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## European Technical Assessment

**ETA-16/0971  
of 15/12/2016**

### General Part

#### Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

#### Trade name of the construction product

Walraven Ceiling Anchor WCA1

#### Product family to which the construction product belongs

Deformation-controlled expansion anchor made of galvanized steel for multiple use for non-structural applications in concrete

#### Manufacturer

J. van Walraven Holding B.V.  
Industrieweg 5  
3641 RK Mijdrecht  
The Netherlands

#### Manufacturing plant

Walraven Factory A2

#### This European Technical Assessment contains

9 pages including 3 Annexes which form an integral part of this assessment

#### This European Technical Assessment is issued in accordance with Regulation (EU) No 305/2011, on the basis of

Guideline for European Technical Approval ETAG 001, Edition April 2013 "Metal anchors for use in concrete – Part 1: Anchors in general and Part 6: Anchors for multiple use for non-structural applications", used as European Assessment Document (EAD)

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## Specific Part

### 1 Technical description of the product

WCA1 Ceiling anchor of size Ø6 is deformation-controlled expansion anchor. WCA1 Ceiling anchor is made of galvanized steel. The anchor is installed in a drilled hole and anchored by deformation-controlled expansion.

An illustration of the product is given in Annex A1.

### 2 Specification of the intended use in accordance with the applicable European Assessment Document (EAD)

The performances given in Section 3 are only valid if the anchors are used in compliance with the specifications and conditions given in Annex B1 and B2.

The performances given in this European Technical Assessment are based on an assumed working life of the anchor of 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer or the Technical Assessment Body, 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.

### 3 Performance of the product and references to the methods used for its assessment

#### 3.1 Performance of the product

##### 3.1.1 Mechanical resistance and stability (BWR 1)

| Essential characteristic                          | Performance  |
|---|--------------|
| Characteristic resistance for all load directions | See Annex C1 |
| Edge distances and spacing                        | See Annex C1 |

##### 3.1.2 Safety in case of fire (BWR 2)

| Essential characteristic                      | Performance                               |
|---|---|
| Reaction to fire                              | Anchors satisfy requirements for Class A1 |
| Characteristic resistance under fire exposure | See Annex C2                              |

##### 3.1.3 Hygiene, health and the environment (BWR 3)

Regarding the dangerous substances there may be 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 Regulation, these requirements need also to be complied with, when and where they apply.

##### 3.1.4 Safety and accessibility in use (BWR 4)

For Basic Requirement Safety in use the same criteria are valid as for Basic Requirement Mechanical resistance and stability (BWR 1).

### 3.1.5 Sustainable use of natural resources (BWR 7)

No performance assessed.

### 3.1.6 General aspects relating to fitness for use

Durability and serviceability are only ensured if the specifications of intended use according to Annex B1 are kept.

### 3.2 Methods used for the assessment

The assessment of fitness of the anchors for declared intended use in relation to the requirements for mechanical resistance and stability and safety in use in the sense of the Basic Requirements 1 and 4 has been made in accordance with the ETAG 001 *“Metal anchors for use in concrete”*, Part 1: *“Anchors in general”* and Part 6: *“Anchors for multiple use for non-structural applications”*.

The assessment of the anchor for the intended use in relation to the requirements for resistance to fire has been made in accordance with the EOTA Technical Report TR 020 *“Evaluation of anchorages in concrete concerning resistance to fire”*.

## 4 Assessment and verification of constancy of performance (AVCP) system applied, with reference to its legal base

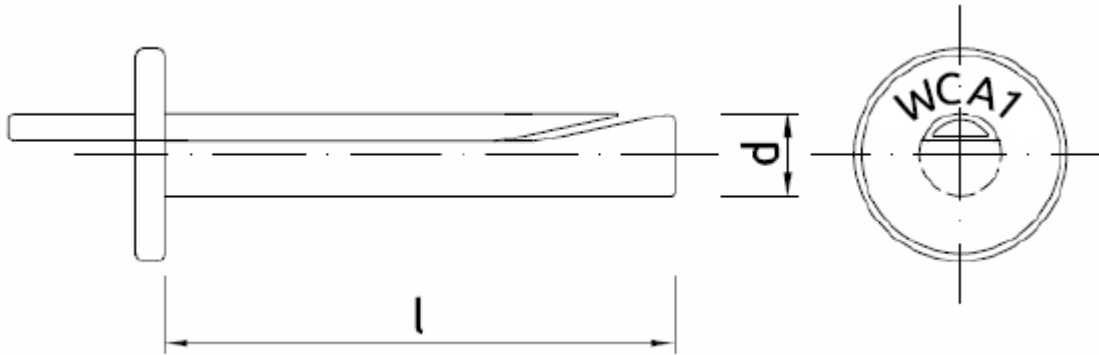
According to Decision 97/161/EC of the European Commission the system of assessment and verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table applies.

