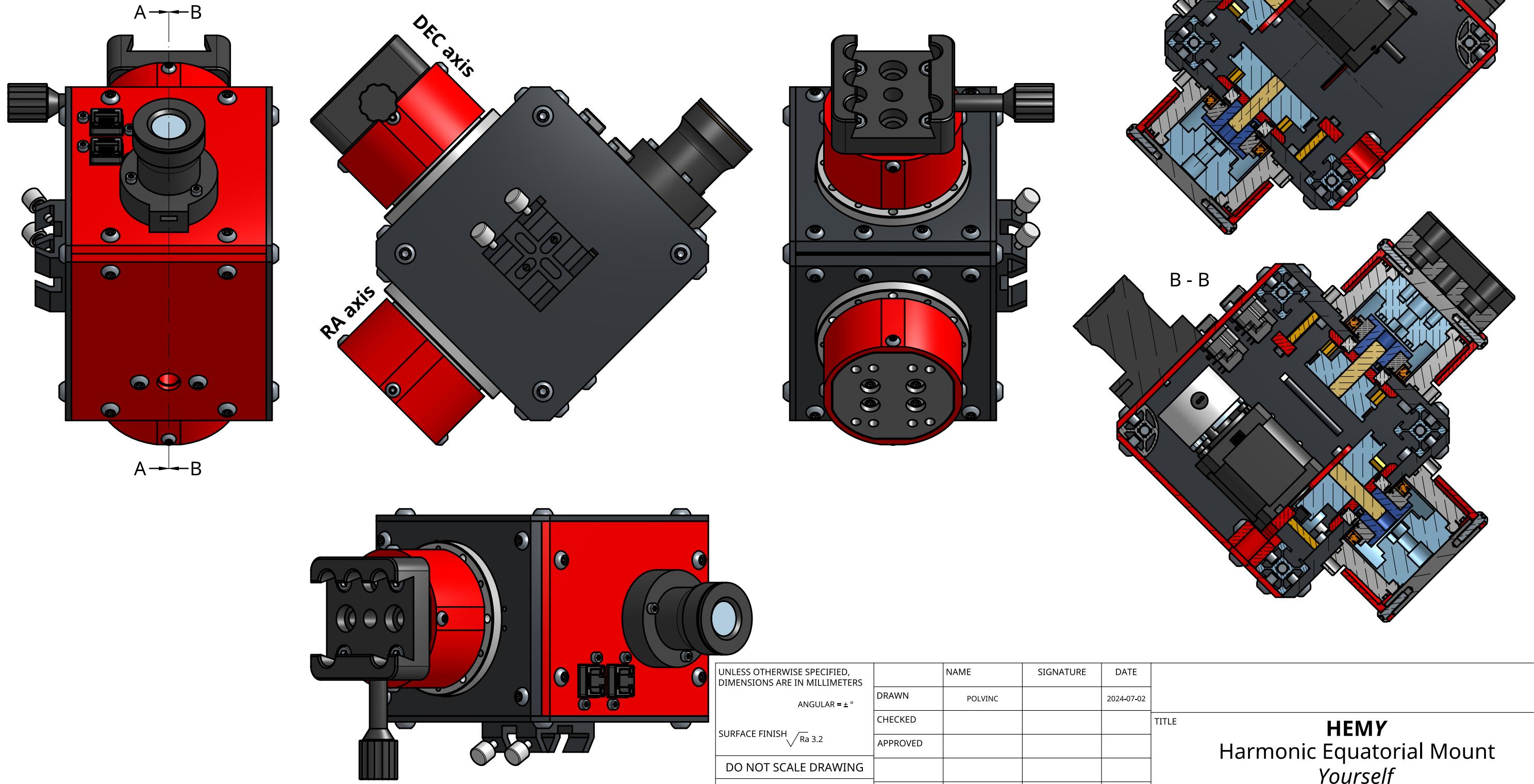


HEMY Harmonic Equatorial Mount *Youself*

"Making your own **Harmonic Equatorial Mount** out of aluminium?
Only a moron would do that, even if it's opensource"
"Moron **Yourself!**"



