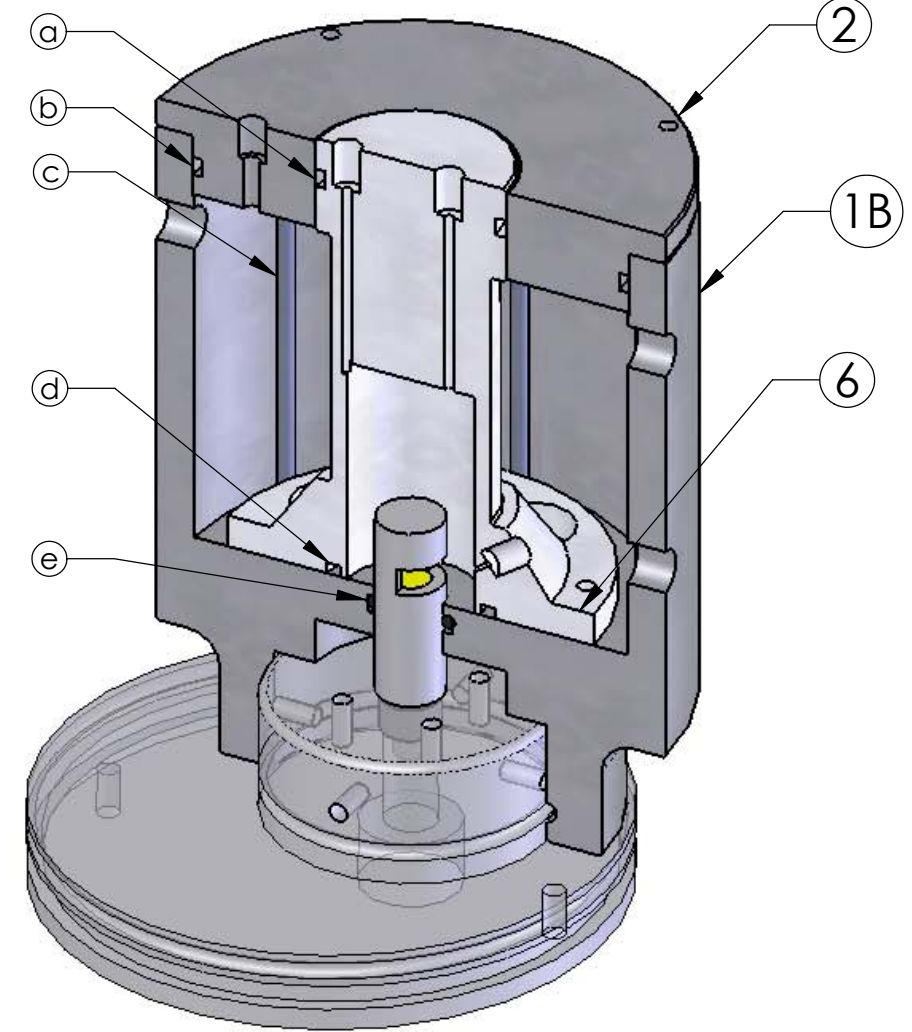




Large Volume Flowcell
(20 ml)

