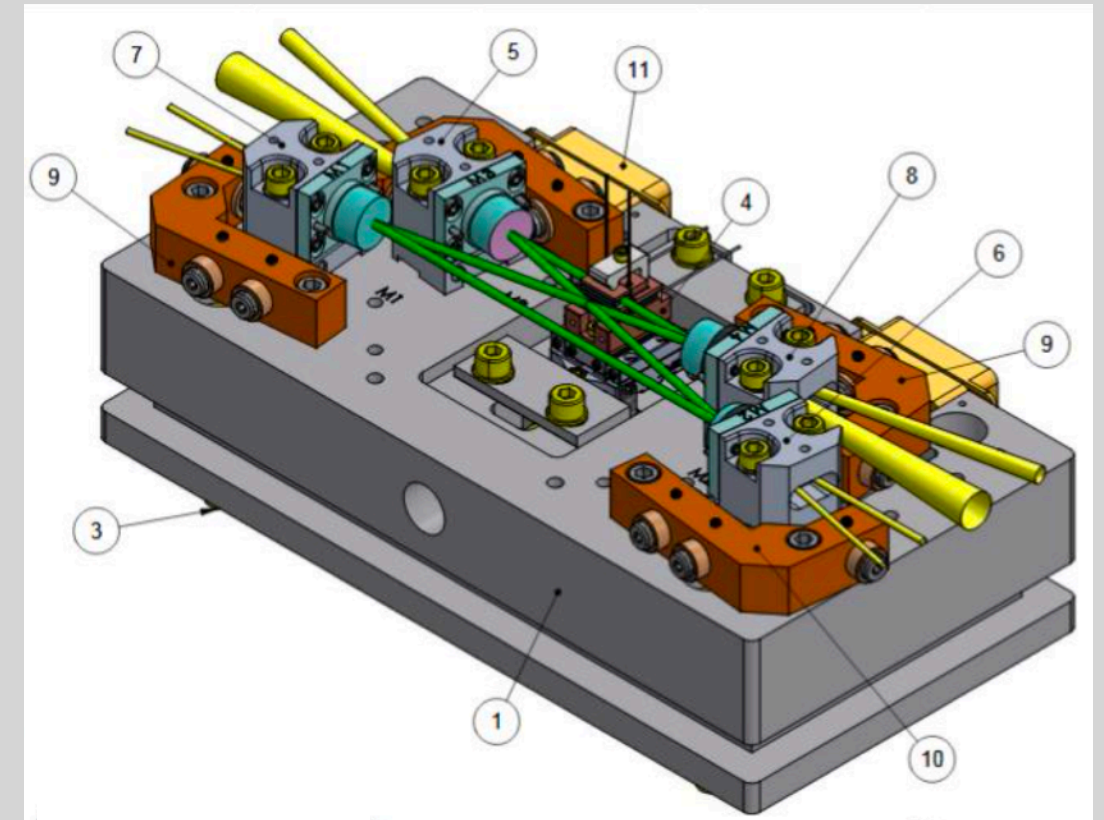
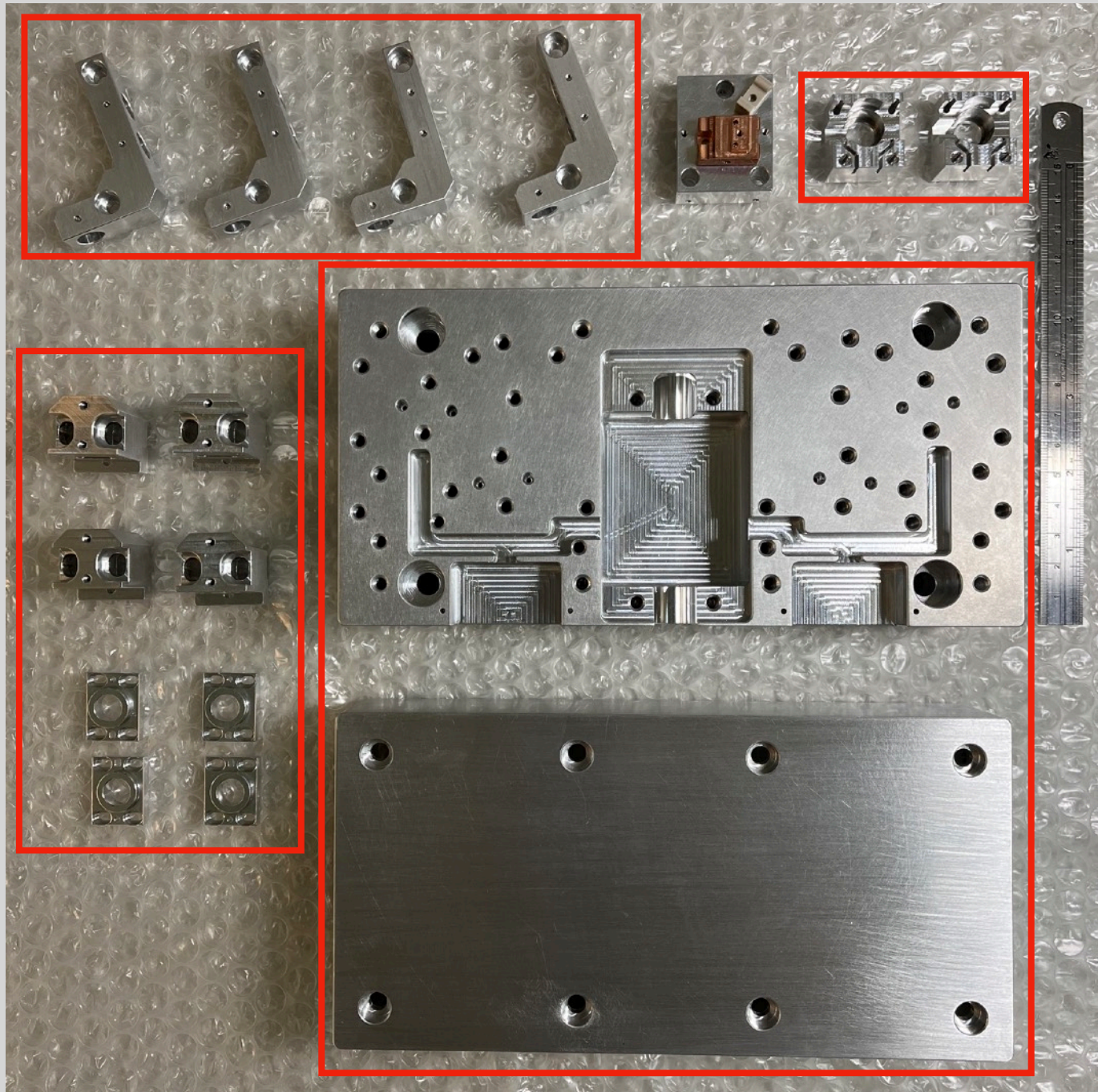


