System 100

NEWTON 109-LM

Seamless Rubber Waterproofing Membrane

Rev 4.7 - 13 September 2019

PRODUCT CODE - 109MV/109LV

INTRODUCTION

Newton 109-LM is a radon gas certified, flexible, single-component, cold-applied, seamless rubber waterproofing membrane used primarily for the external waterproofing of earth-retaining structures such as basements and foundation walls. Newton 109-LM is also adept as a detailing membrane for the termination and jointing of other Newton waterproofing products, and is the perfect primer for the adhesion of butyl products to concrete and mortar.

BDA Agrément
BAB-18-067-P-A-UK

Newton 109-LM is extremely puncture resistant with elasticity of 850% and a 95% recovery memory. The membrane becomes fully engaged into the substrate to prevent water tracking and is suitable for all below-ground and earth-retained structures, ranging from domestic basements to the largest civil engineering projects.

Newton 109-LM is available in two variants: Medium Viscosity, for use in warmer temperatures, and Low Viscosity, for when it is cooler. Newton 109-LM is also a constituent product of the Newton HydroBond® System supported by BDA Agrément® BAB 16-031/03/A and is accepted by the NHBC as a suitable waterproofing system for Type A Waterproofing to Grades 1, 2 and 3 - BS 8102:2009.

APPLICATION

PROPERTIES

H - Hardness and Durability; E - Elasticity and Flexibility; V - Vapour Permeability; C - Curing and Drying; W - Working Time; U - UV Stability

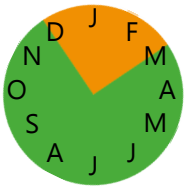
PACKAGING

Single component

COVERAGE

Please see Application Rates sections on pages 4 and 5

OUTDOOR SEASON



KEY BENEFITS

- Fully-bonded seamless membrane
- Good elasticity with no shrinkage
- Medium/Low Viscosity variants to ensure the correct viscosity at differing temperatures
- Membrane is instantly rain tight when sprayed with Newton 109-LM Catalyst*
- Primer not required for most substrates**
- Complete vapour barrier
- Solvent-free, non-toxic and odourless
- Non-flammable - No VOCs
- High radon gas resistance

*When catalysed with Newton 109-LM Catalyst; **Priming required to horizontal surfaces

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TECHNICAL DATA - LOW & MEDIUM VISCOSITY VARIANTS

Features	Result	Units
Form	Liquid	
Colour	Brown	
Density / Specific gravity	1.03	
Packaging - Bucket	20	Litres
Shelf life	12	Months
Pot life	N/A	
Application rate in 1 to 2 coats - RC walls	1.6	Litres/m^2
Application rate in 2 coats - Joints in concrete walls - band of 250 mm	3.2	Litres/m^2
Application rate in 2 to 4 coats - Block and ICF walls	3.2	Litres/m^2
Application rate in 2 to coats - Radon barrier and horizontal elements	3.2	Litres/m^2
Application method	Brush, roller & airless spray	
Application temperature	+5 to +40	ºC
Service temperature	-15 to +40	ºC
Odour	Slight resinous odour	
VOC	Does not contain solvents	
Viscosity	Low or medium	
pH	11 - 13	

Curing***	5ºC	10ºC	15ºC	20ºC	25ºC	Units
Ready for next coat****	24/0.1	12/0.1	2/0.1	0.4	0.2	Hours
To not be adulterated by rain****	24/0.1	12/0.1	1/0.1	0.5	0.5	Hours
Ready for temporary foot traffic / protection boards****	24/4	12/3	2/2	1	1	Hours
Ready for flood / hosepipe test	48	24	4	3	2	Hours
Fully cured	48	24	8	5	3	Hours

