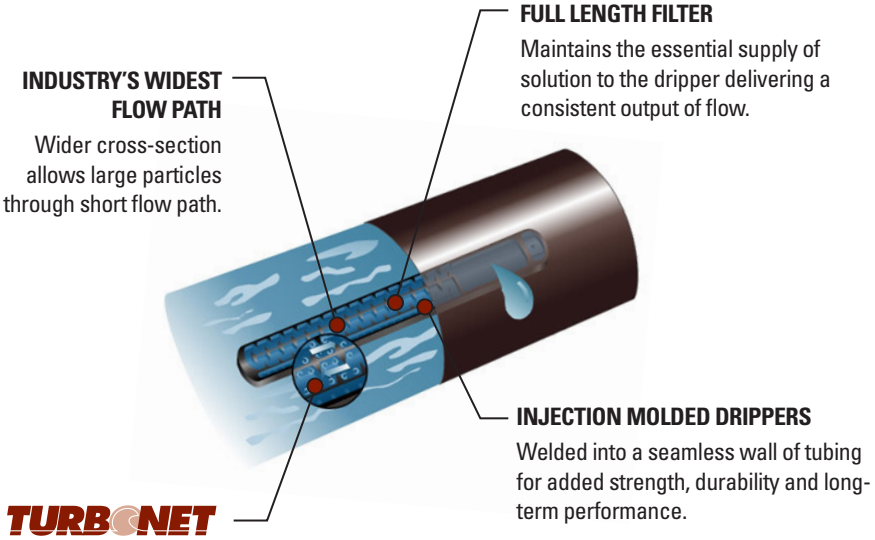
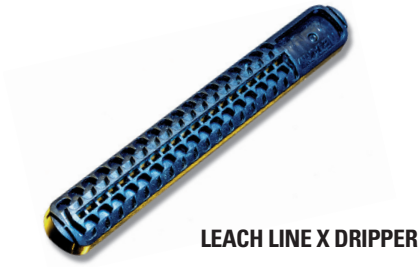
MINING DIVISION

LEACH LINE X™ DRIPLINE

NON-PRESSURE COMPENSATING FOR HEAP LEACHING IN MINES





LEACH LINE X DRIPPER

TURBONET

INCREASED FLOW PATH VELOCITY

Some turbulent flow drippers have overlapping tooth patterns and laminar flow passages that can easily catch debris.

Turbonet Technology improves dripper performance by widening the tooth pattern, maximizing flow path velocity, allowing contaminants to pass easily through the dripper, while keeping the flow path very short, virtually eliminating plugging.

FEATURES & BENEFITS

- Industry's widest and shortest dripper flow path:
  - Patented TurboNet™ technology allows for a wide labyrinth cross-section while keeping the labyrinth very short - these features are critical for the proper performance of a dripper
  - No laminar flow chambers in the dripper's flow path that can encourage clogging
- Specially-designed filter and its location away from the wall of the tubing allow for reduced filter-slot width and long-term operation. Dripper performs properly even if 90% of the filter is plugged.
- Constructed of durable polyethylene - UV and acid resistant.
- Five dripper flow rates - provides the broadest range of flow rates available.
- Lowest coefficient of manufacturing variability (Cv) in the industry: < 0.03.
- No special storage requirements - does not degrade if stored outdoors.

APPLICATIONS

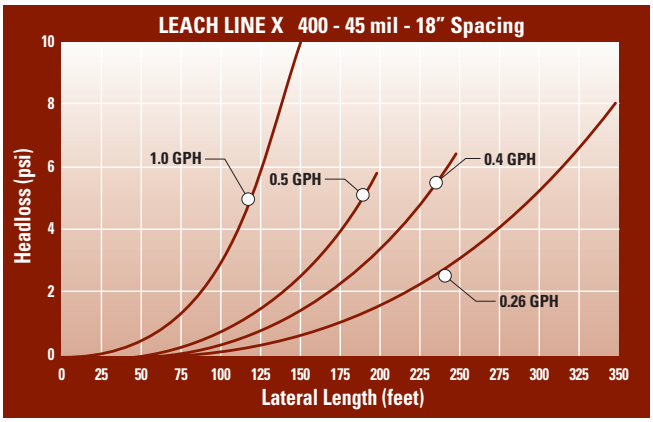
- On-surface or subsurface installations
- Heap leach applications
- Flat terrain or slopes
- Reclamation projects

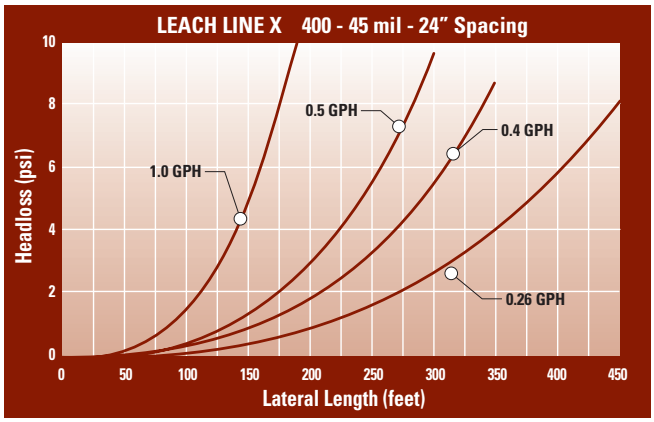
SPECIFICATIONS

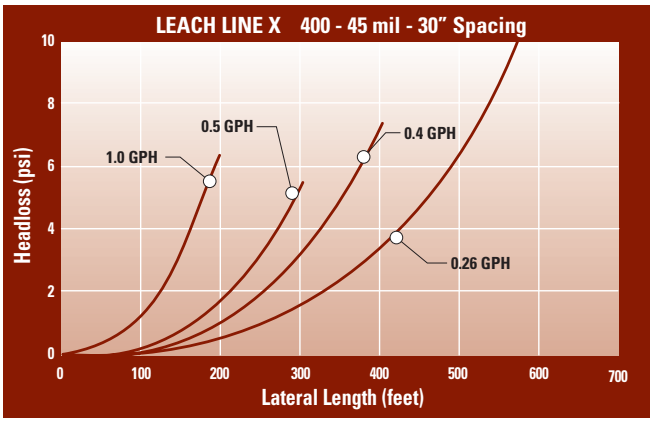
- pH range: 1.5 - 14
- Inside diameter and wall thicknesses:
  (12mm) 40 mil
  (16mm) 35 mil, 40 mil & 45 mil
  (18mm) 25 mil, 35 mil & 45 mil
  (20mm) 45 mil & 48 mil
- Nominal flow rates (GPH): 0.26, 0.4, 0.5, 1.0, 2.0
- Common spacings: 18", 24", 30", 36", 42", 48", 60" (additional spacings available)
- Maximum operating pressure: 45 psi
- Recommended filtration: 120 mesh