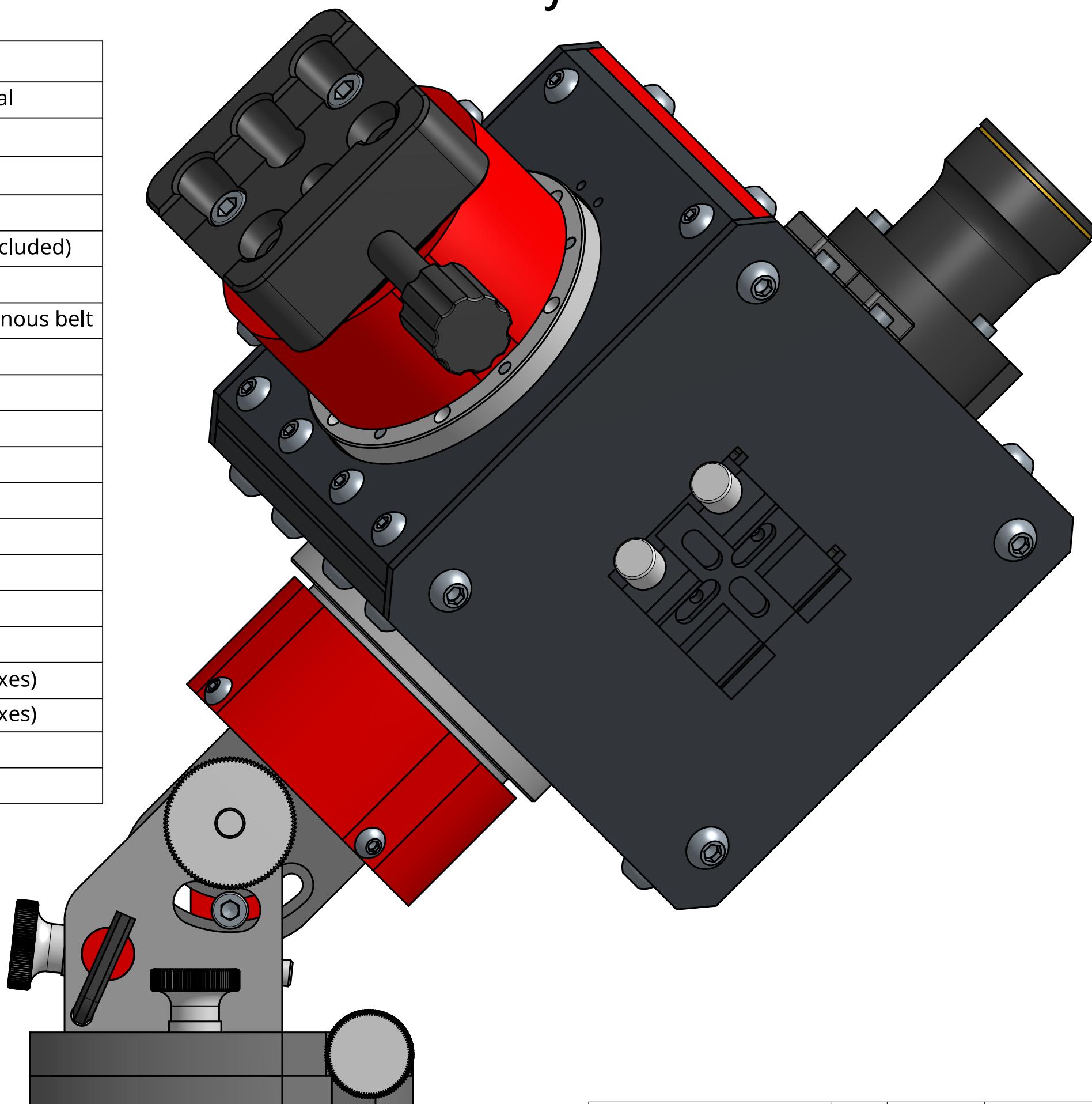
UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN MILLIMETERS			NAME	SIGNATURE	DATE	HEMY Harmonic Equatorial Mount <i>Yourself</i>
ANGULAR = ± ° SURFACE FINISH \sqrt{Ra} 3.2	DRAWN	POLVINC		2024-07-02		
	CHECKED					
	APPROVED					
DO NOT SCALE DRAWING						
BREAK ALL SHARP EDGES AND REMOVE BURRS						
FIRST ANGLE PROJECTION	MATERIAL	FINISH				
	Al 6061	Bead blasting Anodizing				
SIZE		DWG NO.		REV.		
A3						
SCALE	1:2	WEIGHT	4.2 kg	SHEET	1 of 9	

6 5 4 3 2 1

HEMY Harmonic Equatorial Mount Yourself

D

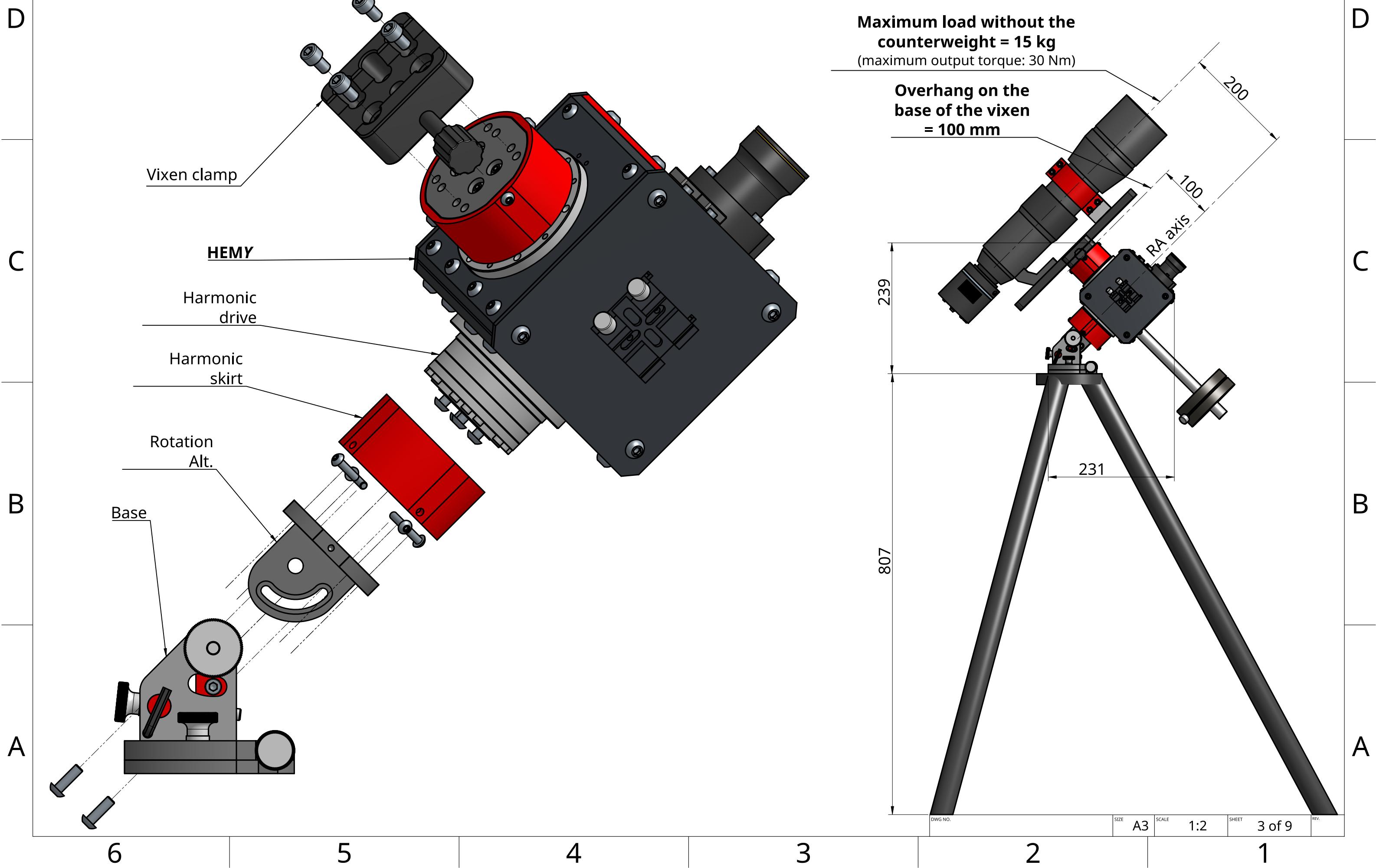
Specifications	
Mount Type	Dual Alt-Az/Equatorial
Mount Series	HEMY
License	GPL-3.0 license
Weight Capacity	15 kg / 20 kg
Type of Mount Electronics	AstrAlim / OnStepX (not included)
Mount Slew Speeds	5°/s
Motor Type	Harmonic Drive and Synchronous belt
Reduction Ratio RA	500:1
Reduction Ratio DEC	300:1
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
Mount Weight	5 kg
CNC for the mount	JLC3DP = 200\$ (excl. taxes)
CNC for the base	JLC3DP = 160\$ (excl. taxes)
Price for CNC building	< 400\$
Total price	< 800\$



