



**Quality and Test  
Regulations  
RAL-GZ 961**

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The German version of the Quality Assurance Sewer Construction RAL-GZ 961, recognised by RAL and available from the Gütegemeinschaft Güteschutz Kanalbau, applies exclusively for the award and usage of the Quality Mark.

April 2011

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## Quality and Test Regulations

### Production and maintenance of drains and sewers

#### 1 Area of application

These quality and test regulations are applicable for the production<sup>1)</sup> of public and private drains and sewers.

#### 2 General conditions

The generally accepted rules of technology, described in DIN and/or DIN EN standard specifications and in the relevant Set of Rules and Standards of the DWA (German Association for Water, Wastewater and Waste) apply for the production and maintenance of drains and sewers

#### 3 Quality regulations

##### 3.1 Executive groups and appraisal groups

If the requirements on one of the following ranges of performance are fulfilled an enterprise is classified in the appraisal group of the same name.

Appraisal Group AK3 is component part of Appraisal Group AK2. Appraisal Groups AK3 and AK2 are component parts of appraisal Group AK1.

Appraisal Group VO is component part of Appraisal Group VOD. Appraisal Group VM is component part of Appraisal Group VMD.

Users of the Quality Mark with the Appraisal Groups AK1, AK2, AK3, R, I and D fulfill the requirements of the Quality Mark, Private Property Drainage (construction, structural maintenance, rehabilitation and testing) in accordance with Table 1:

Quality Mark	Quality Mark
Sewer Construction	Private property drainage
Appraisal Group:	Appraisal Group:
AK1	K-GE1 and K-GE2
AK2	K-GE1 and K-GE2
AK3	K-GE1 and K-GE2
R	R-GE
I	I-GE
D	D-GE
R, I and D	G
G*	G

Table 1

##### Executive Group AK3

Laying and testing of drains and sewers of all materials in

nominal widths  $\leq$  DN 250 in open construction with the associated manholes down to a depth<sup>2)</sup> of 3 m.

##### Executive Group AK2

Laying and testing of drains and sewers of all materials in nominal widths  $\leq$  DN 1200 in open construction with the associated manholes down to a depth<sup>2)</sup> of 5 m.

##### Executive Group AK1

Laying and testing of drains and sewers of all materials and nominal widths, in particular also in depths  $>$  5 m with the associated structures in open construction under aggravated conditions<sup>3)</sup>.

##### Executive Group VP

Trenchless laying and testing of drains and sewers using controllable pilot pipe methods and comparable, controllable methods.

A limitation on product pipes  $\leq$  DN 150 is stated on the award certificate.

##### Executive Group VM

Trenchless unmanned laying and testing of drains and sewers using controllable methods in micro-tunnelling using spiral and scouring conveyance.

##### Executive Group VMD

Trenchless laying and testing of drains and sewers using enclosed, controllable shields and support of the heading face through liquid using compressed air or earth pressure (e.g. mix or EPB shield).

##### Executive Group VO

Trenchless manned laying and testing of drains and sewers using open controllable shields without compressed air or manned laying and testing based on mining construction techniques.

A limitation of mining construction techniques is stated on the award certificate.

##### Executive Group VOD

Trenchless manned laying and testing of drains and sewers using open controllable shields under compressed air.

##### Executive Group S..

Trenchless rehabilitation of drains and sewers of all materials and nominal widths with the associated structures.

Sewer construction quality marks of Appraisal Group S.. are awarded for the handling of one individual rehabilitation method. The methods are stated on the award certificate<sup>4)</sup>.

##### Executive Group I

Inspection of drains and sewers of all materials and nominal widths with the associated structures.

**Executive Group R**

Cleaning of drains and sewers of all materials and nominal widths with the associated structures.

**Executive Group D**

Leakage testing of drains and sewers of all materials and nominal widths with manholes.

**Executive Group ABAK**

Tendering and construction supervision with laying and testing of drains and sewers of all materials and nominal widths in open construction with the associated structures.

**Executive Group ABV**

Tendering and construction supervision with trenchless laying and testing of drains and sewers of all materials and nominal widths with the associated structures.

**Executive Group ABS**

Tendering and construction supervision with trenchless rehabilitation of drains and sewers of all materials and nominal widths with the associated structures.

**3.2 Requirements Appraisal Group AK3****3.2.1 Experience and reliability**

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

**3.2.2 Configuration of enterprises****3.2.2.1 Personnel**

- Responsible person<sup>5)</sup> with successful three-year employment in the construction of sewers or pipelines,
- qualified personnel in commensurate number corresponding with the respective size of order, but with permanently at least one foreman and two sewer specialists (of these, if required, one pipeline specialist)<sup>6)</sup>,
- training through inter-company further training measures.

**3.2.2.2 Operating facilities and equipment**

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,
- office and work yard with the necessary personnel,
- barriers for construction site safety and traffic direction,
- road breaking equipment and joint cutters for road breaking,
- construction equipment for excavation as well as trench sheeting in accordance with DIN 4124,
- light and medium compacting plant according to DWA Standard A 139E,
- lifting equipment and laying equipment,
- pumps and drain pipes for open groundwater reaches with associated generating sets,
- level indicators, levelling instruments and laser equipment for the position checking of the pipeline,
- working tools for pipes and fittings according to the manufacturers' specifications,
- Test equipment for verification in accordance with DIN EN 1610 and DWA-A 139E.