Cured Performance	Result	Units	Test Method
Colour	Black		
Membrane thickness - RC walls	1.0	mm	
Membrane thickness - RC joints	2.0	mm	
Membrane thickness - Block and ICF walls	2.0	mm	
Membrane thickness - Radon barrier & horizontal elements	2.0	mm	
Density / Specific gravity (no reinforcement)	1.1		
Softening temperature	> 130ºC		Ring & Ball
Adhesion to concrete	0.62	N/mm^2	DIN 53232
Tensile strength & elongation at break (reinforced)	0.68	N/mm^2	EN ISO 527-3:1995
Tensile strength & elongation at break (reinforced) (aged)	0.58	N/mm^2	EN ISO 527-3:1995
Loading capability (no reinforcement) - Class 1	0.06	MN/mm^2	EN 15815
Resistance to static indentation (reinforced)	250	N	EOTA TR007:2004
Crack bridging ability (no reinforcement) - Class CB2	≥2	mm	
Resistance to fatigue movement - 1000 actions @ -10ºC	Pass		EOTA TR008:2004
Dimensional stability at high temperature - no dripping	≥70	ºC	EN 15818
Low temperature flexibility @ -10ºC	Pass		DIN 52123
Flexibility at low temperature @ 0ºC	Pass		EN 15813
Water vapour diffusion resistance – S_d value	72.4	m	BS EN 1931
Water vapour diffusion resistance - μ value	36200	μ	Calculation from S_d value
Water vapour diffusion resistance	362	MNs/g	Calculation from S_d value
Water tightness	7	bar	ISO=DIS 7031
Water resistance - 21 days at 21ºC	Watertight		EN 15817
Impact resistance after UV-ageing - 1000h - 10 mm	Pass		EN 12691:2001
Radon gas diffusion resistance (1 mm membrane)	2.1 x 10^{-11}	m^2/s	K124/0295
Reaction to fire classification	Euroclass B2		DIN 4102-1

The above data, even if carried out according to regulated tests are indicative and may change when specific site conditions vary. ***Figures are for 2 mm coating and are influenced by humidity and are therefore, indicative. First figure is air-cured, second figure is when catalysed by Newton 109 Catalyst. ****If Newton 109-LM Catalyst is used, the catalyst must be fully removed by washing before further coats are applied. Newton 109-LM Catalyst should only be used to make the surface of the membrane rain tight when rain is imminent or expected. In all other cases, allow the product to air-cure.

