VdS Guidelines for the

Approval of Installers of Fire Extinguishing Systems

VdS Guidelines for the

Approval of Installers of Fire Extinguishing Systems

Contents

Preface

These Guidelines for the approval of installers of fire extinguishing systems (VdS 2132) are based on the harmonised European specifications for installers of systems for fire protection and/or security (CEA 4002) issued by the Comité Européen des Assurances (CEA).

The CEA specifications are framework guidelines – harmonised within the European insurance industry and approved by the European Fire and Security Advisory Council (EFSAC) – specifying the minimum requirements for the approval of installers of fire extinguishing systems. The national member associations of the CEA agreed on adopting the specifications issued by CEA for their own regulations and on withdrawing any conflicting rules.

Moreover, these VdS Guidelines have been updated on the basis of the current European harmonised specifications for installers of fire extinguishing systems (CEA 4046 and 4047) of the Comité Européen des Assurances (CEA).

1 General

1.1 Scope

VdS Schadenverhütung (VdS) issues approvals for installers of fire extinguishing systems (FES). Access to this approval procedure is open to all installers able to render the following services a) to e) in connection with FES:

a) Configuration/planning
b) Assembly
c) Commissioning/ handing-over to the user (including instruction)
d) Certificate of conformity
e) Service/maintenance

1.2 Validity

These Guidelines shall come into force on 01.02.2009 and supersede the former VdS 2132 : 2006-02 (04) Guidelines for the approval of installers of fire extinguishing systems. As regards the revised version of Table 2 in Section 5.7.2 in edition VdS 2132 : 2006-02 (03), existing approvals with a validity below 4 years require a number of reference systems according to the respective approval period.

Changes in contents – compared to VdS 2132 : 2006-02 (04) – are marked by a vertical line in the margin.

For the installation of low pressure fine spray extinguishing systems one requires either an approval as installer for low pressure fine spray extinguishing systems or an appropriate additional qualification to the approval as installer for sprinkler or water spray systems (see list of approved installers under www.vds.de). As from 01.02.2011 an approval as installer for low pressure fine spray extinguishing systems will be required.

1.3 Subject matter of contract

Subject matter of the contract shall be the examination and approval of the installers according to the approval procedure of these Guidelines. The inspection of installed fire extinguishing systems would be based on a separate contract.

2 Definitions

Branch: Operating site of the installer, controlled by the installer in terms of corporate law and organisation.

Installation: Design/planning, installation, commissioning/handover and maintenance of FES.

Installation certificate: Certificate issued by the installer, certifying FES conformity with the guidelines.

Operating site: Premises of the applicant from which the services according to 1.1 are rendered.

VdS-approved FES: System installed in all aspects in conformity with the guidelines (VdS); this includes in particular the exclusive use of VdS-approved components and systems.

3 Normative references

These Guidelines incorporate undated references to other publications. The latest edition of the publication referred to applies.

- **DIN 31051** Principles for service and maintenance
- **DIN EN 287** Examination of welders; fusion welding
- **DIN EN ISO 9001** Quality management systems
- **DIN ISO 2859** Acceptance sampling inspection based on the number of faulty units or faults (inspection by attributes)
- **VdS 2092** Guidelines for sprinkler systems
- **VdS 2093** Guidelines for CO_2 fire extinguishing systems
- **VdS 2106** Guidelines for spark detection, spark separation and spark extinguishing systems
- **VdS 2108** Guidelines for foam extinguishing systems
- **VdS 2109** Guidelines for water spray systems
- **VdS 2304** Local application for electric and electronic systems
- **VdS CEA 4001** Guidelines for sprinkler systems
- **VdS 2380** Guidelines for fire extinguishing systems using non-liquefied inert gases
- **VdS 2381** Guidelines for fire extinguishing systems using halogenated hydrocarbons
- **VdS 2552** Inspection and approval of welding procedures of pipes of less than DN 65
- **CEA 4002** Installers of systems for fire protection and/or security
- **CEA 4046** Base requirements for installers of fire fighting systems
- **CEA 4047** Rules for the approval of installers of fire fighting systems in accordance with CEA 4046

4 Approval procedure

4.1 Contracting

The application for approval shall be filed in writing with VdS using the form (Annex L).

The following documents shall be enclosed:

- certificate of registration in the Commercial Register (if applicable);
- extract of the Trade Register (if subject to registration);
- proof of creditworthiness by the local revenue office, by reference of the firm's bank of the contractor or by certified balance sheet;
- detailed proof of training of the chief responsible specialist;
- proof of qualification of the chief responsible specialist (see 5.1.1);
- delivery commitment of component manufacturers and/or system manufacturer (shall refer to the system components and the corresponding technical information; not required if client is system manufacturer at the same time);
- agreement with a VdS-approved installer for fire detection and fire alarm systems (if applicable, see 5.2.5);
- specimen of the FES maintenance contract;
- proof of a certified quality management system (QM system) in accordance with DIN EN ISO 9001 for the operating site (the QM system shall have been introduced for FES installation; the requirements for the QM system are listed in Annex N, the approval conditions for QM certificates of third parties in Annex O);
- proof of a business liability insurance taken out for a minimum amount insured of 2 Mio. EUR (or 3 Mio. DM for existing contracts) per claim for the coverage of personal injury and of 1 Mio. EUR (or 1 Mio. DM for existing contracts) per claim for the coverage of property damage;
- staff questionnaire according to Annex K (see 5.1.3.7);
- organisational chart including responsibilities and rights to issue instructions, to the extent to which this is relevant for the display of responsibilities and authorities to issue directives of the required specialist staff according to 5.1.

4.2 Scope of approval

An approval may be applied for and issued for one of the system types listed below:

a) sprinkler systems, sprinkler systems using added film-forming foaming agents;
b) water spray systems, water spray systems using added film-forming foaming agents;
c) foam extinguishing systems;
d) spark detection, spark separation and spark extinguishing systems;
e) CO_2 fire extinguishing systems (low pressure systems);
f) gas extinguishing systems (CO_2 high pressure, non-liquefied inert gases, halogenated hydrocarbons);
g) location application systems for electric and electronic equipment (CO_2 high pressure, non-

liquefied inert gases, halogenated hydrocarbons);
h) special extinguishing systems (e.g. systems for the protection of kitchens, oxygen reduction systems);
i) fine water spray systems (low pressure, high pressure).

A corresponding additional qualification is required for an approval as an installer of sprinkler systems and/or water spray systems using added film-forming foaming agents. The installer is deemed to have acquired such additional qualification if he is holder of an approval for foam extinguishing systems.

The approval for one of the system types under f) and g) shall be restricted to the use of one extinguishing gas.

Insofar as reference is made to FES hereunder as a general term, the statements refer to the specific system type for which the application for approval has been filed by the applicant.

4.3 Term of approval

4.3.1 Preliminary approval

Installers filing an application for approval for the first time, may be approved on a preliminary basis for a period of 30 months. An extension is not possible. The preliminary approval is documented by a certificate and thus enters into force. Once the prerequisites for a final approval are met, an application for final approval may be filed. An application for a final approval shall have been filed 2 months before expiry of the 30 months period at the latest.

4.3.2 Final approval

The final approval is granted for a period of 48 months which may be extended for a further 48 months, upon application. The application for extension shall have been filed 2 months before expiry of the 48 months period. The final approval and the extension of the final approval will be documented by a certificate.

4.4 Termination of approval

4.4.1 Preliminary approval

The preliminary approval is cancelled as soon as one of the above mentioned conditions for a preliminary approval are not or no longer fulfilled. Failure of a branch to fulfil one of the conditions may result in the withdrawal of the entire preliminary approval.

The preliminary approval is revoked in the case of a proved fraud or attempted fraud.

A fresh application for a preliminary approval may at the earliest be filed 12 months from the expiry of the preliminary approval.

4.4.2 Final approval

The approval is cancelled as soon as one of the above mentioned conditions for approval is no longer fulfilled. Failure of a branch to fulfil one of the conditions may result in the withdrawal of the entire approval.

The approval for sprinkler and water spray systems is revoked as soon as the number of defective systems during the classification into the tightened sampling method (Cl. 6, Construction site control) is exceeded or the total of score for construction site controls (Evaluation system Annex M) is exceeded.

The approval is revoked in the case of proven fraud or attempted fraud.

A fresh application for approval may be filed 12 months from the expiry of the final approval at the earliest.

4.5 Fees

The client and/or installer is liable to pay the costs for the approval procedure and the services rendered by VdS in connection with the approval (inspections, construction site controls as well as the issuing of ID cards). Upon request, the tables of fees will be mailed free of charge to the client prior to filing an application. Fees will be charged on the basis of the current tables of fees.

5 Conditions for approval

The VdS certification body reserves the right of verifying by appropriate measures compliance with the conditions for approval.

A preliminary approval will not be given before proof has been furnished as specified under 4.1 and below.

5.1 Specialists

The installer is obliged to keep at any time on his payroll a sufficient number of qualified labour (specialists and industrial workers).

The employee shall be employed full-time with one approved installer only and shall not work additionally for another company in the same function and line of business.

