

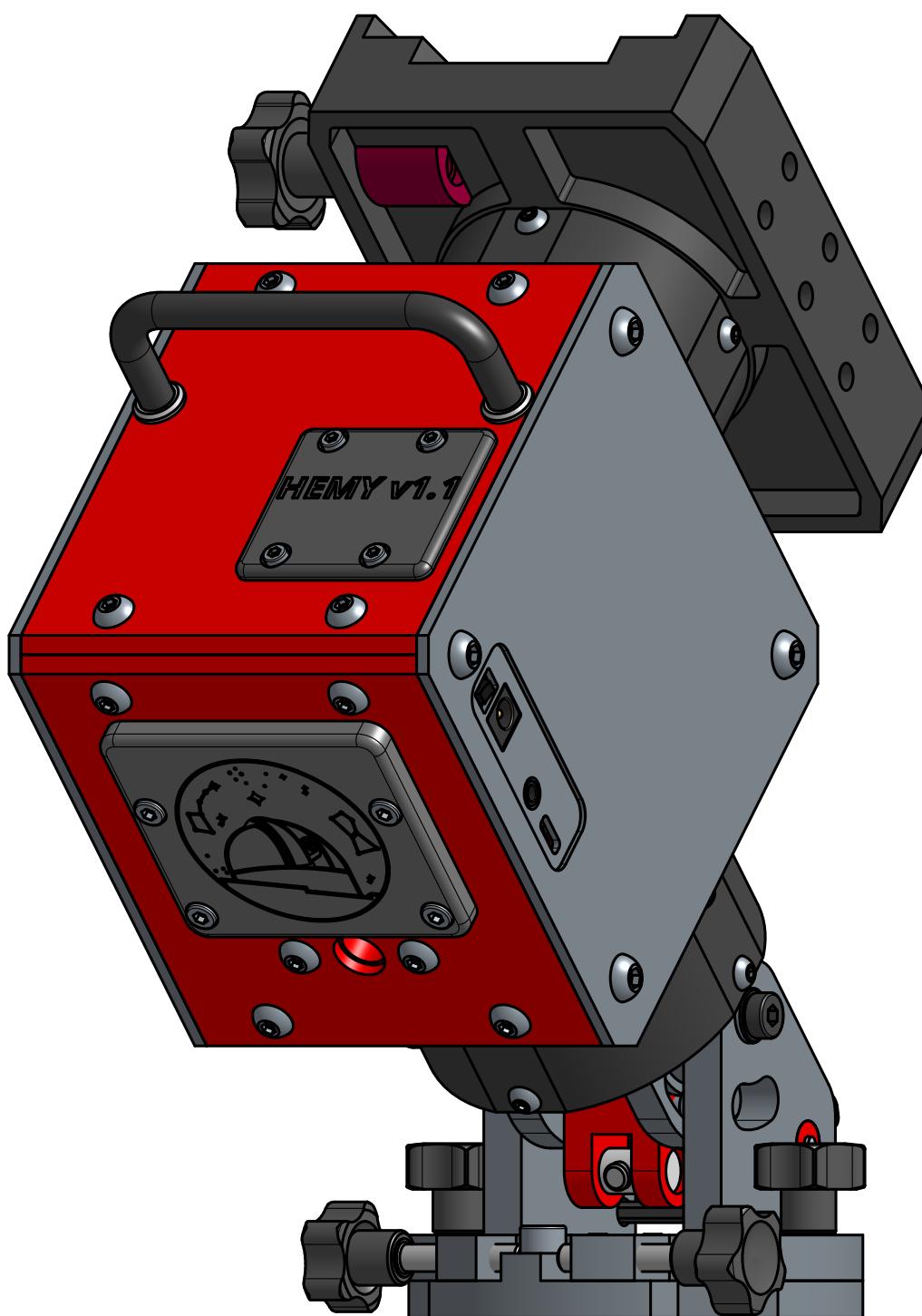
HEMY v1.1 - Harmonic Equatorial Mount Yourself

"Making your own Harmonic Equatorial Mount out of aluminium?

Only a moron would do that, even if it's opensource"

"Moron Yourself!"

