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Building Research Institute

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Series: TECHNICAL APPROVALS

BRI TECHNICAL APPROVAL

AT-15-8735/2013

On the basis of the regulation of the Minister of Infrastructure of 8 November 2004 regarding technical approvals and organisational units authorised to issue technical approvals (Journal of Laws No. 249, Item 2497), following approval proceedings undertaken at the Building Research Institute in Warsaw, upon application by:

CONECTO Sp. z o.o.
Florentyna 25, 62-817 Żelazków

the following products marketed under the trade name

CONECTO PARK waterproof expansion joint profiles for floor systems

are fit for use in the construction industry within the scope and on principles specified in the Enclosure, which forms an integral part of this Technical Approval issued by the BRI.

Valid until:
24 July 2018



DIRECTOR
of the Building Research Institute

A handwritten signature in blue ink, appearing to read 'Jan Bobrowicz'.

Jan Bobrowicz

Enclosure:
General and Technical Provisions

Warsaw, 24 July 2013

This BRI Technical Approval No. ITB AT-1233/2011 is an amendment of BRI Technical Approval No. ITB AT-15-8735/2011. The original document No. ITB AT-15-8735/2013 consists of 20 pages. The contents of this document may only be reproduced in its entirety. Publication or distribution of extracts of the contents of this Technical Approval in any other form requires written consent of the Building Research Institute.

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1. OBJECT OF TECHNICAL APPROVAL

The object of this BRI Technical Approval is CONECTO waterproof expansion joint profiles for floor systems, manufactured by CONECTO Sp. z o.o., Florentyna 25, 62-817 Żelazków.

This Technical Approval covers the following products:

- CONECTO PARK SL – waterproof expansion joint profiles with an elastomeric insert clamped by aluminium strips, designed for surface or recessed installation as shown in Figures 1 and 2,
- CONECTO PARK CS – waterproof expansion joint profiles with a flexible membrane clamped by an aluminium strip, designed for surface installation as shown in Figure 3,
- CONECTO PARK GA - waterproof expansion joint profiles with an elastomeric insert fitted in aluminium carrier profiles and clamped by an angle strip made of aluminium or corrosion-resistant steel, designed for recessed installation as shown in Figure 4.

The waterproof expansion joint profiles incorporate aluminium profiles and sealing inserts or membranes made of EPDM, and in the case of CONECTO PARK GA type, clamping angle strips made of aluminium or corrosion-resistant steel.

The aluminium profiles may be protected by means of an anodic oxide film or supplied raw, without protecting coating.

The technical requirements for CONECTO PARK waterproof expansion joint profiles are provided in Section 3 below.

2. PURPOSE, SCOPE AND CONDITIONS OF USE

CONECTO PARK waterproof expansion joint profiles for floor systems are designed to provide waterproof cover of expansion gaps in floors and flooring systems indoors and outdoors.

Waterproof expansion joint profiles protect expansion gaps from penetration by runoff water, process-related water (in wet rooms) and surface water and moisture on the floor occurring during cleaning and maintenance works.

Waterproof expansion joint profiles can be used to protect expansion gaps between adjacent horizontal floor surfaces or corner gaps between the floor and a wall.

Waterproof expansion joint profiles are used for the following purposes:

- To cover gaps,
- To compensate multidirectional movements of floor components of built features,
- To protect gaps against water penetrating from the top of the floor surface,
- To protect gaps from accumulation of solid pollutants,
- To ensure safe movement of people and vehicles on the floor.

Floors with properly located expansion gaps, covered by the profiles, are not

exposed to cracking outside the expansion gaps.

CONECTO PARK expansion joint profiles for floor systems are capable of withstanding loads from foot and vehicular traffic specific for G class surfaces, as per PN-EN 1991-1-1:2004+AC:2009+Ap1:2010+Ap2:2011.

The use of traffic and parking surfaces of the G class are specified in Table 1.

Table 1

Traffic class	Function	Examples
G	Traffic and parking surfaces for medium vehicles (≥ 30 kN, ≤ 160 kN gross vehicle weight, on two axles)	Access roads: goods receiving areas, fire brigade access roads (for vehicles with a gross vehicle weight up to 160 kN).
NOTE: It is recommended to mark G class traffic surfaces by means of suitable warning signs.		

