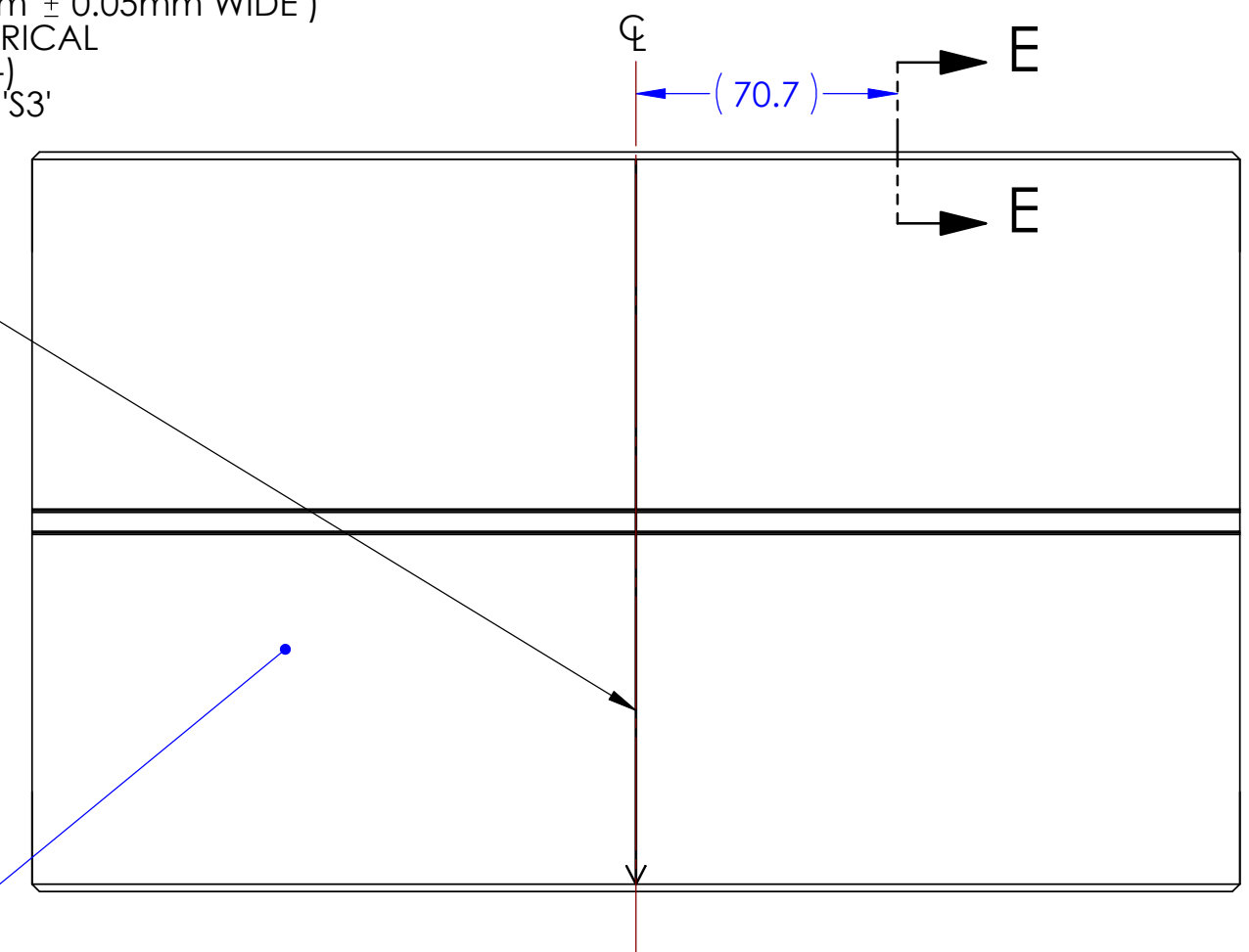


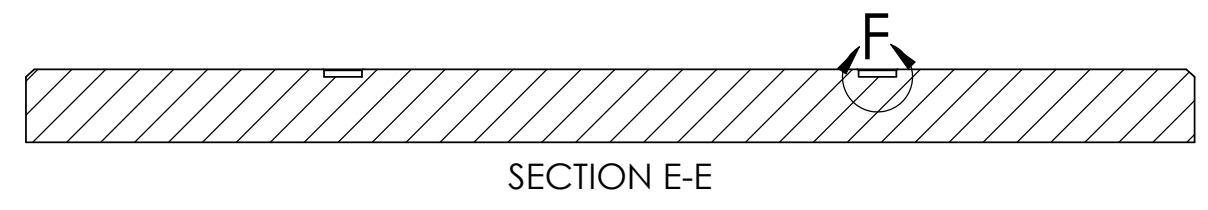
REV.	DATE	DCN #	DRAWING TREE #
A	04/2008	LIGO-E080172-00-D	

LIGO/PHYSICS REFERENCE ONLY: (REVISION HISTORY)	
00	01/2008 INITIAL RELEASE BASED ON NP-TYPE DRAWINGS
01	03/2008 ALTERATIONS BASED ON REVIEW BY G. BILLINGSLEY AND I. WILMUT
