



# Hilti HSL4 Heavy-Duty Wedge Anchor

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# Heavy-duty expansion anchor HSL4



### 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

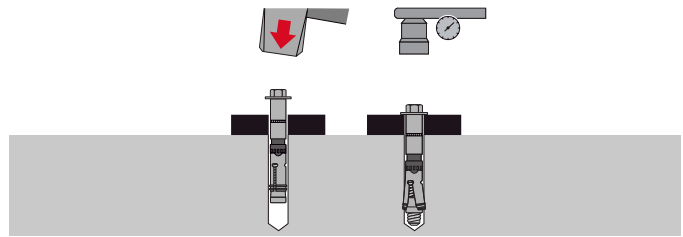
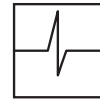
- High tension and shear load capacities
- Force-controlled expansion which allows follow-up expansion

### Technical data

<b>Material composition</b>	(Galvanised) Bolt; steel, 8.8 grade, zinc plated (min. 5µm)
<b>Head configuration</b>	Hexagonal bolt, stud, countersunk and torque control
<b>Type of fastening</b>	Through-fastening
<b>Approvals / Test reports</b>	ET, Fatigue, Fire, Nuclear (NQA-1), Seismic

### Approvals

<b>ETA</b>	ETA 19/0556 & ETA 19/0858 for HSL4 heavy-duty expansion anchor
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

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

	Model	Un-cracked concrete						Cracked Concrete					
		M8	M10	M12	M16	M20	M24	M8	M10	M12	M16	M20	M24
<b>Tension</b>	HSL4/HSL4-G/HSL4-SK/HSL4-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
	HSL4 / HSL4-B	10.4	20.2	29.9	33.7	62	68.3	10.4	18.3	20.2	33.7	62	44.1
<b>Shear</b>	HSL4-G	8.7	13.9	19.8	33.7	51.7	68.3	8.7	13.9	19.8	24.0	51.7	68.3
	HSL4-SK	4.9	7.7	11.2	-	-	-	4.9	7.7	11.2	-	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-4-SK only available in sizes M8-M12

## Heavy-duty wedge anchor HSL4



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Ordering designation	Anchor length	Anchor size	Drill bit diameter	Drilling depth	Standard anchorage depth	Max. fixture thickness at standard anchorage depth	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HSL-4 M8/5	82	M8	12 mm	80 mm	60 mm	5 mm	14 mm	25 Nm	40 pc	2237420
HSL-4 M8/20	97	M8	12 mm	80 mm	60 mm	20 mm	14 mm	25 Nm	40 pc	2237399
HSL-4 M8/40	117	M8	12 mm	80 mm	60 mm	40 mm	14 mm	25 Nm	40 pc	2237400
HSL-4 M10/5	94	M10	15 mm	90 mm	70 mm	5 mm	17 mm	25 Nm	20 pc	2237417
HSL-4 M10/20	109	M10	15 mm	90 mm	70 mm	20 mm	17 mm	25 Nm	20 pc	2237418
HSL-4 M10/40	129	M10	15 mm	90 mm	70 mm	40 mm	17 mm	25 Nm	20 pc	2237416
HSL-4 M12/5	111	M12	18 mm	105 mm	80 mm	5 mm	20 mm	60 Nm	20 pc	2237411
HSL-4 M12/25	131	M12	18 mm	105 mm	80 mm	25 mm	20 mm	60 Nm	20 pc	2237412
HSL-4 M12/50	156	M12	18 mm	105 mm	80 mm	50 mm	20 mm	60 Nm	10 pc	2237410
HSL-4 M16/10	138	M16	24 mm	125 mm	100 mm	10 mm	26 mm	75 Nm	10 pc	2237409
HSL-4 M16/25	153	M16	24 mm	125 mm	100 mm	25 mm	26 mm	75 Nm	10 pc	2237408
HSL-4 M16/50	178	M16	24 mm	125 mm	100 mm	50 mm	26 mm	75 Nm	10 pc	2237407
HSL-4 M20/10	163	M20	28 mm	155 mm	125 mm	10 mm	31 mm	145 Nm	6 pc	2237406
HSL-4 M20/30	183	M20	28 mm	155 mm	125 mm	30 mm	31 mm	145 Nm	6 pc	2237405
HSL-4 M20/60	213	M20	28 mm	155 mm	125 mm	60 mm	31 mm	145 Nm	6 pc	2237404
HSL-4 M24/10	185	M24	32 mm	180 mm	150 mm	10 mm	35 mm	210 Nm	4 pc	2237403
HSL-4 M24/30	205	M24	32 mm	180 mm	150 mm	30 mm	35 mm	210 Nm	4 pc	2237402
HSL-4 M24/60	235	M24	32 mm	180 mm	150 mm	60 mm	35 mm	210 Nm	4 pc	2237428

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

## Heavy-duty wedge anchor HSL4-B



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Ordering designation	Anchor length	Anchor size	Drill bit diameter	Min. drilling depth for standard anchorage	Standard anchorage depth	Max. fixture thickness at standard anchorage depth	Base plate clearance hole	Sales pack quantity	Item number
HSL-4-B M12/5	121	M12	18 mm	105 mm	80 mm	5 mm	20 mm	20 pc	2237422
HSL-4-B M12/25	141	M12	18 mm	105 mm	80 mm	25 mm	20 mm	20 pc	2237421
HSL-4-B M12/50	166	M12	18 mm	105 mm	80 mm	50 mm	20 mm	10 pc	2237423
HSL-4-B M16/10	151	M16	24 mm	125 mm	100 mm	10 mm	26 mm	10 pc	2237424
HSL-4-B M16/25	166	M16	24 mm	125 mm	100 mm	25 mm	26 mm	10 pc	2237425
HSL-4-B M16/50	191	M16	24 mm	125 mm	100 mm	50 mm	26 mm	10 pc	2237426
HSL-4-B M20/10	178	M20	28 mm	155 mm	125 mm	10 mm	31 mm	6 pc	2237429
HSL-4-B M20/30	198	M20	28 mm	155 mm	125 mm	30 mm	31 mm	6 pc	2237430
HSL-4-B M20/60	228	M20	28 mm	155 mm	125 mm	60 mm	31 mm	6 pc	2237431
HSL-4-B M24/10	203	M24	32 mm	180 mm	150 mm	10 mm	35 mm	4 pc	2237371
HSL-4-B M24/30	223	M24	32 mm	180 mm	150 mm	30 mm	35 mm	4 pc	2237372
HSL-4-B M24/60	231	M24	32 mm	180 mm	150 mm	60 mm	35 mm	4 pc	2237432

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## Heavy-duty wedge anchor HSL4-G



