

# National technical approval / General construction technique permit

Public-law institution jointly founded by the  
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Technical authority granting approvals  
and permits for construction products  
and construction techniques

Date: 30 Nov 2021      Reference number:  
I 25-1.21.8-36/21

**Number:**

**Z-21.8-1980**

**Applicant:**

**EJOT Baubefestigungen GmbH**  
In der Stockwiese 35  
57334 Bad Laasphe

**Validity**

from: **30 November 2021**  
to: **30 November 2026**

**Subject of decision:**

**EJOT installation screw DDS for fastening insulation products to concrete members**

The subject named above is herewith granted a national technical approval (*allgemeine bauaufsichtliche Zulassung*) / general construction technique permit (*allgemeine Bauartgenehmigung*).

This decision contains six pages and four annexes.

This national technical approval / general construction technique permit replaces national technical approval / general construction technique permit no. Z-21.8-1980 of 15 May 2020. The subject concerned was granted the first national technical approval on 16 October 2012.

**Translation authorised by DIBt**

DIBt

## I GENERAL PROVISIONS

- 1 This decision confirms the fitness for use and application of the subject concerned within the meaning of the Building Codes of the federal states (*Landesbauordnungen*).
- 2 This decision does not replace the permits, approvals and certificates required by law for carrying out construction projects.
- 3 This decision is granted without prejudice to the rights of third parties, in particular private property rights.
- 4 Notwithstanding further provisions in the 'Special Provisions', copies of this decision shall be made available to the user and installer of the subject concerned. The user and installer of the subject concerned shall also be made aware that this decision must be made available at the place of use or place of application. Upon request, copies shall also be provided to the authorities involved.
- 5 This decision may be reproduced in full only. Partial publication requires the consent of DIBt. Texts and drawings in promotional material shall not contradict this decision. In the event of a discrepancy between the German original and this authorised translation, the German version shall prevail.
- 6 This decision may be revoked. The provisions contained herein may subsequently be supplemented and amended, in particular if this is required by new technical findings.
- 7 This decision is based on the information and documents provided by the applicant. Alterations to this basis are not covered by this decision and shall be notified to DIBt without delay.

## II SPECIAL PROVISIONS

### 1 Subject concerned and field of use and application

#### 1.1 Subject of approval and field of use

The subject of approval is the EJOT insulation screw DDS of size 6 mm made of galvanised steel with or without duplex coating.

The EJOT insulation screw DDS may be used for anchorage in concrete.

#### 1.2 Subject of permit and field of application

The subject of the permit is the planning, design and execution of anchorages using EJOT insulation screws DDS for fastening insulation products to concrete members.

The EJOT insulation screw DDS is anchored by screwing it into a pre-drilled cylindrical hole.

The installed EJOT insulation screw DDS is shown in Annex 1.

The anchorage is suitable for application in reinforced and unreinforced normal weight concrete with a minimum strength class of C20/25 and a maximum strength class of C50/60 in accordance with DIN EN 206-1:2001-07 'Concrete; Part 1: Specification, performance, production and conformity'.

It may be executed in cracked and uncracked concrete.

The EJOT insulation screw DDS is only suitable for multiple (redundant) use in insulation boards. The insulation boards shall be fixed with at least 4 screws per square metre. Screws shall not be set in the joints of the boards.

The EJOT insulation screw DDS made of galvanised steel shall only be used under dry internal conditions (relative humidity < 60%) and in environments that can be classified as corrosivity categories C1 (very low) or C2 (low) in accordance with DIN EN ISO 12944-2:2018-04.

The EJOT insulation screw DDS made of galvanised steel with duplex coating may also be used on the outside of buildings, provided that direct weathering can be excluded. It shall only be used in environments that can be classified as corrosivity categories C1 (very low), C2 (low) or C3 (medium) in accordance with DIN EN ISO 12944-2:2018-4. It may be used in coastal areas with low salinity, provided that fluctuating immersion in seawater can be excluded and it is not applied in the splash zone of seawater.

### 2 Provisions for the construction product

#### 2.1 Properties and composition

The EJOT insulation screw DDS shall correspond to the drawings and specifications given in the annexes. The material characteristics, dimensions and tolerances of the screws that are not specified in this decision shall comply with the specifications deposited with DIBt, the certification body and the external surveillance body.

