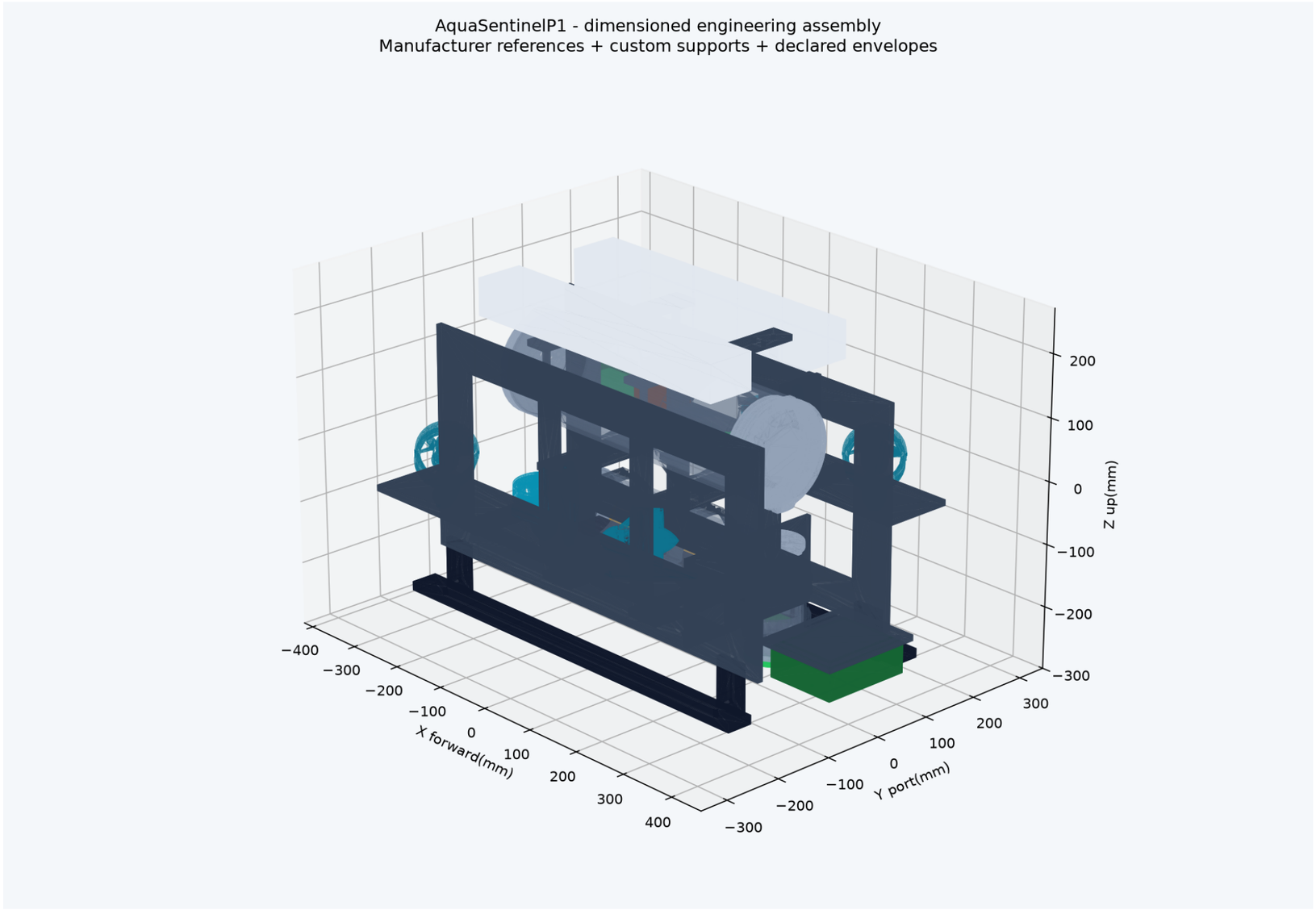
AquaSentinel P1 - assembly and cut-profile drawings

Dimensional exchangeCAD, manufacturer references and custom non-pressure support parts



Vehicle envelope

795.0 x 580.0 x 520.02 mm

Assembly components

100

Cut-profile designs

12

Thrust allocation

6 motors /5 independent axes

Model source

Manufacturer STEP + project CadQuery

Configuration hash

98aa0b7dd9d069b5b48ee1c7

Pressure boundaries are purchased manufacturer assemblies. These drawings do not authorize custom tube, seal, window or endcap manufacture.

