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European Technical Assessment

**ETA-20/0596
of 30/06/2020**

General Part

Technical Assessment Body issuing the European Technical Assessment

Instytut Techniki Budowlanej

Trade name of the construction product

SMART ceiling anchor PSA

Product family to which the construction product belongs

Deformation-controlled expansion anchor for use in concrete for redundant use for non-structural systems

Manufacturer

pgb-Polska Sp. z o.o.
ul. Fryderyka Wilhelma Redena 3
41-807 Zabrze
Poland

Manufacturing plant

Manufacturing plant no. 8

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

European Assessment Document (EAD) 330747-00-0601 "Fasteners for use in concrete for redundant non-structural systems"

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Specific Part

1 Technical description of the product

The SMART ceiling anchor PSA is a deformation-controlled expansion anchor. The SMART ceiling anchor PSA is made of electroplated carbon steel.

The anchor is installed in a drilled hole and anchored by deformation-controlled expansion.

The description of the product is given in Annex A.

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 B.

The provisions made 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 Safety in case of fire (BWR 2)

| Essential characteristic | Performance |
|--------------------------|---|
| Reaction to fire | Anchors satisfy requirements for Class A1 |
| Resistance to fire | See Annex C2 |

3.1.2 Hygiene, health and the environment (BWR 3)

No performance assessed.

3.1.3 Safety and accessibility in use (BWR 4)

| Essential characteristic | Performance |
|---------------------------|--------------|
| Characteristic resistance | See Annex C1 |
| Edge distance and spacing | See Annex C1 |

3.2 Methods used for the assessment

The assessment of the product has been made in accordance with EAD 330747-00-0601.

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 2+ of assessment and verification of constancy of performance applies (see Annex V to Regulation (EU) No 305/2011).

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

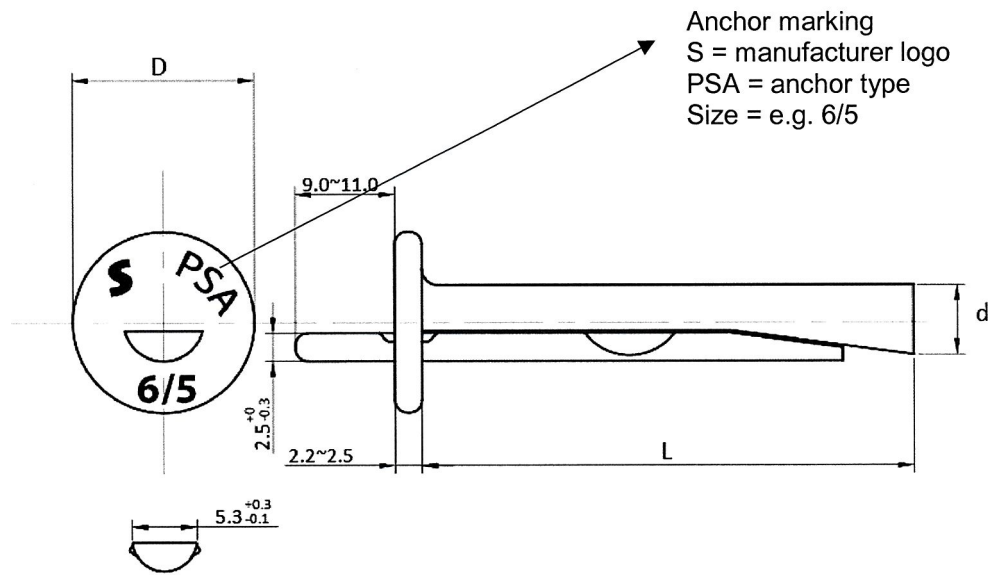
Technical details necessary for the implementation of the AVCP system are laid down in the control plan which is deposited at Instytut Techniki Budowlanej.

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.

Issued in Warsaw on 30/06/2020 by Instytut Techniki Budowlanej



Anna Panek, MSc
Deputy Director of ITB

**Table A1:** Dimensions and material

| Anchor type | | | | SMART PSA 6/5 | SMART PSA 6/30 |
|------------------------|-------|-----------------|---|------------------|-------------------|
| Anchor diameter | | d | mm | 6 | |
| Head diameter | | D | mm | 14,5 ± 0,30 | |
| Length of bolt | | L | mm | 36 | 62 |
| Material: Carbon steel | Wedge | f _{uk} | N/mm ² | 500 | |
| | | f _{yk} | N/mm ² | 300 | |
| | Bolt | f _{uk} | N/mm ² | 420 | |
| | | f _{yk} | N/mm ² | 270 | |
| Coating | | | Zinc coating (≥ 5 µm) acc. to EN ISO 4042 | | |

SMART ceiling anchor PSA

Product description
Characteristic of the product

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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.
- Non-cracked and cracked concrete.

Use conditions (environmental conditions):

- Structures subject to 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 and under fire exposure are designed in accordance with EN 1992-4:2018.

