



FROSIO-Guid-CP

(English version)

FROSIO guideline for companies providing corrosion protection

Quality management guideline for companies in the area of corrosion protection

Preamble

FROSIO-GuiD-CP defines the quality requirements for companies that want to be recognised by FROSIO for the execution of corrosion protection processes and corrosion protection work.

It gives reference to and supplements the general regulations of ISO 9001 for the area of corrosion protection.

The guideline covers corrosion protection work on components and other products (e.g. made from steel, aluminium, etc.) through organic coatings, thermal spraying, hot-dip galvanising as well as duplex coating systems.

It describes the conditions that a company providing corrosion protection must satisfy in order to meet the requirements according to **FROSIO-GuiD-CP**.

The scope of the guideline is an increase in productivity and, implicitly, in product quality.

At the same time, it makes it possible for the company to have the quality of its activities competently assessed and certified.

The guideline contains detailed information and recommendations for companies for meeting the requirements for **FROSIO-CP certification**.

FROSIO-GuiD-CP consists of two parts:

- **Part 1:** Certification of companies performing the work – Criteria for selecting the quality requirement level – Certification procedure
- **Part 2:** Quality requirements for companies for carrying out corrosion protection work

Endorsement notice:

The text of this guideline edition 2018 was approved by FROSIO BOARD as **FROSIO-GuiD-CP** without any amendments.

Legal note:

Reference to this guideline for the purpose of certification and/or validation of companies is permitted solely by FROSIO.

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Applicable documents

- Application for the issue of a FROSIO-CP certificate for the execution of corrosion protection work
- FROSIO-CP checklist for carrying out the audit

Referenced standards:

| | |
|----------------------------|---------------------------------------------------------------------------------------------------------------------|
| ISO 12944: | Paints and varnishes – Corrosion protection of steel structures by protective paint systems (<i>all parts</i>) |
| ISO 2063: | Thermal spraying – Zinc, aluminium and their alloys (<i>all parts</i>) |
| ISO 1461: | Hot dip galvanized coatings on fabricated iron and steel articles – Specifications and test methods |
| ISO 14713: | Zinc coatings – Guidelines and recommendations for the protection against corrosion of iron and steel in structures |
| ISO 14918: | Thermal spraying – Qualification testing of thermal sprayers |
| ISO 12690: | Metallic and other inorganic coatings – Thermal spray coordination – Tasks and responsibilities |
| ISO 9712: | Non-destructive testing – Qualification and certification of NDT personnel |
| DASt 022: | Guideline for hot-dip-zinc-coating of prefabricated load-bearing steel components |
| ISO 14232: | Thermal spraying – Powders |
| ISO 14919: | Thermal spraying – Wires, rods and cords for flame and arc spraying – Classification – Technical supply conditions |
| ISO 9001: | Quality management systems – Requirements |
| ISO/IEC FDIS 17025: | General requirements for the competence of testing and calibration laboratories |

Terms and definitions

The following definitions are applicable in the context of using this guideline:

Term of protection: The expected service life of a coating until the first partial renewal.

Note: The term of protection is not a "warranty period", but a technical term that can help the client to define a repair programme.

Contract: Binding agreement, a memorandum of understanding between the manufacturer (contractor/business providing corrosion protection) and the customer (client).

Customer (client): Organisation or person that receives a product or service in the area of corrosion protection.

Manufacturer (contractor/business providing corrosion protection/supplier of corrosion protection): Organisation or person that provides and supplies a corrosion protection product (corrosion protection coating) and is responsible for the corrosion protection process.

Subcontractor/sub-supplier: Supplier of products, services and/or activities to a manufacturer in a contractual situation.

Subcontracting: The transfer of all agreed work (or part thereof) to a third party. The original contracting parties remain responsible for performance of the original contract.

Design instruction: Product requirements defined by the customer, taking into account customer requirements or statutory provisions.

Note: Requirements for products (and in some cases for associated processes) can be included in, for example, technical specifications, product and process standards, contractual agreements and statutory provisions.