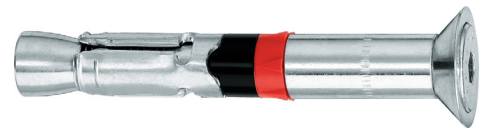
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Ordering designation	Anchor Length	Anchor size	Drill bit diameter	Min. drilling depth for standard anchorage	Standard anchorage depth	Max. fixture thickness at standard anchorage depth	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HSL-4-G M8/5	92	M8	12mm	80mm	60mm	5mm	14mm	25 Nm	40pc	2237458
HSL-4-G M8/20	107	M8	12mm	80mm	60mm	20mm	14mm	25 Nm	40pc	2237456
HSL-4-G M8/40	127	M8	12mm	80mm	60mm	40mm	14mm	25 Nm	40pc	2237457
HSL-4-G M8/100	187	M8	12mm	80mm	60mm	100mm	14mm	25 Nm	20pc	2237455
HSL-4-G M10/5	106	M10	15mm	90mm	70mm	5mm	17mm	27 Nm	20pc	2237437
HSL-4-G M10/20	121	M10	15mm	90mm	70mm	20mm	17mm	27 Nm	20pc	2237435
HSL-4-G M10/40	141	M10	15mm	90mm	70mm	40mm	17mm	27 Nm	20pc	2237436
HSL-4-G M10/100	201	M10	15mm	90mm	70mm	100mm	17mm	27 Nm	20pc	2237434
HSL-4-G M12/5	127	M12	18mm	105mm	80mm	5mm	20mm	60 Nm	20pc	2237441
HSL-4-G M12/25	147	M12	18mm	105mm	80mm	25mm	20mm	60 Nm	20pc	2237440
HSL-4-G M12/50	172	M12	18mm	105mm	80mm	50mm	20mm	60 Nm	20pc	2237442
HSL-4-G M12/100	222	M12	18mm	105mm	80mm	100mm	20mm	60 Nm	10pc	2237439
HSL-4-G M16/10	160	M16	24mm	125mm	100mm	10mm	26mm	75 Nm	10pc	2237450
HSL-4-G M16/25	175	M16	24mm	125mm	100mm	25mm	26mm	75 Nm	10pc	2237444
HSL-4-G M16/50	200	M16	24mm	125mm	100mm	50mm	26mm	75 Nm	10pc	2237445
HSL-4-G M16/100	260	M16	24mm	125mm	100mm	100mm	26mm	75 Nm	10pc	2237451
HSL-4-G M20/10	185	M20	28mm	155mm	125mm	10mm	31mm	105 Nm	6pc	2237447
HSL-4-G M20/30	205	M20	28mm	155mm	125mm	30mm	31mm	105 Nm	6pc	2237449
HSL-4-G M20/60	235	M20	28mm	155mm	125mm	60mm	31mm	105 Nm	6pc	2237373
HSL-4-G M20/100	275	M20	28mm	155mm	125mm	100mm	31mm	105 Nm	6pc	2237448
HSL-4-G M24/10	210	M24	32mm	180mm	150mm	10mm	35mm	180 Nm	4pc	2237452
HSL-4-G M24/30	230	M24	32mm	180mm	150mm	30mm	35mm	180 Nm	4pc	2237453
HSL-4-G M24/60	260	M24	32mm	180mm	150mm	60mm	35mm	180 Nm	4pc	2237454

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## Heavy-duty wedge anchor HSL4-SK



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Ordering designation	Anchor length	Anchor size	Drill bit diameter	Min. drilling depth for standard anchorage	Anchorage depth	Min. fixture thickness	Base plate clearance hole	Required tightening torque	Sales pack quantity	Item number
HSL-4-SK M8/10	80	M8	12 mm	80 mm	60 mm	6 mm	14 mm	20 Nm	40 pc	2237397
HSL-4-SK M8/20	90	M8	12 mm	80 mm	60 mm	6 mm	14 mm	20 Nm	40 pc	2237398
HSL-4-SK M10/20	100	M10	15 mm	90 mm	70 mm	6 mm	17 mm	32 Nm	20 pc	2237395
HSL-4-SK M12/25	120	M12	18 mm	105 mm	80 mm	8 mm	20 mm	65 Nm	20 pc	2237396

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# HSL4 expansion anchor

## Ultimate-performance heavy-duty expansion anchor

Anchor versions		Benefits
		<ul style="list-style-type: none"> <li>- Suitable for cracked concrete C20/25 to C50/60</li> <li>- Suitable for seismic C1 and C2, shock, fire and fatigue</li> <li>- Installation with hammer drilling, diamond drilling and hollow drill bit available for same performance</li> <li>- Top shear performance due to high strength expansion and shear sleeves</li> <li>- HSL4-B special safety cap ensures proper installation torque even without calibrated torque wrench</li> <li>- Tracefast improves quality assurance of anchor installation by making every fastener uniquely identifiable and allowing easy documentation</li> <li>- Easily removable for temporary and machine fastening applications or retrofit needs</li> </ul>

Base material		Load conditions				
Concrete (uncracked)	Concrete (cracked)	Static/ quasi- static	Seismic ETA-C1, C2	Fatigue ETA	Shock	Fire resistance ETA

Installation conditions					Other information				
Hammer drilled holes	Diamond cored holes	Hollow drill bit drilling	Variable embedment depth	AT Tool	Tracefast	European Technical Assessment	CE conformity	Nuclear power plant approval	PROFIS Engineering Design Software

### Approvals/certificates

Description	Authority / Laboratory	No. / Date of issue
European technical Assessment <sup>a)</sup>	CSTB, Marne-la-Vallée	ETA-19/0556 / 2020-01-20
Fire test report	CSTB, Marne-la-Vallée	ETA-19/0556 / 2020-01-20
European technical Assessment <sup>b)</sup>	CSTB, Marne-la-Vallée	ETA-19/0858 / 2020-02-17
ICC-ES report incl. seismic <sup>c)</sup>	ICC evaluation service	ESR 4386 / 2020-03
Shock approval	Civil Protection of Switzerland	BZS D 19-601
ACI 349-01 nuclear suitability	Hilti, Inc. Plano, Texas	2021-01-19



- a) All data for static or seismic load cases given in this section according to ETA-19/0556, issued 2020-01-20.  
 b) All data for fatigue relevant load cases given in this section according to ETA-19/0858, issued 2020-02-17.  
 c) For more details on Technical Data according to ICC please consult the relevant HNA FTM.

**Static and quasi-static resistance (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,  $f_c = 20 \text{ N/mm}^2$

**Effective anchorage depth <sup>a)</sup>**

Anchor size		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		M16			M20			M24		
Eff. Anchorage depth	$h_{ef}$ [mm]	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$
		100	125	150	125	155	185	150	180	210

d) HSL4-SK only available in sizes M8-M12, HSL4-B only available in sizes M12-M24

e) HSL4-SK can only be set in position 1.

**Characteristic resistance**

Anchor size		M8			M10			M12					
<b>Non-cracked concrete</b>													
Tension	HSL4 / HSL4-B HSL4-G HSL4-SK <sup>a)</sup>	$N_{Rk}$ [kN]	22,9	29,3	29,3	28,8	42,0	46,4	35,2	52,9	67,4		
			HSL4 / HSL4-B	31,1	31,1	31,1	60,5	60,5	60,5	89,6	89,6	89,6	
Shear	HSL4-G	$V_{Rk}$ [kN]	26,1	26,1	26,1	41,8	41,8	41,8	59,3	59,3	59,3		
			$t_{fix}$ [mm]	≥11	-	-	≥11	-	-	≥13	-	-	
			HSL4-SK <sup>a)</sup>	$V_{Rk}$ [kN]	31,1	-	-	60,5	-	-	89,6	-	-
			$t_{fix}$ [mm]	<11	-	-	<11	-	-	<13	-	-	
			$V_{Rk}$ [kN]	14,6	-	-	23,2	-	-	33,7	-	-	
<b>Cracked concrete</b>													
Tension	HSL4 / HSL4-B HSL4-G HSL4-SK <sup>a)</sup>	$N_{Rk}$ [kN]	12,0	12,0	12,0	16,0	16,0	16,0	24,6	24,0	24,0		
			HSL4 / HSL4-B	31,1	31,1	31,1	52,4	60,5	60,5	66,5	89,6	89,6	
Shear	HSL4-G	$V_{Rk}$ [kN]	26,1	26,1	26,1	41,8	41,8	41,8	59,3	59,3	59,3		
			$t_{fix}$ [mm]	≥11	-	-	≥11	-	-	≥13	-	-	
			HSL4-SK <sup>a)</sup>	$V_{Rk}$ [kN]	31,1	-	-	52,4	-	-	66,5	-	-
			$t_{fix}$ [mm]	<11	-	-	<11	-	-	<13	-	-	
			$V_{Rk}$ [kN]	14,6	-	-	23,2	-	-	33,7	-	-	
Anchor size		M16			M20			M24					
<b>Non-cracked concrete</b>													
Tension	HSL4 / HSL4-B HSL4-G	$N_{Rk}$ [kN]	49,2	65,0	65,0	68,8	94,9	95,0	90,4	100	100		
			HSL4 / HSL4-B	138	159	159	186	186	186	205	205	205	
Shear	HSL4-G	$V_{Rk}$ [kN]	121	121	121	155	155	155	205	205	205		
			HSL4 / HSL4-B	96,4	135	159	183	186	186	202	205	205	
Shear	HSL4-G	$V_{Rk}$ [kN]	96,4	121	121	155	155	155	202	205	205		
			HSL4 / HSL4-B	96,4	121	121	155	155	155	202	205	205	

a) HSL4-SK can only be set in position 1.


