

Operator's Manual

optris® CoolingJacket Advanced



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

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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 and CSvideo 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 160/ PI 400i/ PI 450i/ PI 640/ PI 1M/ PI 08M/ PI 05M) or front part (PI 200/ 230)	CoolingJacket Advanced for PI series [Part-No.: ACPICJAEx] , consisting of housing incl. chassis [Part-No.: ACCJAxxxxx] , consisting of focusing unit (PI 160/ PI 400i/ PI 450i/ PI 640/ PI 1M/ PI 08M/ PI 05M) or front part (PI 200/ 230)
CoolingJacket Advanced for CSlaser, CTlaser as well as CTvideo and CSvideo [Part-No.: ACCTLCJAS] , consisting of housing incl. chassis [Part-No.: ACCJAFPCTL] , consisting of front part	CoolingJacket Advanced for CSlaser, CTlaser as well as CTvideo and CSvideo [Artikel-Nr.: ACCTLCJAE] , consisting of housing incl. chassis [Artikel-Nr.: ACCJAFPCTL] , consisting of front part
	incl. mounting accessories for <ul style="list-style-type: none"> PI NetBox or USB server Gigabit Industrial PIF

1.4 Mounting accessories

1.4.1 Accessories for PI NetBox

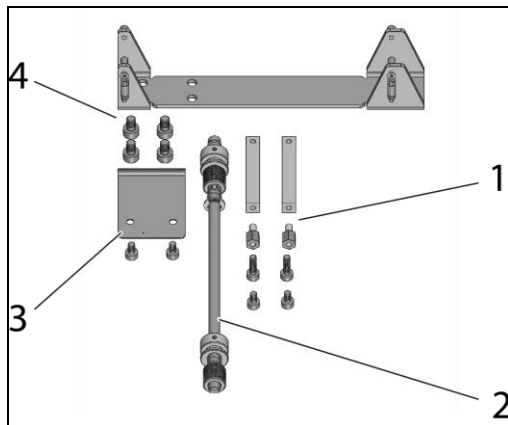


Figure 1: Accessories for PI NetBox

- 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

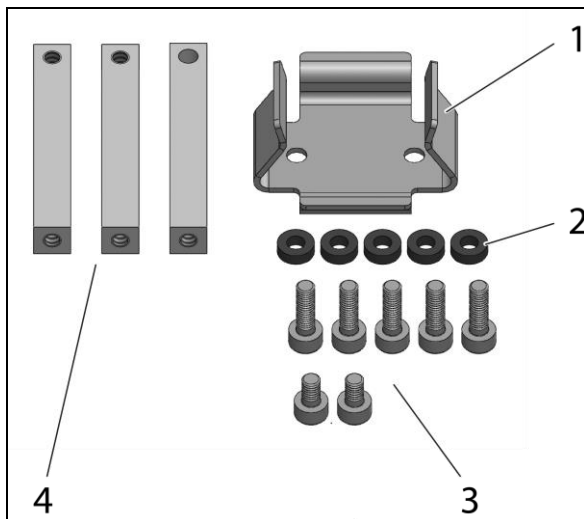


Figure 2: Accessories for USB-Server Gigabit

- 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

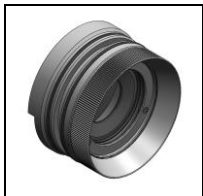
2 Technical Data

2.1 General specifications

	CoolingJacket Advanced Standard	CoolingJacket Advanced Extended
Environmental rating	IP 65	IP 65
Ambient temperature	up to 315 °C ¹⁾	up to 315 °C ¹⁾
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 160

Focusing unit

for 6°, 41° and 72° optics [**Part-No.: ACCJAFU6**]

for 23° optics [**Part-No.: ACCJAFU23**]



PI 400i/450i

Focusing unit

for 18° optics [**Part-No.: ACCJAFU18**]

for 29° optics [**Part-No.: ACCJAFU29**]

for 53° and 80° optics [**Part-No.: ACCJAFU53**]



PI 640

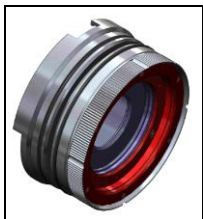
Focusing unit

for 15° optics [**Part-No.: ACCJAFU15**]

for 33° optics [**Part-No.: ACCJAFU33**]

for 60° optics [**Part-No.: ACCJAFU60**]

for 90° optics [**Part-No.: ACCJAFU90**]



Focusing unit

for all optics (PI 1M/ 08M/ 05M) [**Part-No.: ACCJAFUOFxx**]

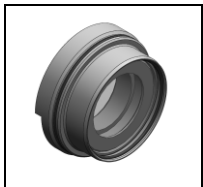
PI 1M/ 08M/ 05M



Front part

for 23° and 41° optics (PI 2xx) [**Part-No.: ACCJAFP2XX**]

PI 200/ 230



Front part

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

CTlaser, CSlaser, CTvideo, CSvideo

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.

Part-No.	Description	Spectral range	Transmission ¹⁾
ACCJAPWPILW	Protective window (50,8 x 3 mm/ Ge) for PI 450i G7, 640 G7	7,9 µm	0.96
ACCJAPWPILW	Protective window (50,8 x 3 mm/ Ge) for PI 160, 400i, 450i, 640	7,5-13 µm	0.92
ACCJAPWZNS	Protective window (50,8 x 3 mm/ ZnS) for PI 450i G7, 640 G7	7,9 µm	0.93
ACCJAPWZNS	Protective window (50,8 x 3 mm/ ZnS) for PI 160, 400i, 450i, 640	7,5-13 µm	0.91
ACCJAPWPI2XXLW	Protective window (67 x 3 mm/ ZnS) for PI 200, 230 (VIS + IR transmittive), PI 160, 400i, 450i, 450i G7, 640, 640 G7 if used together with Air purge laminar	7,5-13 µm	0.91
ACCJAPWCTLSW	Protective window (67 x 3 mm/ Borofloat 33) for 1M/ 2M/ 3M-models of CTlaser-, CSLaser-, CTvideo-, CSvideo series, PI 1M/ 08M/ 05M	1,0/ 1,6/ 2,3 µm 1 µm/ 780-820 nm/ 500-540 nm	0.92

¹⁾ 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 Laminar air purge

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

Those two versions are fitting to all focusing units with production date $\geq 01/2018$. A protective window (67 x 3 mm) has to 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.

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
Volume flow	40 - 120 l/min
Air pressure	1,1 - 8 bar
Protective window	Necessary ¹⁾

¹⁾ A protective window (67 x 3 mm) has to be ordered separately.

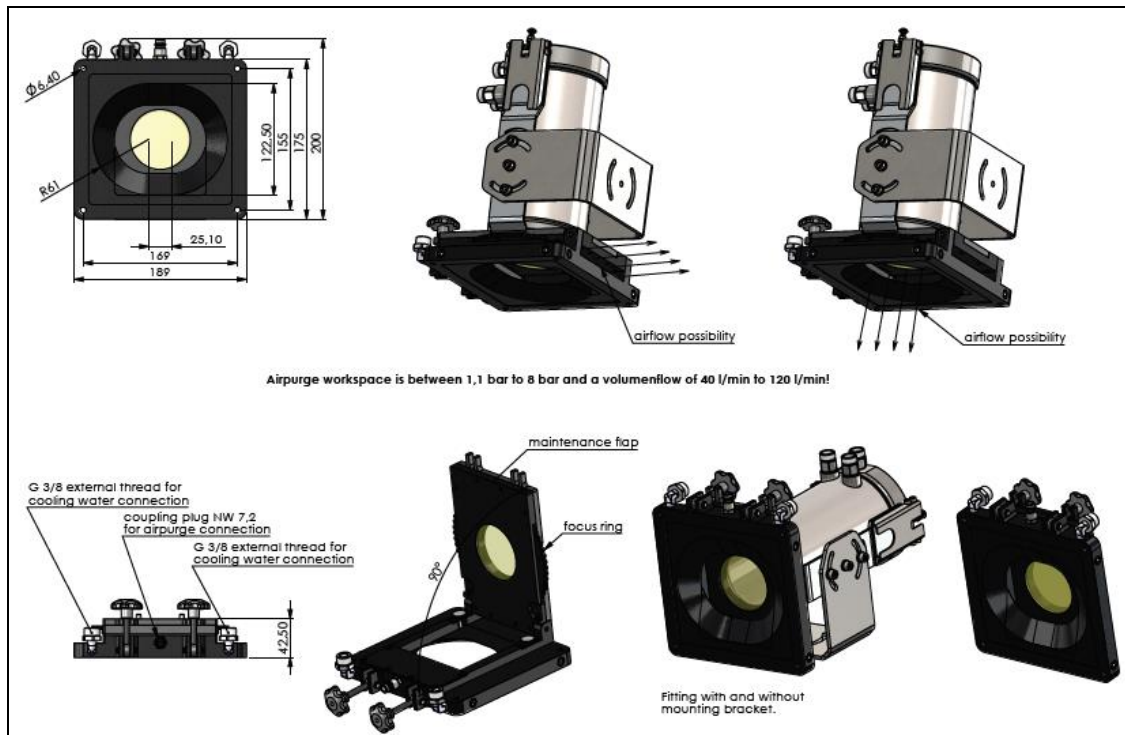


Figure 3: Dimensions of laminar air purge

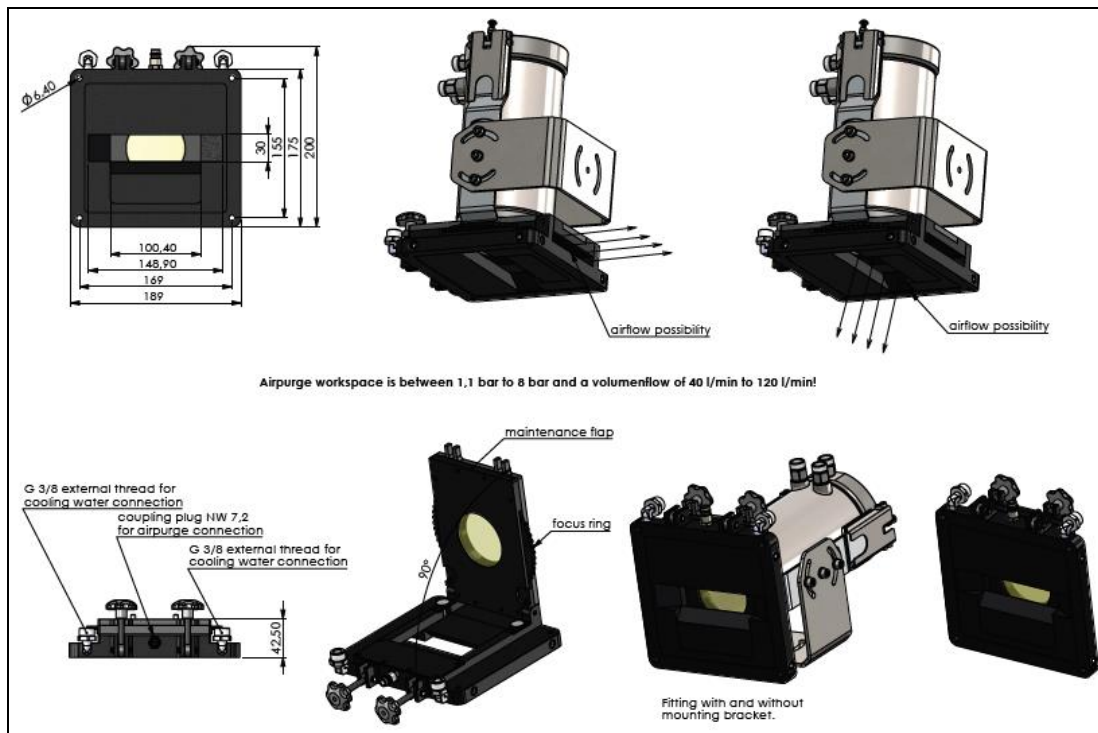


Figure 4: Dimensions of laminar air purge (line scanner version)

