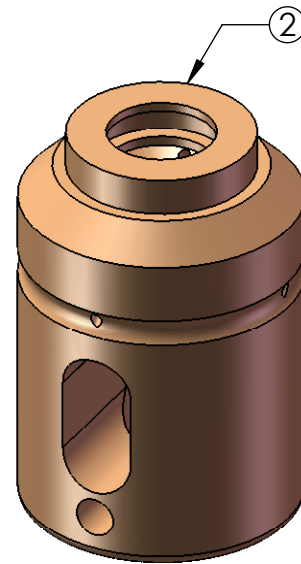
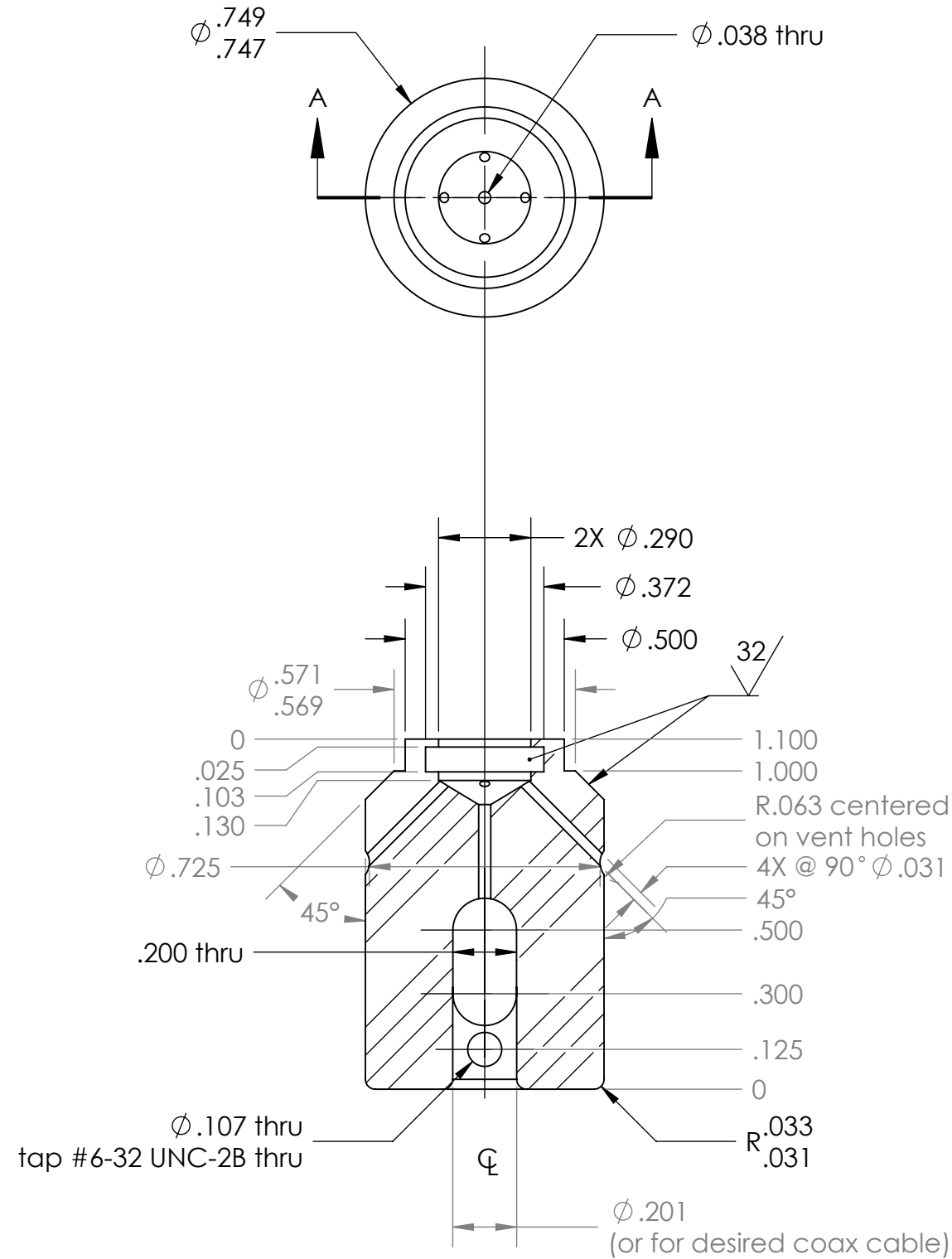
