

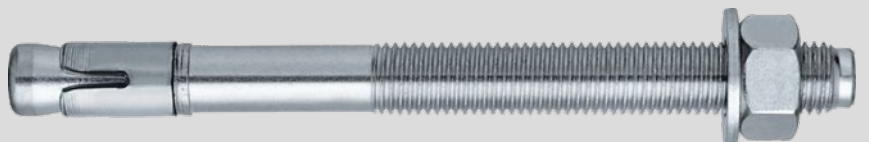


HSB Expansion anchor

Product Technical Datasheet

Steel-to-concrete

Update: Oct-24



HSB Expansion anchor

Everyday economical expansion anchor for uncracked concrete

Anchor version		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		Load conditions
 Concrete (uncracked)		 Static/ quasi-static
Drilling, cleaning, setting		Other information
 Hammer drilled holes		 <u>Steel to concrete handbook</u>



Linked Approvals/Certificates and Instructions for use

Approvals/certificates

Approval no	Application / loading condition	Authority / Laboratory	Date of issue
<u>ETA-17/0452</u>	Static and quasi-static	DIBt, Berlin	27-07-2017

The instructions for use can be viewed using the link in the instructions for use table or the QR code/link in the Hilti webpage table.

Instructions for use (IFU)

Anchor size	M8	M10	M12	M16
HSB	<u>IFU HSB M8</u>	<u>IFU HSB M10</u>	<u>IFU HSB M12</u>	<u>IFU HSB M16</u>

Link to Hilti Webpage

<u>HSB</u>	
	

Fastener special dimensions

Anchor size			M8	M10	M12	M16
Min inner diameter of washer	d_1	[mm]	8,4	10,5	13,0	17,0
Min outer diameter of washer	d_w	[mm]	16,0	20,0	24,0	30,0
Min Thickness of washer	h	[mm]	1,6	2,0	2,5	3,0



Static and quasi-static loading based on ETA-17/0452. Design according to EN 1992-4

All data in this section applies to:

- Correct setting (see Instructions for use (IFU) section)
- For a single anchor
- Concrete C20/25
- Hammer drilled holes
- No edge distance and spacing influence (see table with setting details)
- Characteristic spacing and edge distance for splitting failure apply only for uncracked concrete.
- Minimum base material thickness (see table with setting details)
- Embedment depth, as specified in the table of this section
- Recommended loads: With overall partial safety factor for action $\gamma = 1,4$

Recommended application based on effective anchorage depth h_{ef}

Effective anchorage depth	Application Recommendation
$25 \text{ mm} \leq h_{ef} < 40 \text{ mm}$	Fasteners in redundant non-structural applications uncracked concrete only
$h_{ef} \geq 40 \text{ mm}$	Single point fastenings in uncracked concrete as per EN 1992-4

Design resistance

Anchor size			M8	M10	M12	M16
Uncracked concrete						
Effective anchorage depth	h_{ef}	[mm]	30	40	50	65
Tension	N_{Rd}	[kN]	4,5	8,0	9,7	14,3
Shear	V_{Rd}	[kN]	5,4	8,3	11,6	33,9

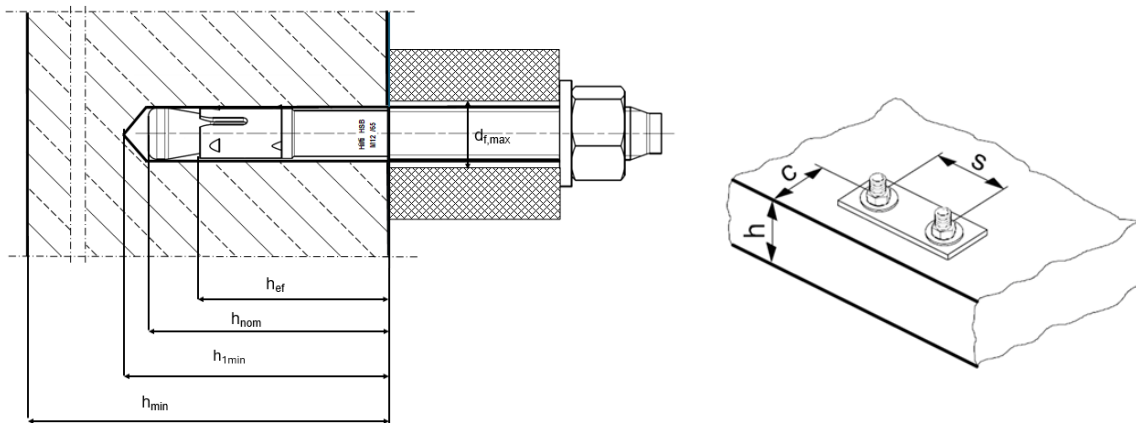
Recommended loads

Anchor size			M8	M10	M12	M16
Uncracked concrete						
Effective anchorage depth	h_{ef}	[mm]	30	40	50	65
Tension	N_{rec}	[kN]	3,2	5,7	7,0	10,2
Shear	V_{rec}	[kN]	3,8	5,9	8,3	24,2

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
Depth of drill hole	h_{1min}	[mm]	44	55	72	85
Diameter of clearance hole in the fixture	$d_{f,max}$	[mm]	9	12	14	18
Torque moment	T_{inst}	[Nm]	15	30	50	80
Width across flats	SW	[mm]	13	17	19	24
Min. thickness of concrete member	h_{min}	[mm]	100	100	100	140
Minimum distances						
Minimum spacing	s_{min}	[mm]	60	70	80	100
Minimum edge distance	c_{min}	[mm]	60	70	90	100
Characteristic distances						
Spacing for splitting failure	$s_{cr,sp}$	[mm]	180	240	300	390
Edge distance for splitting failure	$c_{cr,sp}$	[mm]	90	120	150	195
Spacing for concrete cone failure	$s_{cr,N}$	[mm]	$3 \cdot h_{ef}$			
Edge distance for concrete cone failure	$c_{cr,N}$	[mm]	$1,5 \cdot h_{ef}$			





Drilling and Installation equipment

For detailed setting information on installation see instructions for use given with the product.

Rotary Hammers (Corded and Cordless)		TE 2 - TE 30
Other tools		Torque wrench (use recommended socket)
		Hammer drill bit TE-CX,TE-C,
		Blow out pump