The following excerpt are pages from the North American Masonry Anchor Design Guide 2023.

Please refer to the publication in its entirety for complete details on this product including data development, product specifications, general suitability, installation, and spacing and edge distance guidelines.
US&CA: Hilti North American Product Technical Guides

To consult directly with a team member regarding our anchor fastening products, contact Hilti's team of technical support specialists between the hours of 7:00am – 5:00pm CST.
US: 877-749-6337 or HNATechnicalServices@hilti.com
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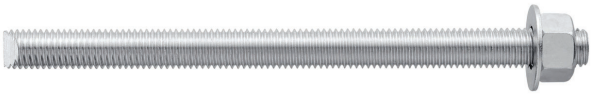
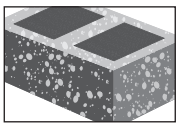
7.1 HIT-HY 270 ADHESIVE FOR MASONRY CONSTRUCTION

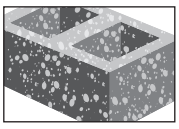
PRODUCT DESCRIPTION

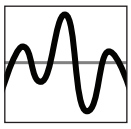
HIT-HY 270 with Threaded Rod, Rebar, and HIS-N/RN Inserts

Anchor System	Features and Benefits
 Hilti HIT-HY 270 Cartridge  Hilti HAS Threaded Rods  Rebar  Mesh sleeve HIT-SC  Hilti HIS-N/RN	• Injectable two-component hybrid adhesive mortar • For use in grouted and ungrouted concrete masonry block walls, solid and hollow brick walls[1] and unreinforced multi-wythe brick walls referred to as unreinforced masonry or URM[1] • ICC-ES evaluated for grout-filled and ungrouted concrete masonry • ICC-ES evaluated for unreinforced masonry (URM)[1] • No hole cleaning requirement when installed with SafeSet™ hollow drill bit technology[2]

1 This document does not cover solid and hollow brick base materials, such as multi wythe brick walls. For brick base material technical data, refer to the 2022 Anchor Technical Guide.
2 SafeSet hollow drill bit is not applicable for brick base materials.


Grout-filled concrete masonry


Ungrouted concrete masonry


Seismic Design categories A-F

Hollow drill bit

PROFIS Engineering

Approvals/Listings	
ICC-ES (International Code Council)	ESR-4143 in hollow and grout-filled CMU per ICC-ES AC58 ESR-4144 in unreinforced masonry per ICC-ES AC60
European Technical Approval	ETA-13/1036
City of Los Angeles	2020 LABC Supplement (within ESR-4143 and ESR-4144)
Florida Building Code	2020 FBC Supplement (within ESR-4143) w/ HVHZ
U.S. Green Building Council	LEED® Credit 4.1-Low Emitting Materials

DESIGN DATA IN MASONRY

HIT-HY 270 adhesive with Hilti HAS threaded rods, deformed reinforcing bars (rebar), and Hilti HIS-N and HIS-RN in fully grouted CMU

Hilti HAS Threaded Rods

Deformed Reinforcing Bars (Rebar)

Hilti HIS-N and HIS-RN

Permissible Base Materials		Permissible drilling method	
	Grout-filled concrete masonry		Hammer drilling with carbide tipped drill bit Hilti TE-CD or TE-YD hollow drill bit (for diameters 1/2" - 3/4")

Figure 1 — Hilti HIT-HY 270 with HAS threaded rod and reinforcing bars in grout-filled concrete masonry walls

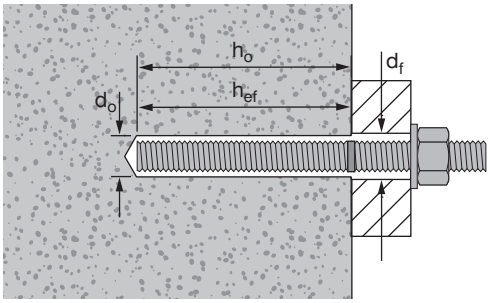


Figure 2 — Hilti HIT-HY 270 specifications for HIS-N and HIS-RN inserts in grout-filled concrete masonry walls

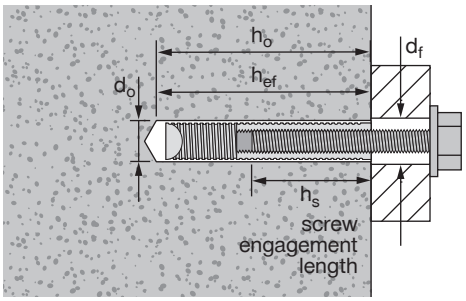


Figure 3 — Installation with (2) washers

Table 1 — Hilti HIT-HY 270 Installation Information for Threaded Rod, Rebar, and Hilti HIS-(R)N Anchors — Fully Grouted CMU Construction, Face and Top of Wall

Installation information		Symbol	Units	Nominal Anchor Diameter / Rebar Size			
				3/8" or #3	1/2" or #4	5/8" or #5	3/4" or #6
Drill Bit Diameter — Threaded Rod		d_o	in.	7/16	9/16	3/4	7/8
Drill Bit Diameter — Rebar		d_o	in.	1/2	5/8	3/4	7/8
Drill Bit Diameter — HIS-(R)N		d_o	in.	11/16	7/8	N/A	N/A
Minimum Embedment Depth — Threaded Rod & Rebar		$h_{ef,min}$	in. (mm)	2-3/8 (60)	2-3/4 (70)	3-1/8 (79)	3-1/2 (89)
Minimum Embedment Depth — HIS-(R)N		$h_{ef,min}$	in. (mm)	4-3/8 (111)	5 (127)	N/A -	N/A -
Maximum Embedment Depth		$h_{ef,max}$	in. (mm)	7-1/2 (191)	10 (254)	10 (254)	10 (254)
Diameter of Fixture Hole — Threaded Rod[2]	Through-set		in.	1/2	5/8	13/16[1]	15/16[1]
	Preset		in.	7/16	9/16	11/16	13/16
Maximum Installation Torque		T_{inst}	ft-lb	6	7.5	7.5	10
Minimum Masonry Thickness[3]		h_{min}	in. (mm)	7-5/8 (203)			
Face of Wall	Minimum Edge Distance[4]	$c_{min,face}$	in. (mm)	4 (102)	4 (102)	4 (102)	4 (102)
	Minimum Anchor Spacing	$s_{min,face}$	in. (mm)	4 (102)	4 (102)	4 (102)	4 (102)
Top of Wall	Minimum Edge Distance[4]	$c_{min,top}$	in. (mm)	N/A	1-3/4 [5] (44)	1-3/4 (44)	2-3/4 [6] (70)
	Minimum Anchor Spacing	$s_{min,top}$	in. (mm)	N/A	3 [5] (76)	3 (76)	3 [6] (76)

1 Install using (2) washers. See Figure 3.
2 The preset fixture hole diameter is applicable for inserted bolts installed in preset HIS-(R)N anchors only.
3 Maximum embedment for installation into the face of 7-5/8" CMU wall is 6-3/4". Maximum embedment for installation into the face of 9-5/8" CMU wall is 8".
4 The minimum distance from the center of an anchor to the centerline of a head joint (vertical mortar joint) is 2".
5 1/2" HIS-(R)N is not applicable for top of wall applications.
6 #6 rebar is not applicable for top of wall applications.

Table 2 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for threaded rod in the face of uncracked fully grouted CMU walls [1,2,3,4,5,6,7,8]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of pryout or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
3/8	2-3/8 (60)	800 (3.6)	800 (3.6)	800 (3.6)	800 (3.6)	860 (3.8)	860 (3.8)	860 (3.8)	860 (3.8)
	4-1/2 (114)	1,515 (6.7)	1,515 (6.7)	1,515 (6.7)	1,515 (6.7)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,265 (14.5)
	6-3/4 (171)	2,275 (10.1)	2,275 (10.1)	2,275 (10.1)	2,275 (10.1)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,415 (15.2)
	7-1/2 (191)	2,525 (11.2)	2,525 (11.2)	2,525 (11.2)	2,525 (11.2)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,415 (15.2)
1/2	2-3/4 (70)	1,035 (4.6)	1,035 (4.6)	1,035 (4.6)	1,035 (4.6)	2,630 (11.7)	2,630 (11.7)	2,630 (11.7)	2,630 (11.7)
	4-1/2 (114)	1,690 (7.5)	1,690 (7.5)	1,690 (7.5)	1,690 (7.5)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
	6-3/4 (171)	2,535 (11.3)	2,535 (11.3)	2,535 (11.3)	2,535 (11.3)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
	10 (254)	3,760 (16.7)	3,760 (16.7)	3,760 (16.7)	3,760 (16.7)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
5/8	3-1/8 (79)	1,500 (6.7)	1,500 (6.7)	1,500 (6.7)	1,500 (6.7)	3,755 (16.7)	3,825 (17.0)	3,825 (17.0)	3,825 (17.0)
	4-1/2 (114)	2,165 (9.6)	2,165 (9.6)	2,165 (9.6)	2,165 (9.6)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
	6-3/4 (171)	3,245 (14.4)	3,245 (14.4)	3,245 (14.4)	3,245 (14.4)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
	10 (254)	4,805 (21.4)	4,805 (21.4)	4,805 (21.4)	4,805 (21.4)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
3/4	3-1/2 (89)	905 (4.0)	905 (4.0)	905 (4.0)	905 (4.0)	2,310 (10.3)	2,310 (10.3)	2,310 (10.3)	2,310 (10.3)
	4-1/2 (114)	1,165 (5.2)	1,165 (5.2)	1,165 (5.2)	1,165 (5.2)	2,970 (13.2)	2,970 (13.2)	2,970 (13.2)	2,970 (13.2)
	6-3/4 (171)	1,750 (7.8)	1,750 (7.8)	1,750 (7.8)	1,750 (7.8)	4,140 (18.4)	4,450 (19.8)	4,455 (19.8)	4,455 (19.8)
	10 (254)	2,590 (11.5)	2,590 (11.5)	2,590 (11.5)	2,590 (11.5)	4,140 (18.4)	4,450 (19.8)	4,705 (20.9)	4,925 (21.9)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor with no influence from nearby edges, hollow head joints, or additional anchors. For designs with the influence of nearby edges, hollow head joints, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
3/8-in and 1/2-in diameter - α_{sat} = 1.00
5/8-in and 3/4-in diameter - α_{sat} = 0.93
7 Tabular values are for static loads only. Seismic design is not permitted for uncracked masonry.
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0 and multiply design strength values in tension and shear by 0.80.

