



Hilti HST3 Wedge Anchor

Submission Folder

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Stud anchor HST3



BASE MATERIALS

- Concrete (cracked)
- Concrete (uncracked)

APPLICATIONS

- Wide range of safety-relevant applications
- Structural steel, facade, mechanical equipment, racks, hand rails, etc.

ADVANTAGES

- High performance stud anchor in cracked concrete
- Highest resistance for geometrically challenging requirements, e.g. reduced member thickness, shortest spacing and edge distances. Extend concrete strength class range from C12/15 to C80/95
- Approved for use with two embedment depths included in the ETA

Approvals

BZS/shock BZS D 08-602

ETA, Seismic ETA 98/0001 (ETAG 001-02, Option 1)

Approvals and test reports may apply to selected products only. Please refer to the documents for details.



These are abbreviated instructions which may vary according to the application.

Technical data

Material composition	(Galvanized) Steel, zinc-plated (min. 5 µm); (Stainless steel) Steel, A4 (SS316)
Head configuration	Externally threaded
Type of fastening	Pre-fastening, Through-fastening
Approvals / test reports	BZS/shock, ETA, Fire, Seismic

Technical data

Recommended load (kN), cracked concrete at 25N/mm², safety factor(γ)=3

Model	Size	M8	M10	M12	M16	M20	M24
HST3	Tensile Load, Nrec	2.7	5.0	6.7	9.0	11.7	13.3
	Shear Load, Vrec	4.6	7.9	11.8	18.4	28.0	31.3
HST3-R	Tensile Load, Nrec	2.8	5.0	6.7	9.0	11.7	13.3
	Shear Load, Vrec	5.2	8.4	12.2	21.2	32.4	38.3

Remarks:

- 1) All the data applies to no edge distance, spacing and other influences
- 2) For detail design method and un-cracked concrete information, please refer to Fastening Technology Manual
- 3) Data based on standard embedment depth, please refer to the Hilti Fastening Technology Manual for recommended loads for shallower embedments

HST3 (Galvanized min. 5 µm)



Order Now



Ordering designation	Anchor size	Anchor length	Drill bit diameter	Drill hole depth at embed. 1	Drill hole depth at embed. 2	Max. fixture thickness at embed. 1	Max. fixture thickness at embed. 2	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HST3 M8x75 -/10	M8	75 mm	8 mm	-	60 mm	-	10 mm	9 mm	20 Nm	100 pc	2105888
HST3 M8x95 -/30	M8	95 mm	8 mm	-	60 mm	-	30 mm	9 mm	20 Nm	80 pc	2105889
HST3 M8x115 -/50	M8	115 mm	8 mm	-	60 mm	-	50 mm	9 mm	20 Nm	50 pc	2105890
HST3 M10x70 10/-	M10	70 mm	10 mm	53 mm	-	10 mm	-	9 mm	20 Nm	50 pc	2113974
HST3 M10x80 20/-	M10	80 mm	10 mm	53 mm	-	20 mm	-	9 mm	20 Nm	50 pc	2113975 ¹⁾
HST3 M10x90 30/10	M10	90 mm	10 mm	53 mm	73 mm	30 mm	10 mm	12 mm	45 Nm	50 pc	2105712
HST3 M10x110 50/30	M10	110 mm	10 mm	53 mm	73 mm	50 mm	30 mm	12 mm	45 Nm	40 pc	2105714
HST3 M10x130 70/50	M10	130 mm	10 mm	53 mm	73 mm	70 mm	50 mm	12 mm	45 Nm	25 pc	2105715
HST3 M10x160 100/80	M10	160 mm	10 mm	53 mm	73 mm	100 mm	80 mm	12 mm	45 Nm	25 pc	2105716 ¹⁾
HST3 M12x85 10/-	M12	85 mm	12 mm	68 mm	-	10 mm	-	14 mm	60 Nm	25 pc	2113978 ¹⁾
HST3 M12x95 20/-	M12	95 mm	12 mm	68 mm	-	20 mm	-	14 mm	60 Nm	25 pc	2113979 ¹⁾
HST3 M12x115 40/20	M12	115 mm	12 mm	68 mm	88 mm	40 mm	20 mm	14 mm	60 Nm	25 pc	2105719
HST3 M12x145 70/50	M12	145 mm	12 mm	68 mm	88 mm	70 mm	50 mm	14 mm	60 Nm	25 pc	2105851
HST3 M12x185 110/90	M12	185 mm	12 mm	68 mm	88 mm	110 mm	90 mm	14 mm	60 Nm	25 pc	2105853
HST3 M12x215 140/120	M12	215 mm	12 mm	68 mm	88 mm	140 mm	120 mm	14 mm	60 Nm	25 pc	2105854 ¹⁾
HST3 M12x235 160/140	M12	235 mm	12 mm	68 mm	88 mm	160 mm	140 mm	14 mm	60 Nm	25 pc	2105855 ¹⁾
HST3 M12x255 180/160	M12	255 mm	12 mm	68 mm	88 mm	180 mm	160 mm	14 mm	60 Nm	25 pc	2105856 ¹⁾
HST3 M16x115 15/-	M16	115 mm	16 mm	86 mm	-	15 mm	-	18 mm	110 Nm	12 pc	2114053 ¹⁾
HST3 M16x145 45/25	M16	145 mm	16 mm	86 mm	106 mm	45 mm	25 mm	18 mm	110 Nm	12 pc	2105859
HST3 M16x170 70/50	M16	170 mm	16 mm	86 mm	106 mm	70 mm	50 mm	18 mm	110 Nm	12 pc	2105860
HST3 M16x220 120/100	M16	220 mm	16 mm	86 mm	106 mm	120 mm	100 mm	18 mm	110 Nm	12 pc	2105861 ¹⁾
HST3 M16x260 160/140	M16	260 mm	16 mm	86 mm	106 mm	160 mm	140 mm	18 mm	110 Nm	12 pc	2105862 ¹⁾
HST3 M20x170 -/30	M20	170 mm	20 mm	-	124 mm	-	30 mm	22 mm	180 Nm	5 pc	2105891
HST3 M20x200 -/60	M20	200 mm	20 mm	-	124 mm	-	60 mm	22 mm	180 Nm	5 pc	2105892
HST3 M20x260 -/120	M20	260 mm	20 mm	-	124 mm	-	120 mm	22 mm	180 Nm	5 pc	2105893 ¹⁾
HST3 M24x200 -/30	M24	200 mm	24 mm	-	151 mm	-	30 mm	26 mm	300 Nm	5 pc	2105894
HST3 M24x230 -/60	M24	230 mm	24 mm	-	151 mm	-	60 mm	26 mm	300 Nm	5 pc	2105895

¹⁾ This is a non-stock item. For detailed lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

HST3-R (Stainless Steel A4)



