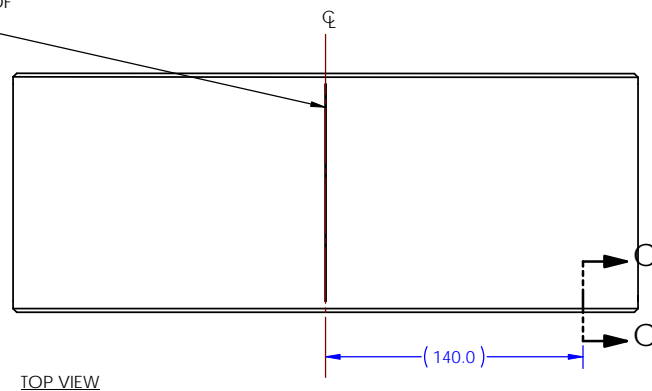


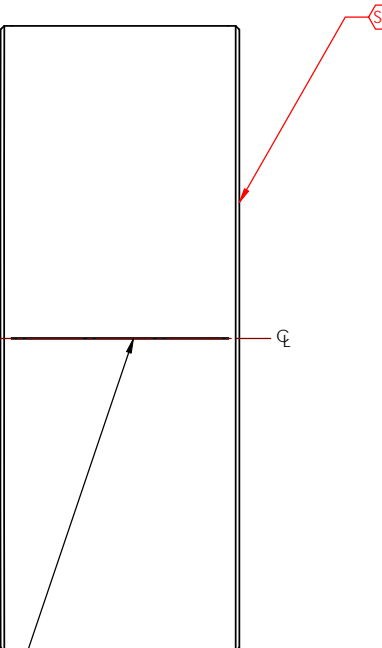
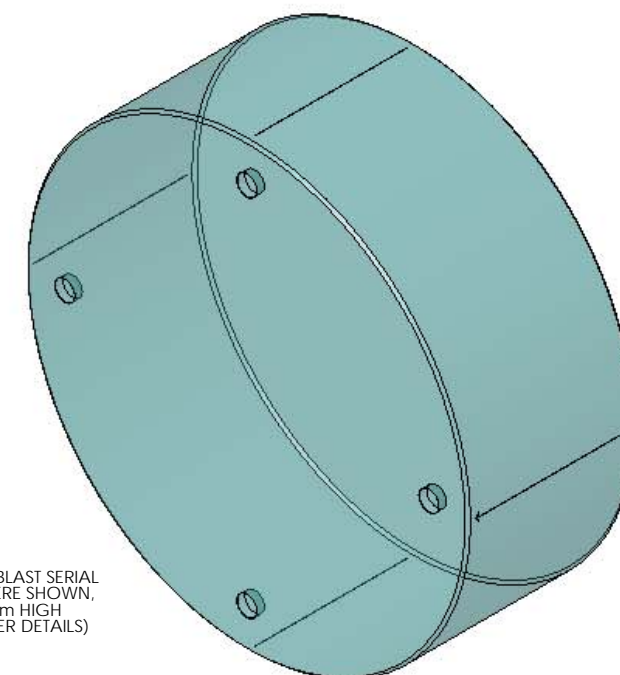
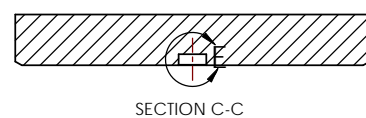
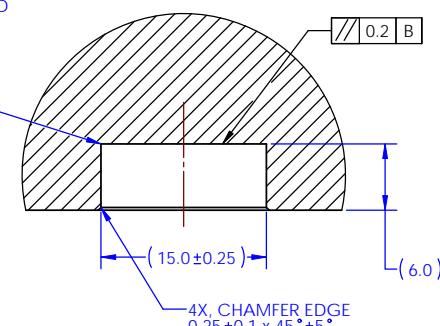
REV	DATE	DCN #	DRAWING TREE #
B	12/2008	E080171-B	
V2	4 JUN 2010	E1000188	

ETCH OR GRIND REGISTRATION MARKS
 0.25mm ±0.05mm WIDE x
 118mm ±3mm LONG MINIMUM LEGIBLE
 DEPTH LINE ALONG ϕ , CENTERED
 BETWEEN SURFACES 'S1' AND 'S2', PARALLEL
 TO THE CYLINDRICAL AXIS
 (DEFINED BY DATUM FEATURE -A-)
 WITHIN ±0.1mm AND
 90° FROM SCRIBE LINE AT LOCATION OF
 MINIMUM PART THICKNESS.

