Operator's Manual

optris® CoolingJacket Advanced

Cooling housing for PI series, infrared video thermometer and infrared thermometer at high ambient temperatures

Optris GmbH
Ferdinand-Buisson-Str. 14
13127 Berlin
Germany

Tel.: +49 30 500 197-0
Fax: +49 30 500 197-10

E-mail: info@optris.de
Internet: www.optris.com

optris
infrared measurements

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1 General notes

1.1 Intended use

Thank you for choosing the **optris® CoolingJacket Advanced** cooling housing.
The cooling housing CoolingJacket Advanced is intended to use for optris® PI series, video thermometers CTvideo, CSvideo and CSvision as well as CTlaser and CSlaser for application at high ambient temperatures.

- Read the manual carefully before the initial start-up. The producer reserves the right to change the herein described specifications in case of technical advance of the product.
- In case of problems or questions which may arise when you use the infrared camera, please contact our service department.

► All accessories can be ordered according to the referred part numbers in brackets [ ].

1.2 Warranty

Each single product passes through a quality process. Nevertheless, if failures occur contact the customer service at once. The warranty period covers 24 months starting on the delivery date. After the warranty is expired the manufacturer guarantees additional 6 months warranty for all repaired or substituted product components. Warranty does not apply to damages, which result from misuse or neglect. The warranty also expires if you open the product. The manufacturer is not liable for consequential damage or in case of a non-intended use of the product.

If a failure occurs during the warranty period the product will be replaced, calibrated or repaired without further charges. The freight costs will be paid by the sender. The manufacturer reserves the right to exchange components of the product instead of repairing it. If the failure results from misuse or neglect the user has to pay for the repair. In that case you may ask for a cost estimate beforehand.

1.3 Scope of supply

1.3.1 Versions

CoolingJacket Advanced (Standard or Extended) with mounting bracket and installation instructions

Standard	**Extended**
CoolingJacket Advanced for **PI series** [**Part-No.: ACPICJAS**], consisting of housing incl. chassis [**Part-No.: ACCJAxxxxx**], consisting of focusing unit (PI 400i/ PI 450i/ PI 640i/ PI 1M// PI 08M/ PI 05M)	CoolingJacket Advanced for **PI series** [**Part-No.: ACPICJAEx**], consisting of housing incl. chassis [**Part-No.: ACCJAxxxxx**], consisting of focusing unit (PI 400i/ PI 450i/ PI 640i/ PI 1M/ PI 08M/ PI 05M)
CoolingJacket Advanced for **CSlaser**, **CTlaser** as well as **CTvideo, CSvideo** and **CSvision** [**Part-No.: ACCXLCJAS**], consisting of housing incl. chassis [**Part-No.: ACCJAFPCTL**], consisting of front part	CoolingJacket Advanced for **CSlaser**, **CTlaser** as well as **CTvideo, CSvideo** and **CSvision** [**Artikel-Nr.: ACCXLCJAEx**], consisting of housing incl. chassis [**Artikel-Nr.: ACCJAFPCTL**], consisting of front part
	incl. mounting accessories for • PI NetBox or USB server Gigabit • Industrial PIF

1.4 Mounting accessories

1.4.1 Accessories for PI NetBox

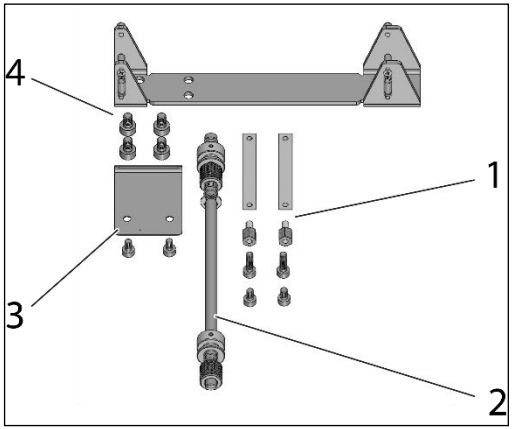


Figure 1: Accessories for PI NetBox

1 Support rods for Industrial PIF (2x distance bolt SW 5,5x6 - M3x6, 2x cylinder head screw M3x10 and 2x cylinder head screw M3x5)
2 Shaft for fixing the PI NetBox
3 Holding plate (2x cylinder head screw M3x5)
4 Fastening rail (4x cylinder head screw M4x8)

1.4.2 Accessories for USB Server Gigabit

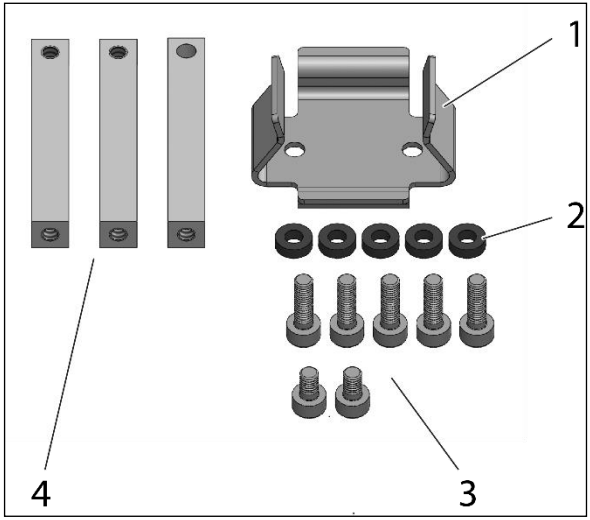


Figure 2: Accessories for USB-Server Gigabit

1 DIN rail plate for fixing the USB server Gigabit
2 Distance rings
3 Screws
4 Support rods for Industrial PIF, with thread and without

2 Technical Data

2.1 General specifications

	CoolingJacket Advanced Standard	**CoolingJacket Advanced Extended**
Environmental rating	IP 65	IP 65
Ambient temperature	up to 315 °C[1)] for **ACPICJAS** up to 250 °C für **ACCXLCJAS**	up to 315 °C[1)] for **ACPICJAEx** up to 250 °C for **ACCXLCJAEx**
Relative humidity	10...95 %, non-condensing	10...95 %, non-condensing
Material (housing)	V2A	V2A
Dimensions	271 mm x 166 mm x 182 mm	426 mm x 166 mm x 182 mm
Weight	5.7 kg	7.8 kg
Air purge collar	G1/4“ Internal thread G3/8“ External thread	G1/4“ Internal thread G3/8“ External thread
Cooling water fittings	G1/4“ Internal thread G3/8“ External thread	G1/4“ Internal thread G3/8“ External thread
Cooling water pressure	15 bar (217 psi)	15 bar (217 psi)

[1)] Cable available up to 250 °C ambient temperature as well as cable cooling up to 315 °C.

2.1.1 Focusing unit and front part

PI 640i and PI xM

Focusing unit

for PI640i 33°-/ 60°-Optics [**Part-No.: ACCJAFU64XM**]

for PI640i 15°-Optics [**Part-No.: ACCJAFU64O15**]

for PI640i 90°-Optics [**Part-No.: ACCJAFU64O90**] 1)

for PIxM all Optics [**Part-No.: ACCJAFU64XM**]

1) Not suitable for mounting of a protective window

PI 4xxi

Focusing unit

for PI4xxi 18°-/ 29°-/ 53°-Optics [**Part-No.: ACCJAFU4X**]

for PI4xxi 80°-Optics [**Part-No.: ACCJAFU4XO80**]

CTlaser, CSlaser, CTvideo, CSvideo, CSvision

Frontpart

for CTlaser, CSlaser, CTvideo, CSvideo, CSvision [**Part-No.: ACCJAFPCXL**]

2.2 Accessories

2.2.1 High temperature cable

High temperature Ethernet cable cat.6 (180 °C), 10 m, incl. 2x RJ45 connector
[**Part-No.: ACCJAETCB10H**]

High temperature Ethernet cable cat.6 (180 °C), 20 m, incl. 2x RJ45 connector
[**Part-No.: ACCJAETCB20H**]

High temperature Ethernet cable cat.6 (250 °C), 10 m, incl. 2x RJ45 connector
[**Part-No.: ACCJAETCB10H2**]

High temperature Ethernet cable cat.6 (250 °C), 20 m, incl. 2x RJ45 connector
[**Part-No.: ACCJAETCB20H2**]

High temperature USB cable (180 °C), 5 m
[**Part-No.: ACPIUSB5PCB5H**]

High temperature USB cable (180 °C), 10 m
[**Part-No.: ACPIUSB5PCB10H**]

High temperature USB cable (250 °C), 5 m
[**Part-No.: ACPIUSB5PCB5H2**]

High temperature USB cable (250 °C), 10 m
[**Part-No.: ACPIUSB5PCB10H2**]

Pyrometer cable (available separately)

Note: A pre-installed cable gland (...CGx) is mandatory for the usage of the CoolingJacket.

2.2.2 Protection window

Adequate protection windows are available for all versions. [1)]

Part-No.	Description	Spectral range	Transmission [2)]
ACCJAPWGE714M51X3	Protective window (50,8 x 3 mm/ Ge) for PI 450i G7, 640i G7 and CTlaser P7/G7	7,9 µm	0.96
	Protective window (50,8 x 3 mm/ Ge) for PI 400i, 450i, 640i and CTlaser LT	7,5-14 µm	0.92
ACCJAPWZNS714M51X3	Protective window (50,8 x 3 mm/ ZnS) for PI 450i G7, 640i G7 and CTlaser P7/G7	7,9 µm	0.93
	Protective window (50,8 x 3 mm/ ZnS) for PI 400i, 450i, 640i and CTlaser LT	7,5-14 µm	0.91
ACCJAPWBF1M51X3	Protective window (50,8 x 3 mm/ ZnS) for PI 1M, 08M and CTlaser 1M	1 µm/ 780-820 nm	0.92
ACCJAPWBF05M51X3	Protective window (50,8 x 3 mm/ ZnS) for PI 05M and CTlaser 05M	500-540 nm	0.92
ACCJAPWSA51X3	Protective window (50,8 x 3 mm/ Saphir) for 05M, 1M, 2M, 3M, MT, F2, F6, G5 models of CTlaser-, CSlaser-, CTvideo-, CSvideo series	500-540 nm/ 1,0/ 1,6/ 2,3/ 3,9/ 4,24/ 4,64/ 5,0	0.92
ACCJAPWGE714M67X3	Protective window (67,8 x 3 mm/ Ge) if used together with air purge laminar	7,5-14 µm	0.92
ACCJAPWZNS714M67X3	Protective window (67,8 x 3 mm/ ZnS) if used together with air purge laminar	7,5-14 µm	0.91
ACCJAPWBF67X3	Protective window (67 x 3 mm/ Borofloat 33) for air purge laminar with 05M/1M/ 2M/ 3M models of CTlaser-, CSlaser-, CTvideo-, CSvideo series	500-540 nm/ 1,0/ 1,6/ 2,3	0.92
ACCJAPWBF1M67X3	Protective window (67 x 3 mm/ Borofloat 33) for air purge laminar with PI 08M/ 1M and 1M models of CSlaser-, CTlaser-, CTvideo series	780-820 nm/ 1,0 µm	0.92

ACCJAPWBF05M67X3	Protective window (67 x 3 mm/ Borofloat 33) for air purge laminar with PI 05M models and 05M model of CTlaser series	500-540 nm	0.92

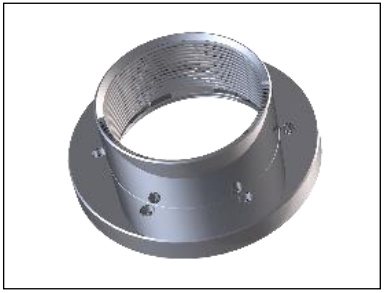
1) There is no protective window for the 90° optics available.
2) The shown values are standard values and may vary between different delivery batches.

2.2.3 Mounting flange

Mounting flange [**Part-No.: ACCJAMF**] for front mounting of the CoolingJacket Advanced (Standard and Extended) including mounting screws and washers.

2.2.4 Pipe flange

Pipe flange [Part**-No.: ACCJAPF**] for CoolingJacket Advanced, fitting to sighting tubes with M48x1,5 thread



2.2.5 Air Purge Laminar

Laminar air purge for front mounting of the CoolingJacket Advanced (Standard and Extended). Two different versions are available: One for standard IR camera applications and for CxL and CxV sensors [**Part-No.: ACCJAAPLS**] and the other for IR camera line scanning applications [**Part-No.: ACCJAAPLL**].

Technical data	
Protective rating	IP 65
Ambient temperature	Up to 315 °C (with water cooling)
Material	Aluminum
Dimensions (W x H x D)	200 x 189 x 43 mm
Weight	1,9 kg
Air purge connection	NW 7,2
Cooling water connection	G3/8″ external thread
Cooling water pressure	Max. 8 bar

Those two versions are fitting to all focusing units with production date ≥01/2018. A protective window (67 x 3 mm) must be ordered separately. If you like to mount the air purge on an older CJ, the focusing unit should be exchanged to the current version.

Volume flow	40 - 120 l/min
Air pressure	1,1 - 10 bar
Protective window	Necessary[1)]

[1)] A protective window (67 x 3 mm) must be ordered separately.

The Air Purge Laminar [**Article No.: ACCJAAPLS**] and the Air Purge for line scanner applications [**Article No.: ACCJAAPLL**] cannot be used with 60° optics and 90° optics

The combination of the air purge for line scanner applications [**Article No.: ACCJAAPLL**] and the 80° optics can only be used with the focusing unit for 53° optics [**Article No.: ACCJAFU53**] and this is only possible for horizontal alignment (see **Chapter 3.2.2.1**).

The following table shows an overview of the possible combinations of the cameras and optics used with Air Purge Laminar with different alignments.