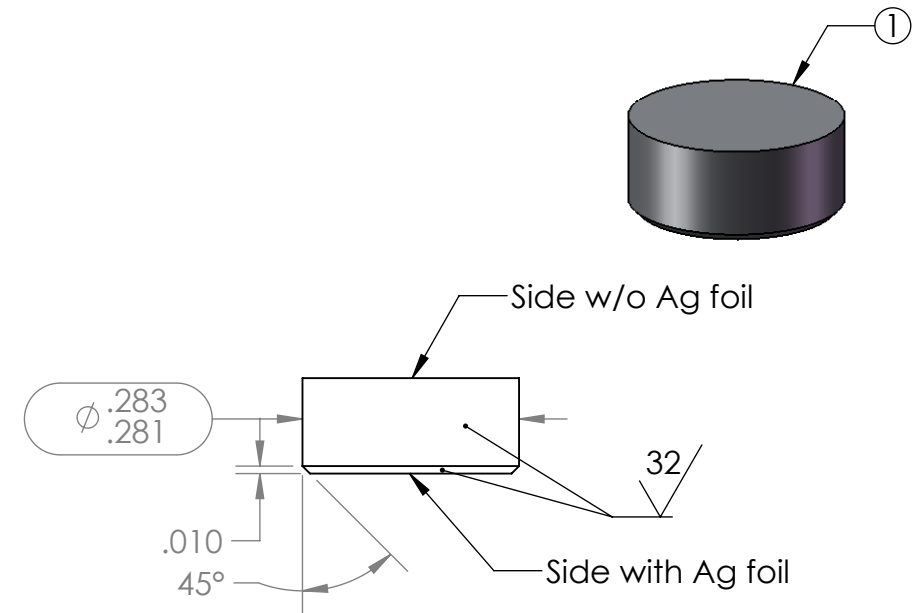


