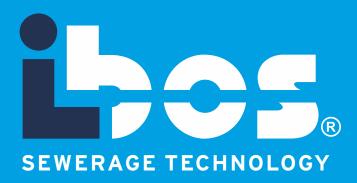


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Catalogue CAMERA **SYSTEMS**

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Agency for Czech Republic and Slovak Republic:

PROKASRO

Brandenburger

IMS Robotics STONEAGE

resinnovation



USBDÜSEN

MAN

woliner.

Introduction

Sewerage is the infrastructure that conveys sewage or surface runoff (stormwater, meltwater, rainwater) using sewers. It encompasses components such as receiving drains, manholes, pumping stations, storm overflows and screening chambers of the combined sewer or sanitary sewer. Sewerage ends at the entry to a sewage treatment plant or at the point of discharge into the environment (source: Wikipedia).

So the brief definition. We are IBOS and produce the technology, which look after the functionality of this network. In order it will be passed through and sealed, where it should be and work exactly according to customer's requirements. Our products monitor condition of the network, clean it, repair and take care of it's good condition. They carry out the work, which is not visible on the surface, but which significantly contributes to daily comfort of all of us.

Traditional resources as well the modern technology help us to perform the work. Team of talented and motivated staff, who know, that only finding the new ways and modern solutions will keep us among the best. We will be glad, if you become our partner.

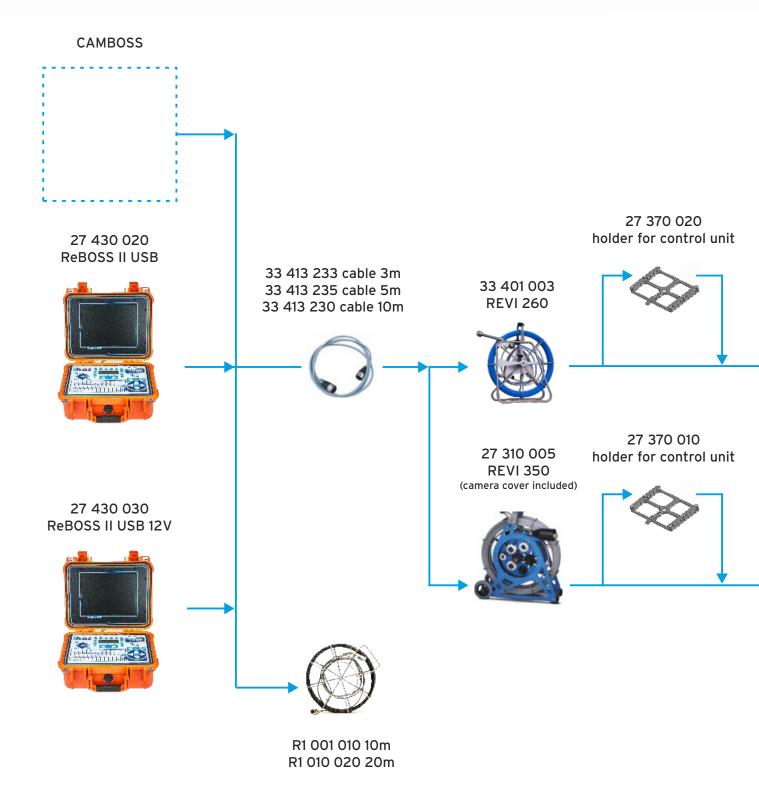
The most modern equipment for pipe monitoring from the producer IBOS a. s. represents an effective instrument for investigation of pipe condition and prevention of emergency situations. On the basis of the monitoring result you can effectively plan the investment into the renovation of pipe system.

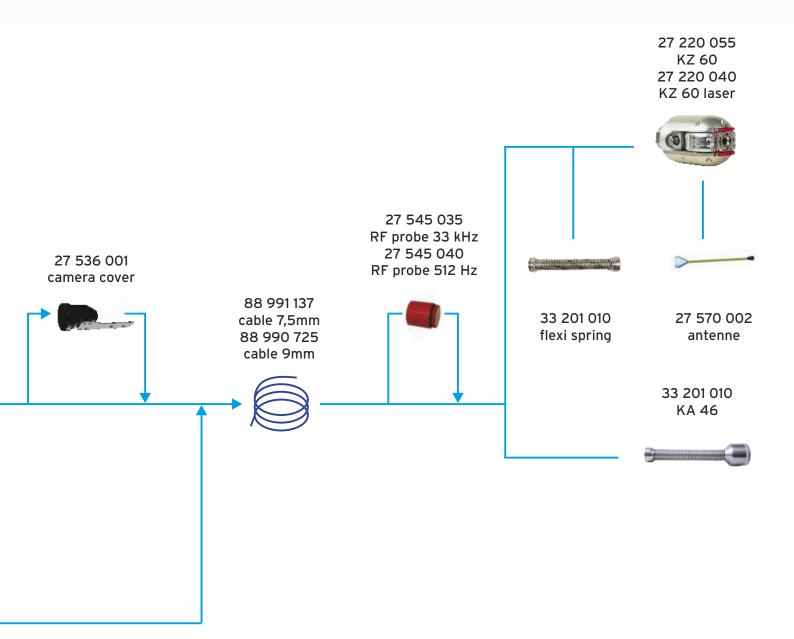
You can choose from the variety of equipment for monitoring. From push camera REVI 260, which is designed for house pipes, up to the highly-developed system CamBoss IV, which you can use as a mobile version or as a built-into the car.

