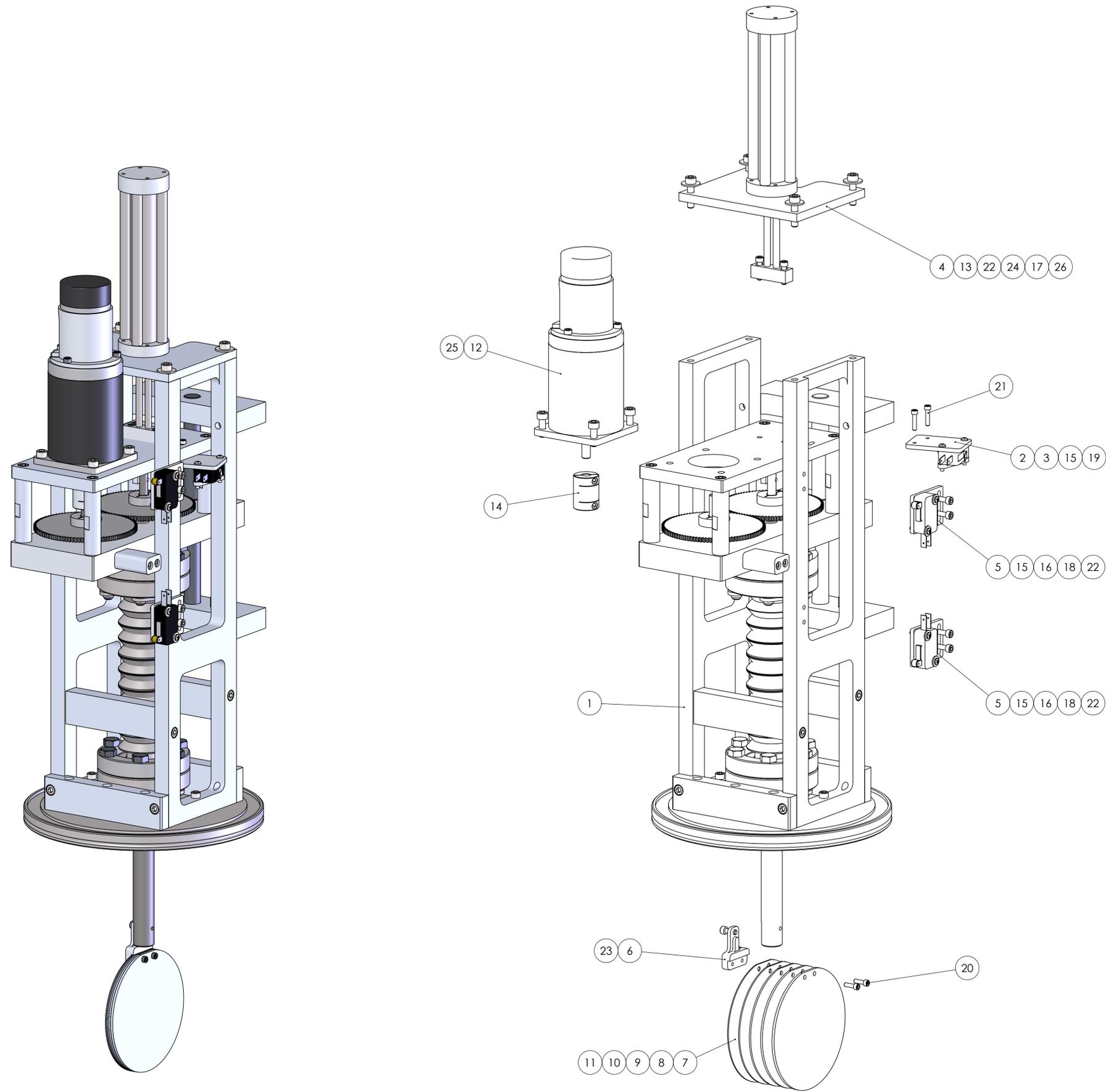


REVISIONS				
REV.	DESCRIPTION	MD WO #	DATE	BY
1	Released	WO4047-002	11-MAY-2016	PMG



ITEM NO.	PART NUMBER	DESCRIPTION	MATERIAL	QTY.
1	N3010217-MDE-0003-0002	Linear-Rotary Actuator	ASSEMBLY	1
2	N3010217-MDE-0003-0020	Limit Switch Mount Plate 'A'	7075-T6 Alum	1
3	N3010217-MDE-0003-0021	Limit Switch Plate Nut	7075-T6 Alum	1
4	N3010217-MDE-0003-0026	Pneumatic Cylinder Mount Plate	6061-T6 Alum	1
5	N3010217-MDE-0003-0030	Limit Switch Mount Plate 'B'	7075-T6 Alum	2
6	N3010217-MDE-0003-0031	Degrader Plate Mount	7075-T6 Alum	1
7	N3010217-MDE-0003-0040	Degrader Plate 'A'	6061-T6 Alum	1
8	N3010217-MDE-0003-0041	Degrader Plate 'B'	6061-T6 Alum	1
9	N3010217-MDE-0003-0042	Degrader Plate 'C'	6061-T6 Alum	1
10	N3010217-MDE-0003-0043	Degrader Plate 'D'	6061-T6 Alum	1
11	N3010217-MDE-0003-0044	Degrader Plate 'E'	6061-T6 Alum	1
12	Parker_ES22B-DFR10-EC	Rotary Stepper Motor with Encoder - Parker # ES22B-DFR10-EC	---	1
13	N3010217-MDE-0003_PneumaticCylinder	Double-Acting Pneumatic Cylinder - 3/4" bore, 4 1/2" stroke	Bimba # FT-044.5-3CE	1
14	McMaster-Carr_6208K457	Helical Flexible Shaft Coupling - 1/4" x 1/4"	aluminum	1
15	Honeywell_V7-7B17D8-201	Limit Switch - 8 oz operating force, 11 A @ 125 VAC, SPDT, roller style lever	---	3
16	Regular FW 0.099-SZP	Regular Flat Washer Type B, Size #3	STEEL, ZINC PLATED-GRADE 5 MINIMUM	4
17	Regular FW 0.19-SZP	Flat Washer - #10	STEEL, ZINC PLATED-GRADE 5 MINIMUM	4
