PRINSCO
ENGINEERED WITH INTEGRITY℠

AGRICULTURAL

WATER MANAGEMENT SOLUTIONS

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FIND US ON:

PRINSCO
ENGINEERED WITH INTEGRITY℠

Prinsco has been a leader in the agricultural water management industry for over 35 years. We partner with the ag community to provide products that can increase farming efficiency while at the same time managing one of our most valuable natural resources: water.

Prinsco is committed to a continuous process of innovation, product development and quality improvement, targeting market needs related to environmental sustainability, water quality, water management and performance advancement. We are also proud to take a leadership role on key industry issues around land use and water table management.

CORPORATE
HEADQUARTERS

1717 16th Street NE
Willmar, MN 56201

Phone: 320.222.6800
Toll Free: 800.992.1725
Fax: 320.222.6820

www.prinsco.com
agblog.prinsco.com

FIND US ON:

OUR VISION

TO CREATE INDUSTRY-LEADING SOLUTIONS FOR

OUR MISSION

TO CARE.

WATER QUALITY & PRESERVATION

TO CONTRIBUTE.

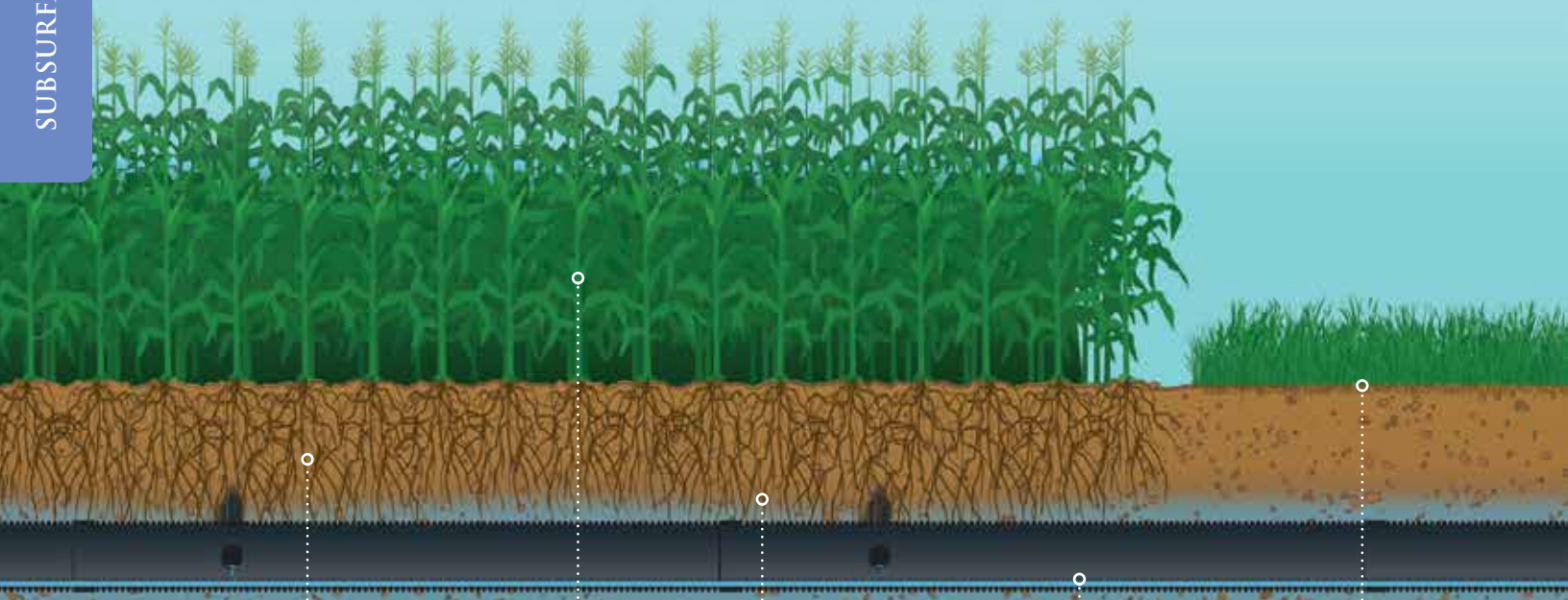
AGRICULTURAL EFFICIENCY & PRODUCTION

TO SOLVE.

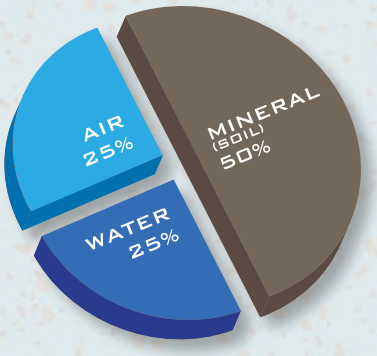
AND SUSTAINABLE SYSTEMS & PRODUCTS.

The agriculture industry has the daunting responsibility of feeding our world's growing population. By 2040, there are expected to be almost 9 billion mouths to feed, requiring us to produce up to 50% more food than we currently can. Prinsco is doing our part by providing water management solutions which have the capacity to boost yields on our most prolific farm land while also converting poorly drained soils into productive acres.

Prinsco's water management products help control the critical soil conditions that promote optimum root growth, which can ultimately produce healthier, more productive crops. Fields with a subsurface water management system can see yield increases up to 25%. At current prices, that can mean up to $130 more per acre and a return on investment of 3-7 years. For more benefits and details, see below:



Deeper, healthier root systems *are a result of keeping soil conditions balanced.*

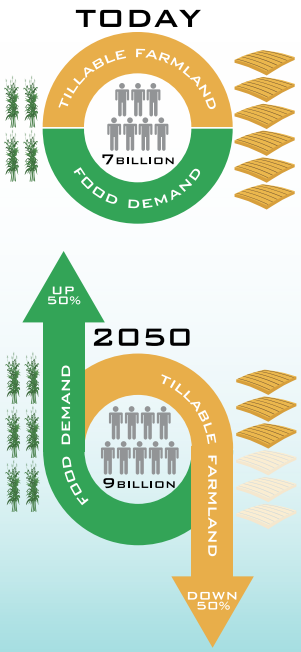


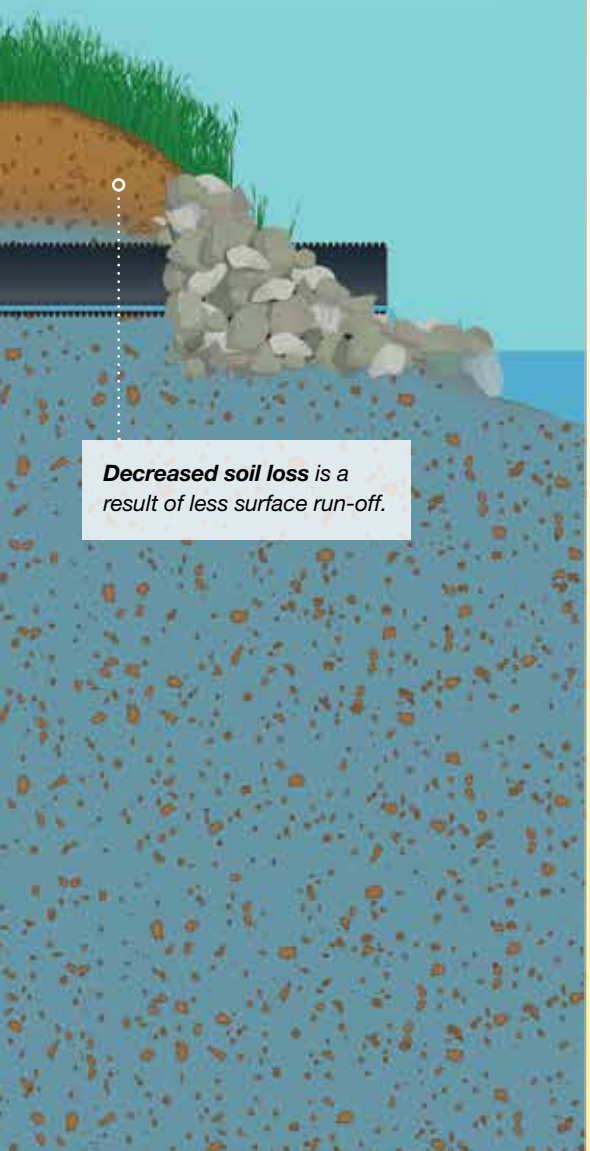
Increased infiltration rates *allow water to move from the surface to the root zone faster, allowing quicker uptake by the roots and quicker removal of excess water by the system.*

Increased water quality *is due to percolation through the soil profile which decreases sediment, phosphorus and potassium loss.*

Early access to fields *is made possible by mitigating the impact of early spring precipitation.*

Consistent yields across the field and from year to year *are realized by creating optimum growing conditions and* ***increased yields*** *are realized from healthier, more durable plants.*





***Decreased soil loss** is a result of less surface run-off.*

TERMS TO KNOW

Bioreactor – A water quality best management practice in which water is passed through an underground bed of woodchips in order to denitrify the nitrates in the water.

Buffer Strip – A narrow area along a waterway that is maintained in permanent vegetation and designed to protect the waterway from surface runoff and sedimentation.

Catch Basin – A structure located at the outlet of a water management system that catches and stores water, which is then pumped into a neighboring waterway. Used in very flat fields where the outlet is deeper than the waterway being discharged into.

Drainage Coefficient – The rate at which water can be removed from a field, typically expressed in inches per 24 hours. One of the parameters used to determine the spacing of parallel laterals.

Erosion – The removal of soil from the land surface by water flow or wind.

Evapotranspiration – Commonly known as ET, it is the combination of evaporation of water from the soil into the air, and transpiration of moisture from the plant leaves into the air.

Fall – The amount of elevation drop from one end of the pipe to the other, typically expressed in feet.

Field Capacity – The maximum amount of soil moisture or water that can be held in the soil after drainage has taken place.

Flow Rate – The volume of water that passes through a pipe over a given amount of time.

Lateral – Small diameter tile line that collects excess water and discharges into a main.

Lateral Spacing – The distance between two parallel lateral lines, typically expressed in feet.

Lift Station – A structure located on a tile main that allows water to be pumped from a lower elevation to a higher elevation, typically to an outlet.

Main – Larger diameter pipe that collects water from a system of smaller diameter laterals and carries that water to an outlet.

Outlet – The point at which water exits a subsurface water management system.

Plant Available Water – Soil water that is readily available to plants. It is the water content difference between field capacity and wilting point.

Rate of Return – The rate at which the money invested in a subsurface water management system will be returned to the investor via increased efficiencies or yields.

Riparian Zone – The interface between land and a bordering waterway.

Saturated Buffer – A water quality best management practice in which water is discharged from an underground tile line into a strip of grassy soil before entering a nearby waterway. The grass in the saturated buffer serves as a filtration system to help remove nitrates from the water.