Order Now



Ordering designation	Anchor size	Anchor length	Drill bit diameter	Drilling Hole Depth at embed. 1	Drilling Hole Depth at embed. 2	Max. fixture thickness at embed. 1	Max. fixture thickness at embed. 2	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HST3-R M8x75 -/10	M8	75 mm	8 mm	-	60 mm	-	10 mm	9 mm	20 Nm	50 pc	2105896
HST3-R M8x95 -/30	M8	95 mm	8 mm	-	60 mm	-	30 mm	9 mm	20 Nm	50 pc	2105897
HST3-R M8x115 -/50	M8	115 mm	8 mm	-	60 mm	-	50 mm	9 mm	20 Nm	50 pc	2105898
HST3-R M10x70 10/-	M10	70 mm	10 mm	53 mm	-	10 mm	-	12 mm	45 Nm	50 pc	2113976
HST3-R M10x80 20/-	M10	80 mm	10 mm	53 mm	-	20 mm	-	12 mm	45 Nm	50 pc	2113977
HST3-R M10x90 30/10	M10	90 mm	10 mm	53 mm	73 mm	30 mm	10 mm	12 mm	45 Nm	50 pc	2105864
HST3-R M10x110 50/30	M10	110 mm	10 mm	53 mm	73 mm	50 mm	30 mm	12 mm	45 Nm	40 pc	2105866
HST3-R M10x130 70/50	M10	130 mm	10 mm	53 mm	73 mm	70 mm	50 mm	12 mm	45 Nm	25 pc	2105867
HST3-R M10x160 100/80	M10	160 mm	10 mm	53 mm	73 mm	100 mm	80 mm	12 mm	45 Nm	25 pc	2105868
HST3-R M12x85 10/-	M12	85 mm	12 mm	68 mm	-	10 mm	-	14 mm	60 Nm	25 pc	2114051
HST3-R M12x95 20/-	M12	95 mm	12 mm	68 mm	-	20 mm	-	14 mm	60 Nm	25 pc	2114052
HST3-R M12x115 40/20	M12	115 mm	12 mm	68 mm	88 mm	40 mm	20 mm	14 mm	60 Nm	25 pc	2105870
HST3-R M12x145 70/50	M12	145 mm	12 mm	68 mm	88 mm	70 mm	50 mm	14 mm	60 Nm	25 pc	2105872
HST3-R M12x185 110/90	M12	185 mm	12 mm	68 mm	88 mm	110 mm	90 mm	14 mm	60 Nm	25 pc	2105874

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Ordering designation	Anchor size	Anchor length	Drill bit diameter	Drilling Hole Depth at embed. 1	Drilling Hole Depth at embed. 2	Max. fixture thickness at embed. 1	Max. fixture thickness at embed. 2	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HST3-R M12x215 140/120	M12	215 mm	12 mm	68 mm	88 mm	140 mm	120 mm	14 mm	60 Nm	25 pc	2105875
HST3-R M16x115 15/-	M16	115 mm	16 mm	86 mm	-	15 mm	-	18 mm	110 Nm	12 pc	2114057
HST3-R M16x145 45/25	M16	145 mm	16 mm	86 mm	106 mm	45 mm	25 mm	18 mm	110 Nm	12 pc	2105877
HST3-R M16x170 70/50	M16	170 mm	16 mm	86 mm	106 mm	70 mm	50 mm	18 mm	110 Nm	12 pc	2105878
HST3-R M16x220 120/100	M16	220 mm	16 mm	86 mm	106 mm	120 mm	100 mm	18 mm	110 Nm	12 pc	2105879
HST3-R M16x260 160/140	M16	260 mm	16 mm	86 mm	106 mm	160 mm	140 mm	18 mm	110 Nm	12 pc	2105880 ¹⁾
HST3-R M16x300 200/180	M16	300 mm	16 mm	86 mm	106 mm	200 mm	180 mm	18 mm	110 Nm	12 pc	2105881 ¹⁾
HST3-R M20X170 -/30	M20	170 mm	20 mm	-	124 mm	-	30 mm	22 mm	180 Nm	5 pc	2105899
HST3-R M20X200 -/60	M20	200 mm	20 mm	-	124 mm	-	60 mm	22 mm	180 Nm	5 pc	2105900
HST3-R M24X200 -/30	M24	200 mm	24 mm	-	151 mm	-	30 mm	26 mm	300 Nm	5 pc	2105901
HST3-R M24X230 -/60	M24	230 mm	24 mm	-	151 mm	-	60 mm	26 mm	300 Nm	5 pc	2105902 ¹⁾

¹⁾ For detailed stock availability and lead time information please contact your Hilti representative.

Please visit Hilti website for the latest item numbers and related products

Setting tool and adaptive torque system



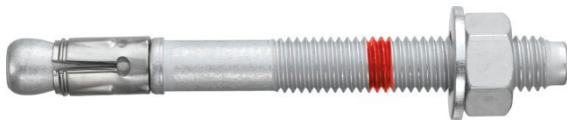
Ordering designation	Wrench size	Length	Sales pack quantity	Item number
SI-S 1/2"-13 L ① ②	13 mm	80 mm	1 pc	2070389
SI-S 1/2"-17 L	17 mm	80 mm	1 pc	2070392
SI-S 1/2"-19 L	19 mm	80 mm	1 pc	2070394
HS-SC M8-M16 ③	-	-	1 pc	2051443

Please visit Hilti website for the latest item numbers and related products

HST3 Expansion anchor

Ultimate-performance expansion anchor for cracked concrete and seismic

Anchor version	Benefits
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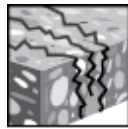
HST3
HST3-R
(M8-M24)

- Ultimate resistance for reduced member thickness, short spacing and edge distances
- Suitable for non-cracked and cracked concrete C 12/15 to C 80/95*
- Highly reliable and safe anchor for structural seismic design with ETA C1/C2 assessment
- Longer embedment depth option to get higher resistance, closer distance to the edge or smaller spacing.
- Full design flexibility with variable embedment depth and edge & spacing
- Faster and reliable installation thanks to approved non-cleaning and adaptive torqueing tool.
- Dome-nut version is available with adaptive tool qualification
- Product and length identification mark facilitates quality control and inspection

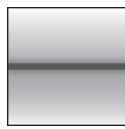
Base material	Load conditions
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Concrete (non-cracked)



Concrete (cracked)



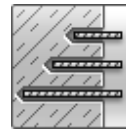
Static/
quasi-static



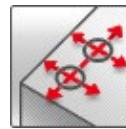
Seismic
ETA-C1/C2



Fire
resistance

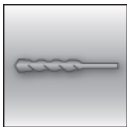


Variable
embedment
depth



Small edge
distance and
spacing

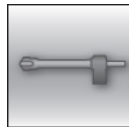
Installation conditions	Other information
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Hammer
drilled holes
(with no
cleaning)



Diamond
drilled holes



Hollow drill-
bit drilling



Impact wrench
with adaptative
torque module
(M8-M16)



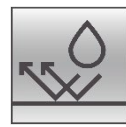
European
Technical
Assessment



CE
conformity



PROFIS
Engineering
design
software



Corrosion
resistance

Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European technical assessment ^{a)}	DIBt, Berlin	ETA-98/0001 / 2022-11-03
Fire test report	DIBt, Berlin	ETA-98/0001 / 2022-11-03
Evaluation report acc. to ICC-ES criteria	Uniform Evaluation Service	578 / 2019-02-28
Certificate of compliance	FM	003053697 / 2016-01-25
Shock approval M10 - M24	BABS, Spiez Laboratory	BZS D 08-602 / 2019-01-29

a) All data given in this section according to ETA-98/0001, issue 2022-11-03.