Requirement: Need or expectation that is defined, usually a prerequisite or mandatory (ISO 9000).

Note: Quality requirement: Requirement with respect to quality

Conformity: Fulfilment of a *requirement* (ISO 9000)

Qualified operator: Person who has acquired and demonstrated their skills, ability and expertise in the area of corrosion protection through instruction, training and/or specific practical experience. Person that executes manually operated processes in the area of corrosion protection.

Qualified setter: Person that executes fully mechanised or fully automated processes in the area of corrosion protection.

Process manager (CP-supervisor): Person that is responsible for the corrosion protection technology and associated activities and has demonstrated their proficiency and expert knowledge through training, qualification and appropriate production experience.

Components: Supports, products, structures or other parts applied to corrosion protection.

Component specification: Document(s) in which all necessary details and technical requirements for the manufacture of the components are listed.

Initial test/initial audit (during first-time certification): Examination of the company providing corrosion protection to determine the extent to which the QM system according to this guideline for corrosion protection is introduced and implemented.

Audit: Systematic and independent review to determine whether the quality assurance measures during corrosion protection work and the results are suitable for achieving the desired product quality and are implemented effectively.

Certification: Confirmation by a third party in relation to products, processes, systems or persons (acc. to EN ISO 17000)

Note: Confirmation by FROSIO takes place exclusively in accordance with this guideline.

Inspector/ quality inspector: Person who is responsible for the monitoring and testing of the execution of corrosion protection work in accordance with the specifications.

Inspection: Monitoring and testing of the execution of corrosion protection work in accordance with the specifications.

Defect/error/non-conformity: Non-fulfilment of the agreed/required properties with respect to intended use.

Thermal spraying: Manufacture of coatings made from Zn, Al and their alloys. All processes or "process in which spray materials are heated to the plastic or molten state, inside or outside of the spray gun/torch, and then propelled onto a prepared surface" (to EN ISO 14917) (*including TS-coating*).

Coat/overcoat (with organic or inorganic paint material: All types of application of a coating material on a substrate, e.g. through dipping, spraying, rolling, painting, etc. (*including the paint coating/ CO*).

Hot-dip galvanising: Manufacture of coatings made from zinc or zinc alloys by dipping pre-treated steel or cast iron in molten zinc (*including HDG-coating*).

Small manufacturing company: Production company with only one production plant that can be monitored and controlled by one person.

Note: Manufacturing plants with multiple production halls do not meet the requirements of a small manufacturing company.

Specification: Standards, contract, customer requirements.

Other terms and definitions: See ISO 9000 <Quality management systems – Fundamentals and vocabulary>.

In **FROSIO-Guid-CP** the following definitions also apply:

Topic <Personnel qualification>

- **Qualification:** Demonstrated education, training, professional experience and passed test
- **Examination:** Mechanism that is part of the assessment which measures a candidate's competence by one or more means, such as written, oral, practical and observational, as defined in the certification scheme (acc. to EN ISO 17024);

as well as:

- **"must" /"shall":** indicate requirements strictly to be followed;
- **"should":** indicates a recommendation which may be deviated from if equivalence is demonstrated;
- **"can":** indicates a possibility;
- **"may":** indicates permission.

Abbreviations

The following terms are abbreviated as follows in the text:

- Corrosion protection: **CP**
- Thermal spraying/ thermal sprayed coating: **TS**
- Coating with organic/inorganic paint material (Paints and varnishes): **CO**
- Hot-dip galvanising / coating: **HDG**



FROSIO-GuiD-CP **Part 1**

Certification of companies providing corrosion protection Criteria for selection of the quality level – Certification procedure

1. Area of application

FROSIO-Guid-CP applies to corrosion protection work through thermal spraying, hot-dip galvanising, organic coatings and duplex systems. It applies to all CP-work in new buildings, renovations and repairs for the preservation or execution of corrosion protection. It also applies to the inspection and testing activities to be carried out.

