



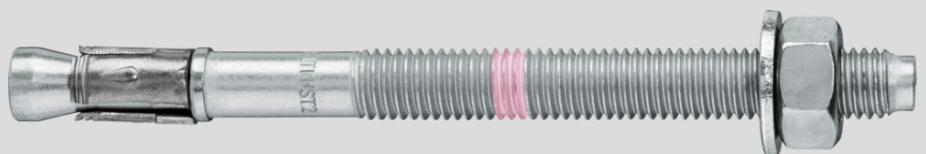
PRODUCT TECHNICAL DATASHEET

HST2 V3

Expansion anchor

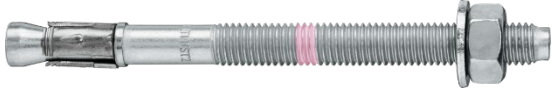
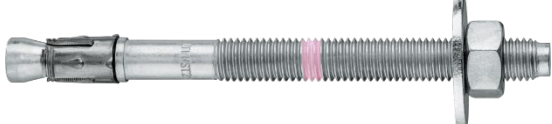
Steel-to-concrete

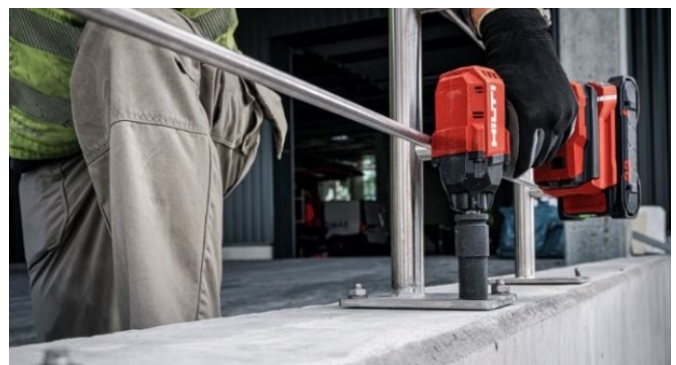
Update: Feb-26



HST2 V3 Expansion anchor

High-performance expansion anchor

Anchor version	Benefits
	HST2 V3 (M8-M16) - Suitable for uncracked and cracked concrete C20/25 to C50/60
	HST2 V3 BW (M8-M16) - Suitable for seismic design with ETA C1/C2 assessment - Deeper embedment depth option to achieve higher resistance, closer distance to the edge or smaller spacing
	HST2-F V3 (M8-M16) - Shallow embedment depths approved - Full design flexibility with variable embedment depth and edge & spacing
	HST2-R V3 (M8-M16) - Faster and reliable installation thanks to approved non-cleaning and AT tool - Product and length identification mark facilitates quality control and inspection
	HST2-HCR V3 (M8-M16) - HST2-F V3 suitable for outdoor use with variable working life (e.g. C3 for 25 years) - HST2-HCR V3 made from high corrosion resistance material (1.4529, EN 10088) to resist corrosion in extreme environments
	HST2 V3 (M12-M16) Oversized washer - HST2 V3 with two different types of oversized washers (BW and according to DIN 1052)



Base material



Concrete
(uncracked)



Concrete
(cracked)

Load conditions



Static/
quasi-static



Seismic
C1/C2



Fire
resistance

Drilling, cleaning, setting



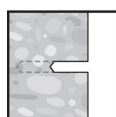
Hammer
drilled holes
(with no cleaning)



Diamond
drilled holes



Impact
wrench with
adaptative torque
module



Variable
Embedment
depth



PROFIS
Engineering
software



Steel to
concrete
Handbook

Other information

Linked Approvals/Certificates and Instructions for use

Approvals/certificates

Approval no	Application / loading condition	Authority / Laboratory	Date of issue	Date of expiry
ETA-21/0480	Static and quasi-static / Seismic / Fire HST2(-F,-R,-HCR) V3	DIBt Berlin	20-10-2025	-
USE-ER-918	Static and quasi-static	IAPMO UES, USA	01-07-2025	31-02-2026

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
HST2 V3	HST2 V3 M8	HST2 V3 M10	HST2 V3 M12	HST2 V3 M16
HST2-F V3	HST2-F V3 M8	HST2-F V3 M10	HST2-F V3 M12	HST2-F V3 M16
HST2-R V3 HST2-HCR V3	HST2-R V3 M8	HST2-R V3 M10	HST2-R V3 M12	HST2-R V3 M16
Filling set	Filling Set			

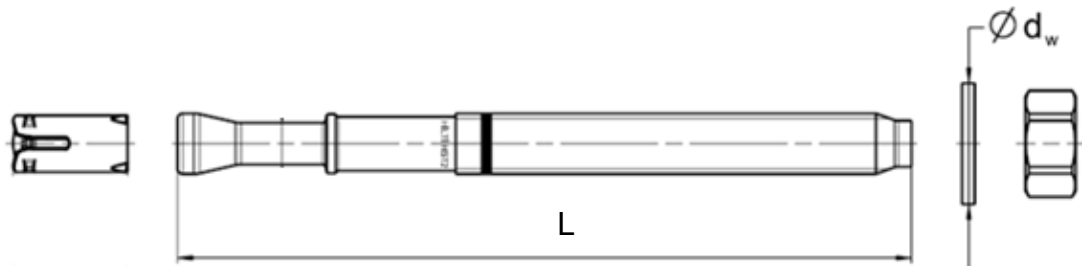
Link to Hilti Webpage

HST2 V3	HST2-F V3	HST2-R V3	HST2-HCR V3	HST2 V3 BW

Fastener special dimensions

Anchor size			M8	M10	M12	M16
Maximum length of anchor (HST2 (-F) V3)	L	[mm]	130	170	305	485
Maximum length of anchor (HST2-R V3, HST2-HCR V3)	L	[mm]	110	150	175	185
Outer diameter of washer	$d_w \geq$	[mm]	16	20	24	30
Outer diameter of big washer version (BW)	$d_w \geq$	[mm]	24	30	37	50
Outer diameter oversized washer (DIN 1052)	$d_w \geq$	[mm]	-	-	58	68

