



Hilti HSL3-R Heavy-Duty Wedge Anchor

Submission Folder

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Heavy-duty expansion anchor HSL-3



BASE MATERIALS

- Concrete (cracked)
- Concrete (uncracked)

APPLICATIONS

- Heavy-duty fastenings in high safety-relevant or dynamic applications, including applications in nuclear power plants
- Heavy-duty applications e.g machines, heavy equipment, steel columns, heavy pipe supports, pumps, beam supports, medical equipment, cantilevers, cranes, car hoists, etc.

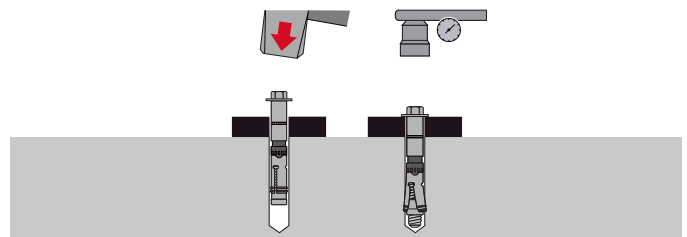
ADVANTAGES

- High tension and shear load capacities
- Force-controlled expansion which allows follow-up expansion

Approvals

BZS/shock	BZS D 08-601 for HSL-3 heavy-duty expansion anchor
ETA	ETA 02/0042 for HSL-3 heavy-duty expansion anchor (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	(Galvanised) Bolt; steel, 8.8 grade, zinc plated (min. 5µm) (Stainless steel) Steel, A4 (SS316)
Head configuration	Hexagonal bolt, stud, countersunk and torque control
Type of fastening	Through-fastening
Approvals / Test reports	BZS/shock, ET, Fatigue, Fire, Nuclear (NQA-1). Seismic
IBC compliance	IBC 2003, IBC 2006, IBC 2009, IBC 2012

Technical data

Recommended load (kN), concrete grade 25N/mm², standard embedment depth, safety factor(γ)=3

		Un-cracked concrete						Cracked Concrete					
Model		M8	M10	M12	M16	M20	M24	M8	M10	M12	M16	M20	M24
Tension	HSL-3/HSL-3-G/HSL-3-SK ¹ /HSL-3-B	7.8	9.9	12.0	16.8	23.5	30.9	4.0	5.3	8.6	12.0	16.8	22.0
	HSL-3-R/HSL-3-GR/HSL-3-SKR ⁴	6.7	9.9	12.0	16.8	23.5	-	4.0	5.3	8.6	12.0	16.8	-
Shear	HSL-3/HSL-3-SK ¹ /HSL-3-B	10.4	19.7	24.1	33.7	47.1	61.8	10.0	14.1	17.2	24.0	33.5	44.1
	HSL-3-G	8.7	13.9	19.8	33.7	47.1	61.8	8.7	13.9	17.2	24.0	33.5	44.1
	HSL-3-R/HSL-3-SKR ⁴	15.6	19.7	24.1	33.7	47.1	-	11.2	14.1	17.2	24.0	33.5	-
	HSL-3-GR	13.4	19.6	24.1	33.7	47.1	-	11.2	14.1	17.2	24.0	33.5	-

Remarks:

1. All the data applies to no edge distance, spacing and other influences.
2. For detail design method 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 deeper embedments
4. HSL-3-SK and HSL-3-SKR only available in sizes M8-M12

HSL-3-R (Hexagonal bolt head, stainless steel A4)



Order Now



Ordering designation	Anchor Length	Anchor size	Drill bit diameter	Fixture thickness, tfix,1	Fixture thickness, tfix,2	Min. drilling depth for fixture thickness, tfix,1	Min. drilling depth for fixture thickness, tfix,2	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HSL-3-R M8 20/-/-	98	M8	12 mm	20 mm	-	80 mm	-	14 mm	25 Nm	40 pc	2159877 ¹⁾
HSL-3-R M8 40/20/-	118	M8	12 mm	40 mm	20 mm	80 mm	100 mm	14 mm	25 Nm	40 pc	2159878 ¹⁾
HSL-3-R M10 20/-/-	110	M10	15 mm	20 mm	-	90 mm	-	17 mm	35 Nm	20 pc	2159980 ¹⁾
HSL-3-R M10 40/20/-	130	M10	15 mm	40 mm	20 mm	90 mm	110 mm	17 mm	35 Nm	20 pc	2159981 ¹⁾
HSL-3-R M12 25/-/-	131	M12	18 mm	25 mm	-	105 mm	-	20 mm	80 Nm	20 pc	2159983
HSL-3-R M12 50/25/-	156	M12	18 mm	50 mm	25 mm	105 mm	130 mm	20 mm	80 Nm	10 pc	2159984
HSL-3-R M16 25/-/-	153	M16	24 mm	25 mm	-	125 mm	-	26 mm	120 Nm	10 pc	2159986
HSL-3-R M16 50/25/-	178	M16	24 mm	50 mm	25 mm	125 mm	150 mm	26 mm	120 Nm	10 pc	2159987
HSL-3-R M20 30/-/-	183	M20	28 mm	30 mm	-	155 mm	-	31 mm	200 Nm	6 pc	2159989
HSL-3-R M20 60/30/-	213	M20	28 mm	60 mm	30 mm	155 mm	185 mm	31 mm	200 Nm	6 pc	2159990

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

HSL-3-GR (Stud head, stainless steel A4)



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Ordering designation	Anchor Length	Anchor size	Drill bit diameter	Fixture thickness, tfix,1	Fixture thickness, tfix,2	Fixture thickness, tfix,3	Min. drilling depth for fixture thickness, tfix,1	Min. drilling depth for fixture thickness, tfix,2	Min. drilling depth for fixture thickness, tfix,3	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HSL-3-GR M8 20/-/-	102	M8	12 mm	20 mm	-	-	80 mm	-	-	14 mm	30 Nm	40 pc	2159992 ¹⁾
HSL-3-GR M8 100/80/60	182	M8	12 mm	100 mm	80 mm	60 mm	80 mm	100 mm	120 mm	14 mm	30 Nm	40 pc	2159994 ¹⁾
HSL-3-GR M10 20/-/-	115	M10	15 mm	20 mm	-	-	90 mm	-	-	17 mm	50 Nm	20 pc	2159995 ¹⁾
HSL-3-GR M10 100/80/60	195	M10	15 mm	100 mm	80 mm	60 mm	90 mm	110 mm	130 mm	17 mm	50 Nm	20 pc	2159997 ¹⁾
HSL-3-GR M12 25/-/-	139	M12	18 mm	25 mm	-	-	105 mm	-	-	20 mm	80 Nm	20 pc	2159998
HSL-3-GR M12 100/75/50	214	M12	18 mm	100 mm	75 mm	50 mm	105 mm	130 mm	155 mm	20 mm	80 Nm	10 pc	2160000
HSL-3-GR M16 25/-/-	163	M16	24 mm	25 mm	-	-	125 mm	-	-	26 mm	120 Nm	10 pc	2160001
HSL-3-GR M16 100/75/50	238	M16	24 mm	100 mm	75 mm	50 mm	125 mm	150 mm	175 mm	26 mm	120 Nm	10 pc	2160003
HSL-3-GR M20 30/-/-	190	M20	28 mm	30 mm	-	-	155 mm	-	-	31 mm	200 Nm	6 pc	2160004
HSL-3-GR M20 100/70/40	260	M20	28 mm	100 mm	70 mm	40 mm	155 mm	185 mm	215 mm	31 mm	200 Nm	6 pc	2160006

