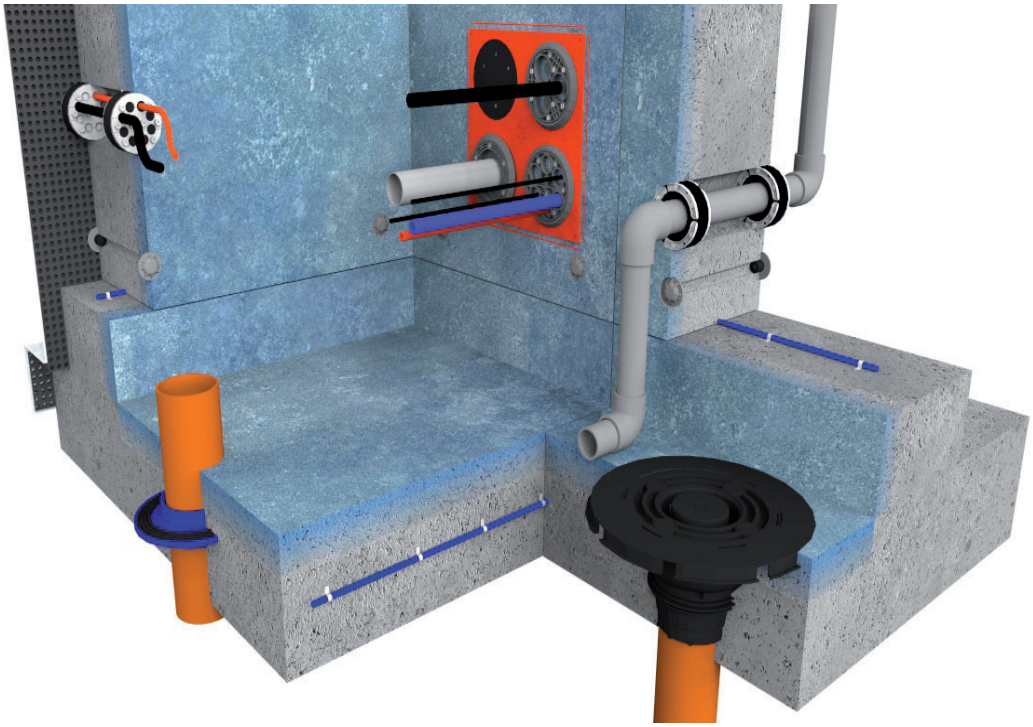
Type B Waterproofing
B-09 SPECIFICATION SHEET
Newton HydroTank Plus System

Rev 1.0 - 29th October 2020

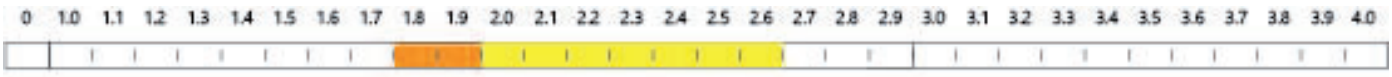


BUILD

WALL CONSTRUCTION:
Reinforced Concrete (RC)

FLOOR CONSTRUCTION:
RC Raft

NWI SCORE



This specification employs 1 form of waterproofing (Type B - Integral Protection) to help ensure the desired internal environment is achieved. The effectiveness of the waterproofing is dependent on the Type B structure being designed and placed correctly and the correct Newton construction joint and service penetration waterproofing products being used.

SPECIFICATION
TYPE B WATER EXCLUDING STRUCTURE

'Type B' is a form of waterproofing defined within BS 8102:2009 (Protection of below ground structures against water from the ground), where the structure itself is constructed to be integrally waterproof and the primary resistance against water ingress. These types of structure are usually made of well-designed and well-placed reinforced concrete, with the steel reinforcement limiting flexural and shrinkage crack widths as per water tightness tables in BS EN 1992-3. No Additional 'waterproofing admixture' is required for the concrete mix however the Hydrotank Plus Type B solution also includes Newton 104 - an active admixture surface coating. By penetrating up to 70mm into the concrete Newton 104 provides in-depth protection against the movement of moisture through the capillaries and hairline cracks within the concrete. In addition it also acts as an effective lime inhibitor to prevent free lime deposits from the new concrete which can cause drainage problems if an internal Type C waterproofing system is used.

