



## ACCESSORIES

# Alvium IP Housing Kits User Guide

V1.1.1

Note: Cameras, lenses, and cables not part of this product.

**Quick links**

- [This document at a glance](#) on page 9
- [Contact us](#) on page 11
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# Read before use

## EN - English

### Safety

Before using the product, read these safety instructions. Observe the warnings at all times. Use the product only as stated in the [Intended use](#) on page 18.

**CAUTION****Injury by a falling product**

The falling product can cause injury.

### Intended use

Intended use of Allied Vision product is the integration into vision systems by professionals. All Allied Vision product is sold in a B2B setting.

## DA - Dansk

### Sikkerhed

Læs sikkerhedsanvisningerne, før produkt bruges. Overhold alle advarsler. Brug kun produkt som anført i [Intended use](#) på side 18.



#### FORSIGTIG

##### Kvæstelser, hvis produkt falder ned

Falder produkt ned, kan dette forårsage kvæstelser.

### Tilsigtet brug

Allied Vision produktets tilsigtede brug er en indbygning i et visionssystem, udført af fagfolk. Alle Allied Vision produkter sælges i B2B.

## DE - Deutsch

### Sicherheit

Bevor Sie das Produkt benutzen, lesen Sie diese Sicherheitshinweise. Beachten Sie diese Hinweise immer. Verwenden Sie das Produkt nur wie beschrieben in [Intended use](#) auf Seite 18.



#### VORSICHT

##### Verletzung durch das fallende Produkt

Das fallende Produkt kann Verletzungen verursachen.

### Bestimmungsgemäßer Gebrauch

Allied Vision Produkte sind bestimmt für die Integration in Bildverarbeitungssysteme durch Fachpersonal. Alle Allied Vision Produkte werden in einer B2B-Umgebung verkauft.

## ES - Español

### Seguridad

Antes de utilizar el producto lea estas instrucciones de seguridad. Observe las advertencias en todo momento. Utilice el producto solo tal y como se estipula en el [Intended use](#) en la página 18.



#### ATENCIÓN

##### **Lesiones en caso de que el producto se cae**

Si el producto se cae puede provocar lesiones.

### Uso previsto

El uso previsto del producto Allied Vision es la integración en el sistema de visión por parte de profesionales. Todos los productos Allied Vision se venden dentro de una relación B2B.

## FI - Suomi

### Turvallisuus

Lue nämä turvallisuusohjeet ennen tuotteen käyttöä. Noudata tuotetta joka hetki. Käytä tuotteen ainoastaan kohdassa [Intended use](#) sivulla 18 kuvatulla tavalla.



#### HUOMIO

##### **Putoavan tuotteen aiheuttamat vammat**

Putoava tuote voi aiheuttaa vammoja.

### Käyttötarkoitus

Allied Vision-tuotteen käyttötarkoitus on integrointi kuvajärjestelmiin ammattilaisten toimesta. Kaikki Allied Vision-tuotteet myydään B2B-ympäristössä.

## FR - Français

### Sécurité

Veuillez lire ces consignes de sécurité avant d'utiliser le produit. Respectez continuellement les avertissements. Utilisez le produit uniquement comme indiqué sous [Intended use](#), page 18.



#### ATTENTION

##### Blessures en cas de chute du produit

La chute de la produit peut entraîner des blessures.

### Utilisation prévue

L'utilisation prévue du produit Allied Vision est son intégration dans des systèmes de vision par le soin de professionnels. Tout produit Allied Vision est vendu dans un cadre B2B.

## HE - עברית

### בטיחות

לפני השימוש במוצר, עליך לקרוא את הוראות הביטחון האלו. עליך לממש הוראות ביטחון אלו תמיד. השימוש במצלמה הוא רק לפי מה שכתוב ב"כוונת השימוש" ([Intended use](#) בעמוד 18).

#### זהירות

##### פגיעה מנפילת המוצר

נפילת המוצר עלולה לגרום לפגיעה.



### שימוש מיועד

מוצרי AlliedVision מיועדים לשילוב במערכות ממוחשבת לעיבוד צילומים ע"י אנשי מקצוע. כל מוצרי AlliedVision נמכרים לשימוש בסביבת B2B.

## IT - Italiano

### Sicurezza

Leggere queste istruzioni per la sicurezza prima di utilizzare il prodotto. Osservare sempre tutte le avvertenze. Utilizzare il prodotto come descritto alla sezione [Intended use](#) a pagina 18.



#### ATTENZIONE

##### **Lesioni dovute alla caduta del prodotto**

Il prodotto può causare delle lesioni.

### Uso previsto

Il prodotto Allied Vision è concepito per essere integrato in sistemi di monitoraggio in campo professionale. Tutti i prodotti Allied Vision sono venduti in uno scenario B2B.

## JA - 日本語

### 安全性

本製品を使用する前に、この安全ガイドをお読みください。警告を必ず守ってください。必ず21ページの[Intended use](#) 18 ページに従って使用してください。



#### 注意

##### **製品の落下によるケガ**

本製品が落下すると、けがをするおそれがあります。

### 用途

Allied Vision製品は、専門家が視覚装置に統合することを意図したものです。すべてのAllied Vision製品は、企業間取り引き用に販売されています。

## NL - Nederlands

### Veiligheid

Lees deze veiligheidsinstructies voordat u het product gebruikt. Neem deze waarschuwingen altijd in acht. Gebruik het product uitsluitend, zoals aangegeven in het [Intended use](#) op pagina 18.



#### VOORZICHTIG

##### Letsel door het vallende product

Het vallende product kan verwondingen veroorzaken.

### Beoogd gebruik

Het beoogde gebruik van het Allied Vision-product is de integratie in optische systemen door professionals. Alle Allied Vision-producten worden verkocht in de B2B-markt.

## NO - Norsk

### Sikkerhet

Les disse sikkerhetsinstruksene før du bruker produkt. Følg advarslene til en hver tid. Bruk kun produkt i samsvar med [Intended use](#) på side 18.



#### FORSIKTIG

##### Skade ved det fallende produktet

Det fallende produktet kan forårsake skade.

### Tiltenkt bruk

Den tiltenkte bruken av Allied Vision-produktet er integrering i visjonssystemer av profesjonelle. Alle Allied Vision-produkter selges i en forretning til forretning-situasjon.

## SV - Svenska

### Säkerhet

Läs igenom säkerhetsinstruktionerna innan du använder produkten. Var hela tiden särskilt uppmärksam på varningarna. Använd enbart produkten på det sätt som anges i [Intended use](#) på sida 18.



#### VARNING

##### Risk för skador från fallande produkter

Fallande produkter kan förorsaka skador.

### Avsedd användning

Den avsedda användningen av Allied Vision-produkter är integrering i visionssystem av fackmän. Samtliga Allied Vision-produkter säljs i en B2B-miljö.

## ZH - 简体中文版

### 安全需知

在使用产品之前，请阅读这些安全说明。请务必遵守相关警告和 [Intended use](#) 于第 18 页。



#### 注意事项

##### 由坠落的产品造成的伤害

产品可能会坠落并造成伤害。

### 预期用途

Allied Vision 产品的预期用途是由专业人士整合到视觉系统中。所有 Allied Vision 的产品均通过 B2B 渠道销售。



## This document at a glance



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**Read this document carefully**

Learn to use Alvium IP Housing Kits in the most safe and efficient way and avoid damage to cameras and lenses.

