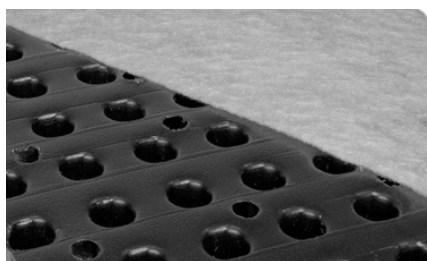
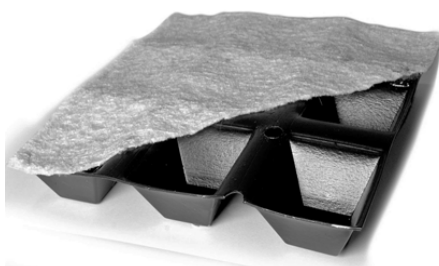


# Product Data Sheet

## HYDRODRAIN Roof Finishes



Hydrodrain 12



Hydrodrain 20



Hydrodrain 40

**Hydrodrain is a lightweight geocomposite drainage and water attenuation layer designed for use principally in extensive living roof systems.**

An extensive green roof requires both efficient drainage and water attenuation for the ecology to thrive and flourish. Hydrodrain allows for the collection and storage of water to irrigate plants during periods of low rainfall and also maintains a continuous drainage layer across the roof structure.

## Key benefits

Efficient and versatile drainage system

Prevents plants from drying out and prevents waterlogging

Assists in roof cooling

Lightweight, easy to install

## Description

Hydrodrain is primarily intended for use under soil layers where the plant roots can reach down to the water in the core reservoirs.

Hydrodrain consists of a perforated cusped HDPE (High Density Polyethylene) core with a geotextile filter thermally bonded on each side. The upper textile allows free drainage of water into the core and the lower acts as a protective layer over the waterproofing.

The Hydrodrain core can store water within the nodes of the HDPE core whilst facilitating drainage of any excess water away from the roof during peak rainfall. This prevents vegetation from either drying out or becoming waterlogged. The perforations in the core allow the excess rainwater to flow into the underside and away to the outlets (also available from Axter).

Hydrodrain has a high recycled polymer content.

## Hydrodrain Properties

### Product dimensions

	HYDRODRAIN 12	HYDRODRAIN 20	HYDRODRAIN 40
Standard roll dimensions	1.1m x 50m	0.92m x 50m	0.92m x 20m

Hydrodrain 12, 20 and 40 is normally rolled with the lower textile inward and will require to be turned over during installation.

## Geocomposite properties

		HYDRODRAIN 12	HYDRODRAIN 20	HYDRODRAIN 40		
Thickness at 2 kPa	mm	13.2	24.3	46.9	nominal	EN ISO 9863-1
Tensile strength (MD/CD)	kN/m	27/24	25/28	54/40	-10%	EN ISO 10319
Elongation at peak (MD/CD)	%	45/45	45/45	50/50	nominal	EN ISO 10319
Mass per unit area (dry)	g/m <sup>2</sup>	1240	1720	2550		EN ISO 9864
Mass/unit area (saturated)	g/m <sup>2</sup>	2740	7220	16550	(indicative)	

		HYDRODRAIN 12			HYDRODRAIN 20			HYDRODRAIN 40				
Water reservoir volume	l/m <sup>2</sup>	1.5			5.5			14				
Water flow normal to the plane	l/m <sup>2</sup> .sec	1.0			2.5			1.4			-15%	EN ISO 11058
In-plane water flow MD & CMD at 20 kPa confining pressure	l/m <sup>2</sup> .sec	10%	3%	1%	10%	3%	1%	10%	3%	1%		Hydraulic Gradient EN ISO 12958
		1.60	0.80	0.55	3.95	1.88	0.85	10.1	4.5	2.0		
Resistance to weathering		To be covered in 28 days						The geotextile has high UV stabilisation which may allow exposure up to 12 months depending on location				EN 12224
Resistance to microbes		Excellent										EN 12225
Design life		120 years (manufacturer's declaration)										EN ISO 9864
					Upper face	Lower face (note 7)	Upper face	Lower face (note 7)				
Mass/unit area	g/m <sup>2</sup>	120			120	300	250	300	-13%		EN ISO 10319	
Breakthrough head	mm	0			0	Not determined	0	Not determined	nominal		BS 6906 (3)	
Pore size O <sub>90</sub>	µm	120			120	Not determined	70	Not determined	±30%		EN ISO 12956	
CBR puncture resistance	N	1600			1600	1500	3400	1500	-20%		EN ISO 12236	
Dynamic perforation cone drop	mm	32			32	Not determined	17	Not determined	±20%		EN ISO 13433	
Type & material **		Non-woven needle-punched and heat-treated long staple fibre polypropylene			Upper: non-woven needle-punched and heat-treated long staple fibre polypropylene. Lower: non-woven felt of polypropylene and other recycled polymers			Upper: non-woven needle-punched and heat-treated long staple fibre polypropylene. Lower: non-woven felt of polypropylene and other recycled polymers				
Compressive strength	kPa	250			100			100				

1. Hydrodrain is fully compatible with all Axter waterproofing membranes; if a root barrier is required Axter offers a range of anti-root treated waterproofing membranes.
2. The values given in the tables above are indicative and correspond to nominal results obtained in laboratory test conditions; figures above have been derived from statistical interpretation of test results. In line with our policy of continuous improvement, we reserve the right to make changes without notice. It is the responsibility of the user to ensure this product is suitable for the intended purpose.
3. The tolerance on roll length is ±1.5% and on roll width is ±1.0%.