Self-propelled system has compared to portable systems more functions. The equipment can lift the camera head and turn it into different angles. You can measure falls, with help of the lasers find out the pipe ovality, cracks and deformations of pipes. Signal from the camera is transferred via cable to monitor in the vehicle, where it is evaluated by operators.



Overview of REVI camera series compatibility - push-rod system





REVI 90

REVI 90 Camera designed for small pipe inspection DN40 - 50 mm.



TECHNICAL SPECIFICATION	
CONTROL UNIT - different options	
CamBoss control unit	15" LCD industrial colour display, inputs DVI and CVB-S, integrated PC, display of actual video Picture with possibility of switch to PC mode, optional SW DigiCAN (display of date, time, measuring of unwinded cable length, inclination, swing, rotation, pressure, etc.) and creating of documentation to damaged spots
Camboss PC Battery	Mobile battery control unit with touchscreen 12,1". With help of DigiCan SW - display of diverse data in the picture (date, time, measuring of unwinded cable length, inclination, swing, rotation, pressure, etc.) and creating of documentation to damaged spots.
ReBoss USB / ReBoss USB 12V	Battery control unit designed for REVI 90/REVI 260/REVI 350/REVI 450 and camera heads KA46/KZ60. 10"LCD 800x600 industrial colour screen, control panel, keyboard. Power 230V AC or 12V DC (according to chosen variant).
CAMERA HOUSING	
diameter 20 mm, length 28mm + 100 mm sp	ring behind the camera head
CAMERA RESOLUTION	
600 TVL/min. lighting 0,5 LUX, standard PAI	_, recording speed 50 images /second
PUSH ROD	
9 mm in length 10 - 20 m according to custo	mer´s wish. 8x LED lights in camera head
ACCESSORIES	
Camera in offer without centering part	





REVI 260

Portable colour camera designed for monitoring of house drainage including connections in range DN 50 to DN 300. The camera system can be used with axial camera head KA46 and/or rotary camera head KZ60. The camera head is manually inserted into the pipe with help of special reinforced cable with diameter 7,5 mm or 9 mm. The system is controlled by control unit with or without PC.





TECHNICAL SPECIFICATION		
CONTROL UNIT - different og	otions	
CamBoss control unit		15" LCD industrial colour display, inputs DVI and CVB-S, integrated PC, display of actual video Picture with possibility of switch to PC mode, optional SW DigiCAN (display of date, time, measuring of unwinded cable length, inclination, swing, rotation, pressure, etc.) and creating of documentation to damaged spots
Camboss PC Battery		Mobile battery control unit with touchscreen 12,1". With help of DigiCan SW - display of diverse data in the picture (date, time, measuring of unwinded cable length, inclination, swing, rotation, pressure, etc.) and creating of documentation to damaged spots.
ReBoss USB / ReBoss USB 12V		Battery control unit designed for REVI 90/REVI 260/REVI 350/REVI 450 and camera heads KA46/KZ60. 10"LCD 800x600 industrial colour screen, control panel, keyboard. Power 230V AC or 12V DC (according to chosen variant).
CABLE DRUM		
Material – stainless steel, capac weight – ca. 7 kg (without push		rod 7,5 mm), 80 m (push rod 9 mm), sensor of unwinded cable length, axial brake, with 50 m push-rod
CAMERA HEAD KA46 OR KZ	60	
Axial camera head KA46	Axial, self-levelling, colour CCD camera, resolution 470 TVL, light sensitivity 1 lux, lights 6x LED, diagonal visual angle ca. 68°, waterproof to 1 bar, material – stainless steel housing	
Rotary camera head KZ60		nera, resolution 307.200 pix, light sensitivity 0,3 lux by F1,2, range angle 50°, 2x125°, rotation 360° (infinity), waterproof up to 1 bar, built-in pressure sensor of tightness
PUSH ROD		
Diameter 7,5 mm or 9 mm, star	ndard lengths 50,	60, 80 m

ACCESSORIES

Probe 33 kHz or 512 Hz for location determining up to depth 3 m, centring, and other