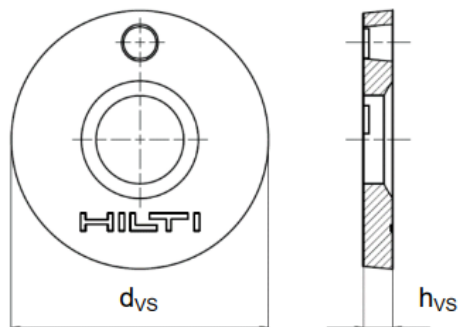
HST2-R V3, HST2-HCR V3



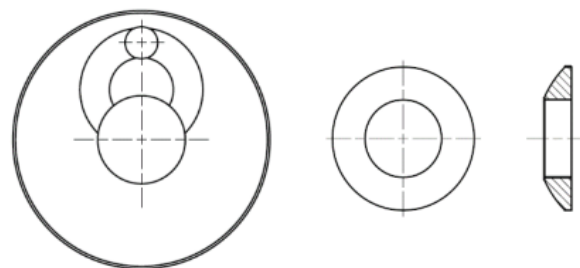
Hilti filling set with Injection mortar Hilti HIT-HY...

Anchor size			M8	M10	M12	M16
Diameter	d_{vs}	[mm]	38	42	44	52
Height filling washer	h_{vs}	[mm]	5	5	5	6
Height filling washer and spherical washer	h_{fs}	[mm]	8	9	10	11

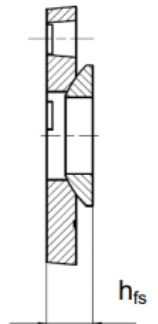
Sealing washer



Spherical washer



Filling Set



Static and quasi-static loading based on ETA-21/0480. Design according to EN 1992-4

All data in this section applies to:

- Correct setting (See setting instruction)
- For a single anchor
- Concrete C20/25
- No edge distance and spacing influence (see table with characteristic distances)
- Characteristic spacing and edge distance for splitting failure apply only for uncracked concrete
- For cracked concrete only the characteristic spacing and edge distance for concrete cone failure are decisive
- Minimum base material thickness (see table)
- Embedment depth, as specified in the table of this section
- Anchor material, as specified in the tables of this section
- HST2-F V3 is suitable for variable working life design up to 50 years. For uncracked concrete refer to ETA-21/0480 for further details. For cracked concrete only Hilti Technical Data is available for Corrosivity category C3 working life 25 years
- HST2-F V3 Corrosivity category according to EN ISO 9223:2012-02, please refer ETA-21/0480 for more information
- Recommended loads: With overall partial safety factor for action $\gamma = 1,4$.

Note: Embedment depths $h_{ef} < 40$ mm are applicable only for fastening of redundant non-structural systems as addressed in EN 1992-4, Clause 7.3 and CEN/TR 17079. For other types of fastenings please increase the embedment depth.

For specific design cases refer to [PROFIS Engineering](#)

Design resistance(Hammer drilled holes)

Anchor size			M8			M10			M12			M16		
Effective anchorage depth		h_{ef} [mm]	30 ¹⁾	45	70	40	60	80	50	70	100	65	85	120
Uncracked concrete														
Tension	HST2 V3 HST2-F V3	N_{Rd} [kN]	5,4	8,7	10,7	8,3	12,0	16,0	11,6	17,5	22,7	17,2	23,5	29,3
	HST2-R V3 HST2-HCR V3		5,4	8,7	10,7	8,3	12,2	16,7	11,6	18,1	23,3	17,2	24,4	30,7
Shear	HST2 V3 HST2-F V3	V_{Rd} [kN]	8,5	8,5	8,5	15,1	15,1	15,1	23,6	23,6	23,6	40,8	40,8	40,8
	HST2-R V3 HST2-HCR V3		12,6	12,6	12,6	20,2	20,2	20,2	29,4	29,4	29,4	48,5	50,9	50,9
Cracked concrete														
Tension	HST2 V3 HST2-F V3	N_{Rd} [kN]	3,3	4,7	4,7	5,8	7,3	7,3	8,1	9,3	9,3	12,0	16,7	16,7
	HST2-R V3 HST2-HCR V3		3,3	3,3	3,3	5,8	6,0	6,0	8,0	8,0	8,0	12,0	16,7	16,7
Shear	HST2 V3 HST2-F V3	V_{Rd} [kN]	8,5	8,5	8,5	14,8	15,1	15,1	20,9	23,6	23,6	33,9	40,8	40,8
	HST2-R V3 HST2-HCR V3		8,8	12,6	12,6	14,8	20,2	20,2	20,9	29,4	29,4	33,9	50,7	50,9

Recommended loads (Hammer drilled holes)

