

# INSTRUCTION MANUAL



Camera heads

**RIK-3240**

**RIK-3240/RO**

**RIK-5570**

**RSK-60**

**RSK-78**

## Imprint

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## I. ICON EXPLANATION

Warning notices in this document are depicted as symbols. The references are initiated with signal words that show the extent of the threat.

The hints must be observed to prevent accidents, personal- and material-damage.

 <b>HAZARD</b>	<b>Hazard label</b> ... points at immediately dangerous situations that can lead to death or severe injuries, if not avoided.
 <b>WARNING</b>	<b>Warning label</b> ... points at possibly dangerous situations that can lead to death or severe injuries, if not avoided.
 <b>CAUTION</b>	<b>Caution label</b> ... points at possibly dangerous situations that can lead to small or minor injuries or property damage of the inspection system, if not avoided.
 <b>HINT</b>	<b>Hint label</b> ... denotes hints that are important for the economical use of the system and should facilitate its handling.
 <b>SERVICING</b>	<b>Servicing label</b> ... denotes hints which explain how to clean and service the system accordingly, to prevent defects and bigger repairs. Proper servicing can increase the durability of the system considerably.

## 2. RANGE OF APPLICATION

The inspection system is comparable to an optical gauge. Please treat it appropriate carefully! It is solely designed for optical inspections of channels and pipes.


As a channel- or pipe cleaning device the inspection system is certainly not suited and is not designed for that. The removal of obstacles with the camera head can lead to heavy defects and make it unserviceable.


### 2.1. Permitted range of application

Consider that only cleaned channels / pipes are suitable for a proper, decent optical inspection:

- Rainwater sewage pipe systems
- Slop- and mixed water sewage pipe systems
- Industrial effluent sewage pipe systems (only when purged according to §54 WHG)

### 2.2. Prohibited range of application


<b>Danger to life if used in dangerous environments</b>	
 <b>HAZARD</b>	<ul style="list-style-type: none"><li>▪ The inspection system must not be used in gas conduits without particular arrangements!</li><li>▪ The control unit must not be operated in water or conductive materials!</li><li>▪ Environments with explosive gases must not be inspected with the inspection system under any circumstances!</li></ul>

<b>Danger through inappropriate use</b>	
 <b>WARNING</b>	<ul style="list-style-type: none"><li>▪ The inspection system must not be deployed into drinking water pipelines without particular precautions!</li><li>▪ The inspection system must not be operated in environments where groceries are manufactured or processed!</li><li>▪ Has the system been used in an environment with slop, it has to be cleaned thoroughly, before it is allowed to use it in fresh water areas again. Without cleaning this is strictly prohibited, as it can come to infections and fresh water contamination!</li></ul>

### 3. SAFETY INSTRUCTIONS

Read the safety instructions thoroughly and follow them! They serve your own security, the security of your staff and also the prevention of damages to the inspection system and its components.

**Deadly hazard through electric current**




**HAZARD**

- Ensure that no liquid ingresses into the control unit, the control desk or the casings of the camera drums!  
If it happens disconnect the current supply immediately and secure the connector against further connections. Inform the suitably qualified professionals or your RIEZLER service!
- Ensure that the electrical connection cables are undamaged and can't get creased or squashed! If you detect damages disconnect the current supply immediately and secure the connector against further connections. Inform the suitably qualified professionals or your RIEZLER service!
- Works on the electric – which exceed the normal cleaning and maintenance of regular operators – may only be done by skilled professionals. Further maintenance- and repair works must only be realized by the RIEZLER customer service or from RIEZLER Inspektionssysteme authorized persons.
- Switch the system and all peripheral devices dead while doing maintenance.

### 4. WARNING NOTICES

Our products are built very robust so you can work with them for a long period of time. Nevertheless there are a few issues we would like you to obey, because they could otherwise decrease the durability of our products.

**Carefully use**





**CAUTION**

- Always switch off the inspection system first via the Power-button before disconnecting the power cable!
- Before changing pluggable camera heads the system has to be switched off!
- Don't put heavy objects on the device!
- Don't let products fall!
- Never open the product, as long as you are not particularly asked to do it from the operating instruction or from one of our technicians! In the system inside are no parts that can be maintained by a user.


## 5. NOTES OF DISPOSAL

Drained batteries don't belong in the domestic waste. Bring them to a suitable collecting point or return them to your retailer.

Disposal of legacy devices		
 HINT		Legacy devices that are marked by the shown symbol must not be disposed in the domestic waste but have to be properly disposed – according to the electrical and electronics equipment law from March 24 <sup>th</sup> 2005. Please bring these devices at the end of their lifetime to the designated public collecting points.

