

HELI-TIE™ Helical Wall Tie

The Heli-Tie™ is a stainless-steel helical tie used to anchor building façades to structural members or to stabilize multiple-wythe brick walls. The helical design allows the tie to be driven quickly and easily into a predrilled pilot hole (or embedded into mortar joints in new construction) to provide a mechanical connection between a masonry façade and its backup material or between multiple wythes of brick. As it is driven, the fins of the tie undercut the masonry to provide an expansion-free anchorage that will withstand tension and compression loads. The Heli-Tie wall tie is installed using a proprietary setting tool that is used with an SDS-Plus shank rotohammer to drive and countersink the tie. Heli-Tie wall ties performs in concrete and masonry as well as wood and steel studs.

FEATURES:

- Installs quickly and easily- With the rotohammer in drill and hammer mode the tie installs faster than competitive products.
- Provides an inconspicuous repair that preserves the appearance of the building. After installation the tie is countersunk up to 1/2" below the surface, allowing the tie location to be patched.
- Corrosion resistant stainless steel.
- Larger core diameter provides higher torsional capacity resulting in less deflection due to "uncoiling" under load.
- Fractionally sized anchor - no metric drill bits required.
- Patented manufacturing process results in a more uniform helix along the entire tie allowing easier driving and better interlock with the substrate.
- Batch number printed on every tie for easy identification and inspection.

MATERIAL: Type 304 stainless steel (316 available by special order, contact Simpson Strong-Tie for details)

TEST CRITERIA: CSA A370

INSTALLATION:

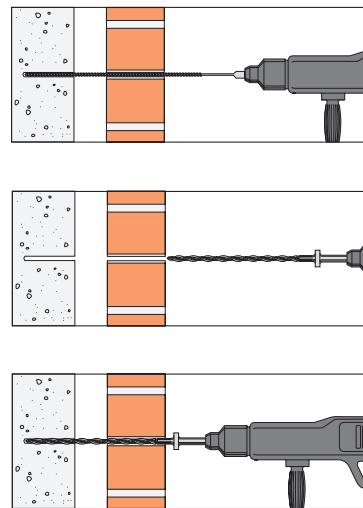
- Drill pilot hole through the façade material and to the specified embedment depth + 1" in the backup material using appropriate drill bit(s). Drill should be in rotation only mode when drilling into soft masonry or into hollow backing material.
- Position blue end of the Heli-Tie™ fastener in the installation tool and insert the tie into the pilot hole.
- With the SDS-PLUS rotohammer in rotation and hammer mode, drive the tie until the tip of the installation tool enters the exterior surface of the masonry and countersinks the tie below the surface. Patch the hole in the façade using a color-appropriate material.



Heli-Tie Helical Wall Tie
U.S. Patent Pending



Installation Sequence



Heli-Tie™ Product Data

Size (in.)	Model No.	Drill Bit Dia. (in.)	Quantity	
			Box	Carton
3/8 x 7	HELI37700A	7/32" or 1/4"	100	400
3/8 x 8	HELI37800A		100	400
3/8 x 9	HELI37900A		100	400
3/8 x 10	HELI371000A		150	300
3/8 x 11	HELI371100A		150	300
3/8 x 12	HELI371200A		150	300

Special-order lengths available, contact Simpson for details.

Heli-Tie™ Fastener Installation Tool - Model HELIT00L37A

Required for correct installation of Heli-Tie wall ties. Speeds up installation and automatically countersinks the tie into the façade material. The updated one-piece design with no moving parts drastically reduces the cost of the tool, improves longevity and prevents the Heli-Tie fasteners from jamming. Installation tools sold separately.



