

# Drawing D1000392

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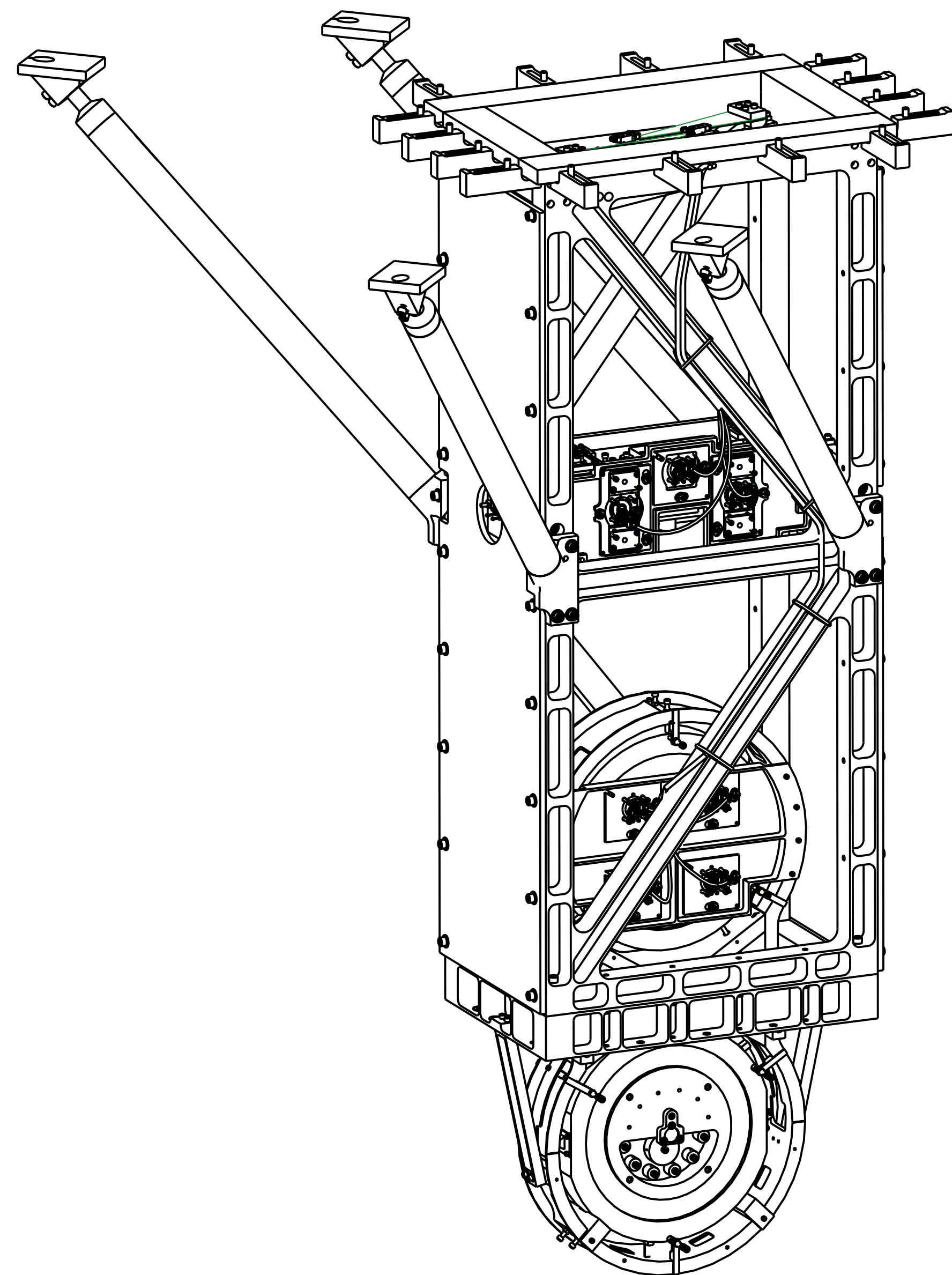
## Drawing Index

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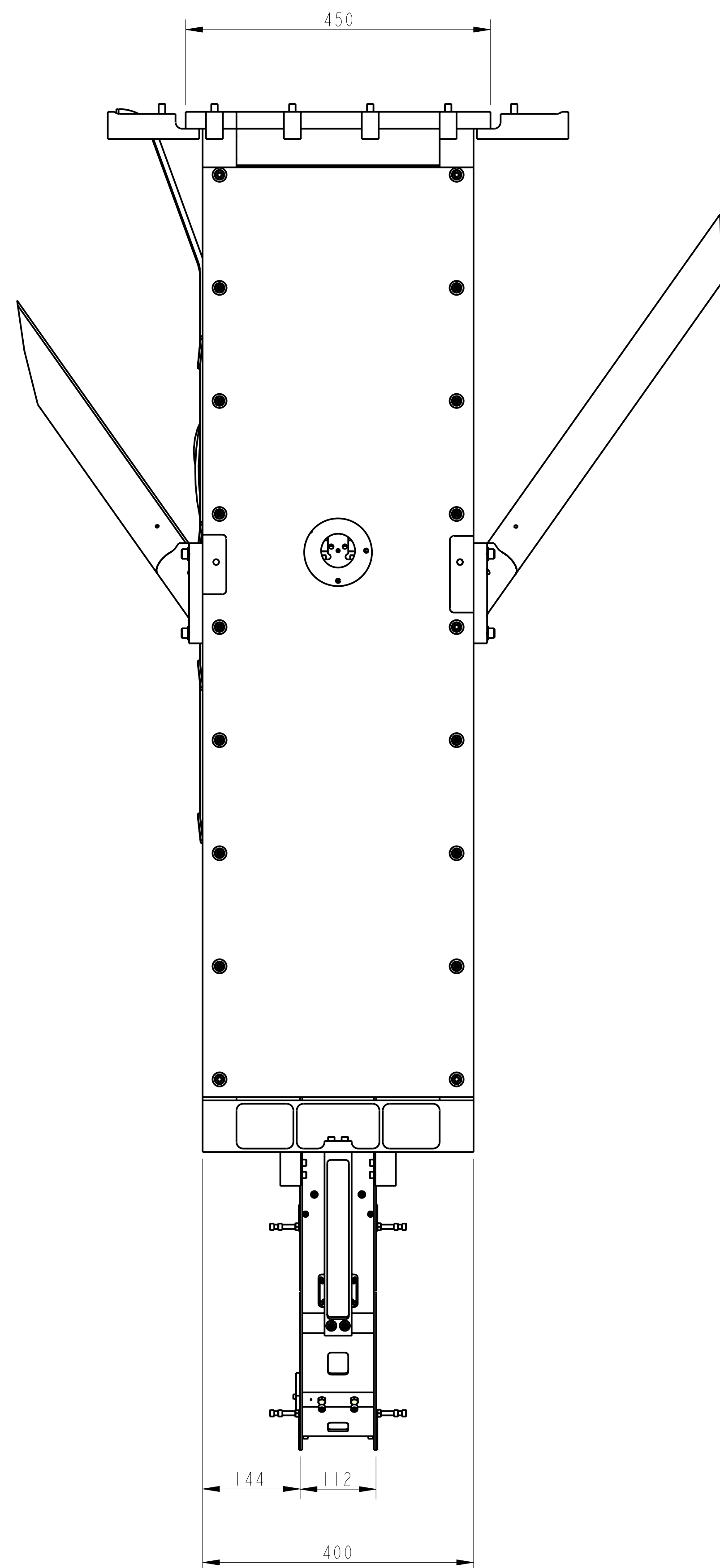
1. THESE DIMENSIONS REFER TO BOTH METAL AND GLASS BS/FMS  
2. CONSIDERATIONS WHEN SETTING THE POSITION OF THE OPTIC IN THE BEAM DIRECTION:  
- THE EASIEST WAY TO MEASURE THE POSITION OF THE OPTIC IN THE BEAM DIRECTION IS TO MEASURE IT WITH RESPECT TO THE LS (THE 27.5mm DIM.) HOWEVER, THIS IS NOT A STRONG REFERENCE POINT BECAUSE THE ANGLE OF THE MOUNTING PLATE FOR THE STRUCTURE HAS A LARGE EFFECT ON THIS DIMENSION.  
- 1mRAD ANGLE OF THE MOUNTING PLATE/OPTICS TABLE CAN EQUATE TO A SHIFT IN POSITION OF THE LS RELATIVE TO THE OPTIC IN THE BEAM DIRECTION OF UP TO ~ 2mm (1mRAD X 1.976m (STRUCTURE LENGTH) = 1.976mm)  
- WITH THIS IN MIND, THE POSITION OF THE OPTIC IN THE BEAM DIRECTION SHOULD BE SET RELATIVE TO THE US TOP FACE (THE SAME FACE AS IS SET BY THE POSITION OF THE "COOKIE CUTTERS"). THE DIMENSIONS FOR THE POSITION OF THE MASS HAVE THEREFORE BEEN GIVEN FROM THIS FACE.  
  