VOPO Cavity Design Update

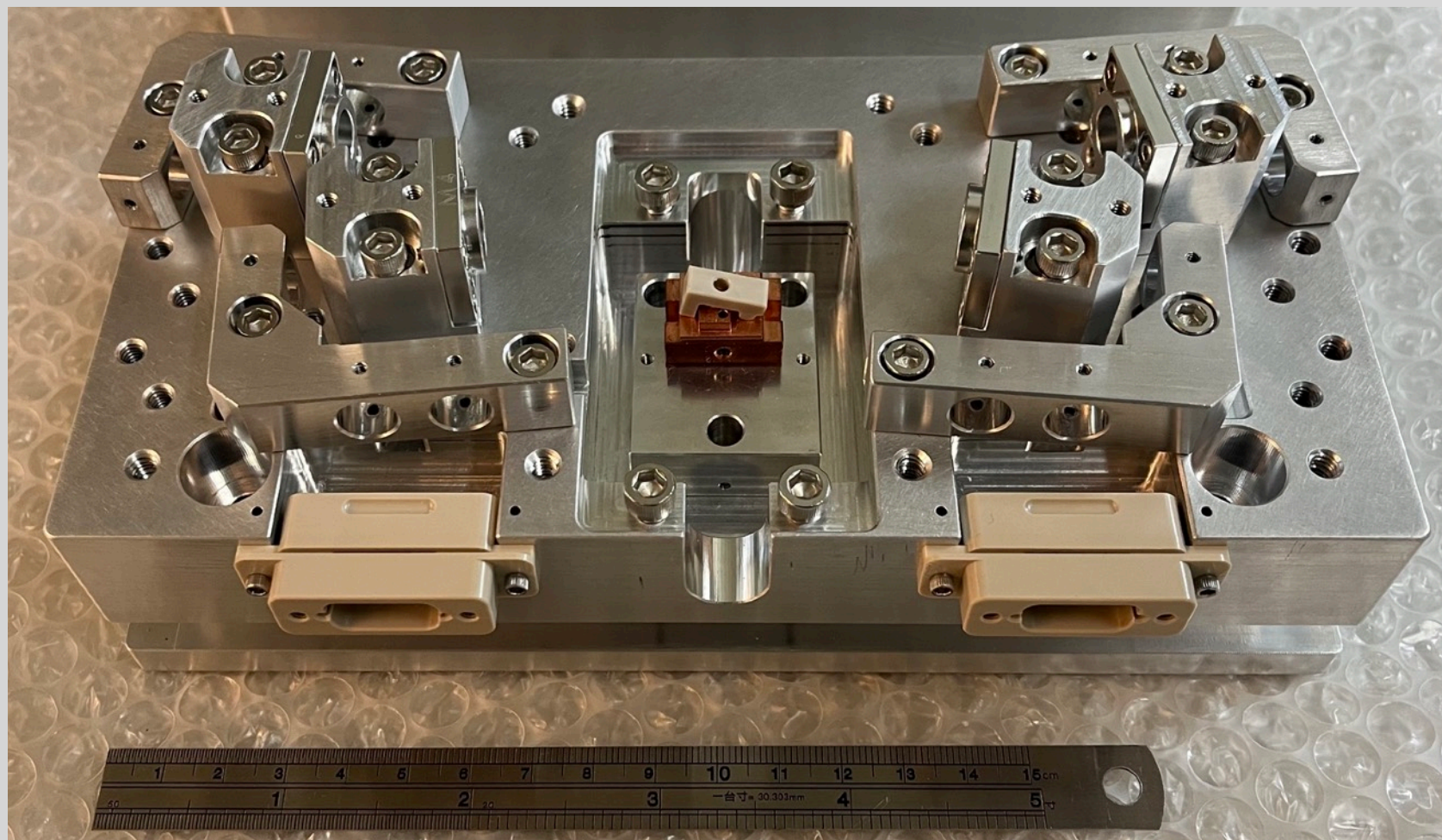
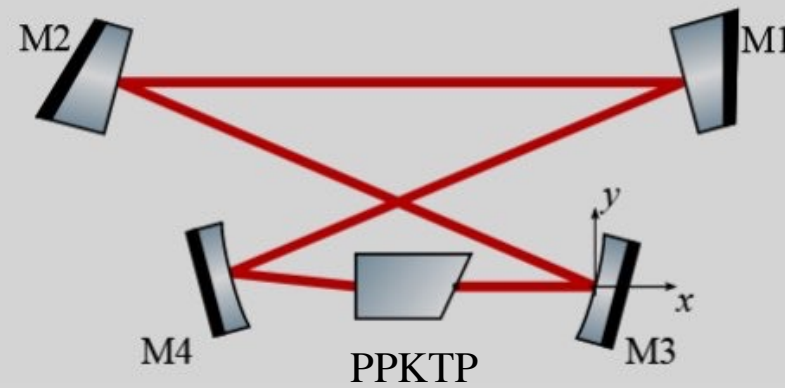
VOPO Cavity Mechanical pieces