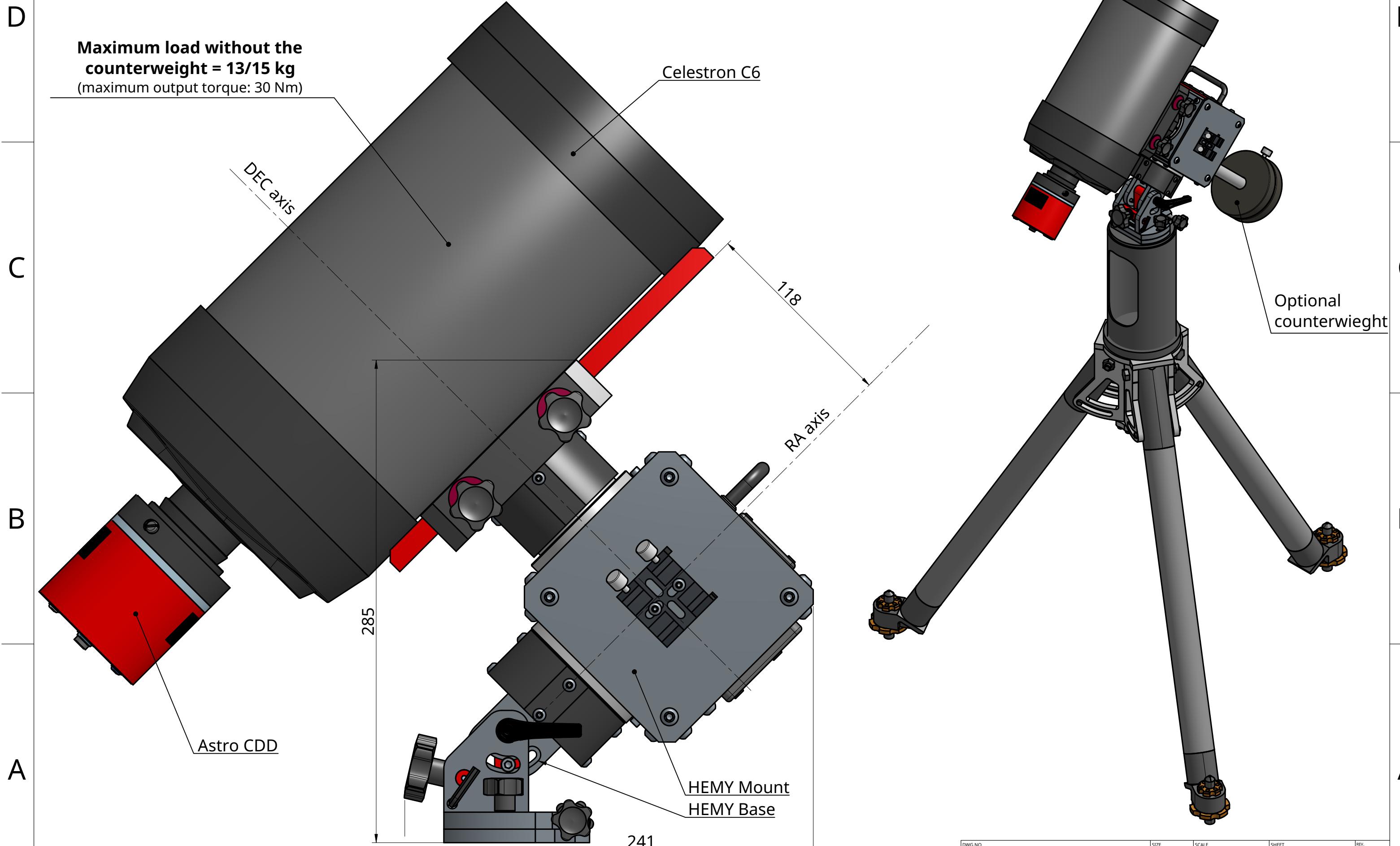
Specifications	
Mount Type	Dual Alt-Az/Equatorial
Mount Series	HEMY
License	GPL-3.0 license
Weight Capacity	15 kg (20 kg with counterweight)
Electronics	TeenAstro included
Mount Slew Speed	5°/s
Motor Type	Harmonic Drive and Synchronous belt
Reduction Ratio RA	500:1
Reduction Ratio DEC	300:1
Resolution RA	0.10"
Resolution DEC	0.17"
Mount Latitude Range (°)	0° - 90°
Azimuth Angle Range	±5°
Periodic Error Duration	440s
Polar Scope Included?	No (optional viewfinder / laser)
Mount Weight	5 kg
Total price	~ 800\$
Sources	https://github.com/polvinc/HEMY



UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS ANGULAR = ± °	DRAWN	NAME	SIGNATURE	DATE	TITLE
	CHECKED	POLVINC		2024-11-21	
SURFACE FINISH ✓	APPROVED	POLVINC		2024-12-03	HEMY mount Harmonic Equatorial Mount Yourself
DO NOT SCALE DRAWING					SIZE
BREAK ALL SHARP EDGES AND REMOVE BURRS					DWG NO.
FIRST ANGLE PROJECTION	MATERIAL	FINISH			REV.
	ALU 6061	Bead blasting Anodizing			1.1
SCALE	1:2	WEIGHT	5 kg	SHEET	1 of 11

