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
CA: 1-800-363-4458 or CATechnicalServices@hilti.com

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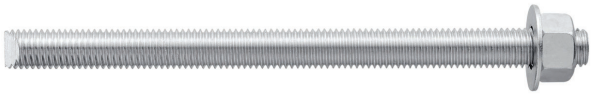
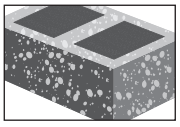
7.0 HIT-HY 200 A/R V3 ADHESIVE FOR MASONRY CONSTRUCTION

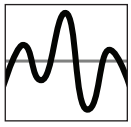
PRODUCT DESCRIPTION

HIT-HY 200 A/R V3 with Threaded Rod, Rebar, and HIS-(R)N Inserts

Anchor System	Features and Benefits
 Hilti HIT-HY 200-R V3 Cartridge  Hilti HIT-HY 200-A V3 Cartridge  Hilti HAS Threaded Rod  Rebar  Hilti HIS-N/RN	• Two products with equal performance data • Injectable two-component hybrid adhesive mortar • For use in grouted concrete masonry block walls • ICC-ES evaluated for cracked and uncracked grout-filled concrete masonry • No hole cleaning requirement when installed with SafeSet™ hollow drill bit technology • User can select product gel time suitability based on temperature of the base material and jobsite time requirements



Grout-filled concrete masonry



Seismic Design categories A-F

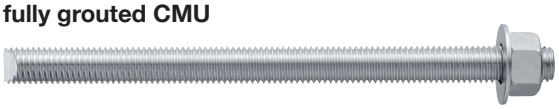
Hollow drill bit

PROFIS Engineering

Approvals/Listings	
ICC-ES (International Code Council)	ESR-4878 in grout-filled CMU per ICC-ES AC58
NSF/ANSI Std 61	Cetification for use in potable water
City of Los Angeles	2020 LABC Supplement (within ESR-4878)
Florida Building Code	2020 Florida Building Code Supplement (within ESR-4878) w/ HVHZ
U.S. Green Building Council	LEED® Credit 4.1-Low Emitting Materials

DESIGN DATA IN GROUT-FILLED CMU

HIT-HY 200 V3 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

Hilti HIS-N and HIS-RN

Deformed Reinforcing Bars (Rebar)

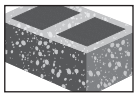
Permissible Base Materials		Permissible drilling method	
	 Grout-filled concrete masonry		 Hammer drilling with carbide tipped drill bit  Hilti TE-CD or TE-YD hollow drill bit (for diameters 1/2" – 3/4")

Figure 1 — Hilti HIT-HY 200 V3 with HAS threaded rod and reinforcing bars in grout-filled concrete masonry walls

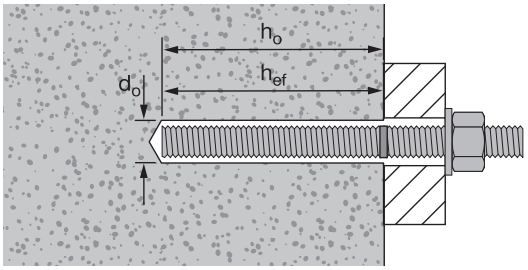


Figure 2 — Hilti HIT-HY 200 V3 with HIS-N and HIS-RN in grout-filled concrete masonry walls

