CR 080

Certification rule for

type approval of compression seals (and cuff seals) for wastewater and stormwater systems

RISE Research Institutes of Sweden AB
Certification
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Foreword

A type approval is an independent third-party confirmation that a product meets the requirements of the Planning and Building Act (PBL) Chapter 8, Section 4, as well as the associated regulations. The certification is carried out in accordance with the regulation TYP, which governs the type approval system.

Type approval is conducted by RISE in the Certification department and is carried out under accreditation according to EN ISO/IEC 17065. The tests forming the basis for type approval must be performed by accredited and independent testing laboratories in accordance with EN ISO/IEC 17025. The ongoing manufacturing control is conducted in accordance with EN ISO/IEC 17020.

This certification rule is based on current regulations and standards but may be revised in the future, for example, to adapt to new regulations and standards or as a result of experiences gained from the application of the certification rule.

This edition of the certification rule supersedes previous editions.

This is a translation from the Swedish original document. In the event of any dispute as to its content, the Swedish original shall take precedence.

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Table of contents

1 Introduction

This certification rule covers the certification process and the requirements for type approval of compression seals (and cuff seals) for wastewater and stormwater systems.

The purpose of this certification rule is to meet manufacturers' needs for verifying that their construction products comply with applicable requirements under the Planning and Building Act and associated regulations. When a construction product is type-approved, it means that its properties have been pre-assessed as specified in the type approval. The assessment is documented by referencing the requirements in the applicable regulations.

This certification rule refers to external references. For dated references, only the cited edition applies. For undated references, the latest edition of the reference (including any amendments) applies.

2 Scope

2.1 The scope of the type approval

Compression seals & Cuff seals made of EPDM, TPE, or PVC-P.

2.2 Intended use

Compression seals and cuff seals are intended to be used when jointing pipe spigot ends in wastewater and stormwater systems. Jointing of pipes made of plastic, steel, cast iron or concrete. Some cuff seals can be used as seals between WC spigot ends, made from porcelain and wastewater pipes.

Jointing of spigot ends of same or different materials in wastewater and stormwater systems in buildings and in the ground for distribution of normal waste- and stormwater from buildings, is included in the intended use.

3 The certification process

3.1 Application

Applications for type approval must be made in writing on the designated application form and accompanied by technical documentation containing a detailed description of the product, its design, manufacturing process and intended use. To facilitate the initial examination, installation and/or instructions for use and the results of any tests already carried out should be attached.

3.2 Initial review of the application

The initial review of the application verifies that this certification rule applies and that the content of the application is complete and acceptable. In case of ambiguity or if the content is incomplete, RISE will clarify these issues with the applicant before the certification process can continue. If it is not possible for RISE to undertake the assignment, the applicant will be notified together with a justification.

If RISE undertakes the assignment, the applicant receives an order confirmation that the application has been accepted. A certification agreement is thus established.

Should it be necessary to engage subcontractors for all or part of the evaluation, the applicant is informed. The applicant may object to the selected subcontractor.

3.3 Evaluation

The evaluation process checks whether the product meets the requirements specified in sections 4, 5 and 6.

In the evaluation process, investigations are carried out to determine whether assessment documentation exists in accordance with the established specification of requirements. The evaluation may include type testing, review of drawings and documents, or assessment of calculation data. In some cases, previous test results may be used for the evaluation, provided that the tests were conducted by an accredited and independent testing laboratory.

Furthermore, the manufacturer must verify that there is a factory production control that is considered to meet the requirements of this certification rule. This is verified by an accredited inspection body carrying out an initial audit, documenting the results in an audit report. In some cases, reports from previous product audits for similar or equivalent products/systems may be used in the evaluation.

A control plan, which describes the manufacturer's factory production control and audit of the factory production control, is established.

In cases where the product and/or the documentation shows deficiencies, i.e., does not meet the requirements, the evaluation can be cancelled.

The results of the evaluation are summarised and submitted for review and decision.

