

TRIOject® Triple Channel Injection Hose, re-injectable

Highly effective even in the case of subsequent crack expansions



TRIOject®

The highly effective injection hose



Contents

TRIOject® – Triple Channel Injection Hose	4
TRIOject® – Installation Details	5
Effectiveness for subsequent Crack Expansions	6
TRIOject® – Product Characteristics	7
TRIOject® – Test Certificates	8
References	9
TRIOject® – System	10
Injection Connections	11
TRIOject® – Applications	11

Introduction

Since the 1980s, DYWIDAG-Systems International (DSI) has developed into a leading manufacturer of formwork and waterproofing systems with its business segments contec® and recostal®.

Today, recostal® permanent formwork systems and contec® active waterproofing systems are well established brands on the German market and on major export markets.

The re-injectable TRIOject® injection hose system is designed for the traditional installation of waterproof construction joints in waterproof concrete constructions.

Systematic injections or combinations with other contec® waterproofing systems guarantee multiple effectiveness. The flexible material ensures full-surface contact with the joint as well as time-saving installation.

Numerous tests have verified the efficiency and effectiveness of the TRIOject® injection hose system. It is suitable for the application in demanding waterproof concrete constructions.

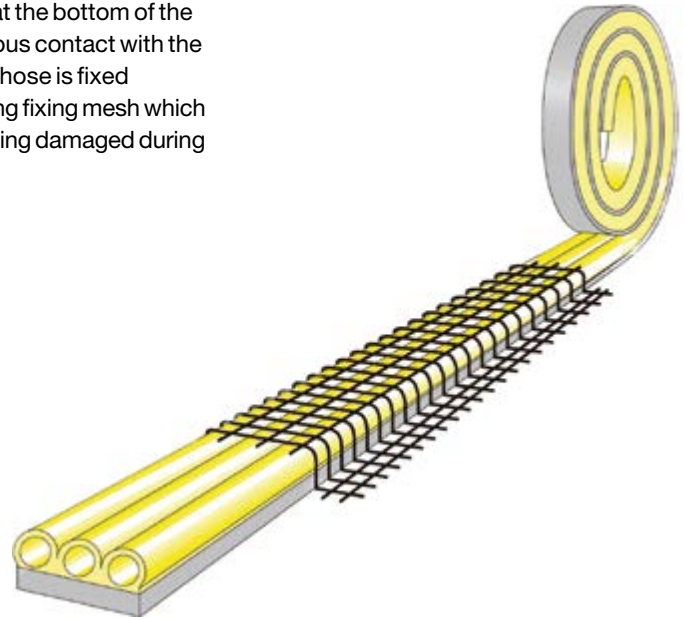


TRIOject® – Triple Channel Injection Hose

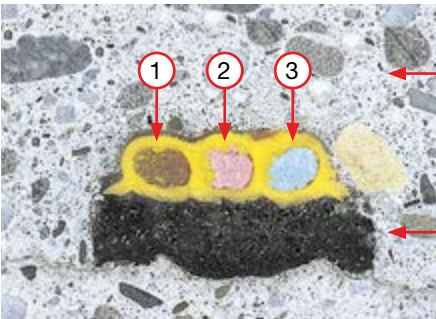
TRIOject® injection hoses consist of 3 injection channels which can be injected separately at any time. Slotted perforations at the top and bottom of the channels open at 1 bar and allow the injection material to emerge into the joint.



The foam rubber pad at the bottom of the hose ensures continuous contact with the concrete surface. The hose is fixed continuously with strong fixing mesh which also protects it from being damaged during installation.