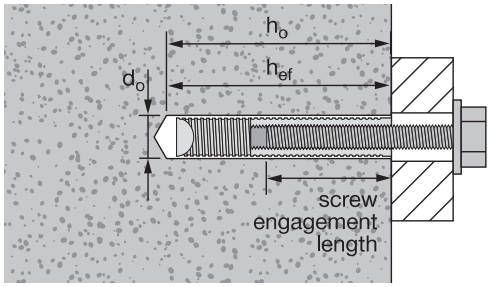


Figure 3 — Installation with (2) washers

Table 1— Hilti HIT-HY 200 V3 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	13	30	60	100
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 200 V3 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)	1,565 (7.0)	1,720 (7.7)	1,720 (7.7)	1,720 (7.7)	1,685 (7.5)	1,855 (8.3)	1,855 (8.3)	1,855 (8.3)
	4-1/2 (114)	3,265 (14.5)	3,265 (14.5)	3,265 (14.5)	3,265 (14.5)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,415 (15.2)
	6-3/4 (171)	4,895 (21.8)	4,895 (21.8)	4,895 (21.8)	4,895 (21.8)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,415 (15.2)
	7-1/2 (191)	5,440 (24.2)	5,440 (24.2)	5,440 (24.2)	5,440 (24.2)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,415 (15.2)
1/2	2-3/4 (70)	1,950 (8.7)	2,255 (10.0)	2,520 (11.2)	2,760 (12.3)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
	4-1/2 (114)	4,085 (18.2)	4,715 (21.0)	4,935 (22.0)	4,935 (22.0)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
	6-3/4 (171)	7,400 (32.9)	7,400 (32.9)	7,400 (32.9)	7,400 (32.9)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
	10 (254)	10,965 (48.8)	10,965 (48.8)	10,965 (48.8)	10,965 (48.8)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
5/8	3-1/8 (79)	2,365 (10.5)	2,730 (12.1)	3,050 (13.6)	3,345 (14.9)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
	4-1/2 (114)	4,085 (18.2)	4,715 (21.0)	5,150 (22.9)	5,150 (22.9)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
	6-3/4 (171)	7,505 (33.4)	7,730 (34.4)	7,730 (34.4)	7,730 (34.4)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
	10 (254)	11,450 (50.9)	11,450 (50.9)	11,450 (50.9)	11,450 (50.9)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
3/4	3-1/2 (89)	2,800 (12.5)	3,235 (14.4)	3,620 (16.1)	3,965 (17.6)	4,140 (18.4)	4,450 (19.8)	4,705 (20.9)	4,925 (21.9)
	4-1/2 (114)	4,085 (18.2)	4,715 (21.0)	5,275 (23.5)	5,780 (25.7)	4,140 (18.4)	4,450 (19.8)	4,705 (20.9)	4,925 (21.9)
	6-3/4 (171)	7,505 (33.4)	8,665 (38.5)	9,130 (40.6)	9,130 (40.6)	4,140 (18.4)	4,450 (19.8)	4,705 (20.9)	4,925 (21.9)
	10 (254)	13,525 (60.2)	13,525 (60.2)	13,525 (60.2)	13,525 (60.2)	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 0.82.
6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by α_{sat}
3/8-in diameter - α_{sat} = 1.00
1/2-in diameter - α_{sat} = 0.93
5/8-in diameter - α_{sat} = 0.79
3/4-in diameter - α_{sat} = 0.65
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 3 — Hilti HIT-HY 200 V3 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)	1,105 (4.9)	1,275 (5.7)	1,275 (5.7)	1,275 (5.7)	1,190 (5.3)	1,370 (6.1)	1,370 (6.1)	1,370 (6.1)
	4-1/2 (114)	2,410 (10.7)	2,410 (10.7)	2,410 (10.7)	2,410 (10.7)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,415 (15.2)
	6-3/4 (171)	3,620 (16.1)	3,620 (16.1)	3,620 (16.1)	3,620 (16.1)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,415 (15.2)
	7-1/2 (191)	4,020 (17.9)	4,020 (17.9)	4,020 (17.9)	4,020 (17.9)	2,875 (12.8)	3,085 (13.7)	3,265 (14.5)	3,415 (15.2)
1/2	2-3/4 (70)	1,380 (6.1)	1,590 (7.1)	1,780 (7.9)	1,950 (8.7)	2,965 (13.2)	3,425 (15.2)	3,795 (16.9)	3,975 (17.7)
	4-1/2 (114)	2,885 (12.8)	3,330 (14.8)	3,635 (16.2)	3,635 (16.2)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
	6-3/4 (171)	5,300 (23.6)	5,450 (24.2)	5,450 (24.2)	5,450 (24.2)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
	10 (254)	8,075 (35.9)	8,075 (35.9)	8,075 (35.9)	8,075 (35.9)	3,340 (14.9)	3,590 (16.0)	3,795 (16.9)	3,975 (17.7)
5/8	3-1/8 (79)	1,670 (7.4)	1,925 (8.6)	2,155 (9.6)	2,290 (10.2)	3,595 (16.0)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
	4-1/2 (114)	2,885 (12.8)	3,295 (14.7)	3,295 (14.7)	3,295 (14.7)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
	6-3/4 (171)	4,945 (22.0)	4,945 (22.0)	4,945 (22.0)	4,945 (22.0)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
	10 (254)	7,325 (32.6)	7,325 (32.6)	7,325 (32.6)	7,325 (32.6)	3,755 (16.7)	4,035 (17.9)	4,265 (19.0)	4,465 (19.9)
3/4	3-1/2 (89)	1,980 (8.8)	2,285 (10.2)	2,555 (11.4)	2,795 (12.4)	4,140 (18.4)	4,450 (19.8)	4,705 (20.9)	4,925 (21.9)
	4-1/2 (114)	2,885 (12.8)	3,330 (14.8)	3,620 (16.1)	3,620 (16.1)	4,140 (18.4)	4,450 (19.8)	4,705 (20.9)	4,925 (21.9)
	6-3/4 (171)	5,300 (23.6)	5,425 (24.1)	5,425 (24.1)	5,425 (24.1)	4,140 (18.4)	4,450 (19.8)	4,705 (20.9)	4,925 (21.9)
	10 (254)	8,040 (35.8)	8,040 (35.8)	8,040 (35.8)	8,040 (35.8)	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 designequations 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 0.82.

6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by α_{sat}
3/8-in diameter - α_{sat} = 1.00
1/2-in diameter - α_{sat} = 0.93
5/8-in diameter - α_{sat} = 0.79
3/4-in diameter - α_{sat} = 0.65

7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by: 0.75.

8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 4 — Hilti HIT-HY 200 V3 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)	1,010 (4.5)	1,120 (5.0)	1,120 (5.0)	1,120 (5.0)	1,085 (4.8)	1,210 (5.4)	1,210 (5.4)	1,210 (5.4)
	4-1/2 (114)	2,025 (9.0)	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)
	6-3/4 (171)	3,185 (14.2)	3,185 (14.2)	3,185 (14.2)	3,185 (14.2)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
	7-1/2 (191)	3,540 (15.7)	3,540 (15.7)	3,540 (15.7)	3,540 (15.7)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
1/2	2-3/4 (70)	1,170 (5.2)	1,350 (6.0)	1,510 (6.7)	1,650 (7.3)	1,290 (5.7)	1,490 (6.6)	1,665 (7.4)	1,825 (8.1)
	4-1/2 (114)	2,025 (9.0)	2,335 (10.4)	2,610 (11.6)	2,730 (12.1)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
	6-3/4 (171)	3,335 (14.8)	3,850 (17.1)	4,100 (18.2)	4,100 (18.2)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
	10 (254)	5,585 (24.8)	6,070 (27.0)	6,070 (27.0)	6,070 (27.0)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
5/8	3-1/8 (79)	1,340 (6.0)	1,545 (6.9)	1,725 (7.7)	1,880 (8.4)	1,415 (6.3)	1,635 (7.3)	1,825 (8.1)	2,000 (8.9)
	4-1/2 (114)	2,025 (9.0)	2,335 (10.4)	2,610 (11.6)	2,710 (12.1)	1,520 (6.8)	1,755 (7.8)	1,965 (8.7)	2,150 (9.6)
	6-3/4 (171)	3,335 (14.8)	3,850 (17.1)	4,065 (18.1)	4,065 (18.1)	1,555 (6.9)	1,795 (8.0)	2,005 (8.9)	2,195 (9.8)
	10 (254)	5,585 (24.8)	6,020 (26.8)	6,020 (26.8)	6,020 (26.8)	1,555 (6.9)	1,795 (8.0)	2,005 (8.9)	2,195 (9.8)
3/4	3-1/2 (89)	1,515 (6.7)	1,750 (7.8)	1,955 (8.7)	2,140 (9.5)	1,530 (6.8)	1,765 (7.9)	1,975 (8.8)	2,160 (9.6)
	4-1/2 (114)	2,025 (9.0)	2,335 (10.4)	2,610 (11.6)	2,860 (12.7)	1,605 (7.1)	1,855 (8.3)	2,075 (9.2)	2,270 (10.1)
	6-3/4 (171)	3,335 (14.8)	3,850 (17.1)	4,305 (19.1)	4,525 (20.1)	1,665 (7.4)	1,925 (8.6)	2,150 (9.6)	2,360 (10.5)
	10 (254)	5,585 (24.8)	6,450 (28.7)	6,705 (29.8)	6,705 (29.8)	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 0.82.