6 5 4 3 2 1

6 5 4 3 2 1

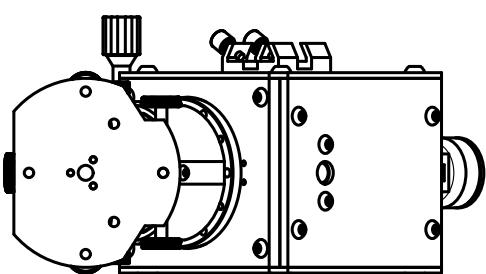
HEMY Harmonic Equatorial Mount Yourself



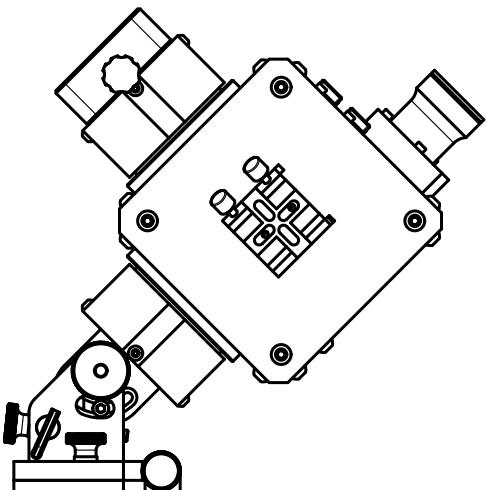
6 5 4 3 2 1

HEMY Harmonic Equatorial Mount Yourself