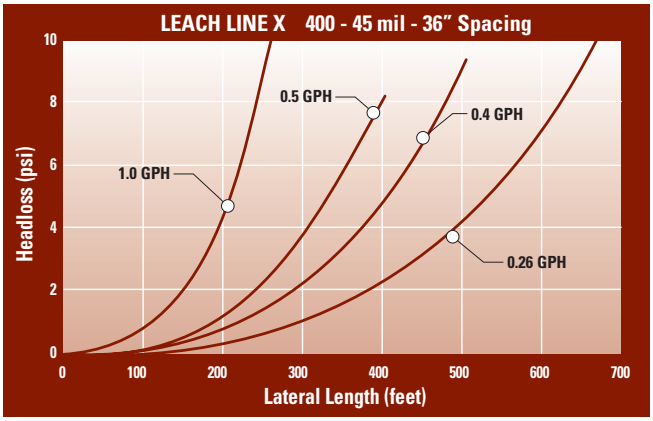
LEACH LINE X™ PRODUCT SELECTION GUIDE

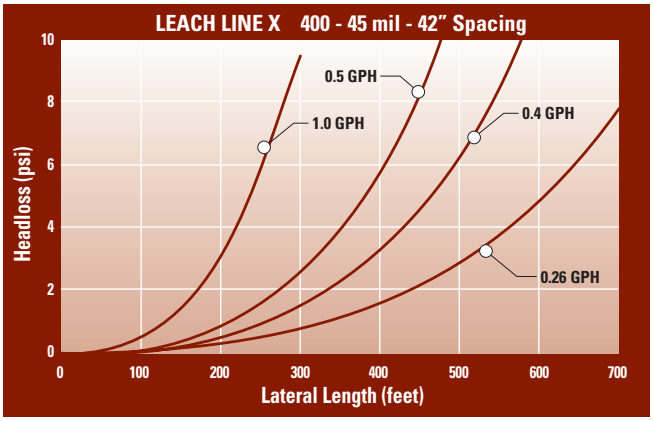
12mm HEADLOSS AND LATERAL LENGTH

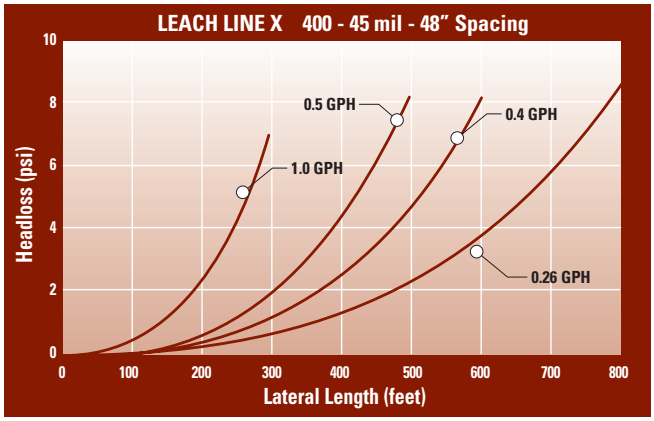


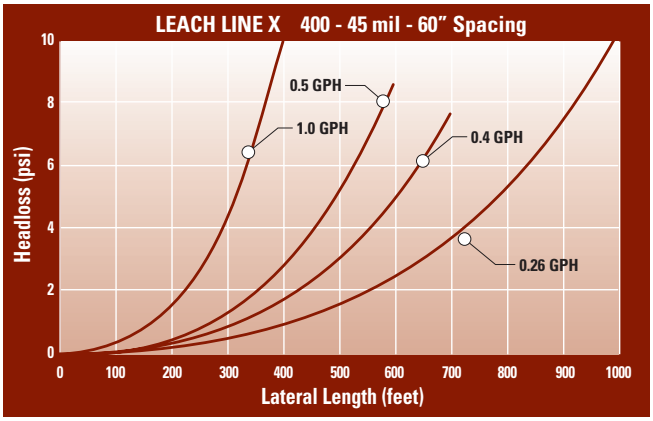












12mm friction factor Kd = 0.75

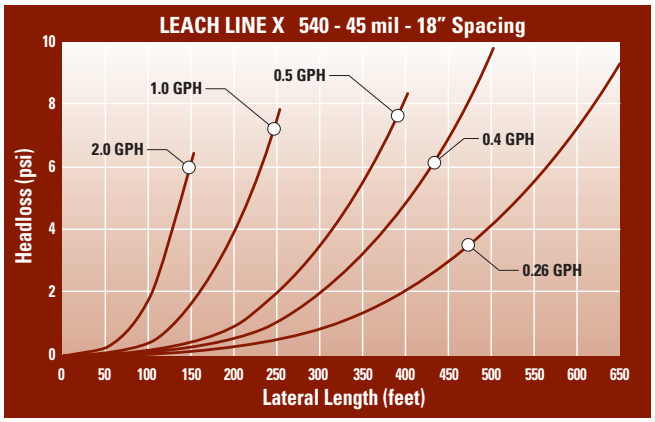
CALCULATE LATERAL LENGTH INLET PRESSURE

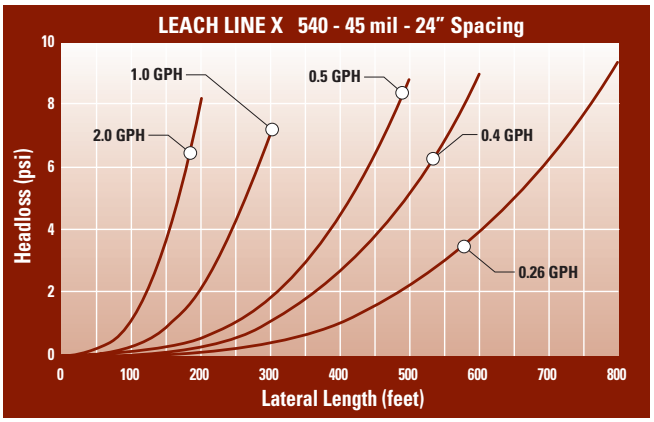
Line End Pressure* (10 psi)
+ Pressure Loss (derived from charts)
= Inlet Pressure
*Minimum pressure at lateral length end = 10 psi.

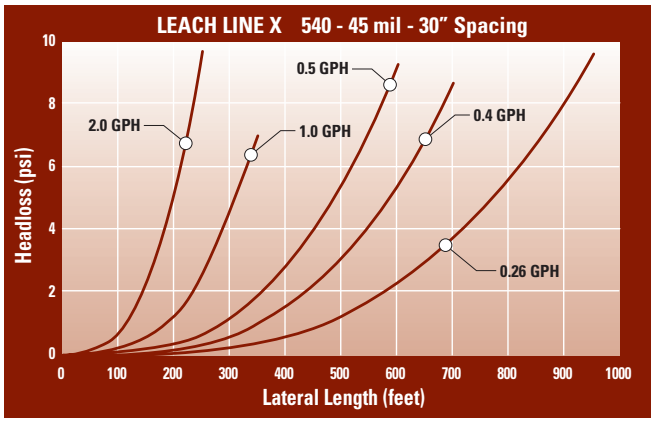
Example: Leach Line X 0.540" 10 psi (end pressure)
550' Run + 3.5 psi (from graph)
0.26 GPH = 13.5 psi
24" Spacing

