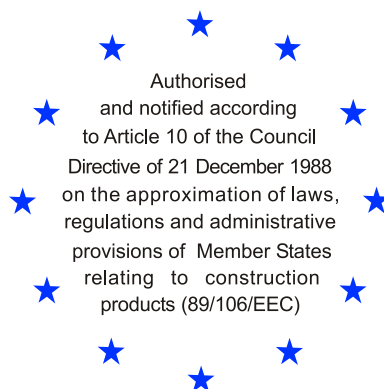


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Europeiskt Tekniskt Godkännande European Technical Approval

ETA-12/0257

Handelsnamn

Trade name

Innehavare

Holder of approval

Produktbeskrivning och avsedd användning

Generic type and use of construction product

Giltighetstid

Validity:

från
from
t o m
to

Detta ETA ersätter:

This ETA replaces:

Tillverkningsställe

Manufacturing plant

Golden Anchor expander

Golden Anchor

Essve Produkter AB

Box 770

191 27 Sollentuna

Momentkontrollerad expander för montering av bärande komponenter i betong

Torque-controlled expansion anchor made of galvanised steel of sizes M8, M10, M12 and M16 for use in non-cracked concrete

2012-08-16

16.08.2012

2017-08-15

15.08.2017

ETA-07/0033, giltigt från 2012-04-05 till 2017-04-04

ETA-07/0033, validity from 05.04.2012 till 04.04.2017

Essve Produkter AB plant no 353

Godkännandet innehåller

This Approval contains

12 Sidor inklusive bilagor

12 Pages including annexes



European Organisation for Technical Approvals

I LEGAL BASES AND GENERAL CONDITIONS

- 1 This European Technical Approval is issued by SITAC in accordance with:
 - Council Directive 89/106/EEC of 21 December 1988 on the approximation of laws, regulations and administrative provisions of Member States relating to construction products¹, modified by Council Directive 93/68/EEC² and Regulation (EC) N° 1882/2003 of the European Parliament and of the Council³;
 - Common Procedural Rules for Requesting, Preparing and the Granting of European Technical Approvals set out in the Annex to Commission Decision 94/23/EC⁴;
 - Guideline for European Technical Approval of “Metal Anchors for Use in Concrete” ETAG 001, edition October 1997, amended November 2006, Part 1 “Anchors in general” and Part 2 “Torque-controlled expansion anchors”.
- 2 SITAC is authorized to check whether the provisions of this European Technical Approval are met. Checking may take place in the manufacturing plant. Nevertheless, the responsibility for the conformity of the products to the European Technical Approval and for their fitness for the intended use remains with the holder of the European Technical Approval.
- 3 This European Technical Approval is not to be transferred to manufacturers or agents of manufacturers other than those indicated on page 1, or manufacturing plants other than those /indicated on page 1/ laid down in the context/ of this European Technical Approval
- 4 This European Technical Approval may be withdrawn by SITAC, in particular pursuant to information by the Commission according to Article 5(1) of Council Directive 89/106/EEC.
- 5 Reproduction of this European Technical Approval including transmission by electronic means shall be in full. However, partial reproduction can be made with the written consent of SITAC. In this case partial reproduction has to be designated as such. Texts and drawings of advertising brochures shall not contradict or misuse the European Technical Approval.
- 6 The European Technical Approval is issued by the approval body in English. This version corresponds fully to the version circulated within EOTA. Translations into other languages have to be designated as such.

1 Official Journal of the European Communities N° L 40, 11.2.1989, p. 12

2 Official Journal of the European Communities N° L 220, 30.8.1993, p. 1

3 Official Journal of the European Union N° L 284, 31.10.2003, p. 25

4 Official Journal of the European Communities N° L 17, 20.1.1994, p. 34

II SPECIFIC CONDITIONS OF THE EUROPEAN TECHNICAL APPROVAL

1 Definition of products and intended use

1.1 Definition of product

The Golden Anchor is an anchor made of electro-galvanized steel with one sleeve which is placed into a drilled hole and anchored by torque-controlled expansion. It is available in sizes of M8, M10, M12 and M16.

The installation data is shown in the figure in Annex 3.