**3.2.3 Subcontractors**

Subcontractors must fulfil the requirements of this appraisal group.

If individual activities only (e.g. excavation, shoring) are carried out by subcontractors, for these activities the requirements on the special experience and reliability of the enterprise and the personnel employed must be fulfilled.

Subcontractors performing leakage testing only must meet the requirements of Appraisal Group D.

**3.3 Requirements Appraisal Group AK2****3.3.1 Experience and reliability**

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

### 3.3.2 Configuration of enterprises

#### 3.3.2.1 Personnel

- Responsible person<sup>5)</sup> with successful three-year employment in the construction of sewers,
- qualified personnel in commensurate number corresponding with the respective size of order, but with permanently at least one foreman and one sewer specialist<sup>6)</sup> per construction project; with construction projects of lesser scope one chargehand in place of the foremen is permitted,
- training through inter-company further training measures.

#### 3.3.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,
- office and work yard with the necessary personnel,
- barriers for construction site safety and traffic direction,
- road breaking equipment and joint cutters for road breaking
- construction equipment for excavation as well as trench sheeting in accordance with DIN 4124,
- compacting plant according to DWA Standard A 139E,
- equipment for the operation of open and closed groundwater reaches,
- lifting equipment and laying equipment,
- level indicators, levelling instruments and laser equipment for the position checking of the pipeline,
- working tools for pipes and fittings according to the manufacturers' specifications,
- test equipment for verification in accordance with DIN EN 1610 and DWA-A 139E.

#### 3.3.3 Subcontractors

Subcontractors must meet the requirements of this appraisal group.

If individual activities only (e.g. excavation, shoring) are carried out by subcontractors, for these activities the requirements on the special experience and reliability of the enterprise and the personnel employed must be fulfilled.

Subcontractors performing leakage testing only must meet the requirements of Appraisal Group D.

### 3.4 Requirements Appraisal Group AK1

#### 3.4.1 Experience and reliability

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

#### 3.4.2 Configuration of enterprises

##### 3.4.2.1 Personnel

- Responsible person<sup>5)</sup> with successful three-year employment in the construction of sewers,
- qualified personnel in commensurate number corresponding with the respective size of order, but with permanently at least one foreman and one sewer specialist<sup>6)</sup> per construction project,
- training through inter-company further training measures.

##### 3.4.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the

property of the enterprise,

- office and work yard with the necessary personnel,
- barriers for construction site safety and traffic direction,
- road breaking equipment and joint cutters for road breaking
- construction equipment for excavation as well as trench sheeting in accordance with DIN 4124,
- compacting plant according to DWA Standard A 139E,
- equipment for the operation of open and closed groundwater reaches,
- lifting equipment and laying equipment,
- level indicators, levelling instruments and laser equipment for the position checking of the pipeline,
- working tools for pipes and fittings according to the manufacturers' specifications,
- test equipment for verification in accordance with DIN EN 1610 and DWA-A 139E.

### 3.4.3 Subcontractors

Subcontractors must meet the requirements of this Appraisal Group.

If individual activities only (e.g. excavation, shoring) are carried out by subcontractors, for these activities the requirements on the special experience and reliability of the enterprise and the personnel employed must be fulfilled.

Subcontractors performing leakage testing only must meet the requirements of Appraisal Group D.

## 3.5 Requirements Appraisal Group VP

### 3.5.1 Experience and reliability

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

### 3.5.2 Configuration of enterprises

### 3.5.2.1 Personnel

- Responsible person<sup>5)</sup> with successful three-year employment in the construction of sewers,
- qualified personnel in commensurate number corresponding with the respective size of order, but with permanently at least one specialist trained on the equipment employed and two sewer specialists<sup>6)</sup>,
- training through inter-company further training measures.

### 3.5.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,
- office and work yard with the necessary personnel,
- barriers for construction site safety and traffic direction,
- controllable pipe driving plant,
- lifting equipment and laying equipment,
- surveying equipment,
- working tools for pipes and fittings according to the manufacturers' specifications,
- test equipment for verification in accordance with DIN EN 1610, DWA-A 125E and DWA-A 139E,
- measurement and recording equipment for the required driving parameters in accordance with DWA-A 125E. With product pipes  $\leq$  DN 150 a manual recording is permitted.

### 3.5.3 Subcontractors

Subcontractors must meet the requirements of this Appraisal Group.

If individual activities only (e.g. excavation, shoring) are carried out by subcontractors, for these activities the requirements on the special experience and reliability of the enterprise and the personnel employed must be fulfilled.

Subcontractors performing leakage testing only must meet the requirements of Appraisal Group D.

## 3.6 Requirements Appraisal Group VM

### 3.6.1 Experience and reliability

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the

described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

### 3.6.2 Configuration of enterprises

#### 3.6.2.1 Personnel

- Responsible person<sup>5)</sup> with successful three-year employment in the construction of sewers,
- qualified personnel in commensurate number corresponding with the respective size of order, but with permanently at least one specialist trained on the equipped employed and one sewer specialist<sup>6)</sup>,
- training through inter-company further training measures.