Staff working on construction sites in the framework of employment office-approved short-time work or partial retirement programs is accepted as staff of the installer. Trainees may be employed on construction sites and – in as far as reported to VdS and 5.1.3.7 is observed – neither count as staff of the installer nor as third party fitters.

The installer is obliged to provide training and further education for his staff.

5.1.1 Qualification of responsible and chief responsible specialists

Responsible and chief responsible specialists shall have the degree of an engineer (Technical College or Technical Engineering College/University) or shall have read natural sciences focussed on a comparable subject area with final exam. Suitable fields are e.g. mechanical engineering, process technology, power supply engineering and civil engineering. Basis for the acknowledgement of higher education diploma not acquired in Germany is the 1st Acknowledgement Directive 89/48 EWG.

The specialists shall have well founded knowledge and know-how in the fields of extinguishing system technology and structural fire protection and shall be familiar with the limits of application and specifics of FES for which an approval as installer is applied for.

The responsible and chief responsible specialists shall furnish proof of their qualification by an examination on the premises of VdS (see VdS 2236 – Guidelines for the examination of chief responsible specialists for installers of fire protection and security systems).

5.1.2 Labour qualification

5.1.2.1 Workshop foreman

The workshop foreman shall have undergone a complete occupational training (journeyman's or craft certificate or proof of a comparable qualification that would result in conferring a journeyman's or craft certificate in Germany) in a technical profession and a practical experience of minimum 3 years in the fields of machining, repair and inspection of pipework and fittings and they shall be familiar with the current technical regulations (in particular VdS Guidelines for fire extinguishing systems).

5.1.2.2 Chief superintendent fitters and assembly supervisors

The chief superintendent fitters and assembly supervisors shall have undergone a complete occupational training (journeyman's or craft certificate or proof of a comparable qualification that would result in conferring a journeyman's or craft certificate in Germany) in a technical profession and a practical experience of minimum 3 years in the field of installation of fire extinguishing systems and they shall be familiar with the current technical regulations (in particular VdS Guidelines for fire extinguishing systems).

5.1.2.3 Fitters

The fitters shall have undergone a complete occupational training (journeyman's or craft certificate or proof of a comparable qualification that would result in conferring a journeyman's or craft certificate in Germany) or a field experience of minimum 3 years in installation. Occupational training or field experience in installation of 3 years shall be related to a technical profession.

5.1.2.4 Welders

The welders shall have a valid qualification according to DIN EN 287 meeting the requirements of the corresponding VdS Guidelines for the planning and installation of fire extinguishing systems.

5.1.3 Staffing

5.1.3.1 Chief responsible specialist

The installer shall appoint a member of staff to act as chief responsible specialist for the planning and installation of fire extinguishing systems. The chief responsible specialist shall possess the necessary technical and operational competence and background for detecting inadequate technical results of work or deficiencies for which the installer may be blamed and shall have the necessary authority for taking corrective action, as necessary, within an appropriate framework.

The chief responsible specialist shall see that the required number of specialists and fitters is available at all times within the installer company.

The chief responsible specialist is the contact to VdS and shall ensure that all technical VdS information is circulated to the specialists of the installer.

The chief responsible specialist shall be responsible for conformity of the FES with the guidelines.

The contractor confirms with the appointment that the required operational competences have been assigned to the chief responsible specialist.

The chief responsible specialist shall be permanently working and within reach at the head office of the installer.

The approval as a chief responsible specialist is strictly tied to the installer to be named and is not transferable. A fresh appointment and a fresh approval are required once the chief responsible specialist leaves and starts work with another approved installer.

In such case, a new chief responsible specialist having proved his qualification in an examination at VdS shall be appointed after three months at the latest.

The following applies to installers of FES according to 4.2 a): Proof shall be furnished that for up to 150,000 sprinklers installed per year, one responsible specialist (including the chief responsible specialist) is available for 10,000 sprinklers installed per year.

5.1.3.2 Responsible specialists in branches

For each branch where FES are planned, the contractor shall be obliged to appoint a member of the staff possessing the qualification specified in 5.1.1 as a responsible specialist. The responsible specialist shall also meet the requirements specified in 5.1.3.1 – as regards the branch.

A new responsible specialist having proved his qualification in an examination at VdS shall be appointed three months at the latest after a responsible specialist has left the company.

5.1.3.3 Fitters/industrial workers

The installer company and all branches installing FES shall have at least one installation crew. The installation crews shall consist of minimum five fitters on the payroll of a qualification according to 5.1.2.3.

A responsible workshop foreman on the payroll of the company possessing the qualification according to 5.1.2.1 shall be appointed for the workshop and for the spare parts store.

If welded pipe connections are made, the installer shall have two employees on the payroll who are qualified as welders according to 5.1.2.4. This requirement is deemed to be met if two of the required fitters can furnish proof of a corresponding qualification for welding.

The following applies to installers of FES according to 4.2 a): one fitter shall be available for 1,000 sprinklers installed per year.

5.1.3.4 Chief superintendent fitters

At least one chief superintendent fitter of a qualification according to 5.1.2.2 shall be assigned to each site who shall be permanently present during installation of the FES. According to the size of the construction site, additional fitters of a qualification according to 5.1.2.2 shall be assigned to the chief superintendent fitter to the effect that installation groups of maximum 5 fitters (including third party fitters) are formed.

5.1.3.5 Assembly supervisors

The installation of FES shall be permanently monitored at the construction sites by an assembly supervisor. The assembly supervisor shall possess at least a qualification according to Item 5.1.2.2.

5.1.3.6 Third party fitters

A maximum of 30% third party fitters (hired help) may be employed for the installation of FES (related to the total number of people working at the construction site) to support the company's own fitters. Notwithstanding, a maximum of 50% of third party fitters may be employed in cases where the total staff consists of 2 or 4 workers. The third party fitters shall possess an occupational qualification according to 5.1.2.3. A corresponding contract shall be made to ensure that the superintendent fitters have authority to issue instructions to the third party fitters.

The third party fitters shall be named to VdS (annex to the notification of installation) or shall be registered in the daily construction records or weekly report. VdS reserves the right to have the status of any hired help proved by tracer note from the leasing company.

Newly employed staff – not reported to VdS prior to being sent to the site – count as third party staff.

The installer shall observe the regulations of the Law on Temporary Employment.

5.1.3.7 Obligation to register, disclosure

Each individual working at FES installation site according to 4.2. a) to h) requires a VdS identity card. These are mainly:

a) the chief responsible specialist,
b) the responsible specialists in the branches (if applicable),
c) the assembly supervisors,
d) the workshop foreman,
e) the welders,
f) all fitters and other industrial workers;
g) staff on site involved in the planning.

The ID card is issued by VdS upon contracting based on the submittal of the completed staff questionnaire (Annex K). In the event that a person leaves the company, the corresponding ID card shall be returned within 4 weeks after the withdrawal of the person without being asked to do so. The order shall be renewed without delay by submittal of the staff questionnaire (Annex K) for each change of staff or new recruitment.

For staff with temporary work contract and/or limited residence permit the date of expiry shall be indicated for staff recording purposes.

Based on the data furnished on the staff questionnaire, VdS issues an ID card (Annex J) for fitters (blue) and for staff not in charge of installation work and trainees from the 1st year of training upwards (green). Blue staff ID cards mean that holders of these cards are the company's own staff. Green cards mean that the holders of these cards are not taken into account in the valuation of construction site controls. Not more than one trainee in the 1st or 2nd year of apprenticeship shall be employed per construction site. If staff without an ID card or more than one trainee (in the 1st or 2nd year of apprenticeship) is encountered in the construction site control, these persons will be considered third party fitters.

During construction site control (Cl. 6) VdS will inspect at least once a year the records of the company as regards staff membership and qualification of the staff (wage tax card, social insurance registration, employment contract, payroll accounting for the past 3 months) and reserves the right of performing additional checks. Such checks may be conducted also by third parties upon request and under the control of VdS. Should these measures of control in the company of the installer result in that VdS ID cards have been issued wrongfully or improperly, the respective staff is retroactively counted as third party fitters at all construction sites where they have been encountered.

Industrial workers newly recruited by the installer may obtain a blue staff ID card not before expiry of a three months blocking period (calculated from the date of hiring) and will then be considered company staff. Before issuing of the blue member ID card, this staff is considered to be third party fitters. The blue ID card will be issued at once within 12 months after the issuing of the preliminary approval. After this period of time each member of the staff is subject to the above blocking time of 3 months also in the case of a preliminary approval.

When fitters registered at VdS start work with another installer, the blocking time of three months shall be reduced from 3 to 1 month.

The 1-month blocking time shall apply to fitters changing jobs between approved installers only if:

a) the VdS ID-card has been returned;
b) proof of the previous employment is submitted when registration by the new employer is made;
c) the new employment has been started within a period of 12 months and has been reported by the installer within a reasonable period of time.

A blocking time of 3 months shall apply if one of the above conditions is not fulfilled.

5.2 Organisation

5.2.1 Workshop, offices

All operating sites shall be legally dependent parts of the contractor's company. The installer company shall provide and operate a workshop that complies with the minimum requirements specified in Annex H. Both the workshop and the workshop equipment shall permit machining, repair and inspection of pipework and fittings. Inspection of pipework does not mean the inspection of old systems.