## About Alvium IP Housing Kits

Alvium IP Housing Kits enable applications that require IP66 and IP67 protection. By absorbing moisture from the air, the included Desiccants Bag avoids condensation on cameras and lenses inside Alvium IP Housing Kits when temperature changes.

## Shipping contents

Each kit consists of 6 bags including the main components

- Camera Tube and Lens Tube
- Camera Mounting Ring
- Back Plate
- Cable Entry
- Seal Rings
- Screws (with threadlocker applied)
- Desiccant

For details, see [Alvium IP Housing parts list](#) on page 29.

## What else do you need?

**Screws to mount IP housing**

Mount IP housings to bases for heat dissipation. Purchase screws to suit the dimensions of your mounting base.

**Technical information and ordering**

For information about Allied Vision cameras, see [www.alliedvision.com/en/support](http://www.alliedvision.com/en/support).

For IP housings in this user guide, please contact Allied Vision Sales at [www.alliedvision.com/en/about-us/contact-us/contact-sales](http://www.alliedvision.com/en/about-us/contact-us/contact-sales).

# Contact us

## Website, email

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[info@alliedvision.com](mailto:info@alliedvision.com)

### Distribution partners

[www.alliedvision.com/en/avt-locations/avt-distributors](http://www.alliedvision.com/en/avt-locations/avt-distributors)

### Support

[www.alliedvision.com/en/support](http://www.alliedvision.com/en/support)

[www.alliedvision.com/en/about-us/contact-us/technical-support-repair/-/rma](http://www.alliedvision.com/en/about-us/contact-us/technical-support-repair/-/rma)

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# Document history and conventions



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## Document history

Version	Date	Remarks
V1.1.1	2025-Jul-10	Removed contents for ISO 13485 and updated definitions for <a href="#">Intended use</a> on page 18.
V1.1.0	2024-Sep-11	Added note about using foam graphite gaskets to improve <a href="#">Heat dissipation</a> on page 28.
V1.0.2	2024-Jul-24	Updated addresses in <a href="#">Contact us</a> on page 11.
V1.0.1	2023-Aug-25	<ul style="list-style-type: none"> <li>Added Hebrew contents to <a href="#">Read before use</a> on page 2.</li> <li>Corrected the letter for Camera Mounting Ring (f) in <a href="#">Figure 5</a> on page 32.</li> <li>Applied editorial changes.</li> </ul>
V1.0.0	2023-Jan-23	Release version

Table 1: Document history

## Conventions used in this user guide

To give this document an easily understood layout and to emphasize important information, the following typographical styles and symbols are used:

### Typographical styles

Style	Function
<b>Emphasis</b>	Highlighting important things
Features	Names for GenICam features
<a href="#">Web links and references</a>	Links to webpages and internal cross references

Table 2: Typographical styles

### Symbols and notes



#### CAUTION

##### Injury by falling products

Precautions are described

**NOTICE****Material damage**

Precautions are described.

**Practical tip**

Additional information helps to understand or eases handling the product.

**Additional information**

Web link or reference to an external source with more information is shown.



# Intended use and safety



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## Intended use

Allied Vision's objective is the development, design, production, maintenance, servicing and distribution of digital cameras and components for image processing. We are offering standard products as well as customized solutions.

Intended use of Allied Vision product is the integration into Vision systems by professionals. All Allied Vision product is sold in a B2B setting.

Unless expressly agreed otherwise, we design, manufacture, and supply in accordance with the standards of the machine vision industry.

In the event of requirements going beyond this, the customer must:

- Notify us of the special use for each model before the first order is placed so that the models in question can be separated out from the standard processes using their own part numbers, and
- Conclude a quality assurance agreement with us prior to purchasing, to define its requirements in a legally secure manner.

This may require a surcharge, as our prices are very tightly tailored to standard requirements.

## Your safety

### Mounting IP housings

IP housings must be mounted using the 4 mounting threads. Falling IP housings can hurt you. To avoid personal injury:

- Ensure proper mounting of IP housings to mounting bases.
- Apply threadlocker for screw connections.
- Especially for dynamic applications, observe the supported values confirmed by tests for [Shock and vibration](#) on page 21.
- Follow the instructions in [Mounting the Camera Tube and the lens](#) on page 37.

## Product safety

To prevent material damage, read the following to understand risks in using Alvium IP Housing Kits.

### Lenses and Lens Tube windows

For dynamic applications, the supported maximum lens mass is 70 g. See [Shock and vibration](#) on page 21.

Ensure the Lens Tube is large enough for your lens. Observe that some lenses increase length for various focus settings. With unsuitable lenses, the front element of lenses or the window of the Lens Tube can be damaged.

Protect the window of the Lens Tube from scratches. They may be out of lens focus or out of the angle of view, but direct light can cause unwanted flares.

### Joining tubes

If the tubes are screwed together at an angle, the threads can be damaged. We recommend you to rotate the Lens Tube and the Camera Tube against each other counterclockwise until you feel the threads engage before you rotate them clockwise to join them.

### Using seals

If seals are missing or have not been mounted properly, IP housings are not tight as specified. Ensure to use all seals as described in the instructions.

## Copyright and trademarks

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# Specifications



This chapter includes technical data for two IP housings:

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# Applied standards

## IP class

Alvium IP Housing Kits comply with IP66 and IP67 classes according to IEC 60529.

## Shock and vibration

Alvium IP Housing Kits were tested according to the following standards:

- IEC 60068-2-6, sinusoidal vibration testing
- IEC 60068-2-27, shock testing.

Cameras were inspected before and after the tests. All tests were passed successfully:

Condition	Passed
Mechanics	<ul style="list-style-type: none"> <li>• The camera housings showed no deformations.</li> <li>• The connections between camera components had not come loose.</li> <li>• The sensor position was within the specified tolerances of a new camera.</li> </ul>
Camera behavior	Camera functionalities were not affected, no deviations occurred.
Image streaming	Images were streamed without errors.

*Table 3: Conditions for passed tests*

The conditions for cameras and lenses were the same for all tests. Solid steel tubes were used to represent real lenses:

Parameter	Value
Lens dummy length	22 mm
Lens dummy mass	70 g
Center of gravity (CoG) <sup>1</sup>	14 mm

<sup>1</sup>For camera and lens dummy assemblies, measured from the lens mount front flange

*Table 4: Conditions for lenses*

## IEC 60068-2-6: Sinusoidal vibration

Frequency	Acceleration	Displacement
10 Hz to 58.1 Hz	Not applicable	1.5 mm
58.1 Hz to 500 Hz	20 g	Not applicable

Table 5: Frequency, acceleration, and displacement for IEC 60068-2-6 tests

Parameter	Value
Axis	x, y, z
Sweep rate	1 oct/min
Sweep duration per axis [hh:mm:ss]	09:00:00
Number of sweeps	20

Table 6: Other parameters for IEC 60068-2-6 tests

## IEC 60068-2-27: Shock

Parameter	Value
Axis	x, y, z
Acceleration	40 g
Number of shocks per axis	5000
Duration per axis	6 ms
Waveform	Half sine

Table 7: Parameters for IEC 60068-2-27 tests

# Alvium IP Housing D55 Kit

Alvium IP Housing D55 Kits are typically used with S-Mount lenses.

