

1. PRIMARY BUOYANCY UNIT
2. SECONDARY BUOYANCY UNIT
3. CENTRAL STEELWORK
4. ELECTRONICS ASSEMBLY
5. TOPMARK ASSEMBLY
6. EQUIPMENT ARMS
7. APPROXIMATE WEIGHT: 1100kg
8. APPROXIMATE FREEBOARD (c/w 150kg OF MOORINGS): 0.5m



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PART No: N/A

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SCALE: 1:80
PAPER: A4

INSTITUTE OF OCEANOLOGY
OPTICAL BUOY DESIGN
PROPOSAL

26/08/2011

DATE

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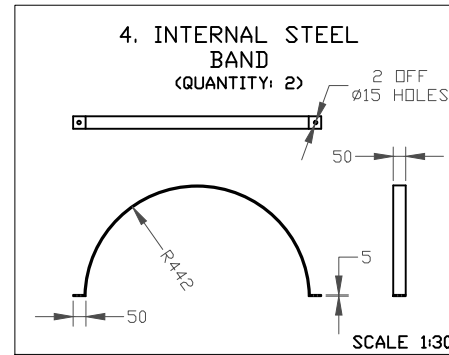
SHEET 1 OF 14

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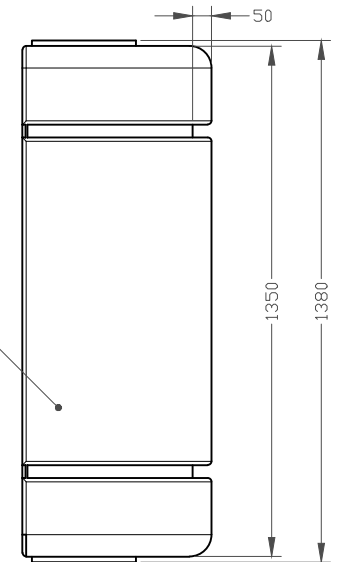
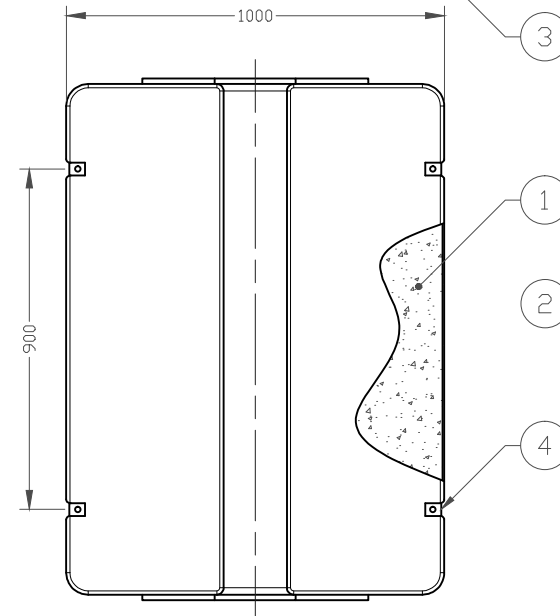
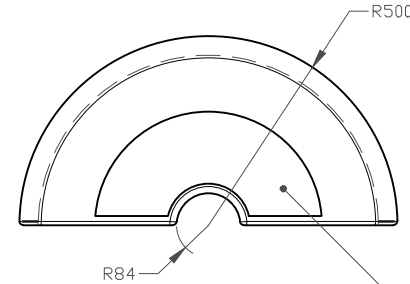
REV
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PRIMARY BUOYANCY

- 2 PIECE HULL



1. THERMO-LAMINATED PHYSICALLY CROSS-LINKED POLYETHYLENE FOAM CORE, DENSITY: 50kg/m³
2. SPRAY APPLIED POLYURETHANE ELASTOMER SKIN, THICKNESS: 8mm (c/w KEVLAR REINFORCEMENT)
3. POLYURETHANE ELASTOMER END CASTINGS: 600 o/d, 220 i/d x 20mm
4. INTERNAL STEEL-BAND HULL JOINING SYSTEM
 - 4.1. STAINLESS STEEL, GRADE: 316



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PROPOSAL -
PRIMARY BUOYANCY

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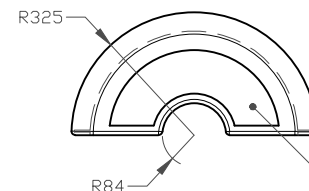
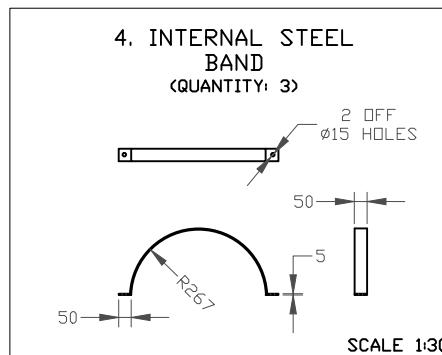
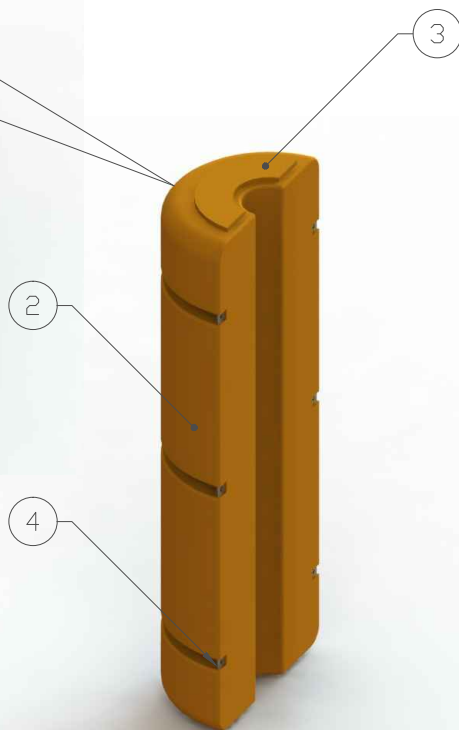
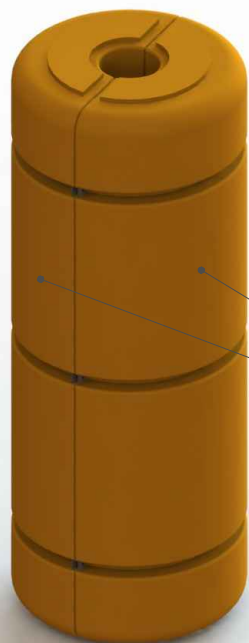
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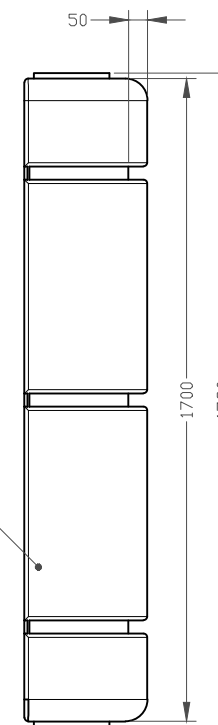
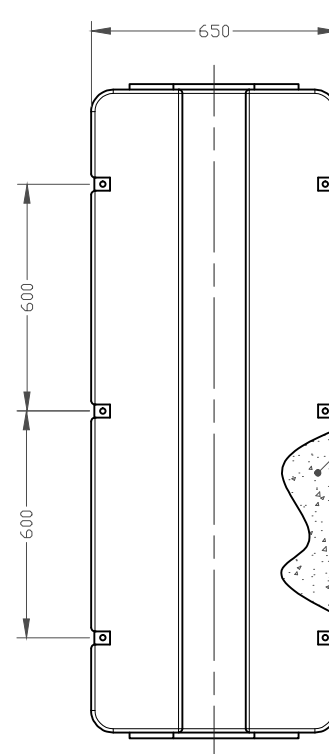
REV No

SECONDARY BUOYANCY

- 2 PIECE HULL



1. THERMO-LAMINATED PHYSICALLY CROSS-LINKED POLYETHYLENE FOAM CORE, DENSITY: 77kg/m³
2. SPRAY APPLIED POLYURETHANE ELASTOMER SKIN, THICKNESS: 8mm (c/w KEVLAR REINFORCEMENT)
3. POLYURETHANE ELASTOMER END CASTINGS: 550 o/d, 220 i/d x 20mm
4. INTERNAL STEEL-BAND HULL JOINING SYSTEM
 - 4.1. STAINLESS STEEL, GRADE: 316



