



OPERATIONS & MAINTENANCE MANUAL

PROTECTO-DRAIN G20



PRODUCT DESCRIPTION

Wallbarn Protecto-Drain G20 is a highly effective 20 mm high protection and drainage system designed as a special solution for especially high-performance horizontal and vertical surface drainage on all pressure-resistant surfaces. PD G20 consists of a 20 mm high dimpled membrane and a sturdy Typar non-woven geotextile. The smooth back side allows for a uniform and extensive load distribution on the waterproofing. This double-layer system protects the waterproofing below it from mechanical damage and damaging thermal stresses. PD G20 has a pressure resistance of 180 kN/m² and is thereby capable of a load of up to 18 tonnes when installed. Its excellent water draining capacity is approx. 30 times higher than required by drainage standard DIN 4095. PD G20 protects deep outer basement walls, earth-covered roofs of underground car parks, patios and green flat roofs against waterlogging. The moisture penetrates the geotextile and enters the ducts of the dimpled membrane, where it is securely drained.

In the process, the geotextile acts as a filter and prevents the ducts from getting clogged up. The optimal high-performance geotextile boasts very high initial strength with minimum deformation under increasing working load.

TECHNICAL DATA

Dimpled membrane	HDPE approx. 1,000 g/m ²
Geotextile	PP approx. 100 g/m ²
Dimple height	approx. 20 mm
Total weight	approx. 1,100 g/m ²
Number of dimples	400 dimples/m ²
Compressive strength	approx. 180 kN/m ²
Colour	black
Water flow capacity in the plane, soft – soft; i = 1,0	approx. 9 l/(s·m) at 20 kPa
Roll length	10 m or on request
Roll width	0.5 / 1.0 / 1.5 / 2.0 m
Air volume between the dimples	approx. 14 l/m ²
Temperature resistance	-30 °C to +80 °C
Chem. properties	chemical-resistant
Physiolog. properties	safe for drinking water
Characteristic opening width	approx. 170 µm
Water permeability EN ISO 11058	approx. 100 · 10 ⁻³ m/s
Fire behaviour	class E, B1 possible for special structural requirements

COMPOSITION

Protecto-Drain G20 is composed of high-density polyethylene (HDPE) and Tytar geotextile. HDPE is a durable and versatile material that is widely used in various construction and environmental applications. The composition of this drainage layer primarily consists of recycled HDPE, making it environmentally friendly and sustainable choices. HDPE and Tytar geotextile offers excellent physical properties, such as high tensile strength, impact resistance, and flexibility, ensuring the longevity and performance of the drainage layers. Additionally, HDPE is chemically inert, meaning it is resistant to chemical degradation and does not release harmful substances into the environment. This composition ensures that it can withstand exposure to moisture, UV radiation, and other environmental factors.

KEY FEATURES

Protecto-Drain G20 features high-quality, durable materials that offers secure protection when backfilling.

Key Features:

- Recycled and recyclable HDPE core
- Prevents water pressure from bearing against the structure
- Resistant to all chemicals normally found in the ground
- Withstands stresses and movement acting as a slip membrane as the backfill settles
- Extremely strong material, minimising the risk of damage when backfilling even when no protection board is used
- Very high compressive strength
- Suspended soil particles (fines) are filtered out by the geotextile layer
- Quick and easy to install with a range of ancillary fixing and installation products
- Supplied in rolls of 2 x 10m

PRODUCT INFORMATION

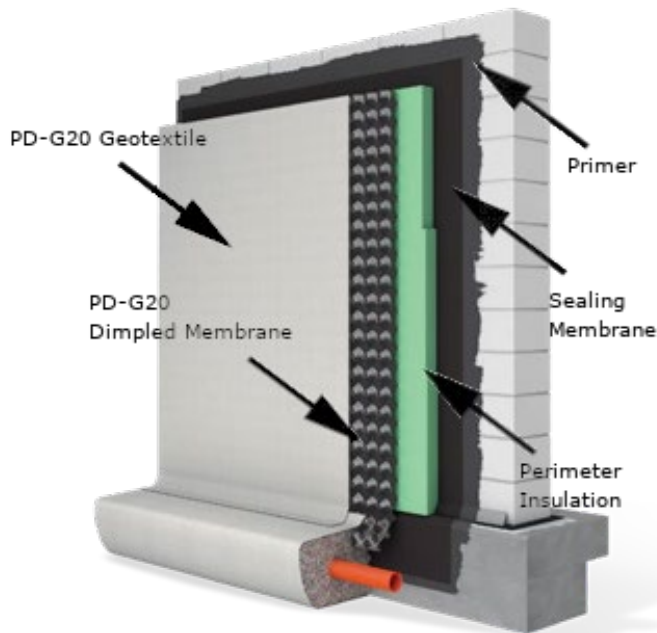
<https://www.wallbarn.com/protection-drainage/drainage>

PRODUCT INSTALLATION

The Protecto-Drain G20 is a highly efficient system designed for protecting and draining various structures. It is specifically suitable for horizontal and vertical applications on substrates that can withstand compression. The system incorporates a fused-on geotextile, which enhances its functionality by facilitating effective drainage.

