Performance Specification Samples

TECHLINE™
SELF-CLEANING, PRESSURE COMPENSATING DRIPPERLINE

Description

Techline is a low volume dripperline with integral and evenly spaced pressure compensating drippers at specified intervals in three discharge rates (0.4, 0.6 & 0.9 gallons per hour [GPH]). Techline is available in 100', 250' and/or 1,000' coils. Techline Blank Tubing is available in 100', 250' and/or 1,000' coils.

Construction

Techline shall consist of nominal sized one-half inch (½") inch low-density linear polyethylene tubing with internal pressure compensating, continuously self-cleaning, integral drippers at a specified spacing, (12", 18", or 24" centers) or blank tubing without drippers. The tubing shall be brown in color and conform to an outside diameter (O.D.) of 0.67 inches and an inside diameter (I.D.) of 0.57 inches. Individual pressure compensating drippers shall be welded to the inside wall of the tubing as an integral part of the tubing assembly. These drippers shall be constructed of plastic with a hard plastic diaphragm retainer and a self-flushing/cleaning elastomer diaphragm extending the full length of the dripper.

Operation

The drippers shall have the ability to independently regulate discharge rates, with an inlet pressure of seven to seventy (7-70) pounds per square inch (PSI), at a constant flow and with a manufacturer's coefficient of variability (Cv) of 0.03. Recommended operating pressure shall be between 15-45 PSI. The dripper discharge rate shall be 0.4, 0.6, or 0.9 gallons per hour (GPH) utilizing a combination turbulent flow/reduced pressure compensation cell mechanism and a diaphragm to maintain uniform discharge rates. The drippers shall continuously clean themselves while in operation. The dripperline shall be available in 12", 18" and 24" spacing between drippers unless otherwise specified. Techline pipe depth shall be _____ unless otherwise specified. Maximum system pressure shall be 45 PSI. Filtration shall be 120 mesh or finer. Bending radius shall be 7".

For on-surface or under mulch installations, 6" metal wire staples (TLS6) shall be installed 3'-5' on center, and two staples installed at every change of direction.

Techline shall be Netafim Model Number TLDL -___-__-____. The Techline Blank Tubing shall be Netafim Model Number TLDL-0___.

Performance Specification Samples

TECHLITE™ 17mm
NON-PRESSURE COMPENSATING DRIPPERLINE

Description

Techlite 17mm is a low volume dripperline with integral and evenly spaced drippers at specified intervals in two nominal discharge rates (0.5 & 1.0 gallons per hour [GPH] @15 PSI.) Techlite 17mm dripperline is available in 100', 250' and/or 1,000' coils. Techlite 17mm Blank Tubing is available in 100', 250' and/ or 1,000' coils.

Construction

Techlite 17mm dripperline shall consist of nominal sized one-half inch (½") low-density linear polyethylene tubing with internal, integral non-pressure compensating drippers at a specified spacing (12" or 18" centers) or blank tubing without drippers. The tubing shall be brown in color and conform to an outside diameter (O.D.) of 0.67 inches and an inside diameter (I.D.) of 0.57 inches. Individual drippers shall be constructed of plastic and shall be welded to the inside wall of the tubing as an integral part of the tubing assembly.

Operation

The drippers shall have nominally rated flow rates at 15 pounds per square inch (PSI). Recommended operating pressure shall be between 12-45 PSI. The nominal dripper discharge rate shall be 0.5 or 1.0 gallons per hour (GPH) utilizing a turbulent flow path. The dripperline shall be available in 12" and 18" spacing between drippers unless otherwise specified. Techlite 17mm dripperline shall be installed on-surface or under mulch. Maximum system pressure shall be 45 PSI. Filtration shall be 120 mesh or finer. Bending radius shall be 7".

6" metal wire staples (TLS6) shall be installed 3'-5' on center, and two staples shall be installed at every change of direction.

Techlite 17mm dripperline shall be Netafim Model Number T17__-____. Techlite 17mm Blank Tubing shall be Netafim Model Number TLDL-0___.

Performance Specification Samples

TECHLINE and TECHLITE 17mm (0.57”) FITTINGS

Description

Techline and Techlite 17mm fittings shall be constructed in one of the following end configurations:

Barbed insert fittings only,
Male pipe threads (MPT) with barbed insert fittings, or
Female pipe threads (FPT) with barbed insert fittings.

Construction

All fittings shall be constructed of molded brown plastic having a nominal outside dimension (I.D.) of 17mm (0.57”). Female and male threaded ends shall be capable of mating to standard PVC pipe with tapered threads.