Sample Outlet

3X 1/8" NPT

Sample Inlet

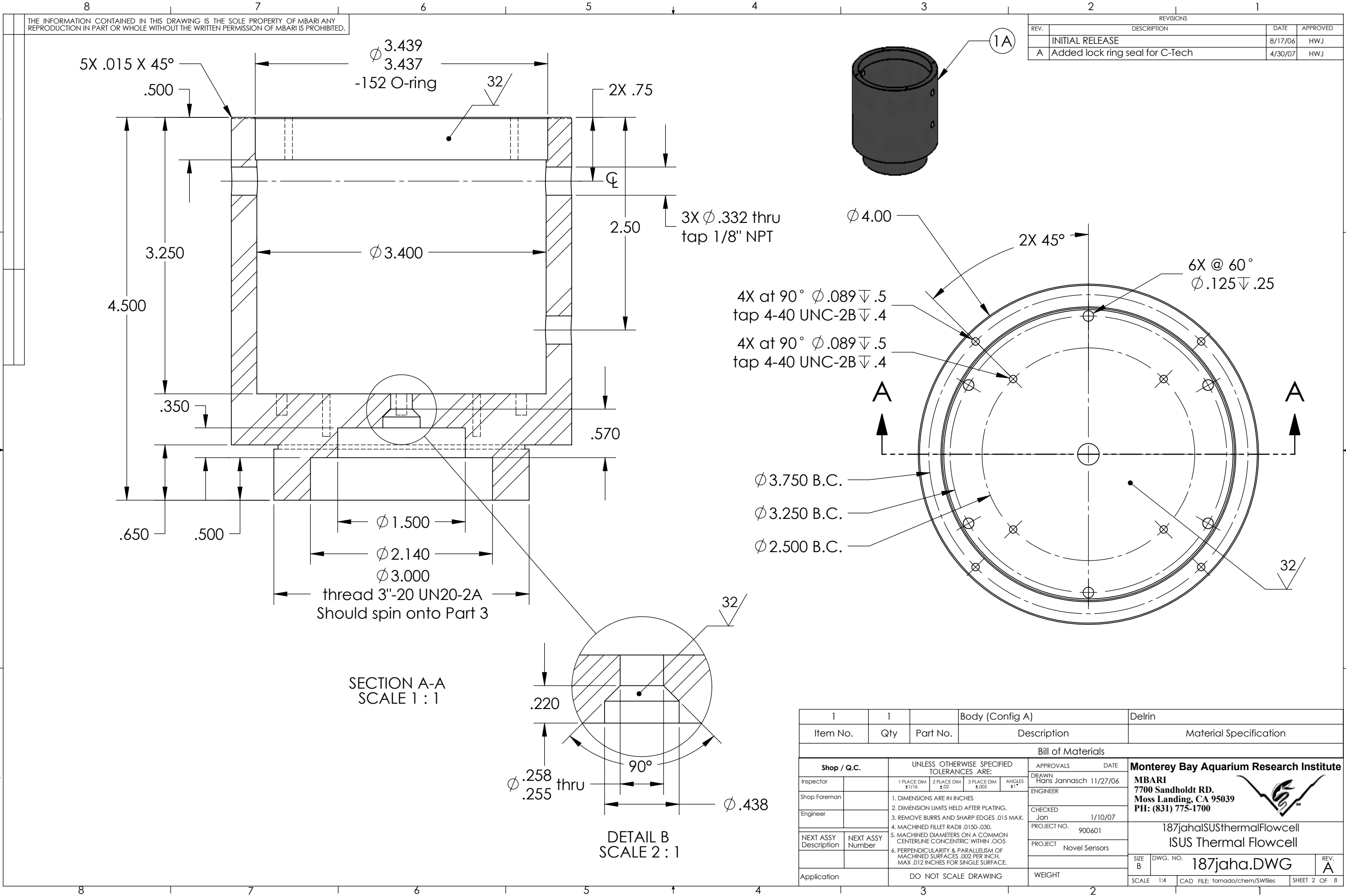
Coolant Path

1/4-28 Upchurch

6 1 5 1 4

6	1		Flowcell #1 (large volume)	PEEK
5	1		Flowcell #2 (with mixer)	PEEK
4	1		Flowcell #1 (low volume)	PEEK
3	1		Lock Ring	Delrin
2	2		Cap	Delrin
1	2		Body (Config A and B)	Delrin
Item No.	Qty	Part No.	Description	Material Specification

				Bill of Materials									
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:				APPROVALS		DATE		Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700 			
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	DRAWN Hans Jannasch		11/27/06					
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.				ENGINEER							
Engineer						CHECKED Jon		1/10/07					
NEXT ASSY Description	NEXT ASSY Number					PROJECT NO.		900601					
						PROJECT		Novel Sensors					
Application		DO NOT SCALE DRAWING				WEIGHT				SIZE B DWG. NO. 187jaha.DWG REV. A			
						SCALE 1:4		CAD FILE: tomado/chem/SWfiles		SHEET 1 OF 8			



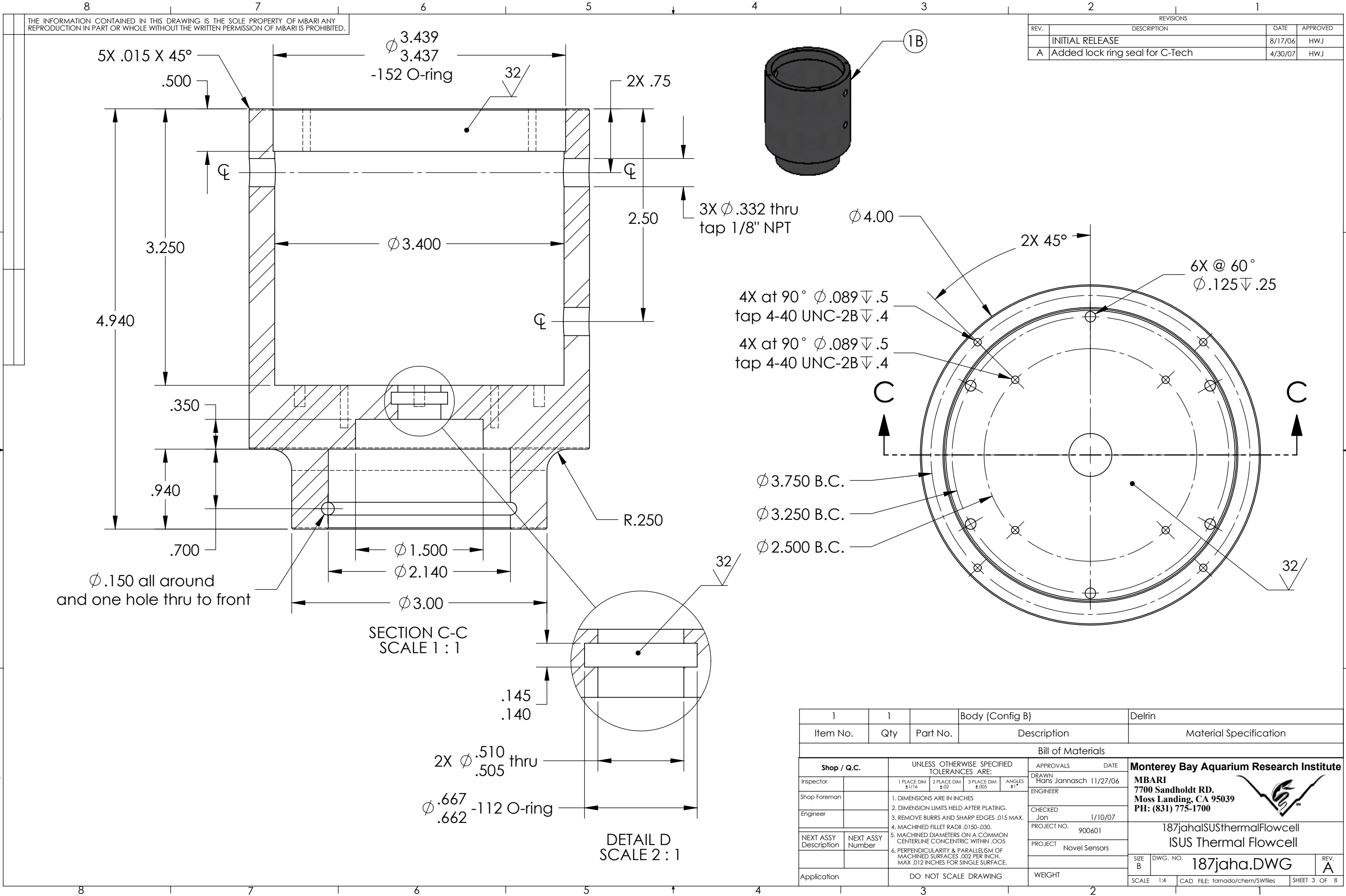
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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	8/17/06	HWJ
A	Added lock ring seal for C-Tech	4/30/07	HWJ

1		1		Body (Config A)		Delrin			
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°	DRAWN Hans Jannasch	11/27/06		
Shop Foreman							ENGINEER		
Engineer		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADI .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.					CHECKED Jon	1/10/07	
NEXT ASSY Description	NEXT ASSY Number						PROJECT NO.	900601	
							PROJECT	Novel Sensors	
Application		DO NOT SCALE DRAWING			WEIGHT		SIZE B	DWG. NO. 187jaha.DWG	REV. A
							SCALE 1:4	CAD FILE: tornado/chem/SWfiles	SHEET 2 OF 8