6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by α_{sat}
3/8-in diameter - α_{sat} = 1.00
1/2-in diameter - α_{sat} = 0.93
5/8-in diameter - α_{sat} = 0.79
3/4-in diameter - α_{sat} = 0.65

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 5 — Hilti HIT-HY 200 V3 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)	710 (3.2)	820 (3.6)	830 (3.7)	830 (3.7)	765 (3.4)	885 (3.9)	895 (4.0)	895 (4.0)
	4-1/2 (114)	1,430 (6.4)	1,570 (7.0)	1,570 (7.0)	1,570 (7.0)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
	6-3/4 (171)	2,355 (10.5)	2,355 (10.5)	2,355 (10.5)	2,355 (10.5)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
	7-1/2 (191)	2,620 (11.7)	2,620 (11.7)	2,620 (11.7)	2,620 (11.7)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
1/2	2-3/4 (70)	825 (3.7)	950 (4.2)	1,065 (4.7)	1,165 (5.2)	920 (4.1)	1,065 (4.7)	1,190 (5.3)	1,300 (5.8)
	4-1/2 (114)	1,430 (6.4)	1,650 (7.3)	1,845 (8.2)	2,010 (8.9)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
	6-3/4 (171)	2,355 (10.5)	2,720 (12.1)	3,020 (13.4)	3,020 (13.4)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
	10 (254)	3,940 (17.5)	4,470 (19.9)	4,470 (19.9)	4,470 (19.9)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
5/8	3-1/8 (79)	945 (4.2)	1,090 (4.8)	1,205 (5.4)	1,205 (5.4)	1,010 (4.5)	1,165 (5.2)	1,305 (5.8)	1,430 (6.4)
	4-1/2 (114)	1,430 (6.4)	1,650 (7.3)	1,735 (7.7)	1,735 (7.7)	1,085 (4.8)	1,255 (5.6)	1,405 (6.2)	1,535 (6.8)
	6-3/4 (171)	2,355 (10.5)	2,600 (11.6)	2,600 (11.6)	2,600 (11.6)	1,110 (4.9)	1,280 (5.7)	1,435 (6.4)	1,570 (7.0)
	10 (254)	3,855 (17.1)	3,855 (17.1)	3,855 (17.1)	3,855 (17.1)	1,110 (4.9)	1,280 (5.7)	1,435 (6.4)	1,570 (7.0)
3/4	3-1/2 (89)	1,070 (4.8)	1,235 (5.5)	1,380 (6.1)	1,395 (6.2)	1,090 (4.8)	1,260 (5.6)	1,410 (6.3)	1,545 (6.9)
	4-1/2 (114)	1,430 (6.4)	1,650 (7.3)	1,795 (8.0)	1,795 (8.0)	1,150 (5.1)	1,325 (5.9)	1,480 (6.6)	1,625 (7.2)
	6-3/4 (171)	2,355 (10.5)	2,690 (12.0)	2,690 (12.0)	2,690 (12.0)	1,190 (5.3)	1,375 (6.1)	1,535 (6.8)	1,685 (7.5)
	10 (254)	3,940 (17.5)	3,985 (17.7)	3,985 (17.7)	3,985 (17.7)	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 0.82.

6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by α_{sat}
3/8-in diameter - α_{sat} = 1.00
1/2-in diameter - α_{sat} = 0.93
5/8-in diameter - α_{sat} = 0.79
3/4-in diameter - α_{sat} = 0.65

7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by: 0.75.

8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 6 — Hilti HIT-HY 200 V3 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)	445 (2.0)	445 (2.0)	445 (2.0)	445 (2.0)	960 (4.3)	960 (4.3)	960 (4.3)	960 (4.3)
	4-1/2 (114)	730 (3.2)	730 (3.2)	730 (3.2)	730 (3.2)	1,320 (5.9)	1,520 (6.8)	1,575 (7.0)	1,575 (7.0)
	6-3/4 (171)	1,095 (4.9)	1,095 (4.9)	1,095 (4.9)	1,095 (4.9)	1,320 (5.9)	1,520 (6.8)	1,700 (7.6)	1,865 (8.3)
	10 (254)	1,625 (7.2)	1,625 (7.2)	1,625 (7.2)	1,625 (7.2)	1,320 (5.9)	1,520 (6.8)	1,700 (7.6)	1,865 (8.3)
5/8	3-1/8 (79)	580 (2.6)	580 (2.6)	580 (2.6)	580 (2.6)	1,250 (5.6)	1,250 (5.6)	1,250 (5.6)	1,250 (5.6)
	4-1/2 (114)	835 (3.7)	835 (3.7)	835 (3.7)	835 (3.7)	1,445 (6.4)	1,665 (7.4)	1,805 (8.0)	1,805 (8.0)
	6-3/4 (171)	1,255 (5.6)	1,255 (5.6)	1,255 (5.6)	1,255 (5.6)	1,475 (6.6)	1,700 (7.6)	1,905 (8.5)	2,085 (9.3)
	10 (254)	1,860 (8.3)	1,860 (8.3)	1,860 (8.3)	1,860 (8.3)	1,475 (6.6)	1,700 (7.6)	1,905 (8.5)	2,085 (9.3)
3/4	3-1/2 (89)	735 (3.3)	735 (3.3)	735 (3.3)	735 (3.3)	1,580 (7.0)	1,580 (7.0)	1,580 (7.0)	1,580 (7.0)
	4-1/2 (114)	945 (4.2)	945 (4.2)	945 (4.2)	945 (4.2)	2,035 (9.1)	2,035 (9.1)	2,035 (9.1)	2,035 (9.1)
	6-3/4 (171)	1,415 (6.3)	1,415 (6.3)	1,415 (6.3)	1,415 (6.3)	3,050 (13.6)	3,050 (13.6)	3,050 (13.6)	3,050 (13.6)
	10 (254)	2,095 (9.3)	2,095 (9.3)	2,095 (9.3)	2,095 (9.3)	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 0.82.

