

# **NATIONAL TECHNICAL ASSESSMENT ITB-KOT-2023/2346 rev. 1**

This National Technical Assessment has been issued in accordance with the Regulation of the Minister of Infrastructure and Construction of 17 November 2016 on National Technical Assessments (Journal of Laws of 2016, Item 1968) by the Building Research Institute in Warsaw, at the request of:

**SIKLA GmbH**

**In der Lache 17, 78056 VS Schwenningen, Germany**

**SIKLA Polska Sp. z o.o.**

**ul. Spółdzielcza 55, 58-500 Jelenia Góra**

National Technical Assessment ITB-KOT-2023/2346 Rev. 1 is a positive assessment of the performance of the following construction products for their intended use:

**Pipe loops RSL N  
for pipes and ducts used for fire suppression and  
extinguishing installations – fixed water firefighting and  
automatic sprinklers equipment**

Date of validity of the National Technical  
Assessment:

**19th of December 2028**

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Warsaw, 19th of December 2023

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## 1. Technical description of the product

The subject of this National Technical Assessment are pipe loops RSL N for pipes and ducts used for fire suppression and extinguishing installations – fixed water firefighting and automatic sprinklers equipment.

The products covered by the National Technical Assessment are manufactured by SIKLA GmbH, In der Lache 17, 78056 VS Schwenningen, Germany, at its production plant in Germany. The authorised representative of the manufacturer in Poland is SIKLA Polska Sp. z o.o., ul. Spółdzielcza55, 58-500 Jelenia Góra.

The National Technical Assessment shall cover the product types specified by the manufacturer and derived from the performance characteristics given in section 3 and the combination of materials and components.

Pipe loop RSL N consists of steel flat bar formed in loop, threaded bushing and flange nut (acc. to Annex A, Fig. A1). Threaded bushing covers two ends of steel metal bar formed in loop. The flange nut is assembled on threaded rod intended for hanging the loop. All components are supplied separately (not assembled).

Pipe loops are made of galvanized steel flat bar, grade DX51D or DX52D according to standard PN-EN 10346:2015 with a yield strength  $R_e$  not less than 240 N/mm<sup>2</sup>

Zinc coating thickness is not less than 12  $\mu\text{m}$ . Threaded bushings are made of galvanized steel, grade 11SMnPb30 (1.0718) according to standard PN-EN ISO 683-4:2018 and covered with a zinc coating with a thickness of not less than 12  $\mu\text{m}$ .

Flange nuts are made of carbon steel with a mechanical property class not less than 8 according to standard PN-EN ISO 898-2:2023 and that corresponds to the class of mechanical properties of the threaded rods. Flange nuts are covered with a zinc coating with a thickness not less than 12  $\mu\text{m}$ .

Threaded rods used for pipe loop hanging are not covered by this National Technical Assessment and shall be placed on the market in accordance with applicable regulations and intended use. Minimum class of mechanical properties of threaded rods and flange nuts should be specified in the technical design.

The shape and dimensions of the RSL N pipe loops are shown in Annex A. Deviations of thread dimensions correspond to standard PN-ISO 965-2:2001, and deviations of steel bars thickness correspond to standard PN-EN 10131:2008

The deviations of the remaining dimensions of the RSL N pipe loops correspond to the tolerance class  $m$  according to standard PN-EN 22768-1:1999

## 2. Intended use of the product

Pipe loops RSL N are designated for fixing (suspension) of pipes and ducts used for fire suppression and extinguishing installations – fixed water firefighting and automatic sprinklers equipment in range resulting from functional performance specified in Section 3.

The performance of threaded rods used for RSL N pipe loops suspension should be specified in the technical design developed for specified installation. The class of mechanical properties of threaded rods and its tensile strength shall be adapted to load capacity of RSL N pipe loops.

Pipe loops RSL N can be used for fixing (suspension) of pipes and ducts for fire suppression and extinguishing installations within nominal diameter DN 20 ÷ DN 200 installed according to standard PN-EN 12845+A1:2020, VdS Schadenverhütung guidance or other standards defined for design and assembling of fixed water sprinklers equipment.

For corrosion protection reasons, pipe loops RSL N shall be used in corrosion conditions cat. C3 M, according to standard PN-EN ISO 14713-1:2017 and PN-EN ISO 9223:2012.