3.4 Review and decision

The evaluation is reviewed, and if approved, the process will proceed to a decision about certification. Once the decision is finalized, a type approval can be issued.

3.5 Type approval

The type approval is issued to the applicant, and its validity is based on the continuous fulfillment of the conditions.

3.6 Validity

The type approval is issued with a maximum period of validity of five years. The type approval can then be renewed, see below.

The validity requires that the manufacturer's factory production control is monitored in accordance with the control plan, see section 6.

Valid type approvals are presented on RISE's website.

3.7 Renewal

Applications for renewal shall be submitted in writing at least 6 months before the end of validity. Upon application, an assessment will be made of the steps required to renew the certificate/type approval. If no changes have been made to regulations, specifications, etc., the type approval can normally be renewed without further action.

A prerequisite is that the product remains unchanged in relation to the original type approval or the latest revision. The absence of changes shall be certified by the applicant.

The pre-renewal assessment also considers the audits (product audits) of the manufacturer's own control carried out during the period of validity.

3.8 Changes to type approved products

No changes to the type-approved product, including changes in production, may be made without this being assessed and approved by RISE. The manufacturer must therefore notify RISE of any changes planned for the type-approved product, including changes in production process. The notification shall be accompanied by a description of the changes and an additional technical file.

RISE will determine the necessary steps for ensuring that the type approval can continue to be valid after the changes have been made. The assessment may necessitate additional tests. If the result of the amendment means that the type approval can still be valid, the type approval is revised with the new information. The type approval shall retain its original period of validity.

4 Requirements

Products type-approved according to this certification rule have pre-assessed properties that enable buildings and construction works to meet the requirements of planning and building act, chapter 8, 4 § PBL, regarding essential technical characteristics:

3. Protection with regard to hygiene, health and the environment

Building and Construction Regulations according to BBR and EKS

The requirements in Section 4 of this certification rule take into account the following sections of the Swedish National Board of Housing, Building and Planning's Building Regulations (BBR):

The Swedish National Board of Housing, Building and Planning's Building Regulations (2011:6) – Regulations and General Guidelines with amendments up to BFS 2024:5.	Installations for wastewater	BBR 6:641
	Installations for storm water	BBR 6:642
	Design	BBR 6:644

Building regulations coming into force on 2025-07-01

The requirements in section 4 of this certification rule take into account the following sections of the Swedish National Board of Housing, Building and Planning's regulations:

The Swedish National Board of Housing, Building and Planning's regulations on protection with regard to hygiene, health and the environment, water management and waste management (2024:8).	Water and wastewater installations	Ch. 8, Sec. 1, 10–12

4.1 Type testing

The evaluation of the product characteristics is carried out by means of a type test of one or more samples representative of the production process. The test is carried out by accredited and independent testing bodies according to EN ISO/IEC 17025.

The testing and evaluation are carried out according to the tables below.

Table 1 Type testing and audit testing of products made from EPDM

	Characteristic	Requirement	Test method	Test object
4.1.1	Identification of product (Fingerprint analysis)	Type test / (Audit testing acc. to Type test)	TGA	1/material
4.1.2	Hardness	EN 681-1 Clause 4.2.3 (WC)	ISO 48–2 (IRHD)	1/material
4.1.3	Compression set 72 h at 23°C 24 h at 70°C 72 h at -10°C	EN 681-1 Clause 4.2.5.2 Clause 4.2.5.2 Clause 4.2.5.3 (WC)	ISO 815	1/material
4.1.4	Hardness ageing 7 d at 70°C	EN 681-1 Clause 4.2.6 (WC)	ISO 48–2 (IRHD)	1/material
4.1.5	Appearance	Drawings	Visual inspection	Representative selection
4.1.6	Water tightness (B/BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13254 Dn ≤ 50 mm tested without deflection	Representative selection at type testing based on design (e.g., largest/ smallest etc.)
4.1.7	Air tightness (B/BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13255 Dn ≤ 50 mm tested without deflection	Representative selection at type testing based on design (e.g., largest/ smallest etc.)
4.1.8	Elevated temperature cycling (B/BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13257	1 system
4.1.9	Tightness of elastomeric ring seal (BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13259	Representative selection at type testing based on design (e.g., largest/ smallest etc.)
	Life time expectancy (50 years)			
	Alkali resistance (CaOH 70°C/7 days)			