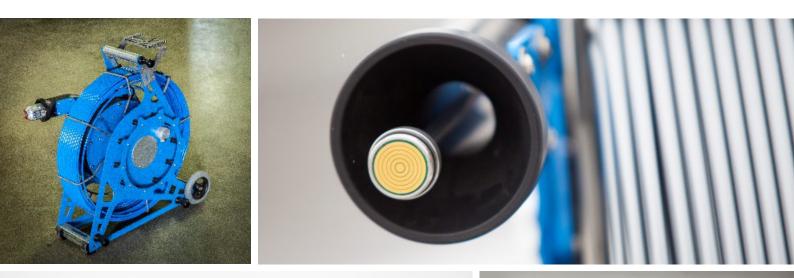
REVI 350

Push-rod camera system designed for monitoring of pipes DN 50 - 300 mm. The system can be used with axial camera head KA46 or rotary camera head KZ60 (also compatible with camera system REVI 260). The reel is equipped with wheels for easy handling. The capacity of the reel is up to 120 m - depending on the cable diameter (7,5 or 9 mm). On the top part it is possible to equip the reel with holder for fastening the control unit ReBoss, from the side there are the transport holders for centring parts.





TECHNICAL SPECIFICATION	
CONTROL UNIT - different optio	ns
Same options as by push rod came	ra REVI 260
CABLE DRUM	
Material – stainless steel, aluminiu weight – ca. 17 kg (without push ro	m, capacity – 100 m (push rod 9 mm), sensor for measuring of unwinded cable length, axial brake, od and centring)
CAMERA HEAD - different option	15
Axial camera head KA46	Axial, self-levelling, colour CCD camera, resolution 470 TVL, light sensitivity 1 lux, lights 6x LED diagonal visual angle ca. 68°, waterproof to 1 bar, material – stainless steel housing
Rotary camera head KZ60	Colour CCD camera, resolution 307.200 pix, light sensitivity 0,3 lux by F1,2, range angle 50°, 8x LED, swing 2x125°, rotation 360° (infinity), waterproof up to 1 bar, built-in pressure sensor for monitoring of tightness
PUSH ROD	
Diameter 7,5 mm or 9 mm	
CAPACITY	
7,5mm push-rod/120m or 9mm pus	sh-rod/100m
ACCESSORIES	