Operation

Techline and Techlite 17mm fittings shall be mated with Netafim Techline and/or Techlite 17mm dripperline by pushing the fitting into the tubing while twisting side to side until the tubing abuts to either adjoining tubing or a fitting stop.

Techline/Techlite 17mm fittings shall be Netafim model numbers TLTEE, TLCOUP, TL2W075MA, TLELL, TLCROS, TL050MA, TL075MA, & TL075FTEE.

Performance Specification Samples

TECHLITE™ 12mm
NON-PRESSURE COMPENSATING DRIPPERLINE

Description

Techlite 12mm is a low volume dripperline with integral and evenly spaced drippers at specified intervals in two nominal discharge rates (0.6 & 0.9 gallons per hour [GPH] @ 25PSI.) Techlite 12mm dripperline is available in 100', 250' and/or 1,000' coils. Techlite 12mm Blank Tubing shall be available in 100' and 2,000' coils.

Construction

Techlite 12mm dripperline shall consist of low-density linear polyethylene tubing with internal, integral non-pressure compensating drippers at a specified spacing (12" or 18" centers) or blank tubing without drippers. The tubing shall be brown in color and conform to an outside diameter (O.D.) of 0.48 inches and an inside diameter (I.D.) of 0.42 inches. Individual drippers shall be constructed of plastic and shall be welded to the inside wall of the tubing as an integral part of the tubing assembly.

Operation

The drippers shall have nominally rated flow rates at 25 pounds per square inch (PSI). Recommended operating pressure shall be between 12-30 PSI. The nominal dripper discharge rate shall be 0.6 or 0.9 gallons per hour (GPH) utilizing a turbulent flow path. The dripperline shall be available in 12" and 18" spacing between drippers unless otherwise specified. Techlite 12mm dripperline shall be installed on-surface or under mulch. Maximum system pressure shall be 30 PSI. Filtration shall be 120 mesh or finer. Bending radius shall be 4".

6" metal wire staples (TLS6) shall be installed 3'-5' on center, and two staples shall be installed at every change of direction.

Techlite 12mm dripperline shall be Netafim Model Number T12__-___. Techlite 12mm Blank Tubing shall be Netafim Model Number T1200-0__.

Performance Specification Samples

TECHLITE 12mm (0.42") FITTINGS

Description

Techlite 12mm fittings shall be constructed in one of the following end configurations:

Barbed insert fittings only,
Male pipe threads (MPT) with barbed insert fittings, or
Female pipe threads (FPT) with barbed insert fittings.

Construction

All fittings shall be constructed of molded black plastic having a nominal outside dimension (I.D.) of 12mm (0.42"). Female and male threaded ends shall be capable of mating to standard PVC pipe with tapered threads.

Operation

Techlite 12mm fittings shall be mated with Netafim Techlite 12mm dripperline by pushing the fitting into the tubing while twisting side to side until the tubing abuts to either adjoining tubing or a fitting stop.

Techlite 12mm fittings shall be Netafim model numbers MLTEE, MLCOUP, MLELL, ML050ELMA, ML075ELMA, ML050MTEE, ML075MTEE, ML050MA, ML075MA, and MLTLADP.

Performance Specification Samples

TECHLITE™ 8mm
NON-PRESSURE COMPENSATING DRIPPERLINE

Description

Techlite 8mm is a low volume dripperline with integral and evenly spaced drippers at specified intervals in one nominal discharge rate (0.25 gallons per hour [GPH] @ 10 PSI.) Techlite 8mm dripperline is available in 100' and/or 1,000' coils. Techlite 8mm Blank Tubing is available in 100' and 1,000' coils.

Construction

Techlite 8mm dripperline shall consist of low-density linear polyethylene tubing with internal, integral non-pressure compensating drippers at a specified spacing (6" or 12" centers) or blank tubing without drippers. The tubing shall be brown in color and conform to an outside diameter (O.D.) of 0.26 inches and an inside diameter (I.D.) of 0.24 inches. Individual drippers shall be constructed of plastic and shall be welded to the inside wall of the tubing as an integral part of the tubing assembly.

Operation

The drippers shall have a nominally rated flow rate of 0.25 GPH at 10 pounds per square inch (PSI). Recommended operating pressure shall be between 5-25 PSI. The nominal dripper discharge rate shall be 0.25 gallons per hour (GPH) utilizing a turbulent flow path. The dripperline shall be available in 6" and 12" spacing between drippers unless otherwise specified. Techlite 8mm dripperline shall be installed on-surface or under mulch. Maximum system pressure shall be 25 PSI. Filtration shall be 120 mesh or finer. Bending radius shall be 2".