The insulation screw DDS is made of a non-combustible building material of class A in accordance with DIN 4102-1:1998-05 - 'Fire behaviour of building materials and building components; building materials; concepts, requirements and tests'.

#### 2.2 Marking

The packaging, accompanying leaflet or delivery note for the screw shall be marked by the manufacturer with the national conformity mark (*Ü-Zeichen*) in accordance with the Conformity Marking Ordinances (*Übereinstimmungszeichen-Verordnungen*) of the federal states. In addition, the manufacturing plant marking, the approval number and the complete screw designation shall be stated.

The mark shall only be applied if the requirements given in Section 2.3 are met.  
Every product shall be stamped in accordance with Annex 2.

## **2.3 Confirmation of conformity**

### **2.3.1 General**

The manufacturer shall confirm for each manufacturing plant that the screw complies with the provisions of this national technical approval by way of a declaration of conformity based on factory production control and a certificate of conformity issued by a recognised certification body, as well as by way of regular external surveillance carried out by a recognised inspection body in accordance with the following provisions.

To issue the certificate of conformity and for external surveillance, including the associated product testing, the manufacturer of the screw shall use a certification body and an inspection body recognised for these purposes.

The declaration of conformity shall be submitted by the manufacturer through marking of the construction products with the national conformity mark, including statement of the intended use.

The certification body shall send a copy of the certificate of conformity issued by it to DIBt.

### **2.3.2 Factory production control**

A factory production control system shall be set up and implemented in each manufacturing plant. Factory production control shall be understood to be continuous surveillance of production by the manufacturer to ensure that the manufactured construction products satisfy the provisions of this national technical approval.

Scope, type and frequency of factory production control shall be in accordance with the test plan deposited with DIBt and the external surveillance body.

The results of factory production control shall be recorded and evaluated. The records shall include at least the following information:

- designation of the construction product or the starting material or the components
- type of check or test
- date of manufacture and testing of the construction product or the starting material or the components
- results of check and tests and, where applicable, comparison with requirements,
- signature of the person responsible for factory production control.

The records shall be kept for at least five years and submitted to the inspection body used for external surveillance. They shall be submitted to DIBt and the competent supreme building authority upon request.

If the test result is unsatisfactory, the manufacturer shall immediately take the necessary measures to resolve the defect. Construction products which do not meet the requirements shall be handled in such a manner that they cannot be mixed up with compliant products. After the defect has been remedied, the relevant test shall be repeated immediately, where technically feasible and necessary to show that the defect has been eliminated.

### 2.3.3 External surveillance

The factory production control system shall be verified regularly, i.e. at least once a year, by means of external surveillance at each manufacturing plant of the screw.

Within the framework of external surveillance, initial type-testing of the screw and sample testing shall be carried out. Sampling and testing shall be the responsibility of the recognised inspection body.

Scope, type and frequency of factory production control shall be in accordance with the test plan deposited with DIBt and the external surveillance body.

The results of certification and external surveillance shall be kept for at least five years. They shall be presented by the certification or inspection body to DIBt and the competent supreme building authority upon request.

## 3 Provisions for planning, design and execution

### 3.1 Planning

The anchorages shall be planned in line with good engineering practice. Verifiable calculations and design drawings shall be prepared in consideration of the loads to be anchored.

The EJOT insulation screw DDS shall only be used for redundant fixing of insulation boards. The insulation boards shall be fixed with at least 4 screws per square metre.

The screw length shall depend on the insulation material thickness and be selected such that the minimum embedment depth given in Annex 3, Table 3 is adhered to.

The design drawings shall contain the exact positions of the EJOT insulation screw DDS.

### 3.2 Design

#### 3.2.1 General

The present design provisions cover the verification of the immediate local force transmission into the concrete. The transfer of the loads to be anchored in the concrete member shall be verified separately.

The load-bearing capacity of the screw in the insulation board is not covered by this national technical approval.

Additional loads that may arise in the screw, in the fixture or in the member in which the screw is anchored due to constraint (e.g. due to temperature fluctuations) shall be taken into account.

The minimum distances of the screws (spacing, edge distances) and the thickness of the member shall not fall below the values given in Annex 4.

