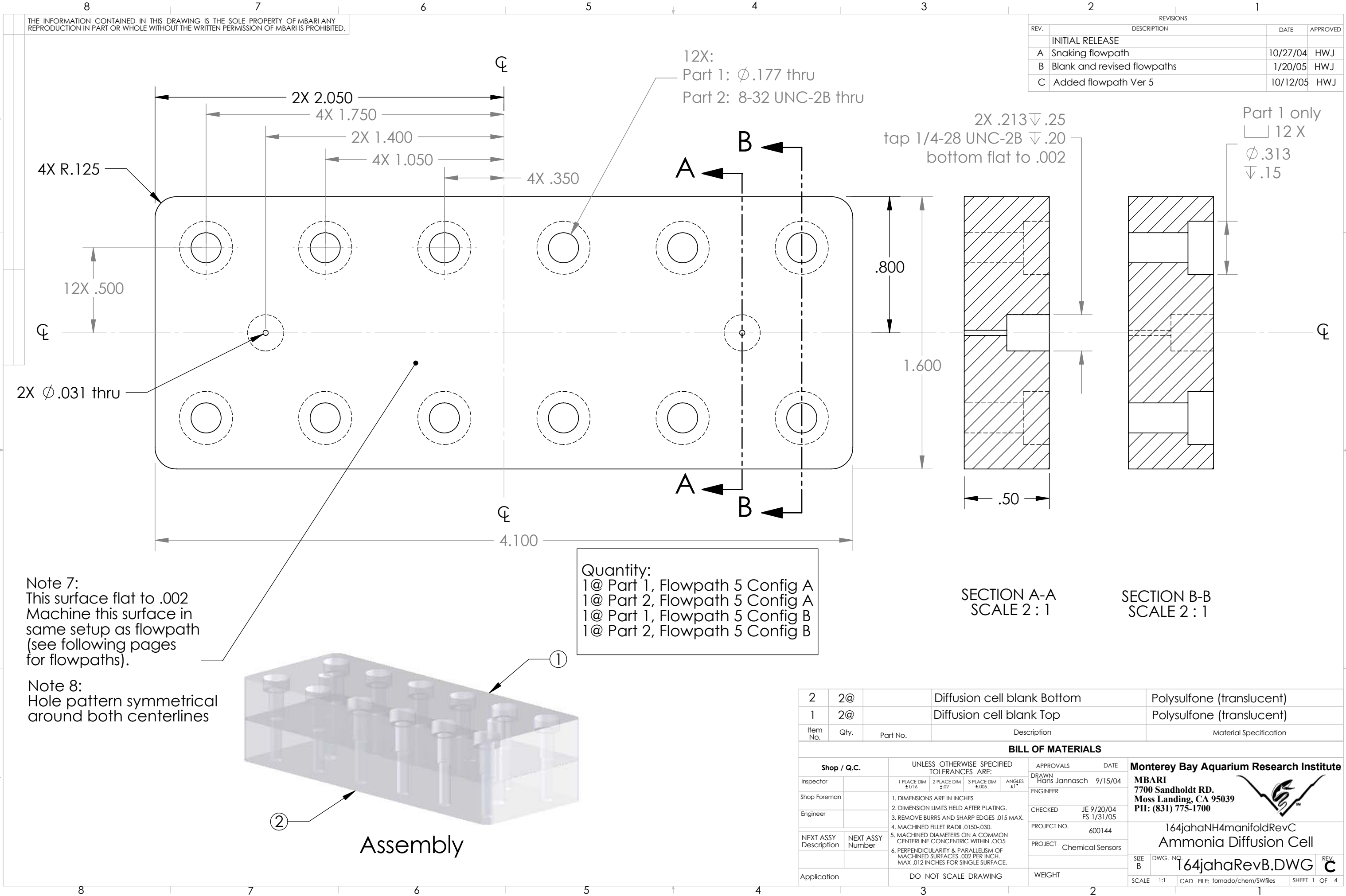




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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		
A	Snaking flowpath	10/27/04	HWJ
B	Blank and revised flowpaths	1/20/05	HWJ
C	Added flowpath Ver 5	10/12/05	HWJ

