Deutsches Institut für Bautechnik
Zulassungsstelle für Bauprodukte und Bauarten
Bautechnisches Prüfamt
Eine vom Bund und den Ländern gemeinsam getragene Anstalt des öffentlichen Rechts

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Authorised and notified according to Article 10 of the Council Directive of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products (89/106/EEC)

Deutsches Institut für Bautechnik

DIBt

Mitglied der EOTA
Member of EOTA

European Technical Approval ETA-11/0188

English translation prepared by DIBt - Original version in German language

Handelsbezeichnung *Trade name*		"KSS Kaiser Schott System (DS 90, RS 90, LS 90)"
Zulassungsinhaber *Holder of approval*		KAISER GMBH & CO. KG Ramsloh 4 58579 Schalksmühle DEUTSCHLAND
Zulassungsgegenstand und Verwendungszweck *Generic type and use of construction product*		Kabelabschottungen *cable penetration seals*
Geltungsdauer: *Validity:*	vom *from* bis *to*	22 June 2011 22 June 2016
Herstellwerk *Manufacturing plant*		KAISER GMBH & CO. KG Ramsloh 4 58579 Schalksmühle DEUTSCHLAND

Diese Zulassung umfasst *This Approval contains*	17 Seiten einschließlich 9 Anlagen *17 pages including 9 annexes*

I LEGAL BASES AND GENERAL CONDITIONS

1 This European technical approval is issued by Deutsches Institut für Bautechnik in accordance with:

- Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products[1], modified by Council Directive 93/68/EEC[2] and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council[3];
- Gesetz über das In-Verkehr-Bringen von und den freien Warenverkehr mit Bauprodukten zur Umsetzung der Richtlinie 89/106/EWG des Rates vom 21. Dezember 1988 zur Angleichung der Rechts- und Verwaltungsvorschriften der Mitgliedstaaten über Bauprodukte und anderer Rechtsakte der Europäischen Gemeinschaften (Bauproduktengesetz - BauPG) vom 28. April 1998[4], as amended by law of 31 October 2006[5];
- Common Procedural Rules for Requesting, Preparing and the Granting of European technical approvals set out in the Annex to Commission Decision 94/23/EC[6];
- Guideline for European technical approval for "Fire stopping, fire sealing and fire protective products – Part 2: Penetration seals", ETAG 026-02.

2 Deutsches Institut für Bautechnik is authorised to check whether the provisions of this European technical approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European technical approval and for their fitness for the intended use remains with the holder of the European technical approval.

3 This European technical approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those indicated on page 1 of this European technical approval.

4 This European technical approval may be withdrawn by Deutsches Institut für Bautechnik, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.

5 Reproduction of this European technical approval - including transmission by electronic means - shall be in full. However, partial reproduction can be made with the written consent of Deutsches Institut für Bautechnik. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European technical approval.

6 The European technical approval is issued by the approval body in its official language. This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

1 Official Journal of the European Communities L 40, 11 February 1989, p. 12
2 Official Journal of the European Communities L 220, 30 August 1993, p. 1
3 Official Journal of the European Union L 284, 31 October 2003, p. 25
4 *Bundesgesetzblatt Teil I 1998*, p. 812
5 *Bundesgesetzblatt Teil I 2006*, p.2407, 2416
6 Official Journal of the European Communities L 17, 20 January 1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of product/ products and intended use

1.1 Definition of the construction product

1.1.1 Description of the cable penetration seal

The cable penetration seal "KSS Kaiser Schott System (DS 90, RS 90, LS 90)" consists primarily of moulded parts made of intumescent materials, and, where necessary, of attachment parts (see Appendix 1). The cable penetration seal shall be constructed in accordance with Appendix 3 using the components listed in Appendix 1.

1.1.2 Description of the components of the cable penetration seal

The moulded parts, named "DS 90", "RS 90" or "LS 90", by Kaiser GmbH & Co. KG and the attachment parts, named "DS 90 Dichtelement", by Kaiser GmbH & Co. KG shall comply with the specifications in Appendix 1.

1.2 Intended use

1.2.1 General

1.2.1.1 The cable penetration seal is used to seal off openings in accordance with section 1.2.3 in fire resistant walls in accordance with section 1.2.2 penetrated by installations in accordance with section 1.2.4[7] and serves to preserve the fire resistance of the wall in the vicinity of the penetrations.

1.2.1.2 The cable penetration seal reaches a maximum fire resistance class of EI 90 (see also section 2.2).

1.2.1.3 The cable penetration seal can be used in interiors without frost and moisture (use category Z_2 in accordance with EOTA TR 024; see section 2.4).

1.2.1.4 The cable penetration seal can also be used to seal openings which have not yet been used for installations. Modifications may be made to the installations subsequently (retrofitting or removal of installations) provided compliance with the provisions of this European technical approval is ensured.

1.2.2 Walls

The cable penetration seal can be used in rigid walls and flexible walls ($d_W \geq 100$ mm) in accordance with Appendix 2, which are classified in accordance with the required fire resistance duration per EN 13501-2 (max. EI 90).

