

### Area of Application

ESSVE Golden Anchor is designed for fastening in concrete and natural stone. Ideally Golden Anchor can be used in applications where high load demands are made on the fixing. Golden Anchor can for example be used when fixing wooden studs/steel joists as well as sills and facade studs, fixing brackets, z-iron, wrought iron designs, etc.

### Description

Golden Anchor is a stud bolt expander which in its lower section, the anchoring section, has a stainless clip that expands up on the tapered part of the bolt when tightened. The upper section is equipped with an external thread with a flange nut, i.e. a combined nut and washer. In order to avoid damage to the bolt threads when

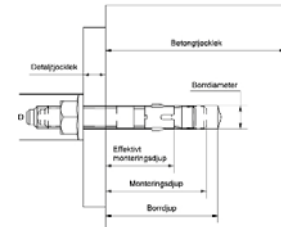
inserting, the upper section features a impact head.

When the drill diameter is equal to the screw diameter contact is created between the hole wall and the clip even when Golden Anchor is knocked into the hole. When the flange nut is tightened the bolt is forced outwards, whereby the clip is forced to expand up on the tapered section. The bright zinc plated, BZP 5 µm, and hot dip galvanized, HDG 45 µm versions of

Golden Anchor are made of carbon steel in strength grade min. 5.8. The stainless acid-proof version is of quality min. A4-70. All versions include stainless clips.

### Installation

See the installation instructions at the end of this section.



### Installation (drill-through installation)

1. Place the part in position. Drill holes with the same drill diameter as the bolt, see min. drilling depth in the Load table. No blow cleaning is required, only basic cleaning with the drill.
2. Knock in the expander bolt to the correct installation depth, see min. installation depth in the Load table.
3. Tighten the nut to the specified torque, see Load Table or Technical data. The installation is finished.

### Specification

	Bright zinc plated (BZP)	Hot dip galvanized (HDG)	Stainless steel
Material	Steel, 5.8	Steel, 5.8	Stainless steel acid proof A4-70
Surface treatment	Bright zinc plated (yellow) 5 µm	Hot dip galvanized 45 µm (M6 and M8 25 µm)	-
Corrosion categories	C1	C3	C5
Clips	Stainless steel	Stainless steel	Stainless steel
ETA Approvals	ETA 12/0257	ETA 12/0257	

### Corrosivity and Safety class

Corrosion categories	Safety class 1	Safety class 2
C1	5 µm	5 µm
C2	45 µm	45 µm
C3-C4	45 µm*	A4
C5M+I	A4	A4

\* However, in severe industrial atmospheres in corrosivity category C4 stainless/acid-resistant version is always recommended.

### Fire rating

Dim	Fire rating	Minimum installation depth mm	Characteristic bearing capacity kN
M8	R 90	35	0,5
M8	R 60	35	1,0
M10	R 60	40	1,5
M12	R 90	80	2,0

### Allowable load and technical data

This load value can be used directly, it has safety factor  $\gamma = 1.4$  applied on the Design Resistance.

### For installation in uncracked concrete

		M6		M8		M10			M12		M16		M20	
Drill hole diameter	$d_0$	6	8			10			12		16		20	m
Drill depth	$h_1$	45	40	60	70	45	65	90	85	100	100	130	150	m
Effective anchorage depth	$h_{ef}$	35	28	48	55	25	45	70	63	80	65	95	115	m
Tension load C20/25 <sup>1</sup>	$N_{re}$	25	34	48	55	43	51	55	73	145	117	194	164	kg
Shear load C20/25 <sup>1</sup>	$V_{rec}$	5	0	5	5	0	5	5	5	5	0	0	5	kg
Critical Edge Distance	$c_{cr}$	53	42	72	83	39	69	10	95	120	98	143	173	m
Critical Spacing distance	$s_{cr}$	10	84	14	16	78	13	21	18	240	195	285	345	m
Minimum Concrete Thickness	$h_{min}$	80	80	80	11	80	10	16	12	160	140	230	170	m
Installation Torque	$T_{inst}$	10	23			35			55		120		180	N
Installation Torque, A4	$T_{inst}$	10	29			45			70		150		225	N

<sup>1</sup>. Valid for a single anchor where distance to any other anchor or edge is larger than  $s_{cr}$  and  $c_{cr}$

### Design Resistance and technical data

Load capacity in accordance with Eurocode. For calculation of other edge and / or spacing and concrete quality, please use calculation software ESSVE CS, the latest published ETA

on our website together with ETAG 001 Annex C, or contact our technical support. The ETA is valid only for EZP / HDG at the deepest setting depth ( $h_{ef}$ ) for dimension M8-M16.

