

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

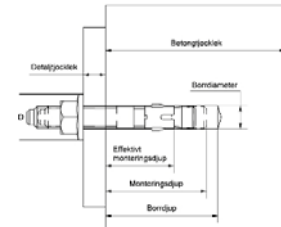
inserting, the upper section features a impact head.

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 ¹	N_{re}	25	34	48	55	43	51	55	73	145	117	194	164	kg
Shear load C20/25 ¹	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

¹. 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 ¹	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 ¹	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 ¹	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 ¹	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 ²	c_{min}	40			50			60		80		100	mm
Minimum Spacing distance ²	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

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

². 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, hot dip galvanized 45 µm

ESSBOX

Item no.	Dimension/Detail thickness/ Length mm	D mm	Thread length mm	Diameter Ø mm	Drill depth mm	Max detail thickness mm	Key width mm	ESSBOX size	Qty/pack.	Pack./large pack.
306 851	M6×70*	14	25	6	45	15	10	204	10	6
306 853	M6×100*	14	55	6	45	45	10	304	10	4
306 501	M8×50*	18	20	8	40/-/-	5/-/-	13	304	10	4
306 801	M8×75*	18	30	8	40/60/ -	29/9/ -	13	204	50	6
306 802	M8/10/86	18	50	8	40/60/ 70	40/20/ 10	13	204	50	6
306 803	M8/20/96	18	50	8	40/60/ 70	50/30/ 20	13	304	50	4
306 804	M8/30/106	18	66	8	40/60/ 70	60/40/ 30	13	304	50	4
306 805	M8/50/126	18	66	8	40/60/ 70	80/60/ 50	13	304	50	4
306 507	M10×60*	22	25	10	45/-/-	5/-/-	15	304	50	4
306 509	M10×75*	22	30	10	45/65/ -	22/2/ -	15	304	50	4
306 810	M10×90*	22	50	10	45/65/ -	37/17/ -	15	204	25	6
306 811	M10/7/104	22	59	10	45/65/ 90	51/31/7	15	204	25	6
306 813	M10/37/134	22	89	10	45/65/ 90	81/61/ 37	15	304	25	4
306 814	M10/52/149	22	89	10	45/65/ 90	96/76/ 52	15	304	25	4
306 815	M10/77/174	22	89	10	45/65/ 90	121/ 101/77	15	206	25	4
306 817	M10/117/214	22	89	10	45/65/ 90	161/ 141/ 117	15	206	25	4
306 819	M10/157/254	22	89	10	45/65/ 90	201/ 181/ 157	15	055	25	4
306 521	M12×80*	26	34	12	85/-	5/-	18	204	25	6
306 822	M12/5/116	26	34	12	85/100	21/5	18	304	25	4
306 823	M12/15/126	26	70	12	85/100	31/15	18	304	25	4
306 826	M12/45/156	26	70	12	85/100	61/45	18	304	20	4
306 827	M12/85/196	26	70	12	85/100	/101/85	18	057	25	4
306 829	M12/125/236	26	109	12	85/100	141/ 125	18	055	20	4
306 831	M12/165/276	26	109	12	85/100	181/ 165	18	055	20	4



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

0-FIELD-0-FIELD-0-FIELD-0-FIELD-0-FIELD

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

Item no.	Dimension/Detail thickness/Length mm	D mm	Th-read length mm	Drill Ø mm	Drill depth mm	Max detail thick.m	Key width	ESSBOX size	Pack.	
									Qty./pack.	large pack.
306 533	M16×100*	35	16	80/-	12/-	24	204	10	6	6
306 833	M16×120*	58	16	80/100/-	33/13/-	24	304	10	4	4
306 834	M16/10/149	89	16	80/100/130	62/42/10	24	304	10	4	4
306 835	M16/33/172	89	16	80/100/130	85/65/33	24	206	10	4	4
306 837	M16/83/222	119	16	80/100/130	135/115/83	24	057	10	4	4
306 839	M16/133/272	119	16	80/100/130	185/165/133	24	055	10	4	4
306 841	M16/183/322	119	16	80/100/130	235/215/183	24	055	10	4	4
306 842	M20/10/174	76	20	150	10	30	206	5	4	4
306 843	M20/30/194	76	20	150	30	30	206	5	4	4
306 845	M20/80/244	76	20	150	80	30	055	5	4	4

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

Small package

Item no.	Dimension/Detail thickness/Length mm	D mm	Th-read length mm	Drill Ø mm	Drill depth mm	Max detail thick.m	Key width	Pack.	
								Qty./pack.	large pack.
5107 21	M8/10/86	18	50	8	40/60/70	40/20/10	13	3	10
5107 22	M8/50/126	18	66	8	40/60/70	80/60/50	13	3	10
5107 24	M10/7/104	22	59	10	45/65/90	51/31/7	15	3	10
5137 24	M10/7/104	22	59	10	45/65/90	51/31/7	15	10	6
5107 25	M10/37/134	22	89	10	45/65/90	81/61/37	15	2	10
5107 26	M10/52/149	22	89	10	45/65/90	96/76/52	15	2	10
5137 26	M10/52/149	22	89	10	45/65/90	96/76/52	15	8	6
5107 17	M12×80*	26	34	12	85/-	5/-	18	2	10
5107 28	M12/15/126	26	70	12	85/100	31/15	18	2	10
5137 28	M12/15/126	26	70	12	85/100	31/15	18	6	6
5107 30	M12/45/156	26	70	12	85/100	61/45	18	2	10

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