ITEM NO.	PART NUMBER	Additional Description	QTY.	With Tooling/QTY.
1	D1600059 VOPO Cavity Base Board	-	1	1
2	UCC WFV-25, Flat Washer, Vented, 0.255 ID, 0.468 OD, 0.032 THK	Washer for item number 3	4	4
3	92196A548	1/4"-20 x 1-3/4" 18-8 Stainless Steel Socket Cap Screw - Holo-Krome 78068	4	4
4	D1500300 aLIGO VOPO Oven	-	1	1
5	D1500299-103 VOPO Mirror Mount Assembly	-	1	1
6	D1500299-102 VOPO Mirror Mount Assembly	-	1	1
7	D1500299-101 VOPO Mirror Mount Assembly	-	1	1
8	D1500299-104 VOPO Mirror Mount Assembly	-	1	1
9	D1500301-102 VOPO Alignment Bracket Assembly	-	-	2
10	D1500301-101 VOPO Alignment Bracket Assembly	-	-	2
11	112125 AGP	Accuglass panel mount D9 (male) connector	2	2
12	HOLOKROME_78004	#2-56 x 1/4" SS SHCS	4	4
13	McMaster_90145A481, Pin 1/8" (.1251) x 7/16"	Pin between mirror mount assembly and baseplate	8	8
14	New VOPO Beam	-	1	1
15	Cavity Beam Out	-	1	1
16	D1600060 Cap Assembly	-	1	-
17	D1600125 aLIGO VOPO Cavity Wire Cover	-	2	-
18	HOLOKROME_78026	#8-32 x 3/8" SS SHCS	4	-

- All dimensions and screw hole size are made in imperial unit.
- All pieces are made of aluminum (6061-T6), except VOPO oven.

Bow-tie geometry configuration of VOP0 cavity



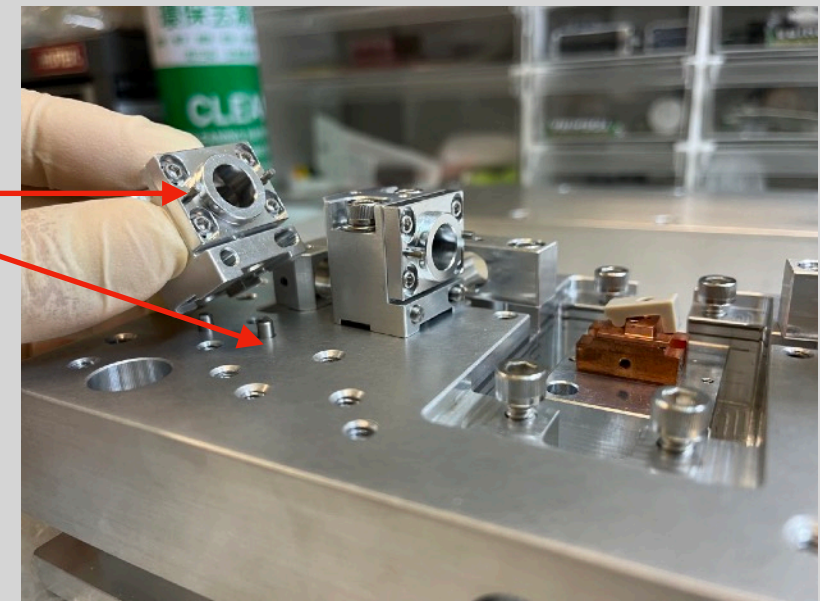
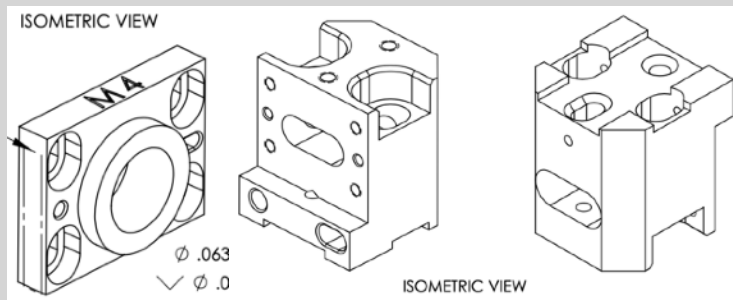
- M1, thickness: 6.35 mm, wedge: 30 arc-minutes, no PZT
- M2, thickness: 3.175 mm, mounted on PZT
- M3, thickness: 6.35 mm, ROC: 50 mm, no PZT
- M4, thickness: 6.35 mm, ROC: 50 mm, mounted on PZT