18	CR-PHMS 0.099-48x0.625x0.625-N-SZP	Pan Cross Head, Drive Type Cross, Size #3-48, Length 0.625, Thread Length 0.625	STEEL, ZINC PLATED-GRADE 5 MINIMUM	4
19	CR-PHMS 0.099-48x0.75x0.75-N-SZP	Phillips Drive Pan Head Screw - #3-48 x 3/4" long	STEEL, ZINC PLATED-GRADE 5 MINIMUM	2
20	HX-SHCS 0.112-40x0.375x0.375-N-SS1	Hex Socket Head Cap Screw - #4-40 x 3/8" long	STAINLESS STEEL, AISI TYPE 304 (18-8)	2
21	HX-SHCS 0.112-40x0.5x0.5-N-SBO	Hex Socket Head Cap Screw - #4-40 x 1/2" long	STEEL, BLACK OXIDE COATED-GRADE 5 MINIMUM	2
22	HX-SHCS 0.138-32x0.375x0.375-N-SBO	Hex Socket Head Cap Screw - #6-32 x 3/8" long	STEEL, BLACK OXIDE COATED-GRADE 5 MINIMUM	8
23	HX-SHCS 0.138-32x0.375x0.375-N-SS1	Hex Socket Head Cap Screw - #6-32 x 3/8" long	STAINLESS STEEL, AISI TYPE 304 (18-8)	1
24	HX-SHCS 0.138-32x0.5625x0.5625-N-SBO	Socket Head Cap Screw, Size #6-32, Length 0.5625, Thread Length 0.5625	STEEL, BLACK OXIDE COATED-GRADE 5 MINIMUM	2
25	HX-SHCS 0.19-24x0.5625x0.5625-N-SBO	Hex Socket Head Cap Screw - #10-24 x 9/16" long	STEEL, BLACK OXIDE COATED-GRADE 5 MINIMUM	4
26	HX-SHCS 0.19-24x0.75x0.75-N-SBO	Hex Socket Head Cap Screw - #10-24 x 3/4" long	STEEL, BLACK OXIDE COATED-GRADE 5 MINIMUM	4

APPROXIMATE WEIGHT: 21.95 LBS

UNLESS OTHERWISE SPECIFIED:
 DIMENSIONS ARE IN INCHES
 BREAK ALL SHARP EDGES 0.02 MAX.
 REMOVE ALL BURRS
 30 DEG. CHAMFER ENDS ALL THREADS
 MACHINE SURFACE FINISH