### Mounted in non-cracked concrete

		M8			M10			M12		M16		M20	
Drill hole diameter	$d_0$	8			10			12		16		20	mm
Drill depth	$h_1$	40	60	70	45	65	90	85	100	100	130	150	mm
Effective anchorage depth	$h_{ef}$	28	48	55	25	45	70	63	80	65	95	115	mm
Tension load C20/25 <sup>1</sup>	$N_{Rd}$	4,7	6,7	7,6	5,9	7,1	7,6	10,1	20,0	16,1	26,7	22,6	kN
Tension load C50/60 <sup>1</sup>	$N_{Rd}$	4,7	6,7	7,6	5,9	7,1	7,6	10,1	20,0	16,1	26,7	53,0	kN
Shear load C20/25 <sup>1</sup>	$V_{Rd}$	4,7	5,0	7,4	6,9	7,1	11,6	10,6	16,9	23,7	31,4	20,6	kN
Shear load C50/60 <sup>1</sup>	$V_{Rd}$	4,7	5,0	7,4	6,9	7,1	11,6	10,6	16,9	23,7	31,4	39,0	kN
Critical Edge Distance	$c_{cr}$	42	72	83	39	69	105	95	120	98	143	173	mm
Critical Spacing distance	$s_{cr}$	84	14	16	78	13	210	189	240	195	285	345	mm
Minimum Concrete Thickness	$h_{min}$	80	80	110	80	100	160	120	160	140	230	170	mm
Minimum Edge Distance <sup>2</sup>	$c_{min}$	40			50			60		80		100	mm
Minimum Spacing distance <sup>2</sup>	$s_{min}$	40			50			70		90		110	mm
Installation Torque	$T_{inst}$	23			35			55		120		180	Nm
Installation Torque, A4	$T_{inst}$	29			45			70		150		225	Nm

<sup>1</sup> Valid for a single anchor where distance to any other anchor or edge is larger than  $s_{cr}$  and  $c_{cr}$

<sup>2</sup>. NOTE! Using lower values for spacing and edge distance than  $s_{cr}$  and  $c_{cr}$  reduces the load capacity given in the table

## Golden Anchor, bright zinc plated (yellow) 5 µm

### ESSBOX

Item no.	Dimension/ Detail thick- ness/ length mm	D mm	Th- read len <sup>t</sup> h mm	Drill mm	Drill depth mm	Max detail thick.mm	Key width mm	ESS- BOX size	Qty/ pack	Pack / lar- ge pack
306751	M6×70*	14	25	6	45	15	10	204	100	6
306401	M8×50*	18	20	8	40/-/-	5/-/-	13	304	100	4
306701	M8×75*	18	30	8	40/60/-	29/9/-	13	204	50	6
306702	M8/10/86	18	50	8	40/60/70	40/20/10	13	204	50	6
306703	M8/20/96	18	50	8	40/60/70	50/30/20	13	304	50	4
306704	M8/30/ 106	18	66	8	40/60/70	60/40/30	13	304	50	4
306705	M8/50/ 126	18	66	8	40/60/70	80/60/50	13	304	50	4
306407	M10×60*	22	25	10	45/-/-	5/-/-	15	304	50	4
306409	M10×75*	22	30	10	45/65/-	22/2/-	15	304	50	4
306710	M10×90*	22	50	10	45/65/-	37/17/-	15	204	25	6
306711	M10/7/104	22	59	10	45/65/90	51/31/7	15	204	25	6
306713	M10/37/ 134	22	89	10	45/65/90	81/61/37	15	304	25	4
306714	M10/52/ 149	22	89	10	45/65/90	96/76/52	15	304	25	4
306715	M10/77/ 174	22	89	10	45/65/90	121/101/77	15	206	25	4
306717	M10/117/ 214	22	89	10	45/65/90	161/141/ 117	15	206	25	4
306421	M12×80*	26	34	12	85/-	5/-	18	204	25	6
306722	M12/5/ 116	26	34	12	85/100	21/5	18	304	25	4
306723	M12/15/ 126	26	70	12	85/100	31/15	18	304	25	4
306726	M12/45/ 156	26	70	12	85/100	61/45	18	304	20	4
306727	M12/85/ 196	26	70	12	85/100	101/85	18	057	25	4
306433	M16×100*	35	35	16	80/-/-	12/-/-	24	204	10	6
306734	M16/10/ 149	35	89	16	80/100/ 130	62/42/10	24	304	10	4
306735	M16/33/ 172	35	89	16	80/100/ 130	85/65/33	24	206	10	4
306737	M16/83/ 222	35	119	16	80/100/ 130	135/115/83	24	057	10	4
306743	M20/30/ 194	37	76	20	150	30	30	206	5	4
306745	M20/80/ 244	37	76	20	150	80	30	055	5	4



European Technical Approval, ETA-07/  
0033, bright zinc plated



\* These dimensions are too short to meet the requirement for the standard installation depth