The specifications contained in **FROSIO-Guid-CP** can in turn also be applied to structures and components other than those referred to above, e.g. for applications and application areas such as mechanical engineering, pressure equipment, automotive manufacture, rail-vehicle construction, offshore, etc.

FROSIO-Guid-CP is aimed at companies providing corrosion protection, planners and designers and defines regulations for the planning, execution and monitoring of corrosion protection and repair work.

It supplements the standards ISO 9001, ISO 12944, Norsok M-501 and other comparable standards and defines the basic principles for quality requirements for corrosion protection process in workshops and on construction sites.

FROSIO-Guid-CP can be used for the following purposes:

- To demonstrate that the specified product requirements can meet the process quality confirmed by FROSIO,
- To define CP quality requirements in contract negotiations,
- For companies providing corrosion protection wishing to earn the confidence of their client and of other involved parties through recognition from FROSIO (FROSIO-CP certificate),
- For companies providing corrosion protection: For the definition and maintenance of CP quality requirements and application of the CP quality management system,
- For partners including clients, users of products or services of the corrosion protection manufacturer, independent examining bodies, authorities: for the assessment of companies and their implementation of the quality requirements for CP work (processes).

The guideline regulates:

- The definition of quality requirements for CP work, as the quality assurance system according to ISO 9001 does not completely cover this area
- The part of the QM system that refers to the monitoring of the corrosion protection processes.

Legal note: FROSIO-Guid-CP may only be used by FROSIO-approved audit organisations.

2. Selection of the appropriate quality level for corrosion protection

Selection of the suitable **FROSIO-CP- level**, should be performed taking into account the applicable product standards, specifications, statutory provisions or the contract.

The manufacturer of the corrosion protection should select a FROSIO-CP-level with which the different quality requirements can be defined on the basis of different criteria taking the product into account (including the complexity of production, of the manufactured products and/or of the area of the different coating materials used and/or the determined term of protection, etc.).

A functioning quality management system is an important prerequisite for problem-free production.

The FROSIO-CP levels **<C/ S/ E>**, which serve as the basis for the use and definition of the quality management system for corrosion protection processes, are:

- **FROSIO-CP-C:** Comprehensive quality requirements,
- **FROSIO-CP-S:** Standard quality requirements and
- **FROSIO-CP-E:** Elementary quality requirements for the CP processes.

The criteria listed below can be used for classification by quality level:

- Classification on the basis of the term of protection of the CP and
- Classification on the basis of the complexity of the CP work.

Further information:

(a) Term of protection:

According to the EN ISO 12944 series there are four time spans for describing the term of protection or:

- L < 7 years
- M: 7–15 years
- H: 15 to 25 years
- VH > 25 years

(b) Complexity of the CP work:

With regard to classification on the basis of the complexity (or *versatility*) of the CP processes performed in a company, the following structure can be used:

Complexity 1: Individual CP processes are carried out in the company (only TS, only CO, only HDG).

Complexity 2: Different CP processes are carried out in the company (e.g. duplex systems in the form of TS+CO; HDG+CO).

Complexity 3: Different CP processes or complete production are carried out in the company (e.g. TS and CO and HDG).

A guide for selection of the quality requirement level according to **FROSIO-Guid-CP** is provided in **Table 1**.

A manufacturer who can demonstrate conformity with a specific quality requirement level is evaluated so as to be able to achieve conformity with all lower levels without further verification.

Table 1: Recommendation for selection of the FROSIO-CP quality requirement level

| Versatility of CP processes | Term of protection | | | |
|-----------------------------|--------------------|----------|----------|-----------|
| | <u>L</u> | <u>M</u> | <u>H</u> | <u>VH</u> |
| Complexity 1 | E | S | C | C |
| Complexity 2 | S | S | C | C |
| Complexity 3 | C | C | C | C |

Key: **C:** Comprehensive; **S:** Standard; **E:** Elementary quality requirements

3. Certification according to FROSIO-Guid-CP

3.1. General

Companies wishing to execute CP-work in connection with **FROSIO-Guid-CP** must be certified by **FROSIO** for this purpose.