HELIT00L37A

Guide Tension Loads in Various Base Materials

Size in. (mm)	Base Material	Anchor Location	Drill Bit Dia. in.	Min. Embed. Depth in. (mm)	Tension Load ¹				
					Ultimate ² lbs. (kN)	Load at Max. Permitted Displ. ³ lbs. (kN)	Standard Deviation lbs. (kN)		
3/8 (9.0)	Solid Brick ⁴	Mortar Bed Joint	7/32	3 (76)	570 (2.5)	240 (1.1)	79 (0.4)		
			1/4		365 (1.6)	130 (0.6)	46 (0.2)		
		Brick Face	7/32		1,310 (5.8)	565 (2.5)	84 (0.4)		
			1/4		815 (3.6)	350 (1.6)	60 (0.3)		
	Hollow Brick ⁵	Mortar Bed Joint	7/32		2 3/4 (70)	530 (2.4)	285 (1.3)	79 (0.4)	
			1/4			775 (3.4)	405 (1.8)	47 (0.2)	
		Brick Face	7/32			510 (2.3)	185 (0.8)	20 (0.1)	
			1/4			1,170 (5.2)	405 (1.8)	79 (0.4)	
	Grout-Filled CMU ⁶	Center of Face Shell	7/32	2 3/4 (70)		830 (3.7)	350 (1.6)	60 (0.3)	
			1/4			1,160 (5.2)	440 (2.0)	56 (0.2)	
		Web	7/32			810 (3.6)	330 (1.5)	100 (0.4)	
			1/4			720 (3.2)	320 (1.4)	71 (0.3)	
		Mortar Bed Joint	7/32		530 (2.4)	205 (0.9)	58 (0.3)		
			1/4		790 (3.5)	305 (1.4)	56 (0.2)		
		Hollow CMU ⁷	Center of Face Shell		7/32	2 3/4 (70)	505 (2.2)	255 (1.1)	46 (0.2)
					1/4		1,200 (5.3)	445 (2.0)	50 (0.2)
	Web		7/32	675 (3.0)	385 (1.7)		96 (0.4)		
			1/4	880 (3.9)	410 (1.8)		76 (0.3)		
	Normal-Weight Concrete ⁸	-	7/32	2 3/4 (70)	990 (4.4)		380 (1.7)	96 (0.4)	
			1/4		590 (2.6)		370 (1.6)	24 (0.1)	
	2x4 Wood Stud ^{9,11}	Center of Thin Edge	7/32	2 3/4 (70)	450 (2.0)		260 (1.2)	6 (0.0)	
			1/4		200 (0.9)		120 (0.5)	8 (0.0)	
	Metal Stud ^{10,11}	Center of Flange	7/32	1 (25)	155 (0.7)	95 (0.4)	2 (0.0)		
			1/4						

⚠ Caution: Loads are guide values based on laboratory testing. On-site testing shall be performed for verification of capacity since base material quality can vary widely.

- Tabulated loads are guide values based on laboratory testing. On-site testing shall be performed for verification of capacity since base material quality can vary widely.
- Ultimate load is average load at failure of the base material. Heli-Tie™ fastener average ultimate steel strength is 3,885 pounds and does not govern.
- Load at maximum permitted displacement is average load at displacement of 0.157 inches (4 mm). The designer shall apply a suitable factor of safety to these numbers to derive allowable service loads.
- Solid brick values for nominal 4-inch wide solid brick conforming to ASTM C62/C216, Grade SW. Type N mortar is prepared in accordance with UBC Section 2103.3 and UBC Standard 21-15, or IBC Section 2103.8.
- Hollow brick values for nominal 4-inch wide hollow brick conforming to ASTM C216/C652, Grade SW, Type HBS, Class H40V. Mortar is prepared in accordance with UBC Section 2103.3 and UBC Standard 21-15, or IBC Section 2103.8.
- Grout-filled CMU values for 8-inch wide lightweight, medium-weight and normal-weight concrete masonry units conforming to UBC Standard 21-4 or ASTM C90, Grade N, Type II. The masonry units must be fully grouted with grout conforming with UBC Section 2103.4 or IBC Section 2103.12. Type N mortar is prepared in accordance with UBC Section 2103.3 and UBC Standard 21-15, or IBC Section 2103.8.
- Hollow CMU values for 8-inch wide light-weight, medium-weight and normal-weight concrete masonry units conforming to UBC Standard 21-4 or ASTM C90, Grade N, Type II. Type N mortar is prepared in accordance with UBC Section 2103.3 and UBC Standard 21-15, or IBC Section 2103.8.
- Normal-weight concrete values for concrete with minimum specified compressive strength of 2,500 psi.
- 2x4 wood stud values for nominal 2x4 Spruce-Pine-Fir.
- Metal stud values for 20-gauge C-shape metal stud.
- For new construction. Anchor one end of tie into backup material. Embed other end into veneer mortar joint. Not for retrofits due to difficulty of locating center of 2x4 or metal stud flange.

Mechanical Anchors

C-SAS-2009 © 2009 SIMPSON STRONG-TIE COMPANY INC.

Compression (Buckling) Loads

Size in. (mm)	Unsupported Length in. (mm)	Ultimate Compression Load ¹ lbs. (kN)
3/8 (9.0)	1 (25)	1,905 (8.5)
	2 (50)	1,310 (5.8)
	4 (100)	980 (4.4)
	6 (150)	785 (3.5)

1. The Designer shall apply a suitable factor of safety to these numbers to derive allowable service loads.



Heli-Tie™ Wall Tie Tension Tester - Model HELITEST37A

Recommended equipment for on-site testing to accurately determine load values in any specific structure. The Heli-Tie wall tie tension tester features a key specifically designed to grip the Heli-Tie fastener and provide accurate results. Replacement test keys sold separately (Model HELIKEY37A).