## General specifications

Feature	Value
Product code	18534
IP class	IP66 and IP67
Supported camera series	Alvium G1, Alvium G5
<b>Housing materials</b>	
Camera and Lens Tubes	Aluminum
Window	BK7 glass
Window coating	AR (Anti-reflective coating)
<b>Dimensions and mass (Kit)</b>	
Dimensions (diameter × length, including Cable Entry)	55.0 mm × ≤137.4 mm
Mass (all components of the Alvium IP Housing D55 Kit)	450 g
<b>Dimensions (Lens Tube inside)</b>	
Diameter	Ø47 mm
Length <sup>1</sup> available for C-Mount lenses	7.5 mm
Length <sup>1</sup> available for CS-Mount lenses	12.5 mm
Length <sup>1</sup> available for S-Mount lenses	12.5 mm
<b>Connections</b>	
Mounting threads (2 on top side, 2 on bottom side)	M6 – 7.0 ↓
For Ø5 mm and Ø6 mm cables	Cable Entry Split M25 × 1.5
For Ø3.5 mm or for Ø5 mm and Ø6 mm cables	Cable Entry Integrated M25 × 1.5
<sup>1</sup> Excluding the length of the mounting thread.	

Table 8: Alvium IP Housing D55 specifications

## Technical drawing

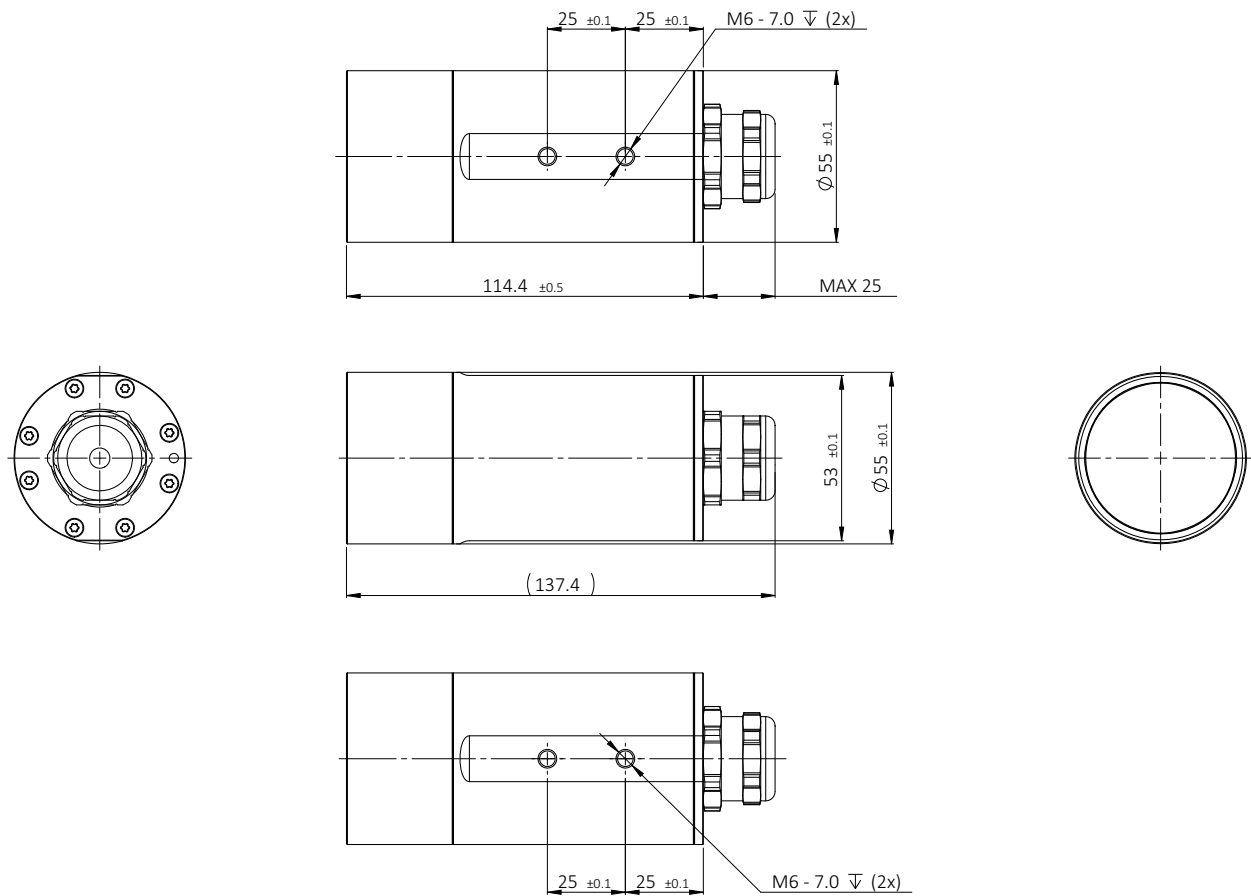


Figure 1: Alvium IP Housing D55 technical drawing



# Alvium IP Housing D80 Kit

Alvium IP Housing D55 Kits are typically used with C-Mount and CS-Mount lenses.

## General specifications

Feature	Value
Product code	18535
IP class	IP66 and IP67
Supported camera series	Alvium G1, Alvium G5
<b>Housing materials</b>	
Camera and Lens Tubes	Aluminum
Window	BK7 glass
Window coating	AR (Anti-reflective coating)
<b>Dimensions and mass (Kit)</b>	
Dimensions (diameter × length, including Cable Entry)	80.0 mm × ≤183.7 mm
Mass (all components of the Alvium IP Housing D80 Kit)	600 g
<b>Dimensions (Lens Tube inside)</b>	
Diameter	Ø72 mm
Length <sup>1</sup> available for C-Mount lenses	52 mm
Length <sup>1</sup> available for CS-Mount lenses	57 mm
Length <sup>1</sup> available for S-Mount lenses	57 mm
<b>Connections</b>	
Mounting threads (2 on top side, 2 on bottom side)	M6 – 7.0 ↓
For Ø5 mm and Ø6 mm cables	Cable Entry Split M25 × 1.5
For Ø3.5 mm or for Ø5 mm and Ø6 mm cables	Cable Entry Integrated M25 × 1.5
<sup>1</sup> Excluding the length of the mounting thread.	