Where pipe connections for FES are made by welding of pipes < DN 65, the installer shall use a VdS-approved procedure for welding of pipes < DN 65 based on an approval according to VdS 2552. The approval of a welding procedure is tied to the approval as an installer in the approval certificate. A prerequisite is welding in the installer's own workshop as well as marking with the manufacturer's own stamp.

At his operating site or branch the installer shall provide sufficiently large offices for the planning and calculation of the FES.

5.2.2 Calculation method

VdS-approved methods and programmes shall be used by the installer for the dimensioning and calculation of the FES pipework. Suitable EDP workplaces shall be provided in the installer's company and in all branches.

5.2.3 Measuring equipment

FES installer companies according to 4.2 e) to h) shall have suitable concentration measuring equipment. Names of staff members trained and instructed in using the concentration measuring equipment shall be named to VdS.

5.2.4 Proof of efficiency, demonstration system

Installers of 4.2 c) and d) types of systems and of sprinkler systems or water spray systems using added film-forming foaming agents shall demonstrate the function of this FES by means of a test set-up.

The installer shall prove the efficiency of systems to VdS according to 4.2 f), g) and h) by fire and extinguishing tests. This does not apply to gas extinguishing systems according to 4.2 f) using extinguishing gases that are already covered by the VdS Guidelines for planning and installation.

Installers of FES according to 4.2 a), b), f) and i) shall set up a suitable demonstration system for specialist training purposes (see Annex Q).

5.2.5 Triggering of FES by fire detection systems

When the FES to be installed is triggered by fire detection and fire alarm systems, proof shall be furnished for the approval as an installer of FES as to that

- an existing contractual agreement with a VdS-approved installer for fire detection and fire alarm systems (FDAS) has been made; one member of the installer's staff (minimum qualification: master craftsman of an electronic trade or proof of a comparable qualification that would result in the award of a master craftsman's certificate in Germany) familiar with the technology of the respective fire detection and fire alarm system (proof of training); or
- the client himself has a VdS approval as an installer of fire detection and fire alarm systems.

In both cases the approval as an installer of fire detection and fire alarm systems shall comprise the additional authority for the triggering of FES.

5.2.6 Planning documents

During the preliminary approval time the installer prior to commencing the job shall submit to VdS the planning documents for each FES and shall report any deviation immediately. The installer shall be charged for the checking of planning documents by VdS.

5.3 Products

The client shall have a VdS-approved range of components and, if required, a VdS-approved system. The mandatory approval of components and systems for each type of system shall be in accordance with the corresponding Guidelines for the planning and installation of FES. Any deviation from these requirements shall be agreed with VdS prior to installation. Additional product tests and approvals by VdS may become necessary.

The client is obliged to inform VdS at once of a withdrawal of an approval and to present suitable substitute measures.

VdS reserves the right to random-test the quality of the installed components or to have components tested by a VdS-approved body.

5.4 Notification of installation

Each FES for which the installer has been contracted shall be reported to VdS within four – in any case at least two weeks – prior to commencement of installation by means of a notification of installation (see Annex P). In case of a short term order, the notification of installation shall be given at once, in any case at the latest upon commencement of installation (including corresponding proof). This also applies to those FES that are installed according to guidelines for the planning and installation other than VdS guidelines.[1]

A mandatory notification applies to every new installation, irrespective of its size, and to all extensions of more than 100 sprinklers as well as to modifications of the main pipework or of the sprinkler equipment room in the case of existing systems. A notification is also required for all substantial renewals or modifications of the pipework, e.g. after inspections of old systems.

FES not having been notified shall be included in the valuation of the construction site control for the calendar year in which VdS gains knowledge of the existence of the system without considering the earlier period of time.

The installation of FES within the framework of a construction project by more than one installer is permitted only on the basis of a service contract. For tracing purposes in the case of liability claims, this contract shall outline clear responsibilities for the work to be performed and a clear scope of work to be performed by each of the parties and shall also name one of the installers as installer in charge. Along with a copy of the service contract, each installer shall submit a notification of installation describing his part of work and naming the leading party to the contract.

The installation of FES by a joint venture consisting of several installers (GbR according to §§705 ff BGB) is also permitted. A prerequisite for this solution consists in that a leading and collectively responsible installer is appointed in the contractual agreements; a copy of these agreements shall be attached to the notification of installation. The notification of installation shall be submitted by the leading installer; the FES is considered a system installed by the leading installer and shall be included in the construction site control for the leading installer. As regards the ratio of total staff to third party fitters (hired help), the valuation for joint ventures shall be based on the ratio of the total number of staff of the installers working on site to the total number of third party fitters of all installers.

In cases where a FES is installed by more than one installer, a deviation permit shall be obtained from VdS prior to the installation of components/systems exclusively approved for one specific installer, if different components/systems are approved for the other party to the contract.

[1] It is necessary to notify VdS of every single FES, as the VdS approval is considered a quality feature of the installer by various market participants – not least by the customer ordering the installation of the FES, irrespective of the kind of guidelines for planning and installation according to which the FES is planned and installed.

5.5 Installation certificate

Upon delivery of the FES to the operator the installer shall submit an installation certificate signed by the chief responsible specialist or by the specialist responsible for the branch.

5.6 Service and maintenance

Upon assignment by the operator, the installer shall maintain the FES installed by him. He shall permanently keep on stock a sufficient number of spare parts (according to Annexes A to G; for systems in accordance with 4.2 i) the required stock of spare parts will be specified by VdS as part of the approval procedure) as well as the required equipment for maintenance and repair.

The installer shall ensure that the transmission of fault signals is warranted at any time. Repair work on the FES shall commence not later than 12 hours after the receipt of the fault signal and generally be completed within 36 hours.

If exceptionally an installer does not see himself in a position to conclude a service contract, proof shall be furnished of a contract signed by a cooperation company holding the VdS approval as an installer of the corresponding type of extinguishing system and if necessary of the corresponding system.

5.7 Reference systems

The installer shall furnish proof to VdS of a minimum number of reference systems – specified in more detail in 5.7.1 and 5.7.2 – by submittal of properly issued installation certificates signed by the chief responsible specialist or the competent responsible specialist. These reference systems shall be checked on site by VdS for conformity with the corresponding Guidelines for planning and installation. For systems according to 4.2 f) the inspection procedure of each reference systems during the preliminary phase of approval will include a flooding test with concentration measurement and a room integrity test based on

Type of FES	Number of systems	Notes
a) Sprinkler systems with/without added foaming agent	8	see notes 1)
b) Water spray systems with/without added foaming agent	3	see notes 2)
c) Foam extinguishing systems	3	-
d) Spark detection, spark separation and spark extinguishing systems	5	-
e) CO_2 fire extinguishing systems (low pressure)	3	-
f) Gas extinguishing systems	5	at least 3 of these with automatic release
g) Gas local application systems	5	-
h) Special extinguishing systems	3	-
i) Fine water spray systems	3	-

Notes:

1) If an installer has the preliminary approval for sprinkler systems and the additional qualification for the proportioning of film forming foaming agents in sprinkler systems, a total of 11 reference systems shall be verified, at least 2 of which have provision for the proportioning of film forming foaming agents.

2) If an installer has the preliminary approval for water spray systems and the additional qualification for the proportioning of film forming foaming agents in water spray systems, a total of 6 reference systems shall be verified, at least 2 of which have provision for the proportioning of film forming foaming agents.

Table 1: Minimum number of reference systems to be installed during the preliminary approval phase

Type of FES	Number of systems	Notes
a) Sprinkler systems with/without added foaming agent	12	see notes 1), 2)
b) Water spray systems with/without added foaming agent	4	see notes 1), 2)
c) Foam extinguishing systems	4	see note 4)
d) Spark detection, spark separation and spark extinguishing systems	4	-
e) CO_2 fire extinguishing systems (low pressure)	2	-
f) Gas extinguishing systems	8	see note 3)
g) Gas local application systems	4	see note 3)
h) Special extinguishing systems	2	-
i) Fine water spray systems	8	see note 5)

Notes:

1) *If an installer has the approval for sprinkler systems and the additional qualification for the proportioning of film forming foaming agents in sprinkler systems, a total of 16 reference systems shall be verified, at least 2 of which have provision for the proportioning of film forming foaming agents.*
2) *If an installer has the approval for sprinkler and water spray systems, a total of 16 reference systems shall be verified, at least 2 of which being water spray systems.*
3) *If an installer has the approval for gas extinguishing systems and for local application systems using the same extinguishant, a total of 12 reference systems shall be verified, at least 2 of which being local application systems.*
4) *If an installer has the approval for sprinkler and foam extinguishing systems, a total of 16 reference systems shall be verified, at least 2 of which being foam extinguishing systems.*
5) *If an installer has the approval for sprinkler systems and the approval for low pressure fine water spray systems, a total of 16 reference systems shall be verified, at least 2 of which being low pressure fine water spray systems. In case of approvals for sprinkler, water spray and low pressure fine water spray systems, a total of 24 reference systems shall be verified, at least 2 of which being water spray and at least 2 being low pressure fine water spray systems.*

Table 2: Minimum number of reference systems to be installed during the period of final approval

Systems installed/year	Ordinary sampling			Tightened sampling			Reduced sampling		
	a	b	c	d	e	f	g	h	i
to 20	4	0	1	8	1	2	2	0	1
21 – 50	8	1	2	16	2	3	4	1	2
51 – 90	12	1	3	24	4	6	6	2	3
91 – 150	20	2	5	40	6	8	10	3	4
151 - 280	32	3	7	64	10	12	16	4	6
281 - 500	50	5	10	100	15	17	25	5	7
501 - 1200	80	8	14	160	23	25	40	7	9

Explanatory notes: a, d, g: Scope of sampling; b, e, h: tolerated number of deficiencies; c, f, i: Number of deficiencies resulting – if exceeded - in tightening and/or downgrading into the stage of a preliminary approval (see Fig. 1)

Table 3: Sampling procedure based on DIN ISO 2859

the door fan method, all of them carried out by VdS. These inspections shall not reveal any substantial deficiencies. Any deficiencies revealed in the course of these inspections for which the installer can be blamed shall be remedied by the installer at his own account. VdS reserves the right to carry out re-inspections.