4.1.10	Hardness	EN 681-1 Clause 4.2.3 (WC)	ISO 48–2 (IRHD)	1/material
4.1.11	Elongation at break	EN 681-1 Clause 4.2.4 (WC)	ISO 37	1/material
	Ageing (Heat ageing 90°C/ 200 days (simulates 50-year use at 25°C))			
4.1.12	Hardness change	+20/-10	ISO 48–2 (IRHD)	1/material
4.1.13	Compression set	Max. 90%	ISO 815	1/material

Table 2 Type testing and audit testing of products made from TPE

	Characteristic	Requirement	Test method	Test object
4.1.1	Identification of product (Fingerprint analysis)	Type test / According to type test (Audit testing)	FTIR	1/material
4.1.2	Hardness	EN 681–2 Clause 5.3 (WT)	ISO 48-2 (IRHD)	1/material
4.1.3	Compression set 72 h at 23°C 24 h at 70°C 72 h at -10°C	EN 681-2 Clause 5.5.2 Clause 5.5.2 Clause 5.5.3 (WT)	ISO 815	1/material
4.1.4	IRHD Hardness ageing 7 d at 70°C	EN 681–2 Clause 5.6 (WT)	ISO 188 (Method C)	1/material
4.1.5	Appearance	Drawings	Visual inspection	Representative selection
4.1.6	Water tightness (B/BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13254	Representative selection at type testing based on design (e.g., largest/ smallest etc.)
4.1.7	Air tightness (B/BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13255	Representative selection at type testing based on design (e.g., largest/ smallest etc.)
4.1.8	Elevated temperature cycling (B/BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13257	1 system
4.1.9	Tightness of elastomeric ring seal (BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13259	Representative selection at type testing based on design (e.g., largest/ smallest etc.)
	Life time expectancy (50 years)			

	Alkali resistance (CaOH 70°C/7 days)			
4.1.10	Hardness	EN 681-2 table 2 (WT)	ISO 48–2 (IRHD)	1/material
4.1.11	Elongation at break	EN 681-2 table 2 (WT)	ISO 37	1/material
	Ageing (Heat ageing 90°C/ 200 days (simulates 50-year use at 25°C))			
4.1.12	Hardness change	+20/-10	ISO 48–2 (IRHD)	1/material
4.1.13	Compression set	Max. 90%	ISO 815	1/material

Table 3 Type testing and audit testing of products made from PVC-P

	Characteristic	Requirement	Test method	Test object
4.1.1	Identification of product (Fingerprint analysis)	Type test / According to type test (Audit testing)	FTIR	1/material
4.1.2	Hardness	EN 681–2 Clause 5.3 (WT)	ISO 48-2 (IRHD)	1/material
4.1.3	IRHD Hardness ageing 7 d at 70°C	EN 681–2 Clause 5.6 (WT)	ISO 188 (Method C)	1/material
4.1.4	Appearance	Drawings	Visual inspection	Representative selection
4.1.5	Water tightness (B/BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13254	Representative selection at type testing based on design (e.g., largest/ smallest etc.)
4.1.6	Air tightness (B/BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13255	Representative selection at type testing based on design (e.g., largest/ smallest etc.)
4.1.7	Elevated temperature cycling (B/BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13257	1 system
4.1.8	Tightness of elastomeric ring seal (BD)	SS-EN 1451-1: 2017 Clause 10 Table 18	EN ISO 13259	Representative selection at type testing based on design (e.g., largest/ smallest etc.)
	Life time expectancy (50 years)			
	Alkali resistance (CaOH 70°C/7 days)			
4.1.9	Hardness	EN 681-2 table 2 (WT)	ISO 48–2 (IRHD)	1/material