Table 9: Alvium IP Housing D80 specifications

## Technical drawing

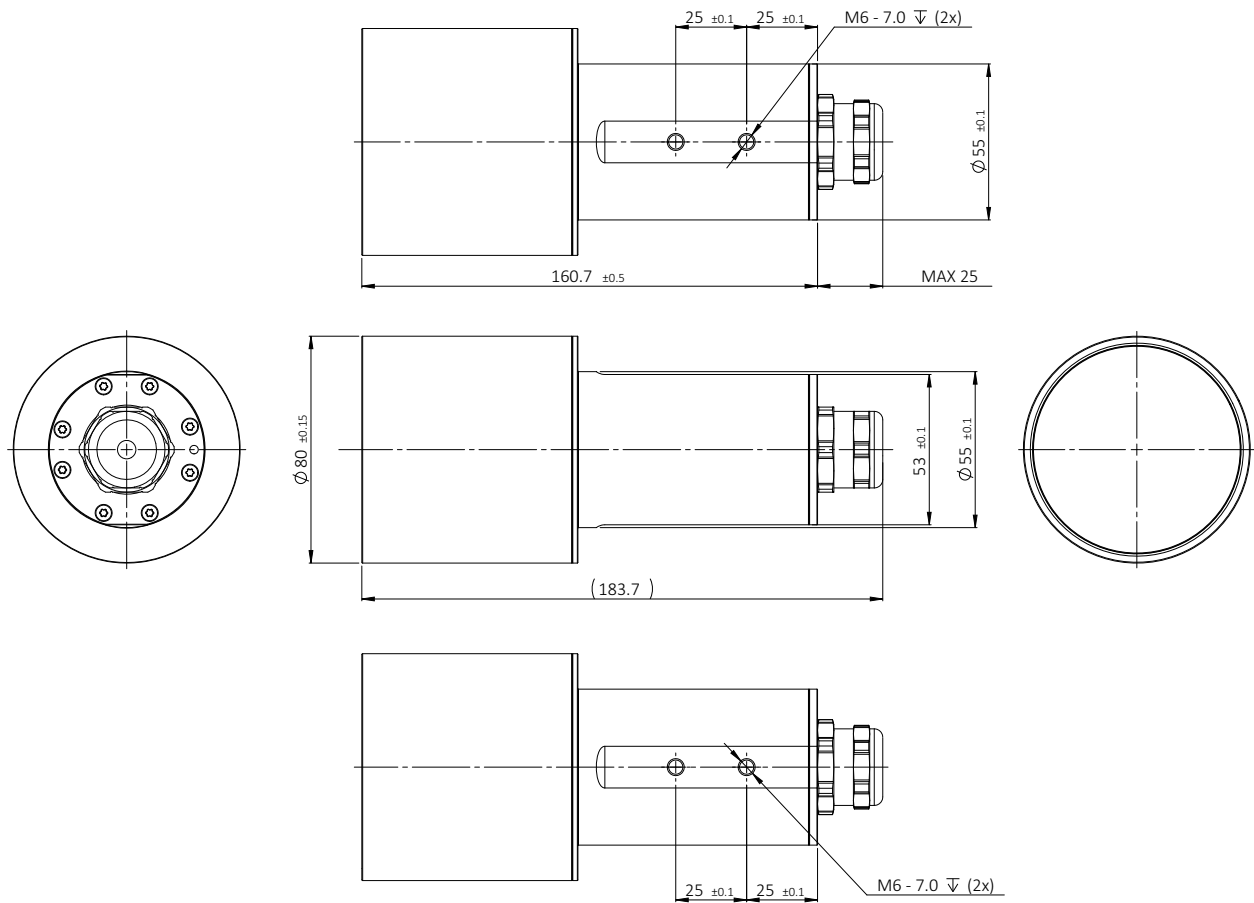


Figure 2: Alvium IP Housing D80 technical drawing

# Mounting cameras in IP housings



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# Observe before assembly

## Maximum torque values



### NOTICE

#### Damage to cameras and IP housings

Values for maximum torque apply to screw threads and mounting threads in dry state, without thread locking agents.

- Adjust values to your setup.

## Heat dissipation

If cameras heat up more quickly during operation than the IP housing can conduct heat to the environment, the camera's mainboard temperature can exceed the specified maximum. In this case, the camera is powered off after two seconds automatically. **DeviceTemperature** outputs the current value for mainboard temperature. You can use this value to control cooling by software, for example, to control a fan. To ensure smooth camera operation:

- Mount IP housings to bases with a high thermal conductivity.
- Provide active cooling of IP housings, such as by ventilation.
- Reduce high ambient temperature. For example, in outdoor applications with direct sunlight, provide shading.
- Do extensive testing before using Alvium IP housings in the field.

If ambient temperatures exceed 25 °C, additional heat dissipation can be required; especially when cameras are operated with high resolutions and high frame rates.

As a solution, the gap between housed Alvium cameras and the inner walls of the IP housings can be filled with thermally conductive material, such as gap fillers or graphite foam gaskets. For improved heat dissipation, we recommend you to mount Würth Graphite Foam Gaskets 407150015030 on the entire lateral surfaces of Alvium cameras before assembling them in the IP housings.

Should you still run into problems with camera operating temperature, please contact our Sales and Support team!

## Keeping the sensor clean

Always protect the sensor from dust. Keep the **circular protection foil** on the lens mount until you start the assembly. After removing the circular protection foil, attach a lens or a lens mount cap.

Circular protection foil

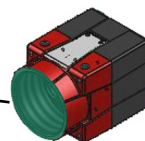
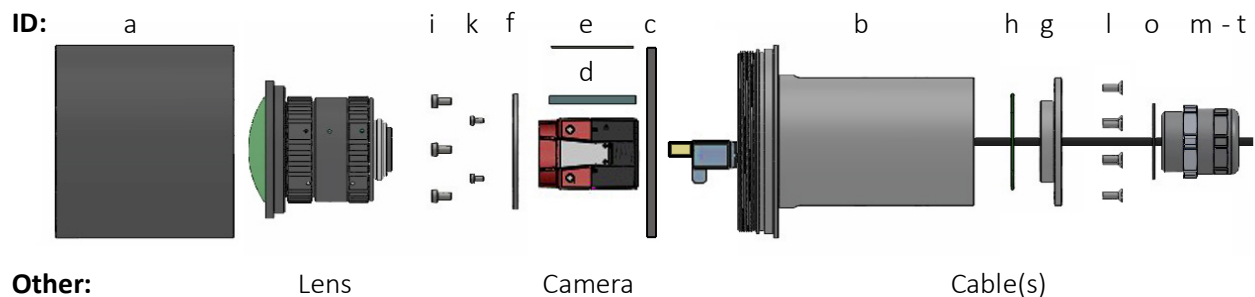


Figure 3: Alvium G1 camera with circular protection foil

# Components and tools for assembly

## Alvium IP Housing parts list

IDs are used in the instructions for reference.



Bag No.	ID	Category	Quantity	Part name	Notes
1	a	Camera and Lens Tube	1 piece	Lens Tube D55 <sup>1</sup> or D80 <sup>2</sup>	Preassembled, the Seal Ring has been lubricated for tightness.
	b		1 piece	Camera Tube D55 <sup>1</sup> or D80 <sup>2</sup>	
	c		1 piece	Seal Ring for D55 <sup>1</sup> or D80 <sup>2</sup> Tubes	
2	d	Desiccants	1 piece	Desiccants Bag	
	e		1 piece	Adhesive Pad for Desiccants Bag	
3	f	Camera Mounting	1 piece	Camera Mounting Ring	
4	g	Back Plate	1 piece	Back Plate	
	h		1 piece	Seal Ring for Back Plate	
5	i	Screws	4 pieces	Screw M3 × 6 mm ISO 14580	With threadlocker applied
	k		4 pieces	Screw M2 × 4 mm ISO 14580	
	l		8 pieces	Screw M3 × 8 mm ISO 14581	
6	m	Cable Entry <sup>3</sup> (GigE)	1 piece	Cable Entry <b>Split</b> M25 × 1.5 mm	For split mounting
	n		1 piece	Seal Insert <b>Split</b> <sup>4</sup> 1 × 5 mm; 1 × 6 mm	
	o	Cable Entry <sup>3</sup> (Other)	1 piece	Cable Entry M25 × 1.5 mm	For integrated mounting
	p		1 piece	Seal Insert <sup>5</sup> 1 × 3.5 mm	
	q		1 piece	Seal Insert <sup>4</sup> 1 × 5 mm; 1 × 6 mm	
	r		1 piece	Seal Ring for Cable Entry	
	s	Seal Bolts <sup>6</sup>	1 piece	Seal Bolt 5.0 mm × 25 mm	To close through holes in Cable Inserts
	t		1 piece	Seal Bolt 6.0 mm × 25 mm	

<sup>1</sup> Alvium IP Housing D55 | <sup>2</sup> Alvium IP Housing D80 | <sup>3</sup> For **Pflitsch** cable entries and tools, see [www.pflitsch.de](http://www.pflitsch.de).