Device	Optics	APL standard	APL linescan (horizontal)	APL linescan (diagonal)
PI4xxi	18°	yes	yes	yes
	29°	yes	yes	yes
	53°	yes	yes	yes
	80°	no	yes (with FU53)	no
PI640i	15°	yes	yes	yes
	33°	yes	yes	yes
	60°	no	no	no
	90°	no	no	no

Table 1: Possible combination of devices with optics and APL for the Cooling Jacket Advanced

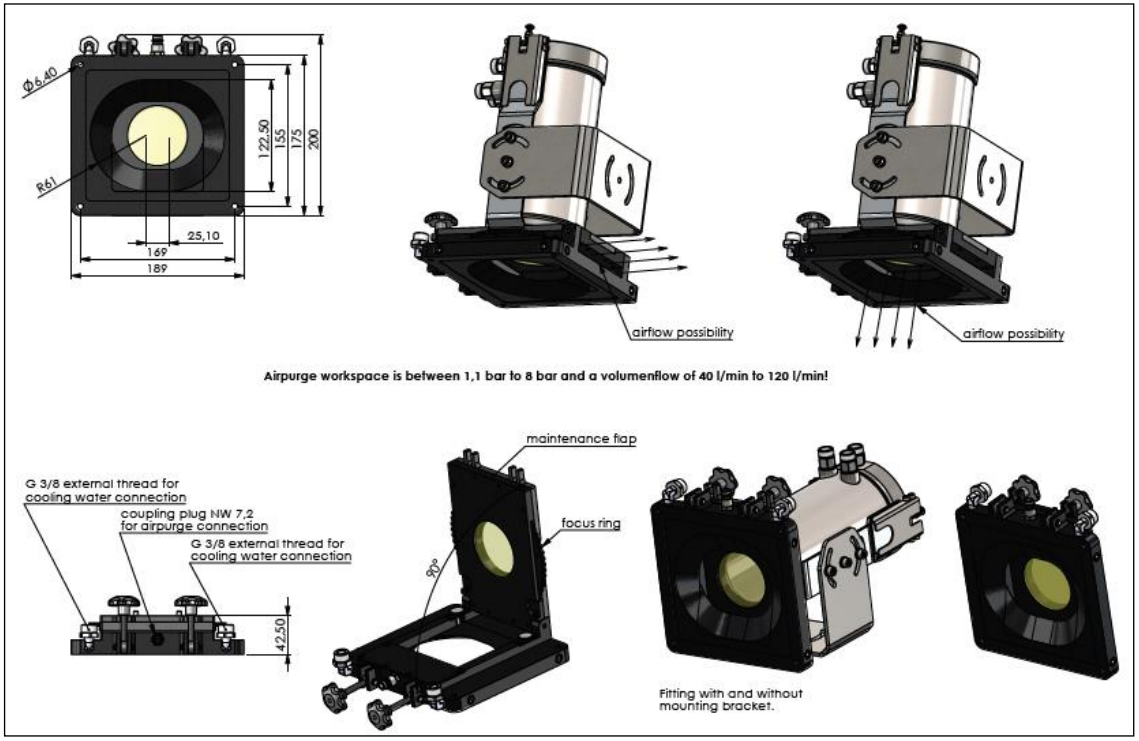


Figure 3: Dimensions of laminar air purge

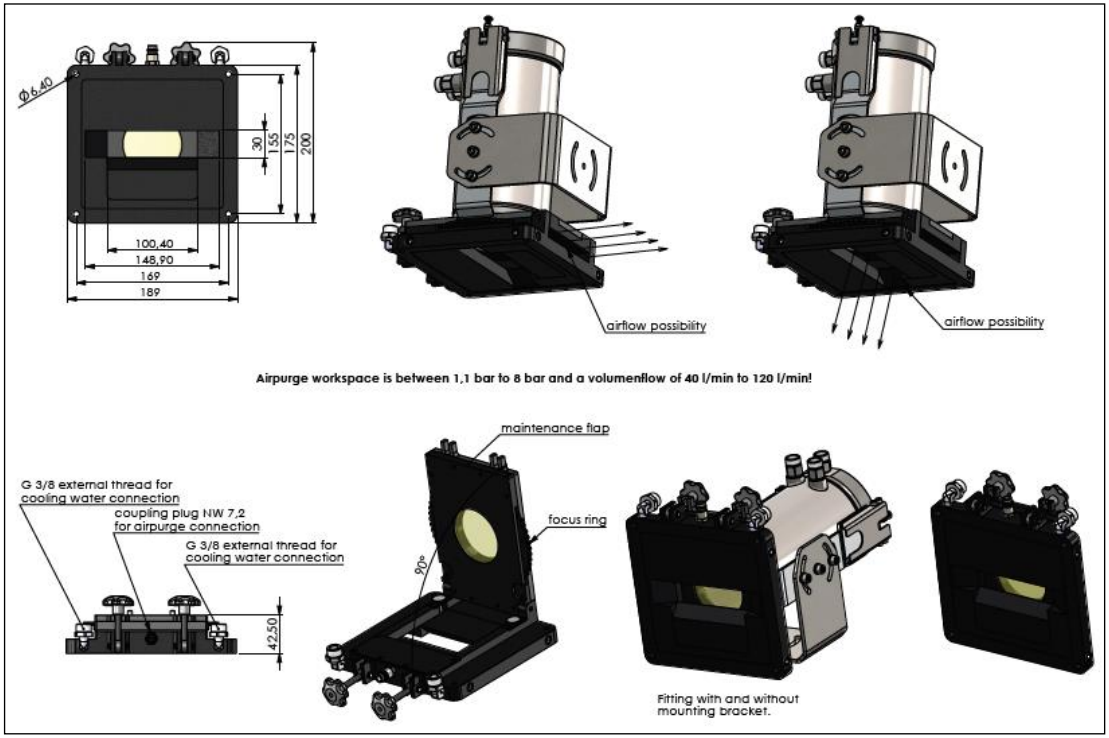


Figure 4: Dimensions of laminar air purge (line scanner version)

2.2.6 Additional accessories

Industrial PIF without housing [**Part-No.: ACCJAPIPIFMA**], 500 VAC_{RMS} isolation voltage between PI and process, 25 cm connection cable