6 5 4 3 2 1

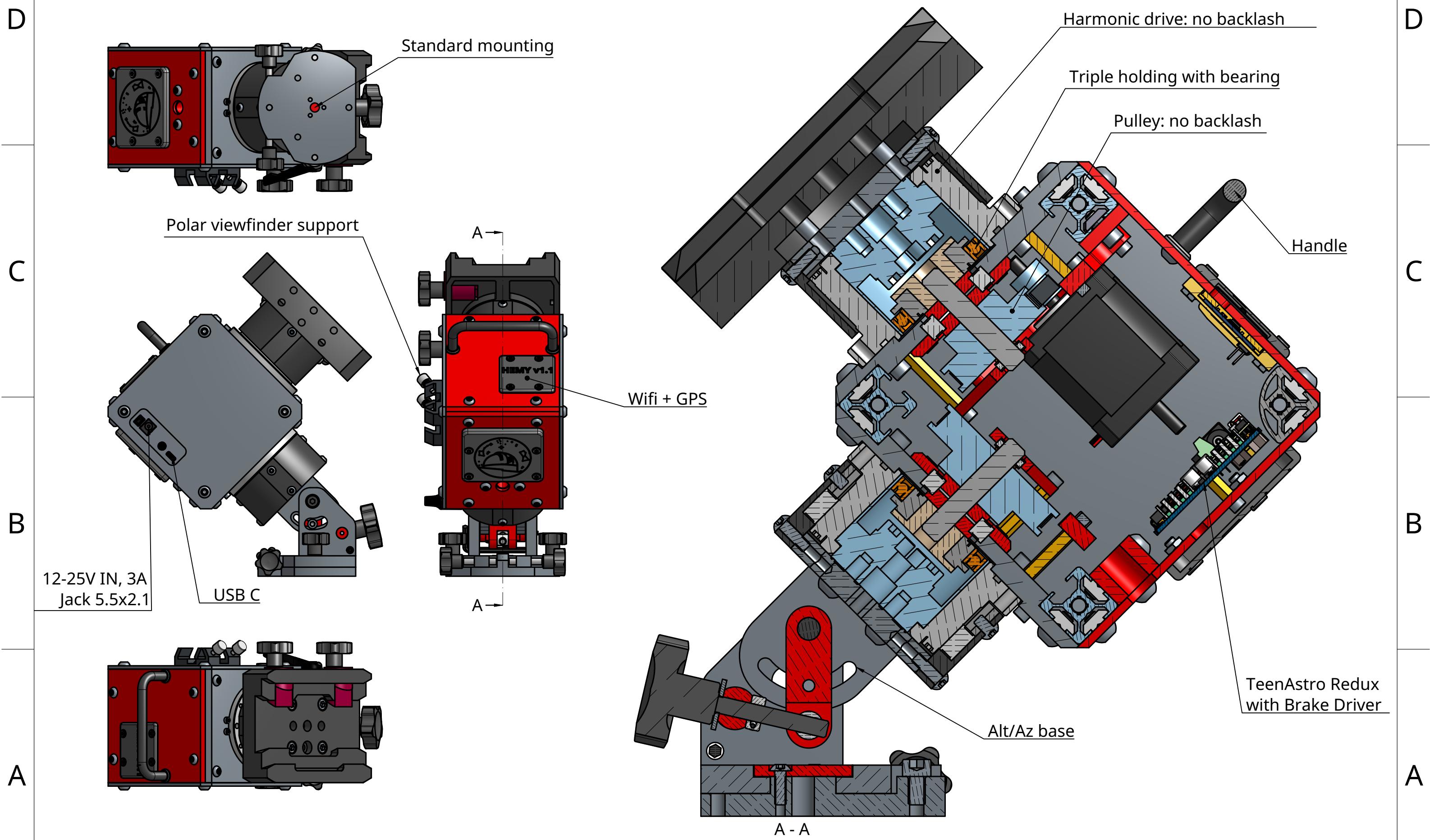
HEMY v1.1 - Harmonic Equatorial Mount Yourself



6 5 4 3 2 1

6 5 4 3 2 1

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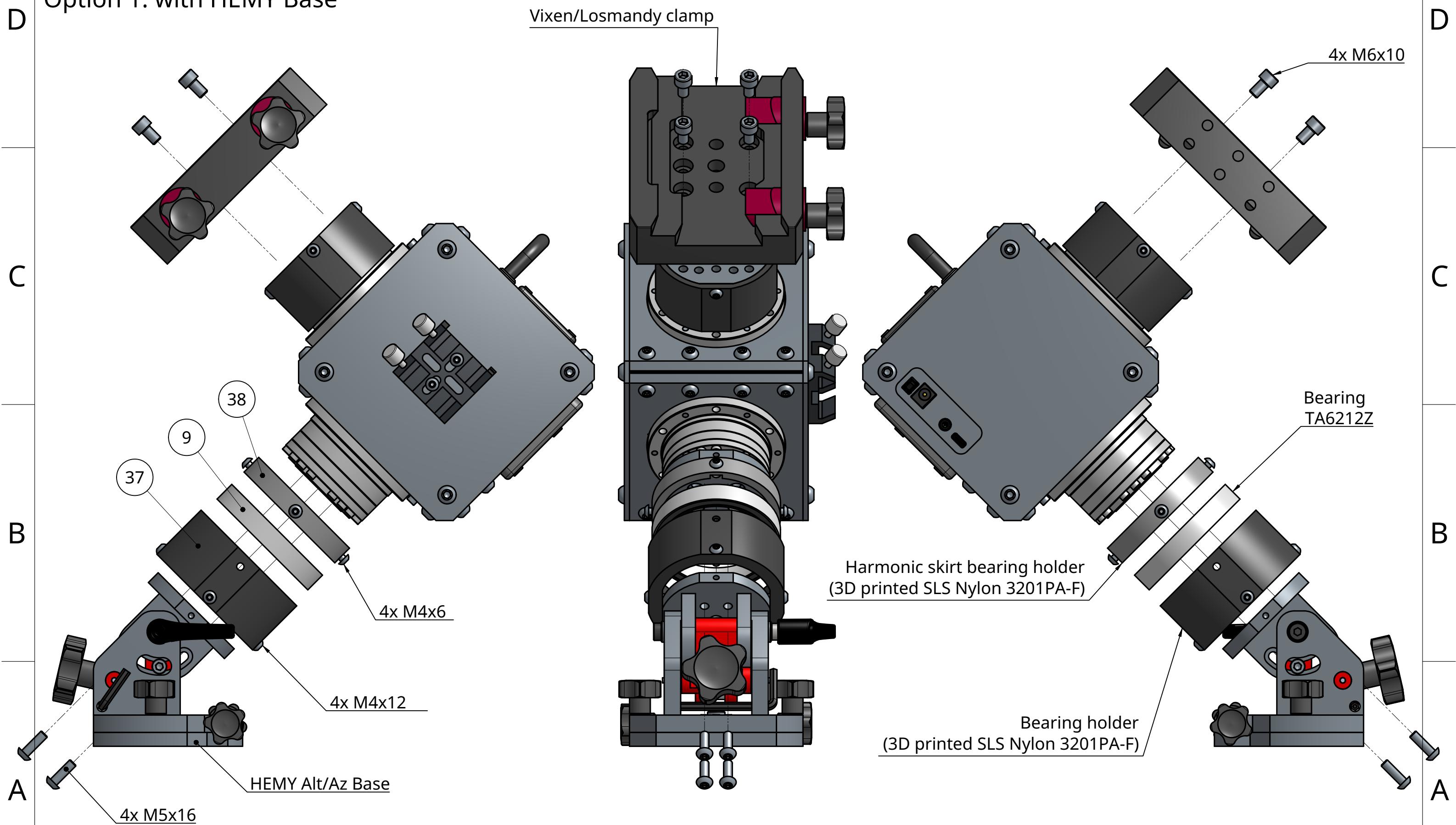