<sup>4</sup> For 1 cable ø 5.0 mm and 1 cable ø 6.0 mm | <sup>5</sup> For 1 cable ø 3.5 mm | <sup>6</sup> For Cable Entry Split

Table 10: Alvium IP Housing parts list

## Required items

You need the following items to mount cameras with lenses into Alvium IP Housings:

- Alvium G1 or Alvium G5 camera



### NOTICE

#### Damage to the lens and Lens Tube window

Ensure the Lens Tube is large enough to house your lens.

See [Specifications](#) on page 20.

- Lens
- GigE interface cable (max. ø 6 mm)
- I/O cable (optional) (max. ø 5 mm)
- M6 screws to mount the IP housing to your mounting plate
- Alvium IP Housing Kit, see [Alvium IP Housing parts list](#) on page 29.

## Required tools

Provide the following conditions and tools:

- Clean desktop or work bench
- For M2 screws: Torque screwdriver T6 or T7
- For M3 screws: Torque screwdriver T9 or T10
- For Cable Entries
  - Spreading pliers
  - Vice
- For integrated Cable Entries:  
Torque wrench 28 mm × 31.2 mm or 24 mm × 26.7 mm
- For split Cable Entries:
  - Torque wrench 35 mm × 38.5 mm for mounting
  - Thin flat head screwdriver to disassemble
- To connect the housing tubes: Strap wrench



#### Cable Entries

For details on Cable Entries and for assembly tools, see [www.pflitsch.de](http://www.pflitsch.de).

## Checking the camera and lens

With the following actions, you ensure to mount a working camera and lens into the IP housing.

1. Mount the lens to your Alvium G1 or G5 camera.
2. Connect the camera to the host with a GigE interface cable.
3. Start the camera and acquire an image
4. Adjust the lens.
5. Disconnect the camera.
6. Remove the lens.
7. Protect the lens mount with a lens mount cap.

## Disconnecting the housing tubes

8. Holding the Camera Tube (b) with one hand, rotate the Lens Tube (a) counterclockwise until the tubes disengage. See [Figure 4](#).
9. Store both tubes in a clean and dry place until you continue the assembly.

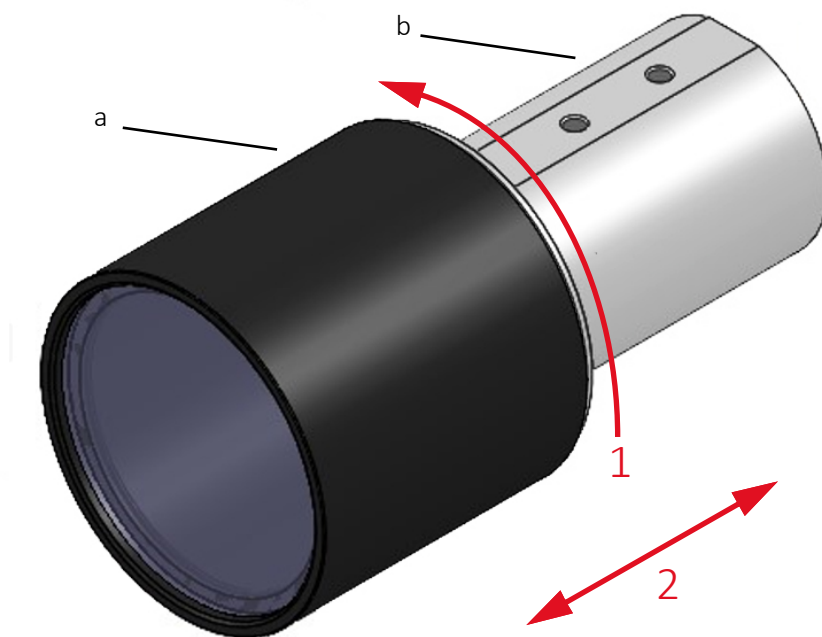


Figure 4: Separating the housing tubes from each other

## Camera orientation

As a reference for the following instructions, [Figure 5](#) shows **top and bottom mounting** of the Camera Tube (b) to acquire an upright camera image. For lateral mounting of the Camera Tube (b), rotate all components accordingly.

The Camera Mounting Ring (f) has an asymmetric design. [Figure 5](#) shows that three M3 mounting holes (D, E) are completed by one oval groove (A) for M3 screws. Moreover, the M3 mounting holes (D) are center aligned to the M2 mounting holes (F), while the M3 mounting hole (E) is located off the center to match M3 mounting thread (B) of the Camera Tube (b).

This way, you can set up a defined assembly process for the camera position. Please observe, you cannot rotate the camera quickly after it has been joined with the Camera Mounting Ring (f).

In [Figure 5](#), the camera outputs an upright image if it is mounted with the Allied Vision engraving on the right side (C).