Table 3 —Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for threaded rod in the face of cracked fully grouted CMU walls[1,2,3,4,5,6,7,8]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of pryout or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
3/8	2-3/8 (60)	610 (2.7)	610 (2.7)	610 (2.7)	610 (2.7)	655 (2.9)	655 (2.9)	655 (2.9)	655 (2.9)
	4-1/2 (114)	1,155 (5.1)	1,155 (5.1)	1,155 (5.1)	1,155 (5.1)	2,485 (11.1)	2,485 (11.1)	2,485 (11.1)	2,485 (11.1)
	6-3/4 (171)	1,730 (7.7)	1,730 (7.7)	1,730 (7.7)	1,730 (7.7)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,415 (15.2)
	7-1/2 (191)	1,925 (8.6)	1,925 (8.6)	1,925 (8.6)	1,925 (8.6)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,415 (15.2)
1/2	2-3/4 (70)	715 (3.2)	715 (3.2)	715 (3.2)	715 (3.2)	1,815 (8.1)	1,815 (8.1)	1,815 (8.1)	1,815 (8.1)
	4-1/2 (114)	1,165 (5.2)	1,165 (5.2)	1,165 (5.2)	1,165 (5.2)	2,970 (13.2)	2,970 (13.2)	2,970 (13.2)	2,970 (13.2)
	6-3/4 (171)	1,750 (7.8)	1,750 (7.8)	1,750 (7.8)	1,750 (7.8)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
	10 (254)	2,590 (11.5)	2,590 (11.5)	2,590 (11.5)	2,590 (11.5)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
5/8	3-1/8 (79)	825 (3.7)	825 (3.7)	825 (3.7)	825 (3.7)	2,105 (9.4)	2,105 (9.4)	2,105 (9.4)	2,105 (9.4)
	4-1/2 (114)	1,190 (5.3)	1,190 (5.3)	1,190 (5.3)	1,190 (5.3)	3,030 (13.5)	3,030 (13.5)	3,030 (13.5)	3,030 (13.5)
	6-3/4 (171)	1,785 (7.9)	1,785 (7.9)	1,785 (7.9)	1,785 (7.9)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
	10 (254)	2,645 (11.8)	2,645 (11.8)	2,645 (11.8)	2,645 (11.8)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
3/4	3-1/2 (89)	660 (2.9)	660 (2.9)	660 (2.9)	660 (2.9)	1,675 (7.5)	1,675 (7.5)	1,675 (7.5)	1,675 (7.5)
	4-1/2 (114)	845 (3.8)	845 (3.8)	845 (3.8)	845 (3.8)	2,150 (9.6)	2,150 (9.6)	2,150 (9.6)	2,150 (9.6)
	6-3/4 (171)	1,270 (5.6)	1,270 (5.6)	1,270 (5.6)	1,270 (5.6)	3,230 (14.4)	3,230 (14.4)	3,230 (14.4)	3,230 (14.4)
	10 (254)	1,880 (8.4)	1,880 (8.4)	1,880 (8.4)	1,880 (8.4)	4,140 (18.4)	4,450 (19.8)	4,705 (20.9)	4,785 (21.3)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor with no influence from nearby edges, hollow head joints, or additional anchors. For designs with the influence of nearby edges, hollow head joints, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
3/8-in and 1/2-in diameter - α_{sat} = 1.00
5/8-in and 3/4-in diameter - α_{sat} = 0.93
7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by the following reduction factors:
3/8-in diameter = 0.74
1/2-in diameter = 0.65
5/8-in diameter = 0.66
3/4-in diameter = 0.74
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0 and multiply design strength values in tension and shear by 0.80.

Table 4 —Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for threaded rod in the face of uncracked fully grouted CMU walls and installed 2-in from centerline of hollow head joint [1,2,3,4,5,6,7,8]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of breakout, pryout, or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
3/8	2-3/8 (60)	655 (2.9)	655 (2.9)	655 (2.9)	655 (2.9)	705 (3.1)	705 (3.1)	705 (3.1)	705 (3.1)
	4-1/2 (114)	1,245 (5.5)	1,245 (5.5)	1,245 (5.5)	1,245 (5.5)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
	6-3/4 (171)	1,865 (8.3)	1,865 (8.3)	1,865 (8.3)	1,865 (8.3)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
	7-1/2 (191)	2,070 (9.2)	2,070 (9.2)	2,070 (9.2)	2,070 (9.2)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
1/2	2-3/4 (70)	710 (3.2)	710 (3.2)	710 (3.2)	710 (3.2)	1,290 (5.7)	1,490 (6.6)	1,665 (7.4)	1,810 (8.1)
	4-1/2 (114)	1,165 (5.2)	1,165 (5.2)	1,165 (5.2)	1,165 (5.2)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
	6-3/4 (171)	1,745 (7.8)	1,745 (7.8)	1,745 (7.8)	1,745 (7.8)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
	10 (254)	2,585 (11.5)	2,585 (11.5)	2,585 (11.5)	2,585 (11.5)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
5/8	3-1/8 (79)	915 (4.1)	915 (4.1)	915 (4.1)	915 (4.1)	1,415 (6.3)	1,635 (7.3)	1,825 (8.1)	2,000 (8.9)
	4-1/2 (114)	1,315 (5.8)	1,315 (5.8)	1,315 (5.8)	1,315 (5.8)	1,520 (6.8)	1,755 (7.8)	1,965 (8.7)	2,150 (9.6)
	6-3/4 (171)	1,975 (8.8)	1,975 (8.8)	1,975 (8.8)	1,975 (8.8)	1,555 (6.9)	1,795 (8.0)	2,005 (8.9)	2,195 (9.8)
	10 (254)	2,925 (13.0)	2,925 (13.0)	2,925 (13.0)	2,925 (13.0)	1,555 (6.9)	1,795 (8.0)	2,005 (8.9)	2,195 (9.8)
3/4	3-1/2 (89)	620 (2.8)	620 (2.8)	620 (2.8)	620 (2.8)	1,530 (6.8)	1,575 (7.0)	1,575 (7.0)	1,575 (7.0)
	4-1/2 (114)	795 (3.5)	795 (3.5)	795 (3.5)	795 (3.5)	1,605 (7.1)	1,855 (8.3)	2,025 (9.0)	2,025 (9.0)
	6-3/4 (171)	1,190 (5.3)	1,190 (5.3)	1,190 (5.3)	1,190 (5.3)	1,665 (7.4)	1,925 (8.6)	2,150 (9.6)	2,360 (10.5)
	10 (254)	1,765 (7.9)	1,765 (7.9)	1,765 (7.9)	1,765 (7.9)	1,665 (7.4)	1,925 (8.6)	2,150 (9.6)	2,360 (10.5)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor located 2-in from centerline of a hollow head joint with no additional influence from nearby edges or additional anchors. For designs with the influence of nearby edges, different distances to a hollow head joint, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
3/8-in and 1/2-in diameter - α_{sat} = 1.00
5/8-in and 3/4-in diameter - α_{sat} = 0.93
7 Tabular values are for static loads only. Seismic design is not permitted for uncracked masonry.
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0 and multiply design strength values in tension and shear by 0.80.

Table 5 —Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for threaded rod in the face of cracked fully grouted CMU walls and installed 2-in from centerline of hollow head joint [1,2,3,4,5,6,7,8]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of breakout, pryout, or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
3/8	2-3/8 (60)	500 (2.2)	500 (2.2)	500 (2.2)	500 (2.2)	540 (2.4)	540 (2.4)	540 (2.4)	540 (2.4)
	4-1/2 (114)	945 (4.2)	945 (4.2)	945 (4.2)	945 (4.2)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
	6-3/4 (171)	1,420 (6.3)	1,420 (6.3)	1,420 (6.3)	1,420 (6.3)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
	7-1/2 (191)	1,575 (7.0)	1,575 (7.0)	1,575 (7.0)	1,575 (7.0)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
1/2	2-3/4 (70)	490 (2.2)	490 (2.2)	490 (2.2)	490 (2.2)	920 (4.1)	1,065 (4.7)	1,190 (5.3)	1,250 (5.6)
	4-1/2 (114)	805 (3.6)	805 (3.6)	805 (3.6)	805 (3.6)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
	6-3/4 (171)	1,205 (5.4)	1,205 (5.4)	1,205 (5.4)	1,205 (5.4)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
	10 (254)	1,785 (7.9)	1,785 (7.9)	1,785 (7.9)	1,785 (7.9)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
5/8	3-1/8 (79)	505 (2.2)	505 (2.2)	505 (2.2)	505 (2.2)	1,010 (4.5)	1,165 (5.2)	1,280 (5.7)	1,280 (5.7)
	4-1/2 (114)	725 (3.2)	725 (3.2)	725 (3.2)	725 (3.2)	1,085 (4.8)	1,255 (5.6)	1,405 (6.2)	1,535 (6.8)
	6-3/4 (171)	1,090 (4.8)	1,090 (4.8)	1,090 (4.8)	1,090 (4.8)	1,110 (4.9)	1,280 (5.7)	1,435 (6.4)	1,570 (7.0)
	10 (254)	1,610 (7.2)	1,610 (7.2)	1,610 (7.2)	1,610 (7.2)	1,110 (4.9)	1,280 (5.7)	1,435 (6.4)	1,570 (7.0)
3/4	3-1/2 (89)	450 (2.0)	450 (2.0)	450 (2.0)	450 (2.0)	1,090 (4.8)	1,140 (5.1)	1,140 (5.1)	1,140 (5.1)
	4-1/2 (114)	575 (2.6)	575 (2.6)	575 (2.6)	575 (2.6)	1,150 (5.1)	1,325 (5.9)	1,465 (6.5)	1,465 (6.5)
	6-3/4 (171)	865 (3.8)	865 (3.8)	865 (3.8)	865 (3.8)	1,190 (5.3)	1,375 (6.1)	1,535 (6.8)	1,685 (7.5)
	10 (254)	1,280 (5.7)	1,280 (5.7)	1,280 (5.7)	1,280 (5.7)	1,190 (5.3)	1,375 (6.1)	1,535 (6.8)	1,685 (7.5)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor located 2-in from centerline of a hollow head joint with no additional influence from nearby edges or additional anchors. For designs with the influence of nearby edges, different distances to a hollow head joint, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
3/8-in and 1/2-in diameter - α_{sat} = 1.00
5/8-in and 3/4-in diameter - α_{sat} = 0.93
7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by the following reduction factors:
3/8-in diameter = 0.74
1/2-in diameter = 0.65
5/8-in diameter = 0.66
3/4-in diameter = 0.74
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0 and multiply design strength values in tension and shear by 0.80.

