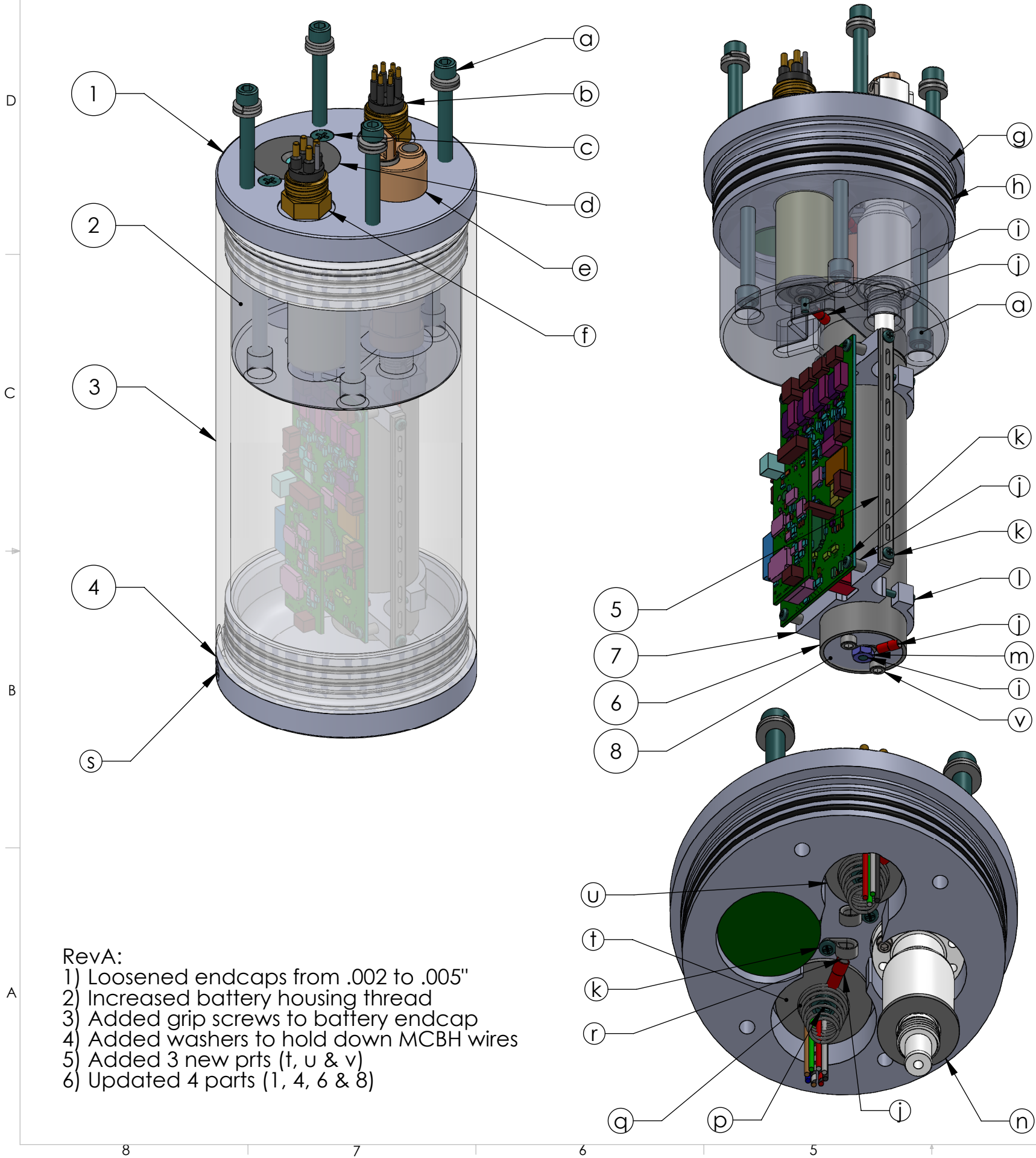


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REVISIONS			
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A	Dec 2021 Modifications	12/18/21	hwj



- RevA:
- 1) Loosened endcaps from .002 to .005"
 - 2) Increased battery housing thread
 - 3) Added grip screws to battery endcap
 - 4) Added washers to hold down MCBH wires
 - 5) Added 3 new prts (t, u & v)
 - 6) Updated 4 parts (1, 4, 6 & 8)

v	2		Battery cap grip screws	McMaster 97334A190
u	1		Hold-down Washer #2	McMaster 95611A225
t	1		Hold-down Washer #1	McMaster 95611A233
s	1		Vent screw	McMaster 90825A185
r	2		Nylon loop clamp	McMaster 8876T56
q	2		Battery Springs	McMaster 2415N14
p	2		Battery Spring screws	8-32 *0.5 Panhead
n	1		GDF Spacer	1/16" Washer: McMaster 92150A166
m	1		Main Battery nut	8-32 Nut
l	2		Logger bracket screws	4-40*1.0 Panhead
k	8		Logger screws	4-40*0.5 Panhead
j	4		Ring Terminal	e.g., McMaster 69665K74
i	1		Battery + screw	8-32*0.25 Panhead
h	4		O-rings	Viton -155: McMaster 9464K518
g	1		Lock Cord	1/8" PolyPro: McMaster 7889A44
f	1		Pump connector	MCBH4M
e	1		DuraFET pH Sensor	Either: DSD or GDF
d	1		Oxygen Optode	Aanderaa 5730
c	2		Optode screws	5-.8*12mm flathead, McMaster 93395A304
b	1		CTD/COM connector	MCBH8M
a	8		Mounting screws	1/4-20 x 2.25" Socket head, McMaster 92185A553
Item No.	Qty	Part No.	Description	Material Specification