Depending on the type, the expansion joint profiles are used for gaps ranging from 50 to 150 mm and compensate for the variations in the gap width shown in Figures 1 to 4. The influence of temperature and concrete shrinkage on structural deformations and resulting changes of the size of expansion gaps should be determined according to the standard PN-EN 1992-1-1:2008 +NA:2010+Ap1:2010+AC:2011.

In the case of expansion joint profiles which require the provision of a recess for installation, the recess should be suitably dimensioned and its mounting surfaces should be square and even.

Expansion joint profiles should be fixed by means of suitable expansion anchor bolts authorised for sale and designed for the specific mounting surface. The spacing of anchoring points should be provided in the installation instructions by the Manufacturer.

CONECTO PARK expansion joint profiles for floor systems should be used according to the technical design developed for the relevant structure or built feature, with due consideration of the following:

- Applicable standards and technical and building regulations, in particular of the regulation of the Minister of Infrastructure of 12 April 2002, regarding technical requirements for buildings and their location (Journal of Laws No. 75 of 2002, Item 690, as amended),
- The provisions of this Technical Approval issued by the BRI, and
- Installation instructions for expansion joint profiles, developed by the Manufacturer and supplied to its customers.

3. TECHNICAL SPECIFICATIONS AND REQUIREMENTS

3.1. Materials

3.1.1. Plastic profiles. Sealing inserts and membranes should be made of synthetic rubber (EPDM) with the properties shown in Table 2.

Table 2

Item	Property	Requirement	Testing method
1	2	3	4
1	Shore hardness, °Sh	70 ± 5	PN-EN ISO 868:2005
2	Tear strength, MPa	≥ 10	PN-ISO 37:2007 +AC1:2008
3	Elongation at break, %	≥ 400	PN-ISO 37:2007 +AC1:2008
4	Permanent deformation after 24 h at a temperature of +70 °C, %	≤ 60	PN-ISO 815:1998
5	Tear strength, N/mm	≥ 40	PN-ISO 34-1:2007
6	Resistance to the action of liquids: water, brine (saturated water solution of NaCl), methanol (solvent), and engine oil (Stell Helix Ultra 5 W-40)	change in mass: $\leq 12\%$ change in thickness: $\leq 5\%$	PN-ISO 1817:2001

3.1.2. Aluminium profiles. Aluminium profiles used in the expansion joints should be made of aluminium alloy EN AW 6005 A according to the standard PN-EN 573-3:2010 and should meet the requirements of the standard PN-EN 755-2:2010 and PN-EN 755-9:2010.

The profiles can be corrosion-protected by means of an anodic oxide film of at least 15 µm, compliant with the standard PN-EN ISO 2360:2006.

3.1.3. CRS profiles. Clamping angle strips for plastic inserts in CONECTO PARK GA profiles, made of corrosion resistant steel should be made of 1.4301 grade steel plate according to the standards PN-EN 10088-1:2007 and PN-EN 10088-2:2007; the plate should be 2 mm thick.

3.2. Appearance

Untreated surfaces of the profiles should have no visible damage (cracks, dents, delamination or blisters) or defects compromising their appearance. Minor dents, scratches or other cosmetic defects, not visible to the naked eye at daylight from a distance of 1 m are acceptable.

The connecting surfaces of the profiles should be smooth and free from any gaps or faults. Flexible inserts and sealing membranes should adhere to the relevant surfaces of the profile and of the sealed element without gaps or folding. Disconnectable joints should be well fitted and easy to install, and should not come loose when used.

3.3. Technical properties of expansion joint profiles

3.3.1. Shape and dimensions. The shape and basic dimensions of expansion joint profiles should be consistent with Figures 1 to 4.

The dimensional tolerances of the aluminium profile cross sections should meet the requirements specified in the standard PN-EN 755-9:2010.

Other dimensional tolerances of the profiles should comply with the tolerances specified for the C class (coarse), according to the standard PN-EN 22768-1:1999.

3.3.2. Durability. CONETCO PARK expansion joint profiles for floor systems should pass a test of 100,000 cycles of transverse passages of a vertically-loaded rubberised wheel, across a specific contact surface of the sample, determined for the tested product. The wheel should exert a pressure of 20 kN on a square test area with a side length of 200 mm.