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OPTICAL BODY DESIGN
PROPOSAL -
SECONDARY BUOYANCY

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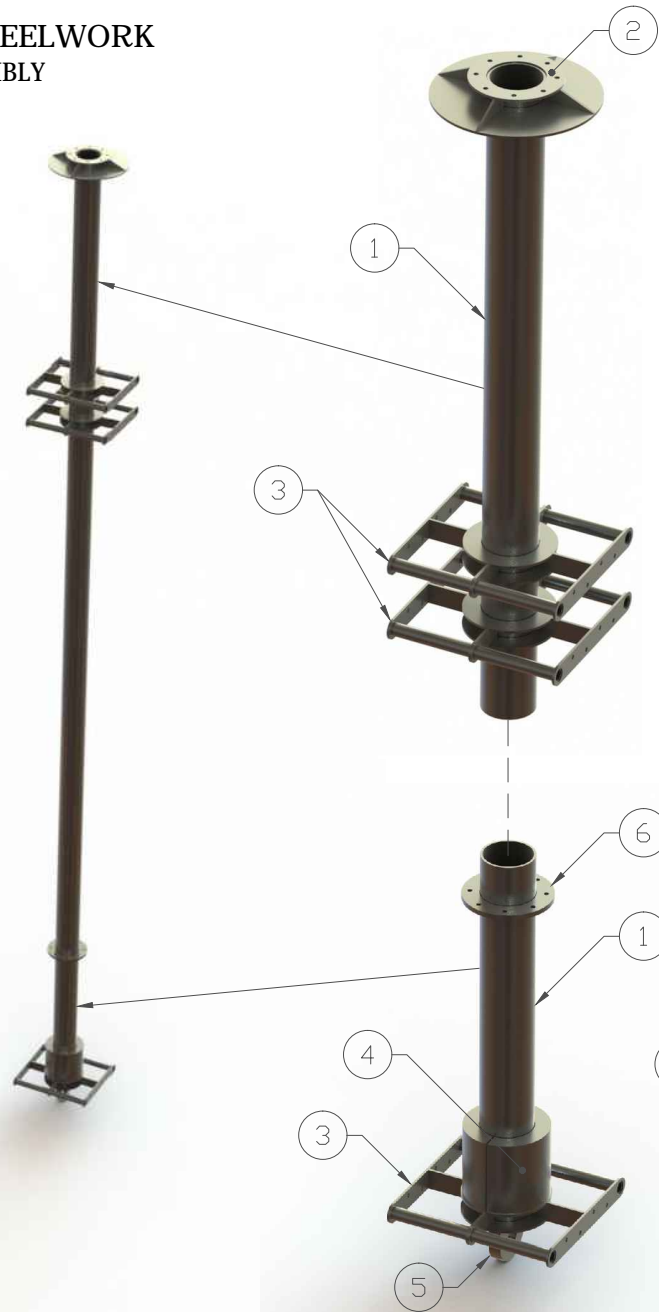
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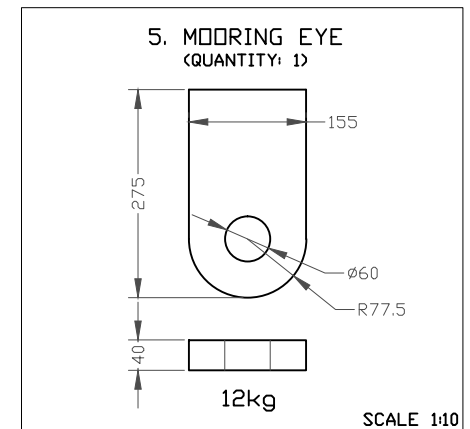
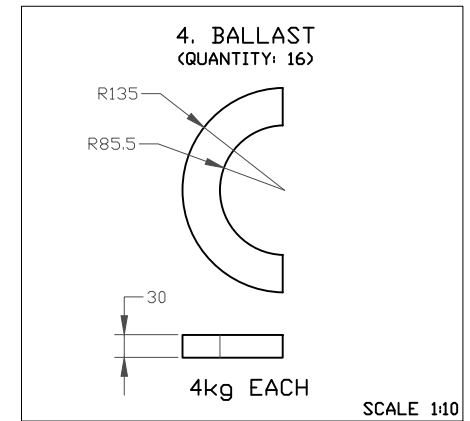
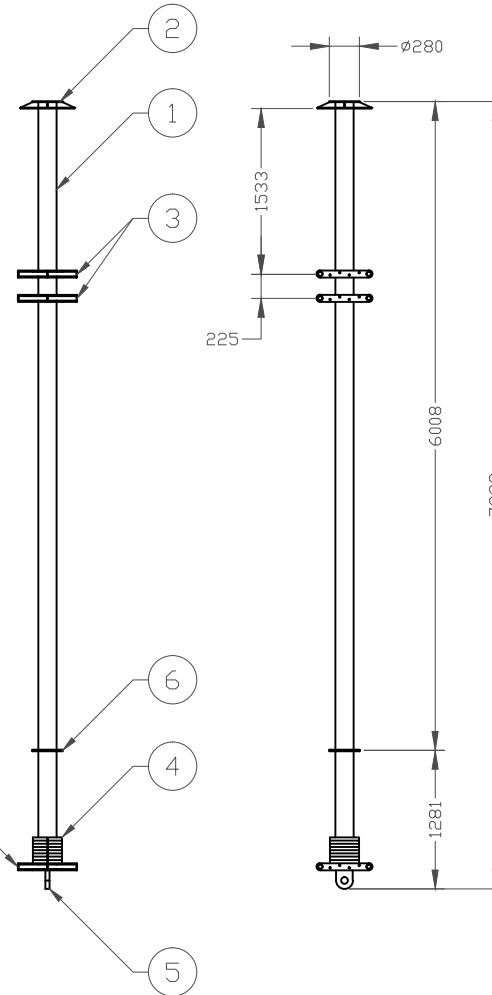
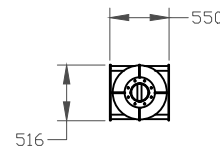
CENTRAL STEELWORK

- 2 PIECE ASSEMBLY



1. CENTRAL TUBE: $\varnothing 168.3 \times 7.11\text{mm}$
 - 1.1. LENGTHS: 6000mm & 1102mm
2. SUBASSEMBLY 1 - ELECTRONICS ASSEMBLY MOUNTING
3. SUBASSEMBLY 2 - EQUIPMENT ARM CONNECTORS
 - 3.1. QUANTITY: 3

4. ADJUSTABLE BALLAST
 - 4.1. APPROXIMATE TOTAL WEIGHT: 64kg
 - 4.2. QUANTITY: 16
5. MOORING EYE
6. SUBASSEMBLY JOIN
 - 6.1. 2 OFF MAIN FLANGE PROFILE (SEE FOLLOWING SHEET FOR DETAILS)
7. ALL STAINLESS STEEL, GRADE: 316



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OPTICAL BODY DESIGN
PROPOSAL -
CENTRAL STEELWORK

26/08/2011

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SHEET 4 OF 14

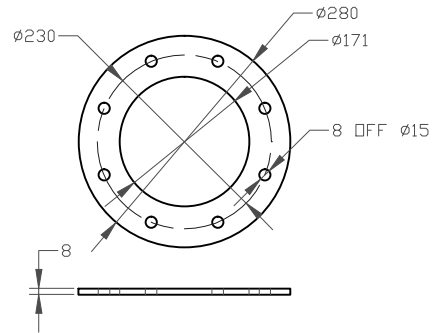
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REV No

SUBASSEMBLY 1 - ELECTRONICS ASSEMBLY MOUNTING

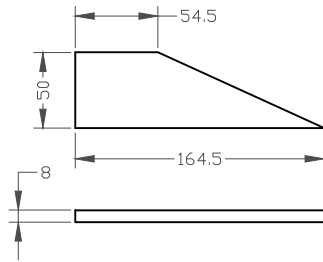
1 OFF

MAIN FLANGE
1 OFF



2.4kg

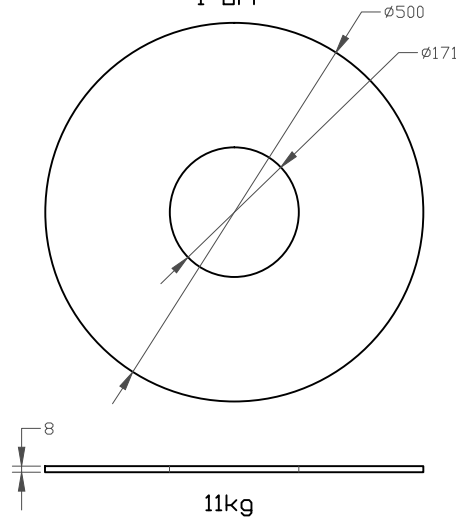
TOP WEB
4 OFF



0.4kg EACH

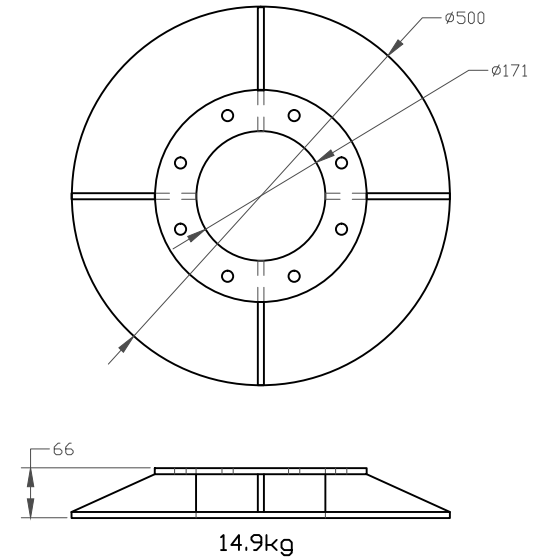
(SCALE 1:5)