**Design resistance**

Anchor size		M8			M10			M12				
<b>Non-cracked concrete</b>												
Tension $N_{Rd}$	HSL4 / HSL4-B HSL4-G HSL4-SK <sup>a)</sup>	[kN]	15,2	19,5	19,5	19,2	28,0	30,9	23,5	35,3	45,0	
	HSL4 / HSL4-B HSL4-G	[kN]	24,9	24,9	24,9	48,4	48,4	48,4	63,4	71,7	71,7	
Shear $V_{Rd}$	HSL4-SK <sup>a)</sup>	$t_{fix}$	[mm]	≥11	-	-	≥11	-	-	≥13	-	-
		$V_{Rd}$	[kN]	24,9	-	-	48,4	-	-	63,4	-	-
		$t_{fix}$	[mm]	<11	-	-	<11	-	-	<13	-	-
		$V_{Rd}$	[kN]	11,7	-	-	18,6	-	-	27,0	-	-
<b>Cracked concrete</b>												
Tension $N_{Rd}$	HSL4 / HSL4-B HSL4-G HSL4-SK <sup>a)</sup>	[kN]	8,0	8,0	8,0	10,7	10,7	10,7	16,4	16,0	16,0	
	HSL4 / HSL4-B HSL4-G	[kN]	20,1	24,9	24,9	35,0	48,4	48,4	44,4	66,7	71,7	
Shear $V_{Rd}$	HSL4-SK <sup>a)</sup>	$t_{fix}$	[mm]	≥11	-	-	≥11	-	-	≥13	-	-
		$V_{Rd}$	[kN]	20,1	-	-	35,0	-	-	44,4	-	-
		$t_{fix}$	[mm]	<11	-	-	<11	-	-	<13	-	-
		$V_{Rd}$	[kN]	11,7	-	-	18,6	-	-	27,0	-	-
Anchor size		M16			M20			M24				
<b>Non-cracked concrete</b>												
Tension $N_{Rd}$	HSL4 / HSL4-B HSL4-G	[kN]	32,8	43,3	43,3	45,8	63,3	63,3	60,2	66,7	66,7	
	HSL4 / HSL4-B HSL4-G	[kN]	91,8	127	127	149	149	149	164	164	164	
Shear $V_{Rd}$	HSL4 / HSL4-B HSL4-G	[kN]	91,8	96,5	96,5	124	124	124	164	164	164	
	HSL4 / HSL4-B HSL4-G	[kN]	91,8	96,5	96,5	124	124	124	164	164	164	
<b>Cracked concrete</b>												
Tension $N_{Rd}$	HSL4 / HSL4-B HSL4-G	[kN]	23,0	24,0	24,0	32,1	33,3	33,3	42,2	43,3	43,3	
	HSL4 / HSL4-B HSL4-G	[kN]	64,3	89,8	118	122	149	149	135	164	164	
Shear $V_{Rd}$	HSL4 / HSL4-B HSL4-G	[kN]	64,3	89,8	96,5	122	124	124	135	116	146	
	HSL4 / HSL4-B HSL4-G	[kN]	64,3	89,8	96,5	122	124	124	135	116	146	

a) HSL4-SK can only be set in position 1



**Recommended loads <sup>b)</sup>**

Anchor size		M8			M10			M12				
<b>Non-cracked concrete</b>												
Tension $N_{Rec}$	HSL4 / HSL4-B HSL4-G HSL4-SK <sup>a)</sup>	[kN]	7,6	9,8	9,8	9,6	14,0	15,5	11,7	17,6	22,4	
	HSL4 / HSL4-B HSL4-G	[kN]	10,4	10,4	10,4	20,2	20,2	20,2	29,9	29,9	29,9	
Shear $V_{Rec}$	HSL4-SK <sup>a)</sup>	$t_{fix}$	[mm]	≥11	-	-	≥11	-	-	≥13	-	-
		$V_{Rec}$	[kN]	10,4	-	-	20,2	-	-	29,9	-	-
		$t_{fix}$	[mm]	<11	-	-	<11	-	-	<13	-	-
		$V_{Rec}$	[kN]	4,9	-	-	7,7	-	-	11,2	-	-
<b>Cracked concrete</b>												
Tension $N_{Rec}$	HSL4 / HSL4-B HSL4-G HSL4-SK <sup>a)</sup>	[kN]	4,0	4,0	4,0	5,3	5,3	5,3	8,2	8,0	8,0	
	HSL4 / HSL4-B HSL4-G	[kN]	10,4	10,4	10,4	17,5	20,2	20,2	22,2	29,9	29,9	
Shear $V_{Rec}$	HSL4-SK <sup>a)</sup>	$t_{fix}$	[mm]	≥11	-	-	≥11	-	-	≥13	-	-
		$V_{Rec}$	[kN]	10,4	-	-	17,5	-	-	22,2	-	-
		$t_{fix}$	[mm]	<11	-	-	<11	-	-	<13	-	-
		$V_{Rec}$	[kN]	4,9	-	-	7,7	-	-	11,2	-	-
<b>Anchor size</b>		<b>M16</b>			<b>M20</b>			<b>M24</b>				
<b>Non-cracked concrete</b>												
Tension $N_{Rec}$	HSL4 / HSL4-B HSL4-G	[kN]	16,4	21,7	21,7	22,9	31,6	31,6	30,1	33,3	33,3	
Shear $V_{Rec}$	HSL4 / HSL4-B	[kN]	46,0	53,0	53,0	62,0	62,0	62,0	68,3	68,3	68,3	
	HSL4-G	[kN]	40,3	40,3	40,3	51,7	51,7	51,7	68,3	68,3	68,3	
<b>Cracked concrete</b>												
Tension $N_{Rec}$	HSL4 / HSL4-B HSL4-G	[kN]	11,4	12,0	12,0	16,0	16,7	16,7	21,1	21,7	21,7	
Shear $V_{Rec}$	HSL4 / HSL4-B	[kN]	32,1	45,0	53,0	61,0	62,0	62,0	67,3	68,3	68,3	
	HSL4-G	[kN]	32,1	40,3	40,3	51,7	51,7	51,7	67,3	68,3	68,3	

a) HSL4-SK only available in sizes M8-M12, HSL4-B only available in sizes M12-M24

b) With overall partial safety factor for action  $\gamma = 3$ . The partial safety factors for action depend on thy type of loading and shall be taken from national regulations.





### Seismic resistance (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,  $f_c = 20 \text{ N/mm}^2$
- $\alpha_{\text{gap}} = 0,5$

#### Effective anchorage depth for seismic C2<sup>a)</sup>

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

a) HSL4-SK only available in sizes M8-M12, HSL4-B only available in sizes M12-M24

b) HSL4-SK can only be set in position 1.

#### Characteristic resistance in case of seismic category C2

Anchor size			M10			M12					
Tension $N_{\text{Rk,seis}}$	HSL4 / HSL4-B HSL4-G	[kN]	12,2	12,2	12,2	20,9	25,8	25,8			
	HSL4-SK	[kN]	12,2	-	-	20,9	-	-			
Shear $V_{\text{Rk,seis}}$	HSL4 / HSL4-B	[kN]	12,7	12,7	12,7	15,3	15,3	15,3			
	HSL4-G	[kN]	11,3	11,3	11,3	11,3	11,3	11,3			
	HSL4-SK	$t_{\text{fix}}$ [mm] $V_{\text{Rk,seis}}$ [kN]	$\geq 11$ 12,7	-	-	$\geq 13$ 15,3	-	-			
Anchor size			M16			M20			M24		
Tension $N_{\text{Rk,seis}}$	HSL4 / HSL4-B HSL4-G	[kN]	29,3	34,2	34,2	40,1	40,1	40,1	45,9	45,9	45,9
	HSL4 / HSL4-B HSL4-G	[kN]	30,9	30,9	30,9	39,1	39,1	39,1	44,0	44,0	44,0
Shear $V_{\text{Rk,seis}}$	HSL4 / HSL4-B HSL4-G	[kN]	22,3	22,3	22,3	25,1	25,1	25,1	38,9	38,9	38,9