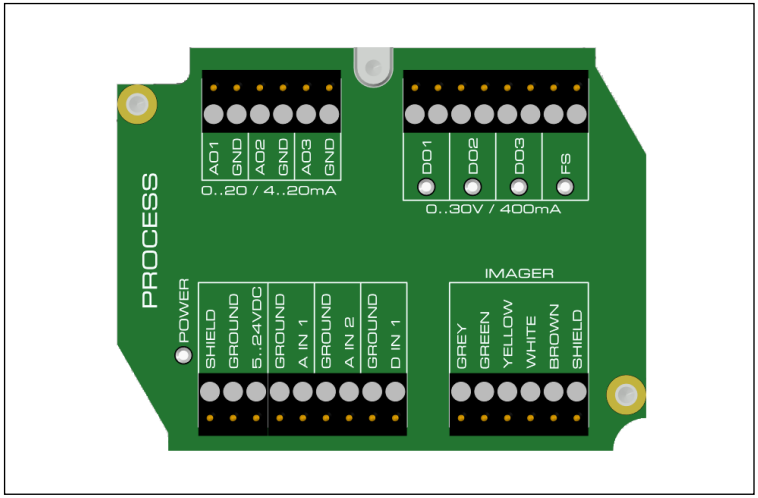


Figure 5: Industrial PIF without housing

2.3 Dimensions

Standard version

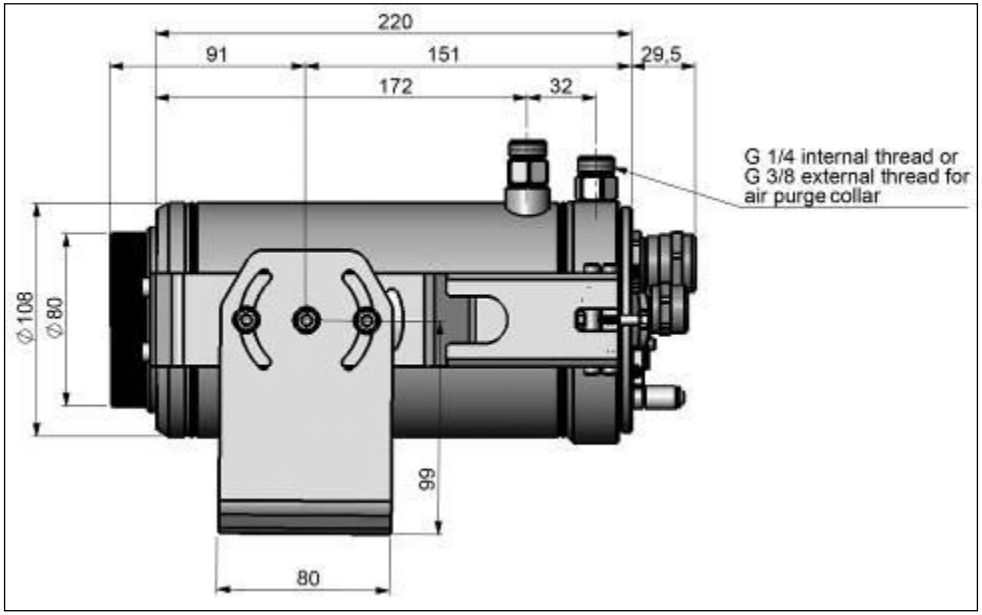


Figure 6: CoolingJacket Advanced, standard version – side view

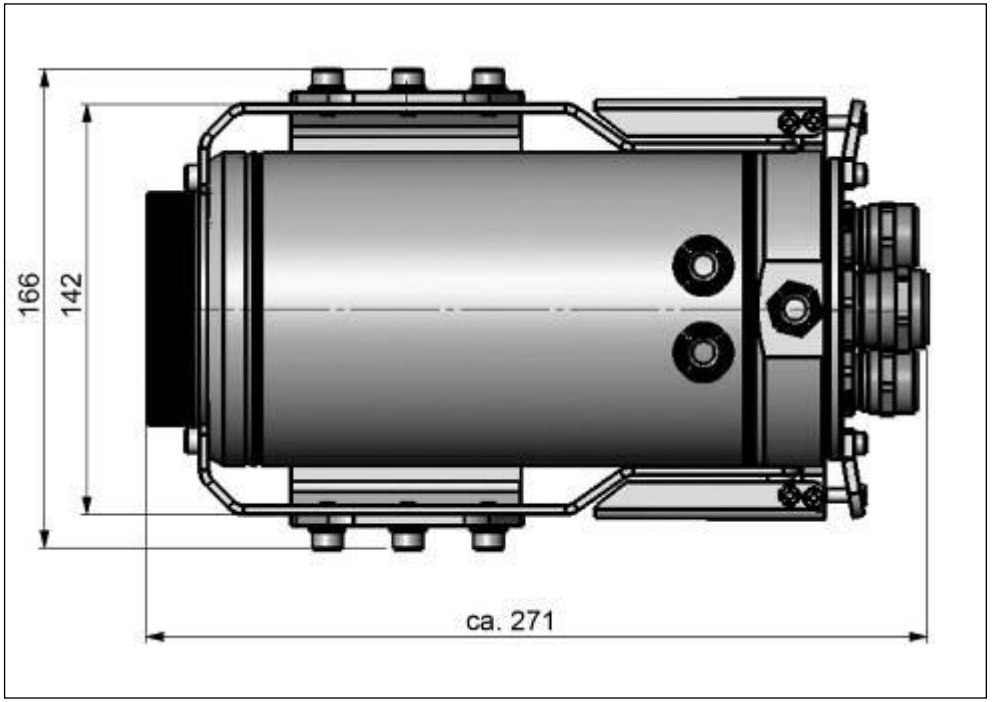


Figure 7: CoolingJacket Advanced, standard version – top view

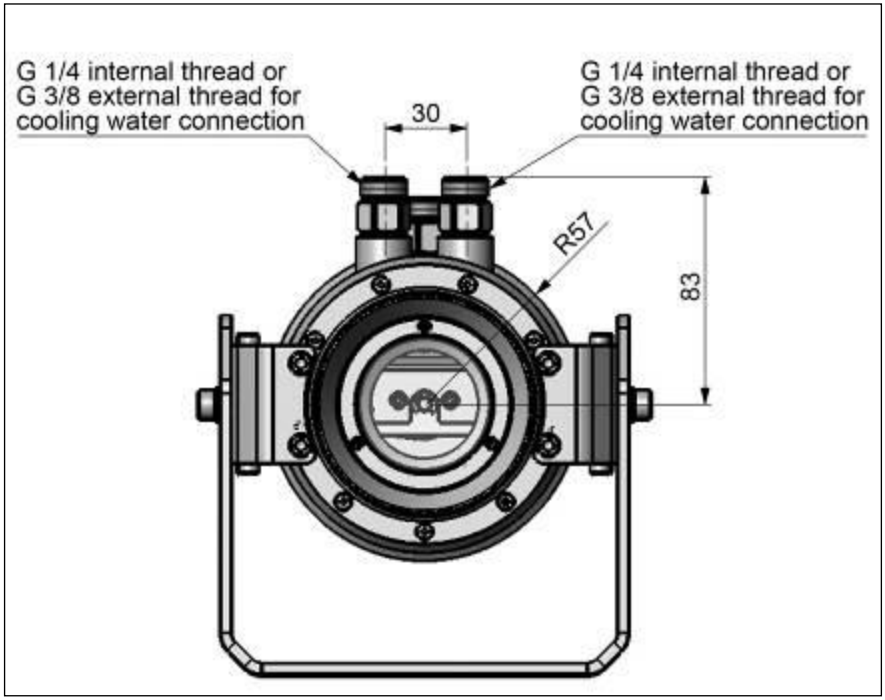


Figure 8: CoolingJacket Advanced, standard version – front view

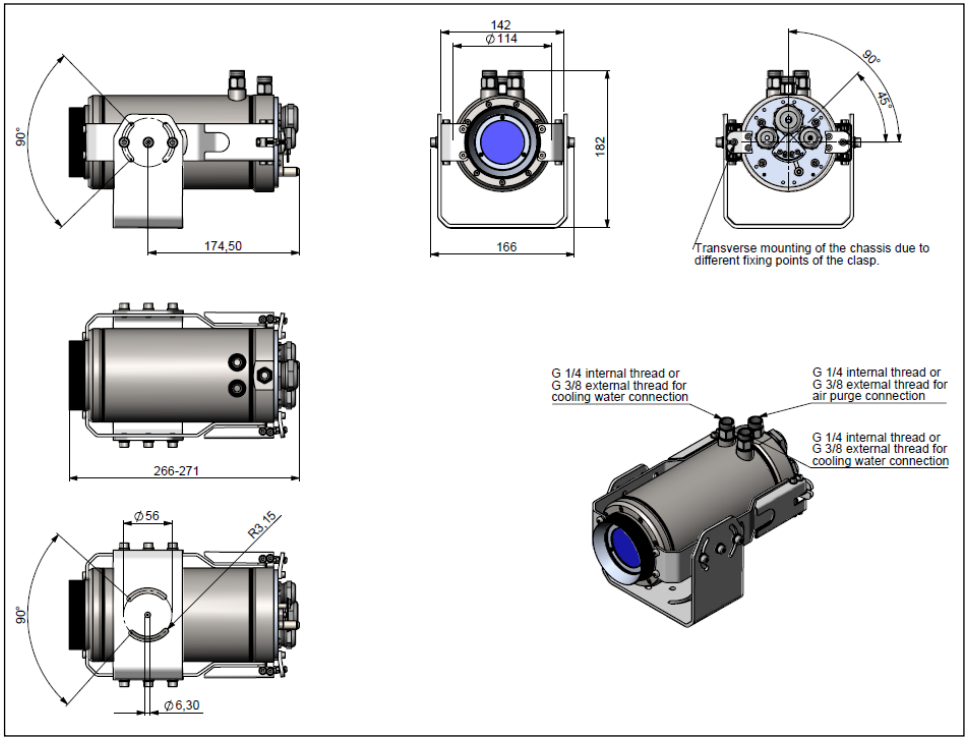


Figure 9: CoolingJacket Advanced, standard version – complete view

Extended version

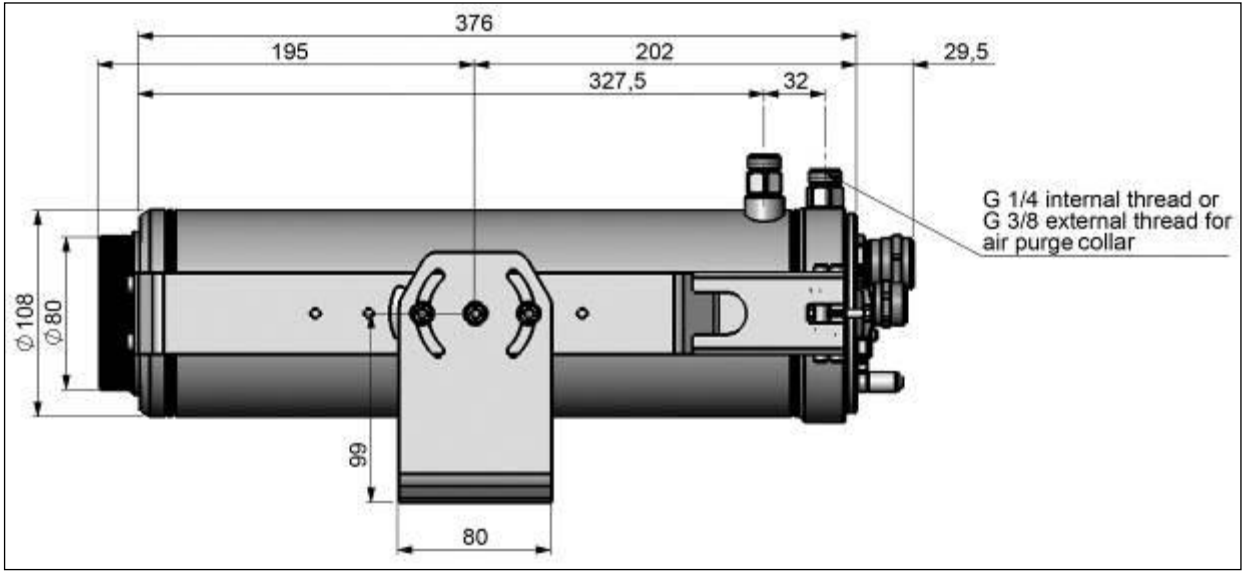


Figure 10: CoolingJacket Advanced, extended version – side view

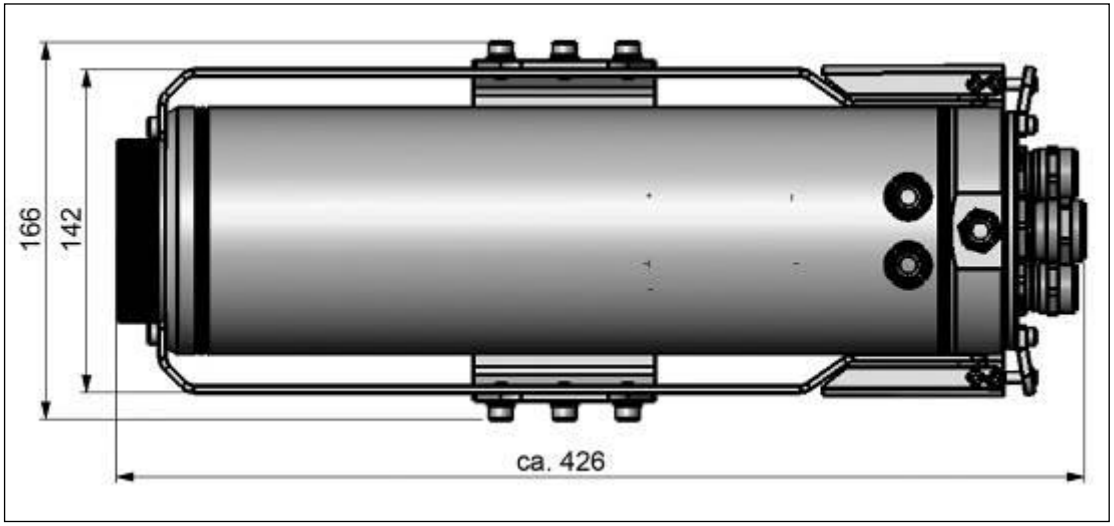


Figure 11: CoolingJacket Advanced, extended version – top view

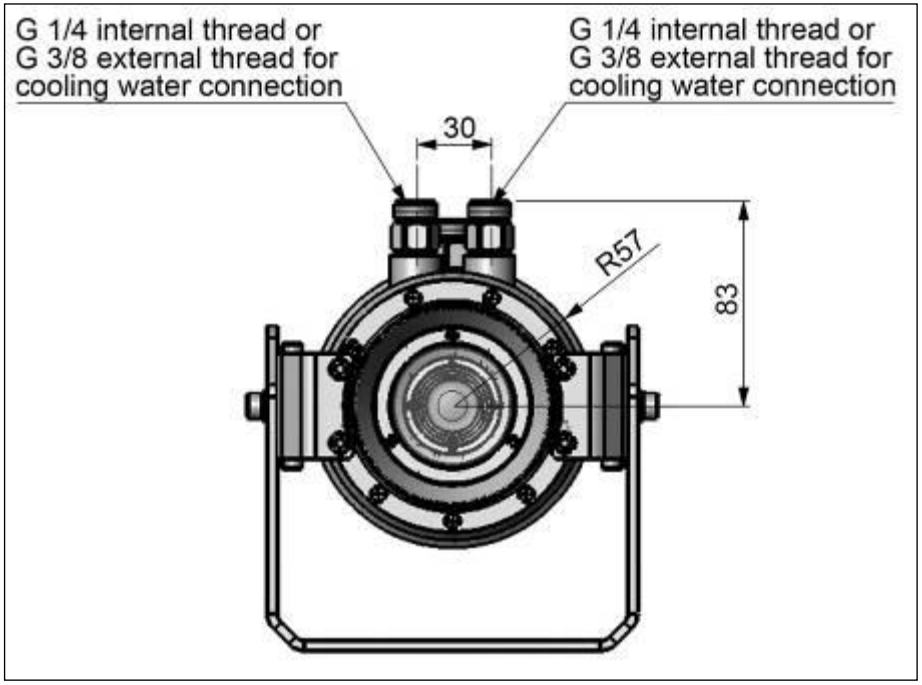


Figure 12: CoolingJacket Advanced, extended version – front view

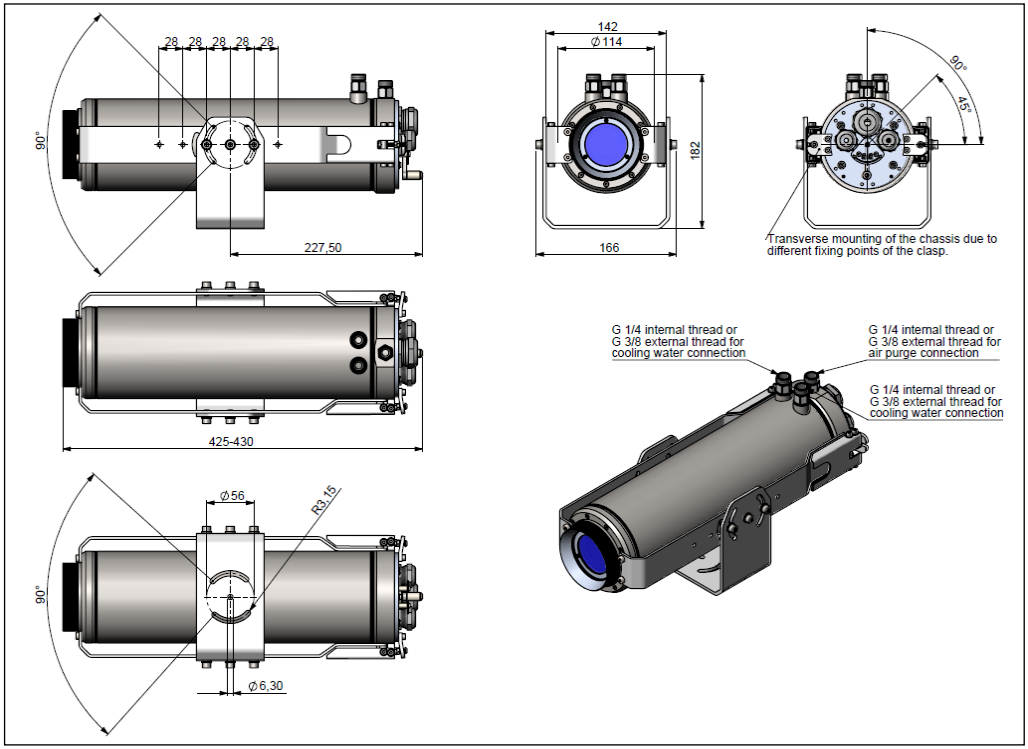


Figure 13: CoolingJacket Advanced, extended version – complete view

Mounting flange (Accessories)

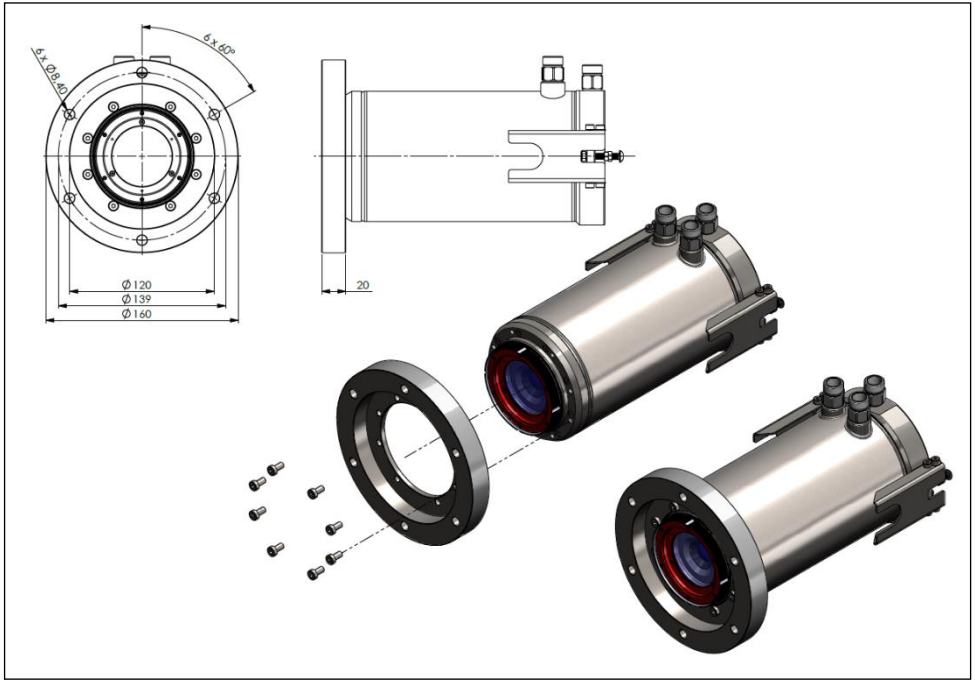


Figure 14: Mounting flange for CoolingJacket Advanced (Standard and Extended), **Part-No.: ACCJAMF**

2.4 Fittings

2.4.1 Cooling water fitting

- The cooling water input and output has a G1/4“-internal thread and a G3/8“-external thread.
- The maximum cooling water pressure is 15 bar (271 psi).
- While connecting the hoses keep inclined the Cooling Jacket at an angle of approx. 45° to avoid air bubbles.

2.4.2 Air purge collar

- Use oil-free, technically clean air only.
- The needed amount of air (at least 120 l/ min., 5-8 bar) depends on the application and the installation conditions on-site.
- The air purge collar has a G1/4“-internal thread and a G3/8“-external thread.

The lens must be kept clean at all times from dust, smoke, fumes and other contaminants in order to avoid reading errors. These effects can be reduced by using an air purge collar.

The following classes according to ISO 8573-1 are recommended for the quality of compressed air:

	Classes
Oil content:	class 2 or better
Water content:	class 4 or better
Solid content:	class 2 or better

2.4.3 Cable glands on the back

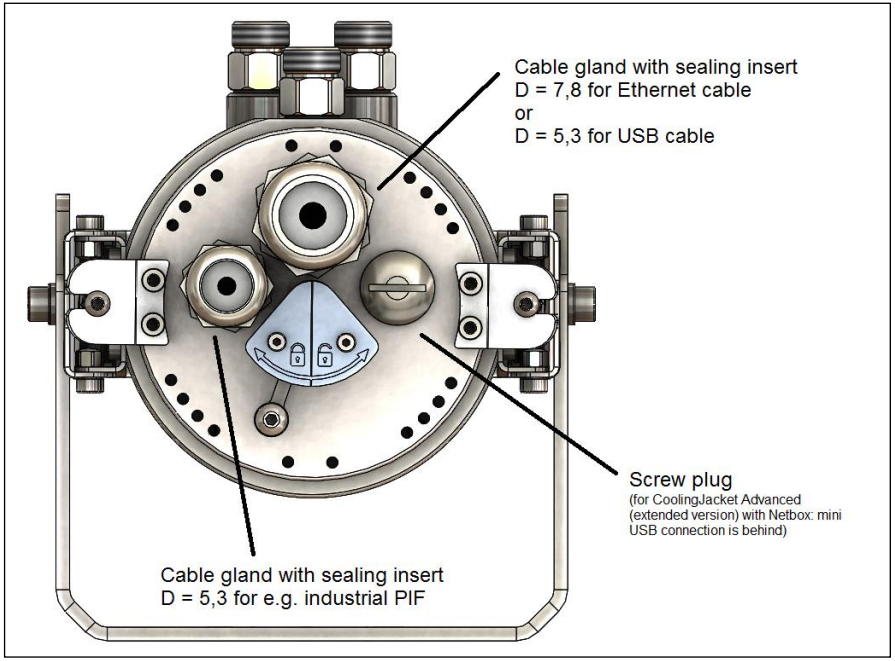


Figure 15: Cable glands with seal insert

2.5 Cooling properties

Flow		Temperature at 1 l/min	Temperature at 2,5 l/min	Temperature at 5 l/min
Ambient temperature	Cooling water input [°C]	19	19	19
[255 °C]	Camera [°C]	36	34	32

Table 2: Cooling properties with a steady cooling water input temperature and various flow

Flow		Temperature at 2.5 l/min of flow			
Ambient temperature	Cooling water input [°C]	25	30	35	40
[255 °C]	Camera [°C]	39	42	45	51

Table 3: Cooling properties with a steady flow and various cooling water input temperature

2.5.1 Condensation

- For applications at ambient temperatures until 100 °C and a high humidity there is danger of condensation (see **Table 4**).
- To avoid condensation, the temperature of the cooling media and the flow rate must ensure a minimum device temperature.
- Consider the operation temperature of the applied devices.

Example (see **Table 4**):

Ambient temperature	80 °C
Relative humidity	25 %
Minimum device temperature	45 °C

At an ambient temperature of 80 °C and a relative humidity of 25 % the device temperature must not be below 45 °C. Otherwise condensation occurs on the lens or the electronic.