02	04/2008 ALTERATIONS TO SPECIFICATION (MATERIAL SELECTION LIST) BY K. STRAIN FOLLOWING DISCUSSION WITH G. BILLINGSLEY

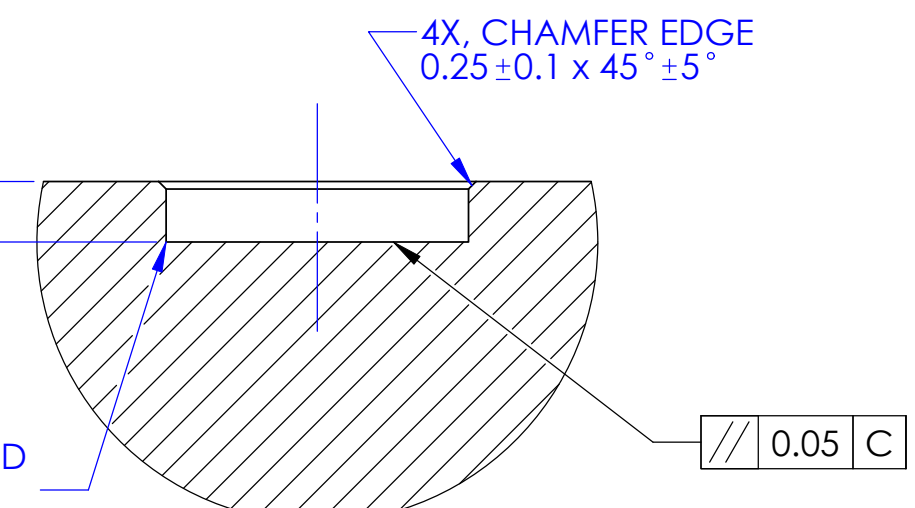
ETCH, GRIND OR SANDBLAST LEGIBLE REFERENCE GROOVE (0.25mm ± 0.05mm WIDE) ALONG ϕ , PARALLEL TO THE CYLINDRICAL AXIS (DEFINED BY DATUM FEATURE -A-) WITH ARROW POINTING TO SURFACE 'S3' WITHIN ±0.1mm



INSPECTION POLISH (SEE NOTE 3)