2.2.5 Additional accessories

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

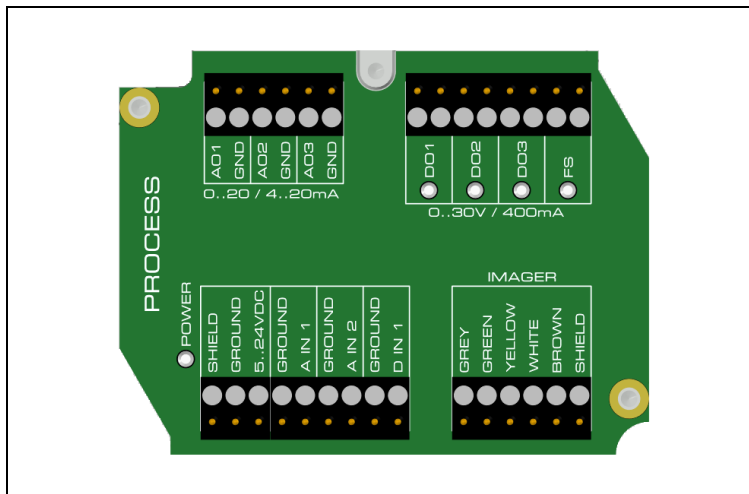


Figure 5: Industrial PIF without housing

2.3 Dimensions

Standard version

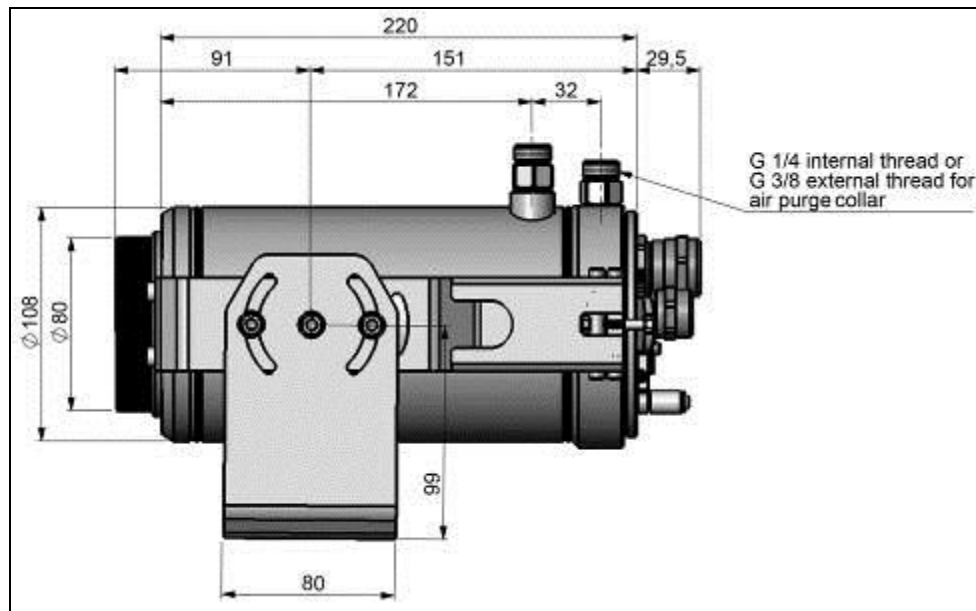


Figure 6: CoolingJacket Advanced, standard version – side view

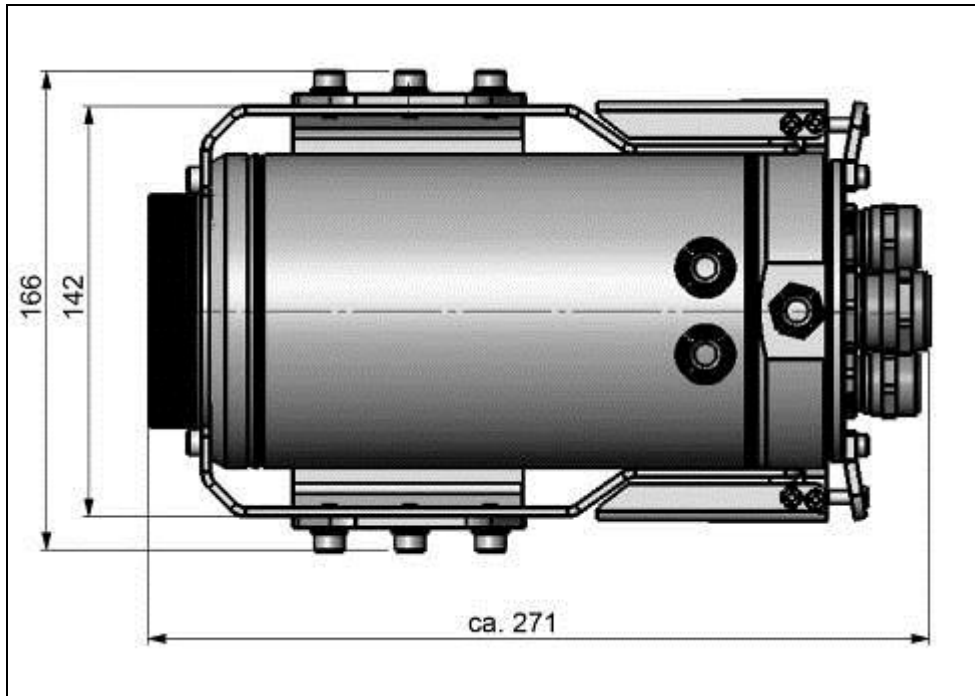


Figure 7: CoolingJacket Advanced, standard version – top view

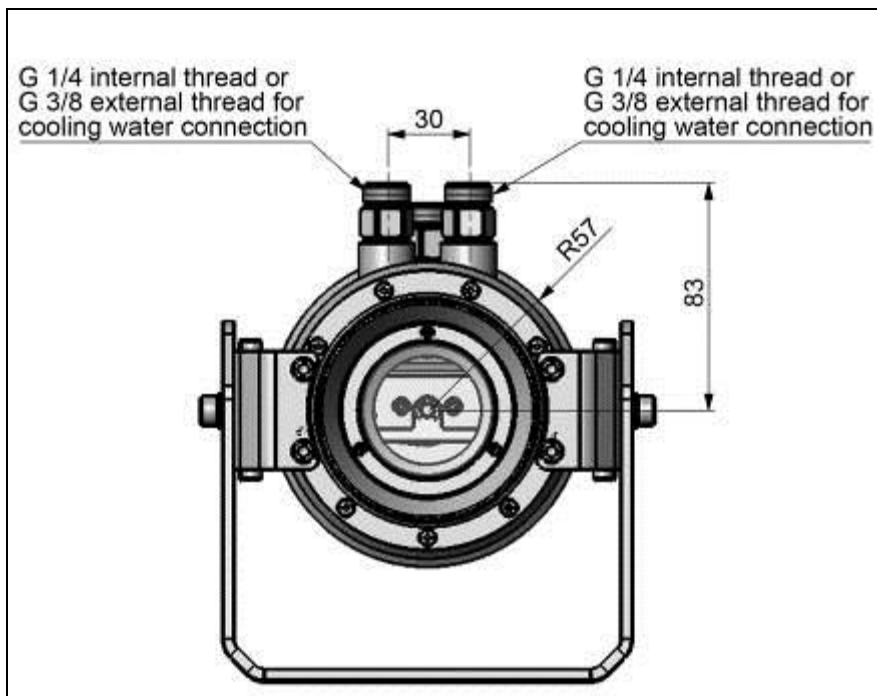


Figure 8: CoolingJacket Advanced, standard version – front view

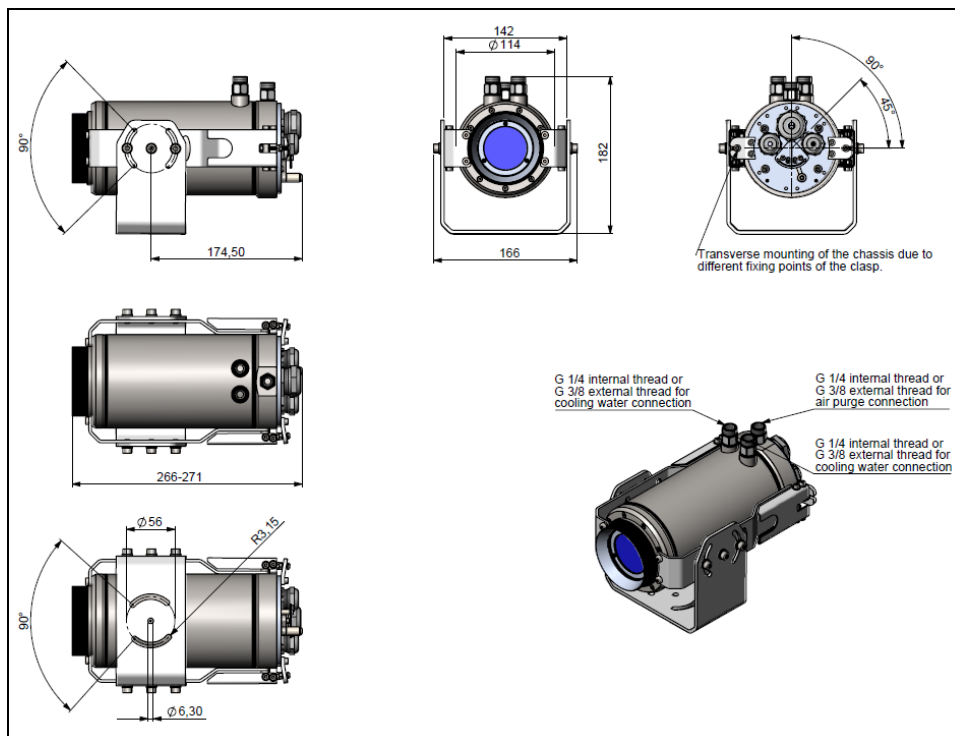


Figure 9: CoolingJacket Advanced, standard version – complete view

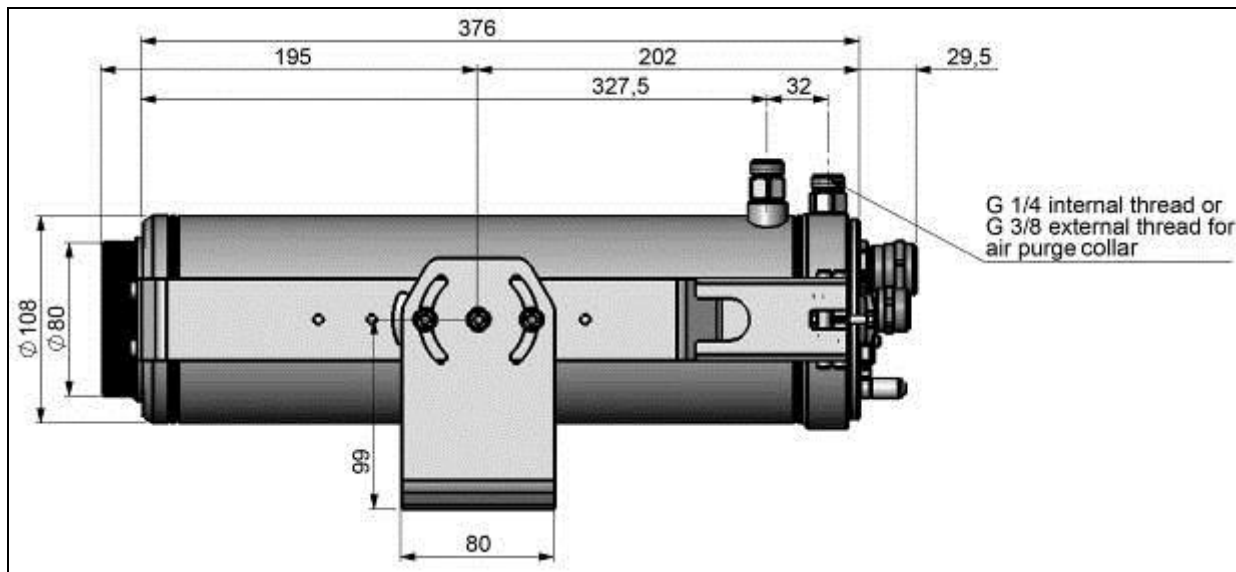
Extended version

Figure 10: CoolingJacket Advanced, extended version – side view

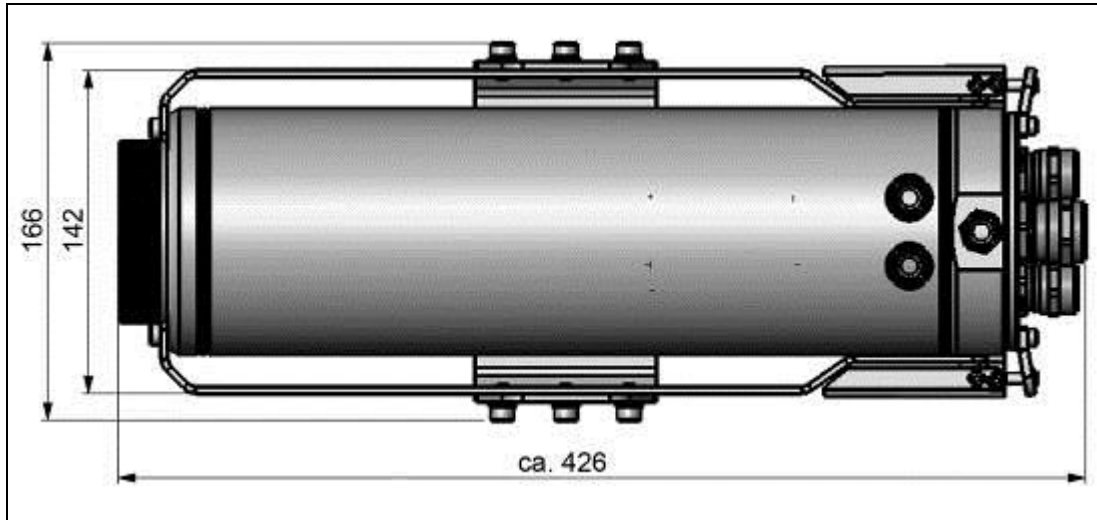


Figure 11: CoolingJacket Advanced, extended version – top view

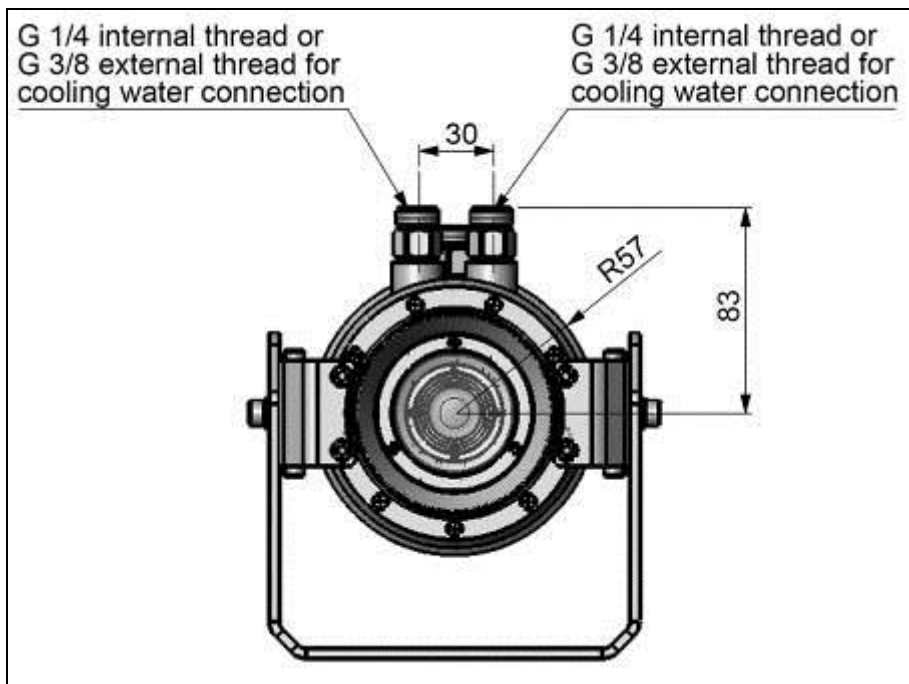


Figure 12: CoolingJacket Advanced, extended version – front view

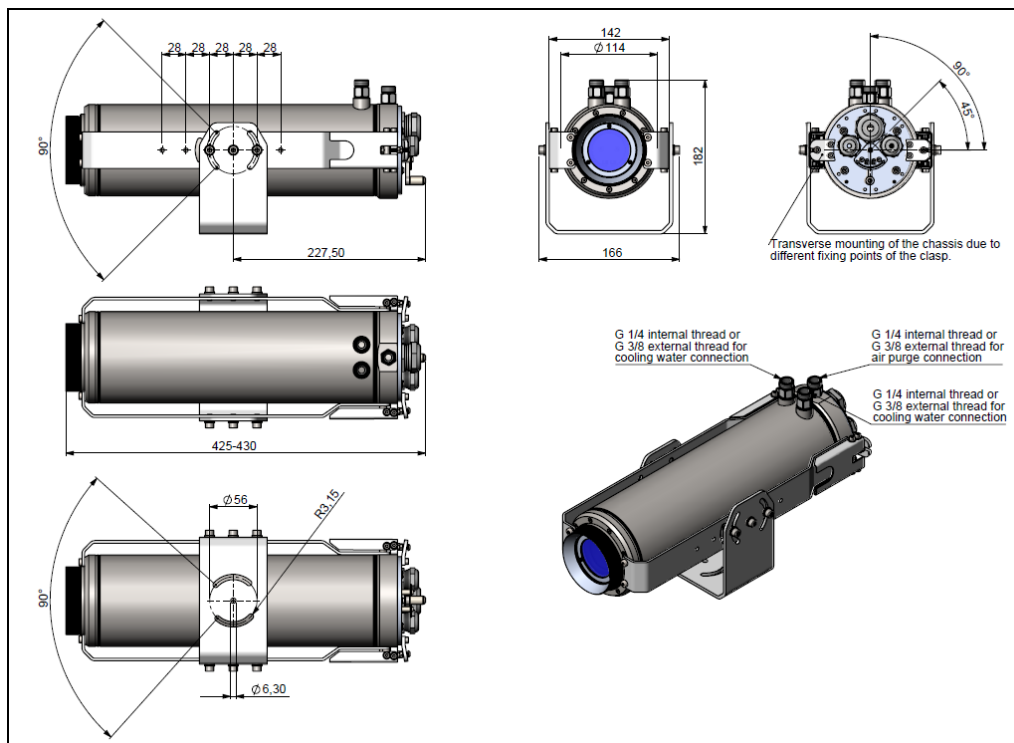


Figure 13: CoolingJacket Advanced, extended version – complete view

Mounting flange (Accessories)

