

Publisher

IGVW

Interessengemeinschaft
Veranstaltungswirtschaft

SQP2

Chain hoists

Status 03/2024

PRELIMINARY NOTE

The goal of the Quality Standards (SQ = Standard der Qualität/Standard of Quality) is to define the required level of quality for services in the event industry.

The quality standards of IGVW take into account the current legal situation at the time of publication and describe the specific work processes and necessary competencies in the event industry based on this. They contain an overview of the applicable legal foundations, standards, and requirements for work and health protection.

This quality standard was developed by the responsible committee of IGVW with the participation of the department for stages and studios of DGUV, the working group of safety specialists in the event industry (SiFa.VT), as well as the working group of safety engineers from ARD and ZDF (AKSI), consisting of members from ARD.ZDF medienakademie as well as BR, Bavaria, Deutschlandradio, DW, HR, MDR, NDR, ORF, RB, RBB, RBT, RTL Deutschland, SRG-SSR, SR, Studio Hamburg, SWR, WDR, and ZDF.

Legend

Some explanatory notes on the structure of the standards:

- SQ** Standard of Quality
- O** Organisation
- P** Code of practice/working procedure
- Q** Qualification

1, 2, 3, ... Consecutive numbering

O Organisation/Documentation

Internal set-up and organisation of operations/documentation and certification of processes

P Code of practice/working procedure

Supply and use of working materials

Q Qualification

Qualification of skilled workers and specialists

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1 | INTRODUCTION

In 2014, the regulations and standards of DGUV were reorganized.

The established designations D8, D8 Plus, and C1 for electric chain hoists have since not been directly derivable from these regulations and standards. Furthermore, technical requirements in specific standards have changed. In this edition of SQP2, the revised technical requirements are considered. There is no change to the established designations in this edition.

In 2020, DIN 56950-1 was replaced by DIN EN 17206. The requirements of DIN EN 17206, especially the allocation of electric chain hoists and electric chain hoist systems to the application cases relevant to overhead machinery (Use Cases), were considered and explained in the update of this SCOPE edition. Changed requirements for material selection and composition have been included and marked.

2 | SCOPE

This quality standard for the event industry describes the use of electric chain hoists and associated system components in event technology.

The use of electric chain hoists includes any activity involving them. This includes, in particular, planning, selection, provision, and use. Use, in turn, includes storage, transportation, assembly, operation, maintenance, repair, and inspection.

This document is addressed to all individuals who are responsible organizationally and professionally for the planning of use, procurement, inspection or safe operation of electric chain hoists and their associated system components, as well as the issuance of related contracts.

IGVV – The publisher of this standard is the Interessengemeinschaft Veranstaltungswirtschaft e.V. (IGVV). Contact details and contact persons are published on the website www.igvw.org.

When formulating personal designations, attempts were made to use gender-neutral terms. Where this was not possible, male forms of personal designations include all genders for better readability.

3 | NORMATIVE AND INFORMATIVE REFERENCES

- **DIN EN 818-7**
Short link chain for lifting purposes – Safety – Part 7: Fine tolerance hoist chain – Grade T (Types T, DAT and DT)
- **DIN EN 17206**
Entertainment technology - Machinery for stages and other production areas - Safety requirements and inspections
- **DIN EN 60204-32**
Safety of machinery – Electrical equipment of machines – Part 32: Requirements for hoisting machines
- **DIN 56950-5**
Entertainment technology – machinery installations – Part 5: Safety requirements for Electric chain hoist systems
- **DGUV Regulation 3/4**
Electrical installations and equipment
- **DGUV Regulation 17/18**
Staging and production facilities for the entertainment industry
- **DGUV Rule 115-002**
Staging and production facilities for the entertainment industry
- **DGUV Regulation 54/55**
Winches, lifting and pulling equipment
- **DGUV Information 215-313**
Safety Aspects in Productions and Entertainment – Overhead loads
- **DGUV Principle 315-390**
Principles for the testing of mechanical equipment on stages and in studios
- **igvw SQO2**
Event rigging organization and work procedures
- **igvw SQQ2**
Entertainment Rigging Qualification

4 | DEFINITIONS

■ **D8 Electric Chain Hoist**

A D8 electric chain hoist, according to this quality standard, may not be used to hold or move loads over people without additional safety measures.

■ **D8 Plus Electric Chain Hoist**

A D8 Plus electric chain hoist, according to this quality standard, is designed, dimensioned, and equipped in such a way that it can be used to hold loads over people.