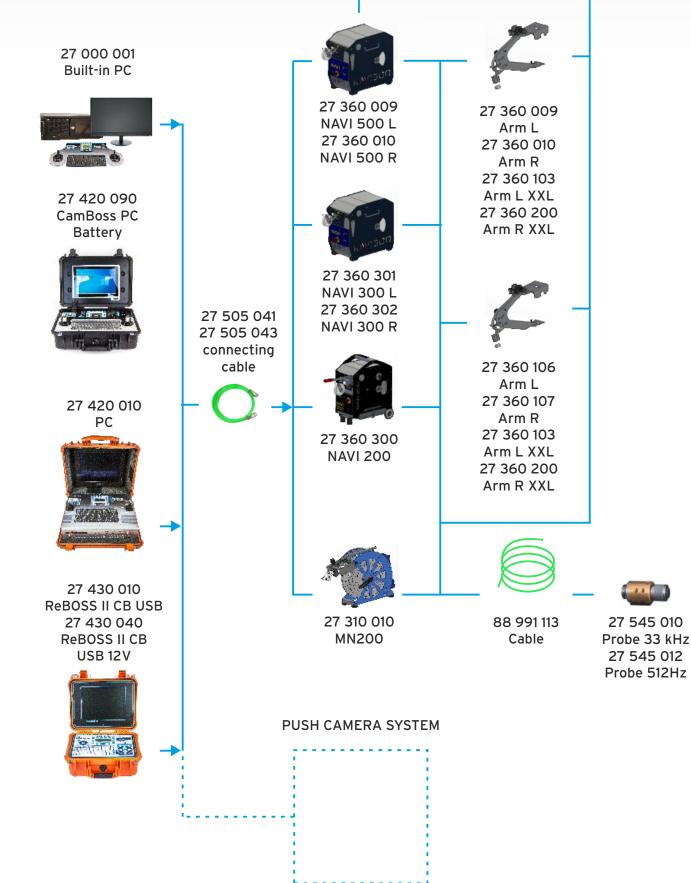
CAMBOSS SYSTEM

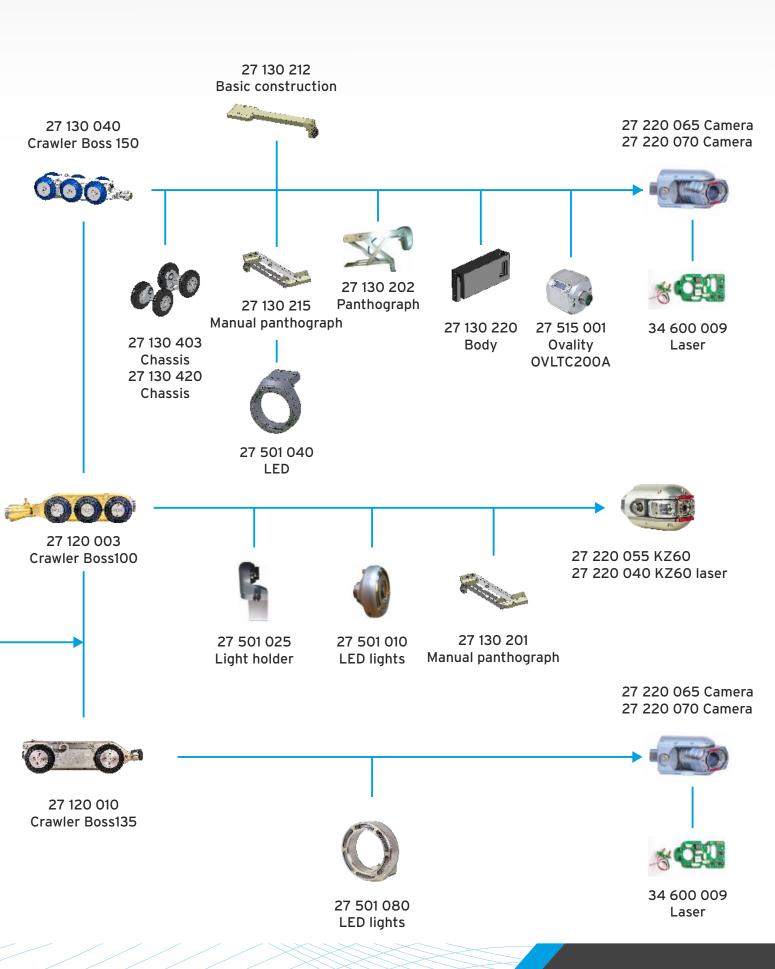
Camboss camera system represents the top solution for sewerage networks inspection. By combining the individual components, it allows to achieve optimal performance and efficiency in performing various tasks. It can be used as a portable system or built into van. The possibilities of its use are further expanded for example by superstructures for a satellite system or Quick-Lock system. An interesting alternative is also Trimaran designed for larger DN of pipe with a higher level of waste water. By purchasing one system and various accessories, the client will gain a wide range of use.





Overview of CAMBOSS camera series compatibility





CAMBOSS 100

The camera system CamBoss 100 is determined for pipe monitoring of diameters DN 100 - 300 mm. The camera crawler is equipped with two engines, which enable it's simple turning and fluent drive in the pipe. Thanks to pan and tilt camera head KZ60 it is possible to monitor the pipe in detail. Camera CamBoss 100 has the same control unit as the higher model line CamBoss 150_IV. It is so possible simply substitute the cameras according to monitoring needs and pipe diameter.

TECHNICAL SPECIFICATION

CONTROL UNIT - different options

the same types as the higher model line CamBoss 150_IV.

CABLE DRUM - different options

The same types as the higher model line CamBoss 150_IV., max. cable length 200 m (by cable drums with higher cable capacity is max. crawler run out 200 m)

SOFTWARE - various modules

the same types and module as the higher model line CamBoss 150_IV.

CAMERA HEAD KZ60

Colour CCD camera, resolution 307.200 pix, light sensitivity 0,3 lux by F1,2, range angle 50°, 8 x LED, swing 2 x 125°, rotation 360° (infinity), waterproof up to 1 bar, built-in pressure sensor for monitoring of tightness.

CAMERA CRAWLER BOSS 100

Drive 6x6, 2 engines 20W, 1 set of basic wheels, hook for lowering into the shaft, water-resistant up to 1 bar, material - brass

ACCESSORIES

Wheels for diverse diameters, LED light, light holder, probe 33 kHz or 512 Hz, auxiliary arm for cable reel, hand control (cable drum NAVI300 and NAVI500), guiding pulley for the pipe edge, radiocontrol



CAMBOSS 135

Crawler camera system CamBoss 135 is designed for pipe inspection DN 150-800. CamBoss 135 camera is characterized primarily by simplicity and user friendliness. It is especially suitable for simpler inspection work, where crawler turning or remote arm / pantograph height adjustment is not necessary. Camera crawler is compatible with control unit, cable drum and camera head of higher series CamBoss 150_IV. Thanks to compatibility, cost savings can be achieved.

TECHNICAL SPECIFICATION

CONTROL UNIT - different options

the same types as the higher model line CamBoss 150_IV.

CABLE DRUM - different options

The same types as the higher model line CamBoss 150_IV., max. cable length 200 m (by cable drums with higher cable capacity is max. crawler run out 200 m)

SOFTWARE - various modules

the same types and module as the higher model line CamBoss 150_IV.

CAMERA HEAD KZ95CB

High-resolution colour camera PAL 720x576TVL CVBS, light sensitivity 0,15 lux / F1,5, remote focusing, view angle 50°, 2 x 120° panning, 360° rotation (unlimited). 24x high power LED, 650 lm, 5,5W. 10x optical zoom + 12x digital zoom.