4.1.10	Elongation at break	EN 681-2 table 2 (WT)	EN ISO 527-2	1/material
	Ageing (Heat ageing 90°C/ 200 days (simulates 50-year use at 25°C))			
4.1.11	Hardness change	+20/-10	ISO 48–2 (IRHD)	1/material
4.1.12	Elongation at break	Max. 50%	EN ISO 527-2	1/material

4.2 Technical documentation

Products covered by this certification rule must have an unambiguous definition. The following documentation must be provided for type approval:

- Product name,
- Product description,
- Description of intended use,
- Drawings and material specifications,
- List of all constituent materials and components,
- Detailed instructions for assembly/installation/design.

All documents, including drawings, product descriptions and installation instructions, etc., should be clearly marked with name or number and the date or version number.

4.3 Associated documents

The associated documents must be in Swedish and contain such information as to enable correct installation/assembly of the product. Associated documents can be, for example, documents for design, assembly/installation, inspection and operating and maintenance instructions. The associated documents are published together with the type approval.

5 Factory production control by the manufacturer and/or importer/distributor

The manufacturer and/or importer/ distributor must have factory production control that ensures that products bearing the certification label comply with the requirements of this certification rule.

The manufacturer and/or importer/distributor shall have an organisation responsible for and carrying out this verification. Staff must be familiar with the tasks and have access to adequate instructions.

Factory production control must be described in a control plan.

The factory production control shall include acceptance control, production control and final inspection.

The control plan shall specify the controls and sampling, the current test methods and the measures taken in the event of a failed result.

The manufacturer and/or importer/distributor shall carry out the following examinations and tests:

- Ensure that components and materials conform to drawings and specifications (Material composition, material properties, dimensions, etc.)

The scope of the factory production must be adapted to the volume of production, deliveries, etc.

Test and inspection equipment must be regularly maintained and calibrated.

Any deviations detected during factory production control must be investigated and corrective measures must be taken to prevent recurrence. Products that do not comply with the requirements of the certification rule may not be labelled according to it.

Complaints about type approved products, labelling, marketing, etc. from customers or other stakeholders must be documented and made available to the inspection body.

All documentation of the manufacturer's own control, including journals, etc., must be available to the inspection body and kept by the manufacturer for at least five years.

6 Supervisory inspections

Supervisory inspections shall be carried out by inspection bodies accredited according to EN ISO/IEC 17020, type A.

Supervisory inspections, referred to by RISE as product audits, are carried out at least once per calendar year through visits to the manufacturer and/or importer/distributor, at times determined by the inspection body.

During the visit, the inspection body carries out checks to ensure that the factory production control works in accordance with the control plan. The control includes examination of inventory, manufacturing, journals, test equipment and more. If necessary, samples are taken or purchased for audit testing.

The inspection body also carries out controls to ensure that the manufacturer has not made any changes to the product, that the product is marked according to the type approval and that the type approval is still valid.

If the audit testing and/or the result of the supervision of the factory control fails, the reasons shall be investigated by the manufacturer and reported to the inspection body. If, after investigation and analysis by the inspection body, it cannot be ensured that products or factory production control meet the set requirements, the inspection body must report this to RISE Certification.

The supervisory control shall be described in a control plan.

6.1 Sampling and audit testing

The inspection body selects products at random from the manufacturer, warehouse, and workplace or purchases them from retail outlets. Audit testing is carried out by the inspection body or under the responsibility of the inspection body. Annual testing shall at a minimum include:

For EPDM products yearly according to Table 1, 4.1.1, 4.1.2 and 4.1.5. Every fifth-year testing shall also include tests according to Table 1, 4.1.3, 4.1.4, 4.1.1.6 and 4.1.7.

For TPE products yearly according to Table 2, 4.1.1, 4.1.2 and 4.1.5. Every fifth-year testing shall also include tests according to Table 2, 4.1.3, 4.1.4, 4.1.1.6 and 4.1.7.