1.2 Intended use

The anchor is intended to be used for making structural fixings into concrete where Essential Requirements 1 and 4 of council Directive 89/106 EEC apply.

The anchor is for use only in structures of reinforced or unreinforced, non-cracked normal-weight concrete with a strength class in the range of C20/25 to C50/60 in accordance with EN 206:2000, and in dry, internal conditions and for anchorages subject to static or quasi-static loading.

The provisions made in this European Technical Approval 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, 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.

2 Characteristics of products and methods of verification

2.1 Characteristics of the product

The anchor corresponds to the drawings and provisions given in Annex 2. The characteristic material values, dimensions and tolerances of the anchor not indicated in Annex 2 shall correspond to the respective values laid down in the technical documentation of this European Technical Approval.

The characteristic anchor values for the design of anchorages are given in the Annexes 3 to 5. Each anchor is marked with the identifying mark of the producer included the anchor identity, the thread size, the length of the anchor and the maximum thickness of fixture corresponding Annex 1.

The anchor shall only be packaged and supplied as a complete unit.

2.2 Methods of verification

The assessment of fitness of the anchor for the intended use, as specified in section 1.2, has been made in accordance with ETAG 001, edition October 1997, amended November 2006, Part 1 "Anchors in general" and Part 2 "Torque-controlled expansion anchors" on the basis of Option 7.

3 Evaluation and attestation of conformity and CE marking

3.1 System of attestation of conformity

According to the Decision 96/582/EG of the European Commission⁵ system 1 of attestation of the attestation of conformity applies.

This system of attestation of conformity is defined as follows:

System 1: Certification of the conformity of the product by an approved certification body on the basis of:

- (a) Tasks for the manufacturer:
 - (1) factory production control;
 - (2) further testing of samples taken at the factory by the manufacturer in accordance with a prescribed test plan;
- (b) Tasks for the approved body:
 - (1) initial type-testing of the product;
 - (2) initial inspection of factory and of factory production control;
 - (3) continuous surveillance, assessment and approval of factory production control.

Note: Approved bodies are also referred to as "notified bodies".

3.2 Responsibilities

3.2.1 Tasks of the manufacturer

3.2.1.1 Factory production control

The manufacturer shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall insure that the product is in conformity with this European Technical Approval.

The manufacturer may only use raw materials stated in the technical documentation of this European Technical Approval. The incoming raw materials shall be subject to controls and tests by the manufacturer before acceptance. Checks on materials such as nuts, washers, bar and rod for bolts and metal strip for expansion sleeves shall include control of the inspection documents presented by suppliers (comparison with nominal values) by verifying dimensions and determining material properties, e.g. tensile strength, hardness and surface finish.

The manufactured components of the anchor shall be subjected to the following tests:

- Dimensions of components:
 - conical bolt (diameter, length, angle of the cone, thread),
 - expansion sleeve (length, thickness),
 - hexagon nut (well running, wrench size across flats),
 - washer (diameter, thickness);
- Material properties:
 - Conical bolt (tensile strength, yield limit, hardness),
 - expansion sleeve (tensile strength, yield limit),
 - hexagon nut (strength tests),
 - washer (hardness);

⁵ Official Journal of the European Communities L 254 of 8/10/1996

- Thickness of zinc coating;
- Visual control of correct assemblage and of completeness of the anchor.

The frequency of controls and tests conducted during production and on the assembled anchor is laid down in the control plan taking account of the manufacturing process of the anchor.

The results of factory production control are recorded and evaluated. The records include at least:

- Designation of the product, basic material and components;
- Type of control or testing;
- Date of manufacture of the product and date of testing of the product or basic material and components,
- Result of control and testing and, if appropriate, comparison with requirements,
- Signature of person responsible for factory production control.

The records shall be presented to the inspection body involved in the continuous surveillance.

The factory production control shall be in accordance with the control plan which is part of the technical documentation of this European Technical Approval. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited with SITAC.⁶

The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

3.2.1.2 Other tasks for the manufacturer

The manufacturer shall, on the basis of a contract, involve a body (bodies) which is (are) approved for the tasks referred to in section 3.1 in the field of torque-controlled expansion anchors in order to undertake the actions laid down in section 3.2.2. For this purpose, the "control plan" referred to in sections 3.2.1.1 and 3.2.2 shall be handed over by the manufacturer to the approved body or bodies involved.