## 6. HINTS FOR THE USE OF THIS OPERATING INSTRUCTION

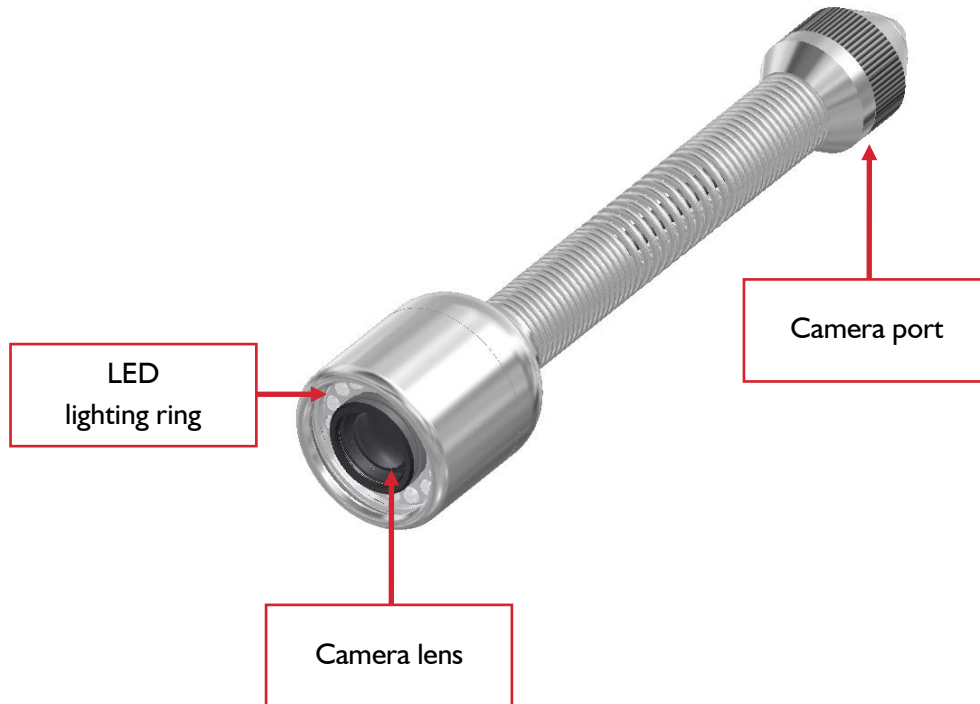
This operating instruction gives you an overview over our camera heads and their specifications. Furthermore it is described how the accessories have to be handled.

Steering of the camera head	
 HINT	Information about steering the camera head can be found in the operating instruction of your control unit.

## 7. AXIAL CAMERA HEADS RIK-3240 AND 3240 RO

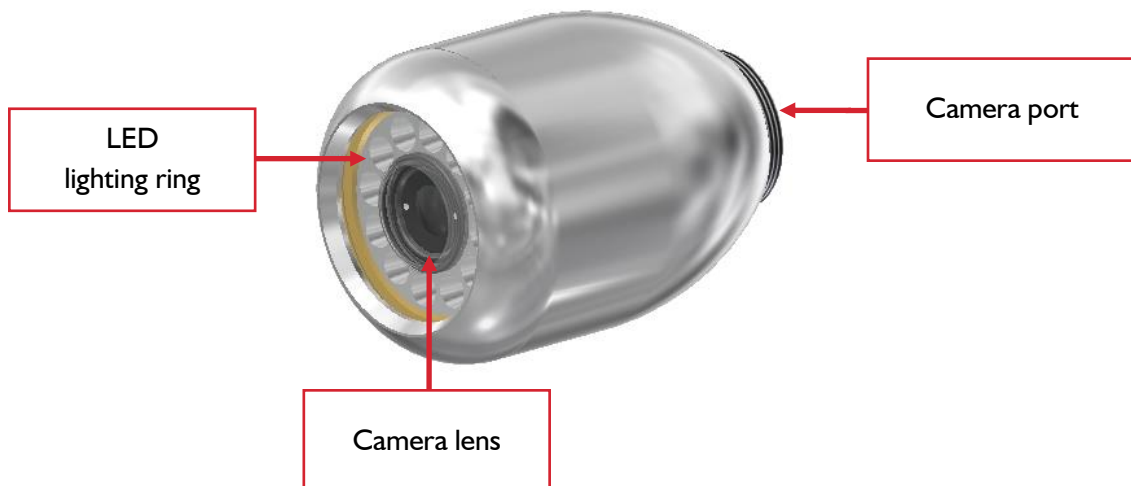
The camera heads of the 3240 series are almost identically constructed and differentiate only by the ROLLMATIC function (permanent upright picture) of the RIK-3240 RO.