The products covered by this National Technical Assessment shall be used in accordance with a technical design developed taking into account:

- Polish standards and technical and construction regulations, in particular the Regulation of the Minister of Infrastructure of 12 April 2002 on technical conditions to be met by buildings and their location (Journal of Laws of 2022, Item 1225),
- the provisions of this National Technical Assessment of Building Research Institute,
- the recommendations contained in the technical manual drawn up by the manufacturer and supplied to the recipients.

### 3. The performance of the product and the methods used for its assessment

#### 3.1 Product performance characteristic

**3.1.1. Characteristic and design load capacity.** Characteristic and design load capacity are shown in Table 1.

Design load capacity determined based on characteristic load capacity are given including safety factor 2,0

**Table 1**

No.	Designation	Characteristic capacity load <sup>1)</sup> , kN	Designed capacity load <sup>1)</sup> , kN
1	26,9 ÷ 60,3	4,0	2,0
2	76,1 ÷ 114,3	7,0	3,5
3	133 ÷ 168,3	10,0	5,0
4	219,1	17,0	8,5

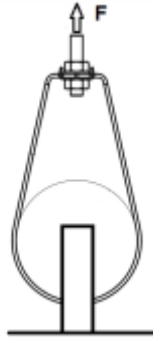
<sup>1)</sup> pipe loops capacity load suspended on threaded rods made in class of mechanical properties not less than 4.8 according to standard PN-EN ISO 898-1:2013

**3.1.2. Durability.** Zinc coating thickness not less than 12 µm, ensures durability of pipe loops RSL N to the extent specified in Section 2.

#### 3.2. Methods used to assess the performance

**3.2.1. Characteristic and design load capacity.** Load capacity tests are carried out in conditions corresponding to the service conditions applying the loads specified by the manufacturer

Load capacity test is performed by tensile strength according fig. 1, using criteria of the ultimate limit state (destructive force). Characteristic values are determined using the statistical method, assuming. Design load capacity is given including safety factor  $\gamma = 2,0$ .



**Fig. 1.** Pipe loops testing scheme

**3.2.2. Durability.** The zinc coating thickness test is performed according to PN-EN ISO 2808:2020

#### **4. Packing, transportation and storage, labelling of products**

The products covered by this National Technical Assessment should be delivered in the manufacturer's original packaging and stored and transported in accordance with the manufacturer's instructions.

The method of marking products with the construction mark should be in accordance with the Regulation of the Minister of Infrastructure and Construction of 17 November 2016 on the method of declaring the performance of construction products and the method of marking them with the construction mark (Journal of Laws of 2023, Item 873).

The marking of the product with the construction mark shall be accompanied by following information:

- the last two digits of the year in which the construction mark was first affixed to the construction product,
- the name and registered address of the manufacturer or an identification mark enabling the name and registered address of the manufacturer to be unequivocally identified,
- name and designation of the construction product type,
- number and year of issue of the national technical assessment according to which the performance was declared (ITB-KOT-2023/2346 rev. 1),
- number of the national declaration of performance,
- the level or class of performance declared,
- name of the certification body that participated in the assessment and verification of the constancy of performance of the construction product
- the address of the manufacturer's website if the national declaration of performance is made available on it.

A safety data sheet and/or information on hazardous substances contained in a construction product, as referred to in Article 31 or 33 of Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) and establishing a European Chemicals Agency, should be supplied or, where appropriate, made available together with the national declaration of performance.

Furthermore, the labelling of a construction product which is a hazardous mixture under the REACH Regulation should be in accordance with the requirements of Regulation (EC) No 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures (CLP), amending and repealing Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006.

## **5. Assessment and verification of constancy of performance**

### **5.1. National system of assessment and verification of constancy of performance**

According to the Regulation of the Minister of Infrastructure and Construction of 17 November 2016 on the method of declaring the performance of construction products and the method of marking them with the construction mark (Journal of Laws of 2023, Item 873) system 1 of assessment and verification of constancy of performance shall be applied.

### **5.2. Type testing**

The performance characteristics assessed in point 3 shall be type-tested for products as long as there is no change in raw materials, components, production line or plant.

### **5.3. Factory production control**

The manufacturer shall have a factory production control system in place at the manufacturing site. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of policies and procedures, including records of testing. The factory production control shall be adapted to the production technology and shall ensure that the declared performance of the product is maintained in series production.

The factory production control shall include the specification and testing of raw materials and components, in-process inspection and testing (according to Section 5.4) carried out by the manufacturer in accordance with an established test plan and according to the rules and procedures laid down in the factory production control documentation.

The results of production control should be systematically recorded. The records of the register should confirm that the products meet the criteria for assessment and verification of constancy of performance. Individual products or batches of products and related production details must be fully identifiable and reproducible.

