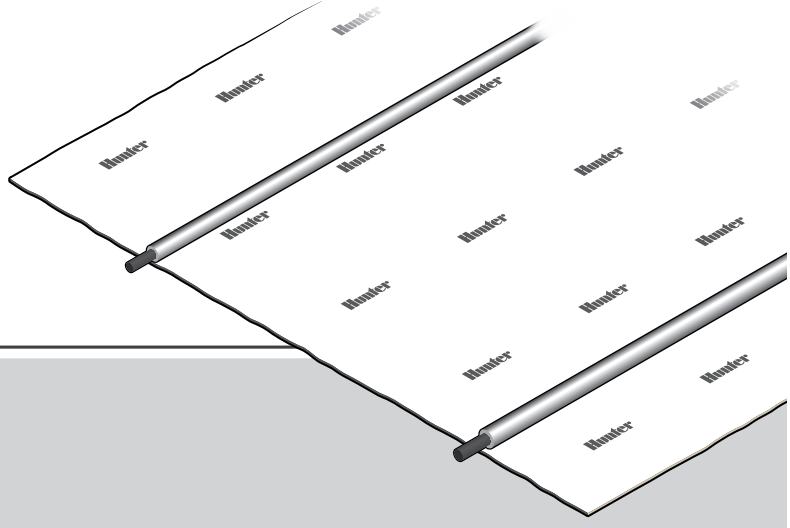
Eco-Mat®

INSTALLATION AND MAINTENANCE GUIDE



Efficient Subsurface Solution for Turf and Smaller Plants

Hunter®

TABLE OF CONTENTS

PRODUCT DETAILS

- Subsurface drip application product
- Available in rolls of 30 meters, 90 meters (with 17mm PLD,) or 100 meters (with 16mm PLD)
- 32 inches (80 centimeters) wide roll with two parallel runs of Eco-Wrap® (dripline wrapped in fleece) at 14 inches (35 centimeters) on center, centered on roll
- Fleece-wrapped dripline helps prevent root intrusion
- Wrap and Mat create unmatched distribution uniformity resulting in decreased run times compared to conventional drip irrigation systems
- Built-in check valves in emitter prevent low-point drainage up to 5 feet (1.5 meters)
- Emitter anti-siphon feature prevents back suction of debris
- 5-year warranty

RECOMMENDED PRODUCT APPLICATIONS

- Turf
- Groundcovers
- Perennials
- Small plants
- Small shrubs
- Rooftop gardens
- Narrow planted spaces
  *Not recommended for trees or plants that have a root structure deeper than 12 inches (30 centimeters)

SITE PREPARATION

- Recommended Eco-Mat installation depth per plant type:
  - Turf: 4-6 inches (10-15 centimeters)
  - Perennials and groundcovers: 8 inches (20 centimeters)
  - Shrubs: 12 inches (30 centimeters)
- Recommended to achieve 80-85 percent compaction rate of soil above and below mat.
- Recommended to scarify soil to a depth of 6 inches (15 centimeters) below mat installation.
- Slightly sandy soil (sandy loam) is ideal when using subsurface drip irrigation - follow recommendations provided by soils report.
- Trees and shrubs with root structures deeper than 12 inches (30 centimeters) should be on a separate zone. Consider a Hunter Root Zone Watering System (RZWS) for these applications.
- Remove objects like sharp-edged stones from the installation area.
- Create an even subgrade.
- Locate water source and position layout header accordingly. Hardscape edge areas are subject to wind, radiant heat, reflected sunlight, and other factors that increase evaporation and plant water needs. Install Eco-Mat lateral lines within 4 inches (10 centimeters) of hardscape edge. Roll excess mat underneath itself or cut to fit hardscape edge. Ensure that all required tools and irrigation components are available prior to laying Eco-Mat. Irrigation components may include, but are not limited to:

  - Filter required: 120-200 mesh (125-75 microns)
  - Pressure regulator: 15-50 psi (1.0 to 3.4 bar)
  - Header and footer pipe
  - Air relief valve(s)
  - Flush valve(s)
  - Eco-Indicator(s)
  - Fittings
  - Stakes
  - Commercial-grade cutting shears
  - Valve boxes
  - Required equipment for excavation

CALCULATIONS FOR QUANTITY OF PRODUCT REQUIRED

- Run Eco-Mat parallel to longest irrigated area length to ensure quick installation and to minimize fitting quantities. To calculate Eco-Mat row quantity for a specific area, divide the shorter side of the area by 26 inches (66 centimeters). The width of the Eco-Mat is 32 inches (80 centimeters), but we will overlap the product by about 6 inches (15 centimeters) in order to attain regular 14-inch (35 centimeter) lateral intervals.
- Calculate the length of the runs by the quantity of rows to understand the total linear feet (meters) of product required.