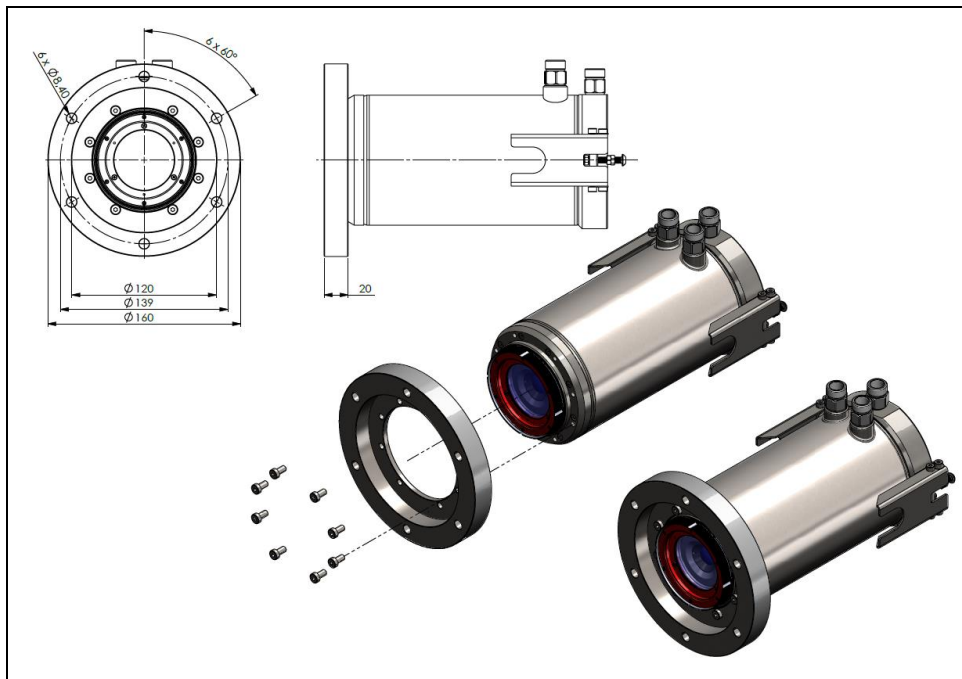


Figure 14: Mounting flange for CoolingJacket Advanced (Standard and Extended), **Part-No.: ACCJAMF**

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

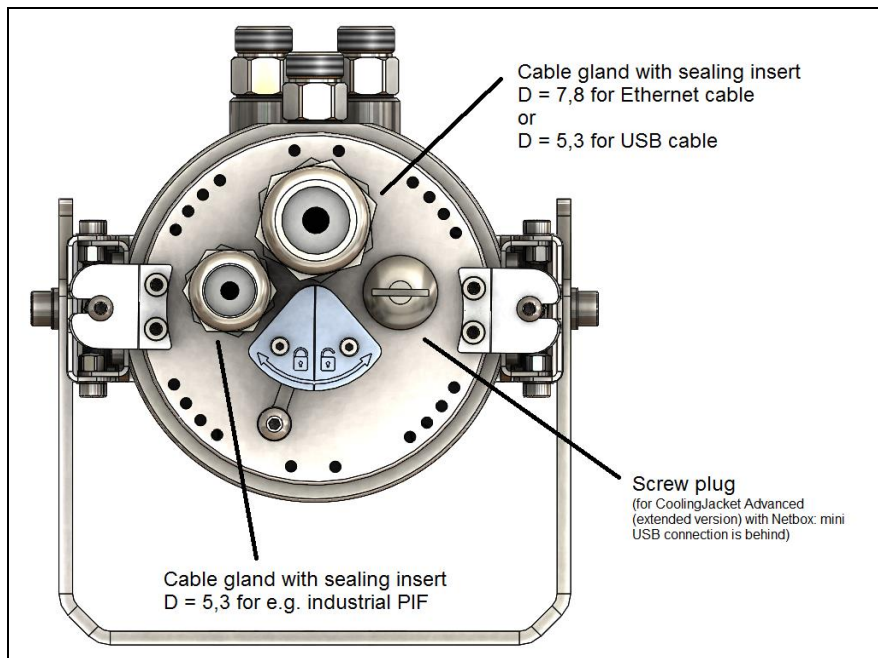


Figure 15: Cable glands with seal insert

2.5 Cooling properties

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

Table 1: Cooling properties with a steady cooling water input temperature and various flow

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

Table 2: 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 3**).
- 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 3**):

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
	20	0	0	0	0	0	0	5	5	5	10	10	10	10	15	15	15	15	15	20
	25	0	0	0	0	5	5	10	10	10	10	15	15	15	20	20	20	20	20	25
	30	0	0	0	5	5	10	10	15	15	15	20	20	20	20	25	25	25	25	30
	35	0	0	5	10	10	15	15	20	20	20	25	25	25	25	30	30	30	30	35
	40	0	5	10	10	15	20	20	20	25	25	25	30	30	30	35	35	35	35	40
	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 3: 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.