1.2.3 Openings (in the walls)

1.2.3.1 The cable penetration seal can be installed in round openings, whose diameter complies with the moulded parts to be inserted (see Appendix 1).

1.2.3.2 There shall be a distance of at least 200 mm between the opening to be sealed off and other openings or components. Cable penetration seals according to this ETA can be arranged in groups (see Annex 4).

[7] Technical regulations of the Member States for implementing the piping systems and the allowance of pipe penetrations remain unaffected.

1.2.4 Installations

Cables in accordance with Appendix 2 can pass through the opening to be sealed off. In the penetration area, the cables shall be aligned perpendicularly to the component surface. If multiple installations pass through one opening, they shall be grouped to a bundle (see Annexes 4 and 6).

1.2.5 Working life

The provisions of this European technical approval are based on an assumed working life of the cable penetration seal "KSS Kaiser Schott System (DS 90, RS 90, LS 90)" of 10 years, provided the conditions specified in sections 4 and 5 for manufacturing, installation, use, maintenance and repair are fulfilled. The specifications of the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the right products in relation to the expected economically reasonable working life of the works.

2 Characteristics of the product and methods of verification

2.1 General

2.1.1 The fitness of the cable penetration seal for the intended use was evaluated in accordance with ETAG 026 Part 2:2008-01-01.

For the evaluation of the cable penetration seal, the product characteristics "reaction to fire", "fire resistance", "emission of dangerous substances" and "durability and serviceability" were taken into consideration.

2.1.2 The product characteristics specified in sections 2.1 to 2.4 only apply to the cable penetration seal and its components described in this ETA. The Deutsches Institut für Bautechnik shall be immediately notified of any changes to the materials, the composition, the dimensions or the characteristics of these components. The Deutsches Institut für Bautechnik will then decide if a new evaluation is required.

2.2 Reaction to fire

The components of the cable penetration seal comply with the fire reaction classes in accordance with EN 13501-1 specified in Annex 1.

2.3 Fire resistance

The cable penetration seal was tested in accordance with prEN 1366-3:07/2007. As a maximum, the penetration seal fulfils the requirements of Class EI 90 in accordance with EN 13501-2.

The annexes state the maximum verified fire resistance class. If installed in walls of the same thickness and density and with the same structure as specified there, but with a lower fire resistance class, the fire resistance class of the cable penetration seal is reduced to the fire resistance class of the wall.

2.4 Emission of dangerous substances

The moulded parts used in the cable penetration seal "KSS Kaiser Schott System (DS 90, RS 90, LS 90)" do not release any substances registered as dangerous substances in the list of the European Commission.

The full chemical compositions of the moulded parts were made available to the Deutsches Institut für Bautechnik for evaluation.

Manufacturer's declarations were submitted for the components of the attachment parts, stating that the products do not contain any dangerous substances contained in Directive 67/548/EEC or Regulation (EC) No. 1272/2008 or the Indicative List on Dangerous Substances.

Note: In addition to the specific clauses relating to dangerous substances contained in this European technical approval, there may be other requirements applicable to the products falling

within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Construction Products Directive, these requirements need also to be complied with, when and where they apply.

2.5 Durability and serviceability

The moulded parts fulfil the requirements of use category Z_2 in accordance with EOTA TR 024. This means that the product can be exposed to the conditions in interiors without moisture and frost loads, without expecting significant changes in the fire protection characteristics.

3 Evaluation and attestation of conformity and CE marking

3.1 System of conformity attestation for the moulded parts and attachment parts

According to Decision 1999/454/EC, amended by Decision 2001/596/EC of the European Commission[8], system 1 of the attestation of conformity applies.

This system of attestation of conformity is defined as follows:

System 1: Certification of the conformity of the product by an approved certification body on the basis of:

(a) Tasks of the manufacturer:
  (1) factory production control;
  (2) further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan;

(b) Tasks of the approved body:
  (3) initial type testing of the product;
  (4) initial inspection of the factory and of factory production control;
  (5) continuous surveillance, assessment and approval of factory production control.

Note: Approved bodies are also referred to as "notified bodies".

3.2 Responsibilities

3.2.1 Tasks of the manufacturer

3.2.1.1 Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall ensure that the product is in conformity with this European technical approval.

The manufacturer shall only use initial/raw/constituent materials stated in the technical documentation of this European technical approval.

The factory production control shall be in accordance with the Control plan dated 22 June 2011 relating to the European technical approval ETA-11/0188 issued on 22 June 2011 which is part of the technical documentation of this European technical approval. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited with Deutsches Institut für Bautechnik.[9]

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

[8] Official Journal of the European Communities 178/52 of 14/7/1999

[9] The control plan is a confidential part of the European technical approval and only handed over to the approved body involved in the procedure of attestation of conformity. See section 3.2.2.

