

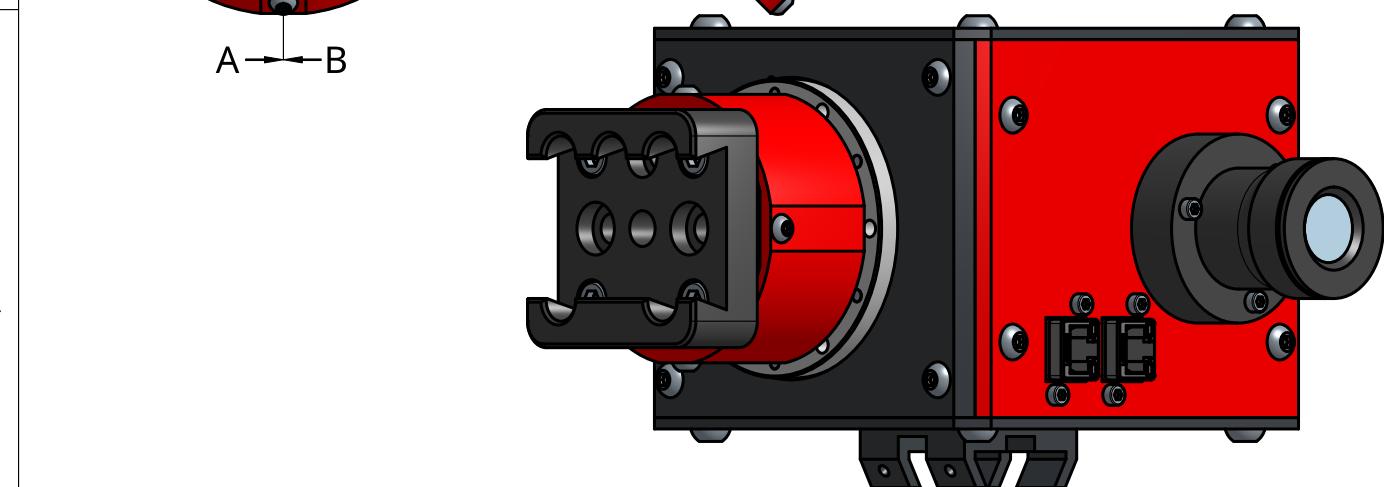
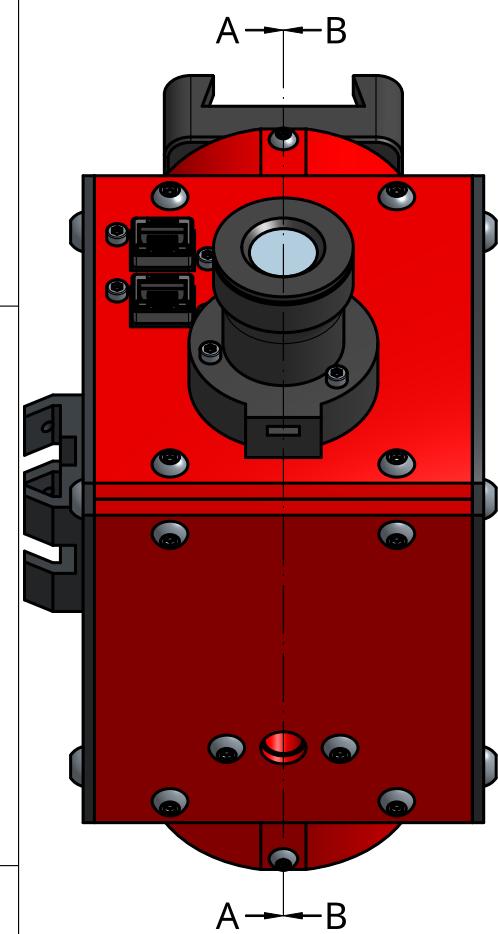
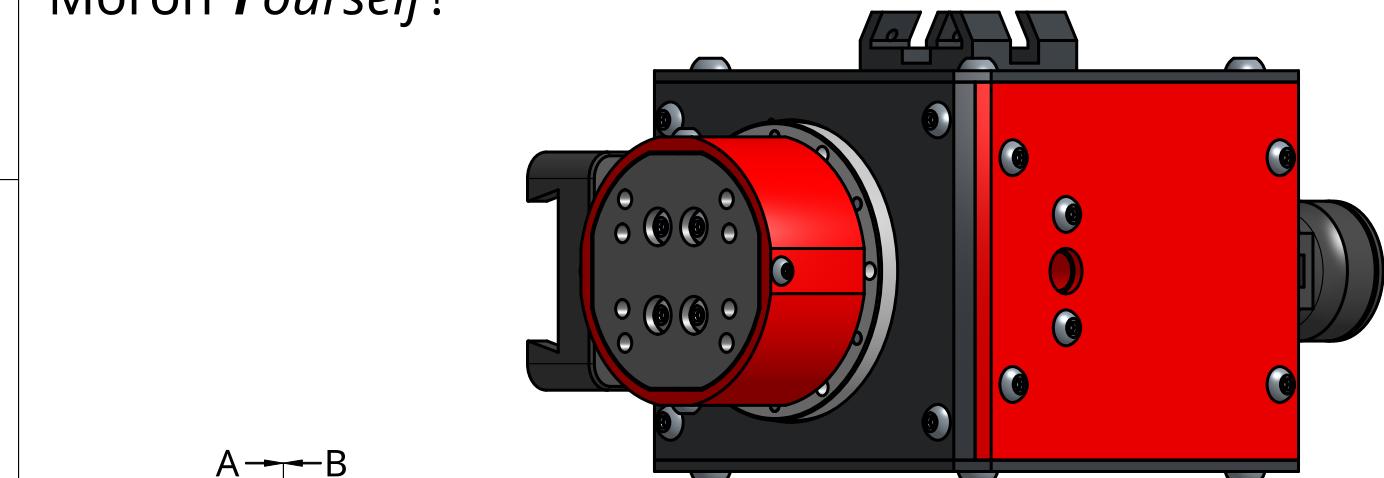
6 5 4 3 2 1

HEMY 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!"



UNLESS OTHERWISE SPECIFIED,
DIMENSIONS ARE IN MILLIMETERS

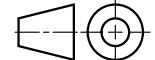
ANGULAR $\pm \text{ }^\circ$

SURFACE FINISH $\sqrt{\text{Ra}} 3.2$

DO NOT SCALE DRAWING

BREAK ALL SHARP EDGES AND
REMOVE BURRS

FIRST ANGLE PROJECTION



NAME

SIGNATURE

DATE

DRAWN

POLVINC

2024-07-02

CHECKED

APPROVED

TITLE

HEMY
Harmonic Equatorial Mount
Yourself

SIZE

A3

DWG NO.