Preview meshes may be simplified. Exact STEP and custom flat DXF profiles remain the geometric reference. Envelopes reserve space and are not asserted supplier internals.

GA-002 - coordinate and interface schedule

Use the full assembly STEP for precise orthographic and section views

Assembly	Tube/usableID	Tube length	Center [X,Y,Z]	Nominal closure length
Electronics	163.9 OD /150 ID	500	[0, 0, 80]	536.0
Battery	112 OD /103 ID	300	[0, 0, -120]	335.8
Optics	86.5 OD /79 ID	150	[245, 0, -150]	180.8

Thruster geometric transforms - positive force direction

```
T1   position[220, 230, 0]mm    direction[0.707107, -0.707107, 0.000000]
T2   position[220, -230, 0]mm    direction[0.707107, 0.707107, 0.000000]
T3   position[-220, 230, 0]mm    direction[0.707107, 0.707107, 0.000000]
T4   position[-220, -230, 0]mm    direction[0.707107, -0.707107, 0.000000]
T5   position[0, 230, 0]mm    direction[0.000000, 0.000000, 1.000000]
T6   position[0, -230, 0]mm    direction[0.000000, 0.000000, 1.000000]
```

X forward,Y port,Z up; native/exchangeCAD dimensions are millimetres.

Six-motor geometry has no independent pitch authority; physical autopilot channel/sign mapping remains a bench acceptance item.

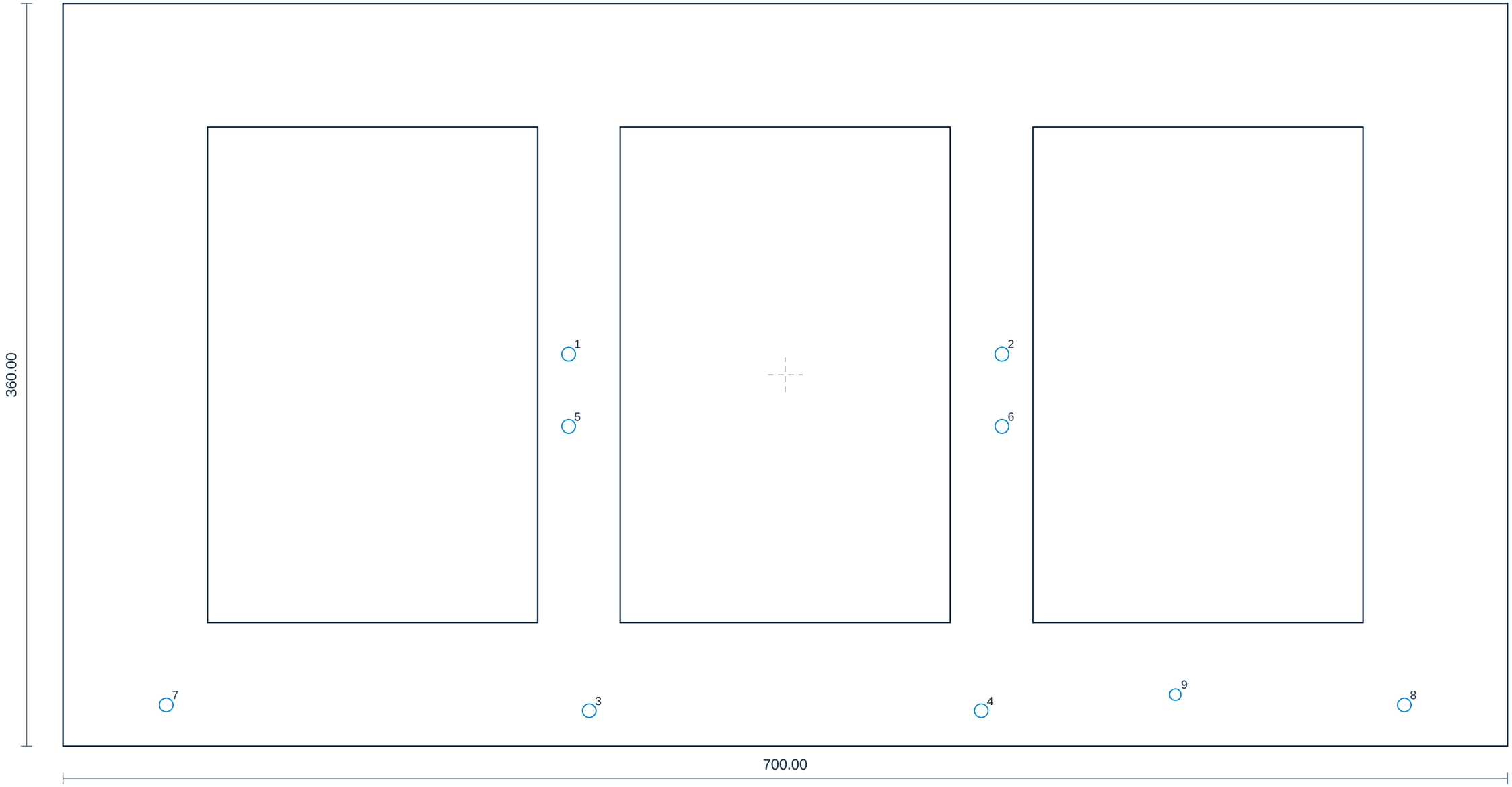
Camera-to-laser forward offset and lower-window extrinsics must be included in wet calibration.