Bill of Materials: Ordered Parts

8	1		Battery Retainer	1/4" PVC or Delrin plate
7	2		Logger Mount	3/8" PVC or Delrin plate
6	1		Battery Tube	Stainless Tube; McMaster 1750T211
5	1		Rail	Aluminum: McMaster 4490T173
4	1		Endcap, Bottom	1.5" PVC plate
3	1		Housing Pipe	4" PVC Sched 40 pipe
2	1		Housing Support	4" PVC Rod OR 2-1/8" PVC plate
1	1		Endcap, Top	1.5" PVC plate
Item No.	Qty	Part No.	Description	Material Specification

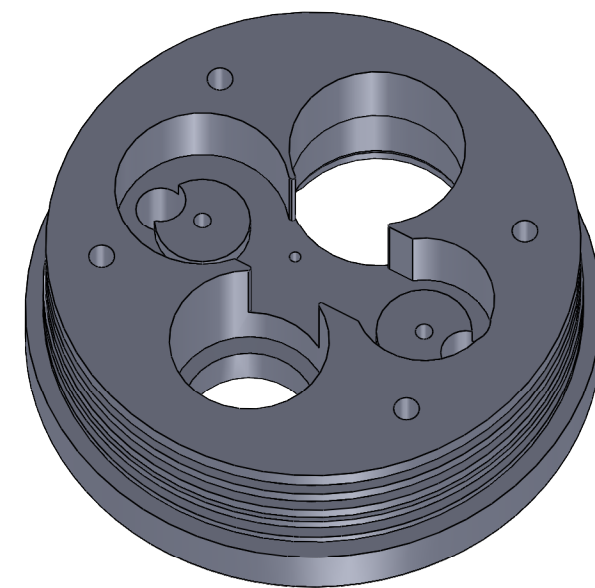
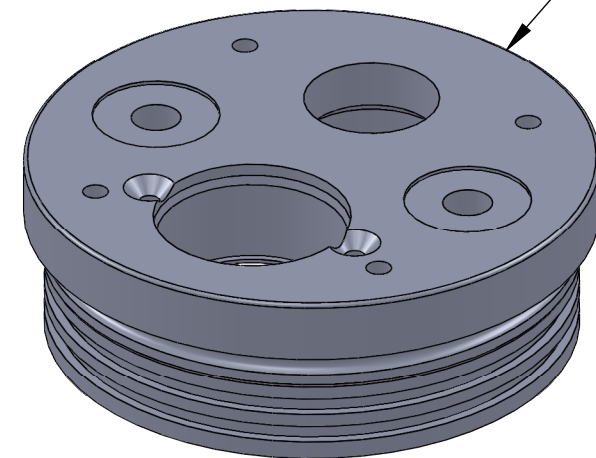
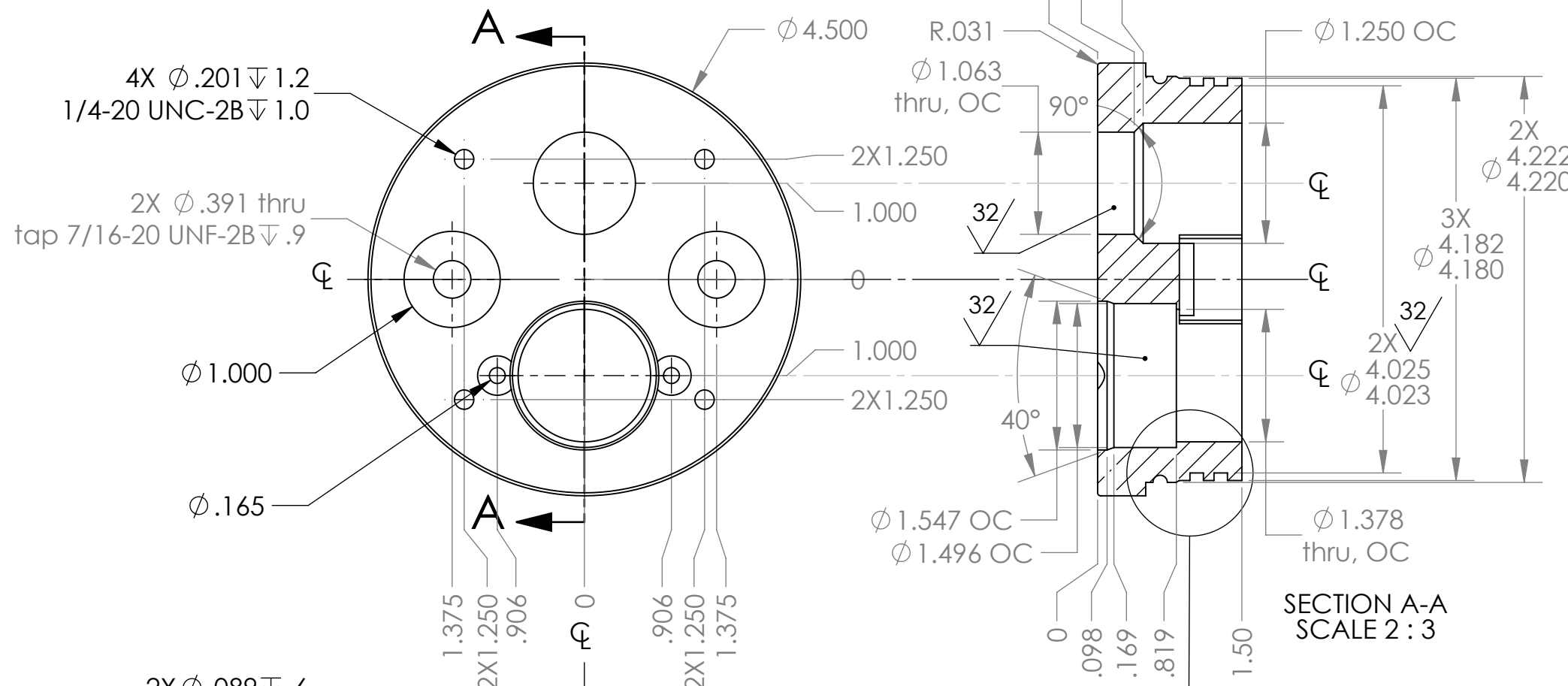
Bill of Materials: Machined Pats