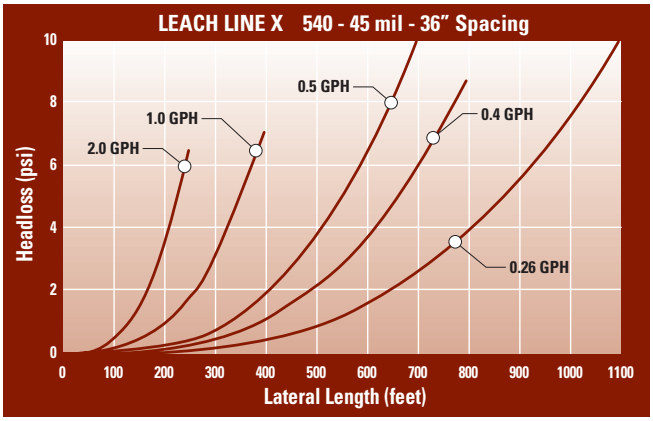
LEACH LINE X™ PRODUCT SELECTION GUIDE

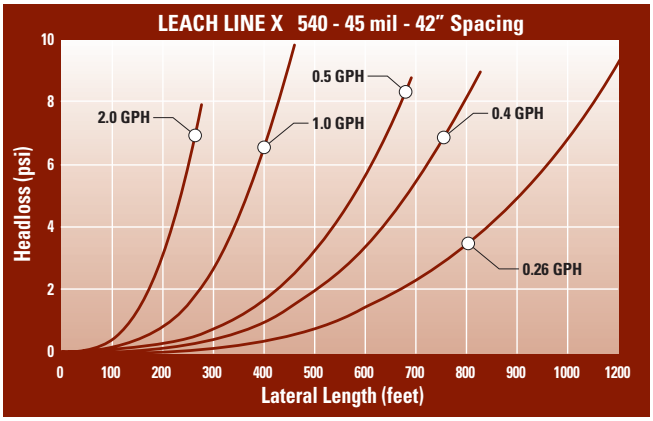
16mm HEADLOSS AND LATERAL LENGTH

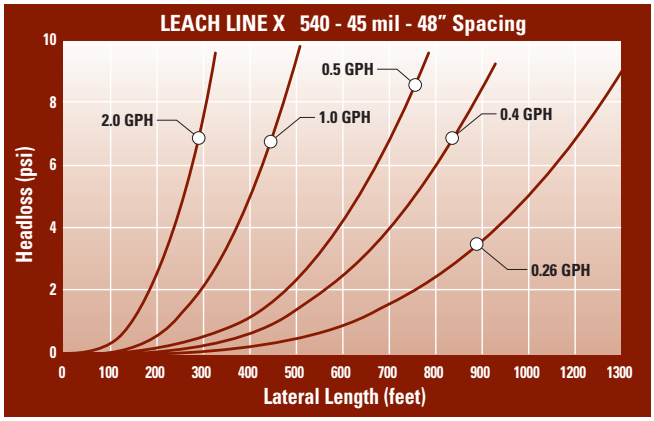


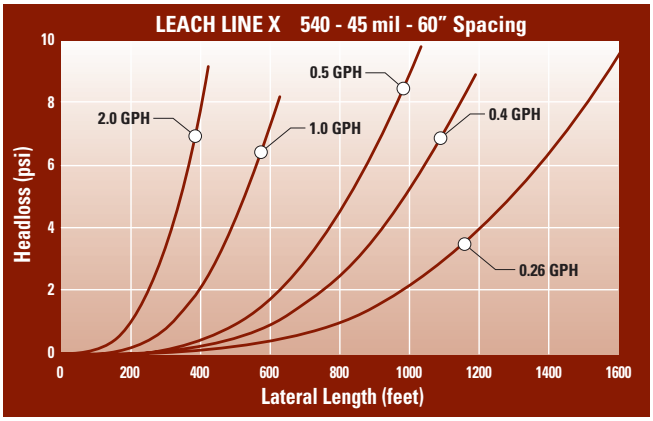








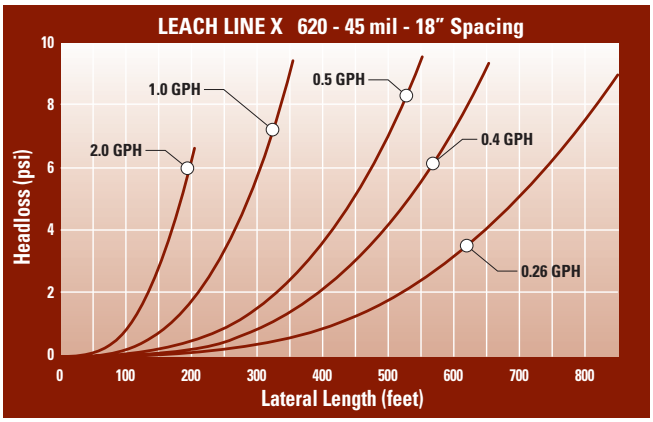


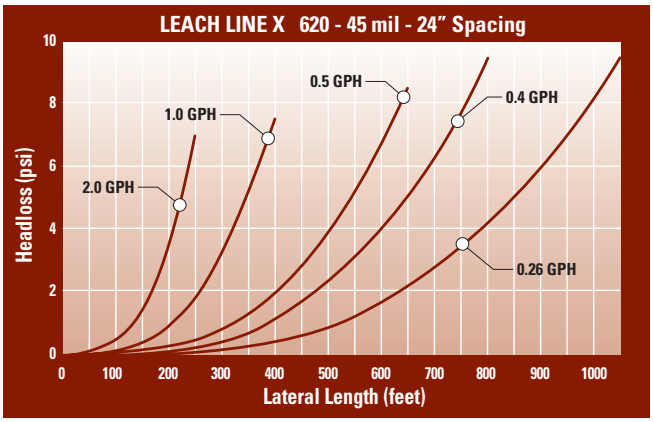


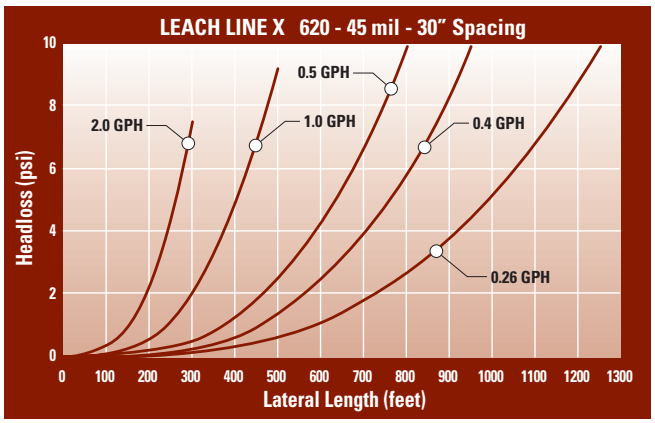
16mm friction factor Kd = 0.45

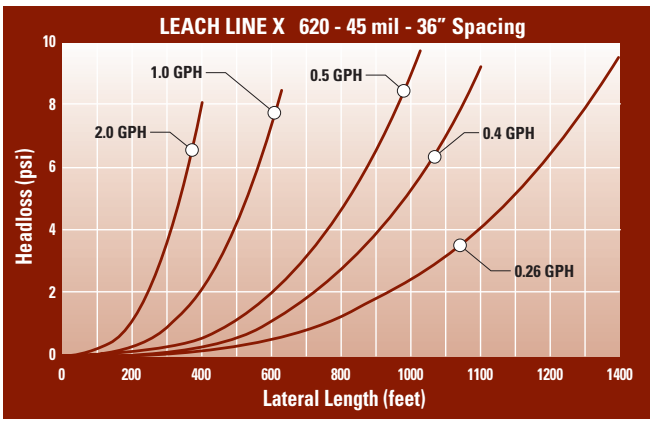
LEACH LINE X™ PRODUCT SELECTION GUIDE

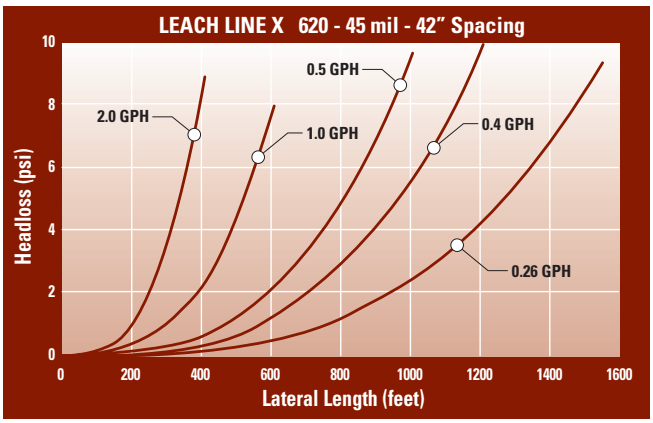
18mm HEADLOSS AND LATERAL LENGTH

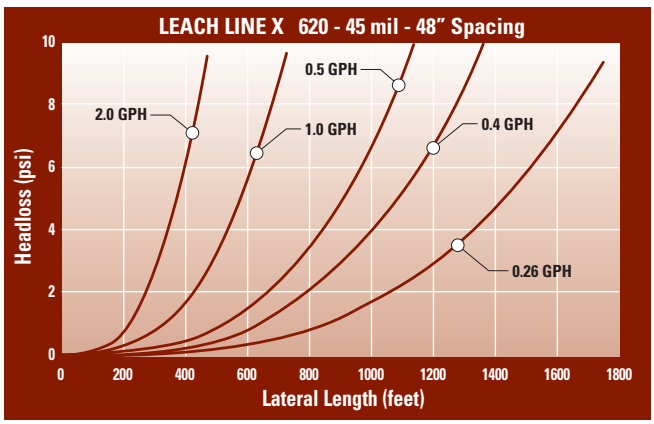


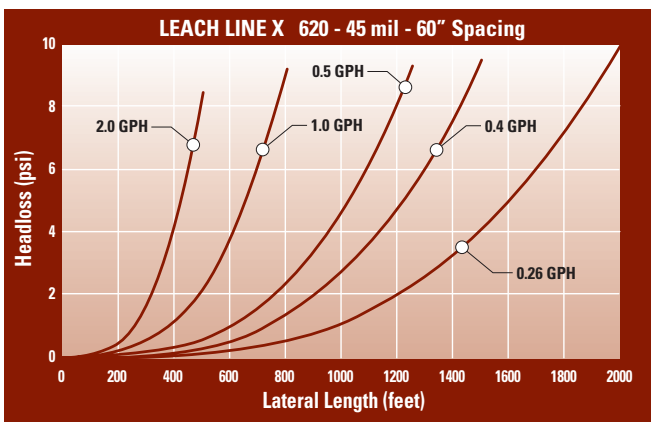








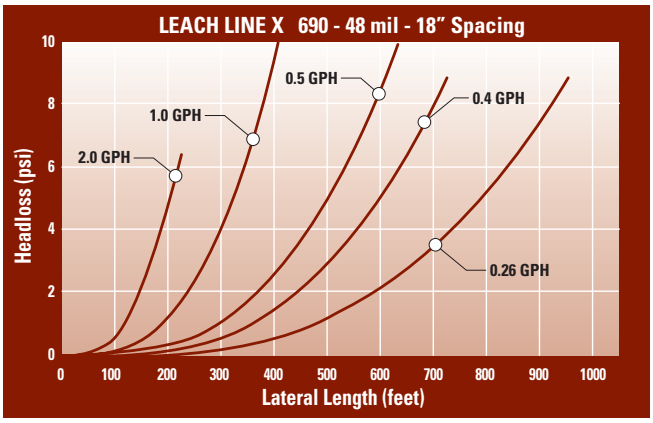


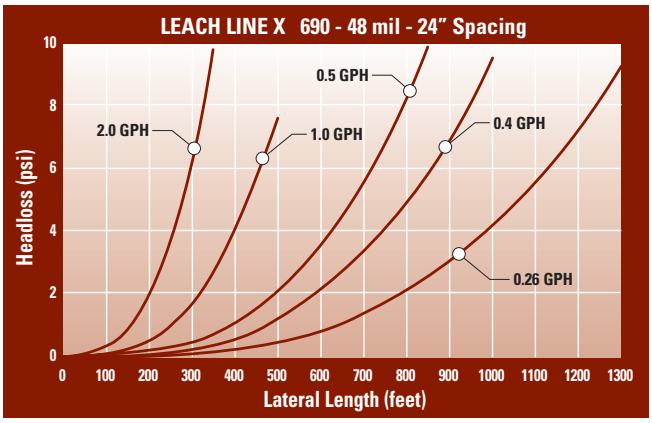


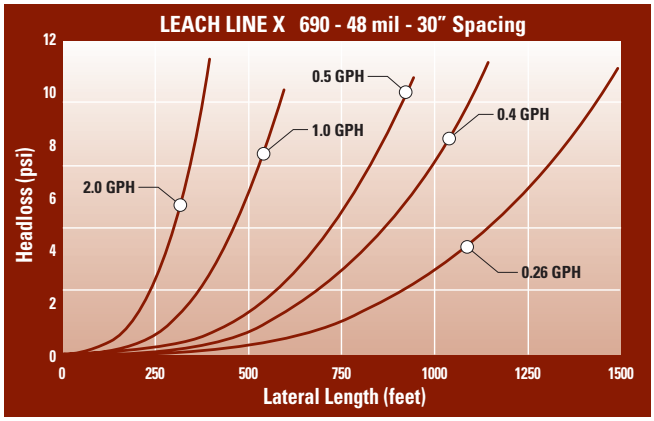