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Type B Waterproofing
OVERVIEW
Newton HydroTank Plus System

TYPE B – STRUCTURALLY INTEGRAL WATERPROOFING

As an earth retaining, water excluding structure there are four inherent weaknesses which can allow water ingress:

1) Flexural and through section cracking

2) Poor Compaction of the concrete (honeycombing)

3) Construction joints and Service Penetrations.

4) Unsealed formwork restraint systems (tie bolt holes)

Concrete structures leak where the concrete isn't, such as at the defects and discontinuities outlined above which allow water to ingress, so these vulnerable points need to be waterproofed. If the steel is designed to minimise through section crack widths to 0.2mm it is deemed that autogenous self-healing can occur depending upon thickness of section and depth of water pressure. At construction joints this can be with either hydrophilic waterbars, which swell on contact with water, or metal waterbars which form an actual physical barrier against water ingress. Injection Hose systems can be used as an alternative to conventional waterbars. Resins are injected into the injection hose as a very high pressure, allowing for sealing of defects to a much larger area then can be sealed with conventional waterbars. They have the added benefit of filling voids in the concrete and can be very useful indicator that the concrete has not been compacted sufficiently. Service penetrations should be waterproofed using waterbars, waterproof collars and pressure seals. Tie bolt holes should be waterproofed using proprietary tried and tested sealing methods.

SOLUTION:

NEWTON HYDROTANK

TYPE B STRUCTURE

Well designed and well placed reinforced concrete structure, designed in accordance with BS EN 1992 with sufficient steel reinforcement to limit flexural and shrinkage/through section cracking to produce watertight concrete elements.

TYPE B ANCILLARIES for construction joints and service penetrations

Newton Injection Hose installed and injected within all construction joints providing integral protection

Hauff sealing system installed within the formwork or post installed around all service penetrations

RiveStop System sealing tie bolt holes in concrete walls

Newton 104 applied internally to provide in depth protection against the movement of moisture through the capillaries and hairline cracks.

Newton 410 GeoDrain applied externally to reduce Hydrostatic pressure.

RECOMMENDATIONS & STANDARDS

Type A & Type B forms of waterproofing are designed to physically withstand water pressure and stop water ingress. These forms of waterproofing are completely reliant on a high standard of installation to fulfil their design function. In reality 100% defect free installation is difficult to achieve therefore one form of waterproofing using Type A or B will usually only be expected to provide a low internal environment grade because the risk of water ingress due to installation defect is reasonably high. As advised within BS 8102:2009, consideration should be given to the use of combined protection where in a single system where the risk of water ingress or dampness is unacceptable or where: the assessed risks are deemed to be high;

the consequences of failure to achieve the required internal environment are too high; or

additional vapour checks are necessary for a system where unacceptable water vapour transmission can occur.

Contingency planning for dealing with any localised defects or system failure that arise should be included as part of the overall water-resisting design for the structure and the issue of repair-ability should be taken into account and the feasibility of remedial measures assessed. Consider re-usable injection waterbar systems and internal 'Type C' waterproofing.