Ambient temperature [°C] \ Relative humidity [%]	10	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
10	0	0	0	0	0	0	0	0	0	0	0	0	0	5	5	5	5	5	10
15	0	0	0	0	0	0	0	0	0	5	5	5	5	10	10	10	10	10	15
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30	0	0	0	5	5	10	10	15	15	15	20	20	20	20	25	25	25	25	30
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45	0	10	15	15	20	25	25	25	30	30	35	35	35	35	40	40	40	40	45
50	5	10	15	20	25	25	30	30	35	35	35	40	40	40	453	45	45	45	50
60	15	20	25	30	30	35	40	40	40	45	45	50	50	50	50	50	50	50	60
70	20	25	35	35	40	45	45	50	50	50	50	50	60	60	60	60	60	60	70
80	25	35	40	45	50	50	50	60	60	60	60	60	70	70	70	70	70	70	80
90	35	40	50	50	50	60	60	60	70	70	70	70	80	80	80	80	80	80	
100	40	50	50	60	60	70	70	70	80	80	80	80	80						

Table 4: Minimum device temperature in relation to ambient temperature and relative humidity in [°C]

3 Installation

3.1 Installation

The CoolingJacket Advanced both in the standard version and in the extended version can be installed in the desired position via the mounting bracket.

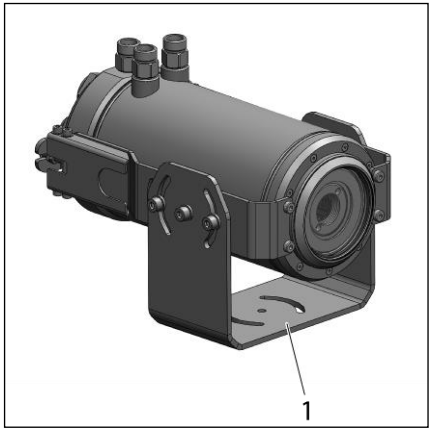


Figure 16: CoolingJacket Advanced with mounting bracket

1 Mounting bracket, adjustable in two axes

3.2 Installation of PI camera, infrared video thermometer and infrared thermometer

3.2.1 Assembling of the focusing unit

The focusing unit consists of two parts, external **(1)** and internal **(2)** part. The external part focuses the camera. The internal part fixes the camera.

To get the best possible measurements when inserting the lens into the camera body, make sure that the label on the lens is screwed in at the same height as the label from the housing.

Figure 17: Focusing unit (external and internal part)

1 External part of the focusing unit
2 Internal part of the focusing unit

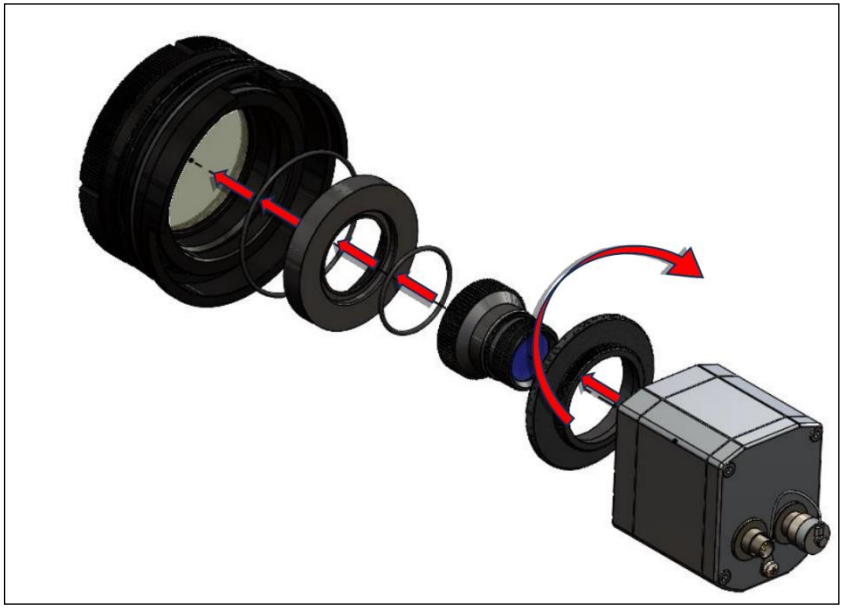


Figure 18: Assembling of the focusing unit

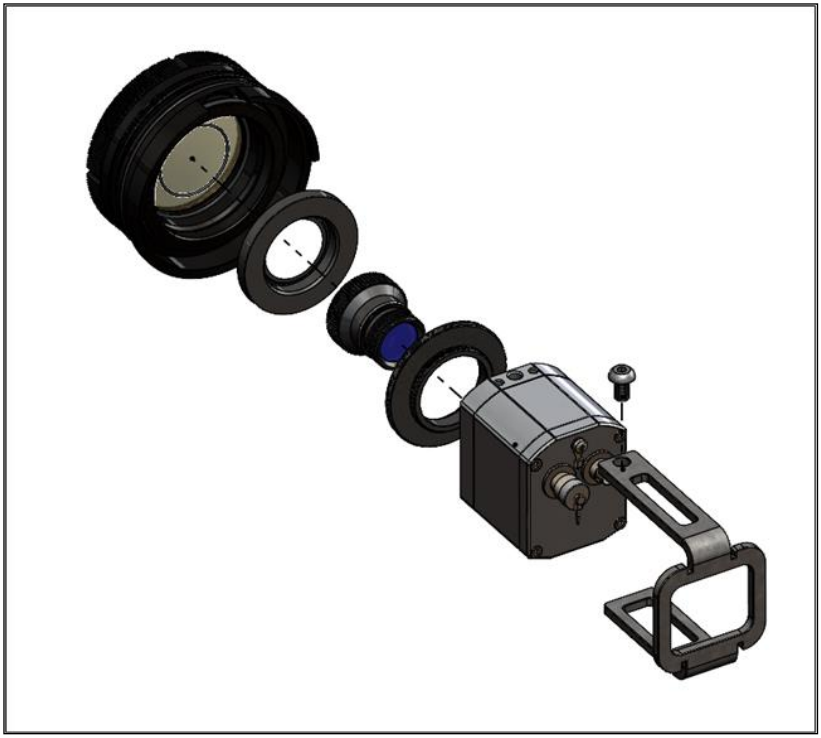


Figure 19: Assembling of the 80° optics

Note: For the installation of the 80 ° and 90 °optics, the camera must be fixed upside down on a supplied bracket.

Figure 20: Assembling of the CTlaser, CSlaser, CTvideo, CSvideo and CSvision

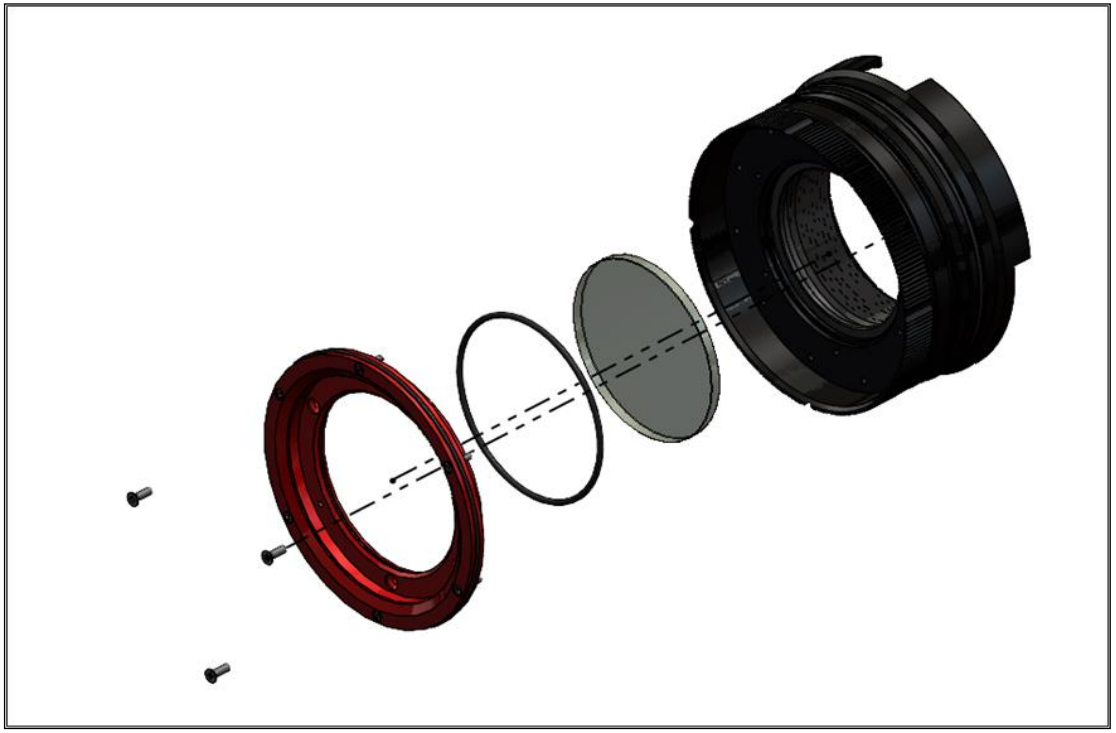


Figure 21: Individual components of the focusing unit

3.2.1.1 Mounting of protective window / lens protective grid

Protective Window

Step 1: Loosen the three countersunk head screws M2 x 5 (inside) and remove them!

Step 2: Turn six countersunk head screws M1.6 x 4 (outside) by two turns to the left! (**Do not unscrew or remove!**)

Step 3: Now carefully pull the nozzle ring out of the focusing unit!

Step 4: Place the protective window in the provided platform of the focusing unit and the O-ring 50 x 1.5 in the provided nut of the nozzle ring!

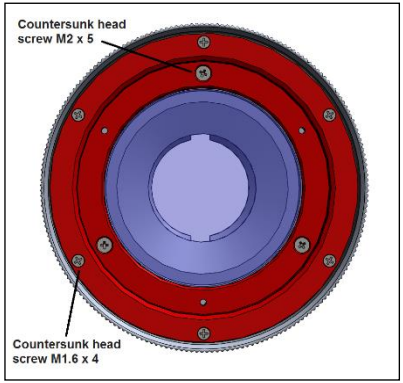


Figure 22: Focusing unit

Step 5: Plug the nozzle ring back into the focusing unit and secure it with the three countersunk head screws M2 x 5 (inside)!

Step 6: Now tighten the six countersunk head screws M1.6 x 4 (outside) by twisting them two turns to the right!

The protective window cannot be installed on a focusing unit for 90° optics [**Article no.: ACCJAFU90**].

Lens protective grid

There is the possibility to protect your camera or your protective window in addition of rough mechanical influences (e.g., stones) by the lens protective grid. The lens protective grid will be delivered preassembled together with the focusing unit.

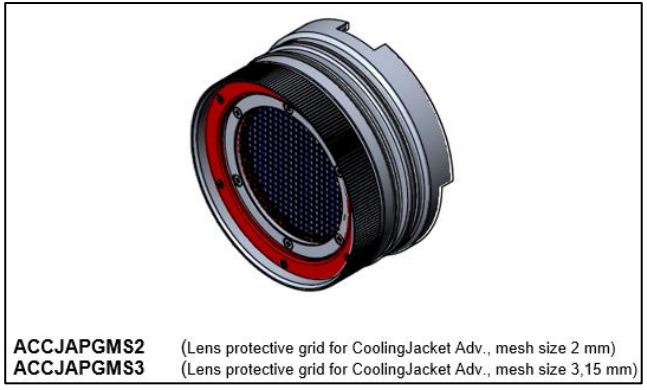


Figure 23: Focusing unit with protection window and lens protective grid

3.2.2 Assembling to the housing

Standard version

Depending on the chassis either a camera of the PI series, a laser infrared thermometer or an infrared video thermometer can be installed.

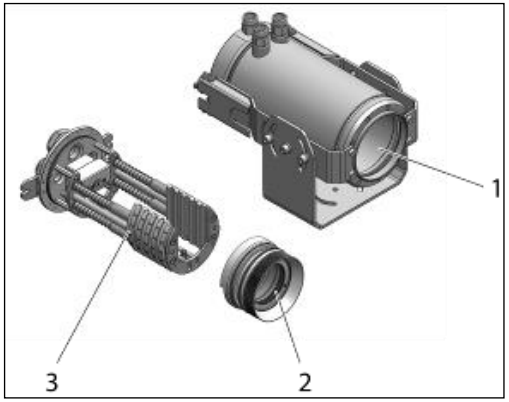


Figure 24: CoolingJacket Advanced, standard version

1 Housing
2 Front part (or focusing unit)
3 Chassis

Installation of PI camera

1. Mount the camera to the focusing unit or the front part as described in **chapter 3.2.1.**

2. Seat the focusing unit or front part in the chassis (**Figure 25**). Pay attention to the correct positioning of the two bars at the bottom of the chassis. These must be moved in the slot for the respective camera used (**Figure 26, Figure 27**). Position it as shown in **Figure 28**, by pushing it to the bottom.