Fastener thread sizes follow manufacturer guides. Countersink mouths and thread-root cylinders must not be mistaken for nominal screw sizes.

Three selected clearance checks do not constitute a global interference or structural analysis. Cable bends, connection access and service loops require installed inspection.

P100 - Port/starboard structural side plate

Quantity2 | Marine HDPE | Thickness10mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

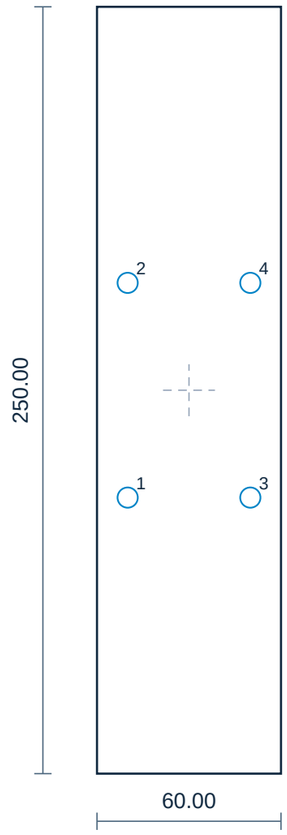
```
01 [-105.000,  10.000] D6.6
02 [ 105.000,  10.000] D6.6
03 [ -95.000,-162.800] D6.6
04 [  95.000,-162.800] D6.6
05 [-105.000, -25.000] D6.6
06 [ 105.000, -25.000] D6.6
07 [-300.000,-160.000] D6.6
08 [ 300.000,-160.000] D6.6
09 [ 189.000,-155.000] D5.5
```

Two identical plates. M6 clearance holes; wet structure. Deburr and radius all exposed edges. Load/handling proof remains required.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

P110 - Electronics enclosure support beam

Quantity2 | 6061-T6 aluminum | Thickness12mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

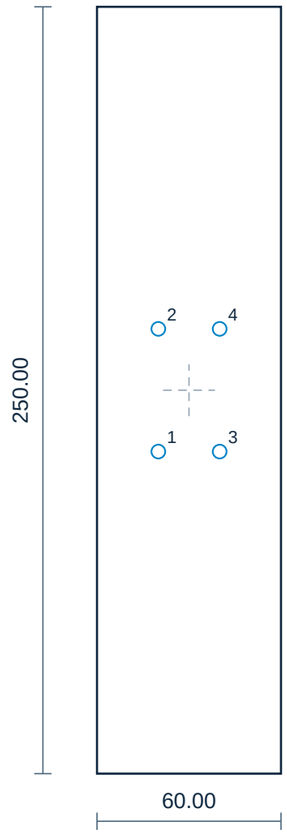
```
01 [ -20.000, -35.000] D6.6        02 [ -20.000,  35.000] D6.6        03 [  20.000, -35.000] D6.6        04 [  20.000,  35.000] D6.6
```

Bore-axis datum from manufacturer clamp. Hole pattern follows manufacturer STEP. Side/end M6 tapped interfaces require setup inspection. EPDM shim:2mm between clamp foot and beam; clamp manufacturer fasteners and thread engagement govern.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

P111 - Battery enclosure support beam

Quantity2 | 6061-T6 aluminum | Thickness12mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