Anchor size			M8			M10			M12			M16			
Effective anchorage depth	h_{ef}	[mm]	30 ¹⁾	45	70	40	60	80	50	70	100	65	85	120	
Uncracked concrete															
Tension	HST2 V3 HST2-F V3 HST2-R V3 HST2-HCR V3	N_{rec}	[kN]	1)	6,2	7,6	5,9	8,6	11,4	8,3	12,5	16,2	12,3	16,8	21,0
	1)			6,2	7,6	5,9	8,7	11,9	8,3	12,9	16,7	12,3	17,4	21,9	
Shear	HST2 V3 HST2-F V3 HST2-R V3 HST2-HCR V3	V_{rec}	[kN]	1)	6,1	6,1	10,8	10,8	10,8	16,9	16,9	16,9	29,1	29,1	29,1
	1)			9,0	9,0	14,5	14,5	14,5	21,0	21,0	21,0	34,6	36,3	36,3	

Cracked concrete															
Tension	HST2 V3 HST2-F V3	N _{rec}	[kN]	1)	3,3	3,3	4,1	5,2	5,2	5,8	6,7	6,7	8,6	11,9	11,9
	HST2-R V3 HST2-HCR V3			1)	2,4	2,4	4,1	4,3	4,3	5,7	5,7	5,7	8,6	11,9	11,9
Shear	HST2 V3 HST2-F V3	V _{rec}	[kN]	1)	6,1	6,1	10,6	10,8	10,8	14,9	16,9	16,9	24,2	29,1	29,1
	HST2-R V3 HST2-HCR V3			1)	9,0	9,0	10,6	14,5	14,5	14,9	21,0	21,0	24,2	36,2	36,3

¹⁾ Please refer "Requirements for redundant fastening" section.

Design resistance (Diamond cored holes)

Anchor size			M8			M10			M12			M16			
Effective anchorage depth	h_{ef}	[mm]	30 ¹⁾	45	70	40	60	80	50	70	100	65	85	120	
Uncracked concrete															
Tension	HST2 V3 HST2-F V3	N_{Rd}	[kN]	4,0	7,0	8,7	6,7	10,2	13,3	11,6	17,5	22,7	17,2	23,5	29,3
	HST2-R V3 HST2-HCR V3			4,0	6,9	8,0	6,7	9,8	13,3	9,3	14,1	18,7	13,3	19,3	24,0
Shear	HST2 V3 HST2-F V3	V_{Rd}	[kN]	8,5	8,5	8,5	15,1	15,1	15,1	23,6	23,6	23,6	40,8	40,8	40,8
	HST2-R V3 HST2-HCR V3			12,6	12,6	12,6	20,2	20,2	20,2	29,4	29,4	29,4	48,5	50,9	50,9
Cracked concrete															
Tension	HST2 V3 HST2-F V3	N_{Rd}	[kN]	3,3	4,7	4,7	4,7	6,0	6,0	6,7	8,0	8,0	9,3	13,3	13,3
	HST2-R V3 HST2-HCR V3			3,3	3,3	3,3	5,8	6,0	6,0	8,0	8,0	8,0	12,0	16,7	16,7
Shear	HST2 V3 HST2-F V3	V_{Rd}	[kN]	8,5	8,5	8,5	14,8	15,1	15,1	20,9	23,6	23,6	33,9	40,8	40,8
	HST2-R V3 HST2-HCR V3			8,8	12,6	12,6	14,8	20,2	20,2	20,9	29,4	29,4	33,9	50,7	50,9

Recommended loads (Diamond cored holes)

Anchor size			M8			M10			M12			M16			
Effective anchorage depth	h_{ef}	[mm]	30 ¹⁾	45	70	40	60	80	50	70	100	65	85	120	
Uncracked concrete															
Tension	HST2 V3 HST2-F V3	N_{rec}	[kN]	¹⁾	5,0	6,2	4,8	7,3	9,5	8,3	12,5	16,2	12,3	16,8	21,0
	HST2-R V3 HST2-HCR V3			¹⁾	4,9	5,7	4,8	7,0	9,5	6,7	10,1	13,3	9,5	13,8	17,1
Shear	HST2 V3 HST2-F V3	V_{rec}	[kN]	¹⁾	6,1	6,1	10,8	10,8	10,8	16,9	16,9	16,9	29,1	29,1	29,1
	HST2-R V3 HST2-HCR V3			¹⁾	9,0	9,0	14,5	14,5	14,5	21,0	21,0	21,0	34,6	36,3	36,3
Cracked concrete															
Tension	HST2 V3 HST2-F V3	N_{rec}	[kN]	¹⁾	3,3	3,3	3,3	4,3	4,3	4,8	5,7	5,7	6,7	9,5	9,5
	HST2-R V3 HST2-HCR V3			¹⁾	2,4	2,4	4,1	4,3	4,3	5,7	5,7	5,7	8,6	11,9	11,9
Shear	HST2 V3 HST2-F V3	V_{rec}	[kN]	¹⁾	6,1	6,1	10,6	10,8	10,8	14,9	16,9	16,9	24,2	29,1	29,1
	HST2-R V3 HST2-HCR V3			¹⁾	9,0	9,0	10,6	14,5	14,5	14,9	21,0	21,0	24,2	36,2	36,3

¹⁾ Please refer "Requirements for redundant fastening" section

Requirements for redundant fastening

The definition of redundant fastening according to Member States is given in EN 1992-4 and CEN/TR 17079. In Absence of a definition by a Member State the following default values may be taken.		
Minimum number of fixing points	Minimum number of anchors per fixing point	Maximum design load of action F_{sd} per fixing point
3	1	2 kN
4	1	3 kN

The value for maximum design load of actions per fastening point F_{sd} is valid in general that means all fastening points are considered in the design of the redundant structural system. F_{sd} can be a tension, shear or inclined load.