BUOYANCY STOP
1 OFF



11kg

COMPLETE
SUBASSEMBLY

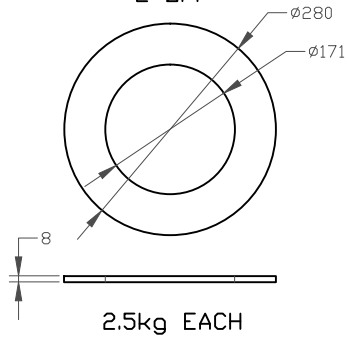


14.9kg

SUBASSEMBLY 2 - EQUIPMENT ARM CONNECTORS

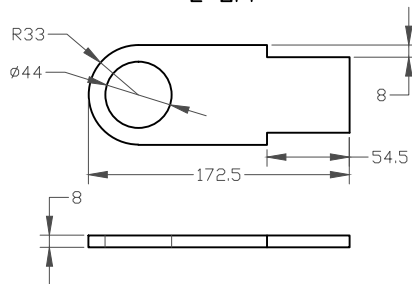
3 OFF

MAIN BLANK FLANGE
2 OFF



2.5kg EACH

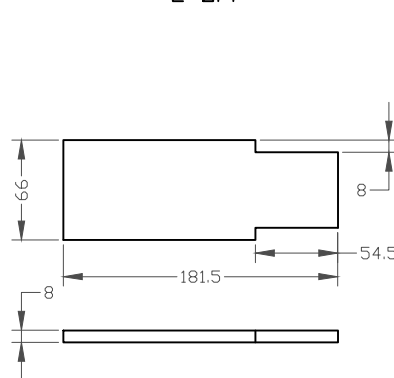
TUBE CONNECTOR
2 OFF



0.7kg EACH

(SCALE 1:5)

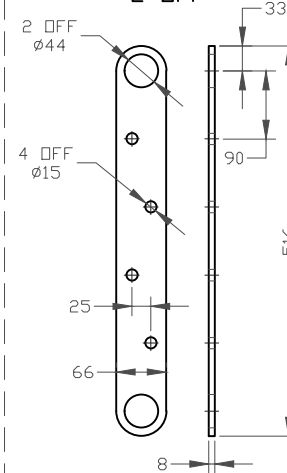
FLANGE CONNECTOR
2 OFF



0.7kg EACH

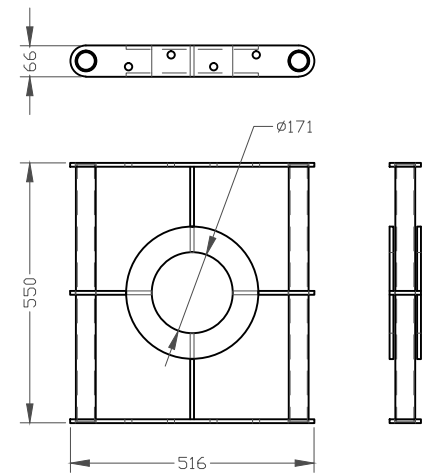
(SCALE 1:5)

ARM FLANGE
2 OFF



1.9kg EACH

COMPLETE
SUBASSEMBLY



14.5kg

(SCALE 1:16)



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SCALE: 1:10
PAPER: A4

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OPTICAL BUDY DESIGN
PROPOSAL -
CENTRAL STEELWORK
SUBASSEMBLY DETAILS

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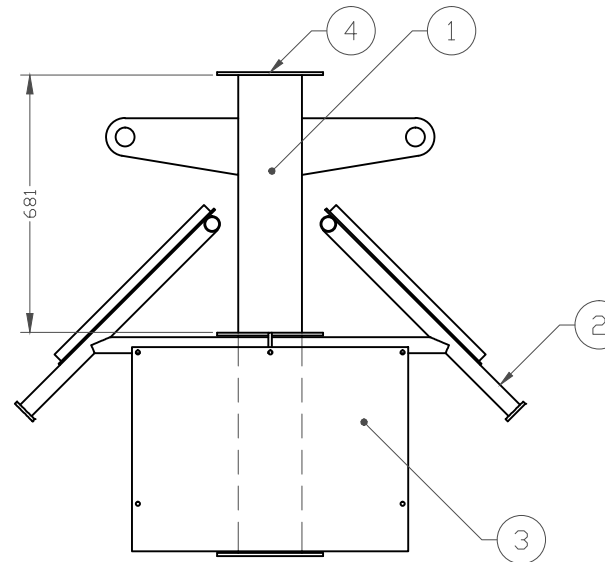
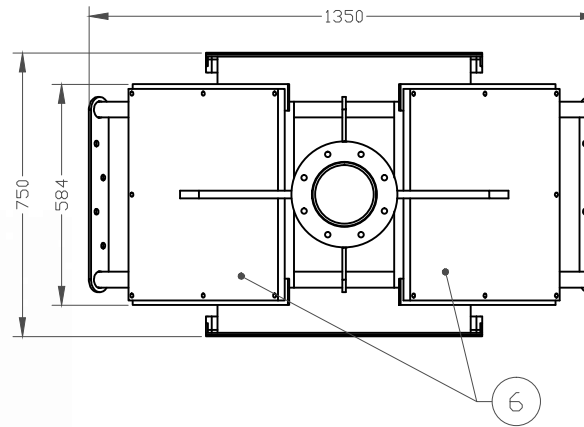
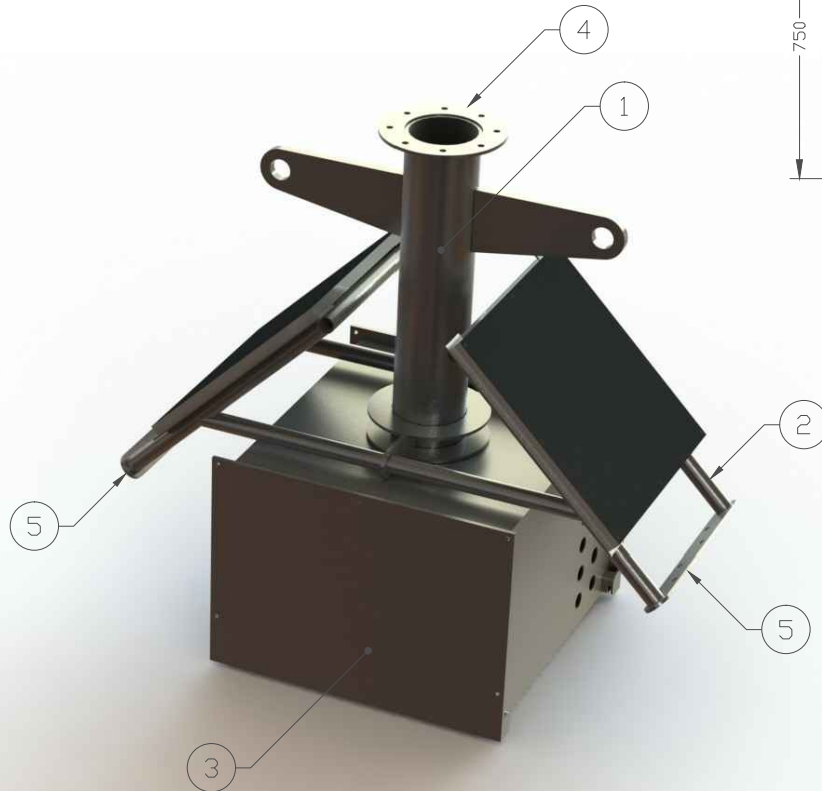
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SHEET 5 OF 14

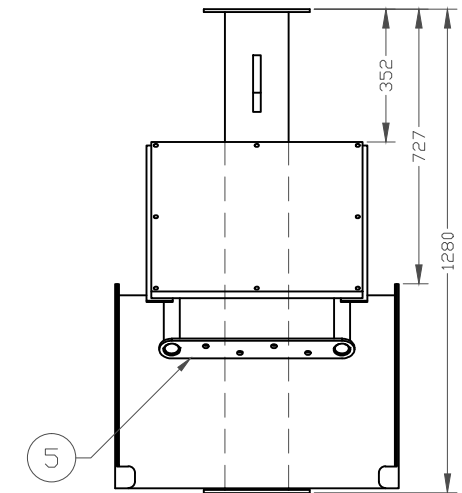
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No

ELECTRONICS ASSEMBLY



1. SUBASSEMBLY 1 - LIFTING ASSEMBLY
2. SUBASSEMBLY 2 - SOLAR PANEL/EQUIPMENT ARM MOUNTS
3. SUBASSEMBLY 3 - BATTERY BOX
4. TOPMARK ASSEMBLY MOUNTING
5. EQUIPMENT ARMS CONNECTION LOCATIONS
6. 2 OFF SOLAR PANELS
6.1. DIMENSIONS: 559 x 559mm
6.2. WEIGHT: 5kg EACH
7. ALL CONSTRUCTED FROM STAINLESS STEEL, GRADE: 316



