System CUS:
A solution with many advantages

The measurement and inspection of sewer shafts by means of the mobile unit CUS is exact, fast and efficient and has the following advantages:

- no risk for the inspection personnel
- independent of flow conditions and rate
- exact measurement of sewer axes and inlets in 3D-coordinates (Gauss-Krueger + elevation, UTM + elevation, ...)
- collection of data on facts and geometry such as shaft corners; location, elevation, direction and slope of inlets; diameters; materials; profile forms; location of damages; a.o.
- reasonable tests possible on-site on direction, height, diameter, material and slope of sewer sections
- printout of the report containing data on facts, shaft sketch and pictures of damages
- digital video recording of shaft inspection
- digital storage of survey data on a sewer database on-site
- detailed data and information on structural conditions for analysis and for renovation works
- easy handling by using Windows 2000, XP Home/Professional

Bodemann GmbH was founded in 1990 and at the moment has a team of 11 employees in the fields of measurement and inspection of sewer manholes. In the past we have developed a variety of products and services in the fields of technical data processing and special measurement.

We are the only company worldwide with a patented shaft measurement and inspection robot - the CUS System. CUS has references for more than 150,000 manhole inspections in Austria, Germany, Luxemburg and Denmark (among others City of Salzburg, City of Innsbruck, City of Bregenz, City of Bruchsal, City of Cologne, City of Kiel, Emscherverband, City of Trier, City of Luxemburg..

Shaft enumeration: System Bodemann

The system of shaft enumeration primarily offers advantages for sewer operation. The staff in charge of maintenance, inspection or repair only has to read the shaft numbers correctly and feed them into a work report.
This helps to completely avoid the common problems of confusion on shaft locations on-site due to reading errors in as-built drawings.
Engineers, contractors, and citizens may also take advantage of the permanently fixed, readily accessible and legible numbers in the shaft.

The basic material of the number is polyethylene with a thickness of 4 mm, which is cut in full depth (4mm from a sign sized 200x50 mm) to guarantee permanent legibility. The numbers are applied manually during shaft inspections. Upon request, Bodemann supplies the numbers separately to be applied by the respective operating staff.

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CUS

3D MANHOLE SURVEY & INSPECTION

The fast and easy way of getting a digital as-built drawing of the sewerage system

The fast and easy way of getting a digital as-built drawing of the sewerage system

CUS

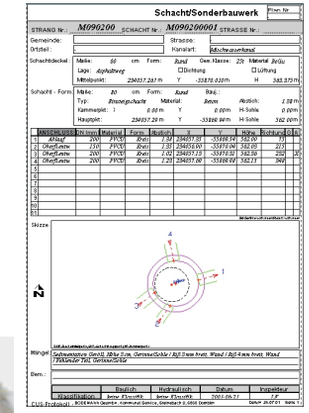
(Patent No. AT-397 432 B)

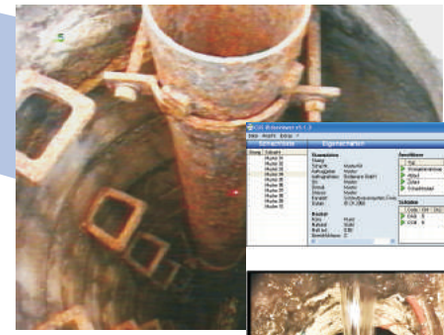
Documentation:

CUS inspection report
- printout and/or PDF

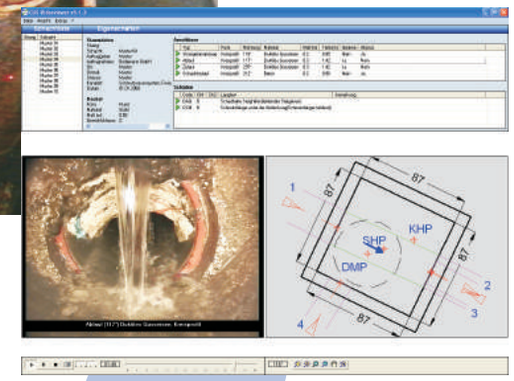
digital pictures
- JPEG, TIFF

digital video recording
- MPEG4, DivX

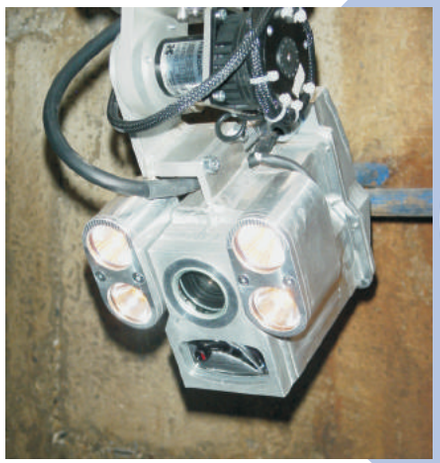




Digital Pictures



CUS VideoViewer



- precise 3D-surveying method
- survey of profile, diameter, elevation slope and direction
- inspection data (ATV or national standards)
- guarantees highest, constant quality up to 100 m length and 25 m depth
- no precautionary measurement necessary
- survey during full sewer operation
- independent from flow and weather conditions

RELATIONAL DATABASE for CUS

- CUS surveying data (X/Y, elevation and direction)
- inspection data
- CAD manhole drawing
- digital pictures
- digital video

Integration of CUS Data into GIS
Automatic Generation of the Digital Sewage Cadastre