Seismic loading based on ETA-21/0480. Design according to EN 1992-4

All data in this section applies to:

- Correct setting (See setting instruction)
- For a single anchor
- Concrete C20/25
- Hammer drilled holes
- No edge distance and spacing influence (see table with characteristic distances)
- Characteristic spacing and edge distance for splitting failure apply only for uncracked concrete.
- For cracked concrete only the characteristic spacing and edge distance for concrete cone failure are decisive
- Minimum base material thickness (see table)
- Embedment depth, as specified in the table of this section
- Anchor material, as specified in the tables of this section
- $\alpha_{\text{gap}} = 1,0$ (using Hilti filling set) and $\alpha_{\text{gap}} = 0,5$ (without using Hilti filling set) accordingly

For specific design cases refer to [PROFIS Engineering](#).

Design resistance in case of seismic performance C2

Anchor size			M10	M12	M16	
Effective anchorage depth	h_{ef}	[mm]	60	70	85	
with and without Hilti filling set						
Tension	HST2 V3 HST2-F V3	$N_{\text{Rd,C2}}$	[kN]	3,7	9,3	12,0
	HST2-R V3 HST2-HCR V3			2,2	6,7	8,5
with filling set ($\alpha_{\text{gap}}=1,0$)						
Shear	HST2 V3 HST2-F V3	$V_{\text{Rd,C2}}$	[kN]	5,9	8,9	20,0
	HST2-R V3 HST2-HCR V3			9,6	14,4	30,0
without filling set ($\alpha_{\text{gap}}=0,5$)						
Shear	HST2 V3 HST2-F V3	$V_{\text{Rd,C2}}$	[kN]	3,0	4,4	10,0
	HST2-R V3 HST2-HCR V3			4,8	7,2	15,0

Design resistance in case of seismic performance C1

Anchor size			M10	M12	M16	
Effective anchorage depth		h_{ef}	[mm]	60	70	85
with and without Hilti filling set						
Tension	HST2 V3 HST2-F V3	$N_{Rd,C1}$	[kN]	7,3	9,3	15,1
	HST2-R V3 HST2-HCR V3			5,3	7,1	12,0
with filling set ($\alpha_{gap}=1,0$)						
Shear	HST2 V3 HST2-F V3	$V_{Rd,C1}$	[kN]	9,5	17,1	31,8
	HST2-R V3 HST2-HCR V3			10,9	18,5	30,0
without filling set ($\alpha_{gap}=0,5$)						
Shear	HST2 V3 HST2-F V3	$V_{Rd,C1}$	[kN]	4,8	8,6	15,9
	HST2-R V3 HST2-HCR V3			5,4	9,2	15,0

Fire resistance based on ETA-21/0480. Design according to EN 1992-4

All data in this section applies to:

- Correct setting (See setting instruction)
- For a single anchor
- Concrete C20/25
- No edge distance and spacing influence (see table with characteristic distances)
- Characteristic spacing and edge distance for splitting failure apply only for uncracked concrete.
- For cracked concrete only the characteristic spacing and edge distance for concrete cone failure are decisive
- Minimum base material thickness (see table)
- Embedment depth, as specified in the table of this section
- Anchor material, as specified in the tables of this section
- Partial safety factor for resistance under fire exposure $\gamma_{M,fi} = 1,0$

Note: Embedment depths $h_{ef} < 40$ mm are applicable only for fastening of redundant non-structural systems as addressed in EN 1992-4, Clause 7.3 and CEN/TR 17079. For other types of fastenings please increase the embedment depth.

For specific design cases refer to [PROFIS Engineering](#).

Design resistance in case of fire (Hammer drilled holes)

Anchor size			M8			M10			M12			M16			
Effective anchorage depth	h_{ef}	[mm]	30 ¹⁾	45	70	40	60	80	50	70	100	65	85	120	
Fire Exposure R30															
Tension	HST2 V3 HST2-F V3	$N_{Rd,fi(30)}$	[kN]	0,4	1,2	1,2	0,9	2,6	2,6	1,7	3,5	3,5	3,1	6,3	6,3
	HST2-R V3 HST2-HCR V3			0,4	0,9	0,9	0,9	2,3	2,3	1,7	3,0	3,0	3,1	6,3	6,3
Shear	HST2 V3 HST2-F V3	$V_{Rd,fi(30)}$	[kN]	0,4	1,2	1,2	0,9	2,6	2,6	1,7	4,8	4,8	3,1	9,0	9,0
	HST2-R V3 HST2-HCR V3			0,4	0,9	0,9	0,9	2,5	2,5	1,7	5,0	5,0	3,1	9,0	9,0
Fire Exposure R60															
Tension	HST2 V3 HST2-F V3	$N_{Rd,fi(60)}$	[kN]	0,3	1,0	1,0	0,8	2,1	2,1	1,3	3,5	3,5	2,4	6,3	6,3
	HST2-R V3 HST2-HCR V3			0,3	0,7	0,7	0,8	1,5	1,5	1,3	3,0	3,0	2,4	6,0	6,0
Shear	HST2 V3 HST2-F V3	$V_{Rd,fi(60)}$	[kN]	0,3	1,0	1,0	0,8	2,1	2,1	1,3	3,8	3,8	2,4	7,0	7,0
	HST2-R V3 HST2-HCR V3			0,3	0,7	0,7	0,8	1,5	1,5	1,3	3,5	3,5	2,4	6,0	6,0
Fire Exposure R90															
Tension	HST2 V3 HST2-F V3	$N_{Rk,fi(90)}$	[kN]	0,3	0,8	0,8	0,6	1,5	1,5	1,1	2,7	2,7	2,0	5,0	5,0
	HST2-R V3 HST2-HCR V3			0,3	0,6	0,6	0,6	1,0	1,0	1,1	2,0	2,0	2,0	3,5	3,5
Shear	HST2 V3 HST2-F V3	$V_{Rk,fi(90)}$	[kN]	0,3	0,8	0,8	0,6	1,5	1,5	1,1	2,7	2,7	2,0	5,0	5,0
	HST2-R V3 HST2-HCR V3			0,3	0,6	0,6	0,6	1,0	1,0	1,1	2,0	2,0	2,0	3,5	3,5
Fire Exposure R120															
Tension	HST2 V3 HST2-F V3	$N_{Rd,fi(120)}$	[kN]	0,2	0,6	0,6	0,5	1,2	1,2	0,8	2,1	2,1	1,6	4,0	4,0
	HST2-R V3			0,2	0,5	0,5	0,5	0,7	0,7	0,8	1,0	1,0	1,6	2,0	2,0
Shear	HST2 V3 HST2-F V3	$V_{Rd,fi(120)}$	[kN]	0,2	0,6	0,6	0,5	1,2	1,2	0,8	2,1	2,1	1,5	4,0	4,0
	HST2-R V3 HST2-HCR V3			0,2	0,5	0,5	0,5	0,7	0,7	0,8	1,0	1,0	1,6	2,0	2,0