4X R.125

2X 2.050

4X 1.750

2X 1.400

4X 1.050

4X .350

12X:
Part 1: ϕ .177 thru
Part 2: 8-32 UNC-2B thru

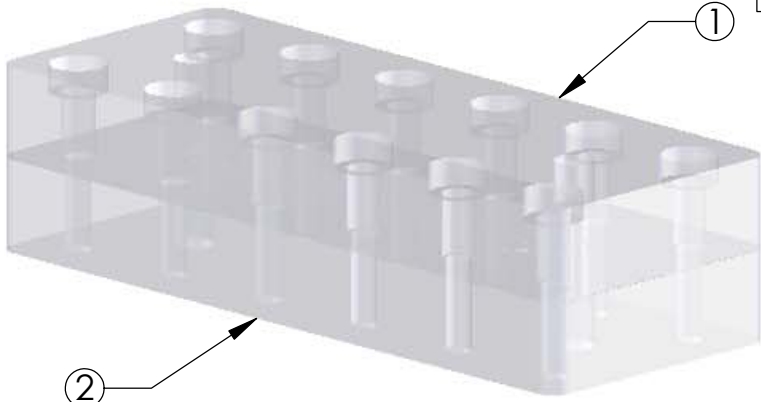
2X .213 ∇ .25
tap 1/4-28 UNC-2B ∇ .20
bottom flat to .002

Part 1 only
12 X
 ϕ .313
 ∇ .15

Quantity:
1@ Part 1, Flowpath 5 Config A
1@ Part 2, Flowpath 5 Config A
1@ Part 1, Flowpath 5 Config B
1@ Part 2, Flowpath 5 Config B

Note 7:
This surface flat to .002
Machine this surface in
same setup as flowpath
(see following pages
for flowpaths).

Note 8:
Hole pattern symmetrical
around both centerlines



Assembly

SECTION A-A
SCALE 2 : 1

SECTION B-B
SCALE 2 : 1

2	2@		Diffusion cell blank Bottom	Polysulfone (translucent)
1	2@		Diffusion cell blank Top	Polysulfone (translucent)
Item No.	Qty.	Part No.	Description	Material Specification
BILL OF MATERIALS				
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS
Inspector		1 PLACE DIM $\pm$ 1/16	2 PLACE DIM $\pm$.02	DATE 9/15/04
Shop Foreman		3 PLACE DIM $\pm$.005	ANGLES $\pm$ 1°	DRAWN Hans Jannasch
Engineer		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
NEXT ASSY Description	NEXT ASSY Number	PROJECT NO. 600144		CHECKED JE 9/20/04 FS 1/31/05
Application		DO NOT SCALE DRAWING		PROJECT Chemical Sensors
		WEIGHT		
		SCALE 1:1		
		CAD FILE: tornado/chem/SWfiles		
		SHEET 1 OF 4		

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Moss Landing, CA 95039
PH: (831) 775-1700