RECOMMENDATION:- IN ORDER TO ENSURE MINIMAL RE-ALIGNMENT WORK OF THE BS/FM IN THE TANK, EFFORTS SHOULD BE TAKEN TO ENSURE THAT THE SOLID STACK, AND THE OPTICS TABLE OF THE ISI ARE ALIGNED WITH A TIGHT ANGULAR TOLERANCE RELATIVE TO EACHOTHER. 100 MICRO RAD ANGULAR TOLERANCE ON EACH WOULD GIVE A MAXIMUM DEVIATION OF 200MICRO RADS, WHICH EQUATES TO ~0.4mm. A MORE ACCEPTABLE LEVEL OF SHIFT.



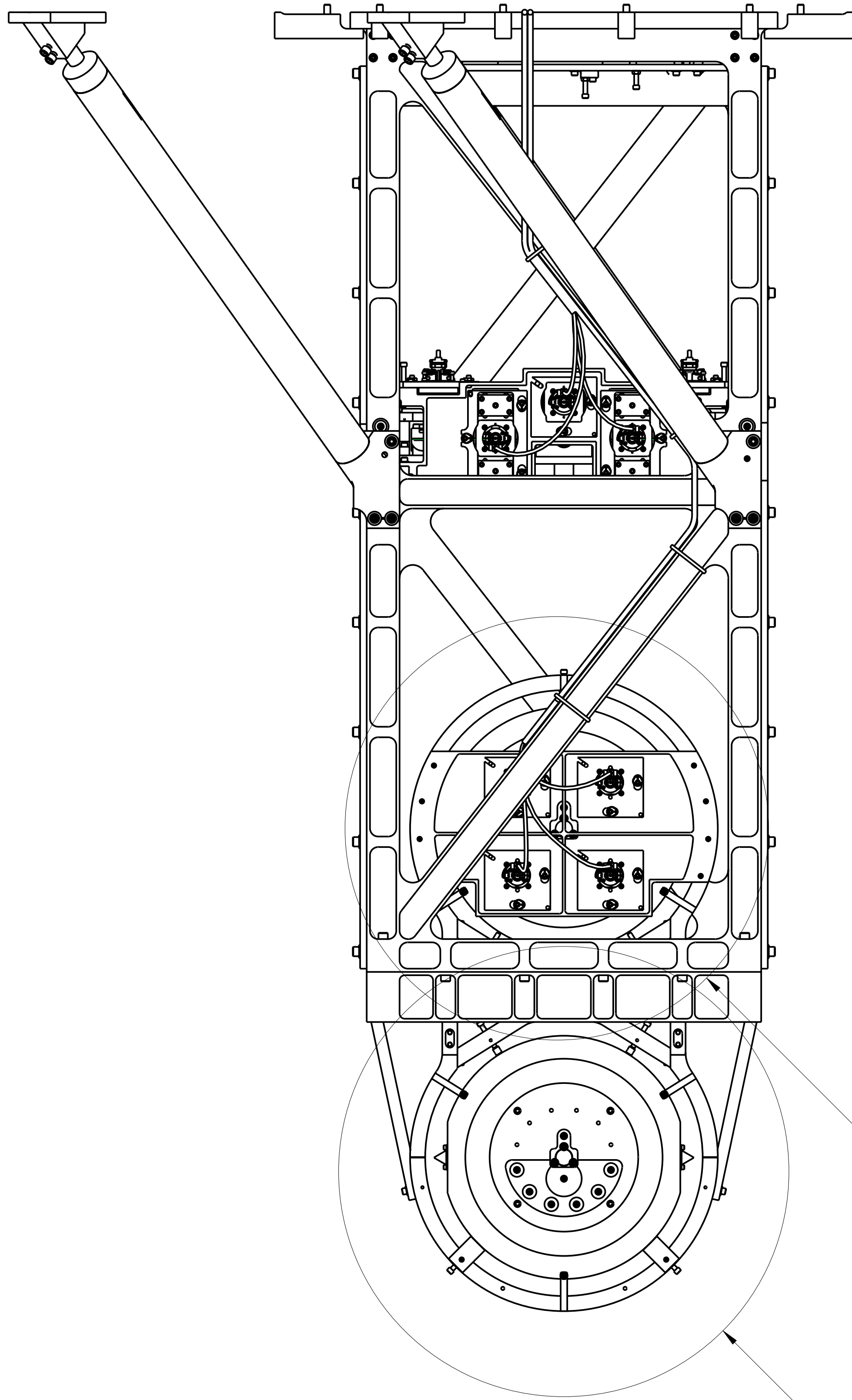
SECTION Y-Y

(27.5)

FRONT FACE OF US TO FRONT

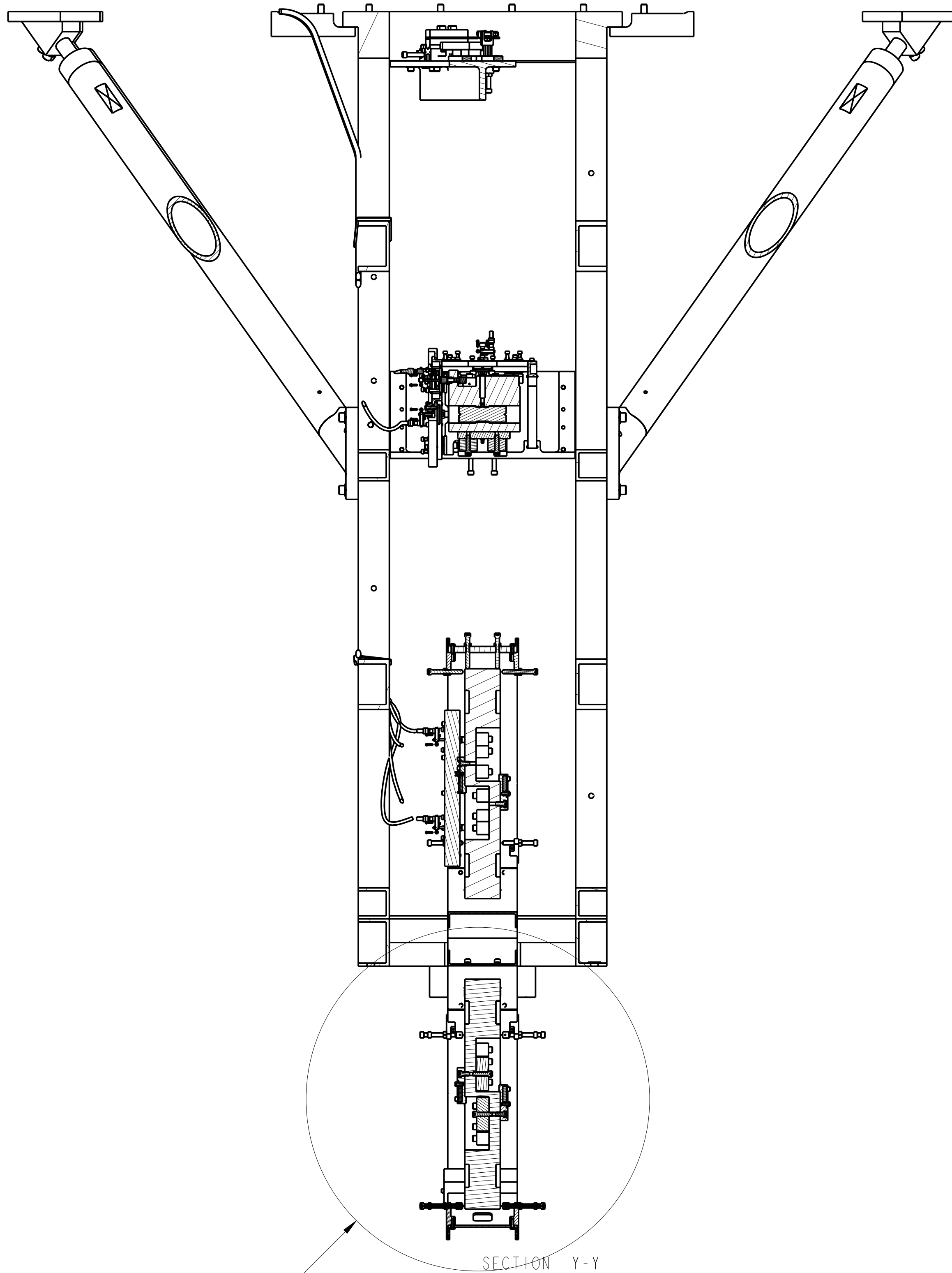
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SEE DETAIL B