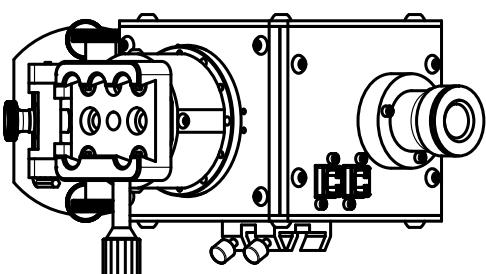
D



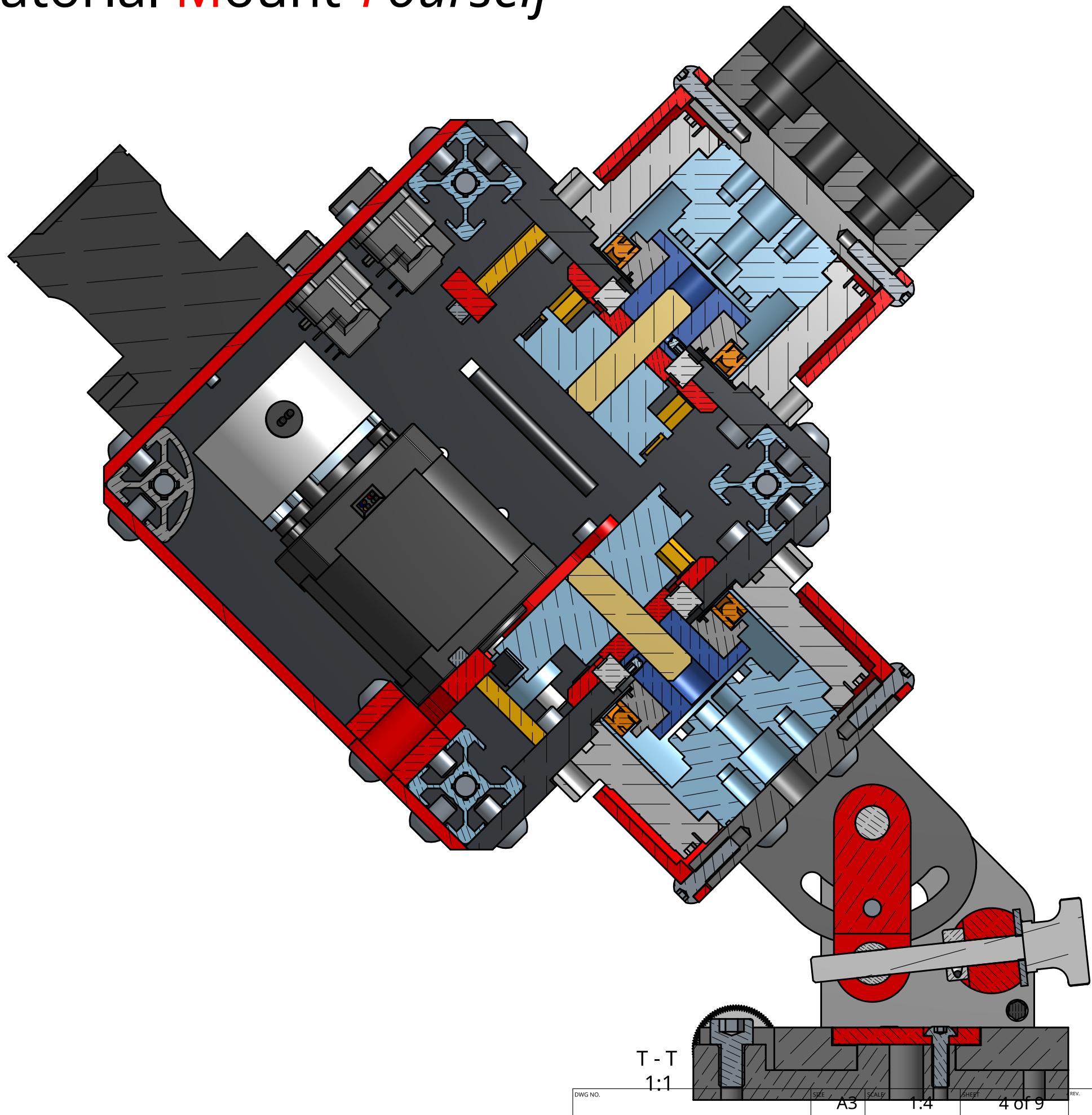
C



B



A

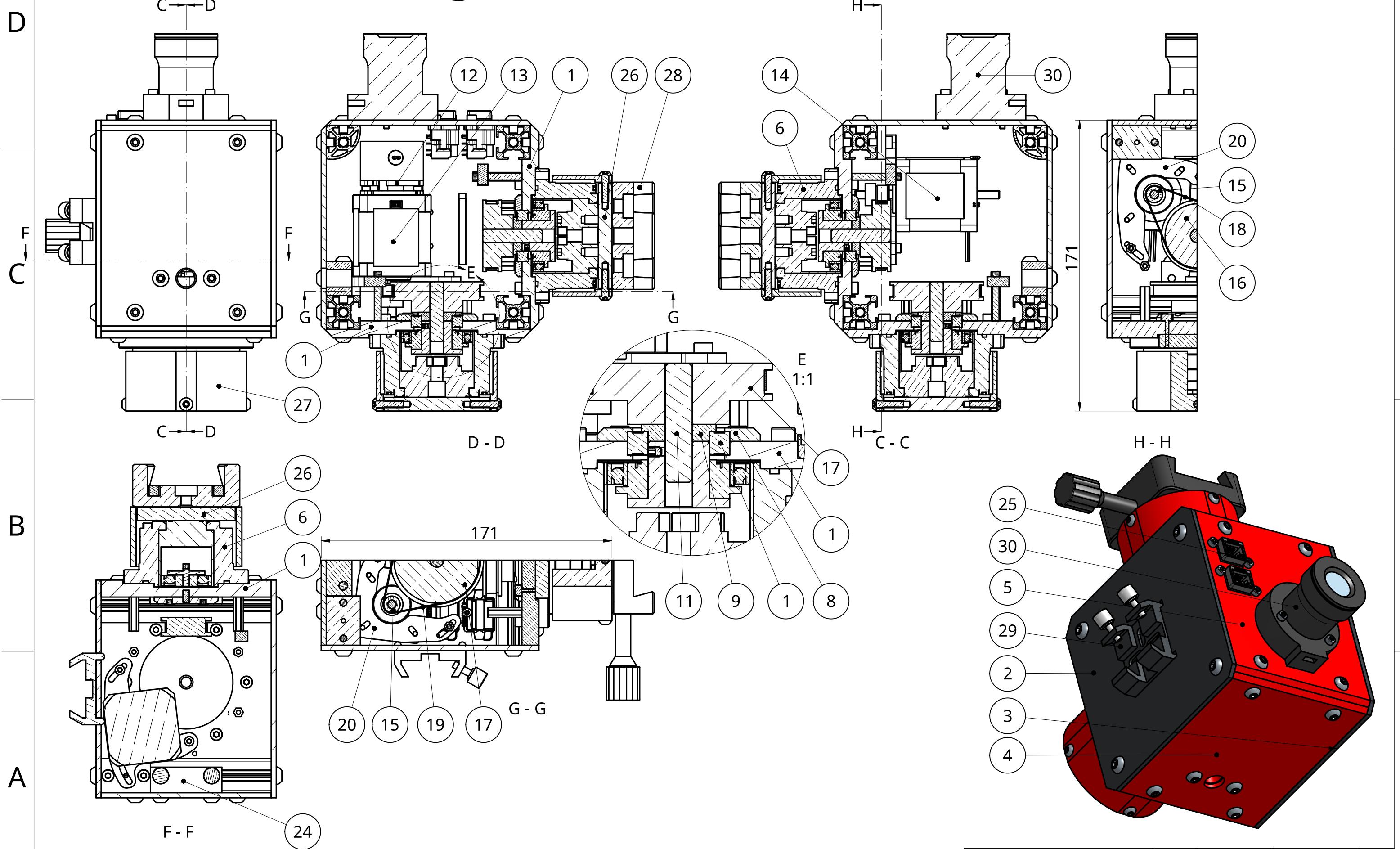


T - T
1:1
DWG NO. [REDACTED] SIZE A3 SCALE 1:4 SHEET 4 of 9 REV. [REDACTED]