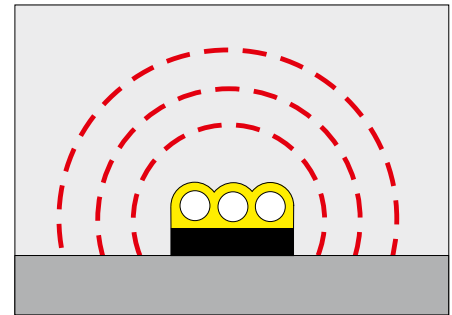


Technical Details



3 channels for separate injections

3 cm wide full-surface contact with the joint



Highly effective

Material Specification

Hose

- PVC hose with micro-fine holes at the top and bottom

Foam pad at the bottom

- Open-pore foam

Fixing mesh

- Galvanised metal mesh

Nailing packer/vario packer

- EPDM injection point including connector pieces

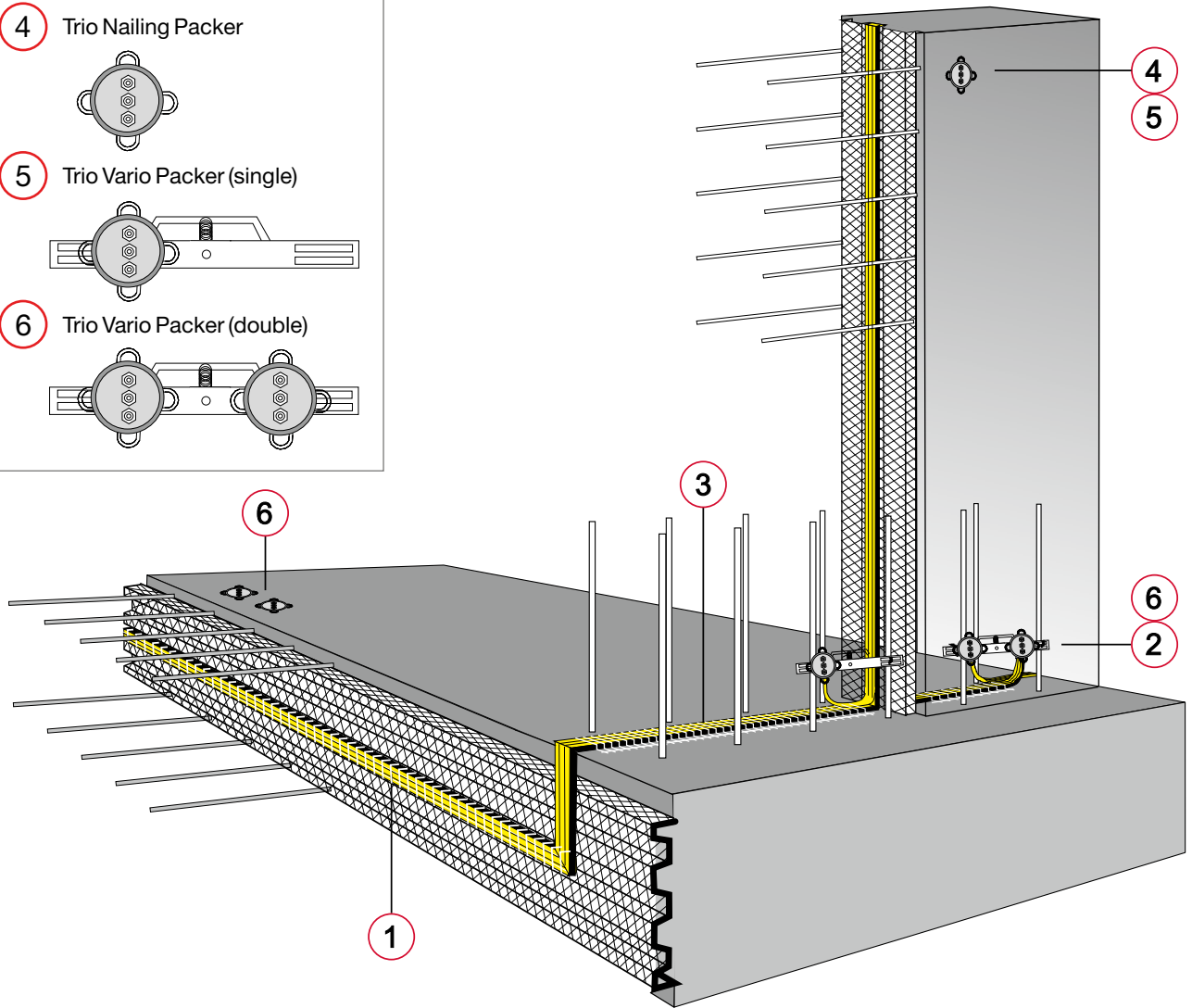
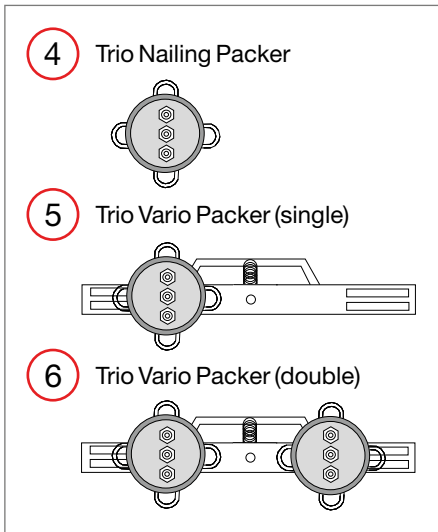
TRIOject® injection hoses can be injected with:

- Polyurethane resin
- Acrylates
- Ultrafine cement

TRIOject® – Installation Details



Injection Connections



Specifications

_____ m of re-injectable triple channel injection hose with accessories to be supplied and installed into horizontal and vertical construction joints according to the manufacturer's installation guidelines.

The injection ends are to be left exposed and accessible to enable injection operations at a later date.

Make:
TRIOject® Injection Hose with
TRIO Vario Packer

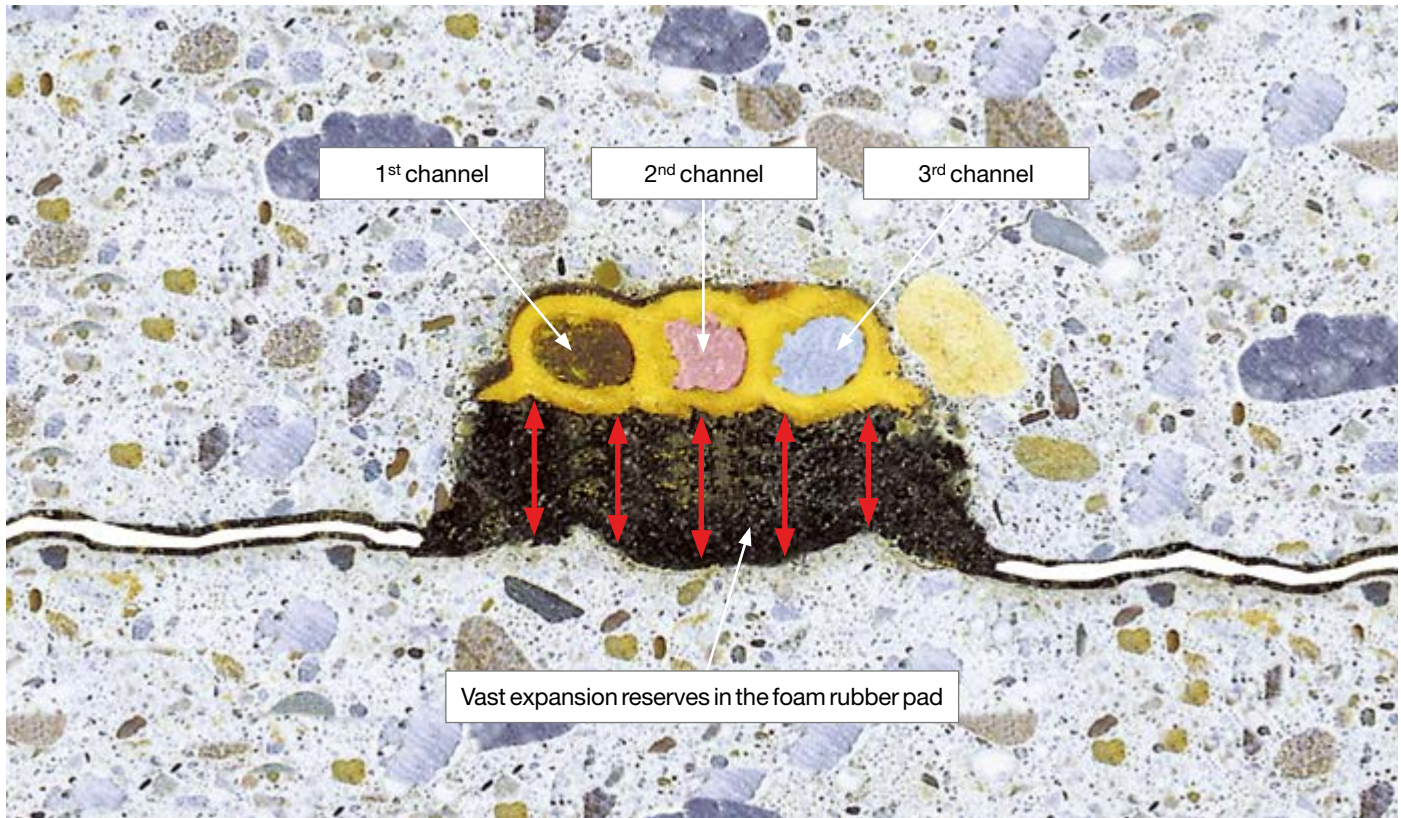
Effectiveness for subsequent Crack Expansions