#### 3.6.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,
- office and work yard with the necessary personnel,
- barriers for construction site safety and traffic direction,
- controllable pipe driving plant,
- lifting equipment and laying equipment,
- surveying equipment,
- test equipment for verification in accordance with DIN EN 1610, DWA-A 125E and DWA-A 139E,
- measurement and recording equipment for the required driving parameters in accordance with DWA-A 125E.

#### 3.6.3 Subcontractors

Subcontractors must meet the requirements of this Appraisal Group.

If individual activities only (e.g. excavation, shoring) are carried out by subcontractors, for these activities the requirements on the special experience and reliability of the enterprise and the personnel employed must be fulfilled.

Subcontractors performing leakage testing only must meet the requirements of Appraisal Group D.

### 3.7 Requirements Appraisal Group VMD

#### 3.7.1 Experience and reliability

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

#### 3.7.2 Configuration of enterprises

##### 3.7.2.1 Personnel

- Responsible person<sup>5)</sup> with successful three-year employment in the construction of sewers,
- qualified personnel in commensurate number corresponding with the respective size of order, but with permanently at least one specialist trained on the equipped employed and one sewer specialist<sup>6)</sup>,
- training through inter-company further training measures.

##### 3.7.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,
- office and work yard with the necessary personnel,
- barriers for construction site safety and traffic direction,
- controllable pipe driving plant,



- lifting equipment and laying equipment,
- surveying equipment,
- working tools for pipes and fittings according to the manufacturers' specifications,
- test equipment for verification in accordance with DIN EN 1610, DWA-A 125E and DWA-A 139E,
- measurement and recording equipment for the required driving parameters in accordance with DWA-A 125E.

### 3.7.3 Subcontractors

Subcontractors must meet the requirements of this Appraisal Group.

If individual activities only (e.g. excavation, shoring) are carried out by subcontractors, for these activities the requirements on the special experience and reliability of the enterprise and the personnel employed must be fulfilled.

Subcontractors performing leakage testing only must meet the requirements of Appraisal Group D.

## 3.8 Requirements Appraisal Group VO

### 3.8.1 Experience and reliability

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

### 3.8.2 Configuration of enterprises

#### 3.8.2.1 Personnel

- Responsible person<sup>5)</sup> with successful three-year employment in the construction of sewers,
- qualified personnel in commensurate number corresponding with the respective size of order, but with permanently at least one specialist trained on the equipped employed and one sewer specialist<sup>6)</sup>,
- training through inter-company further training measures.

### 3.8.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,
- office and work yard with the necessary personnel,
- barriers for construction site safety and traffic direction,
- controllable pipe driving plant,
- lifting equipment and laying equipment,
- surveying equipment,
- working tools for pipes and fittings according to the manufacturers' specifications,
- test equipment for verification in accordance with DIN EN 1610, DWA-A 125E and DWA-A 139E,
- measurement and recording equipment for the required driving parameters in accordance with DWA-A 125E and equivalent measuring equipment for mining construction techniques.

### 3.8.3 Subcontractors

Subcontractors must meet the requirements of this Appraisal Group.

If individual activities only (e.g. excavation, shoring) are carried out by subcontractors, for these activities the requirements on the special experience and reliability of the enterprise and the personnel employed must be fulfilled.

Subcontractors performing leakage testing only must meet the requirements of Appraisal Group D.

## 3.9 Requirements Appraisal Group VOD

### 3.9.1 Experience and reliability

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corre-

sponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

### 3.9.2 Configuration of enterprises

#### 3.9.2.1 Personnel

- Responsible person<sup>5)</sup> with successful three-year employment in trenchless sewer construction,
- qualified personnel in commensurate number corresponding with the respective size of order, but with permanently at least one sewer specialist<sup>6)</sup> and one trained specialist team per construction project for the equipment and processes employed,
- training through inter-company further training measures.

#### 3.9.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,
- office and work yard with the necessary personnel,
- barriers for construction site safety and traffic direction,
- controllable pipe driving plant,
- lifting equipment and laying equipment,
- surveying equipment,
- working tools for pipes and fittings according to the manufacturers' specifications,
- test equipment for verification in accordance with DIN EN 1610, DWA-A 125E and DWA-A 139E,
- measurement and recording equipment for the required driving parameters in accordance with DWA-A 125E.

#### 3.9.3 Subcontractors

Subcontractors must meet the requirements of this Appraisal Group.

If individual activities only (e.g. excavation, shoring) are carried out by subcontractors, for these activities the requirements on the special experience and reliability of the enterprise and the personnel employed must be fulfilled.

Subcontractors performing leakage testing only must meet

the requirements of Appraisal Group D.

### 3.10 Requirements Appraisal Group S..

#### 3.10.1 Experience and reliability

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks on the basis of a manual in which the requirements on material, processes and a documented self-monitoring are specified bindingly.

The suitability of a rehabilitation process is not appraised with the award of a quality mark

Experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

#### 3.10.2 Configuration of enterprises

##### 3.10.2.1 Personnel

- Responsible person<sup>5)</sup> with successful five-year employment in the construction of sewers or pipelines as well as with specialist knowledge of the special processes to be employed,
- qualified personnel in commensurate number corresponding with the respective size of order, at least one chargehand with three years experience in sewer or pipeline construction as well as one trained specialist per construction project, respectively for the processes to be employed, with personal references,
- training through inter-company further training measures.