¹⁾ Please refer "Requirements for redundant fastening" section

Design resistance in case of fire (Diamond cored holes)

Anchor size			M8			M10			M12			M16		
Effective anchorage depth	h_{ef}	[mm]	30 ¹⁾	45	70	40	60	80	50	70	100	65	85	120
Fire Exposure R30														
Tension	HST2 V3 HST2-F V3	$N_{Rd,fi(30)}$ [kN]	0,4	1,2	1,2	0,9	2,3	2,3	1,7	3,0	3,0	3,1	5,0	5,0
	HST2-R V3 HST2-HCR V3		0,4	0,9	0,9	0,9	2,3	2,3	1,7	3,0	3,0	3,1	6,3	6,3
Shear	HST2 V3 HST2-F V3	$V_{Rd,fi(30)}$ [kN]	0,4	1,2	1,2	0,9	2,6	2,6	1,7	4,8	4,8	3,1	9,0	9,0
	HST2-R V3 HST2-HCR V3		0,4	0,9	0,9	0,9	2,5	2,5	1,7	5,0	5,0	3,1	9,0	9,0
Fire Exposure R60														
Tension	HST2 V3 HST2-F V3	$N_{Rd,fi(60)}$ [kN]	0,3	1,0	1,0	0,8	2,1	2,1	1,3	3,0	3,0	2,4	5,0	5,0
	HST2-R V3 HST2-HCR V3		0,3	0,7	0,7	0,8	1,5	1,5	1,3	3,0	3,0	2,4	6,0	6,0
Shear	HST2 V3 HST2-F V3	$V_{Rd,fi(60)}$ [kN]	0,3	1,0	1,0	0,8	2,1	2,1	1,3	3,8	3,8	2,4	7,0	7,0
	HST2-R V3 HST2-HCR V3		0,3	0,7	0,7	0,8	1,5	1,5	1,3	3,5	3,5	2,4	6,0	6,0
Fire Exposure R90														
Tension	HST2 V3 HST2-F V3	$N_{Rk,fi(90)}$ [kN]	0,3	0,8	0,8	0,6	1,5	1,5	1,1	2,7	2,7	2,0	5,0	5,0
	HST2-R V3 HST2-HCR V3		0,3	0,6	0,6	0,6	1,0	1,0	1,1	2,0	2,0	2,0	3,5	3,5
Shear	HST2 V3 HST2-F V3	$V_{Rk,fi(90)}$ [kN]	0,3	0,8	0,8	0,6	1,5	1,5	1,1	2,7	2,7	2,0	5,0	5,0
	HST2-R V3 HST2-HCR V3		0,3	0,6	0,6	0,6	1,0	1,0	1,1	2,0	2,0	2,0	3,5	3,5
Fire Exposure R120														
Tension	HST2 V3 HST2-F V3	$N_{Rd,fi(120)}$ [kN]	0,2	0,6	0,6	0,5	1,2	1,2	0,8	2,1	2,1	1,6	4,0	4,0
	HST2-R V3 HST2-HCR V3		0,2	0,5	0,5	0,5	0,7	0,7	0,8	1,0	1,0	1,6	2,0	2,0
Shear	HST2 V3 HST2-F V3	$V_{Rd,fi(120)}$ [kN]	0,2	0,6	0,6	0,5	1,2	1,2	0,8	2,1	2,1	1,6	4,0	4,0
	HST2-R V3 HST2-HCR V3		0,2	0,5	0,5	0,5	0,7	0,7	0,8	1,0	1,0	1,6	2,0	2,0

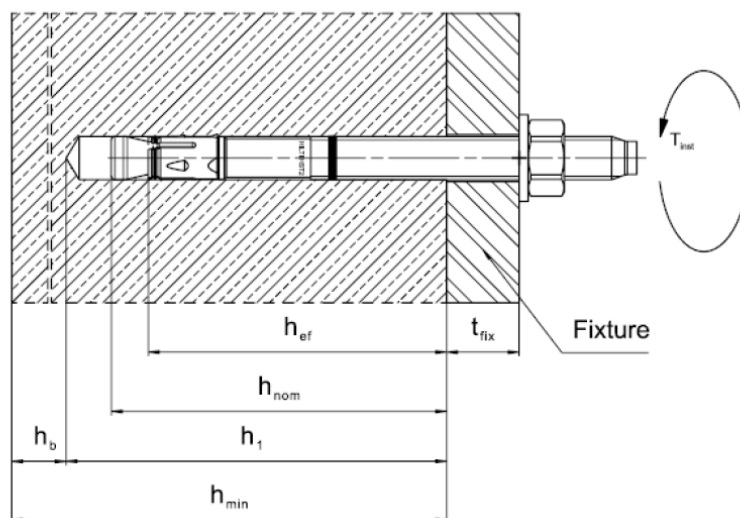
¹⁾ Please refer "Requirements for redundant fastening" section

