HSL4-I TECHNICAL SUPPLEMENT

Internally Threaded Expansion Anchors

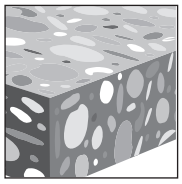
HSL4-I INTERNALLY THREADED EXPANSION ANCHORS

PRODUCT DESCRIPTION

HSL4-I Internally threaded expansion anchors

Anchor System	Features and Benefits
HSL4-I Internally Threaded Expansion Anchor 	• Passed Telecordia NEBS GR-63-CORE Zone 4 earthquake level qualification testing • High capacity load in thin slabs* • Force controlled expansion

*see Table 1 for slab thickness requirements



Uncracked concrete

MATERIAL SPECIFICATIONS

Carbon steel bolt or threaded rod conform to ISO 898-1, Class 8.8, f_{ya} ≥ 93 ksi, f_{uta} ≥ 116 ksi.
Carbon steel expansion sleeve conforms to. GB/T 3639, Q355
Carbon steel nut conforms to Grade 8, f_{uta} ≥ 116 ksi.
Carbon steel cone conforms to EN 10263, C35EC, f_{uta} ≥ 87 ksi.
Carbon steel washer conforms to GB/T 1591, f_{uta} ≥ 91 ksi.

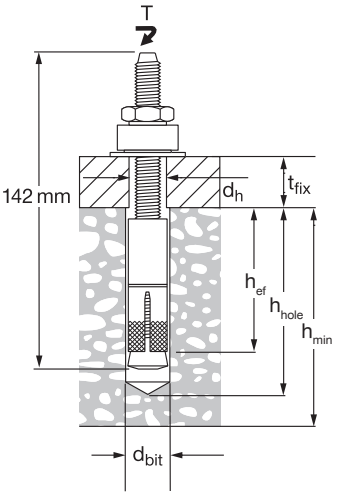
INSTALLATION PARAMETERS

Table 1 — Hilti HSL4-I M12 65/80 specifications

Setting information	Symbol	Units	HSL4-I M12 65/80	
Nominal bit diameter	d_{bit}	mm	18	
Effective minimum embedment	h_{ef}	mm	65	80
		(in.)	(2-9/16)	(3-3/16)
Minimum hole depth	h_{hole}	mm	80	95
		(in.)	(3-3/16)	(3-3/4)
Fixture hole diameter	d_h	mm	14	
		(in.)	(9/16)	
Maximum fixture thickness	t_{fix}	mm	40	25
		(in.)	(1-9/16)	(1)
Installation torque	T_{inst}	Nm	NA[1]	
		(ft-lb)		
Wrench size		mm	19	
Minimum concrete member thickness	h_{min}	mm	115	130
		(in.)	(4-1/2)	(5)

1 Installation is complete when torque-nut is broken off with wrench.

Figure 1 — HSL4-I M12 65/80 specifications[1,2]



1 Figure illustrates 65 mm embedment.
2 Torque nut configuration before application of installation torque.

DESIGN DATA IN CONCRETE PER ALLOWABLE STRESS DESIGN

Table 2 — Hilti HSL4-I M12 allowable loads in 4,000 psi normal-weight concrete[1]

Description	Anchor length mm	Nominal embedment mm	Tension lb	Shear lb
HSL4-I M12 65/80	142	65	2,335	2,265
	142	80	3,150	2,350

1 Allowable loads calculated using a 4:1 factor of safety.

Combined shear and tension loading

$$\left(\frac{N_d}{N_{rec}}\right)^{5/3} + \left(\frac{V_d}{V_{rec}}\right)^{5/3} \leq 1.0$$

INSTALLATION INSTRUCTIONS

Installation Instructions For Use (IFU) are included with each product package. They can also be viewed or downloaded online at www.hilti.com. Because of the possibility of changes, always verify that downloaded IFU are current when used. Proper installation is critical to achieve full performance. Training is available on request. Contact Hilti Technical Services for applications and conditions not addressed in the IFU.

PRODUCT PORTFOLIO

HSL4-I M12 65/80

Description	Box qty
HSL4-I M12 65/80	20

In the US:
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The data contained in this literature was current as of the date of publication. Updates and changes may be made based on later testing. If verification is needed that the data is still current, please contact the Hilti Technical Support Specialists at 1-800-879-8000. All published load values contained in this literature represent the results of testing by Hilti or test organizations. Local base materials were used. Because of variations in materials, on-site testing is necessary to determine performance at any specific site. Laser beams represented by red lines in this publication.
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