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} = 0.93
5/8-in diameter - α_{sat} = 0.79
3/4-in diameter - α_{sat} = 0.65

6 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by: 0.75.

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.

Table 7 — Hilti HIT-HY 200 V3 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)	330 (1.5)	330 (1.5)	330 (1.5)	330 (1.5)	710 (3.2)	710 (3.2)	710 (3.2)	710 (3.2)
	4-1/2 (114)	540 (2.4)	540 (2.4)	540 (2.4)	540 (2.4)	940 (4.2)	1,085 (4.8)	1,165 (5.2)	1,165 (5.2)
	6-3/4 (171)	810 (3.6)	810 (3.6)	810 (3.6)	810 (3.6)	940 (4.2)	1,085 (4.8)	1,215 (5.4)	1,330 (5.9)
	10 (254)	1,200 (5.3)	1,200 (5.3)	1,200 (5.3)	1,200 (5.3)	940 (4.2)	1,085 (4.8)	1,215 (5.4)	1,330 (5.9)
5/8	3-1/8 (79)	430 (1.9)	430 (1.9)	430 (1.9)	430 (1.9)	920 (4.1)	920 (4.1)	920 (4.1)	920 (4.1)
	4-1/2 (114)	615 (2.7)	615 (2.7)	615 (2.7)	615 (2.7)	1,030 (4.6)	1,190 (5.3)	1,330 (5.9)	1,330 (5.9)
	6-3/4 (171)	925 (4.1)	925 (4.1)	925 (4.1)	925 (4.1)	1,055 (4.7)	1,215 (5.4)	1,360 (6.0)	1,490 (6.6)
	10 (254)	1,370 (6.1)	1,370 (6.1)	1,370 (6.1)	1,370 (6.1)	1,055 (4.7)	1,215 (5.4)	1,360 (6.0)	1,490 (6.6)
3/4	3-1/2 (89)	470 (2.1)	470 (2.1)	470 (2.1)	470 (2.1)	1,010 (4.5)	1,010 (4.5)	1,010 (4.5)	1,010 (4.5)
	4-1/2 (114)	605 (2.7)	605 (2.7)	605 (2.7)	605 (2.7)	1,300 (5.8)	1,300 (5.8)	1,300 (5.8)	1,300 (5.8)
	6-3/4 (171)	905 (4.0)	905 (4.0)	905 (4.0)	905 (4.0)	1,950 (8.7)	1,950 (8.7)	1,950 (8.7)	1,950 (8.7)
	10 (254)	1,340 (6.0)	1,340 (6.0)	1,340 (6.0)	1,340 (6.0)	2,225 (9.9)	2,570 (11.4)	2,875 (12.8)	2,890 (12.9)

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 0.82.

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} = 0.93
5/8-in diameter - α_{sat} = 0.79
3/4-in diameter - α_{sat} = 0.65

6 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by: 0.75.

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.

Table 8 — Hilti HIT-HY 200 V3 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)	1,265 (5.6)	1,265 (5.6)	1,265 (5.6)	1,265 (5.6)	1,365 (6.1)	1,365 (6.1)	1,365 (6.1)	1,365 (6.1)
	4-1/2 (114)	2,400 (10.7)	2,400 (10.7)	2,400 (10.7)	2,400 (10.7)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
	6-3/4 (171)	3,600 (16.0)	3,600 (16.0)	3,600 (16.0)	3,600 (16.0)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
	7-1/2 (191)	3,995 (17.8)	3,995 (17.8)	3,995 (17.8)	3,995 (17.8)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
#4	2-3/4 (70)	1,950 (8.7)	2,255 (10.0)	2,520 (11.2)	2,525 (11.2)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,330 (19.3)
	4-1/2 (114)	4,085 (18.2)	4,130 (18.4)	4,130 (18.4)	4,130 (18.4)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,330 (19.3)
	6-3/4 (171)	6,195 (27.6)	6,195 (27.6)	6,195 (27.6)	6,195 (27.6)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,330 (19.3)
	10 (254)	9,180 (40.8)	9,180 (40.8)	9,180 (40.8)	9,180 (40.8)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,330 (19.3)
#5	3-1/8 (79)	2,365 (10.5)	2,730 (12.1)	3,050 (13.6)	3,340 (14.9)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
	4-1/2 (114)	4,085 (18.2)	4,715 (21.0)	4,815 (21.4)	4,815 (21.4)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
	6-3/4 (171)	7,220 (32.1)	7,220 (32.1)	7,220 (32.1)	7,220 (32.1)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
	10 (254)	10,695 (47.6)	10,695 (47.6)	10,695 (47.6)	10,695 (47.6)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
#6	3-1/2 (89)	2,800 (12.5)	3,235 (14.4)	3,620 (16.1)	3,965 (17.6)	4,435 (19.7)	4,765 (21.2)	5,040 (22.4)	5,275 (23.5)
	4-1/2 (114)	4,085 (18.2)	4,715 (21.0)	5,140 (22.9)	5,140 (22.9)	4,435 (19.7)	4,765 (21.2)	5,040 (22.4)	5,275 (23.5)
	6-3/4 (171)	7,505 (33.4)	7,710 (34.3)	7,710 (34.3)	7,710 (34.3)	4,435 (19.7)	4,765 (21.2)	5,040 (22.4)	5,275 (23.5)
	10 (254)	11,425 (50.8)	11,425 (50.8)	11,425 (50.8)	11,425 (50.8)	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 0.82.