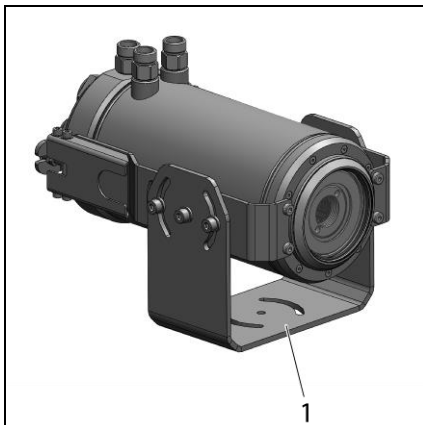


Figure 16: CoolingJacket Advanced with mounting bracket

- 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.



Figure 17: Focusing unit (external and internal part)

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

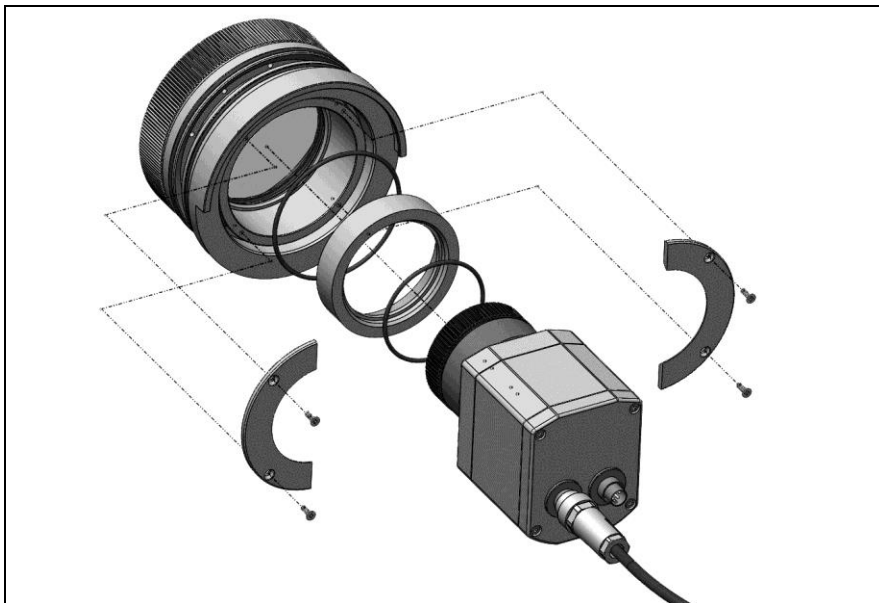


Figure 18: Assembling of the 6°, 9°, 23°, 26°, 29°, 33°, 39°, 41°, 53°, 72° and 80° optics

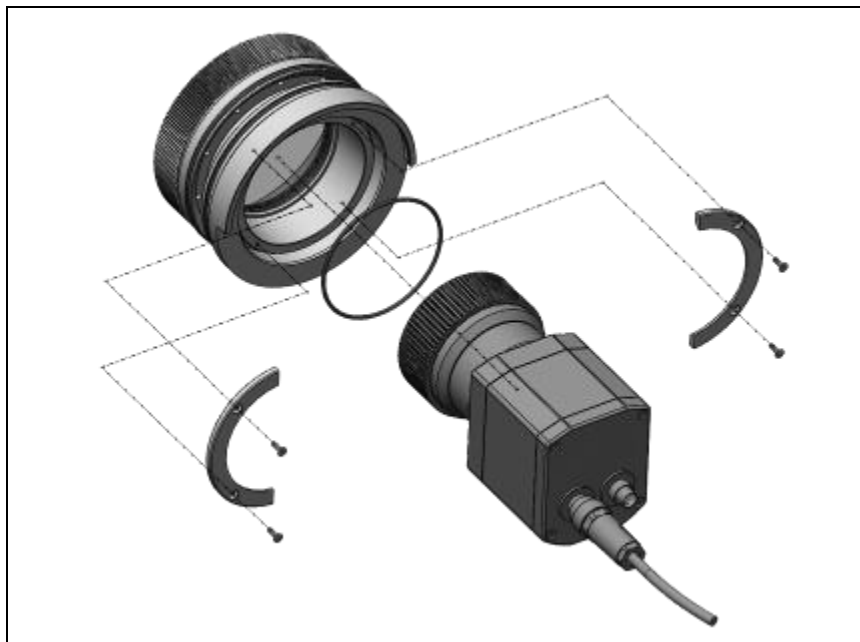
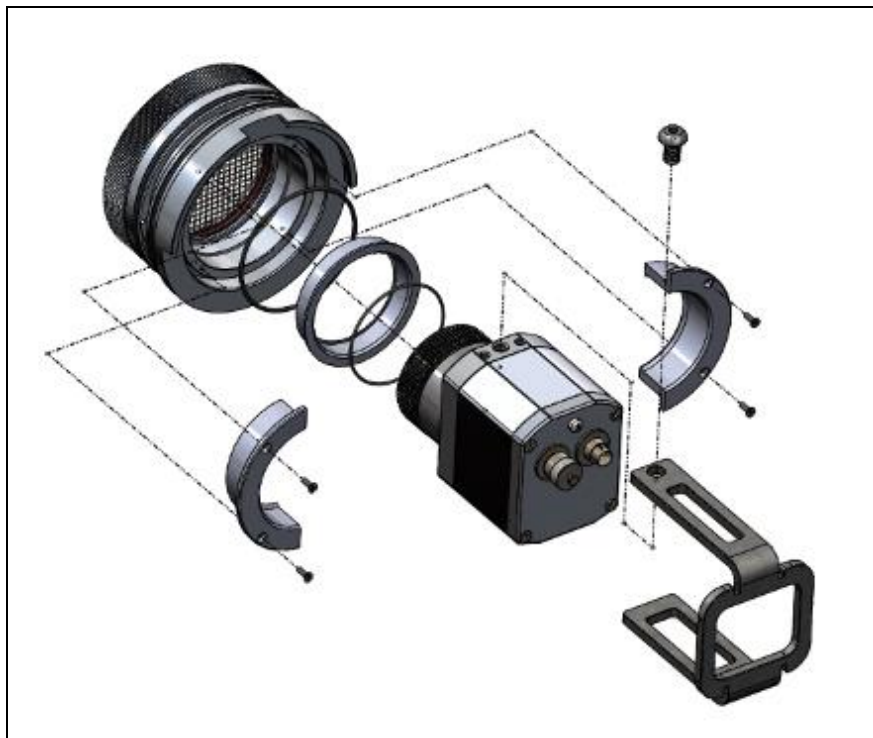


Figure 19: Assembling of the 13° and 15° optics



Note: For the installation of the 60 ° and 90 ° optics, the camera must be fixed upside down on a supplied bracket.

Figure 20: Assembling of the 60° and 90° optics

3.2.2 Assembling of the front part

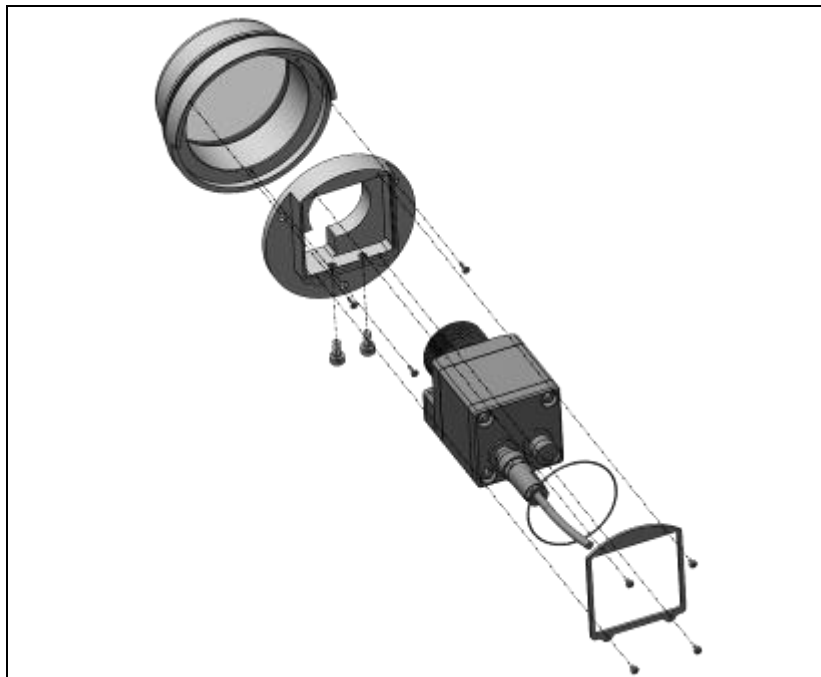


Figure 21: Assembling of the PI 200/ 230



How-to Video

<https://www.optris.global/cooling-jacket-advanced-extended-installation-pi-200>



Note: The subsequent focusing on the focusing unit in the built-in cooling housing should be done wisely. If you use too much force, the optics can be over-twisted and damaged.

Figure 22: Assembling of the PI 1M/ 08M/ 05M

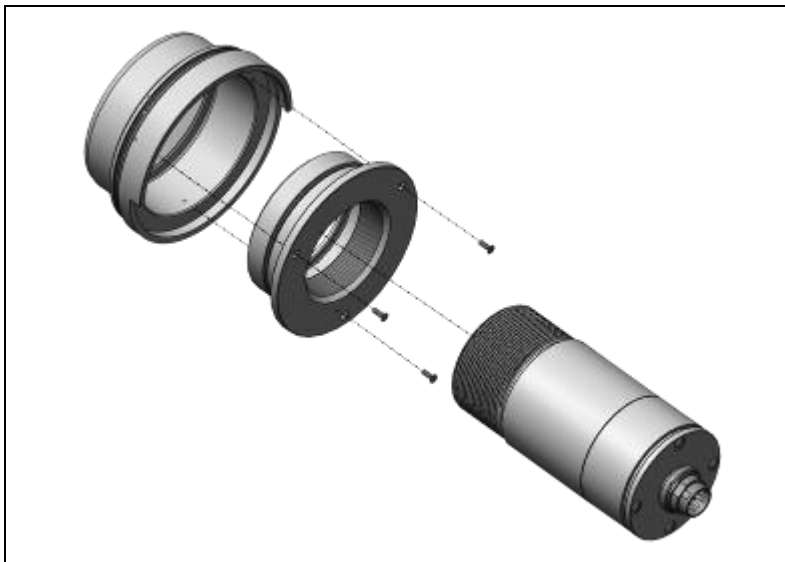


Figure 23: Assembling of the CTlaser, CSlaser, CTvideo, CSvideo

3.2.3 Mounting of protective window at focusing unit

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!

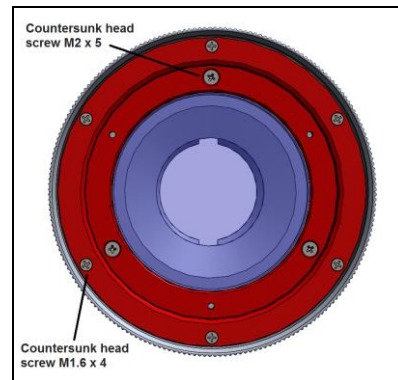


Figure 24: Focusing unit

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!

