HCA Coil anchor

Anchor version		Benefits
	HCA	- re-usable up to 4 times - high load capacity - big washer: Ø 34 mm - for temporary external applications

Non cracked concrete

Basic loading data for temporary application

All data in this section applies to

- Correct setting (see setting instruction)
- No edge distance and spacing influence
- Base material as specified in the table

Basic loading data for temporary application in standard and fresh concrete (< 28 days old)

All data in this section applies to the following conditions:

- Concrete class C20/25
- Concrete strength , $f_{ck,cube} \geq 10$ N/mm^2
- Only temporary use
- Design resistances are valid for single anchor only
- Design resistances are valid for non-cracked concrete only
- Minimum base material thickness
- No edge distance and spacing influence
- Anchor size given in fractional, technical data given in meters

Recommended loads for non-cracked concrete C ≥ 20/25

Anchor size			1/4		3/8		1/2		5/8		3/4	
Nominal embedment depth	h_{nom}	[mm]	20	26	39	51	39	51	61	99	83	115
Tensile	N_{rec}	[kN]	1,0	1,5	2,8	4,4	5,7	5,7	5,7	12,0	9,2	15,0
Shear	V_{rec}	[kN]	1,0	1,6	3,7	6,1	9,6	9,6	9,6	22,2	17,4	30,2

Materials

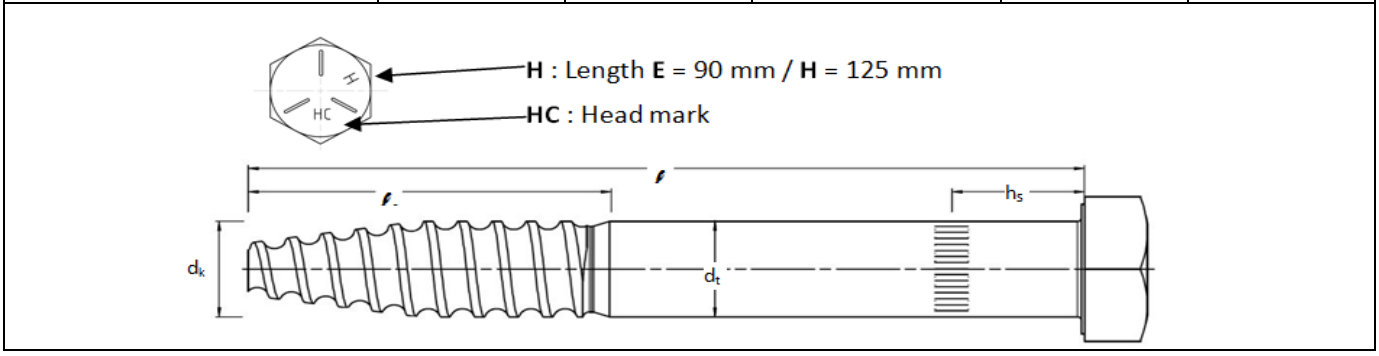
Material quality

Part	Material
Anchor HCA	Steel galvanized; $f_{uk} \geq 850$ N/mm^2
Coil HCT	Steel galvanized; 350 N/mm^2 ≤ f_{uk} ≤ 800 N/mm^2

Anchor dimensions

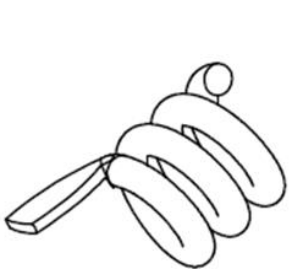
Dimensions and anchor head marks

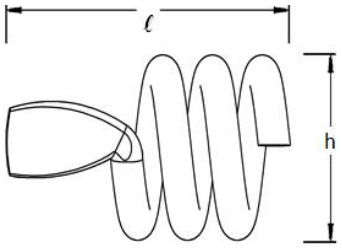
Anchor size			1/4			3/8			1/2				5/8			3/4		
Nominal length	l	[mm]	44,5	63,5	88,9	57,2	76,2	127,0	76,2	101,6	139,7	177,8	88,9	127,0	203,2	114,3	152,4	254,0
Length of thread	l_s	[mm]	25,4			38,1			44,5				50,8			50,8		
Minimum embedment depth $h_{nom,1}$ (=shallow embedment)																		
Nominal embedment depth	$h_{nom,1}$	[mm]	20			39			51				61			83		
Thickness of fixture	$t_{fix,1}$	[mm]	15	34	60	3	22	73	9	34	73	111	9	47	123	6	44	146
Maximum embedment depth $h_{nom,2}$ (=deep embedment)																		
Nominal embedment depth	$h_{nom,2}$	[mm]	26			-	51	51	-	77	77	77	-	99	99	-	115	115
Thickness of fixture	$t_{fix,2}$	[mm]	9	28	53	-	9	60	-	9	47	85	-	9	85	-	12	114
Outer diameter	d_t	[mm]	6,1			9,4			12,6				15,8			19,0		
Core diameter	d_k	[mm]	5,13			7,5			10,0				13,2			15,9		
Embedment mark	h_s	[mm]	9,6			15,9			15,9				19,1			25,4		
Cross section area	A_s	[mm^2]	20,7			44,2			78,5				136,0			198,6		



Coil dimensions

Anchor size			1/4	3/8	1/2	5/8	3/4
Length of coil	l	[mm]	14,2	22,9	27,1	29,0	32,0
Height of coil	h	[mm]	6,3	9,3	12,5	15,6	18,8