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6 5 4 3 2 1

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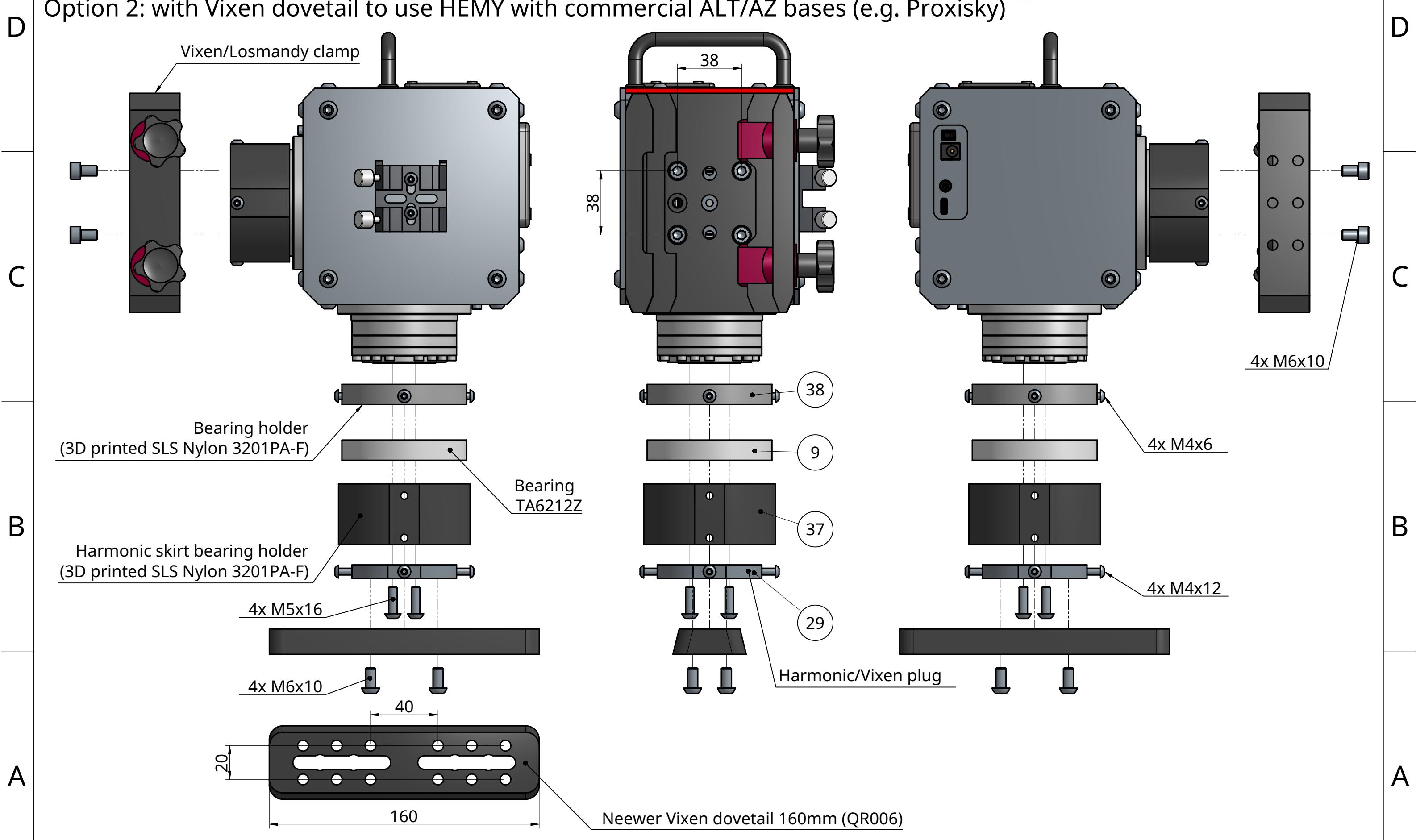
Option 1: with HEMY Base