164jahaNH4manifoldRevC

Ammonia Diffusion Cell

SIZE B DWG. NO. 164jahaRevB.DWG

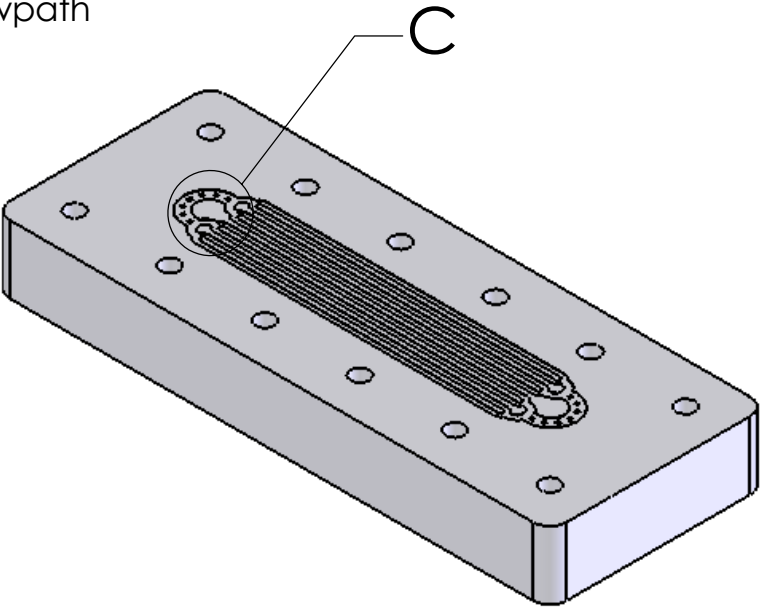
REV C

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
	INITIAL RELEASE		
A	Snaking flowpath	10/27/04	HWJ
B	Blank and revised flowpaths	1/20/05	HWJ