6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by α_{sat}
#3 rebar - α_{sat} = 1.00
#4 rebar - α_{sat} = 0.93
#5 rebar - α_{sat} = 0.79
#6 rebar - α_{sat} = 0.65

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 200 V3 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)	1,105 (4.9)	1,120 (5.0)	1,120 (5.0)	1,120 (5.0)	1,190 (5.3)	1,210 (5.4)	1,210 (5.4)	1,210 (5.4)
	4-1/2 (114)	2,125 (9.5)	2,125 (9.5)	2,125 (9.5)	2,125 (9.5)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
	6-3/4 (171)	3,190 (14.2)	3,190 (14.2)	3,190 (14.2)	3,190 (14.2)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
	7-1/2 (191)	3,545 (15.8)	3,545 (15.8)	3,545 (15.8)	3,545 (15.8)	3,135 (13.9)	3,370 (15.0)	3,565 (15.9)	3,730 (16.6)
#4	2-3/4 (70)	1,380 (6.1)	1,590 (7.1)	1,770 (7.9)	1,770 (7.9)	2,965 (13.2)	3,425 (15.2)	3,815 (17.0)	3,815 (17.0)
	4-1/2 (114)	2,885 (12.8)	2,900 (12.9)	2,900 (12.9)	2,900 (12.9)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,330 (19.3)
	6-3/4 (171)	4,350 (19.3)	4,350 (19.3)	4,350 (19.3)	4,350 (19.3)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,330 (19.3)
	10 (254)	6,445 (28.7)	6,445 (28.7)	6,445 (28.7)	6,445 (28.7)	3,640 (16.2)	3,915 (17.4)	4,140 (18.4)	4,330 (19.3)
#5	3-1/8 (79)	1,670 (7.4)	1,715 (7.6)	1,715 (7.6)	1,715 (7.6)	3,595 (16.0)	3,695 (16.4)	3,695 (16.4)	3,695 (16.4)
	4-1/2 (114)	2,470 (11.0)	2,470 (11.0)	2,470 (11.0)	2,470 (11.0)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
	6-3/4 (171)	3,705 (16.5)	3,705 (16.5)	3,705 (16.5)	3,705 (16.5)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
	10 (254)	5,490 (24.4)	5,490 (24.4)	5,490 (24.4)	5,490 (24.4)	4,065 (18.1)	4,365 (19.4)	4,615 (20.5)	4,830 (21.5)
#6	3-1/2 (89)	1,980 (8.8)	2,285 (10.2)	2,555 (11.4)	2,795 (12.4)	4,260 (18.9)	4,765 (21.2)	5,040 (22.4)	5,275 (23.5)
	4-1/2 (114)	2,885 (12.8)	3,330 (14.8)	3,725 (16.6)	4,080 (18.1)	4,435 (19.7)	4,765 (21.2)	5,040 (22.4)	5,275 (23.5)
	6-3/4 (171)	5,300 (23.6)	6,115 (27.2)	6,840 (30.4)	7,490 (33.3)	4,435 (19.7)	4,765 (21.2)	5,040 (22.4)	5,275 (23.5)
	10 (254)	9,555 (42.5)	11,030 (49.1)	11,425 (50.8)	11,425 (50.8)	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 0.82.

6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by α_{sat}
#3 rebar - α_{sat} = 1.00
#4 rebar - α_{sat} = 0.93
#5 rebar - α_{sat} = 0.79
#6 rebar - α_{sat} = 0.65

7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by: 0.75.

8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 10 — Hilti HIT-HY 200 V3 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)	900 (4.0)	900 (4.0)	900 (4.0)	900 (4.0)	965 (4.3)	965 (4.3)	965 (4.3)	965 (4.3)
	4-1/2 (114)	1,700 (7.6)	1,700 (7.6)	1,700 (7.6)	1,700 (7.6)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
	6-3/4 (171)	2,550 (11.3)	2,550 (11.3)	2,550 (11.3)	2,550 (11.3)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
	7-1/2 (191)	2,835 (12.6)	2,835 (12.6)	2,835 (12.6)	2,835 (12.6)	1,205 (5.4)	1,390 (6.2)	1,555 (6.9)	1,700 (7.6)
#4	2-3/4 (70)	1,170 (5.2)	1,350 (6.0)	1,450 (6.4)	1,450 (6.4)	1,290 (5.7)	1,490 (6.6)	1,665 (7.4)	1,825 (8.1)
	4-1/2 (114)	2,025 (9.0)	2,335 (10.4)	2,375 (10.6)	2,375 (10.6)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
	6-3/4 (171)	3,335 (14.8)	3,560 (15.8)	3,560 (15.8)	3,560 (15.8)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
	10 (254)	5,275 (23.5)	5,275 (23.5)	5,275 (23.5)	5,275 (23.5)	1,390 (6.2)	1,605 (7.1)	1,795 (8.0)	1,965 (8.7)
#5	3-1/8 (79)	1,340 (6.0)	1,545 (6.9)	1,725 (7.7)	1,780 (7.9)	1,415 (6.3)	1,635 (7.3)	1,825 (8.1)	2,000 (8.9)
	4-1/2 (114)	2,025 (9.0)	2,335 (10.4)	2,565 (11.4)	2,565 (11.4)	1,520 (6.8)	1,755 (7.8)	1,965 (8.7)	2,150 (9.6)
	6-3/4 (171)	3,335 (14.8)	3,845 (17.1)	3,845 (17.1)	3,845 (17.1)	1,555 (6.9)	1,795 (8.0)	2,005 (8.9)	2,195 (9.8)
	10 (254)	5,585 (24.8)	5,695 (25.3)	5,695 (25.3)	5,695 (25.3)	1,555 (6.9)	1,795 (8.0)	2,005 (8.9)	2,195 (9.8)
#6	3-1/2 (89)	1,515 (6.7)	1,750 (7.8)	1,955 (8.7)	2,040 (9.1)	1,530 (6.8)	1,765 (7.9)	1,975 (8.8)	2,160 (9.6)
	4-1/2 (114)	2,025 (9.0)	2,335 (10.4)	2,610 (11.6)	2,620 (11.7)	1,605 (7.1)	1,855 (8.3)	2,075 (9.2)	2,270 (10.1)
	6-3/4 (171)	3,335 (14.8)	3,850 (17.1)	3,930 (17.5)	3,930 (17.5)	1,665 (7.4)	1,925 (8.6)	2,150 (9.6)	2,360 (10.5)
	10 (254)	5,585 (24.8)	5,825 (25.9)	5,825 (25.9)	5,825 (25.9)	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 0.82.