Examples: 20' x 40' area. 20' (240") / 26" = 9.3 rows (round up to 10 rows)
10 rows x 40' lengths = 400 linear feet

6 m x 12 m area. 6 (600) / 66 = 9.09 rows (round up to 10 rows)
10 rows x 12 m lengths = 120 linear meters

We recommend keeping additional Eco-Mat on hand for unforeseen shortages.

POSITION THE ENTRY AND FLUSH MANIFOLD

- Establish a firm header (entry manifold) on the shortest side of irrigated area.
- A PVC entry manifold is recommended for durability and stability. Install each manifold below the mat, or otherwise far enough away from the curb, so as not to prevent the Eco-Mat from bordering/touching the curbing or having a proper lie.
- Connect the entry manifold to the Hunter control zone kit. The recommended operating pressure is 40 psi (2.7 bar), but may operate with pressure as low as 15 psi (1.0 bar). Refer to the Maximum Run Length Charts found in the product catalog, at **www.hunterindustries.com**, or in the Drip Design Guide.
- A center feed header connection allows for a larger irrigated area given available pressure and flow parameters.
- For smaller applications with flow less than 4 gpm (15 l/m), Eco-Wrap (fleece-lined dripline) may be used as header material.
- Loop the system by connecting dripline laterals to a flush manifold. This provides added stability as well as a single location for flushing the system.

LAY THE PRODUCT

- Install Eco-Mat with dripline on the top side of the mat.
- Unroll the mat perpendicular to the entry header. Cut the mat with tubing cutters, scissors, or a blade to conform to irrigated space constraints.
- Overlap parallel runs of the mat approximately 6 inches (15 centimeters) over the edges to ensure consistent 14 inches (35 centimeters) on center dripline spacing.
- Install Eco-Mat lateral lines within 4 inches (10 centimeters) of the hardscape edge. Roll excess mat underneath itself or cut to fit the hardscape edge.
- For sloped installations, lay Eco-Mat parallel to the slope starting at the bottom. Each layer added should overlap the prior downhill mat layer.
- For best success in assembling the header, build it as each new lateral of Eco-Mat is laid.
- To maintain a consistent 14 inches (35 centimeters) on center dripline spacing, cut a piece of PVC to the right length to use as a measuring tool as you stake the product to the ground.
- Use sod stakes or fabric pins to secure the mat and prevent displacement.
- Use Eco-Wrap to route through or around trees, rocks, or obstructions existing in irrigated areas.
- Connect dripline laterals to the exhaust manifold. Install a flush valve on the exhaust manifold to provide initial startup system flush and winterization where required.
- Install air vents at system highpoints where air buildup may occur. Install a minimum of one air vent per Eco-Mat zone; multiple air relief valves may be required for irrigated areas with variable elevations.
- For elevation differences greater than 5 feet (1.5 meters), design separate zones or include check valves at every 4.5 feet (1.4 meters) of elevation change.
- The mat can be cut or folded underneath itself to fit irregular-shaped areas. For gently curved areas, cut the fleece mat at minimal intervals to allow the mat to follow the curve. For sharp turns, cut the mat and dripline and add elbow fittings as needed.
- Install the Eco-Indicator off the exhaust manifold for visible indication of system operation and minimal pressure requirements. The Eco-Indicator pops up when the system is pressurized at a minimum of 12 psi (0.8 bar), displaying the yellow color of the stem.

GREEN ROOF

- Eco-Mat is particularly effective with rooftop gardens where the growing medium is very lightweight and porous. Typical dripline cannot succeed well within this soil profile, yet the Eco-Mat performs extremely well.
- Always refer to the project engineer or architect for rooftop installation parameters.

