



FASTENING DESIGNED FOR JOBSITE PRODUCTIVITY

Hilti HIT-HY 270 mortar for
glass handrail construction



SAFETY BARRIER GLAZING AND GLASS RAILINGS

Hilti HIT-HY 270

Due to its highly aesthetic appearance and architectural capability, glass has become important as a supporting structural material. Balustrades, commonly known as handrail, are the new standard in many modern buildings.

ADVANTAGES OF HIT-HY 270

- Easier to install than traditional grouts
- Durable and tested to industry standards
- Flexibility of a grout with the ease of use of a mechanical solution
- Resistant to dripping during stair installations
- Capable of being installed in 23° F (-5° C) environments
- Does not bond to the glass or metal shoe

APPLICATION

- Safety barrier glazing through attachment of glass railings in U-profile shoes. Loads are safely transferred through the glass elements into the U-profile of the glass shoe.
- Hilti HIT-HY 270 creates a strong, reliable and flexible solution capable of withstanding the high static and impact load requirements.
- Hilti HIT-HY 270 offers maximum flexibility even for applications with an incline of up to 30°, such as glass railings on stairs. The viscosity of the HIT-HY 270 helps prevent the adhesive mortar from running down inclines due to gravity.
- Since the HIT-HY 270 does not bond to the glass or shoe, glass elements can be removed and replaced with ease
- Since HIT-HY 270 is an adhesive solution it allows for easy use in applications where the glass is curved providing better support on every part of the U-Profile glass shoe.





TESTED FOR DURABILITY AND COMPATIBILITY

Reference*

Tested for durability

- 50 lb Impact load on a 1 square-ft area in the center of the glass
- 200 lb concentrated load on the top center of the glass
- Combined uniformed load of 50 lbf and a wind load of 371 lbf on the glass
- Dynamic load changes of 10,000 cycles at 737 lb-ft.

Test Report Number:
2019-3901

Test Report Number:
19L468

Interlayer compatibility and useful life

- Compatible with PVB and SGP interlayered laminated glass
- Useful Life of 50 Years per ETA 13/1036

Test Report:
19/0007

ADVANTAGES OF HIT-HY 270

Maximum application flexibility

- Mortar has a high compressive strength
- Minimal planning work required
- Can be used in virtually any U-profile glass shoe
- Compensation for different internal glass shoes widths
- Load distribution by means of embedding

Compatibility

- Compatibility with EPDM films (ethylene propylene diene monomer rubber) in the case of seals
- Compatibility with silicone caulking compounds
- Compatibility with stainless steel and aluminum surfaces

Capable of withstanding environmental conditions

- UV resistance
- Temperature resistance from -40° F (-40° C) to 176° F (80° C)
- Water resistance
- Resistant to cleaning agents (resistant to lyes, acids and cleaning tensides)

*Test reports available upon request

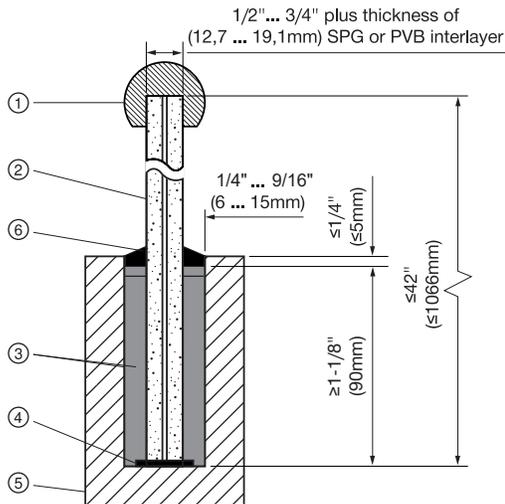
RELIABLE AND TESTED

Hilti HIT-HY 270

Hilti has been a reliable partner in North American glass handrail construction for many years and has experience in a wide variety of large-scale projects.

HIT-HY 270's high level of compressive strength and outstanding ductility properties translate into a secure load transfer to the glass shoe without any tension peaks.

- ① Top Rail
- ② Glass Pane
- ③ HIT-HY 270
- ④ Glass Seat or Gasket (if necessary)
- ⑤ Glass Shoe (U-Profile)
- ⑥ Structural Sealant



TESTING STANDARDS

Durability Testing of the HIT-HY 270 was carried out in accordance with:

- International Building Code (IBC) Section 1607.8
- ASTM E935-13: Standard Test Methods for Performance of Permanent Metal Railing Systems and Rails for Buildings
- ASTM E2353-16 :Standard Test Methods for Performance of Glazing in Permanent Railing System, Guards,and Balustrade.
- DIN 18008-4 Appendix A: Requirements for Safety Barriers with Glass

*Test reports available upon request

EXPLANATION OF TESTING

Each test was conducted with the purpose of confirming the durability of grout. The following tests were conducted:

- Impact Testing: Ability of the grout to hold during a sudden loading event.
- Continuous Load Testing: Ability of the grout to maintain it's hold after cycling back and forth 10,000 times.