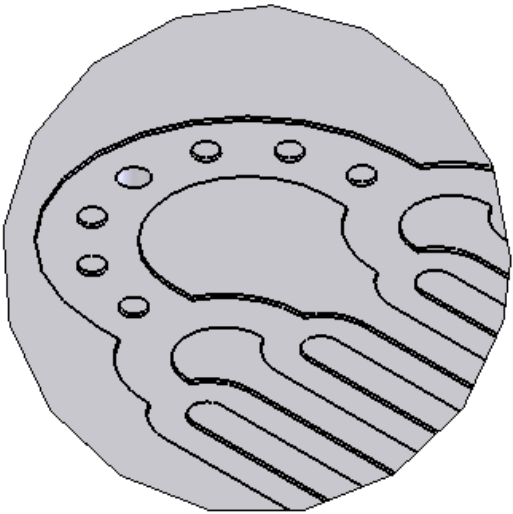
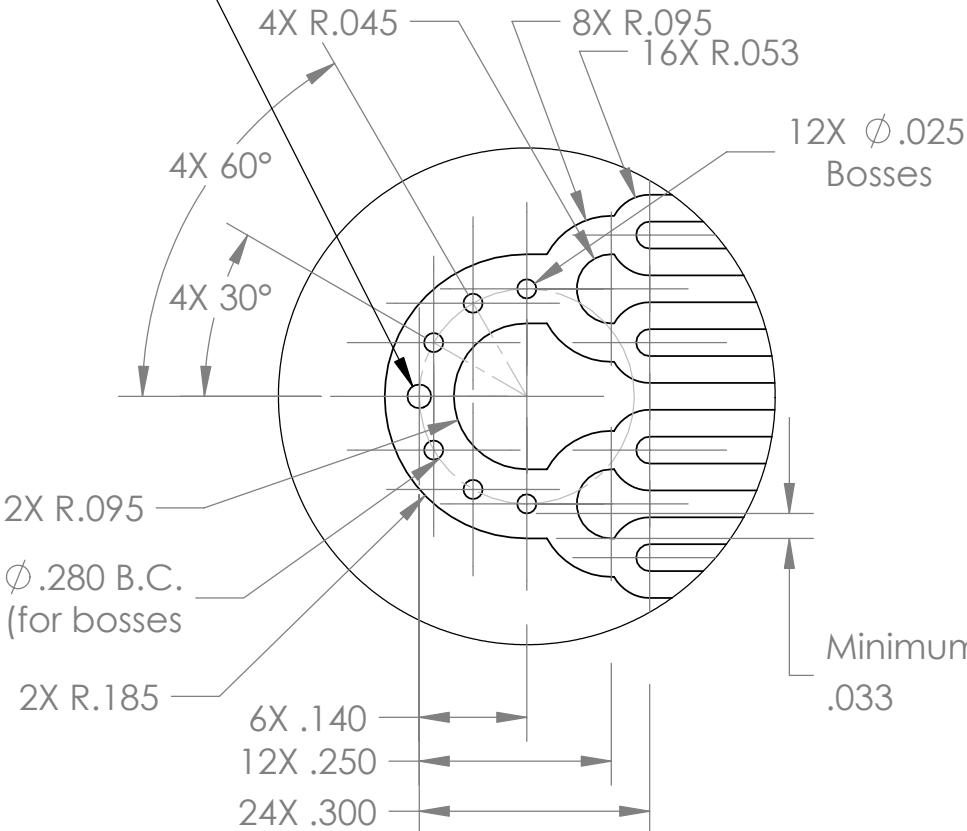
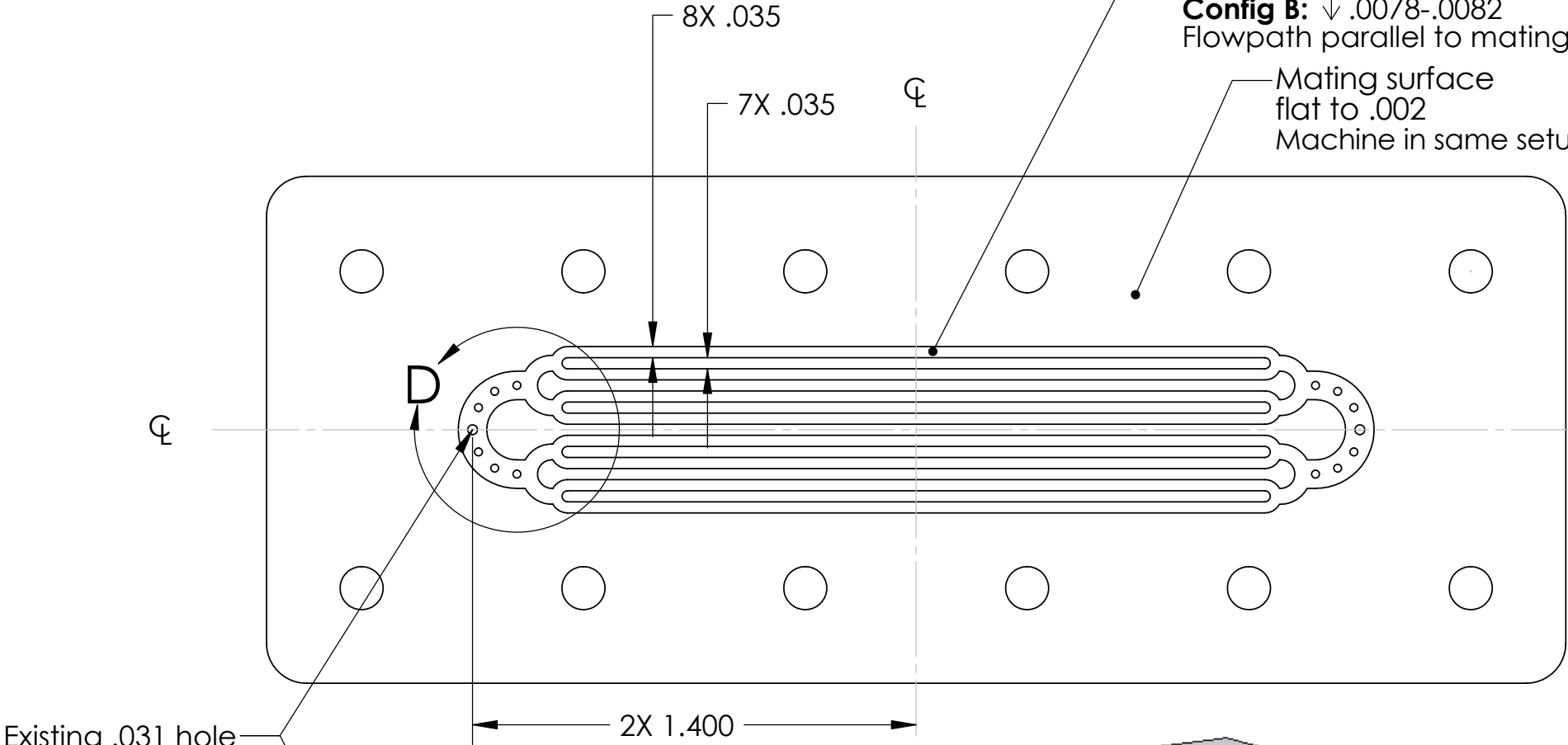
Depth of flowpath
Config A: $\nabla .0038-.0042$
Config B: $\nabla .0078-.0082$
Flowpath parallel to mating surface