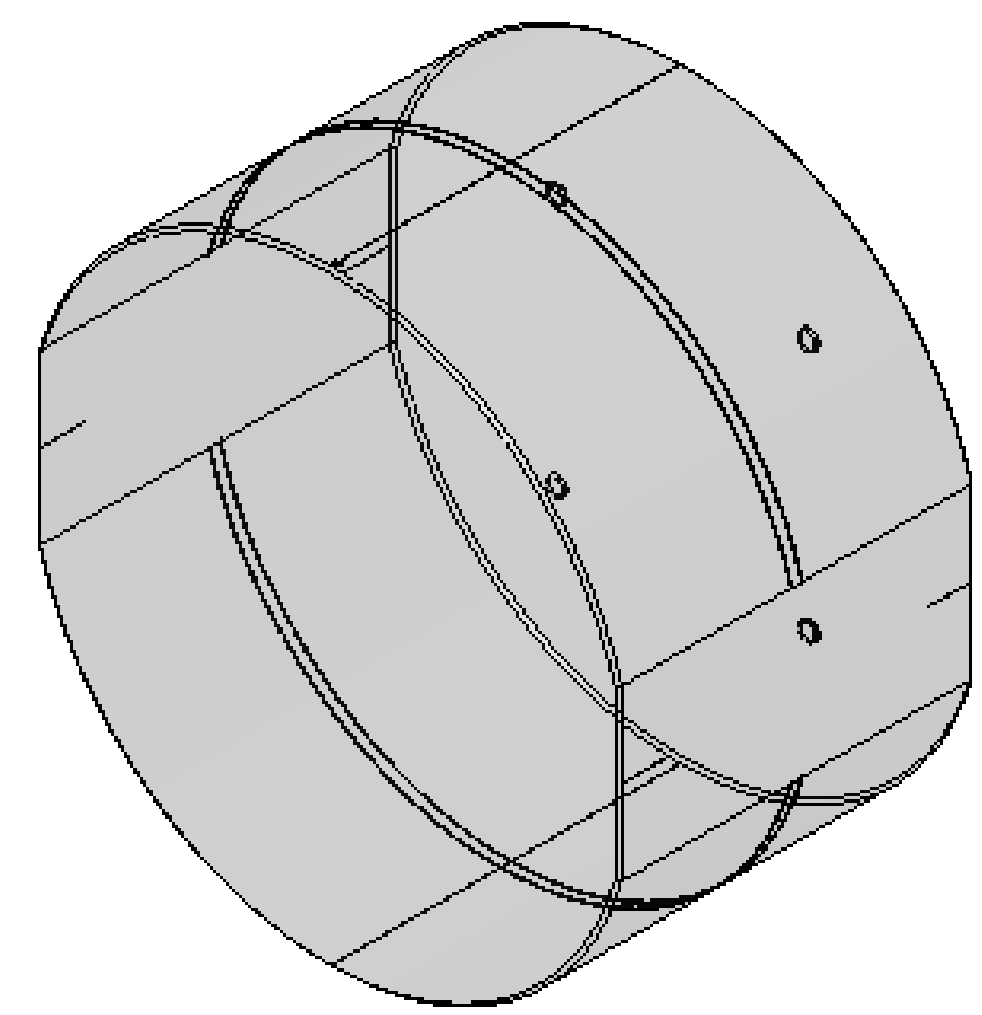


SECTION E-E

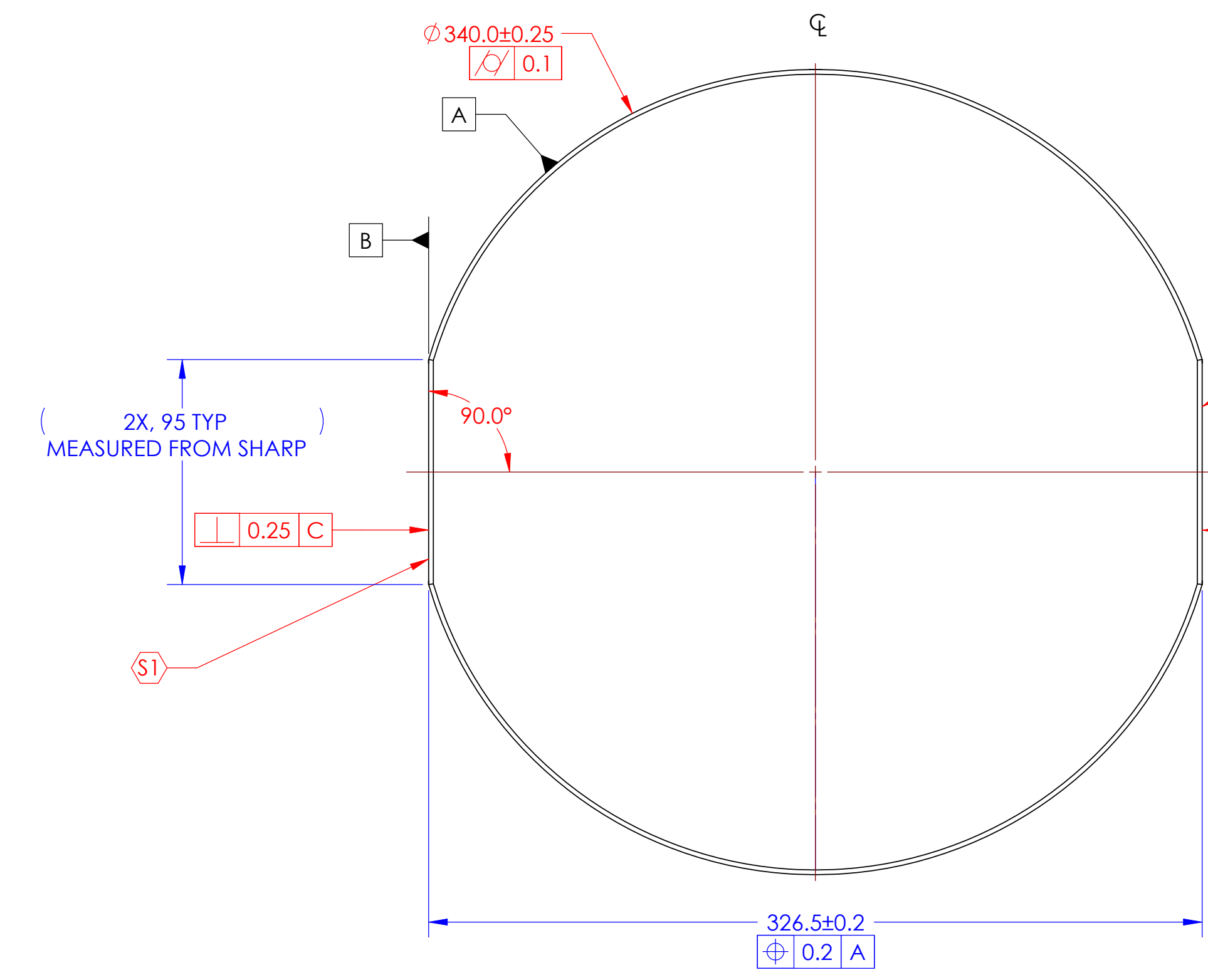


DETAIL F SCALE 4:1

RADIUS AROUND BOTTOM OF RECESS SHOULD BE NO GREATER THAN R0.5 GROUND FINISH ACCEPTABLE FOR BASE AND SIDES OF RECESS.