### 7.1. Layout



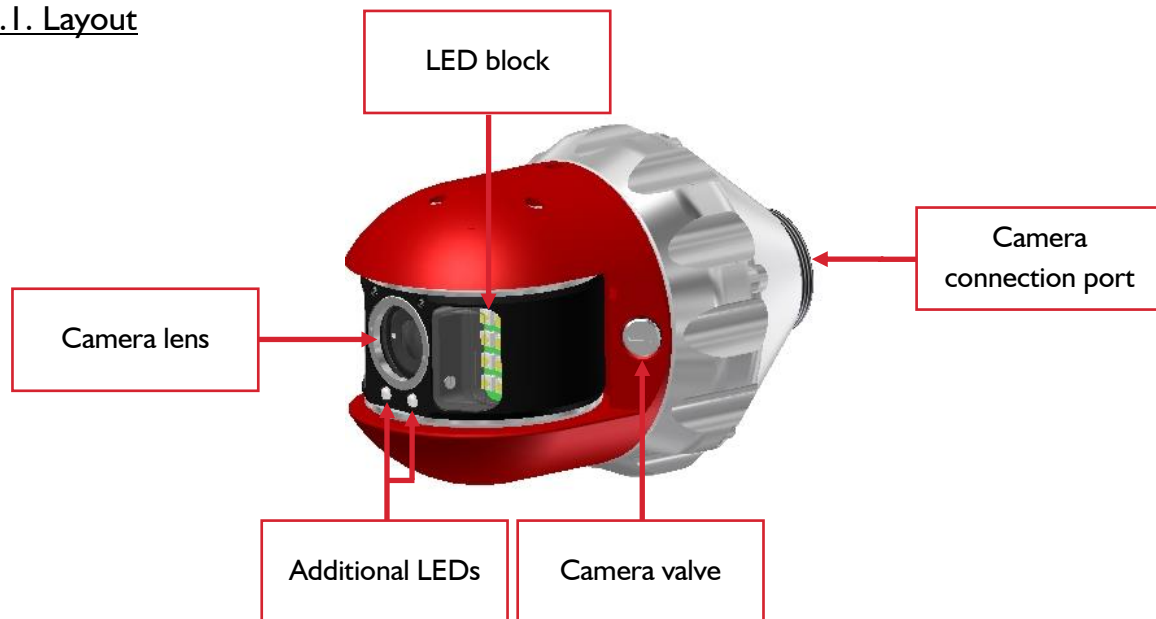
## 8. AXIAL CAMERA HEAD RIK-5570

### 8.1. Layout



### 9. PAN AND TILT CAMERA HEAD RSK-78

#### 9.1. Layout



#### General notes RSK-78

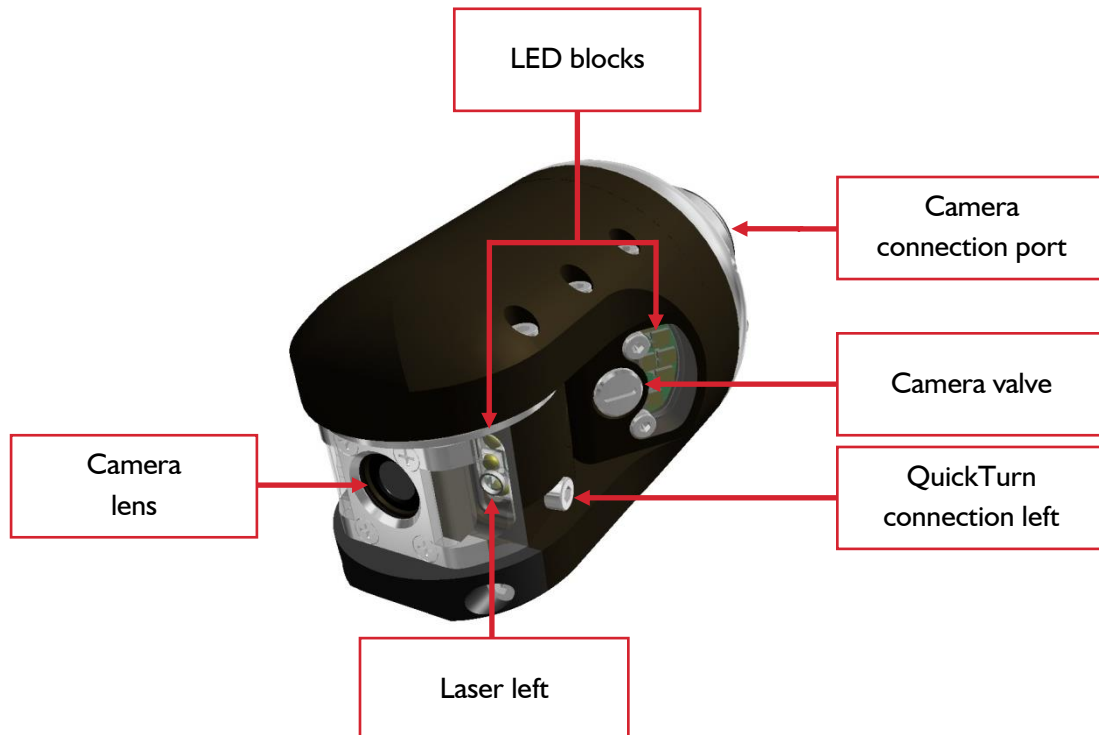


#### HINT

- At the beginning of the work, the camera head should be kept roughly in the position of "upright view" until the camera head has ceased to rotate and swivel. By this the camera head detects the Zero-position.
- After a longer time of inactivity the first 5 to 10 rotations may be a bit sluggish
- After 10 minutes without any activity the camera head is reducing the luminosity to avoid an overheating of the camera head.

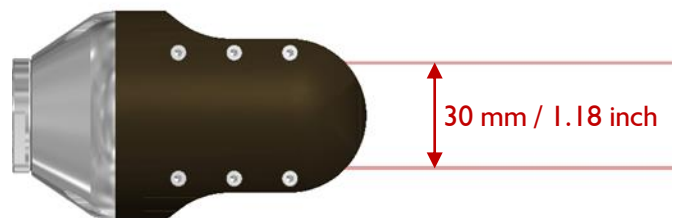
## 10. PAN AND TILT CAMERA HEAD RSK-60

### 10.1. Layout



### 10.2. Laser

The laser can be activated via the control unit or the remote control. More detailed information can be found in the operating instruction of your control unit. The lasers help to measure damages during the inspection more precisely.



**Danger of loss of sight**

**CAUTION**

**Laser class 2:** Never look directly into the laser beam with bare eyes! You must not point the laser at other people and especially not at their faces and eyes! Laser beam to the eye can cause serious eye damage!

**General notes RSK-60**

**HINT**

- At the beginning of the work, the camera head should be kept roughly in the position of "upright view" until the camera head has ceased to rotate and swivel. By this the camera head detects the Zero-position.
- After a longer time of inactivity the first 5 to 10 rotations may be a bit sluggish
- After 10 minutes without any activity the camera head is reducing the luminosity to avoid an overheating of the camera head.

## 11. CAMERA HEAD INTERNAL PRESSURE

To increase the internal pressure of the pan and tilt camera head (RSK-78 and RSK-60), please proceed as follows:

1. Unscrew the valve cap with a screwdriver.
2. Set the air pump onto the valve and screw it hand-tight.
3. Inflate the camera head by pumping two to three times up to about 1.3 bar.
4. When overpressure (more than 1.7 bar), a warning indication will appear on screen. Press with a blunt object (e.g. paper clip) in the valve opening to let air escape – this will decrease the pressure in the camera head.
5. **Remember to screw the valve cap back! Otherwise dirt might get into the camera head with the next inflation. This might destroy the camera head.**



Adjust pressure for the RSK-78 – the pressure adjustment works the same way for the RSK-60

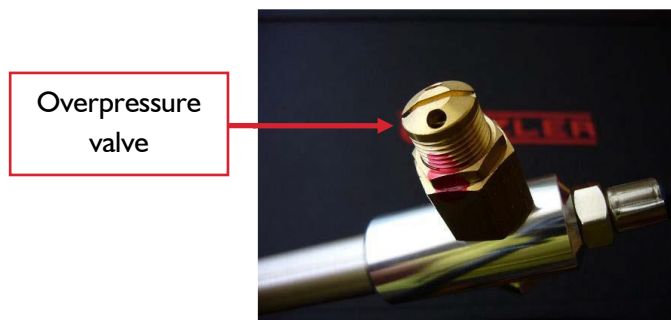
The pressure indication will be shown when:

- Switch on the system (while approx. 20 seconds)
- Internal pressure less than 0.5 bar
- Internal pressure more than 1.7 bar

**Recommended pressure: ca. 1.3 bar**

### 11.1. Air pump

The air pump has an overpressure protection. This prevents that the camera head is inflated too much. The protection of the pump valve opens from a pressure of about 1.5 bar. Don't cover the overpressure valve while pumping!