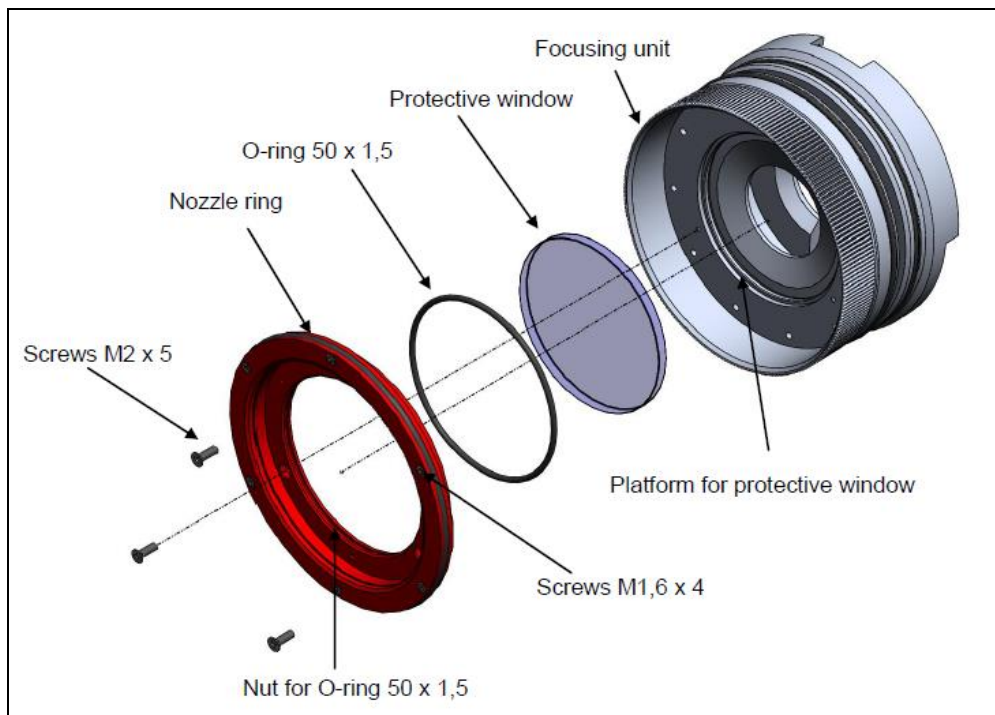


Figure 25: Individual components of the focusing unit

3.2.4 Assembly of the laminar air purge

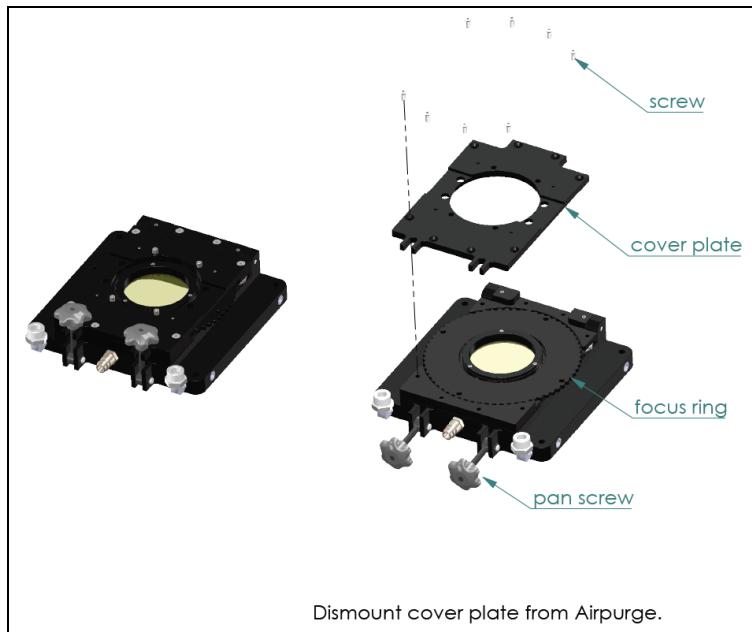


Figure 26: Assembly of the laminar air purge



How-to Video

<https://www.optris.global/video-tutorial-laminar-air-purge>

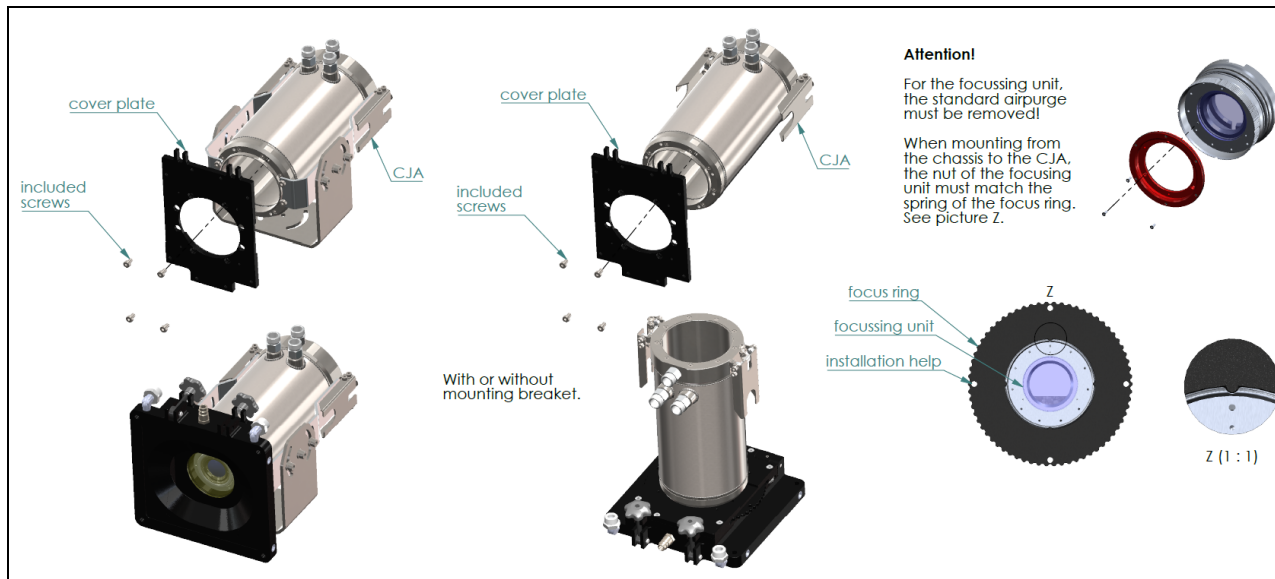


Figure 27: Assembly of the laminar air purge



For the focussing unit, the standard air purge must be removed!

When mounting from the chassis to the CJA, the nut of the focussing unit must match the spring of the focus ring (see picture Z).

Adjustment of air flow

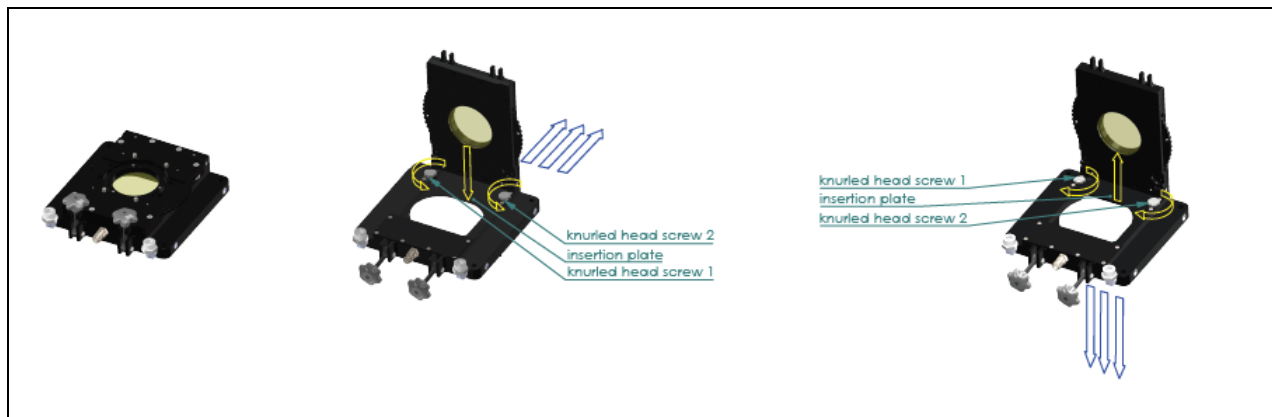


Figure 28: Adjustment of air outflow



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.

Exchanging the protective window

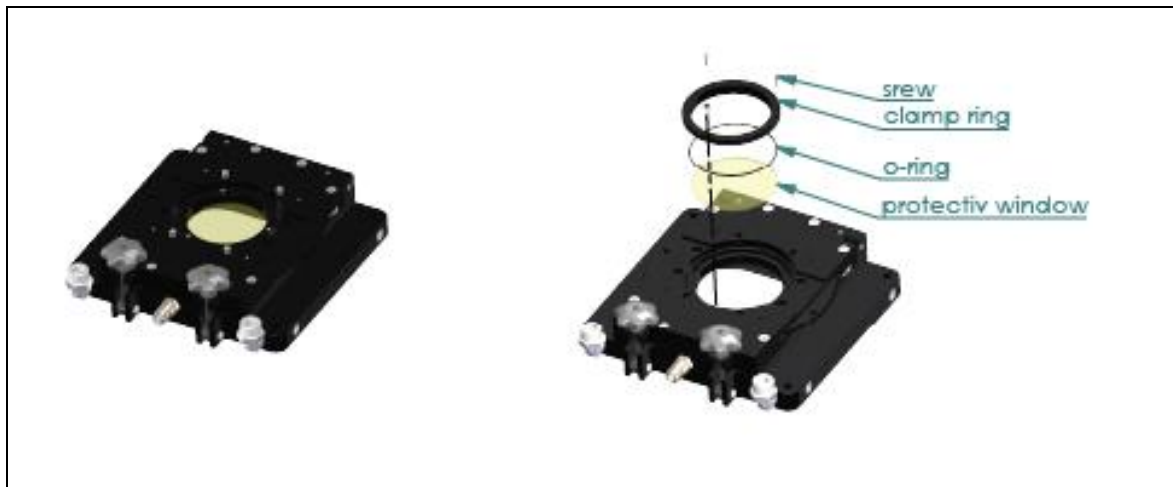


Figure 29: Change of the protective window



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

3.2.5 Assembling to the 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.

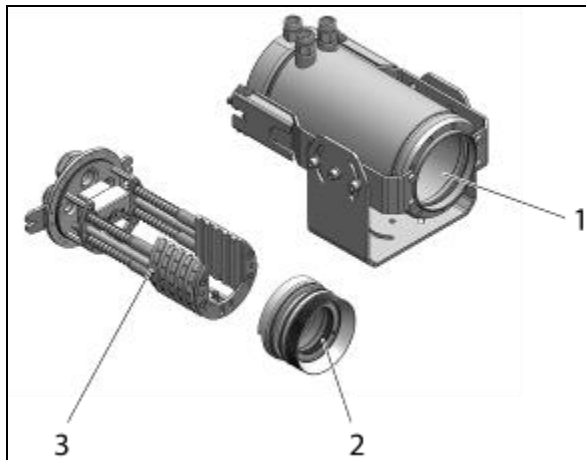


Figure 30: CoolingJacket Advanced, standard version

- 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** respectively **chapter 3.2.2**.
2. Seat the focusing unit or front part in the chassis (**Figure 31**). 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 32, Figure 33**). Position it as shown in **Figure 34**, by pushing it to the bottom.

