

Drop-in Anchor E / ES

Steel, zinc plated



Drop-in Anchor E

Drop-in Anchor ES

Description

European approved Drop-in Anchor E (ETA, Option 7): Deformable expansion cone adjusts to strength of concrete as well as to size of hole within the variation range of a drill bit from new to worn. The anchor assures easy and safe fastening. The shoulder of the setting tool contacts the anchor in any case. The marking setting tool leaves four significant marks on each anchor as proof of correct expansion.

Applications

Attaching suspended ceilings, ventilation and sprinkler systems, structural steel, brackets, threaded rods. Type ED M 12, ED M 12 D (external diameter 16mm) and ED M 16 are designed to attach diamond drilling equipment.

Range of loading: 1,2 kN - 28,6 kN
Range of concrete quality: C20/25 - C50/60

Drop-in Anchor E



- Steel, zinc plated
- Approved for concrete

Description	Ref. No.	Drill hole Ø x depth mm	Thread Ø x length mm	Package content pcs.	Weight per package kg
E M 5 ¹⁾	05000101	8 x 25	M5 x 10	100	0,82
E M 6	05005101	8 x 30	M6 x 13	100	0,79
E M 8	05100101	10 x 30	M8 x 13	100	1,24
E M 8 x 40	05105101	10 x 40	M8 x 20	100	1,55
E M 10	05200101	12 x 40	M10 x 15	50	1,17
E M 12	05300101	15 x 50	M12 x 18	50	2,35
E M 12 x 80	05305101	15 x 80	M12 x 45	50	3,32
E M 16	05500101	20 x 65	M16 x 23	25	2,80
E M 16 x 80	05505101	20 x 80	M16 x 38	25	3,29
E M 20	05600101	25 x 80	M20 x 34	25	5,12

¹⁾ Not part of approval.

Safety Setting Tool

for Drop-in Anchor E



Without Hand Guard Safety Setting Tool with Hand Guard

Description	Ref. No.	Description	Ref. No.
E-MSW 8	09100170	E-MSH 8	09100180
E-MSW 8 x 40	09105170	E-MSH 8 x 40	09105180
E-MSW 10	09200170	E-MSH 10	09200180
E-MSW 12	09300170	E-MSH 12	09300180
E-MSW 12 x 80	09305170	E-MSH 12 x 80	09305180
E-MSW 16	09500170	E-MSH 16	09500180
E-MSW 16 x 80	09505170	E-MSH 16 x 80	09505180
E-MSW 20	09600170	E-MSH 20	09600180

Installation



Drop-in Anchor E

Hole drilled with a new drill bit in concrete C20/25:
 → Cone is not deformed during installation

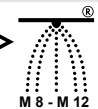


Drop-in Anchor E

- small drill hole
 - concrete C50/60
 → Cone is deformed during installation



The setting tool E-MSW and E-MSH leaves four significant marks on each anchor as proof of correct expansion.



Drop-in Anchor ED¹⁾



- Steel, zinc plated
- Suitable for diamond drilling equipment

Description	Ref. No.	Drill hole Ø x depth mm	Thread Ø x length mm	Package content pcs.	Weight per package kg
ED M 12	05301101	15 x 50	M12 x 18	50	2,35
ED M 12 D	05317101	16 x 50	M12 x 18	50	2,82
ED M 16	05501101	20 x 65	M16 x 23	25	2,80

¹⁾ Not part of approval.

Drop-in Anchor ES¹⁾



- Steel, zinc plated
- Lipped Drop-in for installations in a bottomless hole

Bezeichnung	Ref. No.	Drill hole Ø x depth mm	Thread Ø x length mm	Package content pcs.	Weight per package kg
ES M 10x30	05230101	12 x 30	M10 x 12	50	0,91

¹⁾ Not part of approval.

Standard Setting Tool

for Drop-in Anchor E, ED and ES



Description	Ref. No.
E-SW 5	09000150
E-SW 6	09005150
E-SW 8	09100150
E-SW 8 x 40	09105150
E-SW 10	09200150
E-SW 10 x 30	09205150
E-SW 12	09300150
E-SW 12 x 80	09305150
E-SW 16	09500150
E-SW 16 x 80	09505150
E-SW 20	09600150

**Extract from Permissible Service Conditions of ETA-02/0020**

Approved loads for single anchor without influence of spacing and edge distance.
Total safety factor as per ETAG 001 included (γ_M and γ_p)