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

HSL-3-SKR (Countersunk head, stainless steel A4)



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Ordering designation	Anchor Length	Anchor size	Drill bit diameter	Fixture thickness	Min. drilling depth	Diameter of countersunk hole in fixture, df	Max. diameter of clearance hole, dh	Required tightening torque	Sales pack quantity	Item number
HSL-3-SKR M8/10	80	M8	12 mm	10 mm	80 mm	22.5 mm	14 mm	18 Nm	40 pc	2159873 ¹⁾
HSL-3-SKR M8/20	90	M8	12 mm	20 mm	80 mm	22.5 mm	14 mm	18 Nm	40 pc	2159874 ¹⁾
HSL-3-SKR M10/20	102	M10	15 mm	20 mm	90 mm	25.5 mm	17 mm	50 Nm	20 pc	2159875 ¹⁾
HSL-3-SKR M12/25	120	M12	18 mm	25 mm	105 mm	32.9 mm	20 mm	80 Nm	20 pc	2159876 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

HSL-3 Expansion anchor

Ultimate-performance heavy-duty expansion anchor

Anchor technology & design

Heavy / medium duty metal anchors

Plastic / light duty / other metal anchors

Chemical anchors

Anchor versions



HSL-3
HSL-3-R
Bolt/Hex version
(M8-M24) ^{a)}



HSL-3-G
HSL-3-GR
Threaded rod version
(M8-M24) ^{a)}



HSL-3-B
Safety cap version
(M12-M24) ^{a)}



HSL-3-SK
HSL-3-SKR
Countersunk version
(M8-M12) ^{a)}

Benefits

- Suitable for cracked concrete C20/25 to C50/60
- Suitable for all dynamic loads: seismic ^{b)} C1 and C2 ^{c)}, shock and fatigue
- Can be installed with hammer or diamond drilling ^{d)} for same performance
- Top shear performance due to high strength expansion and shear sleeves
- Automatic torque control with HSL-3-B
- Length can be customized to a specific project need
- Easily removable for temporary fastening or retrofit

Base material



Uncracked concrete



Cracked concrete
(Tension zone)

Load conditions



Static/
quasi-static



Seismic
ETA-C1, C2



Fatigue



Shock



Fire
resistance

Installation conditions



Hammer
drilled holes



Diamond
cored holes ^{e)}



Variable
embedment
depth



European
Technical
Assessment



CE
conformity



PROFIS
Anchor design
software



Corrosion
resistance

Other information

Approvals / certificates

Description	Authority / Laboratory	No. / date of issue
European technical assessment ^{d)}	CSTB, Marne-la-Vallée	ETA-02/0042 / 2017-11-22
Fire test report	CSTB, Marne-la-Vallée	ETA-02/0042 / 2017-11-22
ICC-ES report incl. seismic ^{e)}	ICC evaluation service	ESR 1545 / 2017-01
Shock approval ^{f)}	Civil Protection of Switzerland	BZS D 08-601
Fire performance	Exova Warringtonfire	WF 327804/A / 2013-07-10
ACI 349-01 nuclear suitability ^{f)}	Wollmershauser consulting	WC 11-02 / 2011-09

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

b) Please contact your Hilti representative for seismic resistance data

c) Condition valid only for HSL-3 carbon steel version

d) All data given in this section according to ETA-02/0042, issue 2017-11-22.

e) For more details on technical data according to ICC, please contact your Hilti representative

f) Certificate valid only for HSL-3 / HSL-3-G / HSL-3-B / HSL-3-SK

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 with expansion sleeve and collapsible element, 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
- Anchor shall be partially removable
- Anchor must conform to shock proof fastening according to Swiss Federal Office for Civil Protection (FOCP) or equivalent authority
- Anchor shall be installed as per the manufacturer's approved procedure and equipment
- 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 HSL-3

- Anchor shall be approved for installation in 3 embedment depths or setting positions
- Anchor head finish to be a hex type with integrated washer
- Anchor shall have corrosion resistance of min. 5µm galvanization

For HSL-3-R

- Anchor shall be approved for installation in 3 embedment depths or setting positions
- Anchor shall have corrosion resistance of A4 stainless steel
- Anchor shall have identification marks on the bolt head that can be used to verify the material type and anchor length during inspection
- Anchor head finish to be a hex type with integrated washer

For HSL-3-G

- Anchor shall be approved for installation in 3 embedment depths or setting positions
- Anchor shall have corrosion resistance of min. 5µm galvanization

For HSL-3-GR

- Anchor shall be approved for installation in 3 embedment depths or setting positions
- Anchor shall have corrosion resistance of A4 stainless steel

For HSL-3-SK

- Anchor head finish to be a countersunk type with integrated washer
- Anchor shall have corrosion resistance of min. 5µm galvanization

For HSL-3-SKR

- Anchor head finish to be a countersunk type with integrated washer
- Anchor shall have corrosion resistance of A4 stainless steel

For HSL-3-B

- Anchor shall have a torque indicator head "red cap" feature to ensure safe installation without the use of a calibrated torque wrench
- Anchor shall have corrosion resistance of min. 5µm galvanization

Basic loading data (for a single anchor)

All data in this section applies to:

- Static and quasi-static loading
- Correct setting (see setting instruction)
- No edge distance and spacing influence
- **Steel** failure
- Minimum base material thickness
- Concrete C 20/25, $f_{ck,cube} = 25 \text{ N/mm}^2$. Concrete strength influence factor can be applied if concrete grade > C20/25, when steel failure does not govern.
- Values for HSL-3-R, HSL-3-SKR and HSL-3-GR only applicable for hammer drilling.