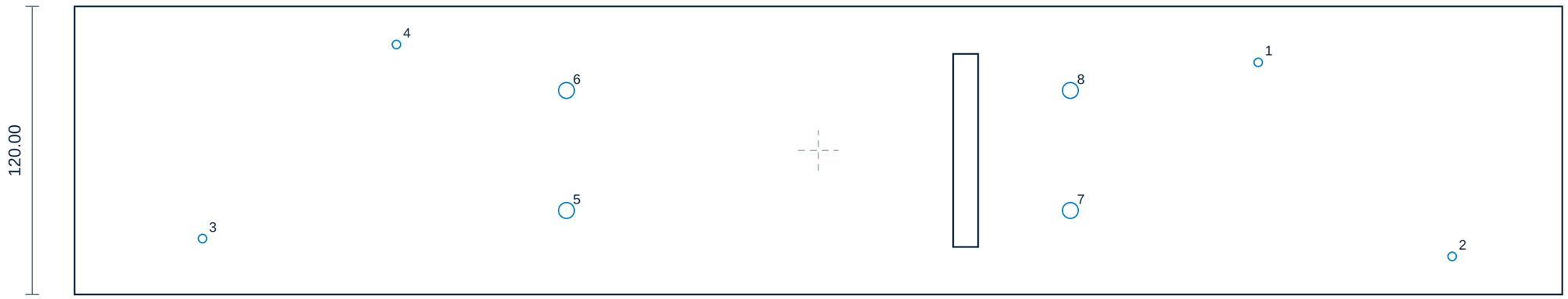
01 [-10.000, -20.000] D4.5	02 [-10.000, 20.000] D4.5	03 [10.000, -20.000] D4.5	04 [10.000, 20.000] D4.5

Bore-axis datum from manufacturer clamp. Hole pattern follows manufacturer STEP. Side/end M6 tapped interfaces require setup inspection. EPDM shim:2mm between clamp foot and beam; clamp manufacturer fasteners and thread engagement govern.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

P120 - Horizontal-thruster longitudinal rail

Quantity2 | Marine HDPE | Thickness10mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

```
01 [ 183.302,  36.698] D3.5        03 [-256.698, -36.698] D3.5        05 [-105.000, -25.000] D6.6        07 [ 105.000, -25.000] D6.6
02 [ 264.125, -44.125] D3.5        04 [-175.875,  44.125] D3.5        06 [-105.000,  25.000] D6.6        08 [ 105.000,  25.000] D6.6
```

Manufacturer T100 bracket mates to T200 lower plane Z=-49mm; bracket base Z=-55.35mm. Rail top Z=-56.35mm; use inspected1mm spacers. Two frame-hole axes at localX5.2518+/-57.15mm. Slot accepts vertical mounting plate with0.2mm/side clearance. Confirm supplied hardware revision before drilling.

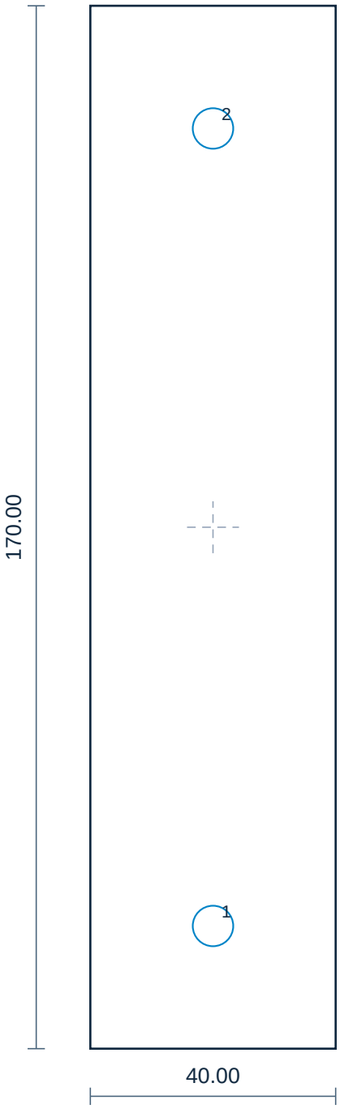
General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

ENGINEERING REVIEW - NOT RELEASED FOR FABRICATION OR PRESSURE QUALIFICATION

All dimensions in mm. STEP/DXF geometry controls. Print at100% for stated scale.

