

## **PHI-PKMM**

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### **ABSTRACT**

The DS describes the main features of the PHI-PKMM 'Precision Kinematic Mirror Mounts'. It includes technical data and drawings.

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### **REVISION HISTORY**

List of changes from original release to current revision.

*NOTE: Page numbers for previous revisions may differ from page numbers in the current version.*

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## CONTENTS

1. FEATURES .....	3
2. APPLICATIONS .....	3
3. DESCRIPTION .....	3
4. DIMENSION .....	4
5. MOUNTING AND TUNING .....	4
6. MECHANICAL COMPONENTS AND DOF .....	5
7. TECHNICAL DATA .....	7

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## LIST OF FIGURES

Fig. 1, Views of the PHI-PKMM .....	3
Fig. 2: Main dimensions of the PHI-PKMM (Precision Kinematic Mirror Mounts) .....	4
Fig. 3: Mechanical interfaces .....	4
Fig. 4: Grub screw (pitch:0.25 mm) to tune lens tilting .....	5
Fig. 5 : Coding guide.....	6
Fig. 6 : PHI-PKMM .....	6
Fig. 7 : PHI-PKMM DOFs .....	6

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## LIST OF TABLES

Tab. 1: Main dimensions of the PHI-PKMM (Precision Kinematic Mirror Mounts).....	4
Tab. 2 : Mechanical components of PHI-PKMM .....	5
Tab. 3: technical data .....	7

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## 1. Features

- 2 tilting degrees of freedom
- Travel range  $\pm 2.8^\circ$
- High precision
- No backlash
- No need for lubricant
- Tilting along the lens diametral axis
- Monolithic body
- Flexural joints