Effective anchorage depth

Anchor size ^{a)}		M8			M10			M12		
		$h_{ef,1}^{b)}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}^{b)}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}^{b)}$	$h_{ef,2}$	$h_{ef,3}$
Eff. Anchorage depth	h_{ef} [mm]	60	80	100	70	90	110	80	105	130
Anchor size ^{a)}		M16			M20			M24		
		$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$
Eff. Anchorage depth	h_{ef} [mm]	100	125	150	125	155	185	150	180	210

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

b) HSL-3-SK and HSL-3-SKR can only be set in position 1

Characteristic resistance

Anchor size ^{a)}		M8			M10			M12					
Non-cracked concrete													
Tension N_{Rk}	HSL-3 / HSL-3-B HSL-3-G HSL-3-SK ^{b)}	[mm]	23,5	29,3	29,3	29,6	43,1	46,4	36,1	54,3	67,4		
	HSL-3-R / HSL-3-SKR ^{b)} HSL-3-GR		20,0	20,0	20,0	29,6	40,6	40,6	36,1	50,0	50,0		
	Shear V_{Rk}		HSL-3 / HSL-3-B HSL-3-G HSL-3-SK ^{b)}	[mm]	31,1	31,1	31,1	59,2	60,5	60,5	72,3	89,6	89,6
HSL-3-R, HSL-3-SKR ^{b)} HSL-3-GR		26,1	26,1		26,1	41,8	41,8	41,8	59,3	59,3	59,3		
Cracked concrete		HSL-3 / HSL-3-B HSL-3-G HSL-3-SK ^{b)}	[mm]		12,0	12,0	12,0	16,0	16,0	16,0	25,8	24,0	24,0
		HSL-3-R / HSL-3-SKR ^{b)} HSL-3-GR			12,0	12,0	12,0	16,0	16,0	16,0	25,8	24,0	24,0
	Shear V_{Rk}	HSL-3 / HSL-3-B HSL-3-G HSL-3-SK ^{b)}		[mm]	30,1	31,1	31,1	42,2	60,5	60,5	51,5	77,5	89,6
HSL-3-R, HSL-3-SKR ^{b)} HSL-3-GR		26,1	26,1		26,1	41,8	41,8	41,8	51,5	59,3	59,3		
Cracked concrete		HSL-3 / HSL-3-B HSL-3-G HSL-3-SK ^{b)}	[mm]		50,5	65,0	65,0	70,6	95,0	95,0	92,8	100,0	100,0
		HSL-3-R HSL-3-GR			50,5	65,0	65,0	70,6	95,0	95,0	-	-	-
	Shear V_{Rk}	HSL-3 / HSL-3-B HSL-3-G HSL-3-R HSL-3-GR		[mm]	101,0	141,2	158,5	141,2	186,0	186,0	185,5	204,5	204,5
HSL-3-G HSL-3-R HSL-3-GR		101,0	120,6		120,6	141,2	155,3	155,3	185,5	204,5	204,5		
Cracked concrete		HSL-3 / HSL-3-B HSL-3-G HSL-3-R HSL-3-GR	[mm]		36,0	36,0	36,0	50,3	50,0	50,0	66,1	65,0	65,0
		HSL-3-R HSL-3-GR			36,0	36,0	36,0	50,3	50,0	50,0	-	-	-
	Shear V_{Rk}	HSL-3 / HSL-3-B HSL-3-G HSL-3-R HSL-3-GR		[mm]	72,0	100,6	132,3	100,6	138,9	181,2	132,3	173,9	204,5
HSL-3-G HSL-3-R HSL-3-GR		72,0	100,6		120,6	100,6	138,9	155,3	132,3	173,9	204,5		
Cracked concrete		HSL-3 / HSL-3-B HSL-3-G HSL-3-R HSL-3-GR	[mm]		72,0	100,6	127,7	100,6	138,9	154,8	-	-	-
		HSL-3-G HSL-3-R HSL-3-GR			72,0	100,6	129,5	100,6	138,9	151,9	-	-	-

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

b) HSL-3-SK and HSL-3-SKR only available in sizes M8-M12 and can only be set in position 1

Design resistance ^{a)}

Anchor size ^{b)}		M8			M10			M12		
Non-cracked concrete										
Tension N_{Rk}	HSL-3 / HSL-3-B HSL-3-G HSL-3-SK ^{c)} [mm]	13,0	19,5	19,5	19,7	28,7	30,9	24,1	36,2	44,9
	HSL-3-R / HSL-3-SKR ^{c)} HSL-3-GR	13,3	13,3	13,3	19,7	21,7	21,7	24,1	31,6	31,6
Shear V_{Rk}	HSL-3 / HSL-3-B	24,9	24,9	24,9	39,4	48,4	48,4	48,2	71,7	71,7
	HSL-3-G	20,9	20,9	20,9	33,4	33,4	33,4	47,4	47,4	47,4
	HSL-3-SK ^{c)} [mm]	24,9	-	-	39,4	-	-	48,2	-	-
	HSL-3-R, HSL-3-SKR	31,3	40,7	40,7	39,4	41,0	41,0	48,2	53,1	53,1
HSL-3-GR	31,3	32,2	32,2	39,4	47,1	47,1	48,2	63,0	63,0	
Cracked concrete										
Tension N_{Rk}	HSL-3 / HSL-3-B HSL-3-G HSL-3-SK ^{c)} [mm]	6,7	6,7	6,7	10,7	10,7	10,7	17,2	16,0	16,0
	HSL-3-R / HSL-3-SKR ^{c)} HSL-3-GR	8,0	8,0	8,0	10,7	10,7	10,7	17,2	16,0	16,0
Shear V_{Rk}	HSL-3 / HSL-3-B	20,1	24,9	24,9	28,1	41,0	48,4	34,3	51,6	71,1
	HSL-3-G	20,1	20,9	20,9	28,1	33,4	33,4	34,3	47,4	47,4
	HSL-3-SK ^{c)} [mm]	20,1	-	-	28,1	-	-	34,3	-	-
	HSL-3-R, HSL-3-SKR ^{c)}	22,3	34,4	40,7	28,1	41,0	41,0	34,3	51,6	53,1
HSL-3-GR	22,3	32,2	32,2	28,1	41,0	47,1	34,3	51,6	63,0	
Anchor size ^{b)}		M16			M20			M24		
Non-cracked concrete										
Tension N_{Rk}	HSL-3 / HSL-3-B HSL-3-G [mm]	33,7	43,3	43,3	47,1	63,3	63,3	61,8	66,7	66,7
	HSL-3-R HSL-3-GR	33,7	43,3	43,3	47,1	63,3	63,3	-	-	-
Shear V_{Rk}	HSL-3 / HSL-3-B	67,3	94,1	123,7	94,1	129,9	148,8	123,7	162,6	163,6
	HSL-3-G	67,3	94,1	96,5	94,1	124,2	124,2	123,7	162,6	163,6
	HSL-3-R	67,3	81,9	81,9	94,1	99,2	99,2	-	-	-
	HSL-3-GR	67,3	94,1	103,6	94,1	121,5	121,5	-	-	-
Cracked concrete										
Tension N_{Rk}	HSL-3 / HSL-3-B HSL-3-G [mm]	24,0	24,0	24,0	33,5	33,3	33,3	44,1	43,3	43,3
	HSL-3-R HSL-3-GR	24,0	24,0	24,0	33,5	33,3	33,3	-	-	-
Shear V_{Rk}	HSL-3 / HSL-3-B	48,0	67,1	88,2	67,1	92,6	120,8	88,2	115,9	146,1
	HSL-3-G	48,0	67,1	88,2	67,1	92,6	120,8	88,2	115,9	146,1
	HSL-3-R	48,0	67,1	81,9	67,1	92,6	99,2	-	-	-
	HSL-3-GR	48,0	67,1	88,2	67,1	92,6	120,8	-	-	-

a) Includes material partial factor according to ETA-02/0042, issue 2017-11-22

b) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

c) HSL-3-SK and HSL-3-SKR only available in sizes M8-M12 and can only be set in position 1