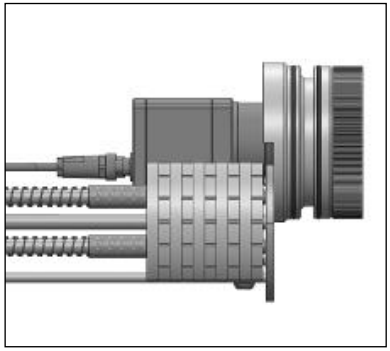


Figure 25: Inserting of the focusing unit

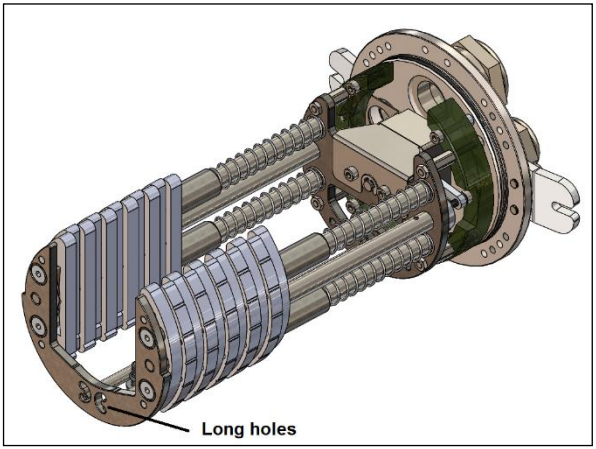


Figure 26: Long holes on the bottom of the chassis

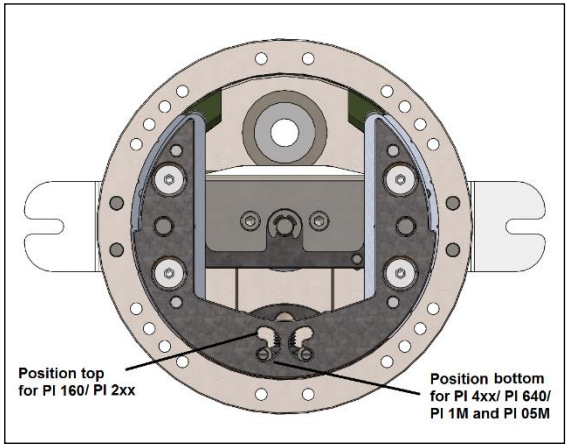


Figure 27: Positioning the two bars in the slot for different cameras

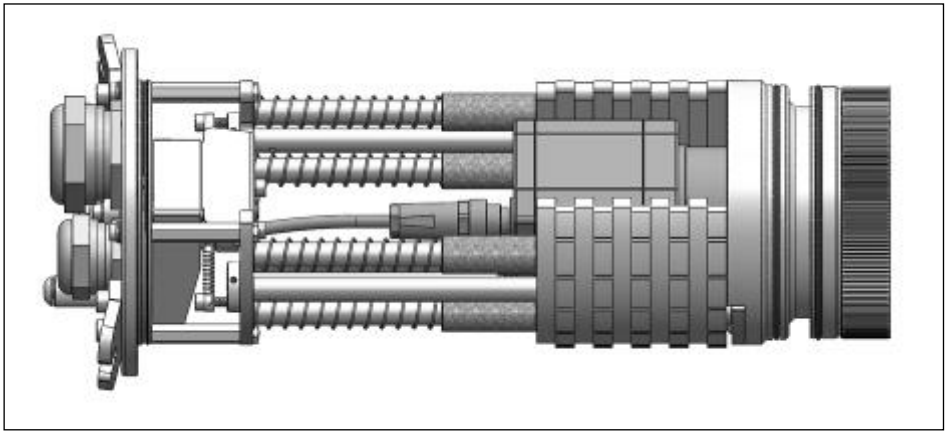


Figure 28: Focusing unit with camera

3. Fix the camera with the provided screw on the bottom of the chassis.

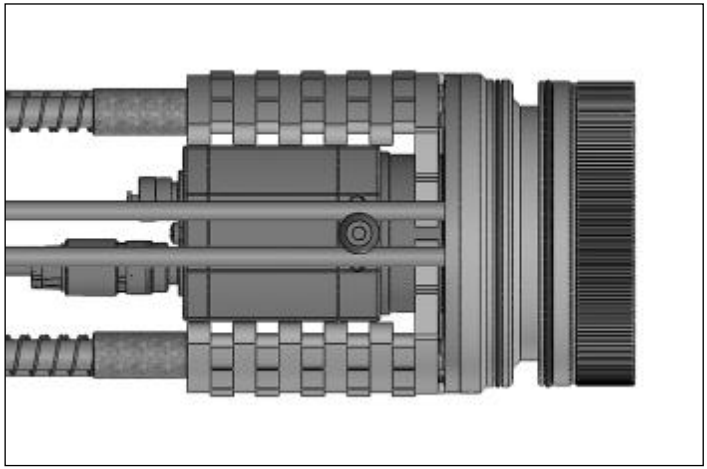


Figure 29: Mounting of the camera to the chassis

4. Then connect the PI camera with the provided USB cable and lead it out of the cable gland.

5. Slide the chassis with the camera in the housing. Put the pins of the hinges to the slits of the chassis and lock the hinge by pushing it forward (**Figure 30**).

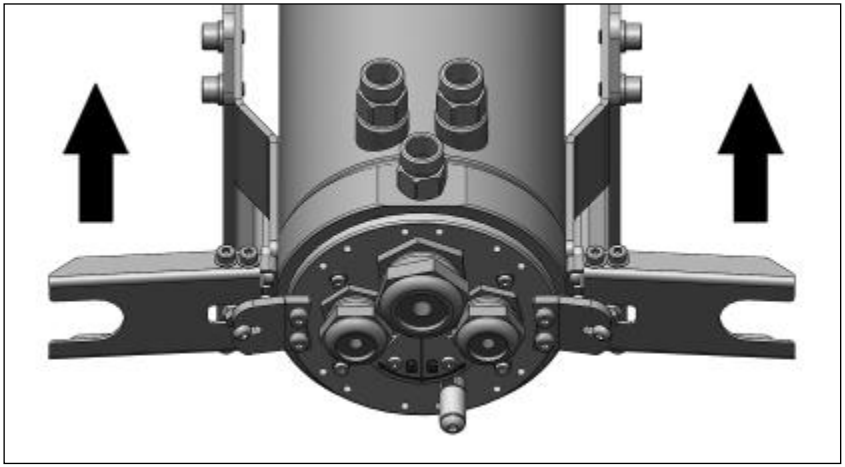
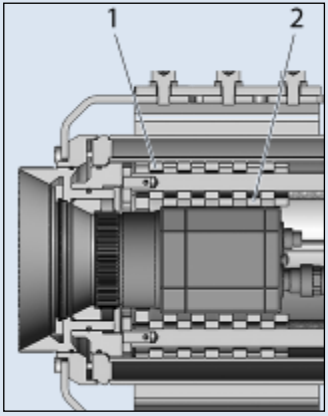


Figure 30: Locking of the hinge

It is recommended to lightly grease the focusing unit or front part before inserting the chassis into the housing (for example with Aeronix Silicone grease 561).

6. Move the locking lever to the left (symbol:), so that the chassis is fitted close to the inner surface of the housing (**Figure 31**).

The alternate contact of the cooling jaws with the camera/ infrared thermometer and inner housing generates an optimal cooling effect.



1 Contact of the cooling jaws and inner housing
2 Contact of the cooling jaws and camera/ infrared thermometer

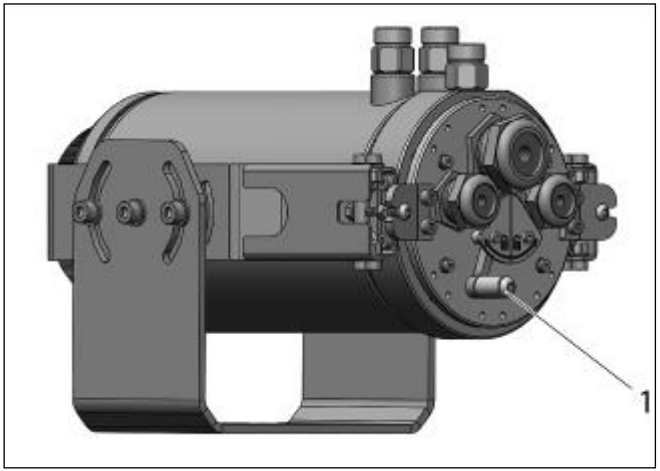


Figure 31: Back side of the CoolingJacket with locking lever

1 Locking lever

7. Dismount in reverse order.

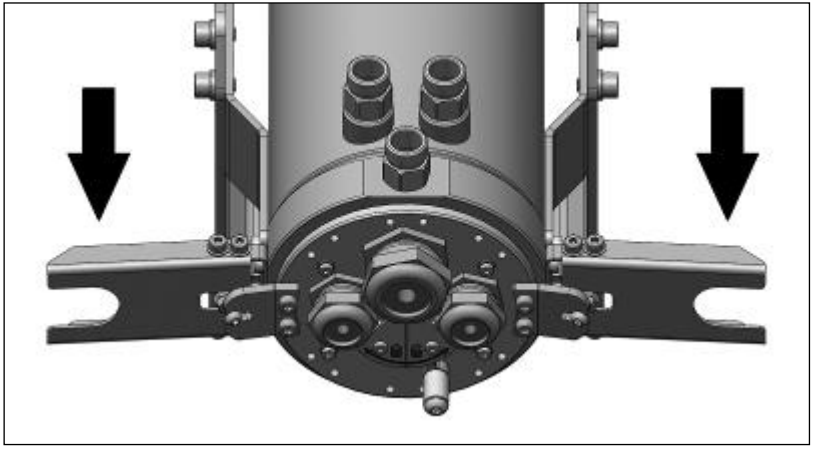


Figure 32: Unlocking of the hinge

Installation of video thermometer or infrared thermometer

1. Screw the infrared thermometer in the thread (M48x1.5) of the front part (see **Figure 20**) and seat the front part in the chassis (**Figure 33**).

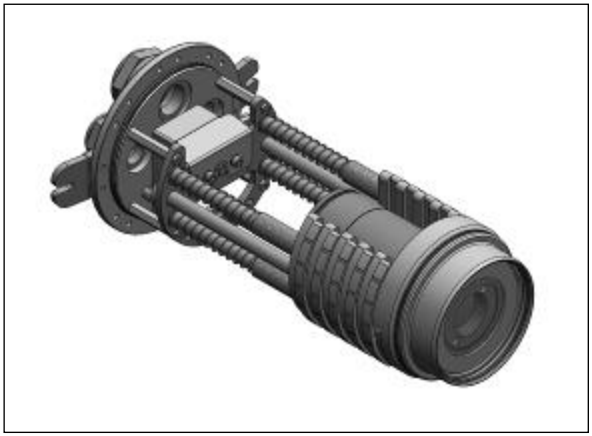


Figure 33: Front part with infrared thermometer

2. Lead the sensor cable out of the cable gland.

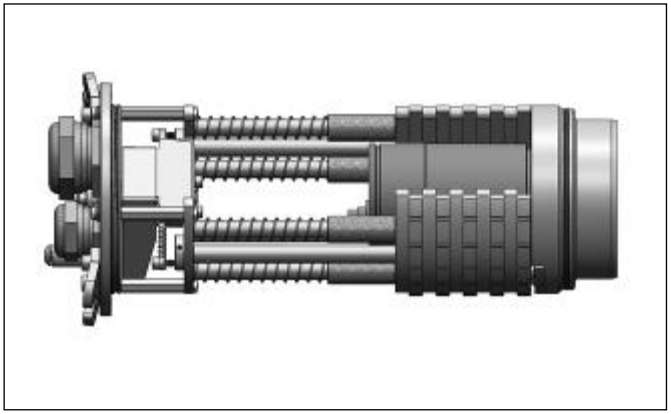


Figure 34: Infrared thermometer mounted

3. Slide the chassis with the camera in the housing. Put the pins of the hinges to the slits of the chassis and lock the hinge by pushing in forward (**Figure 30**).

4. Move the locking lever to the left (symbol: ), so that the chassis is fitted close to the inner surface of the housing (**Figure 31**)

5. Dismount in reverse order (**Figure 32**).

Extended version

The extended version of the CoolingJacket Advanced provides an installation of the PI series together with the PI Netbox and an industrial PIF or with the USB server Gigabit and an industrial PIF.

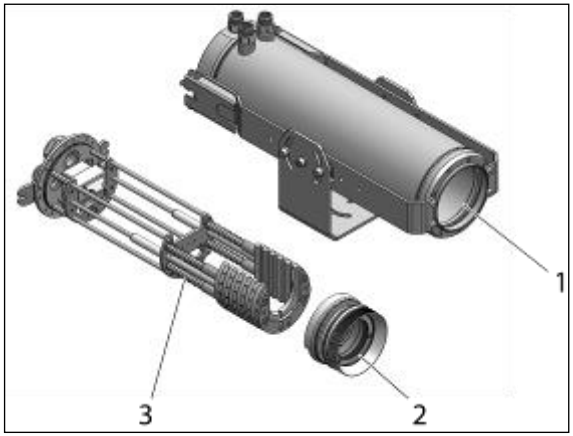


Figure 35: CoolingJacket Advanced, extended version

1 Housing
2 Focusing unit
3 Chassis

Installation of PI camera

Steps 1-3, see **page 47**.

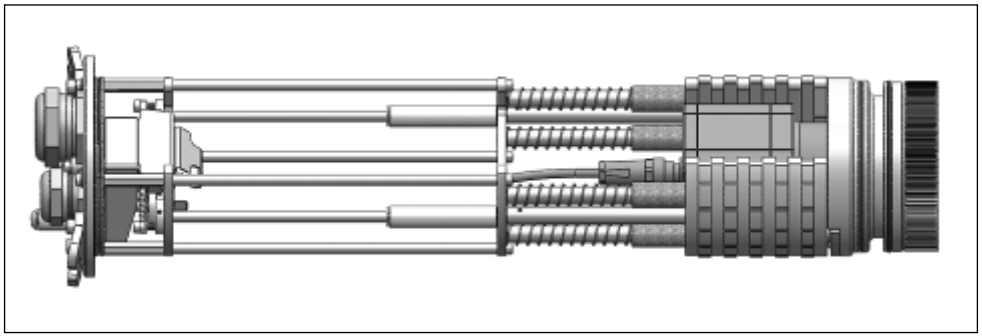


Figure 36: Camera implemented (extended version)

Assembling of PI NetBox and industrial PIF

4. Mount the holding plate (screws M3x5). Then attach the two support rods complete with the distance bolts (SW 5,5x6 - M3x6) with the provided screws (M3x10) to the bottom of the chassis. At last mount the shaft to fix the PI NetBox (**Figure 37**).

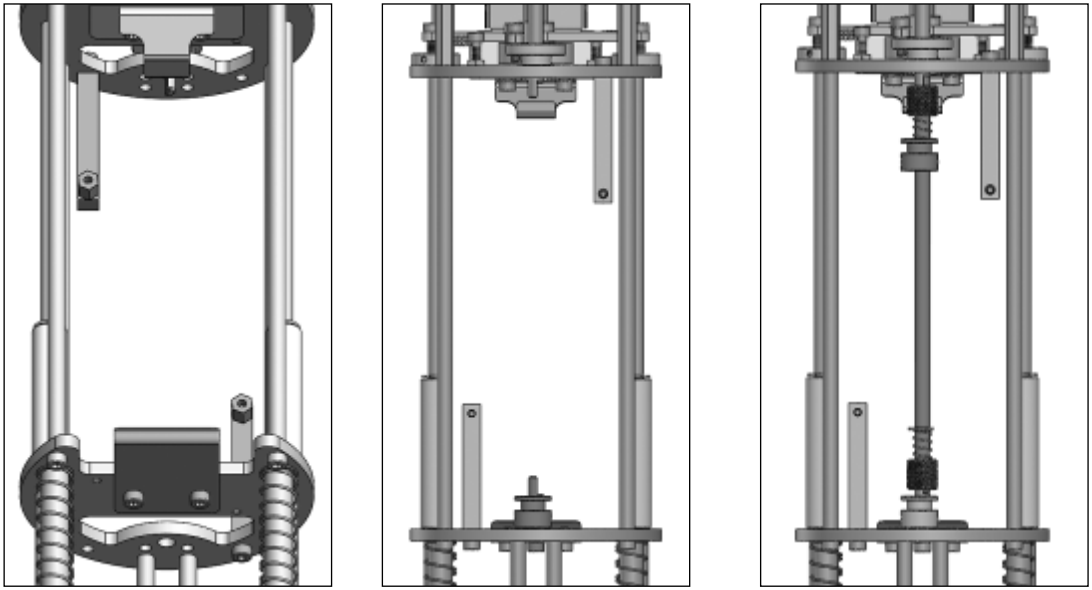


Figure 37 (a-c): Mounting of the accessories for PI NetBox: **a)** Holding plate for PI NetBox (top view), **b)** Support rods for industrial PIF (view from the bottom), **c)** Shaft to fix the PI NetBox (view from the bottom)

5. Fix the industrial PIF with the screws (M3x5) as shown in **Figure 38**.

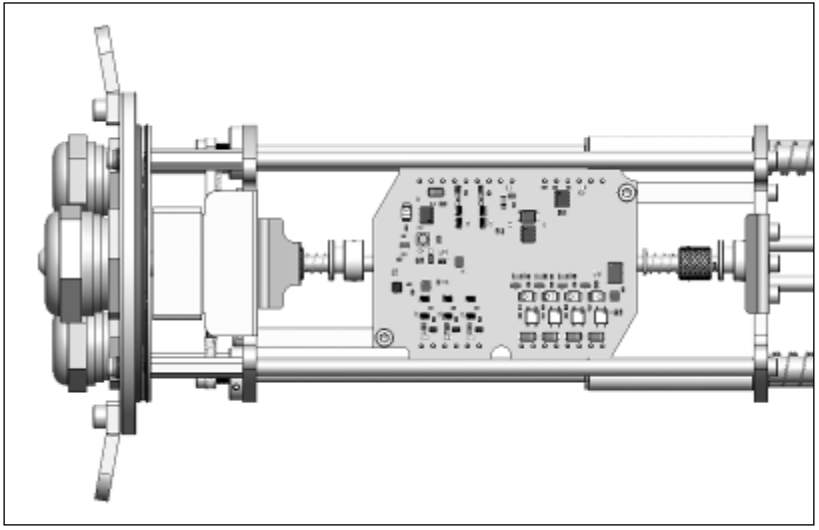


Figure 38: Mounting of the industrial PIF (top view)

6. To mount the PI NetBox to the chassis screw it to the fastening rail (screws M4x8).

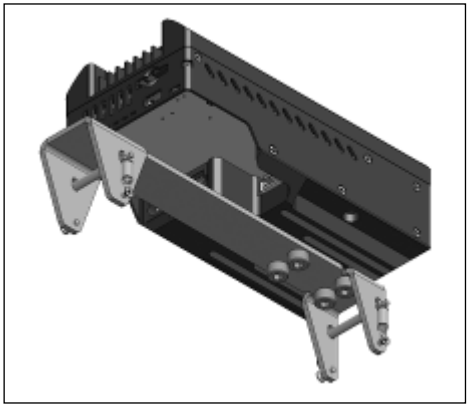


Figure 39: PI NetBox with fastening rail

At first push the fastening rail with the PI NetBox into the left notch (**1**) of the shaft. Afterwards into the right notch (**1**) (**Figure 40**) until it is engaged (**Figure 41**).