* ETA ETA-98/0001 covers the concrete strength class between C20/25 and C 50/60. Strength classes out of this interval are covered by Hilti Technical Data

Recommended general notes

* The below clauses based on Hilti product qualifications are for references only. Selection of clauses by the engineer shall be based on the specific application needs. Please contact Hilti's technical team for further details.

- Torque controlled expansion anchor, approved for use in cracked and un-cracked concrete
- The anchor shall have European Technical Assessment (ETA); evaluating performance in cracked and un-cracked concrete and seismic conditions
- The anchor shall be assessed for use in cracked and uncracked concrete of strength class C12/15 minimum to C80/95 maximum.
- Anchor shall conform to shock proof fastening according to Swiss Federal Office for Civil Protection (FOCP) or equivalent authority
- Anchor shall have corrosion resistance of min. 5µm galvanization
- Anchor shall have corrosion resistance of A4 stainless steel
- Anchor shall be installed as per the manufacturer's approved procedure and equipment
- Anchor shall have identification marks on the bolt head that can be used to verify the anchor material and length during inspection
- The recommended tension load of the anchor should not be not less than __kN in cracked concrete with concrete strength at 25N/mm² (including overall global safety factor=3)
- Effective anchorage depth of the anchor should not exceed __mm

For HST3/HST3-R M10, M12 and M16

- -Anchor must be approved for installation in 2 embedment depths or setting positions

Static and quasi-static loading (for a single anchor)

All data in this section applies to:

- Correct setting (See setting instruction)
- No edge distance and spacing influence
- Steel failure
- Minimum base material thickness
- Concrete C 20/25, $f_{ck,cyl} = 20 \text{ N/mm}^2$ (EN 1992-4 design)

Effective anchorage depth for static

Anchor size		M8	M10		M12		M16		M20	M24
Approved variable embedment depth range ^{a)}	$h_{ef,min} - h_{ef,max}$ [mm]	47-90	40-100		50-125		65-160		101-180	125
Effective anchorage depth ^{b)}	h_{ef} [mm]	47	40	60	50	70	65	85	101	125

a) Variable embedment depth approved by ETA-98/0001 of 2022-11-03;

b) Standard embedment depth used for calculations of values below. For other embedment depths PROFIS Engineering can be used

Characteristic resistance

Anchor size				M8	M10	M12	M16	M20	M24			
Non-cracked concrete												
Tension	HST3	N _{Rk}	[kN]	12,0	12,4	22,0	17,4	25,0	25,8	38,6	49,9	60,0
	HST3-R			12,0	12,4	22,0	17,4	25,0	25,8	38,6	49,9	60,0
Shear	HST3	V _{Rk}	[kN]	13,8	21,9	23,6	34,0	35,4	54,5	55,3	83,9	94,0
	HST3-R			15,7	25,6	25,3	31,1	36,7	48,6	63,6	97,2	115,0
Cracked concrete												
Tension	HST3	N _{Rk}	[kN]	8,0	8,7	15,0	12,2	20,0	18,0	27,0	35,0	40,0
	HST3-R			8,5	8,7	15,0	12,2	20,0	18,0	27,0	35,0	40,0
Shear	HST3	V _{Rk}	[kN]	13,8	21,9	23,6	33,8	35,4	54,5	55,3	83,9	94,0
	HST3-R			15,7	23,3	25,3	31,1	36,7	48,6	63,6	97,2	115,0

Design resistance

Anchor size				M8	M10	M12	M16	M20	M24			
Non-cracked concrete												
Tension	HST3	N _{Rd}	[kN]	8,0	8,3	14,7	11,6	16,7	17,2	25,7	33,3	40,0
	HST3-R			8,0	8,3	14,7	11,6	16,7	17,2	25,7	33,3	40,0
Shear	HST3	V _{Rd}	[kN]	11,0	17,5	18,9	27,2	28,3	43,6	44,2	67,1	62,7
	HST3-R			12,6	20,5	20,2	24,9	29,4	38,9	50,9	77,8	88,5
Cracked concrete												
Tension	HST3	N _{Rd}	[kN]	5,3	5,8	10,0	8,1	13,3	12,0	18,0	23,3	26,7
	HST3-R			5,7	5,8	10,0	8,1	13,3	12,0	18,0	23,3	26,7
Shear	HST3	V _{Rd}	[kN]	11,0	15,5	18,9	22,6	28,3	41,0	44,2	67,1	62,7
	HST3-R			12,6	15,5	20,2	22,6	29,4	38,9	50,9	74,6	80,2

Recommended loads^{a)}

Anchor size				M8	M10	M12	M16	M20	M24			
Non-cracked concrete												
Tension	HST3	N _{Rec}	[kN]	4.0	4.1	7.3	5.8	8.3	8.6	12.9	16.6	20.0
	HST3-R			4.0	4.1	7.3	5.8	8.3	8.6	12.9	16.6	20.0
Shear	HST3	V _{Rec}	[kN]	4.6	7.3	7.9	11.3	11.8	18.2	18.4	28.0	31.3
	HST3-R			5.2	8.5	8.4	10.4	12.2	16.2	21.2	32.4	38.3
Cracked concrete												
Tension	HST3	N _{Rec}	[kN]	2.7	2.9	5.0	4.1	6.7	6.0	9.0	11.7	13.3
	HST3-R			2.8	2.9	5.0	4.1	6.7	6.0	9.0	11.7	13.3
Shear	HST3	V _{Rec}	[kN]	4.6	7.3	7.9	11.3	11.8	18.2	18.4	28.0	31.3
	HST3-R			5.2	7.8	8.4	10.4	12.2	16.2	21.2	32.4	38.3

a) With overall global safety factor for action $\gamma = 3.0$. The partial safety factors for action depend on the type of loading and shall be taken from national regulations

Materials

Mechanical properties

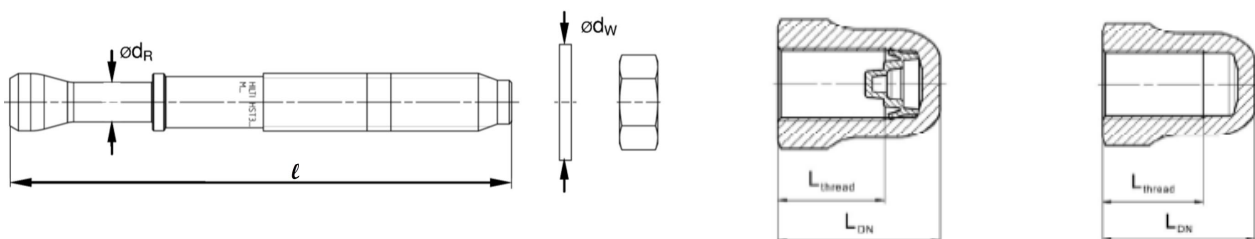
Anchor size		M8	M10	M12	M16	M20	M24
Nominal tensile strength	HST3	800	800	800	720	700	530
	HST3-R	720	710	710	650	650	650
Yield strength	HST3	640	640	640	576	560	450
	HST3-R	576	568	568	520	520	500
Stressed cross-section	A_s [mm ²]	36,6	58,0	84,3	157	245	353
Moment of resistance	W [mm ³]	31,2	62,3	109	277	541	935
Characteristic bending resistance	HST3	30	60	105	240	457	595
	HST3-R	27	53	93	216	425	730