SEE DETAIL A

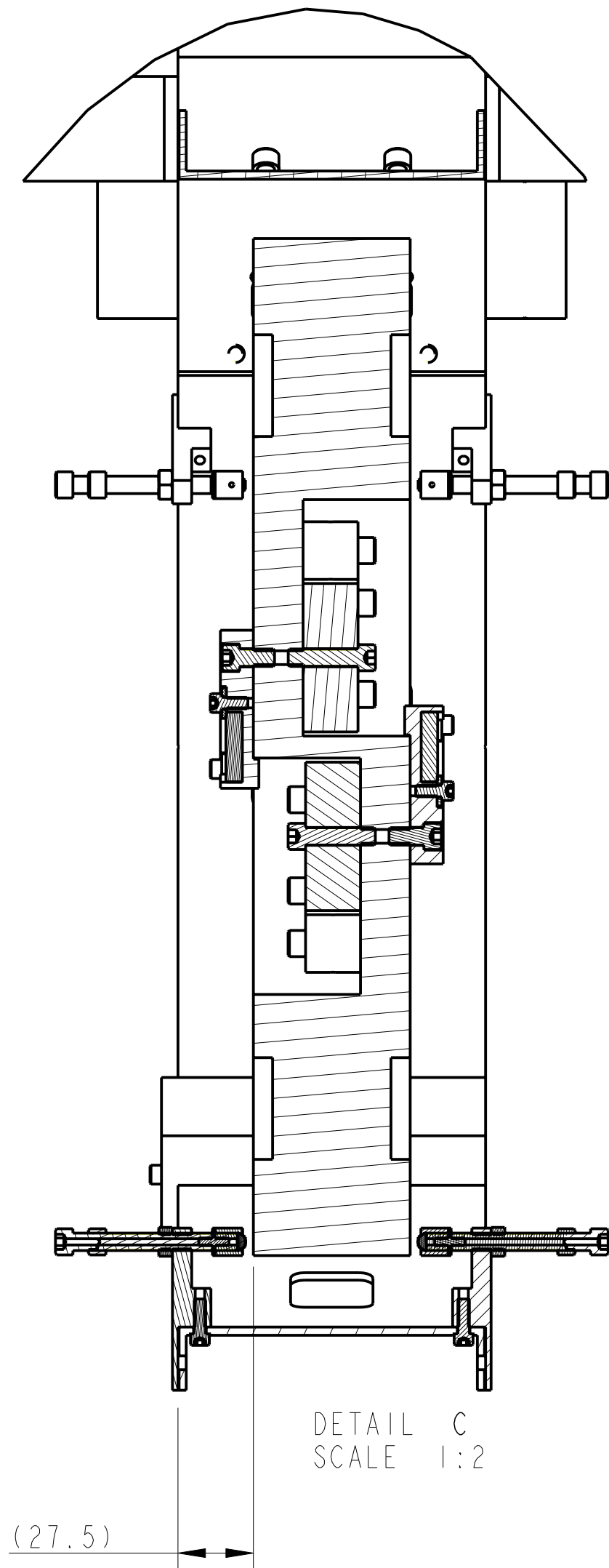


SECTION Y-Y

SEE DETAIL C

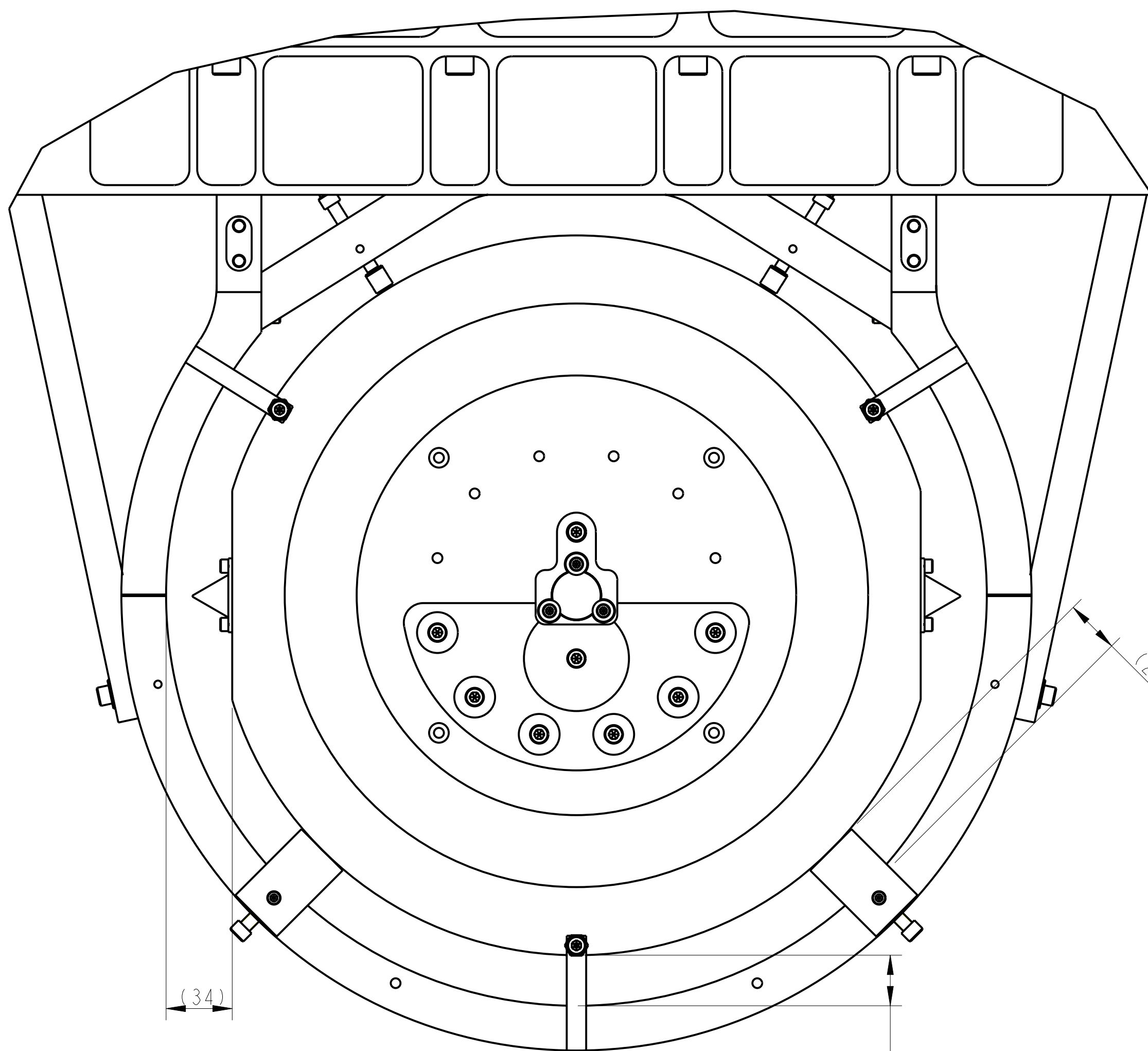
REF DIMENSIONS:

THIS SHEET PROVIDES SOME REFERENCE  
DIMENSIONS IN ORDER TO AID BS ALIGNMENT



DETAIL C  
SCALE 1:2

(27.5)