P121 - Outer-rail transverse tie

Quantity4 | Marine HDPE | Thickness10mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

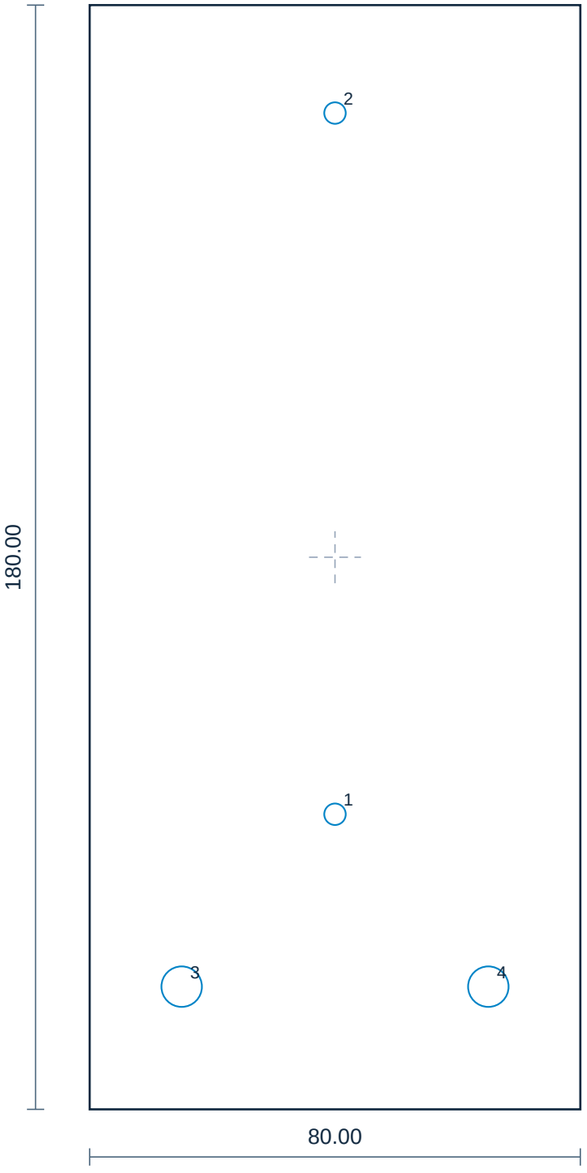
```
01 [   0.000, -65.000] D6.6                    02 [   0.000,  65.000] D6.6
```

Fasten to side-frame angle brackets and longitudinal rails; inspect joint bearing and edge distances.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

P122 - Vertical-thruster mounting plate

Quantity2 | Marine HDPE | Thickness10mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

```
01 [   0.000, -41.898] D3.5        02 [   0.000,  72.402] D3.5        03 [ -25.000, -70.000] D6.6        04 [  25.000, -70.000] D6.6
```

LocalX=worldY;localY=worldZ relativeZ=-10. COTSbracket baseplaneX=55.35mm, supportfaceX=56.35mm with1mm spacer. Lowerplate interlocks through P120 slot. Actual motor/autopilot mapping requires inspection.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

AQUASENTINEL P1 | P122 Flat profile

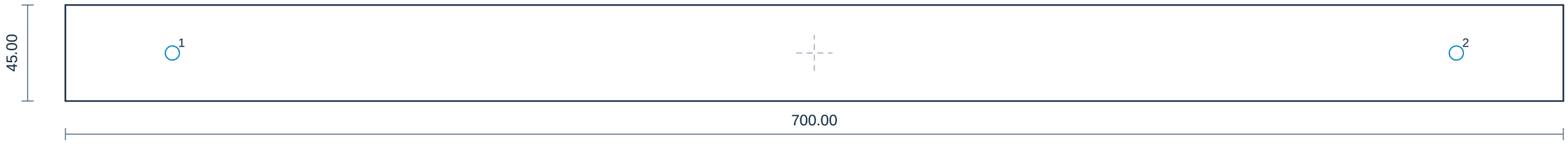
ENGINEERING REVIEW - NOT RELEASED FOR FABRICATION OR PRESSURE QUALIFICATION

REV P1 | SCALE 1:1 | SHEET 8

All dimensions in mm. STEP/DXF geometry controls. Print at100% for stated scale.