18mm friction factor Kd = 0.25

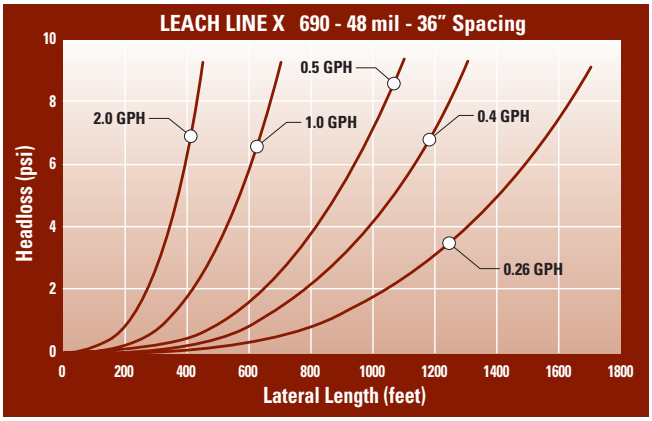
LEACH LINE X™ PRODUCT SELECTION GUIDE

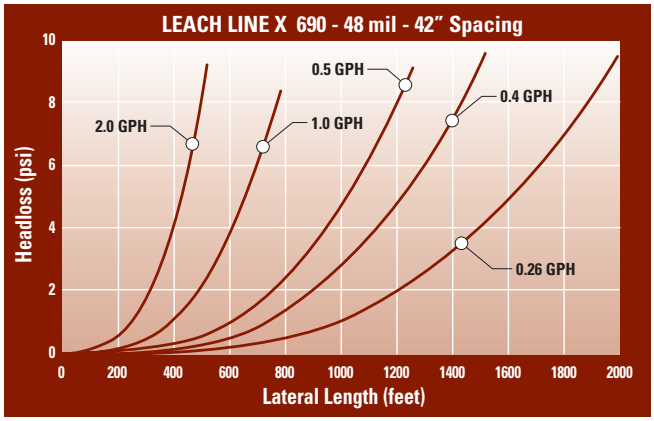
20mm HEADLOSS AND LATERAL LENGTH

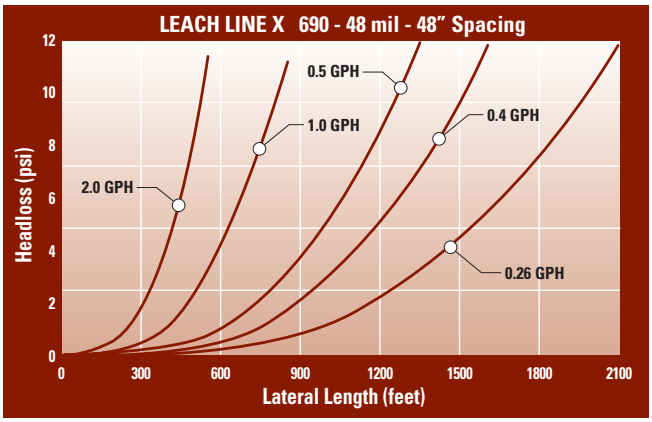


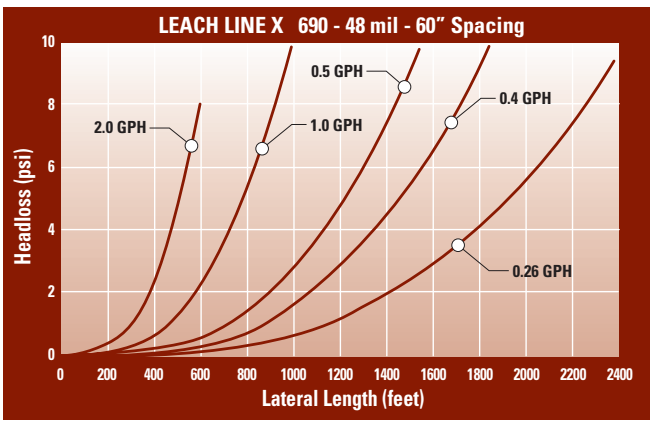












20mm friction factor Kd = 0.10

LEACH LINE X™ PRODUCT APPLICATION RATE

APPLICATION RATE IN GALLONS PER MINUTE PER SQUARE FOOT

LEACH LINE X 0.26 GPH

Pressure (psi)	Flow (GPH)	Emitter Spacing	SPACING BETWEEN DRIP LINES				
			18	24	30	36	42
10	0.24	12″	0.0027	0.0020	0.0016	0.0013	0.0011
	0.24	16″	0.0020	0.0015	0.0012	0.0010	0.0009
	0.24	18″	0.0016	0.0012	0.0010	0.0008	0.0007
	0.24	24″	0.0013	0.0010	0.0008	0.0007	0.0006
	0.24	30″	0.0011	0.0009	0.0007	0.0006	0.0005