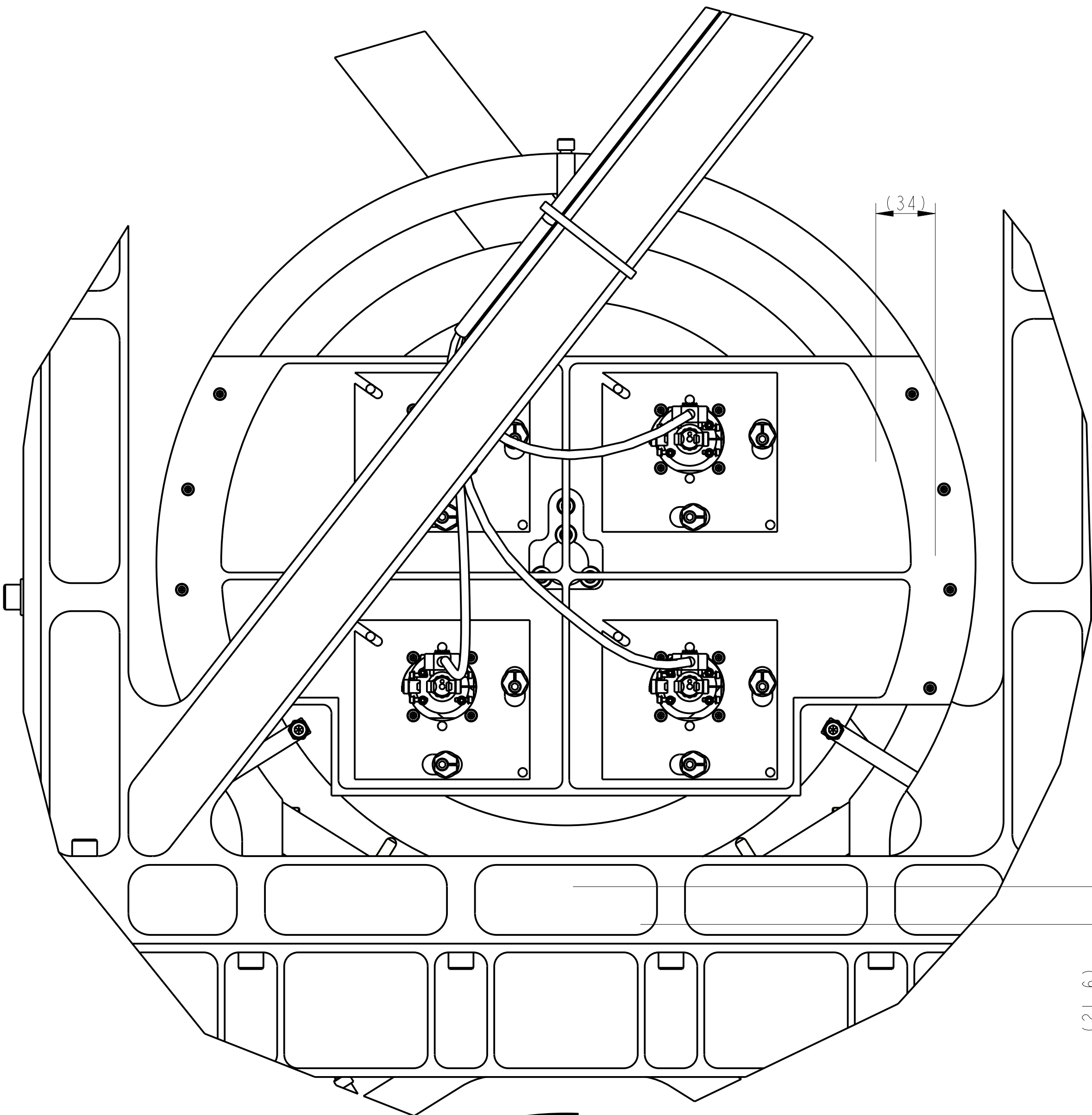


DETAIL A  
SCALE 1:2

(34)

(26)

(28)

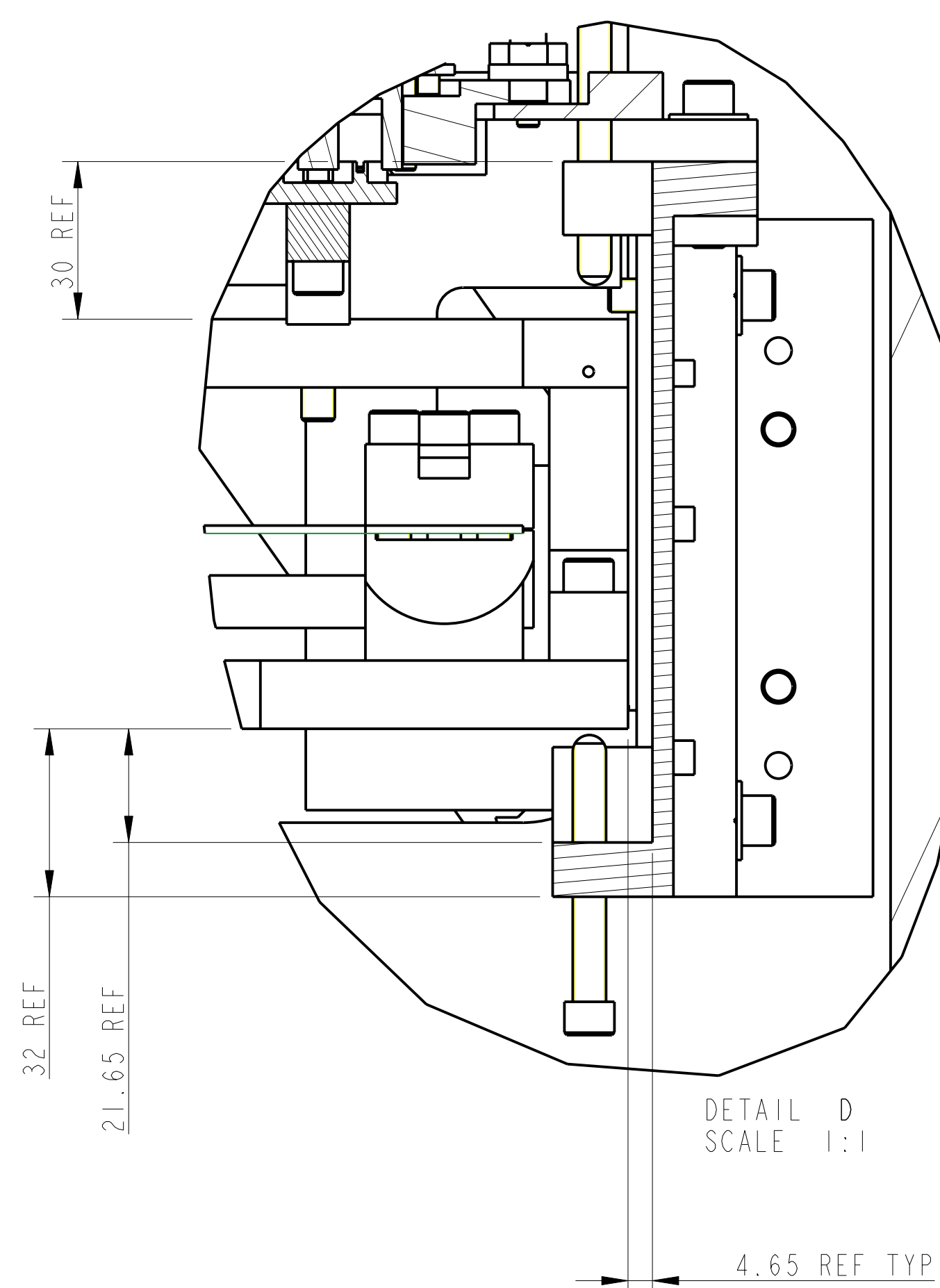


DETAIL B  
SCALE 1:2

(34)