Causes of Crack Expansions

- Settlements
- Shrinkage
- Dynamic loads

Subsequent crack expansions can be caused by settlements, continuing contraction processes or dynamic forces.

In areas susceptible to earthquakes, these subsequent crack expansions are even expected. Compared to its original size, the crack width can multiply.



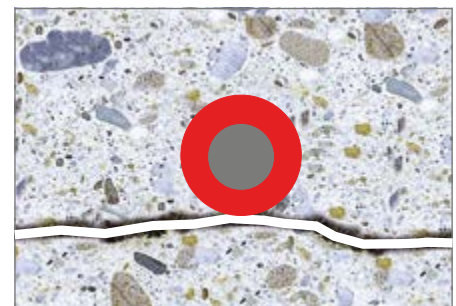
Highly effective for Crack Expansions

In the case of subsequent joint expansions, the tolerable tensile elongation of the resin is easily exceeded due to the small width of the crack. As a result, the resin is torn away from the surface, and the joint opens.

The resin filled foam rubber pad possesses vast expansion reserves and therefore easily adapts to subsequent joint expansions. The joint remains sealed even after subsequent expansions have occurred.

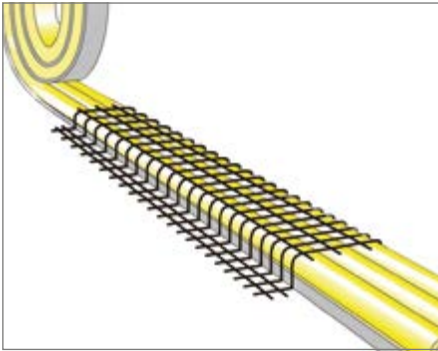
Comparison to Round Injection Hoses

Injection hoses without expansion potential fail if subsequent joint expansions occur.