Table 6 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for threaded rod in the top of uncracked fully grouted CMU walls and installed at minimum edge distance parallel with masonry course [1,2,3,4,5,6,7,8]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of breakout, pryout, or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
1/2	2-3/4 (70)	405 (1.8)	405 (1.8)	405 (1.8)	405 (1.8)	1,030 (4.6)	1,030 (4.6)	1,030 (4.6)	1,030 (4.6)
	4-1/2 (114)	660 (2.9)	660 (2.9)	660 (2.9)	660 (2.9)	1,320 (5.9)	1,520 (6.8)	1,685 (7.5)	1,685 (7.5)
	6-3/4 (171)	995 (4.4)	995 (4.4)	995 (4.4)	995 (4.4)	1,320 (5.9)	1,520 (6.8)	1,700 (7.6)	1,865 (8.3)
	10 (254)	1,470 (6.5)	1,470 (6.5)	1,470 (6.5)	1,470 (6.5)	1,320 (5.9)	1,520 (6.8)	1,700 (7.6)	1,865 (8.3)
5/8	3-1/8 (79)	505 (2.2)	505 (2.2)	505 (2.2)	505 (2.2)	1,285 (5.7)	1,285 (5.7)	1,285 (5.7)	1,285 (5.7)
	4-1/2 (114)	725 (3.2)	725 (3.2)	725 (3.2)	725 (3.2)	1,445 (6.4)	1,665 (7.4)	1,845 (8.2)	1,845 (8.2)
	6-3/4 (171)	1,090 (4.8)	1,090 (4.8)	1,090 (4.8)	1,090 (4.8)	1,475 (6.6)	1,700 (7.6)	1,905 (8.5)	2,085 (9.3)
	10 (254)	1,610 (7.2)	1,610 (7.2)	1,610 (7.2)	1,610 (7.2)	1,475 (6.6)	1,700 (7.6)	1,905 (8.5)	2,085 (9.3)
3/4	3-1/2 (89)	810 (3.6)	810 (3.6)	810 (3.6)	810 (3.6)	2,055 (9.1)	2,055 (9.1)	2,055 (9.1)	2,055 (9.1)
	4-1/2 (114)	1,040 (4.6)	1,040 (4.6)	1,040 (4.6)	1,040 (4.6)	2,645 (11.8)	2,645 (11.8)	2,645 (11.8)	2,645 (11.8)
	6-3/4 (171)	1,560 (6.9)	1,560 (6.9)	1,560 (6.9)	1,560 (6.9)	3,115 (13.9)	3,600 (16.0)	3,965 (17.6)	3,965 (17.6)
	10 (254)	2,310 (10.3)	2,310 (10.3)	2,310 (10.3)	2,310 (10.3)	3,115 (13.9)	3,600 (16.0)	4,020 (17.9)	4,405 (19.6)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor located at minimum edge of 1-3/4-in (2-3/4-in for 3/4-in diameter) from edge parallel with masonry course with no additional influence from nearby edges or additional anchors. For designs with the additional influence of nearby edges, a different edge distance, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
5 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
1/2-in diameter - α_{sat} = 1.00
5/8-in and 3/4-in diameter - α_{sat} = 0.93
6 Tabular values are for static loads only. Seismic design is not permitted for uncracked masonry.
7 Tabular shear values are for shear force parallel to the edge parallel with the masonry course. For shear force perpendicular to the edge parallel with the masonry course, multiply design strength values in shear by the following reduction factors:
1/2-in and 5/8-in. diameter = 0.50
3/4-in diameter = 0.46
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0 and multiply design strength values in tension and shear by 0.80.

Table 7 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for threaded rod in the top of cracked fully grouted CMU walls and installed at minimum edge distance parallel with masonry course [1,2,3,4,5,6,7,8]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of breakout, pryout, or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
1/2	2-3/4 (70)	280 (1.2)	280 (1.2)	280 (1.2)	280 (1.2)	710 (3.2)	710 (3.2)	710 (3.2)	710 (3.2)
	4-1/2 (114)	455 (2.0)	455 (2.0)	455 (2.0)	455 (2.0)	940 (4.2)	1,085 (4.8)	1,160 (5.2)	1,160 (5.2)
	6-3/4 (171)	685 (3.0)	685 (3.0)	685 (3.0)	685 (3.0)	940 (4.2)	1,085 (4.8)	1,215 (5.4)	1,330 (5.9)
	10 (254)	1,015 (4.5)	1,015 (4.5)	1,015 (4.5)	1,015 (4.5)	940 (4.2)	1,085 (4.8)	1,215 (5.4)	1,330 (5.9)
5/8	3-1/8 (79)	275 (1.2)	275 (1.2)	275 (1.2)	275 (1.2)	705 (3.1)	705 (3.1)	705 (3.1)	705 (3.1)
	4-1/2 (114)	400 (1.8)	400 (1.8)	400 (1.8)	400 (1.8)	1,015 (4.5)	1,015 (4.5)	1,015 (4.5)	1,015 (4.5)
	6-3/4 (171)	600 (2.7)	600 (2.7)	600 (2.7)	600 (2.7)	1,055 (4.7)	1,215 (5.4)	1,360 (6.0)	1,490 (6.6)
	10 (254)	890 (4.0)	890 (4.0)	890 (4.0)	890 (4.0)	1,055 (4.7)	1,215 (5.4)	1,360 (6.0)	1,490 (6.6)
3/4	3-1/2 (89)	585 (2.6)	585 (2.6)	585 (2.6)	585 (2.6)	1,490 (6.6)	1,490 (6.6)	1,490 (6.6)	1,490 (6.6)
	4-1/2 (114)	755 (3.4)	755 (3.4)	755 (3.4)	755 (3.4)	1,915 (8.5)	1,915 (8.5)	1,915 (8.5)	1,915 (8.5)
	6-3/4 (171)	1,130 (5.0)	1,130 (5.0)	1,130 (5.0)	1,130 (5.0)	2,225 (9.9)	2,570 (11.4)	2,875 (12.8)	2,875 (12.8)
	10 (254)	1,675 (7.5)	1,675 (7.5)	1,675 (7.5)	1,675 (7.5)	2,225 (9.9)	2,570 (11.4)	2,875 (12.8)	3,145 (14.0)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor located at minimum edge of 1-3/4-in (2-3/4-in for 3/4-in diameter) from edge parallel with masonry course with no additional influence from nearby edges or additional anchors. For designs with the additional influence of nearby edges, a different edge distance, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
5 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: $\alpha_{sa}t$,
1/2-in diameter - α_{sat} = 1.00
5/8-in and 3/4-in diameter - α_{sat} = 0.93
6 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by the following reduction factors:
1/2-in diameter = 0.65
5/8-in diameter = 0.66
3/4-in diameter = 0.74
7 Tabular shear values are for shear force parallel to the edge parallel with the masonry course. For shear force perpendicular to the edge parallel with the masonry course, multiply design strength values in shear by the following reduction factors:
1/2-in and 5/8-in. diameter = 0.50
3/4-in diameter = 0.46
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0 and multiply design strength values in tension and shear by 0.80.

Table 8 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for rebar in the face of uncracked fully grouted CMU walls [1,2,3,4,5,6,7,8]

Rebar Size	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of pryout or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
#3	2-3/8 (60)	975 (4.3)	975 (4.3)	975 (4.3)	975 (4.3)	1,050 (4.7)	1,050 (4.7)	1,050 (4.7)	1,050 (4.7)
	4-1/2 (114)	1,845 (8.2)	1,845 (8.2)	1,845 (8.2)	1,845 (8.2)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
	6-3/4 (171)	2,765 (12.3)	2,765 (12.3)	2,765 (12.3)	2,765 (12.3)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
	7-1/2 (191)	3,075 (13.7)	3,075 (13.7)	3,075 (13.7)	3,075 (13.7)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
#4	2-3/4 (70)	1,035 (4.6)	1,035 (4.6)	1,035 (4.6)	1,035 (4.6)	2,630 (11.7)	2,630 (11.7)	2,630 (11.7)	2,630 (11.7)
	4-1/2 (114)	1,690 (7.5)	1,690 (7.5)	1,690 (7.5)	1,690 (7.5)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,305 (19.1)
	6-3/4 (171)	2,535 (11.3)	2,535 (11.3)	2,535 (11.3)	2,535 (11.3)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,330 (19.3)
	10 (254)	3,760 (16.7)	3,760 (16.7)	3,760 (16.7)	3,760 (16.7)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,330 (19.3)
#5	3-1/8 (79)	1,570 (7.0)	1,570 (7.0)	1,570 (7.0)	1,570 (7.0)	3,995 (17.8)	3,995 (17.8)	3,995 (17.8)	3,995 (17.8)
	4-1/2 (114)	2,260 (10.1)	2,260 (10.1)	2,260 (10.1)	2,260 (10.1)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
	6-3/4 (171)	3,390 (15.1)	3,390 (15.1)	3,390 (15.1)	3,390 (15.1)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
	10 (254)	5,020 (22.3)	5,020 (22.3)	5,020 (22.3)	5,020 (22.3)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
#6	3-1/2 (89)	1,815 (8.1)	1,815 (8.1)	1,815 (8.1)	1,815 (8.1)	4,435 (19.7)	4,620 (20.6)	4,620 (20.6)	4,620 (20.6)
	4-1/2 (114)	2,335 (10.4)	2,335 (10.4)	2,335 (10.4)	2,335 (10.4)	4,435 (19.7)	4,765 (21.2)	5,040 (22.4)	5,275 (23.5)
	6-3/4 (171)	3,500 (15.6)	3,500 (15.6)	3,500 (15.6)	3,500 (15.6)	4,435 (19.7)	4,765 (21.2)	5,040 (22.4)	5,275 (23.5)
	10 (254)	5,185 (23.1)	5,185 (23.1)	5,185 (23.1)	5,185 (23.1)	4,435 (19.7)	4,765 (21.2)	5,040 (22.4)	5,275 (23.5)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor with no influence from nearby edges, hollow head joints, or additional anchors. For designs with the influence of nearby edges, hollow head joints, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
#3 and #4 rebar - α_{sat} = 1.00
#5 and #6 rebar - α_{sat} = 0.93
7 Tabular values are for static loads only. Seismic design is not permitted for uncracked masonry.
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 9 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for rebar in the face of cracked fully grouted CMU walls [1,2,3,4,5,6,7,8]

