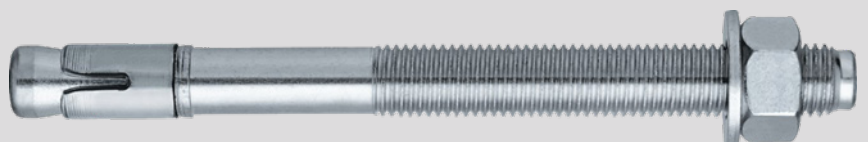




PRODUCT TECHNICAL DATASHEET

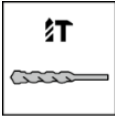
HSB Expansion anchor

Steel-to-concrete
Update: Oct-25



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 (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
ETA-17/0452	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	IFU HSB M8	IFU HSB M10	IFU HSB M12	IFU HSB M16

Link to Hilti Webpage

HSB	
	

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

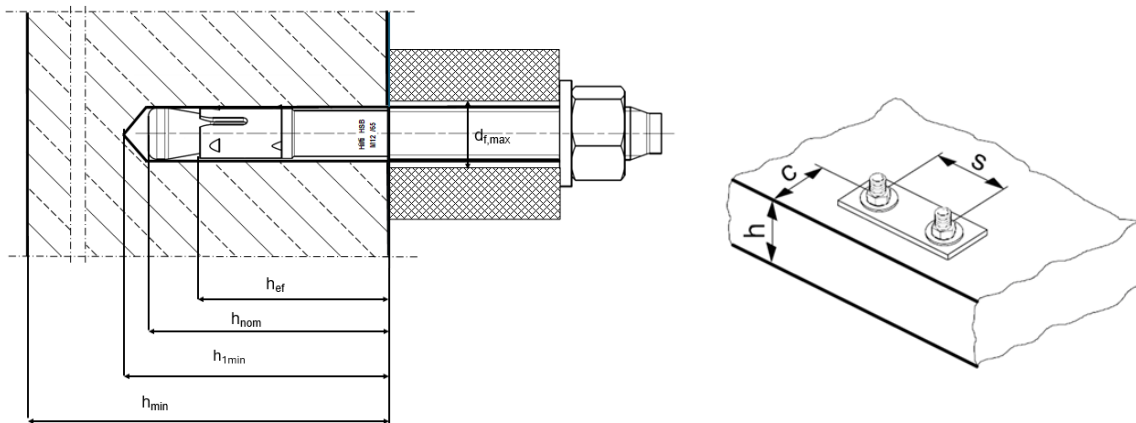
Recommended loads

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