Saturation – A condition that occurs when 100% of soil pores are filled with water, displacing any naturally occurring pockets of air. Plants cannot survive saturated conditions due to lack of oxygen.

Sedimentation – The settling out of soil particles suspended in water

Slope/Grade – A change in elevation over some distance, typically expressed as a percentage or feet per feet.

Soil Pores – The void spaces between soil particles, making up 40% to 50% of the soil structure.

Soil Profile – The layers of soil contained in the crop rooting depth.

Surface Intake – A structure that is specifically designed to remove standing water from the ground's surface and installed in lower areas of a field.

Water Management System – A network of laterals and mains that manages excess water in the soil.

Watershed – An area of land where all of the water that is in it or drains off of it goes to the same waterway.

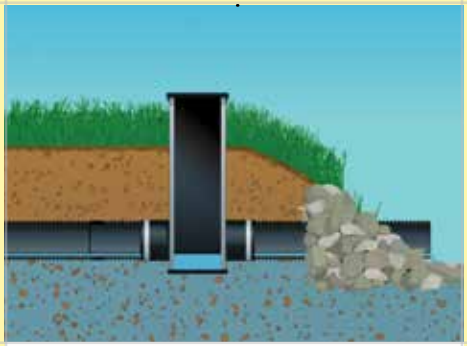
Water Table – The top level of the saturated zone within the soil.

Wilting Point – The soil moisture content level at which crops can no longer draw water from the soil and drought stress takes place.

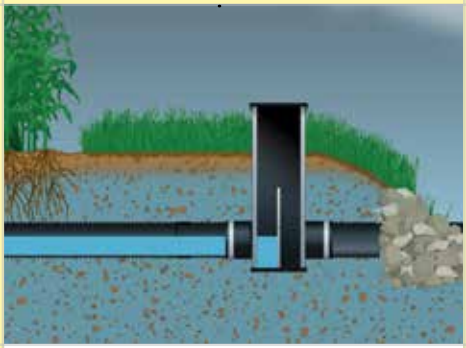
Controlled subsurface water management has become an increasingly valued and utilized tool to manage water tables, improve water quality and irrigate through the growing season.

HOW CONTROLLED WATER MANAGEMENT WORKS

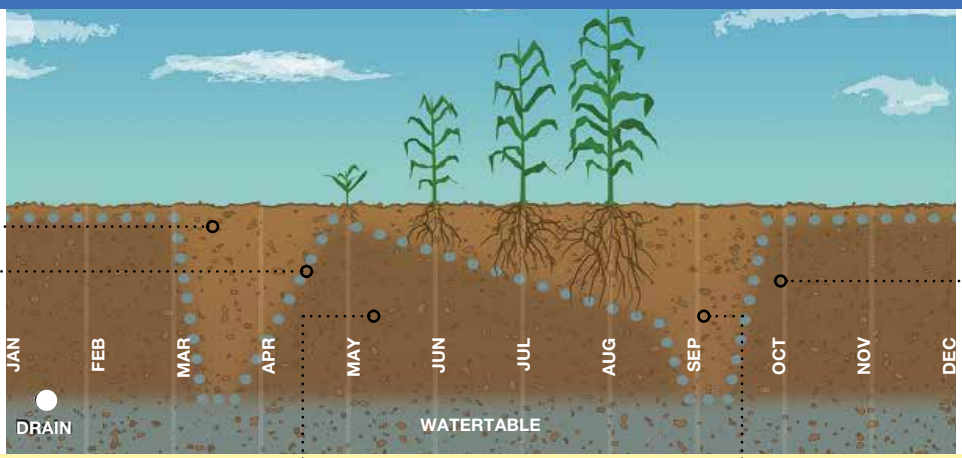
Controlled water management uses a control structure to manage water table levels in the field. Stop logs are used to block water from freely flowing through the outlet. When the stop logs are in place, the water table rises and can supply water to the plants when it is most needed. By keeping water in the fields longer, control structures can also increase the opportunity for nitrogen uptake by plants.

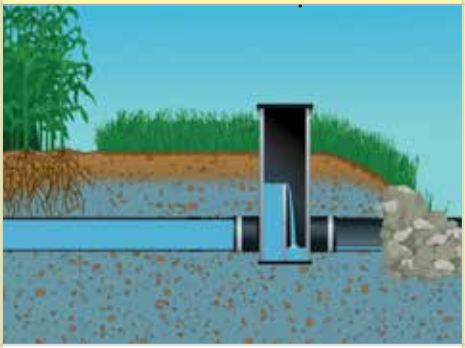


In the spring, the stop logs are not in place allowing for free drainage through the outlet. The ground becomes suitable to plant earlier in the year because there is less water in the soil profile. Also, the temperature of the soil is adequate because there is less water in the profile. With an earlier planting date, the crop is able to use spring rains more efficiently.



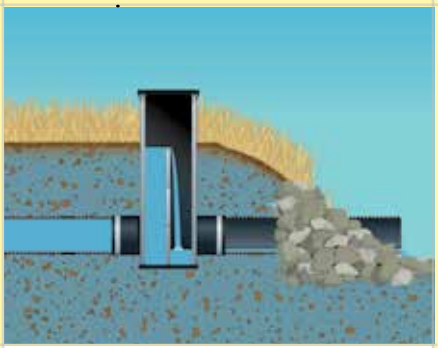
Once the crop has been established, the stop logs are placed to the desired water table height. This step allows the water to rise, making moisture readily available to the plants by replenishing the plant available water.





As precipitation falls throughout the growing season, the water that infiltrates into the soil is held back at a level as high as the top stop log. This gives plants more opportunity for nitrogen uptake, keeping nitrates from leaving the soil profile. When the water rises higher than this level, the water is then allowed to run over the stop log and through the outlet. If heavy and persistent rains occur during the growing season, the stop logs may be removed in order to drop the water table back down to the drained condition. Dropping the water table protects the crop from oxygen deficiency. The water level in the soil profile will never exceed the top stop log for an extended period of time but will drop below the top stop log if dry weather patterns persist.

As harvest nears, the stop logs are removed and the water table is allowed to drop. This final step allows for a timely harvest. The harvest should not be as effected by fall rains as they will be allowed to drain freely through the water management system.



After harvest, the stop logs are placed to the highest level just below the soil surface. This allows the water table to rise in order to conserve moisture and nutrients.

At Prinsco, we are extremely proud of our history with sustainable technology and have been an industry leader in the use of recycled plastics for over ten years.

Prinsco started incorporating recycled resin into our manufacturing process in 2002. We were interested in the sustainable benefits of using recycled, but only if we could do it right, with integrity — in accordance with our company values. With that in mind, we developed a detailed process for recycled resin purchasing, testing and blending. It began by identifying quality resin suppliers and continued as we tested each incoming resin stream. Once tested, each stream was custom-blended with virgin and post-industrial resin streams to ensure quality and consistency in our final manufactured products. The care and precision we applied to our blending technology soon became the foundation of our success in the use of recycled plastics.

Over the years, our quality control process advanced and evolved to include even more rigorous testing and even more innovative blending practices.

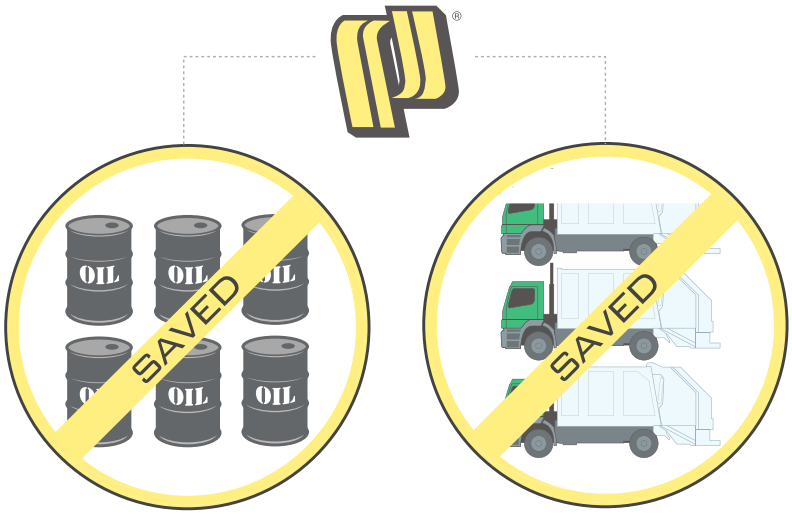
Each of Prinsco's nine plants has an in-house testing laboratory and an on-site quality control manager. This commitment to quality has allowed us to successfully use recycled resin in our single-wall GOLDLINE® pipe, along with our new, dual-wall pipe called ECOFLO®100.

ECOFLO®100 is manufactured with up to 40% recycled resin yet is verified to offer a 100 year service life. That kind of performance is unprecedented in a recycled product.

ECOFLO®100 is a great example of our commitment to doing things right. Because of our vast experience in blending, we were able to push our technology one step further to engineer a highly customized blend of recycled resin, virgin resin and antioxidants that would meet the 100 year service life requirements.

Now, with ECOFLO®100, our agricultural customers can go green while at the same time ensuring they have a high performing water management system for generations to come.

In the last 10 years, Prinsco's use of recycled resin has saved...



5.88 MILLION
BARRELS OF OIL

2.67 MILLION
CUBIC YARDS OF LANDFILL

Prinsco's ECOFLO®100 is made with an engineered blend of recycled resin, virgin resin and antioxidants.

GOLDLINE® is soil tight, high density polyethylene plastic pipe that is an essential component of agricultural water management systems. It is available in mini rolls, maxi rolls, and 10- and 20-foot stick lengths. GOLDLINE® is available in perforated (slots), drilled (holes) or non perforated configurations, and can be supplied with high performance geotextile fabric.