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°	Designer		Hans Jannasch 9/31/2021	
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 .015-.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		PROJECT	
Engineer									
NEXT ASSY Description	NEXT ASSY Number								
								WEIGHT	
Application		DO NOT SCALE DRAWING						SIZE B	DWG. NO. 200jD-mpHoxHousing
								SCALE 1:3	CAD FILE:
									SHEET 1 OF 7

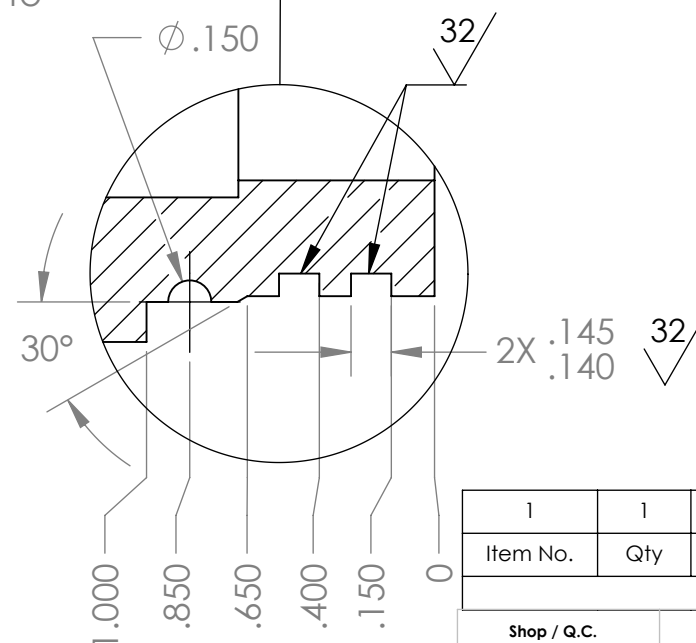
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Monterey, CA 93940
jannasch@mac.com; 831-521-8425

mpHox Housing

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	INITIAL RELEASE		
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SECTION A-A
SCALE 2 : 3

