

## Drop-in Anchor E/ES A4 / E HCR

Stainless steel A4/316 / High corrosion resistant steel 1.4529 (HCR)



Drop-in Anchor E A4



Drop-in Anchor ES A4

Range of loading: 1,2 kN - 30,4 kN

Range of concrete quality: C20/25 - C50/60



### Description

The Drop-in Anchor E/ES A4 / E HCR is approved as single anchor in uncracked concrete as well as for redundant fastening use for non-structural applications in cracked and uncracked concrete.

The Drop-in Anchor E/ES A4 / E HCR is placed into the drill hole in pre-setting installation and expanded reliably by means of a manual or hammer drill setting tool. Using a detachable setting tool with a stop drill bit (ASW) allows for quick and efficient, high volume installations. Using the marking setting tool produces a visible marking on the anchor sleeve which confirms the correct installation. The use of coated screws is necessary in order to be able to remove the fixture.

### Advantages

- Approved for use as multiple fixing in cracked and uncracked concrete
- Approved for use as single fixing in uncracked concrete
- Quick, rational and efficient installation due to the detachable setting tool with a stop drill bit (ASW)
- Simple visual inspection with marking tool
- Many possible applications due to the use of standard metric screws and threaded rods
- FM approval for the installation of sprinkler systems (M10-M20)
- Suitable for the installation of sprinkler systems according to the requirements of damage prevention VDS, GmbH (M8-M16)
- Fire resistance tested in concrete C20/25 to C50/60

### Applications

Attaching suspended ceilings, ventilation and sprinkler systems, structural steel, brackets, threaded rods.

### Drop-in Anchor E A4



→ Stainless steel A4/316

→ 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 x 25 A4 <sup>2)</sup>	05000501	8 x 25	M5 x 10	100	0,75
E M 6 x 30 A4	05005501	8 x 30	M6 x 13	100	0,83
E M 8 x 30 A4	05100501	10 x 30	M8 x 13	100	1,16
E M 8 x 40 A4	05105501	10 x 40	M8 x 20	100	1,49
E M 10 x 40 A4	05200501	12 x 40	M10 x 15	50	1,08
E M 12 x 50 A4	05300501	15 x 50	M12 x 18	50	2,19
E M 16 x 65 A4	05500501	20 x 65	M16 x 23	25	2,57
E M 20 x 80 A4	05600501	25 x 80	M20 x 34	25	4,63

### Drop-in Anchor ES A4



→ Stainless steel A4, Approved for concrete

→ Lipped Drop-in for installations in a bottomless hole

Description	Ref. No.	Drill hole Ø x depth mm	Thread Ø x length mm	Package content pcs.	Weight per package kg
ES M 8 x 30 A4	05150501	10 x 30	M8 x 13	100	1,15
ES M 10 x 40 A4	05250501	12 x 40	M10 x 15	50	1,10
ES M 12 x 50 A4	05350501	15 x 50	M12 x 18	50	2,15

<sup>1)</sup>Only for use in non-structural applications

<sup>2)</sup>Applies only to anchorage depths  $h_{ef} \geq 30$  mm

### Safety Setting Tool

For Drop-in Anchor E and ES  
With hand guard



Description	Ref. No.	Weight per piece kg
E-MSH 8 x 30	09100801	0,42
E-MSH 8 x 40	09105801	0,38
E-MSH 10 x 30	09205801	0,50
E-MSH 10 x 40	09200801	0,45
E-MSH 12 x 50	09300801	0,47
E-MSH 12 x 80	09305801	0,51
E-MSH 16 x 65	09500801	0,50
E-MSH 16 x 80	09505801	0,55
E-MSH 20 x 80	09600801	0,62

### Standard Setting Tool

For Drop-in Anchor E and ES



Description	Ref. No.	Weight per piece kg
E-SW 5 x 25	09000150	0,08
E-SW 6 x 30	09005150	0,09
E-SW 8 x 30	09100150	0,14
E-SW 8 x 40	09105150	0,14
E-SW 10 x 30	09205150	0,15
E-SW 10 x 40	09200150	0,15
E-SW 12 x 50	09300150	0,25
E-SW 12 x 80	09305150	0,22
E-SW 16 x 65	09500150	0,41
E-SW 16 x 80/DW 15	09505150	0,42
E-SW 20 x 80	09600150	0,68

### Plug-on setting tool with stop drill bit

For Drop-in Anchor E and ES.



Description	Ref. No.	For Drop-in Anchor	Suitable stop drill bit	Package content pcs.	Weight per piece kg
E-ASW 6 x 30	09098101	E/ES M 6 x 30	BB 8 x 30	1	0,20
E-ASW 8 x 30	09198101	E/ES M 8 x 30	BB 10 x 30	1	0,20
E-ASW 8 x 40	09199101	E/ES M 8 x 40	BB 10 x 40	1	0,23
E-ASW 10 x 30	09298101	E/ES M 10 x 30	BB 12 x 30	1	0,21
E-ASW 10 x 40	09299101	E/ES M 10 x 40	BB 12 x 40	1	0,24

### Stop drill bit

For Drop-in Anchor E and ES.



