

# IBAK Helmut Hunger GmbH & Co. KG – A Story of Success

When Helmut Hunger started his own business in 1945 he was not thinking in global dimensions. His approach was to develop perfectly functioning precision products. An approach which IBAK still follows today with passion. The emphasis has always been on innovate, user-oriented solutions. So it is no accident that it was IBAK who invented sewer television in 1957

Products from IBAK are technical masterpieces. This is no wonder because one in six of our staff of more than 250 work in the field of research and development. The long years of experience of our engineers, the constant exchange of ideas between us and our customers and good co-operation with universities and professional bodies ensure the use of future-oriented technologies and their practical implementation.

All IBAK products have one thing in common: they are made in Germany. So all system components, hardware and software are developed, manufactured, assembled and tested by IBAK. Relevant standards such as ISO, DIN, all applicable CE directives and

IBAK, founded as „Ingenieurbüro Atlas Kiel“ by engineer Helmut Hunger, is today the biggest manufacturer of CCTV systems for the inspection of non-man-size pipelines and wells. For more than 60 years, customers all over the world have benefited from the great experience of this company with tradition



**Photo 1.**  
First sewer inspection camera + additional lightning world-wide



an ATEX and IECEx-certified quality assurance system only represent a minimum of IBAKs' requirements.

In addition to a strict environmental management system to preserve natural resources being implemented in all divisions of IBAK, the inspection systems also make their own contribution to the protection of the environment. The systems detect damage in drinking water and sewage pipes and thus help to preserve the precious asset of drinking water for the future.

**Photo 2.**  
First Demonstration Van in 1957



**Photo 3.**  
IBAK fitting hall for more than  
120 vans per year

## THE SPECIAL INSPECTION FEELING

The diameterrange of IBAK pipe inspection systems is large. From DN 50 (pushrod camera) until DN 3000 (tractor system) as well as the digital Panoramo technology – IBAK offers a solution for all needs and purposes.

When we speak of innovations, the digital sewer inspection system PANORAMO obviously gets first mention. It makes travelling through the underground world an extra 3D experience.

In 2002, the company introduced PANORAMO technology which is still unrivalled in the field of sewer inspection and which has been continuously improved and refined. As recently as 2009, its implementation in the manhole inspection camera PANORAMO SI made a sensational impact and in the meantime more than 50 units have been sold.

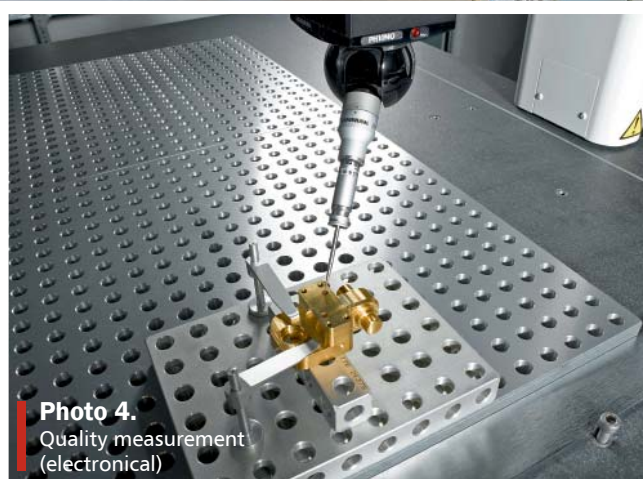
Whereas conventional inspection systems generate video films that reproduce the viewing directions chosen by the person performing the inspection, a scan with the IBAK PANORAMO system results in a film where nothing gets left out, showing the entire interior of the scanned pipe. Contrary to “invariable” video films, PANORAMO films are digital 3D films similar to those used in Google Street View.