To initiate the certification procedure, the company must submit a written application (Application for granting of an FROSIO-CP- certificate for the execution of corrosion protection work). The application form is provided together with the necessary documents (including template for FROSIO-CP checklist) and information by FROSIO.

The checklist takes into account the general quality requirements as well as the specified CP processes (including TS, HDG, CO). This must be submitted following self-assessment by the company for the definitive CP processes.

Completing the checklist makes it easier for the company to identify and rectify possible weak points before the certification procedure.

The FROSIO-CP application as well as the checklist with the self-assessment serve as the basis for the audit.

The certification audit determines the extent to which the quality management system was introduced for the execution of processes in the company and the requirements of this guideline are met.

3.2. Requirements for certification

3.2.1. Requirements for companies

Companies must have suitable processes, equipment (including all production facilities and test equipment) and qualified personnel (including operator, process manager, inspector/examiner, etc.) to the extent required for the execution of CP-work.

The detailed requirements for companies can be found in **Appendices 1.1** and **1.2** and in particular **Part 2** of **FROSIO-Guid-CP**.

3.2.2 Requirements on the QM-system and the documentation

The documentation must contain the following elements:

- Documented management and CP-processes (according to selected quality requirement level);
- Documents, which the company has introduced to ensure the effective planning, execution and control of its processes and for the handling of conformity defects (e.g. process/test/inspection instructions, etc.).

Information and explanations for the **FROSIO-Guid-CP** documentation requirements can be found in **Appendix 1.3**.

Appendix 1.4 contains QM elements based on ISO 9001, which are to be taken into account during the **FROSIO-CP** certification procedure.

3.3. Certification procedure

The steps of the certification procedure are:

- Advance information to the company (e.g. according to the CP area of activity, support for selection of the certification level) if required by the company;
- Application for granting of an FROSIO-CP-certificate for the execution of corrosion protection work;
- Self-assessment by the company using the FROSIO-CP checklist;
- Preliminary assessment by the audit body of the documents submitted by the company;
- Pre-audit by the audit body including preliminary assessment- if required by the company;
- Execution of the audit¹⁾ in the manufacturing company;
- Evaluation of the audit results and certification recommendation by the auditor;
- Certification of the CP-company by FROSIO.

Notes:

The FROSIO-CP certificate applies exclusively to the audited divisions of the company.

- ¹⁾ A CP process audit also takes place as part of the audit. This involves checking all CP-processes during initial and recertification. This check takes place in broad terms in the surveillance audits. For further information, see **Items 3.4** and **3.5**.

3.4. Test steps during initial certification

The following elements are checked as part of the audit:

- Organisation, competence, responsibility, staffing, evidence of qualification, etc.;
- Review of implementation of the quality management system for the execution of CP-work and the related processes;
- Production and test equipment;
- Status of monitoring/inspection/testing (documentation, including internal instructions, results, reports, maintenance of test equipment, etc.);
- Review of CP work documents (including process instructions, work reports, maintenance of CP equipment, etc.);
- Execution of CP-work (in accordance with the required regulations and/or ISO 12944 all parts), including incoming inspection, process planning, surface preparation, used coating materials, CP-processes and process parameters, post-treatment of protective coatings, final inspection and testing, etc.;
- Execution of the CP process audit with preparation and evaluation of the accompanying specimens produced during the audit (see **Item 3.5**);
- Conducting of a technical expert discussion throughout the entire audit procedure.

Note:

The expert discussion takes place with the process manager (and with his/her representative, if applicable) as well as the personnel performing the work during every audit. The expert discussion

serves as verification of the required technical knowledge on the part of the responsible personnel. The scope of the expert discussion depends on the audit type, the CP level and the CP processes used.

During the audit, all documents required for the interpretation and evaluation of quality assurance and production must be submitted (cf. aforementioned audit steps).