It shall be verified that the design value for the action  $F_{Ed}$  does not exceed the design resistance  $F_{Rd}$ :

$$F_{Ed} \leq F_{Rd}$$

#### 3.2.2 Cold-state design

The design resistance value for all load directions  $F_{Rd}$  is given in Annex 4, Table 4.

#### 3.2.3 Fire design

The fire design values are given Annex 4, Table 5. The verification applies to a member exposed to fire from one side. In the case of fire exposure from more than one side, the verification shall only be carried out if the edge distance of the anchor is  $c \geq 300$  mm.

### **3.3 Execution**

#### **3.3.1 General**

The screw to be anchored shall be installed in accordance with the design drawings prepared in accordance with Section 3.1.

The installation instructions given in Annex 1 shall be observed.

The executing company shall provide a declaration of conformity in accordance with Sections 16a(5) in conjunction with 21(2) of the Model Building Code to confirm the conformity of the construction technique with the general construction technique permit included in this decision.

#### **3.3.2 Drilling and cleaning of drill hole**

The drill hole shall be positioned taking into account the position of the reinforcement to ensure that the latter remains undamaged.

The hole shall be drilled perpendicular to the concrete surface using carbide masonry drill bits. The carbide masonry drill bit shall meet the specifications given in the January 2002 version of the leaflet 'Characteristic values, requirements and tests for masonry drill bits with carbide cutting bodies which are used for the manufacture of drill holes for anchoring' of DIBt and the Association of the German Tool Industry (*Fachverband Werkzeugindustrie e.V.*). Compliance with the drill bit characteristic values shall be verified by means of an inspection certificate 3.2 (DIN EN 10204:2005-01) or by means of a certification mark of the PMG Masonry Drill Bit Certification Board, Remscheid, Germany (see leaflet, Section 5).

The nominal diameter of the drill bit, cutting diameter and hole depth shall correspond to the values given in Annex 3. The drilling dust shall be removed from the drilled hole.

If a hole is drilled incorrectly, a new hole shall be drilled at a distance of at least twice the depth of the incorrect hole.

#### **3.3.3 Installation of screw**

The EJOT insulation screw DDS shall only be driven through the insulation boards and anchored in the concrete member with an appropriate screw-driving tool in accordance with Annex 1. The insulation boards shall be pressed firmly against the concrete surface, where necessary using additional plates in accordance with Annex 2.

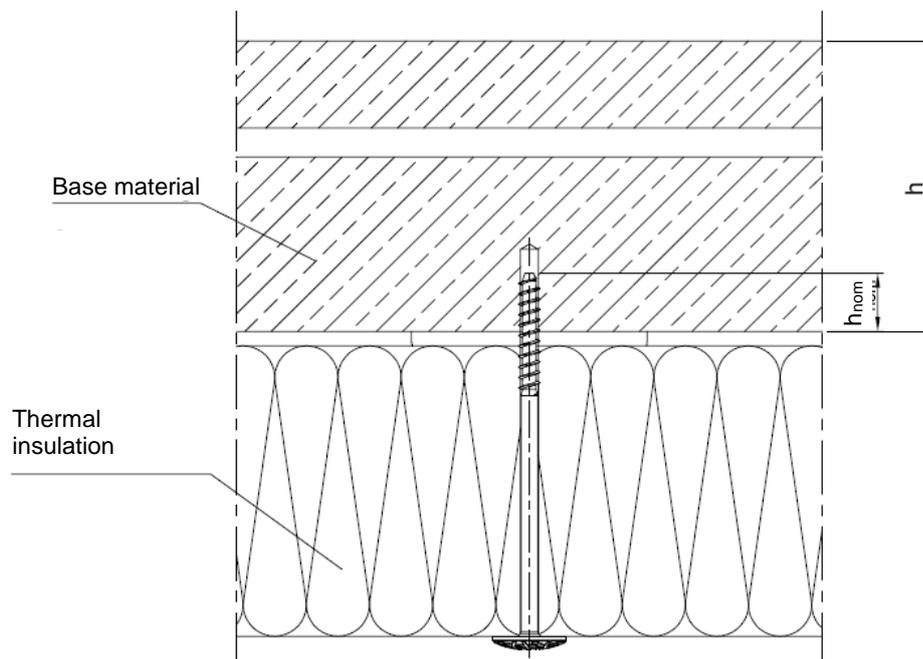
#### **3.3.4 Inspection of execution**

During the installation of the screw, the contractor commissioned with the anchoring or the site manager assigned by him or her or a competent representative of the site manager shall be present at the construction site. They shall ensure that the work is executed properly and shall keep records of the installation of the screw.