Rebar Size	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of pryout or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
#3	2-3/8 (60)	620 (2.8)	620 (2.8)	620 (2.8)	620 (2.8)	665 (3.0)	665 (3.0)	665 (3.0)	665 (3.0)
	4-1/2 (114)	1,170 (5.2)	1,170 (5.2)	1,170 (5.2)	1,170 (5.2)	2,525 (11.2)	2,525 (11.2)	2,525 (11.2)	2,525 (11.2)
	6-3/4 (171)	1,755 (7.8)	1,755 (7.8)	1,755 (7.8)	1,755 (7.8)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
	7-1/2 (191)	1,955 (8.7)	1,955 (8.7)	1,955 (8.7)	1,955 (8.7)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
#4	2-3/4 (70)	485 (2.2)	485 (2.2)	485 (2.2)	485 (2.2)	1,240 (5.5)	1,240 (5.5)	1,240 (5.5)	1,240 (5.5)
	4-1/2 (114)	795 (3.5)	795 (3.5)	795 (3.5)	795 (3.5)	2,030 (9.0)	2,030 (9.0)	2,030 (9.0)	2,030 (9.0)
	6-3/4 (171)	1,195 (5.3)	1,195 (5.3)	1,195 (5.3)	1,195 (5.3)	3,045 (13.5)	3,045 (13.5)	3,045 (13.5)	3,045 (13.5)
	10 (254)	1,770 (7.9)	1,770 (7.9)	1,770 (7.9)	1,770 (7.9)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,330 (19.3)
#5	3-1/8 (79)	930 (4.1)	930 (4.1)	930 (4.1)	930 (4.1)	2,360 (10.5)	2,360 (10.5)	2,360 (10.5)	2,360 (10.5)
	4-1/2 (114)	1,335 (5.9)	1,335 (5.9)	1,335 (5.9)	1,335 (5.9)	3,400 (15.1)	3,400 (15.1)	3,400 (15.1)	3,400 (15.1)
	6-3/4 (171)	2,005 (8.9)	2,005 (8.9)	2,005 (8.9)	2,005 (8.9)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
	10 (254)	2,970 (13.2)	2,970 (13.2)	2,970 (13.2)	2,970 (13.2)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
#6	3-1/2 (89)	770 (3.4)	770 (3.4)	770 (3.4)	770 (3.4)	1,965 (8.7)	1,965 (8.7)	1,965 (8.7)	1,965 (8.7)
	4-1/2 (114)	990 (4.4)	990 (4.4)	990 (4.4)	990 (4.4)	2,525 (11.2)	2,525 (11.2)	2,525 (11.2)	2,525 (11.2)
	6-3/4 (171)	1,485 (6.6)	1,485 (6.6)	1,485 (6.6)	1,485 (6.6)	3,785 (16.8)	3,785 (16.8)	3,785 (16.8)	3,785 (16.8)
	10 (254)	2,205 (9.8)	2,205 (9.8)	2,205 (9.8)	2,205 (9.8)	4,435 (19.7)	4,765 (21.2)	5,040 (22.4)	5,275 (23.5)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor with no influence from nearby edges, hollow head joints, or additional anchors. For designs with the influence of nearby edges, hollow head joints, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
#3 and #4 rebar - α_{sat} = 1.00
#5 and #6 rebar - α_{sat} = 0.93
7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by the following reduction factors:
#3 rebar = 0.67
#4 rebar = 0.74
#5 rebar = 0.74
#6 rebar = 0.53
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 10 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for rebar in the face of uncracked fully grouted CMU walls and installed 2-in from centerline of hollow head joint [1,2,3,4,5,6,7,8]

Rebar Size	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of breakout, pryout, or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
#3	2-3/8 (60)	750 (3.3)	750 (3.3)	750 (3.3)	750 (3.3)	805 (3.6)	805 (3.6)	805 (3.6)	805 (3.6)
	4-1/2 (114)	1,415 (6.3)	1,415 (6.3)	1,415 (6.3)	1,415 (6.3)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
	6-3/4 (171)	2,125 (9.5)	2,125 (9.5)	2,125 (9.5)	2,125 (9.5)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
	7-1/2 (191)	2,360 (10.5)	2,360 (10.5)	2,360 (10.5)	2,360 (10.5)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
#4	2-3/4 (70)	710 (3.2)	710 (3.2)	710 (3.2)	710 (3.2)	1,290 (5.7)	1,490 (6.6)	1,665 (7.4)	1,810 (8.1)
	4-1/2 (114)	1,165 (5.2)	1,165 (5.2)	1,165 (5.2)	1,165 (5.2)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
	6-3/4 (171)	1,745 (7.8)	1,745 (7.8)	1,745 (7.8)	1,745 (7.8)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
	10 (254)	2,585 (11.5)	2,585 (11.5)	2,585 (11.5)	2,585 (11.5)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
#5	3-1/8 (79)	945 (4.2)	945 (4.2)	945 (4.2)	945 (4.2)	1,415 (6.3)	1,635 (7.3)	1,825 (8.1)	2,000 (8.9)
	4-1/2 (114)	1,360 (6.0)	1,360 (6.0)	1,360 (6.0)	1,360 (6.0)	1,520 (6.8)	1,755 (7.8)	1,965 (8.7)	2,150 (9.6)
	6-3/4 (171)	2,045 (9.1)	2,045 (9.1)	2,045 (9.1)	2,045 (9.1)	1,555 (6.9)	1,795 (8.0)	2,005 (8.9)	2,195 (9.8)
	10 (254)	3,025 (13.5)	3,025 (13.5)	3,025 (13.5)	3,025 (13.5)	1,555 (6.9)	1,795 (8.0)	2,005 (8.9)	2,195 (9.8)
#6	3-1/2 (89)	1,040 (4.6)	1,040 (4.6)	1,040 (4.6)	1,040 (4.6)	1,530 (6.8)	1,765 (7.9)	1,975 (8.8)	2,160 (9.6)
	4-1/2 (114)	1,340 (6.0)	1,340 (6.0)	1,340 (6.0)	1,340 (6.0)	1,605 (7.1)	1,855 (8.3)	2,075 (9.2)	2,270 (10.1)
	6-3/4 (171)	2,010 (8.9)	2,010 (8.9)	2,010 (8.9)	2,010 (8.9)	1,665 (7.4)	1,925 (8.6)	2,150 (9.6)	2,360 (10.5)
	10 (254)	2,980 (13.3)	2,980 (13.3)	2,980 (13.3)	2,980 (13.3)	1,665 (7.4)	1,925 (8.6)	2,150 (9.6)	2,360 (10.5)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor located 2-in from centerline of a hollow head joint with no additional influence from nearby edges or additional anchors. For designs with the influence of nearby edges, different distances to a hollow head joint, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
#3 and #4 rebar - α_{sat} = 1.00
#5 and #6 rebar - α_{sat} = 0.93
7 Tabular values are for static loads only. Seismic design is not permitted for uncracked masonry.
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 11 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for rebar in the face of cracked fully grouted CMU walls and installed 2-in from centerline of hollow head joint [1,2,3,4,5,6,7,8]

Rebar Size	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of breakout, pryout, or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
#3	2-3/8 (60)	475 (2.1)	475 (2.1)	475 (2.1)	475 (2.1)	510 (2.3)	510 (2.3)	510 (2.3)	510 (2.3)
	4-1/2 (114)	900 (4.0)	900 (4.0)	900 (4.0)	900 (4.0)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
	6-3/4 (171)	1,350 (6.0)	1,350 (6.0)	1,350 (6.0)	1,350 (6.0)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
	7-1/2 (191)	1,500 (6.7)	1,500 (6.7)	1,500 (6.7)	1,500 (6.7)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
#4	2-3/4 (70)	335 (1.5)	335 (1.5)	335 (1.5)	335 (1.5)	855 (3.8)	855 (3.8)	855 (3.8)	855 (3.8)
	4-1/2 (114)	550 (2.4)	550 (2.4)	550 (2.4)	550 (2.4)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,395 (6.2)
	6-3/4 (171)	825 (3.7)	825 (3.7)	825 (3.7)	825 (3.7)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
	10 (254)	1,220 (5.4)	1,220 (5.4)	1,220 (5.4)	1,220 (5.4)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
#5	3-1/8 (79)	560 (2.5)	560 (2.5)	560 (2.5)	560 (2.5)	1,010 (4.5)	1,165 (5.2)	1,305 (5.8)	1,425 (6.3)
	4-1/2 (114)	805 (3.6)	805 (3.6)	805 (3.6)	805 (3.6)	1,085 (4.8)	1,255 (5.6)	1,405 (6.2)	1,535 (6.8)
	6-3/4 (171)	1,210 (5.4)	1,210 (5.4)	1,210 (5.4)	1,210 (5.4)	1,110 (4.9)	1,280 (5.7)	1,435 (6.4)	1,570 (7.0)
	10 (254)	1,790 (8.0)	1,790 (8.0)	1,790 (8.0)	1,790 (8.0)	1,110 (4.9)	1,280 (5.7)	1,435 (6.4)	1,570 (7.0)
#6	3-1/2 (89)	445 (2.0)	445 (2.0)	445 (2.0)	445 (2.0)	1,090 (4.8)	1,130 (5.0)	1,130 (5.0)	1,130 (5.0)
	4-1/2 (114)	570 (2.5)	570 (2.5)	570 (2.5)	570 (2.5)	1,150 (5.1)	1,325 (5.9)	1,450 (6.4)	1,450 (6.4)
	6-3/4 (171)	855 (3.8)	855 (3.8)	855 (3.8)	855 (3.8)	1,190 (5.3)	1,375 (6.1)	1,535 (6.8)	1,685 (7.5)
	10 (254)	1,265 (5.6)	1,265 (5.6)	1,265 (5.6)	1,265 (5.6)	1,190 (5.3)	1,375 (6.1)	1,535 (6.8)	1,685 (7.5)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor located 2-in from centerline of a hollow head joint with no additional influence from nearby edges or additional anchors. For designs with the influence of nearby edges, different distances to a hollow head joint, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
#3 and #4 rebar - α_{sat} = 1.00
#5 and #6 rebar - α_{sat} = 0.93
7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by the following reduction factors:
#3 rebar = 0.67
#4 rebar = 0.74
#5 rebar = 0.74
#6 rebar = 0.53
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 12 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for rebar in the top of uncracked fully grouted CMU walls and installed at minimum edge distance parallel with masonry course [1,2,3,4,5,6,7,8]

