

**Allgemeine  
bauaufsichtliche  
Zulassung/  
Allgemeine  
Bauartgenehmigung**

**Zulassungsstelle für Bauprodukte und Bauarten  
Bautechnisches Prüfamts**

Eine vom Bund und den Ländern  
gemeinsam getragene Anstalt des öffentlichen Rechts  
Mitglied der EOTA, der UEAtc und der WFTAO

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**Approval number:**

Z-2.1.8-2101

**Period of validity:**

from 19. Juli 2017

bis 19. Juli 2024

**Applicant:**

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**Subject of approval:**

MIA insulation anchor ID

The subject of the approval named above is herewith  
granted a national technical approval  
This approval has six pages and 3 annexes

DIBt

## I GENERAL PROVISIONS

1. With this approval the fitness of use and applicability of the subject for approval with building codes of the federal states have been proven
2. This approval does not replace permits, approvals and certificates legally binding for executing building projects
3. The approval is given without prejudice to the rights of third parties, particularly private property rights
4. Regardless, manufacturers and distributors of the product for approval shall make copies of the approval available to end users and indicate that the approval must be available at the place of use. On request, copies of the approval shall be placed at the disposal of the authorities involved.
5. The approval may be reproduced in full only. Partial publication needs the consent of the DIFBT. Texts and drawings in advertising material may not contradict the approval. In case of discrepancy the German version is binding.
6. The approval may be revoked. The provisions of the approval can be subsequently be supplemented and amended, particularly if this is a requirement of new technical findings.
7. Findings are based on documentation submitted by the applicant. Any changes should be submitted immediately to DIFBT.

## II SPECIAL PROVISIONS

### 1. Subject of approval and field of application

1.1. The subject of approval is the MIA insulation support ID, made of hot-dipped galvanized and stainless steel. The anchor is hammered into a pre-drilled hole. The installed MIA insulation anchor is shown in Annex 1.

### 1.2. Field of application

The MIA ID anchor may be installed in reinforced and non-reinforced normal concrete with min. strength of C20/25 and max. strength of C50/60 per DIN EN 206-1:2001-07 "concrete Part 1: definition, properties, production and conformity".

The anchor may only be used as multiple fixings for insulation panels. These shall be fixed with at least 4 anchors per sq. m.

The anchors may be used in cracked and uncracked concrete.

Type A anchors made of hot-dipped galvanized steel can only be used in dry internal conditions with relative humidity of <60% and in environments which can be classified as corrosivity Cat C1 (unimportant) or C2 (slight) per DIN EN ISO 12944-2:1998-07.

Anchor type B,C and D made of s/s as per its corrosivity class ( s. Annex 2, table 1) per DIN EN 1993-1-4:2015-10 together with DIN EN 1993-1-4/NA:2017-01.

## **2. Provisions for the construction product**

### **2.1. Properties and composition**

The ID anchor will correspond to the drawings and specs. given in the annexes.  
The material characteristics, dimensions and tolerances of the anchor which are not specified in the approval shall comply with the specs. deposited with DIBT, the certification body and external surveillance body.

### **2.2. Marking**

The packaging, accompanying leaflet or delivery note of the anchor shall be marked by the manufacturer with the national conformity mark, per the Conformity Marking of the federal states. In addition the identification mark, the approval number and the complete designation of the anchor shall accompany consignment.

Use of the mark can only be permitted if the requirements in Section 2.3 “attestation of conformity” are met.

The anchor is designated “insulation anchor ID”

Each anchors is to be stamped as per Annex 2

### **2.3 Attestation of conformity**

#### **2.3.1. General**

The attestation of conformity of the anchor with the provisions of this national technical approval shall be issued for every manufacturing plant in the form of a certificate of conformity based on factory production control and regular external surveillance, including Initial type-testing of the anchor, in accordance with the following provisions.

To issue the certificate of conformity and for external surveillance, including the associated product testing to be carried out in the process, the manufacturer of the anchor shall use an appropriately recognised certification body and an appropriately recognised inspection body.