6 5 4 3 2 1

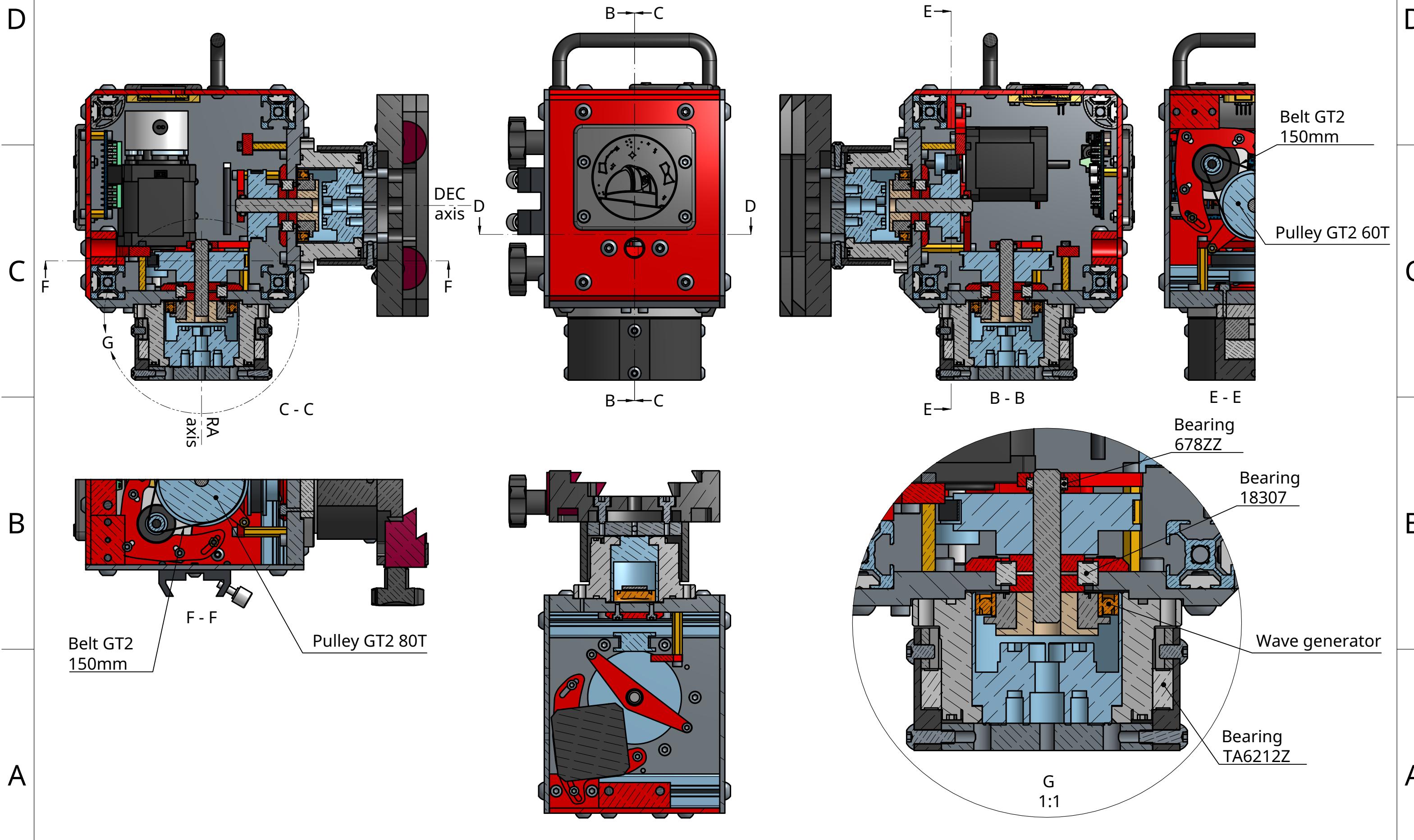
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Option 2: with Vixen dovetail to use HEMY with commercial ALT/AZ bases (e.g. Proxisky)