3.2.1.2 Other tasks for the manufacturer

The manufacturer shall provide a technical data sheet and installation instruction guide containing at least the following information:

Technical data sheet:

1. Field of application:

- Building elements into which the penetration seal may be installed; type and characteristics of the building elements such as minimum thickness, density and – in the case of flexible walls – the structure.
- Installations that may pass through the penetration seal; type and characteristics of the installations, such as material, diameter, thickness; necessary/permitted supports/fixings; distances.
- Dimensions, minimum thickness, etc. of the penetration seal
- Climatic conditions covered by the ETA: indoor use excluding high humidity and temperatures below 0 °C

2. Construction of the penetration seal, incl. information on the required components and additional products with clear indications whether they are generic or specific.

Installation instructions:

- Installation method (e.g. preparation of the supporting structure before installation of the penetration seal)
- The sequence of working steps to be followed

The manufacturer shall, on the basis of a contract, involve a body which is approved for the tasks referred to in section 3.1 for products per ETAG 026-2 in order to undertake the actions laid down in section 3.2.2. For this purpose, the manufacturer shall submit the control plan according to sections 3.2.1.1 and 3.2.2 to the approved body.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of the European technical approval ETA-11/0188 issued on 22 June 2011.

3.2.2 Tasks for approved bodies

The approved bodies shall perform the following tasks in accordance with the provisions of the control plan:

- Initial type-testing of the product
- Initial inspection of factory and of factory production control
- Continuous surveillance, assessment and approval of factory production control

The approved bodies shall record the essential points of their actions referred to above and state the results obtained and conclusions drawn up in a written report.

The approved certification body involved by the manufacturer shall issue an EC certificate of conformity of the product stating the conformity with the provisions of this European technical approval.

In cases where the provisions of the European technical approval and its control plan are no longer fulfilled, the certification body shall withdraw the certificate of conformity and inform Deutsches Institut für Bautechnik without delay.

3.3 CE marking

The CE marking shall be affixed to the moulded parts or attachment parts, or their packaging, and the accompanying commercial documents. The letters "CE" shall be followed by the identification number of the approved certification body and be accompanied by the following additional information:

- the name and address of the producer (legal entity responsible for the manufacture),
- the last two digits of the year in which the CE marking was affixed,
- the number of the EC certificate of conformity for the product,
- the number of the European technical approval,
- the number of the guideline for European technical approval,
- the use category,
- the designation of the product (trade name),
- declaration of any dangerous substances or "no dangerous substances",
- "see ETA 22 june 2011 for other relevant characteristics"

For an example of the CE marking see Appendix 4.

4 Assumptions under which the fitness of the product for the intended use was favourably assessed:

4.1 General

It is assumed that

- the penetration seal complies with the specifications in this ETA and installation was carried out in accordance with this ETA and also in accordance with the technical data sheet and the installation instructions by the manufacturer,
- damages to the penetration seal are repaired accordingly,
- the seal is installed only in building elements specified in this ETA,
- only installations in accordance with the specifications in this ETA pass through the openings (Parts or service support constructions other than those in accordance with section 1.2 shall not pass through the penetration seal.),
- the installation of the penetration seal does not affect the stability of the adjacent building elements – even in the case of fire,
- the seal is not exposed to any additional vertical loads (other than its own weight),
- no additional vertical load (other than its own weight) is imposed on the seal
- the installations are fixed to the adjacent building elements on both sides in accordance with the relevant regulations, so that no additional mechanical load can be applied to the penetration seal in case of fire,
- the support of the installations is maintained for the classification period required.

4.2 Manufacturing

The European technical approval is issued for the product on the basis of agreed data/information, deposited with Deutsches Institut für Bautechnik, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, shall be reported to the Deutsches Institut für Bautechnik before the changes are introduced. Deutsches Institut für Bautechnik will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval shall be necessary.

4.3 Installation

The product characteristics specified in this European technical approval only apply under the provision that the penetration seal is installed in accordance with the specifications in Appendix 3 and also with the technical data sheet and the manufacturer's installation instructions.

5 Indications to the manufacturer

5.1 Packaging, transport and storage

5.1.1 The manufacturer's specifications for packaging, transport and storage shall be observed.

5.1.2 The packaging of the moulded parts shall contain the following information:

- Trade name or trademark or other symbol identifying the product
- Date of manufacture (month, year or coded information)

5.1.3 For delivery, the moulded parts shall be packaged such that compliance with the usual delivery conditions is given, and the product is sufficiently protected against effects which may occur under normal treatment.

5.2 Use, maintenance, repair

5.2.1 In general, no maintenance is necessary. Repair can be implemented by replacing moulded parts.

5.2.2 If individual installations are removed or added, the penetration seal shall be restored to its proper condition subsequently.

