

Toro Irrigation

KISSS

(Kapillary Irrigation Sub Surface Systems)

KISSS is the most advanced subsurface irrigation system presently available in the world and transforms the standard drip line from a static drip point to a continuous water source.

History

KISSS was developed over a 10 year period of research sponsored by Irrigation and Water Technologies (IWT), and conducted at the CSIRO, Charles Sturt University, The University of Western Sydney and the University of Queensland at Gatton.

How Does It Work?

Specialised geotextiles are used to spread water flowing from the dripline 'point source' emitters to saturate an entire geotextile sheath. Fluids travel through the geotextile 10,000 times faster than through most soils. Hence the entire surface of the geotextile acts as 'one huge emitter' to the surrounding soil media. This enables the system to deliver a far more uniform wetting front to the targeted root-zone.

Patented Difference

The KISSS patented technology optimises the efficiency of current sub-surface and other irrigation methods, with the use of specialised geotextiles, plastic tapes and films. The result has been the creation of an internationally patented product range that enables uniform and cost effective 'fluid dispersal', for a variety of applications.

Advantages

- Up to 75% more effective than sprinklers - an intelligent system: responsive to the moisture status of the surrounding soil by moving past very wet regions to thirsty soil. (up to 60% more water efficient than drip line).
- Quick inexpensive installation: minimum surface disturbance and immediate use of irrigated area.
- Distributes water up to 10,000 times faster through the soil: moves through the soil at a lower, even rate, with only 60 – 100 cm between lines.
- Reduces evaporation, pooling and weed growth: surface soil remains dry, has wider, even wetting patterns and eliminates both wind drift and overspray.
- Less damage & vandalism: is installed at approx 200mm below the ground and reduces risk of mechanical damage.
- Install on uneven ground: Compensating non-drain leakage drippers in the Wrap product prevents the contents of the line draining from the lowest point, therefore the line remains full.
- Reduced root intrusion into emitters: specialised geotextile evenly distributes water away from emitters.
- Better nutrient uptake by plant roots: encourages deeper, stronger drought resistant root growth.
- Physical damage to soils avoided: reduces salinity caused by surface irrigation
- Negligible health risk from inadequately treated waste water: free water does not appear on the surface. Natural biological processes in the soil reduce pathogen levels.
- Higher air content in soil in a transpiration area fed by KISSS: capillary action aerates pore spaces, inhibiting anaerobic conditions that damage plant roots and cause odours.
- Reduced precollation losses : increased lateral and upwards water movement.



Turf Line Marking Pre - Installation



KISSS Installation

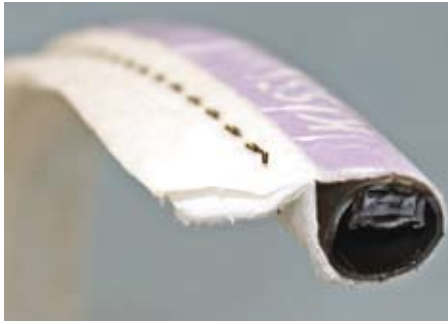


Turf Post - Installation

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Wrap

The KISSS WRAP system:

- Is 4cm in width.
- Designed for flexibility in undulating lawns and gardens.
- Installed at 60-80cm spacing, subject to soil type.
- Can be installed with narrow trenching or conventional pipe laying plough.



Flat

- Is 10cm in width.
- Best suited for flat areas to moderate slopes such as sports fields and large lawns.
- Installed at 60-100cm spacing subject to soil type in turf.
- Has a base layer of polyethylene designed to minimise the amount of water lost through downward drainage.
- Can be installed by trenching or specially designed plough.

Installation

Gardens:

The perfect product is the Wrap. This is installed 5-10cm below the surface then mulched over to ensure good moisture content in the soil. It is usually installed at 80cm spacing, dependent on soil type.

Lawns:

The Flat or Wrap can be used. Both products would be installed by a hand trencher or specialised implement which would cut through the ground and drag the system in leaving behind a small slit in the ground which is then closed over, filled in and rolled level. It is usually installed at 60-100cm spacing, dependent on the soil type.

Agriculture:

Both Flat and Wrap can be used with Rootguard to construct permanent sub-surface, efficient watering systems for most agricultural applications. Spacings vary according to crop and soil type. Soil test reports and professional designs are recommended; please contact your Toro Territory Manager.

Ordering Information:

Please refer to Toro Australia Irrigation division price list for extruded drip-line products and adapt for KISSS Flat and Wrap requirements.

Wetting Patterns



KISSS - Uniform wetting pattern. Elliptical wetting pattern along the entire length.



Conventional drip-line - wetting pattern.

Dealer Stamp

**For Customer Service Call
Toro Irrigation on 1300 130 898**

*Toro Irrigation is a business unit of Toro Australia Pty Ltd
53 Howards Road, Beverley, South Australia 5009*

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