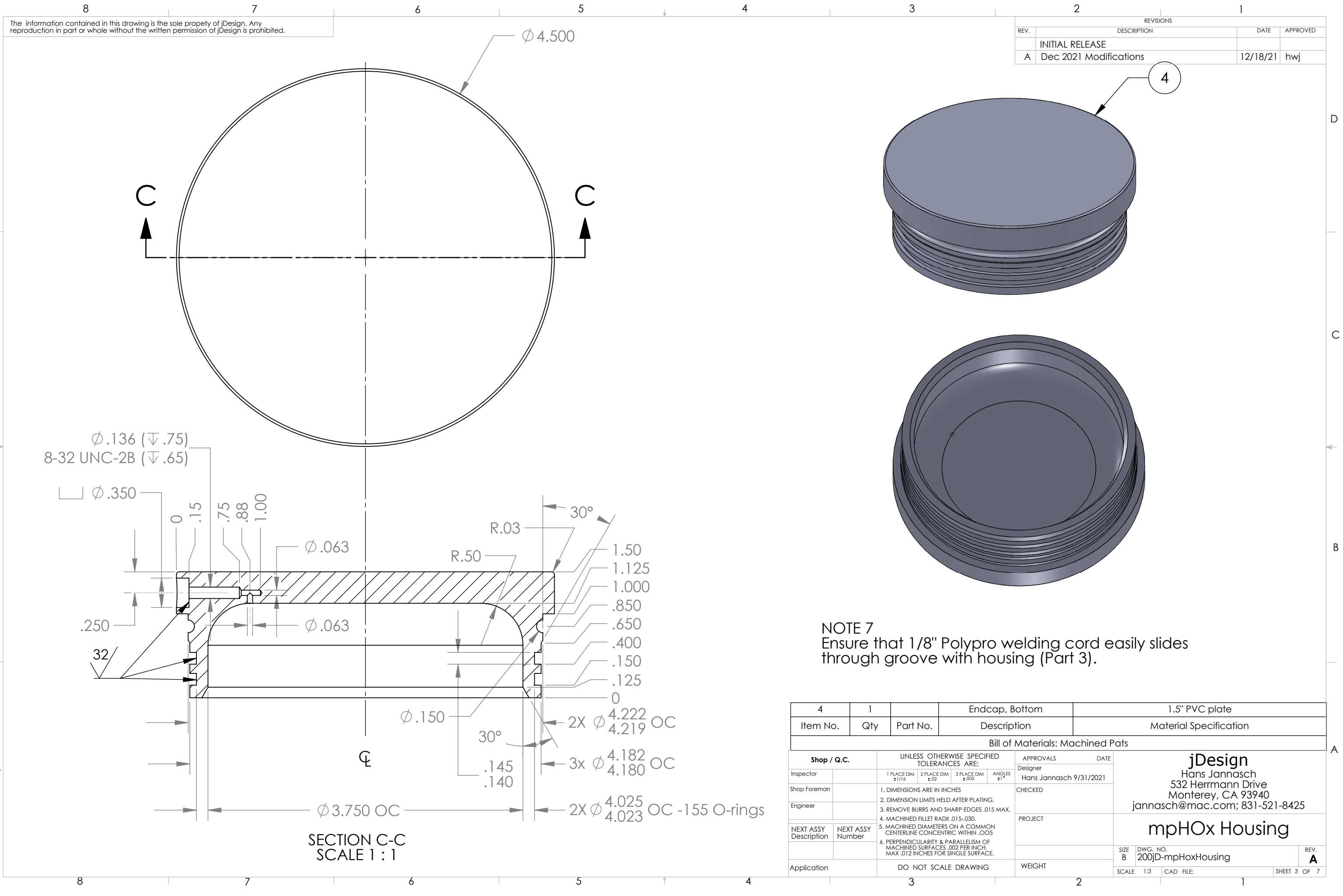


DETAIL B
SCALE 1.5 : 1

NOTE 7
Ensure that 1/8" Polypro welding cord easily slides through groove with housing (Part 3).

NOTE 8
Ensure that Part 6 screws into Part 2 until firmly seated.

1	1		Endcap, Top	1.5" PVC plate								
Item No.	Qty	Part No.	Description	Material Specification								
Bill of Materials: Machined Pats												
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°	Designer Hans Jannasch 9/31/2021						
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 .015-.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						
Engineer						PROJECT						
NEXT ASSY Description	NEXT ASSY Number											
Application		DO NOT SCALE DRAWING			WEIGHT		SIZE B		DWG. NO. 200jD-mpHoxHousing		REV. A	
							SCALE 1:3		CAD FILE:		SHEET 2 OF 7	



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A	Dec 2021 Modifications	12/18/21	hwj

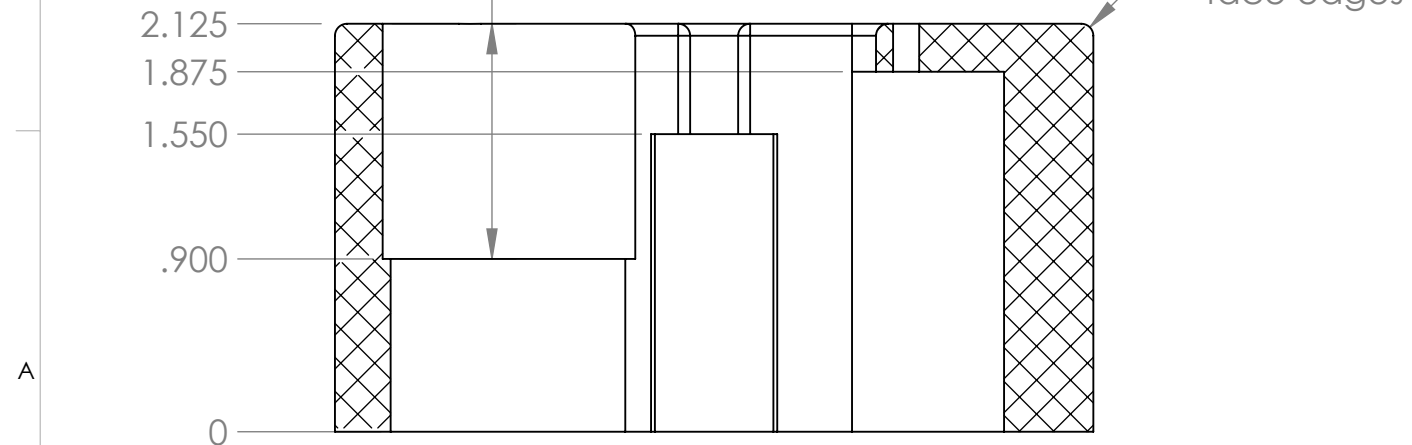
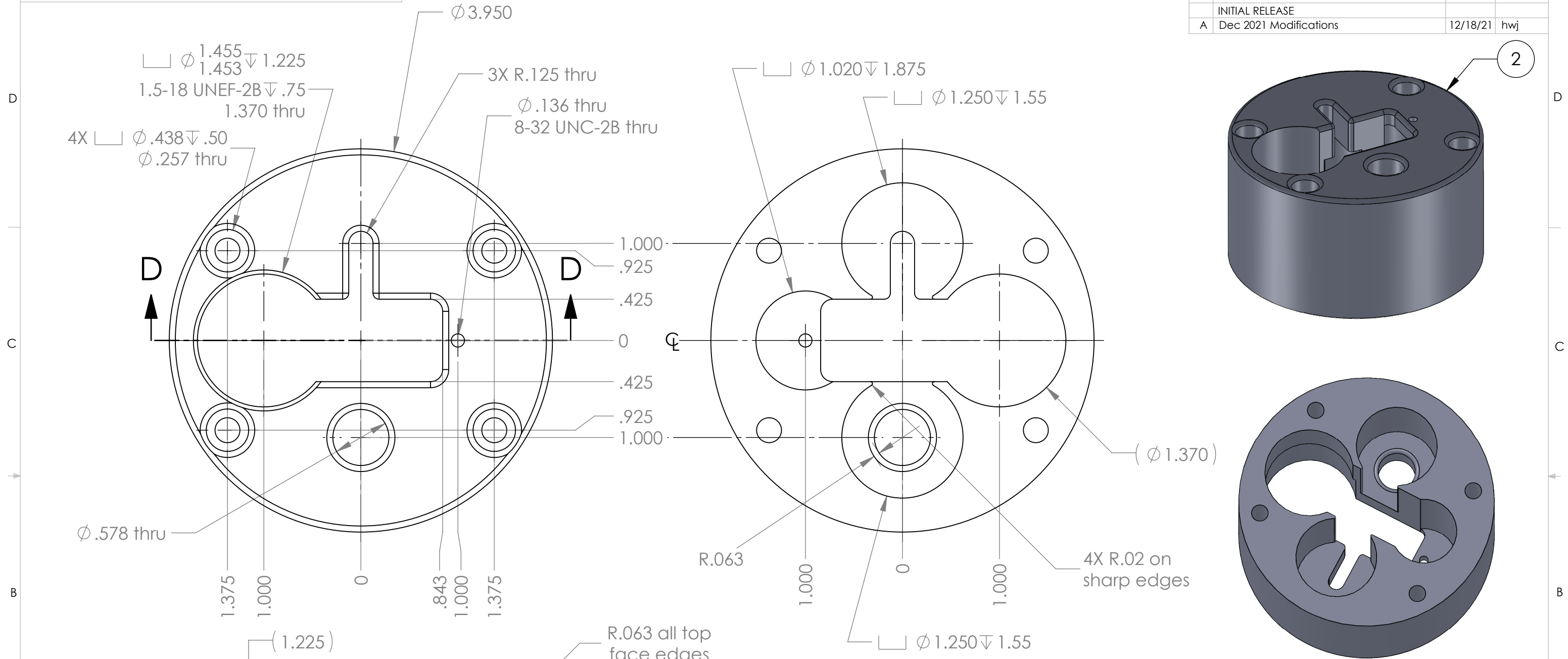
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NOTE 7
Ensure that 1/8" Polypro welding cord easily slides through groove with housing (Part 3).