VOPO Cavity Assembly

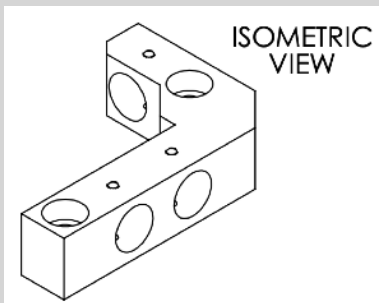
Mirror Plate



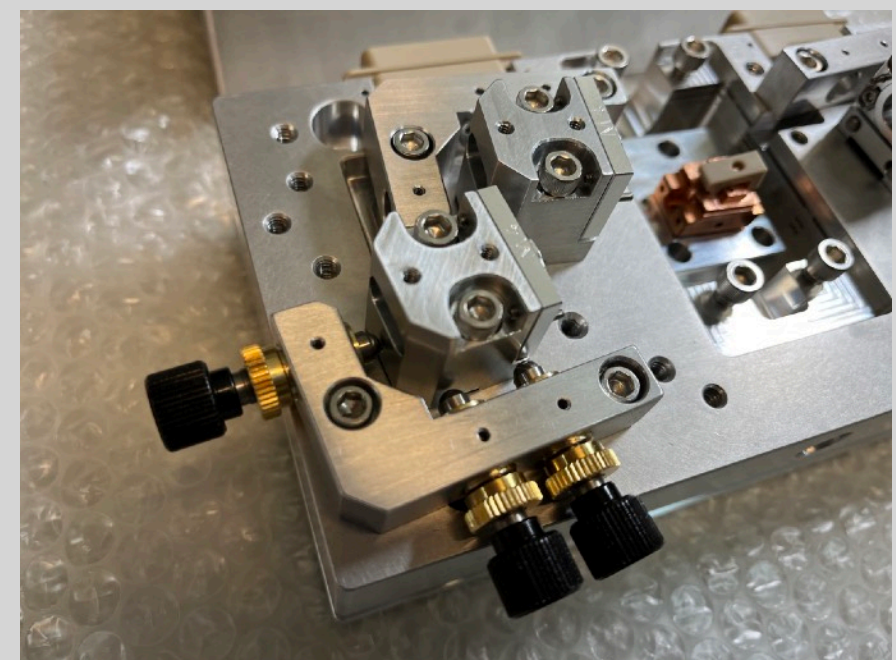
Mirror Mount



Alignment Bracket

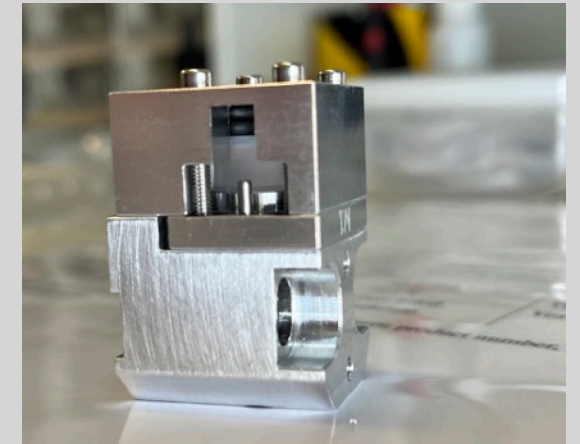
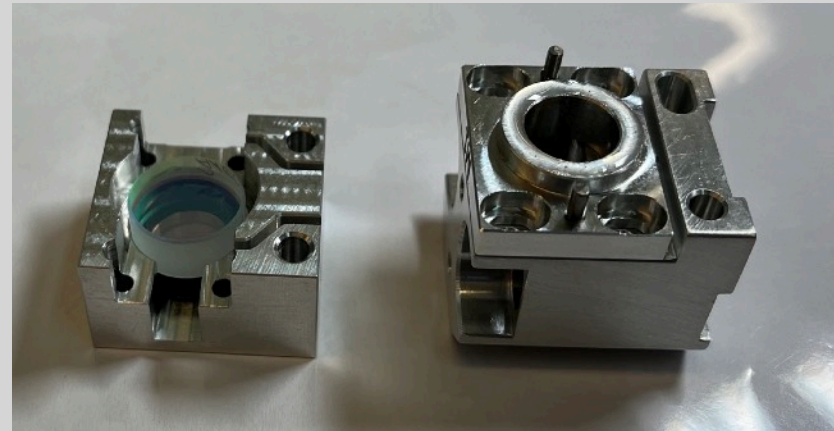


Fine Thread Adjustment Screw



Procedure for the gluing of the VOPO mirrors

M3, thickness: 6.35 mm, no PZT.