REV.

MATERIAL

AI 6061

FINISH

Bead blasting
Anodizing

SCALE

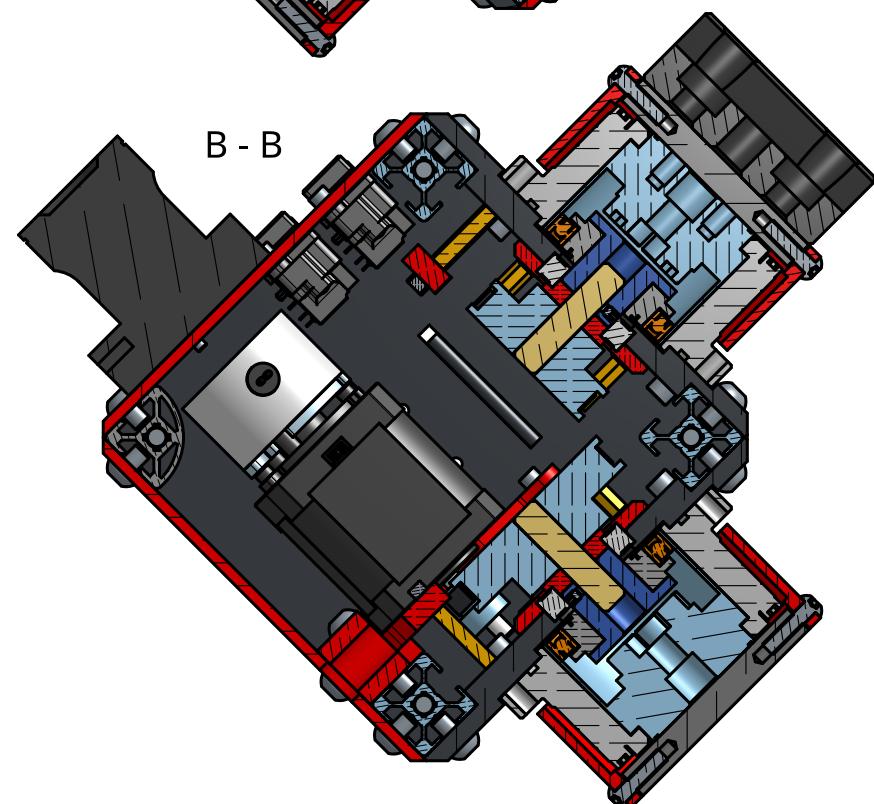
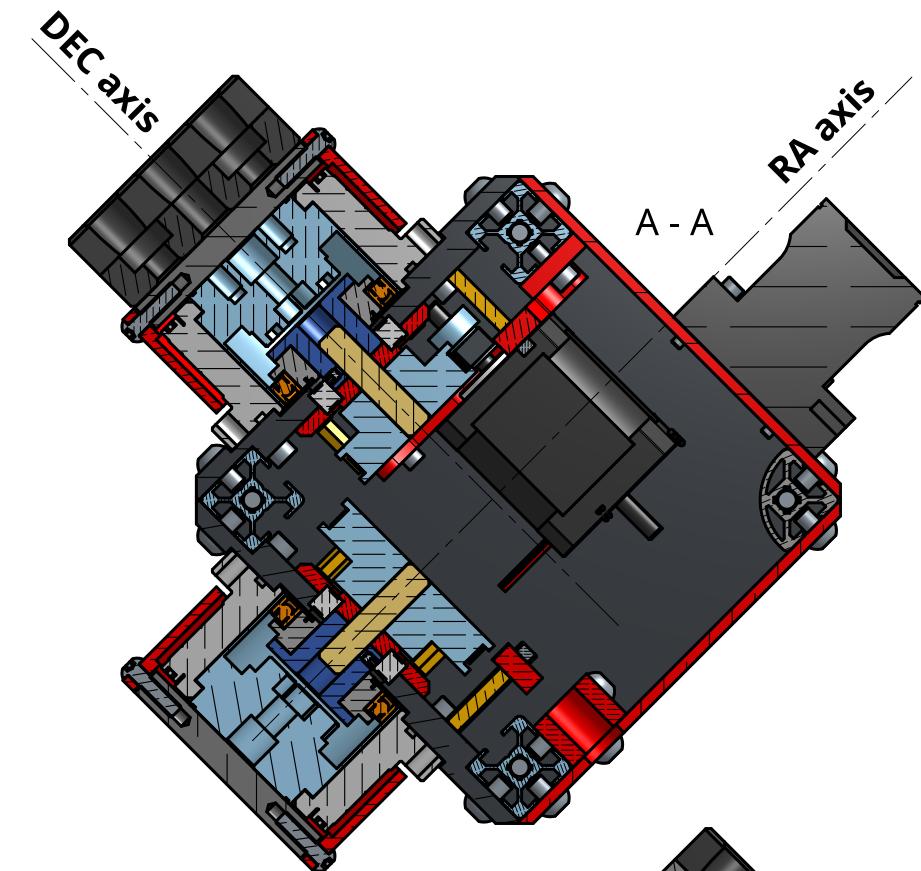
1:2