4	1		Endcap, Bottom	1.5" PVC plate
Item No.	Qty	Part No.	Description	Material Specification
Bill of Materials: Machined Pats				
Shop / Q.C.		UNLESS OTHERWISE SPECIFIED TOLERANCES ARE:		jDesign Hans Jannasch 532 Herrmann Drive Monterey, CA 93940 jannasch@mac.com; 831-521-8425
Inspector		1 PLACE DIM ±1/16	2 PLACE DIM ±.02	
Shop Foreman		3 PLACE DIM ±.005	ANGLES ±1°	
Engineer		1. DIMENSIONS ARE IN INCHES 2. DIMENSION LIMITS HELD AFTER PLATING. 3. REMOVE BURRS AND SHARP EDGES .015 MAX. 4. MACHINED FILLET RADII .015-.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.		
NEXT ASSY Description	NEXT ASSY Number			PROJECT
Application		DO NOT SCALE DRAWING		WEIGHT
				SIZE B
				DWG. NO. 200jD-mpHoxHousing
				SCALE 1:3
				CAD FILE:
				SHEET 3 OF 7
				REV. A

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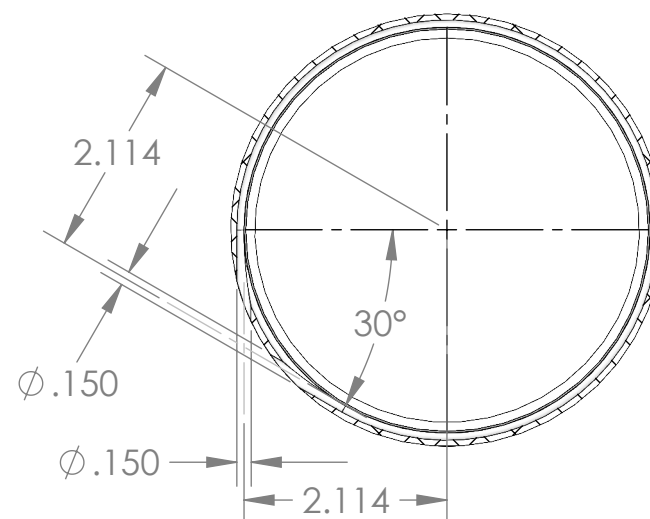
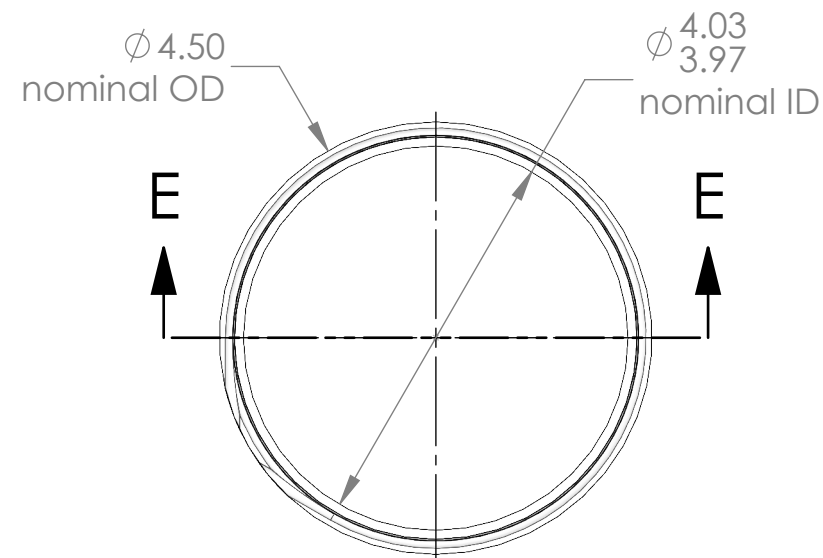