Prof. Gunter Hoppe
Head of Department

beglaubigt:
Meske-Dallal

Deutsches Institut für Bautechnik DIBt

Name/Manufacturer	Description
Moulded part "DS 90" Kaiser GmbH & Co. KG	The moulded part consists of two specially moulded half shells joined using a tongue and groove system. Each half shell contains a screw with lugs, used to fasten the moulded part to the wall. Dimensions: per Annex 2 Material: intumescent material "X1"* Reaction to fire class according to EN 13501-1: Class E Weight per half shell: 41.2 g (± 2 g)
Attachment part "DS 90 Dichtelement" Kaiser GmbH & Co. KG	The attachment part consists of a housing made of two plastic half shells joined using a snap closure, and of two semi-cylindrical foam sealing inserts placed in these half shells. Dimensions: per Annex 2 Housing material: ISO 1874-PA6-MF-14-040,X Housing weight: 52.8 g (± 2 g) Housing: Reaction to fire class according to EN 13501-1: Class E Foam material: PUR in accordance with EN 13165 a) Gray, density 9 kg/m³, reaction to fire class according to EN 13501-1: Class C or b) Anthracite, density 80 kg/m³, reaction to fire class according to EN 13501-1: Class E
Moulded part "RS 90" Kaiser GmbH & Co. KG	Dimensions: per Annex 3 Material/weight: intumescent material "X2"* / 13.2 g (± 1 g) or intumescent material "X3"* / 12.5 g (± 1 g) Reaction to fire class according to EN 13501-1: Class E
Moulded part "LS 90" Kaiser GmbH & Co. KG	Dimensions: per Annex 3 Material/weight: intumescent material "X2"* / 6 g (± 1 g) or intumescent material "X3"* / 5.5 g (± 1 g) Reaction to fire class according to EN 13501-1: Class E
Plug for cable conduits	Dimensions: per Annex 3 Material: TPE Reaction to fire class according to EN 13501-1: Class E

* The material specifications are deposited with Deutsches Institut für Bautechnik. The materials were tested per ETAG 026-2, Annex B and EOTA TR 024 (see Evaluation Report for test conditions).

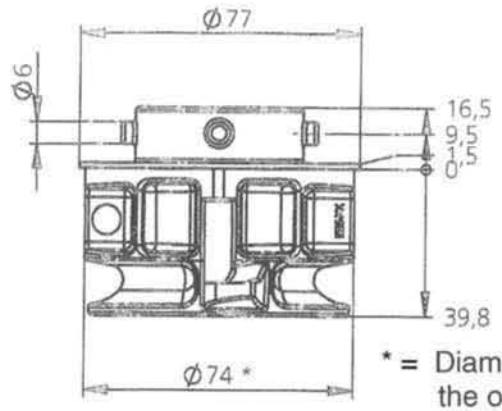
"KSS Kaiser Schott System (DS 90, RS 90, LS 90)"

APPENDIX 1 – DESCRIPTION OF THE PRODUCT
Description of the product components

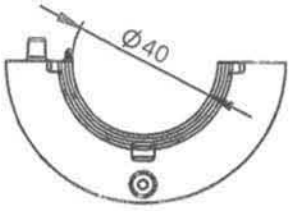
Annex 1

Deutsches Institut für Bautechnik DIBt

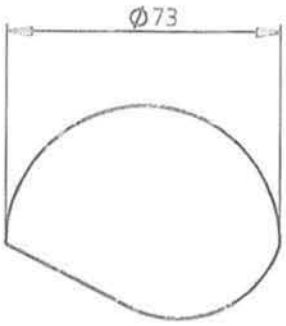
"DS 90"

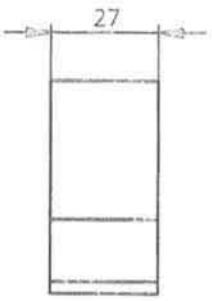


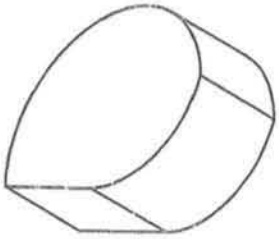
* = Diameter of the opening



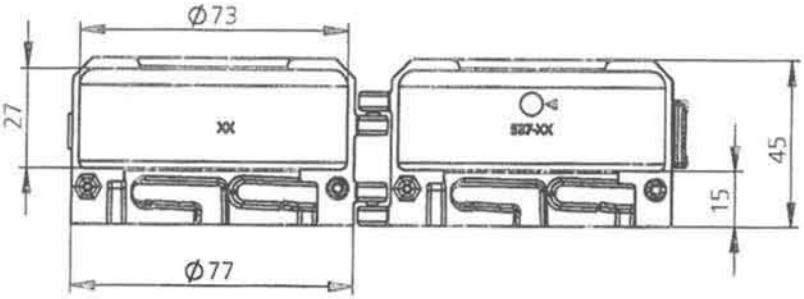
"Dichteinsatz"