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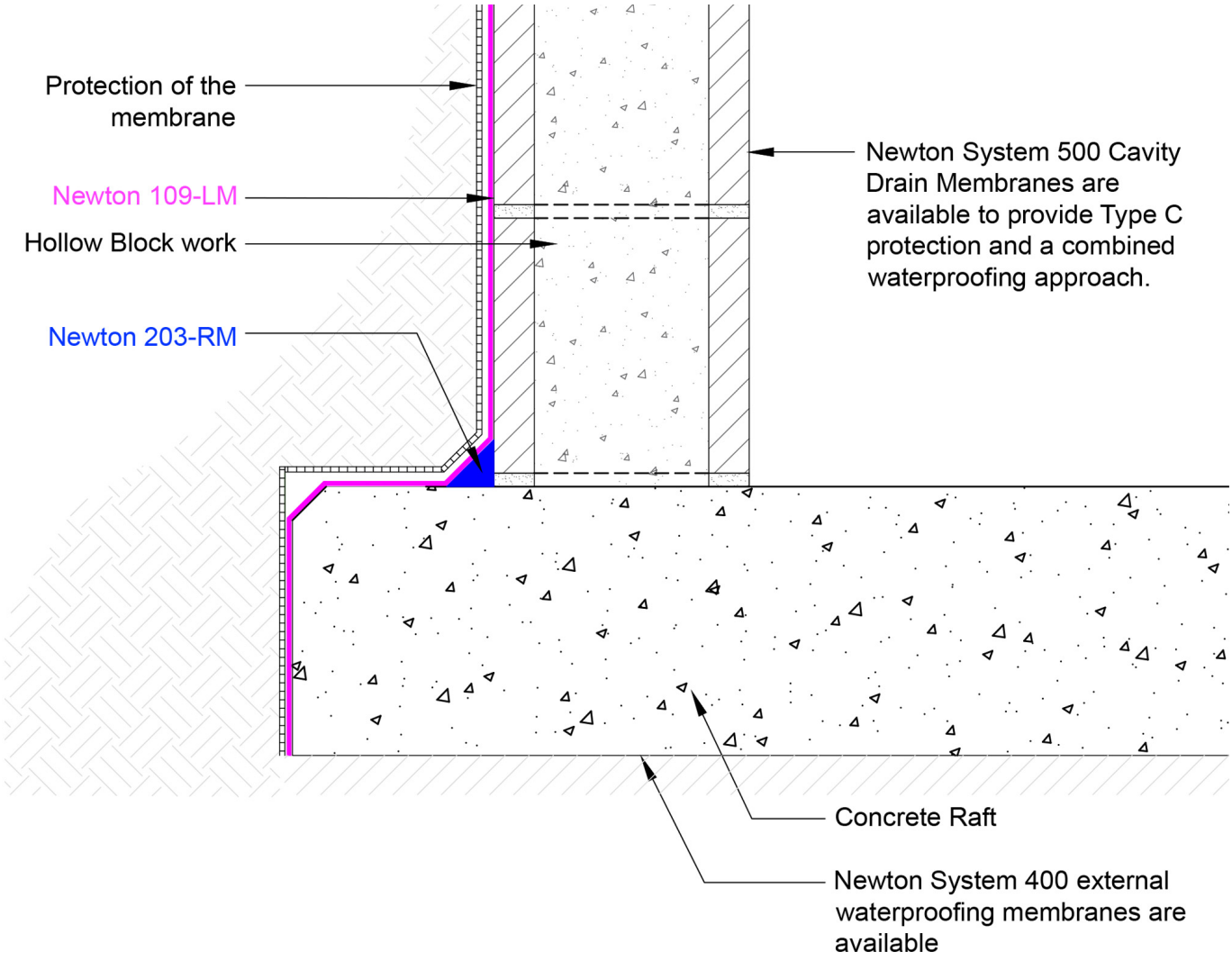
TYPICAL DETAIL



ACCREDITATIONS & APPROVALS

Newton 109-LM is independently tested by Technische Universität, München to confirm performance data to the requirements of EN 1504-2:2004+A2:2014, in accordance with the EU Construction Products Regulations. Please see CE Label on page 7, or the product Declaration of Performance for further information.

Newton 109-LM is supported by KIWA BDA Agrément and is accepted by the NHBC as a suitable waterproofing system for Type A Waterproofing to Grades 1, 2 & 3 - BS 8102:2009, both as a standalone product or as a constituent product of the Newton HydroBond® System.

VARIANTS

Newton 109-LM is supplied in two variants:

The MV (medium viscosity) variant should be used in higher temperatures, whilst the LV (Low viscosity) variant should be used in lower temperatures.

TYPICAL APPLICATIONS

- Waterproofing and radon protection of retained structures, together with Newton 403 HydroBond®
- Standalone waterproofing and radon membrane for basement, foundation and earth-retained walls
- Used as a detailing membrane or where access is too tight to spray Newton 108 HydroBond-LM
- Loading-capable, liquid DPM connecting wall waterproofing membrane to internal skin DPC

SUITABLE SUBSTRATES

Correctly prepared substrates of:

- Concrete of at least 20 kN
- Concrete block walls with flush pointing
- Insulated formwork walls (ICF)
- Newton 908 LiquaBond screed

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SUITABLE SURFACES

- Walls - Positive pressure
- Covered and loaded decks - Positive pressure*

METHOD OF APPLICATION

- Brush
- Roller
- Airless Spray

SPECIALIST TOOLS REQUIRED

Newton 109-LM does not require any specialist tools.