Air pump with overpressure valve

## 12. ACCESSORIES

### 12.1. Guiding sleeve

Article number:  
5-0005-500

suitable for: **RIK-5570**

Follow these steps to connect the guiding sleeve to your RIK-5570 camera head:

1. Untighten both slotted-head screws that hold the two parts of the guiding sleeve together.



2. Surround the RIK-5570 camera head with both parts of the guiding sleeve and tighten the screws slightly.



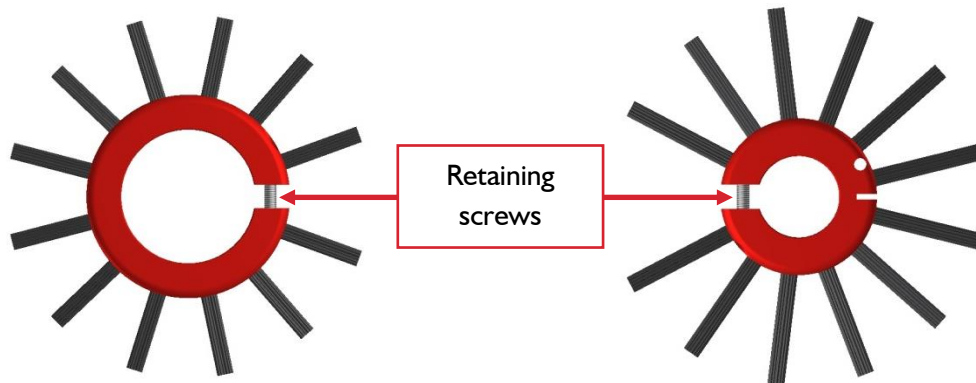
## 12.2. Guide brushes

Article number:  
5-0005-501

suitable for: **RIK-5570**

Follow these steps to connect the guide brushes to your RIK-5570 camera head:

1. Unfasten the retaining screws of both guide brushes. You don't have to remove the screws completely.



2. After the camera including the camera spring has been detached from the push cable, you can coat the guide brushes over the respective camera end and fasten the screws again. Watch out that the guide brushes rest on an even spot.



3. Connect the camera spring with the push cable again.

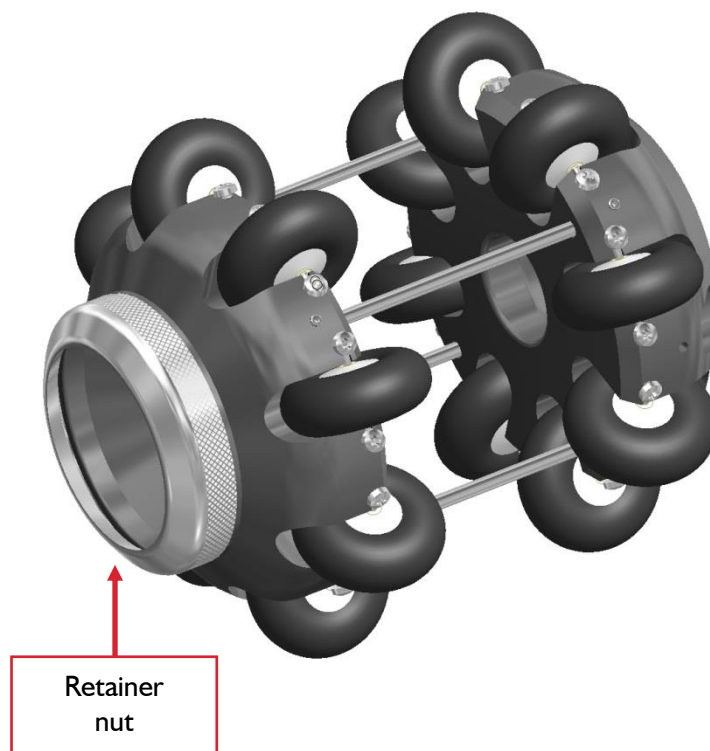
### 12.3. Skid

Article number:  
DN 150: 5-0015-001  
DN 200: 5-0015-002

suitable for: **RIK-5570**  
**RSK-60**  
**RSK-78**

The installation is similar for both skids and both camera heads. Follow these steps:

1. Disconnect the camera head including the camera spring from the push cable and put them aside gently.
2. Screw the silver retainer nut off the skid and extract the adapter capsule lying beneath.
3. Put both parts aside and insert the camera head into the skid - camera spring ahead.
4. RIK-5570 and RSK-60 only: Put the provided adapter capsule over the camera head - narrower end has to point to the lens.
5. Reassemble the retainer nut to the skid and reconnect the camera spring to the push cable.



