

System 300

NEWTON 304 POLYPROOF-INJECT

Maintainable Swelling Injection Waterbar System

Rev 1.3 - 7 January 2015

PRODUCT CODE - SX304

INTRODUCTION

Newton 304 PolyProof Inject combines the grouting and resin injection capabilities of Newton 302 InjectionHose with the swelling capabilities of Newton 303 PolyProof. The resulting hybrid provides a very high performance waterbar system used for the sealing of construction joints within retained concrete structures.

The system offers many benefits over conventional waterbars, especially that in addition to swelling when in contact with water, it also has the ability to grout poorly compacted concrete and seal leaking construction joints, post-construction.



The hydrophilic thermo-plastic elastomer outer casing will seal the joint against leaks by swelling to up to 400 times its original size when in contact with water, sealing the joint fully and reliably.

The injection hose system features Micro-Ports equally spaced over its entire circumference giving the hose optimum grouting characteristics. The microscopic Micro-Ports open at 1 bar and the injected material is then allowed to perform its task of penetrating all areas of the construction joint that require grouting. As a result, a more secure and longer lasting sealing of the construction joints is achieved.

The Micro-Ports prevent infiltration of concrete silt and foreign bodies into the injection hose itself. After successful injection, the reduction in pressure after injection causes the Micro-Ports to close. The injection channel can then be flushed out without any threat of injection material seeping back into the injection hose.

There are no limitations regarding the choice of grouting material, all currently available grouting materials may be injected using the Newton 302 InjectionHose. When correctly installed, impressive results can be achieved using low levels of grouting material. Flushing the system with water allows for repeated injection of grouts or resins.

NEWTON 304 POLYPROOF-INJECT

	Outer Core	Inner Core
Material	PTE	Plastic
Colour	Blue	Blue
Profile	Flat bottomed	Hexagonal
External Diameter (mm)	25.0	13.0
Internal Diameter (mm)	13.0	6.0
Watertightness	7 bar	
Installation Temperature	5°C to 35°C	
Service Temperature	-10°C to 50°C	

TYPICAL APPLICATIONS

- Primary swelling waterbar to seal the joint against leaks through the construction joint.
- Post-construction grouting and leak sealing of construction joints to earth retained structures.

The following construction joints can be waterproofed with Newton 304 PolyProof-Inject:

- Raft - Raft
- Raft - Wall
- Wall - Wall
- Slab - Steel Piled Cut off Wall

KEY BENEFITS

- The outer casing Swells to up to 400 times to quickly seal leaks at construction joints.
- Provides post-construction grouting of poorly compacted concrete at construction joints.
- Injection of resins for the sealing of leaks identified post-construction.
- No kicker or rebate required, reducing site labour costs.
- Can be injected with all currently available grouting materials (PUR resin, PUR foam, EP resin, polymer gel matrix, ultra-fine cement grout).
- Repeated injection possible (with polymer gel matrix and ultra-fine cement).
- Injection possible to 30m sections.
- Guaranteed continual flow of the injection material due to the star-shaped interior geometry, even if the hose follows sharp bends.

SUITABLE SUBSTRATE

Static construction joints in poured concrete retained structures.

NEWTON 304 POLYPROOF-INJECT

Maintainable Swelling Injection Waterbar System

SPECIFICATION

Newton Waterproofing Systems are in partnership with RIBA NBS who publish details of our products and systems within their specification clause library to allow Architects ease of specification through their NBS Plus interface.

NBS clauses can be accessed via the technical resources area of the web site where a live NBS Feed is available at [NBS Plus Live Feed](#)

Our website has drawings available for download here [Technical Drawings](#) and a selection are also available via [FastrackCAD](#)

TRAINING & COMPETENCY OF USER

Newton 304 PolyProof-Inject should be used by those with an understanding of the requirement to waterproof retained structures and the knowledge and training to use the product as part of a coordinated approach to the waterproofing of the structure, which in many cases will require further waterproofing products so as to achieve the required habitable grade as defined by BS8102:2009.

It is recommended that installation and post-construction injection of grouts and resins should be carried out by operatives trained and certificated by Newton Waterproofing Systems.

TOOLS REQUIRED

No special tools are required. Standard contractor tools are sufficient for the correct installation of the system.

CONSTRUCTION

The construction should conform with current Building Regulations, British Standards and relevant Codes of Practice.

CONSTRUCTION - NEW CONCRETE

New concrete should be designed by a Structural Engineer to EN 1992 (Formally BS8110 & BS8007). Poured concrete rafts, kickers and foundations should have a surface finish to Class of finish U3 as documented in 'General Specification for Civil Engineering Works' section 14: 'Formwork and Finishes to Concrete', namely a "Uniform, dense and smooth surface" with float marks of no more than 3mm.

SURFACE PREPARATION

The surface of the concrete should be correctly compacted and uniform.

Jet wash the surface to reveal clean aggregate. The surface must be free of ice. A rebate is not required.

PARTS

Newton 304 PolyProof-Inject comprises of three main elements:

Swelling Injection Hose

Placed within the construction joint. Has a hydrophilic outer casing that swells on contact with water and an inner core that contains Micro-Ports that open under pressure to deliver the grout or resin to the gaps within the joint.

Delivery Hose

Connect the Delivery Hose to the Injection Ports over distances where grouting or resin injection is not required. Hoses are coloured white, blue, red or green to identify which joints they are connected to.