PIPE DIAMETER

NUMBER OF WRAPS	3"	4"	5"	6"	8"	10"	12"
1	150	135	100	90	93	80	90
2	330	290	250	220	230	200	195
3	550	490	440	387	385	350	320
4	825	730	670	592	595	525	
5	1120	1000	940	834	825		
6	1480	1315	1250	1107			
7	1870	1685	1600	1450			
8	2305	2065	1900				
9	2780	2500	2300				
10	3290	3000					
11	3860						
12	4400						
13	5300						

FEET PER WRAP

GOLDLINE® ACCESSORIES:
See pages 18-19

Perforated Coils: Available Sizes

DIAMETER	NUMBER	LENGTH	UNIT
3″	030100PF	100′	Micro
3″	030300PF	300′	Mini
3″	035300PF	5,300′	Maxi
4″	040100PF	100′	Micro
4″	040250PF	250′	Mini
4″	043000PF	3,000′	Maxi
5″	050165PF	165′	Mini
5″	051900PF	1,900′	Maxi
5″	052300PF	2,300′	Maxi
6″	060100PF	100′	Mini
6″	061450PF	1,450′	Maxi
8″	080390PF	390′	Mini
8″	080825PF	825′	Maxi
10″	100525PF	525′	Maxi
12″	120320PF	320′	Maxi

Muck Pipe: Available Sizes

Has 3 rows of large-diameter holes at intervals of 120º

DIAMETER	NUMBER	LENGTH	UNIT
4″	040100MH	100′	Micro
4″	040250MH	250′	Mini
4″	043000MH	3,000′	Maxi
5″	050165MH	165′	Mini
5″	052300MH	300′	Maxi
6″	060100MH	100′	Mini
6″	061450MH	1,450′	Maxi

Narrow Slot Pipe: Available Sizes

Not intended to replace sock or fabric around pipe; provided as a service to our customers without any implied warranties. (NS = narrow slot. MNS = micro narrow slot)

DIAMETER	NUMBER	LENGTH	UNIT
3″	035300NS	5,300′	Maxi
4″	040100NS	100′	Micro
4″	040100MNS	100′	Micro
4″	040250NS	250′	Mini
4″	040250MNS	250′	Mini
4″	043000MNS	3,000′	Maxi
4″	043000NS	3,000′	Maxi
5″	050165NS	165′	Mini
5″	050165MNS	165′	Mini
5″	052300MNS	2,300′	Maxi
5″	052300NS	2,300′	Maxi
6″	060100NS	100′	Mini
6″	061450NS	1,450′	Maxi
8″	080825NS	825′	Maxi
10″	100525NS	525′	Maxi
12″	120320NS	320′	Maxi

Non-Perforated Coils: Available Sizes

DIAMETER	NUMBER	LENGTH	UNIT
3″	030100NP	100′	Micro
3″	030300NP	300′	Mini
3″	035300NP	5,300′	Maxi
4″	040100NP	100′	Micro
4″	040250NP	250′	Mini
4″	043000NP	3,000′	Maxi
5″	050165NP	165′	Mini
5″	052300NP	2,300′	Maxi
6″	060100NP	100′	Mini
6″	061450NP	1,450′	Maxi
8″	080390NP	390′	Mini
8″	080825NP	825′	Maxi
10″	100525NP	525′	Maxi
12″	120320NP	320′	Maxi

GOLDLINE®

SINGLE WALL COILS WITH GEOTEXTILE WRAP

Pipe with Installed Wrap: Available Sizes

PIPE WITH KNITTED POLYESTER WRAP

DIAMETER	NUMBER	LENGTH	UNIT
3″	030100SF	100′	Micro
3″	030300SF	300′	Mini
3″	035300SF*	5,300′	Maxi
4″	040100SF	100′	Micro
4″	040250SF	250′	Mini
4″	043000SF	3,000′	Maxi
5″	050165SF	165′	Mini
5″	052300SF	2,300′	Maxi
6″	060100SF	100′	Mini
6″	061450SF	1,450′	Maxi
8″	080020SF*	20′	Stick
8″	080390SF	390′	Mini
8″	080825SF	825′	Maxi
10″	100020SF*	20′	Stick
10″	100525SF	525′	Maxi
12″	120020SF*	20′	Stick
12″	120320SF	320′	Maxi
15″	150020SF*	20′	Stick

* Special Order Items. Note: Geotextile fabric specifications are available upon request.

Sticks: Available Sizes

PERFORATED LENGTHS

DIAMETER	NUMBER	LENGTH	UNIT
3″	030010PF	10′	100′
4″	040010LBC	10′	100′
4″	040010PFC	10′	100′
4″	040020PF	20′	20′
6″	060020PF	20′	20′
8″	080020PF	20′	20′
10″	100020PF	20′	20′
12″	120020PF	20′	20′
15″	150020PF	20′	20′

NON-PERFORATED LENGTHS

DIAMETER	NUMBER	LENGTH	UNIT
3″	030010NP	10′	100′
4″	040010NPC	10′	100′
4″	040020NP	20′	20′
6″	060020NP	20′	20′
8″	080020NP	20′	20′
10″	100020NP	20′	20′
12″	120020NP	20′	20′
15″	150020NP	20′	20′

NON-PERFORATED LENGTHS WITH LOCK-FAST® COUPLER

DIAMETER	NUMBER	LENGTH	UNIT
8″	080010NPC	10′	10′
10″	100010NPC	10′	10′
12″	120010NPC	10′	10′
15″	150010NPC	10′	10′

GOLDLINE® with geotextile wrap is great for projects involving fine sand, soil or flowable particles of soil. It comes with a knitted polyester continuous seamless sleeve. Fabric should not be used when installing in heavy soils (such as clay or loam) because it will inhibit water from entering the pipe.

APPLICATIONS*

- ✔ Culverts
- ✔ Soil Stabilization
- ✔ Grain Aeration
- ✔ Water Management Laterals
- ✔ Water Management Mains

* Contact your Prinsco representative regarding application suitability questions.

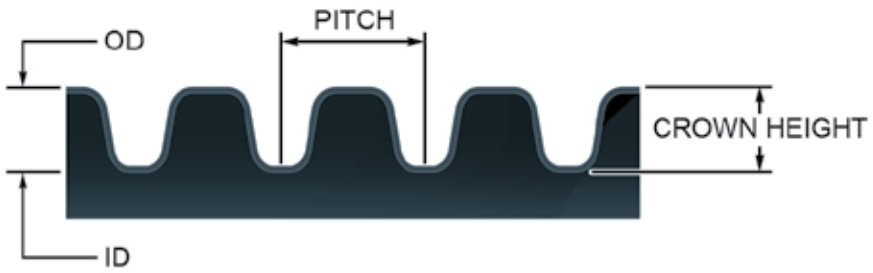
Approximate Pipe Requirements

SPACING	FT / AC
20	2180
30	1450
40	1089
50	870
60	725
70	620
80	545
90	485
100	435
110	395
120	360
130	335
140	310
150	290
160	270
180	240
200	220
250	175

Dimensions, Weights and Strength

Nominal ID	Approximate OD	Stick Length (Ft./Stick)	Micro Roll (Ft./Roll)	Mini Roll (Ft./Roll)	Maxi Roll (Ft./Roll)	Corrugation Pitch (inches)	Corrugation Crown Ht. (inches)	Nominal Flow Area (Sq. In.)	Wt. Per Ft (Lbs.)
3"	3.6	-----	100	300	5,300	0.67	0.30	7.1	0.2
4"	4.6	10	100	250	3,000	0.67	0.30	12.6	0.3
5"	5.7	-----	-----	165	2,300	0.67	0.35	19.6	0.5
6"	6.8	-----	-----	100	1,450	0.80	0.40	28.3	0.7
8"	9.5	10/20	-----	-----	825	1.00	0.75	50.3	1.3
10"	11.6	10/20	-----	-----	525	1.30	0.80	78.5	1.8
12"	14.2	10/20	-----	-----	320	2.00	1.10	113.1	3.0
15"	18.3	10/20	-----	-----	-----	2.70	1.65	176.7	4.3

PIPE WALL CROSS SECTION



Flow Chart Full Flow Capacity

GPM | Slope (ft./100 ft.)

Single-Wall Corrugated Polyethylene Pipe

Hydraulic Slope: Feet Per Hundred Feet

SINGLE-WALL PE PIPE: Manning's "n" = 0.015 - 3" - 6"
= 0.016 - 8"
= 0.017 - 10"
= 0.018 - 12" - 15"
= 0.020 - 18" - 24"

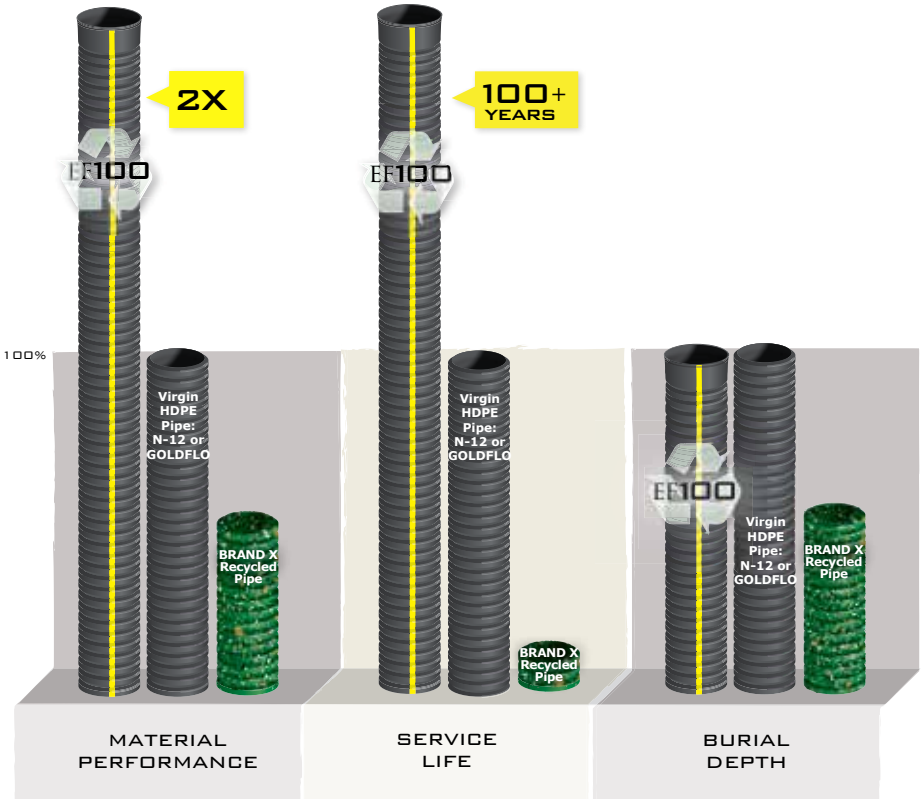
Diameter	0.02	0.05	0.10	0.20	0.50	1.0	2.0	5.0	10.0	20.0
3"	5	7.7	11	15	24	34	49	77	109	154
4"	11	17	23	33	52	74	105	166	234	331
5"	19	30	42	60	95	134	190	300	425	600
6"	31	49	69	98	154	218	309	488	690	976
8"	62	99	139	197	312	441	623	985	1,394	1,971
10"	106	168	238	336	532	752	1,064	1,682	2,378	3,363
12"	163	258	365	516	817	1,155	1,633	2,582	3,652	5,165
15"	296	468	662	937	1,481	2,094	2,961	4,682	6,622	9,365
18"	433	685	969	1,371	2,167	3,065	4,334	6,853	9,691	13,705
24"	933	1,476	2,087	2,952	4,667	6,600	9,334	14,758	20,871	29,516

To convert to CFS, divide numbers in chart by 448.8.
$Q = 448.8\ k\ S^{1/2}$
K = Conveyance Factor
S = Slope, ft./ft.
Q = Pipe Capacity, gpm

ECOFLO® 100

DUAL-WALL WITH INTEGRAL BELL PIPE

For over 30 years, Prinsco has been providing farmers with drainage solutions to ensure a greener future. That has always meant more green in the field for more green in your pocket! Now, Prinsco has given your greener future a whole new meaning with an environmentally-friendly product called ECOFLO®100. It's a dual-wall pipe made with a minimum of 40% recycled content and engineered to provide maximum water flow and capacity for your critical drainage mains. Most importantly, it's tested and verified to offer a 100 year service life — an unprecedented performance level for any drainage pipe on the market today!