6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by α_{sat}
#3 rebar - α_{sat} = 1.00
#4 rebar - α_{sat} = 0.93
#5 rebar - α_{sat} = 0.79
#6 rebar - α_{sat} = 0.65

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 200 V3 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)	710 (3.2)	795 (3.5)	795 (3.5)	795 (3.5)	765 (3.4)	855 (3.8)	855 (3.8)	855 (3.8)
	4-1/2 (114)	1,430 (6.4)	1,510 (6.7)	1,510 (6.7)	1,510 (6.7)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
	6-3/4 (171)	2,260 (10.1)	2,260 (10.1)	2,260 (10.1)	2,260 (10.1)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
	7-1/2 (191)	2,515 (11.2)	2,515 (11.2)	2,515 (11.2)	2,515 (11.2)	860 (3.8)	995 (4.4)	1,110 (4.9)	1,215 (5.4)
#4	2-3/4 (70)	825 (3.7)	950 (4.2)	1,020 (4.5)	1,020 (4.5)	920 (4.1)	1,065 (4.7)	1,190 (5.3)	1,300 (5.8)
	4-1/2 (114)	1,430 (6.4)	1,650 (7.3)	1,665 (7.4)	1,665 (7.4)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
	6-3/4 (171)	2,355 (10.5)	2,500 (11.1)	2,500 (11.1)	2,500 (11.1)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
	10 (254)	3,700 (16.5)	3,700 (16.5)	3,700 (16.5)	3,700 (16.5)	995 (4.4)	1,145 (5.1)	1,280 (5.7)	1,405 (6.2)
#5	3-1/8 (79)	915 (4.1)	915 (4.1)	915 (4.1)	915 (4.1)	1,010 (4.5)	1,165 (5.2)	1,305 (5.8)	1,430 (6.4)
	4-1/2 (114)	1,315 (5.8)	1,315 (5.8)	1,315 (5.8)	1,315 (5.8)	1,085 (4.8)	1,255 (5.6)	1,405 (6.2)	1,535 (6.8)
	6-3/4 (171)	1,975 (8.8)	1,975 (8.8)	1,975 (8.8)	1,975 (8.8)	1,110 (4.9)	1,280 (5.7)	1,435 (6.4)	1,570 (7.0)
	10 (254)	2,925 (13.0)	2,925 (13.0)	2,925 (13.0)	2,925 (13.0)	1,110 (4.9)	1,280 (5.7)	1,435 (6.4)	1,570 (7.0)
#6	3-1/2 (89)	1,070 (4.8)	1,235 (5.5)	1,380 (6.1)	1,510 (6.7)	1,090 (4.8)	1,260 (5.6)	1,410 (6.3)	1,545 (6.9)
	4-1/2 (114)	1,430 (6.4)	1,650 (7.3)	1,845 (8.2)	2,020 (9.0)	1,150 (5.1)	1,325 (5.9)	1,480 (6.6)	1,625 (7.2)
	6-3/4 (171)	2,355 (10.5)	2,720 (12.1)	3,040 (13.5)	3,330 (14.8)	1,190 (5.3)	1,375 (6.1)	1,535 (6.8)	1,685 (7.5)
	10 (254)	3,940 (17.5)	4,550 (20.2)	5,090 (22.6)	5,575 (24.8)	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 0.82.

6 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by α_{sat}
#3 rebar - α_{sat} = 1.00
#4 rebar - α_{sat} = 0.93
#5 rebar - α_{sat} = 0.79
#6 rebar - α_{sat} = 0.65

7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by: 0.75.

