



CONSTRUCTION AND MAINTENANCE OF WASTEWATER PIPES AND SEWERS

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English Version

Güteschutz Kanalbau



Quality and Test Specifications

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Construction and maintenance of wastewater pipes and sewers

Quality and Test Specifications

Quality and Test Specifications Construction and maintenance of wastewater pipes and sewers

1 Scope

These Quality and Test Specifications are applicable for the assembly and maintenance¹⁾ of public and private wastewater pipes and sewers and the associated structures.

2 General conditions

The construction and maintenance of wastewater pipes and sewers are governed by the generally accepted rules of the art (a.a.R.d.T.).

3 Quality specifications

3.1 Execution areas and appraisal groups

If the requirements on technical performance capability and experience for the specified service area are met, an enterprise/an organisation (public institution / engineering office) is classified in the appraisal group of the same name.

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

Appraisal group V0 is component part of appraisal group VOD. Appraisal group VM is component part of appraisal group VMD.

Execution area AK3

Installation of wastewater pipes and sewers of different materials in open construction with the associated structures at a characteristic depth of the excavation base of up to 3 m.

Execution area AK2

Installation of wastewater pipes and sewers of different materials in open construction with the associated structures at a characteristic depth of the excavation base of up to 5 m, also under difficult conditions²⁾.

Execution area AK1

Installation of wastewater pipes and sewers of different materials in open construction with the associated structures, in particular at a characteristic depth of the

excavation pit bottom of more than 5 m under difficult conditions²⁾ and using technically demanding construction methods³⁾.

Execution area VP

Trenchless installation of wastewater pipes and sewers using controllable pilot pipe methods and comparable controllable methods. A limitation to product pipes \leq DN 150 is stated on the award certificate.

Execution area VM

Trenchless unmanned installation of wastewater pipes and sewers using controllable methods in micro-tunnelling using augers and slurry conveyors.

Execution area VMD

Trenchless installation of wastewater pipes 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).

Execution area V0

Trenchless manned installation of wastewater pipes and sewers using open controllable shields without compressed air or manned installation based on mining construction techniques. A limitation to mining construction techniques is stated on the award certificate.

Execution area VOD

Trenchless manned installation of wastewater pipes and sewers using open controllable shields under compressed air.

Execution area VB

Trenchless manned installation of wastewater pipes and sewers with open controllable shields without compressed air or manned installation using mining methods.

Execution area S

Trenchless rehabilitation of wastewater pipes 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 certificate⁴⁾.

Execution area I

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

Execution area R

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

Execution area D

Leakage testing of wastewater pipes and sewers of all materials and nominal widths with the associated structures.

Execution area ABAK

Tendering and construction monitoring in the installation and testing of wastewater pipes and sewers of all materials and nominal widths in open construction with the associated structures.

Execution area ABV

Tendering and construction monitoring in the trenchless installation and testing of wastewater pipes and sewers of all materials and nominal widths with the associated structures.

Execution area ABS

Tendering and construction monitoring in the trenchless rehabilitation of wastewater pipes and sewers of all materials and nominal widths with the associated structures.

The same applies to the assessment groups or execution areas AK, V, S, I, R and, D (3.2 to 3.14):

- Experience and reliability

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

The particular experience of the enterprise is considered verified through supporting documentation on the corresponding activities.

The reliability of the enterprise is considered verified through submission of a corporate management system.

The particular experience of the personnel employed is considered verified through supporting documentation on the corresponding activities.

The reliability of the personnel employed is considered verified through submission of the appropriate references (e.g. certificates).

- Subcontractors

Subcontractors for the performance of activities falling within this or another appraisal group under section 3.1 must meet the relevant requirements of the Quality and Test Specifications.

The same applies to the assessment groups or execution areas ABAK, ABV, ABS (3.15 to 3.17):

- Experience and reliability

Particular experience and reliability of the organisation and the personnel employed with regard to tendering and construction monitoring

- in the installation and testing of wastewater pipes and sewers in open construction (ABAK).
- in the trenchless installation and testing of wastewater pipes and sewers (ABV).
- of rehabilitation measures for wastewater pipes and sewers (ABS).

The particular experience of the organisation is considered verified through supporting documentation on the corresponding activities.