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mm UNLESS STATED



SCALE: 1:20
PAPER: A4

INSTITUTE OF OCEANOLOGY
OPTICAL BODY DESIGN
PROPOSAL -
ELECTRONICS ASSEMBLY

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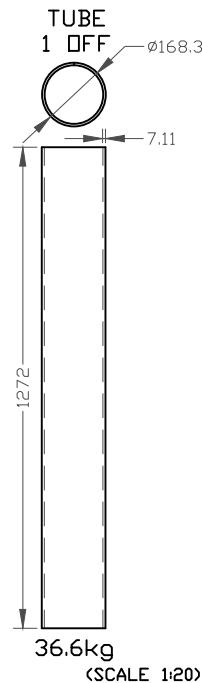
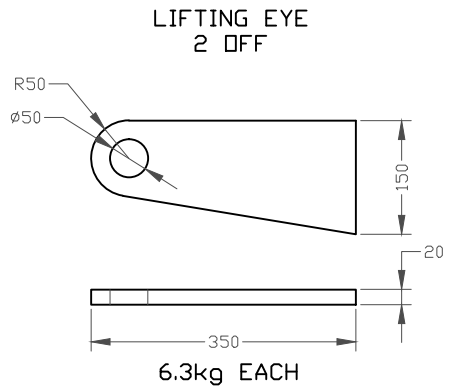
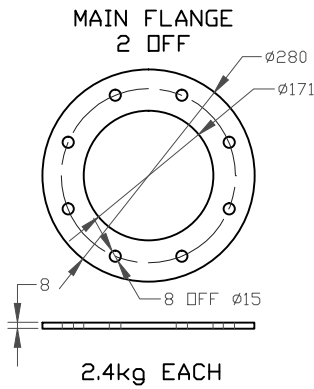
SHEET 6 OF 14

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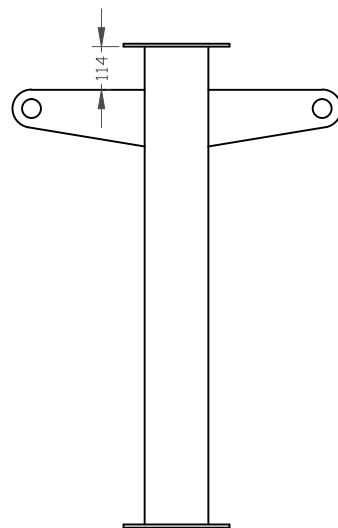
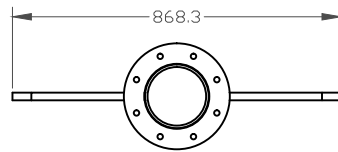
REV
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SUBASSEMBLY 1 - ELECTRONICS ASSEMBLY MOUNTING

1 OFF

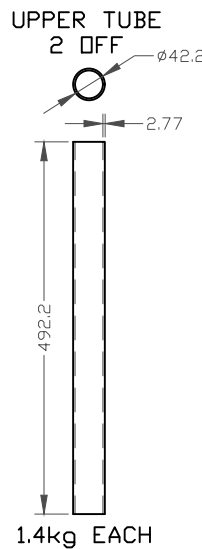


COMPLETE
SUBASSEMBLY



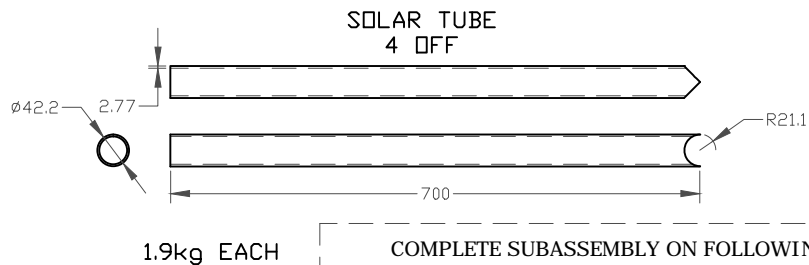
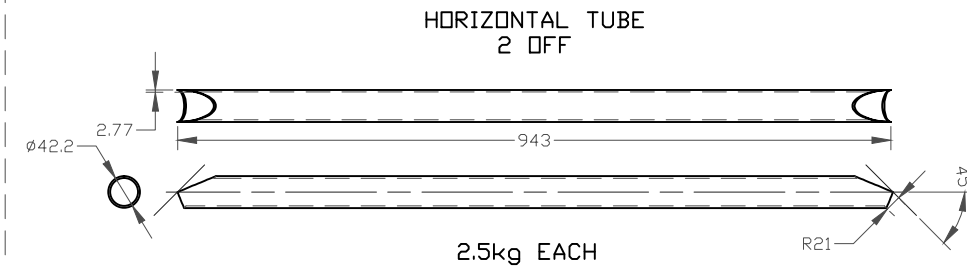
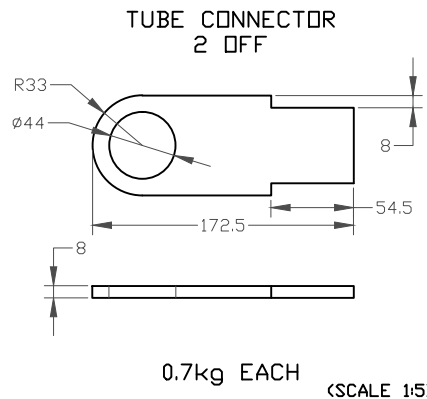
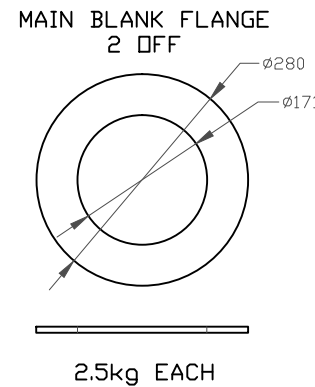
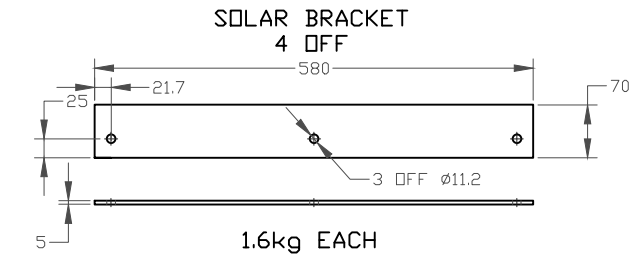
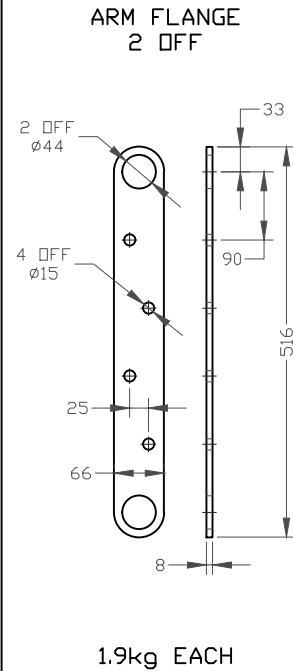
54kg

(SCALE 1:20)



SUBASSEMBLY 2 - SOLAR/ARM MOUNTS

1 OFF



COMPLETE SUBASSEMBLY ON FOLLOWING SHEET

PART No: N/A

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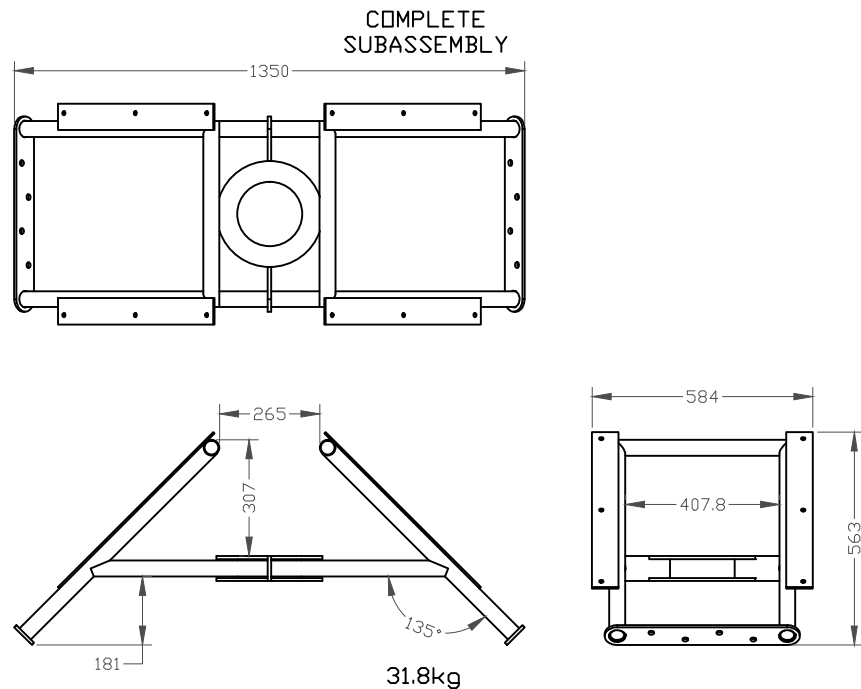
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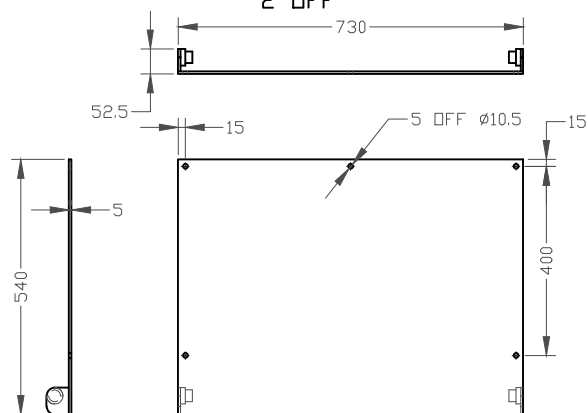
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SUBASSEMBLY 2 - SOLAR/ARM MOUNTS

