HSB Expansion anchor

Everyday economical expansion anchor for uncracked concrete

Anchor version	Benefits
 HSB (M8-M16)	- Torque-controlled mechanical expansion allows immediate load application - Drill bit size is same as anchor size for easy installation - Suitable for pre- and through-fastening - ETA approved

Base material	Load conditions
 Concrete (non-cracked)	 Static/ quasi-static

Installation conditions	Other information
 Hammer drilled holes	 European Technical Assessment  CE conformity

Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European technical assessment [a)]	DIBt, Berlin	ETA-17/0452 / 2017-07-27

a) All data given in this section according to ETA-17/0452, issue 2017-07-27.

Basic loading data (for a single anchor)

All data in this section applies to:
- Correct setting (See setting instruction)
- No edge distance and spacing influence
- Concrete as specified in the table
- *Steel* failure
- Minimum base material thickness
- Concrete C 20/25, $f_{ck,cube}$ = 25 N/mm²

Effective anchorage depth

Anchor size			M8	M10	M12	M16
Eff. anchorage depth range	h_{ef}	[mm]	30	40	50	65

Mean ultimate resistance

Anchor size		M8	M10	M12	M16
Tension $N_{Ru,m}$	[kN]	11,0	15,9	19,4	35,1
Shear $V_{Ru,m}$	[kN]	*8,9*	*15,1*	23,7	*44,5*

Characteristic resistance

Anchor size		M8	M10	M12	M16
Tension N_{Rk}	[kN]	8,3	12,0	14,6	26,5
Shear V_{Rk}	[kN]	8,3	12,8	17,9	*42,4*

Design resistance

Anchor size		M8	M10	M12	M16
Tension N_{Rd}	[kN]	4,6	8,0	9,7	14,7
Shear V_{Rd}	[kN]	5,5	8,5	11,9	33,9

Recommended loads [a)]

Anchor size		M8	M10	M12	M16
Tension N_{Rec}	[kN]	3,3	5,7	7,0	10,5
Shear V_{Rec}	[kN]	4,0	6,1	8,5	24,2

a) With overall partial safety factor for action γ = 1,4. The partial safety factors for action depend on the type of loading and shall be taken from national regulations.

Materials

Mechanical properties

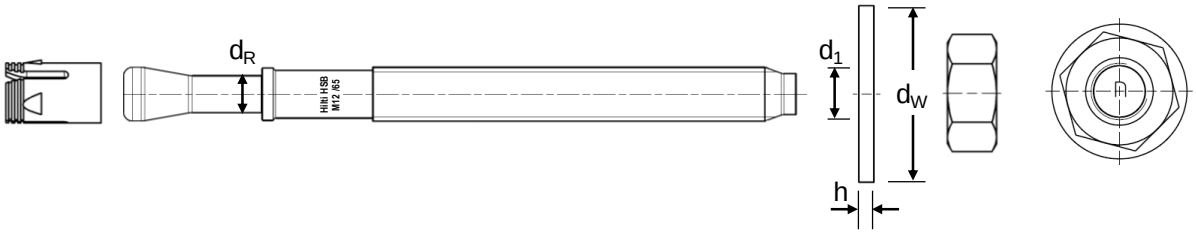
Anchor size			M8	M10	M12	M16
Nominal tensile strength	f_{uk}	[N/mm²]	580	660	660	660
Yield strength	f_{yk}	[N/mm²]	464	528	528	528
Stressed cross-section, thread	A_s	[mm²]	36,6	58,0	84,3	157
Stressed cross-section, neck	$A_{s,\ neck}$	[mm²]	26,9	39,6	63,6	105,7
Moment of resistance	W	[mm³]	31,2	62,3	109,2	277,5
Char. bending resistance for rod or bolt with 5.8 steel grade	$M^0_{Rk,s}$	[Nm]	19,5	41,1	72,1	166,5

Material quality

Part	Material
Expansion sleeve	Carbon steel, galvanized
Bolt	Carbon steel, galvanized, rupture elongation (l_0=5d)>8%
Washer	Carbon steel, galvanized
Hexagon nut	Carbon steel, galvanized

Anchor dimension

Anchor size			M8	M10	M12	M16
Min. inner diameter of washer	d_1	[mm]	8,4	10,5	13	17
Min. outer diameter of washer	d_w	[mm]	16	20	24	30
Min. thickness of washer	h	[mm]	1,6	2	2,5	3