(21.6)

| NOTES: UNLESS OTHERWISE SPECIFIED:        |                               |   |  |  | CALIFORNIA INSTITUTE OF TECHNOLOGY   |  |  |  |   |
|---|-------------------------------|---|--|--|--|--|--|--|---|
| 1. FINISH ALL SHARP EDGES.                | 2. DO NOT SCALE FROM DRAWING. | 3. ALL MACHINING AND TOLERANCES ARE IN INCHES UNLESS OTHERWISE SPECIFIED. | 4. SURFACE FINISH AND TOLERANCES ARE IN INCHES UNLESS OTHERWISE SPECIFIED. | 5. SURFACE FINISH AND TOLERANCES ARE IN INCHES UNLESS OTHERWISE SPECIFIED. | 6. SURFACE FINISH AND TOLERANCES ARE IN INCHES UNLESS OTHERWISE SPECIFIED. | 7. SURFACE FINISH AND TOLERANCES ARE IN INCHES UNLESS OTHERWISE SPECIFIED. | 8. SURFACE FINISH AND TOLERANCES ARE IN INCHES UNLESS OTHERWISE SPECIFIED. | 9. SURFACE FINISH AND TOLERANCES ARE IN INCHES UNLESS OTHERWISE SPECIFIED. | 10. SURFACE FINISH AND TOLERANCES ARE IN INCHES UNLESS OTHERWISE SPECIFIED. |
| DIMENSIONS ARE IN INCHES (IN PARENTHESES) |                               |   |  |  | SYSTEM: ADVANCED LIGO  |  |  |  |   |
| MATERIAL: AS BOM                          |                               |   |  |  | SUB-SYSTEM: SUS  |  |  |  |   |
| PART NAME: BS FM ASSEMBLY                 |                               |   |  |  | REV: NO.   |  |  |  |   |
| DATE: 11/20/2011                          |                               |   |  |  | DRAWN: 2.0/001 25/07/11  |  |  |  |   |
| CHECKED: 1.0/001 11/20/2011               |                               |   |  |  | APPROVED: 2.0/001 11/20/2011   |  |  |  |   |
| EXAMPLE: 001 - A VIBRATION                |                               |   |  |  | PAGE: 1 OF 1   |  |  |  |   |