#### Design resistance in case of seismic category C2

Anchor size			M10			M12					
Tension $N_{\text{Rd,seis}}$	HSL4 / HSL4-B HSL4-G	[kN]	8,1	8,1	8,1	14,0	17,2	17,2			
	HSL4-SK	[kN]	8,1	-	-	14,0	-	-			
Shear $V_{\text{Rd,seis}}$	HSL4 / HSL4-B	[kN]	10,2	10,2	10,2	12,2	12,2	12,2			
	HSL4-G	[kN]	9,0	9,0	9,0	9,0	9,0	9,0			
	HSL4-SK	$t_{\text{fix}}$ [mm] $V_{\text{Rd,seis}}$ [kN]	$\geq 11$ 10,2	-	-	$\geq 13$ 12,2	-	-			
Anchor size			M16			M20			M24		
Tension $N_{\text{Rd,seis}}$	HSL4 / HSL4-B HSL4-G	[kN]	19,5	22,8	22,8	26,7	26,7	26,7	30,6	30,6	30,6
	HSL4 / HSL4-B HSL4-G	[kN]	24,7	24,7	24,7	31,2	31,2	31,2	35,2	35,2	35,2
Shear $V_{\text{Rd,seis}}$	HSL4 / HSL4-B HSL4-G	[kN]	17,8	17,8	17,8	20,1	20,1	20,1	31,1	31,1	31,1



### Effective anchorage depth for seismic C1 a)

Anchor size			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			M16			M20			M24		
Eff. Anchorage depth	$h_{ef}$	[mm]	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$
			100	125	150	125	155	185	150	180	210

a) HSL4-SK only available in sizes M8-M12, HSL4-B only available in sizes M12-M24

b) HSL4-SK can only be set in position 1.

### Characteristic resistance in case of seismic category C1

Anchor size			M8			M10			M12		
Tension $N_{Rk,seis}$	HSL4 / HSL4-B	[kN]	12,0	12,0	12,0	16,0	16,0	16,0	20,9	24,0	24,0
	HSL4-G		12,0	-	-	16,0	-	-	21,9	-	-
Shear $V_{Rk,seis}$	HSL4 / HSL4-B	[kN]	8,9	8,9	8,9	22,1	22,1	22,1	28,3	29,1	29,1
	HSL4-G		7,5	7,5	7,5	15,3	15,3	15,3	19,3	19,3	19,3
	HSL4-SK <sup>a)</sup>	$t_{fix}$	≥11	-	-	≥11	-	-	≥13	-	-
		$V_{Rk,seis}$	[kN]	8,9	-	-	22,1	-	-	28,3	-
Anchor size			M16			M20			M24		
Tension $N_{Rk,seis}$	HSL4 / HSL4-B	[kN]	29,3	36,0	36,0	40,9	50,0	50,0	53,8	65,0	65,0
	HSL4-G		41,0	57,1	57,1	54,9	54,9	54,9	81,8	81,8	81,8
Shear $V_{Rk,seis}$	HSL4 / HSL4-B	[kN]	41,0	43,4	43,4	45,8	45,8	45,8	-	-	-
	HSL4-G		41,0	43,4	43,4	45,8	45,8	45,8	-	-	-

### Design resistance in case of seismic category C1

Anchor size			M8			M10			M12		
Tension $N_{Rd,seis}$	HSL4 / HSL4-B	[kN]	8,0	8,0	8,0	10,7	10,7	10,7	14,0	16,0	16,0
	HSL4-G		8,0	-	-	10,7	-	-	14,0	-	-
Shear $V_{Rd,seis}$	HSL4 / HSL4-B	[kN]	7,1	7,1	7,1	14,9	17,7	17,7	18,8	23,3	23,3
	HSL4-G		6,0	6,0	6,0	12,2	12,2	12,2	15,4	15,4	15,4
	HSL4-SK <sup>a)</sup>	$t_{fix}$	≥11	-	-	≥11	-	-	≥13	-	-
		$V_{Rk,seis}$	[kN]	7,1	-	-	14,9	-	-	18,8	-
Anchor size			M16			M20			M24		
Tension $N_{Rd,seis}$	HSL4 / HSL4-B	[kN]	19,5	24,0	24,0	27,3	33,3	33,3	35,8	43,3	43,3
	HSL4-G		27,3	38,2	45,6	43,9	43,9	43,9	57,4	65,4	65,4
Shear $V_{Rd,seis}$	HSL4 / HSL4-B	[kN]	27,3	34,7	34,7	36,6	36,6	36,6	-	-	-
	HSL4-G		27,3	34,7	34,7	36,6	36,6	36,6	-	-	-



## Fatigue resistance

### All data in this section applies to:

- Correct setting using Hilti seismic filling set (See setting instruction)
- No edge distance and spacing influence
- Minimum base material thickness
- Concrete C 20/25,  $f_c = 20 \text{ N/mm}^2$
- Only applicable to HSL4-G version

Anchor size		M16			M20		
Eff. Anchorage depth	$h_{ef}$ [mm]	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$	$h_{ef,1}$	$h_{ef,2}$	$h_{ef,3}$
		100	125	150	125	155	185

### Characteristic resistance under tension, shear and combined fatigue load in concrete

Anchor size			M16			M20		
<b>Tension fatigue load</b>								
<b>Steel failure</b>								
Characteristic resistance	$\Delta N_{Rk,s,0,\infty}$ [kN]		8,3			12,0		
Partial factor	$\gamma_{Ms,N,fat}$ [-]		1,35					
<b>Concrete failure</b>								
Effective anchorage depth	$h_{ef,i}$ [mm]		100	125	150	125	155	185
Characteristic resistance	$\Delta N_{Rk,c,0,\infty}$ [kN]		0,5 $N_{Rk,c}^{1)}$					
Characteristic resistance	$\Delta N_{Rk,p,0,\infty}$ [kN]		0,4 $N_{Rk,p}^{2)}$					
Characteristic resistance	$\Delta N_{Rk,sp,0,\infty}$ [kN]		0,5 $N_{Rk,sp}^{3)}$					
Characteristic resistance	$\Delta N_{Rk,cb,0,\infty}$ [kN]		0,5 $N_{Rk,cb}^{4)}$					
Partial factor	$\gamma_{Mc,fat}$ [-]		1,5					
Load transfer factor for fastener group	$\psi_{FN}$ [-]		0,5					
<b>Shear fatigue load</b>								
<b>Steel failure</b>								
Characteristic resistance	$\Delta V_{Rk,s,0,\infty}$ [kN]		8,0			10,0		
Partial factor	$\gamma_{Ms,V,fat}$ [-]		1,35					
<b>Concrete failure</b>								
Effective length of fastener	$l_f = h_{ef}$ [mm]		100	125	150	125	155	185
Diameter of anchor	$d_{nom}$ [mm]		24			28		
Characteristic resistance	$\Delta V_{Rk,c,0,\infty}$ [-]		0,5 $V_{Rk,c}^{5)}$					
Characteristic resistance	$\Delta V_{Rk,cp,0,\infty}$ [-]		0,5 $V_{Rk,cp}^{6)}$					
Partial factor	$\gamma_{Mc,fat}$ [-]		1,5					
Load transfer factor for fastener group	$\psi_{FV}$ [-]		0,5					
<b>Combined fatigue load</b>								
Exponent for combined fatigue load	$\alpha_{sn}$ [-]		0,7					
	$\alpha_c$ [-]		1,5					

<sup>1) 2) 3) 4)</sup>  $N_{Rk,c}$ ,  $N_{Rk,p}$ ,  $N_{Rk,sp}$  and  $N_{Rk,cb}$  according to ETA-19/0556.

<sup>5) 6)</sup>  $V_{Rk,c}$  and  $V_{Rk,cp}$  according to ETA-19/0556.