##### 3.10.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,

- office and work yard with the necessary personnel,
- barriers for construction site safety and traffic direction,
- special equipment for the execution of the process,
- automatic recording equipment i.a. for temperature, humidity (above-ground and in the manhole),
- test equipment for verification in accordance with DIN EN 1610 and DWA-A 139E,

### 3.10.3 Subcontractors

Subcontractors must meet the requirements of this Appraisal Group.

If individual activities only (e.g. excavation, shoring) are carried out by subcontractors, for these activities the requirements on the special experience and reliability of the enterprise and the personnel employed must be fulfilled.

Subcontractors performing leakage testing only must meet the requirements of Appraisal Group D.

## 3.11 Requirements Appraisal Group I

### 3.11.1 Experience and reliability

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

### 3.11.2 Configuration of enterprises

#### 3.11.2.1 Personnel

- Responsible person<sup>5)</sup> (if required responsible specialist with a qualification recognised by the quality committee) with specialised knowledge for the appraisal of the actual status. Verification of the specialised knowledge for the appraisal of the current status is considered as furnished through presentation of a suitable certificate of further training<sup>7) 10)</sup>,
- personnel employed for the determination of the current status must possess construction, operation and material technical knowledge from sewer construction:

a successful training in inspection, e.g. at the manufacturer of the equipment employed,  
at least one year's experience in inspection.

- The verification of construction, operation and material technical specialist knowledge and successful training in inspection is considered to be furnished through presentation of a suitable certificate of further training<sup>10)</sup> (e.g. "Specialist for pipe, sewer and industrial service", "Certified consultant for sewer systems" or comparable proof<sup>10)</sup>).
- Training through inter-company further training measures.

### 3.11.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,
- facilities for traffic safety,
- equipment for TV inspection in accordance with ATV Advisory Leaflet ATV-M 143E, Part 2 and further proof according to DWA-M 149E, Part 2,
- special equipment for the inspection of connecting sewers and building drains.

### 3.11.3 Subcontractors

Subcontractors for the execution of activities, which fall into this or another appraisal group, must meet the relevant requirements of the quality and testing regulations.

## 3.12 Requirements Appraisal Group R

### 3.12.1 Experience and reliability

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

### 3.12.2 Configuration of enterprises

#### 3.12.2.1 Personnel

- Responsible person<sup>5)</sup> (if required responsible specialist with a qualification recognised by the quality committee) with specialised knowledge for the cleaning of drains and sewers. Verification of the specialised knowledge for cleaning is considered as furnished through presentation of a suitable certificate of further training<sup>8) 10)</sup>,
- personnel employed must possess constructional, operational and material technical knowledge from sewer construction. In addition the following is to be verified:
  - a successful training in cleaning, e.g. at the premises of the manufacturer of the equipment employed,
  - an at least one year's experience in cleaning,
  - knowledge of disposal, e.g. as environmental technician, sewer constructor, civil engineering worker<sup>6)</sup>.
- The verification of construction, operation and material technical specialist knowledge and successful training in cleaning is considered to be furnished through presentation of a suitable certificate<sup>10)</sup> (e.g. "Specialist for pipe, sewer and industrial service", "DWA certified sewer cleaner" or "Certified consultant for sewer systems" or comparable proof<sup>10)</sup>).
- Training through inter-company further training measures.

#### 3.12.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,
- facilities for traffic safety,
- suction vehicles and high-pressure flushing vehicles in accordance with DIN 30705 (terms see DIN 30702, personnel see DIN 30705 and DIN 30701).

#### 3.12.3 Subcontractors

Subcontractors for the execution of activities, which fall into this or another appraisal group, must meet the relevant requirements of the quality and testing regulations.

### 3.13 Requirements Appraisal Group D

#### 3.13.1 Experience and reliability

Special experience and reliability of the enterprise and of the personnel employed with regard to the execution of the described tasks.

Special experience of the enterprise is considered as verified through supporting documentation on the corresponding activities.

Reliability of the enterprise is considered as verified through submission of a corporate management system.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

#### 3.13.2 Configuration of enterprises

##### 3.13.2.1 Personnel

- Responsible person<sup>5)</sup> (if required responsible specialist with a qualification recognised by the quality committee) with specialised knowledge of leakage testing of drains and sewers.
- Personnel employed must possess constructional, operational and material technical knowledge from sewer construction. In addition an at least one year experience of leakage testing following successful training is to be verified, for example at the premises of the manufacturer of the equipment employed,
- training through inter-company further training measures.

##### 3.13.2.2 Operating facilities and equipment

All operating facilities required for the execution of the respective tasks must be available. Equipment must be provided on the construction site in sufficient quantity and in serviceable condition.

- Facilities according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities are provided in adequate scope within the property of the enterprise,
- barriers for construction site safety and traffic direction,
- test equipment for the verification of leakage according to DIN EN 1610, Standard DWA-A 139E and Advisory Leaflet ATV-M 143E, Part 6.

#### 3.13.3 Subcontractors

Subcontractors for the execution of activities, which fall into this or another appraisal group, must meet the relevant requirements of the quality and testing regulations.