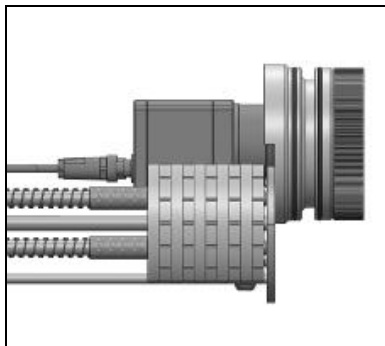


Figure 31: Inserting of the focusing unit

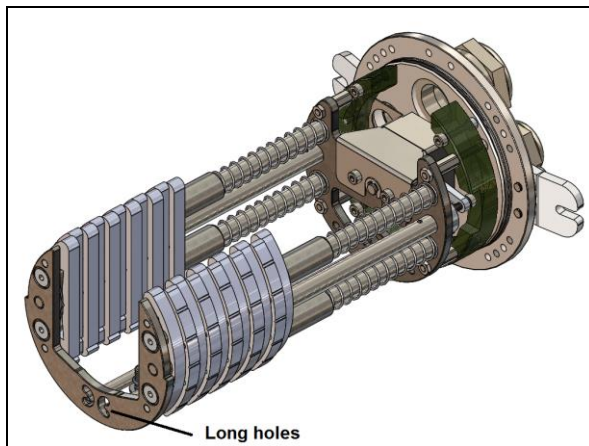


Figure 32: Long holes on the bottom of the chassis

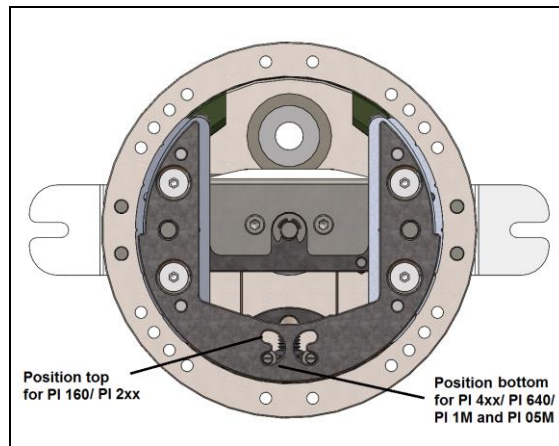


Figure 33: Positioning the two bars in the slot for different cameras

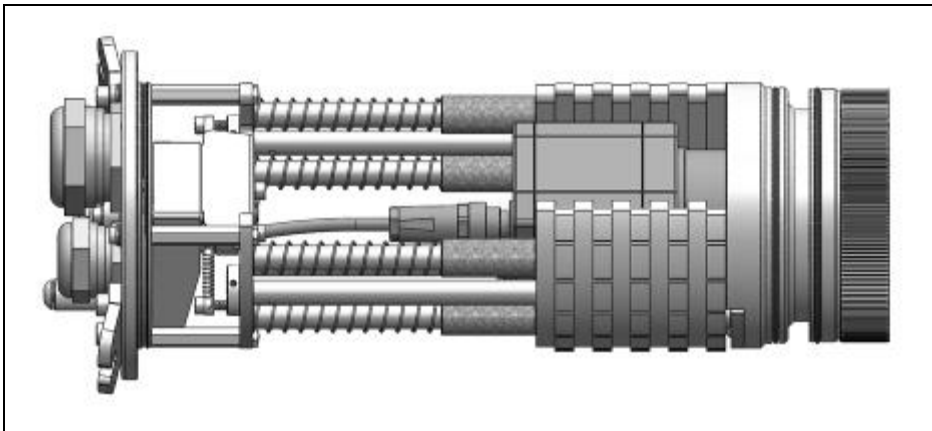


Figure 34: Focusing unit with camera

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

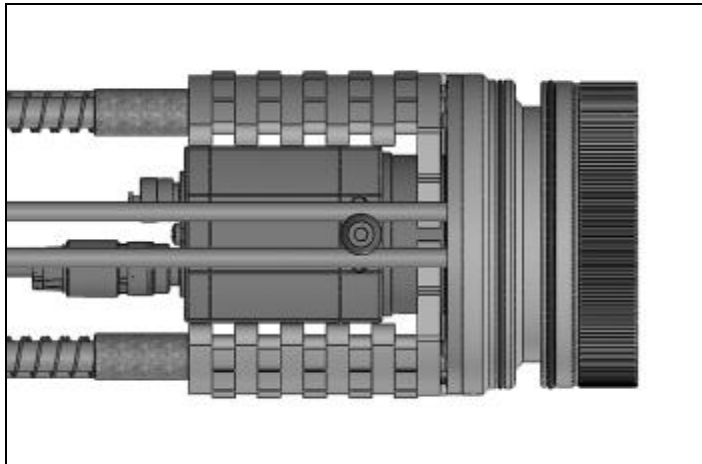


Figure 35: Mounting of the camera to the chassis

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 36**).

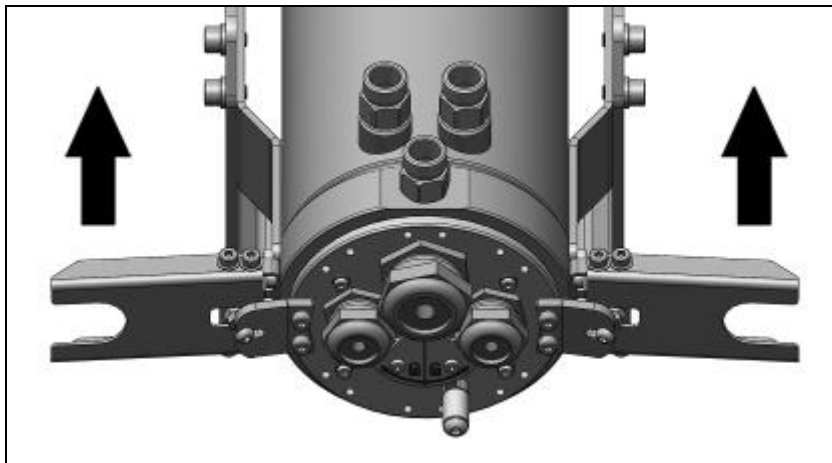



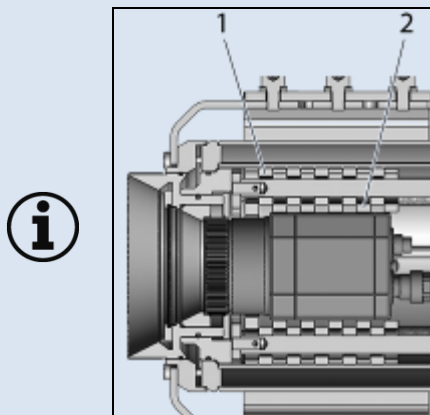
Figure 36: Locking of the hinge



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 37**).

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

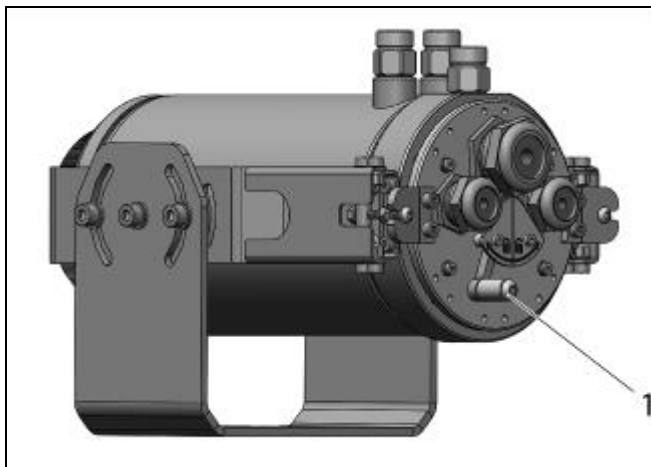


Figure 37: Back side of the CoolingJacket with locking lever

- 1 Locking lever

7. Dismount in reverse order.

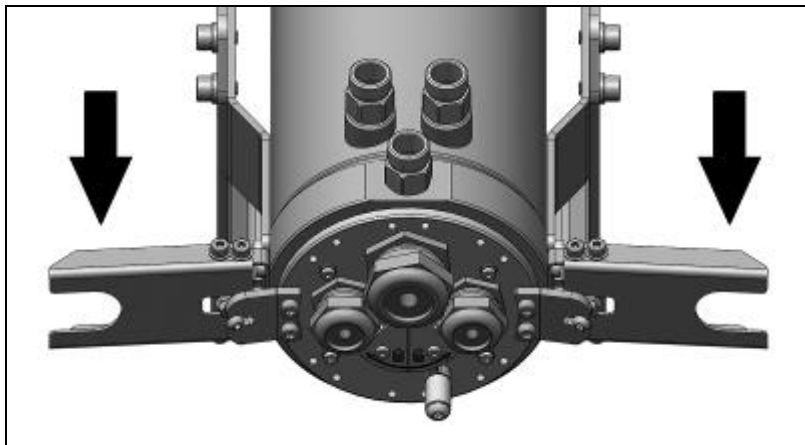


Figure 38: Unlocking of the hinge

Installation of video thermometer or infrared thermometer

1. Screw the infrared thermometer in the thread (M48x1.5) of the front part (see **Figure 23**) and seat the front part in the chassis (**Figure 39**).



Figure 39: Front part with infrared thermometer

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

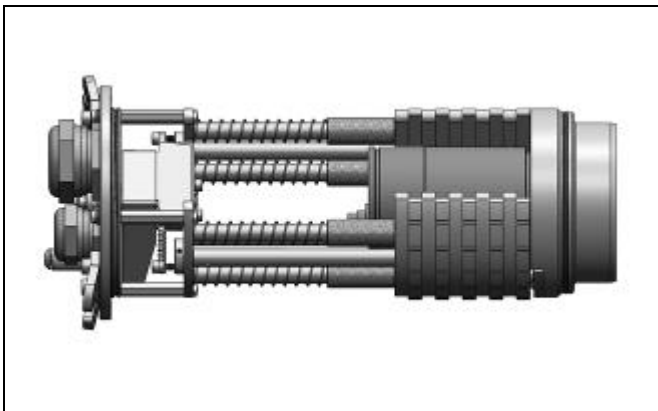



Figure 40: Infrared thermometer mounted

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 36**).
4. Move the locking lever to the left (symbol: ) , so that the chassis is fitted close to the inner surface of the housing (**Figure 37**)
5. Dismount in reverse order (**Figure 38**).

3.2.6 Assembling to the 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.

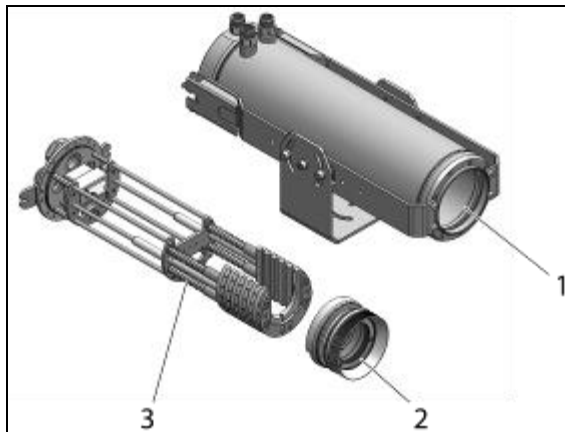


Figure 41: CoolingJacket Advanced, extended version

- 1 Housing
- 2 Focusing unit
- 3 Chassis

Installation of PI camera

Steps 1-3, see page 50.

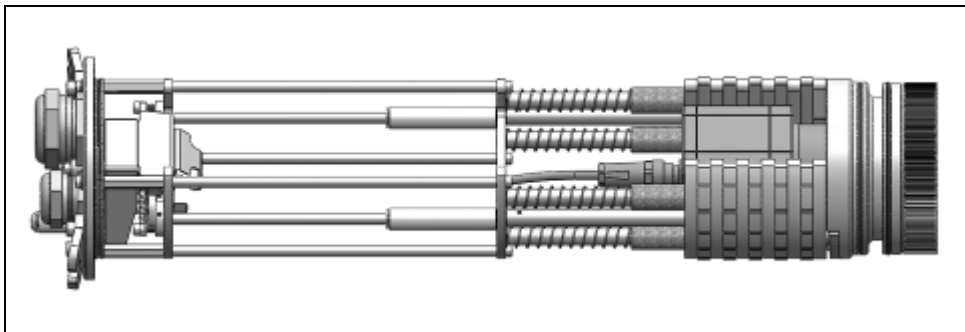


Figure 42: Camera implemented (extended version)

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 43**).