SECTION D-D
SCALE 1 : 1

2		1		Housing Support		4" PVC Rod OR 2-1/8" PVC plate				
Item No.		Qty	Part No.	Description		Material Specification				
Bill of Materials: Machined Pats										
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°	Designer Hans Jannasch 9/31/2021		jDesign Hans Jannasch 532 Herrmann Drive Monterey, CA 93940 jannasch@mac.com; 831-521-8425		
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 .015-.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				
Engineer						PROJECT				
NEXT ASSY Description		NEXT ASSY Number								
Application		DO NOT SCALE DRAWING				WEIGHT		SIZE B	DWG. NO. 200JD-mpHoxHousing	REV. A
		SCALE 1:3		CAD FILE:				SHEET 4 OF 7		

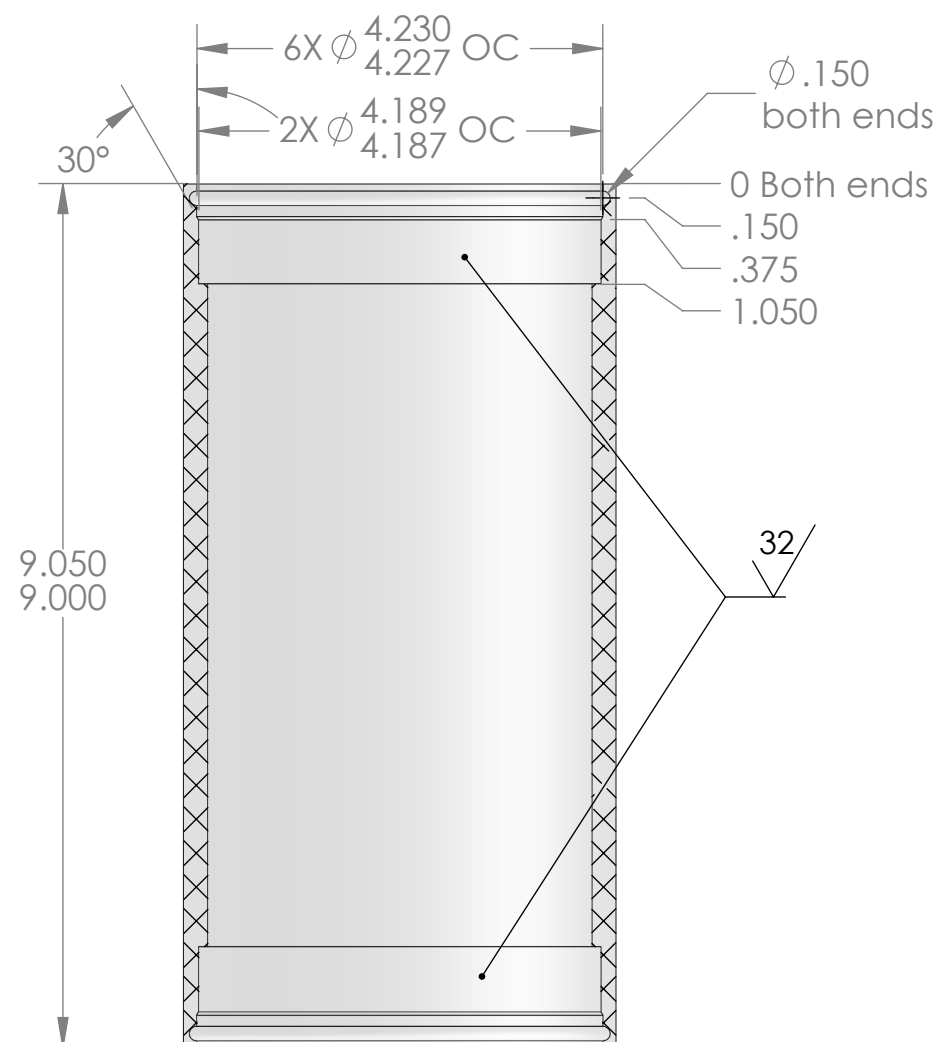
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A	Dec 2021 Modifications	12/18/21	hwj