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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		
A	Modified reference cell (vent holes)	12/30/09	HWJ
B	Modified for 7x1.5mm O-ring	03/18/10	HWJ
C	Modified for Satlantic	05/26/11	HWJ



**Configured for
7x1.5 mm O-rings**



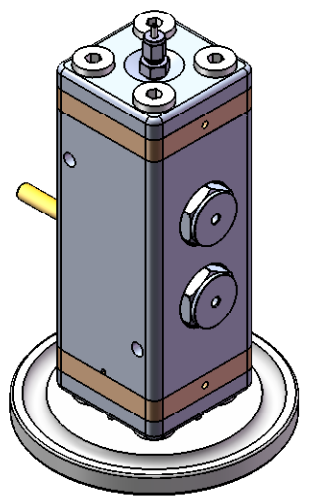
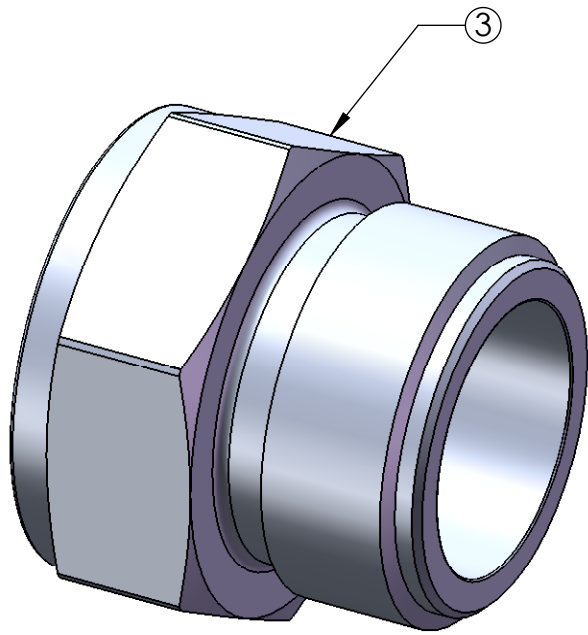
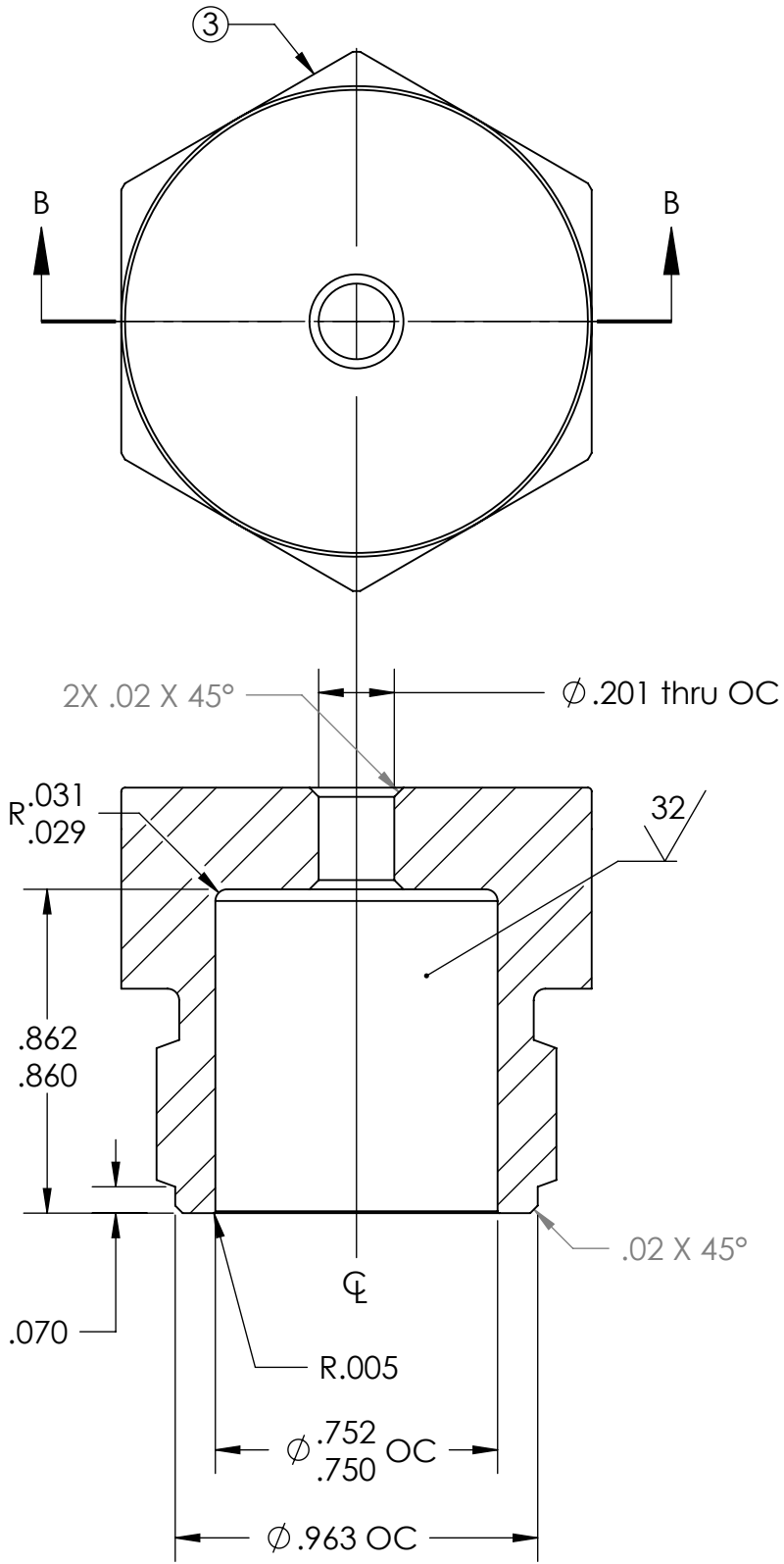
Pellets ordered from:
Van London Phoenix Company
6103 Glenmont Dr.
Houston, TX 77081 USA
Phone: 800-522-7920
Fax: 713-772-4671
Contact: Anthony Bihl