Material quality

Part	Material	
Expansion sleeve	HST3	M10, M16: Galvanized or Stainless steel M8, M12, M20, M24: Stainless steel
	HST3-R	Stainless steel A4
Bolt	HST3	Carbon steel, galvanized, coated (transparent)
	HST3-R	Stainless steel A4, cone coated (transparent)
Washer	HST3	Galvanized
	HST3-R	Stainless steel A4
Hexagon nut	HST3	Strength class 8
	HST3-R	Stainless steel A4, coated
Dome nut	HST3	Galvanized
	HST3-R	Stainless steel A4, coated

Anchor dimensions

Anchor size		M8	M10	M12	M16	M20	M24
Maximum length of anchor	$l_{max} \leq$ [mm]	260	280	350	475	450	500
Shaft diameter at the cone	d_R [mm]	5,60	6,94	8,22	11,00	14,62	17,4
Length of expansion sleeve	l_s [mm]	13,6	16,0	20,0	25,0	28,3	36,0
Diameter of washer	$d_w \geq$ [mm]	15,57	19,48	23,48	29,48	36,38	43,38
Length of dome nut thread	$L_{thread} \geq$ [mm]	13,3	16,8	17,8	22,3	-	-
Length of dome nut	$L_{DN} \geq$ [mm]	18,1	21,9	24,0	29,5	-	-



Material code for identification of different materials

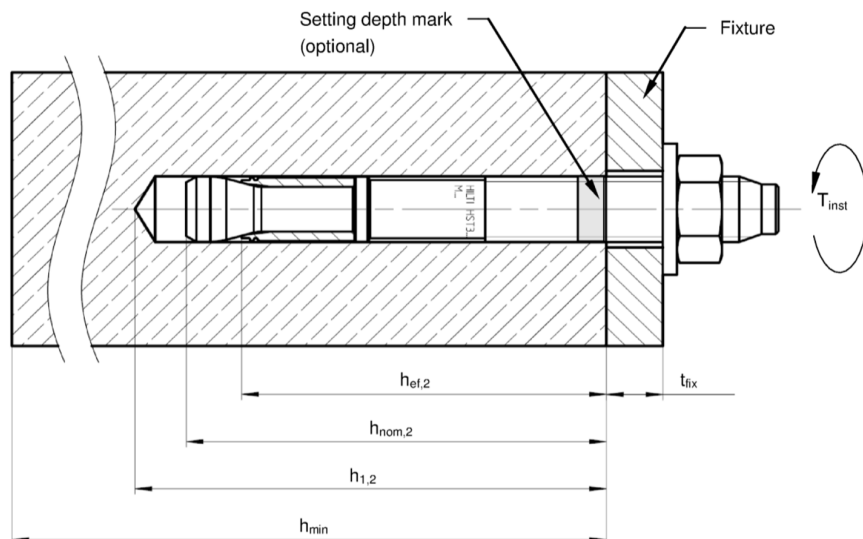
Type	HST3	HST3-R
Material Code	○	⊗

Setting information

Setting details

Anchor size			M8	M10	M12	M16	M20	M24
Nominal diameter of drill bit	d_o	[mm]	8	10	12	16	20	24
Cutting diameter of drill bit	$d_{cut} \leq$	[mm]	8,45	10,45	12,5	16,5	20,55	24,55
Effective embedment depth	$h_{ef,1}$	[mm]	-	40-59	50-69	65-84	-	-
	$h_{ef,2}$	[mm]	47-90	60-100	70-125	85-160	101-180	125
Drill hole depth ^{1) 3)}	$h_{1,1} \geq$	[mm]	-	$h_{ef}+13$	$h_{ef}+18$	$h_{ef}+21$	-	-
	$h_{1,2} \geq$	[mm]	$h_{ef}+12$	$h_{ef}+13$	$h_{ef}+18$	$h_{ef}+21$	$h_{ef}+23$	151
Nominal embedment depth	$h_{nom,1}$	[mm]	-	$h_{ef}+8$	$h_{ef}+10$	$h_{ef}+13$	-	-
	$h_{nom,2}$	[mm]	$h_{ef}+7$	$h_{ef}+8$	$h_{ef}+10$	$h_{ef}+13$	$h_{ef}+15$	143
Maximum diameter of clearance hole in the fixture ²⁾	d_f	[mm]	9	12	14	18	22	26
Torque moment	T_{inst}	[Nm]	20	45	60	110	180	300
Maximum thickness of fixture	$t_{fix,max}$	[mm]	195	220	270	370	310	330
Width across	SW	[mm]	13	17	19	24	30	36

- 1) In case of diamond drilling +5 mm for M8 to M10 and +2 mm for M12 to M24.
- 2) For the design of bigger clearance holes in the fixture see EN 1992-4:2018.
- 3) In case of hammer drilling with non-cleaned boreholes + 12 mm for M8 to M20.



Installation equipment

Anchor size	M8	M10	M12	M16	M20	M24
Rotary hammer	TE2(-A) – TE30(-A)				TE40 – TE80	
Diamond coring tool	DD-30W, DD-EC1					
Torqueing tool	Hilti SIW 6AT A22 – SI-AT-A22				-	
Setting tool	HS-SC				-	
Hollow drill bit	-		TE-CD, TE-YD			
Other tools	hammer, torque wrench, blow out pump					

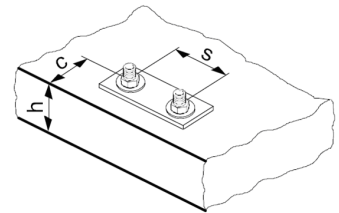
Setting parameters of HST3 / HST3-R for M8 and M10*

Anchor Size			M8			M10			
			C20/25 to C50/60 ^{a)} C55/67 to C80/95 ^{b)}		C12/15 ^{b)} C16/20 ^{b)}	C20/25 to C50/60 ^{a)}	C20/25 to C50/60 ^{a)} C55/67 to C80/95 ^{b)}		C12/15 ^{b)} C16/20 ^{b)}
Effective anchorage depth	h_{ef}	[mm]	47		47	40	60		60
Minimum base material thickness	h_{min}	[mm]	80	100	100	80	100	120	120
Minimum spacing in non-cracked concrete	s_{min}	[mm]	35	35	35	50	40	40	70
	for $c \geq$	[mm]	70	55	65	65	90	75	90
Minimum spacing in cracked concrete	s_{min}	[mm]	35	35	35	40	40	40	45
	for $c \geq$	[mm]	55	40	55	50	70	55	85
Minimum edge distance in non-cracked concrete	c_{min}	[mm]	45	40	50	50	60	50	80
	for $s \geq$	[mm]	110	80	80	95	130	110	120
Minimum edge distance in cracked concrete	c_{min}	[mm]	40	40	40	45	50	45	70
	for $s \geq$	[mm]	70	35	75	55	90	65	120
Critical spacing for splitting failure and concrete cone failure	$s_{cr,sp}$	[mm]	141		188	168	180		240
	$s_{cr,N}$	[mm]	141		141	120	180		180
Critical edge distance for splitting failure and concrete cone failure	$c_{cr,sp}$	[mm]	71		94	84	90		120
	$c_{cr,N}$	[mm]	71		71	60	90		90

a) Data covered by ETA-98/0001 of 2022-11-03.

b) Data covered by Hilti Technical Data

* ETA-98/0001 provides flexible edge & spacing values for each anchor layout configuration depending on base material thickness. Minimum spacing and edge distance values on the table are recommendations for specific anchor layout and base material dimensions. We kindly ask you to check your designs on PROFIS Engineering software to verify the edge & spacing values.