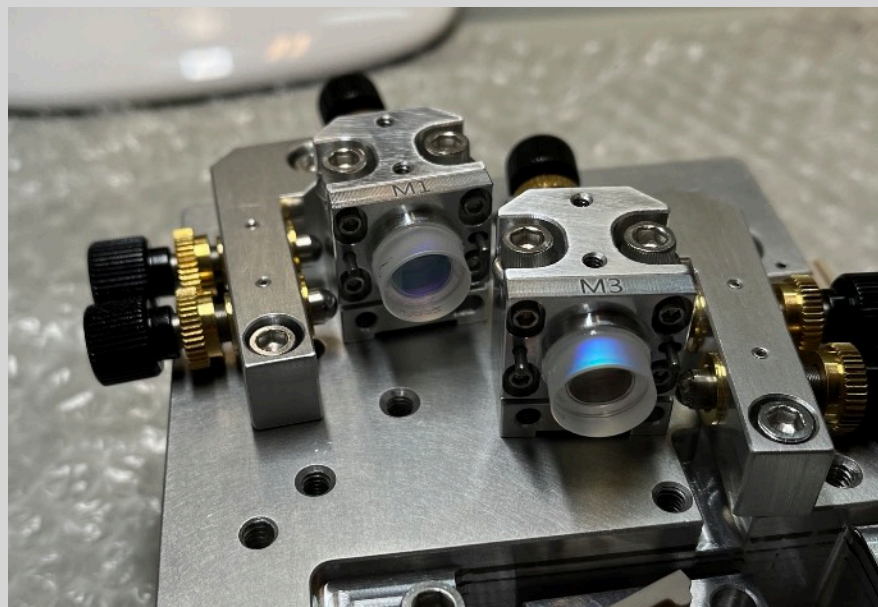
Viton O-ring 3/8" 1/2"



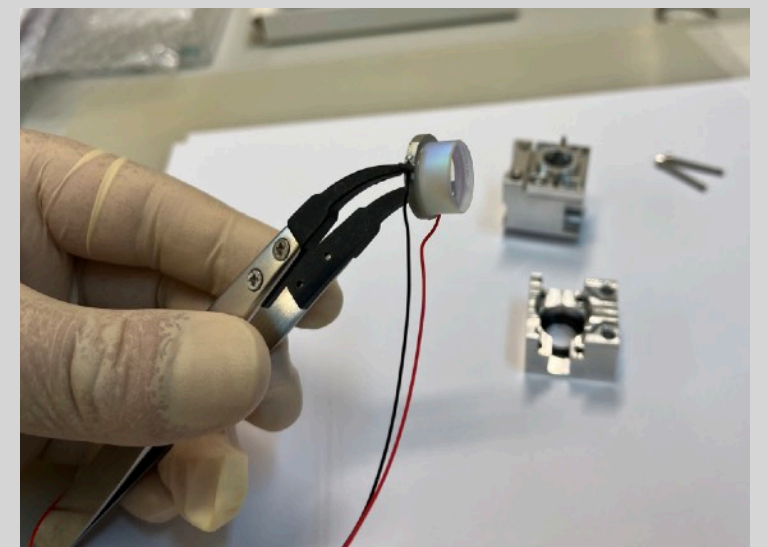
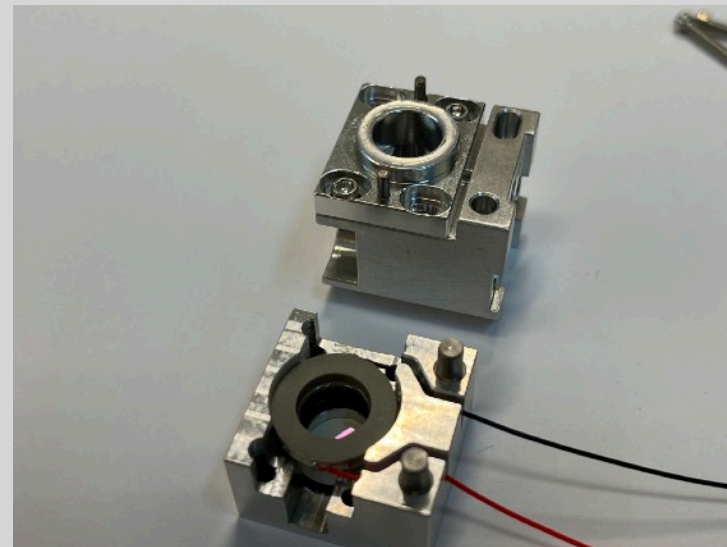
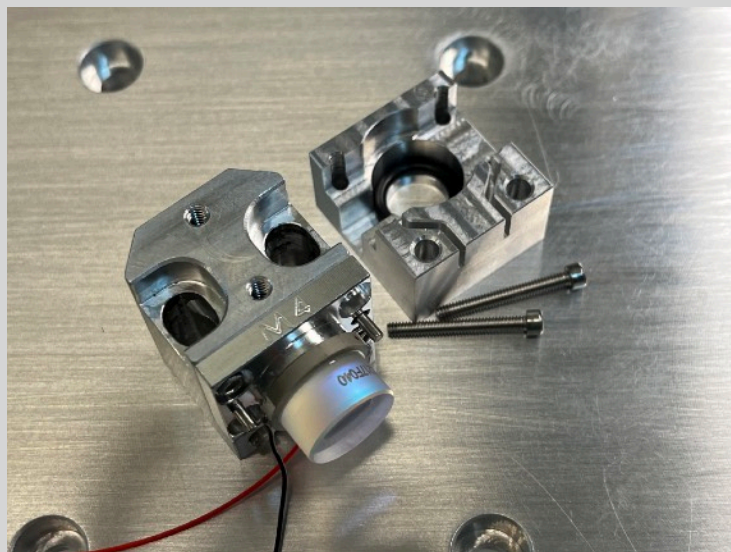