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ISUS Thermal Flowcell



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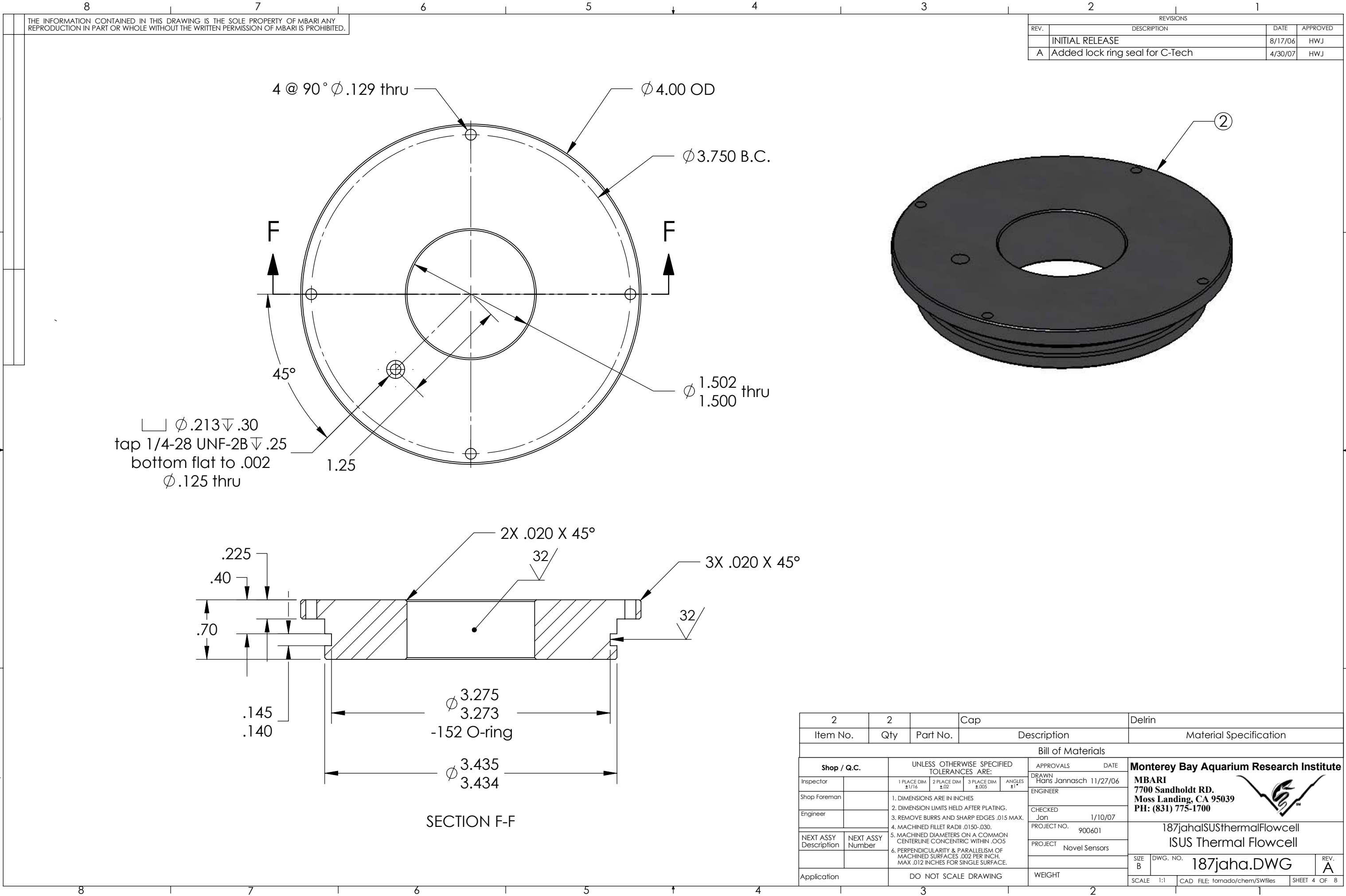
REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	8/17/06	HWJ
A	Added lock ring seal for C-Tech	4/30/07	HWJ

1	1		Body (Config B)	Delrin
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		1. DIMENSIONS ARE IN INCHES		DRAWN Hans Jannasch 11/27/06
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.		
NEXT ASSY DescriptionNEXT ASSY Number		3. REMOVE BURRS AND SHARP EDGES .015 MAX.		ENGINEER
		4. MACHINED FILLET RADII .0150-.030.		CHECKED Jon 1/10/07
		5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC .005		PROJECT NO. 900601
		6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH MAX. .012 INCHES FOR SINGLE SURFACE.		PROJECT Novel Sensors
Application		DO NOT SCALE DRAWING		WEIGHT
				SIZE B DWG. NO. 187jaha.DWG
				REV. A
		SCALE 1:4		CAD FILE: tornado/chem/SWfiles SHEET 3 OF 8

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REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	8/17/06	HWJ
A	Added lock ring seal for C-Tech	4/30/07	HWJ

$\square$ $\phi .213 \nabla .30$
tap 1/4-28 UNF-2B $\nabla .25$
bottom flat to .002
 $\phi .125$ thru