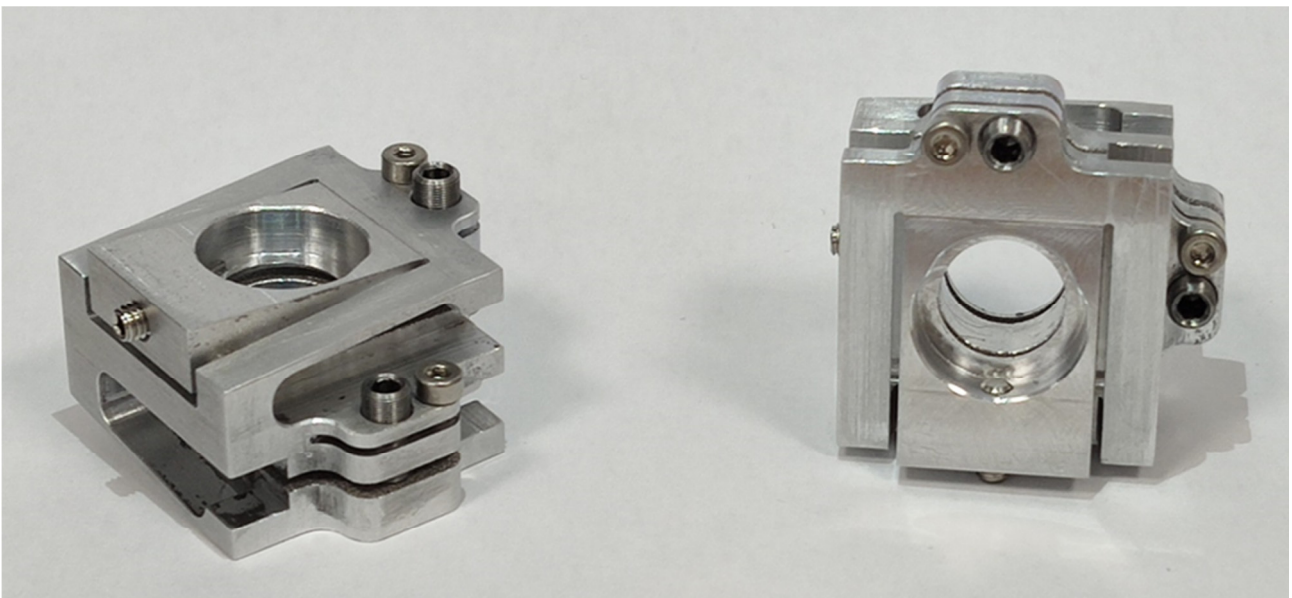
## 2. Applications

- Precision mounting and adjusting
- Optics and laser applications

## 3. Description

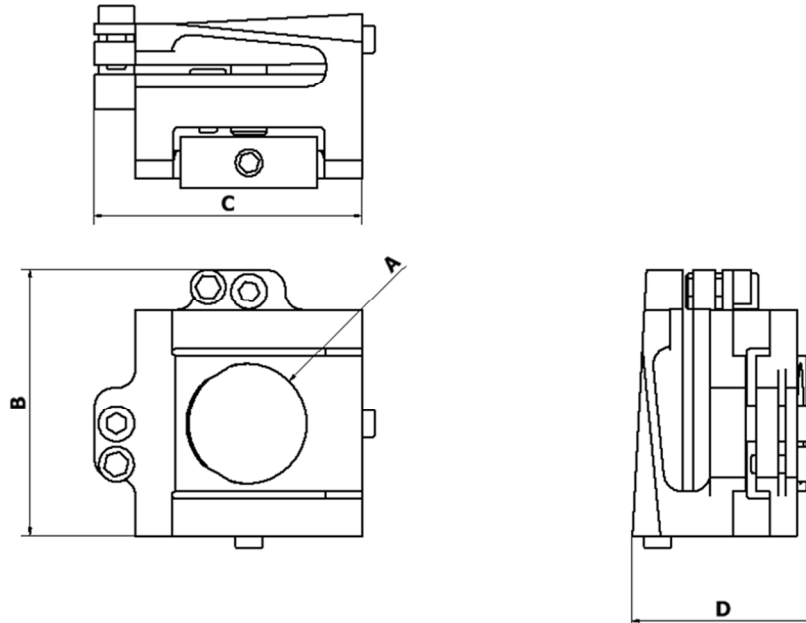
The PHI-PKMM is a Precision Kinematic Mirror Mounts composed by a monolithic Ergal body. The monolithic body avoid all misaligned assembly and increase the stability of the component. The movements along two tilting axis are performed by flexural beams that avoid all plays and backlashes, in addition, they allow the rotation along the axes of the lenses.

**Fig. 1,** Views of the PHI-PKMM



## 4. Dimension

**Fig. 2:** Main dimensions of the PHI-PKMM (Precision Kinematic Mirror Mounts)

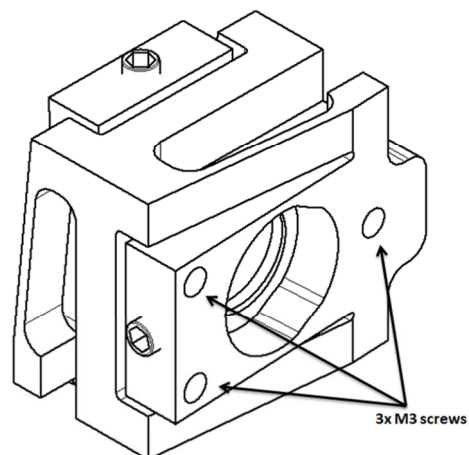


**Tab. 1:** Main dimensions of the PHI-PKMM (Precision Kinematic Mirror Mounts)

A		B		C		D	
LENS DIAMETER							
0.5	[inch]	29.5	[mm]	29.5	[mm]	20.08	[mm]
1	[inch]	43.2	[mm]	43.2	[mm]	22.76	[mm]

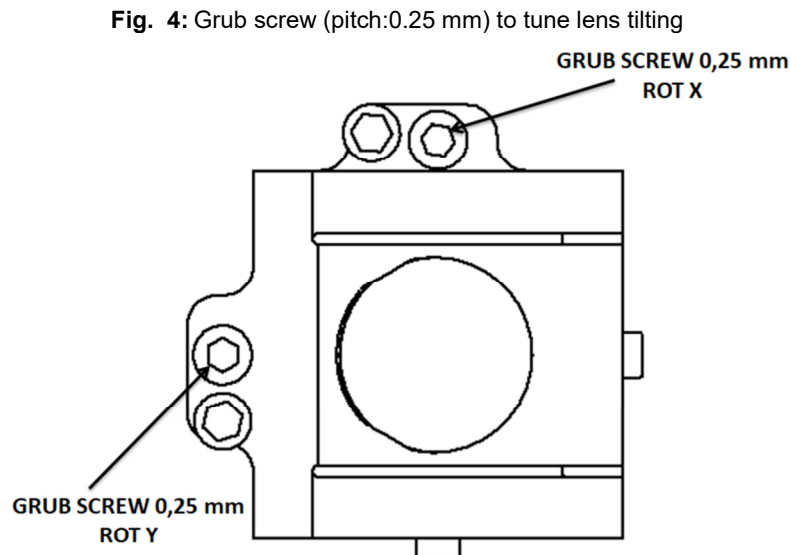
## 5. Mounting and tuning

**Fig. 3:** Mechanical interfaces



The two degree of tilting of the PHI-PKMM are adjusted by two grub screw frontally mounted as illustrated in Fig. 4.

