HydroBond 402

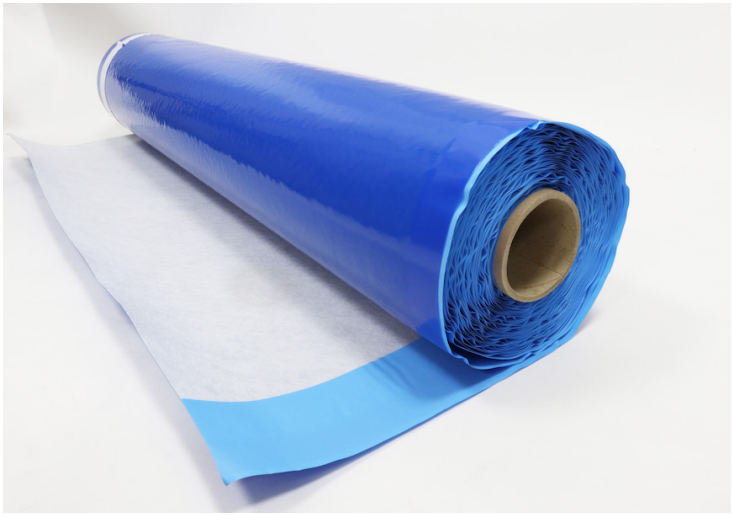
Pre-applied, Fully Bonded, Type A Waterproofing Membrane

Revision: 1 - 16 August 2024
Code: 402

INTRODUCTION

Newton HydroBond 402 is a high-performance sheet membrane for the external waterproofing of below-ground foundation structures, basements, water holding tanks, culverts and tunnel bases.

A composite of LDPE and a high quality non-woven geotextile fleece, the membrane is very flexible, giving it excellent crack-bridging capability over construction joints and cracks within the concrete. When pre-applied before placement, the wet concrete is absorbed into the geotextile fleece, integrally bonding the membrane to the concrete. This results in a high strength bond with exceptional peel adhesion qualities, and so prevents migration of water between the concrete and the membrane, even if the membrane is damaged.



HydroBond 402 can provide a complete waterproof envelope to the structure to achieve Type A (barrier) waterproofing suitable for Grades 1a, 1b, 2 and 3 as defined by BS 8102:2022, and is suitable for all below-ground and earth-retained structures from domestic basements to the largest civil engineering projects.

Where the formwork is removed to the outer face of the walls, a range of post-applied membranes are available, which overlap onto the HydroBond 402 at the raft edge, to fully encapsulate the structure.

HydroBond 402 can be used alongside other Newton products to provide a coordinated and combined approach to the waterproofing of the whole structure that includes protection against water penetrating through construction joints, through and around service entries and to movement joints. Correctly protected, the HydroBond System will provide, under normal service conditions, a durable waterproof barrier for the life of the building to which it is installed.

TABLE OF CONTENTS

PACKAGING & STORAGE

Packaging size: Rolls of 20m²

Storage & shelf life: Stored upright in the original unopened packaging at temperatures between +5°C and +25°C, in dry conditions and protected from UV light, a shelf-life of up to 12 months can be expected.

24 rolls / 480 m² per pallet.

INSTALLATION

The Installation Manual can be found in the HydroBond section of our website or this hyperlink: Newton HydroBond 402

Please do not attempt install before fully reading the installation instructions.

QR Code for Newton HydroBond Installation Guide

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Opening Hours:
Monday to Thursday 8:00am - 5:30pm
Friday 8:00am - 5:00pm

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TECHNICAL DATA

Features	Result	Units	Test method
Form	Sheet Membrane		
Colour	Blue / White		
Density	800	g/m² (± 10%)	
Packaged weight	16.5	kg	
Length	20	m (± 50mm)	DIN EN 1848-2
Width	1.0	m (± 30mm)	DIN EN 1848-2
Thickness	1.29	mm (± 5%)	DIN EN 1848-2
Area per roll	20	m²	
Taped edge	75	mm	
Installation yield per roll	17.8	m²	
Average number of rolls needed per 100m²	5.5	rolls	
Shelf life	12	Months	
Application temperature	-5 to +30	°C	

