ARDEX WPM 1500

WeldTec® Pre-Applied Tanking Membrane

BRANZ Appraised No: 1126 (2021) - Below Grade Tanking System

Excellent water migration resistance

Radon, hydrogen sulphide, and methane gas barrier

Excellent flexibility & elongation – excellent crack bridging capabilities

Excellent bond strength to concrete - not reliant on confining pressures, hydration or tape systems

Pre applied or post applied applications

WeldTec.®

BRANZ Appraised
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DESCRIPTION

ARDEX WPM 1500 Weldable Waterproofing Membrane is a pre-applied, fleece-lined, weldable waterproofing membrane for below ground tanking and gas barrier applications. ARDEX WPM 1500 is welded at laps and seams to create a strong, continuous waterproofing membrane.

ARDEX WPM 1500 fleece-lined surface allows a high bond strength to concrete, and provides excellent resistance to water migration.

USE

ARDEX WPM 1500 is generally used as a single layer membrane in horizontal or vertical applications for waterproofing in below-ground applications. It is primarily applied to the outside of a sub-structure of a building, such as a foundation or basement, to prevent water ingress or as a gas barrier to prevent the ingress of toxic gases.

ARDEX WPM 1500 can also be used in other applications including under floor slabs, behind masonry walls, the lining of substrates of in-situ or precast concrete, retaining walls, lift shafts, and tunnels.

ARDEX WPM 1500 may be used in various combinations to produce a variety of specifications tailored to suit the individual waterproofing needs. The exact specification will depend on the functional and economic requirements.

SURFACE PREPARATION

By way of mechanical method and vacuum cleaning as necessary, remove all dirt, dust, curing compounds, oils, grease, surface sealers, and any other contaminants prior to membrane installation. Prepare surface to leave sound, clean, dry, free from sharp edges, loose or other materials which may damage the membrane. All substrate types must be sound and solid to properly install WPM 1500.

Damaged concrete between 2mm-30mm can be treated with ARDEX A46. Spalling concrete must be treated accordingly with the ARDEX Concrete Repair range such as ARDEX BR 345, please review the respective product data sheets on treating spalling concrete.

DAMP OR GREEN CONCRETE

When masonry or concrete substrate moisture content is measured at greater than 80% relative humidity (ASTM F2170) or exceeds 15gm/m²/24hrs (ASTM F1869) when tested in accordance with AS1884 or AS3740, ARDEX WPM 300 (HydrEpoxy) shall be considered as the nominated primer prior to ARDEX WA 98 Adhesive.

Apply two coats of ARDEX WPM 300 (HydrEpoxy) at a rate of 3m²/litre (per coat) and allow to dry for a minimum of 24 hours. Drying times will vary depending on substrate temperatures and ambient air conditions. Once the ARDEX WPM 300 (HydrEpoxy) has cured, apply a neat primer coat of ARDEX WA 98 Adhesive and allow to totally dry.

Apply another neat coat of ARDEX WA 98 Adhesive to the primed substrate and to the sheet underside, then bring together once tacky.

NOTE: If the ARDEX WPM 300 (HydrEpoxy) is not allowed to fully cure, the application of ARDEX WA 98 Adhesive will noticeably damage the uncured ARDEX WPM 300 (HydrEpoxy).

DETAILING

The ARDEX Flashing Tape is to be used in all external corners, pipe penetrations, and drainage waste outlets. The ARDEX Flashing Tape is to be cut to size and adhered with ARDEX WA 98 Adhesive during installation. Once correctly installed, the ARDEX WPM 1500 shall be glued and heat-welded to the ARDEX Flashing Tape to create a seamless waterproofing membrane system within and around critical areas.

SUBSTRATE ADHESIVE

ARDEX WA 98 Adhesive is ready to use solvent-based external contact adhesive for bonding ARDEX Weldtec® membranes.

With a brush or roller apply ARDEX WA 98 Adhesive to both the sheet underside and the substrate at a rate of 4m² - 8m²/litre, and allow approximately the same drying time. Drying times will vary depending on substrate temperatures and ambient air conditions. Once the applied ARDEX WA 98 Adhesive becomes tacky to touch then it is ready for bedding. The ARDEX WA 98 Adhesive can be reapplied if the drying time elapses.