1 OFF



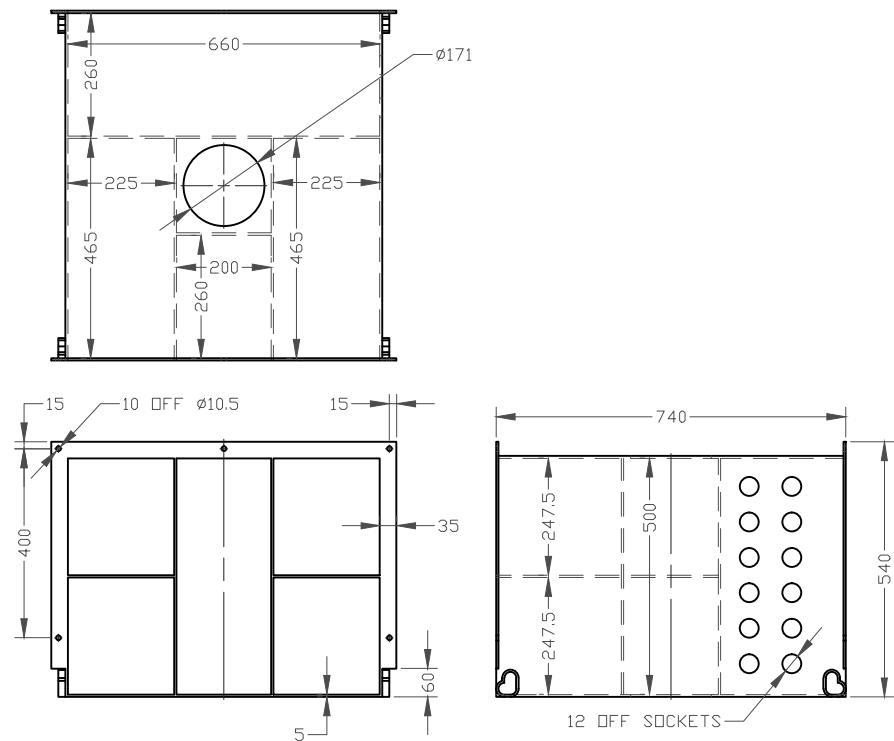
(SCALE 1:20)

BATTERY BOX DOOR
2 OFF

16.2kg EACH

SUBASSEMBLY 3 - BATTERY BOX

1 OFF

BATTERY BOX
1 OFF

115.6kg



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INSTITUTE OF OCEANOLOGY

OPTICAL BUDY DESIGN
PROPOSAL -
ELECTRONICS ASSEMBLY
SUBASSEMBLY DETAILS

26/08/2011

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SHEET 8 OF 14

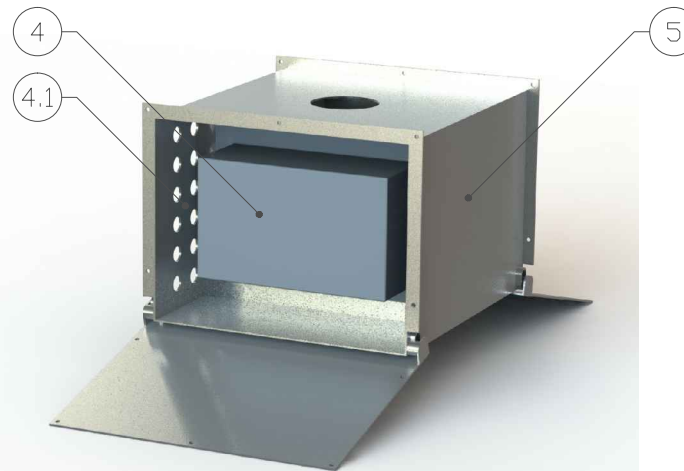
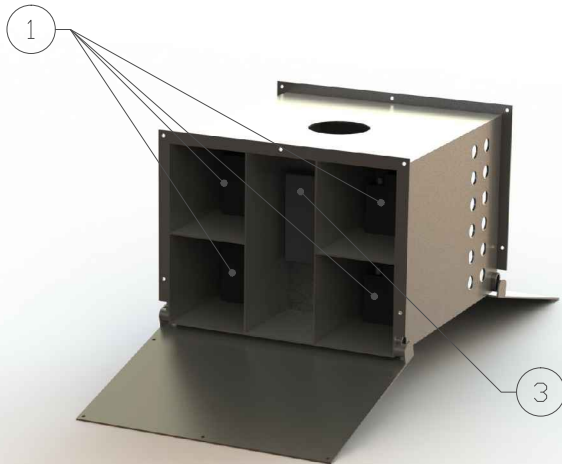
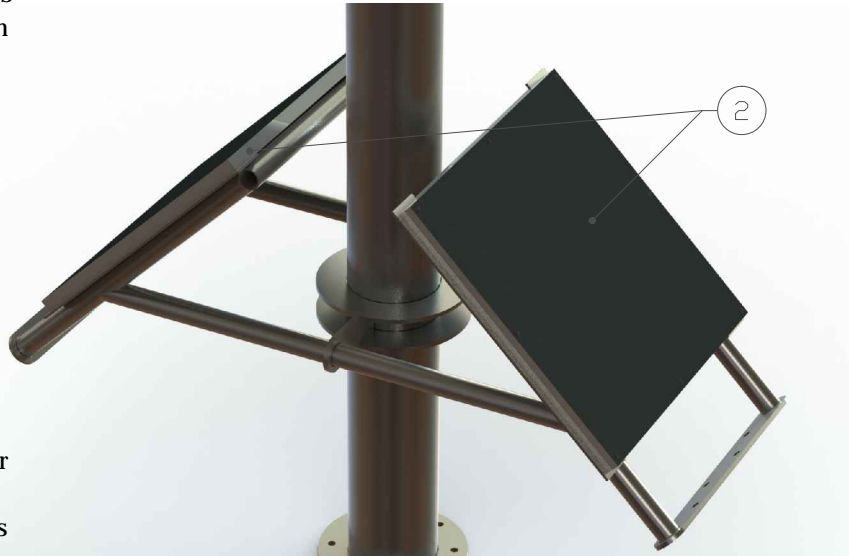
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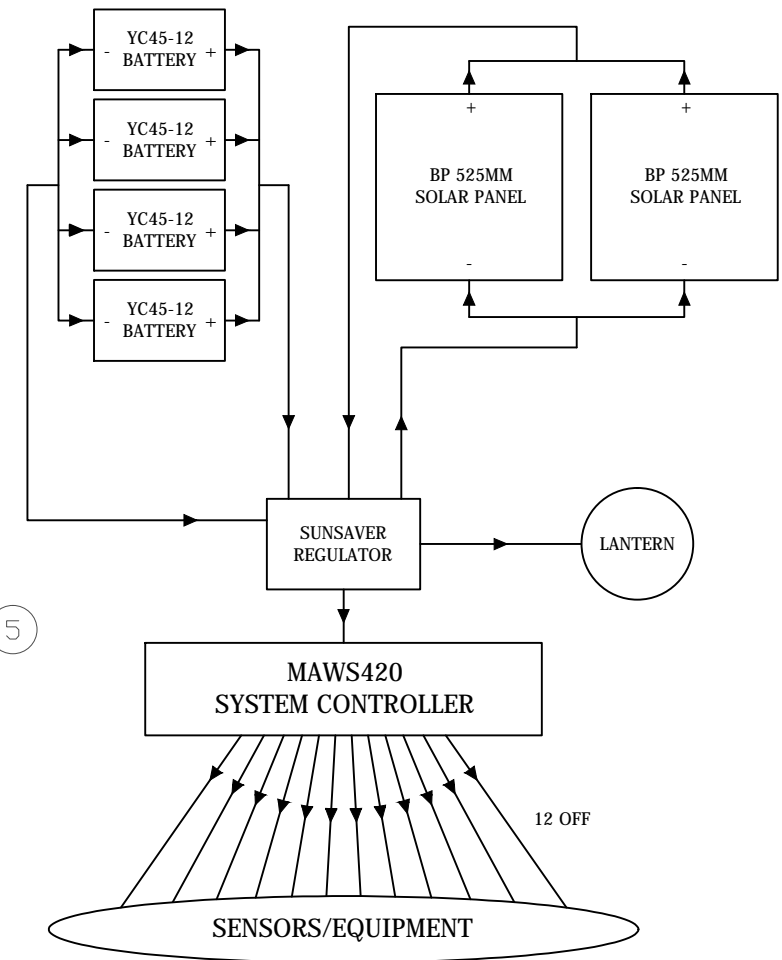
ELECTRONICS SYSTEM

- The electronic system as outlined on this sheet has the capability to run autonomously for 4 weeks between the months of March & October. The system consists of:

1. 4 off YC45-12 lead-acid batteries
 - 1.1. Producing a total of 180Ah
2. 2 off BP 525MM solar panels
 - 2.1. Producing a total of 50W
3. Sunsafer regulator
4. MAWS420 system controller
 - 4.1. c/w 12 off equipment sockets
5. Battery Box
 - 5.1. Access front and back for batteries/system controller
 - 5.2. Rated to IP68
 - 5.3. Constructed from stainless steel, grade: 316