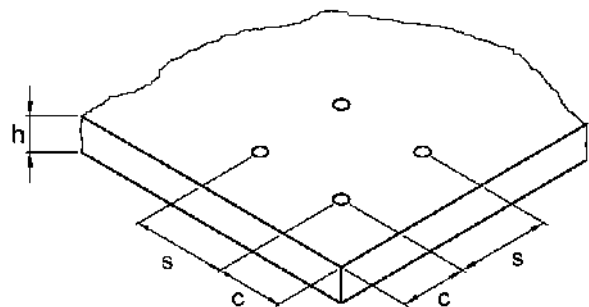
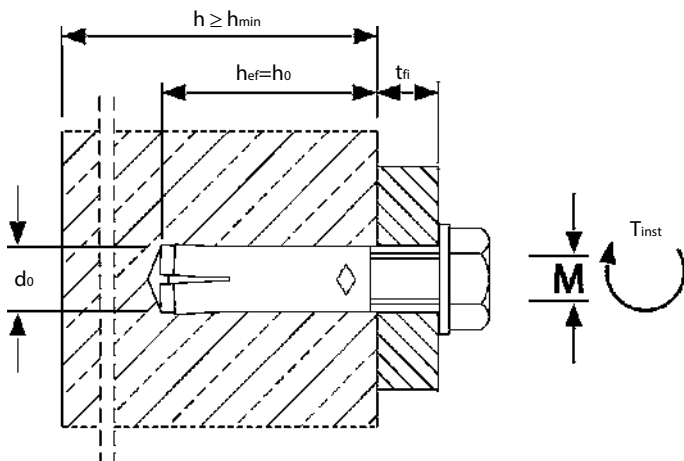
Description	Ref. No.	Drill hole Ø x depth [mm]	For Drop-in Anchor	Suitable for plug-on setting tool	Package content pcs.	Weight per piece kg
BB 8 x 30	50031501	8 x 30	E/ES M 6 x 30	E-ASW 6 x 30	1	0,11
BB 10 x 30	50041501	10 x 30	E/ES M 8 x 30	E-ASW 8 x 30	1	0,11
BB 10 x 40	50042001	10 x 40	E/ES M 8 x 40	E-ASW 8 x 40	1	0,12
BB 12 x 30	50051501	12 x 30	E/ES M 10 x 30	E-ASW 10 x 30	1	0,12
BB 12 x 40	50052001	12 x 40	E/ES M 10 x 40	E-ASW 10 x 40	1	0,12
BB 15 x 50	50072501	15 x 50	E/ES M 12 x 50	-	1	0,17

### SDS Setting Tool

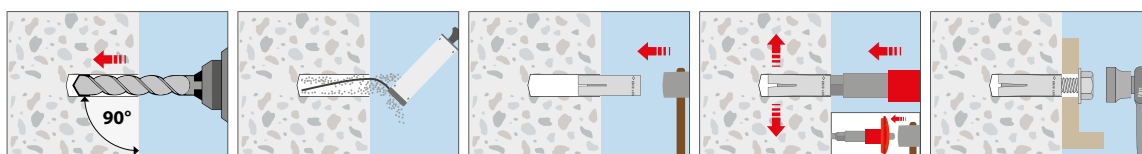
For Drop-in Anchor E and ES.  
With SDS plus connection.



Description	Ref. No.	Weight per piece kg
E-SW 8 x 30 SDS	09190101	0,07
E-SW 8 x 40 SDS	09195101	0,07
E-SW 10 x 30 SDS	09288101	0,08
E-SW 10 x 40 SDS	09290101	0,08
E-SW 12 x 50 SDS	09390101	0,10



### Installation





### Extract from Permissible Service Conditions of European Technical Assessment ETA-02/0020

Approved loads for single anchor without influence of spacing and edge distance. Total safety factor as per ETAG 001 included ( $\gamma_M$  and  $\gamma_P$ ). Load capacities under fire exposure see page 166.