**See our ECOFLO100 Product Page and Technical Notes at www.prinsco.com for more details.*

ECOFLO® 100 Main Sizes

Diameter	Number	Nominal Length
12"	12EF20NP	10'/20'
15"	15EF20NP	10'/20'
18"	18EF20NP	11'/20'
24"	24EF20NP	11'/20'
30"	30EF20NP	11'/20'

Perforated also available.

Other sizes available. See our website for more details.

GO GREEN BY CHOOSING GOLD

Gold = A Greener Field

The average subsurface water management system designed with Prinsco pipe will help improve overall crop health and productivity.

Gold = A Greener Bottom Line

Properly managed fields with Prinsco tile will average higher yields with less wasted chemicals and fertilizer. For that reason, a well-designed subsurface water management system will pay for itself in 3-7 years, adding net profits to your bottom line for generations to come.

Gold = A Greener World

The average farm subsurface water management system requires 2,000 feet of dual-wall mains. Using ECOFLO® 100 can eliminate the new demand for 1,233 gallons of oil and 54 cubic yards of landfill space!

Gold = A Greener Future

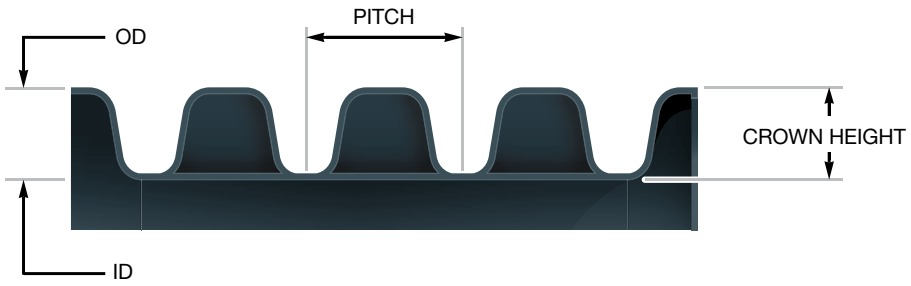
A drainage system backbone designed with high performance ECOFLO® 100 will ensure your farm's green future for at least 100 years… or many generations to come.

Dimensions, Weights and Strength

Nominal ID (inches)	Approximate OD (inches)	Length (feet)	AASHTO Min. Pipe Stiffness@ 5% Deflection (PSI)	Corrugation Pitch (inches)	Approx. Wt./Ft. (lbs.)
12"	14.40	10/20	50	2.00	3.1
15"	17.60	10/20	42	2.67	4.5
18"	21.50	11/20	40	3.00	6.5
24"	28.40	11/20	34	4.00	11.0
30"	34.80	11/20	28	4.00	14.6

DUAL-WALL PE PIPE: Manning's "n" = 0.012
ECOFLO® 100 Dual-Wall Corrugated Polyethylene Pipe with Smooth Interior

PIPE WALL CROSS SECTION



Dual Wall Flow Chart Full Flow Capacity

GPM | Slope (ft./100 ft.)

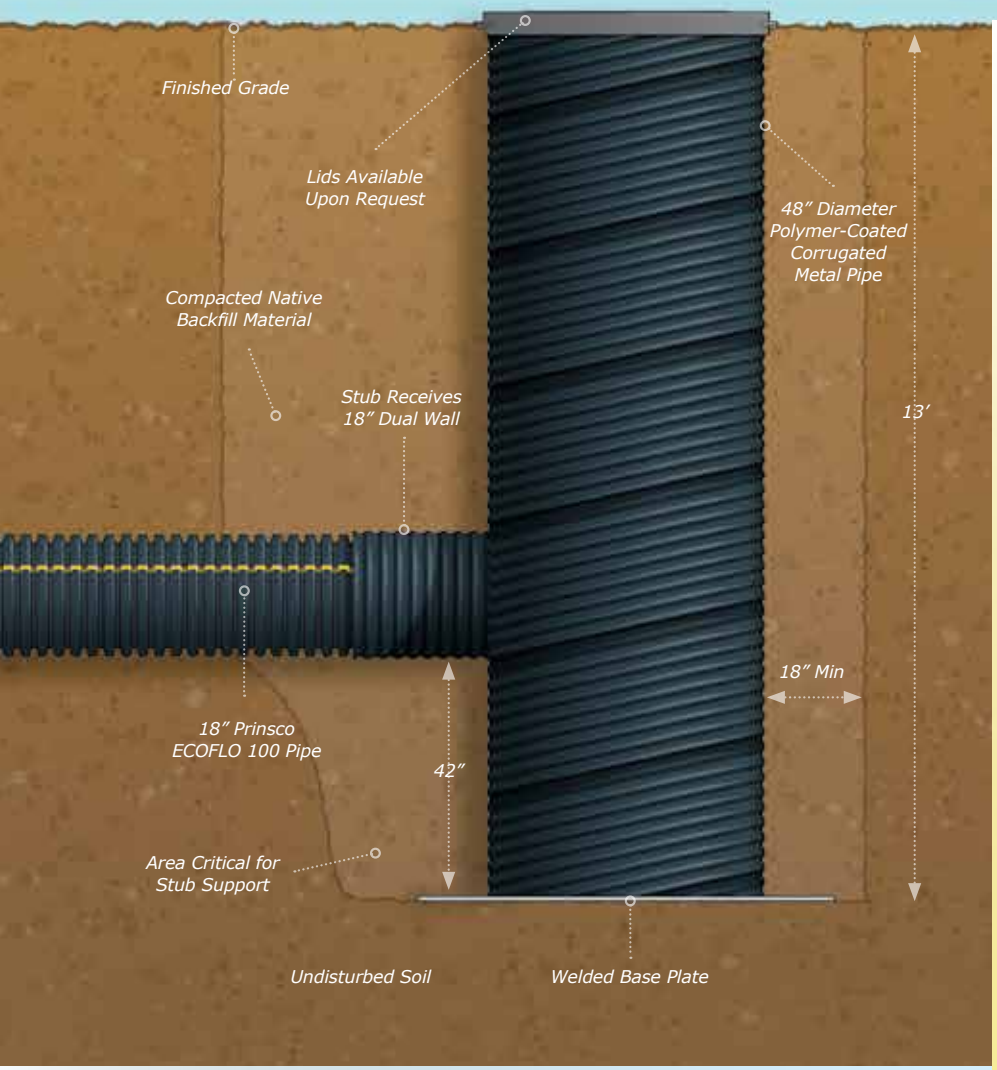
Pipe Diameter	Conveyance Factor (k)	0.02	0.05	0.10	0.20	0.50	1.0	2.0	5.0	10.0	20.0
12"	38.6	245	387	548	775	1,225	1,732	2,450	3,874	5,478	7,747
15"	70	444	702	993	1,405	2,221	3,141	4,442	7,023	9,933	14,047
18"	113.8	722	1,142	1,615	2,284	3,612	5,108	7,223	11,421	16,152	22,842
24"	245.1	1,556	2,460	3,478	4,919	7,778	11,000	15,556	24,596	34,784	49,192
30"	444.4	2,820	4,460	6,307	8,919	14,102	19,944	28,205	44,596	63,068	89,192

Manning's "n" = 0.012

Contact your Prinsco Sales Representative for more information
800.992.1725

AG CATCH BASIN

Your subsurface water management system can only function as well as its outlet. So if the grade on your system won't allow for a gravity flow outlet, Prinsco's agricultural catch basin provides the perfect solution. They are built from polymer coated corrugated metal and provide strength and durability for years of trouble-free service. Coupled with Prinsco's ECOFLO® 100 and GOLDLINE® products, they provide a water management system that is engineered with integrity!

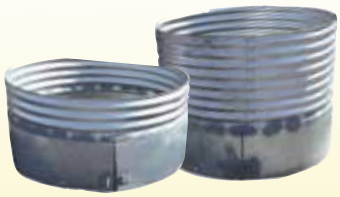


DESCRIPTION	NUMBER
48" X 13' CATCH BASIN W/ 18" STUB AND BOTTOM	CBCMP481318
48" DIA 1' VERTICAL EXTENSION	CBCMPR48112
48" DIA 2' VERTICAL EXTENSION	CBCMPR48212
48" DIA 3' VERTICAL EXTENSION	CBCMPR48312
48" GALVANIZED SINGLE OUTLET LID W/ STAND	CBCMPLSP48
48" GALVANIZED DUAL OUTLET LID W/ STAND	CBCMPLDP48

FEATURES:

- Standard size is 13' tall x 48" diameter, providing increased storage volume.
- Galvanized, polymer coated steel tanks provide increased protection against abrasion & corrosion.
- Basin stub receives 18" Prinsco ECOFLO100 or GOLDFLO. Connection is built for strength and easy to install with no couplers needed. Reducers to smaller diameters are also available.
- Backfill with native soils. No imported material needed, saving you time and money.

ALSO AVAILABLE:



1', 2', & 3' vertical extensions

Galvanized lids

GOLDFLO® WT

DUAL-WALL WITH INTEGRAL BELL PIPE

Available Sizes

Diameter	Number	Nominal Length
4"	4WT20NP	20'
6"	6WT20NP	20'
8"	8WT20NP	20'
10"	10WT20NP	20'
12"	12WT10NP/12WT20NP	10'/20'
15"	15WT10NP/15WT20NP	10'/20'
18"	18WT11NP/18WT20NP	11'/20'
24"	24WT11NP/24WT20NP	11'/20'
30"	30WT11NP/30WT20NP	11'/20'
36"	36WT11NP/36WT20NP	11'/20'
42"	42WT11NP/42WT20NP	11'/20'
48"	48WT11NP/48WT20NP	11'/20'
60"	60WT11NP/60WT20NP	11'/20'
	(pipe is available perforated)	

GREEN FACT: The carbon footprint of HDPE is considerably smaller than concrete because it requires less energy to manufacture, transport and install.