ANCILLARY PRODUCTS

- Newton 109-LM Catalyst - Post-applied catalyst that instantly cures the surface of the membrane
- Newton 403 HydroBond - Self healing and fully-bonded sheet membrane that with Newton 109-LM and Newton 108 HydroBond-LM forms the Agrément approved HydroBond® System
- Newton 914-RT - Textile strengthening tape for changes in direction and static joints
- Newton 410 GeoDrain - Protection board or drainage membrane for sloping sites
- Newton 408 DeckDrain - Drainage membrane for the removal of water from horizontal sections or decks to suitable drainage. Can also be used as protection board and as a drainage membrane for sloping sites.
- Newton GeoTex - Non-woven geotextile filter layer for protecting the membrane when applied to covered and loaded decks
- Newton PipeCollar - Flexible preformed collar for sealing pipe protrusions to the membrane
- Newton 203-RM - Fast curing repair mortar to fill voids and cracks and to create smoothing fillets

*Priming required to horizontal surfaces

LIFE EXPECTANCY

When fully covered and protected, Newton 109-LM will provide, under normal conditions, a durable waterproof covering for the life of the building to which it is installed.

Where the membrane is exposed to UV and weathering, the life expectancy is 10 years, and we suggest that after 5 years, the membrane is inspected every 2 years and new product applied over as required.

The membrane is not hard wearing and should be protected against wear and whilst backfilling.

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.

TRAINING AND COMPETENCY OF THE USER

Newton 109-LM should be installed by those with an understanding of the requirement to waterproof the building element to which the product is applied. In addition they must have 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 in order to achieve the required habitable grade defined by BS 8102:2009.

For priming and externally applied damp proofing, Newton 109-LM can be used by competent and experienced personnel who will use it with the necessary care and attention required to ensure preparation and application are carried out correctly, and to specification.

Newton Specialist Basement Contractors (NSBCs) are trained by Newton Waterproofing Systems in the correct specification and installation of Newton waterproofing and damp proofing products. They will provide the client with a meaningful insurance backed guarantee for the system installed.

APPLICATION RATE - RC WALLS

- To main wall sections, the membrane is applied in one or two coats at a rate of 1.6 litres/m^2, to a total thickness of 1.0 mm
- To joints and changes of direction apply in two to four coats at a total rate of 3.2 litres/m^2, to a total thickness of 2.0 mm in two phases:

  1) Joints and changes of direction: 1.6 litres/m^2 = 1.0 mm

  2) Main coat over: 1.6 litres/m^2 = 1.0 mm

  Total: 3.2 litres/m^2 = 2.0 mm

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APPLICATION RATE - BLOCK & ICF WALLS

Two to four coats, to a total of 3.2 litres/m^2 over the whole surface area to be treated.

APPLICATION RATE - BURIED CONCRETE HORIZONTAL ELEMENTS

The membrane is applied to a total thickness of 2.0 mm, which requires an application rate of 3.2 litres/m^2.

APPLICATION RATE - RADON BARRIER

The membrane is applied to a total thickness of 2.0 mm, which requires an application rate of 3.2 litres/m^2.

CONSTRUCTION - CONCRETE WALLS

Concrete walls should be constructed to BS EN 1992-3, with the intention of providing a Type B form of waterproofing as described within BS 8102:2009.

Joints should be designed out where possible and where unavoidable, they should be waterproofed with Newton 315 Polymer-Waterbar or by a proprietary shrinkage joint sealing system.

CONSTRUCTION - BURIED CONCRETE HORIZONTAL ELEMENTS

Concrete horizontal elements should also be constructed to the same standard, and as a continuation of the concrete walls.

If other means of construction are used, such as precast beams or block and beam, a structural concrete slab must be placed over the precast elements, isolated by a slip membrane, to ensure that movement is not transferred to the waterproofing.