The manufacturer shall make a declaration of conformity, stating that the construction product is in conformity with the provisions of the European Technical Approval ETA 12/0257 issued on 16 August 2012.

3.2.2 Tasks for the approved bodies

The approved bodies shall perform the

- initial type-testing of the product,
- initial inspection of factory and of factory production control,
- continuous surveillance, assessment and approval of factory production control,

in accordance with the provisions laid down in the "control plan".

The approved body (bodies) shall retain the essential points of its (their) actions referred to above and state the results obtained and conclusions drawn in (a) written report (reports).

The approved certification body involved by the manufacturer shall issue an EC certificate of conformity of the product stating the conformity with the provisions of this European Technical Approval.

⁶ The "control plan" is a confidential part of the European Technical Approval and only handed over to the approved body or bodies involved in the procedure of attestation of conformity. See section 3.2.2.

In cases where the provisions of the European Technical Approval and its "control plan" are no longer fulfilled the certification body shall withdraw the certificate of conformity and inform SITAC without delay.

3.3 CE marking

The CE marking shall be affixed on the packaging. The letters "CE" shall be followed by the identification number of the approved certification body, where relevant, and be accompanied by the following additional information:

- the name or identifying mark of the producer (legal entity responsible for the manufacturer)
- the last two digits of the year in which the CE marking was affixed,
- the number of the EC certificate of conformity for the product
- the number of the European Technical Approval,
- the number of the guideline for European Technical Approval
- the use category (ETAG 001-1, Option 7);
- the size of the anchor

4 Assumptions under which the fitness of the product for the intended use was favourably assessed

4.1 Manufacturing

The European Technical Approval is issued for the product on the basis of agreed data/information, deposited with SITAC, which identifies the product that has been assessed and judged. Changes to the product or production process, which could result in this deposited data/information being incorrect, should be notified to SITAC before the changes are introduced. SITAC will decide whether or not such changes affect the approval and consequently the validity of the CE marking on the basis of the approval and if so whether further assessment or alterations to the approval, shall be necessary.

4.2 Installation

4.2.1 Design of anchorages

The fitness of the anchor for the intended use given under the following conditions:

- The anchorages are designed in accordance with the ETAG 001:1997, Annex C, Method A, for the torque controlled expansion anchors under the responsibility of an engineer experienced in anchorages and concrete structures.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be resisted.
- It is positioned in accordance with the design drawings (e.g. it is correctly positioned relative to reinforcement or supports. etc).
- It is installed correctly (see Section 4.2.2).

4.2.2 Installation of anchorages

The fitness for use of the anchorage can be assumed if the anchor is installed correctly in accordance with the following requirements:

- Installation is carried out by personnel under the direction of supervisors, all of whom are appropriately qualified for this work,
- the anchor used is that supplied by the manufacturer (i.e. components shall not be exchanged),
- installation is in accordance with the manufacturer's specifications and drawings and the appropriate tools are used,
- before placing the anchor checks are made to ensure that the strength class of the concrete is in the range given, and is not lower than that of the concrete to which the characteristic loads apply,
- checks are made to ensure the concrete has been well compacted, e.g. without significant voids are not present,
- the hole is cleaned of drilling dust,
- the effective anchorage depth is achieved (i.e. the maximum thickness of the fixture marked on the anchor is not exceeded),
- the edge distance and spacing are within the specified values, without minus tolerances,
- the drill holes are positioned without damaging the reinforcement,
- if a hole is aborted, the new hole is located a minimum distance away of twice the depth of the aborted hole or, if the aborted hole is filled with high-strength mortar and if shear or oblique tension loads are not in the direction of load application, a smaller distance may be used,
- the specified torque moment is applied using a calibrated torque wrench.