5.7.1 Minimum number (during preliminary approval)

During the phase of preliminary approval the installer shall verify to VdS the minimum number of reference systems specified in Table 1.

5.7.2 Minimum number (during final approval)

During the approval period of the final approval (48 months) the installer shall verify to VdS the minimum number of reference systems specified in Table 1.

According to the notes given in Table 2 the number of reference systems for certain types of systems may be reduced, provided that the reference systems are verified in combination with other types of systems. Prerequisite for this procedure is the final approval for the respective types of systems and corresponding validities.

6 Construction site controls

Construction site controls are carried out in order to verify compliance with the guidelines for the approval of FES installers. Relevant for the inspection are the on-site conditions encountered on the day of inspection (snapshot). During the preliminary approval phase each construction site is checked at least once. The construction site control during the final approval and the guidelines for the appraisal of the results of construction site control according to Annex M only apply to sprinkler, water spray and fine water spray systems and are not applicable to any other types of FES.

The controls cover the state of employment and the professional qualification (e.g. welded products) of all staff involved in the installation of the FES. The industrial workers shall show their staff identity cards. The findings of the VdS representative doing the check are documented on site in writing using the form in Annex M plus Sheet 2 and countersigned by the chief superintendent fitter. Copy of this document is handed to the chief superintendent fitter. The signature of the chief superintendent fitter is considered a confirmation/acknowledgement of the facts encountered at the expense of the installer.

Prior to the installation, VdS shall be notified of the exact location of the site of installation of each FES by way of a notification of installation (see Annex P). Together with this notification of installation, the installer shall submit for each site a declaration of consent of the client authorising VdS staff to access the site at all times. Should this consent not be attached to the notification of installation, the installer shall make sure that the client agrees to VdS staff being authorised to access the site at all times.

Once the approval is obtained, VdS will select and check a certain number of installation sites according to a sampling procedure based on DIN ISO 2859. The scope of sampling depends on the number of installed FES and on the number of deficiencies revealed on installation sites during the past calendar year. Basis for the evaluation of the construction site controls for one calendar year are the controls carried out until the end of the first quarter of the following year. The scope of sampling and the number of tolerated deficiencies are shown in Table 3. The procedure applied for classification into the ordinary, reduced or tightened scope of sampling is illustrated in Fig. 1.

7 Other conditions for approval

The installer shall

- meet his financial commitments towards VdS,
- ensure that account and system data are treated confidentially and are not disclosed to unauthorised third parties,
- notify VdS without delay of all alterations relating to conditions for the approval as an installer, attaching the required documents, as applicable,
- rectify all deficiencies of FES – for which the installer can be blamed – detected by VdS during inspection at his expense,
- observe all legal and official requirements,
- cooperate to the extent required in a construction site control (Cl. 6).

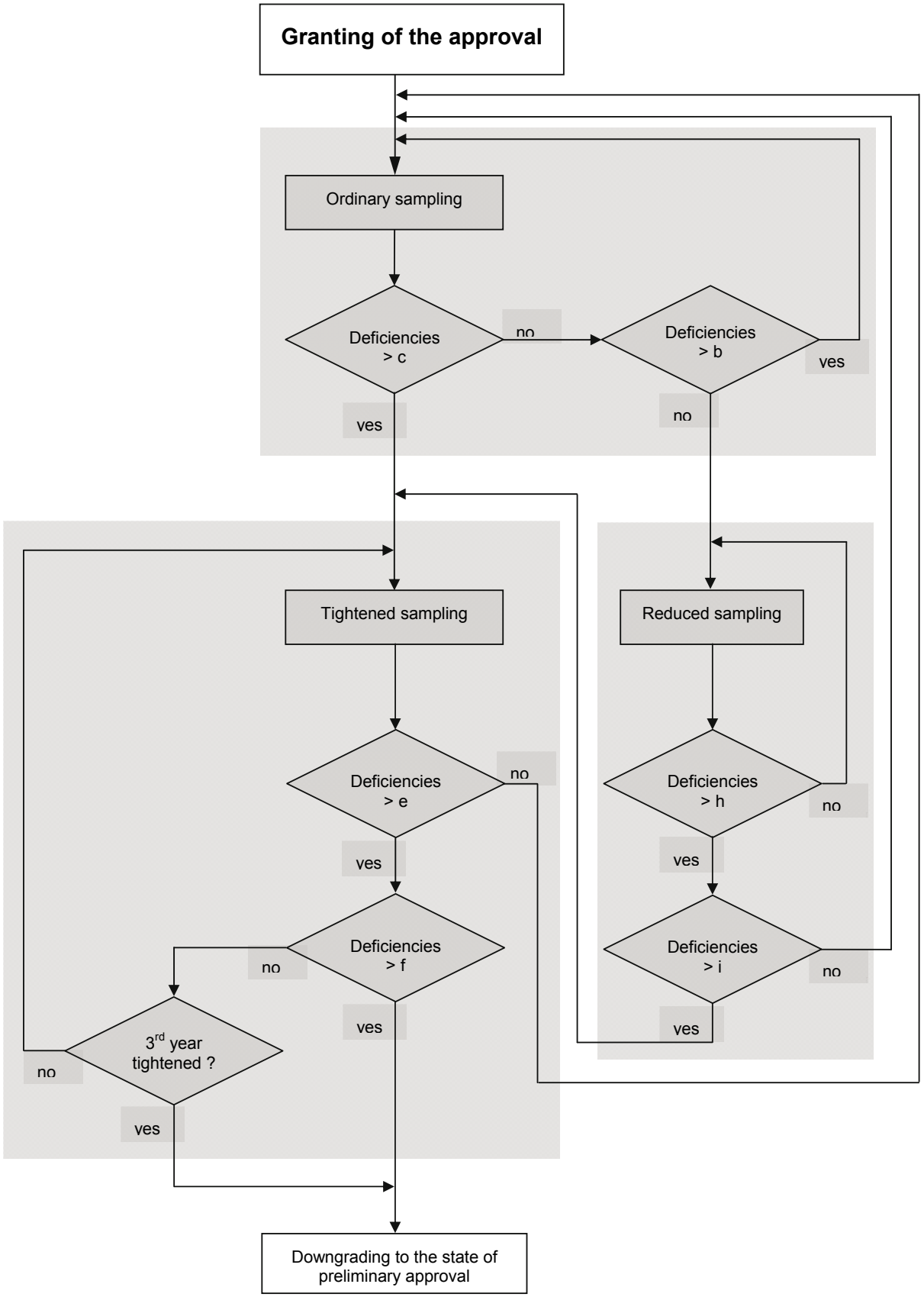

Fig. 1: Classification into ordinary, tightened and reduced sampling

8 Advertising

Approved installers are allowed to advertise with the VdS approval. However, the „VdS“ trademark or modifications thereof or the certification as such shall not be an integral part of the company's name. When advertising with the VdS approval as an installer for fire extinguishing systems, the wording of the text on the approval certificate shall be correctly reproduced and shall not be falsified contrary to its original intention.

The installer is allowed to make reference to the VdS approval (preliminary approval or final approval) by the following logo:

VdS-approved installer
of ...(insert type of extinguishing system according to certificate)

The VdS logo may be enlarged or reduced in size provided the proportions are maintained. However, the logo shall have a minimum size of 13 mm and may be used on letter heads, advertising material, publications and advertising brochures of the installer.

9 Warranty and liability

9.1 Warranty

VdS Schadenverhütung gives legal warranty for the services to be rendered according to 1.3. The provisions outlined below shall apply to claims for damages. Examination and approval of the installer by VdS are not meant to be a warranty given by VdS for conformity and functionality of the fire extinguishing systems installed, however. A separate order for testing will have to be placed with VdS to this end.

9.2 Damages

VdS Schadenverhütung shall be liable for damage – for whatever reasons – only in cases of

1. intent,
2. gross negligence of the management, owner or executive staff,
3. culpable injury of life, body or health,
4. deficiencies failed to disclose with fraudulent intention or deficiencies the absence of which had been guaranteed.