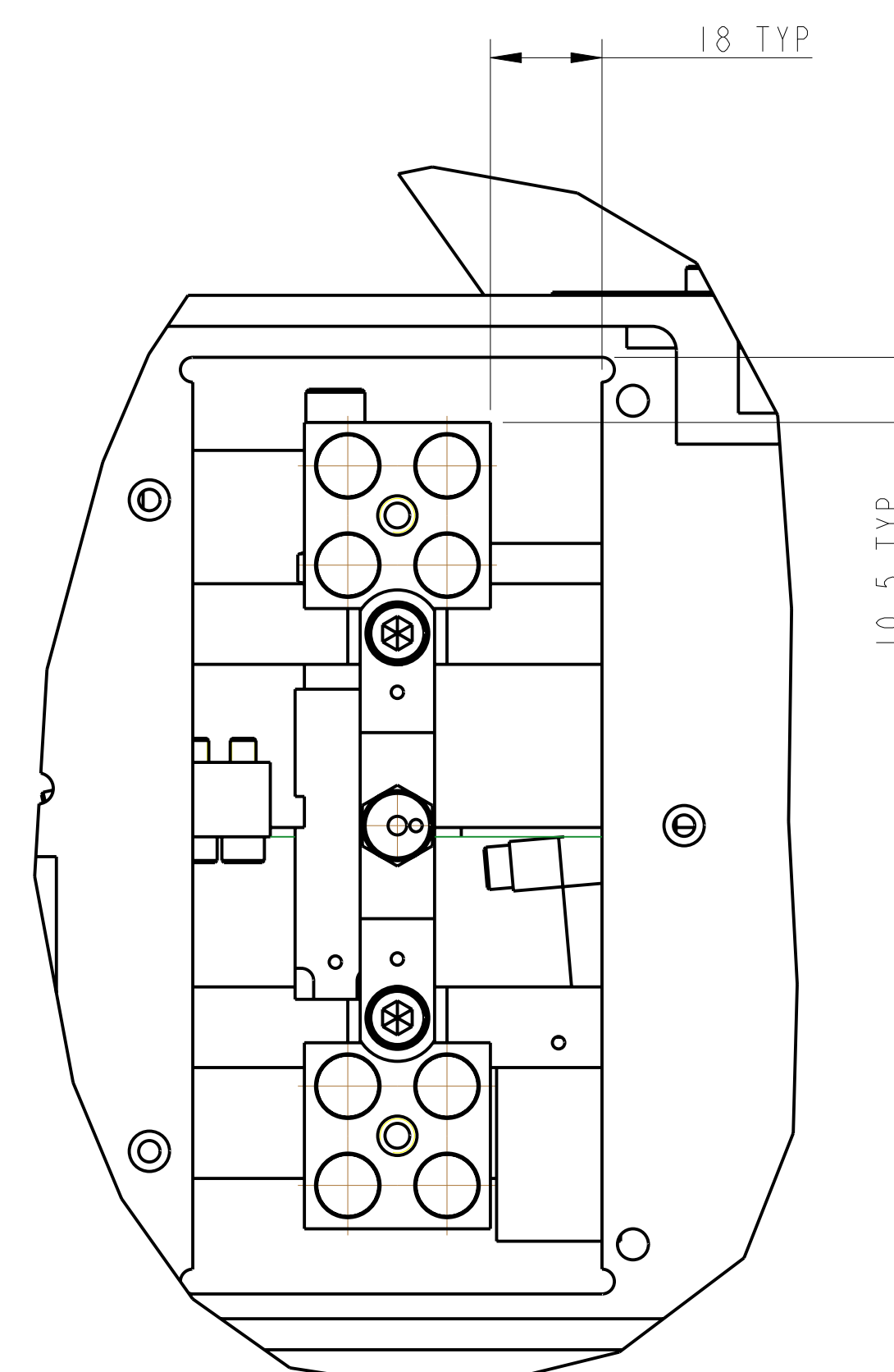


DETAIL D  
SCALE 1:1

4.65 REF TYP

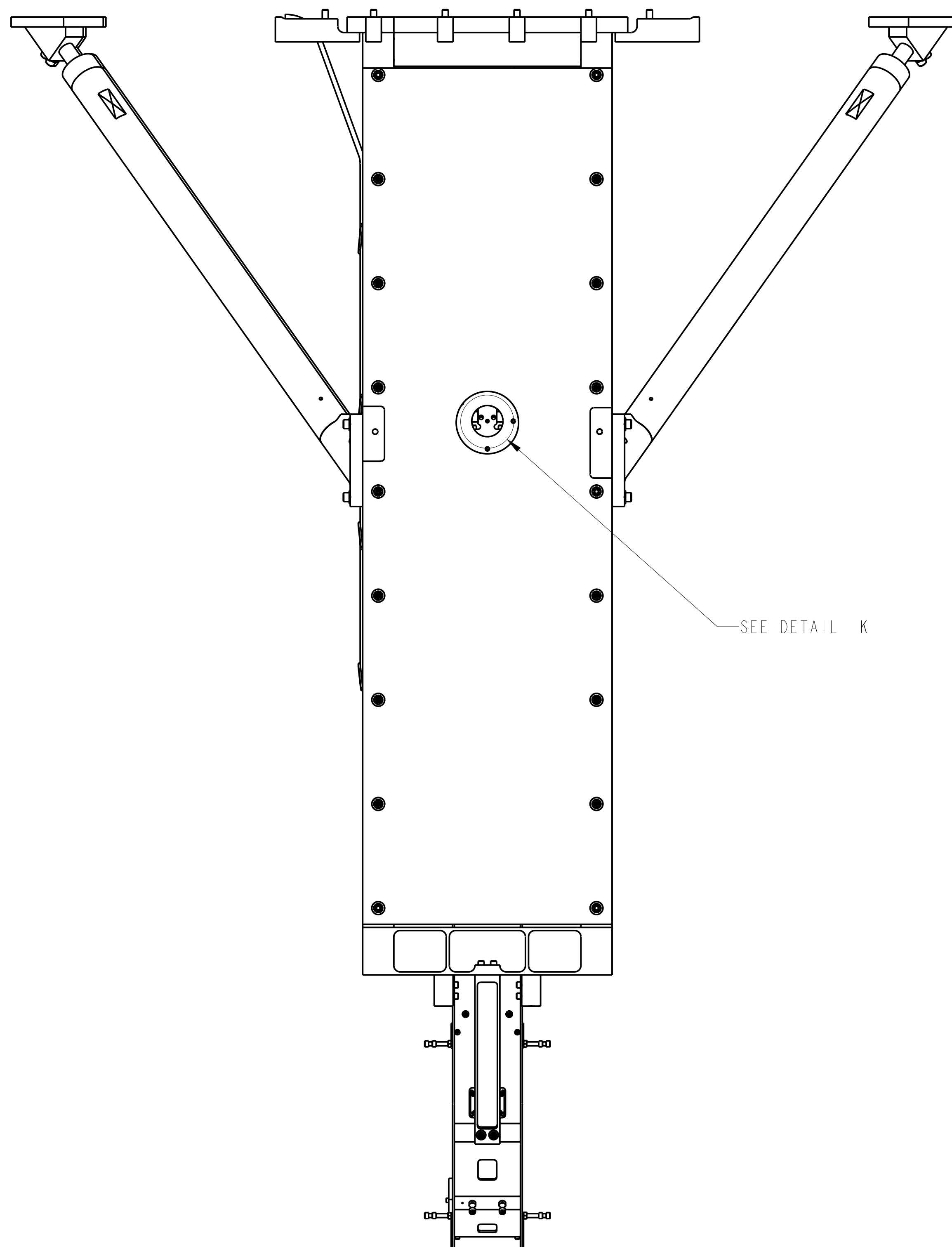


THIS SHEET PROVIDES SOME REFERENCE  
DIMENSIONS IN ORDER TO ASSIST WITH  
ALIGNMENT OF THE TOP TABLECLOTH



DETAIL J  
SCALE 1:1

## 18 REF TYP



— SEE DETAIL J