The deck should be constructed to adequate falls so that water drains away from the deck and is collected by a perforated pipe or similar.

If a screed is required to form the fall, this must be sand/cement with Newton 908 LiquaBond mixed to the gauging water at a ratio of 1:2.

CONSTRUCTION - BLOCK & ICF WALLS

Walls should be designed by a Structural Engineer to withstand the load of the retained earth, as well as the expected water pressure defined by BS 8102:2009.

The mortar joints should be pointed flush to the wall surface.

SURFACE PREPARATION - CONCRETE WALLS

- The surface must be clean and free from dust, laitance, release agents, oils, paints or other forms of contamination. Jet washing with a mild detergent (which later must be fully removed) may be required. If contaminants are still present, more aggressive preparation, such as grit blasting, will be required
- Holes, cracks, voids and honeycombing should be filled and made good with Newton 203-RM
- Pin holes and non-structural cracks that are between 0.5 mm and 2 mm wide and block walls should be filled with sand/cement using a bag rubbing technique

SURFACE PREPARATION - BLOCK WALLS

- Mortar joints should be flush pointed. If they are not, re-point or apply a smoothing coat of sand/cement render with Newton 908 LiquaBond mixed into the gauging water at a ratio of 1:2
- Large holes or indentations should be filled with Newton 203-RM
- Remove snots
- Blocks with an open surface should be smoothed with sand/cement using a bag rubbing technique

SURFACE PREPARATION - ICF

- Holes, voids and indentations should be filled with Newton 203-RM
- Where the insulation is badly damaged, remove back to good formwork and make good with Newton 203-RM

SURFACE PREPARATION - DECKS

Horizontal elements will require priming with Newton 901-P and/or Newton 902-P primers. Please refer to the preparation requirements within these two documents.

JOINTS & CHANGES OF DIRECTION

- Reinforce static joints with Newton 914-RT
- Apply over shrinkage joints, using 25 mm wide masking tape to create delamination
- With movement joints, lap the 109-LM into the joint and then use our standard Newton 106 FlexProof movement joint detail. Please speak to our Technical Department if you require assistance on the correct specification to joints
- Internal changes of direction require a smoothing fillet of 25 mm x 25 mm. Consider using Newton 203-RM for the smoothing fillet as the fillet will be cured ready for application in 15-30 minutes

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PRIMING

Newton 109-LM does not require a primer unless applied to horizontal surfaces. Where concrete or screed are aged, very dry and have an open surface, the surface should be dampened prior to application.
In some cases, a very thin first coat should be applied prior to the main application.

PRIMING HORIZONTAL SURFACES

Where Newton 109-LM is applied to horizontal surfaces, there is risk of trapped vapour lifting the membrane and also for air bubbles to form. Priming the substrate with Newton 901-P will prevent lift and damage to the membrane due to vapour pressure.

- Prepare the substrate as detailed within the Newton 901-P Data Sheet
- Vapour suppressant - Apply one coat of Newton 901-P
- Full DPM - Apply two coats of the primer

MIXING & STIRRING

Newton 109-LM is a single component product and so does not require mixing. The product should be stirred for at least 30 seconds with a wooden stirrer within its own container.

APPLICATION

Newton 109-LM can be applied by brush, roller or by airless spray.

Apply at a rate as explained within the relevant **APPLICATION RATE** sections on pages 4 and 5.

Apply the first coat at the recommended rate for the substrate.

Subsequent coats can be applied when the prior coat is dry to the touch. See the curing table on page 2.

SALT CATALYST

If there is risk of rain damage to the applied membrane, the surface can be skinned to be immediately rain tight if sprayed with Newton 109-LM Catalyst.