Setting information

Setting details HST2(-F) V3

Anchor size			M8			M10			M12			M16			
Nominal diameter of drill bit	d _o	[mm]	8			10			12			16			
Maximum diameter of clearance hole in the fixture	d _f	[mm]	9			12			14			18			
Torque moment (HST2 V3)	T _{inst}	[Nm]	15			25			40			80			
Torque moment (HST2-F V3)	T _{inst}	[Nm]	25			40			50			110			
Effective anchorage depth	h _{ef}	[mm]	30	45	70	40	60	80	50	70	100	65	85	120	
Nominal embedment depth	h _{nom}	[mm]	40	55	80	50	70	90	63	83	113	78	98	133	
			h _{ef} + 10			h _{ef} + 10			h _{ef} + 13			h _{ef} + 13			
Drill hole depth															
Hammer drill	not cleaned	h _{1min}	[mm]	60	75	100	70	90	110	83	103	133	98	118	153
				h _{nom} + 20											
	cleaned	h _{1min}	[mm]	45	60	85	55	75	95	71	91	121	86	106	141
				h _{nom} + 5					h _{nom} + 8						
Diamond coring	h _{1min}	[mm]	50	65	90	60	80	100	73	93	123	88	108	143	
			h _{nom} + 10												
Concrete thickness belowbore hole	h _{bmin}	[mm]	21			27			32			34			
Minimum concrete thickness	h _{min}	[mm]	max(100; 1,5 h _{ef} ; h ₁ +h _b)			max(120; 1,5 h _{ef} ; h ₁ +h _b)			max(140; 1,5 h _{ef} ; h ₁ +h _b)			max (160; 1,5 h _{ef} ; h ₁ +h _b)			
Fixture thicknesses															
Thickness of Hilti filling set	h _{fs}	[mm]	8			9			10			11			
Effective fixture thickness with Hilti filling set	t _{fix,ef}	[mm]	t _{fix} - h _{fs}												
Characteristic distances HST2(-F) V3															
Spacing for splitting failure and concrete cone failure ^{a)}	S _{cr,sp}	[mm]	152	191	210	194	291	386	181	284	340	210	337	409	
	S _{cr,N}	[mm]	90	135	210	120	180	240	150	210	300	195	255	360	
Edge distance for splitting failure and concrete cone failure ^{a)}	C _{cr,sp}	[mm]	76	96	105	97	146	193	91	142	170	105	168	204	
	C _{cr,N}	[mm]	45	68	105	60	90	120	75	105	150	98	128	180	

^{a)} Values calculated under the hypothesis of uncracked concrete C20/25, cleaned, hammer drilled borehole.

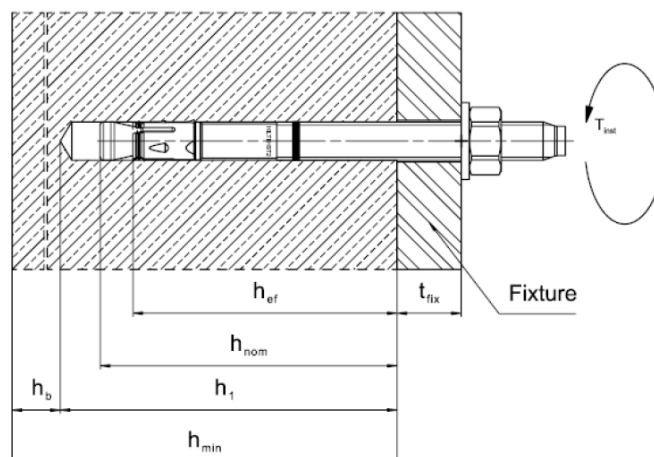


Setting information

Setting details HST2-R V3, HST2-HCR V3

Anchor size			M8			M10			M12			M16			
Nominal diameter of drill bit	d _o	[mm]	8			10			12			16			
Maximum diameter of clearance hole in the fixture	d _f	[mm]	9			12			14			18			
Torque moment	T _{inst}	[Nm]	20			45			60			110			
Effective anchorage depth	h _{ef}	[mm]	30	45	70	40	60	80	50	70	100	65	85	120	
Nominal embedment depth	h _{nom}	[mm]	38	53	78	49	69	89	60	80	110	78	98	133	
			h _{ef} + 8			h _{ef} + 9			h _{ef} + 10			h _{ef} + 13			
Drill hole depth															
Hammer drill	not cleaned	h _{1min}	[mm]	58	73	98	69	89	109	80	100	130	98	118	153
				h _{nom} + 20											
	cleaned	h _{1min}	[mm]	43	58	83	54	74	94	68	88	118	86	106	141
				h _{nom} + 5					h _{nom} + 8						
Diamond coring	h _{1min}	[mm]	48	63	88	59	79	99	70	90	120	88	102	143	
			h _{nom} + 10												
Minimum Concrete thickness belowbore hole	h _{bmin}	[mm]	21			27			32			34			
Minimum concrete thickness	h _{min}	[mm]	max(100; 1,5 h _{ef} ; h ₁ +h _b)			max(120; 1,5 h _{ef} ; h ₁ +h _b)			max(140; 1,5 h _{ef} ; h ₁ +h _b)			max(160; 1,5 h _{ef} ; h ₁ +h _b)			
Fixture thicknesses															
Thickness of Hilti filling set	h _{fs}	[mm]	8			9			10			11			
Effective fixture thickness with Hilti filling set	t _{fix,ef}	[mm]	t _{fix} - h _{fs}												
Characteristic distances HST2-R V3, HST2-HCR V3															
Spacing for splitting failure and concrete cone failure ^{a)}	S _{cr,sp}	[mm]	142	248	299	161	241	319	204	292	343	327	432	475	
	S _{cr,N}	[mm]	90	135	210	120	180	240	150	210	300	195	255	360	
Edge distance for splitting failure and concrete cone failure ^{a)}	C _{cr,sp}	[mm]	71	124	150	80	120	159	102	146	171	163	216	238	
	C _{cr,N}	[mm]	45	68	105	60	90	120	75	105	150	98	128	180	