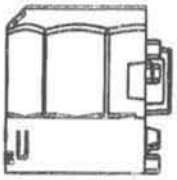


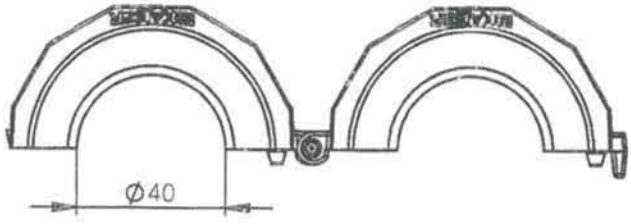


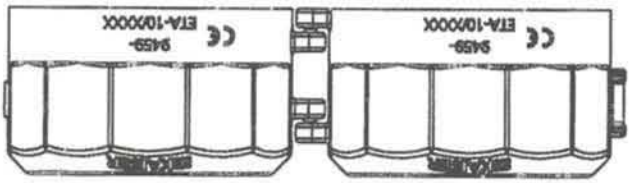


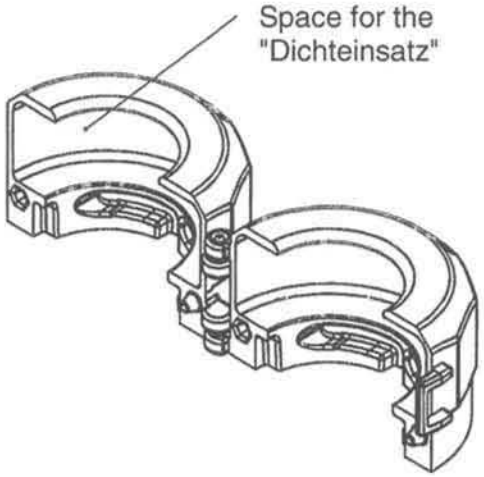
Attachment part "DS 90 Dichtelement"









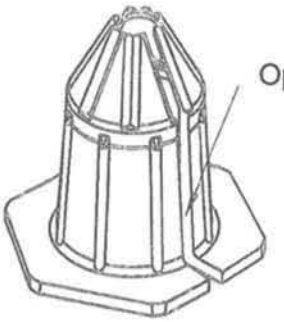


Dimensions in mm

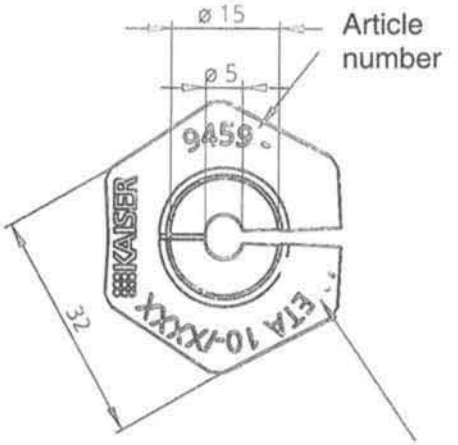
"KSS Kaiser Schott System (DS 90, RS 90, LS 90)"	Annex 2
APPENDIX 1 – DESCRIPTION OF THE PRODUCT Description of the product components – Dimensions	

Deutsches Institut für Bautechnik DIBt

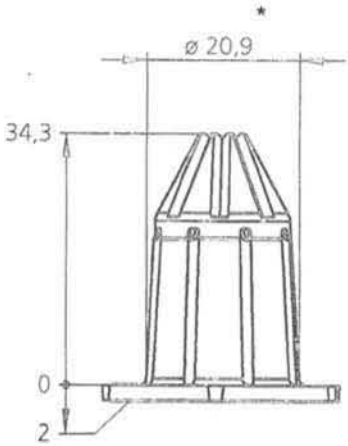
"LS 90"



Opening slit

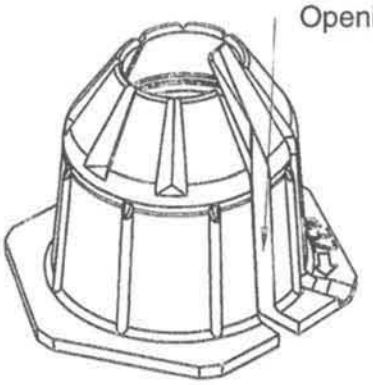


Number of ETA and CE-marking

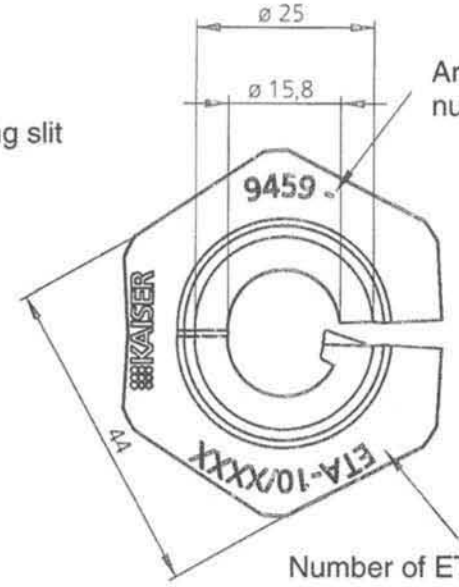


* = Diameter of the opening

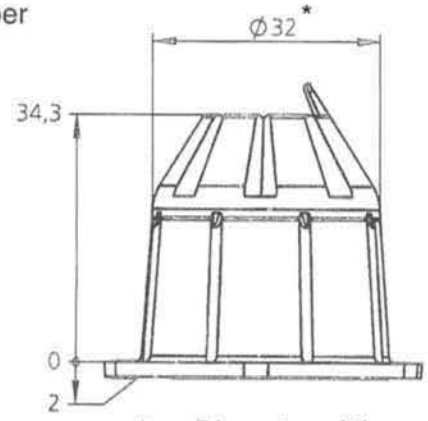
"RS 90"