Rebar Size	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of breakout, pryout, or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
#4	2-3/4 (70)	500 (2.2)	500 (2.2)	500 (2.2)	500 (2.2)	1,225 (5.4)	1,280 (5.7)	1,280 (5.7)	1,280 (5.7)
	4-1/2 (114)	820 (3.6)	820 (3.6)	820 (3.6)	820 (3.6)	1,320 (5.9)	1,520 (6.8)	1,700 (7.6)	1,865 (8.3)
	6-3/4 (171)	1,230 (5.5)	1,230 (5.5)	1,230 (5.5)	1,230 (5.5)	1,320 (5.9)	1,520 (6.8)	1,700 (7.6)	1,865 (8.3)
	10 (254)	1,825 (8.1)	1,825 (8.1)	1,825 (8.1)	1,825 (8.1)	1,320 (5.9)	1,520 (6.8)	1,700 (7.6)	1,865 (8.3)
#5	3-1/8 (79)	390 (1.7)	390 (1.7)	390 (1.7)	390 (1.7)	995 (4.4)	995 (4.4)	995 (4.4)	995 (4.4)
	4-1/2 (114)	565 (2.5)	565 (2.5)	565 (2.5)	565 (2.5)	1,435 (6.4)	1,435 (6.4)	1,435 (6.4)	1,435 (6.4)
	6-3/4 (171)	845 (3.8)	845 (3.8)	845 (3.8)	845 (3.8)	1,475 (6.6)	1,700 (7.6)	1,905 (8.5)	2,085 (9.3)
	10 (254)	1,250 (5.6)	1,250 (5.6)	1,250 (5.6)	1,250 (5.6)	1,475 (6.6)	1,700 (7.6)	1,905 (8.5)	2,085 (9.3)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor located 1-3/4-in from edge parallel with masonry course with no additional influence from nearby edges or additional anchors. For designs with the additional influence of nearby edges, a different edge distance, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
5 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
#4 rebar - α_{sat} = 1.00
#5 rebar - α_{sat} = 0.93
6 Tabular values are for static loads only. Seismic design is not permitted for uncracked masonry.
7 Tabular shear values are for shear force parallel to the edge parallel with the masonry course. For shear force perpendicular to the edge parallel with the masonry course, multiply design strength values by 0.50.
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 13 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for rebar in the top of cracked fully grouted CMU walls and installed at minimum edge distance parallel with masonry course [1,2,3,4,5,6,7,8]

Rebar Size	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of breakout, pryout, or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
#4	2-3/4 (70)	235 (1.0)	235 (1.0)	235 (1.0)	235 (1.0)	600 (2.7)	600 (2.7)	600 (2.7)	600 (2.7)
	4-1/2 (114)	385 (1.7)	385 (1.7)	385 (1.7)	385 (1.7)	940 (4.2)	985 (4.4)	985 (4.4)	985 (4.4)
	6-3/4 (171)	580 (2.6)	580 (2.6)	580 (2.6)	580 (2.6)	940 (4.2)	1,085 (4.8)	1,215 (5.4)	1,330 (5.9)
	10 (254)	860 (3.8)	860 (3.8)	860 (3.8)	860 (3.8)	940 (4.2)	1,085 (4.8)	1,215 (5.4)	1,330 (5.9)
#5	3-1/8 (79)	230 (1.0)	230 (1.0)	230 (1.0)	230 (1.0)	590 (2.6)	590 (2.6)	590 (2.6)	590 (2.6)
	4-1/2 (114)	335 (1.5)	335 (1.5)	335 (1.5)	335 (1.5)	845 (3.8)	845 (3.8)	845 (3.8)	845 (3.8)
	6-3/4 (171)	500 (2.2)	500 (2.2)	500 (2.2)	500 (2.2)	1,055 (4.7)	1,215 (5.4)	1,270 (5.6)	1,270 (5.6)
	10 (254)	740 (3.3)	740 (3.3)	740 (3.3)	740 (3.3)	1,055 (4.7)	1,215 (5.4)	1,360 (6.0)	1,490 (6.6)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor located 1-3/4-in from edge parallel with masonry course with no additional influence from nearby edges or additional anchors. For designs with the additional influence of nearby edges, a different edge distance, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
5 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
#4 rebar - α_{sat} = 1.00
#5 rebar - α_{sat} = 0.93
6 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by the following reduction factors:
#4 rebar = 0.74
#5 rebar = 0.74
7 Tabular shear values are for shear force parallel to the edge parallel with the masonry course. For shear force perpendicular to the edge parallel with the masonry course, multiply design strength values by 0.50.
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 14 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for HIS-(R)N in the face of uncracked fully grouted CMU walls [1,2,3,4,5,6,7,8]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of pryout or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
3/8	4-3/8 (111)	1,410 (6.3)	1,410 (6.3)	1,410 (6.3)	1,410 (6.3)	3,535 (15.7)	3,585 (15.9)	3,585 (15.9)	3,585 (15.9)
1/2	5 (127)	1,925 (8.6)	1,925 (8.6)	1,925 (8.6)	1,925 (8.6)	3,825 (17.0)	4,110 (18.3)	4,345 (19.3)	4,545 (20.2)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor with no influence from nearby edges, hollow head joints, or additional anchors. For designs with the influence of nearby edges, hollow head joints, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
3/8-in and 1/2-in diameter - α_{sat} = 0.93
7 Tabular values are for static loads only. Seismic design is not permitted for uncracked masonry.
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 15 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for HIS-(R)N in the face of cracked fully grouted CMU walls [1,2,3,4,5,6,7,8]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of pryout or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
3/8	4-3/8 (111)	670 (3.0)	670 (3.0)	670 (3.0)	670 (3.0)	1,700 (7.6)	1,700 (7.6)	1,700 (7.6)	1,700 (7.6)
1/2	5 (127)	630 (2.8)	630 (2.8)	630 (2.8)	630 (2.8)	1,605 (7.1)	1,605 (7.1)	1,605 (7.1)	1,605 (7.1)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor with no influence from nearby edges, hollow head joints, or additional anchors. For designs with the influence of nearby edges, hollow head joints, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
3/8-in and 1/2-in diameter - α_{sat} = 0.93
7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by the following reduction factors:
3/8-in diameter = 0.41
1/2-in diameter = 0.49
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 16 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for HIS-(R)N in the face of uncracked fully grouted CMU walls and installed 2-in from centerline of hollow head joint [1,2,3,4,5,6,7,8]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of breakout, pryout, or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
3/8	4-3/8 (111)	935 (4.2)	935 (4.2)	935 (4.2)	935 (4.2)	1,520 (6.8)	1,755 (7.8)	1,965 (8.7)	2,150 (9.6)
1/2	5 (127)	1,160 (5.2)	1,160 (5.2)	1,160 (5.2)	1,160 (5.2)	1,665 (7.4)	1,925 (8.6)	2,150 (9.6)	2,360 (10.5)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor located 2-in from centerline of a hollow head joint with no additional influence from nearby edges or additional anchors. For designs with the influence of nearby edges, different distances to a hollow head joint, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
3/8-in and 1/2-in diameter - α_{sat} = 0.93
7 Tabular values are for static loads only. Seismic design is not permitted for uncracked masonry.
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 17 — Hilti HIT-HY 270 adhesive design strength with masonry / bond failure for HIS-(R)N in the face of cracked fully grouted CMU walls and installed 2-in from centerline of hollow head joint [1,2,3,4,5,6,7,8]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension (lesser of breakout or bond) — ΦN_n				Shear (lesser of breakout, pryout, or crushing) — ΦV_n			
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 2000 psi (13.8 MPa) lb (kN)	f'_m = 2500 psi (17.2 MPa) lb (kN)	f'_m = 3000 psi (20.7 MPa) lb (kN)
3/8	4-3/8 (111)	440 (2.0)	440 (2.0)	440 (2.0)	440 (2.0)	1,085 (4.8)	1,120 (5.0)	1,120 (5.0)	1,120 (5.0)
1/2	5 (127)	380 (1.7)	380 (1.7)	380 (1.7)	380 (1.7)	970 (4.3)	970 (4.3)	970 (4.3)	970 (4.3)

1 Linear interpolation between embedment depths and masonry compressive strengths is not permitted.
2 Tabular values are for a single anchor located 2-in from centerline of a hollow head joint with no additional influence from nearby edges or additional anchors. For designs with the influence of nearby edges, different distances to a hollow head joint, or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
3 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
4 The maximum embedment for a 8-in CMU block is 6-3/4-in. The maximum embedment for a 10-in CMU block is 8-in. The maximum embedment for a 12-in CMU block is 10-in.
5 Data is for Temperature Range A: Maximum short term temperature = 130°F (55°C) | Maximum long term temperature = 110°F (43°C).
For Temperature Range B: Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C), multiply design strength values by 0.91.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat},
3/8-in and 1/2-in diameter - α_{sat} = 0.93
7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by the following reduction factors:
3/8-in diameter = 0.41
1/2-in diameter = 0.49
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