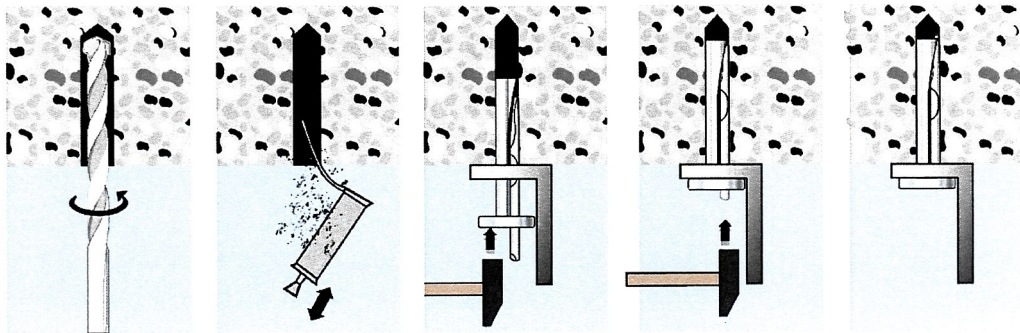
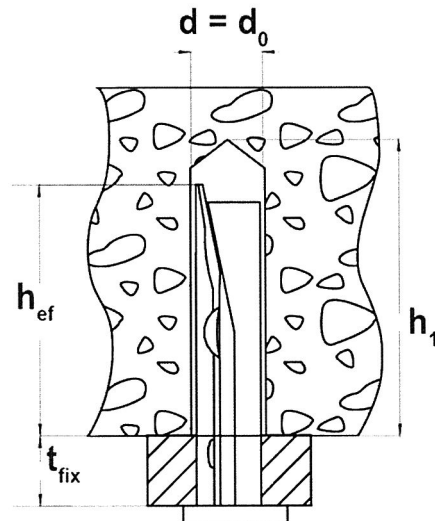
Installation:

- 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 without exchanging the components of an anchor.
- Anchor installation in accordance with the manufacturer's specifications and drawings and using the appropriate tools.
- Checks before placing the anchor to ensure that the strength class of the concrete in which the anchor is to be placed is in the range given and is not lower than that of the concrete to 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.
- Anchor installation such that the effective anchorage depth is complied with.
- The head of the anchor is supported on the fixture and is not damaged.
- 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 in the direction of load application.
- Hole shall be clean.
- The thickness shall not be larger than the maximum values marked on the anchor.
- Anchor expansion by impact on the wedge of the anchor. The anchor is properly set if the wedge flushes to the head of the anchor.

SMART ceiling anchor PSA

**Intended use
Specification**

Annex B1
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**Table B1:** Installation parameters

| Anchor type | | | SMART PSA 6/5 | SMART PSA 6/30 |
|--------------------------------|----------------|----|------------------|-------------------|
| Nominal diameter of drill hole | d_0 | mm | 6 | |
| Depth of drill hole | h_1 | mm | 40 | |
| Nominal embedment depth | h_{nom} | mm | 30 | |
| Effective embedment depth | h_{ef} | mm | 30 | |
| Thickness of the fixture, max. | $t_{fix} \leq$ | mm | 5 | 30 |
| Minimum thickness of member | h_{min} | mm | 80 | |
| Minimum edge distance | c_{min} | mm | 150 | |
| Minimum spacing | s_{min} | mm | 200 | |

SMART ceiling anchor PSA

Intended use
Installation parameters

Annex B2
of European
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Table C1: Characteristic resistance in concrete class C20/25 to C50/60 acc. to EN 206

| Anchor type | | | SMART PSA 6/5 SMART PSA 6/30 |
|----------------------------------|-----------------|------|---------------------------------|
| All load directions | | | |
| Characteristic resistance | F_{Rk}^0 | [kN] | 3,0 |
| Installation safety factor | γ_{inst} | [-] | 1,2 |
| Minimum member thickness | h_{min} | [mm] | 80 |
| Spacing | s_{cr} | [mm] | 200 |
| Edge distance | c_{cr} | [mm] | 150 |
| Shear load with lever arm | | | |
| Characteristic bending moment | $M_{Rk,s}^0$ | [Nm] | 6,91 |
| Partial safety factor | $\gamma_{M,s}$ | [-] | 1,7 |

SMART ceiling anchor PSA

Performances
Characteristic resistance

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Table C2: Characteristic resistance under fire exposure in concrete class C20/25 to C50/60 acc. to EN 206

| Anchor type | | | SMART PSA 6/5 SMART PSA 6/30 |
|---|-------------|------|---------------------------------|
| Effective embedment depth h_{ef} | | [mm] | 30 |
| All load directions | | | |
| Characteristic resistance $F_{Rk,fi}$ ¹⁾ | R30 | [kN] | 0,16 |
| | R60 | [kN] | 0,15 |
| | R90 | [kN] | 0,12 |
| | R120 | [kN] | 0,08 |
| Spacing | $S_{cr,fi}$ | [mm] | 4 x h_{ef} |
| | S_{min} | [mm] | 200 |
| Edge distance | $C_{cr,fi}$ | [mm] | 2 x h_{ef} |
| | C_{min} | [mm] | 150 |
| 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 ≥ 300 mm. | | | |
| ¹⁾ in the absence of other national regulations a partial safety factor $\gamma_{M,fi} = 1,0$ is recommended | | | |

SMART ceiling anchor PSA

Performances
Characteristic resistance under fire exposure

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