Mating surface
flat to .002
Machine in same setup as flowpath



Flowpath 3 Multipath
Config A: $\nabla .004 = 50 \text{ }\mu\text{L}$
Config B: $\nabla .008 = 100 \text{ }\mu\text{L}$

Note 9:
Rev 3 Flowpath symmetrical
around both centerlines



DETAIL C
SCALE 6 : 1

Minimum bit clearance
.033

DETAIL D
SCALE 4 : 1

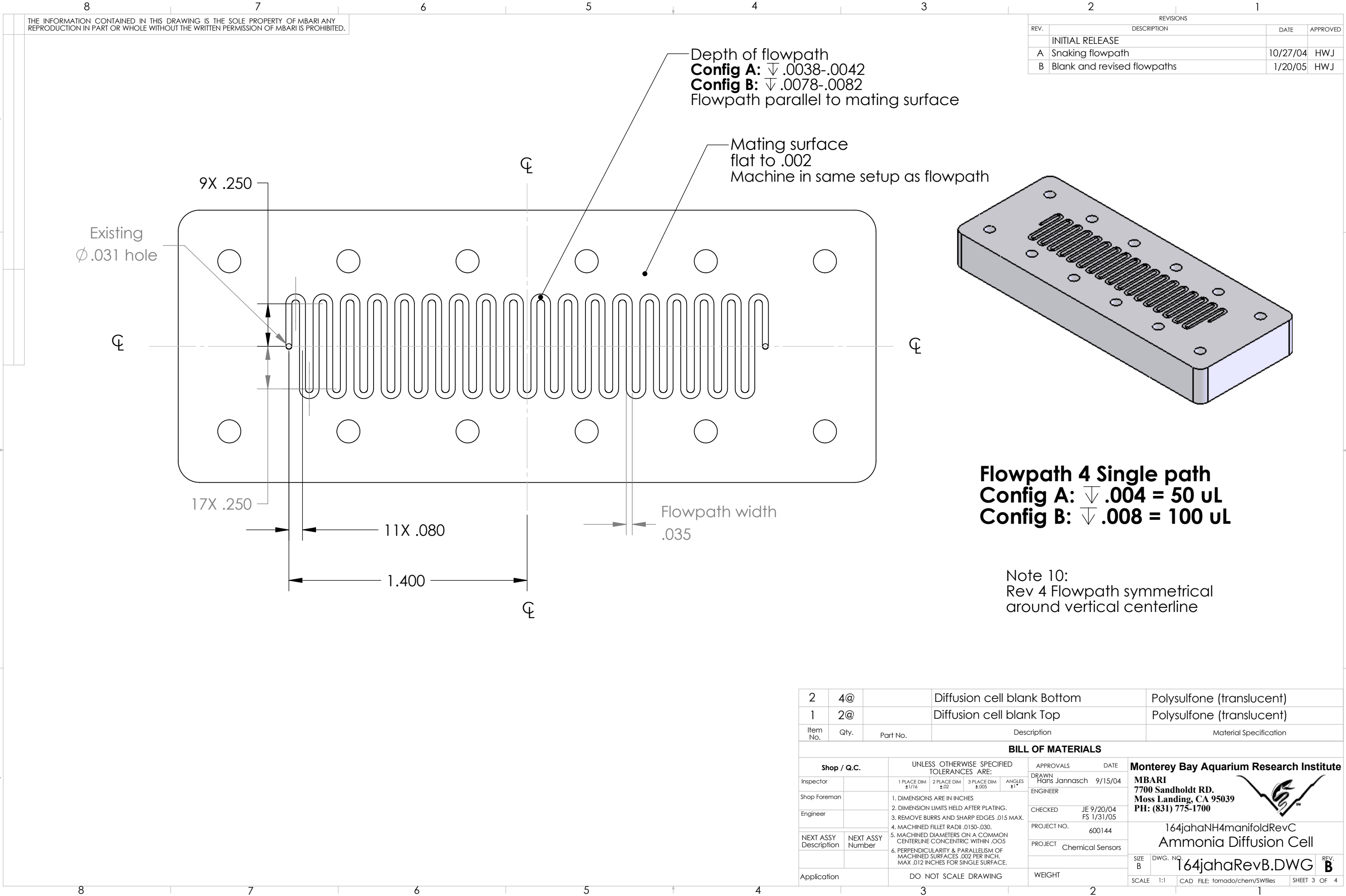
2	4@		Diffusion cell blank Bottom	Polysulfone (translucent)				
1	2@		Diffusion cell blank Top	Polysulfone (translucent)				
Item No.	Qty.	Part No.	Description	Material Specification				
BILL OF MATERIALS								
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		APPROVALS DATE				
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	3 PLACE DIM ±.005	ANGLES ±1°	Monterey Bay Aquarium Research Institute 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.						
NEXT ASSY Description	NEXT ASSY Number	3. REMOVE BURRS AND SHARP EDGES .015 MAX.					CHECKED JE 9/20/04 FS 1/31/05	
		4. MACHINED FILLET RADII .0150-.030.					PROJECT NO. 600144	
		5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005				PROJECT Chemical Sensors		
		6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH. MAX .012 INCHES FOR SINGLE SURFACE.						
Application		DO NOT SCALE DRAWING		WEIGHT		SIZE B	DWG. NO. 164jahaRevB.DWG	REV. B
						SCALE 1:1	CAD FILE: tornado/chem/SWfiles	SHEET 2 OF 4