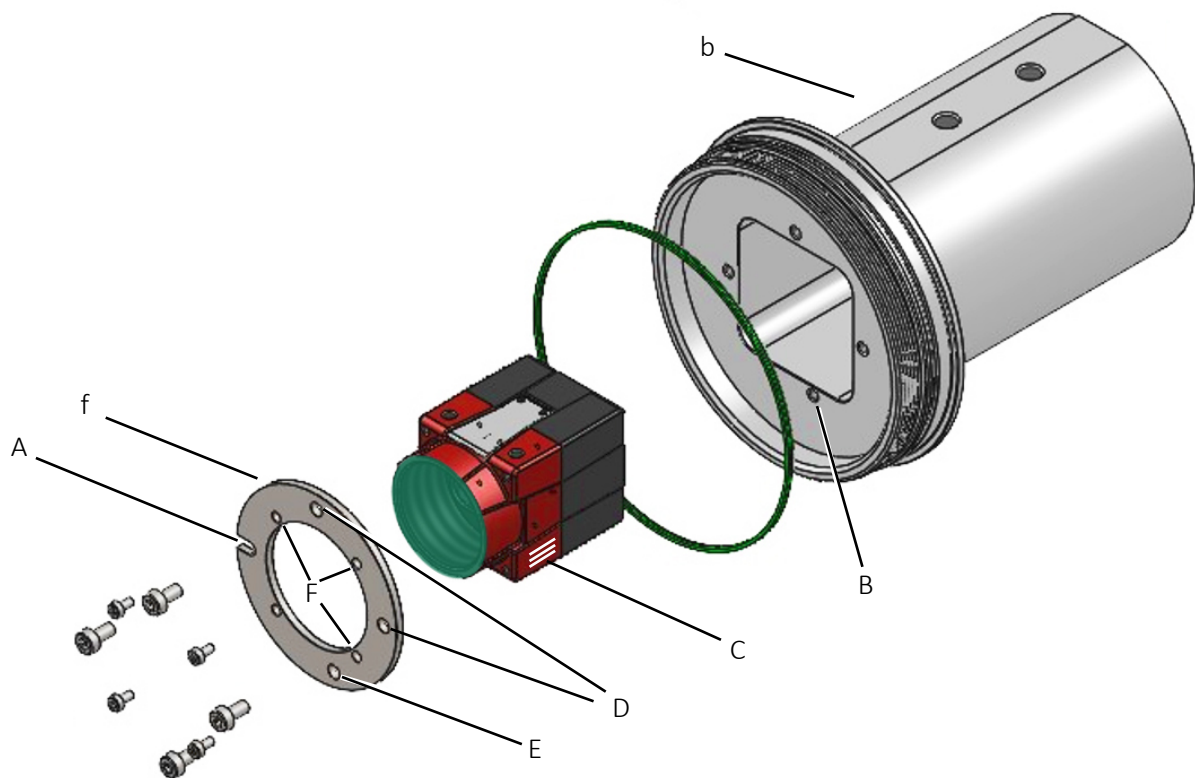


Figure 5: Camera Mounting Ring (f) oriented for an upright camera image



### To start the assembly

To start the assembly, follow the instructions in [Connecting and mounting the camera](#) on page 33.



# Connecting and mounting the camera



## NOTICE

### Damage to the camera and lens by condensation

To protect your camera and lens from humidity, mount the Desiccants Bag (d) directly before you close the IP housing.

10. With the Adhesive Pad (e), fix the Desiccants Bag (d) to the inner surface of the Camera Tube (b).
11. Feed a GigE interface cable (J) through the Camera Tube (b).
12. Optional: Feed an I/O cable through the Camera Tube (b).
13. Connect the GigE interface cable to the camera.
14. Optional: Connect the I/O cable to the camera.
15. Put the camera and Camera Mounting Ring (f) into position as shown in [Figure 6](#). For lateral mounting of the Camera Tube, rotate the parts accordingly.



### Orientation of the Camera Mounting Ring (f)

Ensure that the M3 mounting hole (E) is located off the center to match M3 mounting thread (B) as shown in [Figure 6](#).

16. Feed the camera's lens mount (G) through the Camera Mounting Ring (f).
17. Rotate the Camera Mounting Ring (f) to the camera to align the mounting holes of the Camera Mounting Ring (f) and the camera's mounting threads (H).
18. Feed the 4 M2 × 4 mounting screws (k) through the mounting holes (F) into the camera's mounting threads (H) and tighten at 0.18 Nm maximum torque.

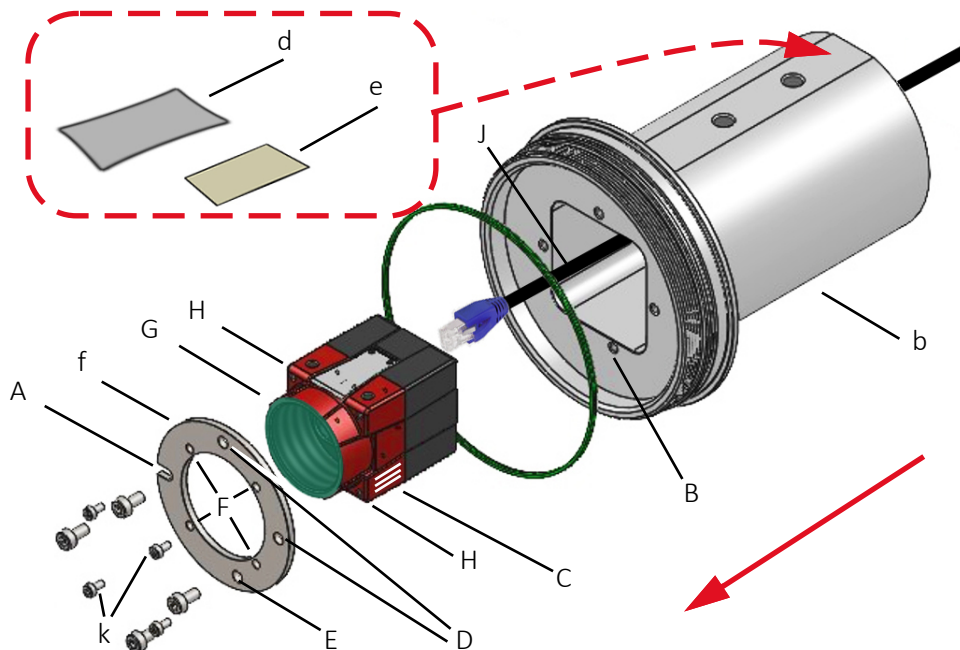


Figure 6: Connecting and mounting the camera

19. Feed the 4 M3 × 6 mounting screws (i) through the mounting holes into the mounting threads (B in [Figure 6](#)) and tighten at 0.6 Nm maximum torque.

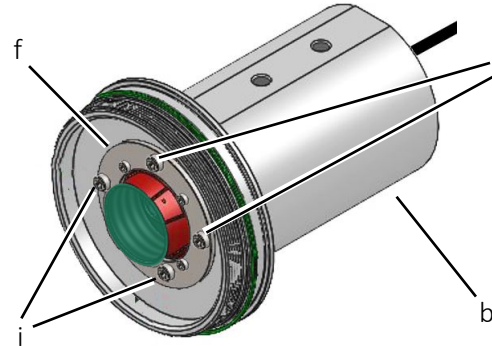


Figure 7: Joining the Camera Mounting Ring (f) with the Camera Tube (b)

## Mounting the Back Plate

20. Slide the Seal Ring (h) for the Back Plate (g) over the cable (J) and place it on the bottom of the rear hole of the Camera Tube (b). See [Figure 8](#).



### Orientation of the back Plate (g)

Ensure the Back Plate (g) aligns with the Camera Tube (b) as shown in [Figure 8](#).

21. Slide the Back Plate (g) over the cable (J) and insert it in the rear hole of the Camera Tube (b).
22. Rotate the Back Plate (g) against the Camera Tube (b) until the mounting holes of the Back Plate (g) and the mounting threads of the Camera Tube (b) match.
23. Insert the 8 M3 × 8 screws (l) into the mounting threads and tighten at 0.8 Nm maximum torque.