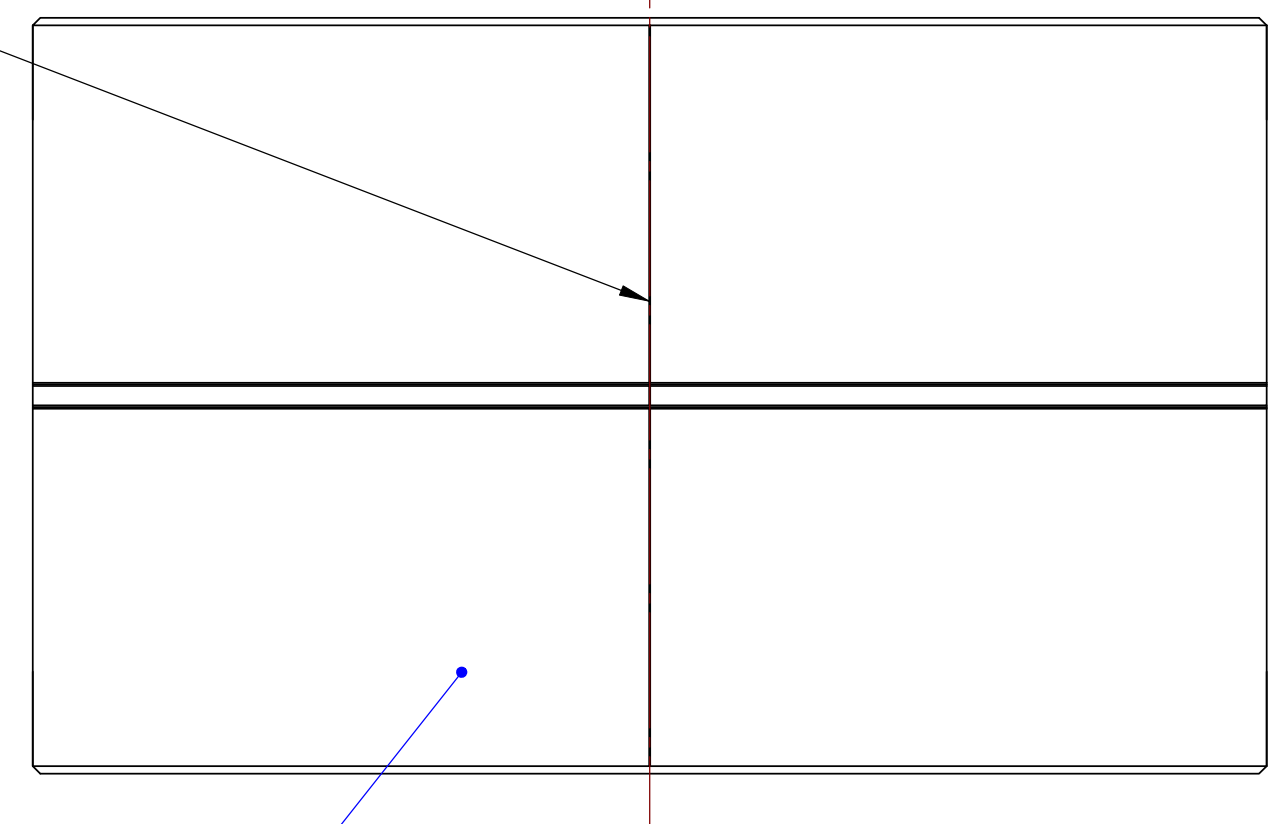
4X, ϕ 10.0 ∇ 2.0 EQUALLY SPACED ON A ϕ 200 ± 0.5 BOLT CIRCLE. EDGE CHIPPING TO BE MINIMISED. (SEE ALSO DETAIL 'F' ABOVE)