Recommended loads ^{a)}

Anchor size ^{b)}		M8			M10			M12		
Non-cracked concrete										
Tension N_{Rec}	HSL-3 / HSL-3-B HSL-3-G HSL-3-SK ^{c)} [mm]	7,8	9,8	9,8	9,9	14,4	15,5	12,0	18,1	22,5
	HSL-3-R / HSL-3-SKR ^{c)} HSL-3-GR	6,7	6,7	6,7	9,9	13,5	13,5	12,0	16,7	16,7
Shear V_{Rec}	HSL-3 / HSL-3-B	10,4	10,4	10,4	19,7	20,2	20,2	24,1	29,9	29,9
	HSL-3-G	8,7	8,7	8,7	13,9	13,9	13,9	19,8	19,8	19,8
	HSL-3-SK ^{c)} [mm]	10,4	-	-	19,7	-	-	24,1	-	-
	HSL-3-R, HSL-3-SKR ^{c)}	15,6	17,0	17,0	19,7	21,3	21,3	24,1	27,6	27,6
HSL-3-GR	13,4	13,4	13,4	19,6	19,6	19,6	24,1	26,2	26,2	
Cracked concrete										
Tension N_{Rec}	HSL-3 / HSL-3-B HSL-3-G HSL-3-SK ^{c)} [mm]	4,0	4,0	4,0	5,3	5,3	5,3	8,6	8,0	8,0
	HSL-3-R / HSL-3-SKR ^{c)} HSL-3-GR	4,0	4,0	4,0	5,3	5,3	5,3	8,6	8,0	8,0
Shear V_{Rec}	HSL-3 / HSL-3-B	10,0	10,4	10,4	14,1	20,2	20,2	17,2	25,8	29,9
	HSL-3-G	8,7	8,7	8,7	13,9	13,9	13,9	17,2	19,8	19,8
	HSL-3-SK ^{c)} [mm]	10,0	-	-	14,1	-	-	17,2	-	-
	HSL-3-R, HSL-3-SKR ^{c)}	11,2	17,0	17,0	14,1	20,5	21,3	17,2	25,8	27,6
HSL-3-GR	11,2	13,4	13,4	14,1	19,6	19,6	17,2	25,8	26,2	
Anchor size ^{b)}		M16			M20			M24		
Non-cracked concrete										
Tension N_{Rec}	HSL-3 / HSL-3-B HSL-3-G [mm]	16,8	21,7	21,7	23,5	31,7	31,7	30,9	33,3	33,3
	HSL-3-R HSL-3-GR	16,8	21,7	21,7	23,5	31,7	31,7	-	-	-
Shear V_{Rec}	HSL-3 / HSL-3-B	33,7	47,1	52,8	47,1	62,0	62,0	61,8	68,2	68,2
	HSL-3-G	33,7	40,2	40,2	47,1	51,8	51,8	61,8	68,2	68,2
	HSL-3-R	33,7	42,6	42,6	47,1	51,6	51,6	-	-	-
	HSL-3-GR	33,7	43,2	43,2	47,1	50,6	50,6	-	-	-
Cracked concrete										
Tension N_{Rec}	HSL-3 / HSL-3-B HSL-3-G [mm]	12,0	12,0	12,0	16,8	16,7	16,7	22,0	21,7	21,7
	HSL-3-R HSL-3-GR	12,0	12,0	12,0	16,8	16,7	16,7	-	-	-
Shear V_{Rec}	HSL-3 / HSL-3-B	24,0	33,5	44,1	33,5	46,3	60,4	44,1	58,0	68,2
	HSL-3-G	24,0	33,5	40,2	33,5	46,3	51,8	44,1	58,0	68,2
	HSL-3-R	24,0	33,5	42,6	33,5	46,3	51,6	-	-	-
	HSL-3-GR	24,0	33,5	43,2	33,5	46,3	50,6	-	-	-

a) Includes global safety factor of 3.0

b) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

c) HSL-3-SK and HSL-3-SKR only available in sizes M8-M12 and can only be set in position 1

 Anchor technology & design
 Heavy / medium duty metal anchors
 Plastic / light duty / other metal anchors
 Chemical anchors

Materials

Mechanical properties

Anchor size		M8	M10	M12	M16	M20	M24	
HSL-3, HSL-3-G, HSL-3-B, HSL-3-SK								
Nominal tensile strength f_{uk}	[N/mm ²]	800	800	800	800	830	830	
Yield strength f_{yk}	[N/mm ²]	640	640	640	640	640	640	
Stressed cross-section A_s	[mm ²]	36,6	58,0	84,3	157	245	353	
Moment of resistance W	[mm ³]	31,3	62,5	109,4	277,1	540,6	935,4	
Design bending resistance without sleeve $M_{Rk,s}^0$	[Nm]	24,0	48,0	84,0	212,8	415,2	718,4	
HSL-3-R, HSL-3-GR, HSL-3-SKR								
Nominal tensile strength f_{uk}	[N/mm ²]	700	700	700	700	700	-	
Yield strength f_{yk}	HSL-3-R	[N/mm ²]	560	450	450	450	450	-
	HSL-3-SKR		560	560	560	560	560	-
	HSL-3-GR		560	560	560	560	560	-
Stressed cross-section A_s	[mm ²]	36,6	58,0	84,3	157	245	-	
Moment of resistance W	[mm ³]	31,3	62,5	109,4	277,1	540,6	-	
Design bending resistance without sleeve $M_{Rk,s}^0$	[Nm]	16,8	33,5	58,8	149,4	291,3	-	

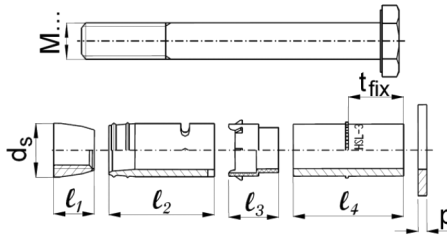
Material quality

Part	Material
Carbon steel	
HSL-3 Cone	Carbon steel, galvanized to $\geq 5 \mu\text{m}$
HSL-3-G Expansion sleeve	Carbon steel, galvanized to $\geq 5 \mu\text{m}$
HSL-3-B Collapsible element	POM Plastic element
HSL-3-SK Distance sleeve	Carbon steel, galvanized to $\geq 5 \mu\text{m}$
HSL-3 Washer	Carbon steel, galvanized to $\geq 5 \mu\text{m}$
	Hexagonal bolt
HSL-3-G Hexagonal nut	Carbon steel, galvanized to $\geq 5 \mu\text{m}$
	Threaded rod
HSL-3-B Hexagonal bolt with safety cap	Carbon steel, galvanized to $\geq 5 \mu\text{m}$, rupture elongation $\geq 12\%$
HSL-3-SK Countersunk bolt	Carbon steel, galvanized to $\geq 5 \mu\text{m}$, rupture elongation $\geq 12\%$
	Cup washer
Stainless steel	
HSL-3-R Cone	Stainless steel A4, coated
	Expansion sleeve
HSL-3-GR Collapsible element	Plastic element
HSL-3-SKR Distance sleeve	Stainless steel A4
HSL-3-R Washer	Stainless steel A4, coated
	Hexagonal bolt
HSL-3-GR Hexagonal nut	Stainless steel A4, coated
	Threaded rod
HSL-3-SKR Countersunk bolt	Stainless steel A4, coated, rupture elongation $\geq 12\%$
	Cup washer