SYSTEM SCHEMATIC



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PAPER: A4

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OPTICAL BODY DESIGN
PROPOSAL -
ELECTRONICS SYSTEM

26/08/2011

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SHEET 9 OF 14

0

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No

EQUIPMENT ARMS (2 OFF)
- 3 PIECE ASSEMBLY

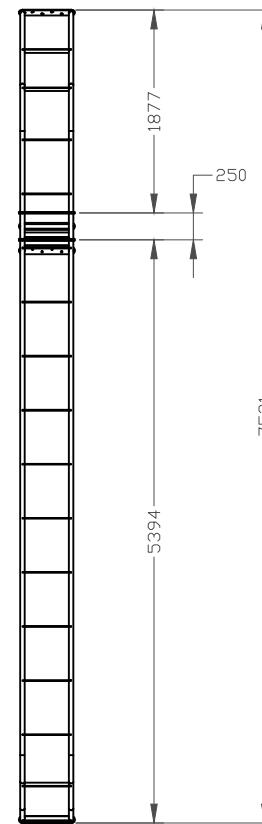
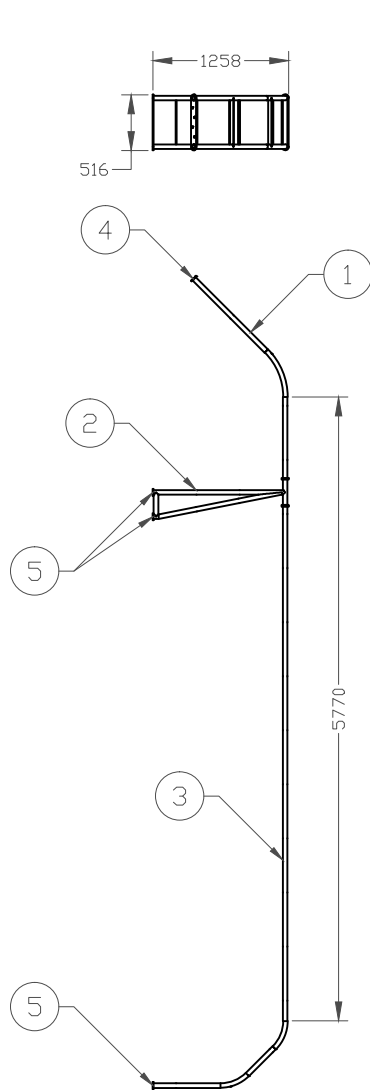
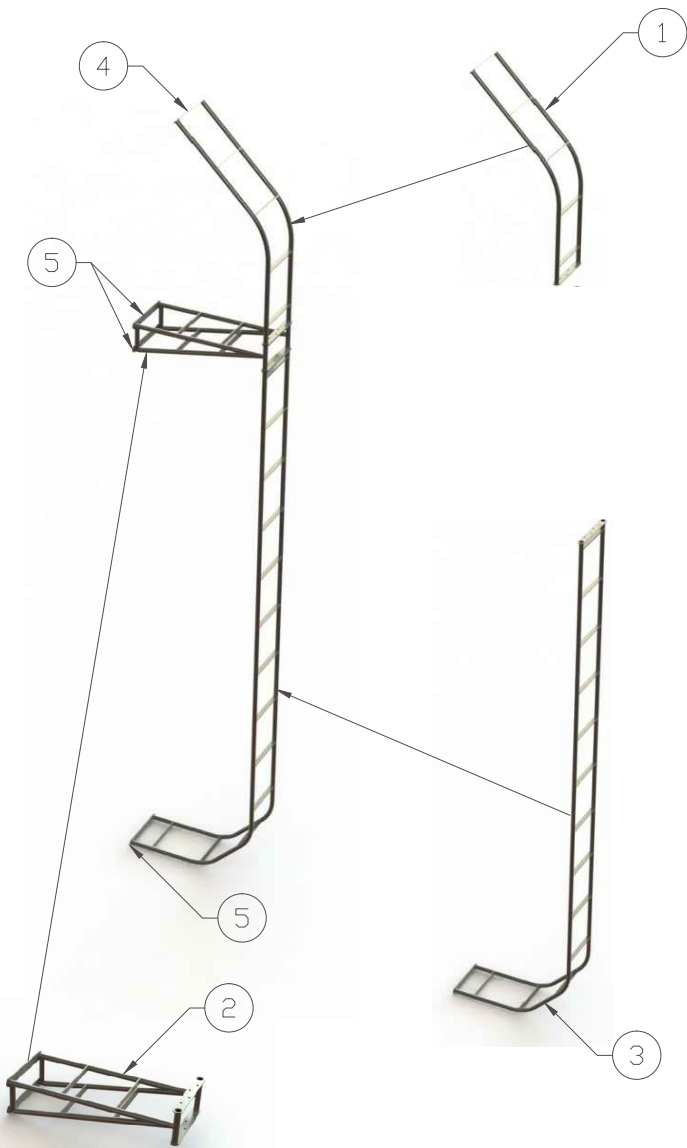
1. SUBASSEMBLY 1 - UPPER
EQUIPMENT ARM

2. SUBASSEMBLY 2 - MID
EQUIPMENT ARM

3. SUBASSEMBLY 3 - LOWER
EQUIPMENT ARM
4. ELECTRONICS ASSEMBLY
CONNECTION LOCATION

5. CENTRAL STEELWORK
CONNECTION LOCATIONS

6. ALL CONSTRUCTED FROM
STAINLESS STEEL, GRADE:
316



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mm UNLESS STATED



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PAPER: A4

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OPTICAL BODY DESIGN
PROPOSAL -
EQUIPMENT ARMS

26/08/2011

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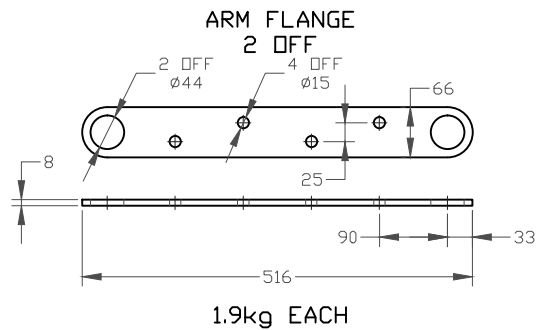
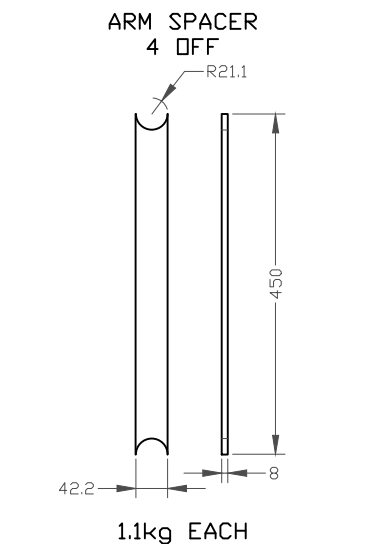
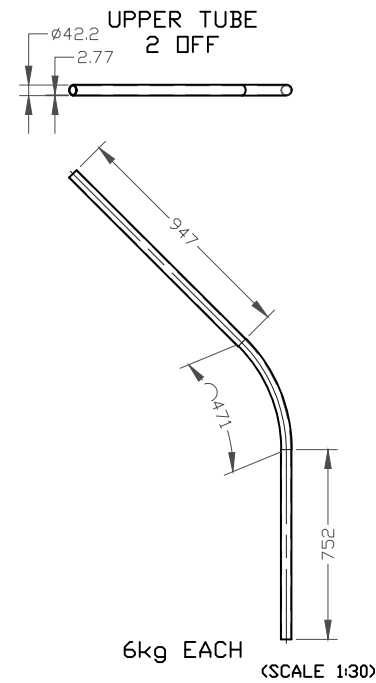
SHEET 10 OF 14

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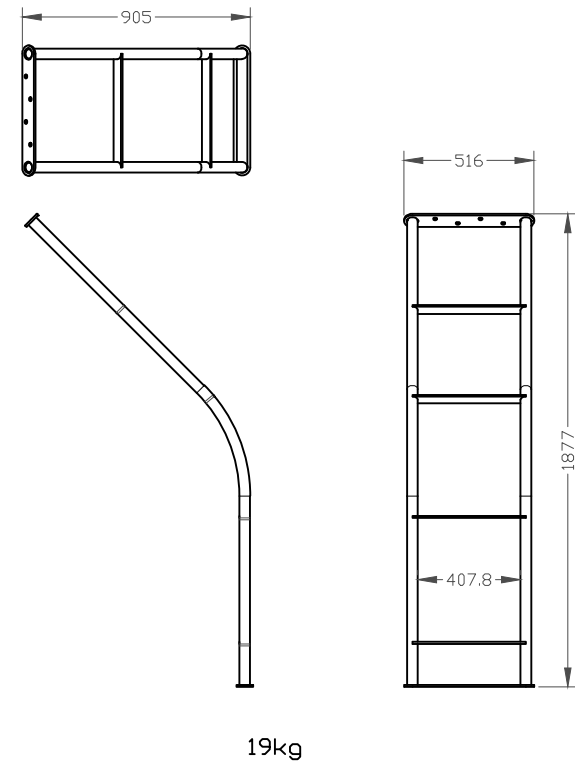
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SUBASSEMBLY 1 - UPPER EQUIPMENT ARM