Opening slit

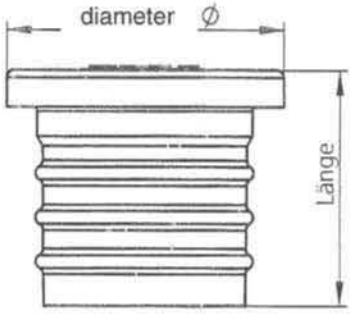


Number of ETA and CE-marking



* = Diameter of the opening

Plug for cable conduits



pipe	diameter	leght
16	15	15
20	19	16
25	24	17,5
32	31	22
40	39	24

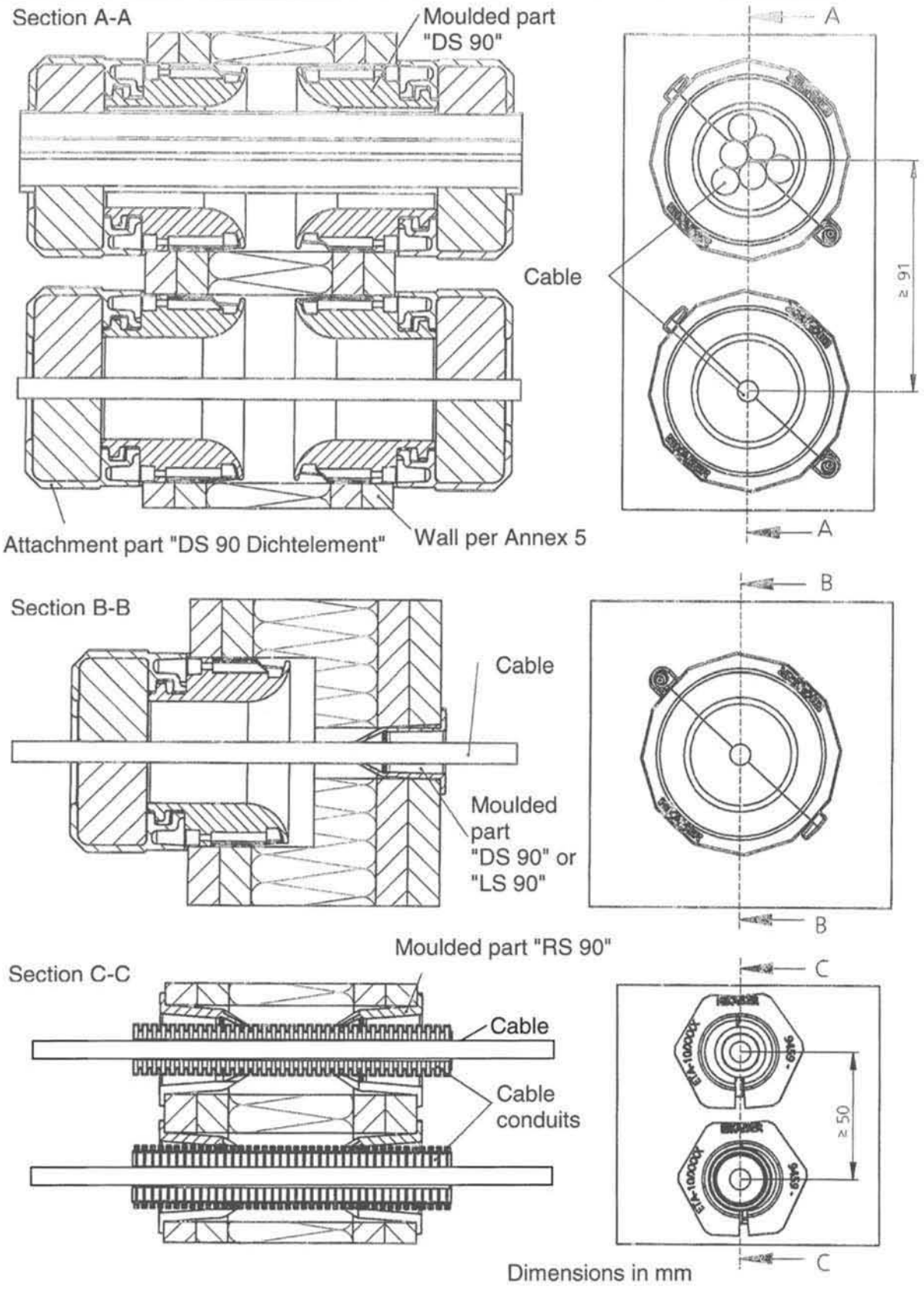
Dimensions in mm

"KSS Kaiser Schott System (DS 90, RS 90, LS 90)"