To create optimum adhesion, apply a neat primer coat of ARDEX WA 98 Adhesive to the prepared substrate and allow to totally dry. Apply another neat coat of ARDEX WA 98 Adhesive to the primed substrate and underside of sheet, then bring together once tacky. It is highly suggested to shake and stir the unopened ARDEX WA 98 Adhesive drum to thoroughly mix contents before use.

Ensure not to apply ARDEX WA 98 Adhesive over an area that will later be spliced or seamed to another sheet or flashing (as you will not be able to heat-weld glued laps and seams). ARDEX WA 98 Adhesive is for external use only.

Alternatively spray bonding adhesive may be used - in accordance with the technical datasheet.

INSTALLATION

The application of ARDEX WPM 1500 must be carried out by an ARDEX trained installer. Installation shall be strictly in accordance with the manufacturer's recommendations.

Examine substrates, areas, and conditions with the installer present, for compliance with requirements and other conditions which may affect the membrane's performance.

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For applications over blinding, a concrete mud-slab, compacted subgrade or vertical soil retention system, verify that compacted sub-grade or concrete mud-slab is smooth and sound; and ready to receive the ARDEX WPM 1500 below grade membrane.

Verify that vertical soil retention systems are prepared using drainage composite, plywood, shotcrete or other approved means to achieve a uniform, sound and continuous substrate ready to receive the ARDEX WPM 1500 below grade membrane. Proceed with installation only after unsatisfactory conditions have been corrected.

HORIZONTAL INSTALLATION

Unbonded (loose laid) system
ARDEX WPM 1500 can be loose laid to the prepared compacted subgrade with heat welded side and end laps of 100mm minimum. Use the ARDEX Brass Roller and or ARDEX Small Hand Roller to ensure all seams and laps are secure. Using a probe, ensure the laps are welded properly; re-weld if necessary.

A 100mm diameter patch shall be heat welded at all "T" Intersections. Areas sectionally completed should be weighted down with sand bags until reinforcement steel is placed and concrete slab poured.

Floor sheets of ARDEX WPM 1500 must extend up the wall at least 450mm. Without over-stretching the membrane, ensure the ARDEX WPM 1500 is laid tightly into all corners. All transition substrate gaps must be filled appropriately to adequately support the ARDEX WPM 1500.

Bonded system
ARDEX WPM 1500 can be directly adhered to the prepared substrate using ARDEX Adhesive - please refer to the Substrate Adhesive section within this document for application guide.

When directly bonded, a minimum weld width of 50mm is required for all side and end laps. Use the ARDEX Brass Roller and or ARDEX Small Hand Roller to ensure all seams and laps are secure. Using a probe, ensure the laps are welded properly; re-weld if necessary.

Floor sheets of ARDEX WPM 1500 must extend up the wall at least 450mm. Without over-stretching the membrane, ensure the ARDEX WPM 1500 is laid tightly into all corners. All transition substrate gaps must be filled appropriately to adequately support the ARDEX WPM 1500.

VERTICAL INSTALLATION
Whether loose lay or direct bonded, it is suggested to mechanically fasten the top edge of the WPM 1500 into place to greatly assist in installation and during concrete pour.

In the overlaps, mechanically fasten the membrane vertically using flat headed fixings appropriate to the substrate. The membrane may be installed in any convenient length. Secure the top of the membrane using a batten or fixing 50mm below the top edge. Use fixings at typically 600mm centres to secure the membrane flat against the substrate.

Fixings with plates can be made through the selvedge; this allows firmly welded and rolled overlaps, which are covered by the subsequent sheet of ARDEX WPM 1500. Any exposed fixings should be patched by heat welding a patch of ARDEX WPM 1500.

A minimum weld width of 100mm (unbonded system) or 50mm (bonded system) is required for all side and end laps. Use the ARDEX Brass Roller and or ARDEX Small Hand Roller to ensure all seams and laps are secure. Using a probe, ensure the laps are welded properly; re-weld if necessary.