Injection Ports

Specially designed ports for the connection of the injection pump. The ports are mapped so as to identify which joint is served by which port.

INSTALLATION

Swelling Injection Hose

The Swelling Injection Hose is simply fixed to one side of the construction joint prior to the pouring of the next placement of concrete and is positioned at the middle of the joint within the reinforcing steel but with a minimum distance of 100mm to the outer edge of the joint.

It is recommended that each joint has a separate injection hose so that a leaking joint can be injected in isolation from the other joints. The hose is fixed to the surface of the joint with Newton Injection Hose Clips at between 100mm and 150mm. The maximum run of hose to an Injection Port is between 8m and 12m.

Where hose ends overlap, the overlap must be parallel and of 150mm with a 30mm to 50mm gap between the two parallel ends. Ensure that all the injection hose is fixed to the whole of the joint.

Delivery Hose

Fix the delivery hose to the joint in the same way as the Injection hose above. Use a different coloured hose for the separate joints so as to easily identify. Create a complete loop of hose (Injection Hose and Delivery Hose) and terminate the two ends of the Delivery Hose through a gap in the internal shuttering cut to receive the Injection Ports.

Connect the Delivery Hose to the Injection Hose with Hose Joints.

Injection Port

A loop of Injection Hose terminates to coloured lengths of Delivery Hose with the two ends of Delivery Hose being connected to one Injection Port. Injection ports can be clipped together to form blocks. Fix the blocks of Injection Ports to the reinforcing steel with the metal bands provided.

Make sure the Injection Ports are placed at locations that will always be accessible once the structure is complete. If internal block walls are to be built inside the retained walls, the Delivery Hoses should be extended so that the Injection Ports can be fixed to the inside of the block wall. In these cases, attach the Injection Ports to the coloured Delivery Hoses and tie up out of the way so that the Injection Ports can be securely fixed in place once the internal wall is built.

NEWTON 304 POLYPROOF-INJECT

Maintainable Swelling Injection Waterbar System

INJECTION PROCESS

The injection of grouts and resins should be by trained contractors only. The following is for information only and is not designed to be an installation manual to be followed by those who have not been trained by John Newton in the correct application of the grouts and resins.

GROUT INJECTION

Due to its special design Newton 304 PolyProof-Inject permits grout injection at low pressure, thus offering maximum security as opposed to a system requiring a higher pressure.

Once the concrete has set (a minimum of 28 days), the hose is professionally injected with a suitable grout so as to fill the voids created by poor concrete compaction.

RESIN INJECTION

A number of resins are available for the sealing of leaks at the construction joints. The Newton trained contractor will identify the correct resin and apply in accordance with the application procedures of the chosen resin.

1. Check the continuation of the hose by flushing with water or by pressurising with air.
2. The injection pump is connected to the Injection Ports and the hose is injected until traces of the injected material are discharged from the open end. This end is closed by means of an Injection Nipple as soon as the injected material flows freely (without air pockets).
3. The flow and extent of the injection material in the concrete joints can be monitored during the injection process by means of the injection pump's pressure gauge.
4. The injection process is continued until constant pressure has been reached.
5. Constant pressure indicates that the concrete joint is taking no more material thus signalling the end of the process.
6. Any injection material still within the injection hose is simply flushed out by means of a water pump. Hardly any pressure is required.
7. On completion of the flushing process, the injection hose is ready for further injections.

STORAGE

Store in dry conditions.

PACKAGING

- Injection Hose - 120m coils
- Delivery Hose - 50m coils

ANCILLARY PRODUCTS

- Injection Ports
- Hose Joints
- Hose Clamps
- Injection Nipples

HEALTH & SAFETY

Product should only be used as directed. We always recommend that the Material Safety Data Sheet (MSDS) is carefully read prior to application of the material. Our recommendations for protective equipment should be strictly adhered to for your personal protection. The MSDS is available upon request from John Newton or online via our web site. Please see contact details below.

ASSOCIATED PRODUCTS

Newton 301 AquaProof - Coated metal waterbar system used for the sealing of construction joints within retained concrete structures. Newton 301 AquaProof features a highly adhesive, reactive polymer coating on one of its sides. The coating creates a permanent watertight seal with the surrounding concrete to create a waterbar that works immediately.

Newton 305 ActiveJoint - MDPE physical waterbar able to resist high water pressure at active movement joints.

Newton 306 SwellMastic - Hydrophilic mastic used to seal around protrusions through the concrete structure such as pipes and conduits.

Newton 307 PipeSeal - Preformed MDPE seal that creates a physical, flanged joint around pipes passing through the structure. 306 SwellMastic should be used to reinforce the joint.

Newton 308 Stopaq - Hydrophilic polymer used for the sealing of services through the structure even when leaking with considerable water pressure.

NEWTON WATERPROOFING SYSTEMS

Newton System 100 - Cementitious waterproofing and repair products. *Type A - BS8102:2009*

Newton System 200 - Waterproofing of Decks and Flat Roofs.

Newton System 300 - Integral waterproofing of earth retained concrete structures. *Type B - BS8102:2009*

Newton System 400 - External waterproofing of earth retained structures. *Type A - BS8102:2009*

Newton System 500 - Internal cavity drain waterproofing of earth retained structures. *Type C - BS8102:2009*