WEIGHT

4.2 kg

SHEET

1 of 8



6

5

4

3

2

1

D

C

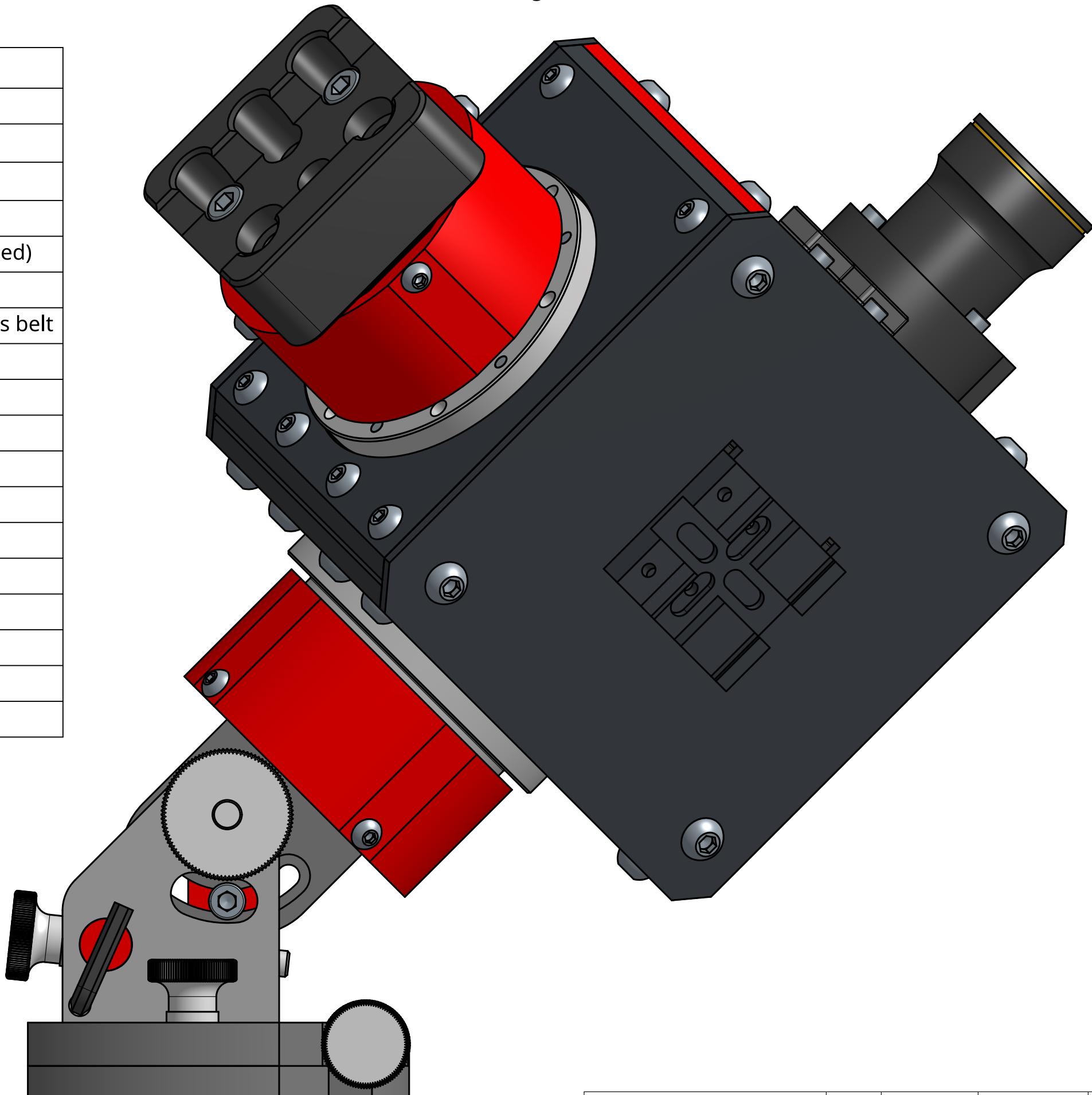
B

A

1

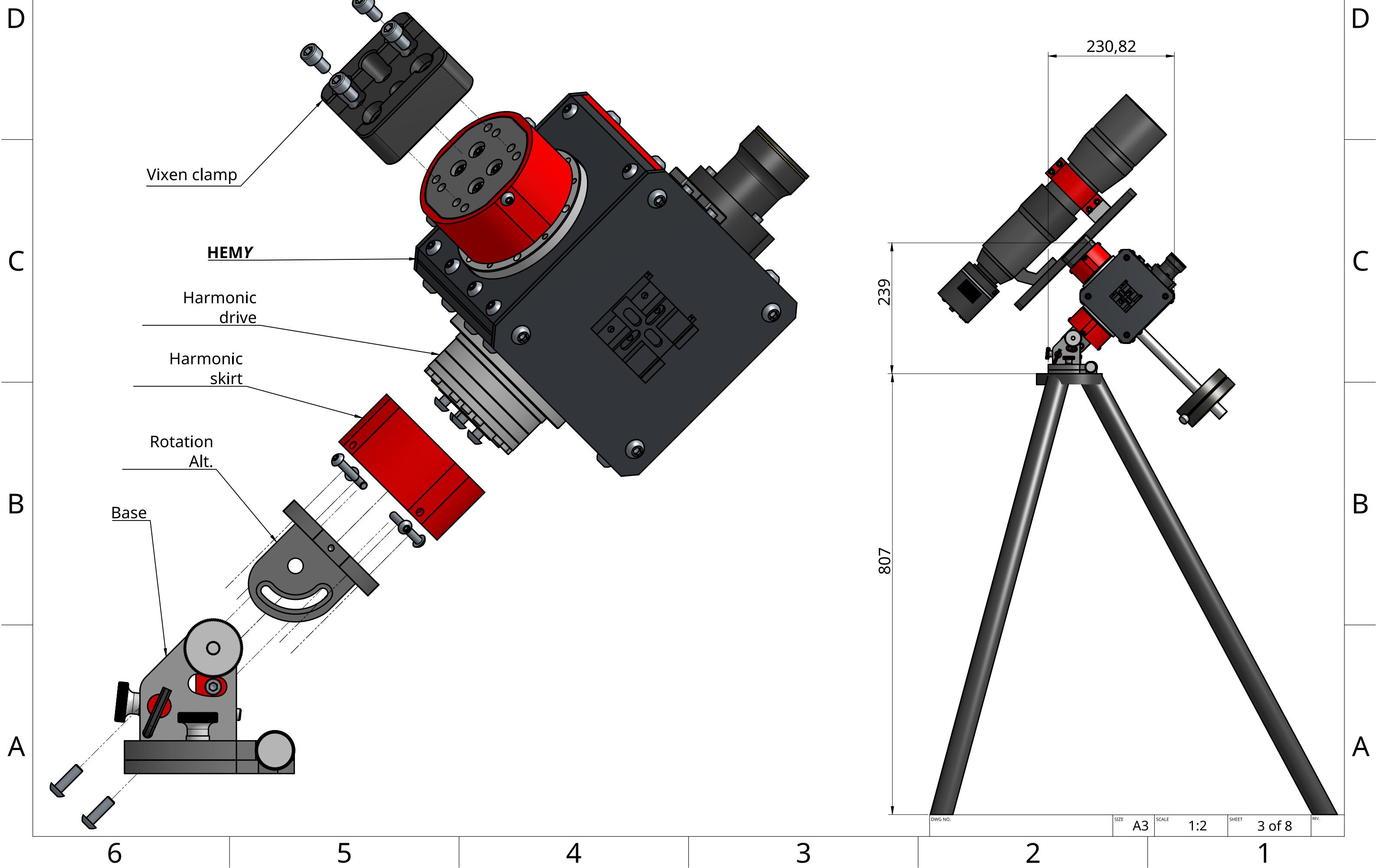
HEMY Harmonic Equatorial Mount *Yourself*