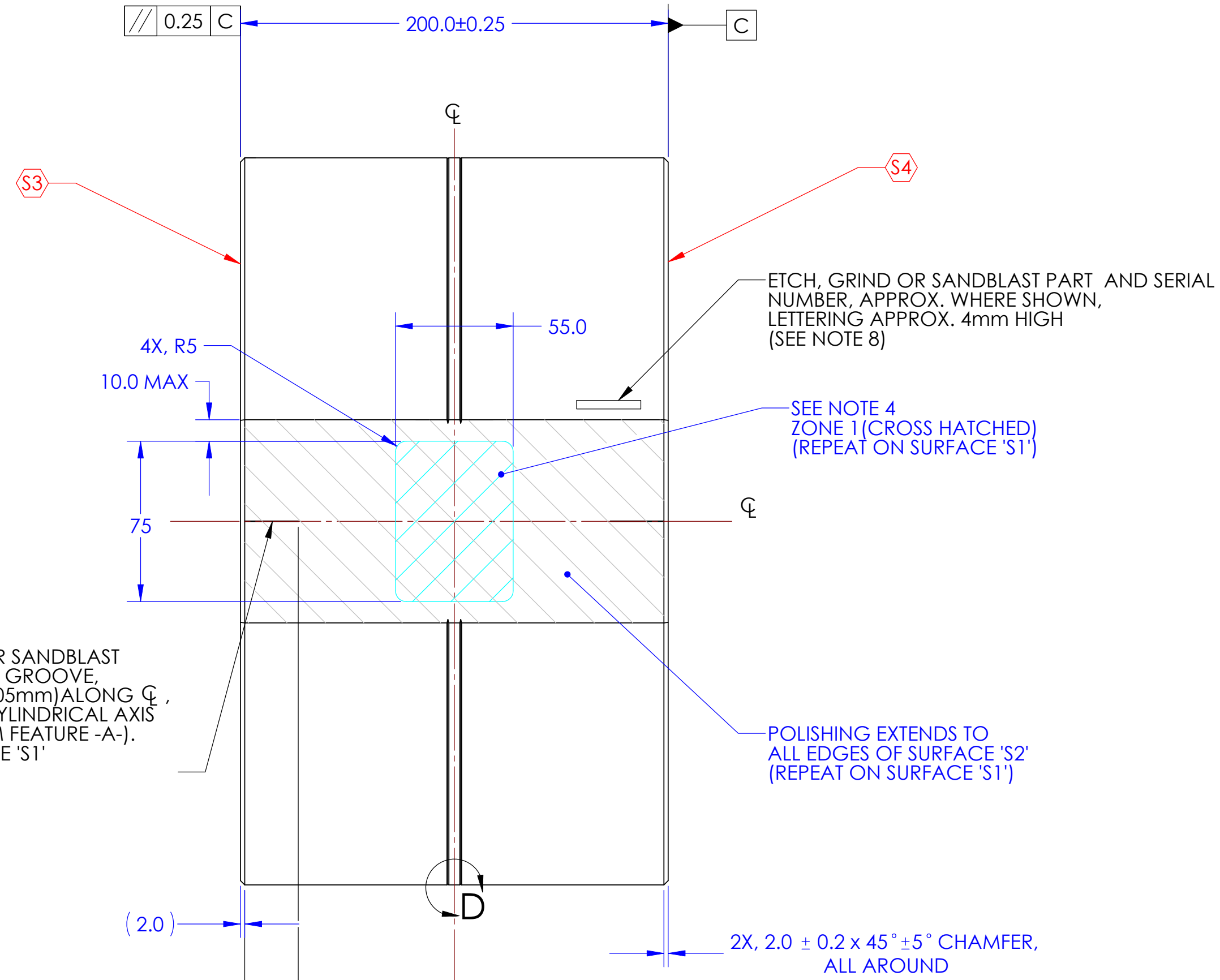
2X, 95 TYP MEASURED FROM SHARP

2X, ETCH, GRIND OR SANDBLAST LEGIBLE REFERENCE GROOVE (WIDTH 0.25mm ± 0.05mm) ALONG ϕ , PARALLEL TO THE CYLINDRICAL AXIS (DEFINED BY DATUM FEATURE -A-). REPEAT ON SURFACE 'S1' WITHIN ±0.1mm

ETCH, GRIND OR SANDBLAST LEGIBLE REFERENCE GROOVE (0.25mm ± 0.05mm WIDE) ALONG ϕ , PARALLEL TO THE CYLINDRICAL AXIS (DEFINED BY DATUM FEATURE -A-) WITHIN ±0.1mm