GOLDFLO®

PLAIN END DUAL-WALL PIPE

Available Sizes

Diameter	Number	Nominal Length
4"	04GF20NP	20'
6"	06GF20NP	20'
8"	08GF20NP	20'
10"	10GF20NP	20'
12"	12GF20NP	20'
15"	15GF20NP	20'
18"	18GF20NP	20'
24"	24GF20NP	20'
30"	30GF20NP	20'
36"	36GF20NP	20'
	(pipe is available perforated)	

ECOAIR Aeration: Available Sizes

Prinsco aeration products are ideal for grain storage applications. It has 1/2" - 5/8" holes. Pipe provided as a service to our customers with no design or any implied warranties.

GOLDFLO

DIAMETER	NUMBER	LENGTH	UNIT
12"	12GF20AR	20'	20'
15"	15GF20AR	20'	20'
18"	18GF20AR	20'	20'
24"	24GF20AR	20'	20'

AERATION SCREENING (FIBERGLASS)

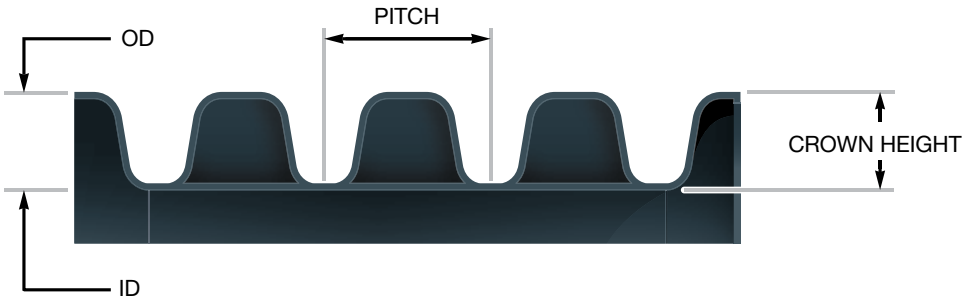
DIAMETER	NUMBER	LENGTH	UNIT
12"	SCR12	Sold per roll	48" X 100' Roll
15"	SCR15	Sold per roll	60" X 100' Roll
18"	SCR18	Sold per roll	72" X 100' Roll
24"	SCR24	Sold per roll	108" X 100' Roll

Dimensions, Weights and Strength

Nominal ID (inches)	Approximate OD (inches)	Corrugation Pitch (inches)	Nominal Length (feet)	AASHTO Min. Pipe Stiffness@ 5% Deflection (PSI)	Approx Wt./Ft. (lbs)
4"	4.60	.67	20	50	0.5
6"	7.05	.80	20	50	1.0
8"	9.50	1.00	20	50	1.7
10"	11.60	1.30	20	50	2.3
12"	14.40	2.00	10/20	50	3.1
15"	17.60	2.67	10/20	42	4.5
18"	21.50	3.00	11/20	40	6.5
24"	28.40	4.00	11/20	34	11.0
30"	34.80	4.00	11/20	28	14.6
36"	41.00	4.00	11/20	22	19.0
42"	47.80	6.00	11/20	20	30.0
48"	54.40	6.00	11/20	18	30.0
60"	66.50	6.00	11/20	14	40.0

Contact your Prinsco Sales Representative for more information
800.992.1725

PIPE WALL CROSS SECTION



Dual Wall Flow Chart Full Flow Capacity

GPM | Slope (ft./100 ft.)

Pipe Diameter	Conveyance Factor (k)	0.02	0.05	0.10	0.20	0.50	1.0	2.0	5.0	10.0	20.0
4"	2.1	13	21	29	41	65	93	131	207	293	414
6"	6.1	39	61	86	122	193	273	386	610	863	1220
8"	13.1	83	131	186	263	415	588	831	1,314	1,858	2,628
10"	23.7	151	238	337	476	753	1,065	1,507	2,382	3,369	4,764
12"	38.6	245	387	548	775	1,225	1,732	2,450	3,874	5,478	7,747
15"	70	444	702	993	1,405	2,221	3,141	4,442	7,023	9,933	14,047
18"	113.8	722	1142	1,615	2,284	3,612	5,108	7,223	11,421	16,152	22,842
24"	245.1	1556	2460	3,478	4,919	7,778	11,000	15,556	24,596	34,784	49,192
30"	444.4	2820	4460	6,307	8,919	14,102	19,944	28,205	44,596	63,068	89,192
36"	722.6	4,586	7,252	10,256	14,504	22,932	32,431	45,864	72,518	102,556	145,036
42"	1089.9	6,918	10,939	15,470	21,878	34,592	48,920	69,183	109,388	154,698	218,776
48”	1556.1	9,877	15,618	22,087	31,235	49,387	69,844	98,775	156,176	220,867	312,353
60"	2821.5	17,908	28,315	40,043	56,629	89,539	126,627	179,078	283147	400,430	566,293

STRAIGHT TEE

Size	Number	Unit
2"	T0222	Each / Pkg. 50
3"	T0333	Each / Pkg. 50
4"	T0444	Each / Pkg. 20
5"	T0555	Each / Pkg. 5
6"	T0666	Each / Pkg. 5

BLIND TEE

Size	Number	Unit
3"	T033B	Each / Pkg. 50
4"	T044B	Each / Pkg. 20
5"	T055B	Each / Pkg. 5
6"	T066B	Each / Pkg. 5
8"	T088B	Each / Pkg. 4
10"	T100B	Each
12"	T120B	Each
15"	T150B	Each
18"	T180B	Each

REDUCING TEE

Size	Number	Unit
5"	T0554	Each / Pkg. 5
6"	T0654	Each / Pkg. 5
8"	T0888	Each / Pkg. 4
10"	T1010	Each
12"	T1212	Each
15"	T1515	Each
18"	T1818	Each

4" x 3" COMBO TEE

Size	Number	Type	Unit
3"-4"	T0434	Co. Straight	Ea./Pkg. 25
3"-4"	T043B	Co. Blind	Ea./Pkg. 25

TAP TEE

Size	Number	Type	Unit	Pipe Fitting
4"	TT04S	Short	Each	6"-8"
4"	TT04L	Long	Each	10"-12"
5"	TT05S	Short	Each	10"-12"
5"	TT05L	Long	Each	15"-18"
6"	TT06S	Short	Each	15"-24"
6"	TT06L	Long	Each	30"-36"

90º ELBOW

For larger sizes (5"-15"), use a blind tee.

Size	Number	Unit
3"	E03	Each / Pkg. 25
4"	E04	Each / Pkg. 25

WYE

Size	Number	Unit
3"	Y03	Each/Pkg. 25
4"	Y04	Each/Pkg. 15
5"	Y05	Each/Pkg. 5
5"	Y054*	Each
6"	Y06*	Each/Pkg. 6
8"	HB08Y*	Each

**reducing wyes*

STEP DOWN REDUCER

Size	Number	Unit
4" x 3"	R043	Each / Pkg. 25
5" x 4"	R054	Each / Pkg. 25
6" x 4"	R064	Each / Pkg. 25
6" x 5"	R065	Each / Pkg. 25
6" x 5" x 4"	R0654	Each / Pkg. 50
8" x 6"	R086	Each
10" x 8"	R108	Each / Pkg. 5
10" x 8" x 6"	R1086	Each / Pkg. 5
12" x 10"	R1210	Each / Pkg. 5
12" x 10" x 8"	R12108	Each / Pkg. 5
15" x 12"	R1512	Each
18" x 15"	R1815	Each

CROSS TEE

Size	Number	Unit
6" x 5" x 4"	T0654C	Each

PLASTA PLUG

Snaps inside the pipe to cap the end.

Size	Number	Unit
3"	PP03	Box of 100
4"	PP04	Box of 100
5"	PP05	Box of 100
6"	PP06	Box of 100

CLAY PLUG

Size	Number	Unit
4"	PP04C	Each / Pkg. 100
5"	PP05C	Each / Pkg. 100
6"	PP06C	Each / Pkg. 100

INTERNAL END PLUG

Size	Number	Unit
3"	P03	Each / Pkg. 50
4"	P04	Each / Pkg. 50
5"	P05	Each / Pkg. 25
6"	P06	Each / Pkg. 20
8"	P08	Each / Pkg. 10

EXTERNAL END CAP PLUG

Size	Number	Unit
3"	EC03	Each / Pkg. 50
4"	EC04	Each / Pkg. 50
6"	EC06	Each / Pkg. 20
8"	EC08	Each / Pkg. 10
10"	EC10	Each / Pkg. 10
12"	EC12	Each
15"	EC15	Each
18"	EC18	Each
24"	EC24	Each

INTERNAL SNAP COUPLER

Size	Number	Unit
3"	IC03	Each / Pkg. 50
4"	IC04	Each / Pkg. 50
5"	IC05	Each / Pkg. 25
6"	IC06	Each / Pkg. 20
8"	IC08	Each / Pkg. 10
10"	IC10	Each / Pkg. 5
12"	IC12	Each / Pkg. 5

EXTERNAL SNAP COUPLER

Size	Number	Unit
3"	SN03	Each / Pkg. 50
4"	SN04	Each / Pkg. 50
6"	SN06	Each / Pkg. 25
8"	SN08	Each / Pkg. 5
10"	GFSLV10	Each

CLAY ADAPTER

Adapts between corrugated pipe and clay, concrete or PVC.

Size	Number	Unit
3"	CA03	Each/Pkg. 25
4"	CA04	Each/Pkg. 50
5"	CA05	Each/Pkg. 50
6"	CA06	Each/Pkg. 20
8"	CA08	Each/Pkg. 20
10"	CA10	Each/Pkg. 15
12"	CA12	Each/Pkg. 5
15"	CA15	Each/Pkg. 5
18"	CA18	Each

SOIL-TIGHT COUPLER

Size	Number	Unit
3"	SC03	Each / Pkg. 75
4"	SC04	Each / Pkg. 50
5"	SC05	Each / Pkg. 75
6"	SC06	Each / Pkg. 50
8"	SC08	Each / Pkg. 25
10"	SC10	Each
12"	SC12	Each
15"	SC15	Each
18"	SC18	Each
24"	SC24	Each

PLASTIC TIES

Number	Unit
Use with 8"-15" Coupler	
TIE01	Pkg. of 100
Use with 18"-36" Coupler	
TIE02	Pkg. of 50

Contact your Prinsco Sales Representative for more information

800.992.1725

Additional allied products are available. Please contact your Prinsco representative for a complete list.

HICKENBOTTOM INTAKE RISERS

A Hickenbottom Intake is a three-piece unit that includes one orange section with holes or slots, one orange middle and a special blind tee. All below-ground sections of Hickenbottom intakes meet or exceed ASTM F 405 specifications for underground applications. All sections are three feet in length.