| Product   | Intended use  | Level or class | System |
|---|---|----------------|--------|
| Metal anchors for use in concrete (light-duty type) | For use in redundant systems for fixing and/or supporting to concrete elements such as lightweight suspended ceilings, as well as installations | –              | 2+     |

## 5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable European Assessment Document (EAD)

Technical details necessary for the implementation of the AVCP system are laid down in the control plan which is deposited at Instytut Techniki Budowlanej.

For type testing the results of the tests performed as part of the assessment for the European Technical Assessment shall be used unless there are changes in the production line or plant. In such cases the necessary type testing has to be agreed between Instytut Techniki Budowlanej and the notified body.



**Table A1.** WCA1 Ceiling anchor – dimensions and material

| WCA1 Ceiling anchor |    | WCA1 6x40   | WCA1 6x65      |
|---------------------|----|---|----------------|
| Anchor nominal size |    | 6   |                |
| Length of anchor l  | mm | 36,0 $\pm$ 1,5  | 65,0 $\pm$ 1,5 |
| Diameter d          | mm | 5,8 $\pm$ 0,15  |                |
| Material            |    | Steel acc. to EN 10263-2<br>Galvanized steel ( $\geq 8 \mu\text{m}$ ) |                |

|   |   |
|---|---|
| <b>WCA1 Ceiling anchor</b>                                  | <b>Annex A1</b><br>of European<br>Technical Assessment<br>ETA-16/0971 |
| <b>Product description</b><br>Characteristic of the product |   |

**SPECIFICATION OF INTENDED USE**

**Anchorage subject to:**

- Multiple use for non-structural applications.
- Static and quasi-static loads.
- Anchorages with requirements related to resistance to fire.

**Base material:**

- Reinforced or unreinforced normal weight concrete of strength class C20/25 at minimum to C50/60 at maximum according to EN 206.
- Cracked and non-cracked concrete.

**Use conditions (environmental conditions):**

- Dry internal conditions.

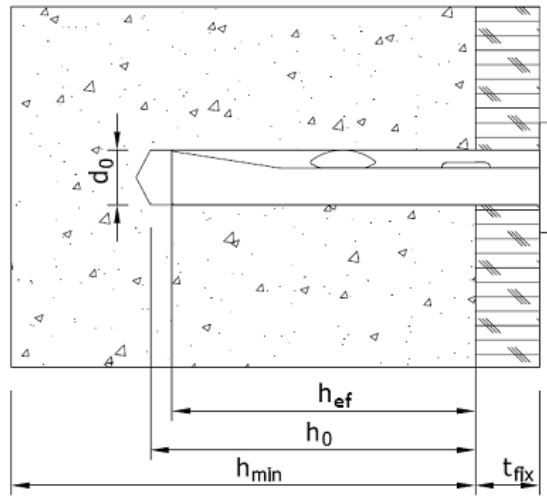
**Design:**

- Anchorages are designed under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be transmitted. The position of the anchor is indicated on the design drawings (e.g. position of the anchor relative to reinforcement or to supports, etc.).
- Anchorages under static and quasi-static loads are designed in accordance with ETAG 001, Annex C, design method C, Edition August 2010.
- The design of anchorages under fire exposure has to consider the conditions given in the EOTA Technical Report TR 020.
- Fasteners are only to be used for multiple use for non-structural applications acc. to ETAG 001, Part 6, Edition August 2010.