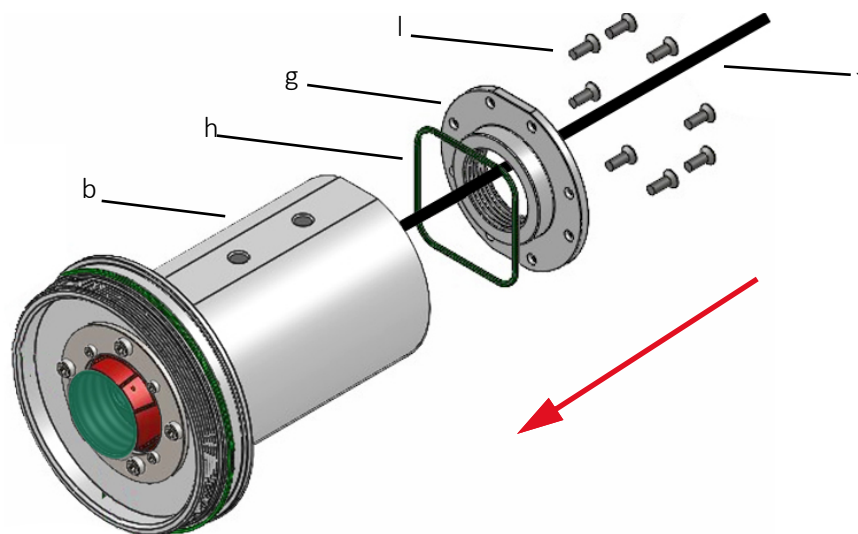


Figure 8: Mounting the Back Plate (g) to the Camera Tube (b)

# Assembling the Cable Entry

## Cable Entry components

Figure 9 shows the components of the Cable Entry used in the following installations. **The instructions apply to Seal Inserts for 1 or 2 cables.**

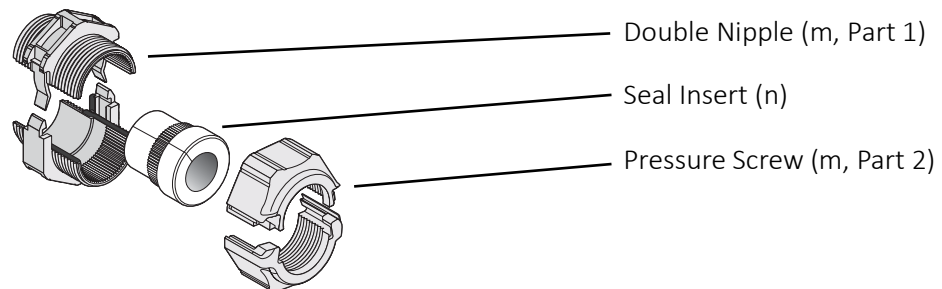


Figure 9: Cable Entry components, schematic view

## Instructions

24. Clamp the Camera Tube (b) in a vice.
25. With the sealing (K) facing the Back Plate (g), close the sides of the split Double Nipple (L) around the cable(s) until the sides join with a click. See Figure 10.
26. Close the sides of the split Pressure Screw (M) around the cable(s) until the sides join with a click.

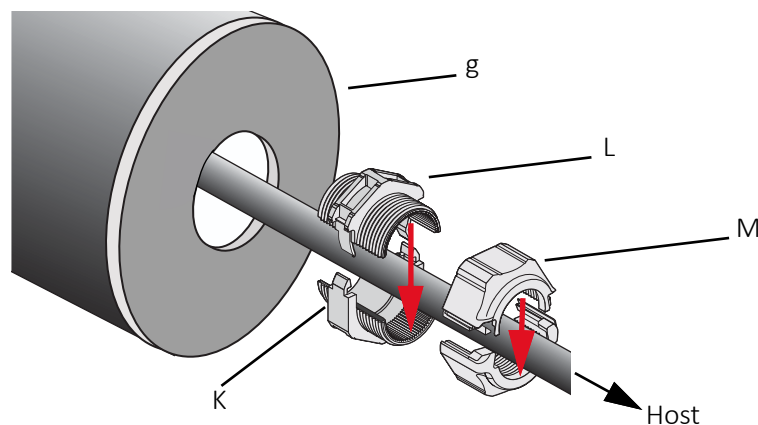


Figure 10: Mounting the Double Nipple (L) and the Pressure Screw (M)

27. Slide the Double Nipple (L) to the thread of the Back Plate (g) and rotate the Double Nipple (L) clockwise.
28. Tighten the Double Nipple (L) with an SW35 mm wrench at 6 Nm maximum torque.

29. Between the Pressure Screw (M) and the Double Nipple (L), grab the cable with the Spreading Pliers (N), see [Figure 11](#).
30. Slide the Gap (P) of the Seal Insert (O) over the Spreading Pliers (N) and press the Gap (P) open.
31. Slide the cable into the Seal Insert (O) and close the Spreading Pliers (N).
32. Slide the Spreading Pliers (N) along the cable, out of the Seal Insert (O).

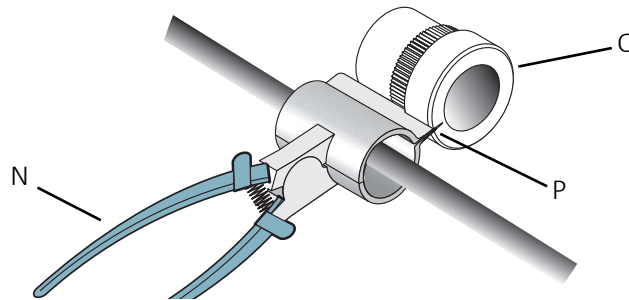


Figure 11: Sliding the cable into the Seal Insert (O)

33. If you are using an I/O cable, repeat from 29. to 32.
34. If cable through holes of the Seal Insert (O) are not needed, close them with the corresponding Seal Bolts: (s) for 5.0 mm, and (t) for 6.0 mm.
35. Push the Seal Insert (O) into the Double Nipple (L). See [Figure 12](#).
36. Push the Pressure Screw (M) to the thread of the Double Nipple (L) and rotate clockwise.
37. Tighten the Pressure Screw (M) with an SW35 mm wrench at 4 Nm maximum torque.

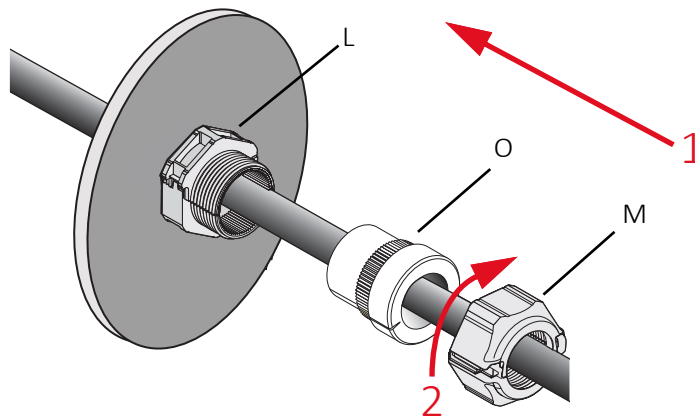


Figure 12: Positioning the Seal Insert (O) and tightening the Pressure Screw (M)



### Removing the Cable Entry

To remove the Cable Entry, follow the steps from 37. to 24. in reverse order. Use a thin flat screwdriver to disengage the sides of Pressure Screws (M) and Double Nipples (L).

# Mounting the Camera Tube and the lens



## CAUTION

### Injury by falling IP housings

- Use suitable screws and fasten screws with maximum torque, using the entire thread engagement. For less thread engagement, see [Thread holes and maximum torque values](#) on page 38.
- Use threadlocker to prevent screws from loosening.



## NOTICE

### Damage to the camera

If the lens is too heavy, the camera mounting holes can be damaged.

- For dynamic applications, use a lens with maximum 70 g mass, with a center of gravity (COG) of 14 mm, measured from the lens mount front flange.
- For static applications, **with absolutely no vibration**, a maximum 250 g mass is allowed with a COG of 50 mm.