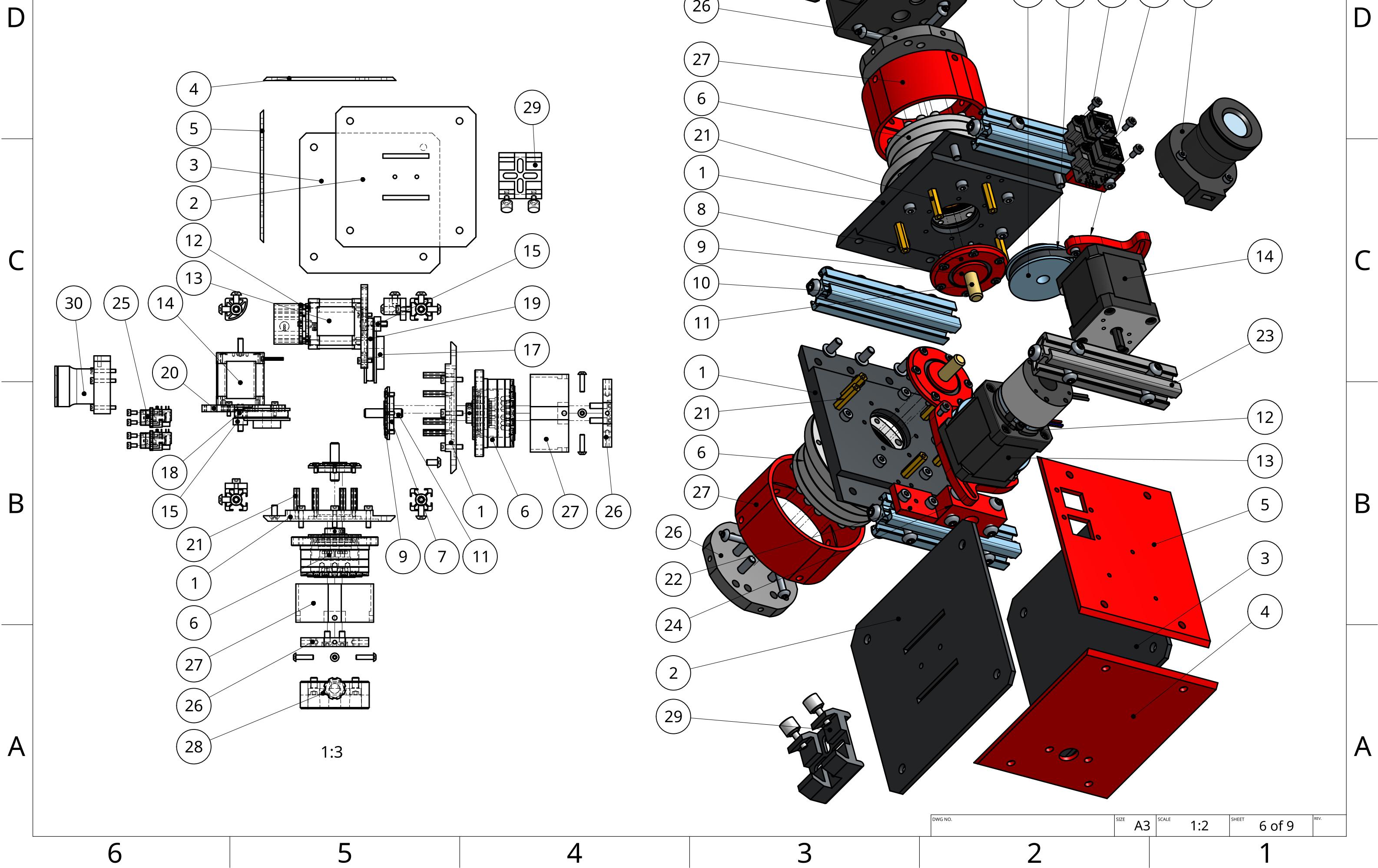
6 5 4 3 2 1

6 5 4 3 2 1

Global drawing - HEMY

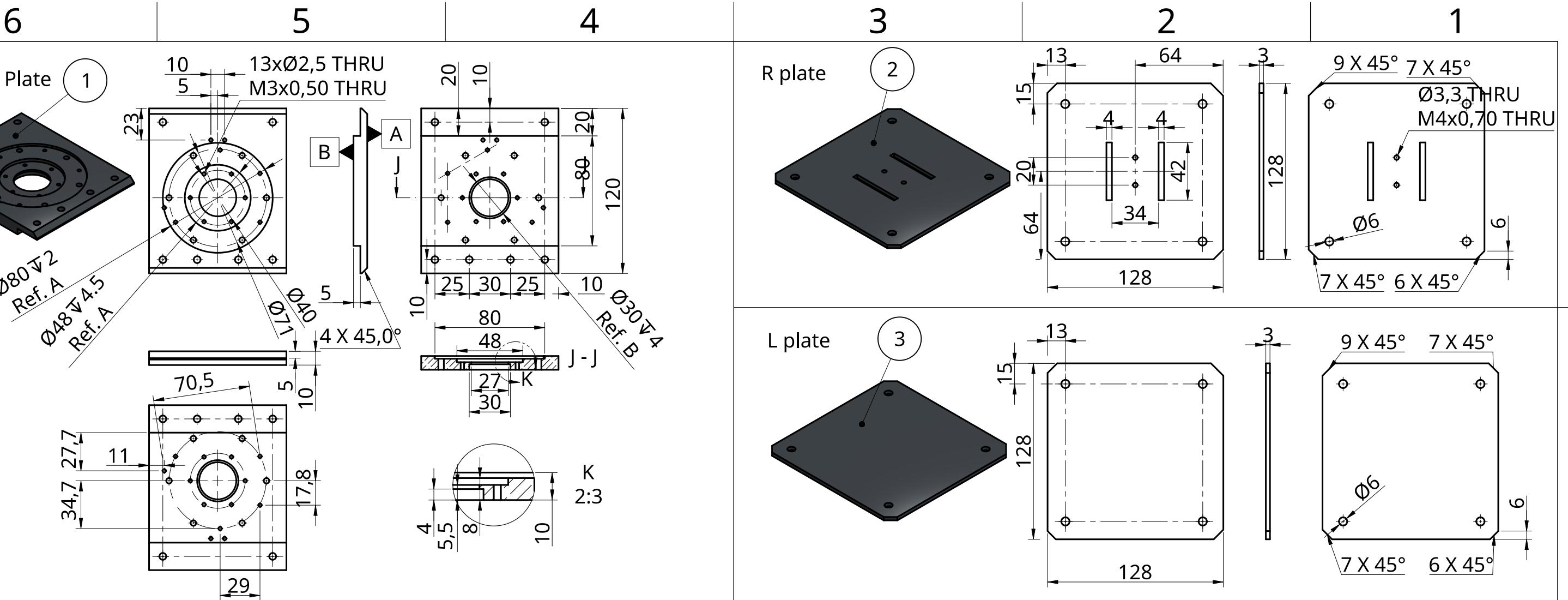


Explode view - HEMY

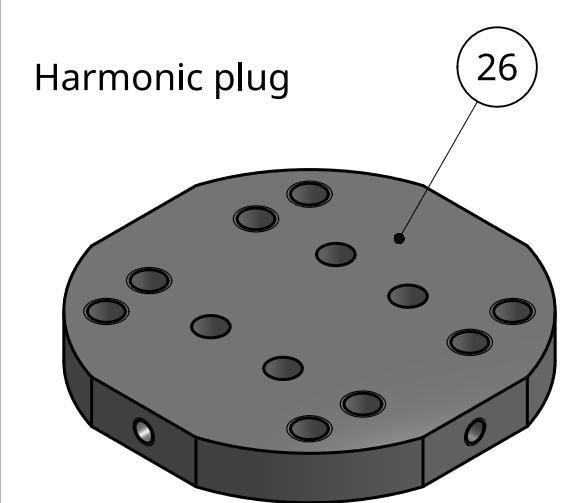


Bill of Materials - HEMY

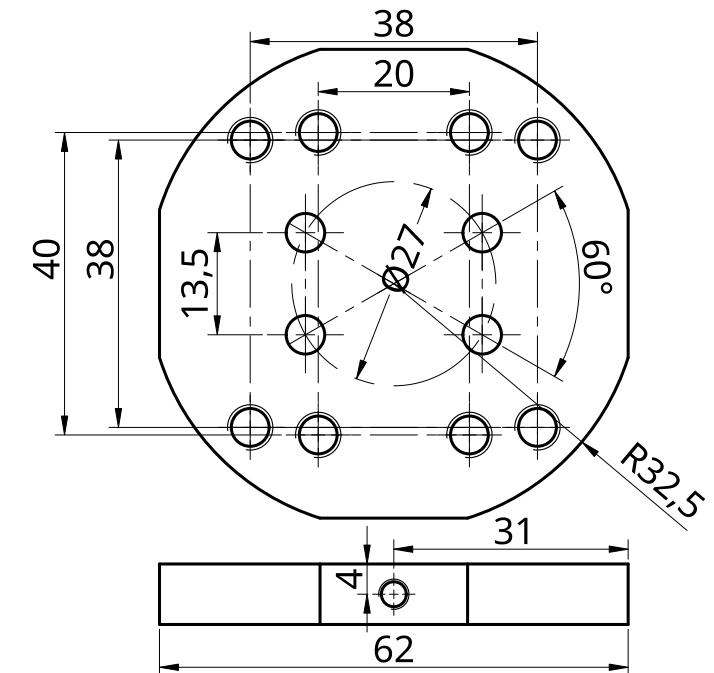
D	Item	Quantity	Description	Mass		Item	Quantity	Description	Mass	D
D	1	2	01 - Main plate	0.213 kg		28	1	27 - Vixen clamp (Neewer QR011)	0.177 kg	
	2	1	02 - R plate	0.129 kg		29	1	28 - (Optional) Polar viewfinder support (Neewer LS-15)	0.031 kg	
	3	1	03 - L plate	0.132 kg		30	1	30 - (Optional) QHY Polemaster	0.065 kg	
	4	1	04 - B plate	0.094 kg		31	4	Hex socket head cap screw M3x0.50 x 10 Stainless Steel	0.001 kg	
	5	1	05 - T plate	0.091 kg		32	3	Hex socket head cap screw M3x0.50 x 20 Stainless Steel	0.002 kg	
	6	2	06 - Harmonic drive (CSF-17-100-2UH or HBS/HBG-17-100)	0.539 kg		33	16	Hex socket head cap screw M3x0.50 x 6 Stainless Steel	0.001 kg	
	7	2	07 - Bearing 18307-RS	0.008 kg		34	4	Hex socket head cap screw M4x0.70 x 10 Stainless Steel	0.002 kg	
	8	2	08 - Bearing housing	0.01 kg		35	12	Hex socket head cap screw M4x0.70 x 16 Stainless Steel	0.003 kg	
	9	2	09 - Pulley spacer	0.003 kg		36	4	Hex socket head cap screw M6x1.00 x 10 Stainless Steel	0.005 kg	