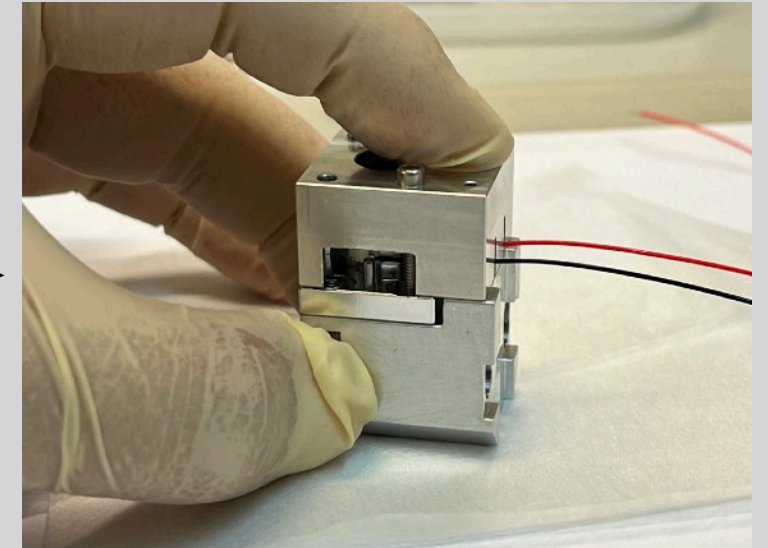
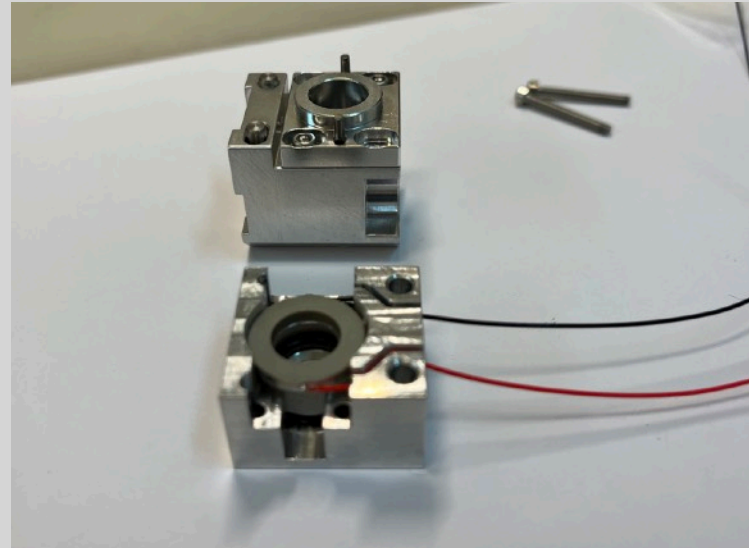
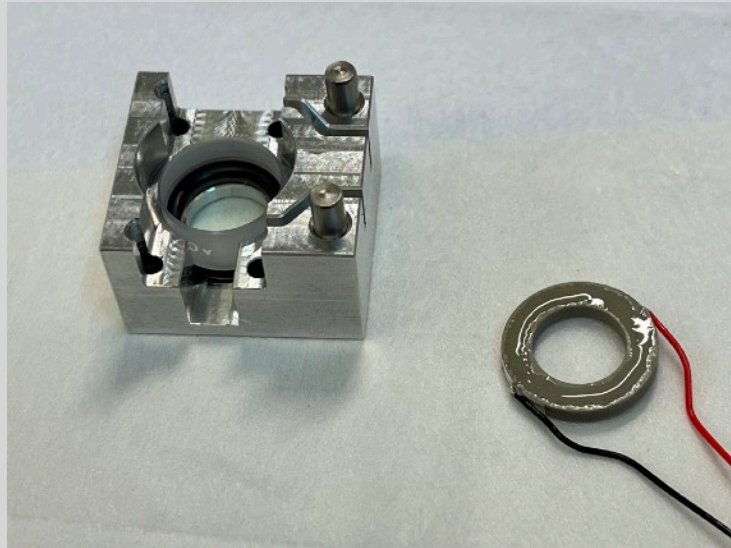
Industrial grade epoxy adhesive