38. Select suitable 4 M6 screws, see [Thread holes and maximum torque values](#) on page 38.

39. Apply threadlocker to the 4 M6 screws.

40. Use the 4 M6 screws to connect the Camera Tube (b) to your mounting base and tighten them at 6.6 Nm maximum torque for a thread engagement of 6.5 mm. See [Figure 13](#).

41. Connect the GigE interface cable (J) to the host.

42. Optional: Connect the I/O cable to power or peripherals.

43. Start the camera for image acquisition.



### Maintaining values for focus and iris

Ensure that the positions for the focus and iris adjustment rings are maintained during operation.

44. At smallest f-stop, focus the lens (P) to object distance.

45. Select the f-stop value required for your application..

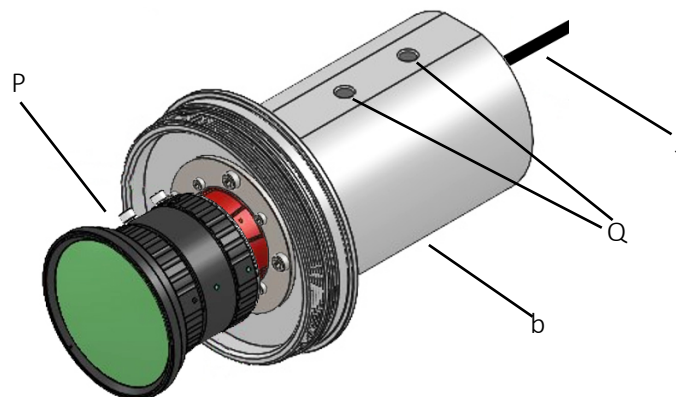


Figure 13: Adjusting the lens after the camera tube assembly has been completed

## Thread holes and maximum torque values



### NOTICE

#### Damage to cameras and Alvium IP Housing Kits

Values for maximum torque apply to screw threads and mounting threads in dry state, without thread locking agents.

- Adjust values to your setup.

Figure 14 shows the dimensions of mounting holes in Camera Tubes (b):

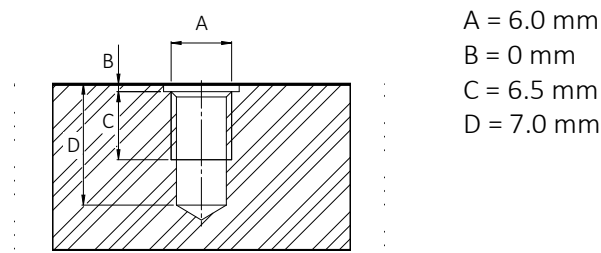


Figure 14: Thread holes in Camera Tubes (b)

The total bolt length composes of the mounting holes length and the height of your mounting base.

For using less than the stated length of thread engagement, calculate maximum torque as follows:

$$\frac{\text{Current length of thread engagement}}{\text{Length of thread engagement in table}} \times \text{Torque in table} = \text{Current torque}$$

Example for a length of thread engagement of **5.0 mm** instead of 6.5 mm:

$$5.0 \text{ mm} / 6.5 \text{ mm} \times 6.6 \text{ Nm} = 5.1 \text{ Nm}$$

Length of thread engagement	Maximum torque
6.5 mm	6.6 Nm
<b>5.0 mm</b>	<b>5.1 Nm</b>

Table 11: Adjusting maximum torque values

## Mounting the Lens Tube



### Lubricant on the Seal Ring (c)

At Allied Vision manufacturing, the Seal Ring (c) is equipped with **Uniflor 8512** lubricant. This keeps the housing tight for a long time.

46. Engage the thread of the Lens Tube (a) to the thread of the Camera Tube (b).
47. Rotate the Lens Tube (a) counterclockwise against the Camera Tube (b) until you feel the threads engage.
48. Rotate the Lens Tube (a) clockwise until it touches the Seal Ring (c).
49. Using a strap wrench, continue rotation 60° beyond this position.

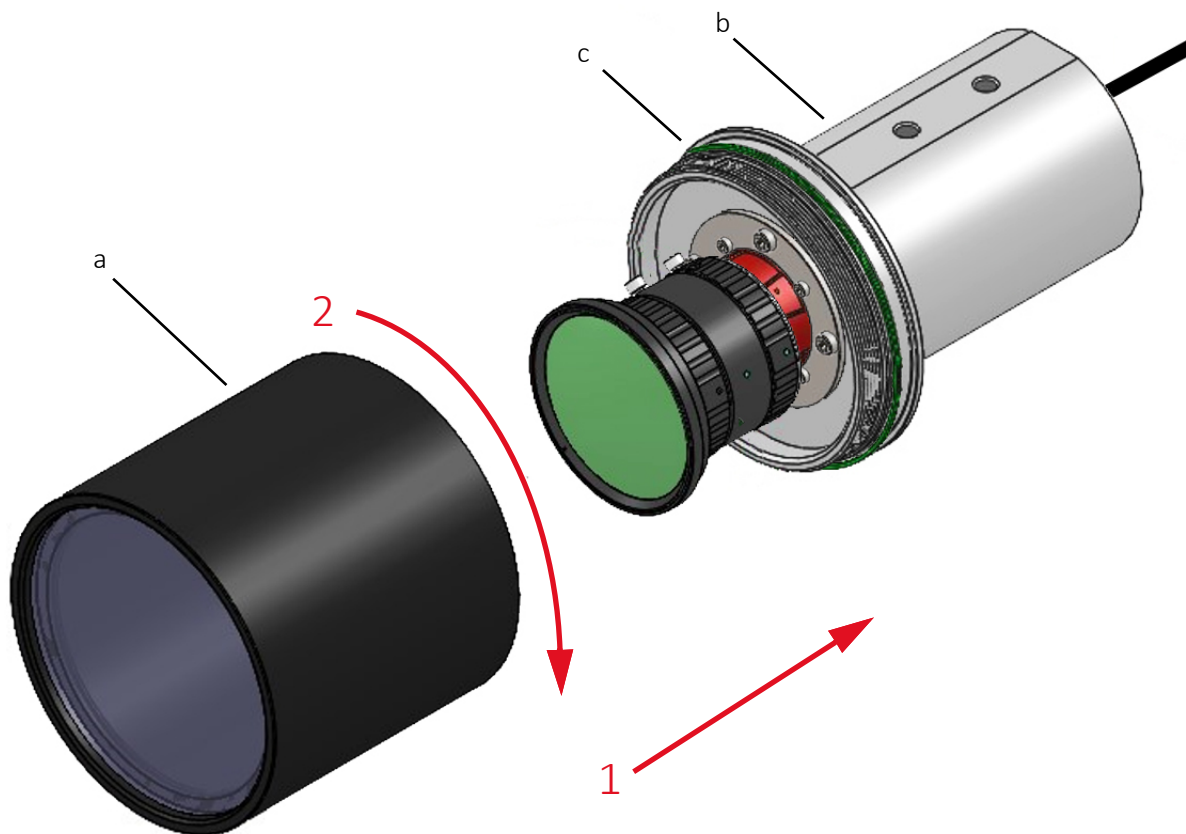


Figure 15: Mounting the Lens Tube (a) to the Camera Tube (b)

Your Alvium camera with lens is properly mounted in an IP housing and ready for operation.