

HILTI

Hilti HIT-HY 70
for structural glass



It's advantages are crystal clear.

Hilti. Outperform. Outlast.



Taking structural glass to new heights. Hilti HIT-HY 70 – the tried and tested solution.



Thanks to its aesthetic appeal and the architectural possibilities it opens up, the use of glass as a structural material is rapidly gaining significance. Large and unconventional facades, interior partitions and other glass elements reflect the spirit of the times and are now becoming standard features of many buildings.

The incorporation of structural glass in a building presents many challenges due to the transfer of alternating compressive and shear forces between the glass and the steel structure. Allowance must also be made for stresses generated by temperature fluctuations and the heat of the sun.

A versatile, reliable high-strength fastening solution capable of meeting these demanding requirements is thus called for.

Hilti HIT-HY 70 injectable adhesive mortar is particularly suitable. In contrast to mechanical fastening solutions, this injectable mortar offers maximum flexibility in use and its high compressive strength combined with excellent ductility allows loads to be taken up reliably without transferring stress peaks to the glass.



Advantages

- Loads are taken up reliably without transferring stress peaks to the glass
- A simple, versatile solution and thus easy to use
- Short curing time
- Tested under typical conditions met in practice (acid rain, dampness, UV radiation, cleaning liquids)
- Many years of experience of structural glass gained since 1992 in major and minor projects in cooperation with some of the world's best-known facade and structural glass specialists



A complete Hilti system.
Perfectly matched components.

Hilti HIT-HY 70 injectable mortar

Ordering designation	Contents (ml)	Includes	Item no.
Hilti HIT-HY 70/330/2	330	2 mixing nozzles	383677
Hilti HIT-HY 70/500/2	500	2 mixing nozzles	383681
Hilti HIT-HY 70/1400/1	1400	1 mixing nozzle	383685

Dispensers

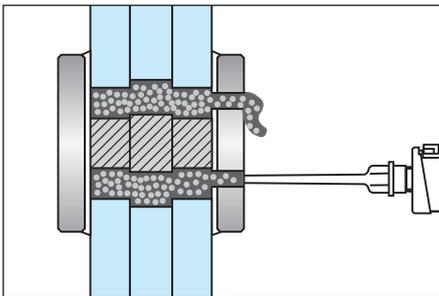
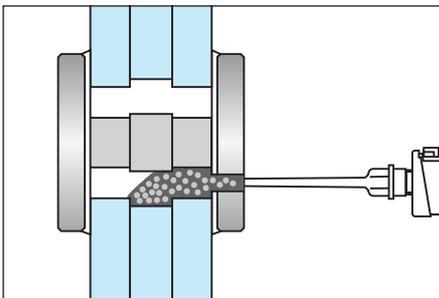
Ordering designation	Item no.
Hilti MD 2000 manual dispenser	371291
Hilti MD 2500 manual dispenser	338853
Hilti ED 3500 cordless electric dispenser	273291
Hilti HIT-P 8000 D pneumatic dispenser for 1400 ml packs	373959



Technical data	Hilti HIT-HY 70
In-service temperature range	-40 °C to 120 °C
Application temperature range	-5 °C to 40 °C
Curing time	45 min at 20 °C
Mortar compressive strength	max. 65 N/mm ² , design value 31 N/mm ²
Modulus of elasticity	1.750 N/mm ²
Thermal coefficient of expansion	0.0034 % / °C
Resistance of cured mortar	UV-Light: OK Temperature: Up to 120°C Water: No effect on compressive strength of the mortar Resistant to cleaners containing tensides
Compatibility	No effect on PVD and EPDM foil or silicone materials

Point-supported glass structures.

Point supports and Hilti HIT-HY 70 mortar form a winning team.



The application

A stainless steel point support is mounted in the correct position in a hole in the laminated safety glass sheet. The asymmetric cavity between the glass and the support is filled with Hilti HIT-HY 70 in an injection process. Lateral forces between the laminated safety glass and the point support are transferred through the injected mortar. The design of the metal point support incorporates a 6 mm injection hole and a 3 mm pressure vent which also serves as means of checking the injection operation.



The installation procedure

1. Mount and align the point support on the laminated safety glass.
2. Inject the Hilti HIT-HY 70 mortar (a suitable seal is required between the glass and metal to prevent water ingress).
3. Inject one additional stroke from the dispenser after mortar begins to escape from the vent.
4. The point support can be fully loaded after the specified mortar curing time (45 minutes at 20°C).



Safety

Hilti HIT-HY 70 injectable mortar's excellent characteristics and suitability for this special application have been verified in a technical assessment carried out by Prof. Dr. Ing. Ö. Bucak of Munich University of Applied Sciences. General construction supervisory authority approvals can thus be obtained easily.

References

- 25 Copthall Avenue, London
- Hotel Kempinski, Munich
- IMAX Theater, London
- Palais Coburg, Vienna
- Samsung – Rodin Museum, Seoul
- Tate Modern Gallery, London
- German Pavilion EXPO 2000, Hannover
- Sony Center, Berlin
- Chamber of Industry and Commerce, Munich