■ **C1 Electric Chain Hoist**

A C1 electric chain hoist, according to this quality standard, complies with the requirements specified in DIN EN 17206 and can generally be used to hold and move loads over people.

Note: The requirements for the equipment of C1 electric chain hoists and their controls depend on the specific application. The requirements for technical equipment and additional necessary safety measures are to be determined through risk assessments for the specific application.

■ **Electric Chain Hoist System**

A system consisting of one or more electric chain hoists and their associated controls, which are brought together into a system unit and where interactions occur between these components.

Note 1: Interactions arise from the connection of multiple components and their mutual influence.

Note 2: The components of an electric chain hoist system do not include the slinging means and load carrying devices, even though interactions may affect the electric chain hoist system.

■ **Group of Electric Chain Hoists**

At least two electric chain hoists whose lifting operation is triggered simultaneously by a control device (e.g., a button).

■ **Group Shutdown**

A group shutdown is the stopping of all electric chain hoists within a group due to a malfunction or the activation of a safety device.

■ **Asynchronous Group Operation**

The lifting operation of a group of electric chain hoists, which occurs after a common start without mutual dependency or influence of the individual electric chain hoists by the control system. Asynchronous group operation can occur with or without group shutdown.

■ **Synchronous Group Operation**

The lifting operation of a group of electric chain hoists in which the lifting distance and speed are influenced by the control system. Synchronous group operation is always controlled and includes group shutdown.

■ **Path Synchronous Group Operation**

The lifting operation of a group of electric chain hoists in which all electric chain hoists in the group simultaneously travel the same distance and at the same speed.

■ **Time Synchronous Group Operation**

The lifting operation of a group of electric chain hoists in which the hoists in the group travel different distances at varying speeds within the same timeframe.

■ **Load Capacity**

The maximum load specified by the manufacturer of an electric chain hoist, which the hoist may be safely loaded with according to its specifications.

■ **Safety Device**

A mechanical device (such as brakes, self-locking gear) that prevents unintended movement.

■ **Safety Equipment**

Circuits and electromechanical devices (e.g., limit switches, position switches, safety circuits) that monitor operating conditions and functions.

■ **Secondary Safety Device**

When using D8 electric chain hoists to hold loads above persons, a second independent device is required to secure the load against unintended movements.

■ **Load System**

Combination of load, load carrying devices and slinging means.

■ **Statically determinate load system**

For statically determinate load systems, all loads and support reactions (loading of individual electric chain hoists and thus the attachment points) can be determined using simple computational methods (three equilibrium conditions).

Note: Statically determined load systems include:

- ▶ Loads on individual electric chain hoists (point loads)
- ▶ Linear loads on two electric chain hoists (single-span beams with or without cantilevers)
- ▶ Area loads on three electric chain hoists

■ **Statically indeterminate load system**

For statically indeterminate load systems, the support reactions (loading of individual electric chain hoists and thus the attachment points) can only be determined using complex computational methods (beyond the three equilibrium conditions).

Note: Statically indeterminate load systems include, for example:

- ▶ Linear loads on more than two electric chain hoists (multi-span beams)
- ▶ Area loads on more than three electric chain hoists
- ▶ Guided loads

■ **ELL (Entertainment Load Limit)**

The maximum load capacity of an electric chain hoist for holding or moving loads above persons.

Note: For the electric chain hoist itself, this means that the ELL (Entertainment Load Limit) specification generally does not need to be further adjusted with operational coefficients.

■ **Use Case**

Use case according to DIN EN 17206, Annex B, Table B.1, which defines the necessary safety functions of, among other things, electric chain hoists and electric chain hoist systems depending on the expected hazards.

5 | USE

Electric chain hoists are to be considered as work equipment in terms of the German industrial safety regulations (BetrSichV).

The use of electric chain hoists implies any activity conducted with them. This includes, in particular, assembly and installation, servicing, switching on or off or adjusting, operation, repairs, cleaning, inspections, rebuilds, tests, dismantling, transportation and monitoring.

Prior to placing electric chain hoists and accessory equipment in operation, evaluation of possible risks (risk assessment) must be carried out in order to define all necessary and appropriate safety measures.

Note: The existence of a CE mark on an electric chain does not discharge from the obligation of carrying out a mandatory risk assessment.

5.1 Risk assessment

The risk assessment must take account of all expectable hazards related to the use of electric chain hoists.