The Protecto-Drain G20 system is particularly useful for safeguarding deep outer basement walls, earth-covered roofs of underground car parks, patios, and green flat roofs against waterlogging. This is achieved through a two-step process: First, moisture permeates the geotextile, and then it enters the ducts of the dimpled membrane. Once inside the membrane, the moisture is effectively drained, ensuring reliable and secure drainage for the protected structures.

Vertical



With max. waterproofing heights of 1.9 m, the 2 m wide membrane is rolled out on the wall. For other waterproofing heights, the 2 m membranes are cut diagonally to the roll to the correct length and laid lengthwise from top to bottom. The geotextile always faces outwards towards the ground. Ensure that the sides of the individual membranes overlap while lifting the geotextile accordingly. At corners, fold the membrane along the edge line prior to installation. The upper edges of the membranes must be about 15 cm above the waterproofing at all times. The membrane is first attached temporarily (e.g. with wooden battens) because the drainage membrane is held by earth pressure after backfill-

ing. The final membrane is finally overlapped with the starting membrane over a width of at least 30 cm. The lower end rests on the circumferential drainage. The circumferential drainage is enclosed all-round by at least 15 cm of filter-stable material. After backfilling, the membrane is cutoff at the top edge of the soil.

Horizontal



The surface to be drained should have a gradient of at least 2.2 %. Roll out the PD G20 on the water- proofed surface with the geotextile facing upwards. Ensure that the individual membranes overlap while lifting the geotextile accordingly. With rising building elements, the drainage membrane should be raised at least 15 cm or to the upper edge of the filling. If the laid membranes have to be extended, the connecting membrane is pushed under at least 20 cm from below. With earth-covered ceilings, the laid membrane can be moved directly with a wheelbarrow; with projecting ground

filling of at least 35 cm, PD G20 can also be transported using wheel loaders.

Accessories

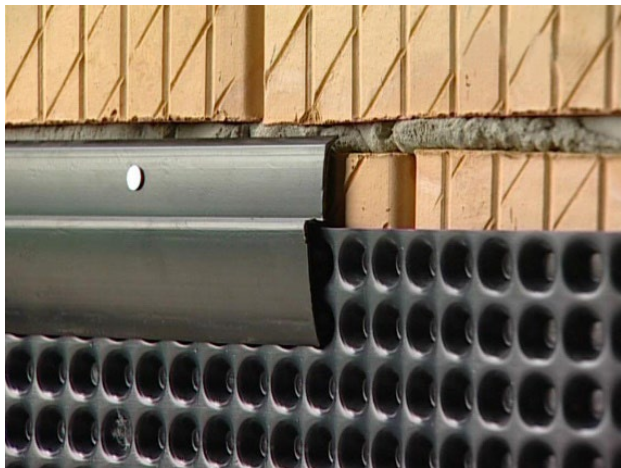
1. Wallbarn FIXING STUDS with specially hardened steel nails.



The steel fixing studs and mounting knobs can be used to efficiently install dimpled sheets and fasten them to concrete and masonry. The mounting knobs prevent the dimpled sheets from tearing the membrane and help to seal the fixing hole.

Technical Data

Mounting knob material	HDPE
Nail Material	Tempered steel, galvanised
Size	1. For an 8mm 2. For 20mm
Colour	Black
Quantities	Pack of 100



2. Wallbarn EDGING PROFILE made of plastic in black.

An edge profile is used as the top finishing element on dimpled and drainage membranes. It reliably prevents stones and soil from falling behind the dimpled sheet. The profile is equipped with pre-punched holes, so that it can be securely fastened to themasonry. The plastic profile can be used in a non-visible area.

The metal version should be selected if the membrane and profile will be permanently exposed to UV light.

Technical Data

Material :	PVC
Colour :	Black
Dimensions :	2 metre lengths
Mounting :	Punched slots prevent the profile from bulging due to thermal expansion

3. Butyl Adhesive Tape.



High bonding force on both sides, waterproof, self-sealing plastic-elastic butyl rubber mass which is 0.6 mm thick. It has good cohesion and strength and very high resistance to ageing. The Protecto-drain Butyl Fixing Tape is permanently water-resistant. Wind and vapour barriers, underlay sheet in the roof and façade areas, dimpled and drainage membranes and masonry barriers can be sealed and bonded reliably using the product. Ideal for connecting the underlay membrane to rising building components or connecting an LDPE VAPOUR BARRIER.