By locking the chassis the shaft pushes the PI NetBox to the inner surface of the housing. This guarantees an optimal cooling of the PI NetBox.

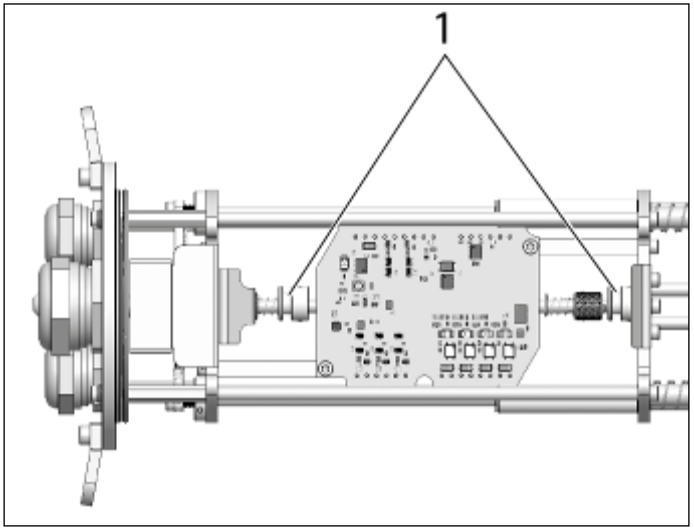


Figure 40: Notch to fix the PI NetBox (top view)

1 Notch

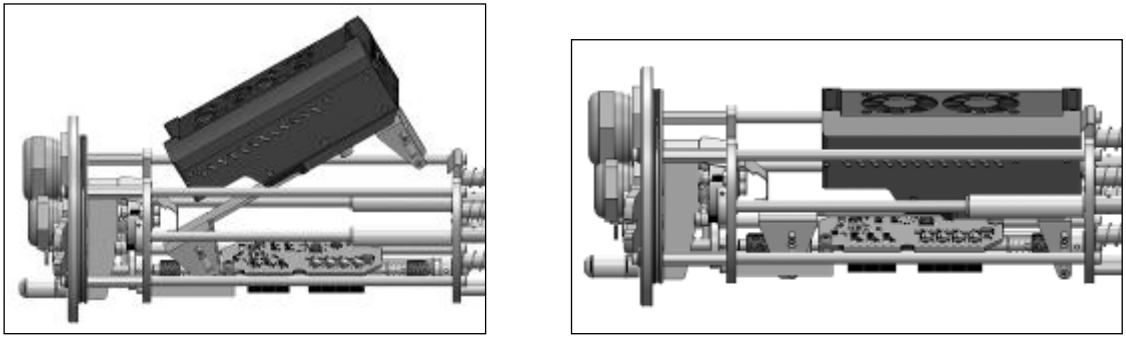


Figure 41: Fitting the PI NetBox into the chassis (right hand view)

7. Then connect the PI camera and the PI NetBox with the provided USB cable and the Industrial PIF with the camera. Combine the network connector and the PI NetBox (**Figure 42**).

The USB angle plug is a reversible plug. This means that the plug can be plugged freely around in the USB socket and works in both orientations.

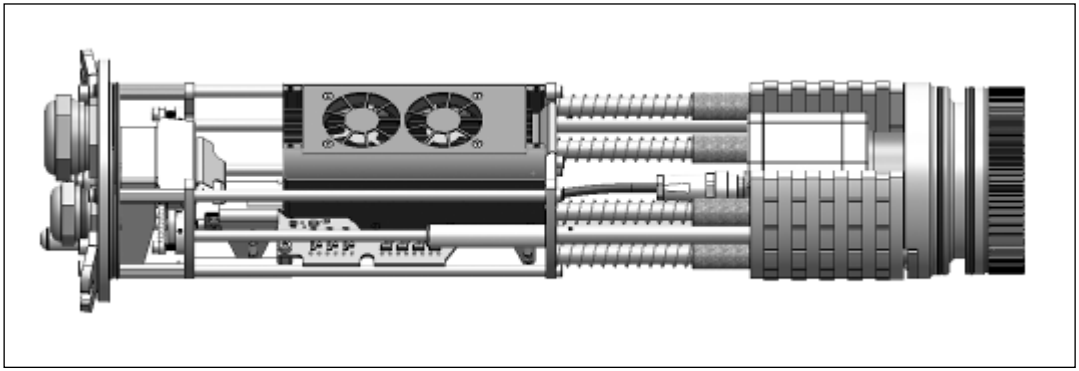


Figure 42: Chassis with PI camera, industrial PIF and PI NetBox

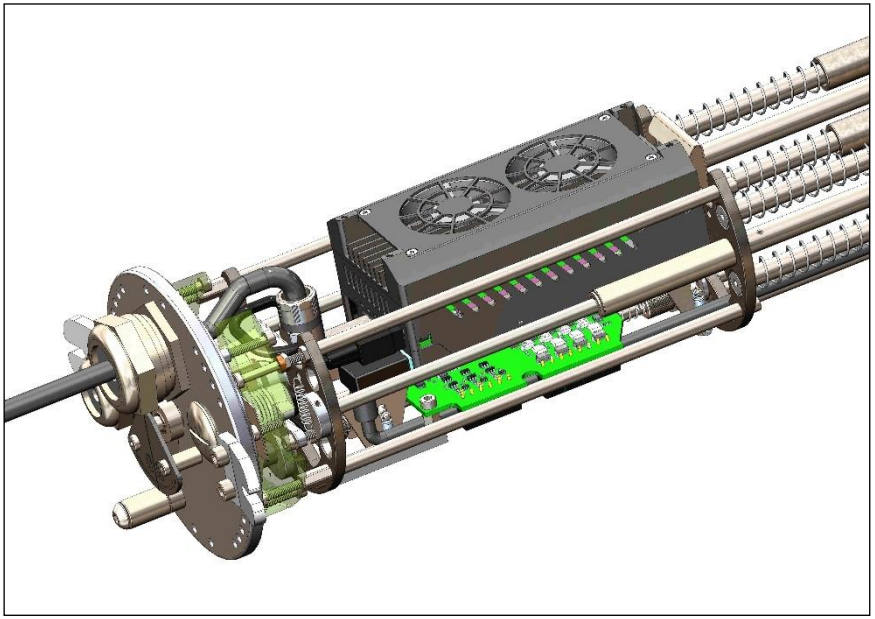
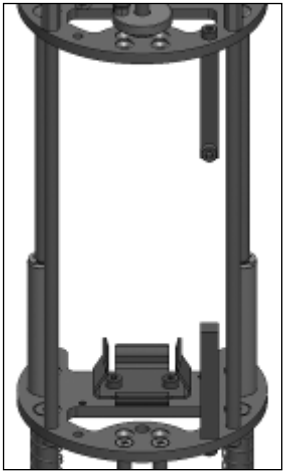


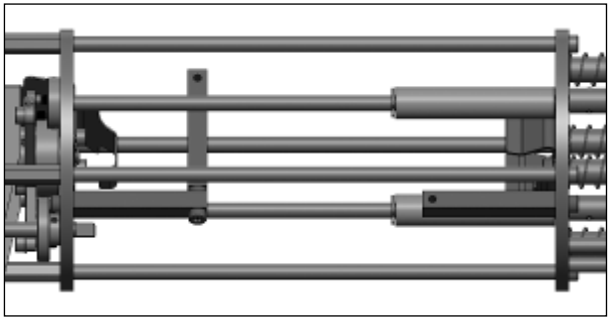
Figure 43: Mounting USB and network connector to NetBox

Follow as step 5, **page 50**.

Assembling of USB server Gigabit and Industrial PIF

4. Mount the DIN rail plate with the screws (M3x5) to fix the USB server Gigabit. Then attach the support rods with the provided screws (M3x10) to one side of the chassis; use the distance ring on the left (**Figure 44**).





How-to Video

https://www.optris.global/video-tutorial-coolingjacket-advanced-installation-pif-and-usb-server

Figure 44 (a + b): Mounting of the accessories for USB server Gigabit: **a)** DIN rail plate for USB server Gigabit (view from the bottom), **b)** Support rods for industrial PIF (right hand view)

5. Fix the Industrial PIF with the screws (M3x5) as shown in **Figure 45**.

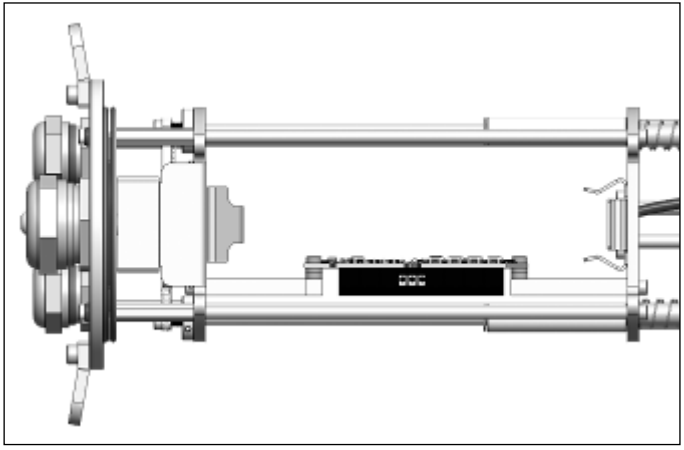


Figure 45: Mounting of the industrial PIF (top view)

6. Engage the USB server Gigabit to the DIN rail plate (**Figure 46**).

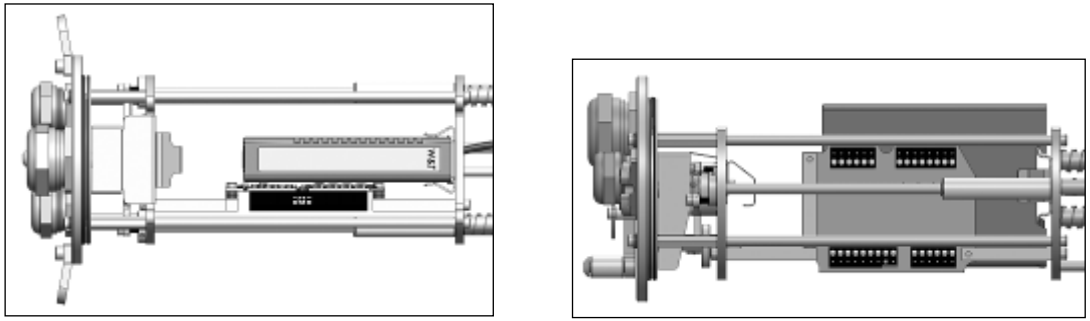


Figure 46 (a + b): Fitting the USB server Gigabit into the chassis (top view and right hand view)

7. Then connect the PI camera and the USB server Gigabit with the provided USB cable and the Industrial PIF with the camera. Combine the network connector and the USB server Gigabit (**Figure 47**).

The USB angle plug is a reversible plug. This means that the plug can be plugged freely around in the USB socket and works in both orientations.

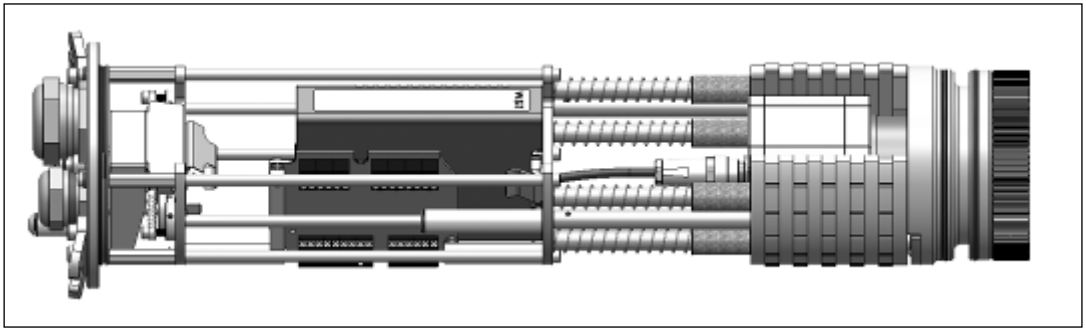


Figure 47: Chassis with PI camera, industrial PIF and USB server Gigabit

The USB Server can only be powered via PoE (Power of Ethernet) in the built-in CoolingJacket.

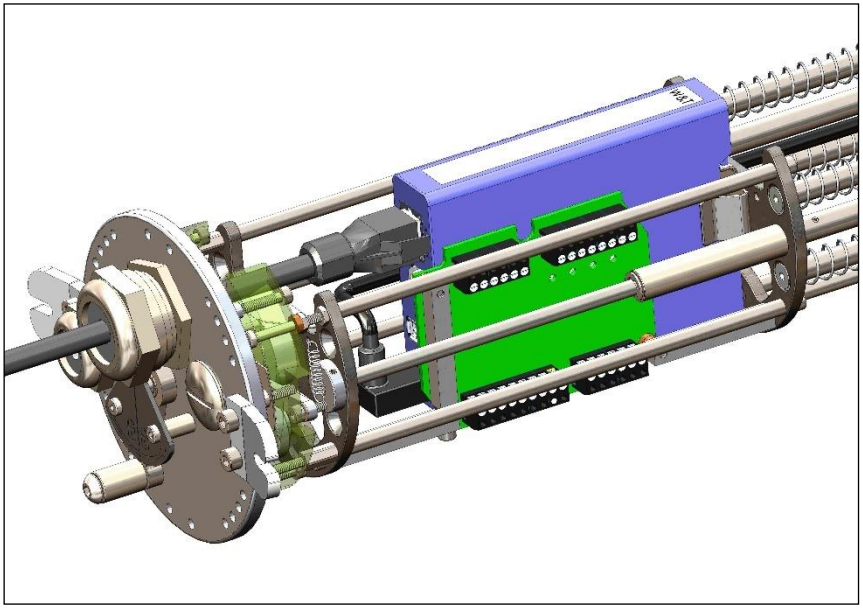


Figure 48: Mounting USB and network connector to USB server

Follow as step 5, **page 50**.