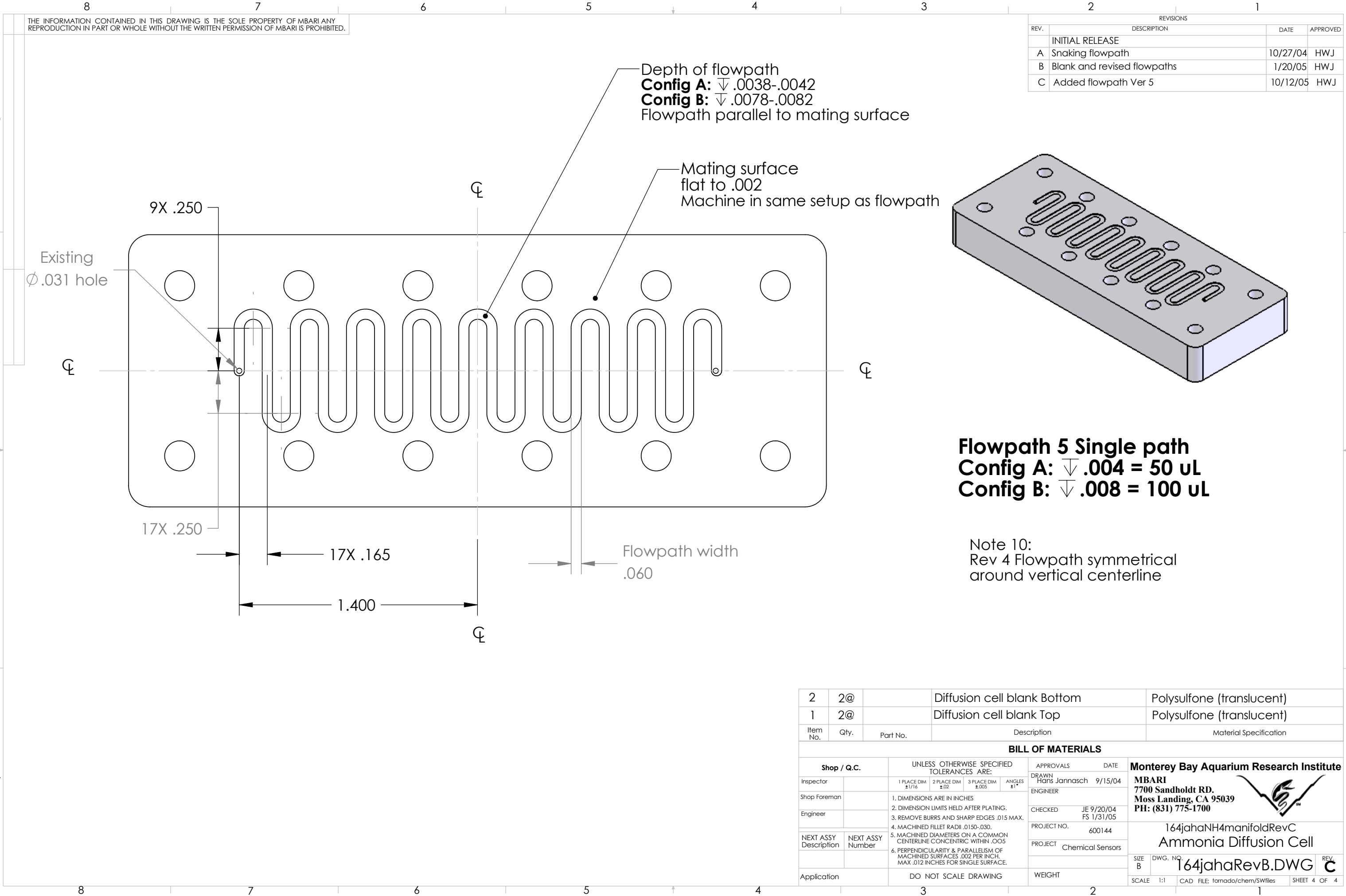
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164jahaNH4manifoldRevC
Ammonia Diffusion Cell