3.3.3. Water tightness. After the durability tests, waterproof expansion joint profiles should retain their runoff water penetration properties while sprayed on with non-pressurised water for at least 10 minutes at a rate of 10 l per minute.

4. PACKING, STORAGE AND TRANSPORT

CONETCO PARK waterproof expansion joint profiles should be supplied in original Manufacturer's unit or collective packaging, ensuring proper protection of the products against damage when handled or stored.

Finished products should be stored, handled and transported according to the Manufacturer's instructions to ensure maintenance of their technical properties. Each packaging should have a label attached with at least the following information:

- Manufacturer's name and address,
- Product name,
- Information regarding the expansion gap width and compensation range,
- Depth of installation and traffic class of the surface,
- BRI Technical Approval reference number (ITB AT-15-8735/2013),
- Number and date of issue of a national certificate of compliance, and
- Construction mark.

The manner of marking the products with the construction mark should be compliant with the regulation of the Minister of Infrastructure of 11 August 2004 regarding the forms of declarations of compliance for building products and the marking of the products with the construction mark (Journal of Laws No. 198/2004, Item 2041, as amended).

5. CONFORMITY ASSESSMENT

5.1. General principles

According to Article 4, Article 5, Section 1, Item 3 and Article 8, Section 1 of the Act on Building Products of 16 April 2004 (Journal of Laws No. 92/2004, Item 881), the products subject to this Technical Approval may be marketed and used in the performance of construction works within the scope of their functional properties and purpose if the manufacturer has ascertained their compliance, issued a national certificate of compliance with the BRI Technical Approval No. ITB AT-15-8735/2013 and marked the products with the construction mark as per applicable regulations.

Pursuant to the regulation of the Minister of Infrastructure of 11 August 2004 regarding the forms of declarations of compliance for building products and the marking of the products with the construction mark (Journal of Laws No. 198/2004, Item 2041, as amended), the Manufacturer is responsible for the assessment of compliance of CONECTO PARK waterproof expansion joint profiles with this Technical Approval No. ITB AT-15-8735/2013, using the AVCP System 4.

Conformity assessment according to System 4 allows the Manufacturer to issue a national declaration of conformity with the BRI Technical Approval No. ITB AT-15-8735/2013 on the basis of:

- 1) An initial type examination performed or commissioned by the Manufacturer, and
- 2) Factory production control.

5.2. Initial type examination

An initial type examination is carried out to confirm the required technical properties and performance characteristics before the product is launched on the market.

An initial type examination of CONECTO PARK waterproof expansion joint profiles covers the following:

- a) Technical properties of the plastic material of flexible sealing inserts and membranes,
- b) Product durability, and
- c) Water tightness.

The examinations which – in the approval procedure – provided a basis for the determination of technical and functional properties of the products constitute an initial type examination for the purpose of the conformity assessment.

5.3. Factory production control

The Manufacturer's factory production control covers the following:

- 1) Materials specifications and inspection of their validation documents, to confirm their technical properties, and
- 2) Control and inspections in the production process and examination of finished products (Section 5.4), performed by the Manufacturer in compliance with an

established inspection schedule and according to the principles and procedures defined in factory production control documents, adapted to the production technology and developed with the objective of manufacturing products with required properties.

The production control measures should ensure that the product complies with the requirements specified in the BRI Technical Approval No. ITB AT-15-8735/2013. Results of inspections should be regularly recorded and the records should verify that the product meets the relevant conformity assessment criteria. Individual products or batches of products and relevant manufacturing information should be fully identifiable and traceable.

5.4. Examination of finished products

5.4.1. Inspection schedule. An inspection schedule should include:

- a) On-going inspections, and
- b) Periodic inspections.

5.4.2. On-going inspections. On-going inspections should include the verification of:

- a) Product appearance, and
- b) Product shape and dimensions.

5.4.3. Periodic inspections. Periodic inspections cover the verification of:

- a) Product durability, and
- b) Water tightness.

5.5. Examination frequency

On-going inspections should be carried out according to the established inspection schedule, however at least for each batch of the products. The size of such a batch should be specified in the relevant factory production control documentation.

Periodic inspections should be carried out at least every 3 years.