The declaration that a certificate of conformity has been granted shall be given by the manufacturer through marking of the construction products with the national conformity mark (Ü-Zeichen) including statement of the intended use.

A copy of the certificate of conformity issued by the certification body shall be sent to Deutsches Institut für Bautechnik.

A copy of the Initial type-testing report shall also be sent to Deutsches Institut für Bautechnik.

CRC = corrosion resistance class in accordance with national technical approval Z-30.3-6 'Products, fasteners and members made from stainless steels'

### 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.

The test plan deposited with Deutsches Institut für Bautechnik and the external surveillance body shall be decisive for the scope, type and frequency of the factory production control.

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

- designation of the construction product or the starting material and 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 the 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 Deutsches Institut für Bautechnik 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 way that they cannot be confused 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 for the anchor shall be inspected regularly, i.e. at least twice a year, by means of external surveillance at each manufacturing plant.

Initial type-testing of the anchor shall be carried out within the scope of external surveillance. Samples for random testing shall also be taken. Sampling and testing shall be the responsibility of the recognised inspection body.

The test plan deposited with Deutsches Institut für Bautechnik and the external surveillance body shall be decisive for the scope, type and frequency of external surveillance.

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 Deutsches Institut für Bautechnik and the competent supreme building authority upon request.

### **3 Provisions for planning and design**

#### **3.1 Planning**

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

The 'MIA insulation anchor ID' anchor shall only be used as multiple fixings for insulation panels. The insulation panels shall be fixed with at least four anchors per square metre. Insulation panels without hard facing and panel joints shall only be fixed with anchors with additional plates.

The anchor length shall depend on the insulation material thickness and be selected such that the minimum embedment depth given in Annex 3, Table 2, is adhered to.

The design drawings shall contain the exact positions of the 'SMK insulation anchor ID' anchors.

#### **3.2 Design**

##### **3.2.1 General**

The verification of the immediate local force transmission into the concrete has been provided. Proof shall be provided of the transfer of the loads to be anchored in the concrete member.

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

Additional loads which may arise in the anchor, in the member to be connected or in the member in which the anchor is anchored due to restrained deformations (e.g. due to temperature fluctuations) shall be considered.

The minimum distances (spacings, edge distances) between anchors and the thickness of the member shall not fall below the values given in Annex 3.

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

The design values for resistance shall apply to all load directions irrespective of the failure mode. The resistances are given in Annex 3.

##### **3.2.2 Design for fire exposure**

The relevant characteristic values for anchors under fire exposure are given Annex 3, Table 3. The verification shall apply to a member with fire exposure from one side. In the case of multi-sided fire exposure, the verification shall only be permissible if the edge distance of the anchor is  $c \geq 300$  mm.

### **3.3 Provisions for execution**

#### **3.3.1 General**

The anchor shall be installed in accordance with the design drawings as per Section 3.1.

The installation instructions shown in Annex 1 shall be observed.

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

The position of the drilled hole shall be coordinated with the position of the reinforcement in such a way that damage to the reinforcement is avoided.

The hole shall be drilled at a right angle to the concrete surface using hard metal masonry drill bits. The hard metal masonry drill bit shall meet the specifications given in the January 2002 version of DIBt leaflet 'Characteristic values, requirements and tests for masonry drill bits with carbide cutting bodies which are used for the manufacture of drilled holes for anchoring'. Compliance of the drill bit characteristic values shall be verified in accordance with Section 5 of the leaflet.

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 from the incorrect hole.