These hazards include not only those that can originate from the electric chain hoists themselves, but also those that can be caused by the load system (e.g. in the case of multi-span beams, area loads on more than three hoists, asymmetrical load distributions, etc.) and/or the work environment (e.g. weather conditions when used outdoors).

The risk assessment may only be carried out by competent persons. If the employer does not have the necessary knowledge himself, he must commission competent persons.

The risk assessment must be documented in writing.

5.1.1 Risk assessment before use

The risk assessment must be started before selection and procurement of electric chain hoists. In particular, it shall assess suitability of the electric chain hoists and accessory equipment for the application, work procedures and organisation.

5.1.2 Risk assessment before each individual application

Due to the variety of possible uses of electric chain hoists in event technology, use-specific risk assessments for electric chain hoist systems must be carried out.

The risk assessment before each use begins already in the planning phase. The following hazard factors must be considered primarily:

- ▶ Electrical hazards
- ▶ Mechanical hazards
- ▶ Workplace related hazards
- ▶ Physical load and work intensity
- ▶ Organizational issues

In particular, circumstances such as:

- ▶ Presence of persons underneath the loads
- ▶ Moving of persons
- ▶ Type of load systems to be lifted
- ▶ Emergencies or dangerous situations
- ▶ Qualification and experience of the users
- ▶ Time frame conditions

Note: Guidance and tools for conducting risk assessments can be found, for example, on www.vbg.de - Department Stages and Studios.

In the event industry, despite technical safeguards and safety devices, hazards can only be limited to a certain extent in individual cases (e.g., protection against overload cannot prevent hazards from collisions of loads). In such cases, electric chain hoists can only be used with special care. Special care includes particularly behavior-related measures and extremely cautious, careful and conscientious actions as well as handling by specially qualified persons.

All measures described in the following chapters can be derived from the result of the risk assessment.

5.2 Supply

Electric chain hoists are available in a variety of designs and configurations and with different safety components and protective mechanisms. Selection of electric chain hoists is therefore of great importance, whereby attention must be paid to possible risks that can be anticipated in specific operating conditions (*see also Chapter 5.1 Risk assessment*).

Electric chain hoist systems used in permanent installations in venues should always conform to DGUV Regulation 17/18, DGUV Rule 115-002 and subordinated documents in respect of methods of use and the possible risks. The state of the art must always be taken into account. This is described in particular in DIN EN 17206 and DIN 56950-5. The simplifications described in DIN 56950-5 of the requirements of DIN EN 17206 are only applicable if it has been determined by assessing the hazards that the safety objectives of DGUV Regulation 17/18 are met.

This means that D8+ electric chain hoists cannot be installed in fixed installations without further ado. The required protection against exceeding the rated load (see Chapter 5.2.4) must always be ensured. Depending on the local conditions, a limitation of the lifting height (limit switch) is often necessary.

5.2.1 Applications of electric chain hoists

Different design and dimensioning variants of electric chain hoists can be used in the event industry. The applications and variants described in this chapter should be particularly taken in account when planning and selecting electric chain hoists.

5.2.1.1 D8 Electric chain hoist

The D8 electric chain hoist equals a standard industrial electric chain hoist with the difference that the D8 electric chain hoist usually has no connected manual control and is mostly used climbing on its chain in temporary applications.

D8 electric chain hoists must not be used to hold or move overhead loads people without additional safety devices. Generally, a secondary safety device shall always be installed for each D8 electric chain hoist.

This secondary safety device must be installed in such a way that it ensures the shortest possible or no drop height. Therefore, the secondary safety device shall be equipped with a shortening device.

The secondary safety device usually consists of a chain sling with shortening function and can be extended with wire rope slings.

The D8 electric chain hoist at rest, with the secondary safety device installed, can be loaded with the rated load specified for the electric chain hoist.

The secondary safety device is dimensioned in a way that guarantees inherent safety (see [DGUV Information 215-313](#)) and with two times the rated capacity of the D8 electric chain hoist.

Example of a secondary safety device: Rated capacity of D8 electric chain hoist 1.0 t:

- ▶ required chain slings: Nominal size 8-8, WLL 2.0 t,
- ▶ additional wire rope slings that may be required: Diameter 14 mm, WLL 2.0 t,
- ▶ slings e.g. on a truss: WLL 2.0 t,
- ▶ high-strength shackles: minimum WLL 2.0 t, usually bow shape, WLL 3.25 t.