	10	3	10 - Rexroth 20x20x100mm	0.041 kg		37	8	Socket button head screw M4x0.7 x 16 Stainless Steel	0.002 kg	
	11	2	11 - Diameter 8 shaft	0.014 kg		38	16	Socket button head screw M5x0.8 x 10 Stainless Steel	0.002 kg	
	12	1	12 - Nema 17 brake (SWB-01)	0.018 kg		39	4	Socket button head screw M5x0.8 x 16 Stainless Steel	0.003 kg	
	13	1	13 - Nema 17 double shaft 0.9° (17HM19-1684D)	0.412 kg		40	2	Socket button head screw M5x0.8 x 25 Stainless Steel	0.005 kg	
	14	1	14 - Nema 17 simple or double shaft 0.9° (17HM19-1684D)	0.32 kg		41	10	Socket button head screw M5x0.8 x 8 Stainless Steel	0.002 kg	
	15	2	15 - Pulley 16T	0.003 kg		42	8	Socket button head screw M6x1 x 16 Stainless Steel	0.005 kg	
	16	1	16 - Pulley 60T	0.043 kg						B
	17	1	17 - Pulley 80T	0.075 kg						
	18	1	18 - Belt 150mm	0.001 kg						
	19	1	19 - Belt 200mm	0.001 kg						
	20	2	20 - Motor support	0.02 kg						
	21	10	21 - Spacer M3x20mm	0.003 kg						
	22	2	22 - Spacer pivot motor	0.007 kg						
	23	1	23 - Round Rexroth 20x20x100mm	0.044 kg						
	24	1	24 - Counterweight Support	0.028 kg						
	25	2	25 - Ethernet connectors (MRJ538401)	0.008 kg						
	26	2	26 - Harmonic/Vixen plug	0.061 kg						
	27	2	27 - Harmonic skirt (3D printed)	0.024 kg						