Anchor dimensions of HSL-3, HSL-3-G, HSL-3-B, HSL-3-SK ^{a)}

Anchor version	Thread size	t _{fix} [mm] a)		d _s [mm]	l ₁ [mm]	l ₂ [mm]	l ₃ [mm]	l ₄ [mm]		p [mm]
		min	max					min	max	
HSL-3	M8	5	200	11,9	12	32	15,2	19	214	2
HSL-3-G	M10	5	200	14,8	14	36	17,2	23	218	3
HSL-3	M12	5	200	17,6	17	40	20	28	223	3
HSL-3-G	M16	10	200	23,6	20	54,4	24,4	34,5	224,5	4
HSL-3-B	M20	10	200	27,6	20	57	31,5	51	241	4
HSL-3 HSL-3-B	M24	10	200	31,6	22	65	39	57	247	4
HSL-3-SK	M8	10	20	11,9	12	32	15,2	18,2	28,2	2
	M10	20		14,8	14	36	17,2	32,2		3
	M12	25		17,6	17	40	20	40		3

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio



Material code for identification of different materials

Type	HSL-3 HSL-SK	HSL-3-B	HSL-3-R	HSL-3-SKR
Material code				

Letter code for anchor length and maximum thickness of the fixture t_{fix}

Type	HSL-3-R, HSL-GR				
Size	M8	M10	M12	M16	M20
Letter	$t_{fix,1}/t_{fix,2}/t_{fix,3}$	$t_{fix,1}/t_{fix,2}/t_{fix,3}$	$t_{fix,1}/t_{fix,2}/t_{fix,3}$	$t_{fix,1}/t_{fix,2}/t_{fix,3}$	$t_{fix,1}/t_{fix,2}/t_{fix,3}$
y	20/- ¹⁾²⁾	20/- ¹⁾²⁾	3)	3)	3)
x	1)	3)	25/- ¹⁾²⁾	25/- ¹⁾²⁾	3)
w	3)	3)	3)	3)	30/- ¹⁾²⁾
c	40/20/- ¹⁾²⁾	40/20/- ¹⁾ 100/80/60 ²⁾	3)	3)	3)
b	3)	3)	50/25/- ¹⁾ 100/75/50 ²⁾	50/25/- ¹⁾ 100/75/50 ²⁾	3)
a	100/80/60 ²⁾	3)	3)	3)	60/30/- ¹⁾ 100/70/40 ²⁾

1) HSL-3-R standard items

2) HSL-3-GR standard items

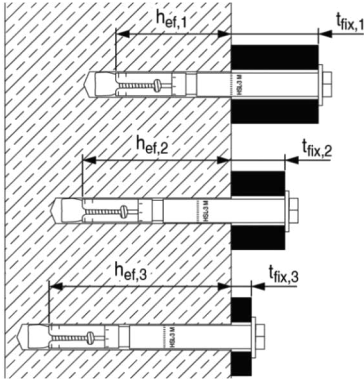
3) There are no standard items, please check with your Hilti representative for availability of special items

Type	HSL-3-SKR		
Size	M8	M10	M12
Letter	$t_{fix,1}$	$t_{fix,1}$	$t_{fix,1}$
z	10	1)	1)
y	20	20	1)
x	1)	1)	25

1) There are no standard items, please check with your Hilti representative for availability of special items

Setting information

Setting positions ^{a)}



Setting position

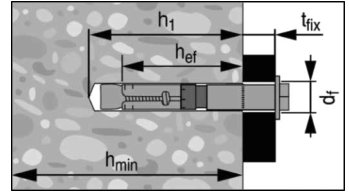
①

Setting position

②

Setting position

③



a) HSL-3-SK and HSL-3-SKR can only be set in position 1.

Setting details for HSL-3 / HSL-3-R

Anchor version		M8			M10			M12		
Nominal diameter of drill bit	d_0 [mm]	12			15			18		
Max. cutting diameter of drill bit	d_{cut} [mm]	12,5			15,5			18,5		
Max. diameter of clearance hole in the fixture	d_f [mm]	14			17			20		
Setting position	i	①	②	③	①	②	③	①	②	③
Fixture thickness ^{a)}	$t_{fix,1}$ [mm]	5-200			5-200			5-200		
Effective fixture thickness	$t_{fix,i}$	$t_{fix,1}^{(1)} - \Delta i$								
Reduction of fixture thickness	Δi [mm]	0	20	40	0	20	40	0	25	50
Effective anchorage depth	$h_{ef,i}$ [mm]	60	80	100	70	90	110	80	105	130
Min. depth of drill hole	$h_{t,i}$ [mm]	80	100	120	90	110	130	105	130	155
Min. thickness of concrete member	$h_{min,i}$ [mm]	120	170	195	140	195	215	160	225	250
Width across flats	SW [mm]	13			17			19		
Installation torque ^{c)}	T_{inst} [Nm]	25			50 (35)			80		
Anchor version		M16			M20			M24 ^{b)}		
Nominal diameter of drill bit	d_0 [mm]	24			28			32		
Max. cutting diameter of drill bit	d_{cut} [mm]	24,55			28,55			32,7		
Max. diameter of clearance hole in the fixture	d_f [mm]	26			31			35		
Setting position	i	①	②	③	①	②	③	①	②	③
Fixture thickness ^{a)}	$t_{fix,1}$ [mm]	10-200			10-200			10-200		
Effective fixture thickness	$t_{fix,i}$	$t_{fix,1}^{(1)} - \Delta i$								
Reduction of fixture thickness	Δi [mm]	0	25	50	0	30	60	0	30	60
Effective anchorage depth	$h_{ef,i}$ [mm]	100	125	150	125	155	185	150	180	210
Min. depth of drill hole	$h_{t,i}$ [mm]	125	150	175	155	185	215	180	210	240
Min. thickness of concrete member	$h_{min,i}$ [mm]	200	275	300	250	380	410	300	405	435
Width across flats	SW [mm]	24			30			36		
Installation torque ^{c)}	T_{inst} [Nm]	120			200			250		

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

b) Size M24 only approved for carbon steel version.