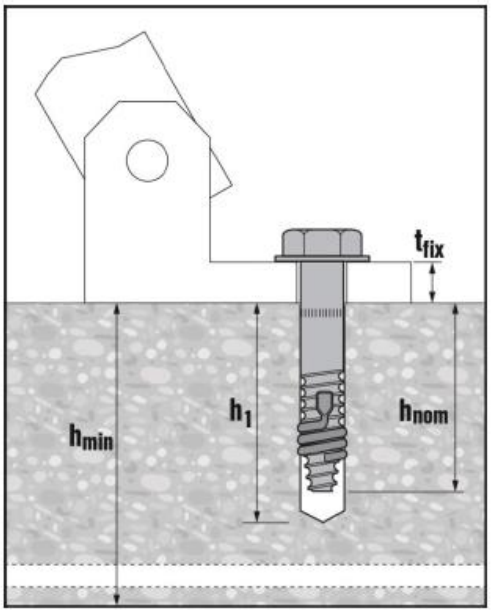
Setting

Installation equipment

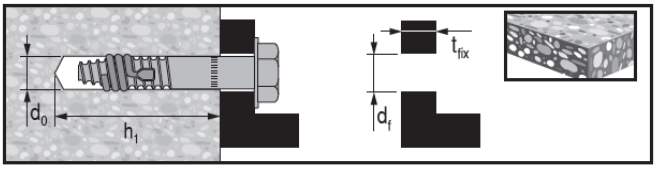
Anchor size	1/4	3/8	1/2	5/8	3/4
Rotary hammer	TE 2 … TE 80				
Other tools	Hammer, torque wrench, blow-out pump				

Setting details

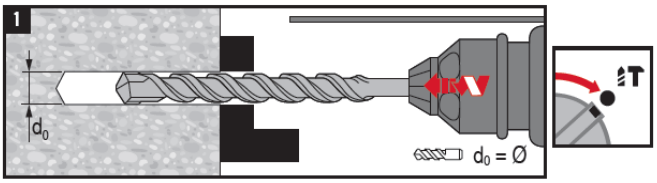
Anchor size			1/4	3/8	1/2	5/8	3/4
Nominal drill bit diameter	d_0	[mm]	6,4	9,5	12,7	15,9	19,0
Diameter of clearance hole	$d_f \leq$	[mm]	8,0	11,2	14,3	17,5	20,7
Wrench size	SW	[mm]	11,1	14,3	19,1	23,8	28,6
Depth of drill hole	$h_1 \geq$	[mm]	anchor length l - t_{fix}				
Installation torque	T_{inst}	[mm]	14,0	55	110	180	250

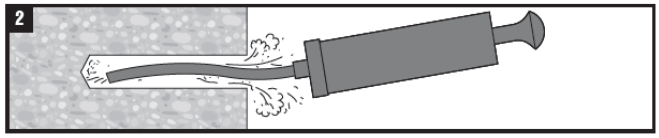


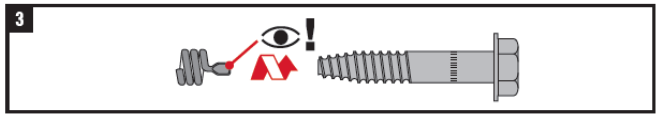
Setting instruction

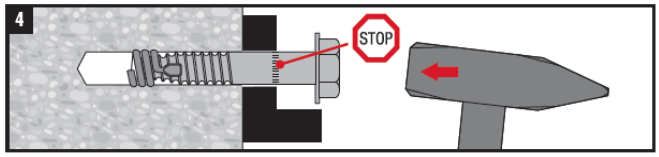


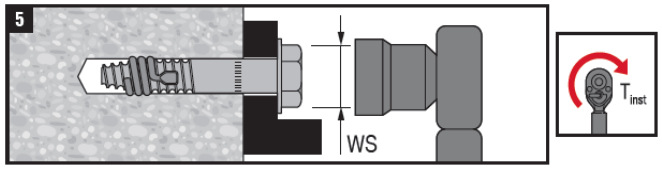
HCA	Ø d_0 [inch]	t_{fix} [inch]	h_1 [inch]	d_f [inch]
1/4 x 1 3/4	1/4	0 ... 5/8	1 3/4	5/16
1/4 x 2 1/2		0 ... 1 3/8	2 1/2	
1/4 x 3 1/2		0 ... 2 3/8	3 1/2	
3/8 x 2 1/4	3/8	0 ... 1/8	2 1/4	7/16
3/8 x 3		0 ... 7/8	3	
3/8 x 5		0 ... 2 7/8	5	
1/2 x 3	1/2	0 ... 3/8	3	9/16
1/2 x 4		0 ... 1 3/8	4	
1/2 x 5 1/2		0 ... 2 7/8	5 1/2	
1/2 x 7		0 ... 4 3/8	7	
5/8 x 3 1/2	5/8	0 ... 3/8	3 1/2	11/16
5/8 x 5		0 ... 1 7/8	5	
5/8 x 8		0 ... 4 7/8	8	
3/4 x 4 1/2	3/4	0 ... 1/4	4 1/2	13/16
3/4 x 6		0 ... 1 3/4	6	
3/4 x 10		0 ... 5 3/4	10	











5.1 HCA [inch]	WS [inch]	t_{inst} [ft-lb]
Ø 1/4	7/16	10
Ø 3/8	9/16	40
Ø 1/2	3/4	80
Ø 5/8	15/16	130
Ø 3/4	1 1/8	180

Setting parameters

Minimum thickness of concrete member, minimum edge distance and spacing

Anchor size			1/4	3/8	1/2	5/8	3/4
Minimum base material thickness	h_{min}	[mm]	max (3; 1,3 h_{nom})				
Minimum spacing	s_{min}	[mm]	3,0 h_{nom}				
Minimum edge distance	c_{min}	[mm]	1,5 h_{nom}