	0.24	36″	0.0010	0.0008	0.0006	0.0005	0.0004
15	0.28	12″	0.0032	0.0024	0.0019	0.0016	0.0014
	0.28	16″	0.0024	0.0018	0.0015	0.0012	0.0010
	0.28	18″	0.0019	0.0015	0.0012	0.0010	0.0008
	0.28	24″	0.0016	0.0012	0.0010	0.0008	0.0007
	0.28	30″	0.0014	0.0010	0.0008	0.0007	0.0006
	0.28	36″	0.0012	0.0009	0.0007	0.0006	0.0005
20	0.32	12″	0.0037	0.0028	0.0022	0.0018	0.0016
	0.32	16″	0.0028	0.0021	0.0017	0.0014	0.0012
	0.32	18″	0.0022	0.0017	0.0013	0.0011	0.0009
	0.32	24″	0.0018	0.0014	0.0011	0.0009	0.0008
	0.32	30″	0.0016	0.0012	0.0009	0.0008	0.0007
	0.32	36″	0.0014	0.0010	0.0008	0.0007	0.0006

LEACH LINE X 0.4 GPH

Pressure (psi)	Flow (GPH)	Emitter Spacing	SPACING BETWEEN DRIP LINES				
			18	24	30	36	42
10	0.36	12″	0.0040	0.0030	0.0024	0.0020	0.0017