8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 12— Hilti HIT-HY 200 V3 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)	670 (3.0)	670 (3.0)	670 (3.0)	670 (3.0)	1,225 (5.4)	1,410 (6.3)	1,445 (6.4)	1,445 (6.4)
	4-1/2 (114)	1,100 (4.9)	1,100 (4.9)	1,100 (4.9)	1,100 (4.9)	1,320 (5.9)	1,520 (6.8)	1,700 (7.6)	1,865 (8.3)
	6-3/4 (171)	1,650 (7.3)	1,650 (7.3)	1,650 (7.3)	1,650 (7.3)	1,320 (5.9)	1,520 (6.8)	1,700 (7.6)	1,865 (8.3)
	10 (254)	2,440 (10.9)	2,440 (10.9)	2,440 (10.9)	2,440 (10.9)	1,320 (5.9)	1,520 (6.8)	1,700 (7.6)	1,865 (8.3)
#5	3-1/8 (79)	790 (3.5)	790 (3.5)	790 (3.5)	790 (3.5)	1,340 (6.0)	1,550 (6.9)	1,705 (7.6)	1,705 (7.6)
	4-1/2 (114)	1,140 (5.1)	1,140 (5.1)	1,140 (5.1)	1,140 (5.1)	1,445 (6.4)	1,665 (7.4)	1,865 (8.3)	2,040 (9.1)
	6-3/4 (171)	1,710 (7.6)	1,710 (7.6)	1,710 (7.6)	1,710 (7.6)	1,475 (6.6)	1,700 (7.6)	1,905 (8.5)	2,085 (9.3)
	10 (254)	2,530 (11.3)	2,530 (11.3)	2,530 (11.3)	2,530 (11.3)	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 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 0.82.
5 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by α_{sat}
#4 rebar - α_{sat} = 0.93
#5 rebar - α_{sat} = 0.79
6 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by: 0.75.
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 200 V3 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)	470 (2.1)	470 (2.1)	470 (2.1)	470 (2.1)	875 (3.9)	1,010 (4.5)	1,015 (4.5)	1,015 (4.5)
	4-1/2 (114)	770 (3.4)	770 (3.4)	770 (3.4)	770 (3.4)	940 (4.2)	1,085 (4.8)	1,215 (5.4)	1,330 (5.9)
	6-3/4 (171)	1,155 (5.1)	1,155 (5.1)	1,155 (5.1)	1,155 (5.1)	940 (4.2)	1,085 (4.8)	1,215 (5.4)	1,330 (5.9)
	10 (254)	1,715 (7.6)	1,715 (7.6)	1,715 (7.6)	1,715 (7.6)	940 (4.2)	1,085 (4.8)	1,215 (5.4)	1,330 (5.9)
#5	3-1/8 (79)	405 (1.8)	405 (1.8)	405 (1.8)	405 (1.8)	875 (3.9)	875 (3.9)	875 (3.9)	875 (3.9)
	4-1/2 (114)	585 (2.6)	585 (2.6)	585 (2.6)	585 (2.6)	1,030 (4.6)	1,190 (5.3)	1,260 (5.6)	1,260 (5.6)
	6-3/4 (171)	875 (3.9)	875 (3.9)	875 (3.9)	875 (3.9)	1,055 (4.7)	1,215 (5.4)	1,360 (6.0)	1,490 (6.6)
	10 (254)	1,300 (5.8)	1,300 (5.8)	1,300 (5.8)	1,300 (5.8)	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 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 0.82.
5 Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by α_{sat}
#4 rebar - α_{sat} = 0.93
#5 rebar - α_{sat} = 0.79
6 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by: 0.75.
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 200 V3 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 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)	2,285 (10.2)	2,285 (10.2)	2,285 (10.2)	2,285 (10.2)	3,535 (15.7)	3,800 (16.9)	4,020 (17.9)	4,205 (18.7)
1/2	5 (127)	4,785 (21.3)	5,525 (24.6)	5,855 (26.0)	5,855 (26.0)	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 0.82.
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} = 0.65
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 200 V3 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 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)	1,705 (7.6)	1,705 (7.6)	1,705 (7.6)	1,705 (7.6)	3,535 (15.7)	3,670 (16.3)	3,670 (16.3)	3,670 (16.3)
1/2	5 (127)	3,375 (15.0)	3,900 (17.3)	4,360 (19.4)	4,775 (21.2)	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 0.82.
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} = 0.65
7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by α_{seis}
3/8-in diameter - α_{seis} = 0.58
1/2-in diameter - α_{seis} = 0.75
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

Table 16 — Hilti HIT-HY 200 V3 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)	1,395 (6.2)	1,395 (6.2)	1,395 (6.2)	1,395 (6.2)	1,520 (6.8)	1,755 (7.8)	1,965 (8.7)	2,150 (9.6)
1/2	5 (127)	2,295 (10.2)	2,650 (11.8)	2,935 (13.1)	2,935 (13.1)	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 0.82.
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} = 0.65
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 200 V3 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)	1,040 (4.6)	1,040 (4.6)	1,040 (4.6)	1,040 (4.6)	1,085 (4.8)	1,255 (5.6)	1,405 (6.2)	1,535 (6.8)
1/2	5 (127)	1,620 (7.2)	1,870 (8.3)	2,090 (9.3)	2,290 (10.2)	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 0.82.
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} = 0.65
7 Tabular values are for static loads only. For seismic loads, multiply design strength values in tension and shear by α_{seis}
3/8-in diameter - α_{seis} = 0.58
1/2-in diameter - α_{seis} = 0.75
8 Tabular values are for short term loads only. For sustained loads including overhead use, see Section 3.0.

INSTALLATION INSTRUCTIONS

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

MATERIAL SPECIFICATIONS

Figure 3 — Hilti HIT-HY 200 A/R V3 adhesive cure time and working time (approx.)

HIT-HY 200-A

[°C]	[°F]	HAS, HIS-N, Rebar t_{work}	HAS, HIS-N, Rebar t_{cure}	HIT-Z[1] t_{work}	HIT-Z[1] t_{cure}
-10...-5	14...23	1.5 h	7 h	–	–
-4...0	24...32	50 min	4 h	–	–
1...5	33...41	25 min	2 h	–	–
6...10	42...50	15 min	1.25 h	15 min	1.25 h
11...20	51...68	7 min	45 min	7 min	45 min
21...30	69...86	4 min	30 min	4 min	30 min
31...40	87...104	3 min	30 min	3 min	30 min

HIT-HY 200-R

[°C]	[°F]	HAS, HIS-N, Rebar t_{work}	HAS, HIS-N, Rebar t_{cure}	HIT-Z[1] t_{work}	HIT-Z[1] t_{cure}
-10...-5	14...23	3 h	20 h	–	–
-4...0	24...32	2 h	8 h	–	–
1...5	33...41	1 h	4 h	–	–
6...10	42...50	40 min	2.5 h	40 min	2.5 h
11...20	51...68	15 min	1.5 h	15 min	1.5 h
21...30	69...86	9 min	1 h	9 min	1 h
31...40	87...104	6 min	1 h	6 min	1 h

1 It is permitted to install Hilti HIT-HY 200 V3 with HIT-Z anchor rod down to 14° F (-10° C) provided the drilled hole has the drilling dust fully removed. This can be done with Hilti TE-CD or TE-YD hollow drill bit or with cleaning procedures used with standard threaded rod.