INSTALLED PERFORMANCE

Features	Result	Units	Test method
Service temperature	-40 to +100	°C	Manufacturer test
Adhesion to concrete	0.52	N/mm²	DIN 1048
Watertightness (4 bar/72 hr)	Pass		DIN EN 1928
Joint strength – Glued seam	250	N/50mm	DIN EN 12311-2
Tensile strength - Machine	350	N/50mm	DIN EN 12311-2
Tensile strength - Traverse	250	N/50mm	DIN EN 12311-2
Elongation at break - Machine	20	%	DIN EN 12311-2
Elongation at break - Traverse	50	%	DIN EN 12311-2
Resistance to tearing - Machine	150	N	DIN EN 12310-1
Resistance to tearing - Traverse	150	N	DIN EN 12310-1
Resistance to static loads – imposed load: 20kg Method A – EPS panel	Pass/Watertight		DIN EN 12730
Resistance to static loads – imposed load: 20kg Method A – Concrete	Pass/Watertight		DIN EN 12730
Tear resistance (nail shank) – Machine - Mean Value	227 (± 14.4)	N	DIN EN 12310-1
Tear resistance (nail shank) – Traverse - Mean Value	226 (± 10.1)	N	DIN EN 12310-1
Shear resistance of joint seams – Machine – Overlap: 75mm - Mean Value	252 (± 9.2)	N/50mm	DIN EN 12317-2
Resistance to impact – 100mm drop Aluminium plate	Pass/Watertight		DIN EN 12691
Resistance to impact – 500mm drop EPS Panel	Pass/Watertight		DIN EN 12691
Tensile properties – Machine - Mean	392 (± 17.2)	N/50mm	DIN EN 12311-2
Tensile properties – Traverse - Mean	392 (± 15.5)	N/50mm	DIN EN 12311-2
Tensile properties – Machine - Mean	22.5 (± 2.1)	%	DIN EN 12311-2
Tensile properties – Traverse - Mean	44.5 (± 4.71)	%	DIN EN 12311-2
Durability against thermal ageing Storage temperature: 70°C- 12 weeks	Pass/Watertight		DIN EN 1296

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Features	Result	Units	Test method
Durability against thermal ageing Procedure B, Water pressure (0.6 bar) Test period: 24 hrs: DIN EN ISO 291-23/50-2	Pass/Watertight		DIN EN 1928
Durability against chemicals Storage temperature: (23±2)°C - 28 days Test liquid: Ca(OH)2	Pass/Watertight		DIN EN 1847
Durability against chemicals Procedure B, Water pressure (0.6 bar) - 24 hrs Test climate: DIN EN ISO 291-23/50-2	Pass/Watertight		DIN EN 1928
Compatibility with bitumen Storage temperature: 70 °C- 28 days	Pass/Watertight		DIN EN 1548
Compatibility with bitumen Procedure B, Water pressure (0.6 bar) 24 hrs Test climate: DIN EN ISO 291-23/50-2	Pass/Watertight		DIN EN 1928
Water vapour permeability	4.48-10-9 92	kg/(m^2/s) SD	DIN EN 1931 Procedure B
Reaction to fire	E	EuroClass	DIN EN ISO 11925-2 EN 13501-1

HYDROBOND TAPE

Features	Result	Units
Product Code	HBT	
Colour	White/blue	
Material	Composite	
Packaged weight	0.5	kg
Length	20	m
Width	1	m
Area per roll	1.5	m^2
Density	1.215	g/m^2
Shelf life	12	Months
Application temperature	-10 to +40	m^2

All technical data stated above is based on test results carried out under laboratory conditions.

ACCREDITATIONS & APPROVALS

Newton HydroBond 402 is CE marked to confirm performance data to the requirements of DIN EN 13967:2012-07 in accordance with the EU Construction Products Regulations. Please see CE Label on page 6, or the product Declaration of Performance for further information.

Testing data above that confirms the test method used was carried out at independent testing laboratories. Test certificates are available by request.

TYPICAL APPLICATIONS

- As a continuous, pre-applied, Type A, externally applied waterproofing membrane to earth-retained structures.
- As a core component of the Newton HydroBond, Type A waterproofing system.

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KEY BENEFITS

- Full mechanical bond to the concrete prevents water migration between membrane and structure
- Very flexible - Resistant to movement and fissures in substrates
- Unique pre-installed dual component (chemical fusion bond) adhesive laps at membrane edge
- Excellent resistance to the high alkalinity of concrete

CAUTIONS & LIMITATIONS

- Do not apply at temperatures lower than -10°C or higher than +40°C
- Do not strike formwork until at least 48 hours after final placement of concrete
- Protect the installed membrane against mechanical damage by means of walking paths and working areas

LIFE EXPECTANCY

HydroBond 402 will provide, under normal service conditions, a durable waterproof covering for the life of the building to which it is installed. Please note that this is not the guarantee. The waterproofing guarantee is provided by the specialist waterproofing contractor who installs the product. Product clauses can be accessed via the product page on the Newton website.

PRODUCT WARRANTY

Newton HydroBond 402 is supplied with a product warranty that confirms its suitability and fitness for purpose for the uses confirmed within this data sheet. Defective product will be replaced under the terms of the warranty. Please note that the warranty is not an installation guarantee. The waterproofing guarantee is provided by the specialist waterproofing contractor who installs the waterproofing system.

SUITABLE SUBSTRATE

Concrete only.

SUITABLE SURFACES

Raft or slab:

- Concrete blinding; Compacted type 1 hard-core; Compacted sand

The following can be placed above the blinding or hard-core prior to the installation of the membrane:

- Void former; Clay heave board; XPS, flooring grade insulation; Newton HydroBond 410 GeoDrain

Wall formwork:

- Existing structure; Secant or contiguous concrete piles; Metal sheet piles; Diaphragm walls; King post wall; Sufficiently stable ground such as clay or chalk; Temporary timber shuttering/formwork

METHOD OF APPLICATION

Raft or Slab

HydroBond 402 is fitted above a suitable base and lapped up the edge formwork to 50 mm down from Structural Slab Level. Concrete is placed above and within the fitted membrane as normal concrete placement.