c) Value in brackets where applicable are for the stainless steel version

Setting details for HSL-3-G / HSL-3-GR

Anchor version		M8			M10			M12		
		①	②	③	①	②	③	①	②	③
Nominal diameter of drill bit	d_0 [mm]	12			15			18		
Max. cutting diameter of drill bit	d_{cut} [mm]	12,5			15,5			18,5		
Max. diameter of clearance hole in the fixture	d_f [mm]	14			17			20		
Setting position	i	①	②	③	①	②	③	①	②	③
Fixture thickness ^{a)}	$t_{fix,1}$ [mm]	5-200			5-200			5-200		
Effective fixture thickness	$t_{fix,i}$	$t_{fix,1}^{(1)} - \Delta i$								
Reduction of fixture thickness	Δi [mm]	0	20	40	0	20	40	0	25	50
Effective anchorage depth	$h_{ef,i}$ [mm]	60	80	100	70	90	110	80	105	130
Min. depth of drill hole	$h_{t,i}$ [mm]	80	100	120	90	110	130	105	130	155
Min. thickness of concrete member ^{c)}	$h_{min,i}$ [mm]	120	170	195 (195)	140	195	215	160	225	250
Width across flats	SW [mm]	13			17			19		
Installation torque ^{c)}	T_{inst} [Nm]	20 (30)			35 (50)			60 (80)		
Anchor version		M16			M20			M24 ^{b)}		
Nominal diameter of drill bit	d_0 [mm]	24			28			32		
Max. cutting diameter of drill bit	d_{cut} [mm]	24,55			28,55			32,7		
Max. diameter of clearance hole in the fixture	d_f [mm]	26			31			35		
Setting position	i	①	②	③	①	②	③	①	②	③
Fixture thickness ^{a)}	$t_{fix,1}$ [mm]	10-200			10-200			10-200		
Effective fixture thickness	$t_{fix,i}$	$t_{fix,1}^{(1)} - \Delta i$								
Reduction of fixture thickness	Δi [mm]	0	25	50	0	30	60	0	30	60
Effective anchorage depth	$h_{ef,i}$ [mm]	100	125	150	125	155	185	150	180	210
Min. depth of drill hole	$h_{t,i}$ [mm]	125	150	175	155	185	215	180	210	240
Min. thickness of concrete member	$h_{min,i}$ [mm]	200	275	300	250	380	410	300	405	435
Width across flats	SW [mm]	24			30			36		
Installation torque ^{c)}	T_{inst} [Nm]	80 (120)			160 (200)			180		

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

b) Size M24 only approved for carbon steel version.


c) Value in brackets where applicable are for the stainless steel version

Setting details for HSL-3-B

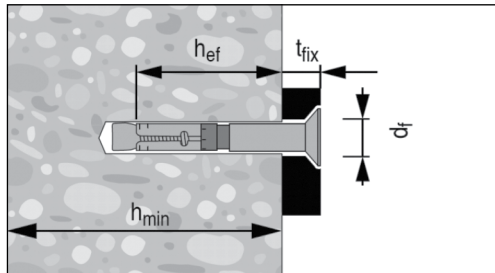
Anchor version		M12			M16			M20			M24		
		①	②	③	①	②	③	①	②	③	①	②	③
Nominal diameter of drill bit	d_0 [mm]	18			24			28			32		
Max. cutting diameter of drill bit	d_{cut} [mm]	18,5			24,55			28,55			32,7		
Max. diameter of clearance hole in the fixture	d_f [mm]	20			26			31			35		
Setting position	i	①	②	③	①	②	③	①	②	③	①	②	③
Fixture thickness ^{a)}	$t_{fix,1}$ [mm]	5 - 200			10 - 200			10 - 200			10 - 200		
Effective fixture thickness	$t_{fix,i}$	$t_{fix,1}^{(1)} - \Delta i$											
Reduction of fixture thickness	Δi [mm]	0	25	50	0	25	50	0	30	60	0	30	60
Effective anchorage depth	$h_{ef,i}$ [mm]	80	105	130	100	125	150	125	155	185	150	180	210
Min. depth of drill hole	$h_{t,i}$ [mm]	105	130	155	125	150	175	155	185	215	180	210	240
Min. thickness of concrete member	$h_{min,i}$ [mm]	160	225	250	200	275	300	250	380	410	300	405	435
Width across flats	SW [mm]	24			30			36			41		
Installation torque	T_{inst} [Nm]	The torque moment is controlled by the safety cap											

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

Setting details for HSL-3-SK / HSL-3-SKR ^{a)}

Anchor version		M8	M10	M12
Nominal diameter of drill bit	d_0 [mm]	12	15	18
Max. cutting diameter of drill bit	d_{cut} [mm]	12,5	15,5	18,5
Max. diameter of clearance hole in the fixture	d_f [mm]	14	17	20
Top diameter of countersunk head in the fixture	d_h [mm]	22,5	25,5	32,9
Bottom diameter of countersunk head in the fixture	d_h [mm]	11,4	14,4	17,4
Height of the countersunk head in the fixture	h_{cs} [mm]	5,8	6,0	8,0
Fixture thickness	t_{fix} [mm]	10 – 20	20	25
Effective anchorage depth	h_{ef} [mm]	60	70	80
Min. depth of drill hole	h_1 [mm]	80	90	105
Min. thickness of concrete member	h_{min} [mm]	120	140	160
Width across flats	SW [mm]	5	6	8
Installation torque ^{b)}	T_{inst} [Nm]	25 (18)	50	80

- a) HSL-3-SK and HSL-3-SKR can only be set in position 1
 b) Value in brackets where applicable are for the stainless steel version



Installation equipment

Anchor size	M8	M10	M12	M16	M20	M24
Rotary hammer	TE 2 – TE 30			TE 40 – TE 80		
Diamond coring ¹⁾	DD 30-W + SPX-T					DD 30-W + SPX-T DD 120 + DD-BI
Other tools	blow out pump, hammer, torque wrench ²⁾					

- 1) Diamond coring not available for HSL-3-R, HSL-3-GR and HSL-3-SKR
 2) HSL-3-B only requires a regular wrench as it automatically ensures correct torque is applied

Anchor size ^{a)}	M8			M10			M12		
Eff. Anchorage depth h_{ef} [mm]	$h_{ef,1}^{b)}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}^{b)}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}^{b)}$	$h_{ef,2}$	$h_{ef,3}$
	60	80	100	70	90	110	80	105	130
Anchor size ^{a)}	M16			M20			M24		
Eff. Anchorage depth h_{ef} [mm]	$h_{ef,1}^{b)}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}^{b)}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}^{b)}$	$h_{ef,2}$	$h_{ef,3}$
	100	125	150	125	155	185	150	180	210