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Type B Waterproofing
B-09 OUTLINE SPECIFICATION
Newton HydroTank Plus System

NEWTON HYDROTANK RECOMMENDATIONS	All construction joints (day joints, shrinkage joints, movement joints etc) should be waterproofed with Newton System 300 waterbars to limit water ingress thorough joints in the structure.
Newton 302 InjectionHose	A high performance waterbar system installed within and used for sealing construction joints in earth-retaining and water-retaining concrete structures. When injected with injection resin, the material penetrates into the concrete surrounding the construction joint to permanently seal any cracks, capillaries, pores and honeycombing within the structure.
Preparation	None required
Application	Newton injection hose clips every 100/150mm.
Installation	Newton 302 Injection Hose is mechanically fixed with Hose Clamps to the in-place element, ready for concrete placement of the second element of the joint. Injection Ports are fixed to the steel reinforcement bars, and are visible and accessible after the formwork has been removed. Coloured PVC Delivery Hoses connect the Injection Ports to the Newton 302 Injection Hose to deliver the injected resin to the appropriate joint after the concrete has cured for a minimum of 28 days. Resin injected under high pressure into the Newton 302 Injection Hose.
Place Concrete	Place Concrete ensuring that the concrete is fully compacted, paying attention to compaction below the reinforcement steel and waterbar. Pay particular attention not to damage the 302 InjectionHose during vibration of the concrete.
Hauff-Technik	Press seals to ensure that services are sealed professionally in order to be absolutely watertight.
Press Seals	These range from closed seal inserts for first-time installation to split seal inserts for retrofit sealing of pipes that have already been laid. We can provide the ideal press seal for every requirement and task, be it tailor-made to the millimetre or suitable for universal use on site, centric or eccentric. Quick and cost-effective.
Cable Entries - HSI 90 or 150	For installation in concrete walls flush with shuttering. The HSI wall insert offers maximum flexibility for retrofitting. It is delivered fitted with a pressure-tight closing cover as standard. Various closed or split system seals can be supplied for sealing cables depending on prevailing requirements. Seals for pressure-tight empty conduit connection are also available.
Preparation	Product dependent please refer to the relevant Hauff Installation instructions.
Application	Product dependent please refer to the relevant Hauff Installation instructions.
Installation	Product dependent please refer to the relevant Hauff Installation instructions.
RiveStop System	Patented mechanical system for an hermetic and watertight seal of formwork tie holes
RivePipe	A removable, reusable and recyclable formwork tube that protects tie bars within the concrete, and once removed leaves a clean, uniform tie hole.
RiveOut	The manual extraction tool for easily removing RivePipe tubes from concrete walls in a matter of seconds.

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RiveStop	A patented rivet system that is quickly and easily installed, expanding to 50% of its original diameter to hermetically seal any tie-bolt holes left by the RivePipe.
Preparation	Pre-assemble the male and female parts of RivePipe during the instalation of the formwork system for concrete walls
Application	Place the RivePipe between the formwork panels to protect the tie rods.
Installation	For further information about installation please read document: "Installation Manual RiveStop".
Newton 104	Applied to the surface of concrete, Newton 104 provides in-depth protection against the movement of moisture through the capillaries and hairline cracks. The active chemicals within Newton 104 combine with the free lime and moisture present within the capillaries to form insoluble crystalline complexes which effectively block the capillaries and any minor shrinkage cracks to prevent any further movement of moisture to provide a totally dry surface to the concrete.
Preparation	Required - Please see datasheet
Application	Please see datasheet

NEWTON WATERPROOFING INDEX	The Newton Waterproofing Index (NWI) is a unique scoring system that accurately assesses the level of risk and potential success of specific waterproofing specifications. The NWI score is awarded by a panel of experienced waterproofing design specialists and reflects the chances of success of that specification. The scoring system works in conjunction with the British Standard for waterproofing, which defines the three types of internal environments as Grades 1, 2 and 3.
NOTES	To improve the NWI score install Newton HydroBond system as per Newton solution sheet AB-02 or to improve it further install Newton CDM System as per Newton Specification Sheet BC-03. The detailing of other building elements and termination details are available within the Newton Waterproofing specification library on our website or by contacting our technical department.
A-RATED INSURANCE	Tailor made insurance policies available depending on the specialist contractor and specification.

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Type B Waterproofing
B-09 NBS CLAUSE
Newton HydroTank Plus System

The following document is to be read alongside the relevant Newton Waterproofing datasheets.