CAMERA CRAWLER BOSS 135

Crawler with drive 4x4, with 75W engine. Material - brass. Designed for DN150 up to ca. DN800, incl. 1 wheel set (4x100 mm). Waterproof up to 1 bar. With connector for addition lights, manual arm/pantograph and hook for lowering into shaft. Designed for camera head KZ95CB. Weight ca. 13 kg.

ACCESSORIES

Additional light - LED 18 W, wheels for various diameters and surfaces, lasers for camera head KZ95 for cracks / hollows and joints measurement with help of DigiCan SW.





The highest version of series CamBoss - CamBoss150_IV is available as portable or firmly integrated in a vehicle. The camera crawler has two motors with high performance 100 W, which enables easy turning and controlling. Thanks to the rear camera with sensitivity 0,025 lux is the way out from the pipe easy.

High-lift pantograph, on which the camera head is mounted, enables lifting the camera up to the pipeline axis, which together with the LED auxiliary lights allows to make the pipe monitoring quickly and in high-quality. The auxiliary chassis is determined for bigger diameters.

The CamBoss reel can be supplied with the cable length from 200 to 500 m. The control unit (eventually built in) is controlled via PC, which contains software including DigiCAN software.

TECHNICAL SPECIFICATION	
CONTROL UNIT - different options	
CamBoss control unit	15" LCD industrial colour display, inputs DVI and CVB-S, integrated PC, display of actual video Picture with possibility of switch to PC mode, optional SW DigiCAN (display of date, time, measuring of unwinded cable length, inclination, swing, rotation, pressure, etc.) and creating of documentation to damaged spots
Camboss PC Battery	Mobile battery control unit with touchscreen 12,1". With help of DigiCan SW - display of diverse data in the picture (date, time, measuring of unwinded cable length, inclination, swing, rotation, pressure, etc.) and creating of documentation to damaged spots.
ReBoss CB USB / ReBoss CB USB 12V	Battery control unit designed for crawlers BOSS 100, BOSS 150, (or only Boss135), pantograph GNTR 200E, camera head KZ95CB and NAVI 200, NAVI 300, NAVI 500 cable drums. Cooperates with REVI 90, REVI 260, REVI 350, REVI 450 and camera heads KA46, KZ60, KZ95CB. 10"LCD 800x600 industrial colour screen, control panel, keyboard. Power 230V AC or 12V DC (according to chosen variant).
Built-in CamBoss	22" industrial colour display, inputs DVI and CVB-S, display of actual video Picture with possibility of switch to PC mode, optional SW DigiCAN (display of date, time, measuring of unwinded cable length, inclination, swing, rotation, pressure, etc.) and creating of documentation to damaged spots
It is possible to extend the controlling by adapt	er for controlling of electro-robot
SOFTWARE - VARIOUS MODULES	
	ording to EN13508-2), photo protocol, ovality, laser (measuring of cracks), measuring of of diameter and ovality, interactive protocol, continuous ovality, ISYBAU XML, set
CABLE DRUM - different options	
MN200	Manually cable drum, special lightweight cable with length up to 200 m (according to wish). Cable drum equipped with guiding pulley. Construction resistant against water splash. Weight 23 kg (without cable), 37 kg (200 m cable)
	1

NAVI200	Automatic motorized reel, guide pulley for reducing the strain on the cable, sensor for measuring the length of unwinded cable, resistant against water splash, capacity max. 200 m cable. The reel includes the remote control hand control, which enables the controlling of crawler and camera
NAVI300	Automatic motorized reel, guide pulley for reducing the strain on the cable, sensor for measuring the length of unwinded cable, resistant against water splash, capacity max. 300 m cable
NAVI500	Automatic motorized reel, guide pulley for reducing the strain on the cable, sensor for measuring the length of unwinded cable, resistant against water splash, capacity max. 500 m cable
	OPTION: NAVI300/500 cable remote controller Handcontrol

CAMERA HEAD KZ95

High-resolution colour camera PAL 720x576TVL CVBS, light sensitivity 0,15 lux / F1,5, remote focusing, view angle 50°, 2 x 120° panning, 360° rotation (unlimited). 24x high power LED, 650 lm, 5,5W. 10x optical zoom + 12x digital zoom.

CAMERA CRAWLER BOSS 150

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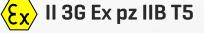
Drive 6 x 6, 2 engines 100 W, automatically balancing to prevent overturning, 1 set basic wheels, water-resistant up to 1 bar

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ACCESORIES

Lasers for camera head for measuring cracks, holes and connections in pipe, ovality module for continuous measuring of pipe ovality, electric pantograph with LED lighs 17,5W/2274 lm, manually elevating arm, auxiliriary chassis (DN 400 - 1000 mm), probe 33 kHz or 512Hz, wheels for various diameters, upper guiding for ovoid pipe profiles and other.

