RESISYSTEM 310
RESISYSTEM 310 TX

EPOXY FLUID FORMULATIONS FOR STRUCTURAL INJECTION, LOW VISCOSITY AND THIXOTROPIC

Liquid structural adhesive based on epoxy resin and aliphatic amines, solvent free, low viscosity for consolidation by injection of cracks and lesions in solid materials.

Areas of use

RESISYSTEM 310 and 310 TX are used to perform injections for structural consolidation in passing or blind cracks up to 0,1 mm of width on walls of solid materials such as concrete, brick, stone, tuff, wood and in general for:

- Concrete structural welding of beams, pillars and civilian engineering works;
- Strengthening of damaged concrete, solid brick, rock or stone masonry (in this case by previously filling in voids with fluid cement mortar);
- Fixing of steel and plastic reinforced by fibreglass fixed to wood and concrete connectors and with comb stitch of structural damages;
- Gluing of steel-concrete-wood elements, composite slab connectors with wooden beams, window sills, steps, unglued cement screeds.

Features

RESISYSTEM 310 and 310 TX provide an effective bonding because it has excellent adhesion to all building materials (concrete, steel, brick, etc.) in both wet and dry conditions. RESISYSTEm 310's low viscosity also allows to block even the narrowest slots inside a masonry ensuring a high adhesion surface; the reaction between the two components, resin and hardener, takes place without shrinkage by polyaddition or without the formation of secondary byproducts.
A consolidation with RESISYSTEM 310 or with RESISYSTEM 310 TX provide:

- High mechanical properties (tensile and compression) and low modulus of elasticity;
- Complete irreversibility of the hardening reaction and therefore stability and aging resistance of the hardened product;
- High chemical resistance against acid and basic solutions and gaseous pollutants;
- Implementing practical and secure with pumping system operates up to a recommended pressure from 1 to 4 atm.

How to use

Preparation of the support
Welding of cracks: open the cracks or the injection point by removing the loose parts and carefully aspirate dust or blow it out with compressed air.
In the widest points, drill Ø 10 mm holes 5 cm deep at a distance of 20-30 cm from each other to facilitate the entry of the resin; in correspondence to the holes fix the nipples (injection valves fitted with non-return device) with the appropriate adhesive RESICOL 100.
With the same product, seal the slot and wait until complete set, from 6 to 12 hours depending on the temperature.
Insert into the nipples a vent tube that allows air to escape during the injection of the product.

Preparation of the product
Pour component B into component A according to the weight ratio indicated in the packaging.
Mix for 3 '- 5' at low speed with a drill fitted with a helical/spiral incorporating less air as possible; during this operation, mix the product even on the bottom and on the walls of the bucket.

Application
Repairing cracks
Inject the product through the nipples with a variable pressure special gun, not exceeding 4 atm (the nonreturn valve works between 1 and 4 atm); the injection should be done starting from the lower nipple so that the air can escape from higher one.
Use pumps for two component systems, with variable and controlled pressure, fitted with static or dynamic mixer; alternatively, use diaphragm pumps, lobe pumps or autoclaves.
When the resin appears in the upper nipple, remove the pump hose and connect it the same way to the next nipple: continue until complete blockage of the cracking.
After a few minutes, repeat the operation to restore the material that was absorbed from the media.
At the end of hardening, which is completed in 12-15 hours, remove the nipple and the grout on the surface with a chisel and smooth with a abrasive disc.

Grouting of connectors
Pierce with a drill or a rotary hammer drill, carefully aspirate dust or blow compressed air.
Fill the hole with RESISYSTEM 310 for about half of its volume; insert the connector by rotating it in the hole so that air bubbles are expelled, then insert it completely and do not move during the curing phase.
The hole diameter should be 4 mm more than the diameter of the connector so as to leave a circular ring of 2 mm thickness.

Notes
Carefully examine the cracking before starting work: RESISYSTEM 310 is especially suitable for loops in compact construction materials (eg concrete), when you can know the depth and length to calculate the volume and therefore the amount of material necessary for its complete blocking. Avoid use in blind lesions and non-homogeneous materials (eg stone walls) because the product is dispersed; in this case the use of the thixotropic version called 310 TX is recommended.
Three basic rules apply to all two-component systems: weigh well, mix thoroughly the bottom and sides, respect the time of use. In the case of partial use of packages, the components must be weighed according to the report A + B indicated on the label and not measured by volume.

RESIMIX S.r.l. - Via A. Pacinotti, 12/14 - 36040 Brendola (VI) - Tel. 0444-400773 r.a. - Telefax 0444-601662
www.resimix.com - email: info@resimix.com

Technical characteristics

		310	310TX
Compression strength	ASTM D695	> 80 MPa	> 70 MPa
Tensile strength	UNI EN ISO 527	> 50 MPa	> 40 MPa
Ultimate elongation	UNI EN ISO 527	1,3%	0,9%
Flexural strength	UNI EN 12190	> 60 MPa	> 50 MPa
Elastic modulus (compressive)	ASTM D695	3700 MPa	~3600 MPa
Elastic modulus (tensile)	UNI EN ISO 527	~4200 MPa	-
Adhesion to dry concrete (*)	UNI EN 12636	> 4,5 MPa	> 4,5 MPa
Adhesion to wet concrete (*)	UNI EN 12636	> 2,5 MPa	> 2,5 MPa
Adhesion to steel (*)	UNI EN 12188	3,0 MPa	3,0 MPa
Density		1,10 kg/dm^3	1,10 kg/dm^3
Mix ratio A + B		100 + 25	100 + 25

Values achieved after 7 days hardening at 25°C.
(*) Adhesion test carried out through direct traction

The viscosity depends on the temperatures:

Temperature	RESISYSTEM 310	RESISYSTEM 310 TX
10°C	400-800 cP	500-900 cP
20°C	250-500 cP	400-600 cP
30°C	100-250 cP	200-400 cP

Use and hardening times

When mixing the reaction between the two components starts: time available is therefore limited and it depends on the temperature.

Temperature	Pot-life	Hardening
10°C	90’	12 h
20°C	35’	7 h
30°C	20’	5 h
40°C	10’	3 h

Full hardening after 7 days..

Consumption

To determine the need for RESISYSTEM 310 and 310 TX you should estimate the volume of the crack to fill: 1 kg of product fills about 1 dm^3.

Packages and storage

Available in packages (component A + B) of 1 kg, 5 kg, 10 kg and 25 kg.
The packages should be kept in an upright position and closed: the product remains unchanged for at least a year if it is kept closed and protected with a temperature between 10 and 30 °C.

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Cleaning of tools and health precautions

Before handling, always consult the relevant safety data sheets

To clean tools use solvents such as RESISOLV 111, RESISOLV 196 or alcohol.
Epoxy resins and hardening agents may cause irritations: please avoid any contact with the skin and especially with the eyes and ensure proper ventilation during use.
Wear gloves, protective suit, goggles or protective visor. People who have to work with epoxy resins for long periods are advised to use protective creams.
In case of contact with the skin, immediately clean with a cloth soaked in denatured alcohol and wash with water or neutral soap or handwash paste. Then use a nourishing cream.
In case of contact with eyes or mucosa, do not use alcohol. Rinse immediately with running water and neutral soap for 10/15 minutes, then seek medical advice.

Do not rinse with solvents.

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