1 OFF

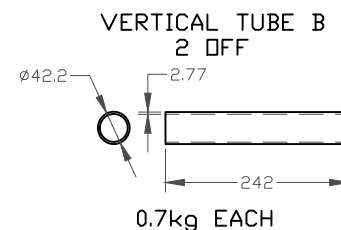
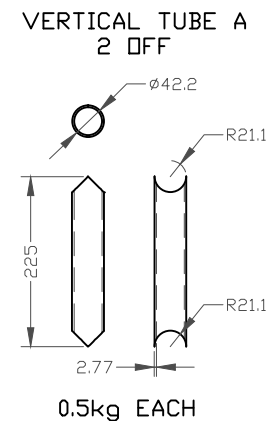
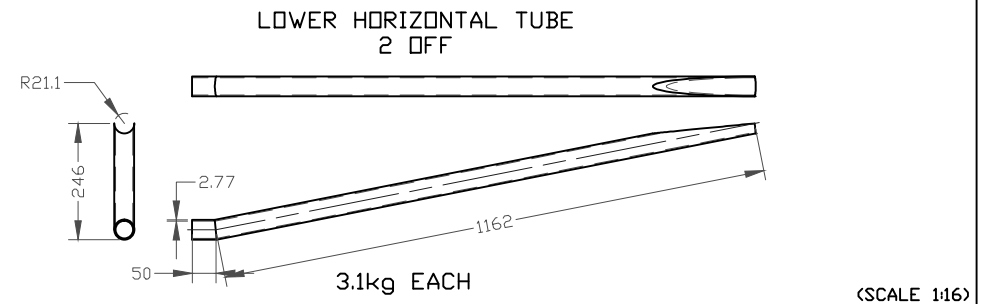
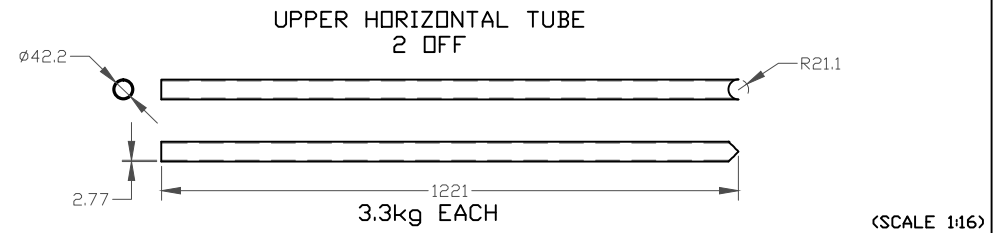


COMPLETE
SUBASSEMBLY

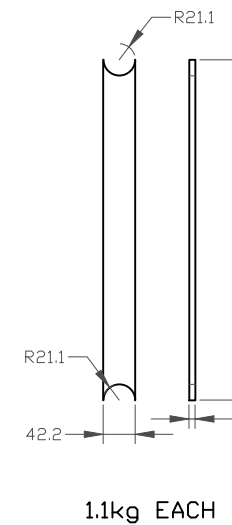


SUBASSEMBLY 2 - MID EQUIPMENT ARM

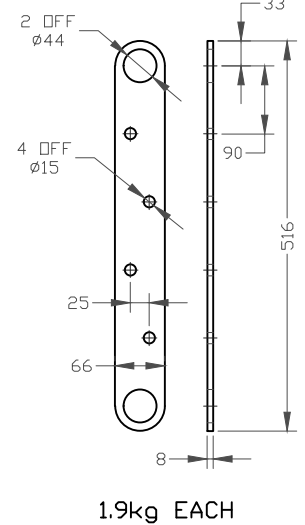
1 OFF



ARM SPACER
4 OFF



ARM FLANGE
4 OFF



COMPLETE SUBASSEMBLY ON FOLLOWING SHEET

PART No: N/A

ALL DIMENSIONS IN
mm UNLESS STATED



SCALE: 1:10
PAPER: A4

INSTITUTE OF OCEANOLOGY
OPTICAL BUDY DESIGN
PROPOSAL -
EQUIPMENT ARMS
SUBASSEMBLY DETAILS

26/08/2011

DATE

BE

DRAWN
BY

CHECKED
BY

M031137

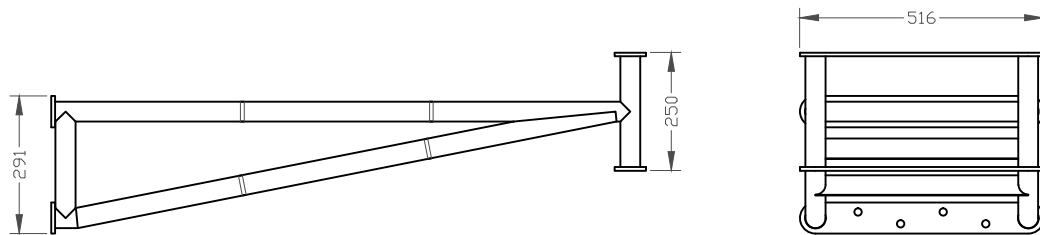
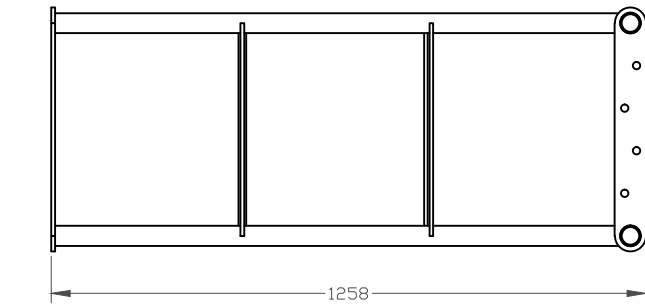
SHEET 11 OF 14

0

REV
No

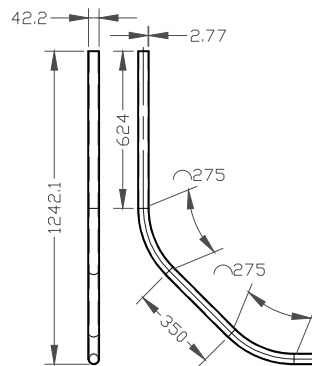
SUBASSEMBLY 2 - MID EQUIPMENT ARM

1 OFF

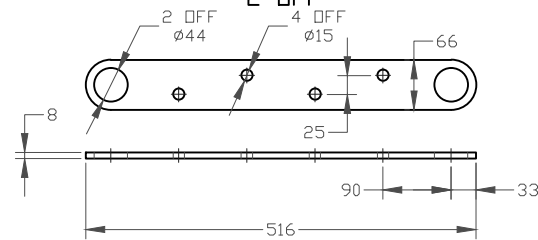
COMPLETE
SUBASSEMBLY

27.3kg

(SCALE 1:16)

LOWER TUBE
2 OFF

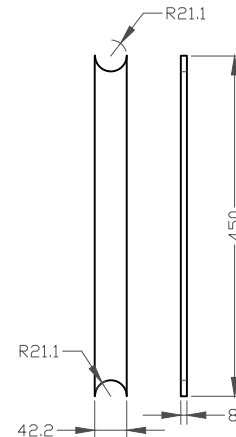
17kg EACH

ARM FLANGE
2 OFF

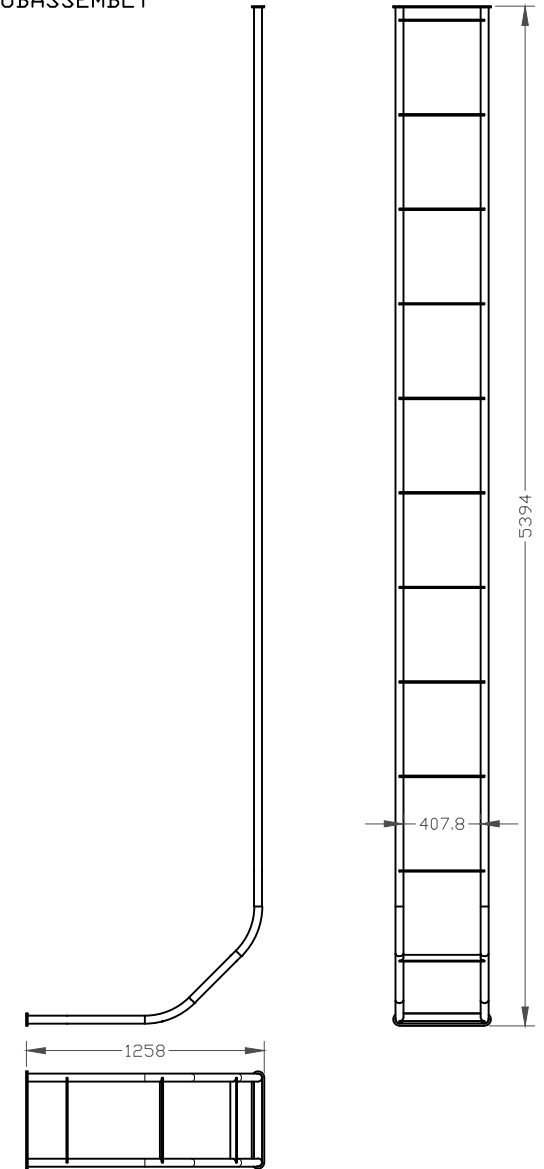
1.9kg EACH

SUBASSEMBLY 3 - LOWER EQUIPMENT ARM

1 OFF

COMPLETE
SUBASSEMBLYARM SPACER
4 OFF

1.1kg EACH



52.9kg

(SCALE 1:40)