The reliability of the organisation is considered verified through presentation of a corporate management system for fault minimisation (e.g. 4-eyes principle).

The particular experience of the personnel employed is considered verified through supporting documentation on the corresponding activities.

The reliability of the personnel employed is considered verified through submission of the appropriate references (e.g. certificates).

- Subcontractors

Subcontractors must meet the requirements of this appraisal group. If only individual activities (e.g. construction monitoring) are carried out by subcontractors, the requirements of the Quality and Test Specifications must be met for these activities.

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3.2 Requirements for appraisal group AK3

3.2.1 Resources of the enterprises

3.2.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the respective task with three years of successful activity in sewer or pipeline construction, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge of the installation of wastewater pipes and sewers.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates.

- Skilled personnel in the appropriate number for the scope of the relevant task, but at all times at least one site supervisor and one sewer specialist (including one pipeline specialist).
- Training.

3.2.1.2 Operating facilities and equipment

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

- Office and work yard with the necessary personnel,
- Barrier material for securing construction sites and material for traffic safety and guidance,
- 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,
Lifting and laying equipment,
- Equipment for the operation of open and closed groundwater reaches,
- Levelling instruments and laser equipment for checking the position 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 139.

3.3 Requirements for appraisal group AK2

3.3.1 Resources of the enterprises

3.3.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the respective task with three years of successful activity in sewer construction, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge of the installation of wastewater pipes and sewers.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates.

- Skilled personnel in the appropriate number for the scope of the relevant task, but at all times at least one site supervisor and one sewer specialist per construction project; where projects are of a smaller scope a foreman is permitted instead of a site supervisor.
- Training.

3.3.1.2 Operating facilities and equipment

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

- Office and work yard with the necessary personnel,
- Barrier material for securing construction sites and material for traffic safety and guidance,
- 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,
Equipment for the operation of open and closed groundwater reaches,
- Lifting and installation equipment,
- Levelling instruments and laser equipment for checking the position 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 139.

3.4 Requirements for appraisal group AK1

3.4.1 Resources of the enterprises

3.4.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the respective task with five years of successful activity in sewer construction, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge of the installation of wastewater pipes and sewers.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates.

- Skilled personnel in the appropriate number for the scope of the relevant task, but at all times at least one site supervisor and one sewer specialist per construction project.
- Training.

3.4.1.2 Operating facilities and equipment

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

- Office and work yard with the necessary personnel,
- Barrier material for securing construction sites and material for traffic safety and guidance,
- 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,
- Equipment for the operation of open and closed groundwater reaches,
- Lifting and laying equipment,
- Levelling instruments and laser equipment for checking the position 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 139.

3.5 Requirements for appraisal group VP

3.5.1 Resources of the enterprises

3.5.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the respective task with three years of successful activity in trenchless sewer construction, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge for trenchless installation of wastewater pipes and sewers using controllable pilot tube processes and comparable processes.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates.

- Skilled personnel in the appropriate number for the scope of the relevant task, but at all times at least one machine operator (in accordance with DGUV information 201-020 section 3.21) and one sewer builder per construction project.
- Training.

3.5.1.2 Operating facilities and equipment

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

- Office and work yard with the necessary personnel,
- Barrier material for securing construction sites and material for traffic safety and guidance,
- Controllable pipe tunneling plant,
- Lifting and laying equipment,
- Surveying equipment,
- Test equipment for verification in accordance with DIN EN 1610, DWA-A 125 and DWA-A 139,
- Measurement and recording equipment for the required tunneling parameters in accordance with DWA-A 125. Manual recording is permitted for product pipes \leq DN 150.

3.6 Requirements for appraisal group VM

3.6.1 Resources of the enterprises

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3.6.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the respective task with three years of successful activity in trenchless sewer construction, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge for trenchless unmanned installation of wastewater pipes and sewers using controllable methods in micro-tunnelling using augers and/or slurry conveyors.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates

- Skilled personnel in the appropriate number for the scope of the relevant task, but at all times at least one machine operator (in accordance with DGUV information 201-020 section 3.21) and one sewer builder per construction project.
- Training.