DO NOT SCALE DRAWING

Dimension Tolerances

1 Place Dec	: 0.05	SCALE	3:1
2 Place Dec	: 0.10	DATE	MAY 2016
3 Place Dec	: 0.05	SIZE	D
"Block"	: 0.05	MATERIAL	ASSEMBLY
Angles	: ±.5°	REV	1

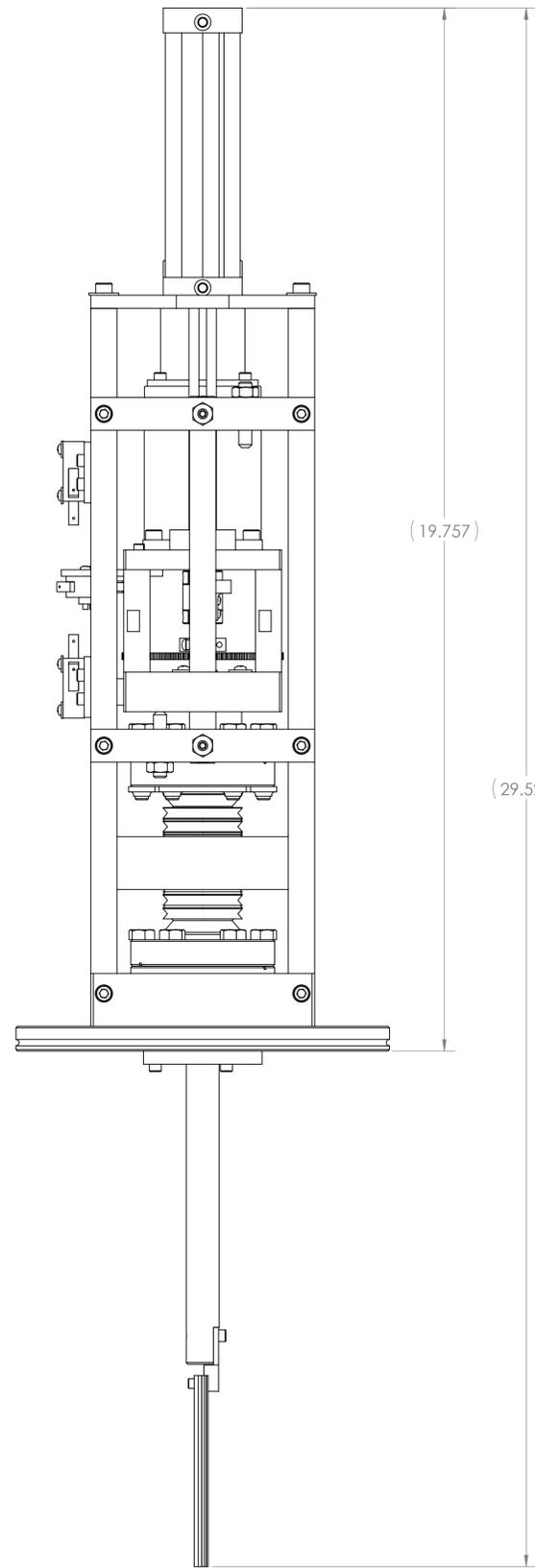
Project / System Reference
Beam Degrader