DESIGN DATA IN UNGROUTED CMU

HIT-HY 270 adhesive with Hilti HAS threaded rods and Hilti HIT-IC inserts in ungrouted CMU

Hilti HAS Threaded Rods

Hilti HIT-IC Inserts

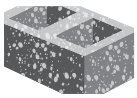
Permissible Base Materials	 Ungrouted Concrete Masonry	**Permissible drilling method**	 Rotary only drilling with carbide tipped drill bit  Hilti TE-CD or TE-YD hollow drill bit

Figure 3 — Hilti HIT-HY 270 with HAS threaded rod and HIT-IC internally threaded inserts in hollow concrete masonry walls

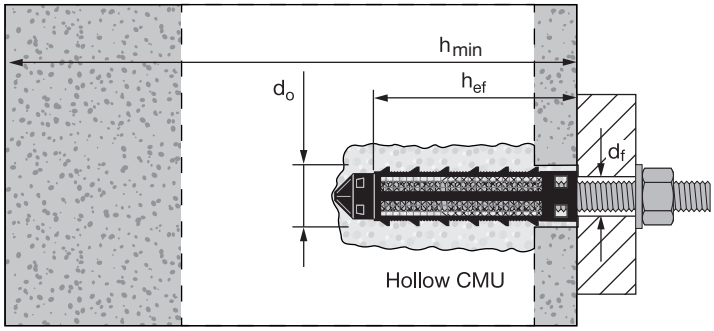


Table 18 — Hilti HIT-HY 270 Installation Information for Threaded Rod and Hilti HIT-IC — Ungrouted CMU Construction, Face of Wall

Design Information		Symbol	Units	Nominal Anchor Diameter			
				1/4”	5/16”	3/8”	1/2”
Drill Bit Diameter — Threaded Rod		d_o	in.	1/2	5/8	5/8	11/16
Drill Bit Diameter — HIT-IC		d_o	in.	N/A	5/8	7/8	7/8
Minimum Embedment Depth — Threaded Rod & HIT-IC		$h_{ef,min}$	in. (mm)	2 (51)	2 (51)	2 (51)	2 (51)
Fixture Hole Diameter		d_f	in.	9/32	3/8	7/16	9/16
Maximum Installation Torque		T_{inst}	ft-lb	2.2	2.2	3	4.5
Minimum Masonry Thickness		h_{min}	in. (mm)	7-5/8 (203)			
Critical Edge Distance (Tension)		$c_{cr,N}$	in. (mm)	4 (102)	4 (102)	4 (102)	4 (102)
Minimum Edge Distance (Tension)[1]		$c_{min,N}$	in. (mm)	2 (51)	2 (51)	2 (51)	2 (51)
Multiplier at Minimum Edge Distance (Tension)		-	-	0.80			
Threaded Rod	Critical Edge Distance (Shear)	$c_{cr,V}$	in. (mm)	3 (76)	3-3/4 (95)	4-1/2 (114)	6 (152)
	Minimum Edge Distance (Shear)[1]	$c_{min,V}$	in. (mm)	1-1/2 (38)	1-7/8 (48)	2-1/4 (57)	3 (76)
HIT-IC	Critical Edge Distance (Shear)	$c_{cr,V}$	in. (mm)	N/A	5.16 (131)	6.36 (162)	7.56 (192)
	Minimum Edge Distance (Shear)[1]	$c_{min,V}$	in. (mm)	N/A	2-5/8 (67)	3-1/4 (83)	3-7/8 (98)
Multiplier at Minimum Edge Distance (Shear)		-	-	0.50			
Minimum Anchor Spacing		s_{min}	in. (mm)	8 (203)			

1 The minimum distance from the center of an anchor to the centerline of a head joint (vertical mortar joint) is 2”.

Table 19 — Hilti HIT-HY 270 design strength with CMU failure modes for threaded rods not near an edge in uncracked, ungrouted CMU [1,2,3,4,5,6,7]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension ΦN_n	Shear ΦV_n
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)
1/4	2 (51)	215 (1.0)	275 (1.2)
5/16	2 (51)	355 (1.6)	450 (2.0)
3/8	2 (51)	350 (1.6)	450 (2.0)
1/2	2 (51)	360 (1.6)	455 (2.0)

1 Tabular values are for a single anchor with no influence from nearby edges or additional anchors. For designs with the influence of nearby edges or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
2 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
3 LFRD load capacities based on evaluation in accordance with AC58
4 Data is for Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C).
5 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat}, 1/4-in, 5/16-in, 3/8-in and 1/2-in diameter - α_{sat} = 1.00
6 Tabular values are for static loads only. Seismic design is not permitted.
7 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0 and multiply design strength values in tension and shear by 0.90.

Table 20 —Hilti HIT-HY 270 design strength with CMU failure modes for threaded rods not near an edge in cracked, ungrouted CMU [1,2,3,4,5,6,7]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension ΦN_n	Shear ΦV_n
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)
1/4	2 (51)	105 (0.5)	135 (0.6)
5/16	2 (51)	175 (0.8)	225 (1.0)
3/8	2 (51)	175 (0.8)	225 (1.0)
1/2	2 (51)	180 (0.8)	225 (1.0)

1 Tabular values are for a single anchor with no influence from nearby edges or additional anchors. For designs with the influence of nearby edges or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
2 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
3 LFRD load capacities based on evaluation in accordance with AC58
4 Data is for Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C).
5 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat}, 1/4-in, 5/16-in, 3/8-in and 1/2-in diameter - α_{sat} = 1.00
6 Tabular values are for static loads only. Seismic design is not permitted.
7 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0 and multiply design strength values in tension and shear by 0.90.

Table 21 — Hilti HIT-HY 270 design strength with CMU failure modes for HIT-IC inserts not near an edge in uncracked, ungrouted CMU [1,2,3,4,5,6,7]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension ΦN_n	Shear ΦV_n
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)
5/16	2 (51)	430 (1.9)	465 (2.1)
3/8	2 (51)	360 (1.6)	460 (2.0)
1/2	2 (51)	365 (1.6)	465 (2.1)

1 Tabular values are for a single anchor with no influence from nearby edges or additional anchors. For designs with the influence of nearby edges or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
2 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
3 LFRD load capacities based on evaluation in accordance with AC58.
4 Data is for Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C).
5 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat}, 5/16-in, 3/8-in and 1/2-in diameter - α_{sat} = 1.00
6 Tabular values are for static loads only. Seismic design is not permitted.
7 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0 and multiply design strength values in tension and shear by 0.90.

Table 22 —Hilti HIT-HY 270 design strength with CMU failure modes for HIT-IC inserts not near an edge in cracked, ungrouted CMU [1,2,3,4,5,6,7]

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension ΦN_n	Shear ΦV_n
		f'_m = 1500 psi (10.3 MPa) lb (kN)	f'_m = 1500 psi (10.3 MPa) lb (kN)
5/16	2 (51)	220 (1.0)	235 (1.0)
3/8	2 (51)	180 (0.8)	230 (1.0)
1/2	2 (51)	180 (0.8)	230 (1.0)

1 Tabular values are for a single anchor with no influence from nearby edges or additional anchors. For designs with the influence of nearby edges or additional anchors, use Hilti PROFIS Engineering Design software or perform anchor calculation using design equations from AC58.
2 Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.
3 LFRD load capacities based on evaluation in accordance with AC58.
4 Data is for Maximum short term temperature = 176°F (80°C) | Maximum long term temperature = 110°F (43°C).
5 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by: α_{sat}, 5/16-in, 3/8-in and 1/2-in diameter - α_{sat} = 1.00
6 Tabular values are for static loads only. Seismic design is not permitted.
7 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0 and multiply design strength values in tension and shear by 0.90.

INSTALLATION INSTRUCTIONS

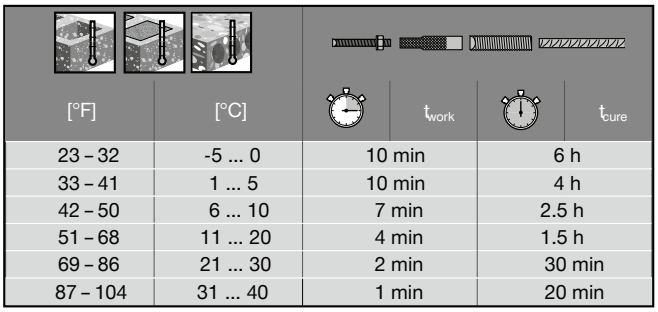
Installation Instructions For Use (IFU) are included with each product package. They can also be viewed or downloaded online at www.hilti.com (US), or www.hilti.ca (Canada). Because of the possibility of changes, always verify that downloaded IFU are current when used. Proper installation is critical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

MATERIAL SPECIFICATIONS

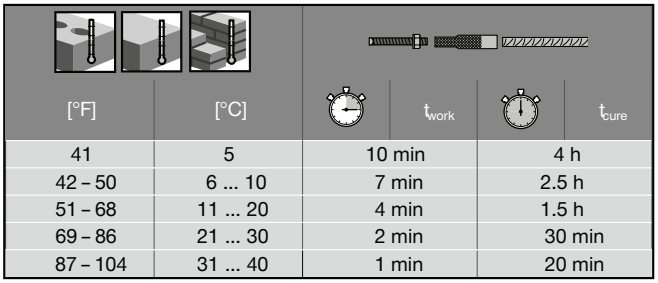
Table 23 — Properties of fully-cured HIT-HY 270 adhesive

Compressive strength	ASTM D695/DIN 53454	7,252-10,153 psi	50-70 MPa
Modulus of elasticity (Compression test)	ASTM D790/DIN 53452	246,568 psi	1,700 MPa
Water absorption	ASTM D570/DIN 53495	3 - 8%	
Electrical resistance	VDE/DIN 0303T3	4.2 x 10" ohm/in.	1.065 x 1012 ohm/cm