### **3.14 Requirements Appraisal Group ABAK**

#### **3.14.1 Experience and reliability**

Special experience and reliability of the organisation and the personnel employed with regard to tendering and construction supervision with laying and testing of drains and sewers in open construction.

Special experience of the organisation is considered to be verified through supporting documentation on corresponding activities.

Reliability of the organisation is considered to be verified through presentation of a certified quality management system or the verification of an organisation management for the minimisation of faults.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

#### **3.14.2 Configuration of enterprises**

##### **3.14.2.1 Personnel**

- Responsible person<sup>5)</sup> with successful three-year activity in tendering and construction supervision with laying and testing of drains and sewers in open construction. Verification of the specialist knowledge is considered as furnished through presentation of a suitable certificate of further training<sup>10)</sup>.
- Qualified personnel in commensurate number corresponding with the respective size of order. Verification of the specialist knowledge is considered as furnished through presentation of suitable certificates of further training<sup>10)</sup>.
- Training through inter-company further training measures.

##### **3.14.2.2 Operating facilities and equipment**

Personal protective equipment according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities .

##### **3.14.3 Subcontractors**

Subcontractors must fulfil the requirements of this appraisal group. If only individual activities (e.g. construction supervision) are carried out by subcontractors, the requirements of

the quality and testing regulations must be met for these activities.

### **3.15 Requirements Appraisal Group ABV**

#### **3.15.1 Experience and reliability**

Special experience and reliability of the organisation and the personnel employed with regard to tendering and construction supervision with trenchless laying and testing of drains and sewers.

Special experience of the organisation is considered to be verified through supporting documentation on corresponding activities.

Reliability of the organisation is considered to be verified through presentation of a certified quality management system or the verification of an organisation management for the minimisation of faults.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

#### **3.15.2 Configuration of enterprises**

##### **3.15.2.1 Personnel**

- Responsible person<sup>5)</sup> with successful three-year activity in tendering and construction supervision with trenchless laying and testing of drains and sewers. Verification of the specialist knowledge is considered as furnished through presentation of a suitable certificate of further training<sup>10)</sup>.
- Qualified personnel in commensurate number corresponding with the respective size of order. Verification of the specialist knowledge is considered as furnished through presentation of suitable certificates of further training<sup>10)</sup>.
- Training through inter-company further training measures.

##### **3.15.2.2 Operating facilities and equipment**

Personal protective equipment according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities .

##### **3.15.3 Subcontractors**

Subcontractors must fulfil the requirements of this appraisal group. If only individual activities (e.g. construction supervision)

sion) are carried out by subcontractors, the requirements of the quality and testing regulations must be met for these activities.

### 3.16 Requirements Appraisal Group ABS

#### 3.16.1 Experience and reliability

Special experience and reliability of the organisation and the personnel employed with regard to tendering and construction supervision with rehabilitation measures on drains and sewers.

Special experience of the organisation is considered to be verified through supporting documentation on corresponding activities.

Reliability of the organisation is considered to be verified through presentation of a certified quality management system or the verification of an organisation management for the minimisation of faults.

Special experience of personnel employed is considered as verified through supporting documentation on the corresponding activities.

Reliability of the personnel employed is considered as verified through submission of appropriate references (e.g. acceptance certificates).

#### 3.16.2 Configuration of enterprises

##### 3.16.2.1 Personnel

- Responsible person<sup>5)</sup> with successful three-year activity in tendering and construction supervision of sewer rehabilitation tasks. Verification of the specialist knowledge is considered as furnished through presentation of a suitable certificate of further training<sup>9) 10)</sup>.
- Qualified personnel in commensurate number corresponding with the respective size of order. Verification of the specialist knowledge is considered as furnished through presentation of suitable certificates of further training<sup>9) 10)</sup>.
- Training through inter-company further training measures.

##### 3.16.2.2 Operating facilities and equipment

Personal protective equipment according to the provisions of the [German] Ordinance on Workplaces (ArbStättV), the [German] Accident Prevention Rules (UVV) and the safety regulations for work in enclosed spaces of wastewater engineering facilities .

##### 3.16.3 Subcontractors

Subcontractors for the execution of activities, which fall into this or another appraisal group, must meet the relevant

requirements of the quality and testing regulations.

## 4 Test specifications

### 4.1 Inspections by the Quality Committee or its authorised representatives (original inspection)

Applicants for and users of quality marks are to present to the Quality Committee of the Gütegemeinschaft "Güteschutz Kanalbau" [German Quality Audit Association "Quality protection sewer construction"] appropriate documentation as verification of the fulfilment of the quality requirements of the respectively strived for or certified appraisal group.

#### Visit to the firm

With the visit to the firm, an inspection engineer appointed by the Quality Committee inspects and evaluates, or a test centre tasked by the Quality Committee carries out spot-checks on, the compliance and documentation of the personnel belonging to the respective appraisal group, including the documentation of the self-monitoring and the communications from the construction sites or reports from projects. Documentation is checked and evaluated for completeness.

Results of visits to firms are recorded. The appraisal of the qualification takes into account all findings in a summary report. Copies are received by the applicants or users of the quality mark, the office of the Gütegemeinschaft "Güteschutz Kanalbau" and the Quality Committee.