*All testing was conducted using the installation method (Hockey Puck Method) as described below.

INSTALLATION DESIGN TO INCREASE PRODUCTIVITY

Hilti HIT-HY 270

Hilti's HIT-HY 270 has been design to be as productive as possible so you can get the job done. The "Hockey Puck" Installation method was design for this reason.

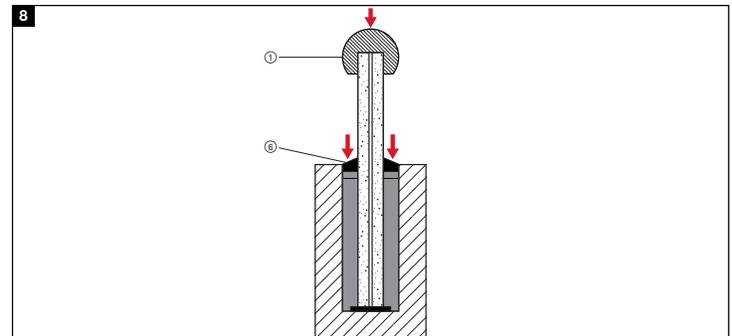
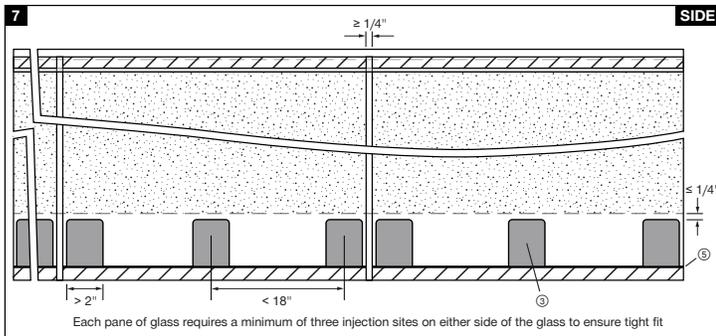
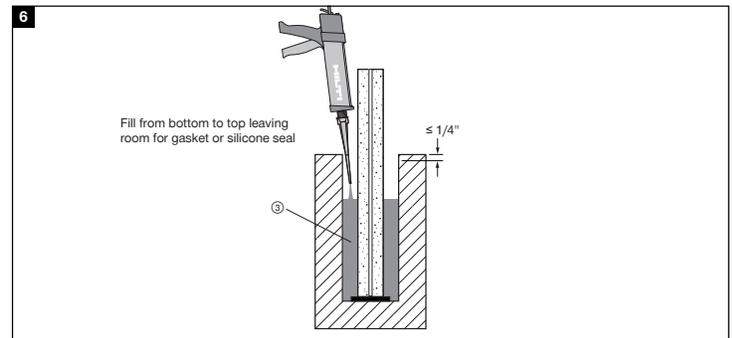
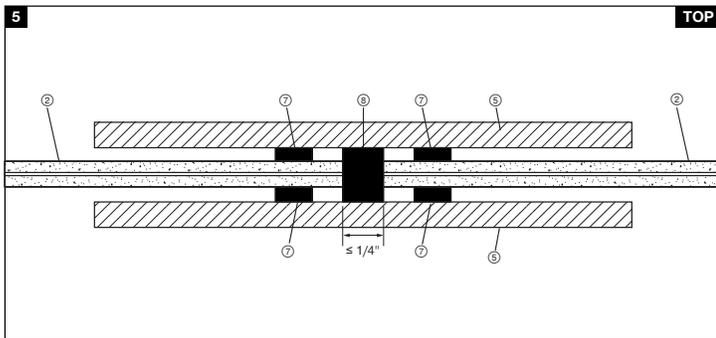
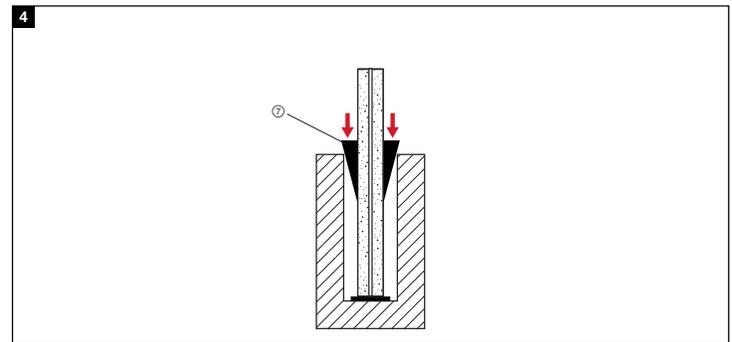
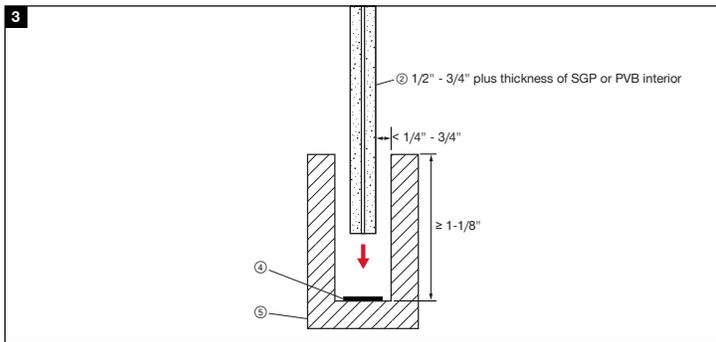
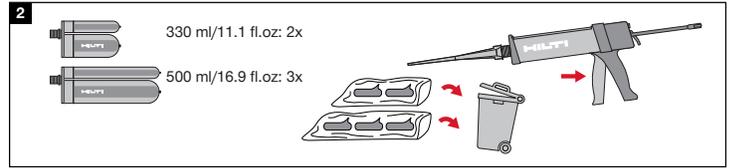
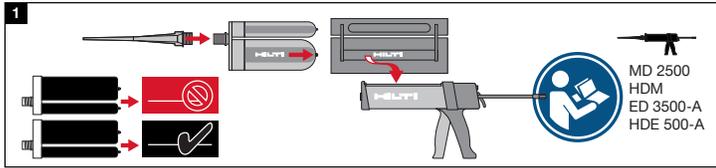
DESCRIPTION OF CONSTRUCTION USING THE HOCKEY PUCK METHOD