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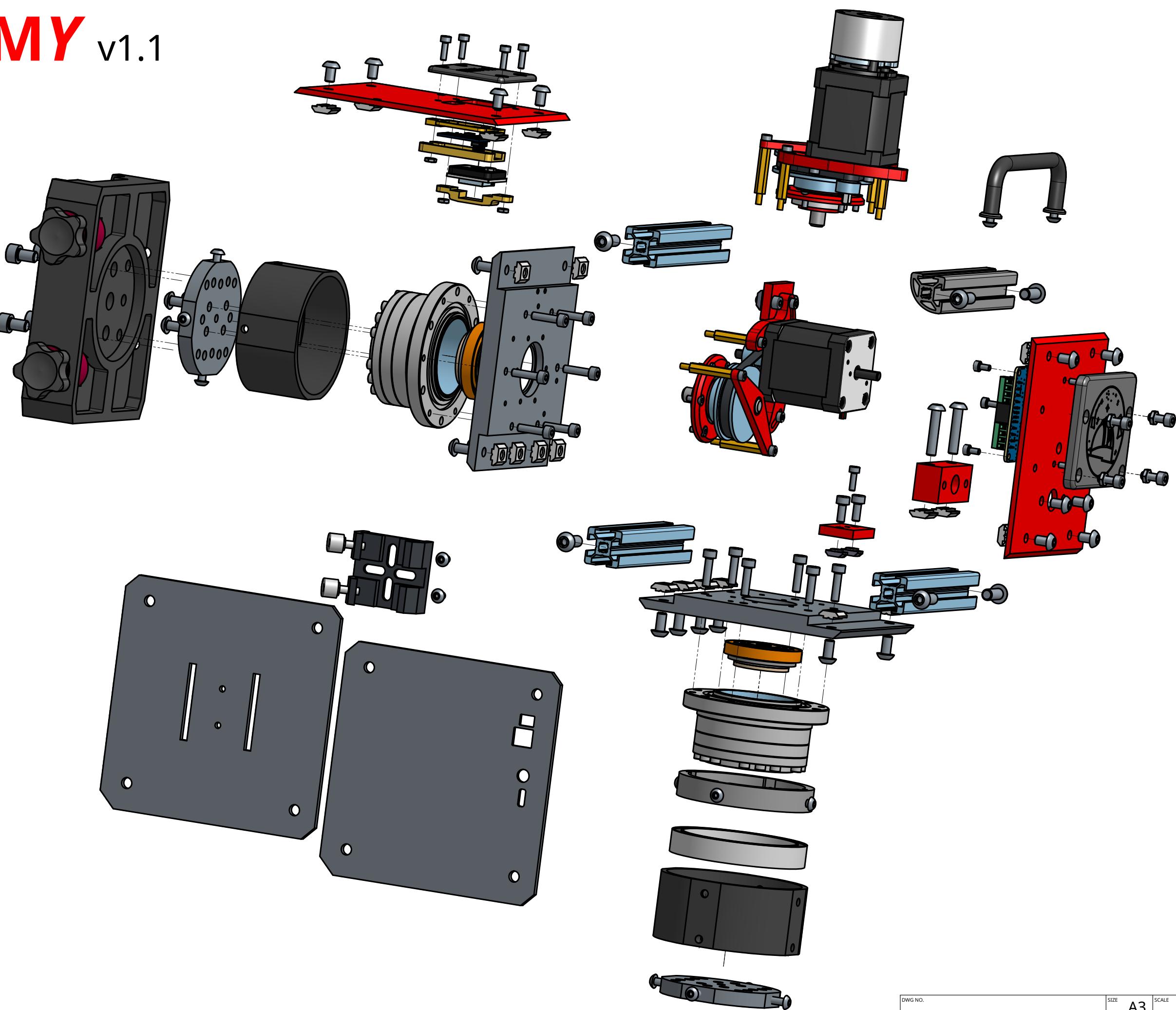
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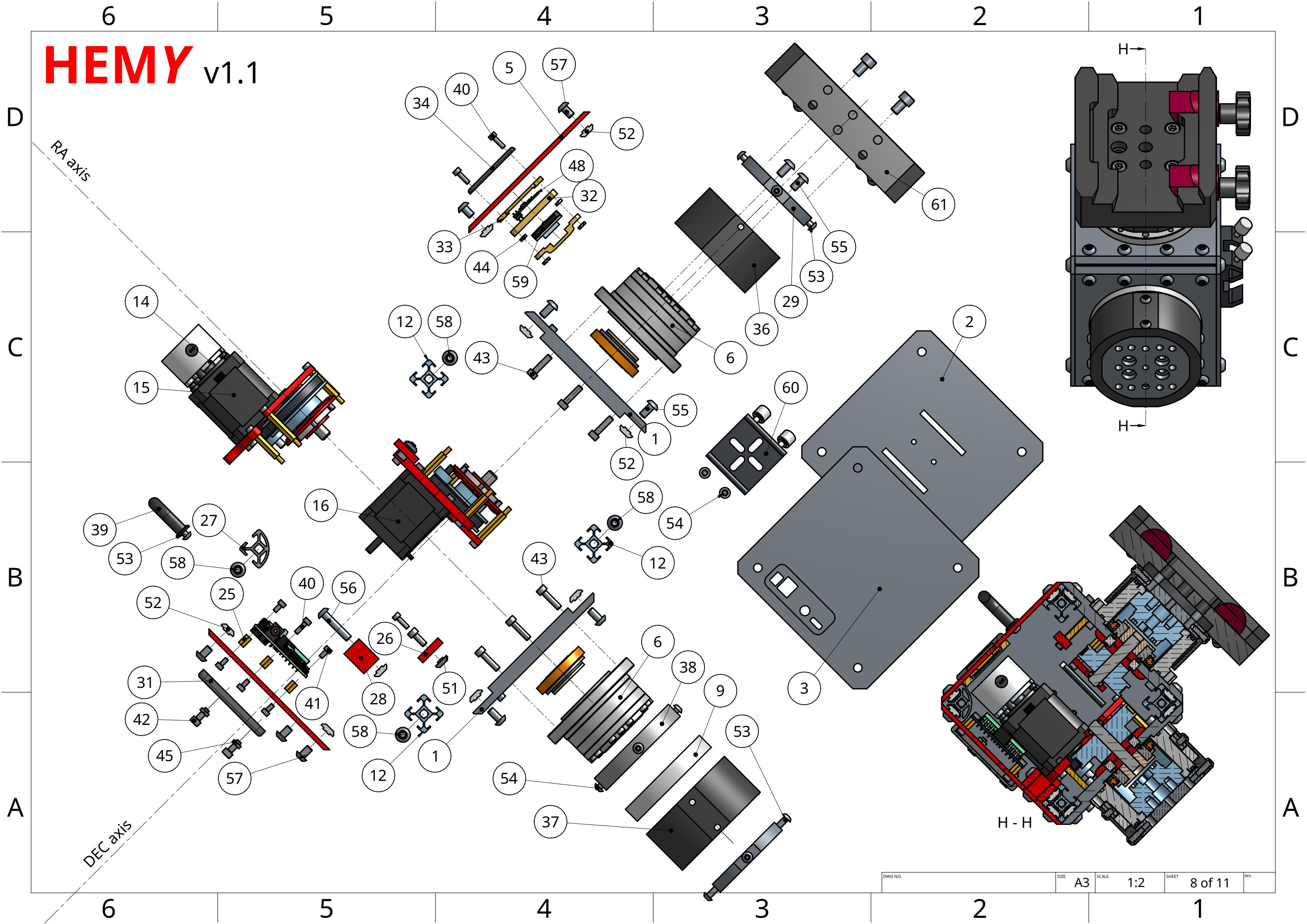
6 5 4 3 2 1