5.2.1.2 D8 Plus Electric chain hoist

The D8 Plus Electric chain hoist can be a regular D8 electric chain hoist equipped with an additional brake and may only be loaded with half of the rated capacity specified on the D8 electric chain hoist. Except for the brakes, D8 Plus electric chain hoist is thus dimensioned according to the inherent safety principle.

Equipped with the second brake, the D8 Plus electric chain hoist complies to the principle of single fault tolerance. The D8 Plus electric chain hoist is qualified to hold overhead loads without a secondary safety device.

The D8 Plus electric chain hoist can also be a specially designed electric chain hoist, dimensioned and constructed to hold overhead loads. In the situation of the D8 Plus electric chain hoist at rest, the operating coefficients of all elements of the electric chain hoist in the load path are determined and dimensioned for at least twice the rated capacity of the D8 Plus electric chain hoist. The load-carrying means (chain) has an operating coefficient of 8 in the at-rest-situation. Lower operating coefficients are permissible for the in-motion-situation, since persons are not allowed to be in the hazard area in this situation.

If a D8 Plus electric chain hoist is equipped with a direct-acting lifting load limiter (slip clutch), it may not be used for overload protection.

The D8 Plus electric chain hoists can be equipped with additional safety devices such as indirect-acting lifting force limiters (e.g. load measuring pins), limit switches and encoders.

Note: Adjustable direct-acting lifting force limiters shall always be set at a considerably high trigger-point to enable the hoist to lift a load equal to the rated capacity of the D8 Plus electric chain hoist (break free from the ground). Direct-acting lifting force limiters serve solely to protect the drive of an electric chain hoist.

5.2.1.3 C1 Electric chain hoist

A C1 electric chain hoist can be based on a D8 electric chain hoist and must be equipped with at least one additional brake, double limit switches and an overload shut-down. It can be loaded only with half of the rated capacity specified for the initial electric chain hoist.

A C1 electric chain hoist can also be specially designed and dimensioned to hold and move overhead loads. Depending on the intended use case, further additional safety functions and equipment may be required in accordance with DIN EN 17206.

5.2.2 Selection of electric chain hoists and assignment of use cases

DIN EN 17206 defines six use cases for mechanical equipment of the upper machinery and thus offers a new approach to risk assessment and reduction. The contribution of the control to risk reduction is a new aspect.

These use cases do not correspond exactly to the known types of use of electric chain hoists according to igvw SQP2, Chapter 5.2.1. An assignment can be taken from Table 1.

Type of application	Persons in the hazard zone	Minimum requirements for the electric chain hoists	Minimum requirements for safety functions of control systems according to DIN EN 17206
Holding loads	No	D8	None
Holding loads	Yes	D8 with secondary safety	None
Holding loads	Yes	D8 Plus	UC1 or UC2
Moving loads	No	D8	None
Moving loads	Yes	C1	UC3 or UC4
Moving loads	Yes	C1	UC5 or UC6

Table 1: Types of applications for electric chain hoists and assignment of use cases according to DIN EN 17206.

The relevant use cases for electric chain hoists and electric chain hoist systems are described below:

- **UC1**
 - ▶ No presence of persons in the hazard zone during motion
 - ▶ Statically determinate load system

- **UC2**
 - ▶ No presence of persons in the hazard zone during motion
 - ▶ Statically indeterminate load system

- **UC3**
 - ▶ Persons in the hazard zone during motion
 - ▶ Point load on a single electric chain hoist

- **UC4**
 - ▶ Persons in the hazard zone during motion
 - ▶ Load system on more than one electric chain hoist

- **UC5**
 - ▶ Moving of persons with a single electric chain hoist

- **UC6**
 - ▶ Moving of persons with more than one electric chain hoist

Equipment and control systems must be designed in accordance with the use case definitions of DIN EN 17206.

5.2.3 Electrical equipment and controls

The installation of the power supply, the control system, and the choice of electrical equipment must prevent the occurrence of dangerous operating conditions in the event of a malfunction.

The electrical equipment (e.g. contactor control, wiring, power distribution) of the supplied electric chain hoist systems must, in particular, fulfill the requirements of DIN EN 60204-32 (Safety of machinery – Electrical equipment of machines - Part 32: Requirements for hoisting machines; VDE 0113 Part 32).