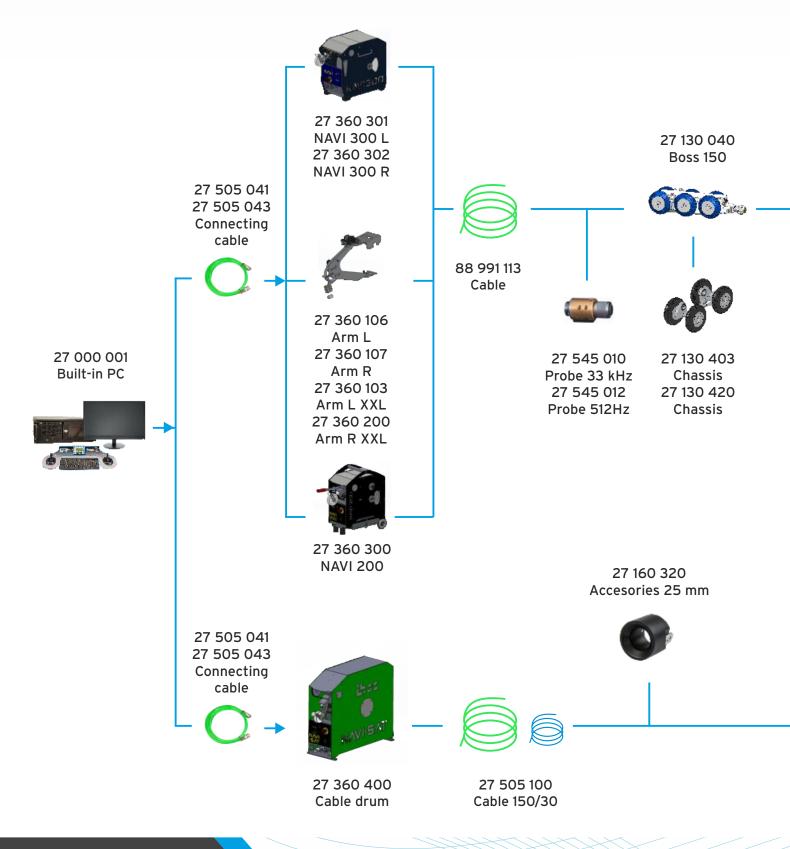
CamBoss 150 system also in ATEX version designed for explosive environments:

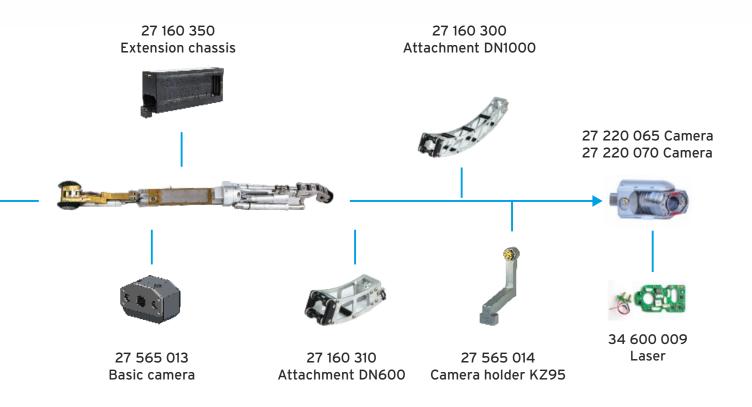






Overview of CAMBOSS satellite extension





27 220 055 KZ 60 27 220 040 KZ 60 laser



27 570 002 Antenne

CamBoss with satellite extension

Satellite extension of the crawler Boss 150 (6 x 6) for pipe inspection in DN 150 - 1000. View camera is component of the satellite extension, inspection of pipe connections is enabled.



TECHNIC SPECIFICATION

CAMERA HEAD KZ60

Resolution 307.200 pix, Swing 2 x 125°, rotation 360° (infinity), 8x extra luminuous LED, water-proof up to 1 bar

CONTROLLING

Two 3-axes joystics

SATELLITE CABLE DRUM

Flexible cable reinforced with kevlar + push-rod cable

OPCE

JetCam - combination of satellite camera and high-pressure cleaning machine for pipe cleaning (built-in into for example MB Sprinter 5t)

This system is designed only for the built-into the vans.



WELL 800

Camera system WELL 800 is designed for bore monitoring with diameter DN 150 - 800 mm. Stainless steel camera head is lowering into the bore with help of tripod equipped with pulley. The camera head enables rotation on its axis. In the front of the camera there is camera module designed for vertical view. Side view is controlled with help of second camera module under angle 90° with front optical system. Picture between front and side view is switched by the control unit. The condition of the bore is continuously displayed on the monitor, with possibility of recording and photos creating.

TECHNICAL SPECIFICATION

CONTROL UNIT

Control unit compatible only with Well800 system. Provided with 15" LCD industrial color screen with DVI and CVBS inputs, control panel with keyboard, placed into mobile case. LCD shows actual camera image with option to switch to PC mode. With aid of DigiCAN Light software it is possible to include various information (data, time, cable length, component pressure) and create customer reports containing suspected areas images and commentary. Dimensions ca. 250 x 450mm.