^{a)} Values calculated under the hypothesis of uncracked concrete C20/25, cleaned, hammer drilled borehole.

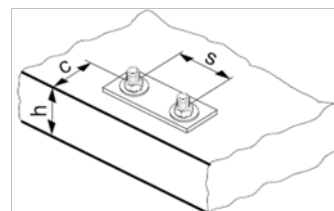
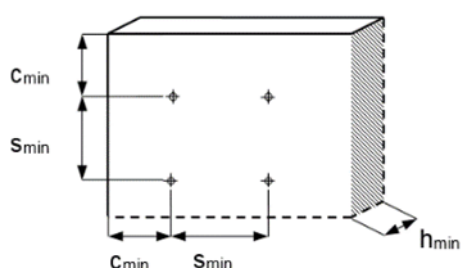


HST2 (-F) V3

Minimum spacing s_{min} , edge distance c_{min} and required splitting area $A_{sp,req}$

We recommend checking your designs in Hilti's PROFIS Engineering software to verify the edge & spacing values. ETA-21/0480 provides formulae for the calculation of flexible edge & spacing for each anchor layout configuration depending on base material thickness.

Minimum spacing and edge distance values on the tables below are recommendations for specific anchor layout and base material dimensions.



Anchor size HST2(-F) V3			M8					
Effective anchorage depth	h_{ef}	[mm]	30		45		70	
Drill hole cleaned			yes	no	yes	no	yes	no
Min. base material thickness	h_{min}	[mm]	100	100	100	100	110	125
Uncracked concrete								
Minimum spacing	s_{min}	[mm]	40	40	40	40	40	40
	for c_{min}	[mm]	55	55	55	55	50	45
Minimum edge distance	c_{min}	[mm]	45	45	45	45	45	45
	for s_{min}	[mm]	65	65	60	60	50	40
Cracked concrete								
Minimum spacing	s_{min}	[mm]	40	40	40	40	40	40
	for c_{min}	[mm]	50	50	45	45	45	45
Minimum edge distance	c_{min}	[mm]	45	45	45	45	45	45
	for s_{min}	[mm]	40	40	40	40	40	40

Anchor size HST2(-F) V3			M10					
Effective anchorage depth	h_{ef}	[mm]	40		60		80	
Drill hole cleaned			yes	no	yes	no	yes	no
Min. base material thickness	h_{min}	[mm]	120	120	120	120	125	140
Uncracked concrete								
Minimum spacing	s_{min}	[mm]	55	55	55	55	55	55
	for c_{min}	[mm]	75	75	75	75	70	60
Minimum edge distance	c_{min}	[mm]	55	55	55	55	55	55
	for s_{min}	[mm]	105	105	105	105	95	65
Cracked concrete								
Minimum spacing	s_{min}	[mm]	55	55	55	55	55	55
	for c_{min}	[mm]	55	55	55	55	55	55
Minimum edge distance	c_{min}	[mm]	55	55	55	55	55	55
	for s_{min}	[mm]	55	55	55	55	55	55

Anchor size HST2(-F) V3			M12					
Effective anchorage depth	h_{ef}	[mm]	50		70		100	
Drill hole cleaned			yes	no	yes	no	yes	no
Min. base material thickness	h_{min}	[mm]	140	140	140	140	155	165
Uncracked concrete								
Minimum spacing	s_{min}	[mm]	60	60	60	60	60	60
	for c_{min}	[mm]	75	75	75	75	65	65
Minimum edge distance	c_{min}	[mm]	55	55	55	55	55	55
	for s_{min}	[mm]	125	125	110	110	115	95
Cracked concrete								
Minimum spacing	s_{min}	[mm]	60	60	60	60	60	60
	for c_{min}	[mm]	60	60	55	55	60	55
Minimum edge distance	c_{min}	[mm]	55	55	55	55	55	55
	for s_{min}	[mm]	70	70	60	60	60	60