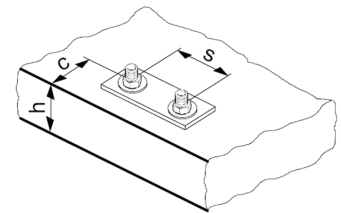
Setting parameters of HST3 / HST3-R for M12 and M16*

Anchor Size			M12			M16				
			C20/25 to C50/60 ^{a)}	C20/25 to C50/60 ^{a)} C55/67 to C80/95 ^{b)}	C12/15 ^{b)} C16/20 ^{b)}	C20/25 to C50/60 ^{a)}	C20/25 to C50/60 ^{a)} C55/67 to C80/95 ^{b)}	C12/15 ^{b)} C16/20 ^{b)}		
Effective anchorage	h_{ef}	[mm]	50	70		70	65	85		85
Minimum base material	h_{min}	[mm]	100	120	140	140	120	140	160	160
Minimum spacing in non-cracked concrete	s_{min}	[mm]	55	50	60	110	75	80	65	90
	for c	[mm]	85	110	85	140	100	115	100	145
Minimum spacing in cracked concrete	s_{min}	[mm]	50	50	50	80	65	80	65	70
	for $c \geq$	[mm]	65	80	65	120	75	80	75	125
Minimum edge distance in non-cracked concrete	c_{min}	[mm]	60	75	60	90	65	80	70	110
	for $s \geq$	[mm]	130	145	135	190	175	180	160	170
Minimum edge distance in cracked concrete	c_{min}	[mm]	55	60	55	80	65	65	65	90
	for $s \geq$	[mm]	75	100	75	170	85	125	85	165
Critical spacing for splitting failure and concrete cone failure	$s_{cr,sp}$	[mm]	180	210		280	208	255		340
	$s_{cr,N}$	[mm]	150	210		210	195	255		255
Critical edge distance for splitting failure and concrete cone failure	$c_{cr,sp}$	[mm]	90	105		140	104	128		170
	$c_{cr,N}$	[mm]	75	105		105	98	128		128

c) Data covered by ETA-98/0001 of 2022-11-03.

d) Data covered by Hilti Technical Data

* ETA-98/0001 provides flexible edge & spacing values for each anchor layout configuration depending on base material thickness. Minimum spacing and edge distance values on the table are recommendations for specific anchor layout and base material dimensions. We kindly ask you to check your designs on PROFIS Engineering software to verify the edge & spacing values.



Setting parameters of HST3 / HST3-R for M20 and M24*

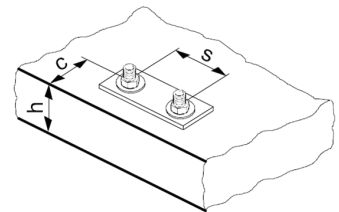
Anchor Size			M20		M24		
Concrete class			C20/25 to C50/60 ^{a)} C55/67 to C80/95 ^{b)}	C12/15 ^{b)} C16/20 ^{b)}	C20/25 to C50/60 ^{a)} C55/67 to C80/95 ^{b)}	C12/15 ^{b)} C16/20 ^{b)}	
Effective anchorage	h_{ef}	[mm]	101		101	125	125
Minimum base material	h_{min}	[mm]	160	200	200	250	250
Minimum spacing in non-cracked concrete	HST3	s_{min}	120	90	90	125	180
		for $c \geq$	130	105	165	255	375
	HST3-R	s_{min}	120	90	90	125	180
		for $c \geq$	130	105	165	205	375
Minimum spacing in cracked concrete	HST3	s_{min}	90	90	90	125	140
		for $c \geq$	100	80	165	180	325
	HST3-R	s_{min}	90	90	90	125	140
		for $c \geq$	100	80	140	130	325
Min. edge distance in non-cracked concrete	HST3	c_{min}	110	80	90	170	260
		for $s \geq$	170	160	140	295	400
	HST3-R	c_{min}	110	80	120	150	260
		for $s \geq$	170	160	270	235	400
Min. edge distance in cracked concrete	HST3	c_{min}	90	80	100	125	230
		for $s \geq$	115	90	240	240	295
	HST3-R	c_{min}	90	80	100	125	230
		for $s \geq$	115	90	240	140	295
Critical spacing for splitting failure and concrete cone failure	$s_{cr,sp}$	[mm]	384		404	375	500
	$s_{cr,N}$	[mm]	303		303	375	375
Critical spacing for splitting failure and concrete cone failure	$c_{cr,sp}$	[mm]	192		202	188	250
	$c_{cr,N}$	[mm]	152		152	188	188

e) Data covered by ETA-98/0001 of 2022-11-03.

f) Data covered by Hilti Technical Data

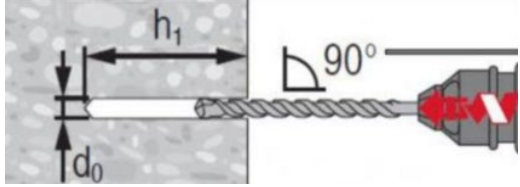
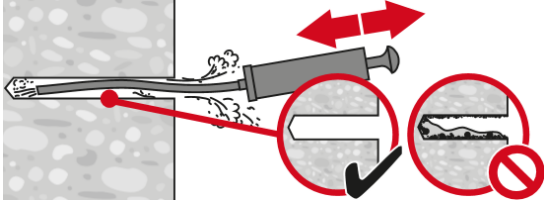
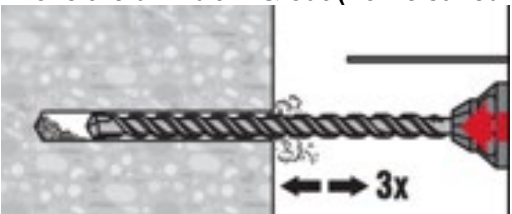