ORANGE TOP
With 1" Holes

Size	Number	Unit
5"	HB051	Each
6"	HB061	Each
8"	HB081	Each
10"	HB101	Each
12"	HB121	Each

ORANGE TOP
With 1" x 4" Slots

5"	HB051 x 4	Each
6"	HB061 x 4	Each
8"	HB081 x 4	Each
10"	HB101 x 4	Each
12"	HB121 x 4	Each

ORANGE MIDDLE
With 5/16" Holes

5"	HB05516	Each
6"	HB06516	Each
8"	HB08516	Each
10"	HB10516	Each
12"	HB12516	Each

SPECIAL BLIND TEE

5"	HB05T	Each
6"	HB06T	Each
8"	HB08T	Each
10"	HB10T	Each
12"	HB12T	Each

RESTRICTOR
(Cut to Any Size)

6"	HB06R	Each
8"	HB08R	Each

PRECISION INTAKES

Precision Intakes are constructed of high density polyethylene and are a highly visible bright yellow. Each part has an exclusive locking device. Precision Intakes are manufactured with adjustable bottom sections and are interchangeable with most other parts on the market.

YELLOW TOP
With 1" Holes

Size	Number	Unit
6"	PR061	Each
8"	PR081	Each
10"	PR101	Each

YELLOW TOP
With 1" x 4" Slots

6"	PR061X4	Each
8"	PR081X4	Each
10"	PR101X4	Each

BLACK BOTTOM
With 5/16" Holes

6"	PR06516	Each
8"	PR08516	Each
10"	PR10516	Each

RESTRICTOR
(Cut to Any Size)

6"	PR06R	Each
8"	PR08R	Each
10"	PR10R	Each

PATENTED BLIND TEE

6"	PR06T	Each
8"	PR08T	Each
10"	PR10T	Each

INTAKE MARKER FLAGS

Fiberglass rod with flag. Fits in the end of our beehive intake caps.

Size	Number	Unit
8'	FLIN01 (ORANGE)	Each
8'	FLIN02 (RED)	Each
8'	FLIN03 (YELLOW)	Each

SURVEY FLAGS

Plastic flag is 5" x 4" with a 30" wire.

Number	Item	Unit
FLSV01	Flo-Orange	Bundles of 100
FLSV02	Blue	Bundles of 100
FLSV03	White	Bundles of 100
FLSV04	Flo-Pink	Bundles of 100
FLSV05	Yellow	Bundles of 100
FLSV06	Flo-Green	Bundles of 100

Not all colors stocked on location

Contact your Prinsco Sales Representative for more information
800.992.1725

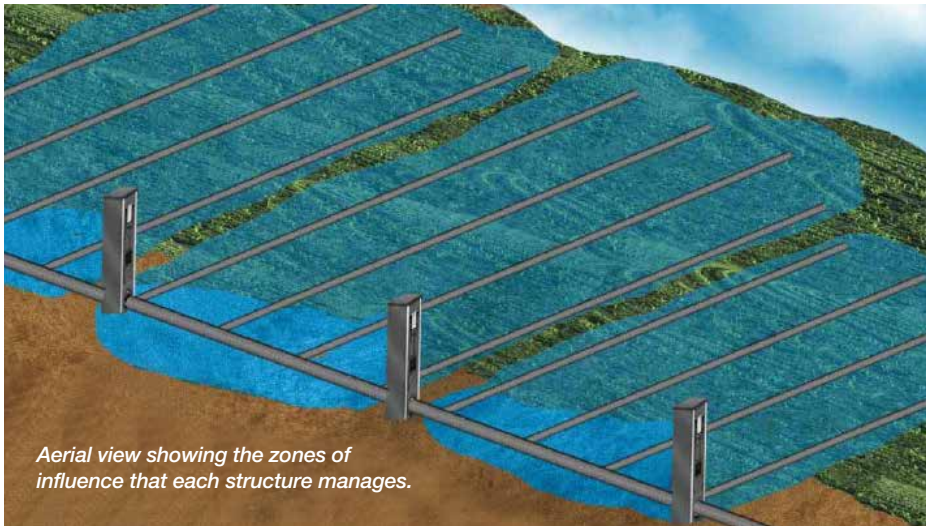
INLINE WATER LEVEL CONTROL STRUCTURE

Pipe Size	Inside Width	Dim. Depth
4"	8"	10"
6"	8"	10"
8"	12"	12"
10"	14"	16"
12"	16"	20"
15"	20"	24"
18"	24"	28"
24"	31"	39"
24" *	31"	39"

*To fit 24" dual-wall polyethylene pipe.

AGRI DRAIN INLINE WATER LEVEL CONTROL STRUCTURE

Note: Heights vary from 2' to 12'. Please call for specific heights.



Aerial view showing the zones of influence that each structure manages.

INLET WATER LEVEL CONTROL STRUCTURE

Pipe Size	Inside Width	Dim. Depth
4"	8"	5"
6"	8"	5"
8"	12"	6"
10"	14"	8"
12"	16"	10"
15"	20"	12"
18"	24"	14"
24"	31"	18"
24"*	31"	18"

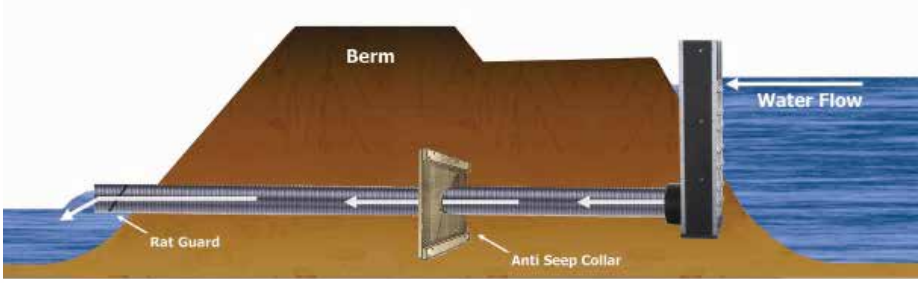
*To fit 24" dual-wall polyethylene pipe.

AGRI DRAIN INLET WATER LEVEL CONTROL STRUCTURE

Regulate operating water level of ponds, marshes, wetlands and wastewater systems by installing valves on discharge pipes. The sliding drain gate shuts off the discharge pipe, but can be partially open to drain the pond at a controlled rate.
Gaskets on the sliding control weir and drain gate resist leakage, seal tight.

Note: Heights vary from 2' to 6'. Please call for specific heights.

TYPICAL INSTALLATION
Inlet Water Level Control Structure



TANDEM AXLE

SINGLE AXLE

MAXI STRINGER

Number	Item	Unit
MAXIHDTGPC	Tandem Axle Heavy Duty	Each
MAXISGPC	Single Axle Heavy Duty	Each

- Heavy duty frame but light enough for easy handling.
- Power unit is electric over hydraulic. All you need is a 12-volt battery.
- Hydraulics are of industrial quality.
- Wheel base is 6'4".
- Overall trailer length: 16'4".
- Weight: Single - 1,635 lbs., Tandem - 2,100 lbs.
- Comes standard with hitch pin.
- Standard 10'7" diameter table.

CRARY TILE PRO STRINGER TRAILER

- Walking Tandem Axle.
- Folding Wings.
- Electric Hydraulic Pump & Cylinder.
- Electric Brake for Spool Reel.
- Manual Lock for Spool.
- Electric Brake Control & Lift Switch with 30' Rubber Cord.
- 11L-15 8 Ply Flotation Tires.
- Tail Light Kit for On Road Travel.
- Replaceable Spools.
- Pin Hitch (other styles available).

BAR GUARD

Number	Description	Unit
BG04	4" Bar Guard	Each
BG05	5" Bar Guard	Each
BG06	6" Bar Guard	Each
BG08	8" Bar Guard	Each
BG08H	8" Bar Guard	Each
BG10	10" Bar Guard	Each
BG10H	10" Bar Guard	Each
BG12	12" Bar Guard	Each
BG12H	12" Bar Guard	Each
BG15	15" Bar Guard	Each
BG18	18" Bar Guard	Each
BG24	24" Bar Guard	Each
BG30	30" Bar Guard	Each
BG36	36" Bar Guard	Each
BG42	42" Bar Guard	Each
BG48	48" Bar Guard	Each

Items with "H" are designed to fit Hickenbottom Intakes.

AGRI DRAIN PIPE STRAPS

Number	Item	Unit
PTPS	Pipe Strap Set	Set

Dramatically increases pull apart strength on dual wall polyethylene bell and spigot pipe couplers.
- Fits up to 24" pipe size.

RODENT GUARD ZINC PLATED

Size	Number	Unit
4”	RG04	Each
6”	RG06	Each
8”	RG08	Each
10”	RG10	Each
12”	RG12	Each
15”	RG15	Each
18”	RG18	Each
24”	RG24	Each
30”	RG30	Each
36”	RG36	Each
42”	RG42	Each
48”	RG48	Each
60”	RG60	Each

SPLICING TAPE

Heavy-duty tape for tight pipe connection or for splicing fabric. 2" x 108' roll. By roll or case of 24 rolls.

Number	Unit
BT02	Roll
BT02P	6 Pack
BT02CP	Case of 24

TILE PROBE

Flexible steel probe available in 5/16" and 3/8" rod, 4', 4.5' and 5'.

Number	Item	Unit
TP04	5/16" x 4'	Each
TP04.5	5/16" x 4.5'	Each
TP05	5/16" x 5'	Each
TP05HD	3/8" x 5'	Each
TP06	5/16" x 6'	Each
TP06HD	3/8" x 6'	Each

SHOVELS & SPADES

- Solid fiberglass handles are guaranteed for life.
- Heavy 14-gauge blades with hollow-back construction.
- Forward-turned steps for foot comfort and easier penetration
- Does not absorb moisture; resists industrial chemicals.
- Easily cleaned of concrete, tar, etc.
- Easy to handle in extreme temperatures.
- Ergonomic design for comfort and stress reduction.
- Excellent rigidity reduces wasted effort.

MUD SLINGERS

- Holes in blade allow for superior mud release.
- The blade is almost 1 pound lighter than regular shovels and spades.
- Fiberglass handle carries a 1-year warranty.

VALTERRA GATE VALVES

Attaches to SCH40 PVC pipe.