<http://hilti.to/traceable-fastener>



## Materials

### Mechanical properties <sup>a)</sup>

Anchor size		M8	M10	M12	M16	M20	M24
<b>HSL4, HSL4-G, HSL4-B, HSL4-SK</b>							
Nominal tensile strength $f_{uk}$	[N/mm <sup>2</sup> ]	800	800	800	800	800	800
Yield strength $f_{yk}$	[N/mm <sup>2</sup> ]	640	640	640	640	640	640
Stressed cross-section $A_s$	[mm <sup>2</sup> ]	36,6	58,0	84,3	157	245	353
Moment of resistance $W$	[mm <sup>3</sup> ]	31,3	62,5	109	277	541	935
Design bending resistance without sleeve $M_{Rd,s}$	[Nm]	24,0	48,0	84,0	213	415	718

a) HSL4-SK only available in sizes M8-M12, HSL4-B only available in sizes M12-M24

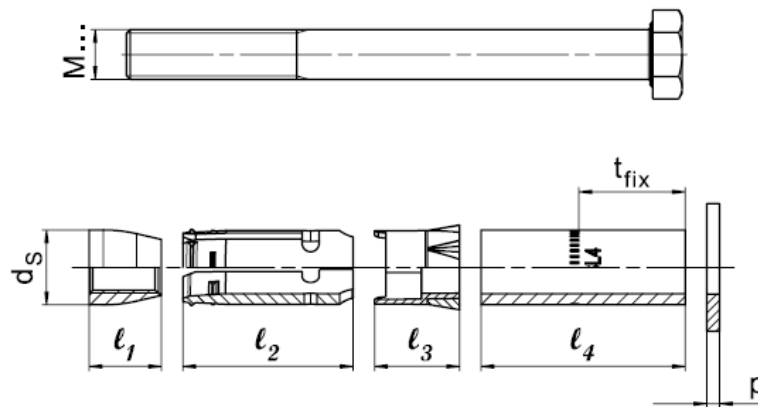
### Material quality

Part	Material	
<b>Carbon Steel</b>		
HSL4	Cone	Carbon steel, galvanized to $\geq 5 \mu\text{m}$
HSL4-G	Expansion sleeve	Carbon steel, galvanized to $\geq 5 \mu\text{m}$
HSL4-B	Collapsible element	POM + TPE Plastic element
HSL4-SK	Distance sleeve	Carbon steel, galvanized to $\geq 5 \mu\text{m}$
HSL4	Washer	Carbon steel, galvanized to $\geq 5 \mu\text{m}$
	Hexagonal bolt	Carbon steel, galvanized to $\geq 5 \mu\text{m}$ , rupture elongation $\geq 12\%$
HSL4-G	Hexagonal nut	Carbon steel, galvanized to $\geq 5 \mu\text{m}$
	Threaded rod	Carbon steel, galvanized to $\geq 5 \mu\text{m}$ , rupture elongation $\geq 12\%$
HSL4-B	Hexagonal bolt with safety cap	Carbon steel, galvanized to $\geq 5 \mu\text{m}$ , rupture elongation $\geq 12\%$
HSL4-SK	Countersunk bolt	Carbon steel, galvanized to $\geq 5 \mu\text{m}$ , rupture elongation $\geq 12\%$
	Cup washer	Carbon steel, galvanized to $\geq 5 \mu\text{m}$



### Anchor dimensions of HSL4, HSL4-G, HSL4-B, HSL4-SK

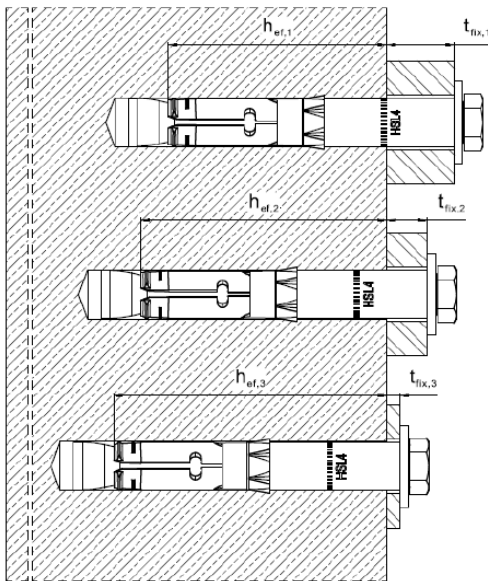
Anchor version	Thread size	$t_{fix}$ [mm]		$d_s$ [mm]	$l_1$ [mm]	$l_2$ [mm]	$l_3$ [mm]	$l_4$ [mm]		$p$ [mm]
		min	max					min	max	
HSL4	M8	5	200	11,9	12	32	15,2	19	214	2
HSL4-G	M10	5	200	14,8	14	36	17,2	23	218	3
HSL4	M12	5	200	17,6	17	40	20	28	223	3
HSL4-G	M16	10	200	23,6	20	54,4	24,4	34,5	224,5	4
HSL4-B	M20	10	200	27,6	20	57	31,5	51	241	4
HSL4-B	M24	10	200	31,6	22	65	39	57	247	4
HSL4-SK	M8	6	20	11,9	12	32	15,2	18,2	28,2	2
	M10	6	20	14,8	14	36	17,2	32,2		3
	M12	8	25	17,6	17	40	20	40		3





**Setting information**

**Setting positions a)**



Setting position

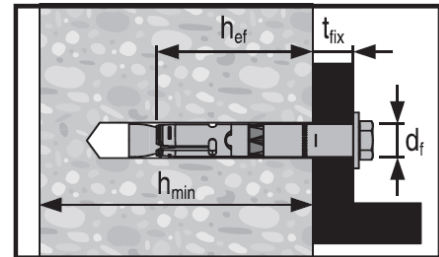
①

Setting position

②

Setting position

③




a) HSL4-SK can only be set in position 1.

**Setting details for HSL4**


Anchor version		M8			M10			M12			
		Nominal diameter of drill bit	d <sub>0</sub>	[mm]	12			15			18
Max. cutting diameter of drill bit	d <sub>cut</sub>	[mm]	12,5			15,5			18,5		
Max. diameter of clearance hole in the fixture	d <sub>f</sub>	[mm]	14			17			20		
Anchorage depth	h <sub>nom</sub>		72	92	112	84	104	114	97	122	147
Fixture thickness	t <sub>fix,1</sub>	[mm]	5-200								
Effective fixture thickness	t <sub>fix,i</sub>		Anchor length - h <sub>nom</sub>								
Reduction of fixture thickness	Δi	[mm]	0	20	40	0	20	40	0	25	50
Effective anchorage depth	h <sub>ef,i</sub>	[mm]	60	80	100	70	90	110	80	105	130
Min. depth of drill hole	h <sub>1,i</sub>	[mm]	80	100	120	90	110	130	105	130	155
Min. thickness of concrete member	h <sub>min,i</sub>	[mm]	120	170	190	140	195	215	160	225	250
Width across flats	SW	[mm]	13			17			19		
Installation torque	T <sub>inst</sub>	[Nm]	15			25			60		
Anchor version			M16			M20			M24		
Nominal diameter of drill bit	d <sub>0</sub>	[mm]	24			28			32		
Max. cutting diameter of drill bit	d <sub>cut</sub>	[mm]	24,55			28,55			32,7		
Max. diameter of clearance hole in the fixture	d <sub>f</sub>	[mm]	26			31			35		
Anchorage depth	h <sub>nom</sub>		120	145	170	145	175	205	172	202	232
Fixture thickness	t <sub>fix1</sub>	[mm]	10-200								
Effective fixture thickness	t <sub>fix,i</sub>		Anchor length - h <sub>nom</sub>								
Reduction of fixture thickness	Δi	[mm]	0	25	50	0	30	60	0	30	60
Effective anchorage depth	h <sub>ef,i</sub>	[mm]	100	125	150	125	155	185	150	180	210
Min. depth of drill hole	h <sub>1,i</sub>	[mm]	125	150	175	155	185	215	180	210	240
Min. thickness of concrete member	h <sub>min,i</sub>	[mm]	200	275	300	250	380	410	300	405	435
Width across flats	SW	[mm]	24			30			36		
Installation torque	T <sub>inst</sub>	[Nm]	75			145			210		