Letter code for identification of fixture thickness

Anchor size	M8	M10	M12	M16
Letter t_{fix}	[mm]	[mm]	[mm]	[mm]
z	5	5	5	5
w	20	20	20	20
t	35	35	35	-
s	-	-	-	40
q	-	50	-	-
p	55	-	-	-
n	-	-	65	-
m	-	70	-	-
j	-	-	-	85
h	-	-	95	-

Setting information

Setting details

Anchor size			M8	M10	M12	M16
Effective anchorage depth	h_{ef}	[mm]	30	40	50	65
Nominal anchorage depth	h_{nom}	[mm]	39	50	64	77
Nominal diameter of drill bit	d_0	[mm]	8	10	12	16
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45	10,45	12,5	16,5
Depth of drill hole	$h_1 \geq$	[mm]	44	55	72	85
Diameter of clearance hole in the fixture	$d_f \leq$	[mm]	9	12	14	18
Torque moment	T_{inst}	[Nm]	15	30	50	80
Width across flats	SW	[mm]	13	17	19	24

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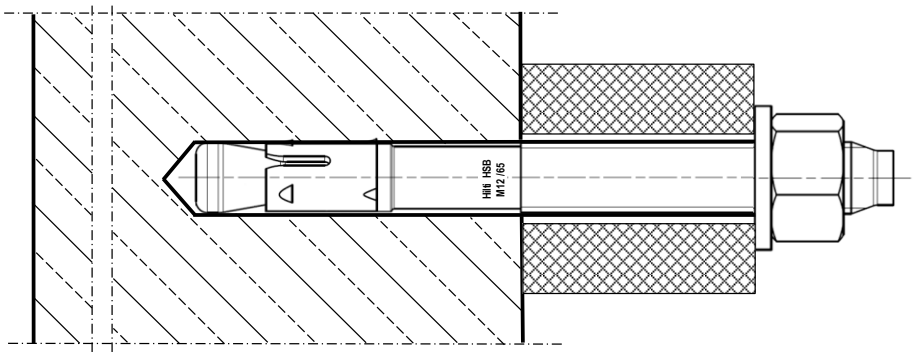
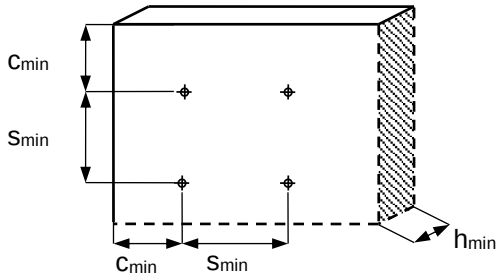


Installation equipment

Anchor size	M8	M10	M12	M16
Rotary hammer	TE 2 – TE 16			
Other tools	Blow out pump, hammer, torque wrench			

Setting parameters

Anchor size			M8	M10	M12	M16
Min. thickness of concrete member	h_{min}	[mm]	100	100	100	140
Min. spacing	$s_{min} \geq$	[mm]	60	70	80	100
Min. edge distance	$c_{min} \geq$	[mm]	60	70	90	100

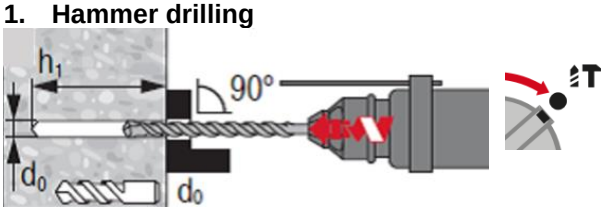


Setting instruction

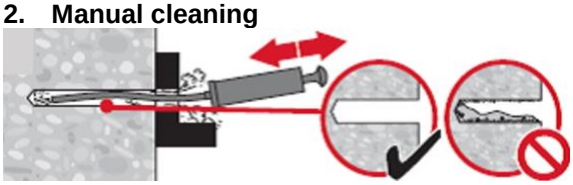
***For detailed information on installation see instruction for use given with the package of the product.**

Setting instruction for HSB

1. Hammer drilling

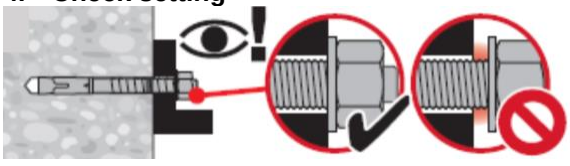


2. Manual cleaning

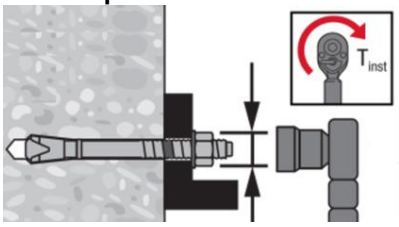


3. Insert the anchor

4. Check setting



5. Torque wrench



6. Check installation