P130 - Landing skid

Quantity2 | Marine HDPE | Thickness15mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

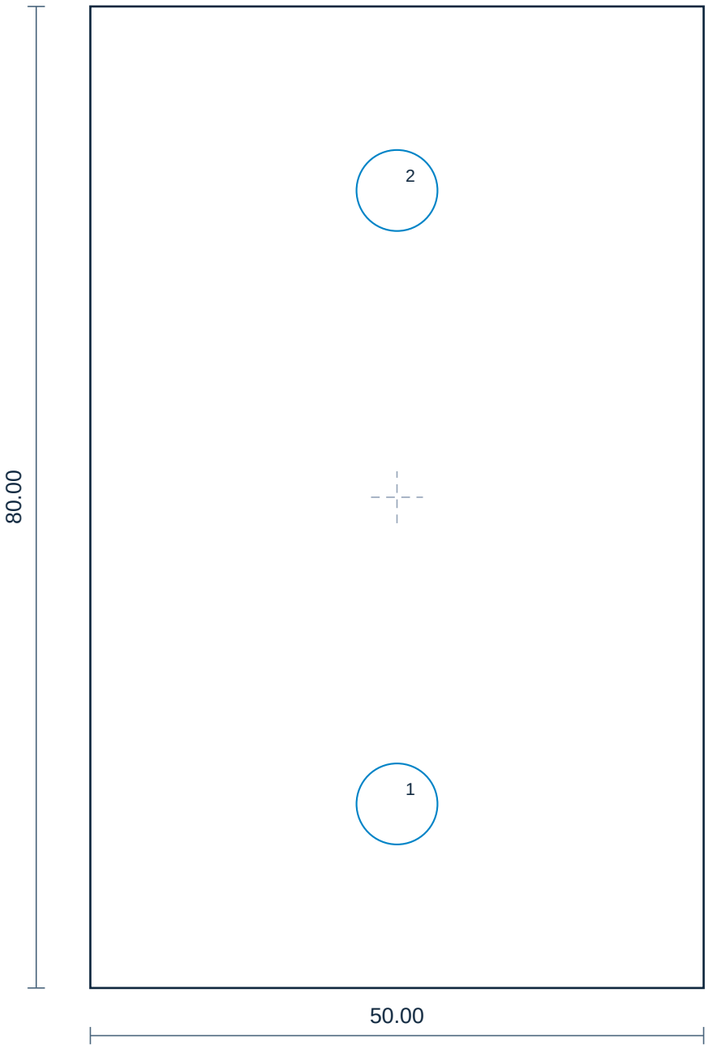
```
01 [-300.000,   0.000] D6.6                          02 [ 300.000,   0.000] D6.6
```

Skid bottom Z=-270mm, giving approximately29mm nominal clearance below camera window.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

P131 - Skid support tab

Quantity4 | Marine HDPE | Thickness10mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

```
01 [   0.000, -25.000] D6.6                    02 [   0.000,  25.000] D6.6
```

Mount with316stainless angle fittings and isolation washers; handling/load verification required.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

AQUASENTINEL P1 | P131 Flat profile

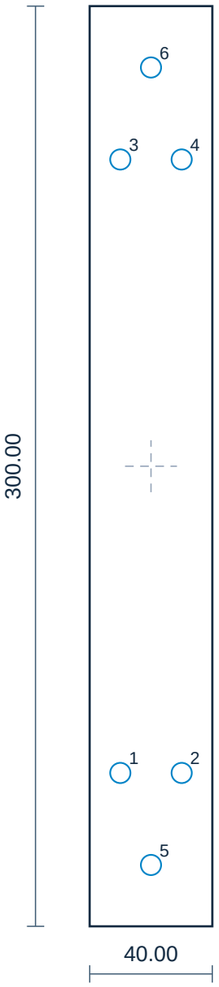
ENGINEERING REVIEW - NOT RELEASED FOR FABRICATION OR PRESSURE QUALIFICATION

REV P1 | SCALE 2:1 | SHEET 10

All dimensions in mm. STEP/DXF geometry controls. Print at100% for stated scale.

P132 - Upper foam tie

Quantity2 | Marine HDPE | Thickness10mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

```
01 [ -10.000,-100.000] D6.6        03 [ -10.000, 100.000] D6.6        05 [   0.000,-130.000] D6.6
02 [  10.000,-100.000] D6.6        04 [  10.000, 100.000] D6.6        06 [   0.000, 130.000] D6.6
```

Set blocks after measured displacement and CG/CB trim. Foam quantities are design inputs, not a measured trim claim.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

P140 - Electronics installation tray

Quantity1 | 6061-T6 aluminum | Thickness3mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