Each grub screw has a pitch of 0.25mm to augment the tuning resolution of the tilting D.O.F.s



## 6. Mechanical components and DOF

The PHI-PKMM is composed by a monolithic body of Ergal, a special aged aluminum with high tensile strength.

The movements along the two tilting D.O.F.s are based on two flexural beams that avoid all play and backlash.

**Tab. 2 :** Mechanical components of PHI-PKMM

CODE	DESCRIPTION	DOF	TRAVEL RANGE	RESOLUTION*	NOTES	LENS DIAMETER
PH-TS10-0001	Tilting stage	2 D.O.F <ul style="list-style-type: none"> <li>• ROT X;</li> <li>• ROT Y.</li> </ul>	±2.8 deg	0.55 deg/turn		0.5'
PH-TS10-0002	Tilting stage	2 D.O.F <ul style="list-style-type: none"> <li>• ROT X;</li> <li>• ROT Y.</li> </ul>	±2.8 deg	0.55 deg/turn		1'

*\*mechanical resolution: intended as tilting degree versus a turn of the adjusting grub screw*

Fig. 5 : Coding guide

Name: PHI-PKMM

Commercial code: **PH-TS10-0001** → 2 d.o.f. Manual Rot X and Rot Y  
→ Tilting Stage

Fig. 6 : PHI-PKMM

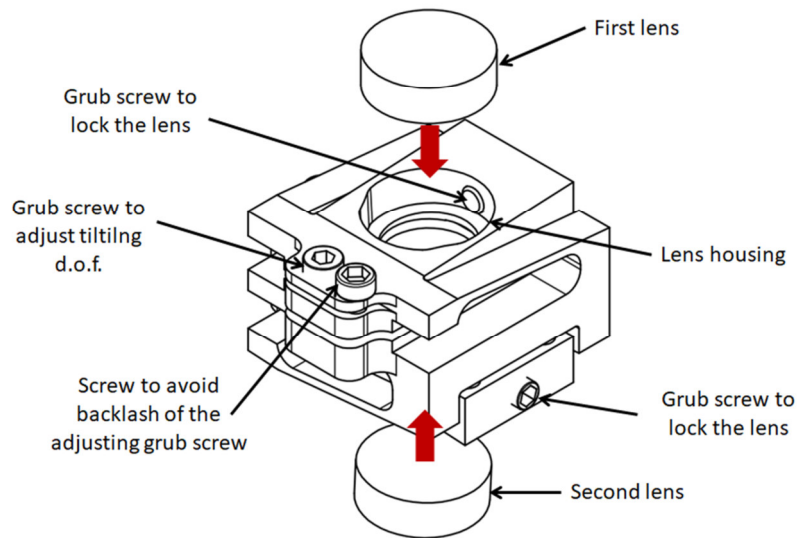
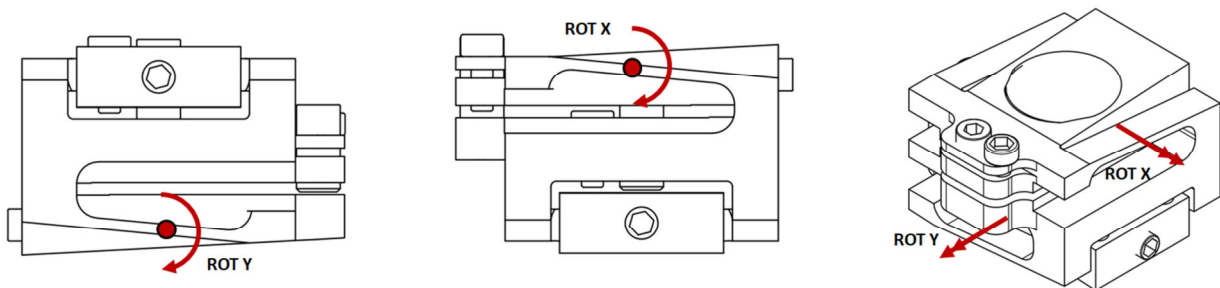


Fig. 7 : PHI-PKMM DOFs



## 7. Technical data

**Tab. 3:** technical data

		Lens: Ø 0.5'	Lens: Ø 1'	
<b>ROT X range</b>		±2.8	±2.8	[deg]
<b>ROT Y range</b>		±2.8	±2.8	[deg]
<b>Stage mass</b>		19	38	[gr]
<b>Dimensions</b>		29.5X29.5X20.08	43.2X43.2X22.76	[mm]
<b>Materials</b>	body	Ergal 7075	Ergal 7075	-
	screws	Inox	Inox	-

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**NOTES:**

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