SYSTEM CHECK

- Open the manual flush valve at the exhaust manifold and pressurize the system to thoroughly remove debris within the dripline. Flush until water runs clear. This could take several minutes for larger systems.
- Close the manual flush valve and run each zone for 20-30 minutes.
- Check for consistent watering patterns on the mat. Noticeably wet or dry areas, compared to the rest of the zone, need to be checked for leaks, blockages, or other damage that may have occurred during installation.
- Check your entry and exhaust headers for leaks.
- Check the dripline laterals for damage from installation. Do not allow dripline laterals to be kinked.
- Inspect all fittings. Repair any observed leaks.
- Check the Eco-Indicator. If the yellow stem is not raised, then there is less than 12 psi (0.8 bar) at this location. This may be indicating a potential break or blockage in the system. It may also indicate that the maximum run length of the product has been violated or pressure is low at the source. Take a pressure reading at the Eco-Indicator using the MP Gauge to confirm operating pressure.

BACKFILL

- In general, slightly sandy soil (sandy loam) is ideal for subsurface irrigation; this is because “medium” textured soils have the greatest amount of water available to plants due to lower capillary forces. Follow recommendations from the soils report.
- Backfilling on top of the installed mat can be done by hand or via machine. To avoid damage to the mat and dripline, place at least 4 inches (10 centimeters) of compacted soil on top of the mat before using mechanized equipment.
- Level and compact the soil. Typical compaction for planted areas is between 80-85 percent relative density, which must be uniform throughout the planted area. Install and compact backfill soil at 2-inch (5-cm) lifts.
- Run the system again. Leave the zone running until the entire area is wet and there is consistent watering. It is common to see wetter and drier areas at first.
- Due to inconsistencies in the soil, burial depth, and slight differences in compaction, the first watering will help smooth these out.
- If any areas remain dry, check for loose compaction of soil or blocked emitters. If soil is dry down to the mat, then this is a red flag requiring attention prior to planting. Check the emitter by cutting open the fleece wrap around the dripline (being careful not to cut the dripline itself). If there is no flow at the emitter, replace this emitter section with a similar section of PLD. Connect easily with PLD-LOC fittings and cover again with the fleece sleeve.

PLANT ESTABLISHMENT

- We recommend using a temporary supplemental overhead irrigation system to establish plant material in conjunction with the subsurface system.
- Temporary supplemental overhead irrigation can be stopped once roots have grown into the irrigated zone. Approximate grown-in periods include:
  - 2-6 weeks for shrubs, perennials, and groundcovers during the growing season or until plant material roots have established in Eco-Mat irrigated zone
  - 2-5 weeks for sod during growing season or until plant material roots have established in Eco-Mat irrigated zone

- When installing sod, ensure proper contact between the sod soil and the wetted backfill soil by rolling sod with a sod roller after installation. Temporary supplemental overhead irrigation is highly recommended when sod is first installed to promote root growth and prevent the drying and shrinking of the sod rolls.
- Temporary supplemental overhead irrigation is necessary when germinating seed. Run overhead and subsurface irrigation together to ensure proper establishment and root growth. Cease overhead irrigation when roots appear to be established.
- When installing a plant that has a root ball deeper than the desired Eco-Mat depth, cut fabric in an X or H shape and fold upwards away from the soil. Excavate below the mat to the depth of the root ball and plant normally.

SET THE RUN TIME

- Keep the Eco-Mat lightly moist at all times.
- Eco-Mat emitters flow at a rate of 0.6 gallons per hour (2.2 liters per hour). With consistent 14-inch (35-centimeter) laterals, the application rate will be 0.83 inches per hour (2.1 centimeters per hour).
- Continuous run time should not exceed 10 minutes.
- Run the zone for short and frequent periods to maintain soil moisture and prevent runoff. (For example, if scheduling calls for 15 minutes per day, consider three cycles of 5 minutes with sufficient soaking time in between).
- Ponding at the soil surface is often caused by excessive run times, frequency, or leaks.
- During plant establishment, increase irrigation run times and frequency to ensure plant health and viability.
- Ensure the soil has been completely moistened prior to installing/laying sod.
- Run time frequency will change based on warmer or colder weather.

MOISTURE SENSING

- Install and use soil moisture sensor (Soil-Clik®) on or just above the mat to maximize water savings and reduce overwatering.

ROOT INTRUSION

- Roots can, and likely will, grow through the mat.
- The PET fleece defends against root intrusion into the emitters without injecting toxic chemicals or harmful metal byproducts into the soil.

MAINTENANCE

- Regularly check the Eco-Indicator to identify leaks or clogs in the system.
- Check any subsurface system on a regular schedule by viewing the health of the planted materials.
- Manually flush the system after repairs to the mat and dripline.
- Regularly clean the drip kit filter as required by the water source.

Need more helpful information on your product? Find tips on installation, controller programming, and more.

hunter.direct/ecomathelp

1-800-733-2823