Permissible lateral forces in kN

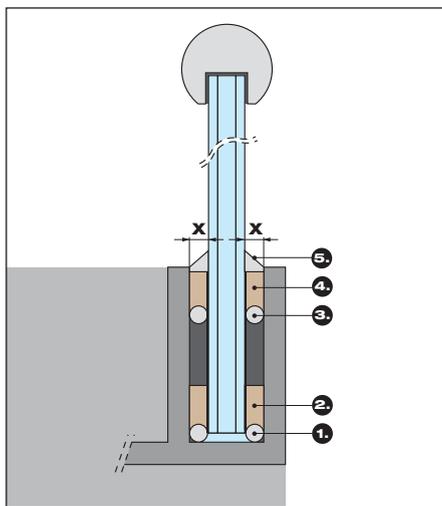
Glass thickness (mm)	Bolt diameter (mm)								
	8	10	12	16	20	22	27	30	36
8	1.1	1.3	1.6	2.2	2.7	3.0	3.7	4.1	4.9
10	1.4	1.7	2.0	2.7	3.4	3.7	4.6	5.1	6.1
12	1.6	2.0	2.4	3.3	4.1	4.5	5.5	6.1	7.4
15	2.0	2.5	3.1	4.1	5.1	5.6	6.9	7.7	9.2
20	2.6	3.2	3.9	5.2	6.5	7.2	8.8	9.8	11.7
22	2.8	3.6	4.3	5.7	7.1	7.9	9.7	10.7	12.9
25	3.2	4.1	4.9	6.5	8.1	8.9	11.0	12.2	14.7
30	3.9	4.9	5.8	7.8	9.8	10.7	13.2	14.6	17.6

Permissible lateral forces / shear loads F_D (kN) applied centrally in the area of the hole

- Hilti HIT-HY 70 mortar thickness in the point support: min. 3 mm, max. 20 mm
- Service temperature of max. 60°C in the mortar material



Glass balustrades and safety barriers. Hilti HIT-HY 70 mortar meets TRAV* requirements.



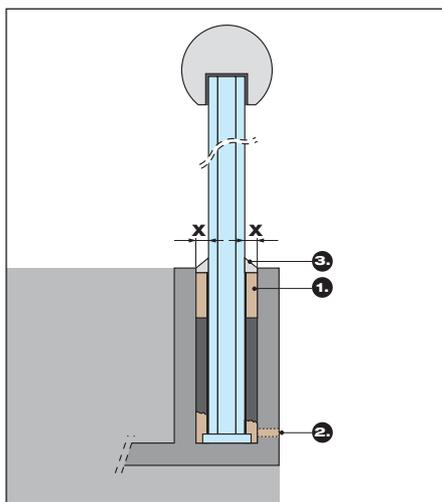
The application

Linear fastening of glass balustrades in U-profiles set into the floor.

The glass sections are fastened securely in the steel U-profiles by filling the remaining gap with Hilti HIT-HY 70 mortar.

Method A: $x > 8 \text{ mm}$

1. Use suitable wedges to hold the glass balustrade sections in place and insert the lower sealing cord.
2. Inject Hilti HIT-HY 70 mortar along the length of the gap.
3. Insert the upper sealing cord.
4. Inject Hilti HIT-HY 70 above the cord. The structure is capable of taking up the full load once the specified curing time has elapsed (depends on temperature, 45 minutes at 20°C).
5. Finish the joint neatly with sealant for good appearance.



Method B: $x \leq 8 \text{ mm}$

Preparation: Use suitable wedges to hold the glass balustrade panels in place. The U-profile must be equipped with injection holes (6 mm dia.) positioned at the height of the spacer element and at intervals of 200 mm.

1. Inject Hilti HIT-HY 70 so that the joint is well filled and then allow to cure.
2. Inject the mortar successively through each hole.
3. Finish the joint neatly with sealant for good appearance.

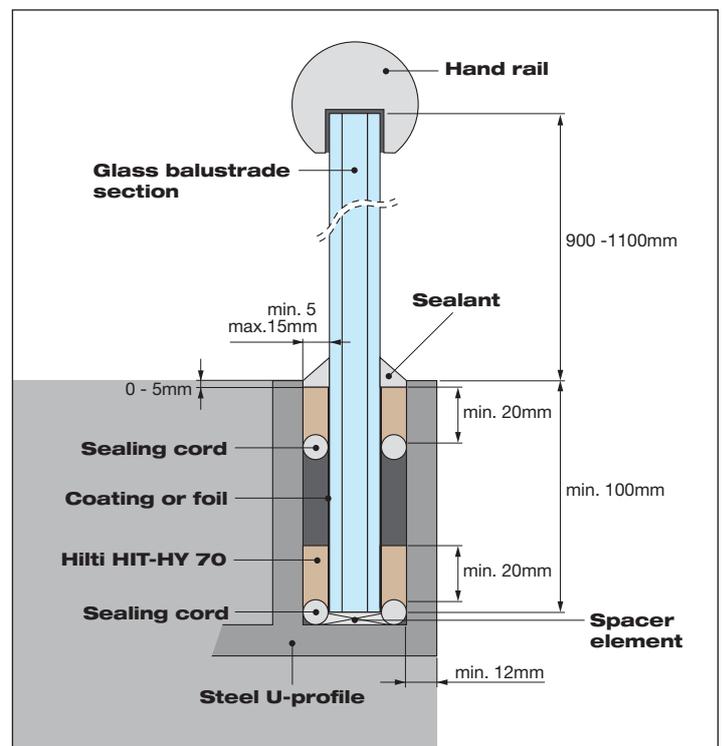


Safety

The fastening of glass balustrades with Hilti HIT-HY 70 mortar in accordance with German construction supervisory authority certificate P-2007-3100 fulfills TRAV* requirements.

References

- Adidas Head Office, Herzogenaurach
- Kreissparkasse, Ludwigsburg
- Daimler AG, Stuttgart
- European Glass Museum, Rödental
- BMW Museum, Munich



* Technical ruling applicable to glass balustrades / safety barriers issued by DIBt, Germany.

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