Specifications	
Mount Type	Dual Alt-Az/Equatorial
Mount Series	HEMY
License	GPL-3.0 license
Weight Capacity	13 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	220s
Polar Scope Included?	No
Mount Weight	5 kg
Price for CNC building	< 300\$
Total price	< 700\$

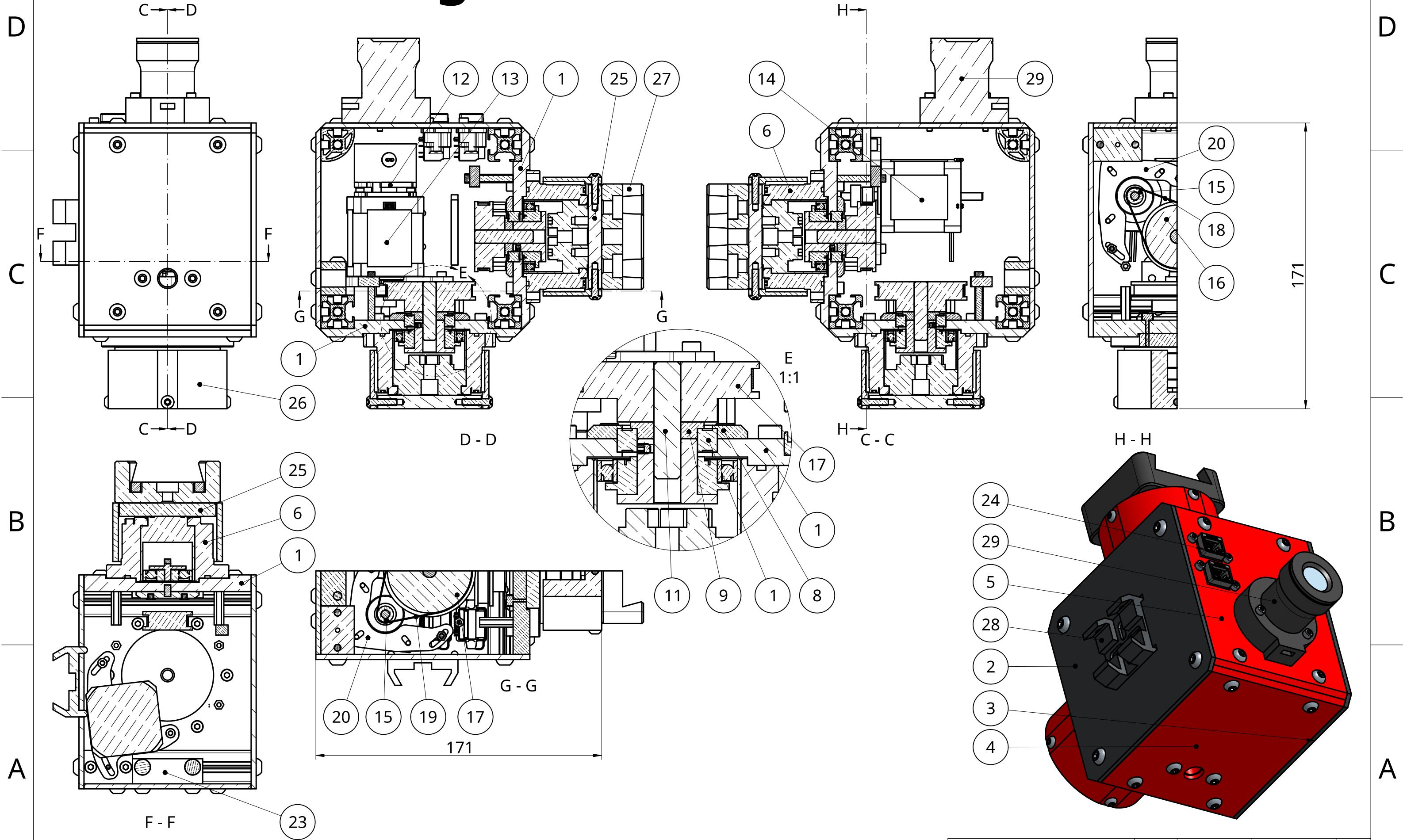


6 5 4 3 2 1

HEMY Harmonic Equatorial Mount Yourself



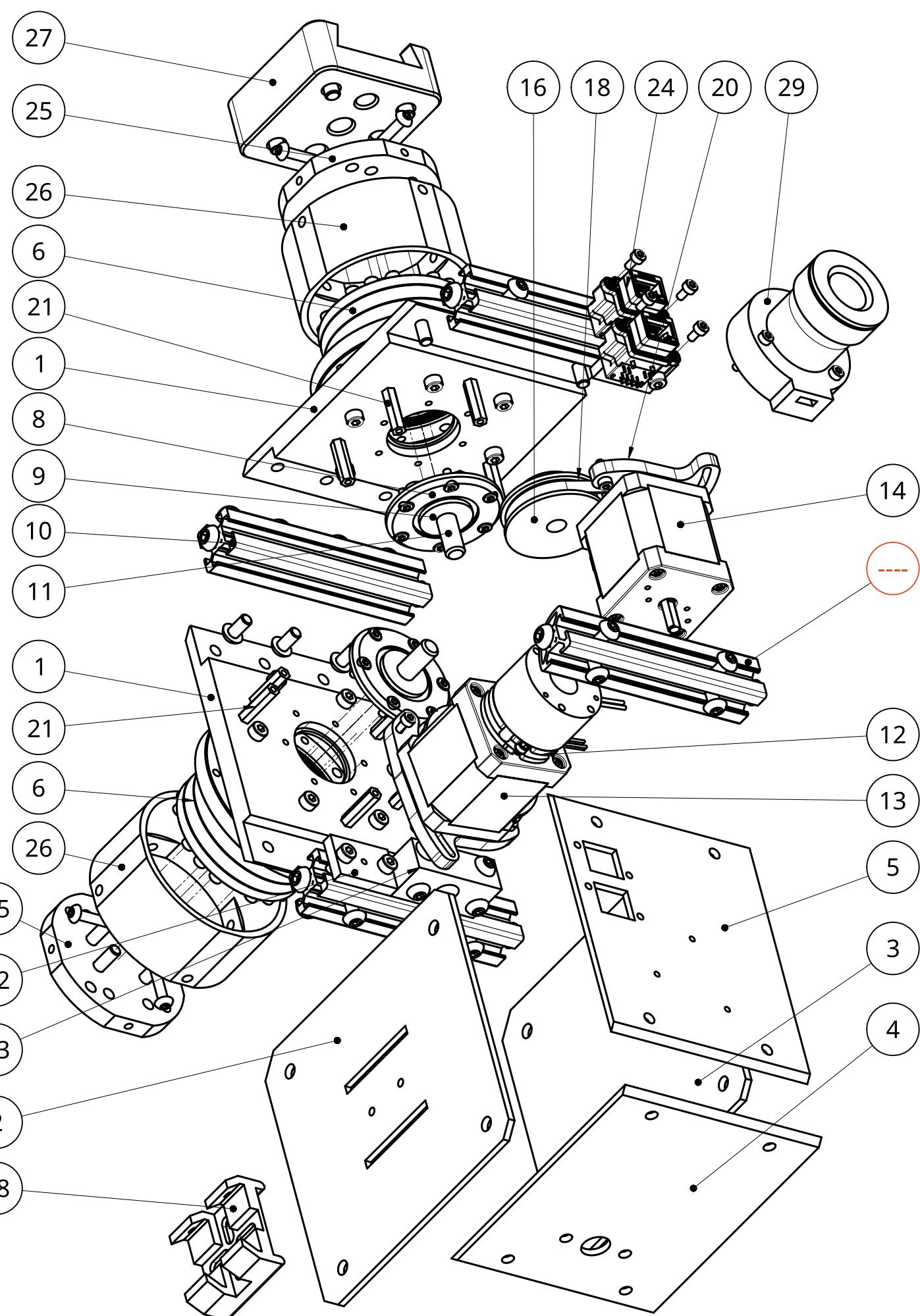
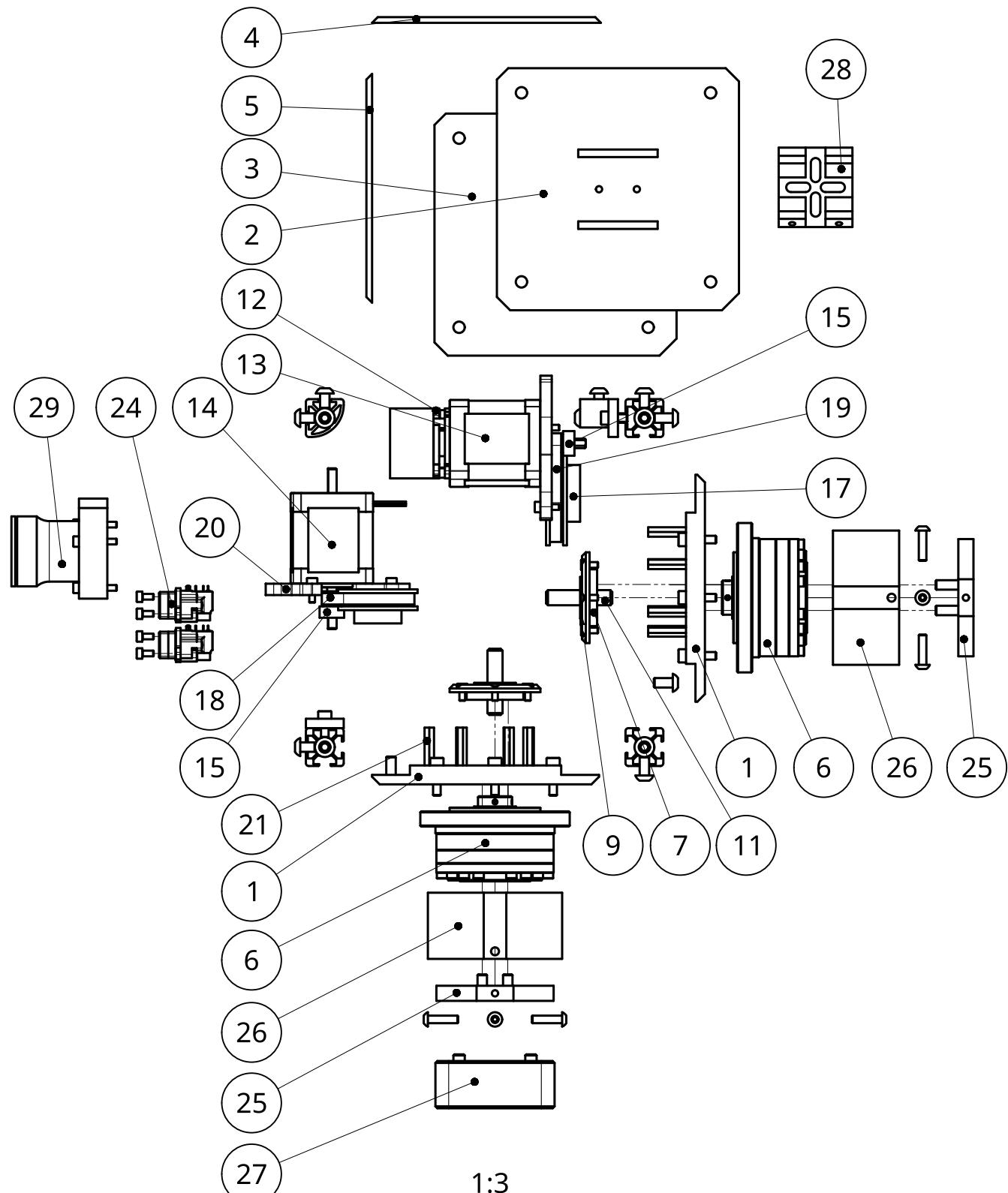
Global drawing - HEMY