### Setting details for HSL4-G

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					
Anchorage depth	$h_{nom}$	72	92	112	84	104	114	97	122	147			
Fixture thickness	$t_{fix,1}$ [mm]	5-200											
Effective fixture thickness	$t_{fix,i}$	Anchor length - $h_{nom}$											
Reduction of fixture thickness	$\Delta i$ [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	$h_{1,i}$ [mm]	80	100	120	90	110	130	105	130	155			
Min. thickness of concrete member	$h_{min,i}$ [mm]	120	170	190	140	195	215	160	225	250			
Width across flats	SW [mm]	13			17			19					
Installation torque	$T_{inst}$ [Nm]	20			27			60					
Anchor version		M16			M20			M24					
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					
Anchorage depth	$h_{nom}$	120	145	170	145	175	205	172	202	232			
Fixture thickness	$t_{fix1}$ [mm]	10-200											
Effective fixture thickness	$t_{fix,i}$	Anchor length - $h_{nom}$											
Reduction of fixture thickness	$\Delta i$ [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	$h_{1,i}$ [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	$T_{inst}$ [Nm]	70			105			180					

### Setting details for HSL4-B

Anchor version					M12			M16			M20			M24		
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					
Anchorage depth	$h_{nom}$	97	122	147	120	145	170	145	175	205	172	202	232			
Fixture thickness	$t_{fix,1}$ [mm]	5 - 200			10 - 200											
Effective fixture thickness	$t_{fix,i}$	Anchor length - $h_{nom}$														
Reduction of fixture thickness	$\Delta i$ [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	$h_{1,i}$ [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														

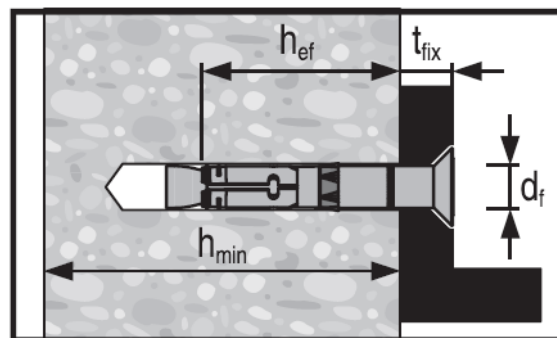


**Setting details for HSL4-SK <sup>a)</sup>**

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
Anchorage depth	$h_{nom}$		72	84	97
Fixture thickness	$t_{fix,1}$	[mm]	5-200		
Effective fixture thickness	$t_{fix,i}$		Anchor length - $h_{nom}$		
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	5,8	8,0
Min. Fixture thickness	$t_{fix,min}^{b)}$	[mm]	6	6	8
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	$T_{inst}$	[Nm]	20	32	65

a) HSL4-SK can only be set in position 1.

b) The influence of the thickness of fixture to the characteristic resistance for shear loads, steel failure without lever arm is taken into account



**Installation equipment**

Anchor size	M8	M10	M12	M16	M20	M24
Rotary hammer	TE 2 – TE 30			TE 40 – TE 80		
Diamond coring	DD 30-W or DD-EC-1 + SPX-T DD 110 / 150 + SPX-L handheld		DD 30-W or DD-EC-1 + SPX-T DD 110 / 150 + SPX-L handheld DD 120 / 160 / 150 + SPX-L	DD 30-W or DD-EC-1 + SPX-T DD 110 / 150 + SPX-L handheld DD 120 / 160 / 150 / 200 / 250 + SPX-L		
Other tools	blow out pump, hammer, torque wrench <sup>1)</sup>					

1) HSL4-B only requires a regular wrench as it automatically ensures correct torque is applied.




**Setting parameters for HSL4, HSL4-G, HSL4-B, HSL4-SK <sup>a)</sup>**

Anchor size		M8			M10			M12		
Setting position <sup>b)</sup>	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
<b>Uncracked concrete</b>										
Minimum spacing	$s_{min}$ [mm]	60			70			80		
	for $c \geq$ [mm]	100			100			160		
Minimum edge distance	$c_{min}$ [mm]	60			70			80		
	for $s \geq$ [mm]	100			160			240		
<b>Cracked concrete</b>										
Minimum spacing	$s_{min}$ [mm]	50			70			70		
	for $c \geq$ [mm]	80			100			140		
Minimum edge distance	$c_{min}$ [mm]	60			70			70		
	for $s \geq$ [mm]	80			120			160		
Anchor size		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
<b>Uncracked concrete</b>										
Minimum spacing	$s_{min}$ [mm]	100			125			150		
	for $c \geq$ [mm]	240			300			300		
Minimum edge distance	$c_{min}$ [mm]	100			150			150		
	for $s \geq$ [mm]	240			300			300		
<b>Cracked concrete</b>										
Minimum spacing	$s_{min}$ [mm]	80			120			120		
	for $c \geq$ [mm]	180			220			260		
Minimum edge distance	$c_{min}$ [mm]	100			120			120		
	for $s \geq$ [mm]	200			220			280		

a) HSL4-SK only available in sizes M8-M12, HSL4-B only available in sizes M12-M24

b) HSL4-SK can only be set in position 1.



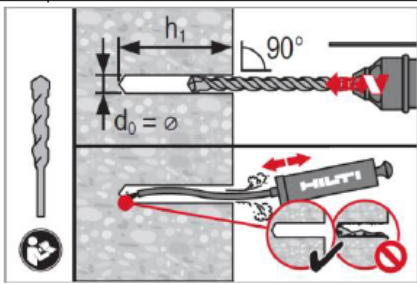
### Setting instructions

\*For detailed information on installation of each specific HSL4 version, see instruction for use given with the package of the product.

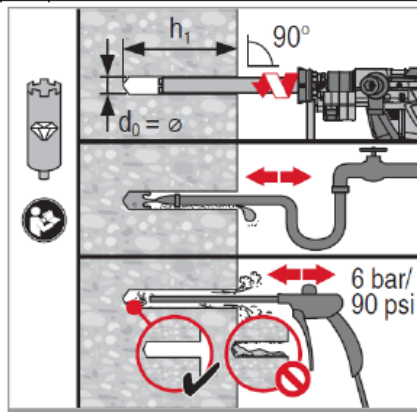
#### Setting instruction

##### Hole drilling and cleaning

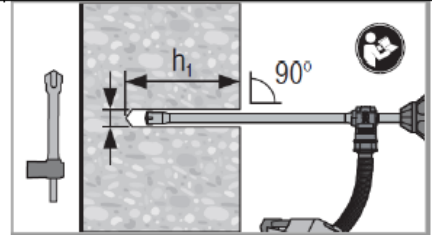
a) Hammer drilling (HD) with manual cleaning (MC):



b) Diamond coring (DD) with flushing and blowing

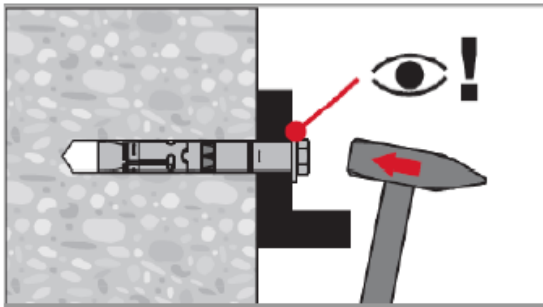


c) Hammer drilling (HD) with hollow drill bit (HDB)