	0.36	16″	0.0030	0.0022	0.0018	0.0015	0.0013
	0.36	18″	0.0027	0.0020	0.0016	0.0013	0.0011
	0.36	24″	0.0020	0.0015	0.0012	0.0010	0.0009
	0.36	30″	0.0016	0.0012	0.0010	0.0008	0.0007
	0.36	36″	0.0013	0.0010	0.0008	0.0007	0.0006
15	0.43	12″	0.0048	0.0036	0.0029	0.0024	0.0021
	0.43	16″	0.0036	0.0027	0.0022	0.0018	0.0015
	0.43	18″	0.0032	0.0024	0.0019	0.0016	0.0014
	0.43	24″	0.0024	0.0018	0.0014	0.0012	0.0010
	0.43	30″	0.0019	0.0014	0.0012	0.0010	0.0008
	0.43	36″	0.0016	0.0012	0.0010	0.0008	0.0007
20	0.50	12″	0.0055	0.0041	0.0033	0.0028	0.0024
	0.50	16″	0.0041	0.0031	0.0025	0.0021	0.0018
	0.50	18″	0.0037	0.0028	0.0022	0.0018	0.0016
	0.50	24″	0.0028	0.0021	0.0017	0.0014	0.0012
	0.50	30″	0.0022	0.0017	0.0013	0.0011	0.0009
	0.50	36″	0.0018	0.0014	0.0011	0.0009	0.0008

