

## European Technical Assessment

**ETA 12/0257**  
of 14/12/2017

### General Part

#### Technical Assessment Body issuing the ETA:

RISE Research Institutes of Sweden AB

#### Trade name of the construction product

Golden Anchor

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

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

#### Manufacturer

Essve Produkter AB  
Esbogatan 14  
SE-164 74 Kista, Sweden  
[www.essve.se](http://www.essve.se)

#### Manufacturing plant(s)

Essve Produkter AB plant no 369

#### This European Technical Assessment contains

8 pages including 5 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  
330232-00-0601, edition October 2016.

#### This ETA is a corrigendum to

ETA 12/0257 issued on 04/12/2017

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

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## 1 Technical description of the product

The Golden Anchor is an anchor made of electro-galvanized steel or hot dip 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.

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

The anchor is intended to be used for making structural fixings into concrete.

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 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, 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 Essential characteristics and their performance

		Characteristic	Performance
BWR 1	Mechanical resistance and stability	Characteristic resistance	See Annex 4 and 5
		Durability	See Annex 2
BWR 2	Safety in case of fire	Reaction to fire	Class A1

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

According to the decision 96/582/EC, of the European Commission the system of assessment and verification of constancy of performance (see Annex V to the regulation (EU) No 305/2011) to be applied is 1.

## **5 Technical details necessary for the implementation of the AVCP system, as provided for in the applicable EAD**

Technical details necessary for the implementation of the AVCP system are laid down in the control plan deposited at RISE Research Institutes of Sweden AB.

Issued in Borås on 14.12.2017  
By RISE Research Institutes of Sweden AB

Johan Åkesson  
Certification Manager



Example of marking

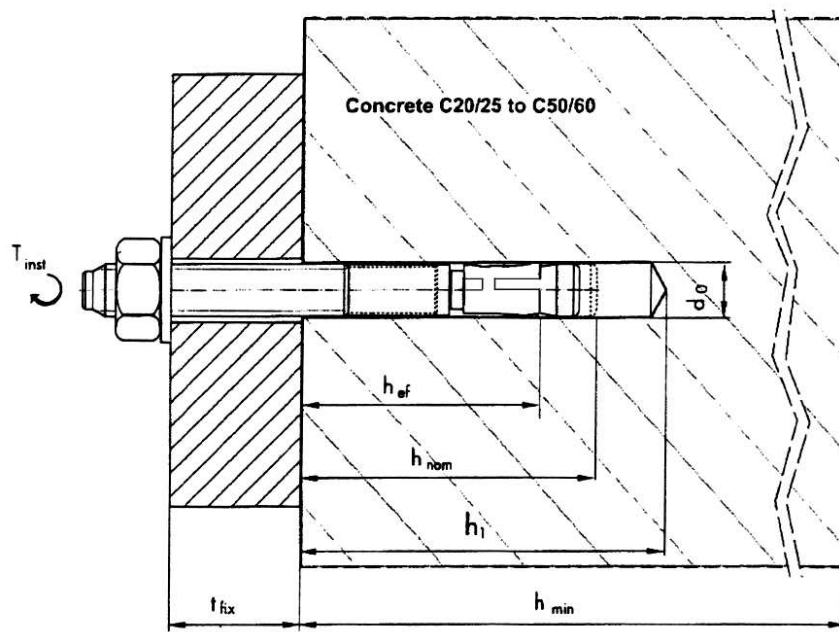
SV M12/15

Marking      Designation

SV                      Identification of producer

M12                    Nominal diameter

15                      The maximum thickness of the fixture

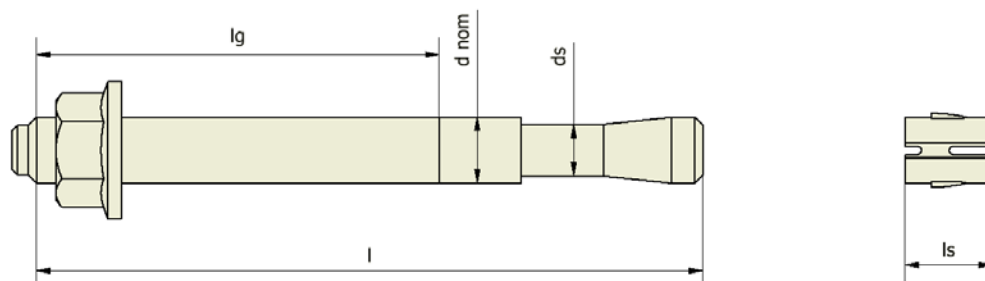


Product and intended use  
Essve Golden Anchor

Annex 1  
of European Technical Assessment  
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**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
Flange nut	Diameter	$d_u$	(mm)	17	21	25	34