Visits to firms take place following award of quality mark depending on the situation, however at least:

- 1 visit to the firm every 2 years in Appraisal Groups AK3, AK2, AK1, VP, VM, VMD, VO and VOD.
- 1 visit to the firm per year in Appraisal Groups S., I, R, D, ABAK, ABV and ABS.

#### Visit to the construction site

With the visit to the construction site, an inspection engineer appointed by the Quality Committee inspects and evaluates, or a test centre tasked by the Quality Committee carries out spot-checks on, the compliance and documentation of the personnel belonging to the respective appraisal group, including the documentation of the self-monitoring and the communications from the construction sites or reports from projects. Documentation is checked and evaluated for completeness.

Results of visits to firms are recorded. The appraisal of the qualification takes into account all findings in a summary report. Copies are received by the applicants or users of the quality mark, the office of the Gütegemeinschaft "Güteschutz Kanalbau" and the Quality Committee.

Visits to construction sites take place take place follo-

wing award of quality mark, dependent on the number of construction sites, however at least:

- 2 visits to the construction site per year in Appraisal Groups AK3, AK2, AK1, VP, VM, VMD, VO and VOD.

Here, with Appraisal Groups AK3, AK2 and AK1, spot-checks are carried out in the presence of an inspector, for example, on compaction.

Here, with Appraisal Groups AK3, AK2, AK1, VP, VM, VMD, VO and VOD, spot-checks are carried out in the presence of an inspector, for example, on leak-testing.

- 1 visits to the construction site per year in Appraisal Groups S..., I, R, and D.

Here with Appraisal Group S..., spot-checks are carried out in the presence of an inspector, for example, on leak-testing.

### Re-examination

With non-compliance of personnel, a date a prompt re-examination for the necessary and possible remedial action can be arranged by the inspector.

### 4.2 Checks by employees of the enterprise (self-monitoring)

With self-monitoring, for all appraisal groups, the requirements assigned in Chapter 3 are to be examined and compliance with them is to be documented.

In addition, the provisions made in the "Guidelines for self-monitoring" are applicable.

Furthermore, with the self-monitoring of the tasks of Appraisal Group S..., the requirements specified in the "Manual" of the respective S process are applicable. "Manuals" can be obtained from the Gütegemeinschaft "Güteschutz Kanalbau" and/or can be examined there.

The testing of existing sewers for leak-tightness is to be recorded according to Advisory Leaflet ATV-M 143E, Part 6.

The location of all drains and sewers as well as of manholes is to be checked and documented for height and direction reach by reach during the execution of construction work (AK3, AK2, AK1, VP, VM, VMD, VO, VOD).

The compaction of embedment zone and covering with open construction (Appraisal Groups AK3, AK2, AK1) is to be verified reach by reach. The separation of the check points with sewer trenches are not to exceed a reach length or 25 m or be less than 3 checks per construction project, so far as no alternative is specified by the customer.

The leak-tightness of all drains and sewers or pipe connections as well as of manholes is to be verified (Appraisal Groups AK3, AK2, AK1, VP, VM, VMD, VO, VOD, S...).

The requirements on leak-tightness of the relevant sets of rules and standards are to be complied with. If increased

requirements are specified by the customer, these are applicable.

With the testing of socket-spigot joints and leak-testing by sections, the accuracy of measurement of the pressure measuring equipment is to be checked and documented once a month. In non-man-accessible drains and sewers the positioning of the shut-off elements must take place using TV monitoring and is to be documented.

The verification of the correct concrete processing (e.g. Concrete BII) as well as material- and process-specific verification (e.g. certificate of verification of performance in the concrete industry [in Germany the SIVV Certificate]) are to be carried out.

Acceptance certificates and all verifications of the self-monitoring are to be retained for at least 5 years.

Inspection records are to be retained for 5 years.

Data storage media are to be checked using suitable virus scanners before being forwarded. Checks are to be documented and confirmed by signature.

### 4.3 Qualification checks (external monitoring)

Regulations for visits to firms and to construction sites see Section 4.1.

## 5 Marking (the Mark)

### 5.1 Award

Enterprises, public facilities and engineer offices, which render services in accordance with these quality and test regulations, can use the Quality Mark, Sewer Construction as soon as the right to the use of this quality mark has been awarded and the meeting of the specified quality is assured.



The appraisal group or groups are to be named below the quality mark. The user of the quality mark may use the quality mark only with the naming of the appraisal group or groups for which the quality mark has been awarded.

Services for the construction and maintenance of drains and sewers according to DIN 1986 of all materials and

nominal widths  $\leq$  DN 250 on private properties are to be marked with the Quality Mark Private Property Drainage of the Güteschutz "Grundstücksentwässerung". Users of the Quality Mark with the Appraisal Groups AK1, AK2, AK3, R, I and D fulfill the requirements of quality assurance for construction, structural maintenance, rehabilitation and testing of private property drainage facilities, commensurate with the classification in Section 3.1, Table 1. Quality Mark users with the Appraisal Groups AK1, AK2, AK3, R, I and D therefore, on application following presentation of the appropriate award certificate of the Quality Mark Sewer Construction, receive the Quality Mark Private Property Drainage, in conjunction with the appropriate appraisal groups.