APPENDIX 1 – DESCRIPTION OF THE PRODUCT
Description of the product components – Dimensions

Annex 3

Deutsches Institut für Bautechnik DIBt



"KSS Kaiser Schott System (DS 90, RS 90, LS 90)"

APPENDIX 1 – DESCRIPTION OF THE PRODUCT
Structure of cable penetration seal; wall installation; view, section and distances

Annex 4

Deutsches Institut für Bautechnik DIBt

Type of walls

The cable penetration seal may be used in

Rigid walls

- of masonry, concrete, reinforced concrete or aerated concrete
- density ≥ 630 kg/m³
- thickness ≥ 100 mm
- The walls shall be classified according to EN 13501-2 (maximum EI 90) corresponding to the required fire resistance period.

Flexible walls

- flexible walls with a steel stud substructure and a lining on both sides made from min. 2 layers of 12,5 mm thick mineral (cementitious or gypsum based) boards of fire reaction class A1 or A2 according to EN 13501-1
- flexible walls with a wooden substructure and a lining on both sides made from min. 2 layers of 12,5 mm thick mineral (cementitious or gypsum based) boards of fire reaction class A1 or A2 according to EN 13501-1

  The distance between the wooden substructure and the seal shall be ≥ 100 mm and the cavity between the linings of the wall, the wooden substructure (posts and beams) and the seal shall be tightly clogged with mineral wool of fire reaction class A1 or A2 according to EN 13501-1 in a depth of minimum 100 mm.
- thickness ≥ 100 mm
- The walls shall be classified according to EN 13501-2 (maximum EI 90) corresponding to the required fire resistance period.

Note: This ETA does not cover the installation of the seal in special walls, e.g. in sandwich panel constructions.

"KSS Kaiser Schott System (DS 90, RS 90, LS 90)"	Annex 5
APPENDIX 2 – FIELD OF APPLICATION Walls	

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General

- The distance of the first support shall have clearance of ≤ 500 mm from either side of the penetration seal. The main components of the brackets shall consist of materials with a fire reaction class A1 or A2 per EN 13501-1.

Type of installations

Type	Description
Cables	**"DS 90":** ➢ All types of sheathed cables[1] currently and commonly used in building practice in Europe (e.g. power cables, data cables, telecommunication cables, fibre-optic cables) with the exception of waveguides ➢ Cables $\varnothing_{EK} \leq 15$ mm in bundles ($\varnothing_B \leq 40$ mm) or ➢ single cables; $\varnothing_{EK} \leq 21$ mm **"LS 90":** ➢ Sheathed cables with max. 5 cores; conductor cross-section ≤ 2.5 mm² or ➢ telecommunication cables with max. 2 x 20 cores; conductor cross-section ≤ 0,6 mm² ➢ Single cables; 5 mm < $\varnothing_{EK} \leq 15$ mm **"RS 90":** ➢ Sheathed cables with max. 5 cores; conductor cross-section ≤ 2.5 mm² ➢ Single cables in cable conduits; $\varnothing_{EK} \leq 15$ mm
Cable conduits	➢ Flexible cable conduits per EN 61386 (VDE 0605) made from Polyolefin **"DS 90":** ➢ $\varnothing_{EIR} \leq 40$ mm **"RS 90":** ➢ 16 mm ≤ $\varnothing_{EIR} \leq 25$ mm

[1] Single or multicore cable with individual insulation of the cores and an additional protective covering of the assembly

"KSS Kaiser Schott System (DS 90, RS 90, LS 90)"	Annex 6
APPENDIX 2 – FIELD OF APPLICATION Installations	

Deutsches Institut für Bautechnik DIBt

1. General

1.1 Before installing the cable penetration seals, all framework conditions are to be checked for compliance (e.g. type and thickness of the wall, type and dimensions of the cables and the ambient conditions) with the provisions of section 1.2 and Appendices 1 and 2.

1.2 It shall be ensured that the assumptions under which the fitness for use was evaluated are complied with (see section 4.1).

2. Selection of the moulded parts

2.1 The moulded parts shall be selected such that the exterior diameter of the moulded parts (see Appendix 1, Annexes 2 and 3) fits precisely into the circular opening (see Annex 4).

2.2 If multiple cables pass through one opening, or cables with an exterior diameter > 15 mm, moulded parts "DS 90" shall be used (see Annex 2). For single cables with an exterior diameter ≤ 15 mm, moulded parts "LS 90" can also be used (optionally "LS 90" on one side of the wall and "DS 90" on the other, see Annexes 4 and 6). For penetrations of cable conduits (with and without cabling per Annex 6), moulded parts "DS 90" or "RS 90" can be used, depending on the external diameter of the conduits (see Annexes 4 and 6).

3. Installation of the moulded parts

3.1 One "DS 90", "LS 90" or "RS 90" moulded part shall be installed on either side of the wall in accordance with Appendix 1.