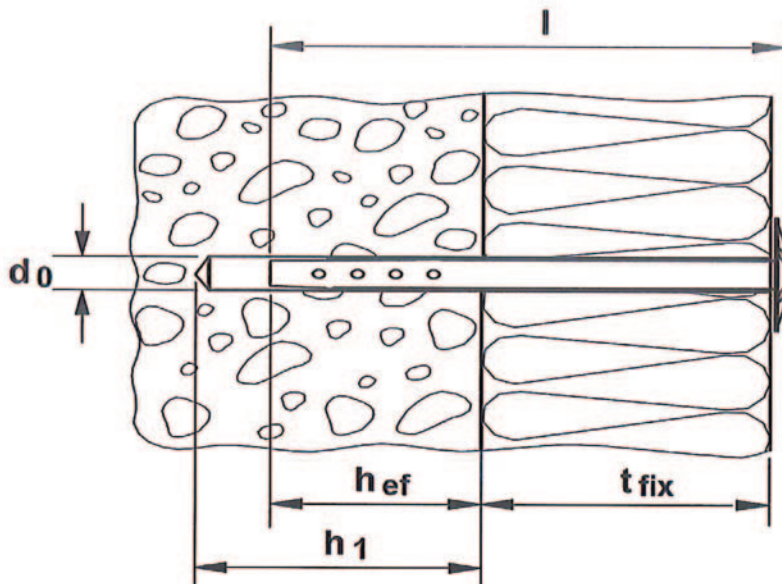
#### **3.3.3 Installation of anchor**

The MIA insulation support may only be driven through the insulation panels and anchored in the concrete member with an appropriate impact tool (e.g. hammer) in accordance with Annex 1. The insulation panels shall be firmly pressed against the concrete surface with the help of plates (head plates) and if necessary additional plates in accordance with Annex 2.

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

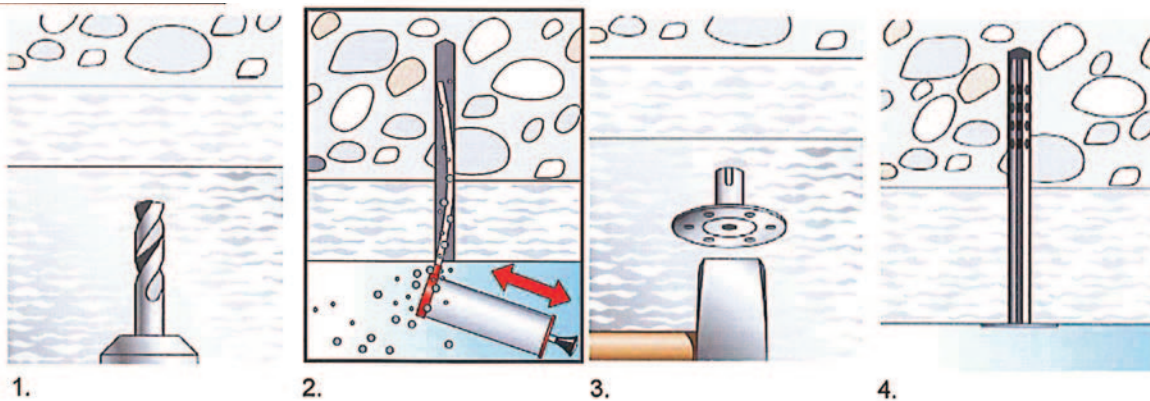
During the installation of the anchor the contractor commissioned with the anchoring or the site manager assigned by him or her or a competent representative of the site manager shall be present at the construction site. He or she shall ensure that the work is carried out properly and shall keep records of the installation of the anchor.

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



Number of anchors: A least four per square metre of insulation panel

**Installation instructions:**



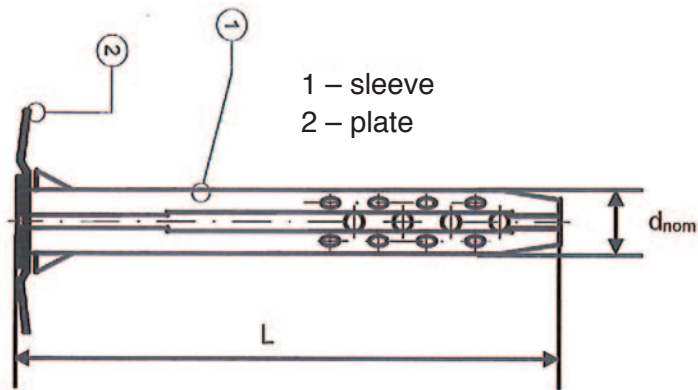
- 1) Drill a hole through the insulation panel
  - 2) Clean the drilled hole from the bottom up via suction and blowing out
  - 3) Hammer the insulation support in through the insulation panel
  - 4) The anchor plate must fully support the insulation panel
- Tip: In certain cases use extra washer