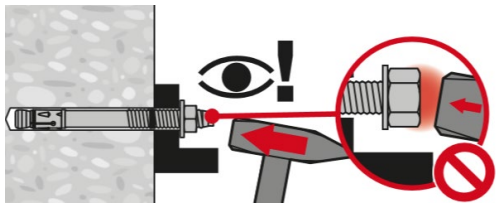
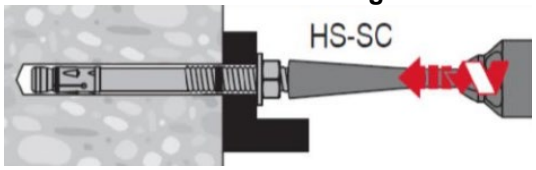
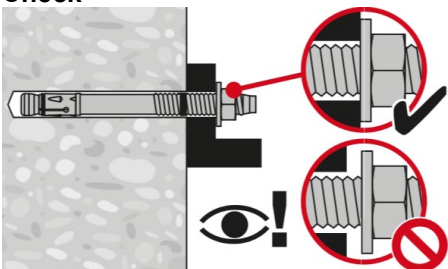
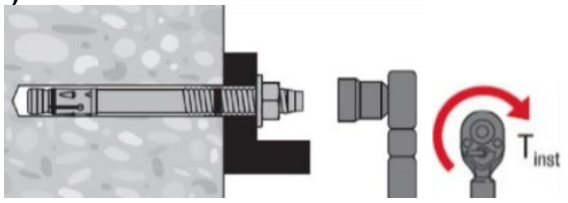
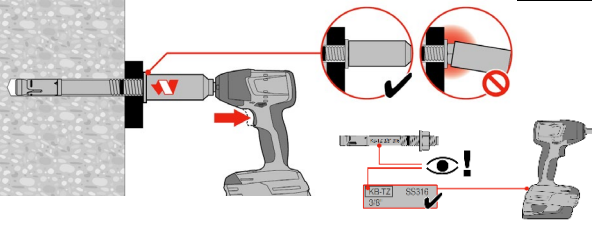
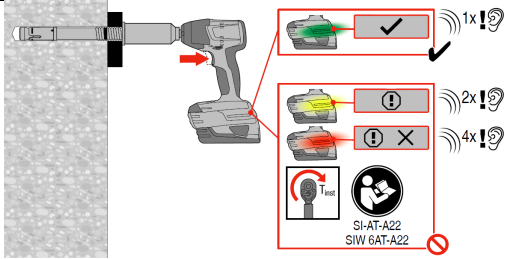
For spacing (edge distance) smaller than critical spacing (critical edge distance) the design loads have to be reduced.

* ETA-98/0001 provides flexible edge & spacing values for each anchor layout configuration with M20 depending on base material thickness. Minimum spacing and edge distance values on the table are recommendations for specific anchor layout and base material dimensions. We kindly ask you to check your designs on PROFIS Engineering software to verify the edge & spacing values.



Setting instructions

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

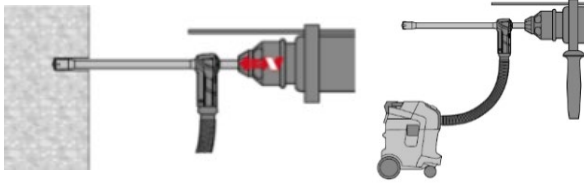
Setting instruction for HST3 / HST3-R ^{a)}	
Hammer drilling (M8, M10, M12, M16, M20, M24)	
<p>1. Drill the hole (+12 mm for non-cleaned holes)</p> 	<p>2a. Clean the hole</p> 
<p>2bi. Move the drill bit in & out (non-cleaned hole)</p> 	<p>2bii. Check</p> 
<p>3a. Insert the anchor with hammer</p> 	<p>3b. Insert the anchor with setting tool HS-SC</p> 
<p>4. Check</p> 	<p>5a. Torque with calibrated torque wrench (M8-M24)</p> 
<p>5b. Torque with impact wrench with Adaptive torque module (M8-M16) ^{b)}</p>	
	

a) HST3 DN covers the diameter range between M8 and M16;

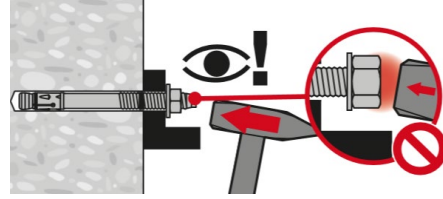
b) Equivalent combination of Hilti SIW + SI-AT tool, compatible to this anchor type, may be used (e.g. Hilti SIW 4AT-22 with SI-AT-22)

Hollow Drill Bit (M16, M20, M24), no cleaning is required even without buffer ^{a)}

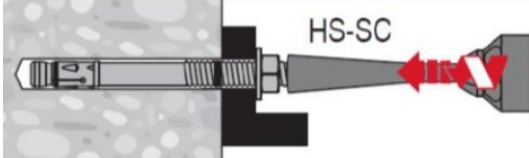
1. Drill the hole with the Hollow drill bit



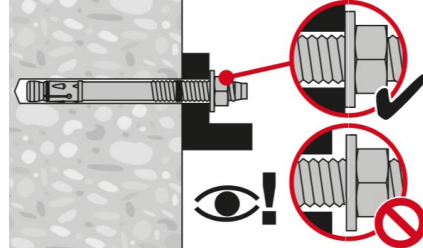
2a. Insert the anchor with hammer



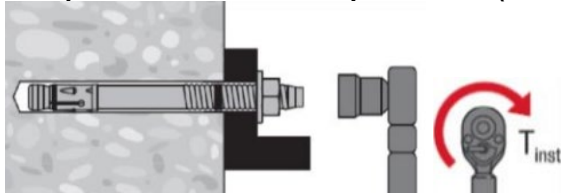
2b. Insert the anchor with setting tool HS-SC



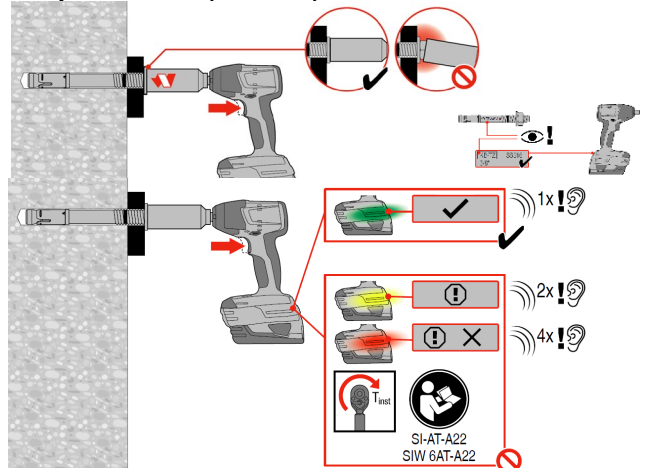
3. Check



5a. Torque with calibrated torque wrench (M8-M24)