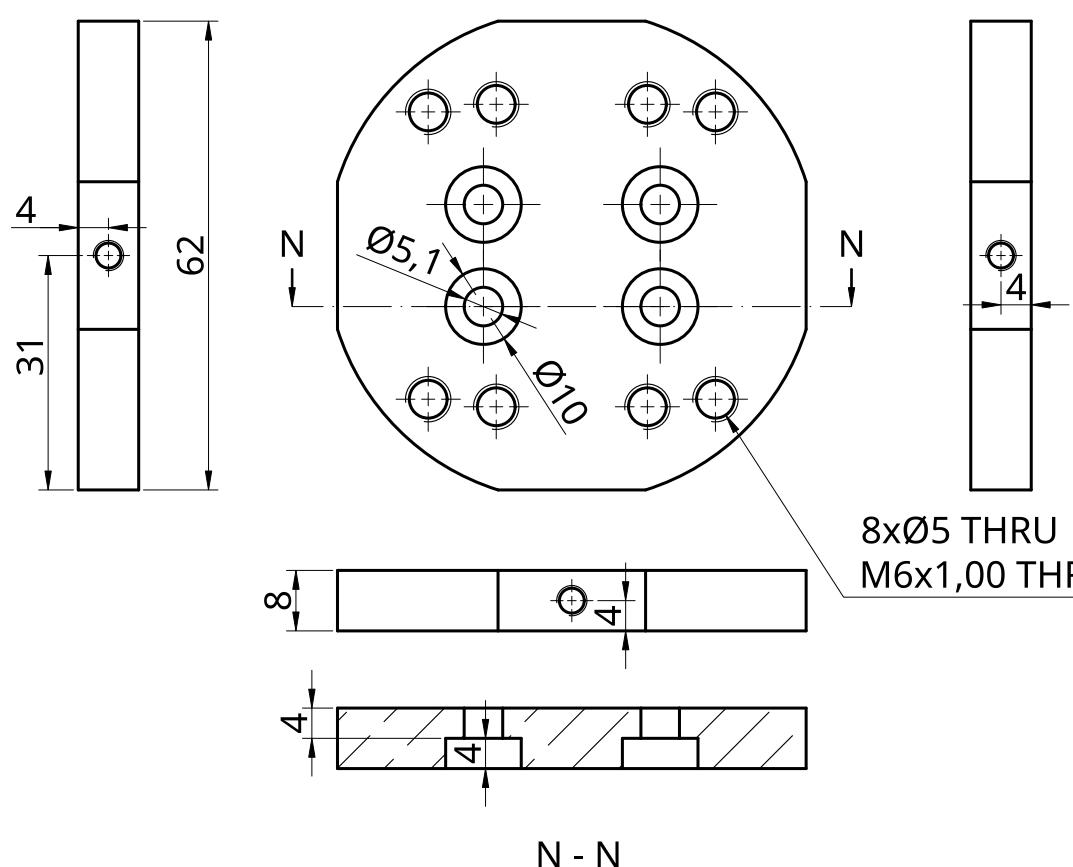
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5