HILTI HIT-HY 270 CURE TIMES

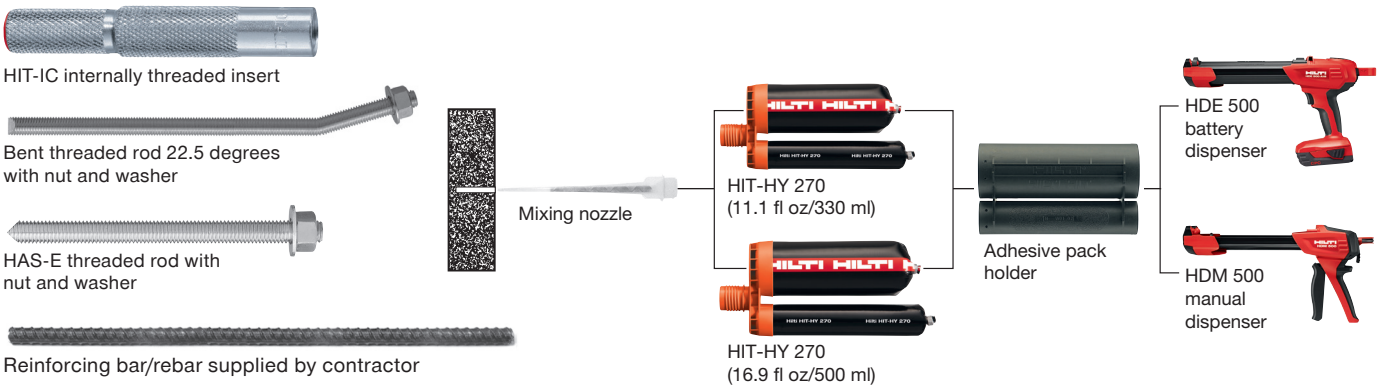


[°F]	[°C]	t_{work}	t_{cure}
23 – 32	-5 ... 0	10 min	6 h
33 – 41	1 ... 5	10 min	4 h
42 – 50	6 ... 10	7 min	2.5 h
51 – 68	11 ... 20	4 min	1.5 h
69 – 86	21 ... 30	2 min	30 min
87 – 104	31 ... 40	1 min	20 min



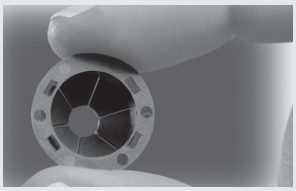
[°F]	[°C]	t_{work}	t_{cure}
41	5	10 min	4 h
42 – 50	6 ... 10	7 min	2.5 h
51 – 68	11 ... 20	4 min	1.5 h
69 – 86	21 ... 30	2 min	30 min
87 – 104	31 ... 40	1 min	20 min

ORDERING INFORMATION

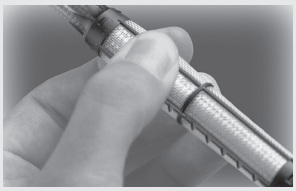


Description	Package Contents	Qty of Foil Packs
HIT-HY 270 (11.1OZ/330ML)	Includes (1) foil pack with (1) mixer and 3/8-in. filler tuber per pack	1
HIT-HY 270 (11.1OZ/330ML) 1 MC	Includes (1) master carton containing (25) foil packs with (1) mixer and 3/8-in. filler tuber per pack	25
HIT-HY 270 (16.9OZ/500ML) 1 MC	Includes (1) master carton containing (20) foil packs with (1) mixer and 3/8-in. filler tuber per pack	20
HIT-HY 270/500ML (2MC)+ HDM 500	Includes (2) master cartons containing (20) foil packs each with (1) mixer and 3/8-in. filler tuber per pack and (1) HDM 500 manual dispenser	40
HIT-HY 270/500ML (2MC)+ HDE 500 Kit	Includes (2) master cartons containing (20) foil packs each with (1) mixer and 3/8-in. filler tuber per pack and (1) HDM 500 manual dispenser	40
HY 270 TE 30-C AVR SafeSet Pack	Includes TE 30-C AVR, VC 150 6-X, (40) HIT-HY 270 500/1, HDE 500-A22, C 4/36 LI-ION, (1) B 22/2.6 Li-ion, HIT-CB 500, TE-CD bits: (1) 1/2"-13", (1) 9/16"-14", (1) 5/8"-14", (1) 3/4"-14", & bag small	40
HY 270 TE 6-A22 SafeSet Pack	Includes TE 6-A22, VC 150 6-X, (40) HIT-HY 270 500/1, HDE 500-A22, C 4/36 LI-ION, (2) B 22/5.2 Li-ion, HIT-CB 500, TE-CD bits: (1) 1/2"-13", (1) 9/16"-14", (1) 5/8"-14", (1) 3/4"-14", & bag small	40
HY 270 TE 30-A36 SafeSet Pack	Includes TE 30-A36, VC 150 6-X, (40) HIT-HY 270 500/1, HDE 500-A22, C 4/36-350 LI-ION, (2) B 36/6.0 Li-ion, HIT-CB 500, TE-CD bits: (1) 1/2"-13", (1) 9/16"-14", (1) 5/8"-14", (1) 3/4"-14", & bag small	40
HIT-RE-M Static Mixer	For use with HIT-HY 270 cartridges	1

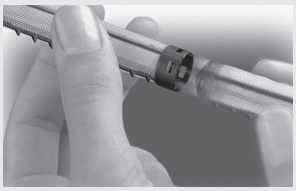
Customize the sleeve to the length of your application. Different embedment depths are created with minimal effort.



Step 1: Remove the centering ring of any screen tube within the cell.



Step 2: Pierce the tip of the screen tube with the rod intended to be used to check embedment depth.



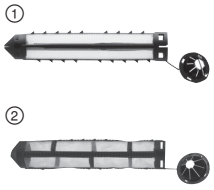
Step 3: Combine screen tubes to desired length.

Brick with holes and hollow concrete block

Threaded Rod			Mesh Sleeve		Approximate fastenings per foil pack[1]	
Rod Size 5.8 Grade	Embedment, in.	Qty	Nominal Bit Dia., in.	Mesh Sleeve per Fastening	11.1 fl oz (330 ml)	16.9 fl oz (500 ml)
Plastic Sleeve (for #14 screw)	2	20	1/2	(1) HIT S-12/I	25	40
HAS B 1/4 x 3	2	20	1/2	(1) SC 12x50	25	40
HAS B 1/4 x 4-1/2	3-1/8	20	1/2	(1) SC 12x85	16	26
HAS B 5/16 x 3	2	20	5/8	(1) SC 16x50	16	26
HAS B 5/16 x 4-1/2	3-1/8	20	5/8	(1) SC 16x85	7	12
HAS-E 3/8 x 3	2	10	5/8	(1) SC 16x50	16	26
HAS-E 3/8 x 4-3/8	3-1/8	10	5/8	(1) SC 16x85	7	12
HAS-E 1/2 x 3-1/8	2	10	11/16	(1) SC 18x50	9	15
HAS-E 1/2 x 4-1/2	3-1/8	10	11/16	(1) SC 18x85	4	7

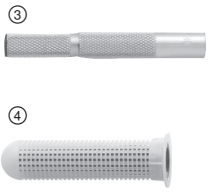
Composite mesh sleeves for hollow masonry and brick material

Description		For use with:	Qty	Actual Dia., in.	Length, in.	Bit Dia.
Mesh sleeve HIT-SC 12x50	①	1/4 dia. rods	20	0.47	1.97	1/2
Mesh sleeve HIT-SC 12x85	①	1/4 dia. rods	20	0.47	3.35	1/2
Mesh sleeve HIT-SC 16x50	①	5/16, 3/8 dia. rods and 5/16 HIT-IC rods	20	0.63	1.97	5/8
Mesh sleeve HIT-SC 16x85	①	5/16, 3/8 dia. rods and 5/16 HIT-IC rods	20	0.63	3.35	5/8
Mesh sleeve HIT-SC 18x50	①	1/2 dia. rods	20	0.71	1.97	11/16
Mesh sleeve HIT-SC 18x85	①	1/2 dia. rods	20	0.71	3.35	11/16
Mesh sleeve HIT-SC 22x50	①	5/8 dia. rods, 3/8 and 1/2 HIT-IC rods	20	0.87	1.97	7/8
Mesh sleeve HIT-SC 22x85	①	5/8 dia. rods, 3/8 and 1/2 HIT-IC rods	10	0.87	3.35	7/8
Mesh sleeve HIT-SC 26x125	②	3/4 dia. rods	20	1.02	4.92	1
Mesh sleeve HIT-SC 26x200	②	3/4 dia. rods	20	1.02	7.87	1



Internally threaded inserts for hollow masonry and brick material

Description		For use with:	Qty	Bit Dia., in.	Threads per inch
Internally Threaded HIT-IC 5/16 x 2		In hollow material use with HIT-SC 16 x 50	10	5/8	18
Internally Threaded HIT-IC 5/16 x 3-3/16	③	In hollow material use with HIT-SC 16 x 85	10	5/8	18
Internally Threaded HIT-IC 3/8 x 2		In hollow material use with HIT-SC 22 x 50	10	7/8	16
Internally Threaded HIT-IC 3/8 x 3-3/16	③	In hollow material use with HIT-SC 22 x 85	10	7/8	16
Internally Threaded HIT-IC 1/2 x 2		In hollow material use with HIT-SC 22 x 50	10	7/8	13
Internally Threaded HIT-IC 1/2 3 x 3/16	③	In hollow material use with HIT-SC 22 x 85	10	7/8	13
HIT Combi-Insert HIT-S - 12/I	④	Plastic sleeve for #14 screw	20	1/2	-



