Technical instruction – Product no. 742

HYDROSTOP-INJECTIVE FLUID

Hydrophobic barrier against capillary water transport in masonry structures

PRODUCT PROPERTIES

- **Barrier to capillary moisture,**
- **Odorless and environmentally friendly water-based solution,**
- Resistant to XA1 and XA2 groundwater..

USE

Hydrostop-Injective Fluid is used horizontally for stopping capillary movement of water through structural walls. The barrier is designed for both new and old walls built from red brick and lime-and-sand brick affected by damp, stone, cinder blocks and AAC blocks bonded by any mortar. Applications include residential, industrial and public utility construction by drilling from the inside or from the outside of structures. The product is inflammable. For red brick walls bonded by strong cement-and-lime mortar product no. 721 Hydrostop-Injective is typically used. Hydrostop-Injective Fluid is not suitable for walls contaminated with detergents, soap or nitrates at a density in excess of 2g/dm3.

WORKING PRINCIPLE

On clay-rich and wet soils brick foundations easily soak after rainfall or during periodic increases of groundwater levels. The water collecting in the low layer of the bricks is transported through the capillaries upward even to several meters high. In order to obtain a horizontal barrier, an existing wall has holes drilled in the bricks to be filled with Hydrostop-Injective Fluid no. 742. Once the wall has been treated with the liquid, the hydrophobic ingredients contained in it gradually settle on the sides of the capillaries inside the wall. On drying, they form a barrier to capillary water..

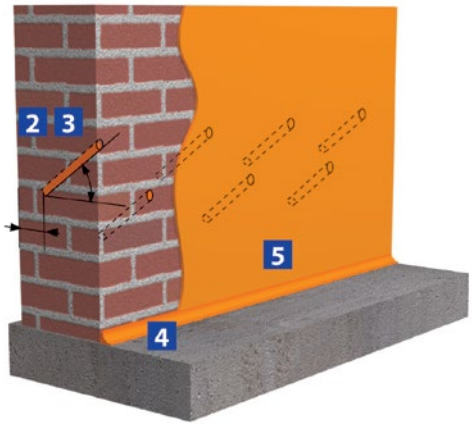

Fig. 1: An illustration of the waterproofing: 3 - holes injected with Hydrostop-Injective Fluid, 4 - wedge-shaped seal, 5 - vertical waterproofing made from waterproof mortar.

CHOICE OF LOCATION FOR DRILLING HOLES

The height at which to drill holes is usually set just above the floor but ensuring that the strip footing not be drilled into (see Fig. 2). Two rows of holes are drilled in the wall from the inside of from the outside of the building using a hammer drill (not a rotary hammer) with a dia. 20-24mm drill at an angle of approx. 30ºC without drilling through the wall (see Fig. 2). The minimum number of holes is ten per 1m of wall length, with five holes per each row

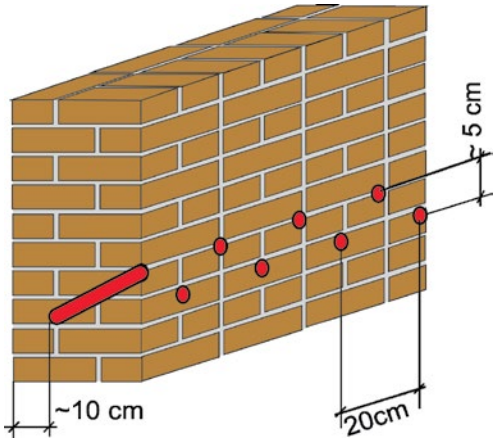

Fig. 2. Hole spacings for the horizontal waterproofing.

Hole spacings in each row are 20cm. The holes can also be drilled from both sides of the wall or at a different angle, but the maximum distance between holes inside the wall should not exceed 20cm.

FILLING HOLES

Hydrostop-Injective Fluid can be poured in using a watering can with a narrow spout or a funnel. The holes should be filled up several times. Use around 12kgs of the product per 1m2 of the horizontal cross section of the wall, i.e. a 40cm--thick wall requires about 5kgs per 1m of length. For other wall thicknesses use proportional amounts. If utilization appears lower, check if the drill diameter is correct and use a piece of wire to check if the depths of the holes are correct. If a hole cannot be filled due to the fluid running out into a crack in the wall, use polyurethane window foam for an initial fill. Once the foam has hardened, re-drill the hole and fill it with Hydrostop-Injective Fluid mixed with water. With low pressure injection it is acceptable to drill smaller diameter holes provided that the amount of the product used remains unchanged. Remove old render from the floor up to the level of apparent efflorescence and render deterioration and hollow out grout joints to apply the vertical waterproofing as described below.