### 12.4. Locating sender 33 kHz / 512 Hz

Article number:

33 kHz version: 5-0008-001

512 Hz version: 5-0008-002

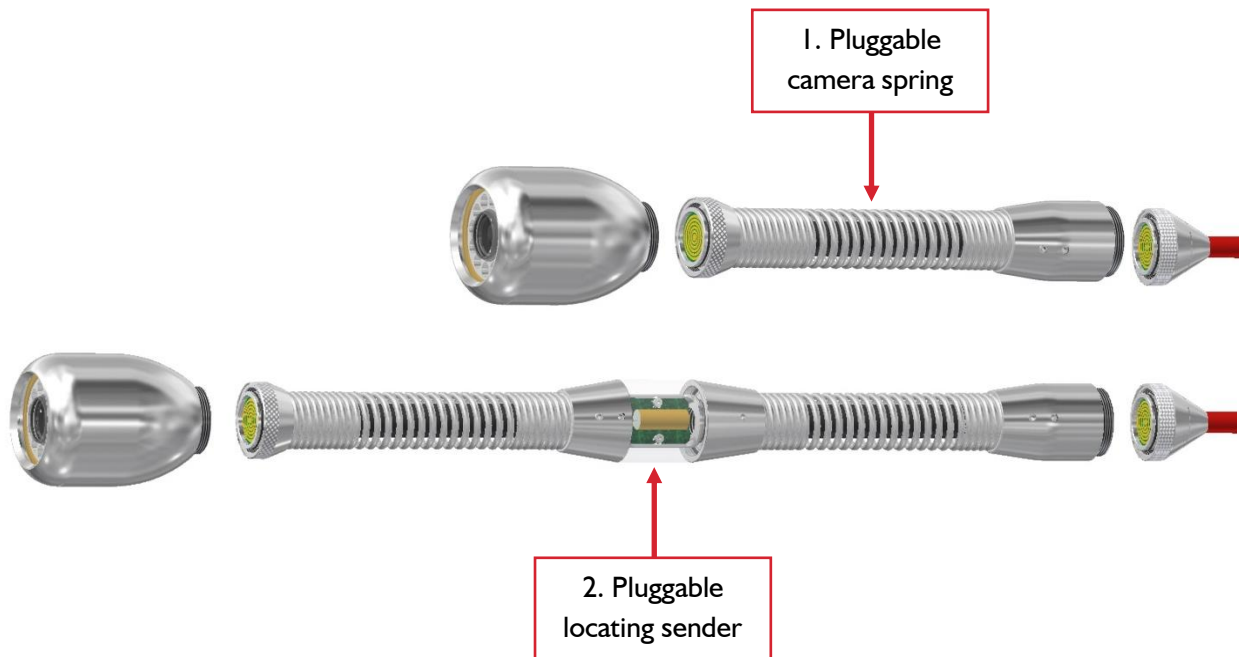
suitable for: **RIK-5570**

**RSK-60**

**RSK-78**

Follow these steps to connect the locating sender to your camera head:

1. Detach the camera head including the camera spring of the push cable.
2. Replace the locating sender with the regular camera spring.
3. Connect the locating sender back to the push cable.



**HINT**

#### Image interference

When the locating sender is activated, it can cause disturbances on the monitor (distorted image, stripes on the image). This is technically induced and doesn't affect the function of the system itself.

### 12.5. QuickTurn

#### 12.5.1. RSK-78

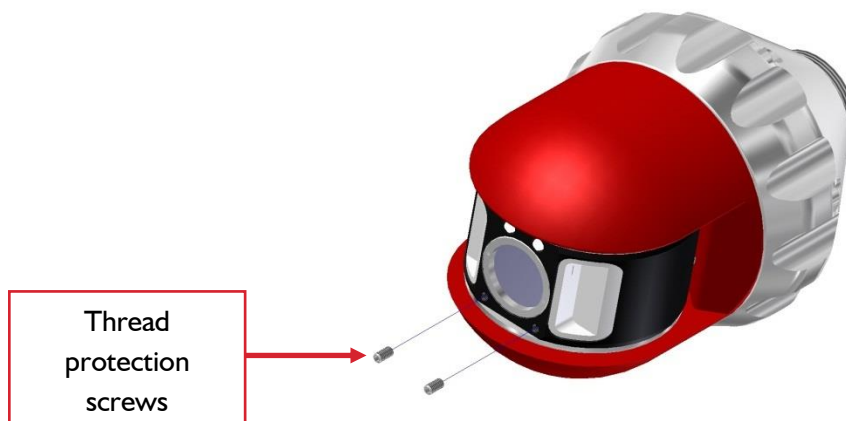
Article number:

suitable for: **RSK-78**

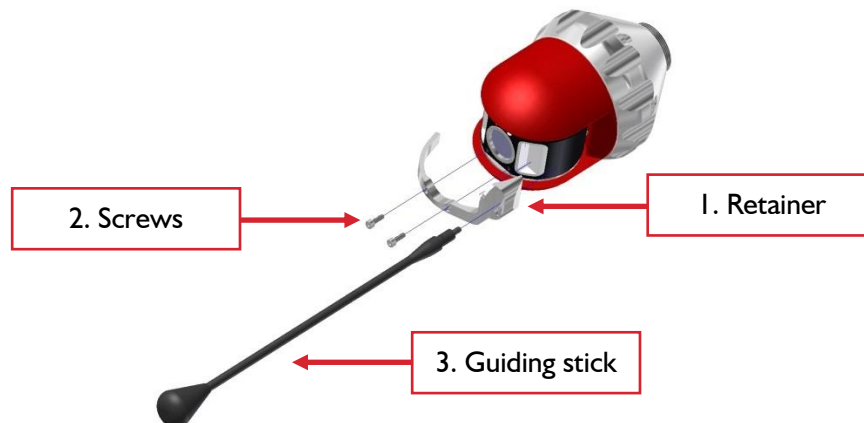
For orders out of Germany: 5-0006-500

For orders out of all other countries: 5-0006-501

1. Remove the thread protection screws out of the immersion in the camera head.



2. Mount the retainer with the provided screws to the camera head and screw the guiding stick on the retainer.



#### Dismantling



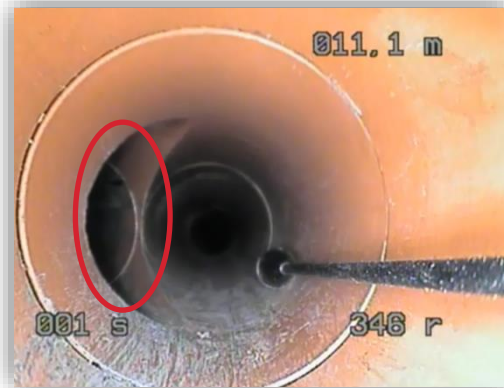
HINT

To detach QuickTurn, remove the guiding stick first and then unplug the retainer off the camera head by unscrewing both screws.