LEACH LINE X 0.5 GPH

Pressure (psi)	Flow (GPH)	Emitter Spacing	SPACING BETWEEN DRIP LINES				
			18	24	30	36	42
10	0.47	12″	0.0052	0.0039	0.0031	0.0026	0.0022
	0.47	16″	0.0039	0.0030	0.0024	0.0020	0.0017
	0.47	18″	0.0035	0.0026	0.0021	0.0017	0.0015
	0.47	24″	0.0026	0.0020	0.0016	0.0013	0.0011
	0.47	30″	0.0021	0.0016	0.0013	0.0010	0.0009
	0.47	36″	0.0017	0.0013	0.0010	0.0009	0.0007
15	0.57	12″	0.0063	0.0047	0.0038	0.0032	0.0027
	0.57	16″	0.0047	0.0036	0.0028	0.0024	0.0020
	0.57	18″	0.0042	0.0032	0.0025	0.0021	0.0018
	0.57	24″	0.0032	0.0024	0.0019	0.0016	0.0014
	0.57	30″	0.0025	0.0019	0.0015	0.0013	0.0011
	0.57	36″	0.0021	0.0016	0.0013	0.0011	0.0009
20	0.65	12″	0.0072	0.0054	0.0043	0.0036	0.0031
	0.65	16″	0.0054	0.0041	0.0032	0.0027	0.0023
	0.65	18″	0.0048	0.0036	0.0029	0.0024	0.0021
	0.65	24″	0.0036	0.0027	0.0022	0.0018	0.0015
	0.65	30″	0.0029	0.0022	0.0017	0.0014	0.0012
	0.65	36″	0.0024	0.0018	0.0014	0.0012	0.0010

LEACH LINE X 1.0 GPH

Pressure (psi)	Flow (GPH)	Emitter Spacing	SPACING BETWEEN DRIP LINES				
			18	24	30	36	42
10	0.94	12″	0.0105	0.0079	0.0063	0.0052	0.0045
	0.94	16″	0.0079	0.0059	0.0047	0.0039	0.0034
	0.94	18″	0.0070	0.0052	0.0042	0.0035	0.0030
	0.94	24″	0.0052	0.0039	0.0031	0.0026	0.0022
	0.94	30″	0.0042	0.0031	0.0025	0.0021	0.0018
	0.94	36″	0.0035	0.0026	0.0021	0.0017	0.0015
15	1.14	12″	0.0126	0.0095	0.0076	0.0063	0.0054
	1.14	16″	0.0095	0.0071	0.0057	0.0047	0.0041
	1.14	18″	0.0084	0.0063	0.0051	0.0042	0.0036
	1.14	24″	0.0063	0.0047	0.0038	0.0032	0.0027
	1.14	30″	0.0051	0.0038	0.0030	0.0025	0.0022
	1.14	36″	0.0042	0.0032	0.0025	0.0021	0.0018
20	1.30	12″	0.0144	0.0108	0.0087	0.0072	0.0062
	1.30	16″	0.0108	0.0081	0.0065	0.0054	0.0046
	1.30	18″	0.0096	0.0072	0.0058	0.0048	0.0041
	1.30	24″	0.0072	0.0054	0.0043	0.0036	0.0031
	1.30	30″	0.0058	0.0043	0.0035	0.0029	0.0025
	1.30	36″	0.0048	0.0036	0.0029	0.0024	0.0021

LEACH LINE X 2.0 GPH

Pressure (psi)	Flow (GPH)	Emitter Spacing	SPACING BETWEEN DRIP LINES				
			18	24	30	36	42
10	1.89	18″	0.0140	0.0105	0.0084	0.0070	0.0060
	1.89	24″	0.0105	0.0079	0.0063	0.0052	0.0045
	1.89	30″	0.0084	0.0063	0.0050	0.0042	0.0036
	1.89	36″	0.0070	0.0052	0.0042	0.0035	0.0030
	1.89	42″	0.0060	0.0045	0.0036	0.0030	0.0026
	1.89	48″	0.0052	0.0039	0.0031	0.0026	0.0022
15	2.28	18″	0.0169	0.0126	0.0101	0.0084	0.0072
	2.28	24″	0.0126	0.0095	0.0076	0.0063	0.0054
	2.28	30″	0.0101	0.0076	0.0061	0.0051	0.0043
	2.28	36″	0.0084	0.0063	0.0051	0.0042	0.0036
	2.28	42″	0.0072	0.0054	0.0043	0.0036	0.0031
	2.28	48″	0.0063	0.0047	0.0038	0.0032	0.0027
20	2.60	18″	0.0192	0.0144	0.0115	0.0096	0.0082
	2.60	24″	0.0144	0.0108	0.0087	0.0072	0.0062
	2.60	30″	0.0115	0.0087	0.0069	0.0058	0.0049
	2.60	36″	0.0096	0.0072	**0.0058**	0.0048	0.0041
	2.60	42″	0.0082	0.0062	0.0049	0.0041	0.0035
	2.60	48″	0.0072	0.0054	0.0043	0.0036	0.0031

FORMULA

Application Rate (GPM/ft²) =

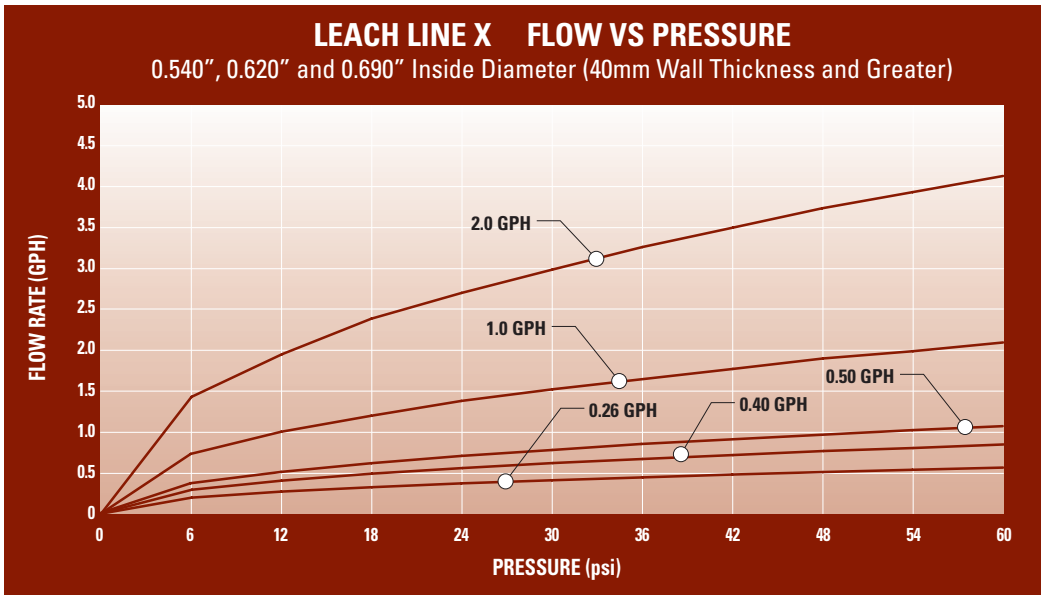
$$\frac{\text{Q (Emitter GPH) x 2.4}}{\text{Distance Between Emitters (inches) x Distance Between Lines (inches)}}$$