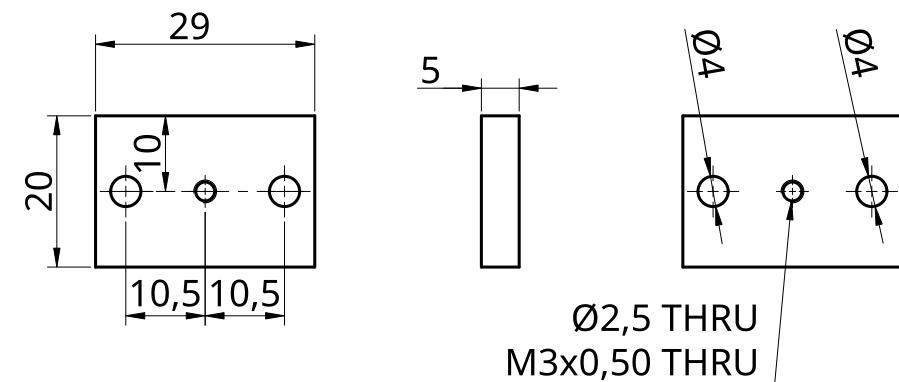
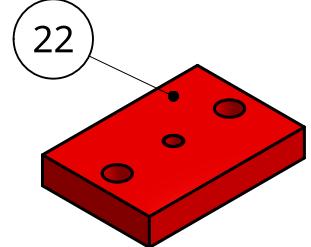


4



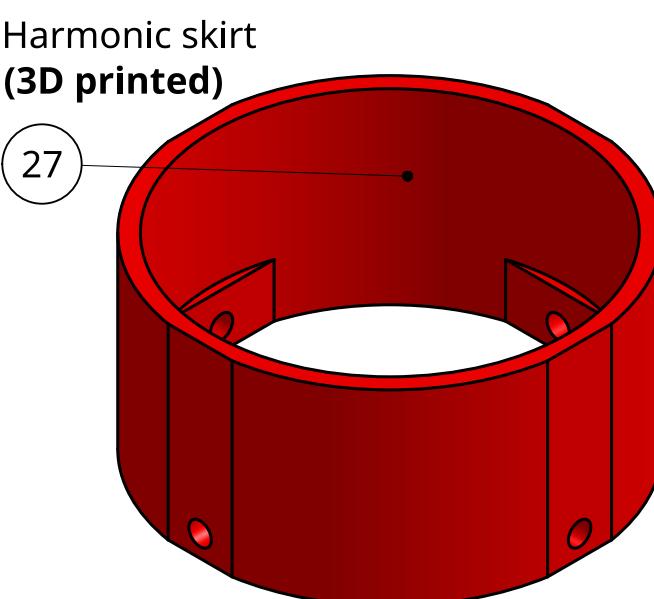
D

Spacer support

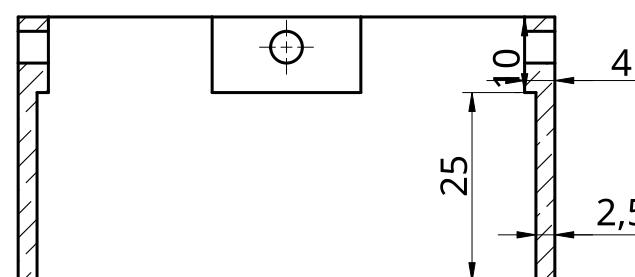


6

3

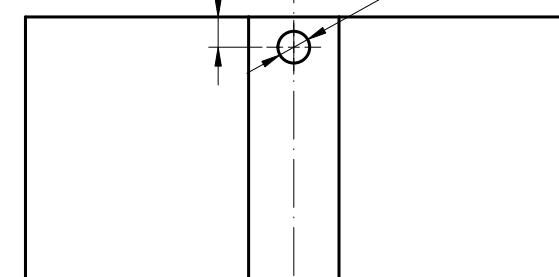


3

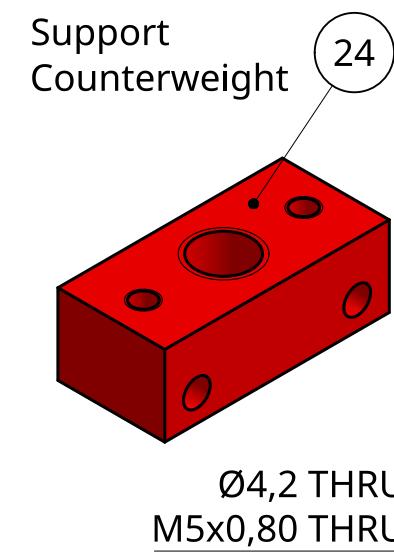


P - P

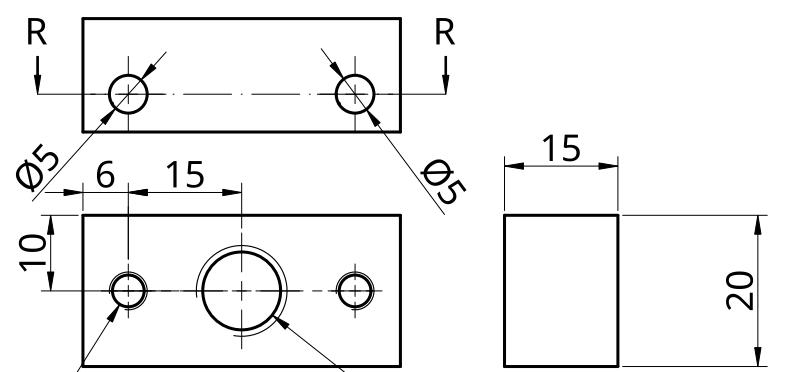
P - P



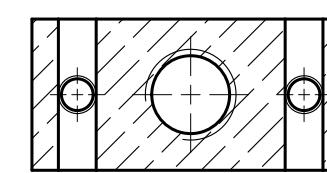
P



$\varnothing 4,2$ THRU
 $M5x0,80$ THRU



$\varnothing 10,3$ THRU
 $M12x1,75$ THRU



R - R

1

D

C

B

A

1