##### Anchor setting

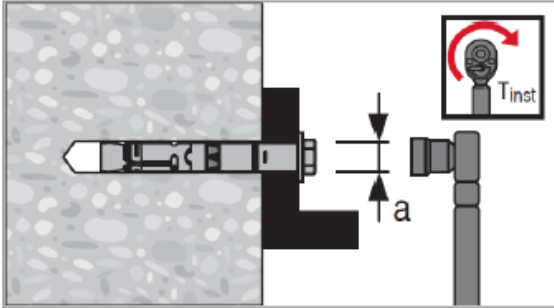
##### Hammer setting, check setting



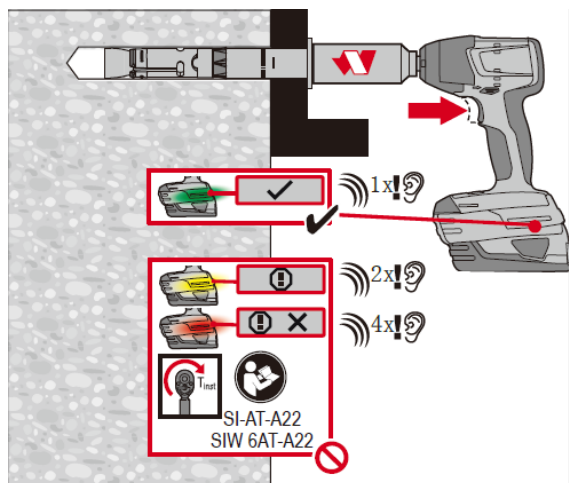
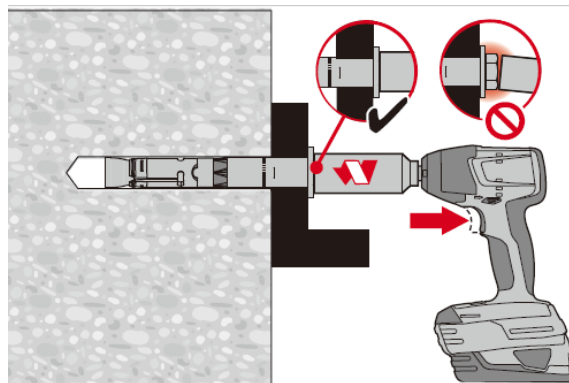
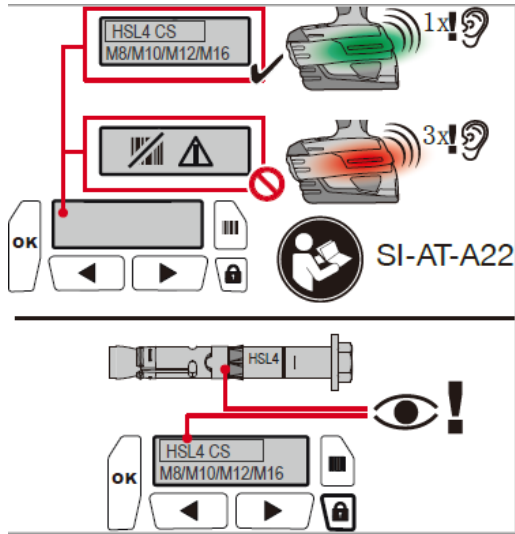


**Anchor torquing for HSL4, HSL4-G, HSL4-SK**

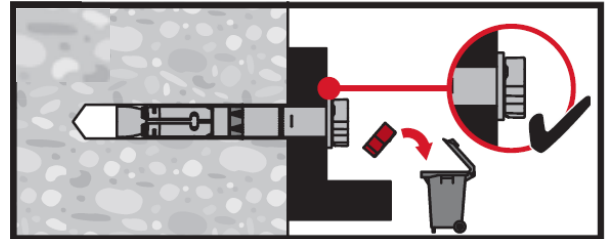
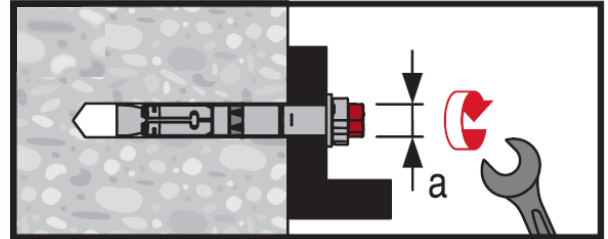
**a) Use torque wrench**



**b) Machine torquing: Only HSL4 and HSL4-G M8 to M16.**



**HSL4-B Safety cap**





### Setting instructions

\*For detailed information on installation of HSL4-G version, see instruction for use given with the package of the product.

**Installation instructions for the filling set**

**HSL4-G**

Size	t <sub>fix, effective</sub> (mm)
M16	10 ... 200
M20	10 ... 200

Attn. : To whom it may concern

Date : 26 September 2023  
Ref. : 129/AM/DY/23

Subject : Country of Origin- Hilti HSL4 Heavy-Duty Wedge Anchor

Dear Sir / Madam,

Enclosed please find the information of Hilti HSL4 Heavy-Duty Wedge Anchor.

Brand Name : Hilti

Model Name : Hilti HSL4 Heavy-Duty 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 : 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](mailto:hksales@hilti.com).

Yours faithfully,



Dennis Yeung  
Head of Product Leadership Strategy, F&P

10 February 2021  
 Ref: 001/AN/BL/21

To Whom It May Concern

**RE: Phase in of HSL4 Sleeve Anchor**

We are pleased to inform you that **HSL4** sleeve anchor is phased-in as an upgraded version of **HSL-3**. The new HSL4 anchor series is equivalent or better specifications than current HSL-3 anchor.

**HSL3 will be phased out by the end of June.**

You can see the equivalent items below.

**Nomenclature**

**HSL4**                      **M8**                      **d12**                      **x117**                      **42/20/-**  
**Anchor type**    **Thread diameter**    **Drill bit diameter**    **Anchor Length**    **Fixture thickness 1/2/3**

HSL-3		HSL4	
Item no.	Product description	Item no.	Product description
371774	HSL-3 M8/5 12ΦX83	2237420	Anchor HSL4 M8 d12x82 5/-/-
371775	HSL-3 M8/20 12ΦX98	2237399	Anchor HSL4 M8 d12x97 20/-/-
371776	HSL-3 M8/40 12ΦX118	2237400	Anchor HSL4 M8 d12x117 40/20/-
371777	HSL-3 M10/5 15ΦX95	2237417	Anchor HSL4 M10 d15x94 5/-/-
371778	HSL-3 M10/20 15ΦX110	2237418	Anchor HSL4 M10 d15x109 20/-/-
371779	HSL-3 M10/40 15ΦX130	2237416	Anchor HSL4 M10 d15x129 40/20/-
371780	HSL-3 M12/5 18ΦX111	2237411	Anchor HSL4 M12 d18x111 5/-/-
371781	HSL-3 M12/25 18ΦX131	2237412	Anchor HSL4 M12 d18x131 25/-/-
371782	HSL-3 M12/50 18ΦX156	2237410	Anchor HSL4 M12 d18x156 50/25/-
371783	HSL-3 M16/10 24ΦX138	2237409	Anchor HSL4 M16 d24x138 10/-/-
371784	HSL-3 M16/25 24ΦX153	2237408	Anchor HSL4 M16 d24x153 25/-/-
371785	HSL-3 M16/50 24ΦX178	2237407	Anchor HSL4 M16 d24x178 50/25/-
371786	HSL-3 M20/10 28ΦX163	2237406	Anchor HSL4 M20 d28x163 10/-/-
371787	HSL-3 M20/30 28ΦX183	2237405	Anchor HSL4 M20 d28x183 30/-/-
371788	HSL-3 M20/60 28ΦX213	2237404	Anchor HSL4 M20 d28x213 60/30/-
371789	HSL-3 M24/10 32ΦX185	2237403	Anchor HSL4 M24 d32x185 10/-/-
371790	HSL-3 M24/30 32ΦX205	2237402	Anchor HSL4 M24 d32x205 30/-/-
371791	HSL-3 M24/60 32ΦX235	2237428	Anchor HSL4 M24 d32x235 60/30/-
371807	HSL-3-B M12/5 18ΦX117	2237422	Anchor HSL4-B M12 d18x121 5/-/-
371808	HSL-3-B M12/25 18ΦX137	2237421	Anchor HSL4-B M12 d18x141 25/-/-
371809	HSL-3-B M12/50 18ΦX162	2237423	Anchor HSL4-B M12 d18x166 50/25/-
371810	HSL-3-B M16/10 24ΦX144	2237424	Anchor HSL4-B M16 d24x151 10/-/-
371811	HSL-3-B M16/25 24ΦX159	2237425	Anchor HSL4-B M16 d24x166 25/-/-
371812	HSL-3-B M16/50 24ΦX184	2237426	Anchor HSL4-B M16 d24x191 50/25/-
371813	HSL-3-B M20/10 28ΦX169	2237429	Anchor HSL4-B M20 d28x178 10/-/-
371814	HSL-3-B M20/30 28ΦX189	2237430	Anchor HSL4-B M20 d28x198 30/-/-
371815	HSL-3-B M20/60 28ΦX219	2237431	Anchor HSL4-B M20 d28x228 60/30/-
371816	HSL-3-B M24/10 32ΦX191	2237371	Anchor HSL4-B M24 d32x203 10/-/-
371817	HSL-3-B M24/30 32ΦX211	2237372	Anchor HSL4-B M24 d32x223 30/-/-
371818	HSL-3-B M24/60 32ΦX241	2237432	Anchor HSL4-B M24 d32x231 60/30/-
371792	HSL-3-G M8/5 12Φx87	2237458	Anchor HSL4-G M8 d12x92 5/-/-
371793	HSL-3-G M8/20 12Φx102	2237456	Anchor HSL4-G M8 d12x107 20/-/-
371794	HSL-3-G M8/40 12Φx122	2237457	Anchor HSL4-G M8 d12x127 40/20/-
371829	HSL-3-G M8/100 12Φx182	2237455	Anchor HSL4-G M8 d12x187 100/80/60
371795	HSL-3-G M10/5 15Φx100	2237437	Anchor HSL4-G M10 d15x106 5/-/-

