

**Anchor Fastening Technical Guide, Edition 22:**

**Table 12 — Hilti HIT-HY 270 allowable adhesive bond tension loads for threaded rods in the face of hollow brick<sup>1,3,4,8,9,10,11</sup>**

Nominal anchor diameter in.	Effective embedment in. (mm) <sup>2</sup>	Tension lb (kN)	Spacing <sup>5</sup>			Edge distance <sup>6</sup>				
			Critical s <sub>cr</sub> in. (mm)	Minimum s <sub>min</sub> in. (mm)	Load reduction factor @ s <sub>min</sub> <sup>7</sup>	Critical c <sub>cr</sub> in. (mm)	Minimum c <sub>min</sub> in. (mm)	Load reduction factor @ c <sub>min</sub> <sup>7</sup>		
1/4	3-1/8 (79)	530 (2.4)	8 (203)	4 (102)	0.88	6 3/8 (162)	4 (102)	0.93		
5/16		735 (3.3)							0.82	
3/8		905 (4.0)								0.54
1/2		905 (4.0)								

**Table 13 — Hilti HIT-HY 270 allowable adhesive bond shear loads for threaded rods in the face of hollow brick<sup>1,3,4,8,9,10,11</sup>**

Nominal anchor diameter in.	Effective embedment in. (mm) <sup>2</sup>	Shear lb (kN)	Spacing <sup>5</sup>			Edge distance <sup>6</sup>					
			Critical s <sub>cr</sub> in. (mm)	Minimum s <sub>min</sub> in. (mm)	Load reduction factor @ s <sub>min</sub> <sup>7</sup>	Critical c <sub>cr</sub> in. (mm)	Minimum c <sub>min</sub> in. (mm)	Load reduction factor @ c <sub>min</sub> <sup>7</sup>			
1/4	3-1/8 (79)	370 (1.6)	8 (203)	4 (102)	0.84	8 (203)	4 (102)	0.86			
5/16		595 (2.6)							0.81		
3/8		1,045 (4.6)								12 (305)	0.54
1/2		1,685 (7.5)									

The following footnotes apply to both Tables 11 and 12:

- All values are for anchors installed in hollow brick masonry with minimum masonry strength of 3000 psi. Hollow brick units must be in conformance with ASTM C652. Allowable loads have been calculated using a safety factor of 5.
- Tabulated embedment depth is limited by the length of the plastic HIT-SC screens.
- Anchors must be installed in the face of the hollow brick masonry wall.
- Tabulated values are for the anchor installed in the center of the hollow brick, mortar joints, flanges, or cell web (all wall face locations permitted).
- The critical spacing, s<sub>cr</sub>, is the anchor spacing where full load values in the table may be used. The minimum spacing, s<sub>min</sub>, is the minimum anchor spacing for which values are available and installation is recommended. Spacing is measured from the center of one anchor to the center of an adjacent anchor.
- The critical edge distance, c<sub>cr</sub>, is the edge distance where full load values in the table may be used. The minimum edge distance, c<sub>min</sub>, is the minimum edge distance for which values are available and installation is permitted. Edge distance is measured from the center of the anchor to each edge.
- Load reduction factors are multiplicative; both spacing and edge distance load reduction factors, and spacing and edge distances for all adjacent anchors/ edges less than s<sub>cr</sub>/c<sub>cr</sub> must be considered. Load values for anchors installed at less than s<sub>cr</sub> and c<sub>cr</sub> must be multiplied by the appropriate load reduction factor based on actual edge distance (c) and spacing (s).
- Anchors are not recognized for resisting earthquake forces. When using the basic load combinations in accordance with IBC Section 1605.3.1, or the alternative basic load combinations in IBC Section 1605.3.2, tabulated allowable loads must not be increased for wind loading.
- Allowable loads must be the lesser of the adjusted bond tabulated values and the steel values given in table 3.
- Tabulated allowable bond loads must be adjusted for increased base material temperatures in accordance with Figure 13, as applicable.
- For combined loading:  $(T_{applied}/T_{allowable}) + (V_{applied}/V_{allowable}) \leq 1$

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**Table 24. Hilti HIT-HY 270 design strength with clay brick failure modes for threaded rods not near an edge in uncracked, clay brick<sup>1,2,3,4,5,6</sup>**

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension — $\phi N_n$	Shear — $\phi V_n$
		f' <sub>m</sub> = 3000 psi (20.7 MPa) lb (kN)	f' <sub>m</sub> = 3000 psi (20.7 MPa) lb (kN)
1/4	3-1/8 (79)	300 (1.3)	460 (2.0)
5/16	3-1/8 (79)	470 (2.1)	625 (2.8)
3/8	3-1/8 (79)	470 (2.1)	625 (2.8)
1/2	3-1/8 (79)	560 (2.5)	1,350 (6.0)

<sup>1</sup>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.  
<sup>2</sup>Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.  
<sup>3</sup>LFRD load capacities based on evaluation in accordance with AC58.  
<sup>4</sup>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 0.62.  
<sup>5</sup>Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by:  $\alpha_{sat}$ .  
 1/4-in, 5/16-in and 3/8-in diameter -  $\alpha_{sat} = 0.48$   
 1/2-in diameter -  $\alpha_{sat} = 0.71$   
<sup>6</sup>Tabular values are for static loads only. Seismic design is not permitted.

**Table 25. Hilti HIT-HY 270 design strength with clay brick failure modes for threaded rods not near an edge in cracked, clay brick<sup>1,2,3,4,5,6</sup>**

Nominal anchor diameter in.	Effective embedment in. (mm)	Tension — $\phi N_n$	Shear — $\phi V_n$
		f' <sub>m</sub> = 3000 psi (20.7 MPa) lb (kN)	f' <sub>m</sub> = 3000 psi (20.7 MPa) lb (kN)
1/4	3-1/8 (79)	150 (0.7)	460 (2.0)
5/16	3-1/8 (79)	235 (1.0)	625 (2.8)
3/8	3-1/8 (79)	235 (1.0)	625 (2.8)
1/2	3-1/8 (79)	280 (1.2)	1,350 (6.0)

<sup>1</sup>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.  
<sup>2</sup>Compare masonry tabular values to the steel values in the Appendix. The lesser of the values is to be used for the design.  
<sup>3</sup>LFRD load capacities based on evaluation in accordance with AC58.  
<sup>4</sup>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 0.62.  
<sup>5</sup>Tabular values are for dry masonry conditions. For water saturated masonry conditions, multiply design strength values by:  $\alpha_{sat}$ .  
 1/4-in, 5/16-in, and 3/8-in diameter -  $\alpha_{sat} = 0.48$   
 1/2-in diameter -  $\alpha_{sat} = 0.71$   
<sup>6</sup>Tabular values are for static loads only. Seismic design is not permitted.