Multi-wythe brick walls

Threaded Rod			Mesh Sleeve		Approximate fastenings per foil pack[1]	
Rod Size 5.8 Grade	Embedment, in.	Qty	Bit Diameter, in.	Mesh Sleeve per Fastening	11.1 fl oz (330 ml)	16.9 fl oz (500 ml)
HAS-E 3/8 x 5-1/8	4	20	5/8	(2) SC 16x50	15	24
HAS-E 3/8 x 8	6-3/4	10	5/8	(2) SC 16x85	9	14
HAS-E 3/8 x 12	10	10	5/8	(3) SC 16x85	5	9
HAS-E 1/2 x 8	6-3/4	10	11/16	(2) SC 18x85	7	11
HAS-E 1/2 x 12	10	10	11/16	(3) SC 18x85	4	7
HAS-E 5/8 x 8	6-3/4	20	7/8	(2) SC 22x85	4	7
HAS-E 5/8 x 12	10	10	7/8	(3) SC 22x85	2	4
HAS-E 3/4 x 10	8	10	1	(1) SC 26x200	2	4
HAS-E 3/4 x 14	13	10	1	(1) SC 26x200, (1) SC 26x125	1	2
HAS-E 3/4 x 17	15-3/4	10	1	(2) SC 26x200	1	2
HAS-E 3/4 x 19	18	10	1	(2) SC 26x125, (1) SC 26 x 200	1	2
HAS-E 3/4 x 25	23-1/2	10	1	(3) SC 26x200	0	1

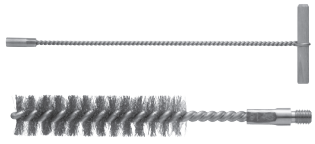
Internally threaded inserts

Threaded Rod			Mesh Sleeve		Approximate fastenings per foil pack[1]	
Rod Size 5.8 Grade	Embedment, in.	Qty	Bit Diameter, in.	Mesh Sleeve per Fastening	11.1 fl oz (330 ml)	16.9 fl oz (500 ml)
Internally Threaded HIT-IC 5/16 x 2	2	10	5/8	(1) SC 16x50	16	26
Internally Threaded HIT-IC 5/16 x 3-3/16	3-1/4	10	5/8	(1) SC 16x85	7	12
Internally Threaded HIT-IC 3/8 x 2	2	10	7/8	(1) SC 22x50	9	15
Internally Threaded HIT-IC 3/8 x 3-3/16	3-1/4	10	7/8	(1) SC 22x85	4	7
Internally Threaded HIT-IC 1/2 x 2	2	10	7/8	(1) SC 22x50	9	15
Internally Threaded HIT-IC 1/2 3-3/16	3-1/4	10	7/8	(1) SC 22x85	4	7

1 Assumes use with HDM 500 Manual Dispenser

Cleaning accessories

Hole Diameter	Round Brush Size use with HIT-RBH handle	Qty
1/2	HIT-RB 1/2	1
5/8	HIT-RB 5/8	1
11/16	HIT-RB 11/16	1
7/8	HIT-RB 7/8	1
1	HIT-RB 1	1



7.3 STEEL DESIGN APPENDIX

Table 1 — Steel design strength for Hilti HAS threaded rods for use with ACI 318 Chapter 17

Nominal anchor diameter in.	HAS-V ASTM A307 Gr. A			HAS-V-36 / HAS-V-36 HDG ASTM F1554 Gr. 36[4,6]			HAS-E-55 / HAS-E-55 HDG ASTM F1554 Gr. 55[4,6]			HAS-B-105 / HAS-B-105 HDG ASTM A193 B7 and ASTM F1554 Gr. 105[4,6]			HAS-R stainless steel ASTM F593 (3/8-in to 1-in)[5]		
	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)
1/4	1,240 (5.5)	685 (3.0)	480 (2.1)	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
5/16	1,995 (8.9)	1,105 (4.9)	775 (3.4)	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -	- -
3/8	- -	- -	- -	3,370 (15.0)	1,750 (7.8)	1,050 (4.7)	4,360 (19.4)	2,270 (10.1)	1,590 (7.1)	7,270 (32.3)	3,780 (16.8)	2,645 (11.8)	5,040 (22.4)	2,790 (12.4)	1,955 (8.7)
1/2	- -	- -	- -	6,175 (27.5)	3,210 (14.3)	1,925 (8.6)	7,985 (35.5)	4,150 (18.5)	2,905 (12.9)	13,305 (59.2)	6,920 (30.8)	4,845 (21.6)	9,225 (41.0)	5,110 (22.7)	3,575 (15.9)
5/8	- -	- -	- -	9,835 (43.7)	5,110 (22.7)	3,065 (13.6)	12,715 (56.6)	6,610 (29.4)	4,625 (20.6)	21,190 (94.3)	11,020 (49.0)	7,715 (34.3)	14,690 (65.3)	8,135 (36.2)	5,695 (25.3)
3/4	- -	- -	- -	14,550 (64.7)	7,565 (33.7)	4,540 (20.2)	18,820 (83.7)	9,785 (43.5)	6,850 (30.5)	31,360 (139.5)	16,310 (72.6)	11,415 (50.8)	18,485 (82.2)	10,235 (45.5)	7,165 (31.9)

1 Tensile = $\Phi A_{se,N} f_{uta}$ as noted in ACI 318-19 17.6.1.2.
2 Shear = Φ 0.60 $A_{se,V} f_{uta}$ as noted in ACI 318-19 17.7.1.2b.
3 Seismic Shear = $\alpha_{V,seis} \Phi V_{sa}$: Reduction for seismic shear only. See ACI 318 for additional information on seismic applications.
4 HAS-V, HAS-E, and HAS-B threaded rods are considered ductile steel elements (including HDG rods).
5 HAS-R (CW1 and CW2; 3-8-in to 1-in) threaded rods are considered brittle steel elements.
6 3/8-inch dia. threaded rods are not included in the ASTM F1554 standard. Hilti 3/8-inch dia. HAS-V, HAS-E, and HAS-B (incl. HDG) threaded rods meet the chemical composition and mechanical property requirements of ASTM F1554.

Table 2 — Steel design strength for US rebar for use with ACI 318 Chapter 17

Rebar Size	ASTM A615 Grade 40[4]			ASTM A615 Grade 60[4]			ASTM A706 Grade 60[4]		
	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)
#3	4,290 (19.1)	2,375 (10.6)	1,665 (7.4)	5,720 (25.4)	3,170 (14.1)	2,220 (9.9)	6,600 (29.4)	3,430 (15.3)	2,400 (10.7)
#4	7,800 (34.7)	4,320 (19.2)	3,025 (13.5)	10,400 (46.3)	5,760 (25.6)	4,030 (17.9)	12,000 (53.4)	6,240 (27.8)	4,370 (19.4)
#5	12,090 (53.8)	6,695 (29.8)	4,685 (20.8)	16,120 (71.7)	8,930 (39.7)	6,250 (27.8)	18,600 (82.7)	9,670 (43.0)	6,770 (30.1)
#6	17,160 (76.3)	9,505 (42.3)	6,655 (29.6)	22,880 (101.8)	12,670 (56.4)	8,870 (39.5)	26,400 (117.4)	13,730 (61.1)	9,610 (42.7)

1 Tensile = $\Phi A_{se,N} f_{uta}$ as noted in ACI 318-19 17.6.1.2.
2 Shear = Φ 0.60 $A_{se,V} f_{uta}$ as noted in ACI 318-19 17.7.1.2b.
3 Seismic Shear = $\alpha_{V,seis} \Phi V_{sa}$: Reduction for seismic shear only. See ACI 318 for additional information on seismic applications.
4 ASTM A706 Grade 60 rebar are considered ductile steel elements. ASTM A615 Grade 40 and 60 rebar are considered brittle steel elements.

Table 3 — Steel design strength for steel bolt / cap screw for Hilti HIS-N and HIS-RN internally threaded inserts for use with ACI 318 Chapter 17 [6]

Thread Size	ASTM A193 B7 [4,5]			ASTM A193 Grade B8M Stainless Steel [5]		
	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)
3/8-16 UNC	7,270 (32.3)	3,780 (16.8)	3,555 (15.8)	5,540 (24.6)	3,070 (13.7)	2,885 (12.8)
1/2-13 UNC	10,525 (46.8)	6,920 (30.8)	6,505 (28.9)	10,145 (45.1)	5,620 (25.0)	5,285 (23.5)

1 Tensile = $\Phi A_{se,N} f_{uta}$ as noted in ACI 318-19 17.6.1.2.
2 Shear = Φ 0.60 $A_{se,V} f_{uta}$ as noted in ACI 318-19 17.7.1.2b.
3 Seismic Shear = $\alpha_{V,seis} \Phi V_{sa}$: Reduction for seismic shear only. See ACI 318 for additional information on seismic applications.
4 ASTM A193 B7 steel bolts are considered ductile steel elements.
5 Hilti HIS-N inserts, HIS-RN inserts, and ASTM A193 Grade B8M stainless steel bolts are considered brittle steel elements.
6 Table values are the lesser of steel failure in the HIS-(R)N insert or inserted steel bolt.

Table 4 — Steel design strength for steel bolt / cap screw for Hilti HIT-IC internally threaded inserts for use with ACI 318 Chapter 17 [6]

Thread Size	ASTM A193 B7 [4,5]		
	Tensile[1] ΦN_{sa} lb (kN)	Shear[2] ΦV_{sa} lb (kN)	Seismic Shear[3] $\Phi V_{sa,eq}$ lb (kN)
5/16-18 UNC	2,740 (12.2)	2,555 (11.4)	1,790 (8.0)
3/8-16 UNC	4,050 (18.0)	3,780 (16.8)	2,645 (11.8)
1/2-13 UNC	9,800 (43.6)	6,920 (30.8)	4,845 (21.6)

1 Tensile = $\Phi A_{se,N} f_{uta}$ as noted in ACI 318-19 17.6.1.2.
2 Shear = Φ 0.60 $A_{se,V} f_{uta}$ as noted in ACI 318-19 17.7.1.2b.
3 Seismic Shear = $\alpha_{V,seis} \Phi V_{sa}$: Reduction for seismic shear only. See ACI 318 for additional information on seismic applications.
4 ASTM A193 B7 steel bolts are considered ductile steel elements.
5 Hilti HIT-IC inserts are considered brittle steel elements.
6 Table values are the lesser of steel failure in the HIT-IC insert or inserted steel bolt.

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