HEMY v1.1

D



HEMY v1.1



6 5 4 3 2 1

HEMY v1.1

D

15
40

22
21

40
30
8
46
19
24
11

55
52
1
10
41

6

RA axis

C

8

17
26

17
26
42

51

D

B

16
40

22
20

17
30
8
46
18
10
41

1
7
13
11

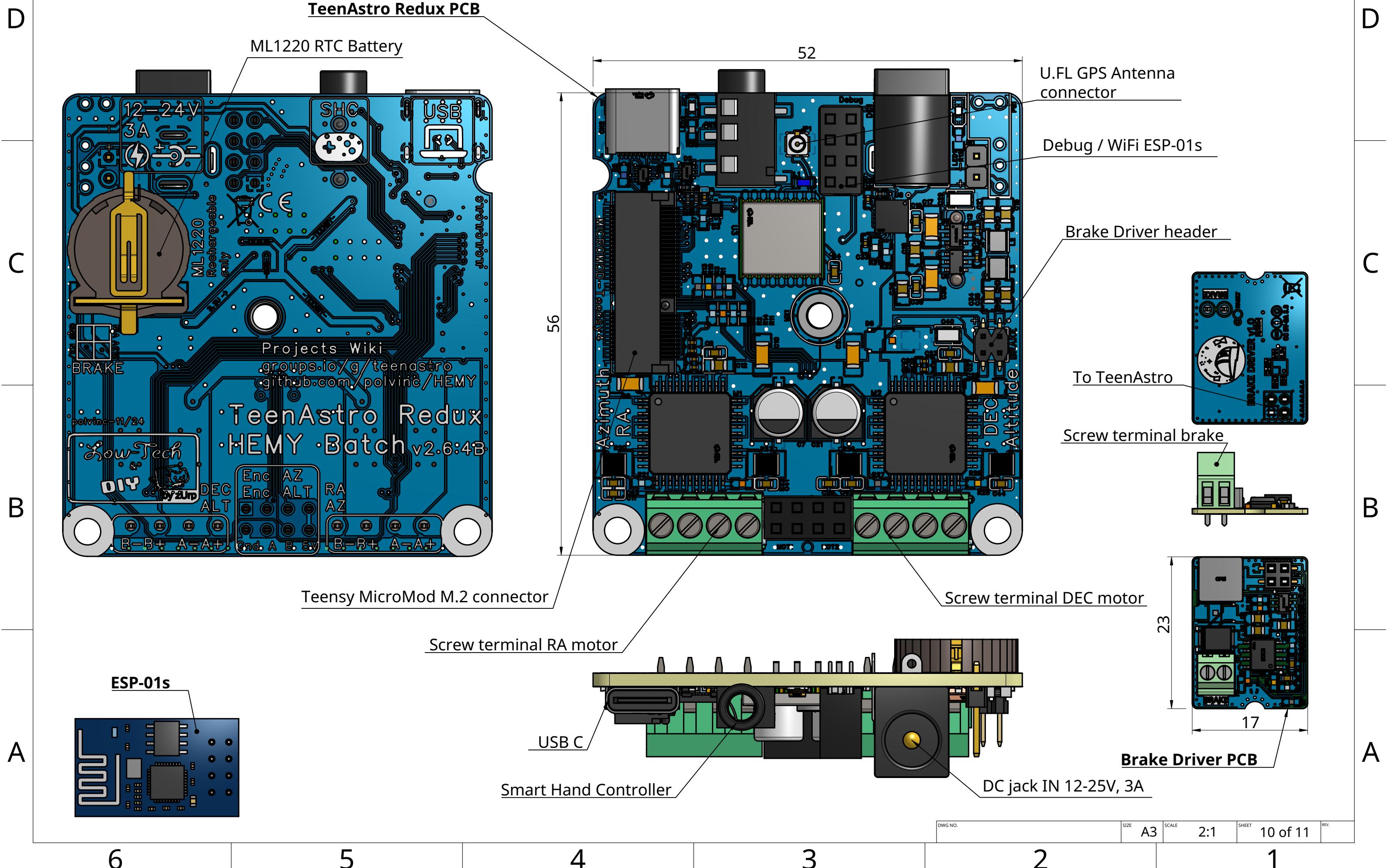
6

DEC axis

A

6 5 4 3 2 1

HEMY v1.1 - Harmonic Equatorial Mount Yourself



Item	Quantity	Description	Mass	Item	Quantity	Description	Mass
1	2	01 - Main plate	0.213 kg	32	1	3D printed ESP-01s holder	0.002 kg
2	1	02 - R plate	0.129 kg	33	1	3D printed ESP-01s spacer	0.001 kg
3	1	03 - L plate	0.127 kg	34	1	3D printed GPS and Wifi cover	0.004 kg
4	1	04 - B plate	0.094 kg	35	1	3D printed GPS antenna support	0.001 kg
5	1	05 - T plate	0.089 kg	36	1	3D printed Harmonic skirt	0.027 kg
6	2	06 - Harmonic drive (HBS/HBG-17-100)	0.539 kg	37	1	3D printed Harmonic skirt bearing housing	0.038 kg
7	2	07 - Bearing 18307-RS	0.008 kg	38	1	3D printed Harmonic skirt lock bearing	
8	2	08 - Bearing 678ZZ	0.001 kg	39	1	Handle Mentor 3270.0883	0.017 kg
9	1	09 - Bearing TA6212Z-IKO	0.04 kg	40	25	Hex socket head cap screw M3x0.50 x 10 Stainless Steel	0.001 kg
10	2	10 - Bearing housing	0.01 kg	41	17	Hex socket head cap screw M3x0.50 x 6 Stainless Steel	0.001 kg
11	4	11 - Pulley spacer	0.003 kg	42	8	Hex socket head cap screw M4x0.70 x 10 Stainless Steel	0.002 kg
12	3	12 - Rexroth 20x20x100mm	0.041 kg	43	12	Hex socket head cap screw M4x0.70 x 16 Stainless Steel	0.003 kg
13	2	13 - Diameter 8 shaft	0.018 kg	44	4	Hex thin nut grade A & B M3 Stainless Steel	0 kg
14	1	14 - Nema 17 brake (SWB-01)	0.018 kg	45	4	Hex thin nut grade A & B M4 Stainless Steel	0.001 kg