5.6. Examination methods

5.6.1. Examination of appearance. The appearance of the product should be examined through visual inspection at dispersed daylight and at a distance of 1.0 m from the product.

5.6.2. Examination of shape and dimensions. The shape of the product should be examined through visual inspection with the results compared with Figures 1 to 4.

The verification of dimensions should be performed using measuring instruments with a relevant accuracy.

- 5.6.3. Examination of durability.** The durability of the waterproof expansion joint profiles is examined on a test bed, a sketch of which is provided in Figure 5. The rubberised tyre should be loaded at the required pressure. The tyre size and tyre air pressure should be selected to obtain the required contact area on the surface of the examined sample.

The wheel used to exert the required pressure should be rolled across the structural gap covered with the expansion joint profile at a frequency of 12 to 16 passes a minute.

The sample should be at least 0.5 m long.

When the required number of passes of the wheel have been completed the expansion joint profile should have no signs of damage.

- 5.6.4. Examination of water tightness.** When the durability examination is completed the sample is used to verify the water penetration properties of the product. For this purpose, the sample is sprayed with water for 10 minutes at a rate of 10 l per minute.
At the end of the test, the sample is visually inspected for any traces of water leaked into the expansion gap.

5.7. Sampling

Examination samples should be taken at random, according to the standard PN-N-03010:1983.

5.8. Assessment of examination results

The manufactured products should be found compliant with this BRI Technical Approval if the results of all the examinations are positive.

6. FORMAL AND LEGAL FINDINGS

- 6.1. This BRI Technical Approval No. ITB AT-15-8735/2013 replaces the BRI Technical Approval No. ITB AT-15-8735/2011.
- 6.2. The BRI Technical Approval No. ITB AT-15-8735/2013 is a document issued to confirm that CONECTO PARK waterproof expansion joint profiles are fit for use in construction applications within the scope of this Approval. According to Art. 4, Art. 5, Sec. 1, Item 3 and Art. 8, Sec. 1 of the Act on Building Products of 16 April 2004 (Journal of Laws No. 92/2004, Item 881, as amended), products for which this Technical Approval has been issued, may be marketed and used for the performance of construction works within the scope of their functional properties and purpose if the manufacturer has

ascertained their compliance, issued a national certificate of compliance with the BRI Technical Approval No. ITB AT-15-8735/2013 and marked the products with the construction mark as per applicable regulations.

- 6.3. This BRI Technical Approval does not infringe any rights under the regulations concerning the protection of industrial property, including in particular the Notice of the Speaker of the Parliament of the Republic of Poland, dated 13 June 2003, regarding the announcement of a consolidated text of the Act on Industrial Property Law of 30 June 2000 (Journal of Laws No. 119, Item 1117, as amended). It is a responsibility of the user of this BRI Technical Approval to secure any rights thereunder.
- 6.4. By issuing this Technical Approval, the BRI assumes no liability for any violation of exclusive or acquired rights.
- 6.5. This Technical Approval does not release the Manufacturer of CONECTO PARK waterproof expansion joint profiles from any liability for adequate quality of the products, nor does it release building contractors from their liability for proper application of the products and appropriate quality of their work.
- 6.6. The content of any brochures and releases or other documents connected with the marketing and application of CONECTO PARK waterproof expansion joint profiles in the construction industry should include information about the BRI Technical Approval No. ITB AT-15-8735/2013 issued for the products.

7. TERM OF VALIDITY

This BRI Technical Approval No. ITB AT-15-8735/2013 is valid until 24 July 2018. The Technical Approval may be renewed subsequent terms if the Applicant or the Applicant's official successor formally applies to the Building Research Institute for such renewal 3 months prior to the expiration of the relevant term of validity of this document, at the latest.