- a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

Setting parameters for HSL-3, HSL-3-G, HSL-3-B, HSL-3-SK

Anchor size ^{a)}		M8			M10			M12		
Setting position	i	①	②	③	①	②	③	①	②	③
Minimum base material thickness	h_{min} [mm]	120	170	190	140	195	215	160	225	250
Critical spacing for concrete cone failure	$s_{cr,N}$ [mm]	180	240	300	210	270	330	240	315	390
Critical edge distance for concrete cone failure	$c_{cr,N}$ [mm]	90	120	150	105	135	165	120	158	195
Critical spacing for splitting failure	$s_{cr,sp}$ [mm]	230	320	400	270	360	550	300	420	520
Critical edge distance for splitting failure	$c_{cr,sp}$	115	160	200	135	180	275	150	210	260
Minimum spacing	s_{min} [mm]	60			70			80		
	for $c \geq$ [mm]	100			100			160		
Minimum edge distance	s_{min} [mm]	60			70			80		
	for $c \geq$ [mm]	100			160			240		
Anchor size ^{a)}		M16			M20			M24		
Setting position	i	①	②	③	①	②	③	①	②	③
Minimum base material thickness	h_{min} [mm]	200	275	300	250	380	410	300	405	435
Critical spacing for concrete cone failure	$s_{cr,N}$ [mm]	300	375	450	375	465	555	450	540	630
Critical edge distance for concrete cone failure	$c_{cr,N}$ [mm]	150	188	225	188	233	278	225	270	315
Critical spacing for splitting failure	$s_{cr,sp}$ [mm]	380	570	680	480	710	850	570	900	1050
Critical edge distance for splitting failure	$c_{cr,sp}$	190	285	340	240	355	425	285	450	525
Minimum spacing	s_{min} [mm]	100			125			150		
	for $c \geq$ [mm]	240			300			300		
Minimum edge distance	s_{min} [mm]	100			150			150		
	for $c \geq$ [mm]	240			300			300		

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

Setting parameters for HSL-3-R, HSL-3-GR, HSL-3-SKR

Anchor size ^{a)}		M8			M10			M12			M16			M20		
Setting position	i	①	②	③	①	②	③	①	②	③	①	②	③	①	②	③
Minimum base material thickness	h_{min} [mm]	120	170	195	140	195	215	160	225	250	200	275	300	250	380	410
Critical spacing for concrete cone failure	$s_{cr,N}$ [mm]	180	240	300	210	270	330	240	315	390	300	375	450	375	465	555
Critical edge distance for concrete cone failure	$c_{cr,N}$ [mm]	90	120	150	105	135	165	120	158	195	150	188	225	188	233	278
Critical spacing for splitting failure	$s_{cr,sp}$ [mm]	340	350	350	440	540	660	530	530	530	480	570	660	670	880	1110
Critical edge distance for splitting failure	$c_{cr,sp}$	170	175	175	220	270	330	265	265	265	240	285	330	335	440	555
Non-cracked concrete																
Minimum spacing	s_{min} [mm]	70			70			80			100			125		
	for $c \geq$ [mm]	100			100			160			240			300		
Minimum edge distance	s_{min} [mm]	70			80			80			100			150		
	for $c \geq$ [mm]	140			160			240			240			300		
Cracked concrete																
Minimum spacing	s_{min} [mm]	70			70			80			100			125		
	for $c \geq$ [mm]	100			120			170			240			300		
Minimum edge distance	s_{min} [mm]	70			120			80			100			150		
	for $c \geq$ [mm]	140			70			240			240			300		

a) Please refer to the product catalogue on the Hilti Hong Kong website for standard portfolio

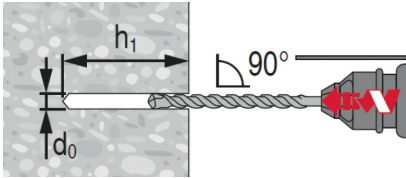
Setting instructions

* For detailed information on installation of each specific HSL-3 versions see instruction for use given with the package of the product.