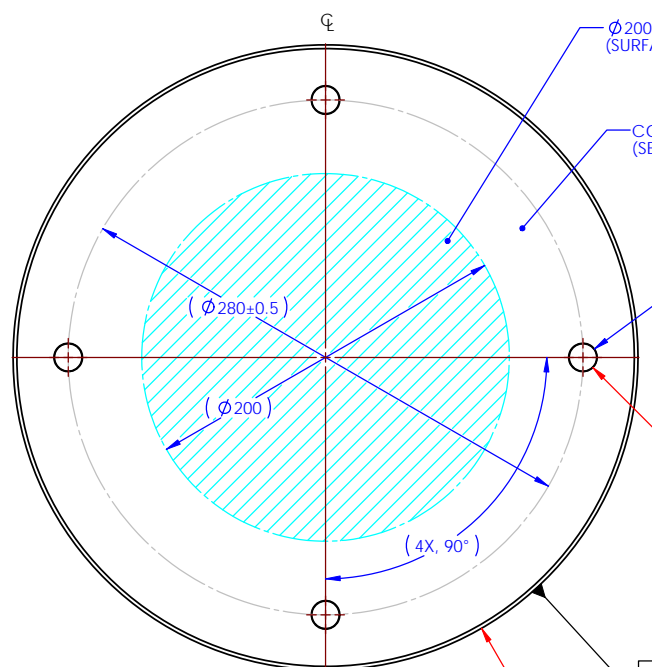


RADIUS AROUND BOTTOM OF RECESS
 $R1 \frac{+0}{-0.5}$ GROUND FINISH ACCEPTABLE FOR BASE AND
 SIDES OF RECESS.

DETAIL E
 SCALE 3 : 1



ETCH OR GRIND REGISTRATION MARKS
 0.25mm ±0.05mm WIDE x
 118mm ±3mm LONG MINIMUM LEGIBLE
 DEPTH LINE ALONG ϕ , CENTERED
 BETWEEN SURFACES 'S1' AND 'S2', PARALLEL
 TO THE CYLINDRICAL AXIS
 (DEFINED BY DATUM FEATURE -A-)
 WITHIN ±0.1mm AND
 180° FROM SCRIBE LINE AT LOCATION OF
 MINIMUM PART THICKNESS.



$\phi 200$ mm CLEAR APERTURE
 (SURFACE 'S1' AND SURFACE 'S2')

COMMERCIAL POLISH SURFACE 'S1'
 (SEE NOTE 4)

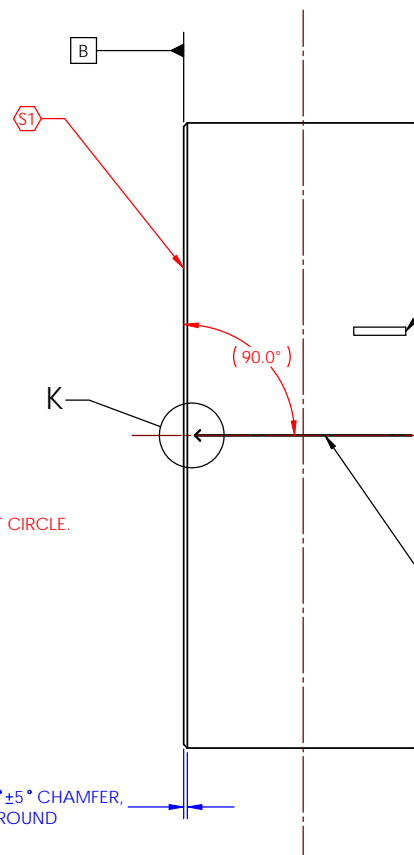
STRADDLE THE ARROWED
 REFERENCE LINE, INDICATING
 PART OF MINIMUM THICKNESS
 (REFER TO DETAIL K.)

4X, $\phi 15.0 \pm 0.25 \nabla 6.0$
 EQUALLY SPACED ON A 280 ± 0.5 BOLT CIRCLE.
 EDGE CHIPPING TO BE MINIMISED.

$\phi 340.0 \pm 0.25$

INSPECTION POLISH
 (SEE NOTE 3)

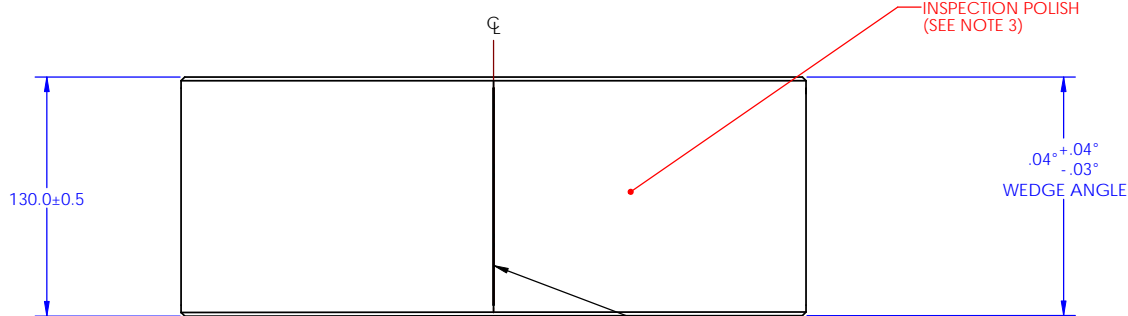
2X, $\pm 0.2 \times 45^\circ \pm 5^\circ$ CHAMFER,
 ALL AROUND