In the event of a culpable violation of vital obligations of the contract, VdS Schadenverhütung shall be liable even in the case of gross negligence of a non-executive employee and in the case of slight negligence, in the latter case limited to the contract-typical, reasonably foreseeable loss. Any effects vis-à-vis third parties arising from a litigious approval procedure shall not be considered as effects typical to the contact.

The above provisions shall apply correspondingly to claims for damages for expenditure incurred in vain.

Any further claims – no matter for which legal reasons – shall be excluded.

The above limitation on liability shall also apply in favour of the staff and agents of VdS Schadenverhütung.

10 Miscellaneous

10.1 Data protection

In the execution of the contractually agreed services, VdS Schadenverhütung will ensure compliance with the regulations of BDSG (Federal Data Protection Act). The staff in charge of data processing has been instructed expressly to observe §§ 5, 43, 44 BDSG.

Corporate data (see 4.1) as well as personal staff data (see 5.1.3.7) of the installer company are collected, processed, stored and transmitted to third parties as necessary for the purposes of implementation of the contract (see 1.3). Data are transmitted exclusively to the extent necessary for the implementation of the contractually agreed services.

According to § 5 BDSG (Federal Data Protection Act), unauthorised collection, processing or use of protected personal data disclosed in the framework of activities carried out on behalf of VdS Schadenverhütung by „third parties“ is prohibited. This applies both to their activities performed on behalf of VdS Schadenverhütung and to missions outside of these activities (e.g. with customers and potential customers). The corresponding „third party“ is instructed accordingly and is aware of the fact that it renders itself liable to prosecution in the case of a disclosure of confidential information (in particular according to §§ 43, 44 BDSG).

The applicant agrees and ensures that the consent of his staff is warranted.

10.2 Severability clause

In the event that any provision of these Guidelines is or becomes invalid, this shall affect neither the validity nor the effectiveness of the remaining provisions of these Guidelines.

10.3 Venue and choice of law

The substantive law of the Federal Republic of Germany, excluding the conflict of law provisions, shall apply. Place of venue shall be Cologne.

Annex A – Minimum stock of spare parts for the installation of sprinkler systems

Note: For a potential approval as an installer of other types of water extinguishing systems multiple stockpiling is not required.

Sprinkler/ Sprinkler type	Nominal diameter/ type of installation	Temperature rating	Response sensitivity	Minimum stock
Spray sprinklers	DN10/pendent	68°C/74°C	Standard	50 items
	DN10/pendent	68°C/74°C	Special and quick action	50 items
	DN15/pendent	68°C/74°C	Standard	50 items
	DN15/pendent	68°C/74°C	Special and quick action	50 items
	DN20/pendent	68°C/74°C	Standard	50 items
	DN20/pendent	68°C/74°C	Special and quick action	50 items
	DN10/upright	68°C/74°C	Standard	50 items
	DN10/upright	68°C/74°C	Special and quick action	50 items
	DN15/upright	68°C/74°C	Standard	50 items
	DN15/upright	68°C/74°C	Special and quick action	50 items
	DN20/upright	68°C/74°C	Standard	50 items
	DN20/upright	68°C/74°C	Special and quick action	50 items
	DN10/pendent	all the others	Standard, special and quick action	25 items *
	DN15/pendent	all the others	Standard, special and quick action	25 items *
	DN20/pendat	all the others	Standard, special and quick action	25 items *
	DN10/upright	all the others	Standard, special and quick action	25 items *
	DN15/upright	all the others	Standard, special and quick action	25 items *
	DN20/upright	all the others	Standard, special and quick action	25 items *
Standard sprinklers	DN10, 15, 20	all	Standard, special and quick action	25 items *
Flat spray sprinklers	pendent	all	Standard, special and quick action	25 items *
	upright	all	Standard, special and quick action	25 items *

* after initial application

Table A1: Minimum stock of sprinklers

System component	Nominal diameter	Minimum stock
Wet alarm valve station	per nominal diameter DN 100, 150, 200 **	1 item
Dry alarm valve station	per nominal diameter DN 100, 150 **	1 item
Feed valve	nominal diameter DN 50 **	1 item
Stop valve	per nominal diameter DN 80, 100, 150, 200 **	1 item
Accelerator	fitting the valve station	2 items
Alarm pressure switch	fitting the valve station	2 items
Pressure switch		2 items
Mechanical alarm bell		2 items
Strainer	per nominal diameter DN 80, 100, 150 **	1 item
Pipe hanger	per nominal diameter DN 25 to DN 150	100 items
	per nominal diameter DN 200, DN 250	25 items
Pipe coupling	per nominal diameter	25 items*

* after initial application

** after initial application of other valve stations and/or other nominal diameters, minimum stock: 1 item; this also applies to the nominal diameters specified in the table

Table A2: Minimum stock of system components for sprinkler systems

System component	Nominal diameter	Minimum stock
Foam proportioner	per nominal diameter	1 item each*
Foam supply control valve	per nominal diameter	1 item each*

* after initial application or evidence by manufacturer that delivery is effected within 24 hours

Table A3: Minimum stock of system components for sprinkler systems using added film-forming foaming agents

Annex B – Minimum spare part quantities to be kept on stock for the construction of water spray systems

Note: For a potential approval as an installer of other types of water extinguishing systems multiple stockpiling is not required.

System component	Characteristic value	Response sensitivity	Minimum stock
Spray nozzle	K-factor 57		25 items
	K-factor 80		25 items
	K-factor 115		25 items
Other types of nozzles			25 items *
Triggering sprinkler	68°C/72°C	Standard	50 items
	all the others	Standard	25 items *
	all	Special and quick action	25 items *
water spray valve station	per nominal diameter DN 100, 150 **		1 item
Feel valve	nominal diameter DN 50 **		1 item
Stop valve	per nominal diameter DN 80, 100, 150, 200 **		1 item
Alarm pressure switch	fitting the valve station		2 items
Pressure switch			2 items
Mechanical alarm bell			2 items
Strainer	per nominal diameter DN 80, 100, 150 **		1 item
Pipe hanger	per nominal diameter DN 25 to DN 150		100 items
	per nominal diameter DN 200 u. DN 250		25 items
Pipe coupling	per nominal diameter		25 items *

* after initial application

** after initial application of other valve stations or other nominal diameters, minimum stock: 1 item; this is additionally valid for the nominal diameters specified in the table.

Table B1: Minimum quantity of system components to be kept on stock for spray water extinguishing systems

System component	Nominal diameter	Minimum stock
Proportioner	per nominal diameter	1 item each*
Supply control fitting	per nominal diameter	1 item each*

* after initial application or evidence by manufacturer that delivery is effected within 24 hours

Table B2: Minimum quantity of system components to be kept on stock for water spray systems using added film-forming foaming agents

Annex C – Minimum spare part quantities to be kept on stock for the construction of foam extinguishing systems

Note: For a potential approval as an installer of other water extinguishing systems multiple stockpiling is not required.

System component	Characteristic value	Minimum stock
Low expansion foam nozzle		10 items
Medium expansion foam nozzle		10 items
High expansion foam generator		1 item *
Low expansion foam pipe	per rated quantity L2, L4, L8, L16	1 item *
Medium expansion foam pipe	per rated quantity M2, M4, M8	1 item *
Proportioner	per nominal diameter	1 item ***
Water spray alarm valve station	per nominal diameter DN 100 **	1 item
Feed valve	Nominal diameter DN 50 **	1 item
Stop valve	per nominal diameter DN 80, 100, 150 **	1 item
Alarm pressure switch	fitting the valve station	2 items
Pressure switch		2 items
Mechanical alarm bell		2 items
Strainer	per nominal diameter DN 80, 100, 150	1 item
Pipe hanger	per nominal diameter DN 25 to DN 150	100 items
	per nominal diameter DN 200 and DN 250	50 Items

* after initial application

** after initial application of other valve stations or other nominal diameters, minimum stock: 1 item; this is additionally valid for the nominal diameters specified in the table.