CABLE DRUM

Automatic motor cable drum - price without cable. The reel is compatible only with the WELL800 system. Guiding pulley enables support inserting of camera. Un winded cable length sensor, up to 300 meters cable capacity, splash water resistant, safety STOP switch. Dimension 360x 580 x740 mm

CAMERA HEAD

Camera for well inspection up to 300m depth. Works only with cable drum NaviWell. Works only with control unit NaviWell. 1x camera for straight view into well + 1x rotating camera for lateral inspection.

ACCESSORIES

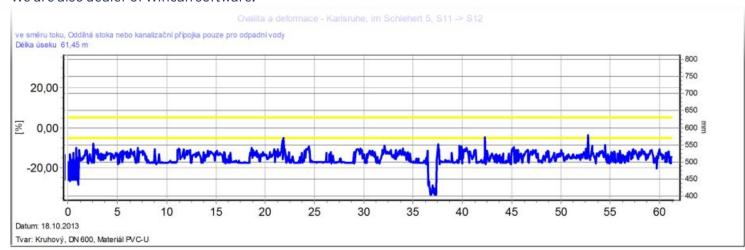
Input power 70 - 100 W depending on cable length.

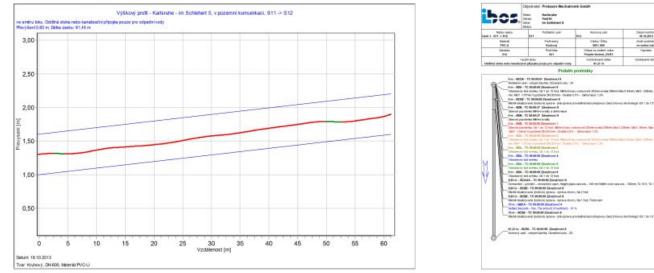
Special camera cable without coax, kevlar reinforced and connectors assembled, 5,5 mm diameter. Weight 3,8kg/ 100m



Camera software DIGICan

We offer installation of own developed software DIGICan for displaying/processing of data acquired from monitoring. You can choose from basic software version to different SW modules focused on protocol creating or measuring of various parameters (as for example inclination, ovality, cracks, etc.) up to complete set of software. You can get more information from our sales representatives. We are also dealer of Wincan software.







Specialities

The CamBoss system components are used in construction of other special equipment for pipe inspection and rehabilitation. For example – cameras for dry wells, shaft cameras, float Trimaran or Quicklock device, which is designed for local repairs of damaged pipeline.

VIEWWELL



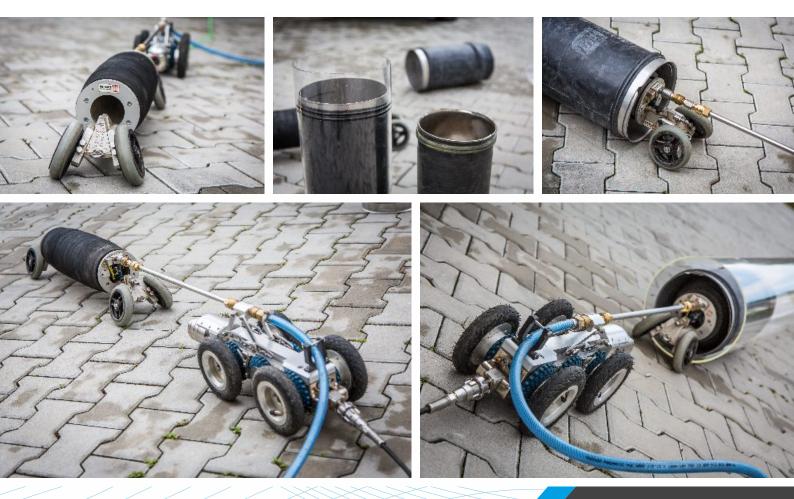
SHAFT INSPECTION CAMERA



TRIMARAN



QUICKLOCK



Camera built-in

We offer professional solution of camera system as built-in into the van according to your choice. You can choose from wide offer of combination and furniture built-in providing everything needed for work in the field.

Standard solution - the car inside is professional insulated, floor and partially walls is coated with waterresistant polyurethane painting, walls and ceiling is covered with material according to customer's wish, usually with aluminium chequer plate. The inner room is possible to divide with dividing wall on work part and office (= simple maintenance and comfort of operators). We can install independent heating, electro generator, electrics 12/24/220 V, battery systems, LED lighting, rear camera and other equipment according to your wish and requirements.

For further information, please contact our sales representative. We will gladly prepare the offer for you according to your requirement and adapt the car for the most optimal utilization.







Equipment for pipe pressure tests

Tests of the leak tightness of the pipes are made after the construction of the new pipe networks, during the check of old pipes or after pipe reconstruction. Our company offers the newest unit for pipe pressure testing – pressure case IBOS PRESS PC Battery, with integrated PC, which enables to show the progress of the pressure on the display and transferring the data into digital form. We offer own software DigiPress, which enables collection of the data, it's archiving and analyse of the tests with creation of protocols, everything done according to standard EN1610. The device enables various test methods, when you can analyse, what is the damage level of pipe.