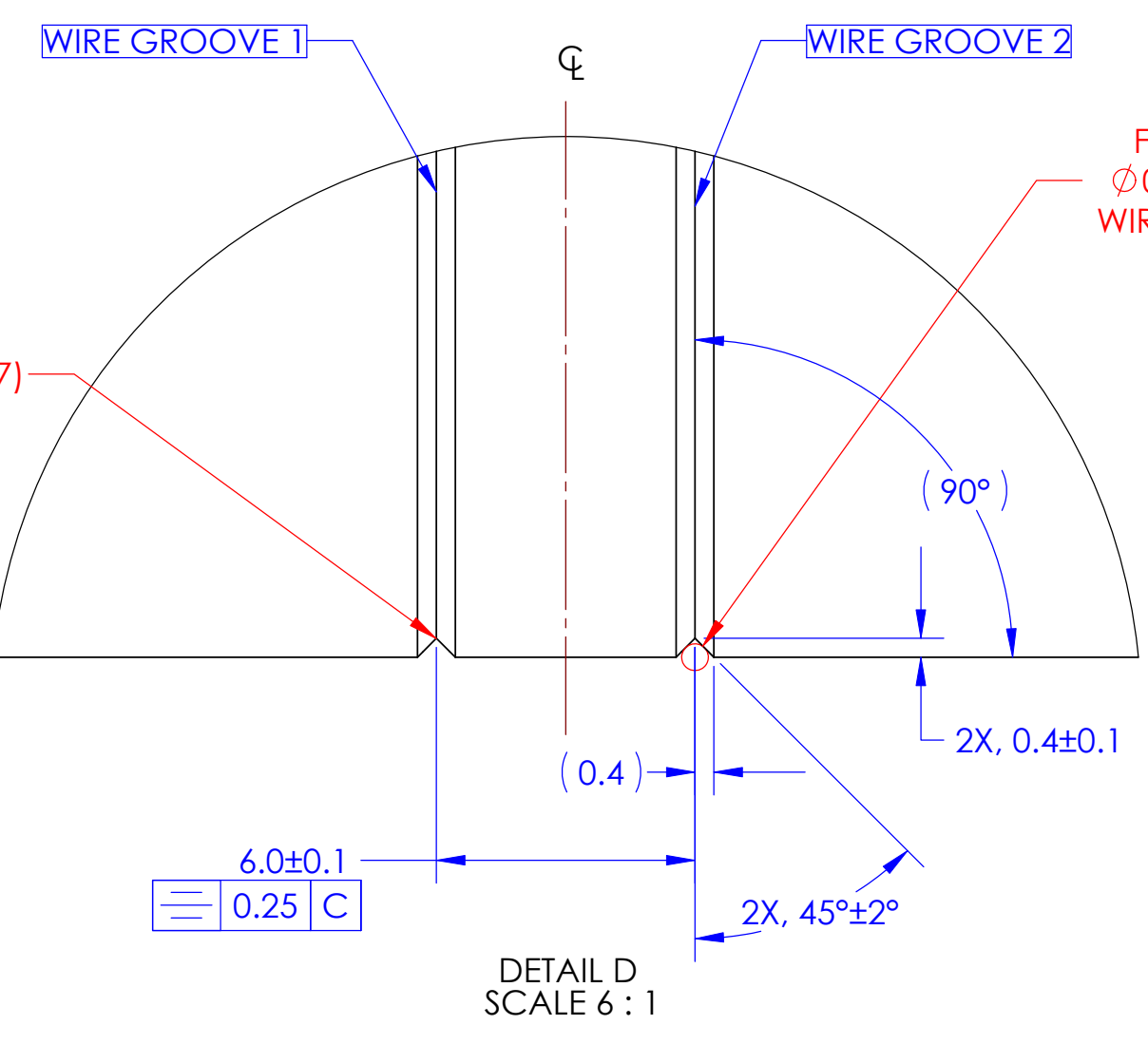
INSPECTION POLISH (SEE NOTE 3)