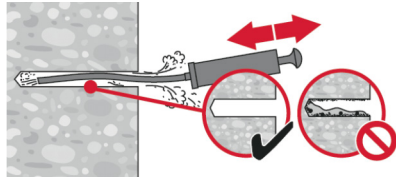
Setting instruction

Hammer drilling

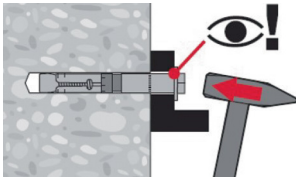
1. Drilling



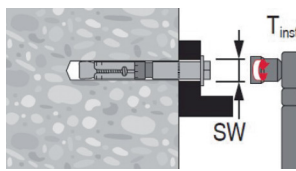
2. Cleaning



3. Installation

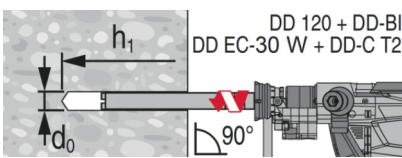


4. Applying tightening torque

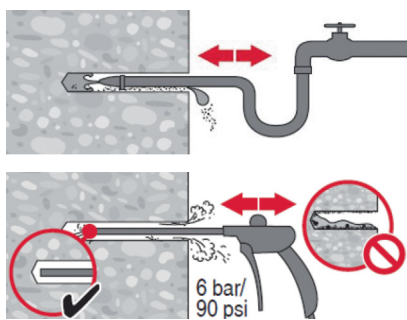


Diamond drilling for HSL-3, HSL-3-B, HSL-3-G, HSL-3-SK

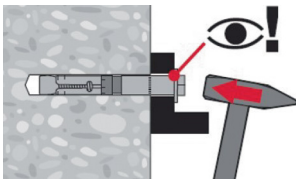
1. Drilling



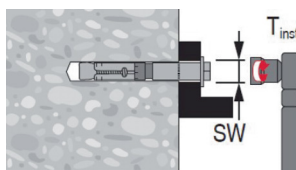
2. Cleaning



3. Installation



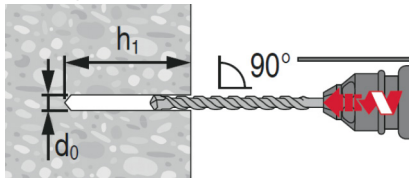
4. Applying tightening torque



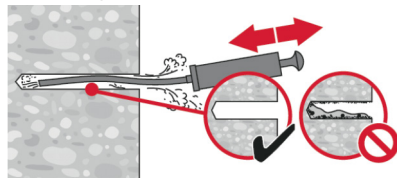
HSL-3-B Safety cap

Hammer drilling

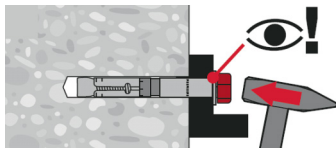
1. Drilling



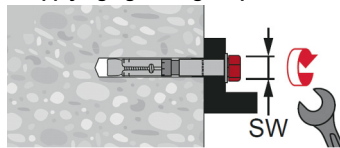
2. Cleaning



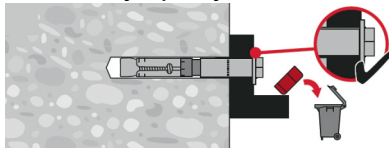
3. Installation



4. Applying tightening torque

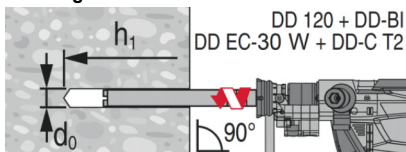


5. Throw safety cup away

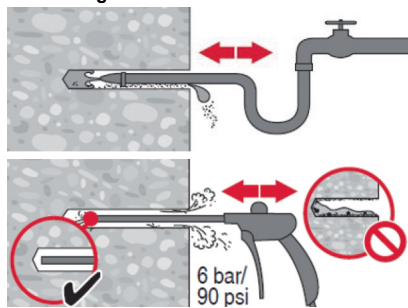


Diamond drilling

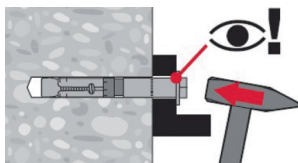
1. Drilling



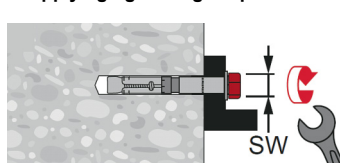
2. Cleaning



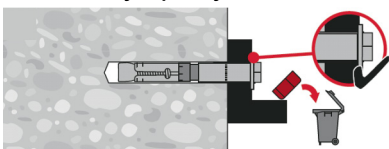
3. Installation



4. Applying tightening torque



5. Throw safety cup away



Attn. : To whom it may concern

Date : 26 September 2023
Ref. : 130/AM/DY/23

Subject : Country of Origin- Hilti HSL-3 Expansion Anchor (Stainless Steel)

Dear Sir / Madam,

Enclosed please find the information of Hilti HSL-3 Expansion Anchor (Stainless Steel).

Brand Name : Hilti

Model Name : Hilti HSL-3-R / HSL-3-GR / HSL-3-SKR

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 : China

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 HSL3-R Heavy-Duty Wedge Anchor Job Reference

Year	Project Name	Customer Name	Project type
2020	SCL 1124 ADMIRALTY SCL RELATED WORK	CHAN CHU KEE ENGINEERING LIMITED	Transport
2020	SCL 1112 HUNG HOM STATION	GOLDFORD ENGINEERING (HK) LIMITED	Transport
2020	Refurbishment - Health - Pamela Youde Nethersole Eastern Hospital,	DOUBLE GAIN ENGINEERING LIMITED	Health
2020	WEST KOWLOON - LYRIC THEATRE	GAMMON CONSTRUCTION LIMITED	Community & Cultural
2020	HK PALACE MUSEUM (HKPM)	SAN PO METAL ENGINEERING LIMITED	Community & Cultural
2020	ARENDELLE (FROZEN) - DISNEYLAND	GAMMON CONSTRUCTION LIMITED	Sport & Recreation
2020	KAI TAK AREA 1L1 (6564)	WAI HING IRON WORKS LIMITED	Residential
2020	New - Hospitality - Penny's Bay, Lantau Island	KINGSMEN HONG KONG LTD	Hospitality
2020	SCL 1123 EXHIBITION STATION	H. F. COMPANY LTD	Infrastructure
2020	TAI WAI STATION NW RES	GOLDWAVE STEEL STRUCTURE	Residential
2020	TKO STAFF QUARTERS (FIRE DEPT)	YAU LEE CURTAIN WALL AND STEEL	Residential
2021	TAIKOO PLACE PH 2B	HOP HING CONSTRUCTION	Office
2021	HKIA C18W02 ITT TERMINAL	ATAL ENGINEERING LIMITED	Transport
2021	KAI TAK AREA 4B, SITE 3, NKIL 6574	CHINA OVERSEAS BUILDING	Residential
2021	KAI TAK AREA 1L2 (6563)	REX LINK (HONG KONG) LIMITED	Residential
2021	HKIA 3508 TERMINAL 2	GAMMON CONSTRUCTION LIMITED	Transport
2021	SAN WAI SEWAGE TREATMENT DC/2013/10	CHINA HARBOUR ENGINEERING CO LTD	Utilities
2021	HKIA 3804 AIRPORT FIRE STATIONS	KAM FUNG ENG. CO	Community & Cultural
2021	TKO LOHAS PARK PH12 (SITE D)	GAMMON ENGINEERING & CONSTRUCTION	Residential
2021	NW KLN RECLAM 6 & FAT TSEUNG ST W		Residential
2021	TIN SHUI WAI T.L.23 TIN WING STOP	YONGNAM ENGINEERING (HK) LIMITED	Residential
2022	KAI TAK SPORTS PARK	HOP FAT STRUCTURAL STEEL	Sport & Recreation
2022	TAI WAI STATION NW RES	HOP FAT STRUCTURAL STEEL	Residential
2022	KAI TAK 1E SITE 2A&B (6557)	LUEN MING E&M ENGINEERING LIMITED	Office
2022	HAVEN OF HOPE HOSPITAL EXT	SAN PO METAL ENGINEERING LIMITED	Health
2022	KWONG WAH HOSPITAL PH2	SUN LUNG DECORATION CO LTD	Health
2022	SCL 1164B BS FOR HK SECTION	LAP KEI LEADER ENGINEERING CO LTD	Transport
2022	SIU HONG, AREA 54 DD 132 TMTL 483	D'ARCH ENGINEERING COMPANY LIMITED	Residential
2022	WAN PO RD, TKO TOWN LOT 131 - DATA CENTRE	SANFIELD (MANAGEMENT) LIMITED	Office
2022	33-47 CATCHICK ST	KRONO CONTRACTING COMPANY	Residential
2022	LANTAU ISLAND EAST (ARTIFICIAL ISLAND NEAR KAU YI CHAU)	EAST GAIN METAL WORKS ENGINEERING	Residential
2023	QUEEN MARY HOSPITAL PH 2	SMARTEP ENGINEERING COMPANY LTD	Health
2023	HKIA 3508 TERMINAL 2	GAMMON E&M LIMITED	Transport
2023	HO MAN TIN STATION RES (PACKAGE 2)	GAMMON ENGINEERING & CONSTRUCTION	Infrastructure
2023	TAI WAI STATION NW RES	KIT YEE ENGINEERING CO., LIMITED	Residential
2023	HKU, HIGH WEST - STUDENT HOSTEL	AGGRESSIVE CONSTRUCTION COMPANY	Residential
2023	WAN CHAI HOPEWELL CENTRE 2	MAN KIT CONSTRUCTION COMPANY	Hospitality
2023	WAN PO RD, TKO TOWN LOT 131 - DATA CENTRE	SANFIELD (MANAGEMENT) LIMITED	Office
2023	R6 CTL KLN ROUTE-CENTRAL TUNNEL HY/2018/08	BOUYGUES TRAVAUX PUBLICS	Infrastructure