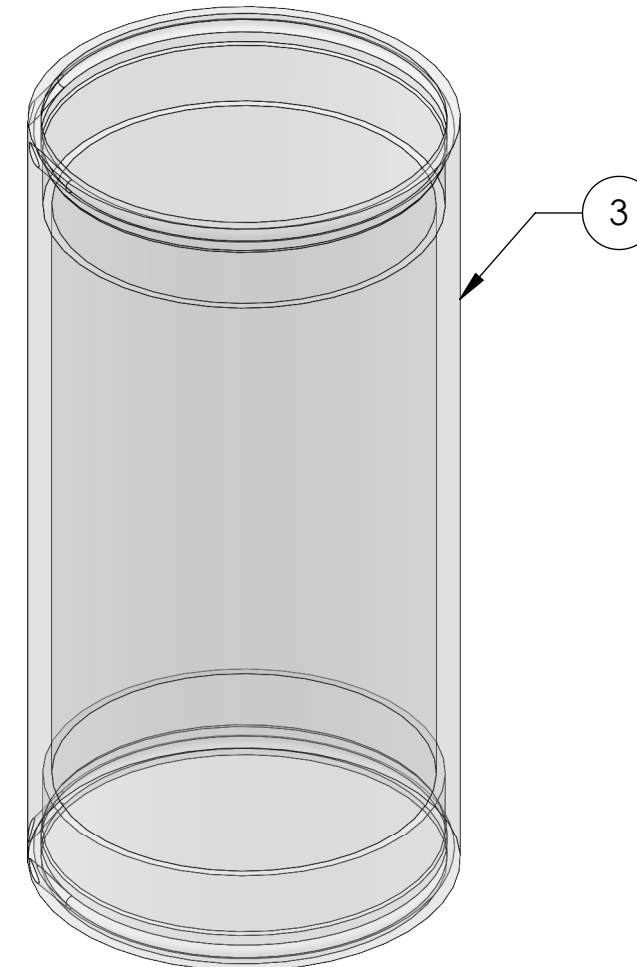
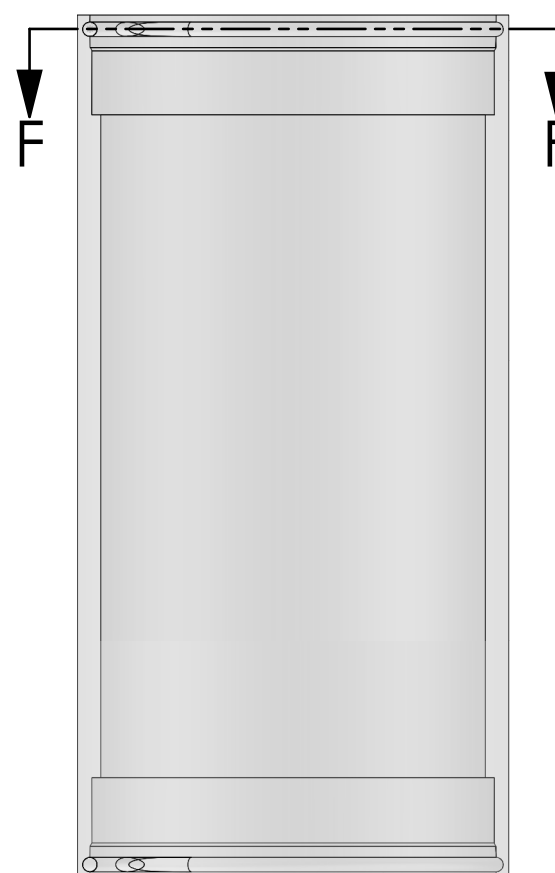


SECTION F-F
SCALE 1 : 2

Access Holes on BOTH ENDS



SECTION E-E
SCALE 1 : 2



NOTE 7
Ensure that 1/8" Polypro welding cord easily slides through groove with end caps (Parts 1 and 4) inserted in Part 3.

3	1		Housing Pipe	4" PVC Sched 40 pipe
Item No.	Qty	Part No.	Description	Material Specification
Bill of Materials: Machined Pats				
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		DESIGNER Hans Jannasch 9/31/2021
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.		CHECKED
		3. REMOVE BURRS AND SHARP EDGES .015 MAX.		
		4. MACHINED FILLET RADII .015-.030.		PROJECT
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	
		3		2
				1