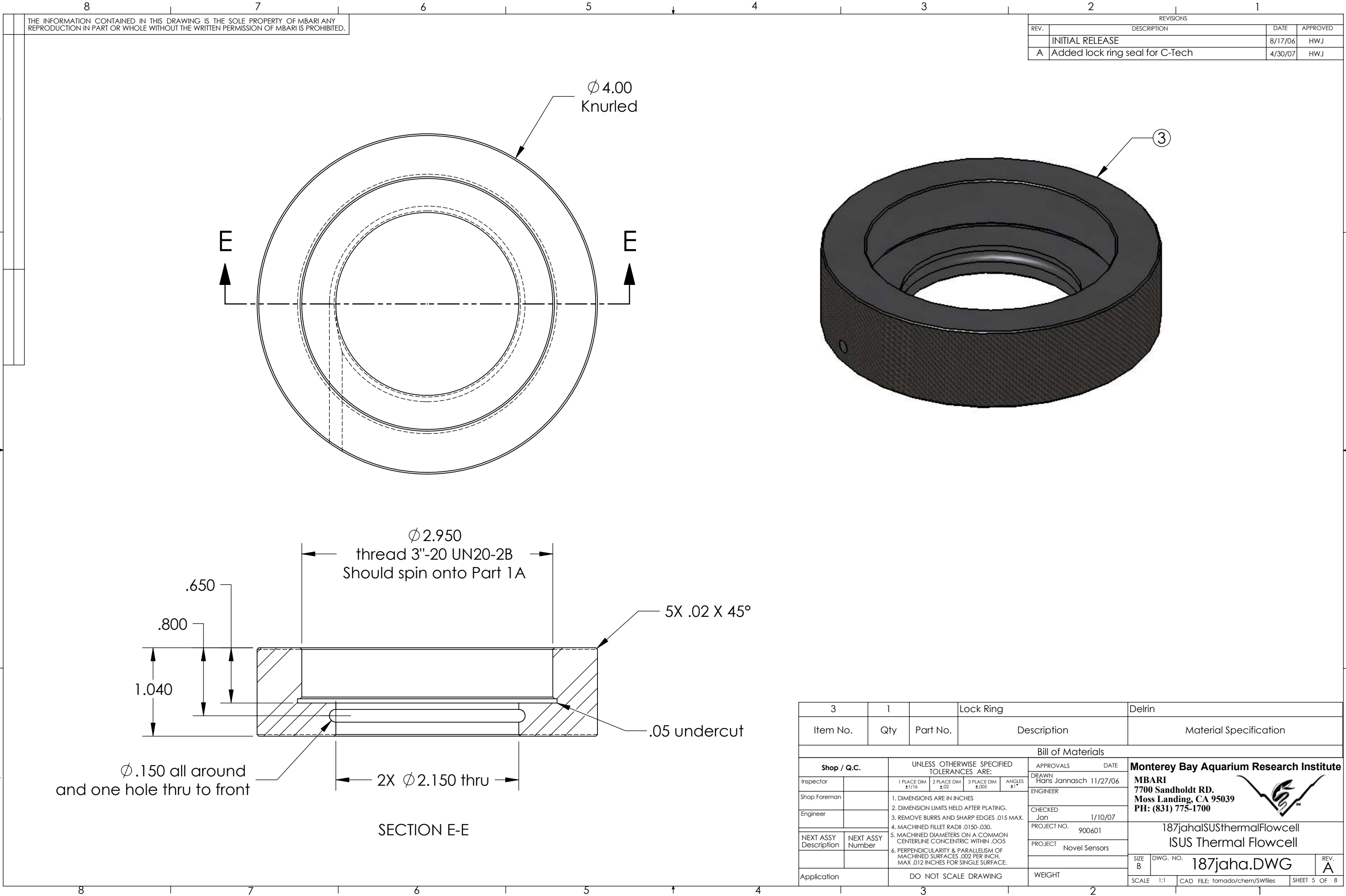
SECTION F-F

2		2		Cap		Delrin	
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°	DRAWN Hans Jannasch 11/27/06	
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.				ENGINEER	
Engineer						CHECKED Jon	