3.6.1.2 Operating facilities and equipment

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

- Office and work yard with the necessary personnel,
- Barrier material for securing construction sites and material for traffic safety and guidance,
- Controllable pipe tunneling plant,
- Lifting and laying equipment,
- Surveying equipment,
- Test equipment for verification in accordance with DIN EN 1610, DWA-A 125 and DWA-A 139,
- Measurement and recording equipment for the required tunneling parameters in accordance with DWA-A 125.

3.7 Requirements for appraisal group VMD

3.7.1 Resources of the enterprises

3.7.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the respective task with three years of successful activity in trenchless sewer construction, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with

specialist knowledge for trenchless installation of wastewater pipes and sewers with enclosed controllable shields and support of the heading face through liquid using compressed air or earth pressure.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates.

- Skilled personnel in the appropriate number for the scope of the relevant task, but at all times at least one machine operator (in accordance with DGUV information 201-020 section 3.21) and one sewer builder per construction project.
- Training.

3.7.1.2 Operating facilities and equipment

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

- Office and work yard with the necessary personnel,
- Barrier material for securing construction sites and material for traffic safety and guidance,
- Controllable pipe tunneling plant,
- Lifting and laying equipment,
- Surveying equipment,
- Test equipment for verification in accordance with DIN EN 1610, DWA-A 125 and DWA-A 139,
- Measurement and recording equipment for the required tunneling parameters in accordance with DWA-A 125.

3.8 Requirements for appraisal group VO

3.8.1 Resources of the enterprises

3.8.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the respective task with three years of successful activity in trenchless sewer construction, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge for trenchless manned installation of wastewater pipes and sewers with open controllable shields without compressed air.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates.

- Skilled personnel in the appropriate number for the scope of the relevant task, but at all times, at least one machine operator (in accordance with DGUV information 201-020 section 3.21) and one sewer builder per construction project.
- Training.

3.8.1.2 Operating facilities and equipment

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

- Office and work yard with the necessary personnel,
- Barrier material for securing construction sites and material for traffic safety and guidance,
- Controllable pipe tunneling plant or equipment for mining techniques,
- Lifting and laying equipment,
- Surveying equipment,
- Test equipment for verification in accordance with DIN EN 1610, DWA-A 125 and DWA-A 139,
- Measurement and recording equipment for the required tunneling parameters in accordance with DWA-A 125.

3.9 Requirements for appraisal group VOD

3.9.1 Resources of the enterprises

3.9.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the respective task with three years of successful activity in trenchless sewer construction, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge for trenchless manned installation of wastewater pipes and sewers with open controllable shields under compressed air.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates.

- Skilled personnel in the appropriate number for the scope of the relevant task, but at least one machine operator (in accordance with DGUV information

201-020 section 3.21) and one sewer builder per construction project.

- Training.

3.9.1.2 Operating facilities and equipment

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

- Office and work yard with the necessary personnel,
- Barrier material for securing construction sites and material for traffic safety and guidance,
- Controllable pipe tunneling plant,
- Lifting and laying equipment,
- Surveying equipment,
- Test equipment for verification in accordance with DIN EN 1610, DWA-A 125 and DWA-A 139,
- Measurement and recording equipment for the required tunneling parameters in accordance with DWA-A 125.

3.10 Requirements for appraisal group VB

3.10.1 Resources of the enterprises

3.10.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the respective task with three years of successful activity in trenchless manned installation of wastewater pipes and sewer construction using mining construction techniques, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge for trenchless manned installation of wastewater pipes and sewers using mining construction techniques.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates.

- Skilled personnel in the appropriate number for the scope of the relevant task, but at all times at least one specialist with relevant professional experience and one sewer builder per construction project.
- Training.

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3.10.1.2 Operating facilities and equipment

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

- Office and work yard with the necessary personnel,
- Barrier material for securing construction sites and material for traffic safety and guidance,
- Equipment for mining construction techniques, Lifting and laying equipment,
- Levelling instruments and laser device for position checking and piping,
- Processing equipment for pipes and fittings in accordance with the manufacturer's instructions,
- Test equipment for verification in accordance with DIN EN 1610 and DWA-A 139.

3.11 Requirements for appraisal group S

3.11.1 Resources of the enterprises

3.11.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the task with three years of successful practical activity in the trenchless rehabilitation as well as specialist knowledge of the rehabilitation method to be employed, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge for the rehabilitation method to be employed.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates.