Wall

The membrane is fixed to one of the permanent wall formwork methods listed above, prior to the inner formwork being in place. Concrete is placed within the formwork as normal concrete placement.

SPECIALIST TOOLS REQUIRED

No specialist tools are required. Cutting is by sharp knife or scissors.

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PRODUCT ANCILLARIES

Used to seal joints where there is no adhesive edge, such as the end of rolls:

- HydroBond Tape – Purchase code: HBT

HYDROBOND SYSTEM & ANCILLARY PRODUCTS

Where the pre-applied Type A membrane also requires CH4 and CO2 gas performance to the requirements of BS EN 8485:

- HydroBond 403 GB – Purchase code: HBGB[1]

For post-application to walls after wall formwork is removed:

- HydroBond-SA – Purchase code: 401M[1]
- HydroBond SAGM – Where BS EN 8485 gas performance is required - Purchase code: 401GM[1]
- HydroBond 2K-Flex – Purchase code: HB-2K[1]

Protection of the wall membrane

- HydroBond 410 GeoDrain – Protection and drainage – Purchase code: M18[1]
- HydroBond Protection Board – Purchase code: HBPB
- Newton Fibran XPS 500-C – XPS insulation board – Purchase code: 500C

Swelling, detailing powder for use where HydroBond 402 terminates to otherwise difficult to detail building elements

- HydroBond 314 Bentonite Granules – Product code 314-BG

Detailing, flexible mastic for use where HydroBond 402 terminates to otherwise difficult to detail building elements

- FIXA Polymera MS
- Flexproof 106 System

Crystalline waterproofing powder used for continuation detailing at piles, capping beams, etc

- Newton HydroCoat 104 Super – Purchase code: 104

Detailing to DPC or Cavity Tray at top of retaining wall:

- Newton HydroBond 109-LM – Purchase code: 109MV

[1]Products that require further ancillaries. Please consult product data sheets.

TRAINING & COMPETENCY OF USER

HydroBond 402 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 most cases will require further waterproofing products so as to achieve the required habitable grade as defined by BS 8102:2022.

HEALTH & SAFETY

During the application, use work clothes, protective gloves, goggles and mask in accordance with the occupational and worker health regulations. Keep out of reach of children.

SPECIFICATION

Newton Waterproofing Systems work in partnership with RIBA NBS who publish our products on NBS Source. The platform integrates seamlessly into project workflows, providing all product data from Newton's NBS BIM Objects, NBS Plus Clauses and RIBA Product Selector into one single source of product information.

NBS Source also hosts a large selection of Newton case studies, as well as product literature and certifications. A wide range of drawings are available on our website.

CONSTRUCTION

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

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FULLY BONDED MEMBRANES

Type A (barrier) protection membranes should be designed and installed to try to overcome defects as outlined in BS 8102:2022 Section 4.3.2 'Defects and remedial measures'. The requirements for the specific properties of the Type A barrier membrane are outlined in Section 8 of the British Standard, on 'Type A (barrier) protection', including Table 3 – 'Waterproofing barriers'.

Pre-and post-applied membranes are resisting a positive hydrostatic head, therefore it is essential that these systems form a full homogenous tank around the structure. Consequently, the membrane itself and all edge and end laps should be tested for resistance to water pressure. The membrane should also be fully bonded to prevent water entering from a defect and tracking between the membrane and the structure; also known as lateral migration of water from a defect as per BS 8102:2022, Figure 9 – 'Effect of bonded or partially bonded barriers'. This can be tested by BS EN 1928, Method A. The level of full bond and suitability of use is relevant to both the water depth/pressure tested for both lateral migration and watertightness of the membrane and the laps.

CE TABLE

CE 24	JN NEWTON WATERPROOFING	Newton Waterproofing Systems Newton House 17-19 Sovereign Way Tonbridge Kent TN9 1RH	402 BS EN 13967:2012 0761 Flexible sheets for waterproofing. Plastic and rubber damp proof sheets including plastic and rubber basement tanking sheets

Essential characteristics to BS EN 13967:2012	Test Standard & Conditions	Result	Unit of measure
Water tightness	BS EN 1928 Method A Water pressure: 4 bar Test period: 24 hrs	Watertight	
Resistance to tearing (nail shank)	BS EN 12310-1 Lengthwise Across	 227 (± 14.4) 226 (± 10.1)	 N N
Joint strength (glued seam)	BS EN 12317-2 Glued seam	 250	 N/50mm
Tensile properties	BS EN 12311-2 Lengthwise Across	 392 392	 N/50mm N/50mm
Reaction to fire	13501-1:2019-05	Euroclass E	