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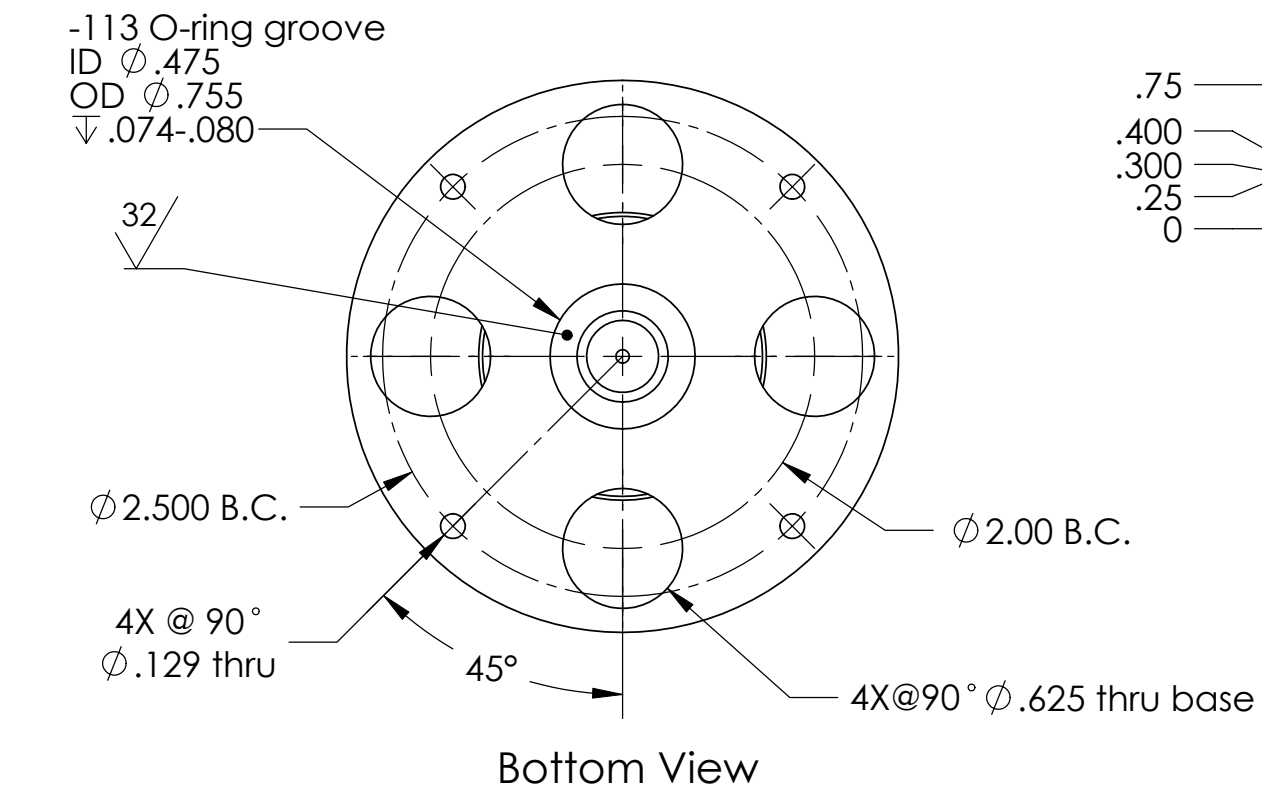
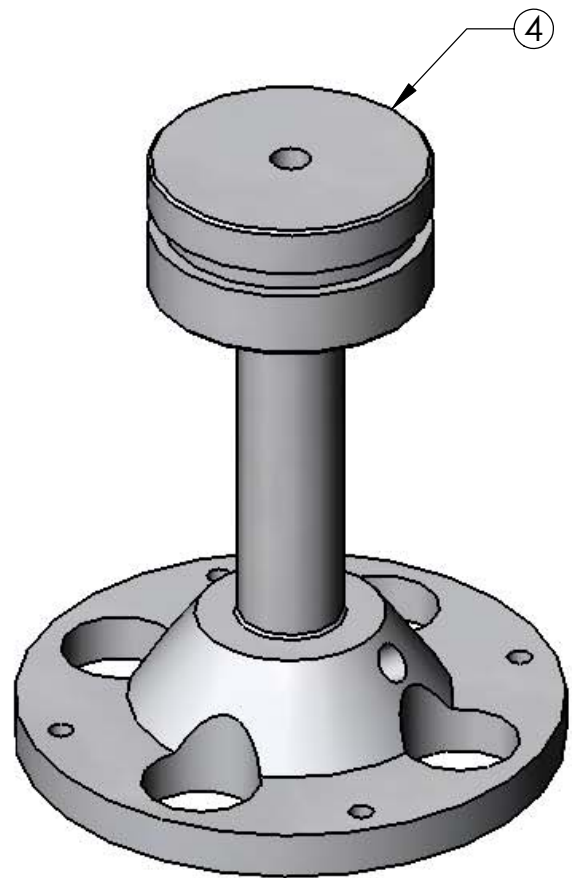
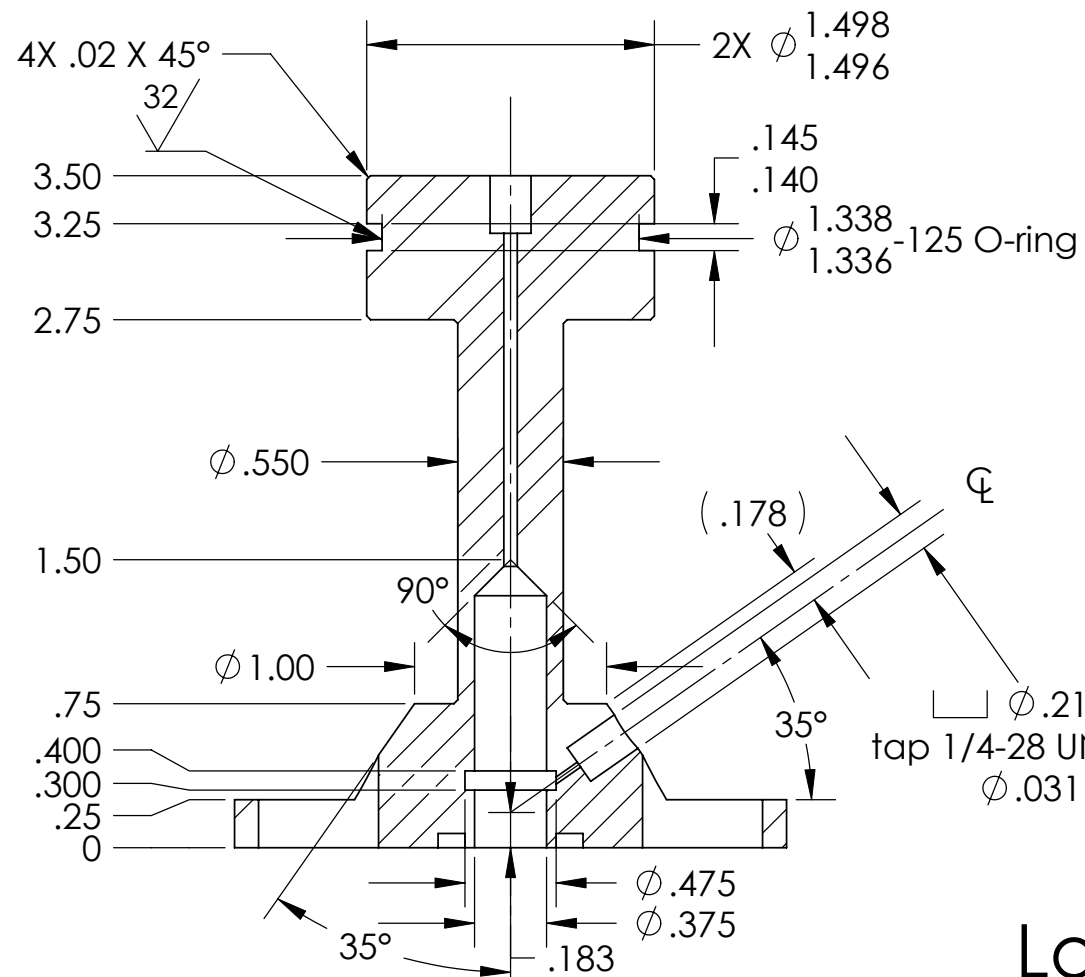
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ISUS Thermal Flowcell



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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	8/17/06	HWJ
A	Added lock ring seal for C-Tech	4/30/07	HWJ