—SEE DETAIL K

18 TYP

18 TYP

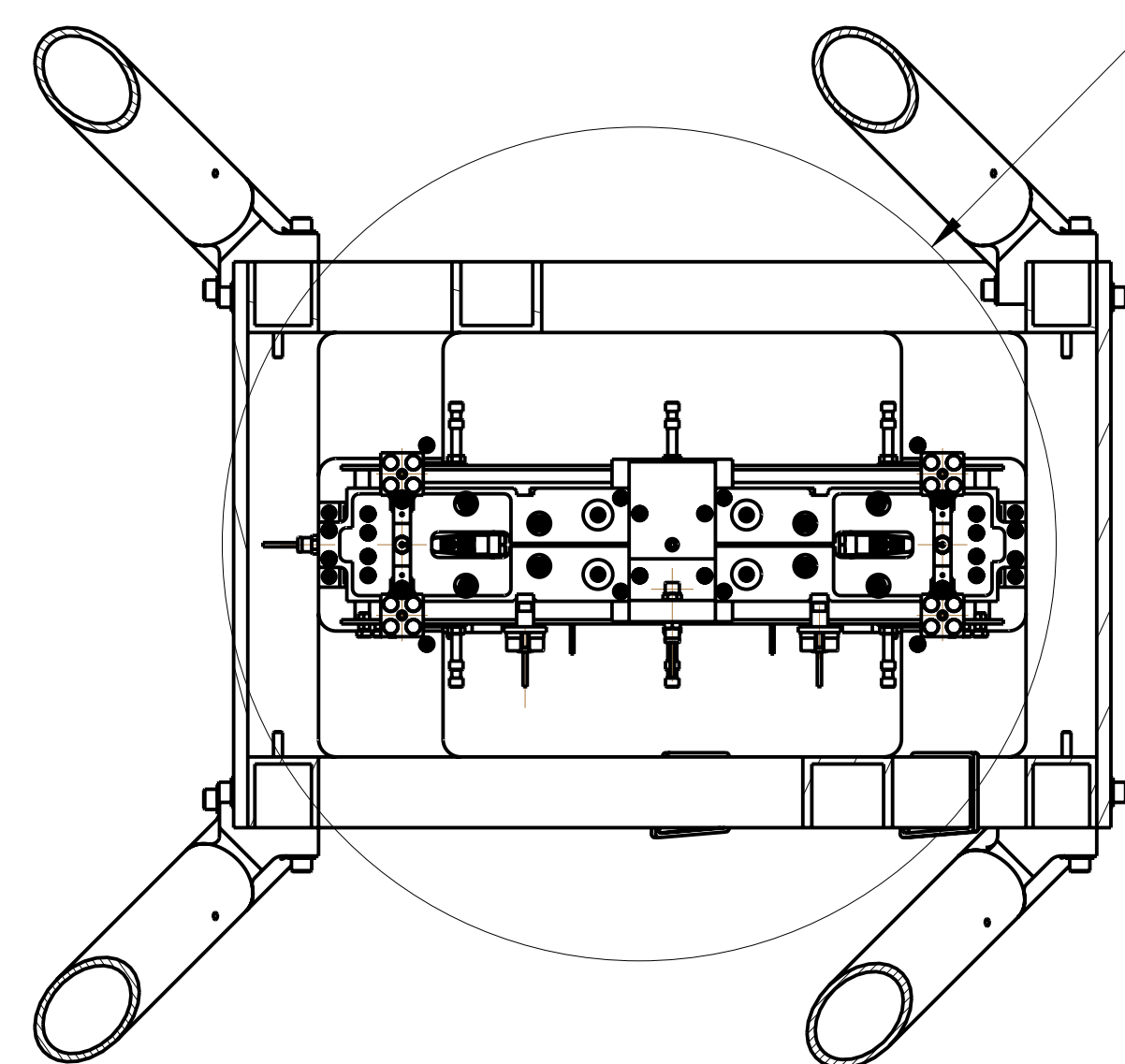
DETAIL L  
SCALE 2:1  
TYP

DETAIL L  
SCALE 2:1  
TYP

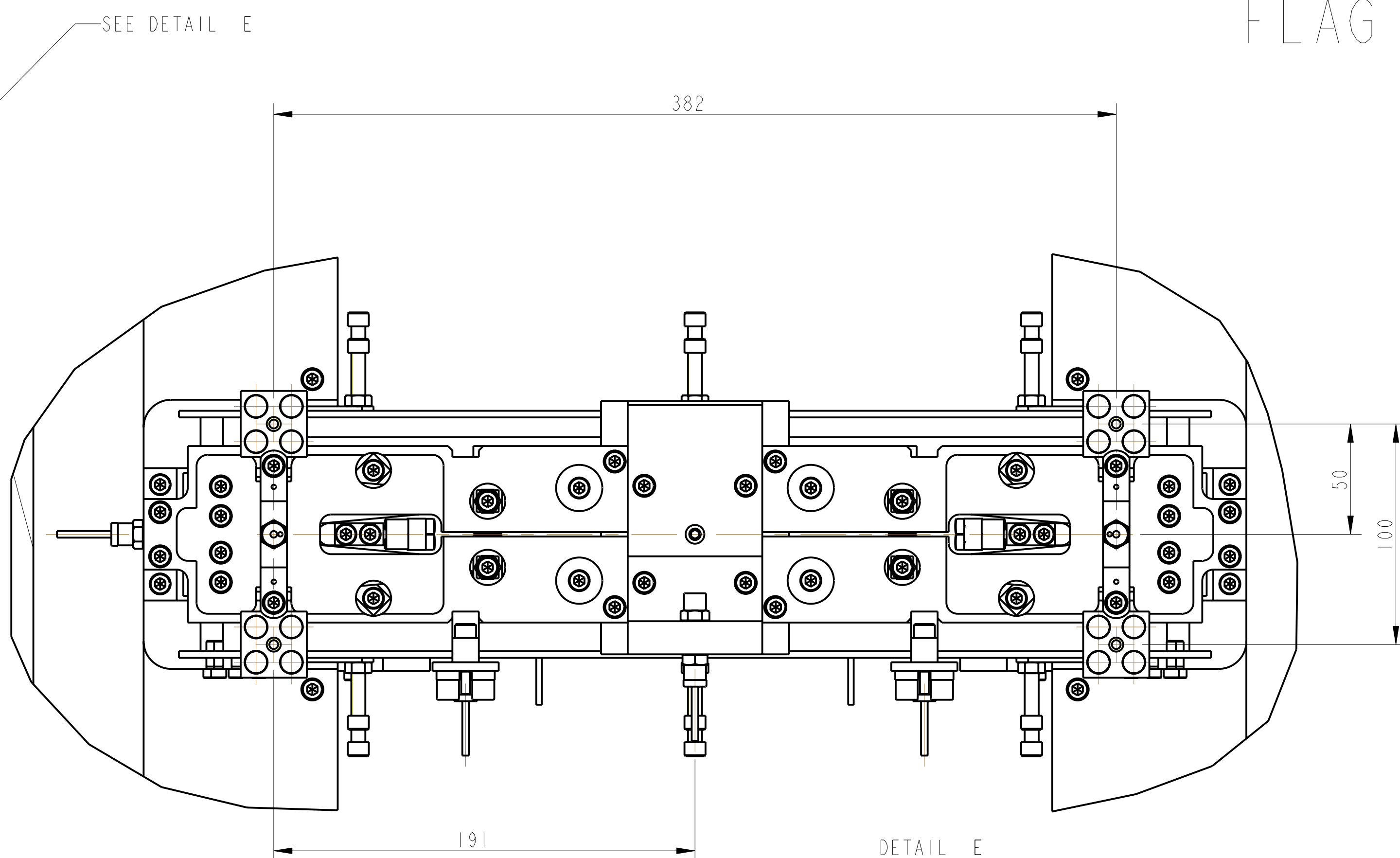
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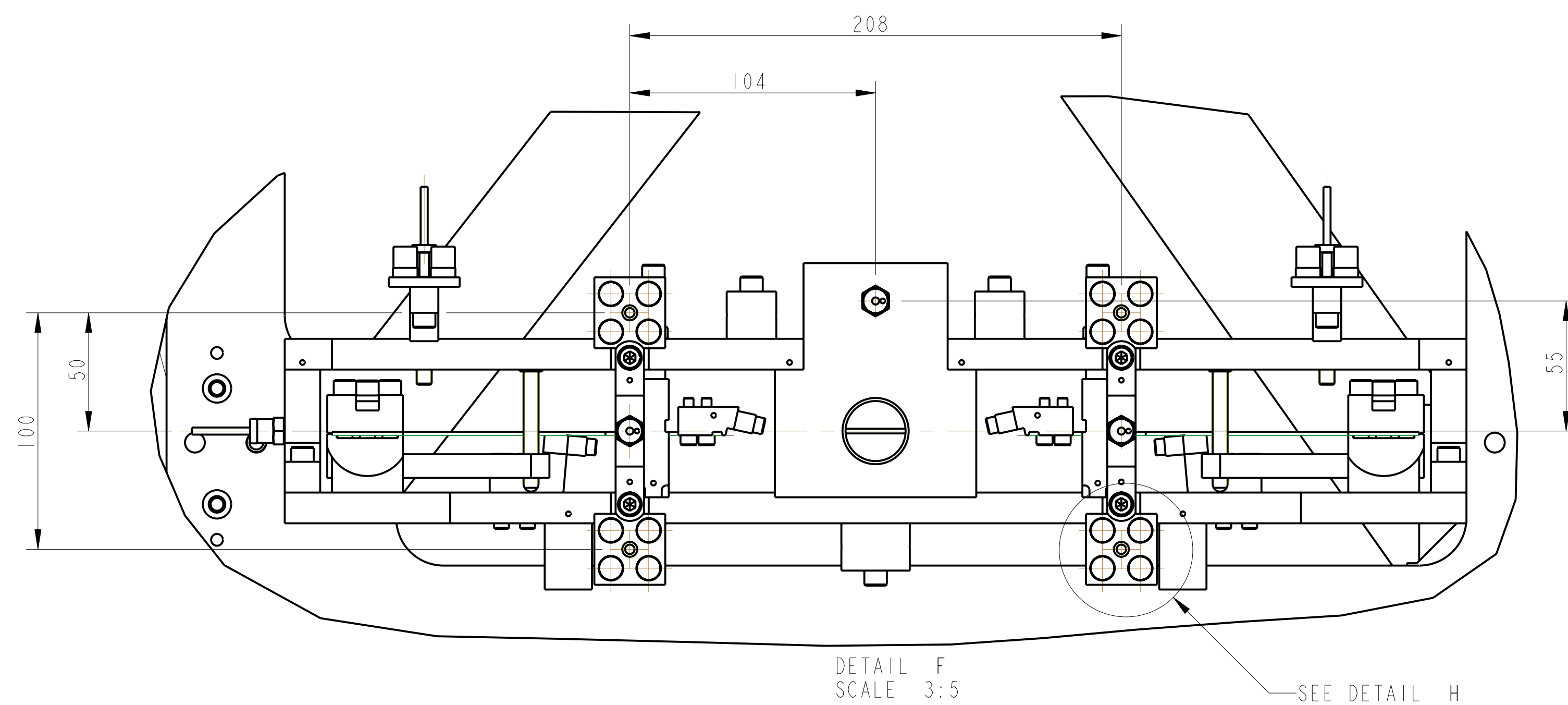
## FLAG LEVER ARMS