For PVC-P products yearly according to Table 3, 4.1.1, 4.1.2 and 4.1.4. Every fifth-year testing shall also include tests according to Table 3, 4.1.3, 4.1.5 and 4.1.6.

Sampling and audit testing shall be described in a control plan.

7 Labelling requirements and manufacturer´s declaration

The holder of the type approval has the right to label the products covered by the type approval.

Labelling shall contain the following information:

- Holder *(Name or registered trademark of the company responsible for the product)*
- Place of manufacture, factory name or equivalent
- Traceability *(the serial number, date or other marking to be included in the manufacturer's inspection record)*
- The type approval number
- ⍑ *(The registered trademark of the National Board of Housing, Building and Planning no 241 217, BFS 2013:6 TYP 7 15§)*
- 1002 *(RISE identification number as certification body)*
- Inspection body *(name or registered trademark)*

The location of the labelling (product, packaging, delivery note, installation instructions, etc.) shall be indicated in the respective type approval and the primary purpose of the labelling is to identify the product on the building- or construction site.

The product shall be accompanied by a manufacturer's declaration certifying that production has taken place in accordance with the documents on which the type approval was granted.

8 General terms and conditions

Provided in the RISE document *General certification rules for certification of products CR000*.

9 References

The following reference documents are necessary when using this document. For dated references, only the cited edition applies. For undated references, the most recent edition of the reference document (including any additions) applies.

EN ISO/IEC 17065	Conformity assessment - Requirements for bodies certifying products, processes and services
EN ISO/IEC 17025	General requirements for the competence of testing and calibration laboratories
EN ISO/IEC 17020	Conformity assessment – Requirements for the operation of various types of bodies performing inspection
EN 681–1:1996	Elastomeric seals – Materials requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber
EN 681–2:2000	Elastomeric seals – Materials requirements for pipe joint seals used in water and drainage applications - Part 1: Vulcanized rubber - Part 2: Thermoplastic elastomers
EN 1451–1:2017	Plastics piping systems for soil and waste discharge (low and high temperature) within the building structure – Polypropylene (PP) – Part 1: Specifications for pipes, fittings and the system
EN ISO13254:2017	Thermoplastics piping systems for non-pressure applications – Test method for watertightness
EN ISO 13255:2017	Thermoplastics piping systems for soil and waste discharge inside buildings - Test method for airtightness of joints
EN ISO 13257:2018	Thermoplastics piping systems for non-pressure applications – Test method for resistance to elevated temperature cycling
EN ISO 13259:2020	Thermoplastics piping systems for underground non-pressure applications – Test method for leaktightness of elastomeric sealing ring type joints
EN ISO 527–2	Plastics – Determination of tensile properties – Part 2: Test conditions for moulding and extrusion plastics
ISO 48–2:2018, IDT	Rubber, vulcanized or thermoplastic – Determination of hardness – Part 2: Hardness between 10 IRHD and 100 IRHD
ISO 815:2019	Rubber, vulcanized or thermoplastic – Determination of compression set – Part 1: At ambient or elevated temperatures
ISO 37:2017, IDT	Rubber, vulcanized or thermoplastic – Determination of tensile stress-strain properties

ISO 188:2023	Rubber, vulcanized or thermoplastic – Accelerated ageing and heat resistance tests
PBL	Planning and Building Act (2010:900)
TYP	BFS 2013:6 TYP 7 - The Swedish National Board of Housing, Building and Planning's Regulations on Amendments to the Regulations and General Guidelines (2011:19) on Type Approval and production Control.
BBR	The Swedish National Board of Housing, Building and Planning's Building Regulations (2011:6) – Regulations and General Guidelines with amendments up to BFS 2024:5.
BFS 2024:8	The National Board of Housing, Building and Planning's regulations with regard to hygiene, health and the environment, water management and waste management.
CR000	General certification rules for certification of products

10History

2024-03-04 Certification rule established.

2025-12-25 Certification rule revised due to new building regulations.