Insulation anchor ID

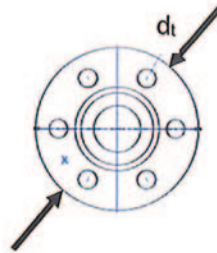
Product and installed condition,  
 installation schematic, installation instructions

Annex 1

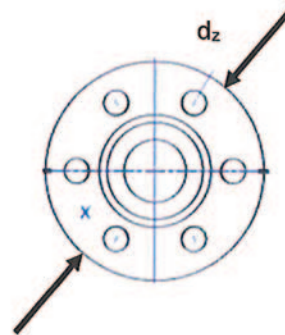




Sketch of plate  
(x stands for marking A,B,C or D)



Sketch of additional washer  
(x stands for marking TA,TB,TC or TD)



**Table 1: Anchor dimensions and materials**

Anchor			ID 8			
Marking washer			A	B	C	D
Marking of extra washer			TA	TB	TC	TD
Anchor length	$L \geq$	[mm]	90			
	$L \leq$	[mm]	300			
Sleeve diameter	$d_{nom} \geq$	[mm]	9,43			
Plate diameter	$d_t$	[mm]	35			
Additional plate diameter	$d_z$	[mm]	85			
Material	-	-	Galvanised steel		Stainless steel	
			1.0226	1.4016	1.4301	1.4404
Corrosion resistance <sup>1</sup>	-	-	-	I	II	III

1) Corrosion resistance class according to DIN EN 1993 1-4: 2015-10

Insulation anchor ID	Annex 2
Anchor dimensions and materials	

**Table 2: Installation parameters, minimum building element thickness and design resistance in all loading directions and for all types of failure**

Anchor		ID
Nominal drill diameter	$d_0$ [mm]	8
Drill cutter diameter	$d_{cut} \leq$ [mm]	8,45
Drilled hole depth	$h_1 \geq$ [mm]	45
Anchorage depth	$h_{ef}$ [mm]	40
Minimum edge distance	$c_{min}$ [mm]	60
Minimum building element thickness	$s_{min}$ [mm]	120
Minimum spacing	$h_{min}$ [mm]	80
Design resistance in cracked and uncracked concrete of classes C20/ 25 to C50/60		$F_{Rd}$ [kN]
		0,1

**Table 3: Characteristic values  $F_{RK}$  for fire exposure in cracked und uncracked concrete of classes C20/25 to C50/60 as well as characteristic design resistance under fire stress in steel failure with lever arm**

Size	Duration of fire			30	60	90	120
	$h_{ef}$	$s_{cr,N,fi}$	$c_{cr,N,fi}$	(R15 bis R30)	(R45 und R60)	(R90)	( $\leq$ R120)
	[mm]	[mm]	[mm]	Characteristic load-carrying capacity			
				$F_{Rk,fi30}$	$F_{Rk,fi60}$	$F_{Rk,fi90}$	$F_{Rk,fi120}$
ID 8	40	160	80	0,07 kN	0,07 kN	0,06 kN	0,06 kN
				Characteristic design resistance			
				$M_{Rk,fi30}$	$M_{Rk,fi60}$	$M_{Rk,fi90}$	$M_{Rk,fi120}$
				0,2 Nm	0,2 Nm	0,2 Nm	0,1 Nm

Insulation anchor ID	Annex 3
Installation parameters, minimum building element thickness and design resistances	