Wall sheets of ARDEX WPM 1500 should overlap the 450mm upstand and are to be heat-weld finished on the horizontal 'floor' surface.

MEMBRANE REPAIR
After installation of ARDEX WPM 1500 and before installation of reinforcement steel and concrete placement, complete a final inspection of the membrane. Ensure that the membrane is clean so that a full bond to the concrete pour can form.

Repair damage by thoroughly cleaning the surrounding membrane area with water so that it is free of dust and dirt. Once the area is completely dry, repair the area with the replacement of a full sheet of ARDEX WPM 1500 or a patch with a minimum of 50mm overlap of the welded area.

REMOVAL OF FORMWORK
ARDEX WPM 1500 membranes can be applied to removable single and double sided formwork, slab perimeter formwork, pile caps, etc. Once concrete is poured the formwork must remain in place until the concrete has gained sufficient compressive strength to develop the surface bond with ARDEX WPM 1500.

A minimum concrete compressive strength of 10MPa is recommended prior to stripping formwork supporting ARDEX WPM 1500 membranes. Premature stripping may result in loss of adhesion between the membrane and concrete.

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SEALANT & EPOXY ADHESIVE APPLICATION

Prior to use of the ARDEX range below, carefully remove the fleece on the upper face of ARDEX WPM 1500 using the Leister hot air welding equipment and ensure all loose fleece is removed from the area. The below products may be used in situations such as pipe penetration detailing, membrane termination applications, and more.

- ARDEX CA 20 P
- ARDEX RA 040
- ARDEX RA 88 PLUS

MEMBRANE TERMINATION

Membrane termination detail to be in accordance with ARDEX recommendations.

Vertical Termination Finishing

The Weldtec membrane shall be terminated with one of the suggested options.

Option 1:

The termination with an ARDEX Pressure Seal Strip shall be attached onto the wall using appropriate mechanical fixings at maximum 150mm centres. An approved ARDEX sealant shall be used along the top edge of the ARDEX Pressure Seal Strip to the waterproof wall.

Option 2:

The termination of an Over-Flashing shall be sealed into the waterproof wall via a minimum 15mm x 15mm chase. The Over-Flashing must be fixed in place with either ARDEX RA 88 PLUS or ARDEX CA 20P.

Option 3:

Terminate the membrane directly into a minimum 15mm x 15mm chase. Carefully remove the fleece on the upper face of ARDEX WPM 1500 using the Leister hot air welding equipment and ensure all loose fleece is removed from the area that will be inserted into the 15mm x 15mm chase. Once the ARDEX WPM 1500 has been appropriately installed, the termination (chase) shall be filled with either ARDEX RA 88 PLUS or ARDEX CA 20P, dependent on specific application.

Horizontal Termination Finishing

The termination of the ARDEX WPM 1500 shall be terminated into the concrete substrate via a minimum 15mm x 15mm chase. Carefully remove the fleece on the upper face of ARDEX WPM 1500 using the Leister hot air welding equipment and ensure all loose fleece is removed from the area that will be inserted into the 15mm x 15mm chase.

Once the ARDEX WPM 1500 has been appropriately installed, the termination (chase) shall be filled with an ARDEX approved product such as:

- ARDEX RA 88 PLUS
- ARDEX RA 56
- ARDEX WA 100
- ARDEX RA 142 / RA 144 / RA 146

Dependent on chase size and length, ARDEX suggest ARDEX RA 56, ARDEX RA 142 and ARDEX RA 144 are bulk-filled with ARDEX aggregate.

All remaining termination details such as vertical downward, parapet capping, cavity flashing, external door opening refer to the ARDEX website for relevant information.

BACKFILLING AND DRAINAGE APPLICATION

The membrane must be protected against potential damage by the placement of protection material between the membrane and granular backfill. A suitable protection board and drainage system should be used for effective drainage and membrane protection requirements.