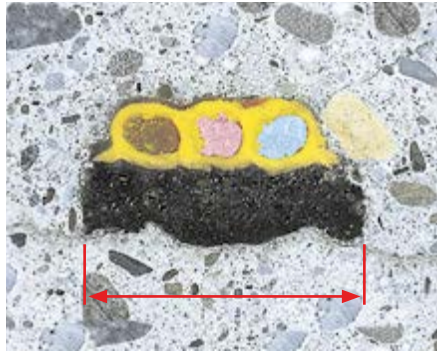


TRIOject® – Product Characteristics

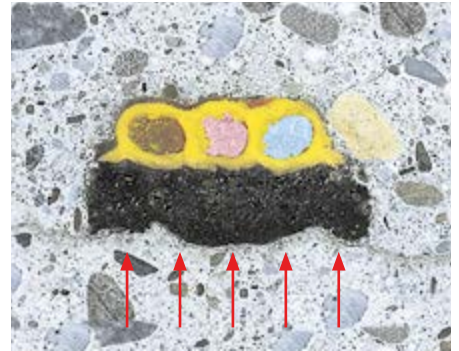
① Continuous fixing mesh



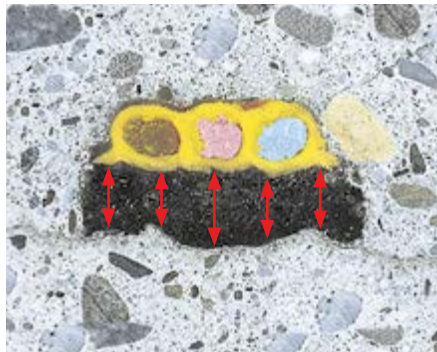
② 3 cm wide full-surface contact with the joint



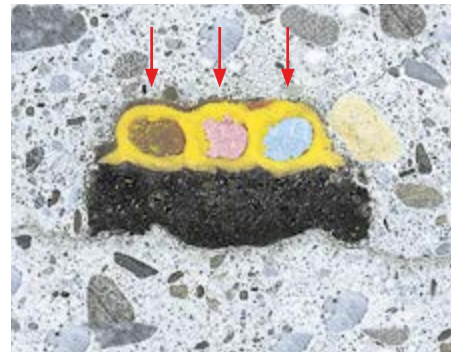
③ Adapts perfectly to the surface, thus ensuring continuous contact with the joint



④ Vast potential for expansion



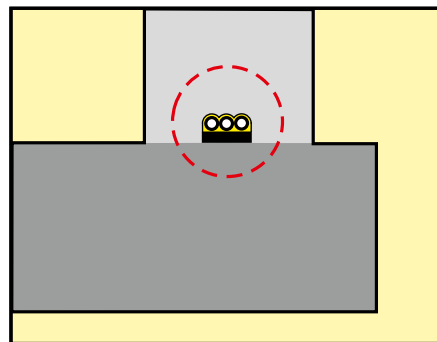
⑤ Re-injectable hose with 3 channels



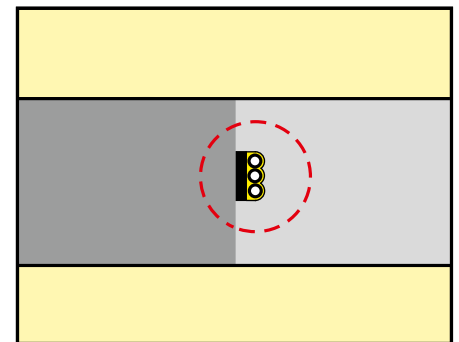
Advantages

- Re-injectable
- Flexible material
- Adapts perfectly to the surface
- Full-surface contact with the joint
- Continuous fixing mesh
- Held in place rigidly - no floating
- Protected against damage
- Fast installation
- Three separate channels
- Triple security
- Proven effectiveness with different injection materials

Installation Examples



■ Base slab to wall construction joint



■ Base slab construction joint
 ■ Wall construction joint

TRIOject® – Test Certificates

Extensive tests have verified the effectiveness of the TRIOject® injection hose.

MFGPA Leipzig

- General Building Inspection Test Certificate
- Please note:
The test certificate applies to the tested TRIOject® injection hose system and contec® Injection Resin C1



IBMB Braunschweig

- Certificate on the use of the TRIOject® injection hose system in construction joints
- Evaluation of the effectiveness of the TRIOject® injection hose system when injected with cement suspension



Institute for Hygiene

- KTW tests of the TRIOject® injection hose with accessories (KTW Guideline = guideline for the hygienic assessment of organic materials in contact with drinking water)