The records shall be available at the construction site during the construction period and shall be submitted to the inspection supervisor for checking upon request. Like the delivery notes, they shall be kept by the company for a minimum of 5 years after completion of the project.

Beatrix Wittstock  
Head of Section

Drawn up by  
Oliver Tempel

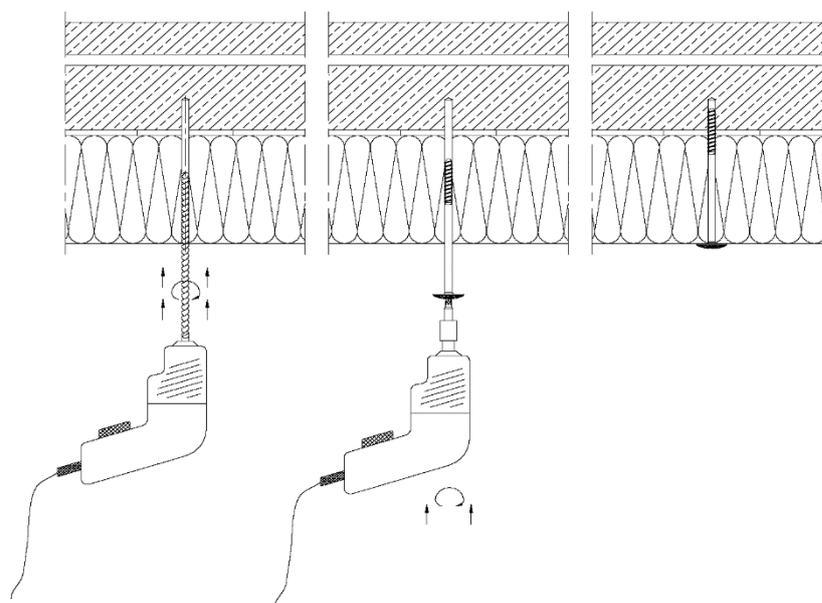


Key:  $h_{nom}$  = Embedment depth  
 $h$  = Member thickness

1. Use a carbide drill bit  $\varnothing$  6 mm to prepare the drill hole and clean it by blowing out the drill several times

2. Insert the DDS screw into the drill hole and, using a drill/screwdriver,

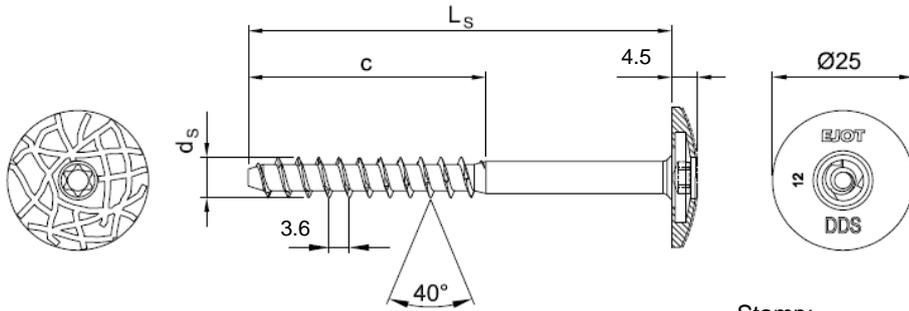
3. ...install the screw – in rotary motion – until the head rests flush on the insulation product.