3.5. Scope and execution of process audit

As part of the audits, process audits for the proposed CP-processes are performed, taking the definitive regulations into account. Accompanying specimens can also be used during current production (e.g. according to customer specifications). These specimens are produced and evaluated during the audit.

The scope of the process audit is based on the **FROSIO-CP** application.

Note:

The process audit usually takes place on site at the company. If CP-processes are primarily or finally executed on the construction site, the procedure is agreed with the audit body.

4. Issue and period of validity of the FROSIO-CP certificate

If the company satisfies the requirements described in **FROSIO-GuiD-CP Part 2** and the certification audit is successfully completed, **FROSIO** issues the certificate and creates the entry in the FROSIO online register.

4.1. Initial certification

The **period of validity** of initial certification, which has been carried out in accordance with **FROSIO-GuiD-CP**, is 3 years, unless any significant changes occur.

Examples of significant changes include:

- Changes in the production processes;
- Personnel change for the position of process manager;
- Relocation or change of production site;
- Fundamental changes in the requirements of **FROSIO-GuiD-CP**, etc.

4.2. Surveillance audit

A surveillance audit is carried out annually between initial and recertification. In the surveillance audit, the previously specified requirements as well as the CP process audit are checked in broad terms.

If there are no significant changes, no new certificate is issued and there is no change to the FROSIO online register.

4.3. Recertification

Every 3 years, a recertification is carried out. The scope and procedure for recertification correspond to those of initial certification (see **Items 4.1.** and **4.2.**).

4.4. Renewal and revocation of the certificate

At least three months before the validity of the certificate expires, renewal of the certification (if required) must be applied at FROSIO.

FROSIO must be informed immediately of any significant changes so that it can be checked whether the certification requirements are still met.

The **FROSIO- CP certificate** is **invalid** if:

- The fundamental principles²⁾ of certification are no longer satisfied;
- The deadline for surveillance audits and recertification is exceeded by more than 3 months.

²⁾ *Examples:* Subcontracting of CP-work to companies that do not have FROSIO certification (*see the allowed exception- FROSIO-CP-Part 2, item 3*), failure to report significant changes in production processes, personnel, etc.

Appendix 1.1

Criteria for selection of the quality requirement level according to FROSIO-GuiD-CP

| Element no. | Requirement element | FROSIO-CP level | | |
|-------------|---------------------------------------------------------------------------|-----------------|---|---|
| | | C | S | E |
| 1. | Examination of requirements – Contract review | ■ | ● | ▲ |
| 2. | Technical inspections – Design review | ■ | ● | ▲ |
| 3. | Sub-supplier/subcontract | ■ | ■ | ■ |
| 4. | Qualified personnel for corrosion protection work: Operator and user | ■ | ■ | ■ |
| 5. | Qualified personnel for corrosion protection work: Process manager | ■ | ■ | ■ |
| 6. | Personnel for quality inspections | ■ | ■ | ■ |
| 7. | Production and test equipment | ■ | ■ | ■ |
| 8. | Equipment maintenance | ■ | ● | ● |
| 9. | Description of items of equipment | ■ | ● | ▲ |
| 10. | Production plan | ■ | ● | ▲ |
| 11. | Documented instructions for corrosion protection processes | ■ | ● | ▲ |
| 12. | Qualification of corrosion protection processes | ■ | ■ | ● |
| 13. | Control of documents and quality records | ■ | ■ | ▲ |
| 14. | Procurement, supply, inspection, storage and handling of materials used | ■ | ■ | ● |
| 15. | Monitoring and testing before, during and after corrosion protection work | ■ | ■ | ● |
| 16. | Status of monitoring and testing | ■ | ■ | ● |
| 17. | Non-conformity and corrective action | ■ | ■ | ▲ |
| 18. | Calibration and validation of monitoring and test equipment | ■ | ■ | ▲ |
| 19. | Marking and traceability | ■ | ● | ▲ |
| 20. | Quality reports | ■ | ▲ | ▲ |
| 21. | Occupational safety and environmental protection | ■ | ■ | ■ |