**Installation:**

- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.
- Use of the anchor only as supplied by the manufacturer.
- Anchor installation in accordance with the manufacturer's specifications and drawings and using the appropriate tools.
- Check before placing the anchor to ensure that the strength class of the concrete, in which the anchor is to be placed, is identical with the values which the characteristic loads apply.
- Check of concrete being well compacted, e.g. without significant voids.
- Edge distances and spacings not less than the specified values without minus tolerances.
- Positioning of the drill holes without damaging the reinforcement.
- In case of aborted hole: new drilling at a minimum distance away of twice the depth of the aborted hole or smaller distance if the aborted drill hole is filled with high strength mortar and if under shear or oblique tension load it is not the direction of load application.
- Hole shall be clear.
- Anchor installation such that the effective anchorage depth is complied with; the compliance is ensured if the thickness of the fixture is not larger than the maximum values given in Annex B2.
- Anchor expansion by impact on the wedge of the anchor; the anchor is properly set if the wedge is fully dropped in.

|                                     |   |
|-------------------------------------|---|
| <b>WCA1 Ceiling anchor</b>          | <b>Annex B1</b><br>of European<br>Technical Assessment<br>ETA-16/0971 |
| <b>Intended use</b><br>Intended use |   |



**Table B1:** Installation parameters

| WCA1 Ceiling anchor                  |            |    | WCA1 6x40 | WCA1 6x65 |
|--------------------------------------|------------|----|-----------|-----------|
| Diameter of drill hole               | $d_0$      | mm | 6         |           |
| Depth of drill hole                  | $h_0 \geq$ | mm | 40        |           |
| Effective anchorage depth            | $h_{ef}$   | mm | 32        |           |
| Minimum thickness of concrete member | $h_{min}$  | mm | 100       |           |
| Maximum thickness of the fixture     | $t_{fix}$  | mm | 4,5       | 35        |

**WCA1 Ceiling anchor**

**Intended use**  
Installation parameters

**Annex B2**  
of European  
Technical Assessment  
ETA-16/0971

**Table C1:** Characteristic resistance (design acc. to ETAG 001, Annex C, method C)

| WCA1 Ceiling anchor   |                         |    | WCA1 6x40<br>WCA1 6x65 |
|---|-------------------------|----|------------------------|
| <b>All load directions</b>  |                         |    |                        |
| Characteristic resistance in cracked or non-cracked concrete C20/25 to C50/60 | $F_{Rk}$                | kN | <b>3,0</b>             |
| Partial safety factor <sup>1</sup>  | $\gamma_M$ <sup>2</sup> | -  | 1,5                    |
| Spacing   | $s_{cr}$                | mm | 200                    |
| Edge distance   | $c_{cr}$                | mm | 150                    |

<sup>1</sup> installation safety factor  $\gamma = 1,0$  included

<sup>2</sup> in the absence of other national regulations

|  |   |
|--|---|
| <b>WCA1 Ceiling anchor</b>                       | <b>Annex C1</b><br>of European<br>Technical Assessment<br>ETA-16/0971 |
| <b>Performances</b><br>Characteristic resistance |   |



**Table C2:** Characteristic resistance under fire exposure in concrete C20/25 to C50/60 – WCA Ceiling anchor (design acc. to ETAG 001, Annex C, method C)

| WCA1 Ceiling anchor   |               |      | WCA1 6x40<br>WCA1 6x65 |            |            |             |
|---|---------------|------|------------------------|------------|------------|-------------|
| <b>All load directions</b>  |               |      |                        |            |            |             |
| <b>Fire resistance class</b>  |               |      | <b>R30</b>             | <b>R60</b> | <b>R90</b> | <b>R120</b> |
| Characteristic resistance   | $F_{Rk,fi}^1$ | [kN] | 0,6                    | 0,5        | 0,3        | 0,3         |
| Partial safety factor   | $\gamma_M^1$  | -    | 1,0                    |            |            |             |
| Spacing   | $S_{cr,fi}$   | [mm] | 4 x $h_{ef}$           |            |            |             |
| Edge distance   | $C_{cr,fi}$   | [mm] | 2 x $h_{ef}$           |            |            |             |
| The design method covers anchors with a fire attack from one side only. In case of fire attack from more than one side, the edge distance shall be $\geq 300$ mm. |               |      |                        |            |            |             |

<sup>1</sup> in the absence of other national regulations

|  |   |
|--|---|
| <b>WCA1 Ceiling anchor</b>   | <b>Annex C2</b><br>of European<br>Technical Assessment<br>ETA-16/0971 |
| <b>Performances</b><br>Characteristic resistance under fire exposure |   |