TECHNICAL DATA

CHARACTERISTICS	TEST METHOD	NOMINAL VALUE
Membrane Guage		1.5mm
Low Temperature Flexibility	ASTM D1970	Pass (at -29°C)
Joint Strength	EN 12317-2	380 N/50mm
Resistance to Hydrostatic Head	ASTM D5385	69 kPa (no failure)
Elongation	ASTM D412	500% typical
Tensile Strength	ASTM D412	8 MPa
Puncture Resistance	ASTM E154	600 N
Peel Adhesion to Concrete	ASTM D903 modified	0.60 N/mm
Lap Peel Adhesion	ASTM D1876	7 N/mm
Permeance to Water Vapour Transmission	ASTM E96 B	0.04 g/d/m²
Radon Diffusion Coefficient	K124/02/95	Pass
Watertightness	EN 1928	Pass
Durability of watertightness against chemicals	EN 1847 EN 1928	Pass
Resistance to tear (nail shank)	EN 12310-1	351 N
Bitumen Compatability	EN 1548 EN 1928	Pass
Methane Permeability	ISO 15105	Pass
Hydrogen sulphide resistance	EN1847	Pass
Hydrogen sulphide permeability	ASTM D1434	Pass

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PACKAGING

ARDEX WPM 1500

Roll size: 1.4m wide x 20m long
Approximate weight per roll: 53kg

ARDEX WA 98 Adhesive - 20L pail

ARDEX WA 98 Solvent - 20L pail

ARDEX Spray Adehsive 22L

ARDEX Flashing Tape - 4.7m x 100mm (roll)

ARDEX Weldtec® Corners - Pack of 10

ARDEX Undertile Butynol Flashing (L Section) - 9m x 220mm (roll)

STORAGE

ARDEX WPM 1500 has an indefinite shelf life when stored in good conditions, between 5ºC and 30ºC. Rolls must be stored horizontally, out of direct sunlight, away from sources of puncture and physical damage, away from ignition sources and open flame.

LIMITATIONS

The application of ARDEX WPM 1500 must be carried out by an ARDEX trained installer. ARDEX WPM 1500 waterproofing membrane is not suitable as a trafficable surface or to be left UV exposed for long periods of time. It is the responsibility of the main building contractor to ensure all sub-trades likely to be working in the vicinity of the ARDEX WPM 1500 membrane are aware that a waterproofing membrane has been installed and all care must be taken to protect the membrane from damage.

Before any substrate preparation, installation or finishing methods relating to ARDEX product are undertaken, please be aware of any potential risks and use appropriate PPE (personal protective equipment). This may involve contacting substrate manufacturers for Safety Data Sheets.

SAFETY DATA

This product may cause irritation and an allergic reaction to the skin. It may cause serious eye damage, irritation to the respiratory system and may cause cancer. In case of contact with the eyes rinse with running water until advised to stop by the Poisons Information Centre or a doctor, or for at least 15 minutes. Wear protective gloves, clothing, eye and face protection. Avoid inhaling dust/fumes/gas/mist/vapours/spray. Ensure adequate ventilation during mixing and application. Store locked up. Check with your local Council regarding the disposal of contents, dispose of packaging thoughtfully and recycle where possible. Keep out of the reach of children. Call the Poisons Information Centre on 0800 764 766 (NZ) or call a doctor if you feel unwell. At times, updates can occur to data. For additional information and to ensure you have the most current technical and safety information, please consult the latest Safety Data Sheet (SDS) and Technical Data Sheet found on the product page at ardex.co.nz

DISCLAIMER

The technical details, recommendations and other information contained in this data sheet are given in good faith and represent the best of our knowledge and experience at the time of printing. It is your responsibility to ensure that our products are used and handled correctly and in accordance with any applicable New Zealand and/or Australian Standards. Our instructions and recommendations are only for the uses they are intended. Users are advised to confirm that this product is suitable for their application and conforms with the specifications of the system. We also reserve the right to update information without prior notice to you to reflect our ongoing research and development program. Country specific recommendations, depending on local standards, codes of practice, building regulations or industry guidelines, may affect specific installation recommendations. The supply of our products and services is also subject to certain terms, warranties and exclusions, which may have already been disclosed to you in prior dealings or are otherwise available to you on request. You should make yourself familiar with them.

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