371796	HSL-3-G M10/20 15Φx115	2237435	Anchor HSL4-G M10 d15x121 20/-/-
371797	HSL-3-G M10/40 15Φx135	2237436	Anchor HSL4-G M10 d15x141 40/20/-
371830	HSL-3-G M10/100 15Φx195	2237434	Anchor HSL4-G M10 d15x201 100/80/60
371798	HSL-3-G M12/5 18Φx119	2237441	Anchor HSL4-G M12 d18x127 5/-/-
371799	HSL-3-G M12/25 18Φx139	2237440	Anchor HSL4-G M12 d18x147 25/-/-
371800	HSL-3-G M12/50 18Φx164	2237442	Anchor HSL4-G M12 d18x172 50/25/-
371831	HSL-3-G M12/100 18Φx214	2237439	Anchor HSL4-G M12 d18x222 100/75/50
371801	HSL-3-G M16/10 24Φx148	2237450	Anchor HSL4-G M16 d24x160 10/-/-
371802	HSL-3-G M16/25 24Φx163	2237444	Anchor HSL4-G M16 d24x175 25/-/-
371803	HSL-3-G M16/50 24Φx188	2237445	Anchor HSL4-G M16 d24x200 50/25/-
371832	HSL-3-G M16/100 24Φx238	2237451	Anchor HSL4-G M16 d24x260 100/75/50
371804	HSL-3-G M20/10 28Φx170	2237447	Anchor HSL4-G M20 d28x185 10/-/-
371805	HSL-3-G M20/30 28Φx190	2237449	Anchor HSL4-G M20 d28x205 30/-/-
371806	HSL-3-G M20/60 28Φx220	2237373	Anchor HSL4-G M20 d28x235 60/30/-
371833	HSL-3-G M20/100 28Φx260	2237448	Anchor HSL4-G M20 d28x275 100/70/40
324929	HSL-3-G M24/10 32ΦxTBC	2237452	Anchor HSL4-G M24 d32x210 10/-/-
324930	HSL-3-G M24/30 32ΦxTBC	2237453	Anchor HSL4-G M24 d32x230 30/-/-
324931	HSL-3-G M24/60 32ΦxTBC	2237454	Anchor HSL4-G M24 d32x260 60/30/-
371825	HSL-3-SK M8/10 12Φx80	2237397	Anchor HSL4-SK M8 d12x80 10/-/-
371826	HSL-3-SK M8/20 12Φx90	2237398	Anchor HSL4-SK M8 d12x90 20/-/-
371827	HSL-3-SK M10/20 15Φx102	2237395	Anchor HSL4-SK M10 d15x100 20/-/-
371828	HSL-3-SK M12/25 18Φx120	2237396	Anchor HSL4-SK M12 d18x120 25/-/-

## 1. Load performance

HSL4 exhibits higher or equivalent load performance in terms of tension and shear loads, compared to HSL-3. HSL4 can be applied in any case to directly replace HSL-3. Revision of calculation can be carried out by Hilti Profis Engineering design software.

Other minor differences and detailed technical information can be referred to Hilti anchor design manual.

Should you have any enquiry, please feel free our customer service hotline at 8228 8118.

Yours faithfully,

Bill Lee  
Product Portfolio Manager  
Hilti (Hong Kong) Ltd.



## Hilti HSL4 Heavy-Duty Wedge Anchor Job Reference

Year	Project Name	Customer Name	Project type
2021	R6 TKO-LAM TIN TUNNEL NE/2015/01	LEIGHTON - CHINA STATE JOINT	Infrastructure
2021	Refurbishment - Residential - 1-11A, 13-23A & 25-39 Tit Shu Street, T	WINDWARD METALLIC ENGINEERING	Residential
2021	SHEK WU HUI EFFLUENT POLISHING PLANT	POWER BASIC STEEL	Utilities
2021	R6 CTL KLN ROUTE-KAI TAK WEST HY/2014/07	GAMMON CONSTRUCTION LIMITED	Infrastructure
2021	TAI PO FU TIP EST PH2	AGGRESSIVE CONSTRUCTION COMPANY	Residential
2021	KAI TAK AREA 1K1 (6567)	HOP FAT STRUCTURAL STEEL	Residential
2021	NW KLN RECLAM 6 & FAT TSEUNG ST W	YAU LEE CONSTRUCTION MATERIALS LTD	Residential
2021	KAI TAK AREA 1L2 (6563)	GAMMON ENGINEERING & CONSTRUCTION	Residential
2021	KING LAM ST GOVT DATA CENTRE	SAN PO METAL ENGINEERING LIMITED	Office
2021	R6 TRUNK ROAD T2 ED/2018/04	BOUYGUES TRAVAUX PUBLICS	Infrastructure
2022	KWU TONG NORTH & FANLING NORTH NEW DEVELOPMENT AR	HANG YICK GATE ENGINEERING LIMITED	Residential
2022	HKIA 3508 TERMINAL 2	GAMMON CONSTRUCTION LIMITED	Transport
2022	YIN PING RD, TAI WO PING (6542)	HIP HING CONSTRUCTION CO LTD	Residential
2022	18 LEE CHUNG ST	FOISON ENGINEERING (HONG KONG)	Industrial
2022	R6 TKO-LAM TIN TUNNEL NE/2015/01	TIME CONCEPT CONSTRUCTION LIMITED	Infrastructure
2022	CHING HONG RD N HOUSING PH1,2	CHINA STATE CONSTRUCTION	Residential
2022	IMMIGRATION HEADQUARTERS, TKO	HOP HING CONSTRUCTION	Office
2022	AREA 54 TUNG CHUNG HOUSING	AGGRESSIVE CONSTRUCTION COMPANY	Residential
2022	SHAP SZE HEUNG, TPTL 157 DD165, 207, 218	GAMMON ENGINEERING & CONSTRUCTION	Residential
2022	WONG CHUK HANG STATION PH3 (SITE C)		Residential
2023	HO MAN TIN STATION RES (PACKAGE 2)	WAH TUNG FACADE COMPANY LIMITED	Infrastructure
2023	HKIA 3508 TERMINAL 2	GAMMON CONSTRUCTION LIMITED	Transport
2023	HKIA 3310 NORTH RUNWAY MODIFICATION WORKS	UDL ARGOS ENG & HEAVY IND CO LTD	Infrastructure
2023	SIN FAT RD, KWUN TONG NKIL 6584	WAH KEE (R&M) LIMITED	Residential
2023	R6 CTL KLN ROUTE-CENTRAL TUNNEL HY/2018/08	BOUYGUES TRAVAUX PUBLICS	Infrastructure
2023	CAROLINE HILL RD, INLAND LOT 8945	GAMMON ENGINEERING & CONSTRUCTION	Office
2023	KWONG WAH HOSPITAL PH2	SUN LUNG DECORATION CO LTD	Health
2023	LONG BIN - PUBLIC HOUSING PH 2	YAU LEE CONSTRUCTION CO LTD	Residential
2023	TKO LOHAS PARK PH12 (SITE D)	GAMMON ENGINEERING & CONSTRUCTION	Residential
2023	Refurbishment - Utilities - Stonecutters Island, West Kowloo	KPA ENGINEERING (HK) LIMITED	Utilities