**Table 2 Materials**

Part	Designation	Material	Coating
1	Bolt	Cold formed carbon steel, $f_{uk}$ min. 500 MPa, $f_{yk}$ min. 400 MPa	Electroplated 5 $\mu$ m
			Hot dip galvanized 25 $\mu$ m
2	Expansion sleeve	Stainless steel A2 in accordance with EN 10088	
3	Flange nut	Grade 8 in accordance with ISO 898-2	Electroplated 5 $\mu$ m
			Hot dip galvanized 25 $\mu$ m

**Materials and dimensions of anchors  
Essve Golden Anchor**

**Annex 2**  
of European Technical Assessment  
**ETA-12/0257**

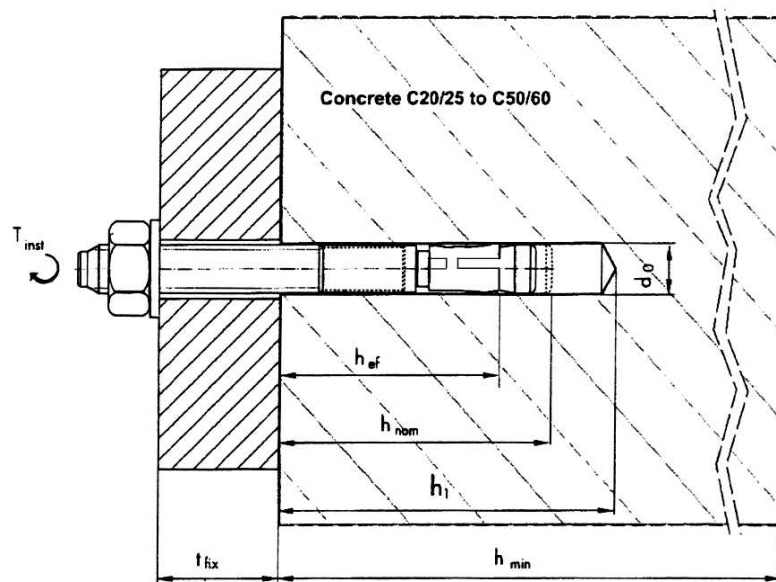
### Table 3 Installation data

			M8	M10	M12	M16
Nominal drill hole diameter	$d_0$	(mm)	8	10	12	16
Cutting diameter of drill bit	$d_{\text{cut}} \leq$	(mm)	8,45	10,45	12,5	16,5
Torque moment	$T_{\text{inst}}$	(Nm)	23	35	55	120
Depth of drill hole	$h_1 \geq$	(mm)	70	90	100	130
Anchor embedment depth	$h_{\text{nom}}$	(mm)	66	84	96	117
Effective anchorage depth	$h_{\text{ef}}$	(mm)	55	70	80	95
Diameter of clearance hole in fixture	$d_f$	(mm)	9	12	14	18
Member thickness	$h_{\text{min}} \geq$	(mm)	110	160	160	230
Spacing	$s_{\text{min}}$	(mm)	50	60	70	90
	$s_{\text{cr}} \geq$	(mm)	165	210	240	285
Edge distance	$c_{\text{min}}$	(mm)	40	50	60	80
	$c_{\text{cr}} \geq$	(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

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

**Installation data**  
**Essve Golden Anchor**

**Annex 3**  
of European Technical Assessment  
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**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	$\gamma_{Ms}$		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	$\gamma_2$		1,4		1,0	
	$\gamma_{Mp}$		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	$\gamma_2$		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	$\delta_{N0}$ (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  
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**Table 6 Characteristic values of resistance to shear loads**

		M8	M10	M12	M16
<b>Steel failure without lever arm</b>					
Characteristic resistance	$V_{Rk,s}$ (kN)	9,2	14,5	21,1	39,2
Partial safety factor	$\gamma_{Ms}$	1,25			

<b>Steel failure with lever arm</b>					
Characteristic resistance	$M_{Rk,s}$ (Nm)	18,8	37,3	65,5	165,8
Partial safety factor	$\gamma_{Ms}$	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	$\gamma_{Mc}$	1,5	

<b>Concrete edge failure</b>					
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	$\gamma_{Mc}$	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	8,3	12,1	22,4
Displacement	$\delta_{V0}$ (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  
Assessment **ETA-12/0257**