4.2.3 Responsibility of the manufacturer

It is in the responsibility of the manufacturer to ensure that the information on the specific conditions according to 1 and 2 including Annexes referred to and 4.2.1 and 4.2.2 is given to those who are concerned. This information may be made by reproduction of the respective parts of the ETA. In addition all installation data shall be shown clearly on the package and/or on an enclosed instruction sheet, preferably using illustration(-s).

The minimum data required are:

- drill bit diameter;
- thread diameter;
- maximum thickness of the fixture;
- minimum effective anchorage depth;
- minimum hole depth;
- torque moment;
- information of the installation procedure, including cleaning of the hole, preferably by means of an illustration;
- reference to any special installation equipment needed;
- identification of the manufacturing batch.

All data shall be presented in a clear and explicit form.

On behalf of SITAC

Borås, 16 August 2012



Lennart Månsson

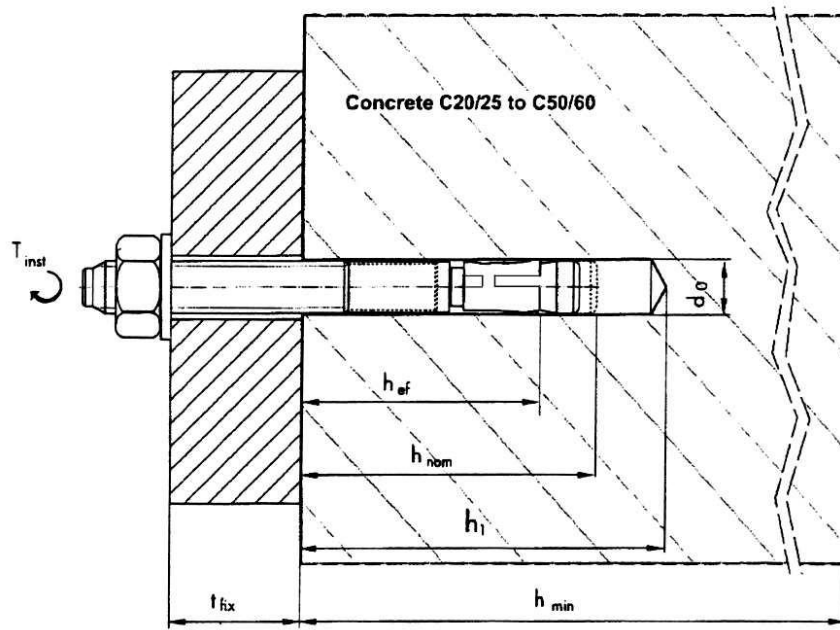


Example of marking

SV M12/15

Marking Designation

| | |
|-----|--------------------------------------|
| SV | Identification of producer |
| M12 | Nominal diameter |
| 15 | The maximum thickness of the fixture |

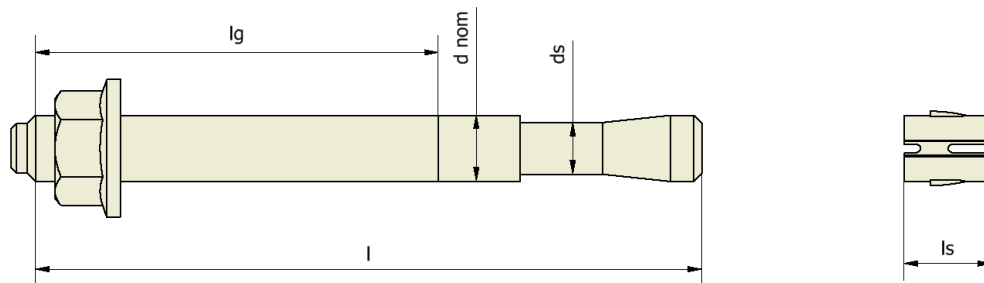


Product and intended use
Essve Golden Anchor

Annex 1
of European Technical
Approval
ETA-12/0257

Table 1 **Dimensions**

| | | | | M8 | M10 | M12 | M16 |
|--------------------------------|-------------------|---------------|------|-----------|------------|------------|------------|
| Bolt | Nominal diameter | d_{nom} | (mm) | 8 | 10 | 12 | 16 |
| | Neck diameter | d_s | (mm) | 5,8 | 7,8 | 9,3 | 12,8 |
| | Fixture thickness | t_{fix} max | (mm) | 35 | 140 | 150 | 160 |
| | Thread length | l_g min | (mm) | 39 | 45 | 54 | 67 |
| | | l_g max | (mm) | 80 | 200 | 210 | 240 |
| | Total length | l min | (mm) | 75 | 90 | 110 | 150 |
| l max | | (mm) | 150 | 250 | 300 | 350 | |
| Expansion sleeve | Length | l_s | (mm) | 11,0 | 13,4 | 16,5 | 18,0 |
| Hexagonal nut including washer | Diameter | d_u | (mm) | 17 | 21 | 25 | 34 |