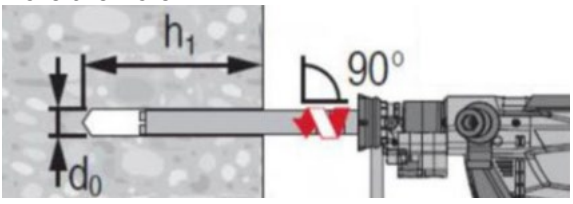
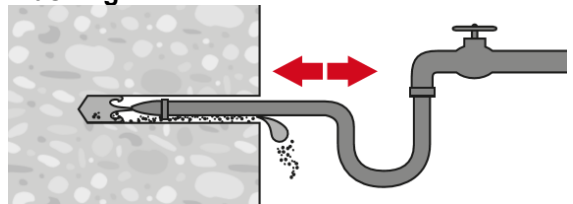
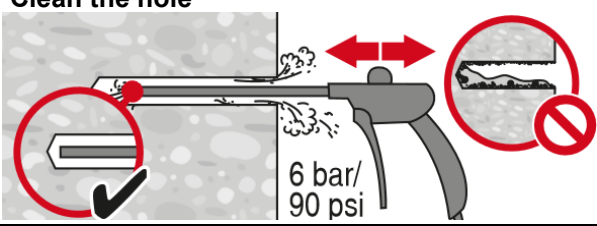
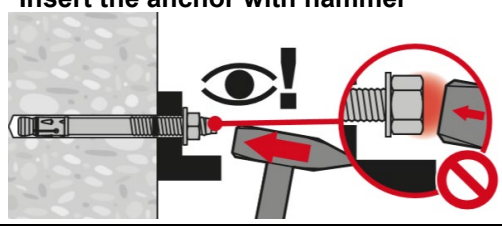
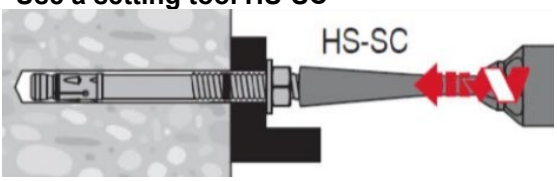
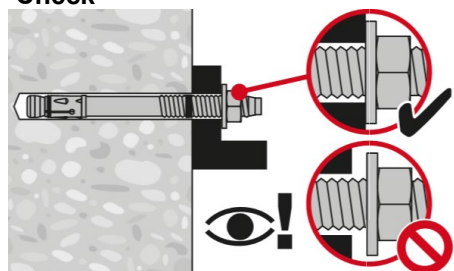
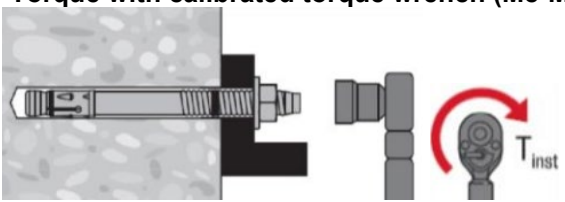
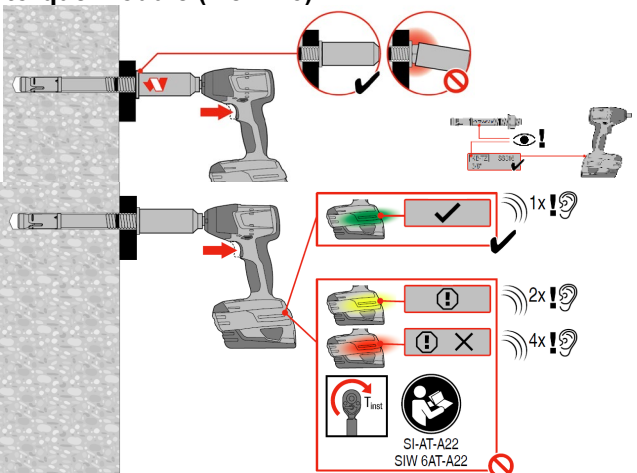
5b. Torque with impact wrench with Adaptive torque module (M8-M16) ^{b)}



a) HST3 DN covers the diameter range between M8 and M16;

b) Equivalent combination of Hilti SIW + SI-AT tool, compatible to this anchor type, may be used (e.g. Hilti SIW 4AT-22 with SI-AT-22)

Diamond coring (M8, M10, M12, M16, M20, M24) ^{a)}

<p>1. Core the hole</p> 	<p>2. Flushing</p> 
<p>3. Clean the hole</p>  <p>6 bar/ 90 psi</p>	<p>4a. Insert the anchor with hammer</p> 
<p>4b. Use a setting tool HS-SC</p>  <p>HS-SC</p>	<p>5. Check</p> 
<p>6a. Torque with calibrated torque wrench (M8-M24)</p>  <p>T_{inst}</p>	<p>5b. Torque with impact wrench with Adaptive torque module (M8-M16) ^{b)}</p>  <p>SI-AT-A22 SIW 6AT-A22</p>

a) HST3 DN covers the diameter range between M8 and M16;

b) Equivalent combination of Hilti SIW + SI-AT tool, compatible to this anchor type, may be used (e.g. Hilti SIW 4AT-22 with SI-AT-22)

Attn. : To whom it may concern

Date : 26 September 2023
Ref. : 093/FP/DY/23

Subject : Country of Origin – Hilti HST3 Wedge Anchor

Dear Sir / Madam,

Enclosed please find the information of Hilti HST3 Wedge Anchor.

Brand Name : Hilti

Model Name : Hilti HST3 Wedge Anchor

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Manufacturer Contact Person : Dennis Yeung

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre,
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Supplier Contact Person : Dennis Yeung (+852 9723 4621)

Country of Origin : Liechtenstein

Should you have further questions, please do not hesitate to contact our Technical Representatives, Customer Service Hotline at 8228-8118, or email us at hksales@hilti.com.

Yours faithfully,



Dennis Yeung
Head of Product Leadership Strategy, F&P

Hilti (Hong Kong) Ltd.
701-704 | Tower A | Manulife Financial Centre
223 Wai Yip Street | Kwun Tong
Kowloon | Hong Kong
P +852-8228 8118 | F +852-2954 1751
www.hilti.com.hk

Attn. : To whom it may concern

Date : 17 May 2024
Ref. : 075/FP/DY/24

Subject : Country of Origin – Hilti HST3-R Wedge Anchor

Dear Sir / Madam,

Enclosed please find the information of Hilti HST3-R Wedge Anchor.

Brand Name : Hilti

Model Name : Hilti HST3-R Wedge Anchor

Manufacturer : Hilti Corporation

Address of Manufacturer : FL-9494, Principality of Liechtenstein.

Manufacturer Contact Person : Dennis Yeung

Supplier : Hilti (Hong Kong) Ltd

Address of Supplier : 701-704, 7/F, Tower A, Manulife Financial Centre,
223 Wai Yip Street, Kwun Tong, Kowloon, Hong Kong

Supplier Contact Person : Dennis Yeung (+852 9723 4621)

Country of Origin : Liechtenstein

Should you have further questions, please do not hesitate to contact our Technical Representatives, Customer Service Hotline at 8228-8118, or email us at hksales@hilti.com.