MAKING VERTICAL WATERPROOFING

The wall should be carefully cleaned on the inside and on the outside by removing traces of render and efflorescence using a diamond disc on an adjustable-speed angle grinder. The grout joints should be hollowed out to 0.5-1cm. The cleaning can be done with a scabbler, drill-mounted wire brush and other tools. In case of severely damp-ridden structures vertical waterproofing is done using mortar composed as follows (by weight): 1 part Hydrostop-Injective (no. 721), 3 parts washed coarse sand and 0.6 parts water. Waterproofing

from outside and in case of structures affected by little damp from inside, use cement-and-sand mortar with an addition of Hydrostop-Plast no. 403. The connection of the wall with the floor is not rendered but a wedge-shaped seal is made instead (see Fig. 1, item 4). Approximately 3.8kg/m^2 of Hydrostop-Injective no. 721 (powder) should be used for vertical waterproofing. The amount for Hydrostop-Plast is 0.25kg/m^2. Hydrostop-Plast can also be substituted with Hydrostop--Mortar, using about 15kg/m2.

CARE

Horizontal waterproofing made using Injective Fluid Iniekcyjny does not normally require any care. However, vertical waterproofing made from Hydrostop-Injective no. 721 requires a humidity of >85% for at least 10 days. After that time it is recommended for the room to dry for at least 2 weeks with proper ventilation and heating, or using freon condensation dryers. The materials and work should be prepared very carefully, constantly supervised by the investor and documented on camera at every stage (initial state, drilling locations, hole depths, wall cleaning, applied vertical waterproofing). Three weeks after vertical waterproofing was done, the entire surface should be tap-tested to make sure that the mortar adheres well to the wall.

NOTES

The moisture barrier stops capillary water flow but it does not stop vapor passing from the ground. If possible, construction/dimpled sheeting should be used on the outside face. Waterproofed rooms must be ventilated during use. It is recommended not to let warm, humid air into the basement from inside higher parts of the building because if the walls are cool, water condensation or efflorescence will occur. The moisture barrier is most often applied to outside walls of structures. Care needs to be taken, though, to protect partition walls from soaking - analogous waterproofing solutions are used in such cases, only holes are usually drilled closer to the floor than in the case of outside walls.

FINISHING WORK

It is best if painting is only done using silicone paints and other hydrophobic paints. Do not use plaster renders, plasterboard or cement-and-lime renders. If the layer of render needs to be evened out, thickened or added in places not threatened by damp, use of Hydrostop-Plast is advised.

SAFETY PRECAUTIONS

Hydrostop-Injective Fluid is strongly alkaline due to the KOH it contains. It irritates the skin and mucous membranes. When working, use face protection, protective clothing (e.g. cotton) and watertight rubber gloves. Partly rubberized gloves or thin latex gloves are not recommended. Hydrostop-Injective Fluid is odorless and does not contain petroleum-derived ingredients. In case of light irritation to the hands, wash the skin in water, rinse with a 1:10 solution of food vinegar and apply an oil-based cream. In case of severe irritation, consult a doctor

TECHNICAL DATA

Name and no.:	Hydrostop-Injective Fluid 742
Product type:	penetration waterproofing horizontal barrier to capillary water transport in masonry structures
Form:	colorless liquid, ready for use
Substrate:	masonry walls from stone, red bricks, lime-and--sand bricks, cinder blocks and AAC blocks
Approximate yield for horizontal waterproofing:	approx. 5kg/m of 40cm-thick wall
Packaging size:	10kgs, 1000kgs
Specific weight:	1.02kg/dm^3±2%
Wall temperature:	5°C to 40°C
Storage and transportation temperature:	≥0°C

Exposure class: XA2 groundwater, pH 4.5 to 12.5, XD2 chlorinated drinking/shower/swimming pool water, rain/lake/river/irrigation water

Reaction-to-fire Euroclass: N/A (water-based solution)

SCHEDULING

Curing time for vertical waterproofing made from no. 721:	≥10 days
Drying time for horizontal waterproofing:	≥14 days
Covering with tiles/insulation:	≥5 days
Covering with hydrophobic paints:	≥5 days

Use before: 1 year from production (whole package)

Reference documents: Health safety attestation PZH no. HK/B/0568/01/2010. Currently the law does not require an approval or declaration of conformity for this type of product.

Document updates are available at www.hydrostop.eu

Being an excellent waterproofing product, HYDROSTOP has received numerous awards over the years. It was awarded at INBUD '90 (medal), at NOWE MATERIAŁY '92 and ZŁOTA SYRENKA in 1999. In 2003 it was recognized as an eco-friendly construction material. It was also awarded at WPPK in Szczyrk in 2007 and 2011.

HYDROSTOP®

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