NEWTON E40 - NEWTON HYDROTANK SYSTEM

E40 Designed joints in in situ concrete

120 CONSTRUCTION/ MOVEMENT JOINTS GENERALLY

Newton 302 Injection Hose

A high performance waterbar system installed within and used for sealing construction joints in earth-retaining and water-retaining concrete structures. When injected with injection resin, the material penetrates into the concrete surrounding the construction joint to permanently seal any cracks, capillaries, pores and honeycombing within the structure.

Newton 302 Injection Hose features micro-ports equally spaced over the entire circumference of the hose, and when injected with injection resin at 1-bar of pressure or above the microscopic ports open and the low-viscosity resin penetrates deeply into the concrete surrounding the construction joint.

The injection hose is compatible with both polyurethane and acrylic injection resins, and when installed and injected correctly Newton 302 Injection Hose improves the water tightness of the 'Type B' waterproof structure by sealing the joints and encouraging improvements in the quality of the concrete placement.

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NEWTON E42 - NEWTON HYDROTANK SYSTEM

E42 Accessories cast into in situ concrete

120 WALL INSERT GENERAL HSI Hauff Cable entries

With a nominal diameter of 90 or 150 mm, the HSI is setting standards for cable entries for installation in concrete walls flush with shuttering. The HSI wall insert offers maximum flexibility for retrofitting. It is delivered fitted with a pressure-tight closing cover as standard. Various closed or split system seals can be supplied for sealing cables depending on prevailing requirements. Seals for pressure-tight empty conduit connection are also available.

Hauff-Technik also offers the KES-M 90/150 pressure-tight cable entry system, which is compatible with the HSI system. Featuring a Hateflex spiral hose and supporting various options for cable sealing, this system can relied upon to provide optimum protection for the cables that are being laid.

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Please click here to download the full Hauff HSI wall insert NBS Clause

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NEWTON E42 - NEWTON HYDROTANK SYSTEM

E42 Accessories cast into in situ concrete

120 WALL INSERT GENERAL ZVR

Hauff ZVR

ZVR cement-coated wall sleeve with special coating, when used in conjunction with the Hauff press seals, provides a watertight seal is produced between the pipe or cables and the inside of the liner.

ZVR cement bond pipes can be set in concrete, walled in, or cast in a wall duct with mortar.

Cement-coated wall sleeve with special coating that creates a homogeneous bond with the concrete.

For installation in waterproof concrete tank. Coating merges seamlessly with the concrete.

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Please click here to download the full Hauff ZVR NBS Clause

NEWTON D40 – RIVESTOP SEALING SYSTEM

D40 Embedded retaining walls

109 CONSTRUCTION JOINTS GENERALLY

RiveStop

Patented mechanical system for an hermetic and watertight seal of formwork tie holes.

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Please click here to download the full RiveStop NBS Clause

NEWTON J10 - NEWTON HYDROBOND SYSTEM

J10 Designed joints in in situ concrete

130A PROPRIETARY CRYSTALIZATION ACTIVE MORTAR

Newton 104

Applied to the surface of concrete, Newton 104 provides in-depth protection against the movement of moisture through the capillaries and hairline cracks.

The active chemicals within Newton 104 combine with the free lime and moisture present within the capillaries to form insoluble crystalline complexes which effectively block the capillaries and any minor shrinkage cracks to prevent any further movement of moisture to provide a totally dry surface to the concrete.

Large areas can be quickly treated with Newton 104. The speed of application and the low material application rate (1 kg/m2) makes Newton 104 a very low cost option for a large number of scenarios.

Because Newton 104 penetrates deep into the concrete, it does not leave a physical membrane to the surface of the concrete element and so is completely unaffected by loadings imposed by further elements of the build. New concrete elements are placed 'concrete to concrete' with no potential for slip or separation as is the case with physical membranes. This makes Newton 104 particularly useful as a means of isolating moisture within pile caps, ring beams and kicker joints to internal walls.

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