6 5 4 3 2 1

Explode view - HEMY

D



C

B

A

D

C

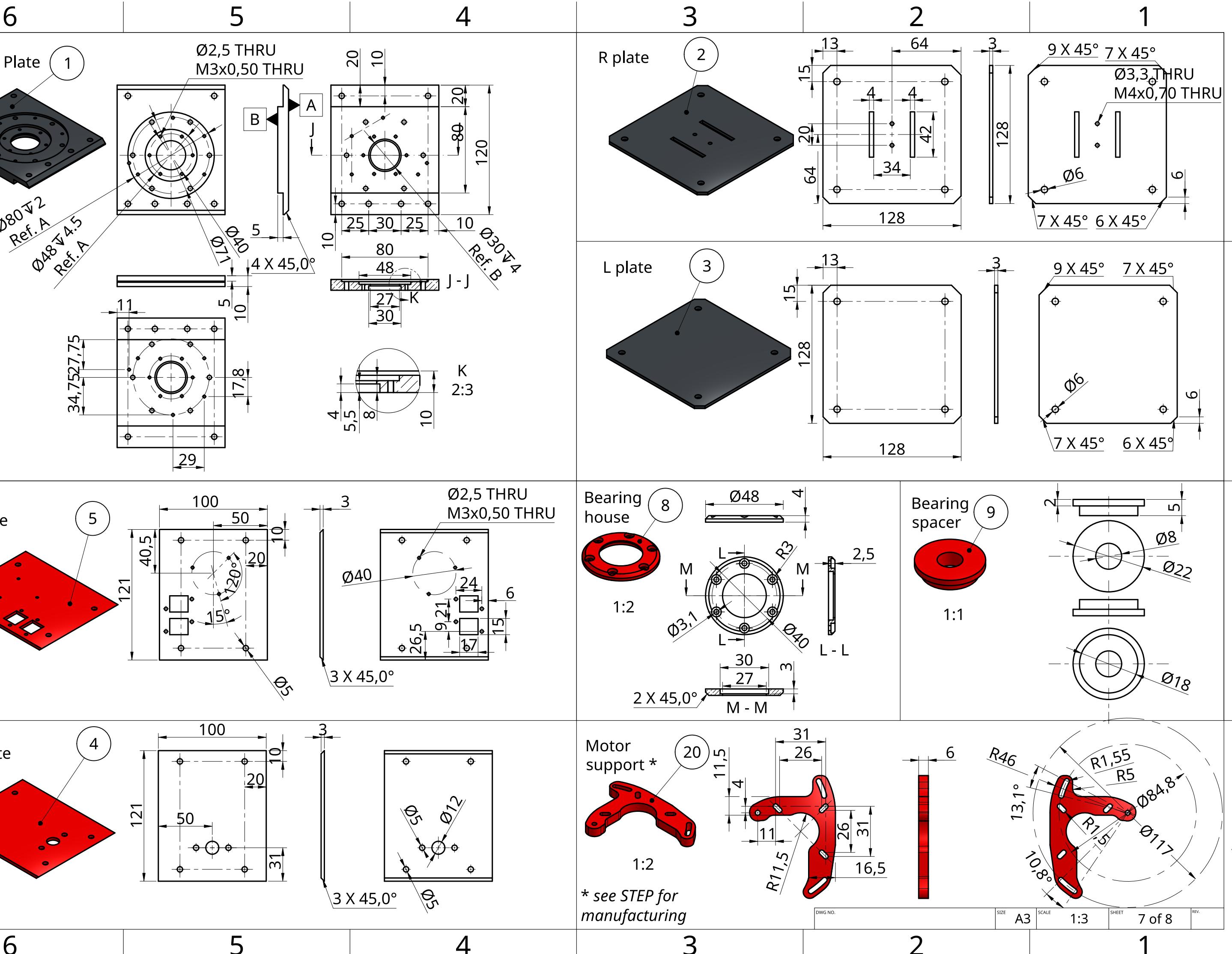
B

A

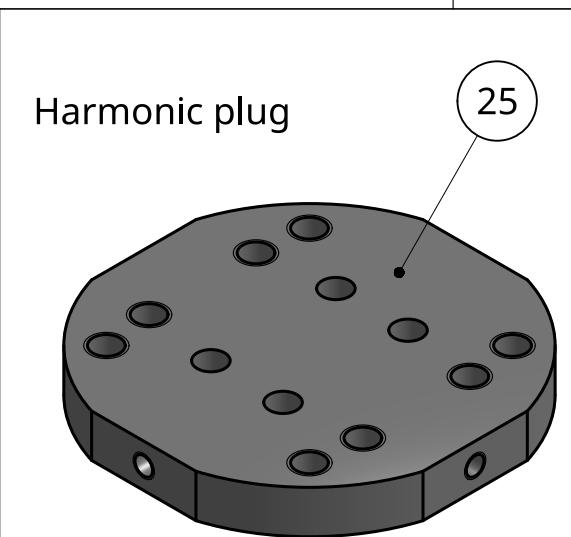
Bill of Materials - HEMY

D	Item	Quantity	Description	Mass
	1	2	01 - Main plate	0.214 kg
	2	1	02 - R plate	0.129 kg
	3	1	03 - L plate	0.132 kg
	4	1	04 - B plate	0.094 kg
	5	1	05 - T plate	0.091 kg
	6	2	06 - Harmonic drive (CSF-17-XXX-2UH)	0.539 kg
C	7	2	07 - Bearing 18307-RS	0.008 kg
	8	2	08 - Bearing housing	0.01 kg
	9	2	09 - Main pulley spacer	0.003 kg
	10	3	10 - Rexroth 20x20x100mm	0.041 kg
	11	2	11 - Diameter 8 shaft	0.014 kg
	12	1	12 - Nema 17 brake (SWB-01)	0.018 kg
	13	1	13 - Nema 17 double shaft 0.9° (17HM19-1684D)	0.412 kg
	14	1	14 - Nema 17 simple or double shaft 0.9° (17HM19-1684D)	0.32 kg
B	15	2	15 - Pulley 16T	0.003 kg
	16	1	16 - Pulley 60T	0.043 kg
	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 motor support	0.007 kg
	23	1	24 - Counterweight Support	0.028 kg
A	24	2	25 - Ethernet connectors (MRJ538401)	0.008 kg
	25	2	26 - Harmonic/Vixen plug	0.061 kg
	26	2	27 - Harmonic skirt (3D printed)	0.024 kg
	27	1	28 - Vixen clamp (Neewer QR011)	0.155 kg