- Skilled personnel in the appropriate number for the scope of the relevant task, at least one foreman with three years of practical experience in the construction of sewers or pipelines and a trained specialist in each construction project for the rehabilitation method to be employed with specific personal references.
- Training.

3.11.1.2 Operating facilities and equipment

All the operating facilities required for performance of the respective work must be available. Equipment must

be provided on the construction site in sufficient quantity and in a serviceable condition.

- Office and work yard with the necessary personnel,
- Barrier material for securing construction sites and material for traffic safety and guidance,
- Special equipment for execution,
- Measuring and recording equipment for the parameters set out in the manual,
- Test equipment for verification in accordance with DIN EN 1610 and DWA-A 139.

3.12 Requirements for appraisal group I

3.12.1 Resources of the enterprises

3.12.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the task with three years of successful practical activity in inspection as well as specialist knowledge to determine the actual condition, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge of how to assess the actual condition.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates⁷⁾.

- The personnel employed to determine the actual condition must have specialist knowledge of construction, operation and materials relating to sewer construction. Evidence must also be provided of:
 - successful training in inspection, e.g. at the manufacturer of the equipment employed,
 - at least one year of inspection experience.
- Evidence of specialist knowledge of construction, operation and materials and successful training in inspection will be deemed provided by presentation of evidence of suitable training⁷⁾.
- Training.

3.12.1.2 Operating facilities and equipment

All the operating facilities required for performance of the respective work must be available. Equipment must be provided at the place of use in sufficient quantity and in a serviceable condition.

- Facilities for traffic safety and guidance,
- Equipment for optical inspection pursuant to DWA-M149 Part 5 and further evidence pursuant to DWA-M 149 Part 2,
- Special equipment pursuant to DWA-M 149 Part 5 for the inspection of connecting sewers and building drains.

3.13 Requirements for appraisal group R

3.13.1 Resources of the enterprises

3.13.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the task with three years of successful practical activity cleaning, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge for cleaning of wastewater pipes and sewers.

Proof of specialist knowledge in cleaning is deemed to have been provided by submitting suitable training certificates.

- The personnel employed must have specialist knowledge of construction, operation and materials relating to sewer construction. Evidence must also be provided of:
 - successful training or education in cleaning,
 - at least one year of cleaning experience,
 - knowledge of disposal.
- Evidence of knowledge of construction, operation and materials, knowledge of disposal and successful training or education will be deemed provided by presentation of evidence of suitable training certificates⁸⁾.
- Training.

3.13.1.2 Operating facilities and equipment

All the operating facilities required for performance of the respective work must be available. Equipment must be provided at the place of use in sufficient quantity and in a serviceable condition.

- Material for traffic safety and guidance,
- Suction vehicles and high-pressure flushing vehicles.

3.14 Requirements for appraisal group D

3.14.1 Resources of the enterprises

3.14.1.1 Personnel

- Technical supervisors⁵⁾ in the appropriate number for the scope of the task with three years of successful practical testing activity, alternatively responsible specialists with a qualification to be recognised by the Quality Committee with specialist knowledge for leakage testing of wastewater pipes and sewers.

Proof of specialist knowledge is deemed to have been provided by submitting suitable training certificates.

- The personnel employed must have specialist knowledge of construction, operation and materials from the field of sewer construction. Evidence must also be provided of:
 - successful training or education in leak testing,
 - at least one year of testing experience
- Evidence of knowledge of construction, operation and materials, knowledge of disposal and successful training or education will be deemed provided by presentation of evidence of suitable training certificates⁹⁾.
- Training.

3.14.1.2 Operating facilities and equipment

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

- Barrier material for securing construction sites and material for traffic safety and guidance,
- Test equipment for the proof of tightness according to DIN EN 1610, DWA-A 139 and DWA-M 149, Part 6.

3.15 Requirements for appraisal group ABAK

3.15.1 Resources of the enterprises

3.15.1.1 Personnel

- Responsible persons⁵⁾ in the appropriate number for the scope of the respective task with five years of successful activity in tendering and construction monitoring in the installation and testing of wastewater pipes and sewers in open construction. Evidence of

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specialist knowledge will be deemed provided by presentation of evidence of suitable training.

- Skilled personnel in the appropriate number for the scope of the relevant task. Evidence of specialist knowledge will be deemed provided by presentation of evidence of suitable training.
- Training.