3.2 The moulded part shall be laid around the cables and inserted in the wall such that the flange of the moulded part is in contact with the wall surface (see Annex 4).

3.2 The "DS 90" moulded part shall be fixed to the flexible wall using the appropriate screws. If installed in solid walls, the moulded parts shall be plastered or cemented into the openings.

4. Installation of the attachment parts

If "DS 90" moulded parts are used, "DS 90 Dichtelement" attachment partss shall be laid around the cables and locked in place in the moulded parts by adjusting the mandrels and rotating the attachments (bayonet lock). The foam sealing inserts shall nearly be close to the cables after installation.

5. Penetration seals without cables (blank penetration seals)

5.1 Cable penetration seals built using "Dosenschott DS 90" extrusions and "DS 90 Dichtelement" attachments can be designed as empty penetrations seals. Optionally, empty electrical installation pipes can be installed in the sealing elements in accordance with Appendix 6, which shall be fitted with plastic plugs on both sides of the penetration seal.

5.2 "Rohrschott RS 90" extrusions can be installed without cables fitted, if electrical installation pipes are fitted in accordance with Appendix 6, which are to be equipped with plastic plugs on both sides of the penetration seal.

6. Retrofitting

6.1 Retrofitting of the "DS 90" moulded parts or "RS 90" moulded parts (with installed cable conduits) is permitted if the occupation of the moulded parts allows this (see Annex 6).

6.2 If cables pass through the cable conduits, the pipe plugs shall be adapted to the cable layout.

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APPENDIX 3 – INSTALLATION OF THE PENETRATION SEAL	

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CE XXXX	"CE"-Zeichen / "CE" marking Identifizierungsnummer der notifizierten Stelle (für Konformitätsbescheinigungssystem 1)/ Identification number of notified certification body
Kaiser GmbH & Co. KG Ramsloh 4 58579 Schalksmühle DEUTSCHLAND/GERMANY	Name und Anschrift des Herstellers oder seines autorisierten Vertreters (verantwortliche juristische Person)/ Name and address of the producer (legal entity responsible for the manufacturer)
11	Die letzten beiden Ziffern des Jahres, in dem die CE-Kennzeichnung angebracht wurde/ Two last digits of year of affixing CE marking
XXXX-CPD-XXXX	Nummer des EG-Konformitätszertifikats (für Konformitätsbescheinigungssystem 1)/ Number of EC certificate of conformity
ETA-11/0188	Nummer der ETA / ETA number
ETAG 026 – Teil 2/Part 2	Nummer der Leitlinie / ETAG number
Kabelabschottung/ Cable Penetration Seal "KSS Kaiser Schott System (DS 90, RS 90, LS 90)"	Produktbezeichnung (Handelsname) / Designation of the product (trade name)
Formteil/ Moulded part "DS 90"	Produktbezeichnung der Komponente (Handelsname) / Designation of the component (trade name)
Nutzungskategorie/ Use category Z_2	Nutzungskategorie/ Use category

Für weitere relevante Produktmerkmale (z.B. Feuerwiderstandsklasse, Abgabe gefährlicher Stoffe) s. ETA-11/0188/ See ETA-11/0188 for other relevant characteristics (i.e. fire resistance class, dangerous substances)

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APPENDIX 4 – EXAMPLE FOR CE MARKING AND ADDITIONAL INFORMATION	

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Abbreviations

FWKL: maximum fire resistance class; If installed in building elements of the same type, thickness, density and with the same structure, but with a lower fire resistance class, the fire resistance class of the penetration seal is reduced to the fire resistance class of the building element.

LTW: Flexible wall according to Appendix 2

MW: Rigid wall according to Appendix 2

d_W: Wall thickness

EIR: Cable conduit

Ø: External diameter

$Ø_{EK}$: External diameter of a single cable

$Ø_{EIR}$: External diameter of a cable conduit

$Ø_B$: External diameter of a bundle

Standards

EN 13501-2:2010-02	Fire classification of construction products and building elements – Part 2: Classification using data from fire resistance tests, excluding ventilation services
EN 13501-1:2007	Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests
EN 1366-3: 2009-07	Fire resistance tests for service installations - Part 3: Penetration seals
prEN 1366-3: 07/2007	CEN TC 127 document for formal coordination (Document N 185); title see EN 1366-3: 2009-07
EN 13165	Thermal insulation products for buildings – Factory made rigid polyurethane foam (PUR) products
EN 61386-1	Conduit systems for cable management - Part 1: General requirements

Other documents

ETAG 026-2	Guideline for European Technical Approval of Fire Stopping and Fire Sealing Products, Part 2, Penetration Seals (edition January 2008)
EOTA TR 024	Characterisation, Aspects of Durability and Factory Production Control for Reactive Materials, Components and Products (edition November 2006)

"KSS Kaiser Schott System (DS 90, RS 90, LS 90)"	Annex 9
APPENDIX 5 – ABBREVIATIONS AND REFERENCED DOCUMENTS	