DESCRIPTION
Beam Degrader

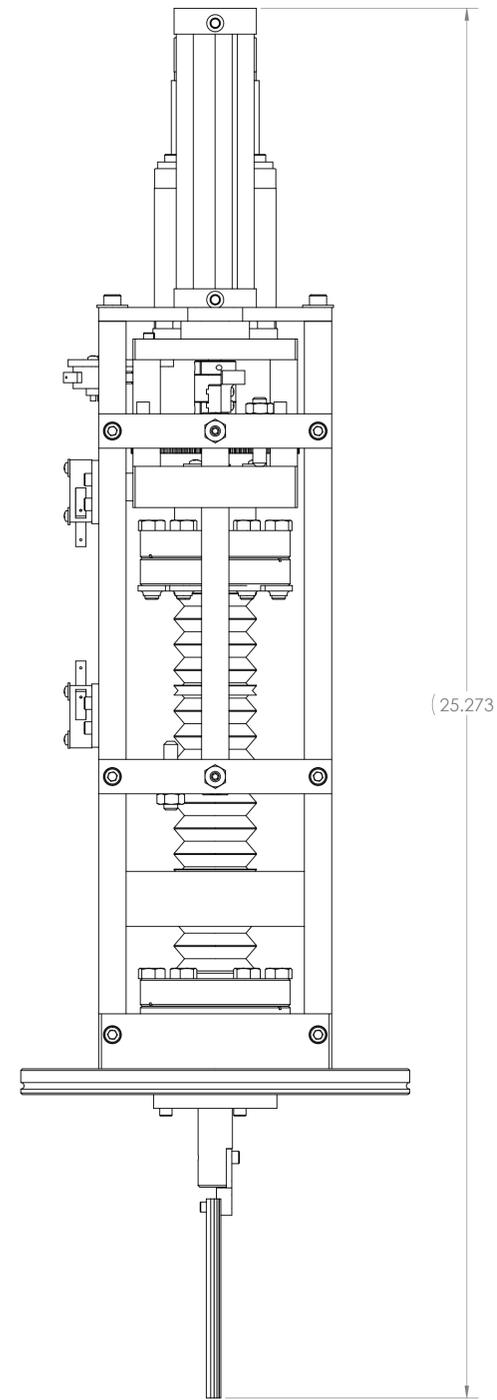
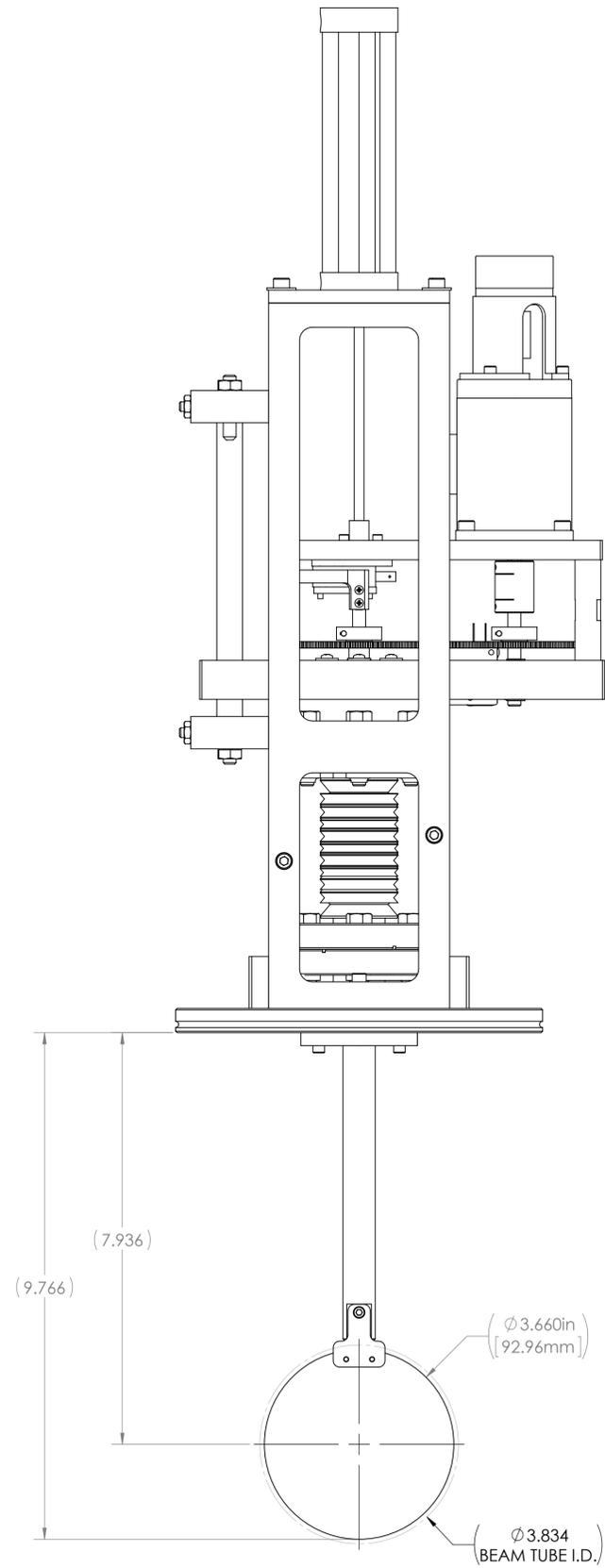
PART #
N3010217-MDE-0003-0000