3.2.2.1 Changing of the installation angle of the camera

Due to the change of the camera angle, you can maximize the width of your line scan. An opening angle of 111° instead of 90° will be achieved (corresponds to 800 pixels instead of 640 pixels for a 640i camera). To do this, the camera must be rotated through an angle of 36.87°.

All PI cameras have a 4:3 format, which occurs a change angle of 36.87° for a horizontal diagonal line (see **Figure 49**). The CoolingJacket is designed for this case and the positions in the lid are defined.

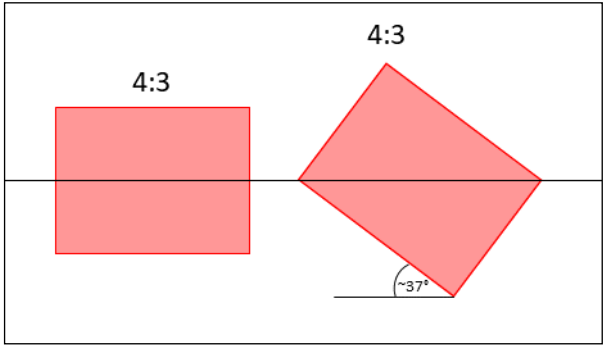


Figure 49: Horizontal and diagonal linescan

The chassis can be rotated as follows for the diagonal setup. Unlock the hinge and release the CoolingJacket using the locking lever. Loosen the four screws (**1**) on the mounting brackets (see **Figure 50**). Now turn the chassis to the desired direction (right or left) and fix it again in the desired position. The positions for the screw connection are marked in red in **Figure 50**.

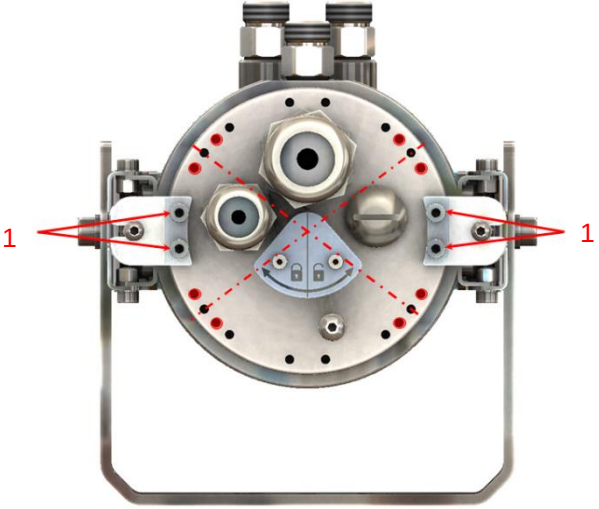


Figure 50: Installation angle of the camera

3.2.3 Assembly of the laminar air purge

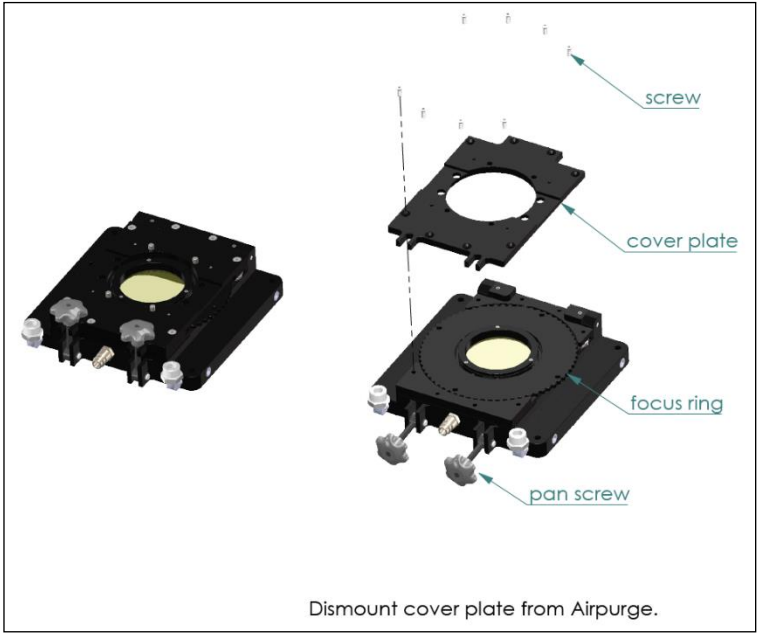


Figure 51: Assembly of the laminar air purge

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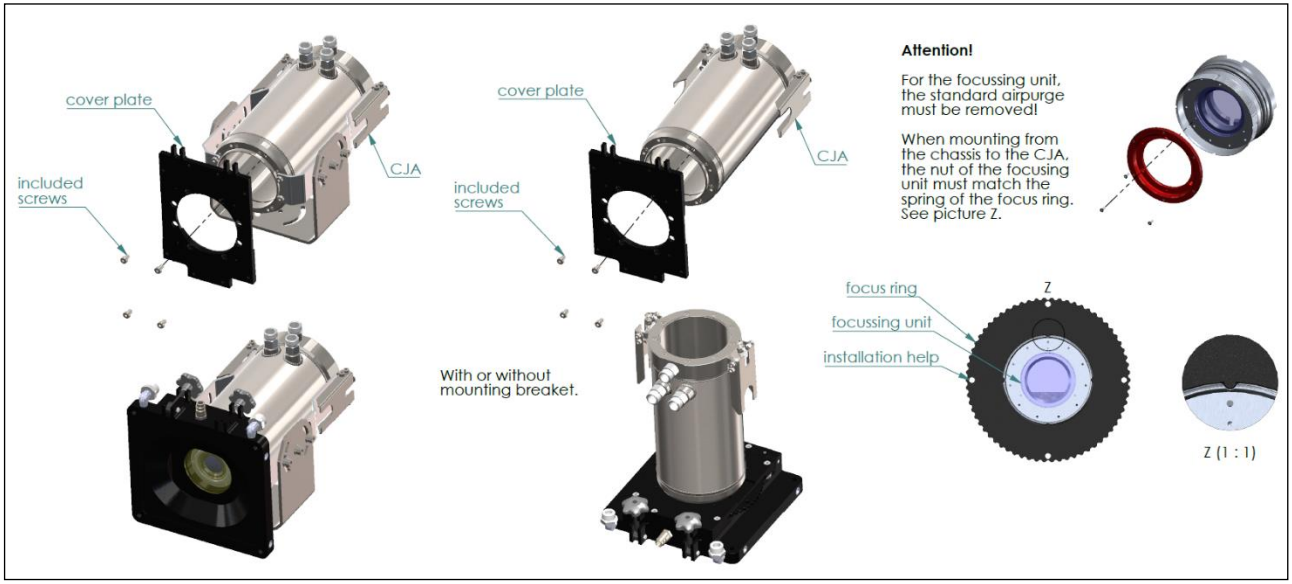


Figure 52: Assembly of the laminar air purge

For the focusing unit, the standard air purge and the screws must be removed!
When mounting from the chassis to the CJA, the nut of the focusing unit must match the spring of the focus ring (see picture **Z in Figure 52**).

Adjustment of air flow

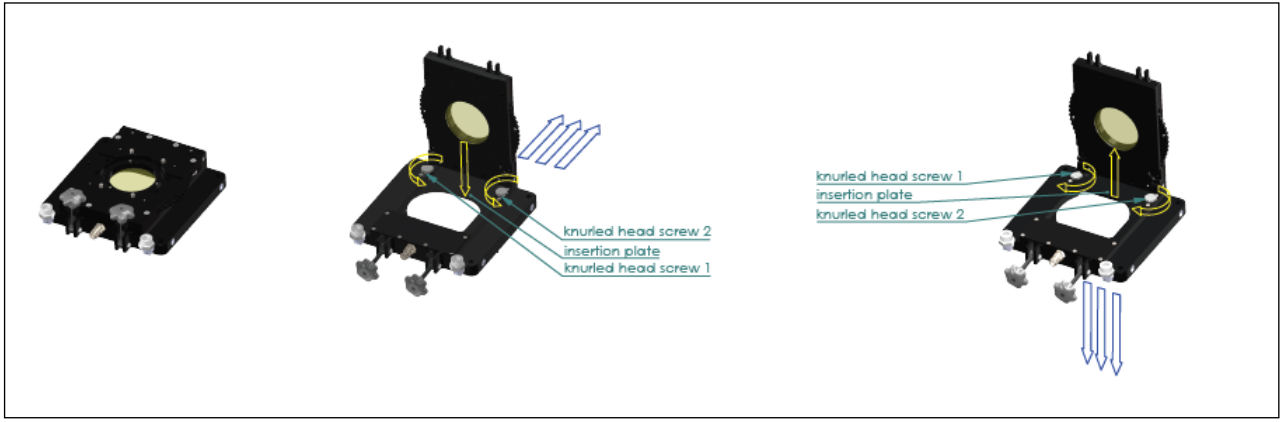


Figure 53: Adjustment of air outflow

To change the air outflow direction on the air purge, turn the knurled head screws 1 and 2 simultaneously to the left or right to move the drawer up or down.

The maximum pressure should not exceed 10bar (150psi)

3.2.3.1 Exchanging the protective window

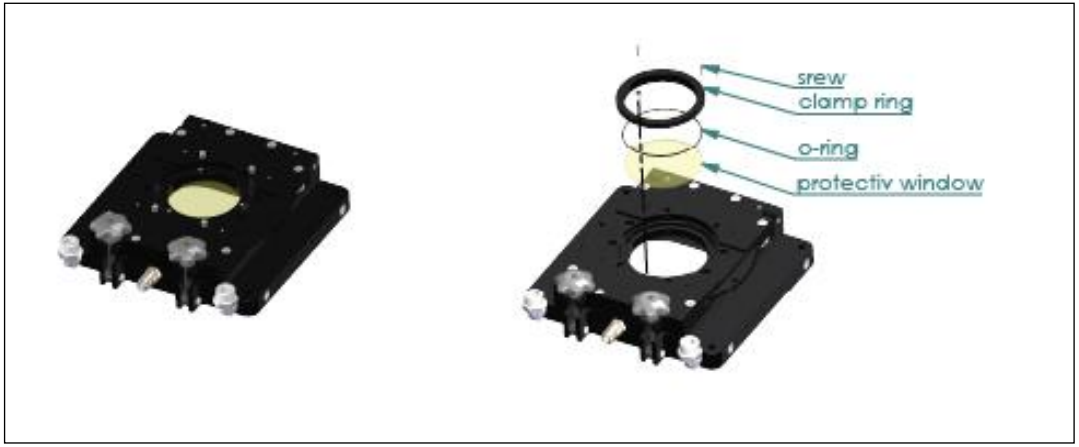


Figure 54: Change of the protective window

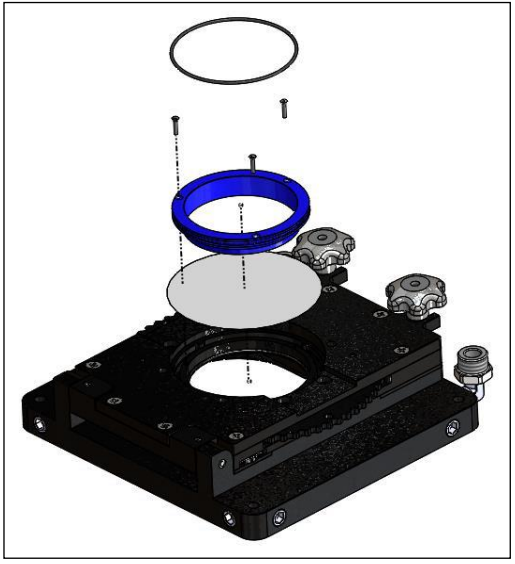
Loosen the screws from the clamping ring and remove it! Now take out the O-ring and the protective window!

Alternatively, the laminar air purge can be ordered with a plastic film window [**Article no.: ACCJAAPLFS or ACCJAAPLFL**], see **Chapter** 3.2.3.2

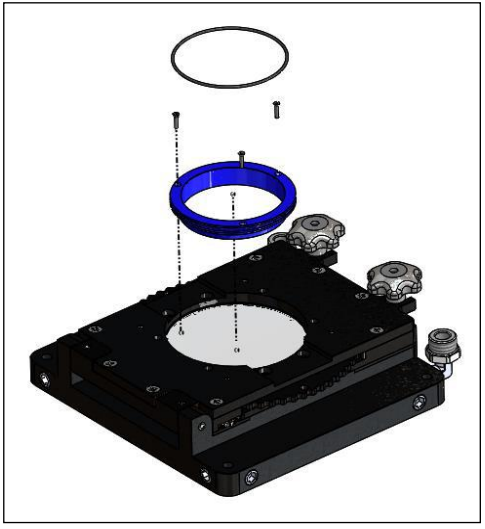
3.2.3.2 Assembly of plastic film window for laminar air purge

Spare films (3 pcs.) [**Article no.: ACOPHSF**] can be ordered in the case of a possible defect and is installed as shown here.

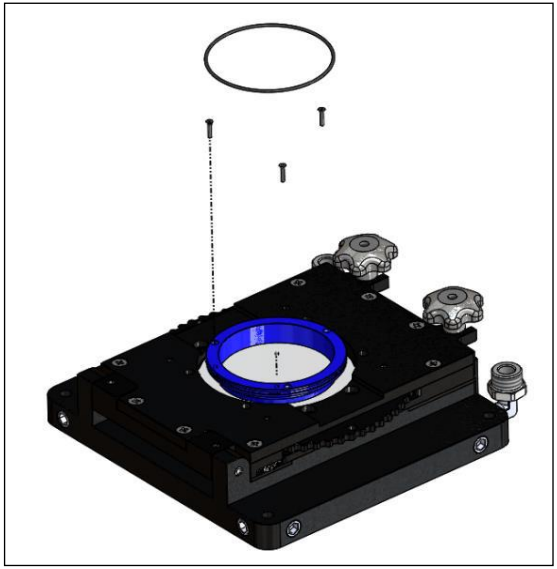
Step 1: Schematic structure

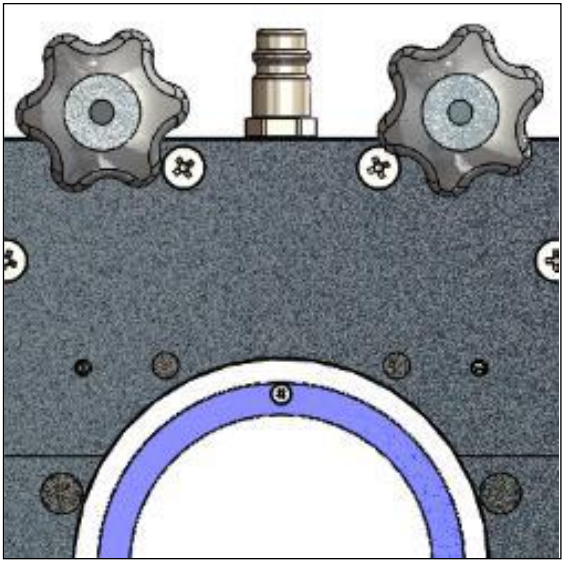


Step 2: Place the foil centrally in the circular shoulder of the upper plate.