15	1	15 - Nema 17 double shaft 0.9° (17HM19-1684D)	0.412 kg	46	2	M8x10x1 Washer	0 kg
16	1	16 - Nema 17 0.9° (17HM19-1684D)	0.319 kg	47	1	PCB Brake Driver HEMY	
17	2	17 - Pulley GT2 - 5mm hole - 16T	0.003 kg	48	1	PCB EPS-01s	
18	1	18 - Pulley GT2 - 8mm hole - 60T	0.043 kg	49	1	PCB TeenAstro Redux	
19	1	19 - Pulley GT2 - 8mm hole - 80T	0.075 kg	50	1	PCB Teensy 4 MicroMod M2	
20	1	20 - Belt GT2 - 150mm	0.001 kg	51	4	Rexroth T-Nut M4 4667281	0.001 kg
21	1	21 - Belt GT2 - 200mm	0.001 kg	52	22	Rexroth T-Nut M5 4667297	0.003 kg
22	2	22 - Motor support	0.02 kg	53	10	Socket button head screw M4x0.7 x 12 Stainless Steel	0.002 kg
23	4	23 - Spacer M3x20mm FM	0.003 kg	54	6	Socket button head screw M4x0.7 x 6 Stainless Steel	0.001 kg
24	4	24 - Spacer M3x25mm FM	0.004 kg	55	16	Socket button head screw M5x0.8 x 10 Stainless Steel	0.002 kg
25	3	25 - Spacer M3x8mm FF	0.001 kg	56	2	Socket button head screw M5x0.8 x 25 Stainless Steel	0.005 kg
26	2	26 - Spacer pivot motor	0.007 kg	57	10	Socket button head screw M5x0.8 x 8 Stainless Steel	0.002 kg
27	1	27 - Round Rexroth 20x20x100mm	0.044 kg	58	8	Socket button head screw M6x1 x 16 Stainless Steel	0.005 kg
28	1	28 - Counterweight Support	0.028 kg	59	1	U.FL GPS Antenna 25x25	
29	2	29 - Harmonic/Vixen plug	0.06 kg	60	1	Viewfinder support (Neewer LS-15)	0.031 kg
30	2	30 - External shaft bearing retaining plate	0.008 kg	61	1	Vixen / Losmandy dovetail clamp	0.471 kg
31	1	3D printed Club cover				DWG NO.	
						SIZE A3	SCALE
						SHEET 11 of 11	REV.