Chloride ISE Pellet, 7.2mm Dia, 3.6mm thick

2	1	Reference Pellet Support		PEEK
1	1	Reference Pellet		Silver Chloride (Van London)
Item No.	Qty	Part No.	Description	Material Specification
Bill of Materials				
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS DATE
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005
Shop Foreman		ANGLES ±1°		
Engineer		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILET RADII .0150-.030.		DRAWN Hans Jannasch 8/4/09 ENGINEER CHECKED PROJECT NO. 900918 PROJECT Novel Sensors
NEXT ASSY Description	NEXT ASSY Number	5. MACHINED DIAMETER ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX .012 INCHES FOR SINGLE SURFACE.		PROJECT NO. 900918 PROJECT Novel Sensors
Application		DO NOT SCALE DRAWING		WEIGHT
				SIZE B DWG. NO. 241jahaRef-Satlantic SCALE 1:3 CAD FILE: Tornado/chem/SWfiles SHEET 1 OF 3

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		
A	Modified reference cell (vent holes)	12/30/09	HWJ
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C	Modified for Satlantic	05/26/11	HWJ



For PEEK-lined Pressure Ti Chamber

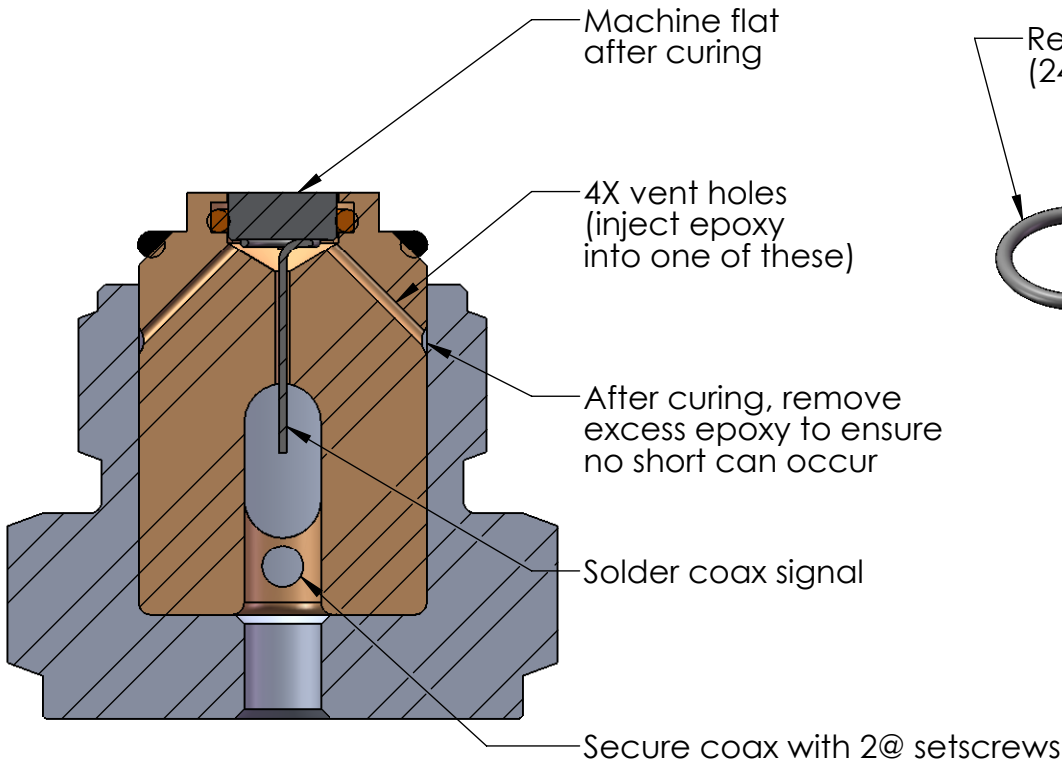
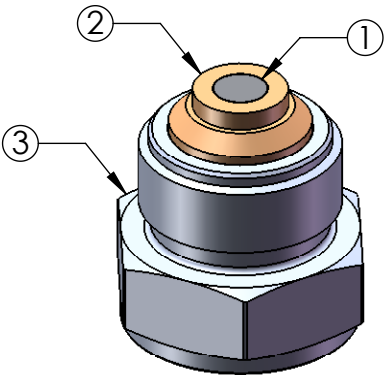
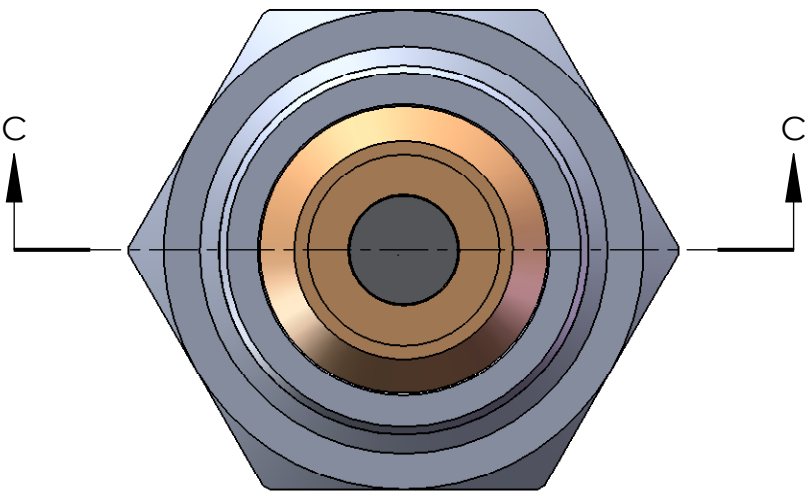