References

Project	Contractor	Quantity
Airport Gardermoen, Oslo	AF-Spesial Prosjekt	2,400 m
Al Ghurair oil mill Ph 2, Jebel Ali	Ascon	2,250 m
Al Murooj complex, Dubai	Al Ahmadiyah	6,100 m
Al Naboodah complex, Dubai	Al Naboodah Contg.	1,500 m
Alnagaten Parking, Oslo	Bauer & Beck	540 m
Atlantis - The Palm Jumeriah water park, Dubai	Al Naboodah Laing	500 m
Federal Chancellery 1 st + 2 nd construction stage	Arge Bundeskanzleramt	2,500 m
Capricorn, Duesseldorf	GHH GmbH	3,000 m
DIFC-truck and supply tunnel, Dubai	Arabtec Const.	10,000 m
Dresdner Bank, Erfurt	Arge B+B/Dickenbrok	2,500 m
EKO, Eisenhuettenstadt	Ilbau	5,700 m
Elbcenter, Dresden	Strabag	1,350 m
Emaar HQ, Dubai	Al Basti & Muktha	2,000 m
Erich Kaestner Community school, Elmshorn	Alpine	700 m
Remote cooling in the Shangrila, Dubai	Overseas Ast Co.	1,800 m
Foundations for wind turbines	Oehm Bauunternehmen	6,500 m
Merchant bank, Dubai	Ascon	3,000 m
Havnelageret, Oslo	NCC	4,300 m
Iduna-Nova, Bielefeld	Langenscheidt	1,000 m
Sewage treatment plant, Herford	Dickenbrok	6,500 m
Landsberger Tor, Berlin	Baresel	1,400 m
Lindenthal, Leipzig	Erste Bauges. Leipzig	1,500 m
Marinascape, Dubai Marina	Larsen & Turbo Ltd.	3,000 m
Porsche, Stuttgart	Meyer Bauunternehmen	1,300 m
Potsdamer Platz, Berlin	Hochtief	4,000 m
PZH, Hanover	Köster Bau AG	1,600 m
Rudower Felder, Berlin	Möhring	3,000 m
Lock, Muenster	Arge Bunte / Schäfer	1,000 m
Shangrila Hotel, Dubai	Al Habtoor-Murray & Roberts JV	4,000 m
Storkower Bogen, Berlin	Wiemer + Trachte	3,000 m
Underground car park, farmers' market, Bielefeld	Langenscheidt	2,000 m
VIKK, Potsdam	Strabag	1,300 m
W + G, Potsdam	Schumacher + Söhne	1,500 m
Thermal power station, Joenkoeping, Sweden	NCC	3,900 m
Marina Tower 9W, Dubai	Al Basti & Maktha	1,300 m
Marina, Rostock	NCC	2,500 m
Zlote Tarasy, Warsaw	Skanska	3,000 m



