

Injection hose system Intec[®], Intectin[®] Injection material FAQ

Intec[®] injection hose technology seals horizontal and vertical construction joints in water-impermeable structures safely and quickly. The suitable injection hose in combination with the referring injection material results in an approved system. As additional construction joint protection, a combination of the injection hose with other joint sealing systems can also provide increased sealing safety. The extensive range of accessories and tested injection materials are helpful for installers in practice.

Advantages

- As primary and secondary sealant
- Patented multiple injection
- Injection lengths per section up to 30 m
- Injection hose does not sinter during concreting
- Tested up to 5.0 bar water pressure (usable according to General Building Test Certificate up to 2.0 bar)
- German National Approval

Injection hose system Intec[®] and Intectin[®] injection material

Which approvals are available for Intec[®] injection hoses?

- AbP as joint sealant for structural elements made of concrete with high water penetration resistance

May injection hoses and injection materials be used in reinforced concrete components in contact with the groundwater?

Yes, see certificate of usability (abP).

May injection hoses and injection materials be used in temporary impounding water or in pressurized water?

Yes, the Intec[®] injection hose system may be used in accordance with the test certificates.

Is there a test certificate for Intectin[®] injection material?

Intec[®] injection hoses and Intectin[®] Plus injection material are tested according to PG-FBB. Other injection materials meet the requirements of ZTV-ING.

Is a test certificate (abZ) available for LAU systems?

No, in facilities for handling substances hazardous to water, requirements from both building law and water law must be met. The existing usability certificates do not currently cover this.

What pressure was used to test the system?

The Intec[®] injection hose system was tested at 5.0 bar (50 m water column), according to abP 2.0 bar (safety factor 2.5).

Which injection hoses and which injection material should be selected?

The choice of hoses and injection material depends on the boundary conditions and the particular application, e.g. type of joint, transmission of forces, the design, requirement for multiple crack injection, etc., see Waterproofing brochure.

Intec® injection hoses:

Are hazardous substances, such as plasticizers, contained in the hoses?

No, according to the REACH regulation (Regulation 1907/2006/EC), the components of the injection hose are classified as non-hazardous and do not require labeling according to the CLP regulation (Regulation 1272/2008/EC). Furthermore, no SVHC substances (Substances of Very High Concern) are contained. Further information: see technical data sheet.

Is the use of the injection hoses in drinking water systems permissible?

Yes because the hose is completely coated with the injection material after proper injection. The injection material therefore requires a drinking water test.

What chemicals is the hose resistant to?

The injection hose itself does not require any particular resistance against referring media as it is completely coated with the injection material after proper injection. Therefore, the resistance of the injection material is decisive. For all MAX FRANK injection materials, the resistance tables are available on the website.

What is the maximum permissible length of an injection hose section?

For **Intec® Premium/Standard** we recommend single injection section lengths of up to 10 m. In individual cases, injection circuit lengths of up to 30 m can be realized.

For **Intec® Cem N**, we recommend individual injection section lengths of up to 10 m. In individual cases, injection circuit lengths of up to 30 m can be realized.

What pressure is used for injection?

Intec® Premium/Standard: 30- 50 bar, max. 80 bar

Intec® Cem N: < 10 bar

The decisive factor for the injection result is not the amount of pressure, but rather the duration of the injection process. In general, the longer the injection (with lower pressure), the better (longer penetration time of the injection material).

At what compression pressure do the hoses open?

Intec® Premium: > 2 bar

Intec® Standard: ~ 0,5 bar

Intec® Cem N: ab ~ 0,1 bar

What is the advantage of Intec® Premium compared to other competitive products?

Intec® Premium is the only patented hose that can be injected several times with PUR resin without vacuuming the hose. Only mandatory process is to clean the hose with Intectin® Special cleaner and subsequently flush the hose with compressed air.

Will the slots of the hoses become mutually blocked when concrete is poured or by other injection circuits when crossed?

No, nevertheless it is recommended to tape an overlap strip when using Intec® Standard or Intec® Cem N.

What overlap is required when crossing two injection sections?

The hose sections must be overlapped by at least 15 cm to ensure continuous injection of the joints.

Why are the hoses to be fixed and at what intervals are they to be fixed to the component?

The fixation prevents floating during concreting and ensures that the hoses are secured in their position in the centre of the joint. They are to be fixed to the component approx. every 15 cm. Metal clips (by shooting on with a bolt gun or drilling in) or plastic clips (for pressing into fresh concrete) can be used for fixing.

How much concrete cover does the clamp need at the clamp foot to the formwork or precast element inside?

At least 5 cm

Where is the hose located in the component cross-section?

For components up to 60 cm thick, the hoses should be installed in the centre of the construction joint. For components >60 cm, the hose should be installed approx. 25 cm downstream from the outer edge of the component. The cover perpendicular to the edge is at least 5 cm. The transition between horizontal and vertical components must be made in accordance with the installation instructions.

How is the hose directed from the horizontal position to the vertical?

It is crucial that the hose covers the joint at every point. This can be ensured by suitable loop guidance (see CAD details). Compliance with the minimum bending radius of ~10cm ensures that the hose is not kinked and remains continuous.

