

Heli-Tie™ Helical Wall Tie

The stainless-steel Heli-Tie™ wall tie is used to anchor building facades to structural members or to stabilise multiple-skin brick walls. The helical design enables the tie to be driven quickly and easily into a predrilled pilot hole (or embedded into mortar joints in new construction). 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 perform in concrete and masonry as well as timber and steel studs.

Features

- Can install in the face of brick or into the mortar bed joint
- Installs quickly and easily
- Provides an inconspicuous repair that helps preserve a building's appearance
- Type 316 stainless steel offers superior corrosion resistance when wall cavity exposure exists
- Patented manufacturing process enables easier driving and better interlock with the substrate
- Batch number printed on each tie for easy identification and inspection

Applications

- Repair of building facades

Base Material

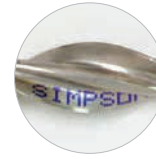
- Brick

Finish

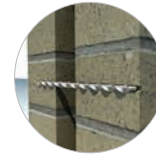
- Type 316 stainless steel

Ordering Information

- Available in precut and 10 m coils

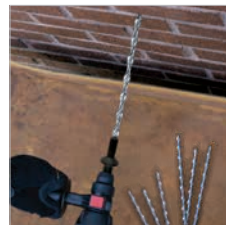


Batch number printed on each tie for **easy identification and inspection**



Patented manufacturing process enables **easier driving and better interlock** with the substrate

Heli-Tie™ Helical Wall Tie
U.S. Patent 7,269,987



Complementary Products

Heli-Tie™ Fastener Installation Tool

Required to correctly install the Heli-Tie™ wall ties, this tool speeds up installation and automatically countersinks the tie into the facade material. The one-piece design with no moving parts, improves longevity and prevents the Heli-Tie fasteners from jamming. Installation tools sold separately.

Installation Tool Model No.

HELITool09



Heli-Tie™ Wall Tie Tension Tester

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.

Tester Model No.

HELITEST09

Test Key Model No.

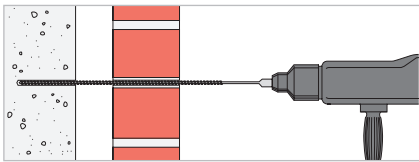
HELIKEY09



Heli-Tie™ Helical Wall Tie Installation

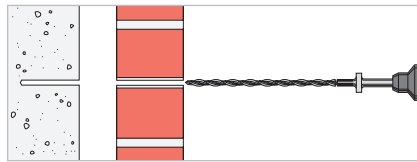


Installation Sequence



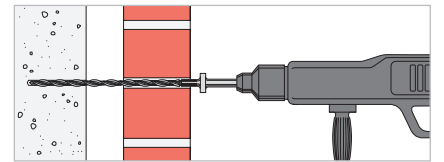
1. Drill

Drill pilot hole through the facade and to the specified embedment depth in the base material (add 25 mm to drill depth if base material is concrete). Drill should be in rotation only mode when drilling into soft masonry or into hollow backing material.



2. Insert

Position blue end of the Heli-Tie™ fastener in the installation tool and insert the tie into the pilot hole.



3. Drive

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.

PLEASE NOTE: A test hole should be performed to ensure the tie will go in.

Patch the hole in the facade with a matching masonry mortar.

Heli-Tie™ Helical Wall Tie Product Availability

316 Stainless Steel

Size (mm)	Model No.	Drill Bit Dia.* (mm)	Pack Qty	Ctn Qty
9 x 180	HELI09180A4			
9 x 205	HELI09205A4		100	400
9 x 230	HELI09230A4			
9 x 255	HELI09255A4			
9 x 280	HELI09280A4	5.5	150	300
9 x 305	HELI09305A4	or		
		6.5		
9 x 10,000	HELI09A4-10M ¹		1	—

Special-order lengths available, contact Simpson Strong-Tie for details.

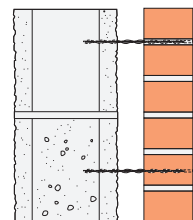
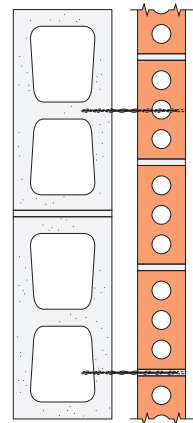
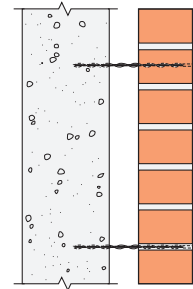
1. Only available in New Zealand