The glass panes are supported with HIT-HY 270 from the base of the U-profile to the top of the U-profile in periodic locations along the length of the glass. During the application, the following must be observed:

- Each Injection location can be no more than 18 inches apart, center to center, down the length of the U-profile glass shoe. Hilti recommends a center to center distance of 8-10 inches apart for a tight fit.
- When injecting, you must inject on either side of the glass (equal and opposite) at each injection location.
- The injection must fill from the bottom to the top of the U-profile glass shoe. Best practice is to allow for a 1/4" under fill from the top of the U-profile shoe to allow for structural sealant or gasket to be installed.
- Top edge of the pane connected to an attached and continuous top rail.
- Each injection site, or puck, must be a minimum of 2" wide. Hilti recommends a puck size of 3" wide for tight fit.
- Each pane of glass must have a minimum number of 3 injection sites, or pucks.

OPERATING INSTRUCTIONS (IFU)

- ① Top Rail
- ② Glass Pane
- ③ HIT-HY 270
- ④ Glass Seat or Gasket (If necessary)
- ⑤ Glass Shoe (U-Profile)
- ⑥ Structural Sealant
- ⑦ Temporary Glass Wedges
- ⑧ Spacing Cord



SYSTEM COMPONENTS FOR HILTI HIT-HY 270

Description		Item no.
Mortar, 11.1 oz. (330 ml)	①	2194247
Mortar, 16.9 oz. (500 ml)	①	2194248
Nozzle (included in foil packaging)	②	337111
Additional extension hose HIT-VL 11/1.0 (10 pc)	③	2042533
Manual Dispenser HDM 500	④	3498241
Cordless Dispenser HDE 500-A22	⑤	3496604
Foil Cartridge for 11.1 oz. and 16.9 oz. HIT-CB	⑥	2007057
Cordless Caulk Dispenser CD 4-A22	⑦	2217419
20 oz. Cartridge for CD 4-A22		2222489



MATERIAL PROPERTIES OF THE HILTI HIT-HY 270 SYSTEM

Curing time	30 minutes at 69° F (21° C)	See HIT-HY 270
Mortar's maximum compressive strength (average value)	9,427 psi	Determined in accordance with ISO 604
Measured value of the mortar's long-term compressive strength (application range up to 140° F (60° C))	4,496 psi	Evaluation of "HIT-HY 270 in glass constructions"
Measured value of the mortar's short-term compressive strength (application range from 140° F (60° C) to 176° F (80° C))	3,336 psi	Evaluation of "HIT-HY 270 in glass constructions"
E-Module	246,564 psi	in accordance with DIN 53452
Shrinkage behavior during the curing process	< 3%	Evaluation of "HIT-HY 270 in glass constructions"
Viscosity of sprayed mortar (at 23° C / 72° F guide; 20 RPM)	70 – 90 Pas	EN 12092
Shore D hardness	82	EN ISO 868
Thermal expansion coefficient (effect on glass tension)	0.0034% per K	Evaluation of "HIT-HY 270 in glass constructions"

BENEFITS OF HILTI HIT-HY 270

- Easier installation and handling than Por-Rock or other self leveling grouting methods.
- Allows for easier glass adjust-ability over mechanical wedge systems in curved glass applications.
- Allows individual glass panels to be removed easily in the event of damage.
- Thick viscosity of HIT-HY 270 prevents the adhesive from running down the shoe in inclined applications up to 30 degrees.



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