164jahaRevB.DWG

REV B



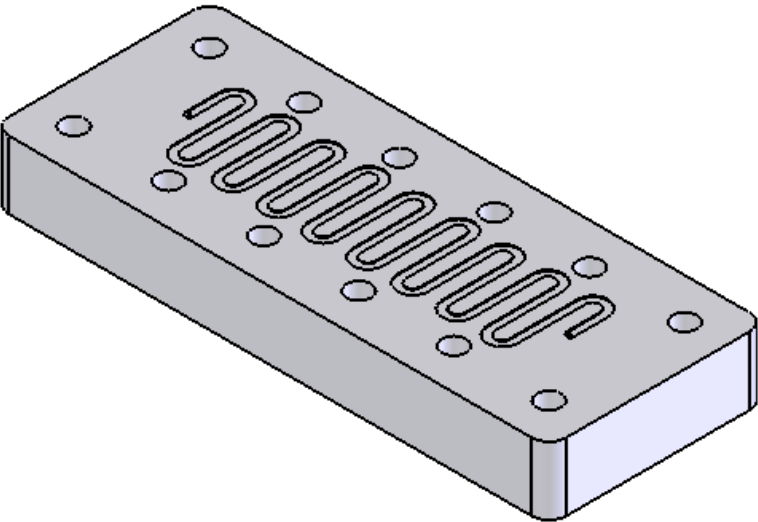


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	INITIAL RELEASE		
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B	Blank and revised flowpaths	1/20/05	HWJ
C	Added flowpath Ver 5	10/12/05	HWJ

Depth of flowpath
Config A: ∇ .0038-.0042
Config B: ∇ .0078-.0082
Flowpath parallel to mating surface

Mating surface
flat to .002
Machine in same setup as flowpath



Flowpath 5 Single path
Config A: ∇ .004 = 50 uL
Config B: ∇ .008 = 100 uL

Note 10:
Rev 4 Flowpath symmetrical
around vertical centerline

2	2@		Diffusion cell blank Bottom	Polysulfone (translucent)
1	2@		Diffusion cell blank Top	Polysulfone (translucent)
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	DRAWN Hans Jannasch 9/15/04 ENGINEER
Shop Foreman		1. DIMENSIONS ARE IN INCHES	3 PLACE DIM ±.005	CHECKED JE 9/20/04 FS 1/31/05
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.	ANGLES ±1°	PROJECT NO. 600144
NEXT ASSY Description	NEXT ASSY Number	3. REMOVE BURRS AND SHARP EDGES .015 MAX.		PROJECT Chemical Sensors
		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.		
Application		DO NOT SCALE DRAWING	WEIGHT	
			2	

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164jahaNH4manifoldRevC
Ammonia Diffusion Cell

SIZE B DWG. NO. 164jahaRevB.DWG REV. C

SCALE 1:1 CAD FILE: tornado/chem/SWfiles SHEET 4 OF 4