Technical Data

Material :	Plastic-elastic butyl rubber mass
Thickness :	0.6mm
Peel strength :	≥20N/25mm
Colour :	Black
Separating Layer	Siliconised foil can easily be pulled off thanks to overlaps on both sides (finger lift)
Temperature range	-30°C to +80°C
Processing temperature	+5°C to +40°C
Inner core diameter	76.5mm
Storage	Dry and UV-protected at +5°C to 25°C
Dimensions	20mm x 30m

PACKING & DELIVERY

Protecto-Drain G20 comes as 1 x 10 metre rolls

MAINTENANCE DETAILS

Protecto-Drain G20 is designed to be covered and not disturbed in the long-term.

GENERAL HEALTH & SAFETY WITH HDPE

When working with HDPE drainage layer, it's important to consider the following health and safety measures:

1. **Sharp Edges:** HDPE drainage layers may have sharp edges during the installation process. Take precautions to avoid cuts or abrasions by wearing appropriate gloves and handling the materials with care.
2. **Manual Handling:** HDPE drainage layers can be bulky and heavy, especially in larger sizes. Follow proper manual handling techniques, such as lifting with the legs and seeking assistance when needed, to avoid strains or injuries.
3. **Dust and Particulate:** During cutting or installation, HDPE materials may generate dust or small particulate matter. Use respiratory protection, such as dust masks, when working in enclosed or poorly ventilated areas to minimize inhalation of particles.
4. **Fire Safety:** HDPE is a combustible material and should be kept away from open flames or high heat sources. Ensure proper fire safety precautions are in place, especially when using equipment that generates sparks or heat.
5. **Compatibility with Adhesives and Sealants:** If using adhesives or sealants during installation, follow the manufacturer's instructions and handle them in accordance with their safety guidelines. Ensure proper ventilation and use suitable PPE to protect against potential chemical exposures.
6. **Compatibility with Other Roofing Materials:** When integrating HDPE drainage layers with other roofing components, such as waterproofing membranes or root barriers, ensure compatibility between the materials to avoid potential issues or compromises in performance.
7. **Site-Specific Safety Measures:** Each construction site may have unique safety requirements and hazards. Conduct a thorough site assessment to identify potential risks, implement appropriate safety measures, and adhere to site-specific safety protocols.

Always refer to the product-specific safety data sheets (SDS) and installation guidelines provided by the manufacturer for detailed information on handling, storage, and safety considerations related to the HDPE drainage layers being used. Additionally, comply with local health and safety regulations and guidelines to ensure a safe working environment.

HAZARDS IDENTIFICATION

Adverse physicochemical, human health and environmental effects : To our knowledge, this product does not present any particular risk, provided it is handled in accordance with good occupational hygiene and safety practice.

FIRST-AID MEASURES

Description of First Aid Measures

First-aid measures after inhalation	: Remove person to fresh air and keep comfortable for breathing.
First-aid measures after skin contact	: Wash skin with plenty of water.
First-aid measures after eye contact	: Rinse eyes with water as a precaution.

FIRE-FIGHTING MEASURES

Suitable Extinguishing Media: Sand, extinguishing powder, Carbon Dioxide or Dry Foam (Macrofoam).

Special Exposure Hazards: Not Known.

Special Protective Equipment: Wear NIOSH (National Institute for Occupational Safety and Health) approved positive pressure, self-contained breathing apparatus (SCBA) and full Impervious Personal Protective Clothing

ACCIDENTAL RELEASE MEASURES

Not usually required, However, if there are substantial amounts of dust or shavings present, it is advisable to use appropriate PPE as required.

In addition, please refer to the following sections for further guidance:

- Take precautions to avoid inhaling dust or vapors.
- Ensure adequate ventilation in the work area.
- Keep the product away from heat, hot surfaces, sparks, open flames, and other potential sources of ignition.
- No smoking should be permitted in the vicinity.

HANDLING AND STORAGE

Precautions for safe handling

Precautions for safe handling :Ensure good ventilation of the work station. Wear personal protective equipment.

Hygiene measures :Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

Conditions for safe storage

Storage conditions : Store in a well-ventilated place. Keep cool.

Incompatible materials : None known.

PERSONAL PROTECTIVE EQUIPMENT:

Eye protection: Where excessive dust may result, wear goggles.

Skin protection: Wear suitable protective clothing

Hand protection: Wear protective gloves.