Heli-Tie™ Helical Wall Tie Guide Tension Loads in Various Base Materials

Restoration Solutions

Size (mm)	Base Material	Anchor Location	Drill Bit Dia.* (mm)	Min. Embed. Depth (mm)	Tension Load ¹				
					Ultimate ² (kN)	Standard Deviation (kN)	Characteristic (kN)	Load at Max. Permitted Displ. ³ (kN)	Coefficient of Variation
9.0	Solid Brick ⁴	Mortar Bed Joint	5.5	76	2.5	0.4	1.5	1.1	0.16
			6.5		1.6	0.2	1.1	0.6	0.13
		Brick Face	5.5		5.8	0.4	4.8	2.5	0.07
			6.5		3.6	0.3	2.8	1.6	0.08
	Hollow Brick ⁵	Mortar Bed Joint	5.5		2.4	0.4	1.4	1.3	0.17
		Brick Face	5.5		3.4	0.2	2.9	1.8	0.06
			6.5		2.3	0.1	2.0	0.8	0.04
	Grout-Filled CMU ⁶	Centre of Face Shell	5.5		5.2	0.4	4.2	1.8	0.08
			6.5	3.7	0.3	2.9	1.6	0.08	
		Web	5.5	5.2	0.2	4.7	2.0	0.04	
			6.5	3.6	0.4	2.6	1.5	0.11	
		Mortar Bed Joint	5.5	3.2	0.3	2.4	1.4	0.09	
			6.5	2.4	0.3	1.6	0.9	0.13	
	Hollow CMU ⁷	Centre of Face Shell	5.5	3.5	0.2	3.0	1.4	0.06	
			6.5	2.2	0.2	1.7	1.1	0.09	
		Web	5.5	5.3	0.2	4.8	2.0	0.04	
			6.5	3.0	0.4	2.0	1.7	0.13	
	Normal-Weight Concrete ⁸	—	5.5	44	3.9	0.3	3.1	1.8	0.08
6.5			70	4.4	0.4	3.4	1.7	0.09	
Timber Stud ^{9,11}	Centre of Thin Edge	5.5	70	2.6	0.1	2.3	1.6	0.04	
		6.5		2.0	0.0	2.0	1.2	0.00	
Steel Stud ^{10,11}	Centre of Flange	5.5	25	0.9	0.0	0.9	0.5	0.00	
		6.5		0.7	0.0	0.7	0.4	0.00	

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.



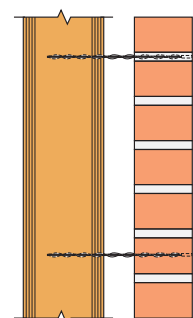
1. Tabulated loads are guide values based on laboratory testing. On-site testing shall be performed for verification of capacity since base material quality can vary widely.
2. Ultimate load is average load at failure of the base material. Heli-Tie™ fastener average ultimate steel strength is 17.3 kN and does not govern.
3. Load at maximum permitted displacement is average load at displacement of 4 mm. The designer shall apply a suitable factor of safety to these numbers to derive allowable service loads.
4. Solid brick values for nominal 100 mm wide solid brick conforming to ASTM C62/C216, Grade SW. Type N mortar is prepared in accordance with IBC Section 2103.8.
5. Hollow brick values for nominal 100 mm wide hollow brick conforming to ASTM C216/C652, Grade SW, Type HBS, Class H40V. Mortar is prepared in accordance with IBC Section 2103.8.
6. Grout-filled CMU values for 200 mm wide lightweight, medium-weight and normal-weight concrete masonry units. The masonry units must be fully grouted. Values for 200 mm wide concrete masonry units (CMU) with a minimum specified compressive strength of masonry, f_m, at 28 days is 10.34 MPa.
7. Hollow CMU values for 200 mm wide lightweight, medium-weight and normal-weight concrete masonry units.
8. Normal-weight concrete values for concrete with minimum specified compressive strength of 17.24 MPa.
9. 90 mm x 45 mm timber stud values for nominal 90 mm x 45 mm Spruce-Pine-Fir or Radiata Pine.
10. Steel stud values for 20-gauge C-shape steel stud.
11. 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 centre of timber or steel stud flange.

*When selecting drill bit, 5.5 mm equates to 1/8" and 6.5 mm equates to 1/4" imperial sized bit.

Heli-Tie™ Helical Wall Tie Compression (Buckling) Loads

Size (mm)	Unsupported Length (mm)	Ultimate Compression Load ¹ (kN)
9.0	25	8.5
	50	5.8
	100	4.4
	150	3.5

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





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