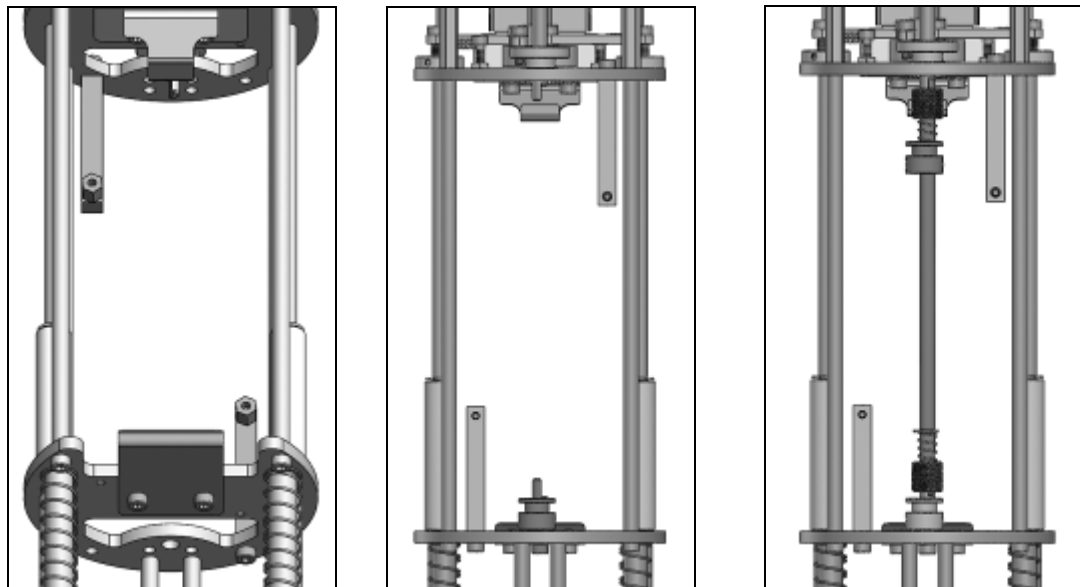


Figure 43 (a-c): Mounting of the accessories for PI NetBox: **a)** Holding plate for PI NetBox (top view), **b)** Support rods for industrial PIF (view from the bottom), **c)** Shaft to fix the PI NetBox (view from the bottom)

5. Fix the industrial PIF with the screws (M3x5) as shown in **Figure 44**.

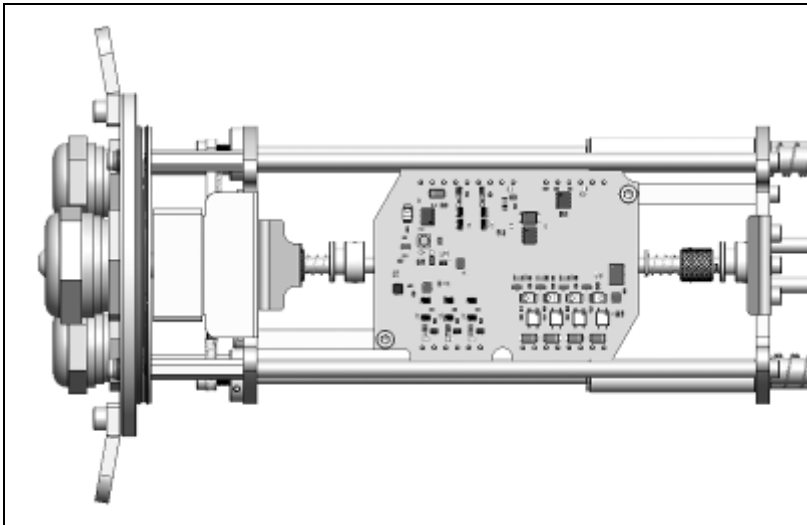


Figure 44: Mounting of the industrial PIF (top view)

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

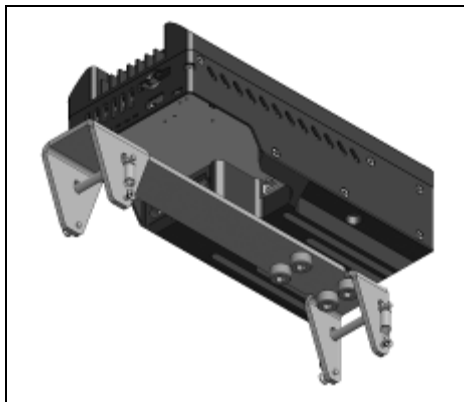


Figure 45: PI NetBox with fastening rail

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 46**) until it is engaged (**Figure 47**).



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.

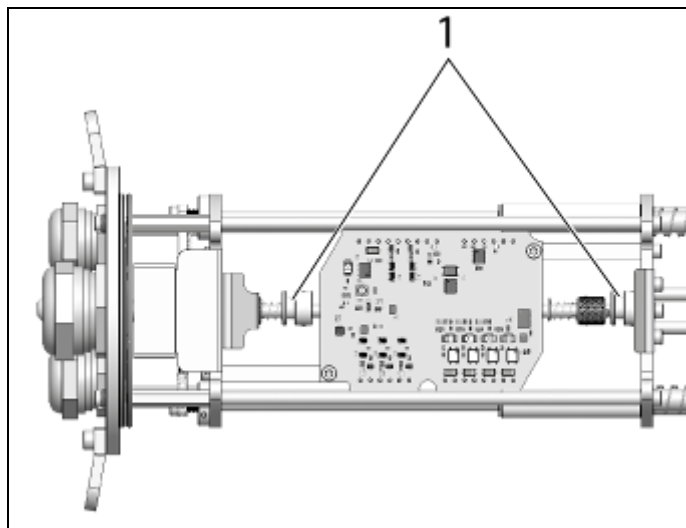


Figure 46: Notch to fix the PI NetBox (top view)

- 1 Notch

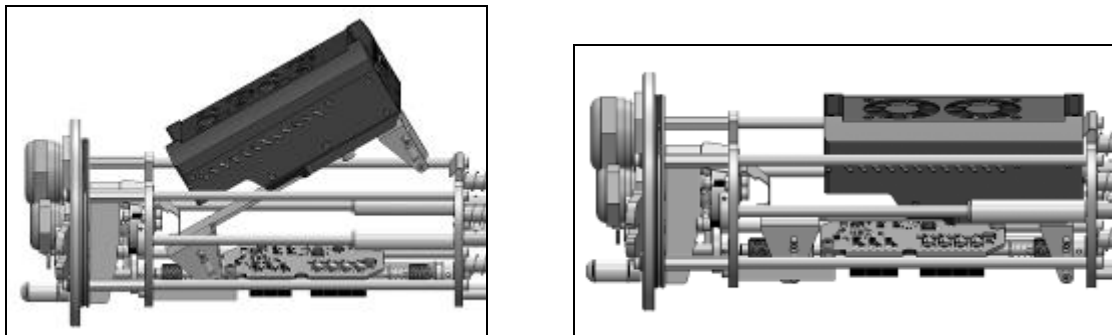


Figure 47: Fitting the PI NetBox into the chassis (right hand view)

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 48**).



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.

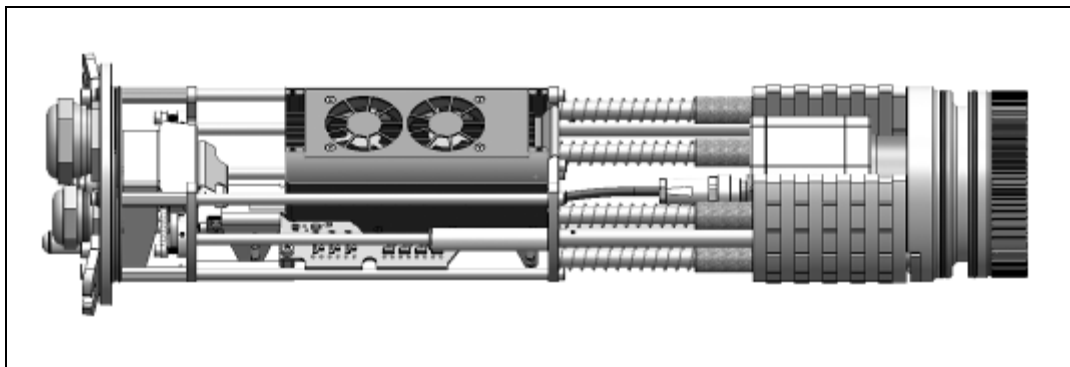


Figure 48: Chassis with PI camera, industrial PIF and PI NetBox

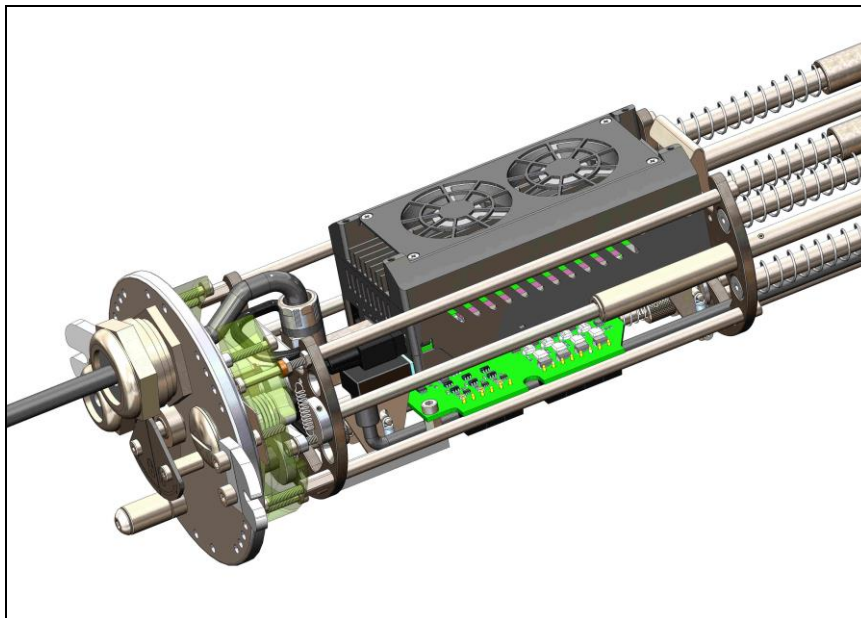
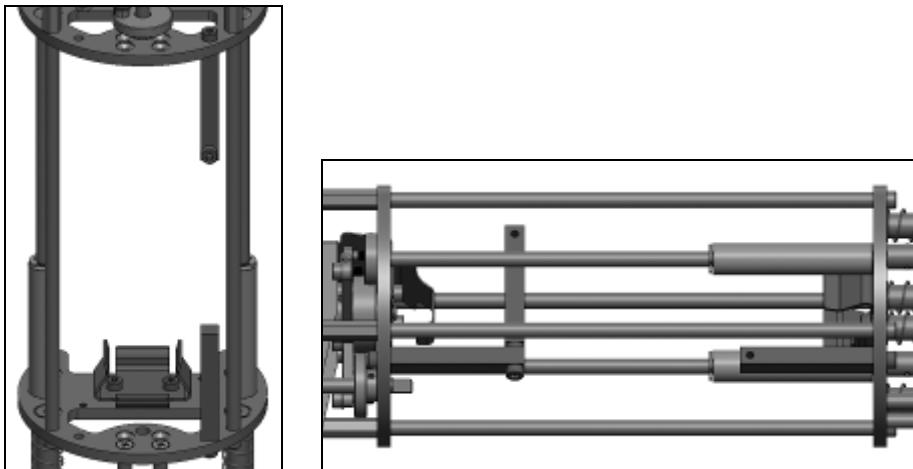


Figure 49: Mounting USB and network connector to NetBox

Follow as step 5, **page 53**.

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 50**).



How-to Video

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

Figure 50 (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 51**.

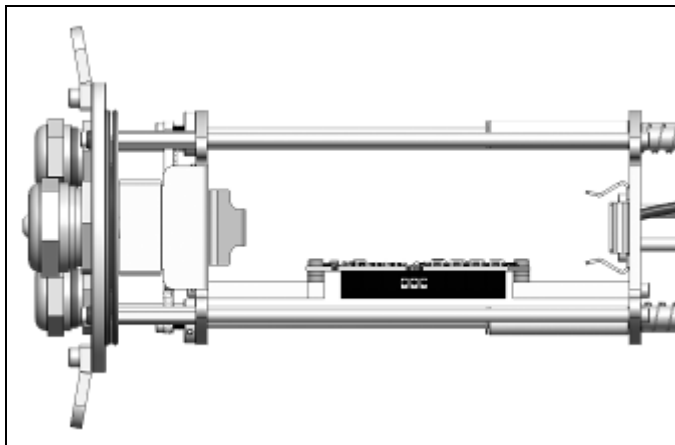


Figure 51: Mounting of the industrial PIF (top view)

6. Engage the USB server Gigabit to the DIN rail plate (**Figure 52**).

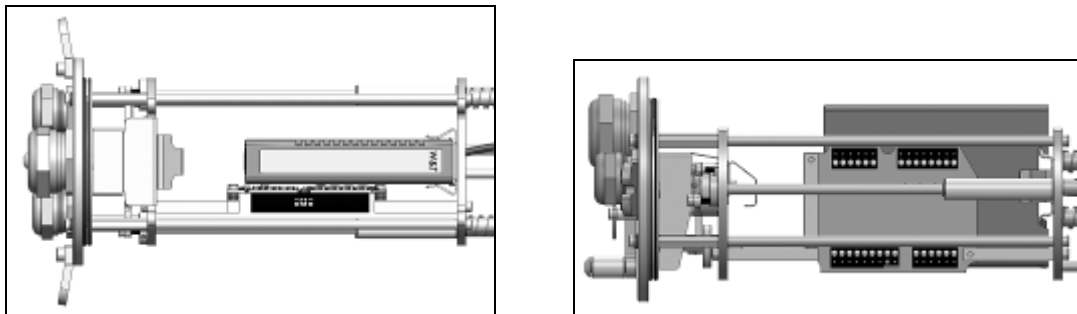


Figure 52 (a + b): Fitting the USB server Gigabit into the chassis (top view and right hand view)

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 53**).