ETCH, GRIND OR SANDBLAST PART AND SERIAL NUMBER, APPROX. WHERE SHOWN, LETTERING APPROX. 4mm HIGH (SEE NOTE 8)

SEE NOTE 4 ZONE 1 (CROSS HATCHED) (REPEAT ON SURFACE 'S1')

POLISHING EXTENDS TO ALL EDGES OF SURFACE 'S2' (REPEAT ON SURFACE 'S1')



DETAIL D SCALE 6:1

2X, R0.25 MAX (REFER TO NOTE 7)

FOR PHYSICS REFERENCE ONLY: ϕ 0.62 (DIAMETER OF PENULTIMATE WIRES - AS TAKEN FROM T010103-05)

MANUFACTURE NOTES:

- DO NOT SCALE FROM DRAWING.
- THIS DRAWING IS ACCOMPANIED BY LIGO SPECIFICATION 'E080090'
- INSPECTION POLISH ALL FACES (SURFACES S3, S4, S5, AND S6). EDGES AND CHAMFERS. SURFACES SHALL APPEAR TRANSPARENT WITH NO GREY, SCUFFS OR SCRATCHES VISIBLE TO THE NAKED EYE WHEN VIEWED WITH A NORMAL ROOM LIGHT AGAINST A BLACK BACKGROUND.
- SURFACE S2: POLISH FLAT TO $\lambda/10$ PEAK TO VALLEY OVER APERTURE ZONE 1 (55mm x 75mm BOND AREA CENTERED ON FLAT).
- $\lambda = 633\text{nm}$ FOR SURFACE MEASUREMENTS
- SURFACE S1: ADD FEATURES AND POLISH AS PER INSTRUCTIONS FOR SURFACE S2.
- WIRE GROOVES 1 and 2, SHOWN IN DETAIL 'D' ARE REQUIRED TO LOCATE TWO STEEL WIRE LOOPS (ϕ 0.62mm). GROOVES MUST EXTEND AROUND THE FULL CIRCUMFERENCE OF THE MASS IN THE POSITIONS SHOWN. THE SEPARATION OF THE GROOVES FROM THE CENTRE OF MASS (ϕ), AND EACH OTHER IS CRITICAL. GROOVES SHOULD BE APPROXIMATELY 'V'-SHAPED WITH A MAX. RADIUS OF 0.25mm AT THE BASE OF EACH GROOVE.
- ETCH, GRIND OR SANDBLAST PART AND SERIAL NUMBER, APPROX. WHERE SHOWN, USE LETTERING APPROX. 4mm HIGH. THE SERIAL NUMBER SHOULD BE OF THE FORMAT: D080117-YY-Z WHERE 'YY' IS INCREMENTAL FOR EACH SUBSTRATE, STARTING AT '01', AND 'Z' IS THE CURRENT REVISION LETTER OF THIS SPECIFICATION. EXAMPLES: D080117-01-A, D080117-02-A, ..., D080117-09-A, ... AND SO ON.

PARTS LIST	
NOTES: (UNLESS OTHERWISE SPECIFIED) DIMENSIONS ARE IN MILLIMETERS	
TOLERANCES:	LIGO CALIFORNIA INSTITUTE OF TECHNOLOGY
X ± 0.1	IGR, GLASGOW UNIVERSITY GEO 600 GROUP
X ± 0.05	SYSTEM ADVANCED LIGO
ANGULAR ± 0.1°	SUB-SYSTEM SUS
MATERIAL:	AS PER LIGO-E080090
FINISH:	NEXT ASSY ETM QUAD
SEE NOTES	PART NAME
PENULTIMATE MASS	
DRAWN: R. JONES	DATE: JACOB
CHECKED: BRENDA DRAH	SIZE: DWG. NO. D
APPROVED:	PRODUCTION: D080117
	SCALE: 1:2
	PROJECTION: 1st ANGLE
	SHEET 1 OF 1