Respiratory protection: Dust formation: dust mask. In case of insufficient ventilation, wear suitable respiratory equipment (EN 136/140/145)

TOXICOLOGICAL INFORMATION

The following toxicological assessment is based on a knowledge of the toxicity of the product's components:

Health Effects

On Eyes: On account of the fact of the physical nature direct contact with eyes is unlikely.

On Skin: On account of the fact of the physical nature direct contact with skin is unlikely if correct PPE is worn.

By Inhalation: In principle owing to the physical nature of this product, inhalation is not likely.

By Ingestion: Due to the physical state of this product, ingestion is unlikely.

ECOLOGICAL INFORMATION

Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms nor to cause long-term adverse effects in the environment.

Hazardous to the aquatic environment, short-term (acute) : Not classified

Hazardous to the aquatic environment, long-term(chronic) : Not classified

DISPOSAL CONSIDERATIONS

Dispose of this product at any approved solid waste disposal site. Disposal of the product should be in accordance with any local or national laws and regulations.

WARRANTIES

A limited warranty exists that the products will comply with the test data as laid out earlier in document. Warranty is limited to replacement of products which have been installed in the correct manner and for the correct purpose only. Warranty is limited to the value of the cost price of the materials only, not replacement costs or any other labour cost.

TRANSPORT INFORMATION

Classification for conveyance: - None required.

KEY CONTACTS

Wallbarn Ltd.
Unit 16 Capital Business Centre, 22 Carlton Road, South Croydon CR2 0BS
Tel: +44 (0)208 916 2222 Fax: +44 (0)208 916 2223
Email:
sales@wallbarn.com
Web: www.wallbarn.com

APPENDIX A:

The following table summarizes the documents and URLs referenced in this document.

Document Name	Location
Protecto-Drain website URL	https://www.wallbarn.com/protection-drainage/drainage/
Wallbarn Ltd Terms & Conditions	https://www.wallbarn.com/terms-conditions-of-supply/



LIMITED WARRANTY

Date: 1st January 2023

Wallbarn Ltd provides a limited warranty of 15 years for products. This Warranty corresponds to the performance and strength characteristics given in the published technical datasheets.

Wallbarn Ltd warrants that, under normal use and service conditions, and where the products have been installed in the proper manner, Wallbarn Ltd products shall be free from material defects in workmanship and materials, shall not crack, splinter, swell, rot or suffer structural damage from damp or fungal decay.

If a defect occurs within the Warranty Period, the Purchaser shall notify Wallbarn Ltd in writing and, after investigation and confirmation of the defect(s) by a Wallbarn Ltd representative, Wallbarn Ltd's sole responsibility shall be limited to replacement of the affected products or to refund the Purchaser up to the maximum value of the Sales Invoice.

This warranty is null and void if:

- The products are not installed in the proper manner as detailed in official Wallbarn Ltd product catalogues, installation guides and technical datasheets.
- The products are not used for the purposes they are intended, as detailed in official Wallbarn Ltd product catalogues, installation guides and technical datasheets.
- Excessive weights, higher than the maximum weight as detailed in official Wallbarn Ltd product catalogues, installation guides and technical datasheets are placed onto the products.
- The products are installed in contravention of any relevant building regulations, code or standards.
- Any relevant building regulations, code or standards, including fire safety regulations are breached on the project during the construction process.
- There is movement, distortion, collapse or settling of the supporting structure on which Wallbarn Ltd products are installed.
- Any abnormal natural event such as flooding, hurricane, earthquake, lightning, etc, occurs.

Wallbarn Ltd – Limited Warranty

This limited warranty does not cover any living product or any product which sustains life. This includes sedum and other plants and substrate mixes for M-Tray® and any other green roof system. The living and growing elements of M-Tray® and other green roof systems are specifically excluded from this Warranty.

This Warranty is limited to the maximum amount of the Sales Invoice and Wallbarn Ltd is not liable for any costs of examination, removal or installation of products. Wallbarn Ltd will not be responsible for any costs or expenses incurred during removal and replacement, including labour or transport costs.

This warranty is given only if the products are used for the purposes they are intended, as detailed in official Wallbarn Ltd product catalogues, installation guides and technical datasheets and are installed in the correct manner.

To make a claim under this Limited Warranty, the Purchaser should contact Wallbarn Ltd with a full report of the defects within the Warranty Period, including photographic evidence and proof of purchase. Any claim should be made to sales@wallbarn.com as soon as possible by the Purchaser.

Our Terms & Conditions of Supply <https://www.wallbarn.com/terms-conditions-of-supply/> can be found here.



Wallbarn Ltd :
Unit 16 Capital Business Centre : 22 Carlton Road :
South Croydon : CR2 0BS
www.wallbarn.com