Loads and performance data	Drop-in Anchor	E M 5 ^{1,2)}	E M 6 ¹⁾	E M 8 ¹⁾	E M 8x40	E M 10	ES M 10x30 ^{1,2)}	E M 12	E M 16	E M 20	
											non-cracked concrete
Mean ultimate loads, tension (Screw 8.8)	C25/30 N _{um}	[kN]	8,0	10,0	11,5	13,5	16,9	15,6	24,1	36,4	50,5
Mean ultimate loads, shear (Screw 8.8)	C25/30 V _{um}	[kN]	5,7	6,9	11,1	11,1	13,5	9,5	29,5	50,4	76,4
Approved loads, tension (Screw 5.6 to 8.8)	C20/25 appr. N	[kN]	1,4	3,3	2,8	3,6	5,1	4,0	7,1	10,5	14,3
	C25/30 appr. N	[kN]	1,5	3,6	3,1	3,9	5,6	4,3	7,8	11,5	15,7
	C30/37 appr. N	[kN]	1,7	3,6	3,4	4,1	6,2	5,3	8,6	12,8	17,5
	C40/50 appr. N	[kN]	1,9	3,6	4,0	4,4	7,1	7,4	10,0	14,8	20,2
	C50/60 appr. N	[kN]	2,1	3,6	4,4	4,6	7,8	8,6	11,0	16,2	22,2
Approved loads, shear (Screw 5.6)	≥ C20/25 appr. V	[kN]	1,5	2,1	3,9	3,9	4,1	3,7	9,0	16,8	26,2
Approved loads, shear (Screw 5.8/8.8)	≥ C20/25 appr. V	[kN]	2,0	2,9	3,9	3,9	4,1	3,7	12,0	18,0	28,6
Approved bending moments (Screw 5.6)	appr. M	[Nm]	-	3,3	8,1	8,1	15,8	15,8	27,8	71,0	138,6
Approved bending moments (Screw 5.8)	appr. M	[Nm]	-	4,3	10,9	10,9	21,1	21,1	37,1	94,9	185,1
Approved bending moments (Screw 8.8)	appr. M	[Nm]	-	6,9	17,1	17,1	34,3	34,3	60,0	152,0	296,6

Spacing and edge distance

Effective anchorage depth	h_{ef}	[mm]	25	30	30	40	40	30	50	65	80
Characteristic spacing	$s_{cr,N}$	[mm]	75	90	90	120	120	90	150	195	240
Characteristic edge distance	$c_{cr,N}$	[mm]	37,5	45	45	60	60	45	75	97,5	120
Minimum spacing	s_{min}	[mm]	60	55	60	80	100	100	120	150	160
Minimum edge distance	c_{min}	[mm]	95	95	95	95	135	135	165	200	260
Minimum thickness of concrete slab	h_{min}	[mm]	100	100	100	100	120	100	130	160	200

Installation parameters

Drill hole diameter	d_o	[mm]	8	8	10	10	12	12	15	20	25
Diameter of clearance hole in the fixture	d_f	[mm]	6	7	9	9	12	12	14	18	22
Depth of drill hole	h_o	[mm]	25	30	30	40	40	30	50/80 ³⁾	65/80 ⁴⁾	80
Installation torque	T_{inst}	[Nm]	3	4	8	8	15	15	35	60	120
Minimum screwing depth	L_{sd}	[mm]	6	7	9	9	11	11	13	18	22
Maximum screwing depth	L_{th}	[mm]	10	13	13	20	15	12	18/45 ³⁾	23/38 ⁴⁾	34

¹⁾ Valid only for statically indeterminate systems.

²⁾ Not part of approval.

³⁾ E M12 / E M12x80

⁴⁾ E M16 / E M16x80

**Extract from Permissible Service Conditions of ETA-05/0116**

Multiple use for non-structural applications.
Total safety factor as per ETAG 001 included (γ_M and γ_p).

Loads and performance data	Drop-in Anchor	E	M 6	M 8	M 8x40	M 10	M 12
Approved loads (C20/25 to C50/60)	appr. F	[kN]	1,2	1,7	2,0	2,0	2,4
Approved bending moments (Steel 4.6)	appr. M	[Nm]	2,6	6,4	6,4	12,8	22,2
Approved bending moments (Steel 5.6)	appr. M	[Nm]	3,3	8,1	8,1	15,8	27,8
Approved bending moments (Steel 5.8)	appr. M	[Nm]	4,3	10,9	10,9	21,1	37,1
Approved bending moments (Steel 8.8)	appr. M	[Nm]	6,9	17,1	17,1	34,3	60,0

Spacing and edge distance

Effective anchorage depth	h_{ef}	[mm]	30	30	40	40	50
Characteristic spacing	s_{cr}	[mm]	130	180	210	170	170
Characteristic edge distance	c_{cr}	[mm]	65	90	105	85	85
Minimum spacing	s_{min}	[mm]	55	60	80	100	120
Minimum edge distance	c_{min}	[mm]	95	95	95	135	165
Minimum thickness of concrete slab	h_{min}	[mm]	100	100	100	120	130

Installation parameters

Drill hole diameter	d_o	[mm]	8	10	10	12	15
Diameter of clearance hole in the fixture	d_f	[mm]	7	9	9	12	14
Depth of drill hole	h_o	[mm]	30	30	40	40	50
Installation torque	T_{inst}	[Nm]	4	8	8	15	35
Minimum screwing depth	L_{sd}	[mm]	7	9	9	11	13
Maximum screwing depth	L_{th}	[mm]	13	13	20	15	18

Loads under fire exposure

Approved loads R30	appr. F	[kN]	0,8	0,9	0,9	1,5	1,5
Approved loads R60	appr. F	[kN]	0,8	0,9	0,9	1,5	1,5
Approved loads R90	appr. F	[kN]	0,4	0,9	0,9	1,5	1,5
Approved loads R120	appr. F	[kN]	0,2	0,4	0,4	1,0	1,2
Characteristic spacing	$s_{cr,fi}$	[mm]	130	180	210	170	200
Characteristic edge distance	$c_{cr,fi}$	[mm]	65	90	105	85	100
Minimum spacing	s_{min}	[mm]	55	60	80	100	120
Minimum edge distance	c_{min}	[mm]	95	95	95	135	165

For anchor designing, an easy to operate CD-ROM is available on request or can be downloaded at www.mkt-duebel.de.