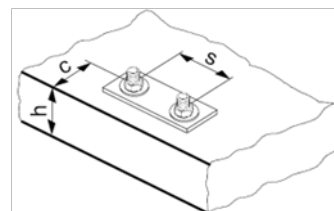
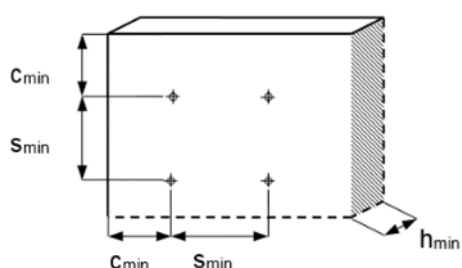
Anchor size HST2(-F) V3			M16					
Effective anchorage depth	h_{ef}	[mm]	65		85		120	
Drill hole cleaned			yes	no	yes	no	yes	no
Min. base material thickness	h_{min}	[mm]	160	160	160	160	180	190
Uncracked concrete								
Minimum spacing	s_{min}	[mm]	70	70	70	70	70	70
	for c_{min}	[mm]	85	85	85	85	75	75
Minimum edge distance	c_{min}	[mm]	70	70	70	70	70	70
	for s_{min}	[mm]	105	105	105	105	95	80
Cracked concrete								
Minimum spacing	s_{min}	[mm]	70	70	70	70	70	70
	for c_{min}	[mm]	70	70	70	70	70	70
Minimum edge distance	c_{min}	[mm]	70	70	70	70	70	70
	for s_{min}	[mm]	70	70	70	70	70	70

HST2-R V3, HST2-HCR V3

Minimum spacing s_{min} , edge distance c_{min} and required splitting area $A_{sp,req}$

We recommend checking your designs in Hilti's PROFIS Engineering software to verify the edge & spacing values. ETA-21/0480 provides formulae for the calculation of flexible edge & spacing for each anchor layout configuration depending on base material thickness.

Minimum spacing and edge distance values on the tables below are recommendations for specific anchor layout and base material dimensions.



Anchor size HST2-R V3, HST2-HCR V3			M8					
Effective anchorage depth	h_{ef}	[mm]	30		45		70	
Drill hole cleaned			yes	no	yes	no	yes	no
Min. base material thickness	h_{min}	[mm]	100	100	100	100	105	120
Uncracked concrete								
Minimum spacing	s_{min}	[mm]	40	40	40	40	40	40
	for c_{min}	[mm]	60	60	60	60	60	50
Minimum edge distance	c_{min}	[mm]	45	45	45	45	45	45
	for s_{min}	[mm]	90	90	85	85	80	50
Cracked concrete								
Minimum spacing	s_{min}	[mm]	40	40	40	40	40	40
	for c_{min}	[mm]	50	50	50	50	50	45
Minimum edge distance	c_{min}	[mm]	45	45	45	45	45	45
	for s_{min}	[mm]	50	50	45	45	45	40

Anchor size HST2-R V3, HST2-HCR V3			M10					
Effective anchorage depth	h_{ef}	[mm]	40		60		80	
Drill hole cleaned			yes	no	yes	no	yes	no
Min. base material thickness	h_{min}	[mm]	120	120	120	120	125	140
Uncracked concrete								
Minimum spacing	s_{min}	[mm]	55	55	55	55	55	55
	for c_{min}	[mm]	70	70	70	70	70	60
Minimum edge distance	c_{min}	[mm]	50	50	50	50	50	50
	for s_{min}	[mm]	130	130	115	115	115	90
Cracked concrete								
Minimum spacing	s_{min}	[mm]	55	55	55	55	55	55
	for c_{min}	[mm]	65	65	65	65	60	55
Minimum edge distance	c_{min}	[mm]	50	50	50	50	50	50
	for s_{min}	[mm]	100	100	90	90	90	65

Anchor size HST2-R V3, HST2-HCR V3			M12					
Effective anchorage depth	h_{ef}	[mm]	50		70		100	
Drill hole cleaned			yes	no	yes	no	yes	no
Min. base material thickness	h_{min}	[mm]	140	140	140	140	150	165
Uncracked concrete								
Minimum spacing	s_{min}	[mm]	60	60	60	60	60	60
	for c_{min}	[mm]	80	80	80	80	75	70
Minimum edge distance	c_{min}	[mm]	55	55	55	55	55	55
	for s_{min}	[mm]	155	155	135	135	155	120
Cracked concrete								
Minimum spacing	s_{min}	[mm]	60	60	60	60	60	60
	for c_{min}	[mm]	70	70	70	70	65	60
Minimum edge distance	c_{min}	[mm]	55	55	55	55	55	55
	for s_{min}	[mm]	110	110	95	95	110	85

Anchor size HST2-R V3, HST2-HCR V3			M16					
Effective anchorage depth	h_{ef}	[mm]	65		85		120	
Drill hole cleaned			yes	no	yes	no	yes	no
Min. base material thickness	h_{min}	[mm]	160	160	160	160	180	190
Uncracked concrete								
Minimum spacing	s_{min}	[mm]	70	70	70	70	70	70
	for c_{min}	[mm]	100	100	100	100	85	80
Minimum edge distance	c_{min}	[mm]	60	60	60	60	60	60
	for s_{min}	[mm]	200	200	185	185	210	185
Cracked concrete								
Minimum spacing	s_{min}	[mm]	70	70	70	70	70	70
	for c_{min}	[mm]	80	80	80	80	75	70
Minimum edge distance	c_{min}	[mm]	60	60	60	60	60	60
	for s_{min}	[mm]	135	135	125	125	145	125

Drilling and Installation equipment

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

Rotary Hammers (Corded and Cordless)		TE 2 - TE 70
Diamond Coring Machines		DD EC-1, DD 30-W, DD 150-U
Other tools		Torque Impact wrench with AT module - SIW 6AT-22 & SI-AT-22 - SIW 4AT-22 & SI-AT-22
		Hammer drill bit TE-CX, TE-YX, TE-C, TE-Y
		Diamond core bit TS, TL, SPX-T, SPX-L
		Setting Tool HS-SC
		Blow out pump