EXAMPLE

Leach Line X 2 GPH emitters, 20 psi, 30″ between lines, and 36″ between emitters. Example is highlighted in chart to the left.

$$\text{Application Rate} = \frac{2.6 \times 2.4}{30 \times 36} = 0.00578 \text{ GPM/ft}^2$$

LEACH LINE X™ TECHNICAL DATA



DRIPPER DATA / Less Than 45 mil Wall Thickness

DRIPPER GPH	EXPONENT (X)	CONSTANT (K)	RECOMMENDED FILTER
0.26	0.46	0.0779	120
0.4	0.46	0.117	120
0.5	0.46	0.158	120
1.0	0.46	0.312	120
2.0	0.46	0.624	120

DRIPPER DATA / 45 mil Wall Thickness and Greater

DRIPPER GPH	EXPONENT (X)	CONSTANT (K)	RECOMMENDED FILTER
0.26	0.46	0.0817	120
0.4	0.46	0.125	120
0.5	0.46	0.164	120
1.0	0.46	0.327	120
2.0	0.46	0.655	120

PACKAGING INFORMATION

I.D.	WALL THICKNESS	REEL LENGTH	WEIGHT
0.400"	40 mil	2,000 ft	37 lbs
0.540"	35 mil	1,000 ft	27 lbs
0.540"	45 mil	1,000 ft	35 lbs
0.610"	25 mil	2,500 ft	45 lbs
0.620"	35 mil	1,000 ft	30 lbs
0.620"	45 mil	1,000 ft	39 lbs
0.690"	45 mil	1,000 ft	44 lbs
0.690"	48 mil	1,000 ft	47 lbs

20 coils per pallet.

LEACH LINE X™ WITH
FACTORY-INSTALLED CLIPS

ANTI-MIGRATION DRIP LINE CLIP
PRE-INSTALLED LEACH LINE RING

- Prevents solution migration on uneven surfaces and slopes
- Economical - saves labor costs
- Available for 0.540", 0.620" and 0.690" I.D.
- Pre-installed at Netafim USA

LEACH LINE X™ FITTINGS

12MM DRIPPERLINE FITTINGS

ITEM NUMBER	MODEL NUMBER	DESCRIPTION
32500-002250	-	12mm Insert Coupling
32500-002360	-	12mm Barb x 1/2" TH Connector
32500-002380	-	12mm Barb x 3/4" TH Connector

INSERT COUPLING

TWIST-LOCK COUPLING

16MM DRIPPERLINE FITTINGS

ITEM NUMBER	MODEL NUMBER	DESCRIPTION
32500-010680	M16MMIC-PBT	16mm Insert Coupling
00115-001875	M3410.0160-B	16mm Twist-Lock Coupling
00115-001880	MTH5TH50	16mm Barb x 1/2" TH Male Adapter
00115-001420	M3414.016C-B	16mm Twist-Lock x 1/2" TH Male Adapter
00115-001890	MTH5TH75	16mm Barb x 3/4" TH Male Adapter
00115-001470	M3414.016D-B	16mm Twist-Lock x 3/4" TH Male Adapter
00115-000400	M50-100GROM	1/2" TH Grommet x 1" Adapter
32500-013030	H620FIG8-B	16mm Figure 8 Line End

BARB ADAPTER

TWIST-LOCK ADAPTER

18MM DRIPPERLINE FITTINGS

ITEM NUMBER	MODEL NUMBER	DESCRIPTION
32500-014215	H620IC-B	18mm Insert Coupling
00115-002805	M3410.0180-B	18mm Twist-Lock Coupling
00115-002880	MTH6TH50	18mm Barb x 1/2" TH Male Adapter
00115-002830	M3414.018C-B	18mm Twist-Lock x 1/2" TH Male Adapter
00115-002950	MTHT66HT	18mm Barb x 3/4" TH Male Adapter
00115-002850	M3414.018D-B	18mm Twist-Lock x 3/4" TH Male Adapter
00115-000400	M50-100GROM	1/2" TH Grommet x 1" Adapter
32500-013030	H620FIG8-B	18mm Figure 8 Line End

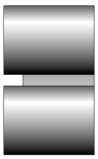


FIGURE 8

GROMMET

20MM DRIPPERLINE FITTINGS

ITEM NUMBER	MODEL NUMBER	DESCRIPTION
32500-007630	H680IC-B	20mm Insert Coupling
00115-003790	M3410.0200	20mm Twist-Lock Coupling
00115-003800	MTH7TH50	20mm Barb x 1/2" TH Male Adapter
00115-003360	M3414.020C-B	20mm Twist-Lock x 1/2" TH Male Adapter
00115-003810	MTH7TH75	20mm Barb x 3/4" TH Male Adapter
00115-003390	M3414.020D-B	20mm Twist-Lock x 3/4" TH Male Adapter
00115-000400	M50-100GROM	1/2" MPT Grommet x 1" Adapter
32500-014430	H800FIG8-B	20mm Figure 8 Line End

PRESSURE REGULATOR

Chemical Resistant

0.25 - 4.4 GPM

PRESSURE REGULATORS

ITEM NUMBER	DESCRIPTION
31000-001100	Inline Pressure Regulator ¾" FPT Inlet x ¾" FPT Outlet 15 psi
31000-001140	Inline Pressure Regulator ¾" FPT Inlet x ¾" FPT Outlet 20 psi
31000-001180	Inline Pressure Regulator ¾" FPT Inlet x ¾" FPT Outlet 25 psi
31000-001300	Inline Pressure Regulator ¾" FPT Inlet x ¾" FPT Outlet 35 psi

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M039 03/13