**It's essential to screw both screws back into the camera head to prevent dirt entering the immersion. That would complicate the process of connecting QuickTurn the next time you want to use it.**

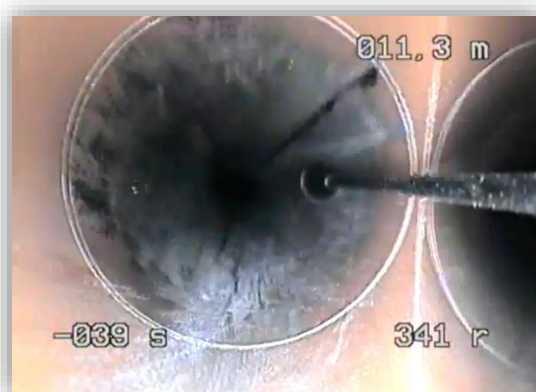
### 12.5.2. RSK-78: Left turns with QuickTurn

1. Adjust the camera with the joystick, so that the top of the guiding stick is in line with the branch you want to inspect. The branch should be at 9 o'clock.



Position  
guiding stick

2. Pan the camera head with the joystick to the left and push the camera forwards. The stick will thread in and you can continue with the inspection.



Thread in and  
turn off

12.5.3. RSK-78: Right turns with QuickTurn

**CAUTION**

**Never turn right**

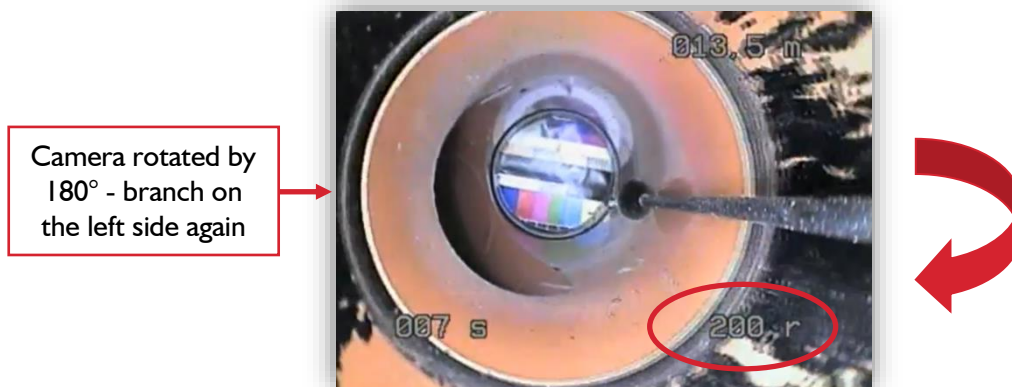
For technical reasons the RSK-78 with QuickTurn can only turn to the left! Turning right could cause the stick to snag and even brake.

To turn right anyway, you need to follow the next steps:

1. Rotate the camera head with the joystick by 180°, so that the branch that has been on the right side moves to the left side.



2. Now, that the branch is on the left side (9 o'clock) again, follow the steps for turning left (see previous page).



12.5.4. RSK-78: Spare parts for QuickTurn

Description	Rubber-buffer	Guiding stick 200	Guiding stick 300
Article number	I-14-0027	4-0006-10.C-00	4-0006-10.D-00

### 12.5.5. RSK-60

Article number:

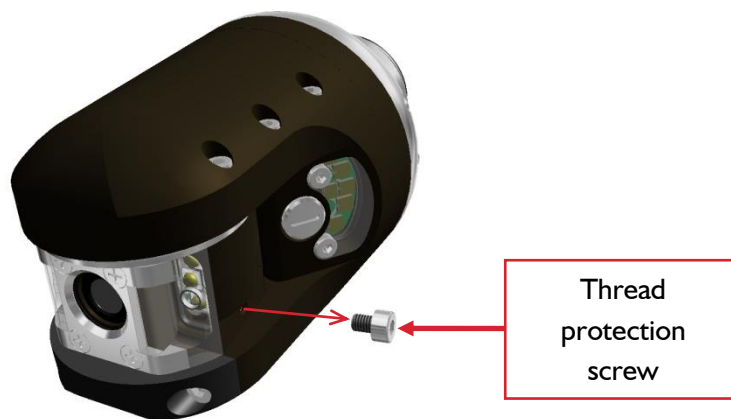
suitable for: **RSK-60**

For orders out of Germany: 5-0033-500

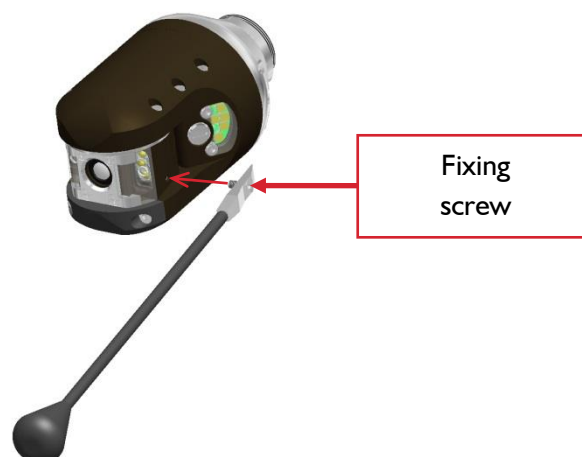
For orders out of all other countries: 5-0033-501

QuickTurn can be attached at the right or left side of the RSK-60. Which side you choose is irrelevant. But you have to pay attention to the explanation how to turn left and right with the RSK-60 and QuickTurn (see page 21)! In this illustration QuickTurn gets attached to the left side.