Yours faithfully,



Dennis Yeung
Head of Product Leadership Strategy, F&P



Hilti HST3 Wedge Anchor Job Reference

Year	Project Name	Customer Name	Project type
2022	CINGLEOT LOGISTICS CENTRE, AIRPORT - ALIBABA	KWAN HO CEILING COMPANY	Industrial
2022	HKIA C18W02 ITT TERMINAL	KEE SEE ENGINEERING CO LTD	Transport
2022	UNITED CHRISTIAN HOSPITAL	CHOI KEE ENGINEERING (H.K.) CO LTD	Health
2022	HKIA 3508 TERMINAL 2	GAMMON ENGINEERING & CONSTRUCTION	Transport
2022	KAI TAK AREA 4B, SITE 1, NKIL 6576	CHINA OVERSEAS BUILDING	Residential
2022	KAI TAK SPORTS PARK	YAU HOP SCAFFOLD GENERAL CONTRACTOR	Sport & Recreation
2022	WEST KOWLOON - LYRIC THEATRE - (IPS)	GAMMON CONSTRUCTION LIMITED	Community & Cultural
2022	HKIA SKYCITY COMPLEX BLDG A2&A3	JUMBO ORIENT CONTRACTING LIMITED	Retail
2022	KAI TAK 1E SITE 2A&B (6557)	HOP HING CONSTRUCTION	Office
2022	YUEN LONG STATION YLTL 510	ACME METAL WORKS (INTERNATIONAL)	Residential
2023	HKIA 3508 TERMINAL 2	EASY SMART ENGINEERING LIMITED	Transport
2023	New - Health - Northern tip of Queen Mary Hospital, 102	ANLEV ELEX ELEVATOR LIMITED	Health
2023	HKIA 3408 3RW CONCOURSE	CHINA RAILWAY FIRST GROUP CO.,LTD	Transport
2023	KAI TAK NEW ACUTE HOSPITAL (SITE A)	KEI IP ENGINEERING LIMITED	Health
2023	WAN PO RD, TKO TOWN LOT 131 - DATA CENTRE - (I	FU SING ENGINEERING COMPANY LIMITED	Office
2023	WONG CHUK HANG STATION PH3 (SITE C)	CHINA OVERSEAS BUILDING	Residential
2023	KAI TAK SPORTS PARK	CHING KEI METAL MANUFACTURE LIMITED	Sport & Recreation
2023	HO MAN TIN STATION RES (PACKAGE 2)	GAMMON ENGINEERING & CONSTRUCTION	Residential
2023	TAI WAI STATION NW RES	HANG KIN (HK) ENGINEERING LIMITED	Residential
2023	WEST KOWLOON - LYRIC THEATRE - (IPS)	FU SING ENGINEERING COMPANY LIMITED	Community & Cultural
2024	HKIA 3408 3RW CONCOURSE	CHINA RAILWAY FIRST GROUP CO.,LTD	Transport
2024	HKIA C21W02 AUTOMATED CARPARK A AT HKBCF	PAUL Y. - CIMC - JEC JOINT VENTURE	Transport
2024	HKIA 3508 TERMINAL 2	POR KEE AIR CONDITIONING	Transport
2024	KAI TAK NEW ACUTE HOSPITAL (SITE A)	KEI IP ENGINEERING LIMITED	Health
2024	KAI TAK SPORTS PARK	HOP HING CONSTRUCTION	Sport & Recreation
2024	KAM SHEUNG RD STATION PH1, LOT 1040 DD 103	CHINA OVERSEAS BUILDING	Residential
2024	HO MAN TIN STATION RES (PACKAGE 2)	PRO-ECO ENGINEERING LIMITED	Residential
2024	YUEN LONG STATION YLTL 510	JUMBO ORIENT CONTRACTING LIMITED	Residential
2024	UNITED CHRISTIAN HOSPITAL	CHOI KEE ENGINEERING (H.K.) CO LTD	Health
2024	WEST KOWLOON - LYRIC THEATRE - (IPS)	LUEN HOP METAL AND ALUMINIUM	Community & Cultural



Hilti HST3-R Wedge Anchor Job Reference

Year	Project Name	Customer Name	Project type
2022	WONG MA KOK RD, STANLEY (120)	ZUI LOONG COMPANY LIMITED	Residential
2022	6-8 LAI YING ST, NKIL 6549	PERFECT MARBLE COMPANY LIMITED	Residential
2022	TUEN MUN AREA 55 (463) RES	FORERUNNER SPECIALIST LIMITED	Residential
2022	KAI TAK AREA 4B, SITE 3, NKIL 6574	WAH TUNG FACADE COMPANY LIMITED	Residential
2022	SIN FAT RD, KWUN TONG NKIL 6584	LUEN HOP METAL AND ALUMINIUM	Residential
2022	HKIA 3508 TERMINAL 2	ENTASIS LIMITED	Transport
2022	REGENT HONG KONG (FORMER INTERCONTINENTA	FDB FACADE LIMITED	Hospitality
2022	SIU HONG, AREA 54 DD 132 TMTL 483	HANG CHUN METAL WORKS LIMITED	Residential
2022	YUEN LONG STATION YLTL 510	JUMBO ORIENT CONTRACTING LIMITED	Residential
2022	HKIA SKYCITY COMPLEX BLDG A2&A3	MINMETALS CONDO (HONG KONG)	Retail
2023	KAI TAK AREA 4A, SITE 2, NKIL 6554	FAR EAST FACADE (HONG KONG) LIMITED	Residential
2023	KAI TAK AREA 4C, SITE 1, NKIL 6553	FAR EAST FACADE (HONG KONG) LIMITED	Residential
2023	R6 CTL KLN ROUTE-KAI TAK WEST HY/2014/07	GAMMON CONSTRUCTION LIMITED	Infrastructure
2023	KAI TAK AREA 4C, SITE 2, NKIL 6552	FAR EAST FACADE (HONG KONG) LIMITED	Residential
2023	KAI TAK AREA 4A, SITE 1, NKIL 6577	FAR EAST FACADE (HONG KONG) LIMITED	Residential
2023	HO MAN TIN STATION RES (PACKAGE 2)	WAH TUNG FACADE COMPANY LIMITED	Residential
2023	TKO LOHAS PARK PH12 (SITE D)	SUN LAP ENGINEERING HONG KONG LTD	Residential
2023	KAI TAK SPORTS PARK	FAR EAST FACADE (HONG KONG) LIMITED	Sport & Recreation
2023	TKO LOHAS PARK PH11 (SITE C2)	FORERUNNER SPECIALIST LIMITED	Residential
2023	4A-4P SEYMOUR RD	MARMITAR MASONRY H.K. LIMITED	Residential
2024	WONG CHUK HANG STATION PH3 (SITE C)	FAR EAST FACADE (HONG KONG) LIMITED	Residential
2024	HO MAN TIN STATION RES PACKAGE 1	FAR EAST FACADE (HONG KONG) LIMITED	Residential
2024	KAI TAK AREA 4A, SITE 1, NKIL 6577	FAR EAST FACADE (HONG KONG) LIMITED	Residential
2024	KAI TAK AREA 4C, SITE 3, NKIL 6551	FAR EAST FACADE (HONG KONG) LIMITED	Residential
2024	YIN PING RD, TAI WO PING (6542)	PERFECT MARBLE COMPANY LIMITED	Residential
2024	KAI TAK AREA 4C, SITE 1, NKIL 6553	FAR EAST FACADE (HONG KONG) LIMITED	Residential
2024	KAI TAK SPORTS PARK	FAR EAST FACADE (HONG KONG) LIMITED	Sport & Recreation
2024	HO MAN TIN STATION RES (PACKAGE 2)	PERFECT MARBLE COMPANY LIMITED	Residential
2024	TKO LOHAS PARK PH11 (SITE C2)	MARMITAR MASONRY H.K. LIMITED	Residential
2024	KAI TAK AREA 1F1 (6568) ELDERLY	FAR EAST FACADE (HONG KONG) LIMITED	Residential