## 5.2 Application

For the application of the quality mark the implementing rules of the Quality Mark Sewer Construction of the Gütegemeinschaft "Güteschutz Kanalbau" apply exclusively.

Enterprises, public facilities and engineer offices, which render services in accordance with the quality and test regulations distinguish their services using the Quality Mark, Sewer Construction.

## 6 Amendments

These quality and test regulations can be supplemented and further developed taking into account technical advances. Amendments require the previous written approval of RAL [German Institute for Quality Assurance and Marking]. They are put into force by the Executive Board of the Gütegemeinschaft "Güteschutz Kanalbau" following an appropriate period from the time of notification to the users of the quality mark.

regarding the examination requirements in the practical and specialist-theoretical part of the Master Technician's examination) or certificate of qualification to be recognised as being equivalent.

- 6) Where required, a skilled construction engineering worker with a professional activity description to be recognised by the Quality Committee.
- 7) E.g. "Specialist for pipe, sewer and industry service", "DWA certified sewer cleaner", "Certified sewer rehabilitation consultant" or comparable supporting documents <sup>10)</sup>.
- 8) E.g. "Specialist for pipe, sewer and industry service", "DWA certified sewer cleaner", "Certified sewer rehabilitation consultant" or comparable supporting documents <sup>10)</sup>.
- 9) E.g. "Certified sewer rehabilitation consultant" or comparable supporting documents <sup>10)</sup>.
- 10) Information on the contents of the further training and requirements on the further training certificate are obtainable from the Gütegemeinschaft "Güteschutz Kanalbau".

- 
- 1) Maintenance includes the measures for servicing, inspection and rehabilitation for correctly functioning operation and support.
  - 2) Details on depth refer to the characteristic depth of the sole of the construction pit within an overall construction measure.
  - 3) Construction under aggravated conditions includes, for example: groundwater reach, construction in groundwater without drawdown, construction under operation with larger wastewater yields, construction of special foundation measures.
  - 4) An overview of rehabilitation methods can be obtained from the Gütegemeinschaft "Güteschutz Kanalbau".
  - 5) Engineer, Bachelor of Engineering, Master of Engineering, Master Technician, if appropriate activities, knowledge and skills are included in the "Master Technician's Ordinance" (ordinance regarding the professional activity description and





## Implementing regulations for the award and use of the Quality Mark Sewer Construction

### 1 Basic quality principles

The basic quality principles for the Quality Mark consist of the quality and test regulations for the production and maintenance of drains and sewers. They are further developed to match technical advances.

### 2 Award

- 2.1 The Gütegemeinschaft Herstellung und Instandhaltung von Abwasserleitungen und -kanälen e. V. - Güteschutz Kanalbau [The German Quality Audit Association for the Fabrication and maintenance of Drains and Sewers - Quality Protection Sewer Construction] awards to enterprises, public institutes and engineer offices, which carry out, tender for and/or supervise the construction for the fabrication and/or maintenance of drains and sewers, on application, the right to use the Quality Mark "Fabrication and Maintenance of Drains and Sewers".
- 2.2 The application is to be addressed, in writing, to the managing Director of the Gütegemeinschaft Herstellung und Instandhaltung von Abwasserleitungen und -kanälen e. V. - Güteschutz Kanalbau (registered office Bad Honnef). A legally binding, signed certificate of obligation is to be appended to the application (Specimen 1).
- 2.3 The application is reviewed by the Quality Committee. The Quality Committee, unannounced, checks the services of the applicant in accordance with the Quality and Test Regulations. It can inspect the operations of the applicant as well as request and examine the documents referred to in the Quality and Test Regulations. It issues a certificate on the test results which it forwards to the applicant and the Board of Management of the Gütegemeinschaft. The Quality Committee entrusts a suitable inspection engineer or test centre of its choice with these tasks. The person tasked with the inspection is to prove his identity before the start of the inspection activities. The costs of the inspection are borne by the applicant.
- 2.4 If the inspection proves to be positive, the Board of Management of the Gütegemeinschaft, on the recommendation of the Quality Committee, awards the Quality Mark to the applicant. The award is certified (Specimen 2). If the inspection proves to be negative, the Quality Committee defers the application or rejects it. They must justify the deferment / rejection in writing.

### 3 Employment

- 3.1 Users of marks may employ the Quality Mark for services, which correspond with the Quality and Test Regulations, only.
- 3.2 The Gütegemeinschaft is alone entitled to have manufactured means of marking the Quality Mark (metal stamping, embossed stamps, blocks, seals, seal marks, rubber stamps or similar) and issue them or have them issued to users of marks and to determine in detail the category of usage.
- 3.3 The Board of Management can enact/issue special provisions for the use of the quality mark in advertising and in the advertising of the quality association in order to preserve the integrity of competition and prevent misuse of the Mark. The individual advertising may not be prevented through this. For that the maximum of the integrity of competition applies.
- 3.4 The Quality Committee, in agreement with the RAL, can determine the employment of the Quality Mark in different forms for different services.
- 3.5 If the right to the use of the Mark has been irrevocably revoked, the award certificate and all means of marking are to be returned, There is no entitlement to a reimbursement of costs.