END

ADDITIONAL INFORMATION

Applicable standards and documents

PN-EN 573-3:2010	<i>Aluminium and aluminium alloys. Chemical composition and form of wrought products. Part 3: Chemical composition and form of products.</i>
PN-EN 755-2:2010	<i>Aluminium and aluminium alloys. Extruded rod/bar, tubes and profiles. Part 2: Mechanical properties.</i>
PN-EN 755-9:2010	<i>Aluminium and aluminium alloys. Extruded rod/bar, tubes and profiles. Part 9: Tolerances on dimensions and form of profiles.</i>
PN-EN 1991-1-1:2004 +AC:2009+Ap1:2010+Ap2:2011	<i>Eurocode 1: Actions on structures. Part 1-1: General actions. Densities, self-weight, imposed loads for buildings.</i>
PN-EN 1992-1-1:2008 +NA:2010+Ap1:2010+AC:2011	<i>Eurocode 2. Design of concrete structures. Part 1-1: General rules and rules for buildings.</i>
PN-EN 10088-1:2007	<i>Stainless steels. Part 1: Stainless steel grades.</i>
PN-EN 10088-2:2007	<i>Stainless steels. Part 2: Technical delivery conditions for sheet/plate and strip of for general purposes.</i>
PN-EN 22768-1:1999	<i>General tolerances. Tolerances for linear and angular dimensions without individual tolerance indications.</i>
PN-EN ISO 868:2005	<i>Plastics and ebonite. Determination of indentation hardness by means of a durometer (Shore hardness).</i>
PN-EN ISO 2360:2006	<i>Non-conductive coatings on non-magnetic electrically conductive basis materials. Measurement of coating thickness. Amplitude-sensitive eddy-current method.</i>
PN-ISO 34-1:2007	<i>Rubber, vulcanized or thermoplastic. Determination of tear strength. Part 1: Trouser, angle and crescent test pieces.</i>
PN-ISO 37:2007+AC1:2008	<i>Rubber, vulcanised or thermoplastic. Determination of tensile stress-strain properties.</i>

PN-ISO 815:1998	<i>Rubber, vulcanized or thermoplastic. Determination of compression set at ambient, elevated or low temperatures.</i>
PN-ISO 1817:2001	<i>Rubber. Determination of the effect of liquids.</i>
PN-N-03010:1983	<i>Static quality control. Random selection of sample units for inspection.</i>

Assessment and test reports

1. Test Report No. LOW01-6022/11/R010WN. CONECTO PARK waterproof expansion joint profiles, BRI Construction Hardware Testing Laboratory (LOW), ITB Oddział Wielkopolski, Poznań, ul. St. Taczaka 12.
2. Test Report No. LOW02-6022/11/R010WN. CONECTO PARK waterproof expansion joint profiles, BRI Construction Hardware Testing Laboratory, ITB Oddział Wielkopolski, Poznań, ul. St. Taczaka 12.
3. Expert opinion No. OWN-OT-027/2012 reg. CONECTO expansion joint profiles SL 190.30.20 from the perspective of the requirements specified in TA No. AT-15-8735/2011, BRI Construction Hardware Testing Laboratory, OWN, ITB Oddział Wielkopolski, 61-819 Poznań, ul. St. Taczaka 12.
4. Test Report No. LOWOI-6022/13/R050WN. CONECTO PARK CS waterproof expansion joint profile, BRI Construction Hardware Testing Laboratory, ITB Oddział Wielkopolski, 61-819 Poznań, ul. St. Taczaka 12.