Conditions for catalyst use:

- Mix six parts water with one part catalyst (6:1) by weight
- Use only when rain is imminent or expected
- Do not use in warm or hot weather or when there is a dry wind; the product will skin quickly without the need of the catalyst
- Use only the recommended catalyst supplied by Newton Waterproofing Systems
- If further coats are required after catalyst use, the catalyst must be removed from the surface of the membrane before subsequent coats are applied. Use clean water and soft rags to remove the catalyst

CATALYST APPLICATION RATE

The catalyst comes in 1kg bags, and when mixed at a ratio of six parts water to 1 part catalyst, an application rate of 0.1 litres/m^2 can be expected by spray, or 0.15 litres/m^2 by brush. Be mindful of windy conditions when spraying, as more product may be required.

LAPPING TO NEWTON 403 HYDROBOND

When used in conjunction with Newton 403 HydroBond as a full HydroBond System, Overlap the Newton 403 HydroBond membrane by a minimum of 150 mm.

SPRAYING SPECIFICATION

Newton 109-LM can be sprayed with an airless spray machine. For information on the machine and configuration, please contact our Training Department.

POT LIFE & FURTHER USE

Newton 109-LM is a single-component product with no chemical curing reaction, therefore the product is reusable if the lid is correctly fitted and the product is stored as confirmed on page 7. In these conditions, the product should be used within three months. There is no practical pot life.

CLEANING

Thoroughly clean all tools and equipment with xylene immediately after use.

PROTECTION OF THE MEMBRANE

When used to waterproof retained walls, Newton 109-LM must be protected prior to back-fill, either with:

- Protection board
- Newton Fibran XPS 500-C insulation
- Newton 410 GeoDrain

When used as a detailing membrane for termination to DPC, life expectancy will be greatly improved by protecting the membrane from direct UV exposure.

The simplest, most cost-effective and aesthetically pleasing method is to broadcast sand or grit to a fresh tack-coat of 109-LM. Cast the sand or grit onto the tack coat until no more can be taken by the membrane. Leave to fully dry before lightly brushing off any excess.

Sands and grits can be purchased in a wide variety of colours, sizes and grades.

To horizontal surfaces, the membrane must be both protected and loaded:

- Protect with Newton GeoTex geotextile
- Drain with Newton 408 DeckDrain
- Load with earth or floor finish

If screed/concrete is to be placed above the membrane, 100% broadcast a further tack-coat of Newton 109-LM with dry-kiln sand, even if a DPM is used.

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LIMITATIONS

The product is seasonal, but careful planning and use of the Newton 109-LM Catalyst will allow for use during the winter months.

Regardless of the time of year, do not apply prior to rain - please see information within the curing table on page 2.

- Do not apply at temperatures lower than +5°C or higher than +35°C
- Always use the correct preparation and priming of the support substrate as directed above
- Familiarise yourself with the curing table on page 2 and plan the work sequencing accordingly
- Not suitable as a permanent vehicle or pedestrian traffic surface. Where occasional pedestrian traffic is required, apply a further tack coat and 100% broadcast with small aggregate
- Do not apply too much product. Apply to a maximum thickness of 1 mm per coat

COLOUR

- In packaging - Brown
- Cured - Black

STORAGE

Store in dry conditions at temperatures between +5°C and +25°C with containers fully sealed. Do not expose to freezing conditions. Do not allow to freeze.

HEALTH & SAFETY

Use appropriate PPE for the environment the system is installed within. Use products only as stated within this Data Sheet and MSDS.

CE 17	JN NEWTON WATERPROOFING	Newton Waterproofing Systems Newton House 17-20 Sovereign Way Tonbridge Kent TN9 1RH	109-LM EN 1504-2:2004+A2:2014 1211 / 0797 Polymer modified bituminous thick coatings for waterproofing

Crack bridging ability	Class CB2
Resistance to rain	Class R3
Water resistance	Pass
Flexibility at low temperature	Pass
Dimensional Stability at high temperature	Pass
Reaction to fire	Class E
Watertightness	Class W2B
Resistance to compression	Class C
Durability of watertightness and reaction to fire	Pass