*** after initial application or evidence by manufacturer that delivery is effected within 24 hours

Table C1: Minimum quantity of system components to be kept on stock for foam extinguishing systems

Annex D – Minimum spare part quantities to be kept on stock for the construction of spark detection, spark separation and spark extinguishing systems

System component	Minimum stock *
Spark detector per type	5 items
Solenoid valve	5 items
Extinguishing nozzle per type	5 items
Alarm device	5 items
Spark discharge flap including actuation device per type	5 items
Control device complete or a corresponding number of extension components (spark detection CIE) consisting of: - detection/control/monitoring assemblies - evaluation/indicating/connection boards - power units, batteries - monitoring modules and accessories (e.g. anti-freeze circuits) per installation monitoring modules and accessories (e.g. anti-freeze circuits) per installation	3 items 3 items
Standard-pressure boosting systems of different container sizes (diaphragm containers) or corresponding number of extension components of standard range of products	3 items 3 items

* if incorporated in the system

Table D1: Minimum quantity of system components to be kept on stock for spark detection, spark separation and spark extinguishing systems

Annex E – Minimum spare part quantities to be kept on stock for the construction of gas extinguishing systems

System component	Characteristic value	Minimum stock
Fire detection element, non-electric	up to 100 °C, per temperature rating	10 items
Fire detection element, non-electric	over 100 °C, per temperature rating	5 items
Fire detection element, electric	per type	5 items
Electrical control device, complete or corresponding number of extension components such as - detection/control/monitoring assemblies - interface devices - evaluation/indicating/connection boards - power units, batteries - monitoring modules - manual call points - emergency hold devices - subsequent flooding devices per installation		3 items 3 items
Non electric control device complete with e.g. delay device, filled pilot cylinder, actuation devices, blocking devices, solenoid valves, pneumatic valves, non-return valves, pressure reducers, filters, protective devices against creeping gas		3 items
Cylinders filled with extinguishing agent with cylinder valves	Pilot cylinders Subsequent cylinders	10 items 10 items
Hoses	per type and length	10 items
Check valves	per nominal diameter	10 items
Weighing device	per type	3 items
Safety valve		2 items
Pressure gauge with contacts		5 items
Pressure gauge		5 items
Selector valve with actuator	per nominal diameter	1 item
Nozzles	per rating class	5 items
Test connection with cylinder, pressure gauge, hose and connections		2 items
Alarm device (pneumatic and electrical)	per type	3 items

* if incorporated in the system

Table E1: Minimum quantity of system components to be kept on stock for the installation of gas extinguishing systems and gas local application systems

Note: For the components specified below the number of items specified above has to be stocked after first application at the latest:

- electrical control devices;
- nozzles;
- selector valve with actuation device.

Annex F – Minimum spare part quantities to be kept on stock for the construction of low pressure CO2 extinguishing systems

System component	Characteristic value	Minimum stock *
Fire detection element, non-electric	up to 100 °C, per temperature rating	10 items
Fire detection element, non-electric	over 100 °C, per temperature rating	5 items
Fire detection element, electric	per type	3 items
Electric control device, complete or corresponding number of extension components such as - detection/control/monitoring assemblies - interface devices - evaluation/indicating and connection boards - power units, batteries - monitoring modules - manual call points - emergency hold devices - subsequent flooding devices per installation		3 items 3 items
Non electric control device, complete with e.g. delay device, actuation devices, blocking devices, solenoid valves, pneumatic valves, non-return valves, pressure reducers, filters, protective devices against creeping gas		3 items
Safety valves		2 items
Pressure gauges		5 items
Range valve with actuation device	per nominal diameter	1 items
Nozzles	per rating class	5 items
Means of alarm (pneumatical and electrical)	per type	3 items

* if included in the system

Table F1: Minimum system components to be kept on stock for the installation of low pressure CO2 extinguishing systems

Note: For the components specified below the number of items specified above has to be stocked after first application at the latest:

- electrical control device;
- nozzles;
- selector valve with actuation device

Annex G – Minimum spare part volumes to be kept on stock for the construction of special extinguishing systems for the protection of kitchen equipment

System component	Characteristic value	Minimum stock *
Fire detection element, non electric	per temperature rating	10 items
Fire detection element, electric	per type	5 items
Manual triggering device		5 items
Electrical control device		3 items
Non electrical control device		3 items
Alarm device	per type	5 items
Extinguishing agent container, complete with actuation device		2 items
Local application nozzle	per rating class	10 items
Duct protection nozzle	per rating class	5 items

* if incorporated in the system

Table G1: Minimum quantity of system components to be kept on stock for the installation of special extinguishing systems for the protection of kitchen equipment

Annex H – Minimum requirements for workshops

The workshop shall have a minimum useful floor area of 80 m².

The minimum requirements in terms of available machines, equipment and tools are specified in Table H1.

Machines, equipment, tools	**Minimum quantities**
Threading machine for pipe threads of up to 2“Ø	1
Grooving machine *	1
Drill (up to 30 mm Ø)	1
Welding equipment	2
Machine for cutting of pipes up to DN 200	1
Equipment for hydraulic tests (only for installers of systems acc. to Section 4.2 a))	1
Hand drill	1
Abrasive cutting off machine	1
Set of pipe wrenches and fitter tools	1
* for fire fighting systems acc. 4.2 a), b) and c)	

Table H1: Minimum equipment of workshops

Annex J – Staff identity card

All staff working on fire fighting systems shall be able to prove their identity on the construction site by an identity card identifying them as members of the installer which shall contain the following data:

- last name and first name;
- job description;
- ID card number;
- expiration date of ID card;
- address of installer and/or logo of installer;
- bvfa logo (if the company is a member and a consent in writing can be produced);
- VdS logo.

The ID card bears the title „Staff ID Card“ and contains the sentence „The holder of this ID card is authorised to carry out work on fire fighting systems“. The ID card shall also bear a photograph of the holder.

The validity of the ID card is limited to 3 years. In case of trainees and temporary employments the validity is limited until the date of expiry of the trainee contract or employment.

The ID card is property of VdS and shall be returned once the underlying circumstances change or the holder leaves the company.

Annex K – Staff questionnaire to be completed for registration and issuing of ID card

ID Card No.:

Staff questionnaire

for

☐ **Registration** ☐ **Issuing of ID card**

Data of the installer

(Name / Address)	*(Company logo)*

Is the staff ID Card to contain the bvfa logo? ☐ Yes ☐ No

Data of the employee

(Employee acc. to VdS 2132 section 5.1.3.7)

Declaration of consent acc. § 4 Cl. 1 Federal data protection law

I have been instructed that VdS Schadenverhütung GmbH (VdS), Köln, will collect, process and use my person-related data of this staff questionnaire in the scope of the approval procedure of my employer as a certified installer. Based on these data VdS will, among other things, issue a staff ID that I will have to wear while working on site. I have also been instructed that VdS will carry out construction site controls during the validity of the approval and can thus collect, process and use person-related data.
Furthermore, VdS will inspect my personnel file at my employer's and collect person-related data in order to process and use them for the purpose of verifying the data specified in this questionnaire. The collection of data as well as their processing and use have no other purpose than to ensure that my employer has qualified staff and complies with the requirements of the Approval Guidelines VdS 2132.

I explicitly declare my consent that VdS may collect, process and use the person-related data contained in this questionnaire for the above-mentioned purposes. My data must not be used for any other purposes.

_____

(Date / signature of the employee)

First name:				*(photograph of the employee)*
Second name:				
Date of birth				
Function of the employee:				
Qualification (occupational training)[1]:				
Welding qualification acquired[1]:	☐ yes	☐ no		
Validity of the qualification until:				
Test standard / regulation:				
Date of hire of the employee in the installer's company:			Cessation of employment: [2]	
Employment in former times:	Company:		Period of employment from/to:	

[1] The activity report showing 3 years of experience in the field of installation shall be attached to this questionnaire in form of a separate annex in cases where no occupational training can be substantiated.

[2] For apprentice and employee with limited state of employment or limited residence permit

The installer guarantees the agreement of the employee for a data processing acquisition, handling and use of his personal data and confirms the accuracy of statement.

_____

(Date/signature of the management or authorised representative)

To be completed by VdS				
Identification No.:			Audited (Date/Initials):	
ID Card No.:			Valid until:	
Colour of the ID card:	❑ blue	❑ green	Blocking period until calender week:	

Annex L – Application for/Request for extension of VdS-Approval

	☐ **APPLICATION** ☐ **REQUEST FOR EXTENSION** ☐ **MODIFICATION** for a VdS-Approval as **Installer of fire extinguishing systems (FES)**					
1	***Applicant*** Installer Approval No. (only for extension/modification)					**E**
	Name of company					
	Street					
	ZIP, place					
	Telephone		Fax		e-mail	
2	***Type of system***					
	☐ a) Sprinkler systems with/without[1] added foaming agent ☐ b) Water spray systems with/without[1] added foaming agent ☐ c) Foam extinguishing systems ☐ d) Spark detection, spark separation and spark extinguishing systems ☐ e) CO_2 fire extinguishing systems (low pressure systems) ☐ f) Gas extinguishing systems with extinguishing gas: _____ ☐ g) Local application systems with extinguishing gas: _____ ☐ h) Special extinguishing systems ☐ i) Fine water spray systems (low pressure/high pressure[1])					
3	***Chief responsible specialist***					
3.1 *3.2*	Name, first name			Date of birth		
3.3	Occupational training					
	Training in the field of fire extinguishing systems					
	Experience in the field of fire extinguishing systems					
4	***Attached documents***					
4.1	Proof of registration in Commercial Register (where applicable) ☐					
4.2	Proof of registration in Professional Register ☐					
4.3	Certificate of non-objection of competent local tax office or bank reference ☐					
4.4	Proof of certified quality management system acc. DIN EN ISO 9001 at applicant's company ☐					
4.5	Proof of qualification of chief responsible specialist (No. 3 of application) ☐					
4.6	Contract with VdS-approved installer of fire detection and fire alarm systems ☐					
4.7	Specimen of maintenance contract ☐					
4.8	Delivery contract for externally bought fittings ☐					
4.9	Proof of business liability insurance ☐					
4.10	Questionnaire according to Annex K ☐					
4.11	Organisational chart ☐					
5	**The Guidelines for the approval of installers of fire fighting systems (VdS 2132) are recognised by the applicant's signature as a part of the contract. If any provisions of this contract become invalid, the remaining provisions of the contract shall not be affected thereby.** **The applicant agrees to have his personal and operational data electronically saved and processed.** _____ _____ **Date** **Signature and company stamp**					