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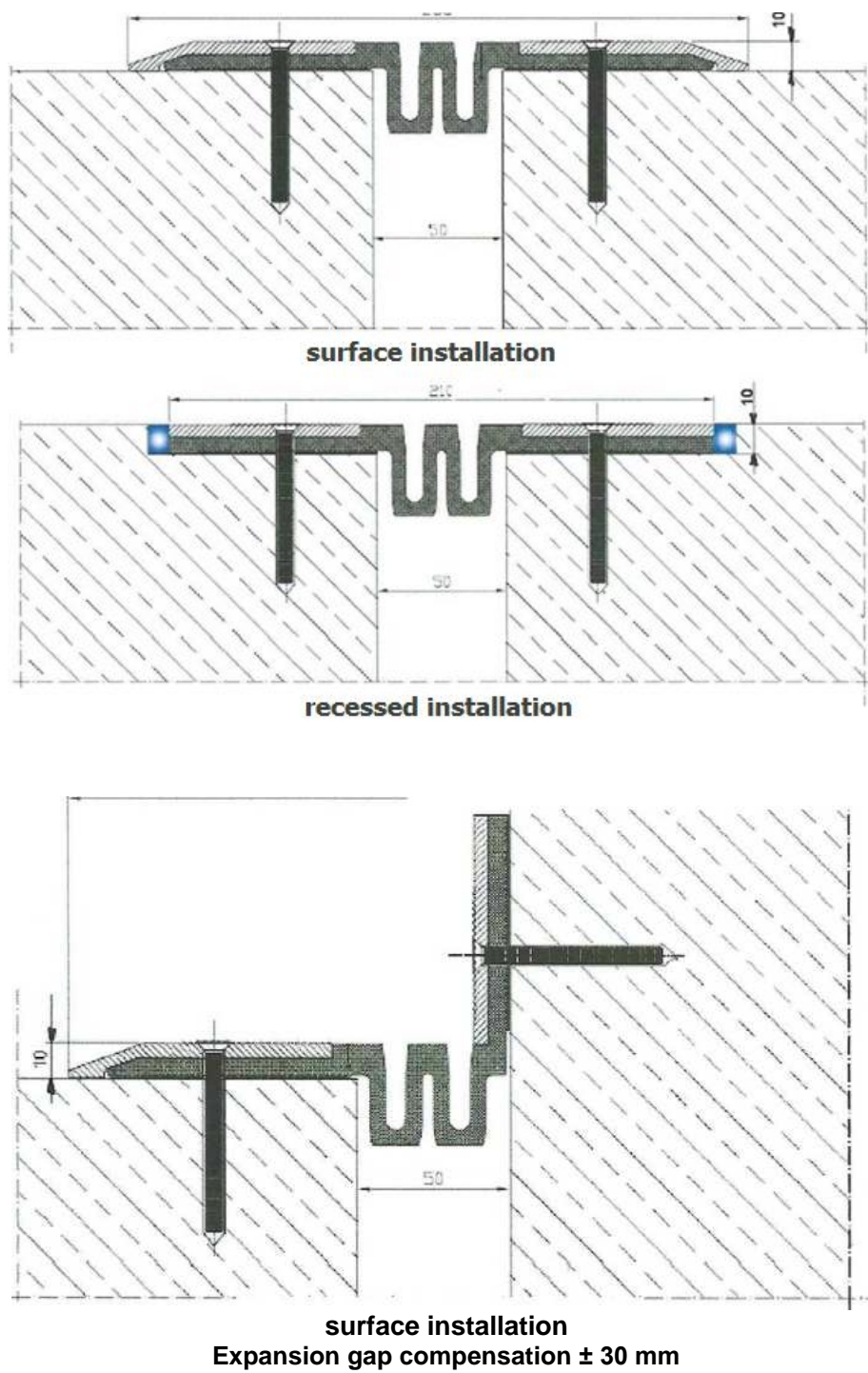