### **5.4. Follow-up tests**

**5.4.1. Testing plan.** The testing plan includes:

- a) ongoing testing,
- b) periodic testing.

**5.4.2. Ongoing testing.** Ongoing testing includes inspection of:

- shape and dimensions,
- zinc coating thickness for parts made of zinc coated steel.

**5.4.3. Periodic testing.** Periodic testing includes verification of load capacity.

## **5.5. Frequency of testing**

Ongoing tests should be carried out in accordance with an established test plan, but not less frequently than for each batch of products. The batch size shall be specified in the factory production control documentation. Periodic tests should be carried out at least once every 3 years.

## **6. Comments**

**6.1.** The National Technical Assessment ITB-KOT-2023/2346 rev.1 is a positive assessment of the performance of pipe loops RSL N which, in accordance with the intended use resulting from the provisions of the assessment, affect the fulfilment of the basic requirements by the construction works in which the products will be used.

**6.2.** The National Technical Assessment ITB-KOT-2023/2346 rev.1 is not a document authorising the marking of a construction product with a construction mark.

In accordance with the Act on construction products of 16 April 2004 (Journal of Laws of 2021, Item 1213) the products covered by this National Technical Assessment may be placed on the market or made available on the domestic market if the manufacturer has assessed and verified the constancy of performance, drawn up a national declaration of performance in accordance with National Technical Assessment ITB-KOT-2023/2346 rev.1 and labelled the products with the construction mark, in accordance with applicable regulations.

**6.3.** The National Technical Assessment ITB-KOT-2023/2346 rev.1 does not infringe the rights arising from provisions on industrial property protection, in particular the Act of 30 June 2000 - Industrial Property Law (Journal of Laws of 2023, Item 1170). It is the responsibility of the users of this National Technical Assessment to ensure these rights.

**6.4.** By issuing a National Technical Assessment, the Building Research Institute is not responsible for any possible infringement of exclusive and acquired rights.

**6.5.** The National Technical Assessment does not relieve the product manufacturer of its responsibility for the correct quality of the products and building contractors of their responsibility for their correct application.

**6.6.** The validity of the National Technical Assessment may be renewed for further periods not exceeding 5 years.

## 7. List of documents used in the proceedings

### 7.1. Reports, test reports, assessment and classifications

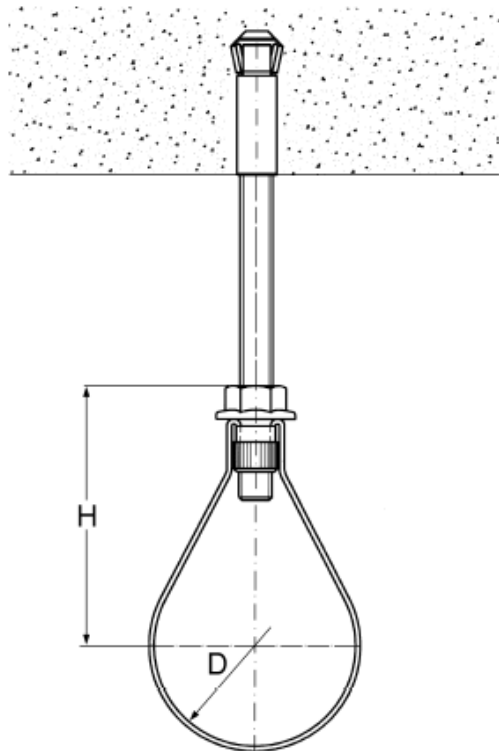
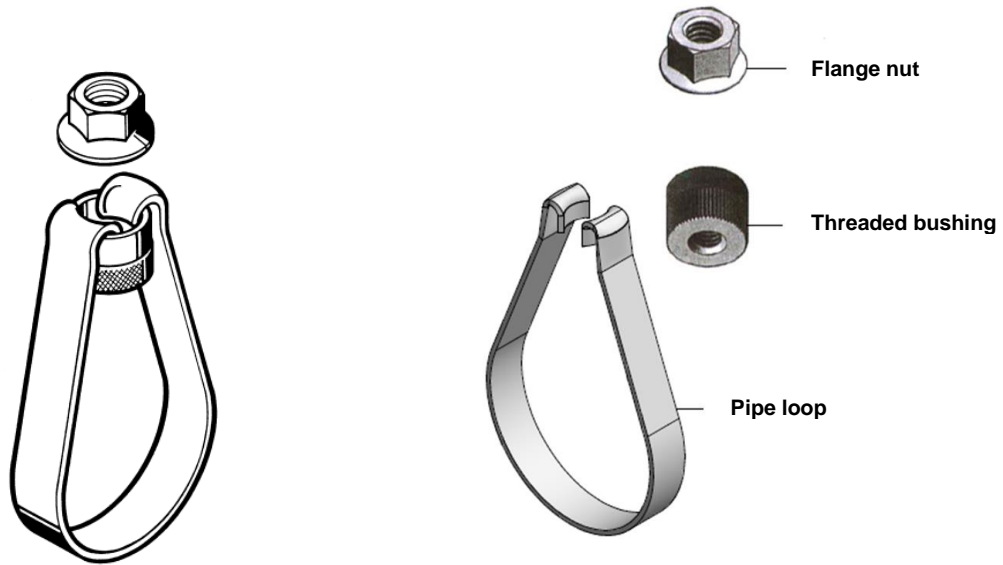
- 1) NZK.411.557.2022 06587.03.ZF. Opinion to Test report LZK00-01612/22/Z00NZK. Building Structures, Geotechnics and Concrete Department laboratory of ITB, Warsaw 2023.
- 2) LZK00-01612/22/Z00NZK. Test report. Building Structures, Geotechnics and Concrete Department laboratory of ITB, Warsaw 2022.
- 3) 00702/22/Z00NZM. Classification. Department of Building Materials Engineering, ITB. Warsaw 2022.
- 4) LZM00-00702/22/Z00NZM. Test report. Department of Building Materials Engineering, ITB. Warsaw 2022.