**Table 2** **Materials**

| Part | Designation | Material | Coating |
|-------------|--------------------------------|--|-------------------------|
| 1 | Bolt | Steel 5.8 in accordance with ISO 898-1 | Electroplated 5 μ m |
| 2 | Expansion sleeve | Stainless steel A2 in accordance with EN 10088 | |
| 3 | Hexagonal nut including washer | Grade 8 in accordance with ISO 898-2 | Electroplated 5 μ m |

Materials and dimensions of anchors
Essve Golden Anchor

Annex 2
of European Technical
Approval
ETA-12/0257

Table 3 Installation data

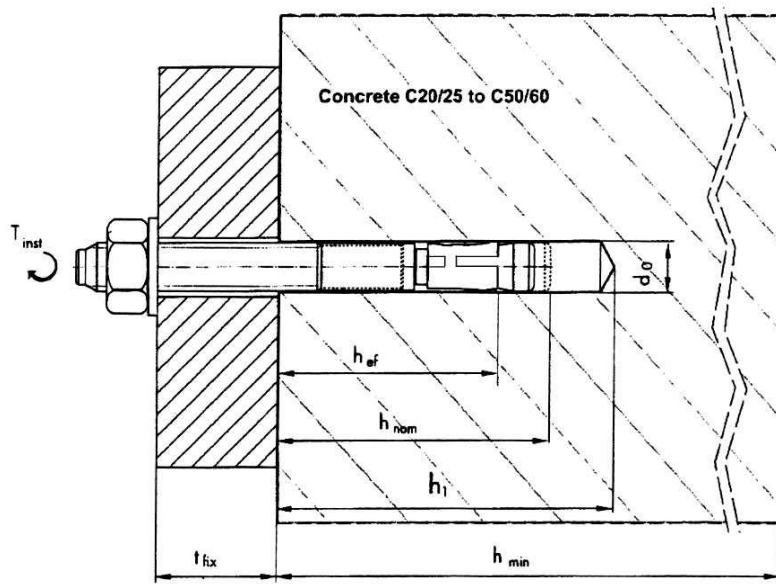
| | | | M8 | M10 | M12 | M16 |
|---------------------------------------|----------------|------|-----------|------------|------------|------------|
| Nominal drill hole diameter | d_0 | (mm) | 8 | 10 | 12 | 16 |
| Cutting diameter of drill bit | $d_{cut} \leq$ | (mm) | 8,45 | 10,45 | 12,5 | 16,5 |
| Torque moment | T_{inst} | (Nm) | 23 | 35 | 55 | 120 |
| Depth of drill hole | $h_1 \geq$ | (mm) | 70 | 90 | 100 | 13 |
| Anchor embedment depth | h_{nom} | (mm) | 66 | 84 | 96 | 117 |
| Effective anchorage depth | h_{ef} | (mm) | 55 | 70 | 80 | 95 |
| Diameter of clearance hole in fixture | d_f | (mm) | 9 | 2 | 14 | 18 |
| Member thickness | $h_{min} \geq$ | (mm) | 110 | 160 | 160 | 230 |
| Spacing | s_{min} | (mm) | 50 | 60 | 70 | 90 |
| | $s_{cr} \geq$ | (mm) | 165 | 210 | 240 | 285 |
| Edge distance | c_{min} | (mm) | 40 | 50 | 60 | 80 |
| | $c_{cr} \geq$ | (mm) | 83 | 105 | 120 | 143 |

s_{min} Minimum allowable spacing

s_{cr} Spacing for ensuring the transmission of the characteristic resistance of a single anchor

c_{min} Minimum allowable edge distance

c_{cr} Edge distance for ensuring the transmission of the characteristic resistance of a single anchor