Key: ■ Comprehensive ● Less strict ▲ Minimum requirement
See also Appendix 1.2. and FROSIO-CP Part 2

Appendix 1.2

Comparative overview of quality requirements for corrosion protection work acc. to FROSIO-Guid-CP

| No. | Element acc. to FROSIO-Guid-CP – Part 2 | FROSIO-CP-C | FROSIO-CP-S | FROSIO-CP-E |
|-----|-----------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| 1. | Examination of requirements – Contract review | According to Part 2, Item 1 | According to Part 2, Item 1 Inspection must be performed. Description of basic procedure required. | According to Part 2, Item 1 Inspection must take place, documentation not required. |
| 2. | Technical inspections – Design review | According to Part 2, Item 2 | According to Part 2, Item 2 Inspection must be performed. Description of basic procedure required. | According to Part 2, Item 2 Inspection must be performed. Documentation not required. |
| 3. | Sub-supplier/subcontract | According to Part 2, Item 3 | According to Part 2, Item 3 | According to Part 2, Item 3 |
| 4. | Qualified personnel for corrosion protection work – Operator and user | According to Part 2, Item 4 | According to Part 2, Item 4 | According to Part 2, Item 4 |
| 5. | Qualified personnel for corrosion protection work – Process manager | According to Part 2, Item 5 | According to Part 2, Item 5 At least FROSIO Level II (or equivalent). Additional requirements acc. to CP process must be satisfied. | According to Part 2, Item 5 At least FROSIO Level I (or equivalent). Additional requirements acc. to CP process must be satisfied. |
| 6. | Personnel for quality inspections | According to Part 2, Item 6 | According to Part 2, Item 6 At least FROSIO Level II (or equivalent). | According to Part 2, Item 6 At least FROSIO Level II (or equivalent). |
| 7. | Production and test equipment | According to Part 2, Item 7 | According to Part 2, Item 7 | According to Part 2, Item 7 |
| 8. | Equipment maintenance | According to Part 2, Item 8 | According to Part 2, Item 8 Maintenance required. Documentation of the important equipment required for production. | According to Part 2, Item 8 Maintenance required. Documentation of the important equipment required for production. |

| No. | Element acc. to FROSIO-GuiD-CP – Part 2 | FROSIO-CP-C | FROSIO-CP-S | FROSIO-CP-E |
|-----|---------------------------------------------------------------------------|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------|
| 9. | Description of items of equipment | According to Part 2, Item 9 | According to Part 2, Item 9 Documentation of the important equipment required for production. Operating and maintenance instructions | According to Part 2, Item 9 Operating instructions required. |
| 10. | Production plan | According to Part 2, Item 10 | According to Part 2, Item 10 Production plans must be explained. Basic documented instructions must be available. | According to Part 2, Item 10 Production plans must be explained. Documentation not required. |
| 11. | Documented instructions for corrosion protection processes | According to Part 2, Item 11 | According to Part 2, Item 11 Basic documented instructions must be available. | According to Part 2, Item 11 Instructions must be available. Written evidence not required. |
| 12. | Qualification of corrosion protection processes | According to Part 2, Item 12 | According to Part 2, Item 12 Basic CP instructions must be qualified. | According to Part 2, Item 12 Documentation not required. |
| 13. | Control of documents and quality records | According to Part 2, Item 13 | According to Part 2, Item 13 | According to Part 2, Item 13 Documentation is reviewed. |
| 14. | Procurement, supply, inspection, storage and handling of materials used | According to Part 2, Item 14 | According to Part 2, Item 14 | According to Part 2, Item 14 Basic documentation (e.g. data sheets) required. |
| 15. | Monitoring and testing before, during and after corrosion protection work | According to Part 2, Item 15 | According to Part 2, Item 15 | According to Part 2, Item 15 Testing must be performed. Basic documentation required. |
| 16. | Status of monitoring and testing | According to Part 2, Item 16 | According to Part 2, Item 16 | According to Part 2, Item 16 Basic documentation required. |