3		1				SS-12-PST (Ref)		Swagelock SS-12-PST (316 SS)	
Item No.		Qty		Part No.		Description		Material Specification	
Bill of Materials									
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE	
Inspector		1 PLACE DIM ±1/16		2 PLACE DIM ±.02		3 PLACE DIM ±.005		ANGLES ±1°	
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADII .0150-.030. 5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005 6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH MAX .012 INCHES FOR SINGLE SURFACE.				DRAWN		Hans Jannasch 8/4/09	
Engineer						ENGINEER		CHECKED	
NEXT ASSY Description						NEXT ASSY Number		PROJECT NO.	
						PROJECT		Novel Sensors	
Application		DO NOT SCALE DRAWING				WEIGHT			
		3				2		1	

Monterey Bay Aquarium Research Institute					
MBARI					
7700 Sandholdt RD.					
Moss Landing, CA 95039					
PH: (831) 775-1700					
Ref for P/T Test Chamber					
SIZE B	DWG. NO.	241jahaRef-Satlantic		REV.	C
SCALE 1:3	CAD FILE: Tornado/chem/SWfiles	SHEET 2	OF 3		

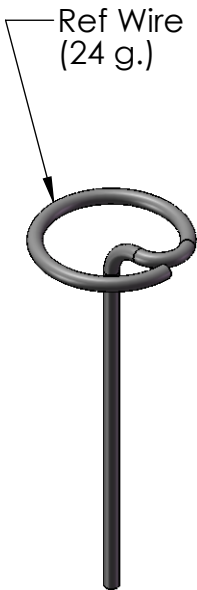
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		
A	Modified reference cell (vent holes)	12/30/09	HWJ
B	Modified for 7x1.5mm O-ring	03/18/10	HWJ
C	Modified for Satlantic	05/26/11	HWJ