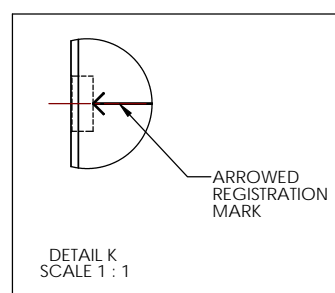
ETCH, GRIND OR SANDBLAST SERIAL
 NUMBER, APPROX. WHERE SHOWN,
 LETTERING APPROX. 4mm HIGH
 (SEE NOTE 5 FOR FURTHER DETAILS)

POLISH SURFACE 'S2'
 (SEE NOTE 4)

ETCH OR GRIND REGISTRATION MARKS
 0.25mm ±0.05mm WIDE x
 118mm ±3mm LONG MINIMUM LEGIBLE
 DEPTH LINE ALONG ϕ , CENTERED
 BETWEEN SURFACES 'S1' AND 'S2' AT
 LOCATION OF MINIMUM PART THICKNESS
 WITHIN ±5° CLOCKING ANGLE
 (WITH RESPECT TO DATUM FEATURE -A-),
 AND PARALLEL TO THE CYLINDRICAL AXIS
 (DEFINED BY DATUM FEATURE -A-)
 WITHIN ±0.1mm, WITH ARROW POINTING
 TO SURFACE 'S1'.



ETCH OR GRIND REGISTRATION MARKS
 0.25mm ±0.05mm WIDE x
 118mm ±3mm LONG MINIMUM LEGIBLE
 DEPTH LINE ALONG ϕ , CENTERED
 BETWEEN SURFACES 'S1' AND 'S2', PARALLEL
 TO THE CYLINDRICAL AXIS
 (DEFINED BY DATUM FEATURE -A-)
 WITHIN ±0.1mm AND
 90° FROM SCRIBE LINE AT LOCATION OF
 MINIMUM PART THICKNESS.



MANUFACTURING NOTES:	
1.	DO NOT SCALE FROM DRAWING.
2.	THIS DRAWING IS ACCOMPANIED BY LIGO COMPONENT SPECIFICATION 'E080089'. (REFER TO E080089 FOR MATERIAL AND INSPECTION NOTES).
3.	INSPECTION POLISH ALL FACES, EDGES AND CHAMFERS. SURFACES SHALL APPEAR TRANSPARENT WITH NO GREY, SCUFFS OR SCRATCHES VISIBLE TO THE NAKED EYE WHEN VIEWED IN NORMAL ROOM LIGHT AGAINST A BLACK BACKGROUND.
4.	SURFACE QUALITY ON SURFACE 'S1' AND WITHIN THE CLEAR APERTURE ON SURFACE 'S2' TO BE 80/50 SCRATCH/DIG (AS PER MIL-PRF-13830B). REFER TO E080089 FOR FURTHER INFORMATION.
5.	ETCH, GRIND OR SANDBLAST THE SERIAL NUMBER 'ERM XX', APPROX. WHERE SHOWN, LETTERING APPROX. 4mm HIGH, WHERE 'XX' IS INCREMENTAL STARTING WITH '01'.
6.	APPLY COATING PER E0900140.
7.	APPLY ESD GOLD COATING PER E0900138.

PARTS LIST	
NOTES: (UNLESS OTHERWISE SPECIFIED)	CALIFORNIA INSTITUTE OF TECHNOLOGY MASSACHUSETTS INSTITUTE OF TECHNOLOGY IGR, GLASGOW UNIVERSITY GEO 400 GROUP
DIMENSIONS ARE IN MILLIMETERS (mm)	SYSTEM: ADVANCED LIGO
TOLERANCES:	SUB-SYSTEM: SUS
X: ±0.1	AS PER LIGO-E080089
XX: ±0.05	NEXT ASSY: ETM QUAD
ANGULAR: ±0.1°	PART NAME: END REACTION MASS (ERM)
MATERIAL:	DATE: 24/12/08
FINISH: SEE NOTES	DRAWN: JAMES
SCALE: 1:2	CHECKED: C. TORRE
PROJECTION: 1st	APPROVED: