

# ICC-ES Evaluation Report

**ESR-3342**

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**DIVISION: 04 00 00—MASONRY**  
**Section: 04 05 19.16—Masonry Anchors**

## REPORT HOLDER:

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## EVALUATION SUBJECT:

**HILTI HIT-HY 70 ADHESIVE ANCHOR SYSTEM IN UNREINFORCED MASONRY**

## 1.0 EVALUATION SCOPE

### Compliance with the following codes:

- 2015, 2012, 2009 and 2006 *International Building Code*® (IBC)
- \* ■ 2015, 2012, 2009 and 2006 *International Residential Code*® (IRC)
- \* ■ 2015, 2012, 2009 and 2006 *International Existing Building Code*® (IEBC)
- \* ■ 2013 *Abu Dhabi International Building Code* (ADIBC)<sup>†</sup>

<sup>†</sup>The ADIBC is based on the 2009 IBC. 2009 IBC code sections referenced in this report are the same sections in the ADIBC.

### Property evaluated:

Structural

## 2.0 USES

The Hilti HIT-HY 70 Adhesive Anchor System is used to anchor threaded steel rods or deformed steel reinforcement bars in unreinforced brick masonry. Anchors installed in unreinforced masonry with the HIT-HY 70 adhesive system are designed to resist short-term loads imposed by earthquake or wind, as noted in Section 4.0 of this report. ~~The anchor system is an alternative to anchors described in Section 8.1.3 of ACI 530.13, as referenced in Section 2107 of the 2015 IBC and Section 2.1.4 of ACI 530.11, 08, 05 as referenced in Section 2107 of the 2012, 2009 and 2006 IBC, respectively. The anchors are an alternative to bolts described in Section A107.4 and Section A113.1 of the IEBC. The anchor system may also be used where an engineered design is submitted in accordance with Section R301.1.3 of the IRC.~~

## 3.0 DESCRIPTION

### 3.1 General:

The Hilti HIT-HY 70 Adhesive Anchor System consists of steel threaded rods or reinforcing bars, plastic mesh screen tube(s), the adhesive, and installation equipment as described in this report.

### 3.2 Materials:

**3.2.1 Hilti HIT-HY 70 Adhesive:** The Hilti HIT-HY 70 adhesive is an injectable hybrid adhesive mortar consisting of urethane methacrylate resin, hardener, cement and water. The resin and cement are separated from the hardener and water by means of a dual-cylinder foil pack attached to a manifold. An injection nozzle with an internal mixing element is attached to the manifold, and the adhesive components are dispensed through the injection nozzle to ensure proper mixing of the separate adhesive components. The injection nozzle may be replaced to permit multiple uses of the foil packs. Available foil pack sizes include total mixed volumes of 11.1 ounces (330 mL) and 16.9 ounces (500 mL).

The adhesive expiration date is printed on the manifold of each foil pack (month/year). The shelf life, as indicated by the expiration date, is for an unopened foil pack stored in a cool, dry, dark environment at temperatures between 41°F and 77°F (5°C and 25°C). Gel and curing times for the Hilti HIT-HY 70 adhesive and the respective masonry temperature during installation and cure are shown in Table 1.

**3.2.2 Threaded Steel Rods and Reinforcing Bars:** The threaded steel rods are  $\frac{3}{4}$  inch (19.1 mm) in diameter, and must comply with the minimum mechanical properties of ASTM A307. Alternatively, the  $\frac{3}{4}$ -inch threaded rods may be used in a prebent 22 $\frac{1}{2}$ -degree configuration. Threaded rods are supplied with nuts conforming to ASTM A563, Grade A, hex style, and with washers conforming to ANSI B 18.22.1, type A, Plain. The steel reinforcing bars are No. 4, No. 5, or No. 6 deformed bars complying with ASTM A615, A706, A767, or A996, Grade 60.

**3.2.3 Plastic Mesh Screen Tubes:** The mesh screen tubes are plastic with a black driving collar at the open end. They are available in diameters and lengths as described in Section 4.1. Different lengths can be achieved by assembling multiple screen tubes together, as depicted in Figure 3.

### 3.3 Unreinforced Masonry:

The existing unreinforced masonry walls must have a minimum nominal thickness of 13 inches [three wythes of

brick]. The average in-place mortar shear strength of the building's unreinforced masonry determined in accordance with IEBC Section A106.3.3 must be no less than 50 psi (345 kPa) net.

## 4.0 DESIGN AND INSTALLATION

### 4.1 General:

Two types of anchor assemblies are available: Configuration A (shear anchor or rebar dowel) and Configuration B (22<sup>1</sup>/<sub>2</sub>-degree combination anchor).

**4.1.1 Configuration A, Threaded Rods or Steel Reinforcing Bars in Shear (Shear Anchor or Rebar Dowel):** Configuration A is the anchor assembly resisting shear loads only. Configuration A consists of a <sup>3</sup>/<sub>4</sub>-inch-diameter (19.1 mm), ASTM A307 threaded rod or a No. 4, No. 5 or No. 6 reinforcing bar and a 1-inch-diameter-by-8-inch-long (26 mm by 200 mm) plastic-mesh screen tube (HIT-SC 26x200). Figure 1 shows details of an installed shear-resisting assembly.

**4.1.2 Configuration B, Bent Threaded Rods in Shear and Tension (22<sup>1</sup>/<sub>2</sub>-degree Combination Anchor):** Configuration B is the anchor assembly resisting a combination of tension and shear loads. Configuration B consists of a <sup>3</sup>/<sub>4</sub>-inch-diameter (19.1 mm), ASTM A307 threaded rod prebent at an angle of 22<sup>1</sup>/<sub>2</sub> degrees and a 1-inch-diameter-by-13-inch-long (26 mm by 325 mm) plastic-mesh screen tube obtained by combining 1-inch-diameter-by-8-inch-long (26 mm by 200 mm) and 1-inch-diameter-by-5-inch-long (26 mm by 125 mm) plastic-mesh screen tubes (HIT-SC 26x200 and HIT-SC 26x125). The anchor must be embedded a minimum of 13 inches (330 mm) at a downward angle of 22<sup>1</sup>/<sub>2</sub> degrees to the horizontal. Figure 2 shows details of an installed shear-and tension-resisting assembly.

### 4.2 Design:

The Hilti HIT-HY 70 adhesive anchors are intended to resist only short-term loads imposed by wind or earthquake. The anchors must be approved by a registered design professional and installed under special inspection in accordance with Section 4.5 of this report. The edge distance and vertical and horizontal spacing for the two types of anchor assemblies described in Section 4.1 must comply with Table 2.

Conditions of acceptance for threaded rods and reinforcing bars in unreinforced brick masonry are as follows:

#### 4.2.1 Configuration A, Threaded Rods or Steel Reinforcing Bars in Shear (Shear Anchor or Rebar Dowel):

- Installation of assemblies using threaded rods or reinforcing bars intended to resist shear loads only must comply with Sections 4.1 and 4.3, and Figure 3 of this report.
- The allowable shear load for the <sup>3</sup>/<sub>4</sub>-inch-diameter (19.1 mm) threaded rod is 1,000 pounds (4450 N), as shown in Table 3. The allowable shear loads for the No. 4, No. 5, and No. 6 reinforcing bars are 500, 750, and 1,000 pounds (2225, 3338, and 4450 N), respectively, as shown in Table 3. No adjustment for wind or earthquake loading is permitted.
- The allowable shear loads noted above are applicable only to anchors installed in walls where in-place shear tests indicate a minimum mortar strength of 50 psi (345 kPa) net in accordance with IEBC Section A106.3.3.

#### 4.2.2 Configuration B, Bent Threaded Rods in Shear and Tension (22<sup>1</sup>/<sub>2</sub>-degree Combination Anchor):

- Installation of assemblies using prebent threaded rods intended to resist a combination of tension and shear loads must comply with Sections 4.1 and 4.3, and Figure 3 of this report.
- The maximum allowable tension load for the <sup>3</sup>/<sub>4</sub>-inch-diameter (19.1 mm) prebent threaded rod (Configuration B) is 1,200 pounds (5340 N), as shown in Table 3. No adjustment for wind or earthquake loading is permitted.
- The maximum allowable shear load for the <sup>3</sup>/<sub>4</sub>-inch-diameter (19.1 mm) prebent threaded rod (Configuration B) is 1,000 pounds (4,450 N), as shown in Table 3. No adjustment for wind or earthquake loading is permitted.
- The maximum allowable load for the bent rod anchors subjected to combined tension and shear loads is determined by the following equation:

$$\left(\frac{P_s}{P_t}\right) + \left(\frac{V_s}{V_t}\right) \leq 1.0$$

where:

$P_s$  = Applied tension load

$P_t$  = Allowable tension load

$V_s$  = Applied shear load

$V_t$  = Allowable shear load

- The allowable tension and shear values as determined above are applicable only to anchors installed in walls where in-place shear tests indicate minimum mortar strength of 50 psi (345 kPa) net in accordance with IEBC Section A106.3.3.

### 4.3 Installation:

**4.3.1 General:** 1-inch-diameter (25.4 mm) holes must be drilled using standard carbide-tipped masonry drill bits complying with ANSI Specification B212.15-1994. Holes must be drilled using a rotary drill or a rotary hammer drill set on "rotation only". Impact tools are not permitted. Assembly installation must be in accordance with Section 4.3.2 or 4.3.3, and Figure 3 of this report. The adhesive must be allowed to cure for the full curing time listed in Table 1 before anchors are loaded. Cure time refers to that period of cure after which hardware may be placed and nuts tightened. Design loads may not be applied until the full curing time has transpired. Installation must not occur when masonry temperatures are below 41 °F (5 °C). The Hilti HIT HY 70 Adhesive Anchor System is intended to resist only short-term loads imposed by wind or earthquake. The anchors must be approved by the registered professional and installed under special inspection in accordance with Section 4.5 of this report. The edge distance, and vertical and horizontal spacing for all anchor configurations described in Sections 4.3.2 and 4.3.3 of this report, must comply with Table 2.

**4.3.2 Configuration A:** Holes for threaded rods or reinforcing bars intended to resist shear only must be drilled perpendicular to the wall to a minimum embedment depth of 8 inches (203 mm). The holes must be cleaned with a wire brush and compressed air to remove debris. The Hilti HIT-HY 70 adhesive must be injected into the supplied plastic mesh screen tube that is then inserted into the predrilled hole. The threaded rod or reinforcing bar must be inserted and pushed into the screen tube in a rotating manner to force the adhesive into the hole. Figure 1 illustrates an anchor installed in this configuration. Figure

3 illustrates the Manufacturer's Published Installation Instructions (MPII), also referred to as Instruction for Use (IFU).

**4.3.3 Configuration B:** Holes for installation of assemblies using prebent threaded rods intended to resist shear and tension must be drilled at a  $22\frac{1}{2}$ -degree angle to within 1 inch (25.4 mm) of the opposing surface. The holes must be cleaned with a wire brush and compressed air to remove debris. The Hilti HIT-HY 70 adhesive must be injected into the supplied plastic mesh screen tube that is then inserted into the predrilled hole. The prebent threaded rod must be inserted and pushed into the screen tube in a rotating manner to force the adhesive into the hole. Figure 2 illustrates an anchor installed in this configuration. Figure 3 illustrates the MPII, also referred to as IFU.

#### 4.4 Field Tests:

- a. Tests for in-place mortar shear strength of the building must be done in accordance with Section A106.3.3 of the IEBC. In-place mortar shear strength testing must indicate a minimum mortar strength of 50 psi (345 kPa).
- b. Anchors resisting tension forces or a combination of tension and shear forces must be tested in accordance with Section A107.4 of the IEBC. The test report must include:
  1. Test location(s)
  2. Brick/mortar condition
  3. Bolt movement/elongation
  4. Embedment depth and masonry wall thickness
  5. Applied load, loading procedure, load increments, and rate of loading.

#### 4.5 Special Inspection:

**4.5.1 IBC and IRC:** Continuous special inspection must be performed in accordance with Sections 1704 and 1705 of the IBC.

**4.5.2 IEBC:** Periodic inspection, direct-tension tests, and calibrated torque wrench tests must be performed in accordance with Section A107.4 of the IEBC. In lieu of testing and periodic inspection, the IEBC permits continuous special inspection during installation of bolts resisting shear forces only.

#### 5.0 CONDITIONS OF USE

The Hilti HIT-HY 70 Adhesive Anchoring System for Unreinforced Masonry described in this report complies with, or is a suitable alternative to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1** Use and installation must be as set forth in this evaluation report and the Manufacturer's Published Installation Instructions (MPII) illustrated in Figure 3 of this report. In case of conflict, this report governs.
- 5.2** Calculations and details must be submitted to the code official for approval.
- 5.3** Special inspection must be in accordance with Section 4.5 of this evaluation report.
- 5.4** Use of the anchor system must be approved by the registered design professional.
- 5.5** Anchors must be limited to resisting transient wind or seismic loads only.
- 5.6** Anchors are installed in holes predrilled with a carbide-tipped masonry drill bit complying with ANSI B212.15-1994.
- 5.7** The adhesive is not used after the expiration date stamped on the cartridge.
- 5.8** The Hilti HIT-HY 70 adhesive is manufactured by Hilti GmbH in Kaufering, Germany, under a quality control program with inspections by ICC-ES.
- 5.9** The Hilti HIT-SC screens are manufactured by Herbert Kaut GmbH & Co. KG in Sigmaringen, Germany, under a quality-control program with inspections by ICC-ES.

#### 6.0 EVIDENCE SUBMITTED

Data in accordance with the ICC-ES Acceptance Criteria for Adhesive Anchors in Unreinforced Masonry Elements (AC60), dated December 2009 (editorially revised March 2015); and quality-control documentation.

#### 7.0 IDENTIFICATION

Hilti HIT-HY 70 adhesive cartridges are identified by a label displaying the product name, name of the manufacturer (Hilti, Inc.), lot number, expiration date, a description of the product, the ICC-ES evaluation report number (ESR-3342), and installation instructions. The Hilti HIT-SC screens are identified by a label displaying the product name, name of the manufacturer (Hilti, Inc.), lot number, a description of the product, and installation instructions. Threaded rods, nuts, washers, and deformed reinforcing bars are standard elements and must conform to applicable national or international specifications.

TABLE 1—HILTI'S GEL AND CURING TIMES FOR HILTI HIT-HY 70 ADHESIVE

MINIMUM BASE MATERIAL TEMPERATURE <sup>1</sup>		GEL TIME <sup>2</sup>	CURING TIME <sup>3</sup>
°F	°C		
41	5	10 minutes	4 hours
42-50	6-10	7 minutes	2.5 hours
51-68	11-20	4 minutes	1.5 hours
69-86	21-30	2 minutes	30 minutes
87-104	31-40	1 minute	20 minutes

For SI: °C =  $\frac{5}{9} (°F - 32)$ .

<sup>1</sup>The temperatures listed above refer to the base-material temperature, not ambient air temperature.

<sup>2</sup>The anchors may be adjusted during the gel time following installation.

<sup>3</sup>Anchors must not be disturbed between gel time and curing time. The anchors may be loaded after the full curing time has elapsed.

TABLE 2—SPACING AND EDGE DISTANCE REQUIREMENTS FOR HILTI HIT-HY 70 ADHESIVE INSTALLED IN UNREINFORCED BRICK MASONRY

ANCHOR ASSEMBLY	MINIMUM VERTICAL SPACING (inches)	MINIMUM HORIZONTAL SPACING (inches)	MINIMUM EDGE DISTANCE (inches)
Configuration A, Threaded Rods or Reinforcing Bars in Shear (see Figure 1)	16	16	16
Configuration B, Bent Threaded Rods in Shear and Tension (22 $\frac{1}{2}$ ° Combination Anchor) (see Figure 2)	16	16	16

For SI: 1 inch = 25.4 mm.

TABLE 3—ALLOWABLE TENSION AND SHEAR LOADS FOR THREADED RODS AND REINFORCING BARS FOR HILTI HIT-HY 70 ADHESIVE INSTALLED IN UNREINFORCED BRICK MASONRY<sup>1,2</sup>

CONFIGURATION A – SHEAR ANCHOR OR REBAR DOWEL (FIGURE 1)				
Threaded Rod Dia. (inch) or Rebar Size	Minimum Embedment (inches)	Minimum Wall Thickness (inches)	Allowable Tension Load (pounds)	Allowable Shear Load (pounds)
$\frac{3}{4}$	8	13	-	1,000
No. 4	8	13	-	500
No. 5	8	13	-	750
No. 6	8	13	-	1,000
CONFIGURATION B – 22 $\frac{1}{2}$ ° COMBINATION ANCHOR (FIGURE 2)				
Threaded Rod Dia. (inch)	Minimum Embedment	Minimum Wall Thickness (inches)	Allowable Tension Load <sup>3</sup> (pounds)	Allowable Shear Load (pounds)
$\frac{3}{4}$	Within 1 inch of opposite wall surface	13	1,200	1,000

For SI: 1 inch = 25.4 mm, 1 lbf = 4.45 N, 1 foot-pound = 1.356 N-m, 1 psi = 6.89 Pa.

<sup>1</sup>Allowable load values are applicable only to anchors where in-place shear tests indicate minimum mortar strength of 50 psi, net.

<sup>2</sup>No increase for short-term loading is permitted, such as loading induced by wind or earthquake.

<sup>3</sup>Anchors must be tested in accordance with Section 4.4 for use with the IEBC.

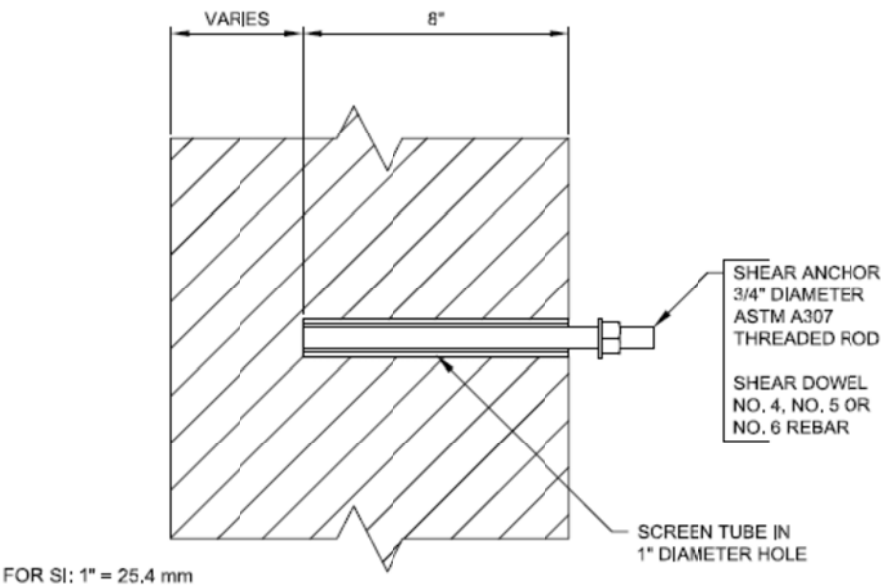


FIGURE 1—HILTI HIT-HY 70 ADHESIVE SHEAR ANCHOR OR DOWEL (CONFIGURATON A)

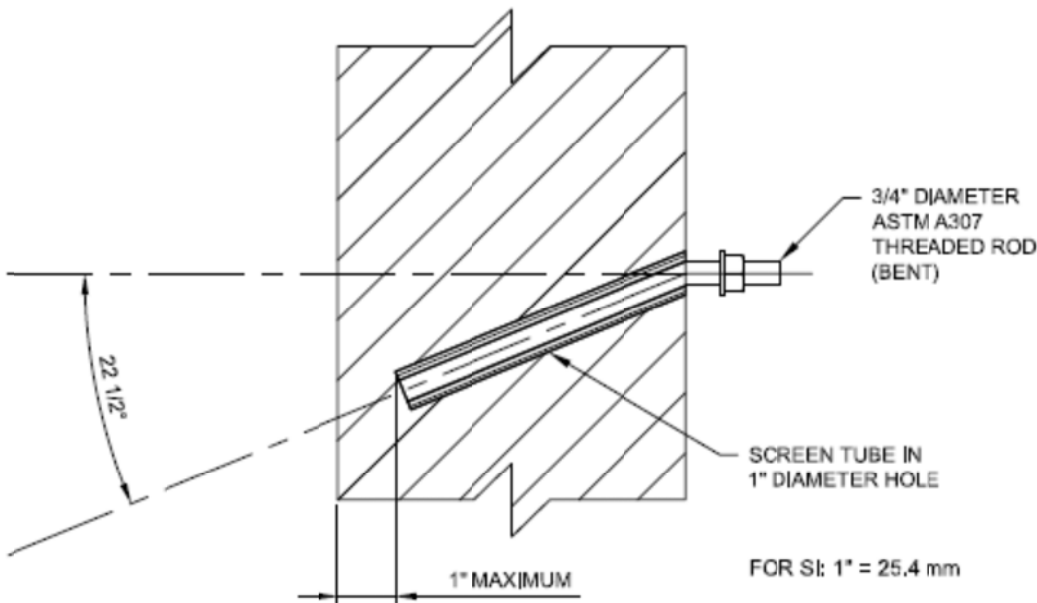


FIGURE 2—HILTI HIT-HY 70 ADHESIVE 22<sup>1</sup>/<sub>2</sub>° COMBINATION ANCHOR (CONFIGURATION B)





**HILTI HIT-HY 70**

**For industrial use only. Keep out of the reach of children.**

**See the Material Safety Data Sheet for this product before handling.**

**Caution:** Irritating to eyes and skin. May cause sensitization in susceptible individuals.

**Caution:** Contains peroxide, hydroxypropylmethacrylate.

**Precautions:** Avoid contact with skin/eyes. Always wear impermeable gloves and eye protection when using product. Store in a cool, dry area. Keep from freezing. Do not store in direct sunlight.

**First Aid:** Eyes - Immediately flush with water for 15 minutes, contact a physician. Skin - Wash with soap and water. Laundry contaminated clothing before reuse. If irritation occurs, contact a physician. **Ingestion:** - Do not induce vomiting unless directed by a physician. Contact a physician immediately. **Inhalation:** - Move to fresh air, give oxygen if breathing difficult. Contact a physician if symptoms persist.

**HILTI HIT-HY 70**

**Usage:** Industrial application. A conserver hors de la portée des enfants.

**Attention:** Irritant aux yeux et à la peau. Peut entraîner une sensibilisation chez les individus vulnérables.

**Précautions:** Éviter le contact avec la peau et les yeux. Toujours porter des gants imperméables et un équipement de protection des yeux lors de l'utilisation de la produit. Conserver dans un endroit frais et au sec. Conserver à l'abri du gel. Conserver à l'abri du rayonnement solaire direct. **Précautions:** Éviter l'usage. - Rincer immédiatement à l'eau pendant 15 minutes et appeler un médecin. **Peau:** - Se laver immédiatement avec de l'eau et du savon. Laver les vêtements contaminés avant de les réutiliser. En cas d'irritation, consulter un médecin. **Ingestion:** - Ne pas faire vomir à moins que cela soit été ordonné par un médecin. Appeler immédiatement un médecin. **Inhalation:** - Aller d'un frais, donner de l'oxygène en cas de difficultés respiratoires. Consulter un médecin en cas de persistance des symptômes.

**HILTI HIT-HY 70**

**Ado para uso industrial. Mantener alejado del alcance de los niños.**

**Verse la Hoja de datos de seguridad de los materiales de este producto antes de utilizarlo.**

**Precauciones:** Evitar el contacto con la piel y los ojos. Puede provocar sensibilidad en algunas personas.

**Caution:** peroxideo de hidrogeno, metacrilato de hidroxipropilo.

**Precauciones:** Evite el contacto con la piel y los ojos. Utilice siempre guantes impermeables y protección para los ojos cuando utilice este producto. Conserve en un sitio fresco y seco. Evite que el producto se congele. No lo deje expuesto a la luz directa del sol. **Primeros auxilios:** Ojos: Enjuague inmediatamente con agua durante 15 minutos, busque ayuda médica. **Piel:** Lave con agua y jabón. Lave bien la ropa contaminada antes de volver a utilizarla. En caso de irritación, busque ayuda médica. **Ingestión:** No induzca al vomito a menos que así lo indique un médico. Busque ayuda médica de inmediato. **Inhalación:** Lleve a la persona al aire libre, déle oxígeno o lea dificultades para respirar. Si los síntomas persisten, busque ayuda médica.

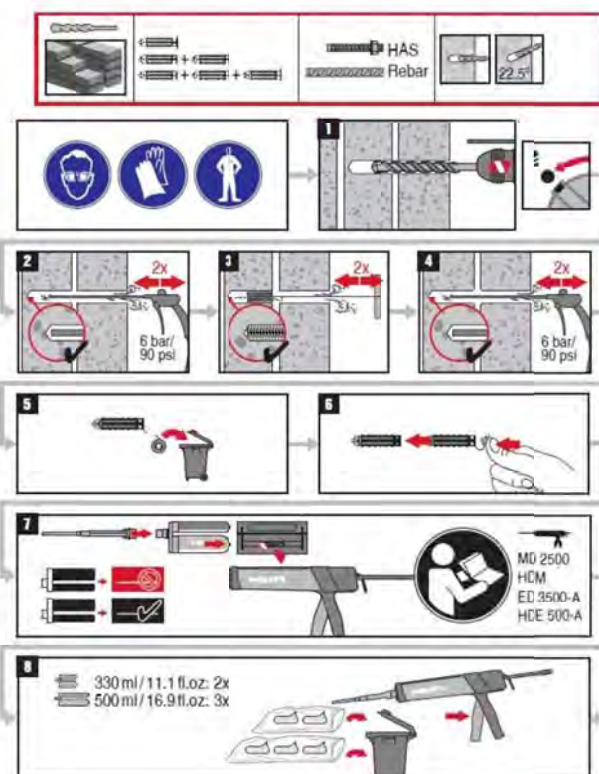
HILTI Inc., Tulsa, OK 74148 / HILTI Canada Corp.

**HILTI HIT-HY 70**

Instruction for use



ICC ESR - 3342



[°F]	[°C]		
41	5	10 min	4 h
-12 - 50	6 ... 10	7 min	2.5 h
51 - 68	11 ... 20	4 min	1.5 h
63 - 86	21 ... 30	2 min	30 min
87 - 104	31 ... 40	1 min	20 min

HAS	HIT-SC	$d_3$ [inch]	$f_{t_0}$ [inch]	$f_{t_0}$ [inch]	HIT-RB	$d_3$ [inch]
1/4"	26x200	1	8 1/4"	8	1	13 1/8"
3/8"	26x125	1	13 1/4"	13	1	13 1/8"
1/2"	26x200	1	13 1/4"	13	1	13 1/8"

Ribbar	HIT-SC	$d_3$ [inch]	$f_{t_0}$ [inch]	$f_{t_0}$ [inch]	HIT-RB	$d_3$ [inch]
14	26x200	1	8 1/4"	8	1	13 1/8"
15	26x200	1	8 1/4"	8	1	13 1/8"
16	26x200	1	8 1/4"	8	1	13 1/8"

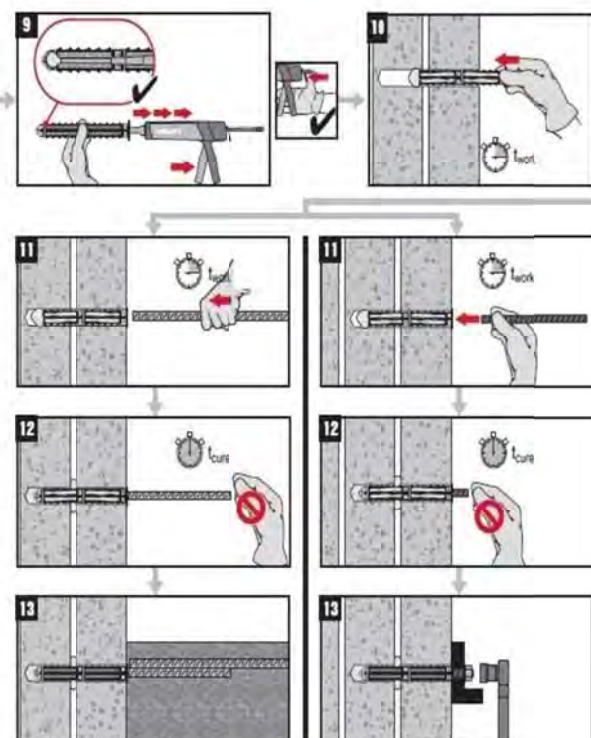


FIGURE 3—HILTI HIT-HY 70 ADHESIVE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS (MPII)

## Hilti HIT-HY 70

## Adhesive anchoring system for rebar and anchor fastenings.

For use in hollow and solid masonry of clay brick, concrete block and multi wythe wall.

## Hilti HIT-HY 70

**Caution:** Irritating to eyes and skin.

May cause sensitization in susceptible individuals.

**Contains:** dibenzoyl peroxide, hydroxypropylmethacrylate

**Precautions:** Avoid contact with skin/eyes. Always wear impermeable gloves and eye protection when using product. Store in a cool, dry area. Keep from freezing. Do not store in direct sunlight.

**First Aid: Eyes:** Immediately flush with water for 15 minutes, contact a physician. **Skin:** Wash with soap and water. Launder contaminated clothing before reuse. If irritations occurs, contact physician.

**Ingestion:** Do not induce vomiting unless directed by a physician. Contact a physician immediately.

**Inhalation:** Move to fresh air, give oxygen if breathing is difficult. Contact a physician if symptoms persist.

**Disposal considerations****Empty packs:**

– Leave the mixer attached and dispose of via the local Green Dot recovery system.

**Full or partially emptied packs:**

– Must be disposed of as special waste in accordance with official regulations

Ingredient	CAS Number	Ingredient	CAS Number
<b>Part A: (Large side)</b>		<b>Part B: (Small side)</b>	
Quartz Sand	14808-60-7	Quartz Sand	14808-60-7
NJ Trade Secret Registry	No. 19136100-5003	Water	07732-18-5
NJ Trade Secret Registry	No. 19136100-5020	Dibenzoyl peroxide	00094-36-0
NJ Trade Secret Registry	No. 19136100-5004	Amorphous silica	07631-86-9
NJ Trade Secret Registry	No. 19136100-5022	Dipropylene glycol	25265-71-8
NJ Trade Secret Registry	No. 19136100-5021		
NJ Trade Secret Registry	No. 19136100-5002		
NJ Trade Secret Registry	No. 19136100-5017		
Amorphous silica	67762-90-7		
Boric acid	10043-35-3		

► In Case of Emergency, call Chem-Trec: 1-800-424-9300 (USA, P.R., Virgin Islands, Canada)

**Warranty:** Refer to standard Hilti terms and conditions of sale for warranty information.

Failure to observe these installation instructions, use of non-Hilti anchors, poor or questionable base material conditions, or unique applications may affect the reliability or performance of the fastenings.

**Content:** 330 ml / 11.1 fl.oz. 500 ml / 16.9 fl. oz.  
**Weight:** 590 g / 20.8 oz. 890 g / 31.4 oz.

## Hilti HIT-HY 70

## Product Information

- Always keep these instructions together with the product even when given to other persons.
- **Check expiration date:** See imprint on foil pack manifold (month/year). Do not use expired product.
- **Foil pack temperature during usage:** between 41 °F and 104 °F / +5 °C and 40 °C.
- **Base material temperature at time of installation:** between 23 °F and 104 °F / -5 °C and 40 °C.
- **Exception in solid clay brick:** between 41 °F and 104 °F / +5 °C and 40 °C.
- **Conditions for transport and storage:** Keep in a cool, dry and dark place between 41 °F and 77 °F / 5 °C and 25 °C.
- **For any application not covered by this document / beyond values specified, please contact Hilti.**
- Partially used foil packs must remain in the cassette and has to be used within 4 weeks. Leave the mixer attached on the foil pack manifold and store within the cassette under the recommended storage conditions. If reused, attach a new mixer and discard the initial quantity of anchor adhesive.

## ⚠ WARNING

**! Improper handling may cause mortar splashes.**

- Always wear safety glasses, gloves and protective clothes during installation.
- Never start dispensing without a mixer properly screwed on.
- Attach a new mixer prior to dispensing a new foil pack (ensure snug fit).
- Use only the type of mixer (HITRE-M) supplied with the adhesive. Do not modify the mixer in any way.
- Never use damaged foil packs and/or damaged or unclean oil pack holders (cassettes).

**! Poor lead values / potential failure of fastening points due to inadequate borehole cleaning**

- The boreholes must be free of debris, dust, water, ice, oil, grease and other contaminants prior to adhesive injection.
- For blowing out the borehole – blow out with oil free air until return air stream is free of noticeable dust.
- For brushing the borehole – only use specified wire brush. The brush must resist insertion into the borehole – if not the brush is too small and must be replaced.

**! Borehole filling in solid masonry:** Ensure that boreholes are filled from the back of the borehole without forming air voids. If necessary use the accessories / extensions to reach the back of the borehole.

**! Filling mesh sleeve combinations:** Push the mixer – if necessary use mixer extension – through the centering cap and through the bottom of the mesh sleeve to the next mesh sleeve(s), fill with mortar and retract the mixer to the centering cap and fill again until mortar escapes at the centering cap (filling control).

**! Not adhering to these setting instructions can result in failure of fastening points!**

FIGURE 3—HILTI HIT-HY 70 ADHESIVE MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS (MPII) (Continued)