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PART No: N/A

ALL DIMENSIONS IN
mm UNLESS STATEDSCALE: 1:10
PAPER: A4

INSTITUTE OF OCEANOLOGY

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PROPOSAL -
EQUIPMENT ARMS
SUBASSEMBLY DETAILS

(SCALE 1:30)

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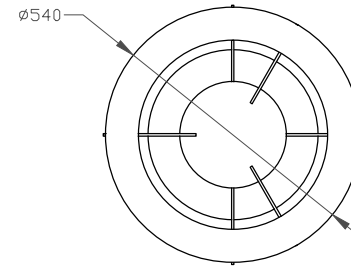
M031137

SHEET 12 OF 14

0

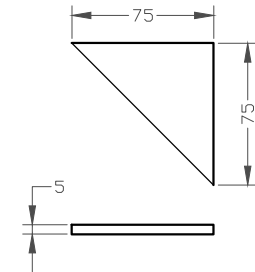
REV
No

TOPMARK ASSEMBLY

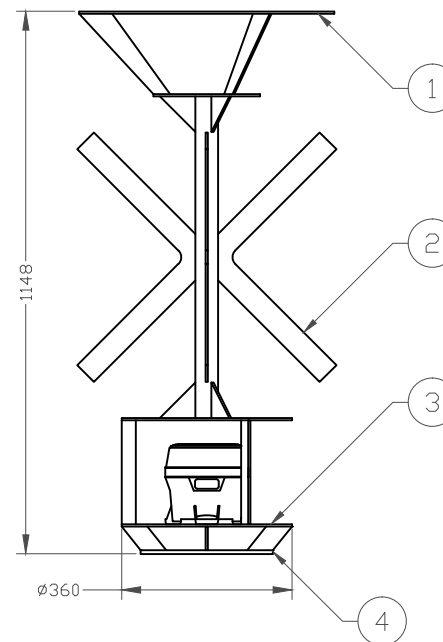


1. SUBASSEMBLY 1 - EQUIPMENT HALO
2. SUBASSEMBLY 2 - SPECIAL MARK CROSS TOPMARK
3. SUBASSEMBLY 3 - LANTERN PEDESTAL
 - 3.1. SHOWN c/w CARMANAH M650 LANTERN (4NM RANGE)
4. ELECTRONICS ASSEMBLY MOUNTING
5. ALL CONSTRUCTED FROM STAINLESS STEEL, GRADE: 316

CROSS TOPMARK WEB
(QUANTITY: 6)



SCALE 1:4



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PART No: N/A

ALL DIMENSIONS IN
mm UNLESS STATED



SCALE: 1:16
PAPER: A4

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OPTICAL BODY DESIGN
PROPOSAL -
TOPMARK ASSEMBLY

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SHEET 13 OF 14

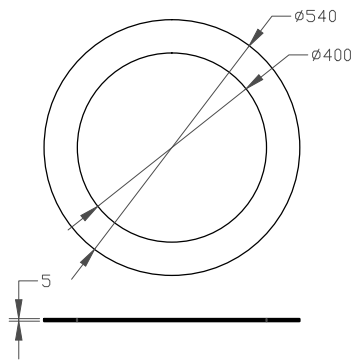
0

REV
No

SUBASSEMBLY 1 - EQUIPMENT HALO

1 OFF

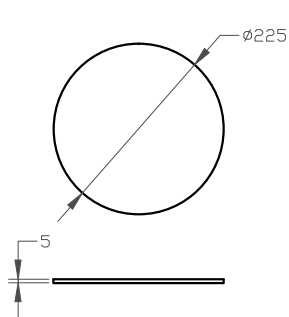
HALO RING
1 OFF



4.1kg

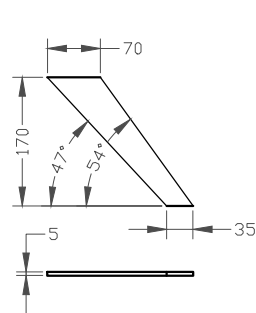
(SCALE 1:16)

HALO BASE
1 OFF



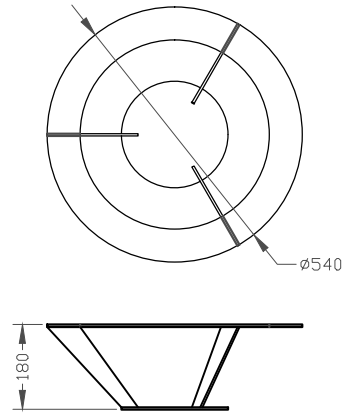
1.6kg

HALO WEB
3 OFF



0.4kg EACH

COMPLETE
SUBASSEMBLY



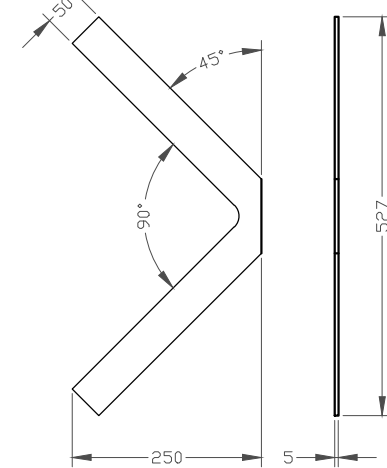
6.8kg

(SCALE 1:16)

SUBASSEMBLY 2 - CROSS TOPMARK

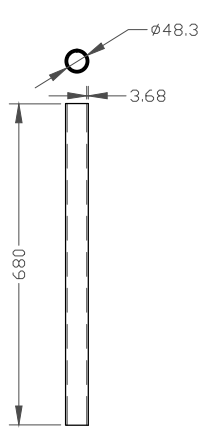
1 OFF

HALF CROSS
4 OFF



2.8kg EACH

TUBE
1 OFF



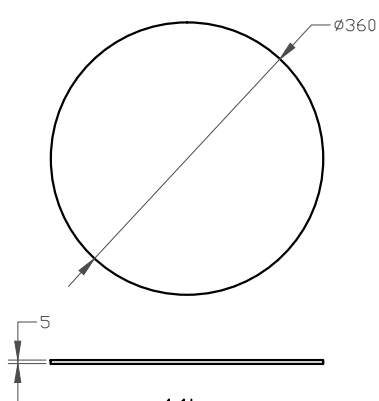
1.3kg EACH

(SCALE 1:16)

SUBASSEMBLY 3 - LANTERN PEDESTAL

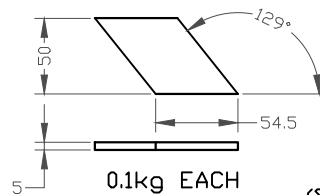
1 OFF

PEDESTAL BASE/TOP
2 OFF



4.1kg

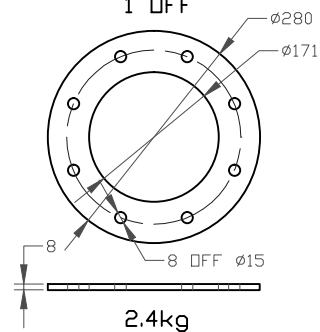
PEDESTAL BASE STRUT
3
4 OFF



0.1kg EACH

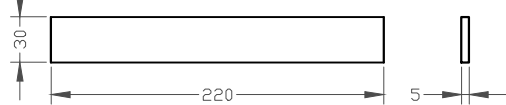
(SCALE 1:5)

MAIN FLANGE
1 OFF



2.4kg

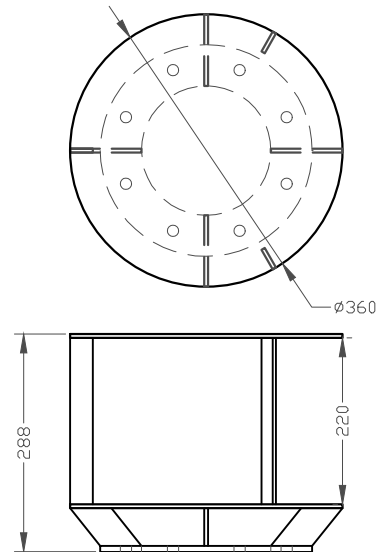
PEDESTAL STRUT
3 OFF



0.3kg EACH

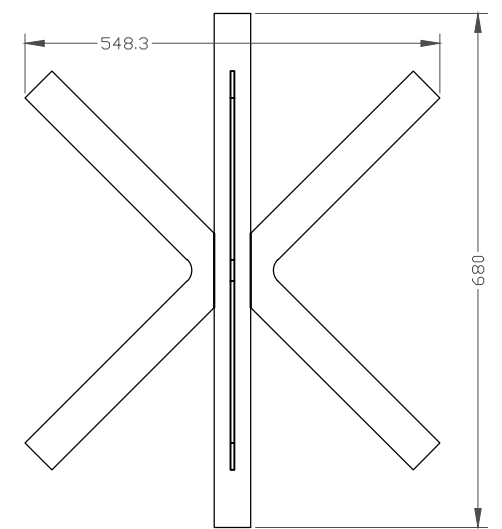
(SCALE 1:5)

COMPLETE
SUBASSEMBLY



11.8kg

COMPLETE
SUBASSEMBLY



8kg



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PART No: N/A

ALL DIMENSIONS IN
mm UNLESS STATED



SCALE: 1:10
PAPER: A4

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SHEET 14 OF 14

0

REV
No