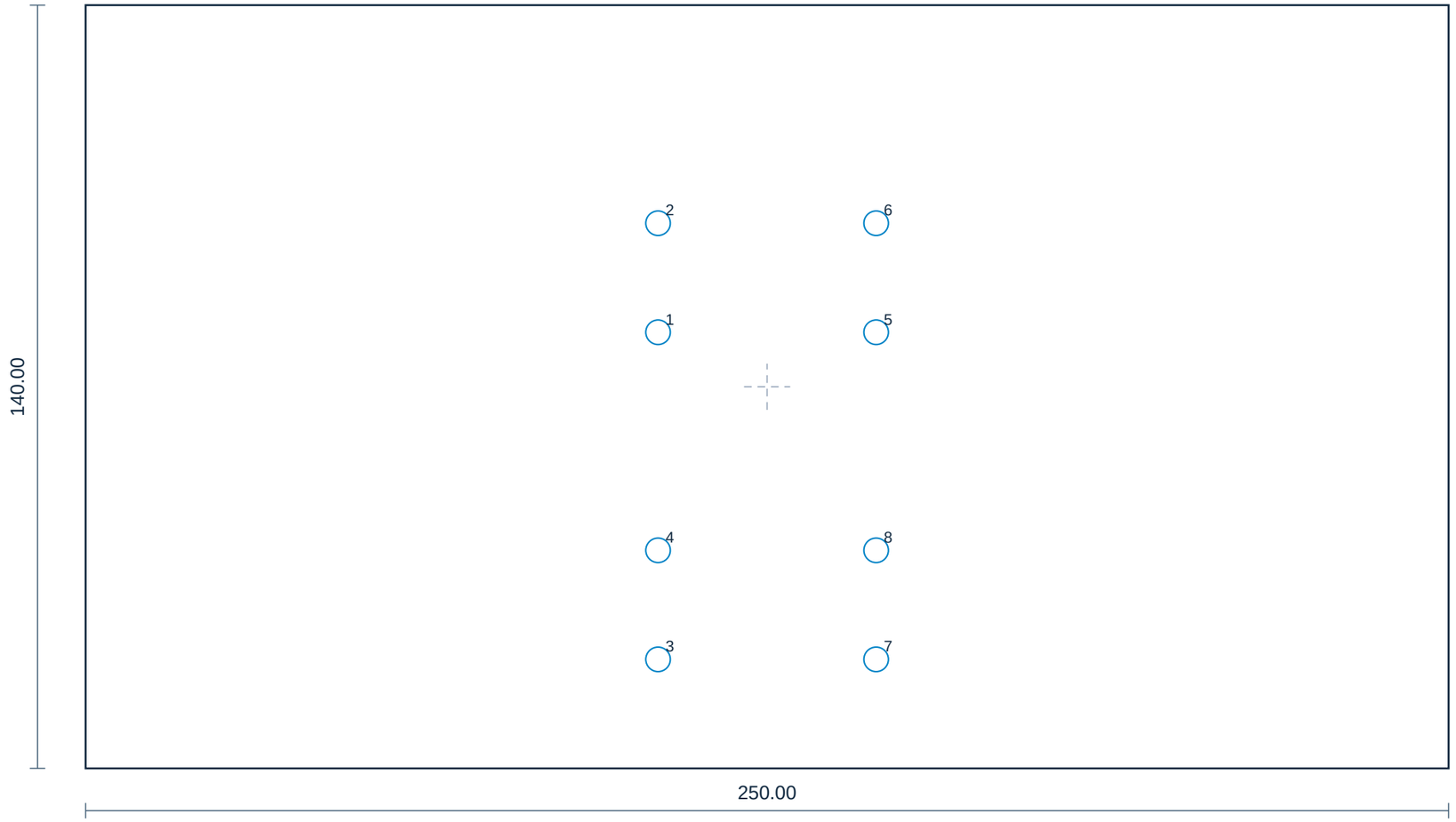
```
01 [-190.000, -40.000] D3.4        02 [-190.000,  40.000] D3.4        03 [ 190.000, -40.000] D3.4        04 [ 190.000,  40.000] D3.4
```

Board footprints are envelope references; use insulated adjustable mounting rails, not invented PCB drilling patterns. Harness, cooling and vibration validation required.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

P150 - Optical-pod rear mounting plate

Quantity1 | 6061-T6 aluminum | Thickness8mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