Fig. 1. CONECTO PARK SL 210.50 waterproof expansion joint profile

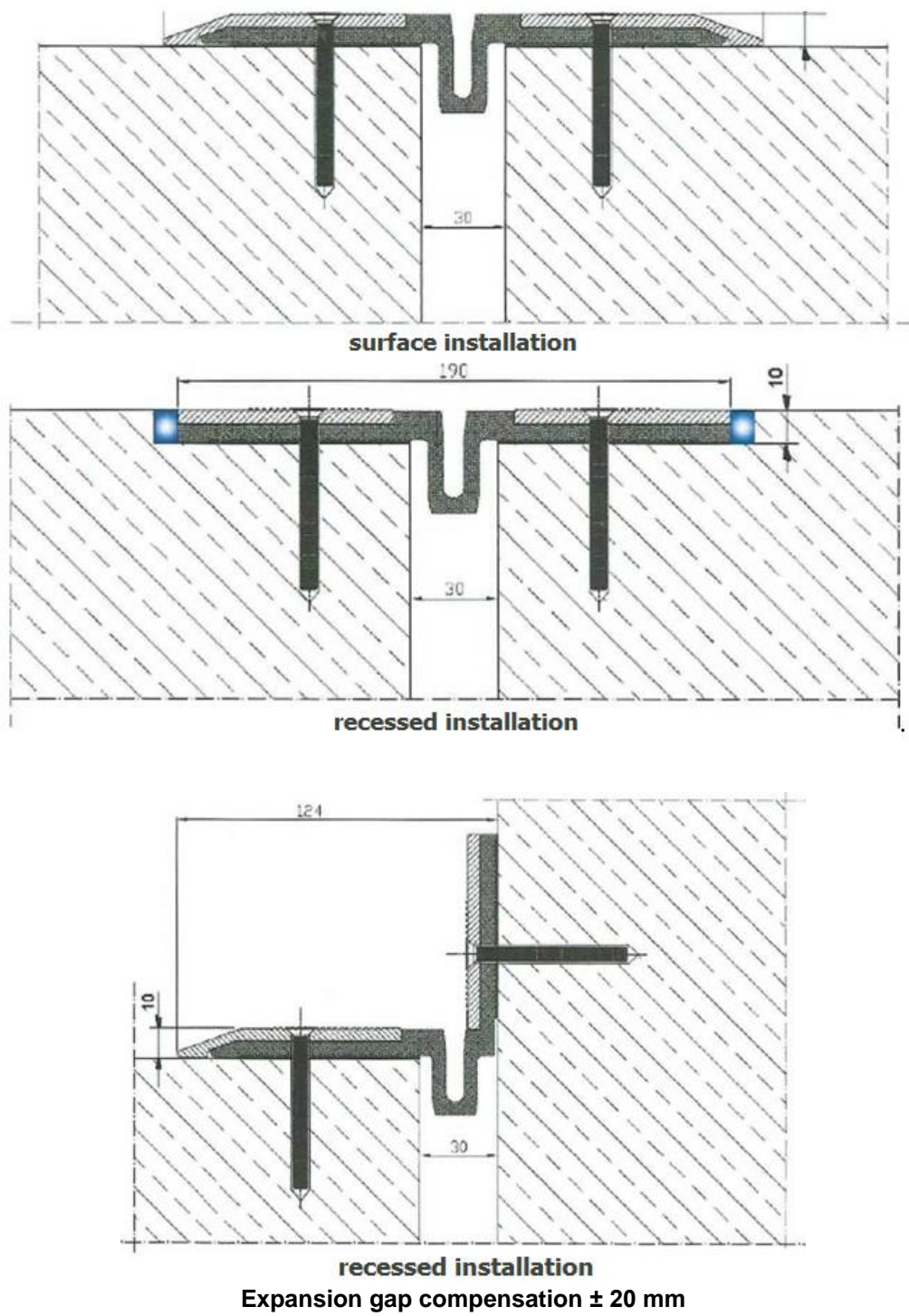
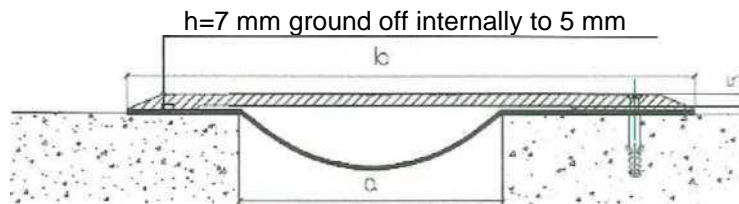
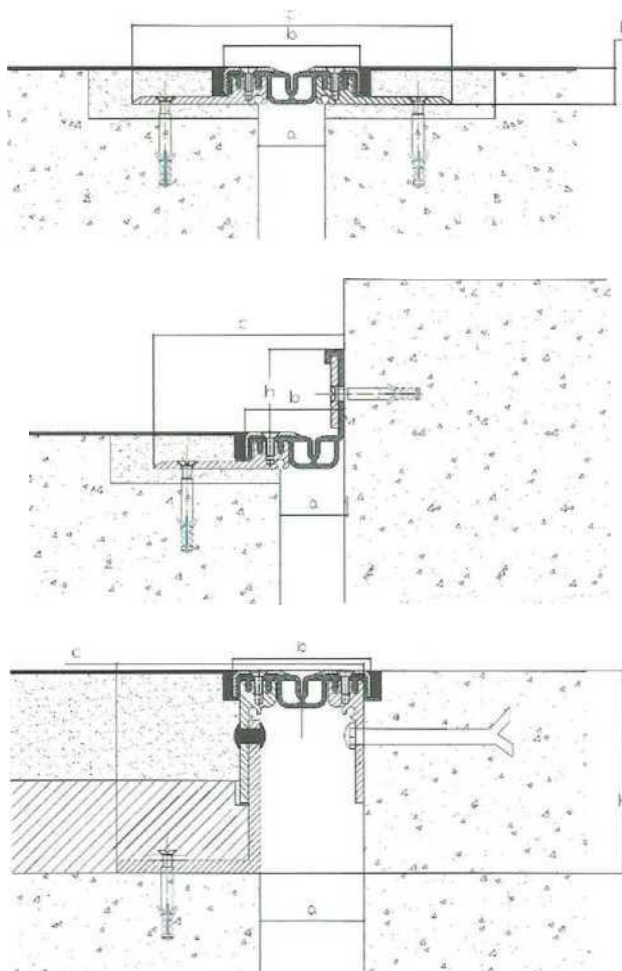