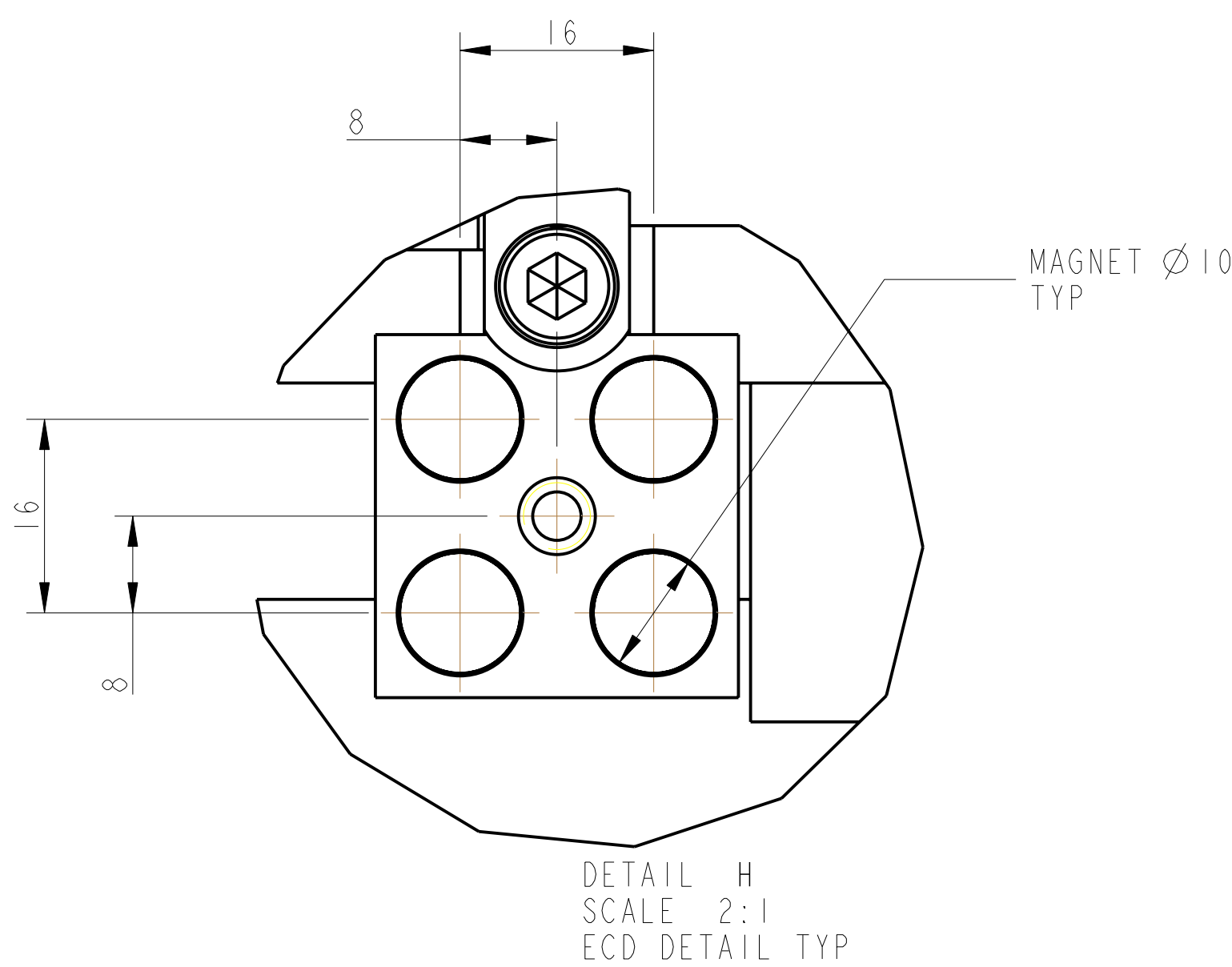
SECTION D-D



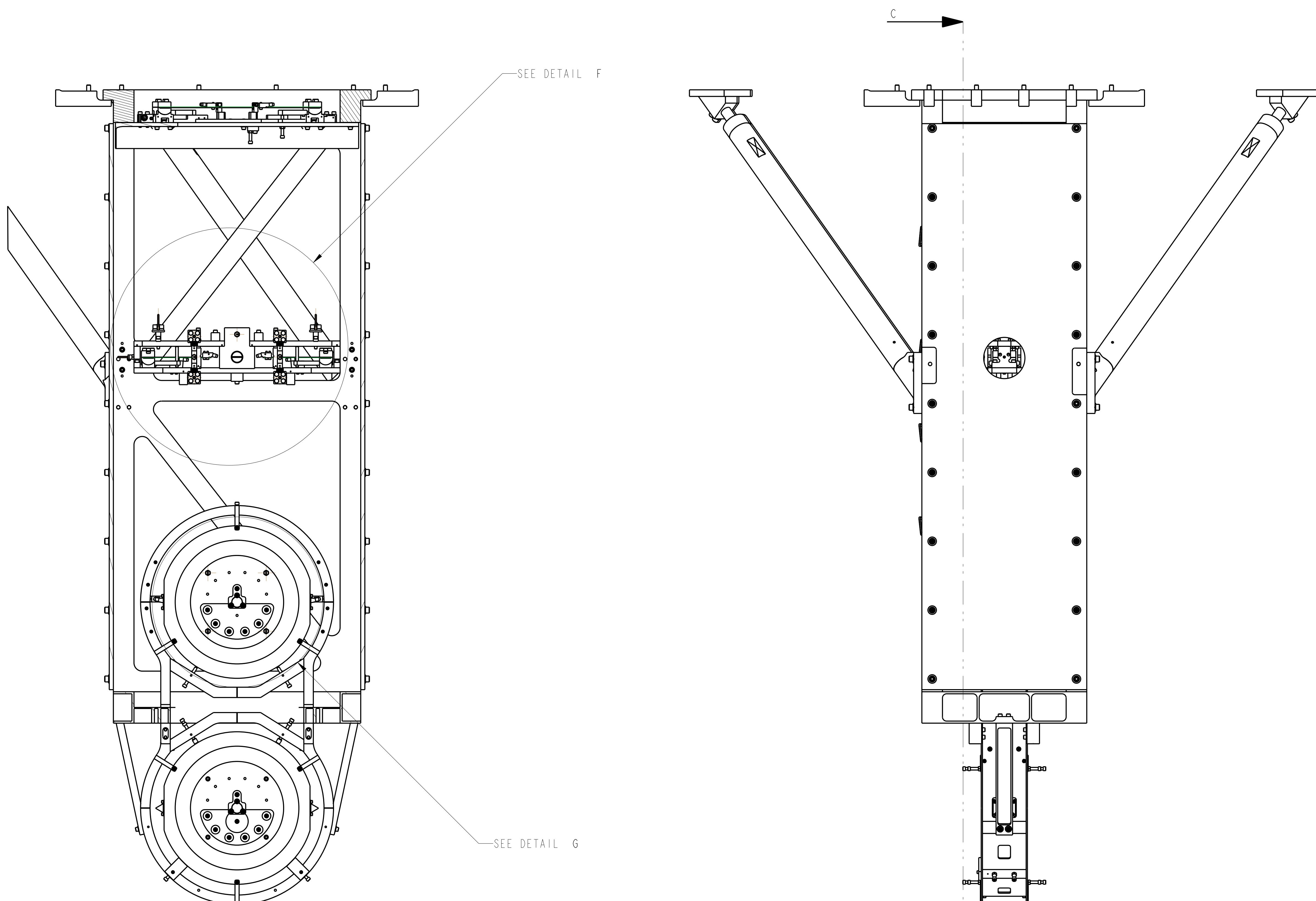
DETAIL E  
SCALE 3:5



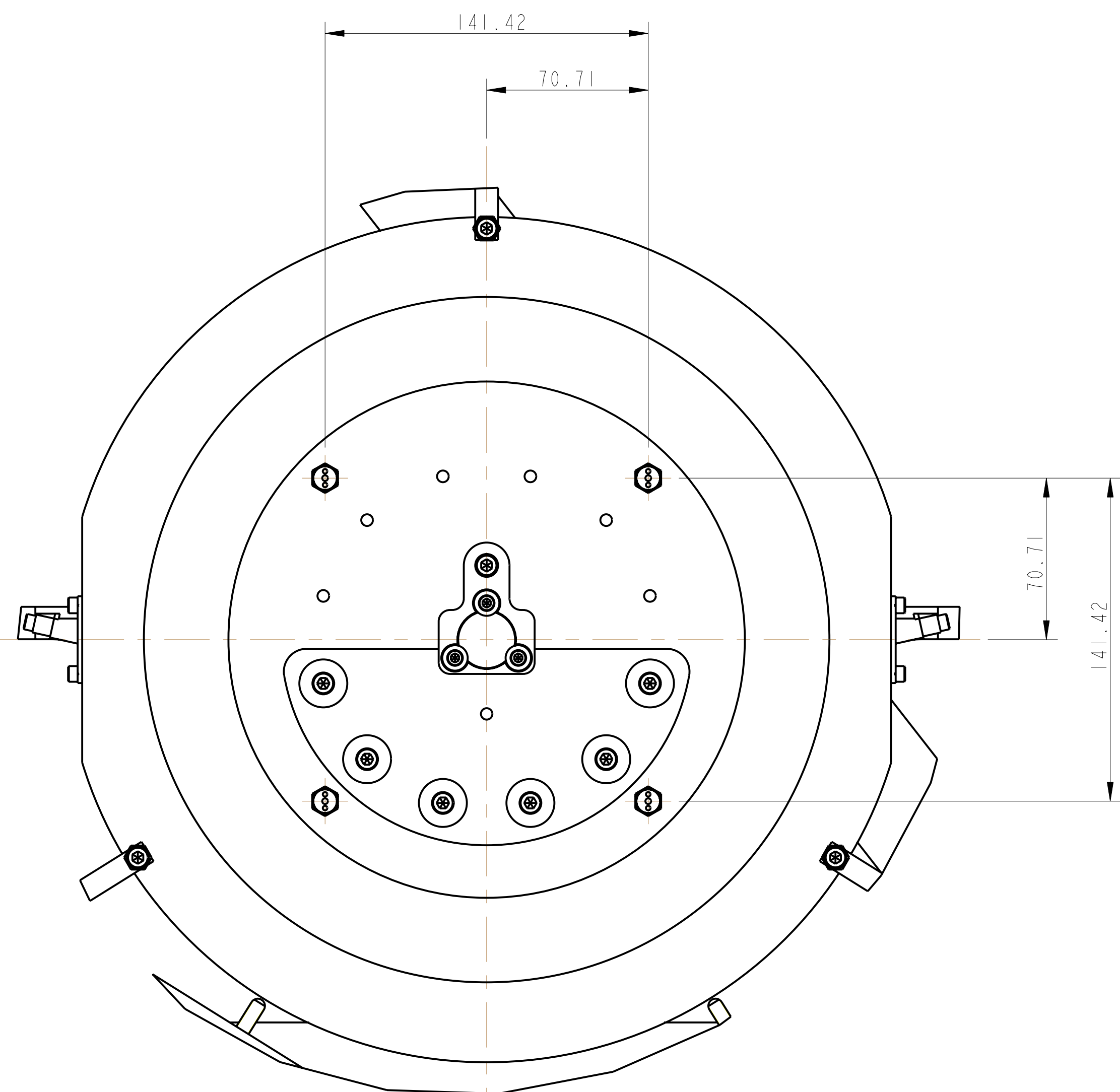
DETAIL F  
SCALE 3:5



DETAIL H  
SCALE 2:1  
ECD DETAIL TYPE



SECTION C-C



DETAIL G  
SCALE 3:5

[illegible]