Installation data
Essve Golden Anchor

Annex 3
of European Technical
Approval
ETA-12/0257

Table 4 Characteristic values of resistance to tensile loads

| | | M8 | M10 | M12 | M16 |
|--|-------------------------------|--------------------|------|------|------|
| Steel failure | | | | | |
| Characteristic resistance | $N_{Rk,s}$ (kN) | 13,2 | 23,9 | 34,0 | 64,4 |
| Partial safety factor | γ_{Ms} | 1,5 | | | |
| Pull-out failure | | | | | |
| Characteristic resistance in non-cracked concrete C20/25 to C50/60 | $N_{Rk,p}$ (kN) | 16 | 16 | 30 | 40 |
| Partial safety factors | γ_2 | 1,4 | | 1,0 | |
| | γ_{Mp} | 1,5 | | | |
| Concrete cone failure and splitting failure | | | | | |
| Effective anchorage depth | h_{ef} (mm) | 55 | 70 | 80 | 95 |
| Spacing | $s_{cr,N}$ (mm) | $3 \cdot h_{ef}$ | | | |
| | $s_{cr,sp}$ (mm) | $6 \cdot h_{ef}$ | | | |
| Edge distances | $c_{cr,N}$ (mm) | $1,5 \cdot h_{ef}$ | | | |
| | $c_{cr,sp}$ (mm) | $3 \cdot h_{ef}$ | | | |
| Partial safety factors | γ_2 | 1,4 | | 1,0 | |
| | $\gamma_{Mc} = \gamma_{M,sp}$ | 1,5 | | | |

Table 5 Displacements under tension loads

| | | M8 | M10 | M12 | M16 |
|---|-------------------------|-----|-----|------|------|
| Tension load in non-cracked concrete C20/25 to C50/60 | (kN) | 7,6 | 7,6 | 14,3 | 19,0 |
| Displacement | δ_{N0} (mm) | 0,3 | 1,6 | | |
| | $\delta_{N\infty}$ (mm) | 2,1 | 2,9 | | |

**Characteristic values of resistance to tensile loads; displacements
(design method A)
Essve Golden Anchor**

**Annex 4
of European Technical
Approval
ETA-12/0257**

Table 6 Characteristic values of resistance to shear loads

| | | M8 | M10 | M12 | M16 |
|---|-----------------|-----------|------------|------------|------------|
| Steel failure without lever arm | | | | | |
| Characteristic resistance | $V_{Rk,s}$ (kN) | 9,2 | 14,5 | 21,1 | 39,2 |
| Partial safety factor | γ_{Ms} | 1,25 | | | |
| Steel failure with lever arm | | | | | |
| Characteristic resistance | $M_{Rk,s}$ (Nm) | 18,8 | 37,3 | 65,5 | 165,8 |
| Partial safety factor | γ_{Ms} | 1,25 | | | |
| Concrete pryout failure | | | | | |
| Factor in Equation (5.6) of ETAG Annex C, 5.2.3.3 | k | 1,0 | 2,0 | | |
| Partial safety factor | γ_{Mc} | 1,5 | | | |
| Concrete edge failure | | | | | |
| Effective length of anchor in shear loading | l_f (mm) | 55 | 70 | 80 | 95 |
| Diameter | d_{nom} (mm) | 8 | 10 | 12 | 16 |
| Partial safety factor | γ_{Mc} | 1,5 | | | |

Table 7 Displacements under shear loads

| | | M8 | M10 | M12 | M16 |
|---|-------------------------|-----------|------------|------------|------------|
| Shear load in non-cracked concrete C20/25 to C50/60 | kN | 5,3 | 8, | 12,1 | 22,4 |
| Displacement | δ_{v0} (mm) | 1,0 | | | |
| | $\delta_{v\infty}$ (mm) | 1,5 | | | |

**Characteristic values of resistance to shear loads; displacements
(design method A)
Essve Golden Anchor**

Annex 5
of European Technical
Approval
ETA-12/0257