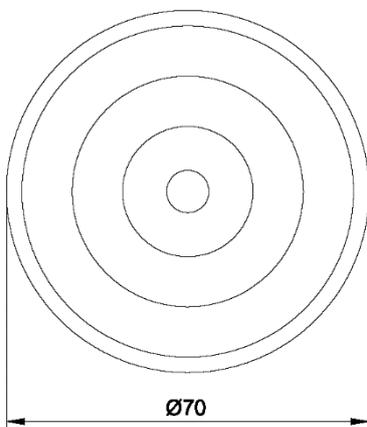
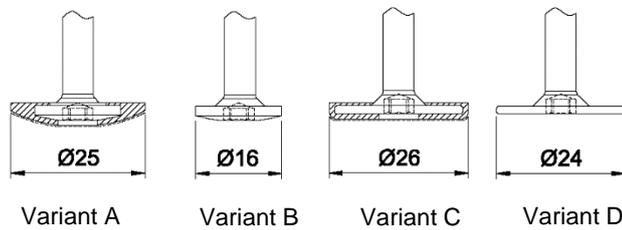
**EJOT installation screw DDS  
 for fastening insulation products to concrete members**

**Product in installed condition / Installation instructions**

**Annex 1**



Stamp:  
 Factory identifying mark (EJOT)  
 Anchor type (DDS)



DDT 70:  
 Material: galvanised steel

Table 1: Dimensions

						Dimensions in mm	
Min $L_s$	Max $L_s$	Head diameter	$h_{nom}$	$h_1$	$d_s$	c	s
50	350	16 - 26	25	35	7.3	40	3.6

**EJOT installation screw DDS  
 for fastening insulation products to concrete members**

**Dimensions / Head variants / Additional plate DDT 70**

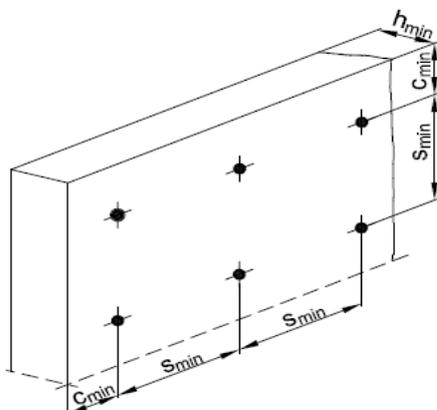
**Annex 2**

Table 2: Materials

Designation	Material
Screw	Steel in accordance with DIN EN 10263-3:2018-02, case-hardened, galvanised $\geq 5 \mu\text{m}$ , blue passivated, optional: plastic-coated screw head, colour RAL 1015 or RAL 9002, otherwise coated
	Steel in accordance with DIN EN 10263-3:2018-02, case-hardened, galvanised $\geq 5 \mu\text{m}$ , blue passivated with duplex coating
Additional plate DDT 70	Steel, galvanised

Table 3: Installation parameters, minimum member thickness, spacing and edge distances in cracked and uncracked concrete C20/25 to C50/60

Anchor designation	DDS - Head variant A / B / C / D		
Nominal drill hole diameter	$d_0$	[mm]	6.0
Drill bit cutting diameter	$d_{\text{cut}} \leq$	[mm]	6.40
Drill hole depth	$h_1$	[mm]	35
Embedment depth	$h_{\text{nom}} \geq$	[mm]	25
Minimum member thickness	$h_{\text{min}}$	[mm]	80
Minimum spacing	$s_{\text{min}}$	(mm)	60
Minimum edge spacing	$c_{\text{min}}$	[mm]	120



**EJOT installation screw DDS  
 for fastening insulation products to concrete members**

**Materials / Installation parameters / Minimum member thickness /  
 Spacing and edge distances**

**Annex 3**

Table 4: Resistance in all load directions  
 in cracked and uncracked concrete C20/25 to C50/60

Anchor designation	DDS - Head variant A / B / C / D		
Design resistance	$F_{Rd}$	[kN]	0.5

Table 5: Resistance under fire exposure in all load directions  
 in cracked and uncracked concrete C20/25 to C50/60

Anchor designation	DDS - Head variant A / B / C / D		
Fire resistance class			
R30	Design resistance	$F_{Rd,fi30}$	[N] 174
R60	Design resistance	$F_{Rd,fi60}$	[N] 156
R90	Design resistance	$F_{Rd,fi90}$	[N] 121
R120	Design resistance	$F_{Rd,fi120}$	[N] 87
R30 to R120	Spacing	$s_{min,fi}$	[mm] 100
	Edge distance	$c_{min,fi}$	[mm] 200

EJOT installation screw DDS  
 for fastening insulation products to concrete members

Design resistances

Annex 4