Technology for pipe repair

Cleaning, monitoring and subsequent reconstruction of sewer networks are unconditionally related with each other. Therefore new and more precise multifunctional systems are permanently developed. These allow to keep the sewer networks in the best condition.

Robotic equipment PROKASRO belongs to the top technology - our company can offer you these systems. You can choose from pneumatic or hydraulic cutting robot with own driving unit, which is designed for sewer repairs.

Self-propelled robot with camera has easy remote control. The signals are transferred via cable to the operator's desk, who can quickly analyse the situation and react on it with help of recording on control unit. With these robots you can repair and cut the sewer. Next important and high-performance technology is the UV-System based on using the ultraviolet radiation, which enables the hardening of liner in the damaged places. The reaction is quick for shortening the time, when the sewer is put out of the operation.



Next product designed for repairs of sewer made by PROKASRO is UV system based on ultraviolet radiance, which ensures the process of liner hardening. The reaction is very quick and so can the pipe be used immediately after the hardening is finished.



We can also offer liner from the company Brandenburger, which we represent on Czech and Slovak market. This method belongs to one of the most progressive for repairing of sewer. Main benefit is removing of expensive trench works and shortening of shutdown time on minimum. Seamless liner made from glass fibres and structure of the grid is according to calculated thickness produced for stated measurements of the pipe (diameter, length) and form of the liner. Thickness of the wall is determined on the basis of static calculation regard to profile, degree of damage, height of ground water and depth, where the pipe are installed. The liner is hardened on the basis of chemical reaction – it acquires shape of damaged pipe and so it is fully replaced.

We are dealer of producer Brawoliner, who offers innovative solutions for trenchless repairs of small pipe diameters - from DN50 to DN400. Seamless textile liners enable to renovate pipes with 90° bends or pipes with change in DN. The liners are saturated with resin - resin type is selected depending on the curing method. It is possible to have the liner cured by a chemical reaction or the liner can be cured with warm water, steam or UV light (BRAWO Magnavity technology). The lifetime of such repaired pipe is over 50 years.





The German manufacturer of technologies for trenchless pipe rehabilitation offers mainly equipment for machining pipe liners. A wide range of robots is able to work efficiently in pipes from DN70 (!), which means it can work effectively in small house connections diameters. The products can be tested before purchase - the manufacturer offers rental services for most of the offered machines.









Detectors

Detectors are often used for whistling, locating and searching failures in pipelines.

A probe is attached to a camera. The camera is inserted to the pipeline and in case we see a defect in the pipeline via the camera, we can locate the place in the terrain using the detector, which facilitates excavating sewer for repairs.

Detector can also locate low voltage and telephone cables, which is highly practical to be used before the necessary excavation of sewer for its repair.







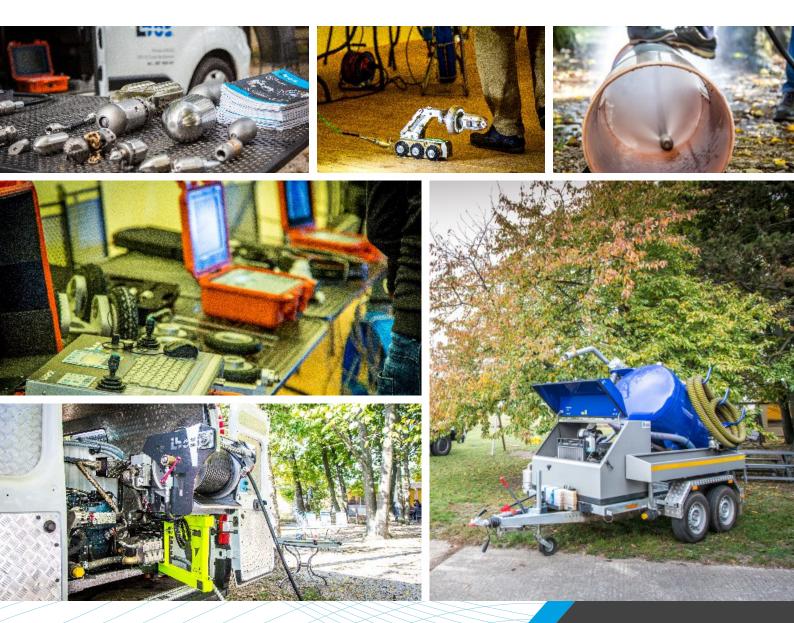


Demonstration events IBOS

Are you interested in any of our products?

Sales representative:

- We offer it's practical demonstration, when you can test the equipment and become convinced about it's advantages. More information about the conditions of these events will provide you our sales representative.
- Martin Hobza
 hobza@ibos.cz , +420 608 468 108



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