4. Guidance on interface shear strength, creep and certain other parameters is available. Site specific tests are strongly recommended.
5. Final determination of the suitability of any information is the sole responsibility of the user. Please contact Axter Limited for further discussion regarding the use of these or other products, however responsibility for selection of a material and its application in any specific project remains with the end user.
6. Non load bearing walls can be built off Hydrodrain.
7. Hydrodrain 20 & Hydrodrain 40 – the hydraulic performance of the lower face textile does not influence overall product performance.

## Hydrodrain installation

Hydrodrain is supplied in:

- a) narrow widths fully wrapped in geotextile
- b) sheet form with a light filter geotextile on the flat side of the core with an overlap flap and in some products with a heavier geotextile on the cusped side of the core.

For efficient storage and handling, the product is normally rolled “dimples inward” and will usually require to be turned over during installation.

The Hydrodrain is laid on the roof waterproofing system or inverted insulation with the lightweight textile facing up. It is always laid cup shapes facing upwards to collect water to enable water storage to feed plants. The void on the underside helps transmit excess rainwater away. Its major application is as a lightweight extensive flat roof garden or reservoir roof drainage where lightweight vegetation is required.

## Laying instructions

Hydrodrain is supplied wrapped in lightproof bags that should only be removed just before installation.

Hydrodrain can be carried or rolled but should not be dragged. Rolls should be harnessed when lifted by crane.

Rolls, typical diameter 1.3m x 0.9m wide weigh approx. 75 kg.

**Hydrodrain is laid with the geotextile filter on the flat side facing up** (with the holes in the core at the top) to receive the soil backfill and the cusped side against the roof waterproofing.

In choosing the commencing point and direction of laying, consider the intended access point for placing backfill material to avoid any unnecessary need to traffic over the Hydrodrain.

Hydrodrain is supplied in strips of the appropriate width for use on profiled metal roof systems and the strips are simply unrolled into position and cut to length.

When using Hydrodrain in sheet form, unroll the first roll of Hydrodrain into position such that the geotextile flap laps up onto a side wall. Rolls can be cut to length with a sharp knife. The flap can be held in position with mastic or jointing tape.

The adjacent roll is placed such that the cores butt together. The geotextile flap overlaps the adjacent sheet.

Installation continues to the far wall where a 500mm wide geotextile strip is used to flap over the core and up to the wall and sealed with mastic or jointing tape.

Special types of Hydrodrain are used on steep sloping roofs. Unless other means of support are provided, the Hydrodrain must be a continuous length over the apex of the roof with equal lengths both sides, otherwise an anchorage must be provided at the apex of the roof.

Hydrodrain can be cut and sealed around columns and other roof slab penetrations.

Non load bearing walls and planters can be built off Hydrodrain by providing a concrete pad that limits the compressive stress to 50 kPa. Otherwise, the cusps must first be filled with mortar. To do this the geotextile must be cut at one side, peeled back and mortar hand placed into the cusps taking care that mortar does not fall through the holes in the core. Finally the geotextile is replaced and the wall construction can commence.

**Before backfilling, inspect the installation to make sure that there are no gaps in the geotextile where soil can enter the core.** Ensure that water can exit freely from the Hydrodrain if the outlets are along the ends or sides.

Backfill with good quality topsoil for planted areas or sand for feature paved pedestrian areas.

### Hydrodrain installation

At least 150mm of temporary backfill material should be maintained over the Hydrodrain where mechanical plant is working. Temporary access routes over Hydrodrain for mechanical plant should be protected with boards.

If the Hydrodrain geotextile cover is damaged small areas can be repaired using a patch of similar textile at least 300mm larger than the damaged area. Damaged drainage core is cut out locally and a similar shaped replacement is inserted.

Standard Hydrodrain has UV stabiliser allowing exposed to sunlight for up to 14 days in temperate climates and 3 days in extreme sun exposure.

Contact Axter Ltd for details of special enhanced UV resistance.

### Ancillaries and tools

- Narrow roll of textile 500mm wide for edge detail.
- Sandbags for temporary ballast of overlaps and to prevent uplift by wind.
- Adhesive for special joint details, if required.
- Jointing tape to hold the geotextile flaps in position.
- Sharp knife.

Contact Axter Ltd for further information.