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.

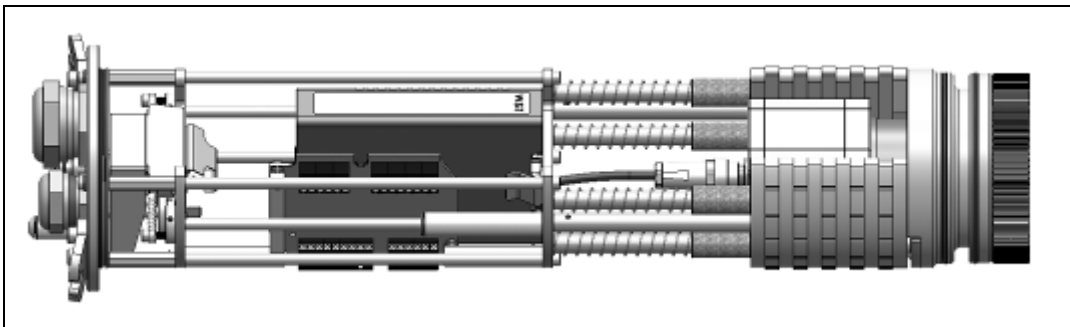


Figure 53: Chassis with PI camera, industrial PIF and USB server Gigabit



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

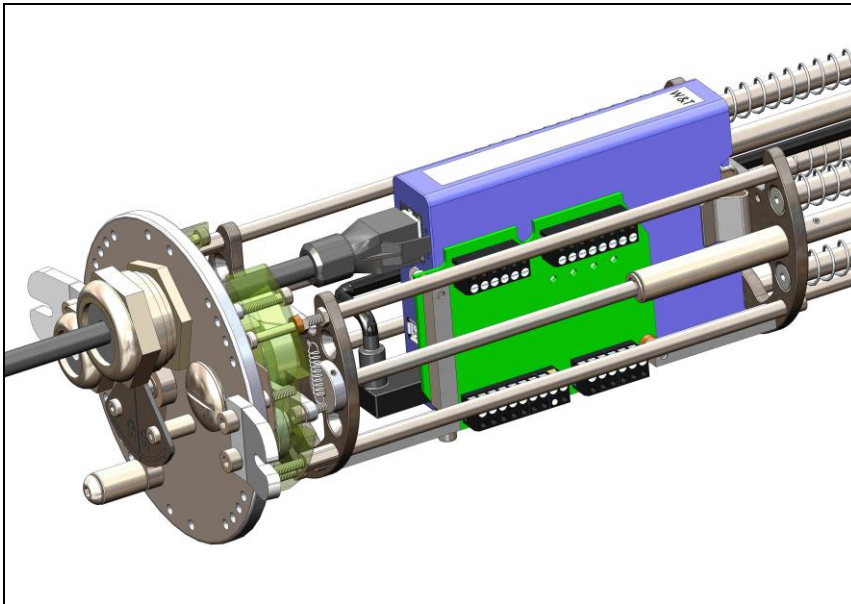
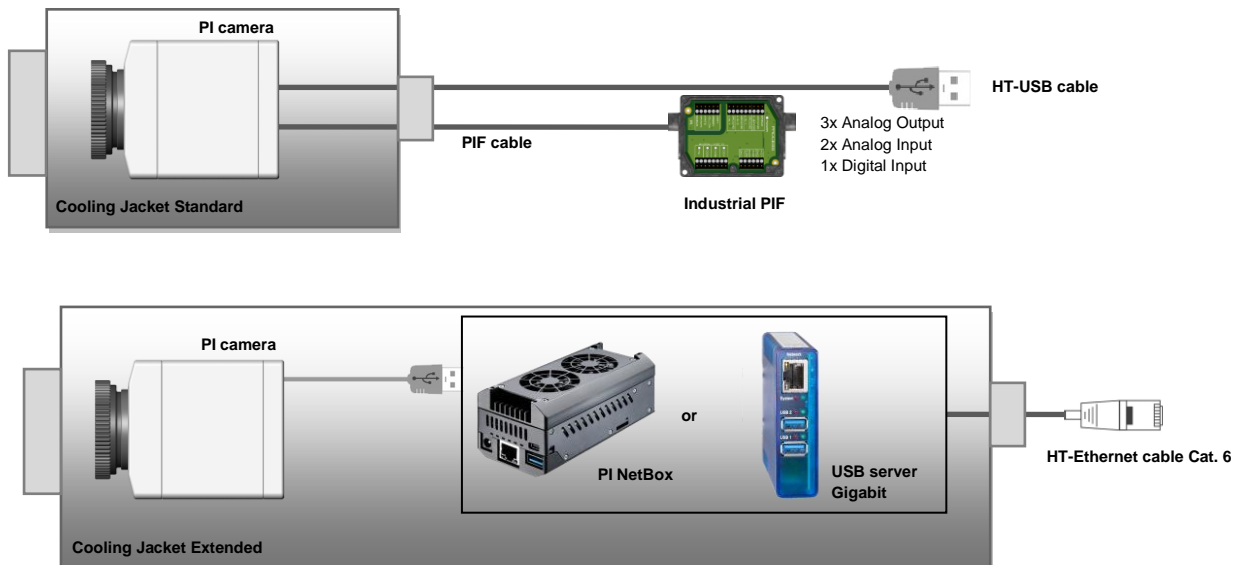
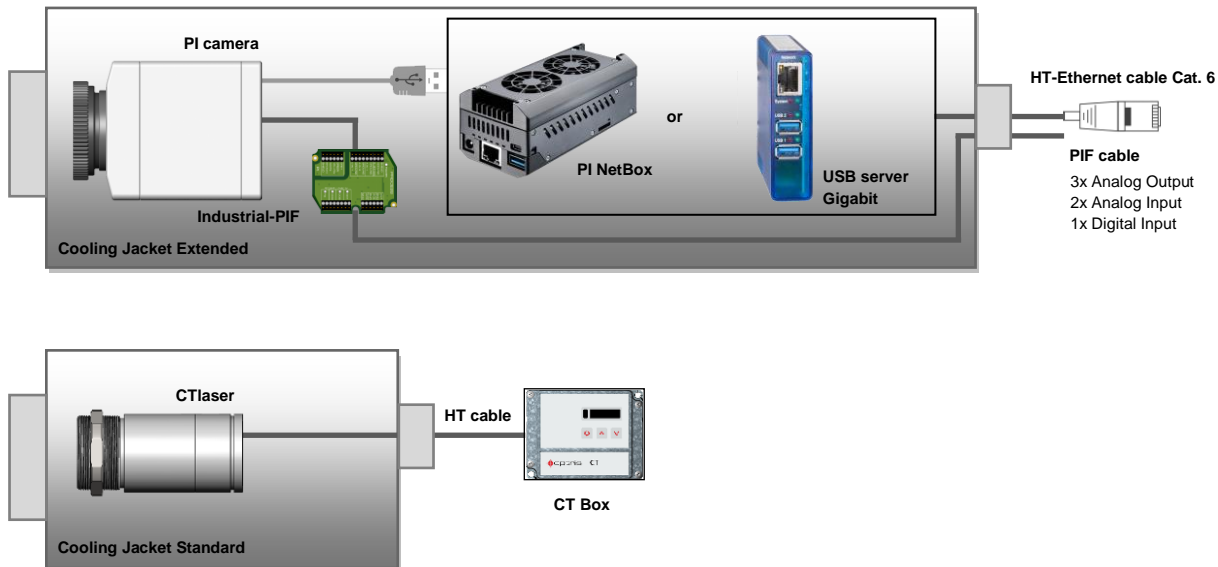


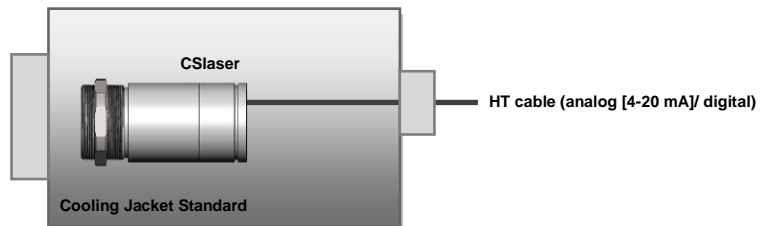
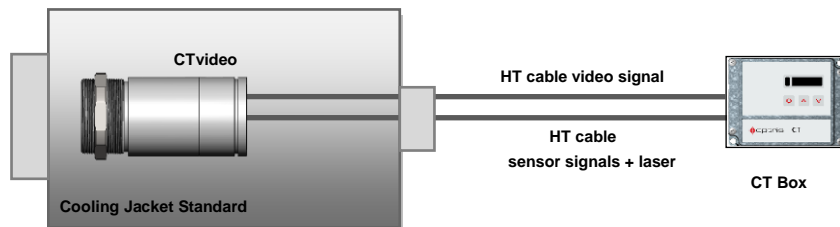
Figure 54: Mounting USB and network connector to USB server

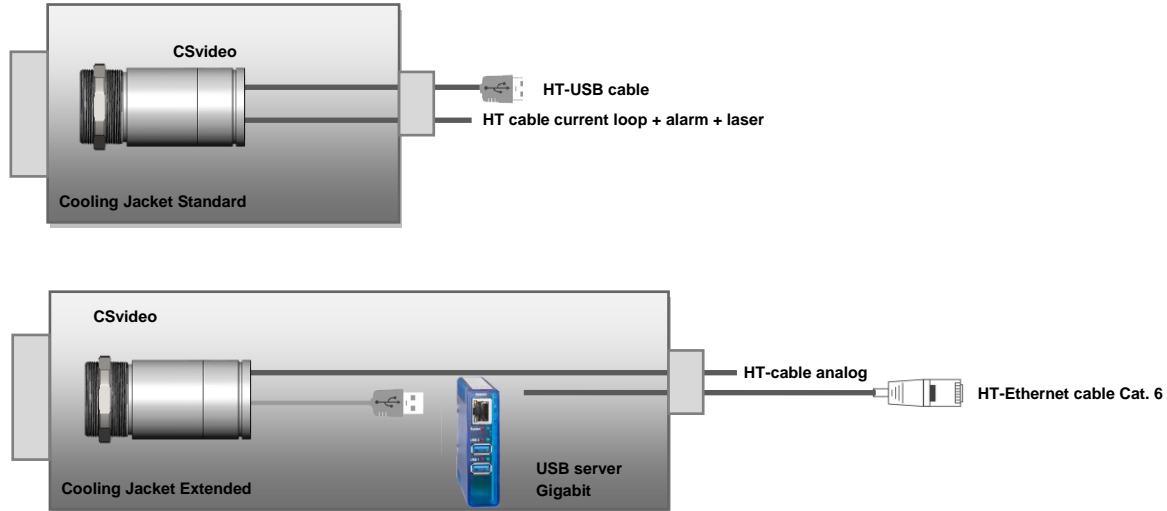
Follow as step 5, **page 53**.

4 Example of installation









*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