REV 1

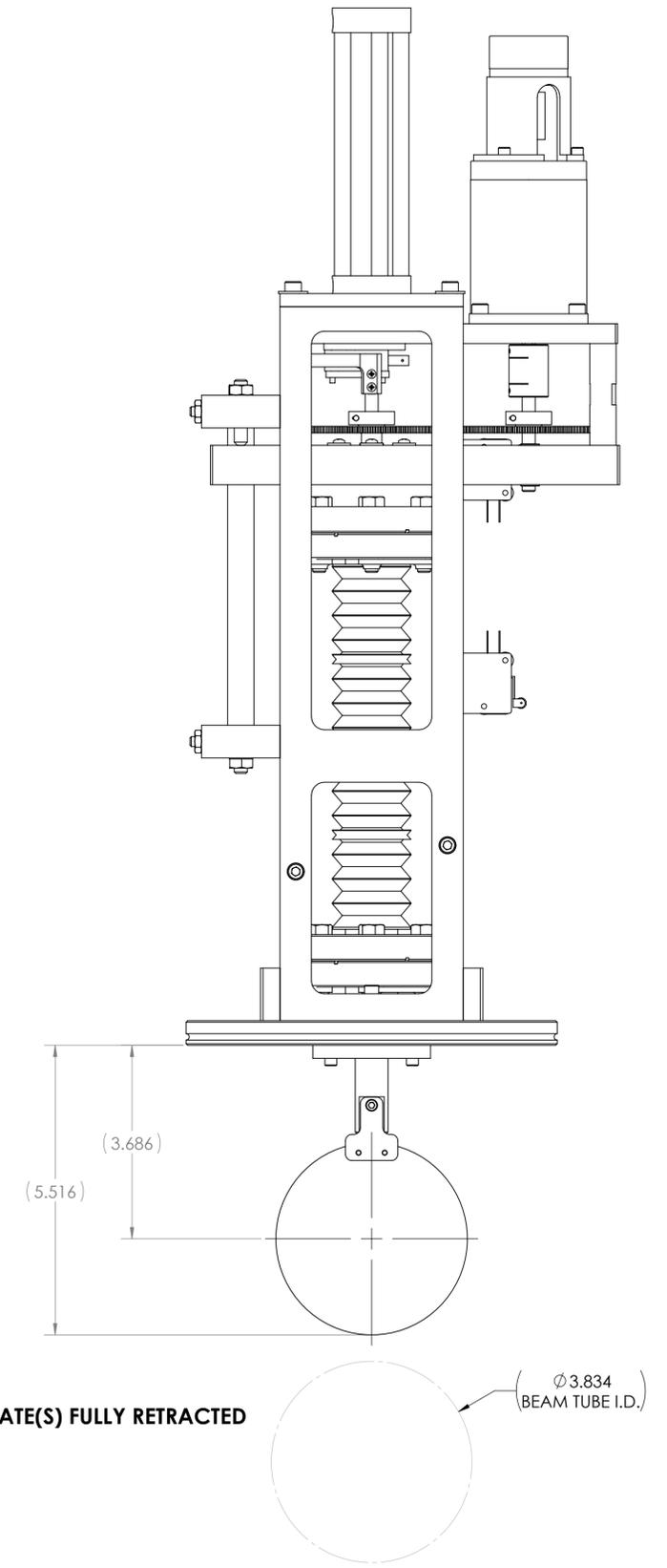
NATIONAL SUPERCONDUCTING CYCLOTRON LABORATORY
 MICHIGAN STATE UNIVERSITY - East Lansing, Michigan



DEGRADER PLATE(S) FULLY INSERTED



DEGRADER PLATE(S) FULLY RETRACTED



UNLESS OTHERWISE SPECIFIED: DIMENSIONS ARE IN INCHES BREAK ALL SHARP EDGES .02 MAX. REMOVE ALL BURRS 30 Deg. CHAMFER ENDS ALL THREADS MACHINE SURFACE FINISH		 National Superconducting Cyclotron Laboratory MICHIGAN STATE UNIVERSITY - East Lansing, Michigan	
DO NOT SCALE DRAWING		DRAWN BY GLENNON	Project / System Reference Beam Degrader
Dimension Tolerances 1 Place Dec: ±.020 2 Place Dec: ±.010 3 Place Dec: ±.005 "Stock" Angles: ±.5°		DATE MAY 2016	DESCRIPTION Beam Degrader
N3010217-MDE-0001-0000 NEXT ASSEMBLY		SCALE 3:1	MATERIAL D
		PART # N3010217-MDE-0003-0000	REV 1