After 24 Hours

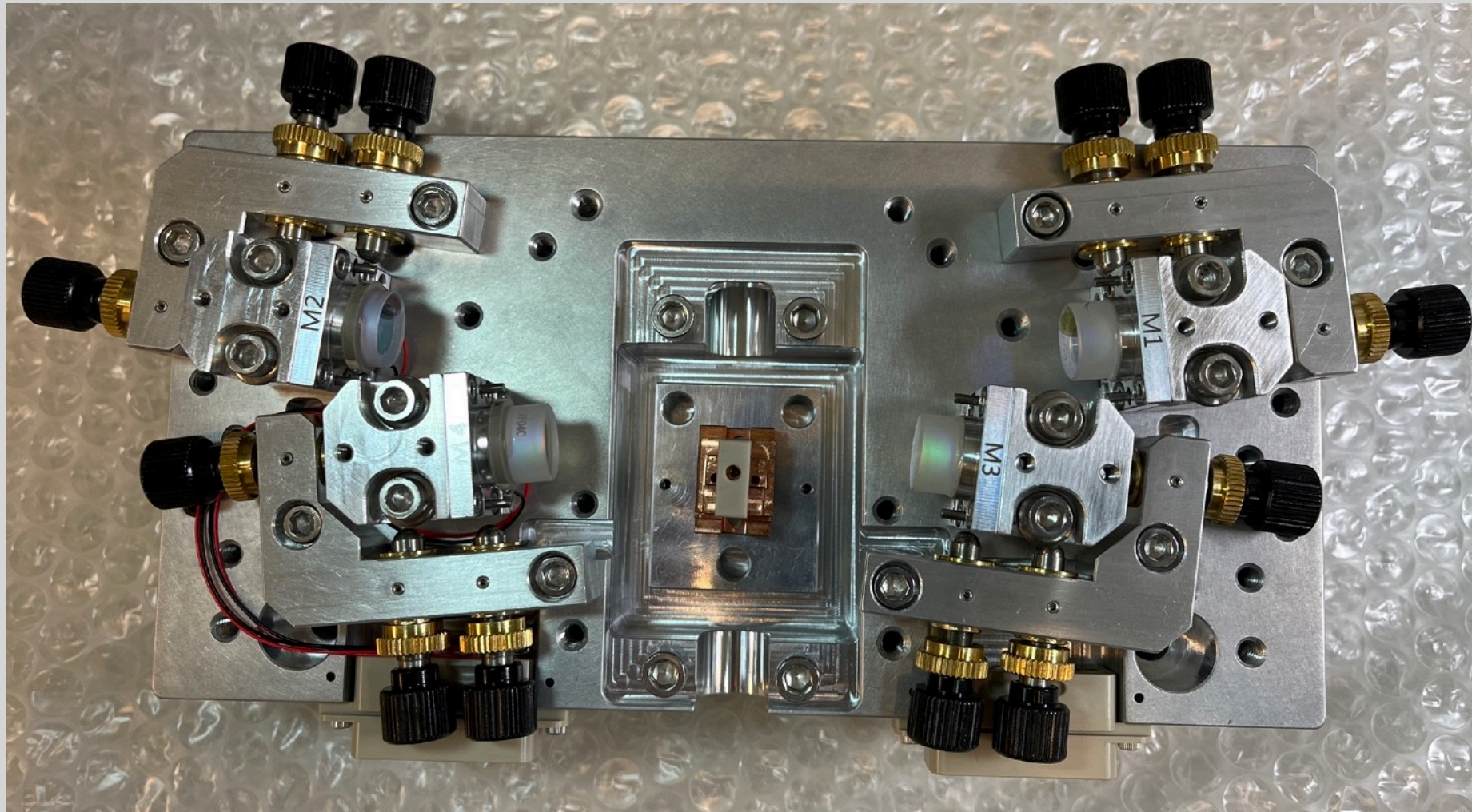
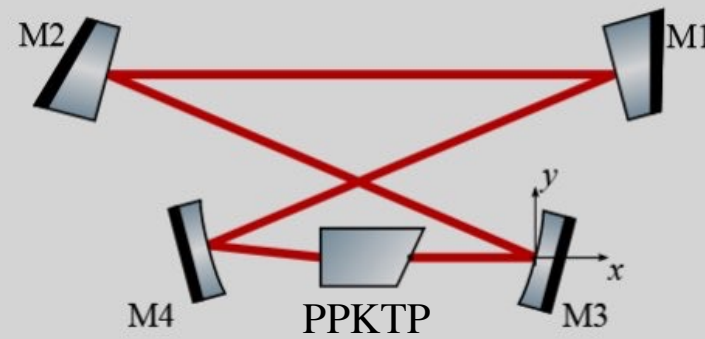


Procedure for the gluing of the piezo actuators



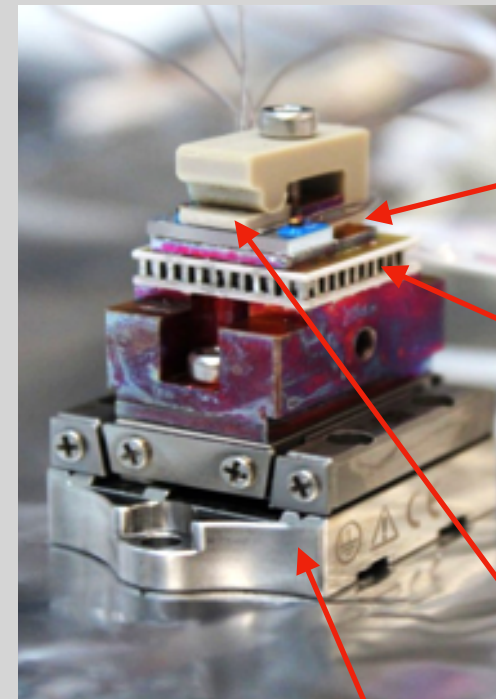
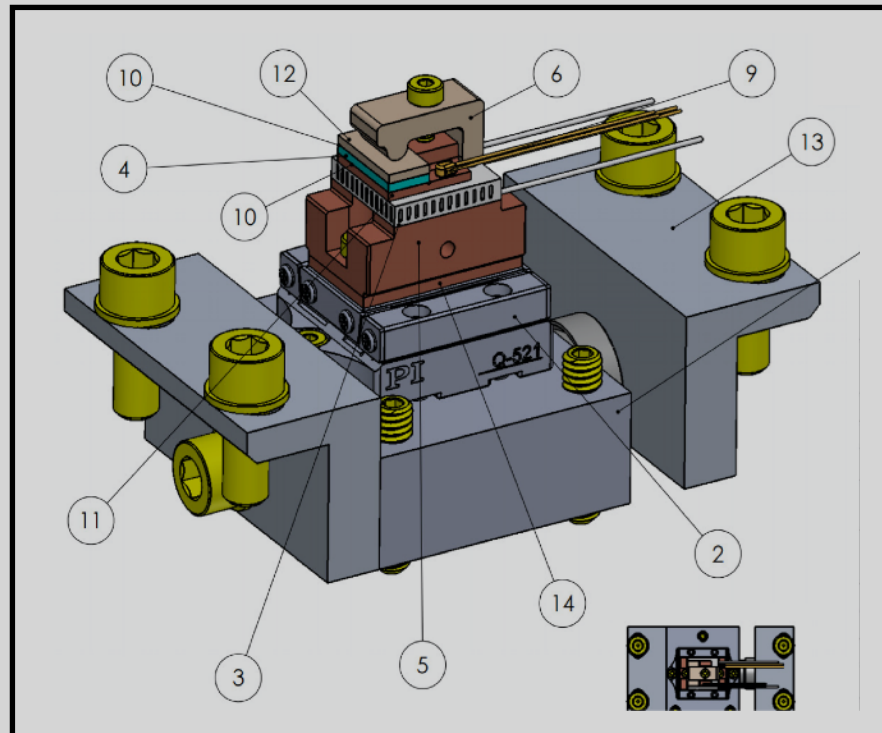
The ring piezo actuator NAC2124 can reach full performance at low operating voltage.
Out / Inner diameters 15mm/9mm, height 2mm.