Size	Number
1.5"	VV01.5
2"	VV02
3"	VV03
4"	VV04
6"	VV06
8"	VV08
10"	VV10
12"	VV12

AGRI-DRAIN STANDARD FLAP GATES

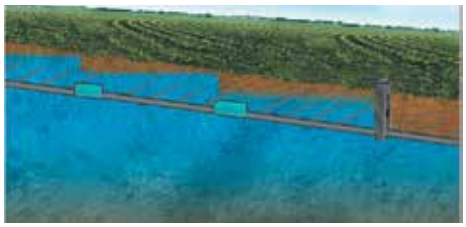
Size	PVC, CMP, Etc.	Corrugated Plastic
4"	FG04	FG04
6"	FG06	FG06
8"	FG08	FG08P
10"	FG10	FG10P
12"	FG12	FG12P
15"	FG15	FG15P
18"	FG18	FG18P
21"	FG21	N/A
24"	FG24	FG24P
30"	FG30	FG30P
36"	FG36	FG36P

WATER GATE

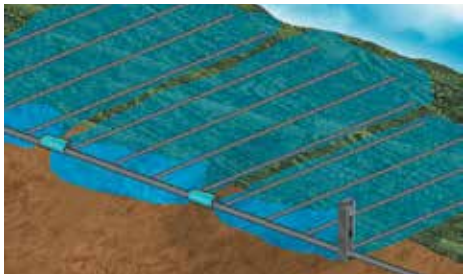
Agri Drain

Enjoy the agricultural and environmental benefits of "VARIABLE RATE DRAINAGE" with Agri Drain's Water Gate. The Water Gate is a float-activated head pressure valve. It maintains a one-foot increase in water elevation between the downstream and upstream sides of the valve. The Water Gate operates in either free-flow or managed-flow mode. The managed-flow mode is activated by backing water up into the valve. This is accomplished by installing a Water Level Control Structure (WLCS) in the tile main at the lowest point of the drainage system that you wish to manipulate or control. Locate the first Water Gate one foot in elevation upstream from the WLCS. Water Gates can be used in series, locating additional units at one-foot elevation intervals.

- Manage up to 8"-diameter subsurface drain tile.
- Fully automatic.
- Float operated.
- Infinitely variable.
- Completely buried to allow for convenient field operations.
- Valve is intended for gravity flow: Low pressure and some seepage may occur. Valve is not pressure rated.



Side view of how Inline Water Level Control Structure and Water Gates "stair-step" water up through the soil profile.



Top view showing the zones of influence that each device manages.

U.S. Patent No. 7,942,606 B2
Canadian Patent Pending

SOIL TIGHT SPLIT COUPLER

Size	Number
4"	SC04
6"	SC06
8"	SC08
10"	SC10
12"	SC12
15"	SC15H
18"	SC18
24"	SC24
30"	SC30
36"	SC36

PLASTIC TIES

Number	Unit
Use with 8"-15" Coupler	
TIE01	Pkg. of 100
Use with 18"-36" Coupler	
TIE02	Pkg. of 50

ELBOW - 22.5°

Size	Number
4"	GFE0422
6"	GFE0622
8"	GFE0822
10"	GFE1022
12"	GFE1222
15"	GFE1522
18"	GFE1822
24"	GFE2422
30"	GFE3022
36"	GFE3622
42"	GFE4222
48"	GFE4822
60"	GFE6022

ELBOW - 90° (2-Piece)

Size	Number
4"	GFE04902
6"	GFE06902
8"	GFE08902
10"	GFE10902
12"	GFE12902
15"	GFE15902
18"	GFE18902
24"	GFE24902
30"	GFE30902
36"	GFE36902
42"	GFE42902
48"	GFE48902
60"	GFE60902

ELBOW - 45°

Size	Number
4"	GFE0445
6"	GFE0645
8"	GFE0845
10"	GFE1045
12"	GFE1245
15"	GFE1545
18"	GFE1845
24"	GFE2445
30"	GFE3045
36"	GFE3645
42"	GFE4245
48"	GFE4845
60"	GFE6045

ELBOW - 90° (3-Piece)

Size	Number
4"	GFE0490
6"	GFE0690
8"	GFE0890
10"	GFE1090
12"	GFE1290
15"	GFE1590
18"	GFE1890
24"	GFE2490
30"	GFE3090
36"	GFE3690
42"	GFE4290
48"	GFE4890
60"	GFE6090

Contact your Prinsco Sales Representative for more information
800.992.1725

GASKET FOR SNAP COUPLER

Size	Number
4"	GFGSK04
6"	GFGSK06
8"	GFGSKOR08
10"	GFGSK10

REDUCER (One-Step)

Size	Reducer
6"	Avail. in 4"
8"	Avail. in 4"-6"
10"	Avail. in 4"-8"
12"	Avail. in 4"-10"
15"	Avail. in 4"-12"
18"	Avail. in 4"-15"
24"	Avail. in 4"-18"
30"	Avail. 4"- 24"
36"	Avail. 4"-30"
42"	Avail. 4"-36"
48"	Avail. 4"-42"
60"	Avail. 4"-48"

CROSS TEE

Size	Number
4"	GFCT04
6"	GFTC06
8"	GFTC08
10"	GFTC10
12"	GFCT12
15"	GFCT15
18"	GFCT18
24"	GFCT24

TEE

Size	Number
4"	GFT0404
6"	GFT0606
8"	GFT0808
10"	GFT1010
12"	GFT1212
15"	GFT1515
18"	GFT1818
24"	GFT2424
30"	GFT3030
36"	GFT3636
42"	GFT4242
48"	GFT4848
60"	GFT6060

WYE - 45°

Size	Number
4"	GFY0404
6"	GFY0606
8"	GFY0808
10"	GFY1010
12"	GFY1212
15"	GFY1515
18"	GFY1818
24"	GFY2424

SADDLE TEES

Size		Number
GFST1004	**10"**	10" TO 4"
GFST1006		10" TO 6"
GFST1008		10" TO 8"
GFST1204	**12"**	12" TO 4"
GFST1206		12" TO 6"
GFST1208		12" TO 8 "
GFST1210		12" TO 10"
GFST1504	**15"**	15" X 4"
GFST1506		15" X 6"
GFST1508		15" X 8"
GFST1510		15" X 10"
GFST1512		15" X 12"
GFST1804	**18"**	18" X 4"
GFST1806		18" X 6"
GFST1808		18" X 8"
GFST1810		18" X 10"
GFST1812		18" X 12"
GFST1815		18" X 15"
GFST2404	**24"**	24" X 4"
GFST2406		24" X 6"
GFST2408		24" X 8"
GFST2410		24" X 10"
GFST2412		24" X 12"
GFST3004	**30"**	30" X 4"
GFST3006		30" X 6"
GFST3008		30" X 8"
GFST3010		30" X 10"
GFST3012		30" X 12"

***4' x 4' NO-SEEP COLLARS™**

Four-foot square sheet of high density plastic fastened with stainless steel bolts.

Size	Number	Unit
4"	NSC4404	Each
6"	NSC4406	Each
8"	NSC4408	Each
10"	NSC4410	Each
12"	NSC4412	Each
15"	NSC4415	Each
18"	NSC4418	Each
24"	NSC4424	Each

*special order item

5'x5' and 6'x6' no-seep collars are also available.

REDUCING WYES

Size		Number
GFY0604	6"	6" X 4" Wye
GFY0804	8"	8" X 4" Wye
GFY0806		8" X 6" Wye
GFY1004	10"	10" X 4" Wye
GFY1006		10" X 6" Wye
GFY1008		10" X 8" Wye
GFY1204	12"	12" TO 4" Wye
GFY1206		12" TO 6" Wye
GFY1208		12" TO 8" Wye
GFY1210		12" TO 10" Wye
GFY1504	15"	15" X 4" Wye
GFY1506		15" X 6" Wye
GFY1508		15" X 8" Wye
GFY1510		15" X 10" Wye
GFY1512		15" X 12" Wye
GFY1804	18"	18" X 4" Wye
GFY1806		18" X 6" Wye
GFY1808		18" X 8" Wye
GFY1810		18" X 10" Wye
GFY1812		18" X 12" Wye
GFY1815		18" X 15" Wye
GFY2404	24"	24" X 4" Wye
GFY2406		24" X 6" Wye
GFY2408		24" X 8" Wye
GFY2410		24" X 10" Wye
GFY2412		24" X 12" Wye
GFY2415		24" X 15" Wye
GFY2418		24" X 18" Wye
GFY3004	30"	30" X 4" Wye
GFY3006		30" X 6" Wye
GFY3008		30" X 8" Wye
GFY3010		30" X 10" Wye
GFY3012		30" X 12" Wye
GFY3015		30" X 15" Wye
GFY3018		30" X 18" Wye

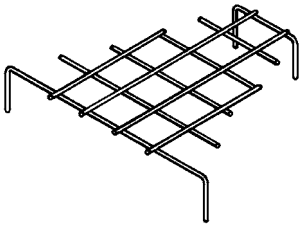
Size		Number
GFY3604	36"	36" X 4" Wye
GFY3606		36" X 6" Wye
GFY3608		36" X 8" Wye
GFY3610		36" X 10" Wye
GFY3612		36" X 12" Wye
GFY3615		36" X 15" Wye
GFY3618		36" X 18" Wye
GFY3624		36" X 24" Wye
GFY4204	42"	42" X 4" Wye
GFY4206		42" X 6" Wye
GFY4208		42" X 8" Wye
GFY4210		42" X 10" Wye
GFY4212		42" X 12" Wye
GFY4215		42" X 15" Wye
GFY4218		42" X 18" Wye
GFY4224		42" X 24" Wye
GFY4804	48"	48" X 4" Wye
GFY4806		48" X 6" Wye
GFY4808		48" X 8" Wye
GFY4810		48" X 10" Wye
GFY4812		48" X 12" Wye
GFY4815		48" X 15" Wye
GFY4818		48" X 18" Wye
GFY4824		48" X 24" Wye
GFY6004	60"	60" X 4" Wye
GFY6006		60" X 6" Wye
GFY6008		60" X 8" Wye
GFY6010		60" X 10" Wye
GFY6012		60" X 12" Wye
GFY6015		60" X 15" Wye
GFY6018		60" X 18" Wye
GFY6024		60" X 24" Wye

REDUCING TEES

Size		Number
GFT0604	6"	6" TO 4" Tee
GFT0804	8"	8" TO 4" Tee
GFT0806		8" TO 6" Tee
GFT1004	10"	10" TO 4" Tee
GFT1006		10" TO 6" Tee
GFT1008		10" TO 8" Tee
GFT1204	12"	12" TO 4" Tee
GFT1206		12" TO 6" Tee
GFT1208		12" TO 8" Tee
GFT1210		12" TO 10" Tee
GFT1504	15"	15" TO 4" Tee
GFT1506		15" TO 6" Tee
GFT1508		15" TO 8" Tee
GFT1510		15" TO 10" Tee
GFT1512		15" TO 12" Tee
GFT1804	18"	18" TO 4" Tee
GFT1806		18" TO 6" Tee
GFT1808		18" TO 8" Tee
GFT1810		18" TO 10" Tee
GFT1812		18" TO 12" Tee
GFT1815		18" TO 15" Tee
GFT2404	24"	24" TO 4" Tee
GFT2406		24" TO 6" Tee
GFT2408		24" TO 8" Tee
GFT2410		24" TO 10" Tee
GFT2412		24" TO 12" Tee