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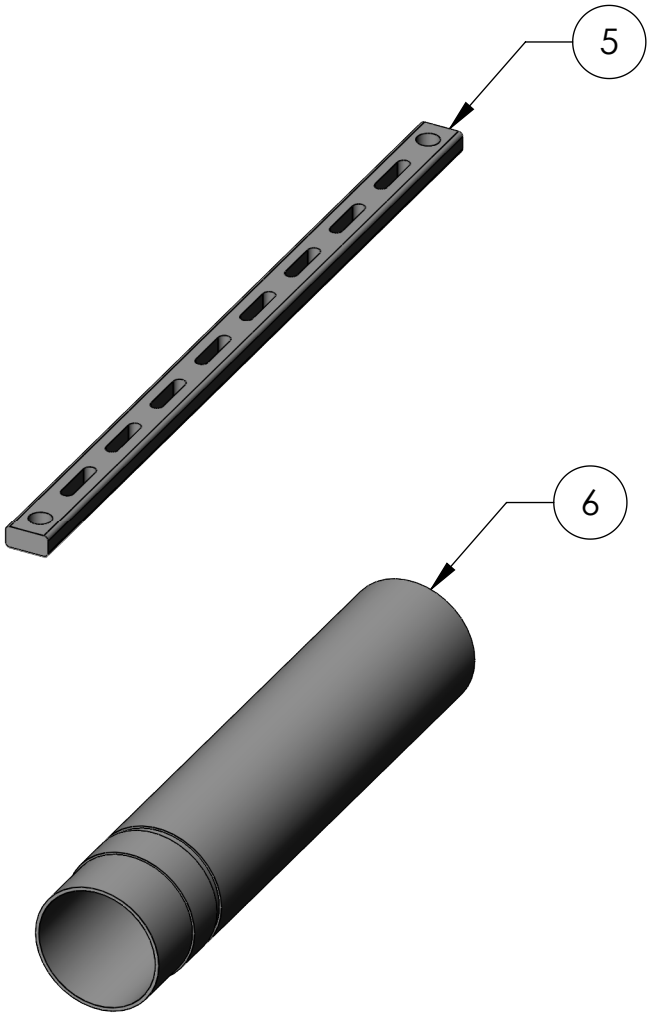
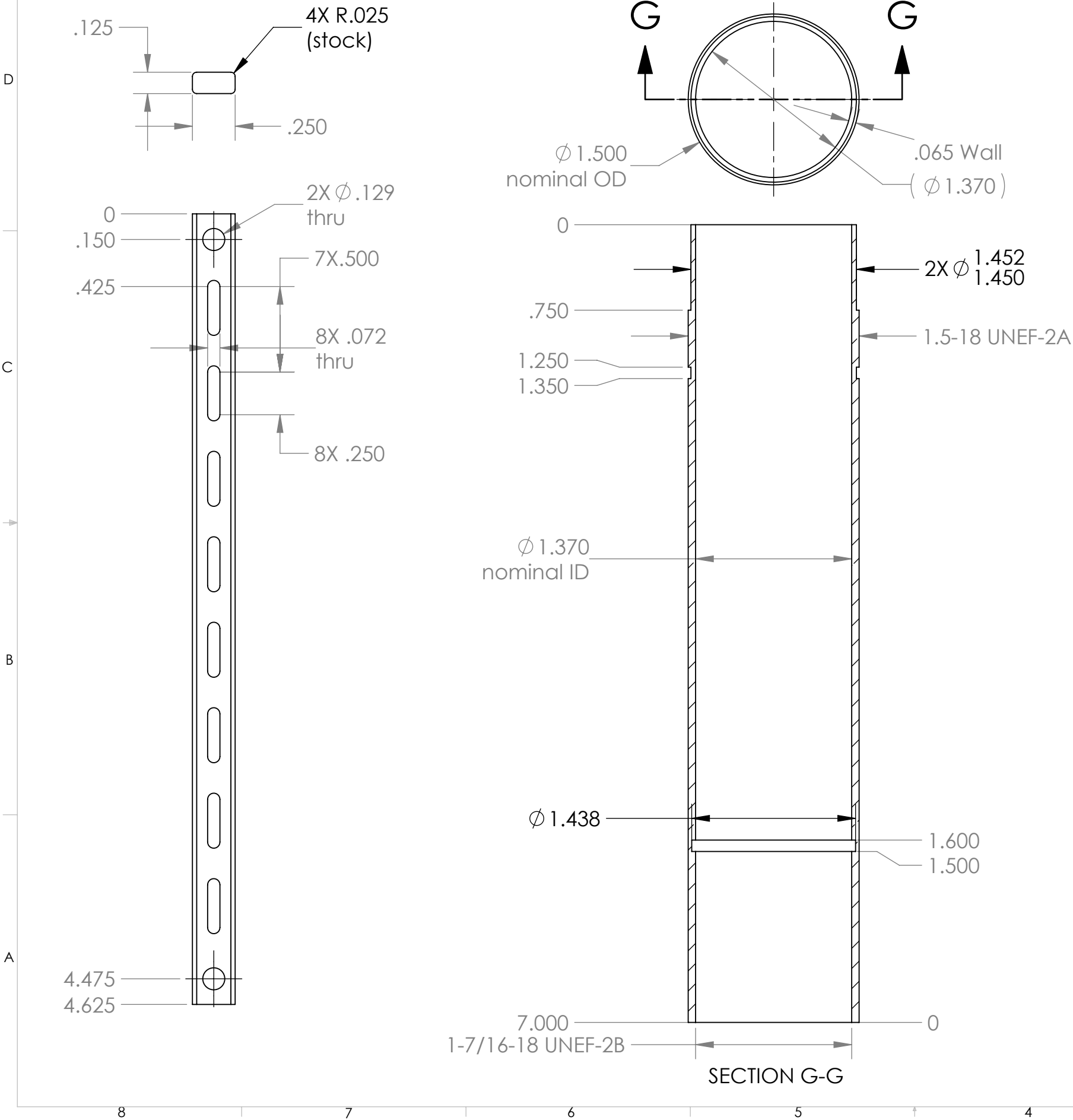
mpHOx Housing

SIZE B DWG. NO. 200jD-mpHoxHousing REV. A

SCALE 1:3 CAD FILE: SHEET 5 OF 7

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NOTE 7
Ensure that Part 6 screws into Part 2 until firmly seated.

NOTE 8
Ensure that Part 8 easily screws into Part 6.

6	1		Battery Tube	Stainless Tube; McMaster 1750T211		
5	1		Rail	Aluminum: McMaster 4490T173		
Item No.	Qty	Part No.	Description	Material Specification		
Bill of Materials: Machined Pats						
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°	jDesign Hans Jannasch 532 Herrmann Drive Monterey, CA 93940 jannasch@mac.com; 831-521-8425
Shop Foreman		1. DIMENSIONS ARE IN INCHES		Designer Hans Jannasch 9/31/2021		
Engineer		2. DIMENSION LIMITS HELD AFTER PLATING.		CHECKED		
		3. REMOVE BURRS AND SHARP EDGES .015 MAX.		PROJECT		
NEXT ASSY Description	NEXT ASSY Number	4. MACHINED FILLET RADII .015-.030.		PROJECT		
		5. MACHINED DIAMETERS ON A COMMON CENTERLINE CONCENTRIC WITHIN .005		PROJECT		
		6. PERPENDICULARITY & PARALLELISM OF MACHINED SURFACES .002 PER INCH, MAX .012 INCHES FOR SINGLE SURFACE.		PROJECT		
Application		DO NOT SCALE DRAWING		WEIGHT		
				SIZE B		
				DWG. NO. 200jD-mpHoxHousing		
				REV. A		
				SCALE 1:3 CAD FILE:		
				SHEET 6 OF 7		