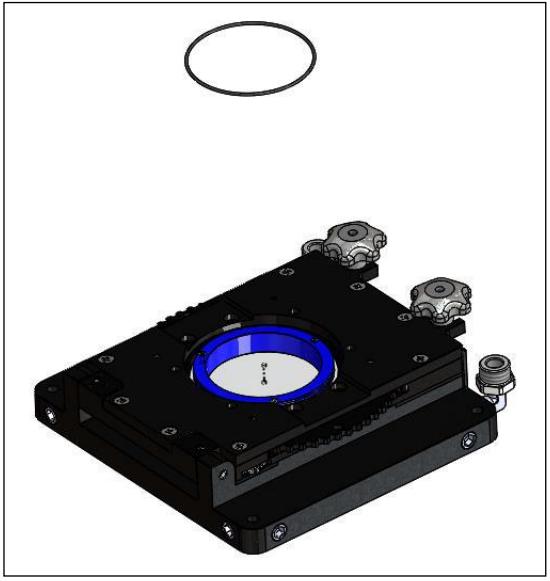


Step 3: Place the blue ring centrally on the foil. Make sure that the holes for the screws are on top of each other.

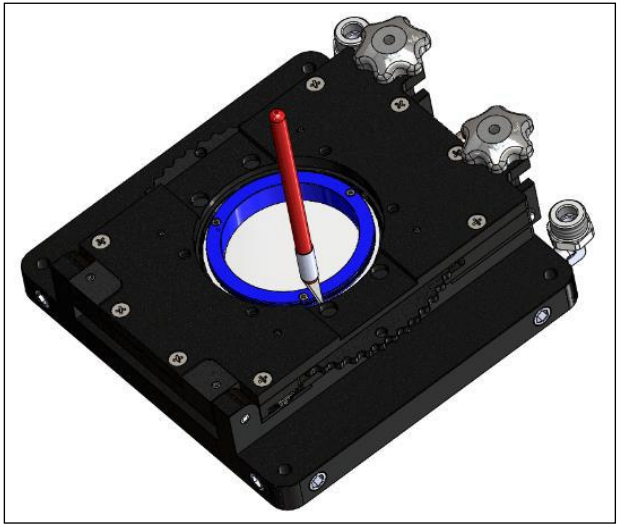




Step 4: Press the blue ring down evenly until it goes no further. Then tighten the ring with the 3 screws.

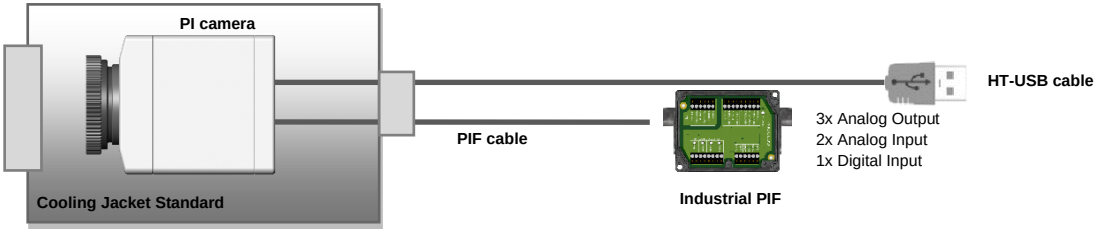


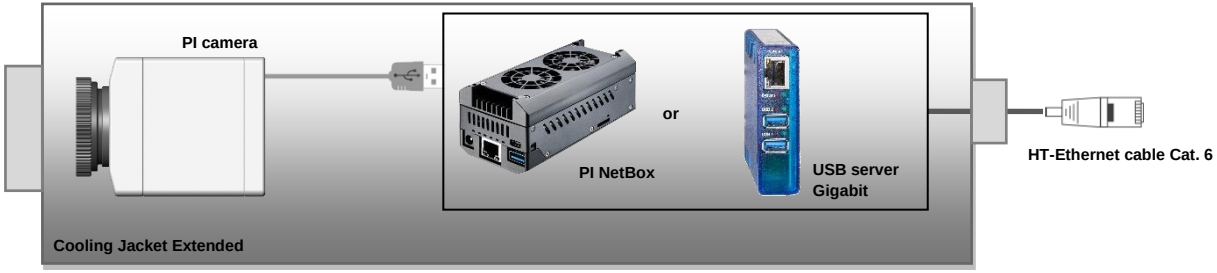
Step 5: Cut the unnecessary foil from the edge with a scalpel.

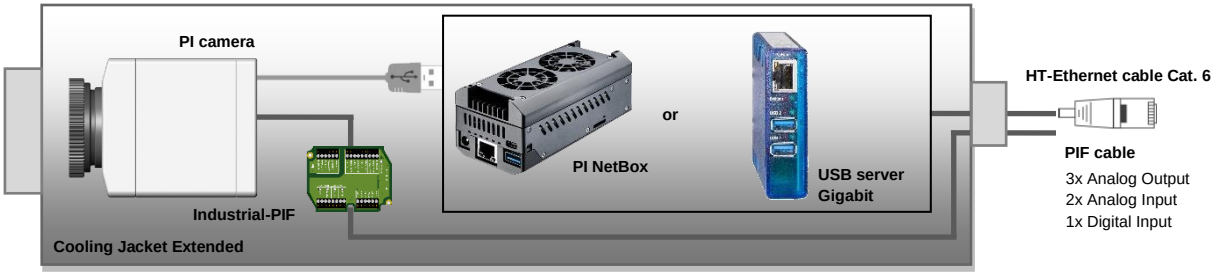


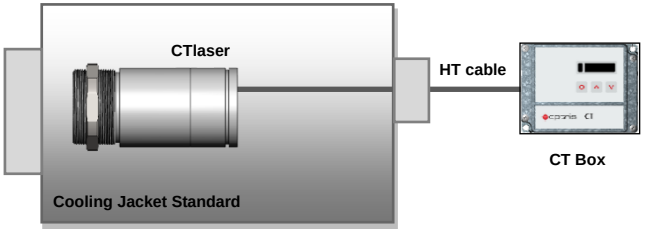
Step 6: Now place the O-ring in the groove of the blue ring.

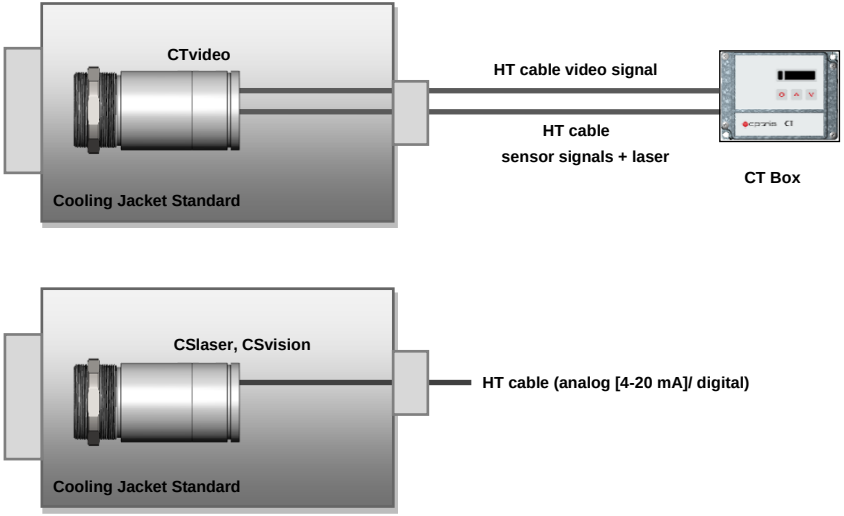
4 Example of installation

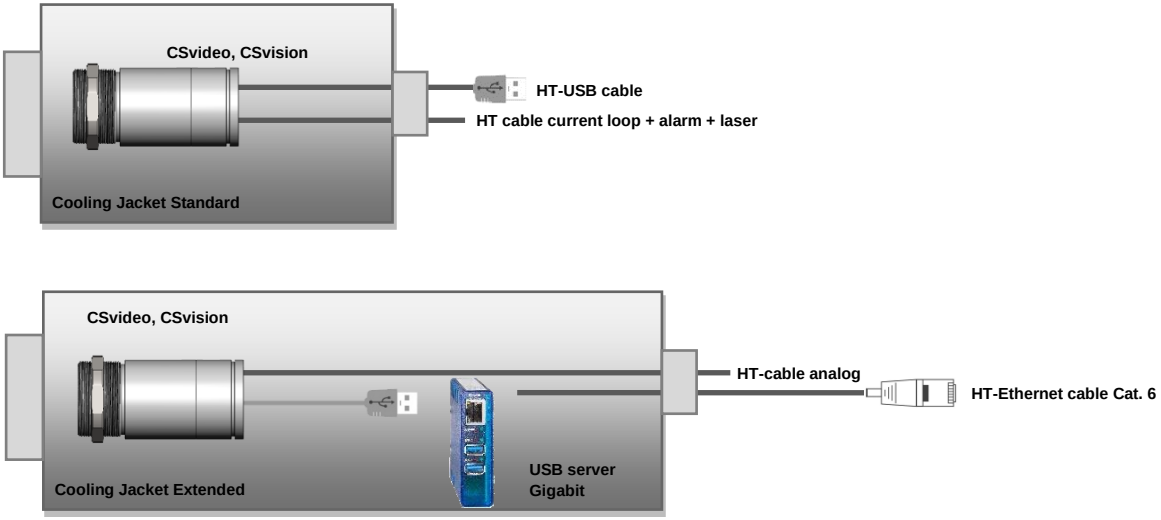





PI camera
Industrial-PIF
Cooling Jacket Extended
or
PI NetBox
USB server
Gigabit
HT-Ethernet cable Cat. 6
PIF cable
3x Analog Output
2x Analog Input
1x Digital Input


CTlaser
Cooling Jacket Standard
HT cable
CT Box


CTvideo
HT cable video signal
HT cable
sensor signals + laser
CT Box
Cooling Jacket Standard
CSlaser, CSvision
HT cable (analog [4-20 mA]/ digital)
Cooling Jacket Standard



*All high temperature cables are available for temperatures up to 180 °C/ 250 °C:

- IR video thermometer and IR thermometer: 3 m, 8 m, 15 m
- HT-Ethernet cable Cat.6: 10 m und 20 m
- HT-USB cable: 5 m, 10 m

Figure 55: CoolingJacket (Standard) with CSvideo

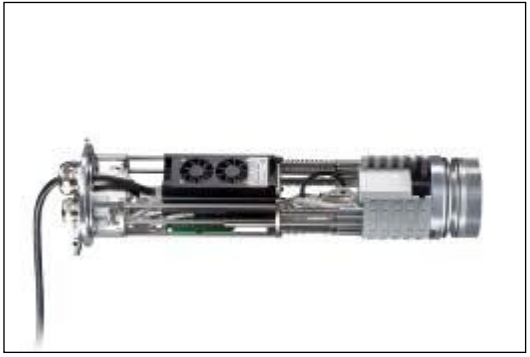


Figure 56: Cooling Jacket Advanced (Extended) with PI NetBox and industrial PIF

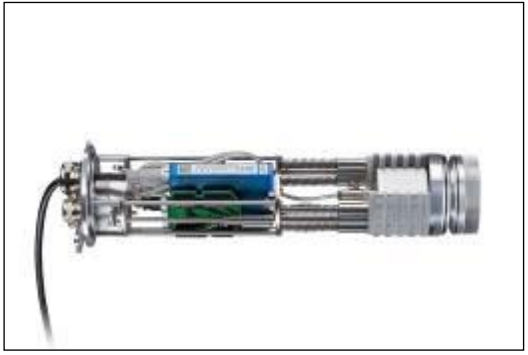


Figure 57: Cooling Jacket Advanced (Extended-Version) with USB Server and industrial PIF

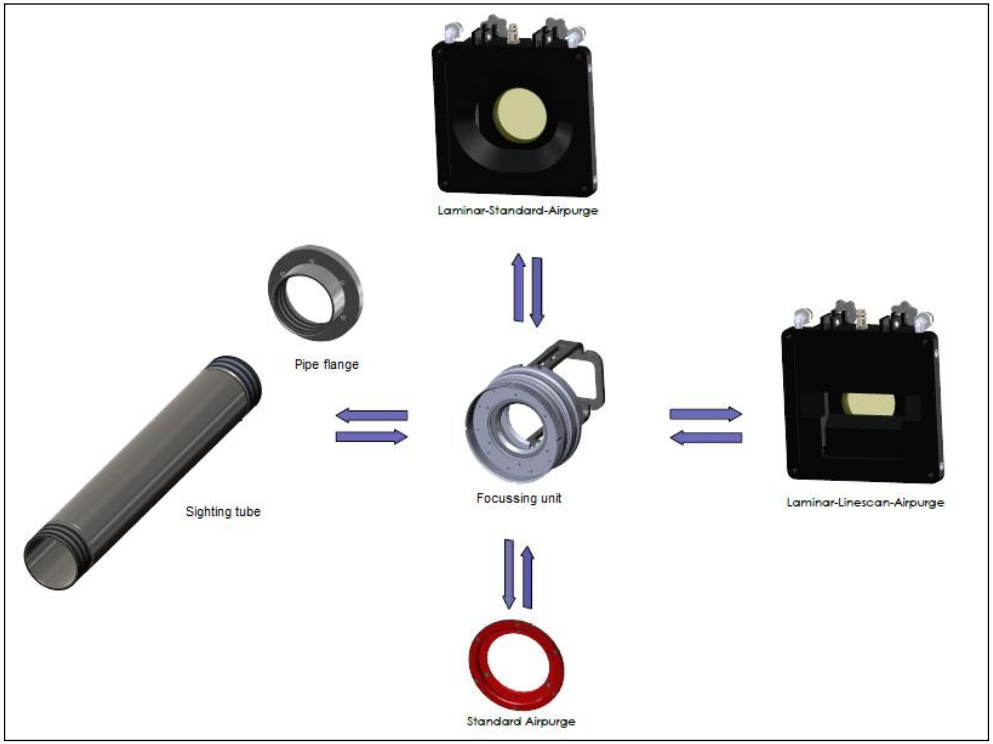


Figure 58: Adaptation options with focusing unit

Figure 59: Pipe flange [**Article no.: ACCJAPF]** and sighting tube [**Article no.: ACHAST300]**

Figure 1: Combination of front part with pipe flange and sighting tube **[Article no.: ACCJAFPCXLST]**

If you like to use the sighting tube [**Article no.: ACHAST300]** with pipe flange [**Article no.: ACHAPF]** together with the front part for Cxlaser, Cxvideo, CSvision we recommend ordering: [**Article no.: ACCJAFPCXLST**]

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