| No. | Element acc. to FROSIO-GuiD-CP – Part 2 | FROSIO-CP-C | FROSIO-CP-S | FROSIO-CP-E |
|-----|-------------------------------------------------------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 17. | Non-conformity and corrective action | According to Part 2, Item 17 | According to Part 2, Item 17 | According to Part 2, Item 17 Basic procedure must be available, documentation not required. |
| 18. | Calibration and validation of monitoring and test equipment | According to Part 2, Item 18 | According to Part 2, Item 18 | According to Part 2, Item 18 Specification of measurement uncertainty does not have to be verified. Evidence (e.g. calibration certificates) are checked. |
| 19. | Marking and traceability | According to Part 2, Item 19 | According to Part 2, Item 19 Marking and traceability must exist. Minimum scope: accompanying work documents must be available. | According to Part 2, Item 19 Basic traceability must exist. Minimum scope: accompanying work documents must be available. |
| 20. | Quality reports | According to Part 2, Item 20 | According to Part 2, Item 20 Basic quality reports must be available. | According to Part 2, Item 20 Basic documentation required. |
| 21. | Occupational safety and environmental protection | According to Part 2, Item 21 | According to Part 2, Item 21 | According to Part 2, Item 21 |

Appendix 1.3

Documentation requirements acc. to FROSIO-Guid-CP Example for FROSIO-CP-level C

(Informative)

- **Introduction, company profile, management responsibility**
 - Examination of requirements
 - Technical inspection
 - Control of documents and data
 - Control of supplied products
 - Subcontracting/purchasing
 - Process control
 - Marking and traceability of products
 - Testing and test status
 - Monitoring of inspection/test equipment
 - Control of defective products/non-conformity
 - Corrective and preventive action
 - Transport, storage, preservation
 - Training
 - QM
- **Performance of work**
 - Production preparation
 - Corrosion protection processes, pre- and post-processing
 - Initial, intermediate and final test
- **Accompanying documentation**
 - Description of systems
 - Maintenance plans
 - Procedure
 - CP work instructions
 - Process instructions/process parameters
 - Work card/report
 - Test instructions
 - Test reports
 - Calibration planning
 - Calibration report
 - Post-processing instructions
 - Post-processing report
 - Coating materials data sheets
 - Processing instructions
 - Qualification reports
 - Quality reports
 - Release report
 - Report on non-conformity

Appendix 1.4

QM elements based on ISO 9001:2015, which are taken into account during FROSIO-CP certification

(Informative)

| Number | Elements to be taken into consideration | Explanation with reference to ISO 9001 contents (Quality management systems – Requirements) |
|--------|-----------------------------------------|------------------------------------------------------------------------------------------------|
| 1. | Management responsibility | Clause 5: Leadership (5.5.1, 5.3) |
| 2. | Contract review | Clause 5/5.1.2 Customer focus Clause 8: Operation (8.1, 8.2) |
| 3. | Process control | Clause 7: Support (7.1, 7.2) Clause 8: Operation (8.1, 8.2, 8.3, 8.4, 8.5) |
| 4. | Control of documents and records | Clause 7: Support (7.5) |
| 5. | Control of supplied products | Clause 8: Operation (8.1, 8.2, 8.5, 8.6, 8.7) |
| 6. | Marking and traceability of products | Clause 8: Operation (8.5) |
| 7. | Testing and test status | Clause 8: Operation (8.5, 8.6, 8.7) Clause 9: Performance evaluation (9.1) |
| 8. | Monitoring of test equipment | Clause 7: Support (7.1.5) |
| 9. | Control of defective products | Clause 8: Operation (8.5, 8.6, 8.7) |
| 10. | Corrective action | Clause 10: Improvement (10.2, 10.3) |
| 11. | Training | Clause 7: Support (7.1, 7.2, 7.3) |