6" metal wire staples (TLS6) shall be installed 3'-5' on center, and two staples shall be installed at every change of direction.

Techlite 8mm shall be Netafim Model Number T803-____. Techlite 8mm Blank Tubing shall be Netafim Model Number T800-0__.

Performance Specification Samples

TECHLITE 8mm (0.24") FITTINGS

Description

Techlite 8mm fittings shall be constructed in one of the following end configurations:

Barbed insert fittings only, or
Female pipe threads (FPT) with barbed insert fittings.

Construction

All fittings shall be constructed of molded black plastic having a nominal outside dimension (I.D.) of 8mm (0.24"). Female threaded ends shall be capable of mating to standard PVC pipe with tapered threads.

Operation

Techlite 8mm fittings shall be mated with Netafim Techlite 8mm dripperline by pushing the fitting into the tubing while twisting side to side until the tubing abuts to either adjoining tubing or a fitting stop.

Techlite 8mm fittings shall be Netafim model numbers SLTEE, SLCOUP, SL050FA, and SL050FTEE.

Performance Specification Samples

TECHFILTER®

Description

Techfilter is the incorporation of a disc filter and a chemical root intrusion preventer (trifluralin) with a required amount of Techline dripperline. Techfilter is available in 5 filter sizes, (3/4", 1", 1" Long, 1½" Long, and 2") 3 dripper flow rates, (0.4, 0.6, and 0.9 GPH) and a specific amount of Techline with each Techfilter ordered. The mesh rating is 120, and maximum system pressure is 140 PSI.

Construction

Filter: The filter shall be a multiple disc filter with trifluralin incorporated into the replaceable disk ring assembly inside the filter housing. The disc filter body shall be molded of black plastic with male pipe threads for both inlet and outlet. The disc filter shall be capable of periodic servicing and replacement of the chemically-treated disk ring set by unscrewing a threaded cap or unlatching the band.

Dripperline: The drippers shall have the ability to independently regulate discharge rates, with an inlet pressure of seven to seventy (7-70) pounds per square inch (PSI), at a constant flow and with a manufacturer's coefficient of variability (Cv) of 0.03. Recommended operating pressure shall be between 15-45 PSI. The dripper discharge rate shall be 0.4, 0.6, or 0.9 gallons per hour (GPH) utilizing a combination turbulent flow/reduced pressure compensation cell mechanism and a diaphragm to maintain uniform discharge rates. The drippers shall continuously clean themselves while in operation. The dripperline shall be available in 12", 18" and 24" spacing between drippers unless otherwise specified. Techline pipe depth shall be _____ unless otherwise specified. Maximum system pressure shall be 45 PSI.

Operation

When water passes through the filter, a very low concentration of trifluralin (parts per billion) is transmitted throughout the Techline piping network. This provides for precise and even distribution of trifluralin throughout the piping network and effectively inhibits root growth into the dripper outlets.

The trifluralin-treated filter ring set shall be replaced every two (2) years, or two hundred (200) hours of operation, whichever occurs first.

The Techfilter system shall be Netafim Model Number TLF_____-____.

Performance Specification Samples

LINE FLUSHING VALVE

Description

Line Flushing Valves are used to reduce sediment build-up in Techline/ Techlite and to pass sediment or debris that has not been captured by the disc filter.

Construction

The Line Flushing Valve shall be constructed of brown molded plastic with one of the following end configurations:

½" MPT
Insert inlet w/collar

Operation

The Line Flushing Valve shall operate at the beginning of the irrigation cycle as the system begins to pressurize, and flush approximately one gallon of water at 57 PSI maximum, or 1.5 PSI minimum. ***Note:*** Permanent damage could occur to the Line Flushing Valve if incoming pressure exceeds 57 PSI. Netafim Pressure Regulators are recommended even with pressure regulating remote control valves, since these valves tend to allow full line pressure for a brief period of time before pressure regulation occurs.

Line Flushing Valves are to be installed below grade, as detailed, in a valve box to allow for periodic inspection and are to be installed in one of two ways:

- Vertically: Dome portion facing upward, installed on a 90 degree elbow.
- Horizontally: Dome portion facing sideways.

One (1) Line Flushing Valve shall be installed for every fifteen (15) GPM of zone flow, and shall be installed at a point as far away from the source (typically on an exhaust header) as possible.

The Line Flushing Valve shall be Netafim Model Number TL_____.