The following minimum requirements shall be observed:

- ▶ Rotating field and phase sequence control
- ▶ Emergency stop devices within reach of the operator
- ▶ Protection against electric shocks
- ▶ Protection against accidental start-up and automatic restart after failure and restoration of power
- ▶ Protection against influences
- ▶ Selection of the motion direction
- ▶ Go-button

If electronic or electronically programmable control systems are used, their safety-related features must fulfil the requirements of DIN EN 17206.

5.2.4 Protection against exceeding the rated load

Protection against overload is always mandatory when using electric chain hoists.

An overload shutdown is compulsory for C1 electric chain hoists.

There is a variety of overload protection measures, which depend on the type of application and the load system of D8 and D8 Plus electric chain hoists.

Based on the risk assessment, these measures can include technical, organisational or a combination of technical and organisational measures.

If load measurement is necessary as a result of the risk assessment, this may not be done by measuring the electrical current consumption of the motor, because a load measurement must be possible when the electric chain hoist is at rest and thus in a status free of electrical power.

A load measurement is always mandatory if there is a risk of overload of individual elements in the load path (e.g. supporting structures, attachment points, slings, electric chain hoists, load suspension devices).

The risk of overload of individual elements in the load path often exists in statically indeterminate load systems such as:

- ▶ Line loads on more than two electric chain hoists
- ▶ Area loads on more than three electric chain hoists

Automatic overload shutdown is required if the operator response is not sufficient to prevent a hazardous situation. For example, if the rated lifting speed is higher than 4 m/min or in case that electric chain hoists cannot be simultaneously monitored due to their quantity or location.

The necessity of an automatic overload shutdown shall be determined in the course of the risk assessment.

5.2.5 Examples of electric chain hoist systems for the application holding loads above persons

For the application "holding loads above persons" use cases UC1 and UC2 according to DIN EN 17206 are considered.

Example 1: Statically determinate load system (UC1):

- ▶ Point load on one electric chain hoist
- ▶ Line load on two electric chain hoists
- ▶ Area load on three electric chain hoists, with the center of gravity of the area always located between the three electric chain hoists

Example 2: Statically indeterminate load system (UC2):

- ▶ Line load on more than two electric chain hoists
- ▶ Area load on more than three electric chain hoists

5.2.6 User information and identification marking

All involved contractors shall ensure that the supplied electric chain hoists are marked and inspected and that the required documentation is available at the place of operation.

The minimum content of the required documentation in German language includes:

- ▶ Operating manual
- ▶ Inspection reports/certificates
- ▶ Risk assessment
- ▶ Operating instructions

Identification marking and inscriptions on the body of the electric chain hoist shall be permanently legible and in compliance with the EU Machinery Regulation.

The identification marking can be supplemented by clear symbols that are visible in all operating conditions and which indicate permissible types of application in accordance with Chapter 5.2.2.

These symbols are:



D8



D8 Plus



C1

5.3 Operation

Electric chain hoists shall be used in accordance with the following specifications.

Prior to each use of electric chain hoists, a risk assessment (*see Chapter 5.1*) shall be carried out in order to ascertain all measures necessary for hazard-free use and operating instructions shall be communicated onsite.

These measures must guarantee workplace- and health- safety of all persons involved, as well as prevention of damage to buildings, furnishings and work equipment. The effectiveness of the measures must be checked at the site of operation.

5.3.1 Qualification and responsibility

The duties of the responsible persons must be defined and differentiated. The responsibility of the operator and/or owner of the venue remains unaffected. The qualification required for the planning, set-up and dismantling, as well as for the operation itself, depends on the degree of the risk involved.

The person responsible for the electric chain hoists gives permission for operation.

This approval may not be given until it is proved that the inspections listed in Chapter 6 of this Standard of Quality have been duly carried out. A handover to another user shall be recorded in writing (*see Annex II and igvw SQ02, Chapter 5.4*).

5.3.2 Safety measures for the use of electric chain hoists

The selection and dimensioning of all load-bearing elements in the load path (e.g. suspension point, girder clamp, shackle, steel wire rope sling, electric chain hoist, truss, etc.) must be made after consideration of the applied loads and risks that may occur in each specific case (*see also DGVV Information 215-313*).

Before each set-up it is compulsory to carry out visual inspections of the condition of the suspension points in the building and to find out the loading capacity of the suspension points according to the data specified in the documentation of the owner or operator of the building.