3		1		Lock Ring		Delrin	
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°	DRAWN Hans Jannasch 11/27/06	
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.				ENGINEER	
Engineer						CHECKED Jon 1/10/07	
NEXT ASSY Description						PROJECT NO. 900601	
NEXT ASSY Number						PROJECT Novel Sensors	
						SIZE B DWG. NO. 187jaha.DWG	
Application		DO NOT SCALE DRAWING		WEIGHT		SCALE 1:1 CAD FILE: tornado/chem/SWfiles	
						SHEET 5 OF 8	
Monterey Bay Aquarium Research Institute							
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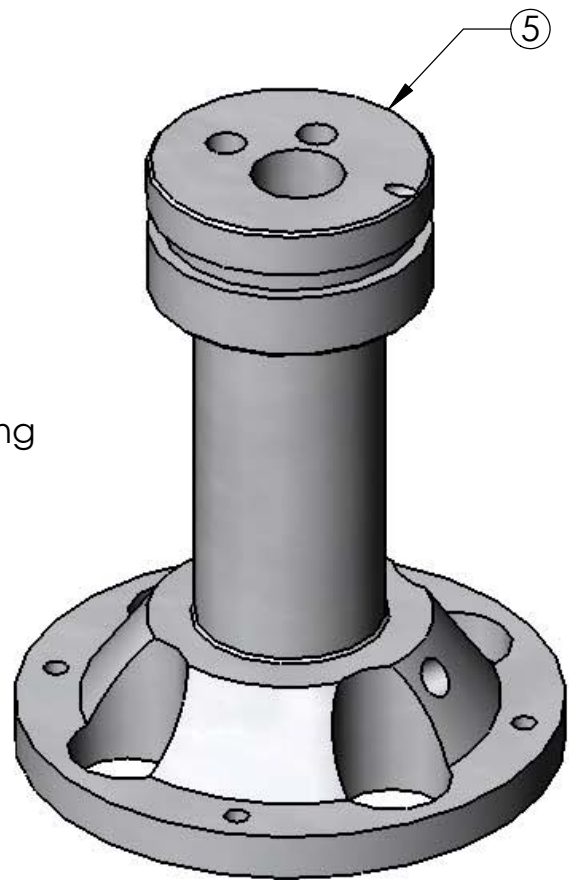
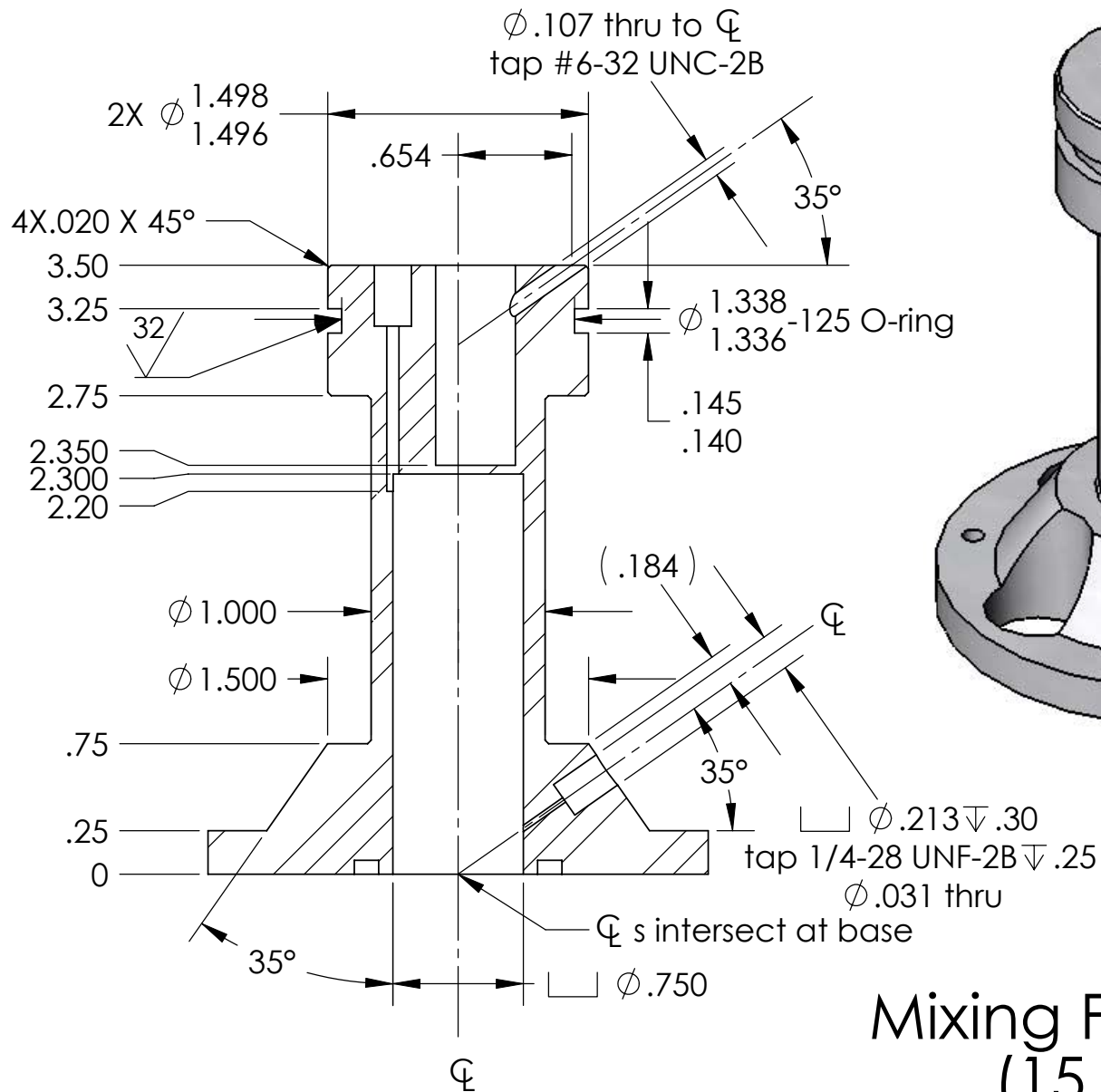
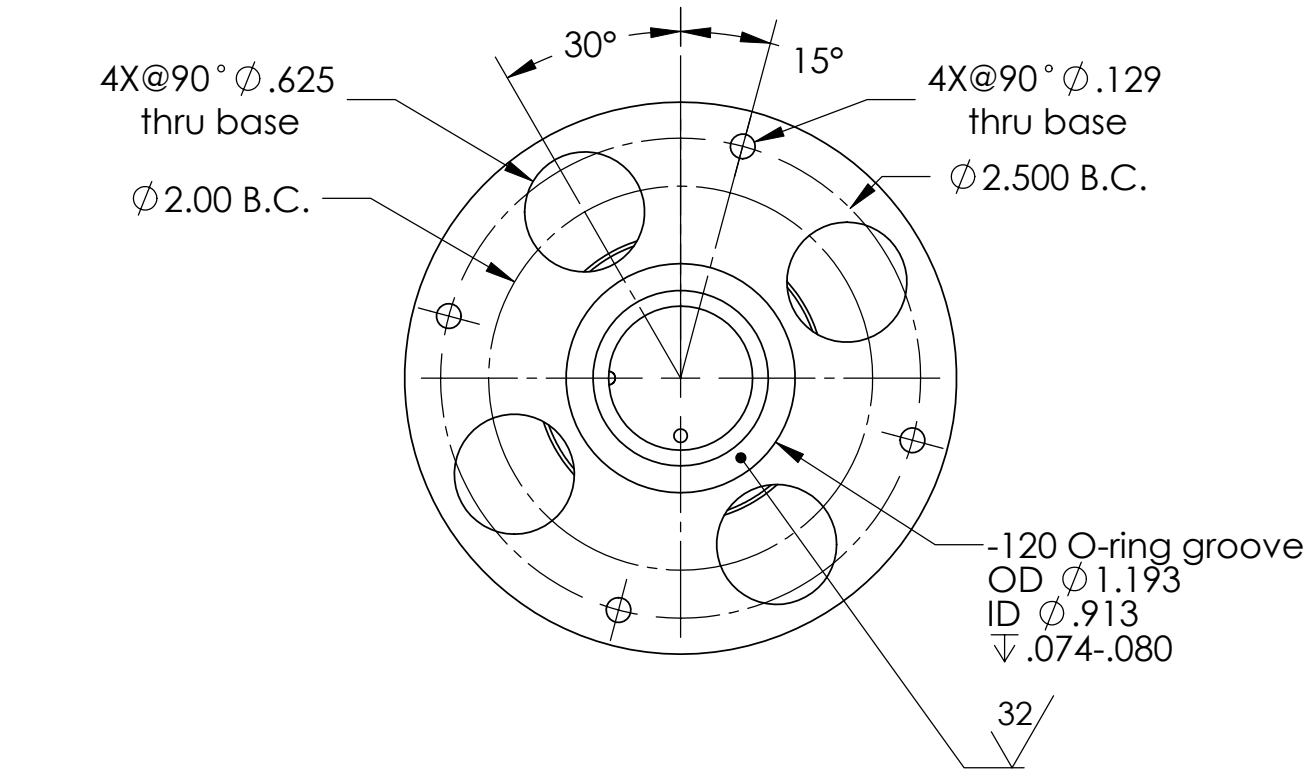
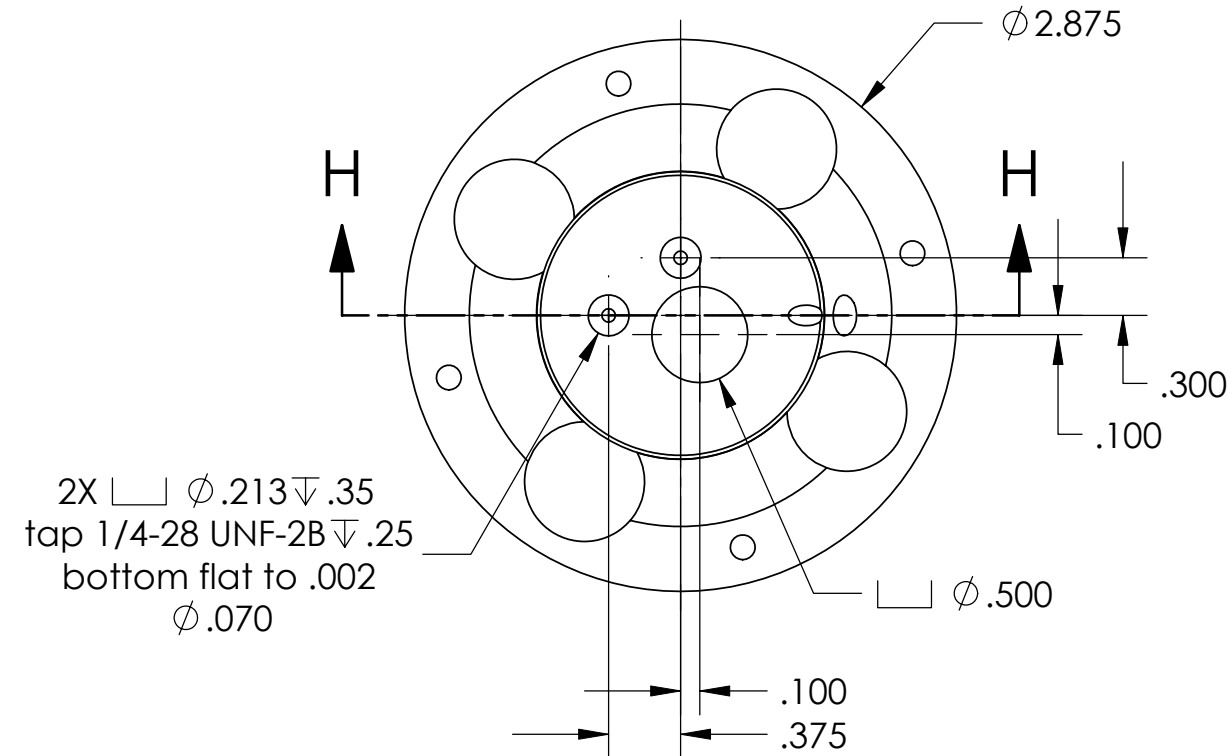