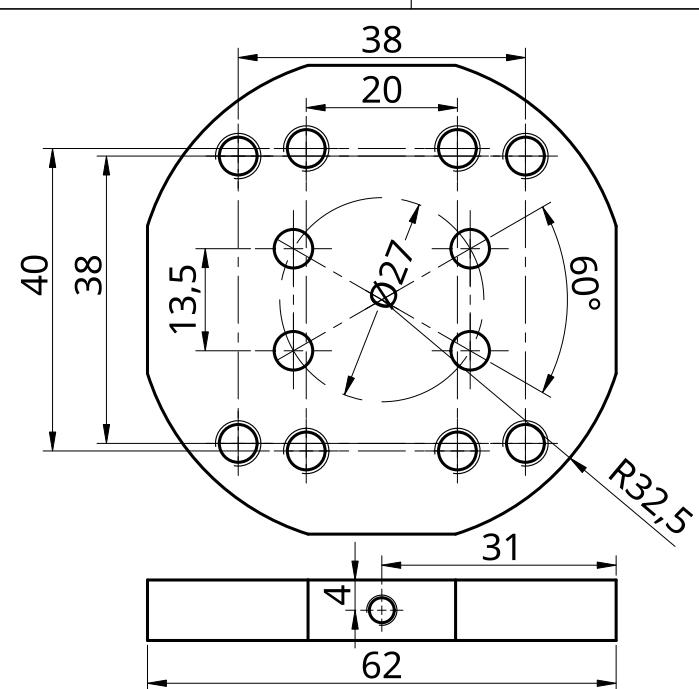
D	Item	Quantity	Description	Mass
	28	1	29 - (Optional) Polar viewfinder support (Neewer LS-15)	0.027 kg
	29	1	30 - (Optional) QHY Polemaster	0.065 kg
	30	4	Hex socket head cap screw M3x0.50 x 10 Stainless Steel	0.001 kg
	31	3	Hex socket head cap screw M3x0.50 x 20 Stainless Steel	0.002 kg
	32	16	Hex socket head cap screw M3x0.50 x 6 Stainless Steel	0.001 kg
	33	4	Hex socket head cap screw M4x0.70 x 10 Stainless Steel	0.002 kg
	34	12	Hex socket head cap screw M4x0.70 x 16 Stainless Steel	0.003 kg
	35	4	Hex socket head cap screw M6x1.00 x 10 Stainless Steel	0.005 kg
	36	8	Socket button head screw M4x0.7 x 16 Stainless Steel	0.002 kg
	37	16	Socket button head screw M5x0.8 x 10 Stainless Steel	0.002 kg
	38	4	Socket button head screw M5x0.8 x 16 Stainless Steel	0.003 kg
	39	2	Socket button head screw M5x0.8 x 25 Stainless Steel	0.005 kg
	40	10	Socket button head screw M5x0.8 x 8 Stainless Steel	0.002 kg
	41	8	Socket button head screw M6x1 x 16 Stainless Steel	0.005 kg
	42	1		