Resistance of cured Hilti HIT-HY 200 A/R V3 to chemicals

Chemical		Behavior
Acetic acid	10%	+
Acetone		●
Ammonia	5%	+
Benzyl alcohol		–
Hydrochloric acid	10%	●
Chlorinated lime	10%	+
Citric acid	10%	+
Concrete plasticizer		+
De-icing salt (Calcium chloride)		+
Demineralized water		+
Diesel fuel		+
Drilling dust suspension pH 13.2		+
Ethanol	96%	–
Ethylacetate		–
Formic acid	10%	+
Formwork oil		+
Gasoline		+
Glycole		●
Hydrogen peroxide	10%	●
Lactic acid	10%	+
Maschinery oil		+
Methylethylketon		●
Nitric acid	10%	●
Phosphoric acid	10%	+
Potassium Hydroxide pH 13.2		+
Sea water		+
Sewage sludge		+
Sodium carbonate 10%	10%	+
Sodium hypochlorite 2%	2%	+
Sulphuric acid	10%	+
	30%	+
Toluene		●
Xylene		●

Key: – non-resistant
+ resistant
● limited resistance

Samples of the HIT-HY 200 A/R V3 adhesive were immersed in the various chemical compounds for up to one year. At the end of the test period, the samples were analyzed. Any samples showing no visible damage and having less than a 25% reduction in bending (flexural) strength were classified as “Resistant.” Samples that had slight damage, such as small cracks, chips, etc. or reduction in bending strength of 25% or more were classified as “Limited Resistance” (i.e. exposed for 48 hours or less until chemical is cleaned up). Samples that were heavily damaged or destroyed were classified as “Non-Resistant.”

Note: In actual use, the majority of the adhesive is encased in the base material, leaving very little surface area exposed.

HIT-HY 200-A V3

HIT-HY 200-R V3

HIT-HY 200-A V3 (accelerated working time)

Description	Package contents	Qty
HIT-HY 200-A V3 (11.1 fl oz/330 ml)	Includes (1) foil pack with (1) mixer and 3/8 filler tube per pack	1
HIT-HY 200-A V3 Master Carton (11.1 fl oz/330 ml)	Includes (1) master carton containing (25) foil packs with (1) mixer and 3/8 filler tube per pack	25
HIT-HY 200-A V3 Combo (11.1 fl oz/330 ml)	Includes (1) master carton containing (25) foil packs with (1) mixer and 3/8 filler tube per pack and (1) HDM 500 Manual Dispenser	25
HIT-HY 200-A V3 Master Carton (16.9 fl oz/500 ml)	Includes (1) master carton containing (20) foil packs with (1) mixer and 3/8 filler tube per pack	20
HIT-HY 200-A V3 Combo (16.9 fl oz/500 ml)	Includes (2) master cartons containing (20) foil packs each with (1) mixer and 3/8 filler tube per pack and (1) HDM 500 Manual Dispenser	40
HIT-RE-M Static Mixer	For use with HIT-HY 200-A V3 cartridges	1

HIT-HY 200-R V3 (regular working time)

Description	Package contents	Qty
HIT-HY 200-R V3 (11.1 fl oz/330 ml)	Includes (1) foil pack with (1) mixer and 3/8 filler tube per pack	1
HIT-HY 200-R V3 Master Carton (11.1 fl oz/330 ml)	Includes (1) master carton containing (25) foil packs with (1) mixer and 3/8 filler tube per pack	25
HIT-HY 200-R V3 Combo (11.1 fl oz/330 ml)	Includes (1) master carton containing (25) foil packs with (1) mixer and 3/8 filler tube per pack and (1) HDM 500 manual dispenser	25
HIT-HY 200-R V3 Master Carton (16.9 fl oz/500 ml)	Includes (1) master carton containing (20) foil packs with (1) mixer and 3/8 filler tube per pack	20
HIT-HY 200-R V3 Combo (16.9 fl oz/500 ml)	Includes (2) master cartons containing (20) foil packs each with (1) mixer and 3/8 filler tube per pack and (1) HDM 500 manual dispenser	40
HIT-RE-M Static Mixer	For use with HIT-HY 200-R V3 cartridges	1

TE-CD Hollow Drill Bits

Order Description	Working length (in.)
Hollow Drill Bit TE-CD 1/2-13	8
Hollow Drill Bit TE-CD 9/16-14	9-1/2
Hollow Drill Bit TE-CD 5/8-14	9-1/2
Hollow Drill Bit TE-CD 3/4-14	9-1/2
Hollow Drill Bit TE-CD 16-A (Replacement collar)	

TE-YD Hollow Drill Bits

Order Description	Working Length (in.)
Hollow Drill Bit TE-YD 3/4-24	15-1/2
Hollow Drill Bit TE-YD 7/8-24	15-1/2
Hollow Drill Bit TE-YD 1-24	15-1/2
Hollow Drill Bit TE-YD 1 1/8-24	15-1/2
Hollow Drill Bit TE-YD 25-A (Replacement collar)	

For ordering information on anchor rods and inserts, dispensers, hole cleaning equipment and other accessories, see section 3.2.9.

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 = $\Phi\ 0.60\ A_{se,V}\ f_{uta}$ 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 = $\Phi\ 0.60\ A_{se,V}\ f_{uta}$ 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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DBS • 03/23