Fig. 2. CONECTO PARK SL 190.30 waterproof expansion joint profile



Item	Model	Compensation, mm	Dimensions, mm		
			a	b	h
1.	CONECTO CS 120	±50	max. 80	120	5
2.	CONECTO CS 160	±50	max. 90	160	7
3.	CONECTO CS 260	±50	max. 150	260	7

Fig. 3. CONECTO PARK CS waterproof expansion joint profiles



Item	Model	Compensation, mm	Dimensions, mm			
			a	b	c	h
1.	CONECTO GA 50.10.25	$H \pm 20 \ V \pm 15$	50	95	222	25
2.	CONECTO GA 50.10.35	$H \pm 20 \ V \pm 15$	50	95	222	35
3.	CONECTO GA 50.10.45	$H \pm 20 \ V \pm 15$	50	95	222	45
4.	CONECTO GA 50.10.55	$H \pm 20 \ V \pm 15$	50	95	222	55
5.	CONECTO GA 50.10.75	$H \pm 20 \ V \pm 15$	50	95	222	75
6.	CONECTO GA 50.10.85	$H \pm 20 \ V \pm 15$	50	95	222	85
7.	CONECTO GA CV 50.20.25	$H \pm 20 \ V \pm 15$	50	70	130	80
8.	CONECTO GA 100.20.100/200	$H \pm 30 \ V \pm 20$	100	95	285	100-200
9.	CONECTO GA 100.30.100/200	$H \pm 30 \ V \pm 20$	100	105	295	100-200
10.	CONECTO GA 100.30.100/200	$H \pm 30 \ V \pm 20$	100	105	295	100-200
11.	CONECTO GA CV 100.30.100/200	$H \pm 30 \ V \pm 20$	100	90	140	100-200

NOTE: H – horizontal displacement
V – vertical displacement

Fig. 4. CONECTO PARK GA waterproof expansion joint profiles

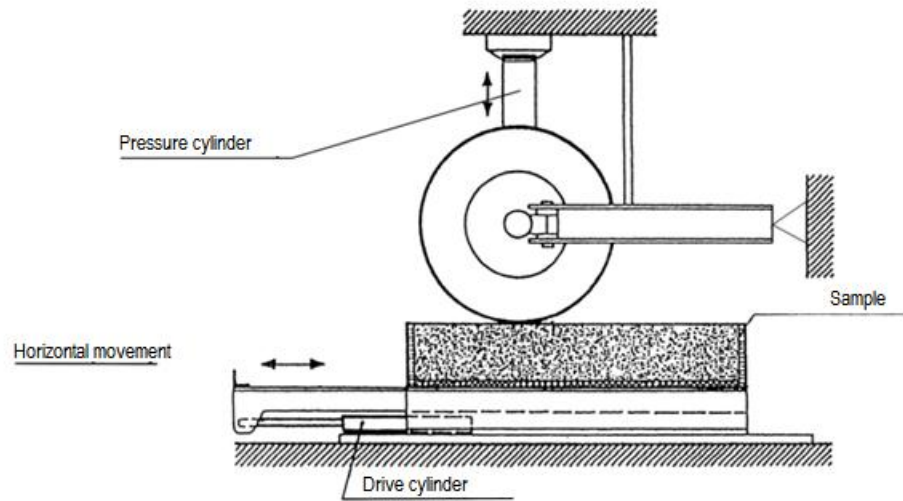


Fig. 5. Sketch of a test bed for durability examinations