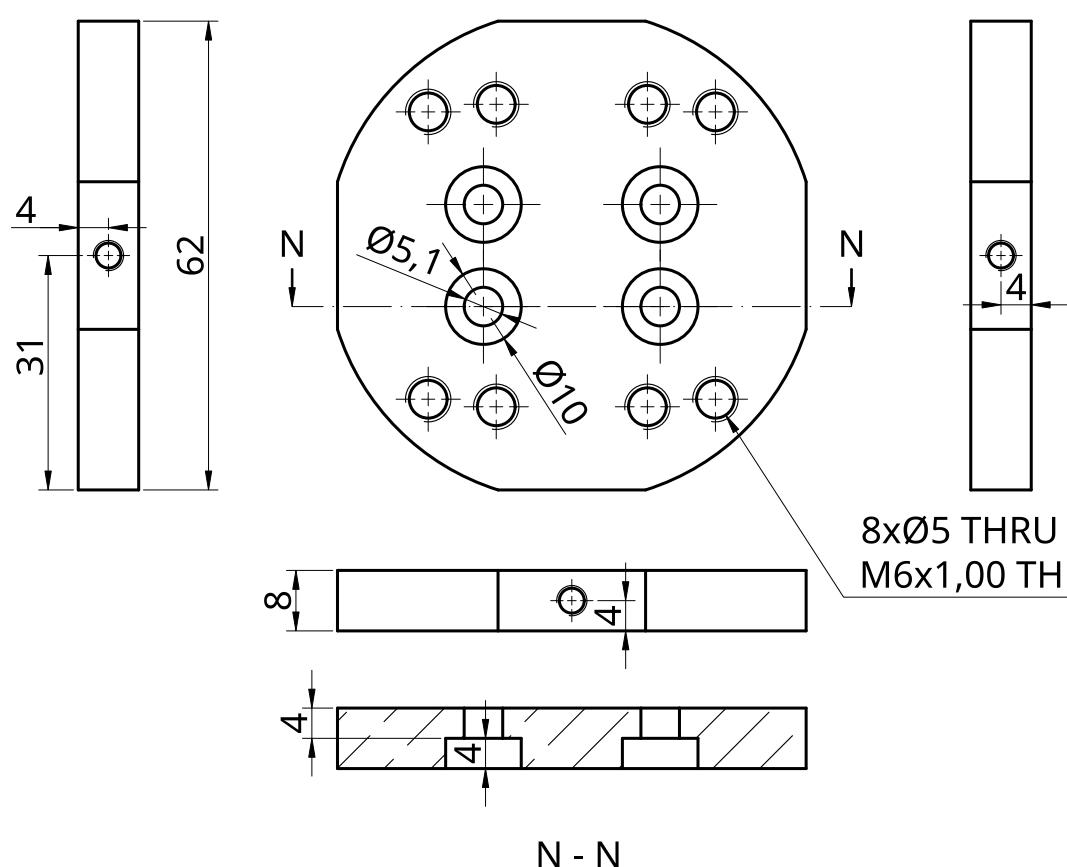
6



5

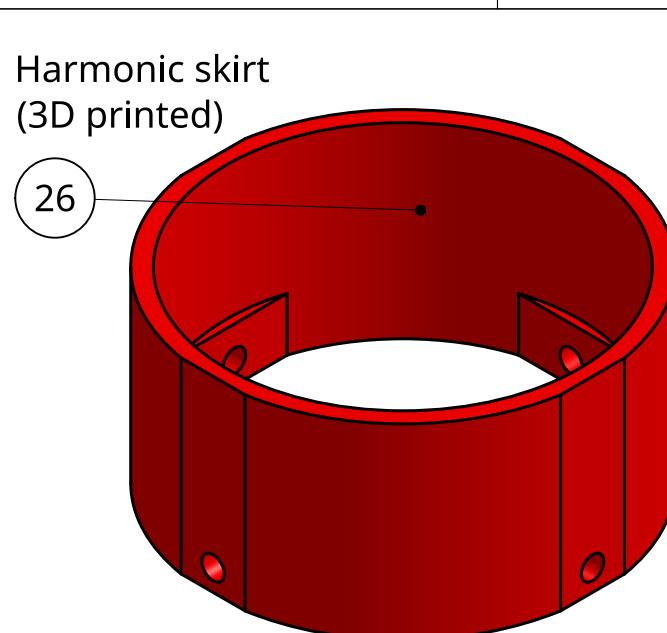


4

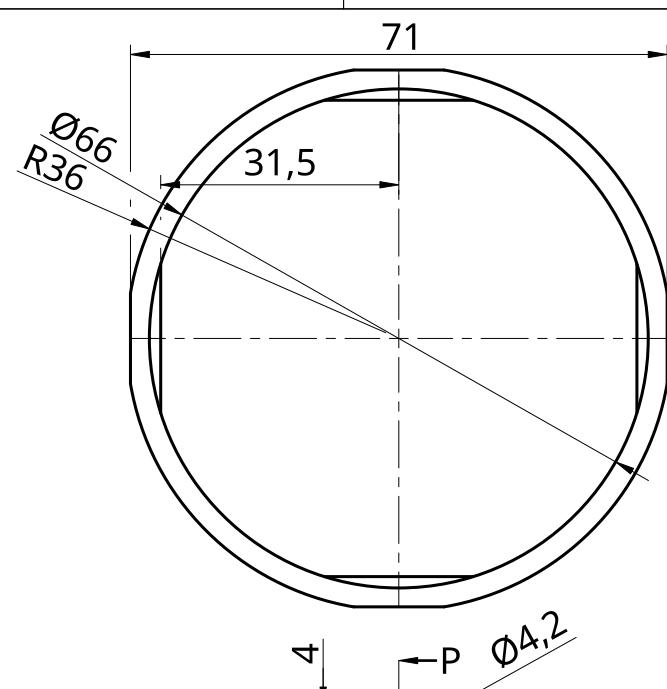


D

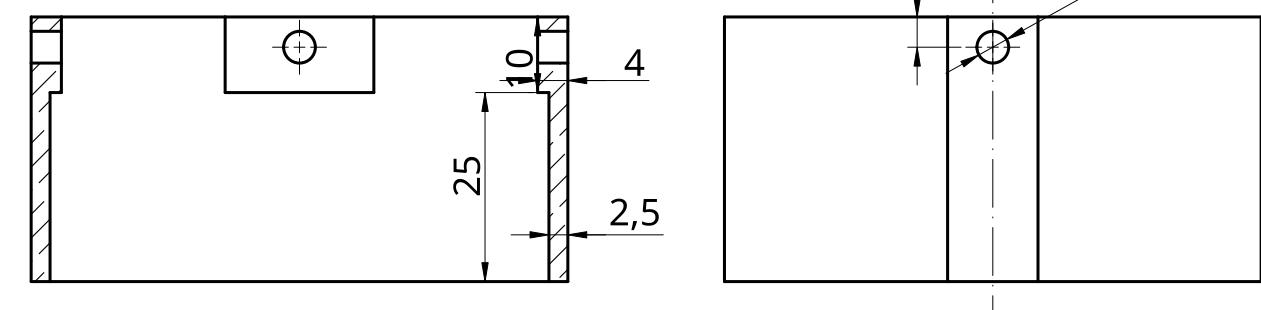
3



2

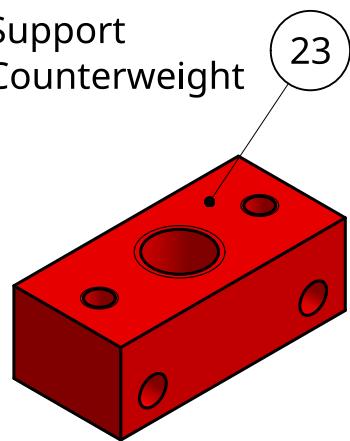


1

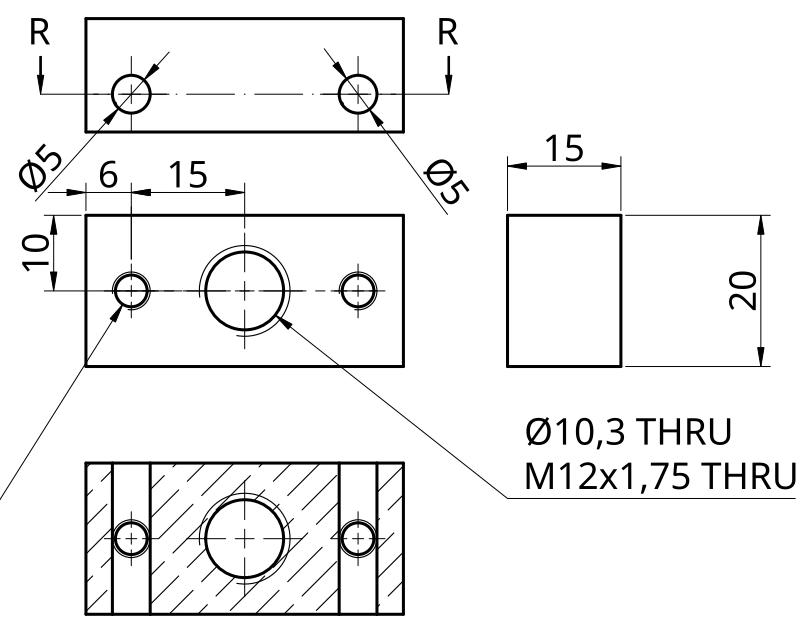


D

Support Counterweight



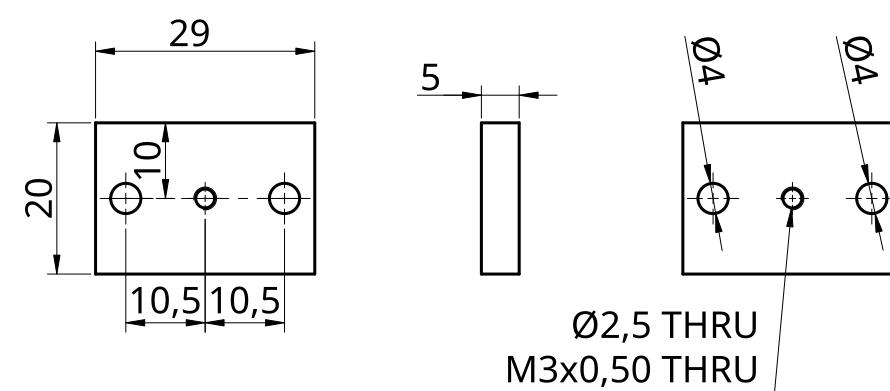
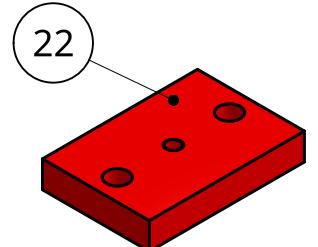
Ø4,2 THRU
M5x0,80 THRU



B

B

Spacer support



A