3.15.1.2 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 Requirements for appraisal group ABV

3.16.1 Resources of the enterprises

3.16.1.1 Personnel

- Responsible persons⁵⁾ in the appropriate number for the scope of the respective task with five years of successful activity in tendering and construction monitoring in the trenchless installation and testing of wastewater pipes and sewers. Evidence of specialist knowledge will be deemed provided by presentation of evidence of suitable training.
- Skilled personnel in the appropriate number for the scope of the relevant task. Evidence of specialist knowledge will be deemed provided by presentation of evidence of suitable training.
- Training.

3.16.1.2 Operating facilities and equipment

Personal protective equipment according to the provisions of the German Ordinance on Workplaces (ArbStättV), the regulations of the German employers' liability insurance associations and the safety regulations for work in enclosed spaces of wastewater engineering facilities .

3.17 Requirements for appraisal group ABS

3.17.1 Resources of the enterprises

3.17.1.1 Personnel

- Responsible persons⁵⁾ in the appropriate number for the scope of the respective task with five years of

successful activity in tendering and construction monitoring of sewer rehabilitation works. Evidence of specialist knowledge will be deemed provided by presentation of evidence of suitable training⁶⁾.

- Skilled personnel in the appropriate number for the scope of the relevant task. Evidence of specialist knowledge will be deemed provided by presentation of evidence of suitable training⁶⁾.
- Training.

3.17.1.2 Operating facilities and equipment

Personal protective equipment according to the provisions of the German Ordinance on Workplaces (ArbStättV), the regulations of the German employers' liability insurance associations and the safety regulations for work in enclosed spaces of wastewater engineering facilities .

4 Test specifications

4.1 Inspections by the Quality Committee or its agents

Applicants for and users of quality marks are required to present appropriate documentation to the Quality Committee of the Quality Association Sewer Construction as verification of the fulfilment of the quality requirements of the respectively desired or certified appraisal group and to register all construction sites and projects.

Company inspection

In a company inspection a test engineer appointed by the Quality Committee or a test centre tasked by the Quality Committee inspects and evaluates, by spot checks, compliance with and documentation of the requirements for the respective appraisal group, including documentation of the self-monitoring and the reports from the construction sites or from projects. The documents are checked for completeness and evaluated.

Results of company inspections are recorded. The appraisal of the qualification takes all findings into account in a summary report. Copies are received by the applicants or users of the quality mark, the office of the Quality Association Sewer Construction and the Quality Committee.

Following award of the quality mark company inspections are conducted according to the situation,

but the minimum is:

- 1 company inspection every 2 years in appraisal groups AK3, AK2, AK1, VP, VM, VMD, VO, VOD and VB.
- 1 company inspection a year in appraisal groups S (each S-system), I, R, D, ABAK, ABV and ABS.

Inspection of construction sites

When inspecting a construction site, a test engineer appointed by the Quality Committee or a test centre tasked by the Quality Committee inspects and evaluates, by spot checks, compliance with and documentation of the requirements for the respective appraisal group, including documentation of the self-monitoring and the reports from the construction sites or from projects. The documents are checked for completeness and evaluated.

Results of construction site inspections are recorded. The appraisal of the qualification takes all findings into account in a summary report. Copies are received by the applicants or users of the quality mark, the office of the Quality Association Sewer Construction and the Quality Committee evaluating the reports.

Site inspections [number/a] are generally carried out after the quality mark has been awarded, depending on the number of crews/teams deployed as shown in table 2:

Tabelle 2

Groups	crews / teams			
	1-4	5-8	9-12	>12
	number of inspections / a			
AK	2	3	4	5
V ^{*)}	2	3	4	5
S ^{*)}	1	2	3	4
I	1	2	3	4
R	1	2	3	4
D	1	2	3	4

*) related to the respective certified jacking method or S-system

Repeat inspection

In the event that requirements are not met, the inspector can arrange a date for a prompt repeat inspection for the necessary and possible remedial action.

4.2 Inspections by employees of the enterprise (self-monitoring)

In the case of self-monitoring, for all appraisal groups the requirements assigned in section 3 are to be examined and compliance with them documented.

The stipulations set out in the "Guidelines for self-monitoring" are applicable.