Bow-tie geometry configuration of VOPPO cavity

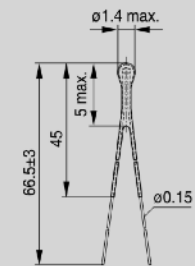


- M1, thickness: 6.35 mm, wedge: 30 arc-minutes, **no** PZT
- M2, thickness: 3.175 mm, mounted on PZT
- M3, thickness: 6.35 mm, ROC: 50 mm, **no** PZT
- M4, thickness: 6.35 mm, ROC: 50 mm, mounted on PZT

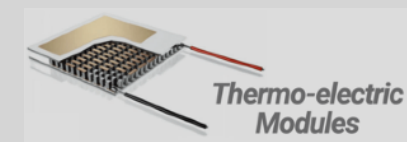
Procedure of the oven for PPKTP crystal



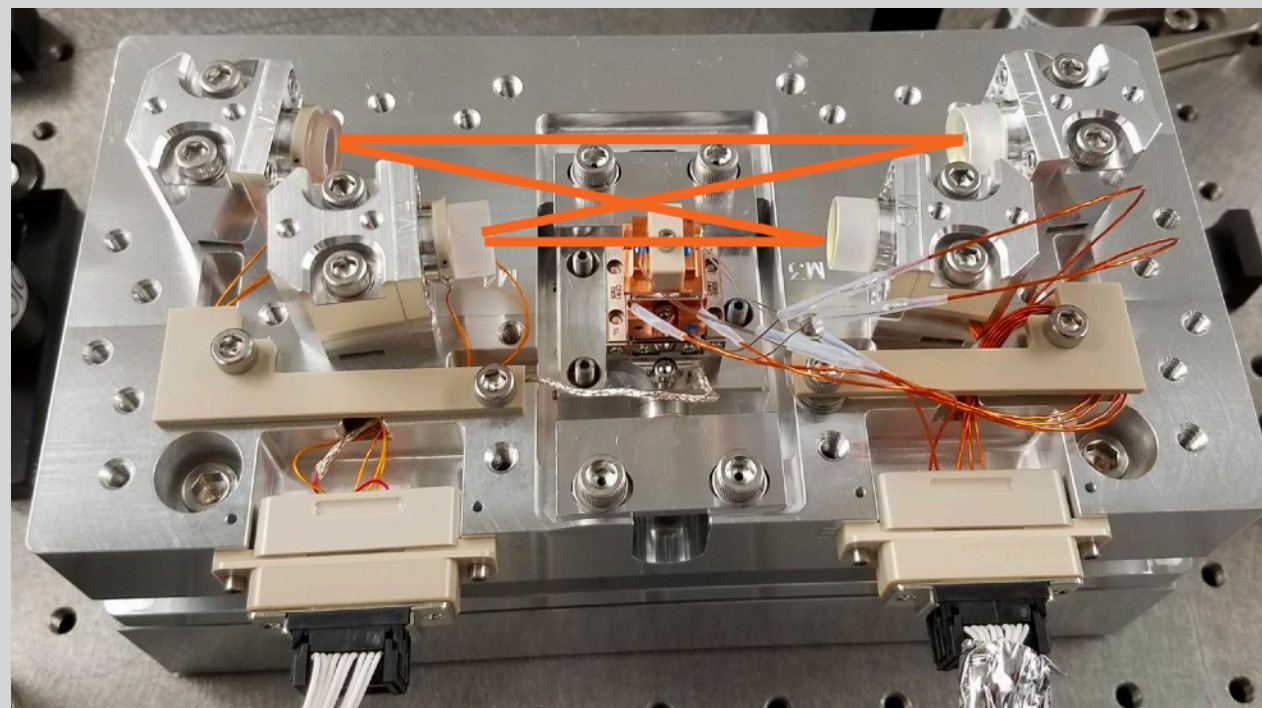
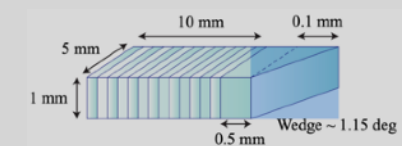
Glass-encapsulated sensor



Peltier



PPKTP (Raicol Crystals)



aLIGO VOPO Cavity

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Smallest Linear Stage with Position Control, High Resolution and Affordable Price

PI

Q-521

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- Encoder resolution up to 1 nm
- Minimum incremental motion down to 30 nm
- Multi-axis system setups with adapter plate or bracket (available as an option)

