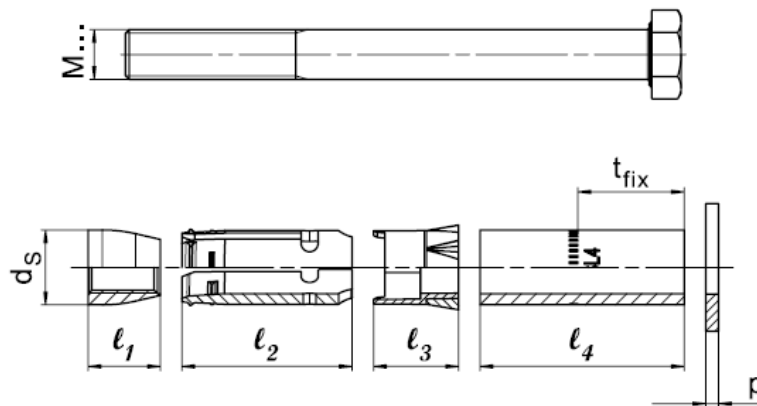




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Anchor dimensions of HSL4, HSL4-G, HSL4-B, HSL4-SK

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 HSL4-G HSL4-B	M12	5	200	17,6	17	40	20	28	223	3
	M16	10	200	23,6	20	54,4	24,4	34,5	224,5	4
	M20	10	200	27,6	20	57	31,5	51	241	4
HSL4-SK	M24	10	200	31,6	22	65	39	57	247	4
	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

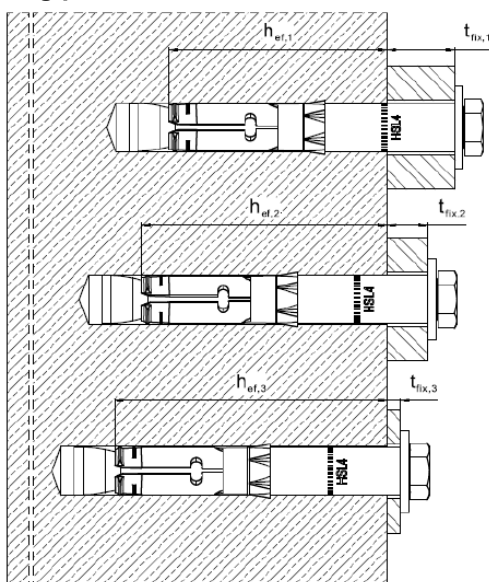




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Setting information

Setting positions a)



Setting position

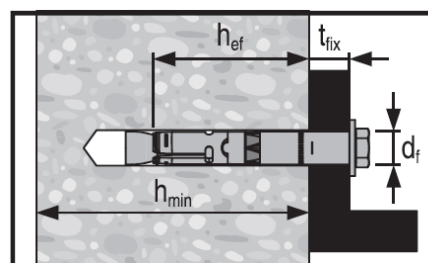
①

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		
		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		①	②	③	①	②	③	①	②	③
Fixture thickness	t _{fix,1} [mm]	5-200			5-200			5-200		
Effective fixture thickness	t _{fix,i}	t _{fix,1} ¹⁾ - Δi								
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 _{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]	15			25			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		
Setting position		①	②	③	①	②	③	①	②	③
Fixture thickness	t _{fix1} [mm]	10-200			10-200			10-200		
Effective fixture thickness	t _{fix,i}	t _{fix,1} ¹⁾ - Δi								
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 _{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]	75			145			210		




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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		
Setting position		①	②	③	①	②	③	①	②	③
Fixture thickness	$t_{fix,1}$ [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	$h_{1,i}$ [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		
Setting position		①	②	③	①	②	③	①	②	③
Fixture thickness	t_{fix1} [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	$h_{1,i}$ [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		
Setting position		①	②	③	①	②	③	①	②	③	①	②	③
Fixture thickness	$t_{fix,1}$ [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	$h_{1,i}$ [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											



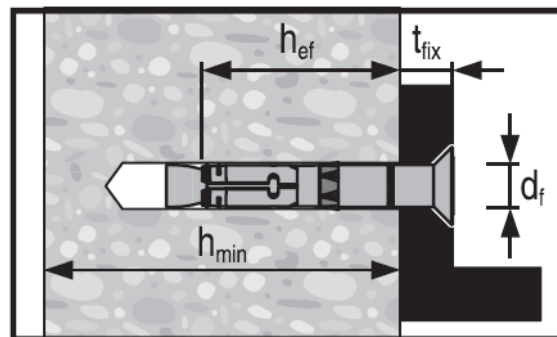
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Setting details for HSL4-SK ^{a)}

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	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 ¹⁾					

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



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Setting parameters for HSL4, HSL4-G, HSL4-B, HSL4-SK ^{a)}

Anchor size		M8			M10			M12		
Setting position ^{b)}	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
Uncracked concrete										
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		
Cracked concrete										
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
Uncracked concrete										
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		
Cracked concrete										
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.