For the self-monitoring of works of assessment group S, the requirements specified in the "Manual" of the respective remediation system shall apply in addition to the Generally Accepted Rules of Engineering (a.a.R.d.T.) as a substitute. In addition, self-monitoring for comparison of the TARGET-ACTUAL values with specification of the materials used must be carried out and verified.

The position of all wastewater pipes and sewers as well as manholes must be checked and documented by height and direction during construction (AK3, AK2, AK1, VP, VM, VMD, VO, VOD, VB).

The compaction of the pipeline zone and backfill is to be verified in open construction (assessment groups AK3, AK2, AK1) on a posture-by-posture basis. The spacing of the test points should not exceed a posture length or 25 m in the case of sewer trenches, or fall below 3 checks per construction project.

Evidence of proper concrete processing in accordance with the monitoring class as well as material and process-specific evidence (e.g. SIVV certificate) must be provided.

The acceptance certificates, the results of the concluding inspections and tests and all supporting documents for self-monitoring must be retained for at least 5 years.

4.3 Review of qualifications and checking of self-monitoring

Unannounced reviews of the continued existence of the qualifications, self-monitoring and compliance with the other requirements of the certified appraisal group, also taking into account the stipulations in the Implementing Regulations, are undertaken at irregular intervals.

If non-conformities are found, the Quality Committee proposes that the Executive Board issue sanctions as laid down in the Implementing Regulations.

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If the reference measures no longer correspond sufficiently to the thrust of the requirements profile of an appraisal group, the Quality Committee may, after the appropriate evaluation, decide to change the classification to a different appraisal group or the Executive Board may withdraw the quality mark on the proposal of the Quality Committee.

For further regulations on company and site visits see section 4.1.

5 Labelling

5.1 Award

Companies, public institutions and engineering offices that provide services in accordance with these Quality and Test Specifications may use the Sewer Construction Quality Mark for these services as soon as they have been awarded the right to use the quality mark and compliance with the specified quality is assured.



The assessment group or groups must be indicated as an addition under the quality mark. The quality mark holder may only use the quality mark with the indication of the assessment group or groups for which they have been awarded the quality mark.

5.2 Application

The application of the quality mark is governed exclusively by the implementation regulations for the award and use of the quality mark for sewer construction of the Quality Association Sewer Construction.

Companies, public institutions, and engineering offices that provide services in accordance with the Quality and Test Specifications mark their services with the quality mark sewer construction.

6 Amendments

These Quality and Test Specifications may be supplemented and further developed taking into account technical progress. Changes require the prior written consent of RAL.

They will be put into effect by the Executive Board of the Quality Association Sewer Construction after a reasonable period of time from the date of notification of the quality mark holders.

- 1) Maintenance includes the measures for servicing, inspection and refurbishment for functional operation and upkeep.
- 2) Difficult conditions are e.g.: Groundwater drainage, construction in groundwater without subsidence, construction under operation with greater wastewater accumulation, construction of special foundation measures.
- 3) Technically demanding construction methods are e.g.: Use of special types of shoring (e.g. soldier pile walls, sheet pile walls, shotcrete construction).
- 4) An overview of rehabilitation systems is available from the Quality Association Sewer Construction.
- 5) Persons with a qualification assigned to at least level 6 in the German and European Qualifications Framework.

For the assessment groups ABAK, ABV, ABS, AK1, AK2, VOD, VO, VB, VMD, VM:

- Persons who have successfully completed a degree in civil engineering or another field of study with corresponding study content (syllabus).

For the assessment groups AK3, VP, S*), I, R, D:

- Persons with successful completion of the "state-certified technician" (staatlich geprüfter Techniker) in a corresponding construction field,
- Persons who have passed the master craftsman's examination if corresponding activities, knowledge and skills are included in the master craftsman's ordinance (Ordinance on the Master Craftsman's Examination Job Profile and on the Examination Requirements in Parts I and II of the Master Craftsman's Examination),
- Persons who have passed the examination for the recognised advanced training qualification of certified foreman in the field of civil engineering (PolierPrV 2012, amended by Art. 1 V v. 22.04.2014).

For all above-mentioned assessment groups:

- Persons with qualifications recognised as equivalent.