Assembly Instructions

- 1) Materials needed:
 - a) van London silver chloride pellet
 - b) PEEK support
 - c) 20g wire (Ag or reg bus wire)
 - d) Coax wire with connector on one end (cut to desired length)
 - e) 7 x 1.5 mm O-ring (Silicone or Viton)
 - f) Silver epoxy (e.g., 2.5 g pack of Loctite 3888, McMaster Carr #7366A55)
(NOTE: Use within 3 months of purchase!)
 - g) 1 ml syringe with needle or other adapter to fit one of the vent holes.
(slightly bore out entry to one vent hole if needed for tight fit)
 - h) #6 x 1/8" stainless set screws
- 2) Machine 45° chamfer onto end of pellet with Ag foil using soft collet. Collet and tool should be free from any oil or solvent. Handle pellet with clean (latex) gloves.
- 3) Bend and cut Ref Wire from 24g. wire. Circular end should fit within void between pellet and support. Straight end should protrude ~2mm into oval opening. (I've used Ag wire, but standard tinned bus wire OK).
- 4) Clean support, wire and pellet with methanol (Q-tip); let dry.
- 5) Very lightly grease 7 x 1.5 mm O-ring and install in PEEK support. Do not get grease on any other surface.
- 6) Lay pellet on 600-grit emery cloth on flat surface (bevel side up)
- 7) Insert wire into support, and align over top of pellet.
- 8) While holding emery cloth, carefully rotate support while seating pellet into support. Convince yourself you're not damaging O-ring.
- 9) Mix 2.5 g pouch of silver exoxy thoroughly. Squeeze epoxy into rear end of 1-ml syringe housing (should fill ~ 2/3) avoiding air gaps. Tap syringe as needed. Insert plunger with minimal trapped air. Clean any excess epoxy and install needle or adapter.
- 10) While holding pellet in place, inject silver exoxy until it vents out all vent holes and where wire comes out into oval hole. One pouch should be enough for 4 references. (I test the epoxy mixture by ejeting small dabs of epoxy onto a clean surface before and after filling the supports for testing after curing).
- 11) Let cure overnight.
- 12) After fully curing, chip off any excess silver epoxy. Use a sharp clean tool to machine a flat surface across the silver chloride and PEEK electrode surface. Also machine the groove around the support to ensure that the silver epoxy cannot contact any metal surrounding the support.
- 13) Trim the coax wire to expose ~2 mm of the signal contuctor, and ~2 mm of the center insulator. Thread any supports if needed (e.g. Part 3) so that the central conductor and Ref wire overlap. Install the #6 set screws to secure the coax in the support (be sure not to over tighten and short the shielding). Solder the connection (Note the shield is only connected at the other end).
- 14) The resistance between the coax shield and signal should be infinite. The resistance between the signal and pellet should be about 20 to 30 kOhms (use high impedance measuring device).
- 15) Wet polish reference with a) 1000 emory cloth and b) 3 um glass fiber polishing film. Clean gap around pellet with water. Dry before further assembly.



SECTION C-C



Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS	DATE	Monterey Bay Aquarium Research Institute		
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN Hans Jannasch	8/4/09	MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700		
Shop Foreman		1. DIMENSIONS ARE IN INCHES				ENGINEER				
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.				CHECKED		Ref for P/T Test Chamber		
NEXT ASSY Description	NEXT ASSY Number	3. REMOVE BURRS AND SHARP EDGES .015 MAX.				PROJECT NO.	900918			
		4. MACHINED FILLET RADII .0150-.030.				PROJECT	Novel Sensors	SIZE B DWG. NO. 241jahaRef-Satlantic REV. C		
		5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005								
		6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX .012 INCHES FOR SINGLE SURFACE.						SCALE 1:3 CAD FILE: Tornado/chem/SWfiles SHEET 3 OF 3		
Application		DO NOT SCALE DRAWING				WEIGHT				