The owner or operator of the venue is responsible for the design, load bearing capacity and quality of the suspension points provided in the building and to provide sufficient documentation (e.g. a load capacity plan).

Visual inspection of the electric chain hoists and all accessory parts and appliances must be made before each set-up (e.g. slings, load bearing equipment, controls, cables).

When D8 electric chain hoists are used to hold overhead loads, secondary safety devices are generally required. (see Chapter 5.2.1.1).

When using D8 and D8Plus electric chains hoists, the drives and brakes must be disconnected from the power supply before people enter the hazard zone.

Electric chain hoists must be installed in such a way that the chain does not come into contact with any surfaces and cannot enter the chain inlet of the electric chain hoist at an angle. In particular, attaching a load (e.g. truss construction) to multiple electric chain hoists must not cause the chain to enter the electric chain hoist at an angle.

When operating electric chain hoists, it must be ensured that the chain will run easily into the chain bags. Unloaded chain must also run easily in and out. The chain bag must be large enough to securely hold the entire chain and the loose end of the chain shall be securely attached to the chain hoist.

When multistrand electric chain hoists are used, it must be ensured that the chain strands are not twisted.

The operator shall always be able to observe the whole lifting process of the loaded electric chain hoists over the entire lifting distance. If this is not possible, appropriate measures for monitoring of the lifting process must be defined and applied.

Instructions to initiate the motion must be given clearly and unambiguously.

If a load is lifted with several electric chain hoists with different controls, it must be ensured that their motion is triggered by a common command unit and that the lifting operation can be interrupted by a common emergency stop. If there are more than one emergency-stop buttons, each of them must interrupt the lifting process of all electric chain hoists.

6 | INSPECTION

According to the German industrial safety regulations (BetrSichV), contractors must ensure that electric chain hoists are subject to inspection by proficient persons prior to the first use, if the safety of the equipment depends on the installation conditions.

Inspection includes:

- ▶ checking the assembly or installation and the safe functioning of the electric chain hoists
- ▶ timely detection of defects
- ▶ verification of effectiveness of the undertaken safety measures

Inspection contents that have been verified within the framework of a conformity assessment procedure and confirmed by a declaration of conformity do not need to be re-inspected.

The inspection must take place prior to each use after an installation.

6.1 Inspection Basics

Inspections of electric chain hoists/electric chain hoists systems as a minimum shall be based on:

- ▶ Manufacturer's guidance for inspection
- ▶ Industrial safety regulations (BetrSichV) and related Technical Rules and Announcements
- ▶ DGUV Regulation 17/18 „Staging and production facilities for the entertainment industry“
- ▶ DGUV Rule 115-002 „Staging and production facilities for the entertainment industry“
- ▶ DGUV Principle 315-390 „Testing of mechanical work equipment for event technology“
- ▶ DGUV Regulation 54/55 „Winches, lifting and pulling equipment“
- ▶ DGUV Regulation 3/4 „Electrical systems and equipment“
- ▶ DIN EN 17206 "Entertainment technology - Machinery for stages and other production areas - Safety requirements and inspections"
- ▶ DIN 56950-5 „Entertainment technology – machinery installations – Part 5: Safetyrequirements for Electric chain hoist systems“

The inspection prior to each use after an installation may also be based on additional documents:

- ▶ Technical Drawings (e.g. of the load system)
- ▶ List of materials
- ▶ Load plans
- ▶ Structural reports
- ▶ Application-specific risk assessment for each individual electric chain hoist system

6.2 Periodic inspection

Electric chain hoists are exposed to influences that cause damage (e.g. wear). Periodic inspections by proficient persons for inspection of electric chain hoists shall be carried out at least annually to ensure timely identification of deficiencies.

The contractor is obliged to select and assign proficient persons to perform the inspection of electric chain hoists. It's the responsibility of the contractor to ensure that they carry out tests for which they show personal and professional aptitude, can work independently and are up-to-date with the latest technologies.

Furthermore, the contractor must ensure that D8 Plus and C1 electric chain hoists are inspected by authorized experts according to DGUV Principle 315-390 at least every four years in accordance with the German industrial safety regulations (BetrSichV) and DGUV Regulation 17/18, or exclusively use electric chain hoists that have been inspected accordingly.

The scope and depth of the periodic inspection generally depends on the information provided by the manufacturer of the electric chain hoists. Additional criteria for inspection may be derived from the DGUV regulations and rules, as well as state of the art standards.