- 6) E.g. „Certified sewer rehabilitation consultant“ (Zertifizierter Kanalsanierungsberater) or comparable evidence.
 - 7) E.g. „DWA-tested sewer inspector“ (DWA-geprüfter Kanalinspekteur), „Certified sewer rehabilitation consultant“ or comparable evidence.
 - 8) E.g. „DWA-tested sewer cleaner“ (DWA-geprüfter Kanalreiniger) or comparable evidence.
 - 9) E.g. "DWA knowledge for leak testing of drainage systems outside buildings" (DWA-Sachkunde für Dichtheitsprüfung von Entwässerungsanlagen außerhalb von Gebäuden) or comparable proof.
- *] The VM requirements apply to the S52 rehabilitation system.

All designations of persons and functions used in these quality and test specifications are to be understood as gender neutral.

Implementing Regulations for the award and use of the sewer construction quality mark

1 Quality basis

The basis for the quality mark consists of the Quality and Test Specifications for the assembly and maintenance of wastewater pipes and sewers. They are revised and updated in line with technological advances.

2 Award

2.1 The Quality Association for the Construction and Maintenance of Wastewater Pipes and Sewers - Sewer Construction Quality Protection [Gütegemeinschaft Herstellung und Instandhaltung von Abwasserleitungen und -kanälen e. V. - Güteschutz Kanalbau] awards businesses, public institutions and engineering firms who perform, put out to tender and/or monitor the construction and/or maintenance of wastewater pipes and sewers the right, on application, to bear the "Construction and maintenance of wastewater pipes and sewers" quality mark.

2.2 The application must be made in writing to the managing director of the Quality Association for the Construction and Maintenance of Wastewater Pipes and Sewers - Sewer Construction (registered in Bad Honnef). The application must be accompanied by a legally signed Certificate of Obligation (specimen 1).

2.3 The application will be considered by the Quality Committee. The Quality Committee tests the applicant's services without prior notice in accordance with the Quality and Test Specifications. It may inspect the applicant's premises and request and inspect the documents mentioned in the Quality and Test Specifications. It will prepare a record of the inspection results, a copy of which will be sent to the applicant as well as to the Executive Board of the Quality Association. The Quality Committee may entrust suitable test engineers or test institutes of its choice with these tasks. The person entrusted with the inspection must prove his/her identity before commencing inspection. The costs of inspection are borne by the applicant.

2.4 If the result of the inspection is positive, the Executive Board of the Quality Association awards the quality mark to the applicant upon the proposal of the Quality Committee. The award is evidenced by a certificate (specimen 2). If the result of the inspection is negative the Quality Committee will defer or reject the application. It must state the reasons for the deferment or rejection in writing.

3 Use

3.1 Quality mark holders may use the quality mark only for services that comply with the Quality and Test Specifications.

3.2 The Quality Association alone has the right to have means of identifying the quality mark manufactured, to issue them or have them issued to users of marks and to determine in detail the type of usage.

3.3 The Executive Board may 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. Individual advertising may not be prevented thereby. This is governed by the maxims of the integrity of competition.

3.4 The Quality Committee may, in consultation with RAL, determine the use of the quality mark in a variety of forms for different services.

3.5 If the right to use the mark has been irrevocably revoked, the award certificate and all means of identification of the quality mark are to be returned; there is no right to any reimbursement of costs.

4 Monitoring

4.1 The Quality Association is entitled and obliged to monitor the use of the quality mark and compliance with the Quality and Test Specifications. The continuity of monitoring by suitable neutral test engineers or within the scope of a monitoring contract with a neutral inspection institute is to be demonstrated to RAL.

The test engineers or inspection institutes must satisfy the applicable requirements and prerequisites for the licensing and commissioning of test engineers and test institutes. The Quality Committee revises and updates these in line with technological advances. These requirements are published and may be obtained from the office.

4.2 Every user of the mark is obliged to comply with the Quality and Test Specifications. Users must hold ready all acceptance certificates insofar as they concern the assembly and maintenance of wastewater pipes and sewers. The Quality Committee or its representatives may inspect these documents at any time without prior notice and, if necessary, check the records for completeness. The user of the mark submits its quality assured services to the unannounced monitoring checks by the Quality Committee or its representatives in the

scope and frequency laid down in the associated requirements of the Quality and Test Specifications. The user bears the costs of inspection.