[1] please delete where inapplicable

Annex M – Evaluation of construction site controls

Inspection report of sprinkler/water spray/fine water spray system during construction phase

	Installer:	**Report No.:**	**Insp. Serv. File No.:**
	ZIP, place:	**Date:**	**Inspected by:**
	Street:	**Insp. Serv. branch:** ☐**K** / ☐**HH** / ☐**B** / ☐**PL** / ☐**M** / ☐**DA**	
	Address of the construction site:		
	Date of notification of installation:	**Supervision of works:**	
	Which buildings or building parts will be protected?		
	Progress of extinguishing system : ☐ Material delivered ☐ Installation started ☐ Pipework installed ☐ Control unit installed ☐ Residual work ☐ Construction site idle ☐ Construction site cleared		

Deviations from the guidelines: The deficiencies specified in Sections **A** and **B** shall be valued according to weighting, in any case no higher than the scores put in square brackets! The scores for deficiencies in Section **C** are fixed.

A

Documentation of the installer: ☐ Planning documents not submitted beforehand (in case of preliminary approval) **[4]**

☐ Notification of installation not submitted in due time **[4]**

☐ Notification of installation not fully completed **[2]**

☐ Date of installation not in agreement with notification of installation **[4]**

(The question of whether installations for which no notification had been submitted are largely completed before the indicated date or are commenced not before that date shall also be included in the scoring.)

Note:

B

Pipe connections: ☐ Coupling ☐ Screw connection ☐ Tapping tees ☐ Tapping saddles ☐ A-welding ☐ E-welding ☐ Brazing ☐ Flanging

Bead creation and inspection in accordance with manufacturer's specifications: ☐ yes ☐ no **[2]**

Prefab pipes ≤ DN 50 labelled: ☐ yes ☐ no **[2]**

Pipes deburred at interfaces/sleeves/tapping saddles: ☐ yes ☐ no **[4]**

Note:

Alarm valve(s), make:

Sprinklers/nozzles, make:

Installation plans/parts lists available: ☐ yes ☐ no **[2]**

Components approved: ☐ yes ☐ no **[4]**

Condition of the operated beader(s) and threading machines o.k.: ☐ yes ☐ no **[2]**

Note:

C

Installation staff at construction site: (This personnel shall be listed by names on Sheet 2 of Annex M. Installation personnel without VdS ID card does not count as external staff if reported, blocking period observed and ID card not yet issued by VdS.)

Welder without proof of qualification acc. DIN EN 287-1 : ☐ no ☐ yes **[4]** Name:

Chief superintendent fitter = external staff : ☐ no ☐ yes **[4]**

Number of external staff

Staff total

Staff total \ Number of external staff	1	2	3	4	5	6	7	8	9	10
1	**6**									
2	**0**	**8**								
3	**0**	**8**	**10**							
4	**0**	**0**	**8**	**12**						
5	**0**	**0**	**8**	**10**	**12**					
6	**0**	**0**	**8**	**10**	**12**	**16**				
7	**0**	**0**	**6**	**8**	**10**	**12**	**16**			
8	**0**	**0**	**6**	**8**	**10**	**12**	**16**	**16**		
9	**0**	**0**	**0**	**8**	**10**	**12**	**16**	**16**	**16**	
10	**0**	**0**	**0**	**8**	**10**	**12**	**16**	**16**	**16**	**16**

4 ↓ e.g..: 7→8

Scoring table for a share of >30% of external staff

Evaluation of control

Section	Scores	Total scores A-C
A		
B		
		Random insp. unsatisfactory?
		☐ **yes** ☐ **no**
C		

Date of issue:	Name of chief superintendent fitter:
Signature of VdS inspector:	Signature:

Annex M – Sheet 2, Installation personnel

	Installer:	Report No.:	Insp. Serv. File No.:
	ZIP, place:	Date:	Inspector:
	Street:	Insp. Serv. branch: ☐ K / ☐ HH / ☐ B / ☐ PL / ☐ M / ☐ DA	
	Address of the construction site:		

List of assembly personnel encountered on the construction site				
Name, first name	Staff of installer	VdS ID card No.	External staff	Note

Special explanatory notes:

Annex M – Explanations on evaluation of construction site controls

Any deviations from the approval guidelines Cl. 5.4 (mandatory notification of any commissioned fire extinguishing systems) are evaluated as follows:

a) max. 4 points (according to emphasis, see Report Cl. A):
if a notification of installation has not been submitted in due time, but before the installation begins, and a construction site control can be carried out nonetheless; an assignment of points is based on whether the construction site has been selected for random inspection.

b) 5 points:
if a construction site control is not possible because of the notification of installation being submitted too late or because of wrong scheduling,

c) 6 points:
if no notification of installation has been submitted.

I. Random inspection procedure (yearly classification)

The classification for the random inspection procedure shall be in accordance with Cl. 6.

Decisive for preliminarily approved installers shall be the normal random inspection status.

Decisive for a classification into the tightened or reduced inspection procedure is the number of inadequate random inspections according to columns c, f, i of Table 3 „Construction site controls“.

A random inspection (construction site) will be considered inadequate if the evaluation results in 5 points or more.

An installation objected to because of notifications of installation being submitted too late or not at all (see b) or c) above), in addition to the installations selected for random inspections, will be evaluated as a faulty random inspection only if the number stated in Table M2 is exceeded. The evaluation of points will not be affected by this regulation.

Installed systems per year		Tolerated number
bis 20		1
21 – 50		2
51 – 90		3
91 – 150		4
151 – 280		6
281 – 500		10
501 – 1200		16

Table M2: Tolerated number of installations notified too late or not at all

II. Point-sum system (constant evaluation)

The evaluation points from all random inspections are valid for 12 months. If the number of points stated in Table M1 is exceeded, action will be taken against the installer as per classification status.

Installed systems per year	Random inspection status standard			Random inspection status tightened				Random inspection status reduced		
	No. of random insp.	Total number of points from sum of random inspections		No. of random insp.	Total number of points from sum of random inspections			No. of random insp.	Total number of points from sum of random inspections	
		A	B		C	D	E		F	G
up to 20	**4**	20	24	**8**	24	32	40	**2**	12	14
21-50	**8**	40	48	**16**	48	64	80	**4**	24	28
51-90	**12**	60	72	**24**	72	98	120	**6**	36	42
91-150	**20**	100	120	**40**	120	160	200	**10**	60	70
151-280	**32**	160	192	**64**	192	256	320	**16**	96	112
281-500	**50**	250	300	**100**	300	400	500	**25**	150	175
501-1200	**80**	400	480	**160**	480	640	800	**40**	240	280

Table M1: Point-sum system for evaluating construction site controls

Sanctions imposed for exceeding the total number of points according to columns A, B, C, D, E, F, G:

F, A, C = warning for all installers (approved installers and preliminarily approved installers)
= and simultaneous extension of the status of preliminarily approved installer by one year

G, B, D = withdrawal of the approval for preliminarily approved installers
= Downgrading of approved installers into the status of preliminarily approved installers

E = withdrawal of the approval as an installer

Before action is taken against an installer, he will be given 3 weeks time to express his view of the situation.

Any action taken against the installer will be reported in writing to the management.

III. Evaluation of installation personnel

Conditions for the assignment of points in accordance with Cl. C of construction site control report:

Exceedance of persons / fractions of persons by	Points
0,6 – 0,9	6
1 – 1,9	8
2 – 2,9	10
3 – 3,9	12
4 and more	16

Example:

8 fitters in total are on site, 4 of which are temporary workers. 30% of 8 = 2,4; not more than 2 temporary workers shall be employed. The permitted number has been exceeded by 4 – 2,4 = 1,6, resulting in 8 points.

Annex N – DIN EN ISO 9001 for installers

N1 Newly established companies

Newly established companies shall be obliged to provide evidence of QM documentation free of faults, consisting of the QM manual as well as of procedural and job instructions. The QM documentation shall contain a detailed description of a VdS-conforming installation of FES. A preliminary approval will be granted without presentation of an ISO 9001 certificate.

During the term of the preliminary approval an ISO 9001 certificate valid for the „Installation of Extinguishing Systems“ shall be produced so that an approval as installer can be granted.

N2 Existing company

Companies wishing to supplement their current range of products (e.g. building services) by the installation of FES require a valid ISO 9001 certificate for their current range of products as a prerequisite for a preliminary approval. The QM documentation shall also describe in detail the VdS-conforming installation of FES.

In the course of the period of validity of the preliminary approval the existing ISO 9001 certificate shall be extended to be valid also for the „Installation of Extinguishing Systems“ so that an approval as installer can be granted.