Electrical and mechanical safety of an electric chain hoist shall be ensured in the course of periodic inspections. It is particularly important to check for any concealed damage, e.g. in chain guides of the electric chain hoist.

6.3 Inspection after assembly or installation

Prior to each use after an assembly or installation of D8 and D8 Plus electric chain hoist systems are subject to inspection at the place of use by a person qualified and competent to perform the inspection. The results of the inspection shall be recorded. The inspection consists of visual and functional checks, which can already be carried out during the assembly or installation of the components of the electric chain hoist systems.

After the assembly or installation of C1 electric chain hoist systems, an inspection by an authorised expert (inspection expert) is required.

C1 electric chain hoists that are repeatedly assembled or installed in the same way on tours or in the course of continuous operation at the place of use shall be inspected in accordance with the German industrial safety regulations (BetrSichV), Annex 3, Paragraph 3, Table 1, Lines c) and d). This applies also to the inspection of C1 electric chain hoists which do not fall within the scope of the EU Machinery Regulation. As a general rule these inspections must be carried out by authorised experts (inspection experts). Deviations from this are only permitted if the authorised expert (inspection expert) can assess and decide, based on the complexity of the work equipment and the foreseeable hazards or hazardous situations, that in these cases an inspection by proficient persons is sufficient. The required application-specific inspection procedure is described in DGUV Principle 315-390.

6.4 Extraordinary inspection

Extraordinary inspections of electric chain hoists become necessary especially:

- ▶ After changes that require mandatory inspections
- ▶ After exceptional events that may have damaging effects on their safety
- ▶ After longer periods of non-use

See DGUV Principle 315-390.

6.5 Documentation of Inspections

The contractor must ensure that the results of the inspections are recorded and retained throughout the period of use. The documentation of inspections must include at least the following information:

- ▶ Identification of the electric chain hoist
- ▶ Type of inspection
- ▶ Date and location of the inspection
- ▶ Inspection basis
- ▶ Scope of the inspection
- ▶ Inspection result
- ▶ Assessment of identified defects
- ▶ Statements regarding continued operation
- ▶ Date of the next inspection
- ▶ Name and signature of the proficient person for inspecting electric chain hoists

See also [Annex I](#) and [DGUV Principle 315-390](#).

Records can also be kept in electronic form. If electric chain hoists are used at different locations, evidence of the last inspection must be kept in such a way that it can be viewed at the site of use.

To depict the complete history of an electric chain hoist, summarizing all relevant inspection documents is useful.

The evidence of inspections can be supplemented by inspection stickers.

ANNEX

Annex I – Sample inspection report for periodic inspection

Sample Report - Checklist Periodic inspection of an electric chain hoist			
Customer/Operator		Date of previous inspection	
Manufacturer		Type	
Serial number		Year of manufacture	
Rated capacity		Model (climbing/non-climbing)	
Lifting height		Lifting speed	
Load chain		Chain strands	
Inspection records available		Inspection principles	
Inspection steps	Deficiencies		Remarks / Actions / Measured values
	Yes	No	
Document review User manual, Inspection reports, Inspection certificates, EU-Declaration of conformity			
General visual inspection Housing, Shape, Bolt connections, Type label, Leakage, Signs of wear, Rated capacity information, cable glands, Cable connection, etc.			
Electrical inspection see DGUV Regulation 3/4			
Specific inspection (Manufacturer's specification) Chain bag			
Chain guide / Sprocket wheel			
Load chain / Chain lubrication			
Chain hook / Hook block			
Connection cable / Control cable			
Electrical connections / Clamping units			
Gaskets / Oil outlet screw			
Break / Breaks			
Transport handles			
Functional check			
Noise emission			
Break test, Load test			
Load limiting device, Load test			
Limit switches			

There are (no) safety concerns preventing further operation. Reinspection is (not) required.

Comments / Remarks:

Date / Place

Inspector

Signature

Annex II – Sample handover protocol

Sample handover protocol

Declaration concerning the correct installation and readiness for use of electric chain hoists

Description of the event:

Place of installation:

Customer

Name:

Address:

Responsible person:

Supplier

Name:

Address:

Responsible person:

The supplier herewith declares to the customer that all electric chain hoist systems installed by him conform with the corresponding regulations and accepted technical standards.

The required user information and inspection certificates have been provided.

Date: _____ Signature Supplier: _____

Date: _____ Signature Customer: _____

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SQP2-EN-03/2024-001