Federal Chancellery, Berlin
















Atlantis, Dubai



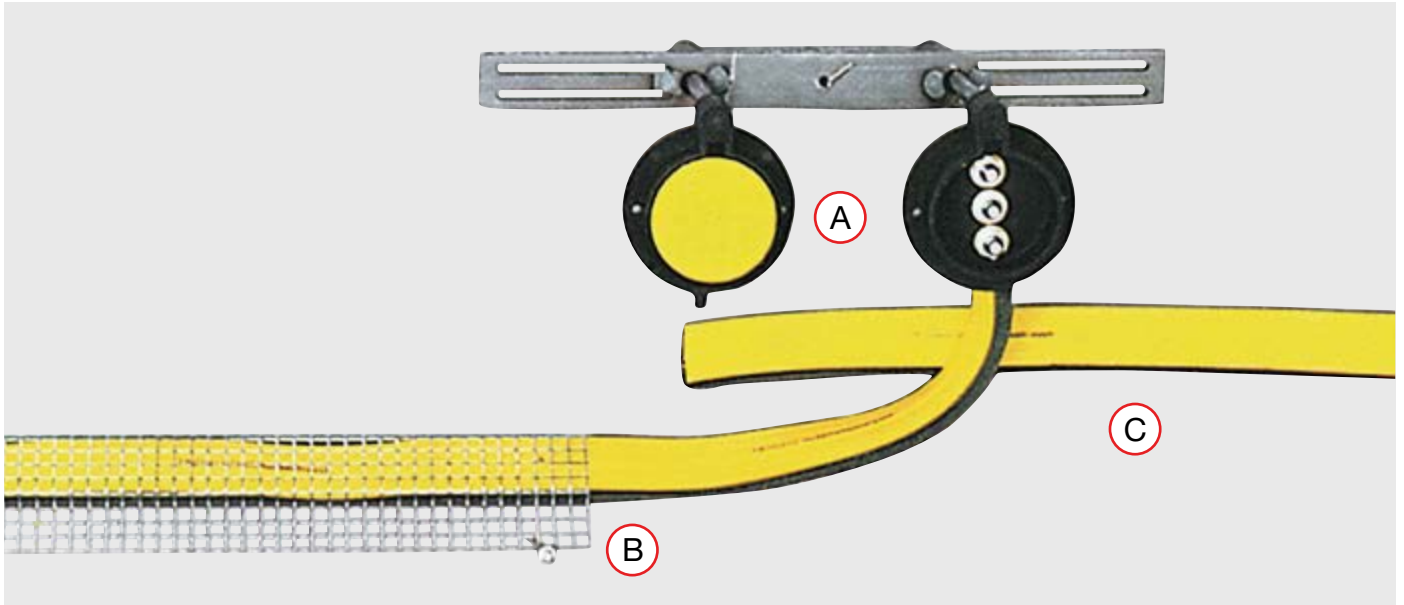
Projects in Dubai

TRIOject® – System

Product	Description	Item no.	Packaging
	TRIOject® Triple Channel Injection Hose ■ 100 m rolls	21121100	1 box = 1 roll = 100 m
	TRIOject® Fixing Mesh for continuous hose fixing ■ L = 1.00 m	21191220	1 box = 50 pcs. = 50 m
	Plastic Fixing Clips to be pushed into fresh concrete ■ drill hole Ø 5 mm	21193410	1 box = 250 pcs.
	TRIO Nailing Packer to be nailed to the formwork ■ with 3 connector pieces	21192320	1 box = 20 pcs.
	TRIO Vario Packer to be installed into the reinforcement ■ dual injection point with 3 connector pieces each	21192220	1 box = 20 pcs.
	Plastic Corner Couplers ■ Ø 5 mm	21193610	–
	Steel Nails ■ L = 50 mm	21193210	1 box = 200 nails
	Steel Nails for nail gun ■ L = 37 mm	21193220	1 box = 100 nails
	Nail Plug, galvanised ■ Ø 5 mm, L = 36 mm	21193110	1 box = 100 nail plugs
	Superglue	21194911	1 bottle = 10 g
	contec® Injection Resin C1 for hose injection	21123113	10 litre twin container A + B components
	contec® Injection Resin C1 for hose injection	21123115	30 litre twin container A + B components
	contec® Thinner tool cleaner	21123143	10 litre can

Injection Connections

Injection hose category “re-injectable”

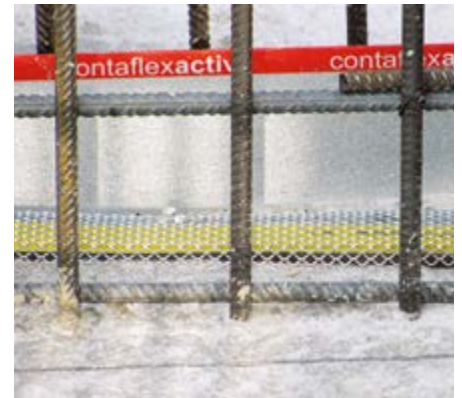


A TRIOject® Vario Packer with 3 injection connector pieces

B The hose is fixed with TRIOject® Fixing Mesh

C TRIOject® Injection Hose

TRIOject® – Applications



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