### 4 Monitoring

- 4.1 The Quality Association is entitled and obliged to monitor the use of the Quality Mark and the compliance with the Quality and Test Regulations. The continuity of the monitoring by suitable, neutral test engineers or within the scope of a monitoring contract with a neutral test institute is to be verified to RAL.
- 4.2 Every user of the Mark is obliged to comply with the Quality and Test Regulations. He/she is to hold ready all acceptance certificates so far as the fabrication and maintenance or the tendering for and/or construction surveillance of drains and sewers are concerned. The Quality Committee or its representatives can inspect these documents at any time and, if necessary, check the records for completeness. The user of the Mark submits his/her quality assured services to the monitoring checks by the Quality Committee or its representatives in scope and frequency according to the associated requirements of the Quality and Test Regulations. He/she bears the inspection costs.
- 4.3 The user of the Mark has to allow the inspector, at all times, to inspect the enterprise during operating hours and the unhindered execution of the inspection. In addition, information can be obtained from customers for the checking of the completeness of the acceptance certificates.

- 4.4 If an inspection proves negative or raises objections to a service, the Quality Committee has the inspection repeated. The user of the Mark can also demand a repeat inspection.
- 4.5 A record is to be made of each inspection. The Quality Association and the user of the Mark each receive one copy thereof.
- 4.6 If the Quality Committee is approached by third parties with complaints about services, then the former has to inform the complainants that, in the case of the carrying out of a special inspection, the complainant has to bear the costs if the complaint is unjustified. If the complaint is justified, the costs are borne by the user of the Mark.
- 4.7 For additional visits with repeat inspections as well as increased visits due to a decision of the Quality Committee, the charges are raised according to the schedule of contributions and fees.

## 5 Penalisation of Contraventions

- 5.1 If deficiencies are determined in the quality assurance by the Quality Committee, the Board of Management, on the recommendation of the Quality Committee, imposes penalty measures on the user of the Mark. These are dependent on the severity of the contravention:
- Implementation regulations
1. Additional conditions within the scope of self-monitoring,
  2. Reduction of the visit interval,
  3. Admonishment,
  4. Limited or permanent withdrawal of the Mark.
- 5.2 The measures given under 5.1 can be combined with each other.
- 5.3 The user of the Mark is to be heard before enforcement of the measures.

## 6 Appeals

Users of the Mark can file with the Quality Committee an appeal against the penalty measures, within four weeks following receipt of these in a registered letter, over which a decision is to be made with justification at the latest within three months.

## 7 Re-award

If the right to use the Mark had been withdrawn, it can be re-awarded at the earliest after three months. The procedure is governed by Section 2. The Board of Management can

set additional conditions.

## 8 Amendments

These implementation regulations together with examples (Certificate of Obligation, Award Certificate) are recognised by RAL. Amendments, also of an editorial nature, for their effectiveness require the previous written agreement from RAL.

## Certificate of Obligation

1. The signatory / the signatory firm hereby apply by the Gütegemeinschaft Herstellung und Instandhaltung von Abwasserleitungen und -kanälen e. V. - Güteschutz Kanalbau, for
  - the acceptance as Member \*)
  - the award of the right to use \*) the Quality Mark for the fabrication and maintenance of drains and sewers.
  
2. The signatory / the signatory firm confirms that
  - the Articles of Association of the Gütegemeinschaft Herstellung und Instandhaltung von Abwasserleitungen und -kanälen e. V. - Güteschutz Kanalbau,
  - the Quality Mark Articles of the Gütegemeinschaft Herstellung und Instandhaltung von Abwasserleitungen und -kanälen e. V. - Güteschutz Kanalbau,
  - the Implementation regulations of the Gütesicherung Kanalbau RAL-GZ 961,
  - the Quality and Test Regulations of the Gütesicherung Kanalbau RAL-GZ 961are noted and hereby, with the agreement of a membership, are recognised without reservation as being binding.

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Place, Date

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Firm's stamp and signature

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\*) Delete non-applicable as required

**GÜTESCHUTZ KANALBAU GÜTEGEMEINSCHAFT HERSTELLUNG UND INSTANDHALTUNG VON ABWASSERLEITUNGEN UND -KANÄLEN E. V.**

# Award Certificate

The Gütegemeinschaft Herstellung und Instandhaltung von Abwasserleitungen und -kanälen e. V. - Güteschutz Kanalbau hereby award, on the basis of the inspection report, presented to its Quality Committee, on the firm

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the proprietary quality mark for the fabrication and maintenance of drains and sewers, approved by RAL Deutsches Institut für Gütesicherung und Kennzeichnung e. V. [German Institute for Quality Assurance and Marking] and through registration with Deutsches Patent- und Markenamt [German Patent and Trade Mark Office] as Collective Mark.



The use of the quality mark is permitted only in combination with the addendum shown below the quality mark.

Bad Honnef, dated \_\_\_\_\_

Gütegemeinschaft Herstellung und Instandhaltung  
von Abwasserleitungen und -kanälen e. V

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Chairperson

---

Managing Director







Güteschutz Kanalbau  
»Gütegemeinschaft  
Herstellung und Instandhaltung von  
Abwasserleitungen und -kanälen e.V.«  
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