Loads and performance data	Drop-in Anchor E A4 / HCR		M5x25 <sup>1)</sup>	M6x30 <sup>1)</sup>	M8x30 <sup>1)</sup>	M8x40	M10x40	M12x50 M12x80	M16x65 M16x80	M20x80
			non-cracked concrete							
Mean ultimate loads, tension	C25/30 Num	[kN]	8,0	12,2	14,2	16,1	19,8	27,7	41,0	62,7
Mean ultimate loads, shear	C25/30 V <sub>um</sub>	[kN]	5,7	8,5	14,1	14,8	20,3	37,3	64,9	94,6
Approved loads, tension	C20/25 appr. N	[kN]	1,6	3,9	3,9	4,3	6,1	8,5	12,6	17,2
	C25/30 appr. N	[kN]	1,7	4,2	4,3	4,7	6,7	9,3	13,8	18,9
	C30/37 appr. N	[kN]	1,9	4,4	4,8	5,2	7,4	10,4	15,3	21,0
	C40/50 appr. N	[kN]	2,2	4,8	5,6	6,0	8,6	12,0	17,7	24,2
Approved loads, shear	C50/60 appr. N	[kN]	2,5	5,1	6,1	6,6	9,4	13,2	19,5	26,6
Approved loads, shear	≥ C20/25 appr. V	[kN]	2,3	3,2	4,9	4,9	6,1	11,5	19,2	30,4
Approved bending moments (Screw A4-70)	appr. M	[Nm]	-	5,0	11,9	11,9	23,8	42,1	106,7	207,9
<b>Spacing and edge distance</b>										
Effective anchorage depth	h <sub>ef</sub>	[mm]	25	30	30	40	40	50	65	80
Characteristic spacing	s <sub>cr, N</sub>	[mm]	75	90	90	120	120	150	195	240
Characteristic edge distance	c <sub>cr, N</sub>	[mm]	37,5	45	45	60	60	75	97,5	120
Minimum spacing	s <sub>min</sub>	[mm]	60	50	60	80	100	120	150	160
Minimum edge distance	c <sub>min</sub>	[mm]	95	80	95	95	135	165	200	260
Minimum thickness of concrete slab	h <sub>min</sub>	[mm]	100	100	100	100	130	140	160	250
<b>Installation parameters</b>										
Drill hole diameter	d <sub>o</sub>	[mm]	8	8	10	10	12	15	20	25
Diameter of clearance hole in the fixture	d <sub>f</sub>	[mm]	6	7	9	9	12	14	18	22
Depth of drill hole	h <sub>o</sub>	[mm]	25	30	30	40	40	50/80 <sup>2)</sup>	65/80 <sup>3)</sup>	80
Installation torque	T <sub>inst ≤</sub>	[Nm]	3	4	8	8	15	35	60	120
Minimum screwing depth	L <sub>sd</sub>	[mm]	6	7	9	9	11	13	18	22
Maximum screwing depth	L <sub>th</sub>	[mm]	10	13	13	20	15	18	23	34

<sup>1)</sup>Valid only for statically indeterminate systems. Size M 5 not part of assessment. <sup>2)</sup>E/ES M 12x50/E M 12x80 <sup>3)</sup>E M 16x65/E M 16x80  
For anchor designing, an easy to operate software on CD-ROM is available on request or can be downloaded at [www.mkt.de](http://www.mkt.de).



### Extract from Permissible Service Conditions of European Technical Assessment ETA-05/0116

Multiple use for non-structural applications. Total safety factor as per ETAG 001 included ( $\gamma_M$  and  $\gamma_P$ ). The maximum load per fixing point for multiple use for non-structural applications may, depending on national regulations, are below the approved load of the anchor. The approved loads per fixing point are regulated for their respective countries in the ETAG 001, Part 6

Loads and performance data	Drop-in Anchor E A4 / HCR		M6x30	M8x30	M8x40	M10x40	M12x50	M16x65
			cracked and non-cracked concrete					
Approved loads (C20/25 to C50/60)	appr. F	[kN]	1,2	1,7	2,0	2,0	2,4	6,3
Approved bending moments (A4-70)	appr. M	[Nm]	5,0	11,9	11,9	23,8	42,1	106,7
<b>Spacing and edge distance</b>								
Effective anchorage depth	h <sub>ef</sub>	[mm]	30	30	40	40	50	65
Characteristic spacing	s <sub>cr</sub>	[mm]	130	180	210	170	170	400
Characteristic edge distance	c <sub>cr</sub>	[mm]	65	90	105	85	85	200
Minimum spacing	s <sub>min</sub>	[mm]	50	60	80	100	120	150
Minimum edge distance	c <sub>min</sub>	[mm]	80	95	95	135	165	200
Minimum thickness of concrete slab	h <sub>min</sub>	[mm]	100	100	100	130	140	160
<b>Installation parameters</b>								
Drill hole diameter	d <sub>o</sub>	[mm]	8	10	10	12	15	20
Diameter of clearance hole in the fixture	d <sub>f</sub>	[mm]	7	9	9	12	14	18
Depth of drill hole	h <sub>o</sub>	[mm]	30	30	40	40	50	65
Installation torque	T <sub>inst ≤</sub>	[Nm]	4	8	8	15	35	60
Minimum screwing depth	L <sub>sd</sub>	[mm]	7	9	9	11	13	18
Maximum screwing depth	L <sub>th</sub>	[mm]	13	13	20	15	18	23
<b>Loads under fire exposure</b>								
Approved loads R30	appr. F	[kN]	0,8	0,9	1,5	1,5	1,5	4,0
Approved loads R60	appr. F	[kN]	0,8	0,9	1,5	1,5	1,5	4,0
Approved loads R90	appr. F	[kN]	0,4	0,9	0,9	1,5	1,5	3,7
Approved loads R120	appr. F	[kN]	0,3	0,5	0,5	1,0	1,2	2,4
Characteristic spacing	s <sub>cr, fi</sub>	[mm]	130	180	210	170	200	400
Characteristic edge distance	c <sub>cr, fi</sub>	[mm]	65	90	105	85	100	200
Minimum spacing	s <sub>min</sub>	[mm]	50	60	80	100	120	150
Minimum edge distance	c <sub>min</sub>	[mm]	80	95	95	135	165	200

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