The operator in the vehicle and at the push device communicate via a voice connection.

**IBAK NANO / NANO L:** Pan and tilt camera for DN 80 upwards

- **Operation in pipes from DN 80/DN 100 upwards**
  - With their diameter of 47 mm, NANO cameras can be operated in pipes as small as DN 80 upwards. The ORION models with their diameter of 60 mm can be used in DN 100 pipes upwards. Any desired viewing direction is reached most rapidly under microprocessor control by the pan and rotate head. They can rotate endlessly around their own axis. The pan function permits a view in all directions, automatic rotation to inspect pipe joints and a view to the rear into laterals.
  - The NANO and ORION provide in the axial view an upright image thanks to the UPC function (Upright Picture Control).

**IBAK ORION / ORION L:** Pan and tilt camera for DN 100 upwards

- **Push rod and camera tractor operation**
  - Both the NANO and the ORION cameras can be operated with IBAK push rod systems (e.g., MiniLite), camera tractors and the IBAK LISY satellite system and have full bend-passing capability.
  - Fields of application
    - In addition to operation with compact push rod systems, because of their good illumination performance, the IBAK NANO and ORION cameras can also be used with IBAK camera tractor systems and therefore form part of the flexible IBAK modular system.
    - Both cameras are in their element in particular in relined laterals and/or in complex lateral systems.

**IKAS mini Software for Basic Projects optionally available**

- Creating projects and generating reports
  - Even with the simplest starter version of the IBAK software (IKAS mini), sewer inspections can be performed and recorded according to the valid European standard EN 13508-2.
  - Entry of defects in sewer sections and manholes, photo and video recordings can be easily made and saved thanks to intuitive user guidance.
  - The inspection results are documented in well laid out reports and saved as a PDF file. With the aid of a USB stick, the data can also simply be passed on to the customer with an interactive view only program. So the defects data can be examined in a clearly arranged presentation and the corresponding photos and videos can be viewed immediately. This makes all defects in the sewers visible and comprehensible even to nonspecialists.

**MiniLite Extension Kit**

- **Extension system function**
  - The push rod camera system is suitable for connection to a big system
  - Difficult-to-access sections and laterals can be inspected from the vehicle
  - Thus, the report software and recording units in the vehicle can also be used for push rod operation
  - The video signal and the length counter data are transmitted to the inspection vehicle via the camera cable

**Extension Kit**

- BS 3.5, BS 5, BS 7
- KT 140, KW 180
- KW 305/310, KW 505

**MiniLite Compact Push Rod Camera System**

- **MiniLite Extension Kit**
  - Not part of the introductory offer; price on enquiry

- **Hydrus, Nano, Orion, Orion L, Polaris**

**NANO/NANO L ORION/ORION L**

- Selectable cameras for the MiniLite special offer
IBAK Quality at a Reasonable Price

- New compact push rod camera system MiniLite (version 2)
- Range of application from DN 80 upwards with a NANO (from DN 50 upwards if a HYDRUS is purchased in addition)
- Stable and rugged
- 80 metres of push rod

The Mobile Solution for the Inspection of House and Property Drainage Systems

Coiler:
- Stable, rugged design
- Easy to clean
- Easy to transport with wheels and transport handle
- Exchange drum with 80m of rugged, bendable push rod (Perfect Push Rod)
- Integrated length counter

Control Console:
- Newly designed aluminium housing
- High quality workmanship
- Easy operation with a high resolution, water spray protected 10 inch touch display and a joystick
- Intuitive menu guidance, therefore easy to operate after a short training period
- Text can be entered and photo or video files (MPEG 4 AVC/H.264) can be saved on the integrated PC
- Uncomplicated data exchange via USB stick
- With basic software (IKAS mini), projects can be created and reports generated.

3D GeoSense:
- With the aid of the 3D-GeoSense software module, an additional counter and a camera equipped with a 3D-Sensor, a 3D sensor pipe run measurement can be performed with the MiniLite

Battery:
- Power supply by means of two standard exchangeable batteries with automatic switchover
- Mobile operation, independent of mains supply
- Decommissioned recharging with a standard battery charger

Selectable Cameras for the Introductory Offer:
- ORION (pan and tilt camera, range of application DN 100 upwards)
- ORION L (pan and tilt camera, bend-capable, range of application DN 100 upwards)
- NANO (pan and rotate camera, range of application DN 80 upwards)
- NANO L (pan and rotate camera, bend-capable, range of application DN 80 upwards)

Other Compatible Cameras:
- AXIALCAM, POLARIS

IBAK – Made in Germany

All IBAK products have one thing in common: They are "Made in Germany." All system components are developed, tested, assembled and tested by IBAK. Thanks to their high quality standards, IBAK products have set the standard for investment security and profitability – for 70 years now.

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