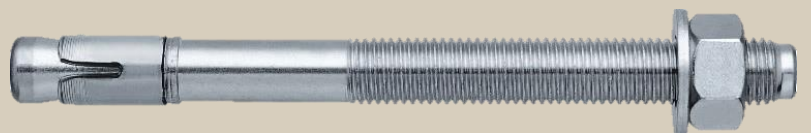




# HSB EXPANSION ANCHOR

**Technical Datasheet**

Update: Jan-23





# HSB Expansion anchor

Everyday economical expansion anchor for uncracked concrete

## Anchor version

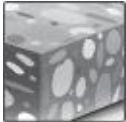


HSB  
(M8-M16)

## Benefits

- 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



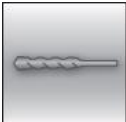
Concrete  
(non-cracked)

## Load conditions



Static/  
quasi-static

## Installation conditions



Hammer  
drilled holes

## Other information



European  
Technical  
Assessment



CE  
conformity

## Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European technical assessment <sup>a)</sup>	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,  $f_{ck,cube} = 25 \text{ N/mm}^2$

### Effective anchorage depth

Anchor size		M8	M10	M12	M16
Effective anchorage depth	$h_{ef}$ [mm]	30	40	50	65

### Characteristic resistance

Anchor size		M8	M10	M12	M16
Tension	$N_{Rk}$ [kN]	8,1	12,0	14,6	25,8
Shear	$V_{Rk}$ [kN]	8,1	12,4	17,4	42,4

### Design resistance

Anchor size		M8	M10	M12	M16
Tension	$N_{Rd}$ [kN]	4,5	8,0	9,7	14,3
Shear	$V_{Rd}$ [kN]	5,4	8,3	11,6	33,9

### Recommended loads <sup>a)</sup>

Anchor size		M8	M10	M12	M16
Tension	$N_{Rec}$ [kN]	3,2	5,7	7,0	10,2
Shear	$V_{Rec}$ [kN]	3,8	5,9	8,3	24,2

a) With overall partial safety factor for action  $\gamma = 1,4$ . 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/mm <sup>2</sup> ]	580	660	660	660
Yield strength	$f_{yk}$ [N/mm <sup>2</sup> ]	464	528	528	528
Stressed cross-section, thread	$A_s$ [mm <sup>2</sup> ]	36,6	58,0	84,3	157
Stressed cross-section, neck	$A_{s, neck}$ [mm <sup>2</sup> ]	26,9	39,6	63,6	105,7
Moment of resistance	$W$ [mm <sup>3</sup> ]	31,2	62,3	109,2	277,5
Characteristic bending resistance	$M^0_{Rk,s}$ [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



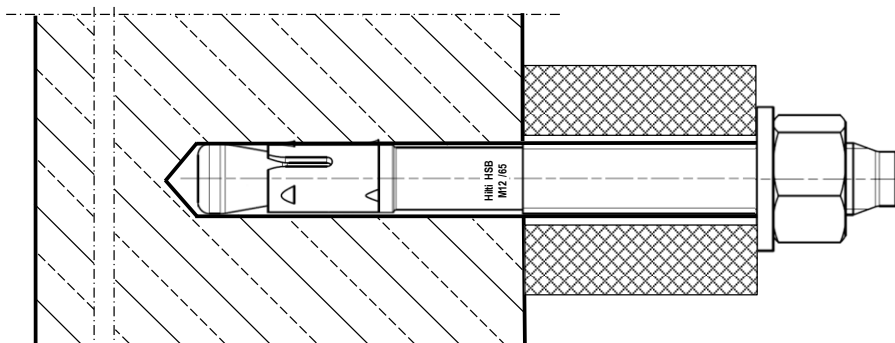
### Letter code for identification of fixture thickness

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

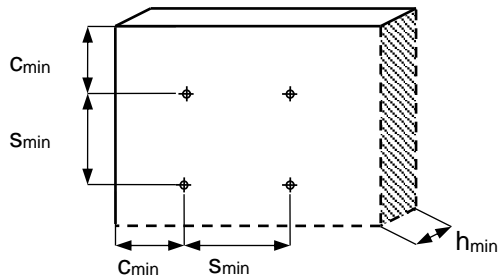


### Installation equipment

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	
<b>1. Hammer drilling</b> 	<b>2. Manual cleaning</b> 
<b>3. Insert the anchor</b> 	<b>4. Check setting</b> 
<b>5. Torque wrench</b> 	<b>6. Check installation</b> 