### 7.2. Standards and related document

PN-EN 10346:2015	<i>Continuously hot-dip coated steel flat products for cold forming. Technical delivery conditions</i>
PN-EN ISO 683-4:2018	<i>Heat-treatable steels, alloy steels and free-cutting steels. Part 4: Free-cutting steels.</i>
PN-EN ISO 898-1:2013	<i>Mechanical properties of fasteners made of carbon steel and alloy steel. Part 1: Bolts, screws and studs with specified property classes. Coarse thread and fine pitch thread.</i>
PN-EN ISO 898-2:2023	<i>Fasteners. Mechanical properties of fasteners made of carbon steel and alloy steel. Part 2: Nuts with specified property classes</i>
PN-ISO 965-2:2001	<i>ISO general purpose metric screw threads. Tolerances. Part 2: Limits of sizes for general purpose external and internal screw threads. Medium quality.</i>
PN-EN 10131:2008	<i>Cold rolled uncoated and zinc or zinc-nickel electrolytically coated low carbon and high yield strength steel flat products for cold forming. Tolerance on dimensions and shape.</i>
PN-EN 22768-1:1999	<i>General Tolerances. Tolerances for linear and angular dimensions without individual tolerance indications</i>
PN-EN 12845+A1:2020	<i>Fixed firefighting systems. Automatic sprinkler systems. Design, installation and maintenance.</i>
PN-EN ISO 14713-1:2017	<i>Zinc coatings. Guidelines and recommendations for the protection against corrosion of iron and steel in structures. Parts 1: General principles of design and corrosion resistance</i>
PN-EN ISO 9223:2012	<i>Corrosion of metals and alloys. Corrosivity of atmospheres. Classification, determination and estimation.</i>
PN-EN ISO 2808:2020	<i>Paints and varnishes. Determination of film thickness</i>



**Annex A.**



**Fig. A1.** Pipe loops RSL N

**Table A1.** Pipe loop RSL N assortment and dimensions

Designation	Pipe nominal diameter DN		Thread of flange nut and bushing	D, mm	H, mm	Pipe loop steel bar dimensions mm	
	mm	inch				width	thickness
26,9	20	3/4"	M8 or M10	27	65	12	1,5
33,7	25	1"	M8 or M10	34	65	12	1,5
42,4	32	1 1/4"	M8 or M10	43	65	12	1,5
48,3	40	1 1/2"	M8 or M10	49	70	12	1,5
60,3	50	2"	M8 or M10	61	79	12	1,5
76,1	65	2 1/2"	M10	77	98	15	2,5
88,9	80	3"	M10	90	113	15	2,5
108	100	-	M10	110	142	15	2,5
114,3	100	4"	M10	115	142	15	2,5
133	125	-	M12	135	155	15	2,5
139,7	125	5"	M12	142	155	15	2,5
159	150	-	M12	161	185	15	2,5
168,3	150	6"	M12	170	185	15	2,5
219,1	200	8"	M16	221	239	25	2,5