Performance Specification Samples

AIR/VACUUM RELIEF VALVE

Description

The Air/Vacuum Relief Valve serves two purposes:

- To evacuate air from the Techline laterals during system start-up and,
- To prevent a vacuum from occurring after the remote control valve has closed, thus avoiding debris intrusion into the drippers.

Construction

The Air/Vacuum Relief Valve shall be constructed of black and/or grey plastic with a ½" male pipe thread capable of mating with a threaded PVC reduction bushing or ½" FPT fitting.

Operation

Subsurface Techline design and installation techniques require that air/vacuum relief valves be installed at the highest elevation in each zone (some zones may require more than one) in order to expel air and relieve vacuum. In a zone where the highest elevation occurs between the intake and exhaust headers (such as a mound or berm), an air/vacuum relief lateral shall interconnect the Techline dripperlines to avoid the necessity of installing one air/vacuum relief valve on each Techline lateral. Air/vacuum relief valves can be installed below grade in valve boxes to allow for periodic inspection.

The Air/Vacuum Relief Valve shall be Netafim Model Number TLAVRV.

Performance Specification Samples

PRESSURE REGULATOR

Description

The purpose of the Pressure Regulator is to control downstream pressure at or below the specified system operating pressure. Unregulated pressures in excess of the recommended operating ranges can diminish and disable line flushing valves or cause the integrity of the Techline/Techlite fittings connection to weaken and/or fail.

Construction

The Pressure Regulator shall be a Netafim spring-operated piston-type regulator with an externally accessible regulation unit that can be serviced without removing the valve body from the piping. The body shall be molded of black plastic with a combination of male/female pipe threaded inlet and outlet. Removable and interchangeable springs shall be color-coded to denote varying pressure ranges.

Operation

The Pressure Regulator shall have a built-in indicator that indicates when it is operating. It shall be able to respond immediately to any inlet pressure variation. The regulator shall be capable of regulating 15 PSI, 20 PSI, 25 PSI, 35 PSI, or 45 PSI in its ¾" "HF" and 1½" configurations. It shall be capable of regulating 15 PSI or 20 PSI in its ¾" "LF" configuration.

The Pressure Regulator shall be a Netafim Model Number PRV _____.

Performance Specification Samples

DISC FILTER

Description

The purpose of the Disc Filter is to capture and retain water-transported debris or sediments that could reduce the efficiency of the Techline/Techlite drippers.

Construction

The filter shall be a multiple disc filter with color-coded filter elements indicating the mesh size of the element being used. The discs shall be constructed of chemical-resistant thermoplastic for corrosion resistance.

The disc filter body shall be molded of black plastic with male pipe threads for both inlet and outlet. The disc filter shall be capable of periodic servicing by unscrewing a threaded cap or unlatching the band. The ¾" DFV model shall have an integral manual shut-off valve.

Disc filter ring color-coding shall be: Yellow (80 Mesh), Red (120 Mesh), Black (140 Mesh), or Green (200 Mesh).

Operation

Installation of the Disc Filter shall be as detailed. Disc filters can be installed downstream of the remote control valve to allow for periodic servicing when the remote control valve is not operating. It can be installed upstream of the remote control valve if the disc filter is specified with manual shut-off valve or when a line size shut-off valve is also specified to allow for periodic servicing with a pressurized main line. Recommended installation of disc filters shall be below grade positioned in a valve box large enough to remove the disk filter cap and internal disc element. A gravel sump in the bottom of the valve box is recommended to drain water during periodic maintenance.

The Disc Filter shall be a Netafim Model Number DF _____.

Performance Specification Samples

DRIPPER PLUG RING

Description

The Netafim Dripper Plug Ring is a pre-formed plastic ring with a rounded inside plug that can be used to plug a Techline/Techlite 17mm dripper outlet.

Construction

The Dripper Plug Ring shall be constructed of black molded plastic of a diameter slightly larger than the outside diameter of the Techline/Techlite 17mm tubing. The circular design is open on one end to enable it to be slipped over the tubing. Within the interior of this ring (opposite the open end) is a rounded plug made to press-fit into the water outlet of the dripper to prevent water emission.

Operation

Slip the Dripper Plug Ring over the Techline tubing and push the plug into the tubing outlet hole until it seats securely in the hole.

The Dripper Plug Ring shall be Netafim Model Number TLDPLUG.