1. Remove the thread protection screw out of the immersion of the camera head and put it to a safe place.



2. Put QuickTurn on the camera head – like shown in the drawing – and tighten the fixing screw hand-tight.



HINT

#### Dismantling

To detach QuickTurn just undo the fixing screw.

**It's essential to screw the thread protection screw back into the camera head to prevent dirt entering the immersion. That would complicate the process of connecting QuickTurn the next time you want to use it.**

12.5.6. RSK-60: Turning with QuickTurn

**Turning**

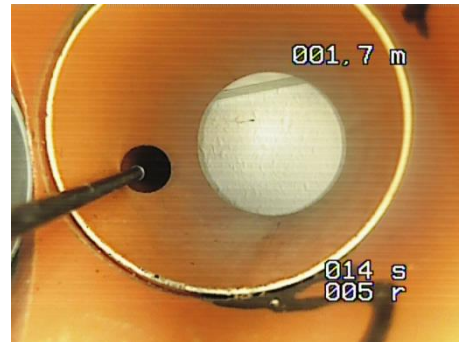
**CAUTION**

For technical reasons the RSK-60 with QuickTurn can only turn to one direction, depending on which side QuickTurn was mounted! Please read the following instruction carefully to prevent the guiding stick to snag or even break. In the following steps you'll also find out how to turn left and right.

Initial situation: **QuickTurn** mounted **left**  
 Branch: right

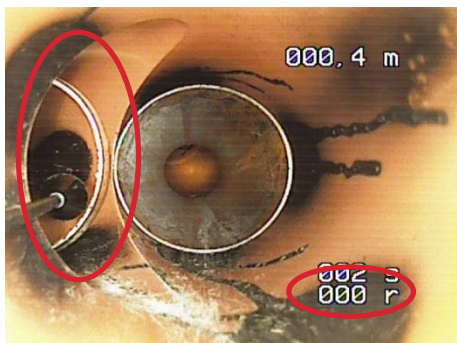


1. Adjust the camera with the joystick, so that the top of the guiding stick is in line with the branch you want to inspect. The branch should be at 9 o'clock.

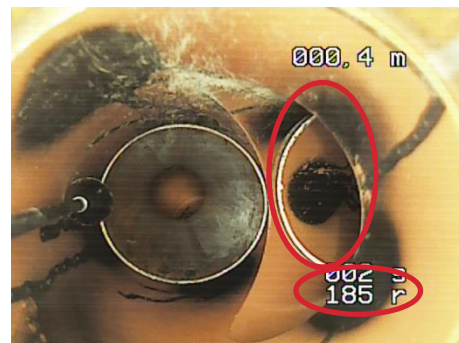


2. Pan the camera head with the joystick to the right and push the camera forwards. The stick will thread in and you can continue with the inspection

Initial situation: **QuickTurn** mounted **left**  
 Branch: left

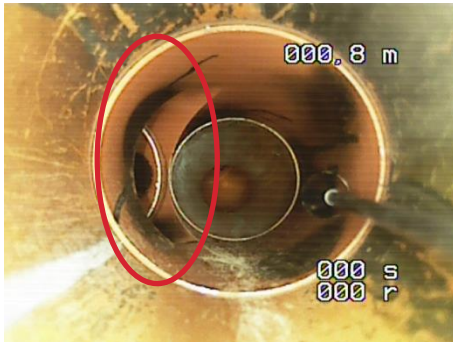


1. Rotate the camera head with the joystick by 180°, so that the branch that is on the left side (9 o'clock) moves to the other side.

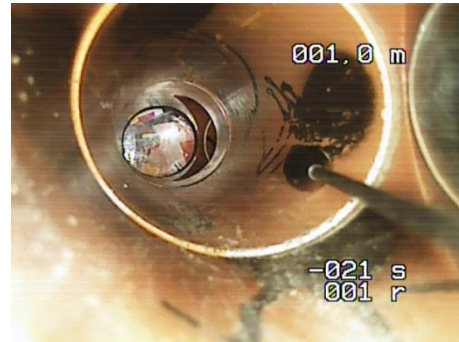


2. Pan the camera head with the joystick to the right and push the camera forwards. The stick will thread in and you can continue with the inspection

Initial situation: **QuickTurn** mounted **right**  
 Branch: left

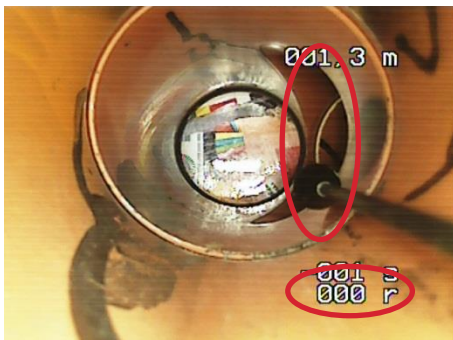


1. Adjust the camera with the joystick, so that the top of the guiding stick is in line with the branch you want to inspect. The branch should be at 3 o'clock.

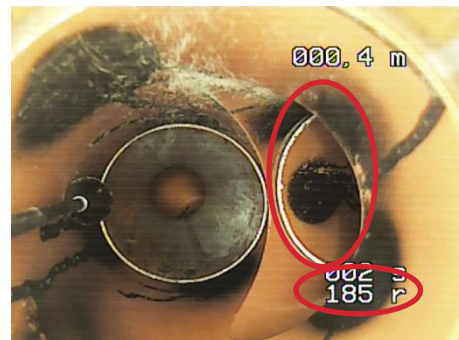


2. Pan the camera head with the joystick to the left and push the camera forwards. The stick will thread in and you can continue with the inspection

Initial situation: **QuickTurn** mounted **right**  
 Branch: right



1. Rotate the camera head with the joystick by 180°, so that the branch that is on the right side (3 o'clock) moves to the other side.