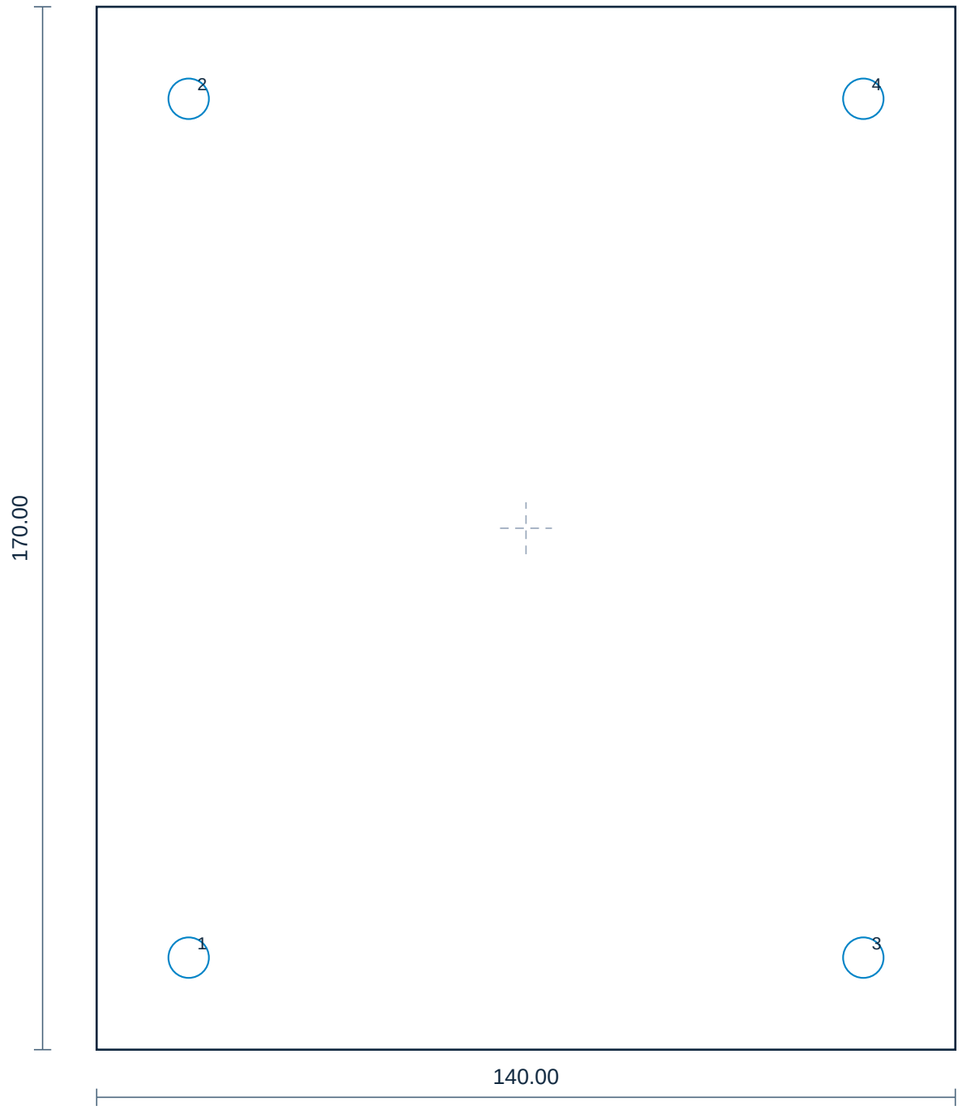
```
01 [ -20.000,  10.000] D4.5        03 [ -20.000, -50.000] D4.5        05 [  20.000,  10.000] D4.5        07 [  20.000, -50.000] D4.5
02 [ -20.000,  30.000] D4.5        04 [ -20.000, -30.000] D4.5        06 [  20.000,  30.000] D4.5        08 [  20.000, -30.000] D4.5
```

Plate worldX185..193,Y+/-125,Z-210..-70. Two complete3in clamps centeredZ=-120/-180; M4foot patternY+/-20,Zcenter+/-10. Side-frame end-interfaceM5blindtap15mm alignsX189,Z-185; inspect joint before release. Vessel is never drilled.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.

P151 - Laser-scaler adapter plate

Quantity1 | Marine HDPE | Thickness10mm | Drawing coordinates centered on flat profile



Through-hole table: index [X,Y], diameter

```
01 [ -55.000, -70.000] D6.6        02 [ -55.000,  70.000] D6.6        03 [  55.000, -70.000] D6.6        04 [  55.000,  70.000] D6.6
```

UWI external envelope only. Supplier mounting pattern/fasteners and optical alignment are open interface items. Plate holes are frameattachment holes, not asserted supplier hole locations.

General cut-profile tolerance:+/-0.5mm; clearance-hole location/diameter:+/-0.2mm unless a reviewed drawing specifies otherwise. Deburr all edges. Do not use these defaults on pressure-boundary components.