Performance Specification Samples

DRIPPER MICRO-TUBING ADAPTER

Description

The Netafim Dripper Micro-Tubing Adapter is a pre-formed plastic saddle with a micro-tubing adapter outlet that can be attached over a Techline/Techlite 17mm dripper outlet. This allows for water to be moved via micro-tubing to a specific area away from the dripperline location.

Construction

The Dripper Micro-Tubing Adapter shall be constructed of black molded plastic and shall have the ability to be tightened over the Techline/Techlite 17mm dripper outlet hole. It shall have an outlet fitting capable of accepting 0.160" x 0.220" micro-tubing.

Operation

The Dripper Micro-Tubing Adapter shall fit over the Techline/Techlite 17mm dripper outlet hole and be squeezed until the fitting is securely attached to the tubing. Insert 0.160" x 0.220" micro-tubing onto the outlet end of the fitting and place the micro-tubing adjacent to the area to be irrigated.

The Dripper Micro-Tubing Adapter shall be Netafim Model Number TLMTUBEADP.

Performance Specification Samples

STAINLESS STEEL CLAMPS
(for operating pressures in excess of recommendations)

Description
Stainless steel clamps are used to secure Techline/Techlite to barbed insert fittings. Clamps shall be manufactured by "Oetiker" and shall be one "ear" type. Nominal size that is recommended for use with Techline/Techlite 17mm is 13/16", Part No. 210SS.

Construction
Oetiker clamps shall be constructed of 304 AISI stainless steel. Clamps shall be one "ear" type and formed with a "dimple", allowing for thermal expansion and contraction properties without loosening the clamp.

Interior clamp wall shall be smooth to prevent crimping or pinching of tubing. Wall thickness of clamps shall be .0236" (0.6 mm) with an overall band width of ¼" (7 mm).

Operation
Stainless steel clamps are used to secure Techline over barbed insert fittings when design-operating pressures exceed 45 PSI. Clamps are to be slipped over the tubing before being fitted to barbed insert fittings. Place the clamp between the first and second ridge of the barbed insert fittings. Crimp the "ear" of the clamp tightly with an Oetiker pincer tool. Crimp twice to ensure proper seating.

Performance Specification Samples

MOPC –
MULTIPLE OUTLET, PRESSURE COMPENSATED DRIPPER MANIFOLD

Description
MOPC is a low volume, six outlet drip manifold in three discharge rates (0.5, 1.0 & 2.0 GPH per dripper.) It is available with either a ½" MPT outlet top (including a threaded cap) to accommodate connections of two or more dripper manifolds, or in a non-stackable version. Both versions come with a ½" FPT inlet base.

Construction
MOPC shall consist of 6 pressure-compensating, continuous self-flushing drippers permanently installed in a thermoplastic housing. The MOPC housing shall be brown in color, and have a ½" FPT inlet base. The top of the MOPC housing shall have either a ½" MPT threaded top with cap for stacking additional MOPC's, or a flat, non-stackable top. Individual drippers shall be constructed of plastic, and utilize a pressure differential mechanism with EPDM diaphragms that continually regulate each dripper's flow rate. Drippers shall be mounted horizontally into the manifold to provide a low profile for on-surface installations. Individual drippers shall be color-coded within the MOPC body (Red - 0.5 GPH, Grey - 1.0 GPH, or Green - 2.0 GPH), and be designed to be closed off by inserting plastic shutoff pins into the barbed outlet to block unneeded outlet(s). The shut-off pins shall be able to be removed and reinserted into the drippers without damage or modification to either component. Manifold body shall have a built-in secondary filter. Barbed outlets shall accept 0.160" x 0.220" micro-tubing to supply water to specific areas. MOPCS shall have the ability to have additional MOPC or MOPCS units installed on top, or any other device that has a ½" FPT base and does not have a flow rate in excess of 4½ GPM.

Operation
The MOPC shall have the ability to regulate discharge rates with an inlet pressure of seven to sixty pounds per square inch, (7 - 60 PSI) at a constant flow and with a manufacturer's coefficient of variability (Cv) of 0.03. Recommended operating pressure shall be 10 - 40 PSI. The individual dripper discharge rates shall have nominal flow rates of 0.5 GPH (gallons per hour) 1.0 GPH or 2.0 GPH utilizing a combination turbulent flow/reduced pressure compensation cell mechanism and a diaphragm to maintain uniform discharge rates. The drippers shall continuously clean themselves while in operation. The drippers shall have a built-in 1.5 PSI check valve. The MOPC shall be installed above grade, at grade, or below grade. Filtration shall be 120 mesh or finer.

MOPC shall be Netafim Model Number MOPC____.