2. Pan the camera head with the joystick to the right and push the camera forwards. The stick will thread in and you can continue with the inspection

### 12.5.7. RSK-60: Spare parts for QuickTurn

Description	Guiding stick 200	Guiding stick 300
Article number	4-0033-10.A-00	4-0033-10.B-00

## 13. SERVICING



**CAUTION**

### Before beginning the cleaning

Before beginning the cleaning you have to switch off the inspection system and disconnect it from any power source! Cover the connectors with the dedicated protection caps.

While winding up the cable use a moist cloth to prevent a buildup of debris. The camera head and the cable must only be cleaned with water and soap. Please do not use solvents. The lighting- and lens glass panel should only be brushed off with a soft cloth or cotton sticks. Never try to scrape soiling off with tools!

The camera cable is specifically engineered and built for our inspection systems. The outer jacket is firm and abrasion-proof and mostly resistant to outside influences. But inappropriate handling or adverse conditions can damage or destroy this jacket. If the cable is damaged it has to be checked and possibly be exchanged with a new one.



**WARNING**

### Damaged cable

A damaged jacket facilitates the penetration of moisture into the cable and can lead to a failure of the inspection system. If inner cable cores are damaged electrical shorts can occur!

In this case decommission the inspection system immediately!



**HINT**

### Prevent damages

- Never use a high pressure cleaner to clean the inspection system. This can lead to considerable damages on the product.
- Especially clean screens and camera lenses extremely cautious and refrain from using caustic detergents.

## 14. GUARANTEE DECLARATION

Congratulations on the purchase of your new RIEZLER inspection system. Our devices are the result of years of experience and ongoing development.

Conscientious workmanship and control are important goals in our company. Nonetheless if defects should occur, the possibility of which can never be excluded, you have a high level of security through our generous guarantee.

Please note, however, that even the best product can properly and continuously fulfill its function only if it is properly maintained and operated.

### 14.1. Scope of the guarantee

For the product from RIEZLER Inspektionssysteme GmbH & Co. KG that you have purchased, that has been manufactured and tested in accordance with our production and quality guidelines we grant you a guarantee of twelve months.

We will correct defects that occur verifiably due to material and/or manufacturing faults at no charge. In this regard we reserve the right, at our sole discretion, to repair the device, or to replace it completely, replace its defective parts, or refund the remaining value to the customer, if repair or replacement is not possible.

### 14.2. Guarantee conditions

Excepted from the guarantee are damages that occur due to improper use of the system, inadequate maintenance, normal wear, and force majeure (e.g. lightning, fire, and freezing...).

Moreover the guarantee does not cover parts that are subject to wear, such as front glass, shaft end seals, lights, cables, etc., as well as damage that does not impair the serviceability of the system.

If you have a guarantee claim please contact us, your dealer, or the service organization closest to you, and submit the original invoice.

## 15. TECHNICAL DETAILS

### 15.1. Axial cameras



#### Application area

Usable from Ø to Ø (push rod use)	40 - 150 mm 1.56 – 5.90 inches	40 - 150 mm 1.56 – 5.90 inches	70 - 400 mm 2.76 – 15.75 inches
Suitable for bends as of ° / Ø	87 ° / DN 50 87 ° / 1.97 inches	87 ° / DN 50 87 ° / 1.97 inches	87 ° / DN 100 87 ° / 3.94 inches
Crawler suitable	<b>X</b>	<b>X</b>	✓

#### Camera head

Material pluggable camera head	Aluminum / stainless steel combination	Aluminum / stainless steel combination	stainless steel
Diameter / length	32 / 40 mm 1.26 / 1.58 inches	32 / 40 mm 1.26 / 1.58 inches	55 / 70 mm 2.17 / 2.76 inches
Weight	ca. 130 g	ca. 170 g	ca. 500 g
Waterproof to	3 bar	3 bar	5 bar
Automatic horizon compensation	<b>X</b>	✓	✓
Ultra bright LED-cold light	9 LEDs, dimmable	9 LEDs, dimmable	12 LEDs, dimmable

#### Camera module / lens

Image sensor	1/4" Color CMOS	1/4" Color CMOS	1/4" Color CCD
High-resolution color camera module	420 lines	420 lines	480 lines
Wide angle lens	90 °	90 °	130 °
Internal pressure supervision	<b>X</b>	<b>X</b>	<b>X</b>
Focusing	Fix focus	Fix focus	Fix focus

15.2. Pan and tilt cameras



**Application area**

Usable from Ø to Ø (push rod use)	70 - 400 mm 2.76 - 15.75 inches	100 - 400 mm 3.94 - 15.75 inches
Suitable for bends as of ° / Ø	87° / DN 100	87° / DN 100
Crawler suitable	✓	✓

**Camera head**

Material pluggable camera head	Aluminum / stainless steel	Aluminum / stainless steel
Diameter / length	60 / 100 mm 2.36 / 3.94 inches	78 / 110 mm 3.07 / 4.33 inches
Weight	ca. 680 g	ca. 950 g
Waterproof to	5 bar	5 bar
Automatic horizon compensation	✓	✓
Ultra bright LED-cold light	18 LEDs, dimmable	18 LEDs, dimmable

**Camera module / lens**

Image sensor	1/4" Color CMOS	1/4" Color CCD
High-resolution color camera module	420 lines	480 lines
Internal pressure supervision	✓	✓
Focusing	Electronic adjustable focus	Electronic adjustable focus
Focusing range	1 cm - ∞ 0.39 inch - ∞	1 cm - ∞ 0.39 inch - ∞
Monitor insertions	Rotation and swivel angle, internal pressure	Rotation and swivel angle, internal pressure

**Pan and tilt functions**

Swivel range	+/- 120°	+/- 110°
Continuous rotation	360°	360°
Professional slipping clutch	✓	✓
Automatic 0-position	✓	✓
Automatic 90° Left / Right pan function	✓	✓
Automatic 360° inspection-function	✓	✓
QuickTurn module (optional)	✓	✓