- 4.3 The user of the mark must allow the inspector to inspect the business at any time during operating hours and to perform the inspection without hindrance. In addition, information may be obtained from customers in order to verify the completeness of the acceptance certificates.
- 4.4 If an inspection has a negative result or an objection to a service is raised, the Quality Committee will have the inspection repeated. The user of the mark may 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. The consistency of quality and uniformity of standards in the inspections are guaranteed by the procedures laid down by the Quality Committee, regular training for the inspectors and their participation in meetings of the Quality Committee.
- The user of the mark must be given the opportunity to comment before the penalties are implemented (10 working days after receipt of the test report).
- 4.6 If the Quality Committee is approached by third parties with complaints about services, the Quality Committee must advise the complainants that, in the case that a special inspection is performed, the complainant must bear the costs of inspection if the complaint is unjustified. If the complaint is justified, the costs are borne by the user of the mark.
- 4.7 For additional inspections with repeat inspections as well as increased inspections due to a decision of the Quality Committee, fees will be levied according to the schedule of contributions and fees.
- 4.8 If expressly defined in the specific construction contract, and hence with the consent of the contractor, the records of the inspections will also be made available to the client on request.

5 Penalties in the event of deficiencies

- 5.1 If deficiencies in the quality assurance are determined by the Quality Committee, the Executive Board will, on the proposal of the Quality Committee, impose penalties on the user of the mark. These depend on the severity of the deficiency and may comprise:

Implementation regulations

1. Additional conditions within the scope of self-monitoring,
2. reduction of the inspection interval,
3. warning,
4. temporary or permanent withdrawal of the mark.

The measures listed hereunder may be combined with each other.

6 Appeals

Users of the mark may file an appeal against penalties with the Quality Committee within four weeks of notification thereof by registered letter. A decision on the appeal must be given with reasons within 3 months at the latest.

7 Re-award after withdrawal

If the right to use the mark had been withdrawn, it may be re-awarded after 6 months at the latest. The procedure is governed by section 2. The Executive Board of the Quality Association may impose additional conditions.

8 Amendments

These Implementing Regulation together with specimens (Certificate of Obligation, Award Certificate) are recognised by RAL. Amendments, including those of an editorial nature, require the prior written consent of RAL in order to have effect.

All references to persons and functions in these implementing rules are to be understood as gender-neutral.

Sample 1 for Implementing Regulations

Certificate of Obligation

1. The signatory / the undersigned firm herewith applies to the Quality Association Construction and Maintenance of Wastewater Pipes and Sewers e. V. for
 - the admission as a member *
 - the award of the right to use the Quality Mark for the construction and maintenance of wastewater pipes and sewers.*)
2. The signatory / the undersigned firm form confirms that
 - the Quality and Test Specifications of the Quality Mark Sewer construction,
 - the Articles of Association of the Quality Association Construction and Maintenance of Wastewater Pipes and Sewers e.V.,
 - the Quality Mark Articles of the Quality Association Construction and Maintenance of Wastewater Pipes and Sewers e. V.
 - Implementing Regulations for the award and the use of the Quality Mark Sewer Construction RAL-GZ 961,

the Quality and Test Specifications of the Quality Mark Sewer Construction RAL-GZ 961 are hereby accepted as binding without reservation upon the conclusion of membership.

Place, Date

Firm's stamp and signature

*) Delete non-applicable as required

Sample 2 for Implementing Regulations

GÜTESCHUTZ KANALBAU

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

Award Certificate

The Quality Association Construction and Maintenance of Wastewater Pipes and Sewers e. V. - Quality Association Sewer Construction on the basis of the inspection report, submitted by its Quality Committee, hereby awards the firm

the Quality Mark for the construction and maintenance of wastewater pipes and sewers, recognised by RAL Deutsches Institut für Gütesicherung und Kennzeichnung e.V. [German Institute for Quality Assurance and Labelling] and protected as a collective mark by registration with the German Patent and Trademark Office.



The Quality Mark is awarded for the appraisal group(s) _____

The use of the Quality Mark is permitted only in connection with the addition shown below the Quality Mark.

Bad Honnef, this _____

Quality Association Construction and Maintenance of
Wastewater Pipes and Sewers e.V.

Chairperson

Managing Director

Güteschutz Kanalbau
Linzer Straße 21
53604 Bad Honnef

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

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