Just as you can change direction there with the mouse pointer and view a locality from all directions, in a PANORAMO film, you can move freely in the pipe without any limits to the view, you can stop anywhere, do a 360° pan, zoom, look into branch pipes and even see behind you – and this without any corruption of the scanned image data. As opposed to other scanner technologies now available on the market which generate a complete view of the pipe, PANORAMO is the only one which, with its 3D view, offers you a real view of the pipe in its actual state in and against the travelling direction.

All objects or defects such as displaced joints, projecting pipe connections, infiltration etc. can be viewed in



**Photo 5.**  
IBAK Scanner Panoramo  
from DN200 upwards



**Photo 4.**  
Quality measurement  
(electronical)

detail from all sides and can also be measured. At the same time, the inspection data show high sharpness of detail, but above all, the analysis of the state of the pipe can be performed in the office at any time, in line with individual requirements, independently of the scanning procedure. PANORAMO films can be passed on to the customer with the IBAK PANORAMO Viewer, a high-performance program for interactive replay.

Besides the PANORAMO film, the inspector or customer also obtains a 2-dimensional unfolded view of the scanned pipe.

The specific PANORAMO technology thus makes it possible to implement a particularly efficient dual working procedure. The operator is responsible for getting the camera in and out of the pipe and supervising the scanning process. The analysis of defects is then performed independently of the scan in a separate procedure, for instance in the offices of a sewer network operator or engineering consultants.

## THE PATENTED PANORAMO PRINCIPLE

Unlike conventional sewer TV systems, the IBAK PANORAMO uses two high resolution digital cameras with 185° fisheye lens systems – the cameras are mounted on each end of the cylindrical housing. Each camera takes a photo at 5 cm intervals. Because of the extreme wide-angle focal distance, all-round photos of a pipe section are taken every 5 cm. These pipe section sequences are transferred digitally to the inspection vehicle and are processed there by the PANORAMO software to create a real 3D view of the interior of the complete pipe in and against the travelling direction. As compared to video technology, where continuous lighting and a fast-moving camera cause high motion unsharpness in the pictures, the images generated by the IBAK PANORAMO are pin sharp: the strobe-like, integrated xenon flashes con-



stantly illuminate the pipe so brightly that despite the very high scanning speed of up to 35 cm per second very high quality, sharply detailed images are ensured.

THE PANORAMO FAMILY

The IBAK PANORAMO is the first member of the PANORAMO family, it can be operated in 200 mm pipes upwards. Its “little sister”, the IBAK PANORAMO 150, is steerable and is designed for operation in 150 mm pipes upwards. This makes it eminently suitable for the inspection of relined 200 mm pipes. Various rims and wheels to suit the individual pipe diameters, also wheels with tread and granulated

wheels for high traction in concrete and vitrified clay pipes are available for both sewer PANORAMOs. The PANORAMO SI manhole camera completes the threesome. With this camera, manholes from 300 mm diameter upwards can be inspected comprehensively.

The IBAK inspection software IKAS 32 for PANORAMO offers you various extras that make inspection reports even more detailed and convenient. The

PLAN option is the graphical extra that transforms IKAS32 from an inspection program into a sewer GIS with CAD functions for graphical processing of sewer networks. In this application, the manhole and sewer inspection data are linked to the sewer network plan so that the user can click anywhere in the displayed plan to access all relevant additional information: the report, the film or the photos. The PLAN option offers numerous functions: display of master data as a sewer network, CAD drawing functions, digitizing functions for creation of manholes, sections and laterals, display of site plans in raster and vector format



Photo 7. IBAK Panoramo and Panoramo 150



Photo 8. IBAK Panoramo SI



and the import a n d export of all common data formats (DXF, RLC, TIF, BMP, JPG and IZF). The PANORAMO Analysis option provides the possibility of measuring objects in perspective. Lines, polylines and circles can be defined with a few mouse clicks. The measurements performed are marked in colour and shown in the Panoramo Viewer. Further information is available from IBAK. On demand, on-site demonstrations of the systems can be provided for customers. [www.ibak.de](http://www.ibak.de)