Low Volume Flowcell (2.4 ml)

4	1		Flowcell #1 (low volume)	PEEK
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°		DRAWN Hans Jannasch 11/27/06
Engineer		1. DIMENSIONS ARE IN INCHES		ENGINEER
		2. DIMENSION LIMITS HELD AFTER PLATING.		CHECKED Jon 1/10/07
		3. REMOVE BURRS AND SHARP EDGES .015 MAX.		PROJECT NO. 900601
		4. MACHINED FILLET RADII .0150-.030.		PROJECT Novel Sensors
NEXT ASSY Description	NEXT ASSY Number	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.		
Application	DO NOT SCALE DRAWING		WEIGHT	
				 Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700
				187jahaSUSthermalFlowcell ISUS Thermal Flowcell SIZE B DWG. NO. 187jaha.DWG REV. A
				SCALE 1:1 CAD FILE: tornado/chem/SWfiles SHEET 6 OF 8

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE	8/17/06	HWJ
A	Added lock ring seal for C-Tech	4/30/07	HWJ



Mixing Flowcell (15 ml)

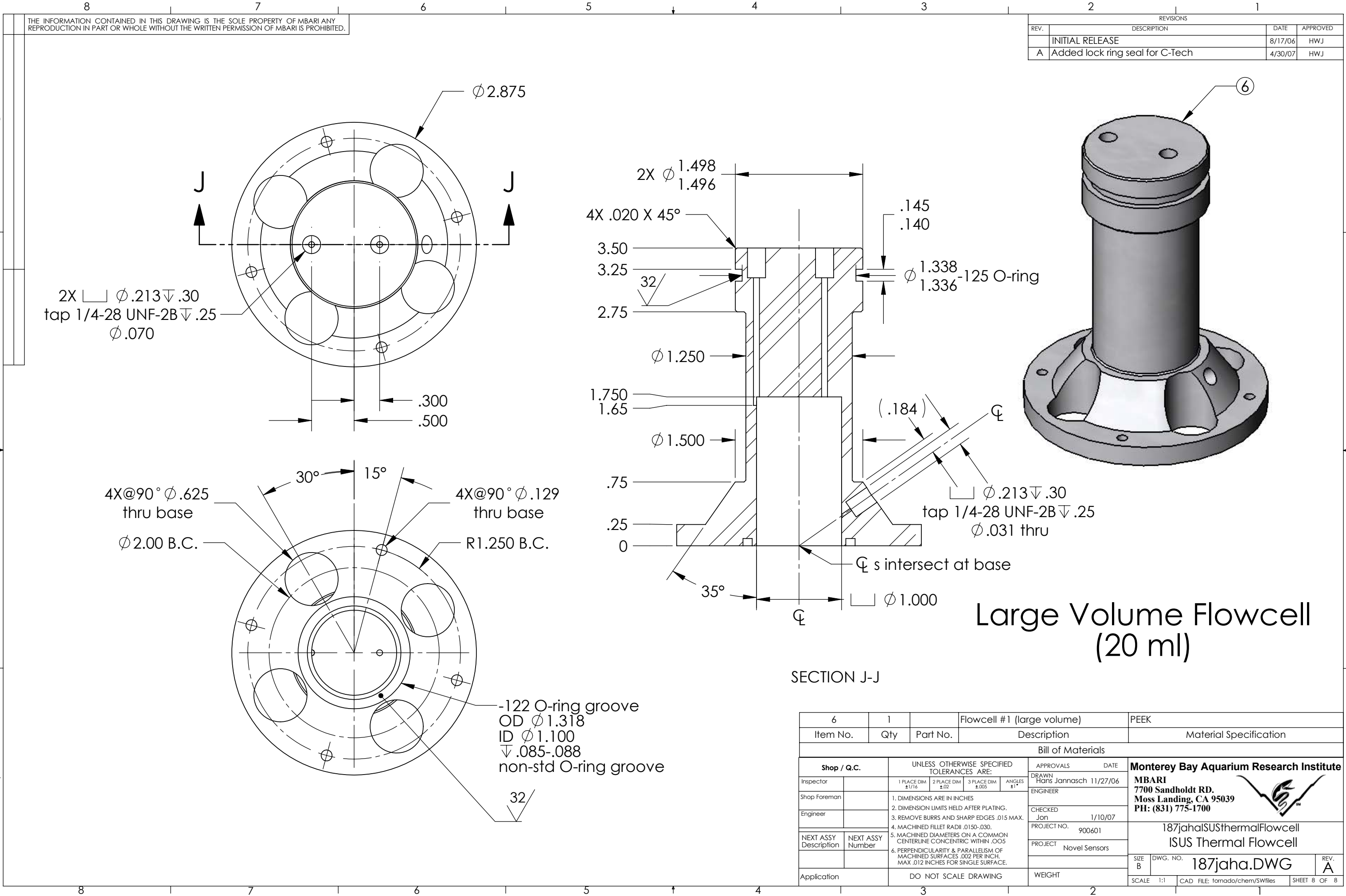
SECTION H-H

5		1		Flowcell #2 (with mixer)		PEEK	
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°	DRAWN Hans Jannasch	11/27/06
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.				ENGINEER	
Engineer						CHECKED Jon	
NEXT ASSY Description	NEXT ASSY Number	PROJECT NO.				900601	
		PROJECT				Novel Sensors	
Application		DO NOT SCALE DRAWING			WEIGHT		
					SCALE 1:1		CAD FILE: tornado/chem/SWfiles
					SHEET 7 OF 8		
Monterey Bay Aquarium Research Institute							
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187jaha						ISUS Thermal Flowcell	
187jaha.DWG						REV. A	

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187jahaISUSthermalFlowcell
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SIZE B DWG. NO. 187jaha.DWG REV. A



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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
INITIAL RELEASE		8/17/06	HWJ
A	Added lock ring seal for C-Tech	4/30/07	HWJ

Large Volume Flowcell (20 ml)

SECTION J-J

6		1		Flowcell #1 (large volume)		PEEK					
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°		DRAWN Hans Jannasch 11/27/06	
Shop Foreman		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADI RADI .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.				ENGINEER		Monterey Bay Aquarium Research Institute MBARI 7700 Sandholdt RD. Moss Landing, CA 95039 PH: (831) 775-1700			
Engineer						CHECKED Jon 1/10/07					
NEXT ASSY Description		NEXT ASSY Number		PROJECT NO.		900601		187jahaSUSthermalFlowcell			
				PROJECT		Novel Sensors		ISUS Thermal Flowcell			
								SIZE B		DWG. NO.	
										187jaha.DWG	
										REV. A	
Application			DO NOT SCALE DRAWING			WEIGHT		SCALE 1:1		CAD FILE: tornado/chem/SWfiles	
								SHEET 8 OF 8			

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