Annex O – Treatment of QM Certificates (DIN EN ISO 9001)

Certifications of QM systems which have not been conducted by the VdS certification body are accepted as a basis for a VdS approval as installer under the following conditions:

- The certification body shall have been approved by an accreditation body member of „European Accreditation“ (shortly EA, formerly EAC) and shall have signed the „Multilateral Agreement“ (MLA). This requirement is fulfilled by all certification bodies accredited by Trägergemeinschaft für Akkreditierung GmbH (TGA – German Association for Accreditation).
- The certificate according to DIN EN ISO 9001 defines clearly that the installation of fixed fire protection systems is covered by the certificate. In the case of doubt, a corresponding declaration by the certifier shall be submitted to the VdS certification body.
- Upon request, a QM manual shall be submitted by the installer to the VdS certification body. Additional documentation (e.g. procedural instructions and job/installation instructions) shall be submitted, if necessary. The inspection of the documentation is to reveal whether or not the requirements of the relevant VdS guidelines for the planning and installation have been considered.
- In the framework of the procedure for approval as an installer the VdS certification body will conduct a site specific audit to verify that the VdS-approved products are installed in accordance with the job/installation instructions and that the planning and installation are carried out in accordance with the VdS guidelines.
- If deficiencies are discovered in the course of the inspection of the above QM documentation or during the site specific audit, corrective action is specified by the VdS certification body and the site specific audit is repeated, if necessary, at a later date.
- A site specific audit is carried out as a rule once during the validity of the ISO 9001 certificate.

Annex P – Notification of installation

Per fax in advance:

Notification of installation for fire protection systems

Company logo	Name and address of installer	Insp. Services branch
Approval number:		
Contact at installer:		
Name and address of client:		
Address of construction site:		
Street:		
ZIP, City: (for unnamed streets in new commercial areas give name of area or geographical position)		

Details of the protected area

Occupancy:		Size of protected area in m^2:	
Highest fire hazard		K_B factor / Design concentration:	

Details of the extinguishing system:

Sprinkler Sprinkler with added foaming agent Water spray systems Fine water spray systems

Spark- Foam- Special ext. systems Local application systems

CO_2 LP CO_2 HP Argon Nitrogen Inergen Argonite HFC227ea FK 5-1-12

New installation	Extension of installation	Modification/reconstruction of installation

	Water ext. systems	Gas ext. systems	Spark ext. systems
No. of sprinklers/nozzles/areas:			Spark ext. areas spark detections Spark separation
Storage:	Water supply: type 1 type 2 type 3 type 4	Quantity of extinguishing agent in kg:	
Consisting of :	Elevated private reservoir (s) pressure tank (s) Water mains Pump system (s)	Triggering via FDAS	Water mains Sprinkler system Booster pump

Dates

Date of order acceptance:	
Start of installation:	
Anticipated end of installation:	

VdS Inbox

"too late": yes no

Notes

Foreman/Client's consent to construction site control of fire extinguishing system by VdS expert

Date: Signature: Foreman/Client

Date:	(Stamp / Signature of installer)

Annex Q – Requirements for demonstration systems

The supplementary sheets have to be filled in by the installer and sent to VdS for approval together with the relating drawings. The demonstration system is inspected by VdS on site.

For systems in accordance with 4.2 i) VdS will specify system-specific requirements for demonstration systems based on the requirements of these Guidelines. For low pressure fine water spray systems the demonstration system for sprinkler or water spray systems can be amended with appropriate alarm valve stations, nozzle branch, triggering, alarm and monitoring.

Q1 Sprinkler system

Supplementary sheet for demonstration systems

Company:_____Location:_____

Plan designation:_____ Status:_____

Notes:_____

The following components shall be included in the demonstration system:

1. Alarm valve station

- Wet alarm valve station
- Dry alarm valve station
- Pre-action dry alarm valve station

Dry alarm valve stations should be fitted with accelerators. Automatic air supply according to guidelines.

If alarm valve stations of different manufacturers are used, the demonstration system shall consist of at least one alarm valve station of each manufacturer. If the installer confirms that the demonstration system and the spare parts storage are completed in case of taking an order of a pre-action sprinkler system, the pre-action alarm valve station is dispensable at first. We recommend providing a connection with a blank flange for the demonstration system.

2. Pipework

At least

- 3 pendent sprinkler (wet pipe system)
- 3 upright sprinkler (dry pipe system)
- 3 upright sprinkler (pre-action system)

shall be connected to the pipework. At the end of the pipework test pipes shall be provided

3. Triggering

- Pre-action alarm valve station by fire detection and alarm system

Triggering shall be possible both manually **and** automatically.

4. Water and compressed air supply

The correct functioning of the valve stations shall be granted.

5. Alarm

- mechanical alarm by alarm bell
- electrical alarm by visual indicator

These alarm devises shall be provided for each alarm valve station.

6. Monitoring

subject to current version of VdS guidelines

Q2 Water spray extinguishing systems

Supplementary sheet for demonstration systems

Company:_____Location:_____

Plan designation:_____ Status:_____

Notes:_____

The following components shall be included in the demonstration system:

1. Alarm valve station

- Water spray alarm valve station

Automatic air supply according to guidelines.

If alarm valve stations of different manufacturers are used, the demonstration system shall consist of at least one alarm valve station of each manufacturer.

2. Pipework

At least

- 3 open nozzles (water spray system)

shall be connected to the pipework.

At the end of the pipework test pipes shall be provided, for water spray valve stations only at the detector pipes.

3. Triggering

- Water spray valve station by a pneumatic detector pipework

The water spray valve station can be **additionally** triggered by a fire detection and fire alarm system.

Triggering shall be possible both manually **and** automatically.

If dry detector sprinklers are used: upright sprinklers!

4. Water and compressed air supply

The correct functioning of the valve stations shall be granted.

5. Alarm

- mechanical alarm by alarm bell
- electrical alarm by visual indicator

These alarm devices shall be provided for each alarm valve station.

6. Monitoring

subject to current version of VdS guidelines

Q3 Gas extinguishing systems

Supplementary sheet for demonstration systems

☐ CO_2 high pressure extinguishing system
☐ IG 100 / Nitrogen extinguishing system
☐ IG 541 / Inergen extinguishing system
☐ HFC227ea / FM200 extinguishing system
☐ IG 01 / Argon extinguishing system
☐ FK 5-1-12 / Novec 1230 extinguishing system
☐ IG 55 / Argonite extinguishing system

The demonstration system shall include at least one flooding zone. However, the control/triggering shall be designed and installed in a way that the connection of additional flooding zones is possible, that means a second selector valve including appropriate triggering (e.g. selector control valve, disable device, emergency hold function) and at least one manual call point. For the second flooding zone, it is not necessary to install the pipe system downstream of the selector valve.

The following components shall be included in the demonstration system (room protection):

1. Fire detection, electrical triggering and alarm

depending on system:

☐ Fire detection and fire alarm system **without** standardised interface:

☐ control and indicating equipment (with integrated extinguishing control)
type: ..... VdS approval No.: .....

☐ fire detector (at least two smoke detectors)
type: ..... VdS approval No.: .....

or

☐ Fire detection and fire alarm system **with** standardised interface:

☐ control and indicating equipment
type: ..... VdS approval No.: .....

☐ fire detector (at least two smoke detectors)
type: ..... VdS approval No.: .....

☐ electrical control device
type: ..... VdS approval No.:.....

☐ manual call point
type: ..... VdS approval No.: .....

☐ emergency hold device
type: ..... VdS approval No.: .....

☐ electrical alarm
type: ..... VdS approval No.: .....

2. Non-electrical control and alarm devices

☐ pneumatic alarm type: .....

☐ non-electrical delay device
type: ..... VdS approval No.: .....

☐ non-electrical disable device
type: ..... VdS approval No.: .....

3. Gas storage

☐ $\geq$ 2 containers à 80 l (not CO_2)

☐ $\geq$ 2 containers of at least 40 l (only CO_2)

☐ monitoring gas storage (according to VdS guidelines)

☐ pressure gage (not CO_2) measuring range:.....

and/or (according to system)

☐ weighing device
type: ..... VdS approval No.:.....

4. Pipework

☐ nozzles
type: ..... VdS approval No.: .....

☐ pressure reducing device
(not for CO_2 and halocarbon agents)
type: ..... VdS approval No.: .....

☐ selector valve
type: ..... VdS approval No.: .....

☐ safety valve

5. Monitoring

☐ according to current version of VdS guidelines

6. Pressure relief device

☐ according to calculation
opening area in mm^2: .....

Complete drawings and this completed supplementary sheet including calculation of the pipe system for the demonstration system shall be submitted to VdS for acceptance.

During inspection of the system, a flooding test shall prove that the personnel responsible for measuring are familiar with operating the concentration measuring equipment.

Note: The operation of the measuring equipment also includes the preparation of the measurement, e.g. by adjustment of the measuring equipment, and a procedure to ensure compliance with the specifications of the equipment (calibration)

Publishing house: VdS Schadenverhütung GmbH
Amsterdamer Str. 172 - 174 • 50735 Köln, Germany
Phone: +49 221 77 66 - 0 • Fax: +49 221 77 66 - 341