How is the Intec® Cem N injection hose protected against penetration of the cement paste due to the low opening pressure?

The filament coating prevents cement paste from entering the injection channel.

How is residue of the injection material removed from the hose?

Intec® Premium: EP and PUR resin are flushed out of the hose using compressed air (max. 2 bar), the hose can then be rinsed with the system's special cleaner.

Intec® Cem N: The injection hose is emptied by means of a vacuum and then, depending on the the injection hose is emptied by using a vacuum and subsequently rinsed with water or special cleaner, depending on the injection material.

What are the advantages of air to empty the hose, and of the special cleaner?

Air can be set to 2 bar via pressure reducer. The pressure regulation is easier to handle than with liquids (special cleaner) in combination with the hand press.

When using the special cleaner, no compressed air (compressor) is required on the construction site.

Intectin® Injection material:

Does Intectin® Plus comply with a harmonized standard?

Yes, the crack injection resin is regulated in a harmonized standard hEN (DIN EN 1504-5) and is CE-compliant (see declaration of performance).

Is there an approval for use in drinking water systems?

No, a DVGW test for drinking water systems is required for Germany. This is currently not available for Intectin® Plus.

Is there an approval for the use in LAU plants?

No, in facilities for handling substances hazardous to water, requirements from both building law and water law must be met. General building inspection test certificates according to PG-FBB are not provided for in water law. The usability can be permitted by approval in individual cases by the responsible authority.

Which injection material should be selected?

The choice of injection material depends on the particular application, e.g. type of joint, transmission of forces, construction, requirement for repeated injection, moisture/water ingress at the component, see also regulations of ZTV-ING.

What chemicals is the injection material resistant to?

Intectin® injection material is generally resistant to many media. A detailed list is provided in the Technical Data Sheets "Resistance Tables" on the website.

What is the consumption of injection material per meter of hose?

Intec® Premium/Standard: Filling quantity of the hose 0.4 kg/ 10 m, in case of good design of the concrete with existing connection mixture (maximum grain size 8 mm) ~ 1 kg/ 10 m.

Intec® Cem N: usually, cement paste or suspension is used for large cavity filling. Consumption depends on their size and therefore can not be specified exactly.

What is the mixing ratio of Comp. A (resin) and Comp. B (hardener)?

Depending on the resin, the following mixing ratios result.

	Comp. A (resin)	Comp. B (hardener)
Intectin® EP	weight parts: 5 vol. Teile 3,9	weight parts: 1 vol. parts: 1
Intectin® Plus	weight parts: 100 vol. parts: 3	weight parts: 42 vol. parts: 1

In general, the standard containers of the resins are offered in an optimized mixing ratio. It is therefore recommended to always mix whole containers.

What processing temperatures must be observed for the injection materials?

	Temp. Air and Components	Temp. Injection material
Intectin® EP	≥ 5 °C bis 35 °C ¹	≥ 8 °C
Intectin® Plus	≥ 6 °C bis 35 °C	≥ 6 °C bis 30 °C

Temperatures must always be maintained during strength development. Care must be taken to avoid frost, otherwise significantly longer curing times will result. It is important that the components also comply with the minimum temperatures.

How long is the processing time and can it be accelerated?

The working time depends on the ambient conditions, so that the indicated pot lives are seen as a guide for an air temperature of 20 °C and 50 % humidity.

	Processing time	Max. accelerator	Curing time	Final strength
Intectin® EP	50 min	--	12 h	7 days
Intectin® Plus	100 min	10 w. %	24 h	not relevant
Intectin® Blitz	10 min	20 w. %	Immediately after processing	not relevant

Deviating air and component temperatures, the mixing quantity, the released reaction heat and air humidity can influence the processing time.

The reaction can be accelerated by adding the accelerator to Intectin® Plus or Intectin® Blitz. It is advisable to mix a small sample quantity in advance to determine the actual reaction time and the quantity for the subsequent injection process.

How can the processing time be extended?

The injection process should be carried out at cooler times of the day (morning). Cool stored material or cooler component temperatures (possibility depends on energy density/construction thickness) can also slow down the reaction. Otherwise, small mixing batches are recommended.

How should injection materials be stored?

The materials must be stored in a dry, cool and frost-proof place (> 5 °C).

Which Giscode is applicable?

Intectin® Plus can be classified in the Giscode classification PU40.

How can a crack on the component be injected in case of severe water ingress?

The water ingress must be stopped with Intectin® Blitz. Then the actual injection of PUR resin or other injection materials suitable for the application can be started.

How is professional laying of hoses and pressing documented to the client?

The laying of hoses as well as the pressing is documented with laying and cracking protocols (see website - documents under technical data sheets).

¹ The higher the processing temperature, the shorter the processing time

How can cured injection resins be disposed of?

Fully cured injection resins are inert plastics. They can be disposed of in accordance with local regulations. Further classifications can be found in the safety data sheet.

Why should cement suspension only be grouted with the lowest possible pressure?

There is a risk of segregation of the glue or the suspension. In the process, solids and water could segregate, resulting in the formation of lumps and the Intec® CEM N injection hose no longer being passable. In general, all common suspensions with a grinding fineness (so-called Blaine value) > 4000 cm²/g can be processed.