Size		Number
GFT2415	24"	24" TO 15" Tee
GFT2418		24" TO 18" Tee
GFT3004	30"	30" TO 4" Tee
GFT3006		30" TO 6" Tee
GFT3008		30" TO 8" Tee
GFT3010		30'' TO 10" Tee
GFT3012		30'' TO 12" Tee
GFT3015		30'' TO 15" Tee
GFT3018		30'' TO 18" Tee
GFT3024		30'' TO 24" Tee
GFT3604	36"	36'' TO 4" Tee
GFT3606		36'' TO 6" Tee
GFT3608		36'' TO 8" Tee
GFT3610		36'' TO 10" Tee
GFT3612		36'' TO 12" Tee
GFT3615		36'' TO 15" Tee
GFT3618		36'' TO 18" Tee
GFT3624		36'' TO 24" Tee
GFT3630		36" TO 30" Tee
GFT4204	42"	42" TO 4" Tee
GFT4206		42" TO 6" Tee
GFT4208		42" TO 8" Tee
GFT4210		42" TO 10" Tee
GFT4212		42" TO 12" Tee
GFT4215		42" TO 15" Tee
GFT4218		42" TO 18" Tee
GFT4224		42" TO 24" Tee

Size		Number
GFT4230	42"	42" TO 30" Tee
GFT4236		42" TO 36" Tee
GFT4804	48"	48" TO 4" Tee
GFT4806		48" TO 6" Tee
GFT4808		48" TO 8" Tee
GFT4810		48" TO 10" Tee
GFT4812		48" TO 12" Tee
GFT4815		48" TO 15" Tee
GFT4818		48" TO 18" Tee
GFT4824		48" TO 24" Tee
GFT4830		48" TO 30" Tee
GFT4836		48" TO 36" Tee
GFT4842		48" T0 42" Tee
GFT6004	60"	60" TO 4" Tee
GFT6006		60" TO 6" Tee
GFT6008		60" TO 8" Tee
GFT6010		60" TO 10" Tee
GFT6012		60" TO 12" Tee
GFT6015		60" TO 15" Tee
GFT6018		60" TO 18" Tee
GFT6024		60" TO 24" Tee
GFT6030		60" TO 30" Tee
GFT6036		60" TO 36" Tee
GFT6042		60" TO 42" Tee
GFT6048		60" TO 48" Tee



TRASH GUARD

Used on flared end sections with 3:1 slopes to help keep debris out and prevent clogging.

Size	Number	Unit
8"	TGS08	Each
10"	TGS10	Each
12"	TGS12	Each
15"	TGS15	Each
18"	TGS18P1215	Each
24"	TGS24P18	Each
30"	TGS30P24	Each
36"	TGS36P3036	Each
42"	TGS42	Each
48"	TGS48	Each
60"	TGS60	Each

GALVANIZED TRASH GUARD

Used on flared end sections with 3:1 slopes to help keep debris out and prevent clogging.

Size	Number	Unit
12"	GTG12	Each
15"	GTG15	Each
18"	GTG18	Each
24"	GTG24	Each
30"	GTG30	Each
36"	GTG36	Each

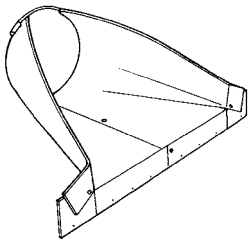
WATERTIGHT BELL COUPLER GASKETS

Used to connect to Prinsco PVC Catch Basins or Fabricated Fittings

4”	GFGSK04WT	Each
6”	GFGSK06WT	Each
8”	GFGSK08WT	Each
10”	GFGSK10WT	Each
12”	GFGSK12WT	Each
15”	GFGSK15WT	Each
18”	GFGSK18WTMW	Each
18”	GFGSK18WTWC	Each
24”	GFGSK24WTMW	Each
24”	GFGSK24WTWC	Each
30”	GFGSK30WTMW	Each
30”	GFGSK30WTWC	Each

GOLDFLO WATER STOP GASKET

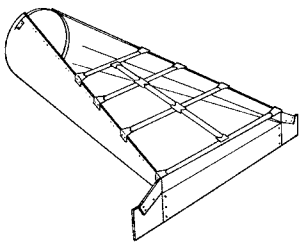
Size	Number	Unit
12"	GFWSG12	Each
15"	GFWSG15	Each
18"	GFWSG18	Each
24"	GFWSG24	Each
30"	GFWSG30	Each
36"	GFWSG36	Each
42"	GFWSG42	Each
48"	GFWSG48	Each
60"	GFWSG60	Each



STEEL APRONS

Used on projects where 2.5:1 slope is specified. Fits contour and assists water flow through the culvert.

Size	Number	Unit
8"	ES08	Each
10"	ES10	Each
12"	ES12	Each
15"	ES15	Each
18"	ES18	Each
24"	ES24	Each
30"	ES30	Each
36"	ES36	Each
42"	ES42	Each
48"	ES48	Each
60"	ES60	Each



SAFETY APRONS

Used where 6:1 slopes are required. Available with or without safety grate.

Size	Number	Unit
12"	SA0012	Each
15"	SA0015	Each
18"	SA0018	Each
24"	SA0024	Each

Safety aprons are all special-order items.

PLASTIC APRONS

High density polyethylene aprons designed for GOLDLINE and GOLDFLO/ ECOFLO applications

Size	Number	Unit
12"	PLAP12	Each
15"	PLAP15	Each
18"	PLAP18	Each
24"	PLAP24	Each
30"	PLAP30	Each
36"	PLAP36	Each

EXTERNAL ENDCAPS

Size	Number	Unit
8"	EC08-GF	Each
10"	EC10-GF	Each
12"	EC12-GF	Each
15"	EC15-GF	Each
18"	EC18-GF	Each
24"	EC24-GF	Each
30"	EC30-GF	Each
36"	EC36-GF	Each
42"	EC42-GF	Each
48"	EC48-GF	Each

PIPE ADAPTER

Size	Number	Unit
10"	GFA10	Each
12"	GFA12	Each
15"	GFA15	Each
18"	GFA18	Each
24"	GFA24	Each
30"	GFA30	Each
36"	GFA36	Each

RUBBER FLEXIBLE MANHOLE ADAPTER

Size	Number	Unit
12"	GFAD12MH	Each
15"	GFAD15MH	Each
18"	GFAD18MH	Each
24"	GFAD24MH	Each

GOLDFLO HDPE X SDR35 SPIGOT ADAPTER

Size	Number	Unit
4"	GFAD04MH-PVC35	Each
6"	GFAD06MH-PVC35	Each
8"	GFAD08MH-PVC35	Each
10"	GFAD10MH-PVC35	Each
12"	GFAD12MH-PVC35	Each
15"	GFAD15MH-PVC35	Each
18"	GFAD18MH-PVC35	Each
24"	GFAD24MH-PVC35	Each

GOLDFLO HDPE X SCH40 SPIGOT ADAPTER

Size	Number	Unit
4"	GFAD04MH-PVC40	Each
6"	GFAD06MH-PVC40	Each
8"	GFAD08MH-PVC40	Each
10"	GFAD10MH-PVC40	Each
12"	GFAD12MH-PVC40	Each

Introduction

Corrugated HDPE pipe, as with all buried pipe, functions as a buried structure where the performance of the structure is dependent on the quality of the embedment backfill and installation. Varying degrees of performance may be required depending on specific project details. This installation guide specifically addresses many common installation methods for corrugated HDPE in agricultural applications to ensure adequate performance is achieved. Since agricultural installations do not involve pipe buried under public roadways, allowable pipe deflection may extend beyond what is typically acceptable in commercial applications.

The recommendations presented here detail proper backfill and installation methods for single wall and dual wall pipe to achieve a dependable subsurface or groundwater control system. This document should not be used for commercial applications, for projects involving road crossings or where greater service performance is required. For any application conditions outside of these basic guidelines (poor soils, high loads, or other factors that may affect performance), please contact your local Prinsco Representative or visit www.prinsco.com for more comprehensive installation information.

Shaped Trench Bottoms

- For burial depths of 8 feet or less, a shaped trench bottom shall be used.
- Shaped trench bottoms should only be used where the native soil can be cut to a stable shaped trench.
- The 90-degree “V” groove trench bottom as shown in Figure 1 is acceptable for pipe with diameters less than or equal to 8”. A “V” groove trench bottom is typically formed with a pull type or tractor mounted plow. Refer to Table 1 for approximate dimensions for a “V” groove trench.
- A trapezoidal groove or rounded trench bottom may also be used for pipe diameters less than or equal to 8”.
- Most plow installations require minimal backfilling, however care should be taken to ensure the trench is filled and bridging does not occur.

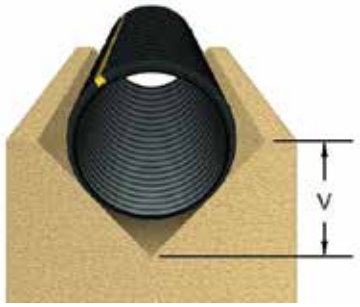


FIGURE 1
4"- 8" Diameter Pipe
“V” Groove Trench

Table 1
"V" Groove Trench Dimensions

Pipe Dia. (in)	Depth "V" (in)
3	5.1
4	6.1
5	7.2
6	8.3
8	11.1

- For pipe diameters 8” and greater, a rounded trench bottom should be used as shown in Figure 2. The rounded trench bottom should closely fit the outside of the pipe to provide sufficient support of the pipe. Approximate dimensions of the rounded trench bottom are found in Table 2.
- A rounded trench bottom may be formed with the use of a shaped trencher or with a backhoe with a half-circle shaped bucket, also referred to as a “spoon”. An example of a “spoon” is shown in Figure 3.
- For trencher and backhoe installations, trenches shall be overfilled to allow consolidation, or the backfill should be compacted to reduce the amount of settling.

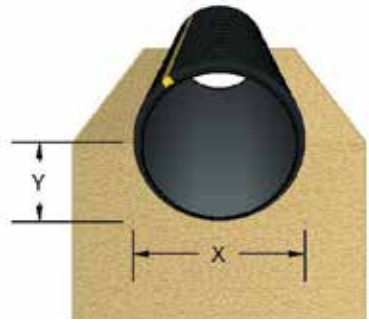


FIGURE 2
8"- 60" Diameter Pipe
Rounded Trench

Table 2
Rounded Trench Dimensions

Pipe Dia. (in)	Width "X" (in)	Depth "Y" (in)
8	9.5	4.8
10	11.6	5.8
12	14.2	7.1
15	18.3	9.2
18	21.5	10.8
24	28.4	14.2
30	34.8	17.4
36	41.0	20.5
42	47.8	23.9
48	54.4	27.2
60	66.5	33.3

FIGURE 3
“Spoon” Attachment

Trench Construction

- For burial depths greater than 8 feet, a flat bottom trench should be used as shown in Figure 4. For a flat bottom trench, the middle portion of the bedding equal to 1/3 the pipe OD shall be loosely placed while the remainder shall be compacted in accordance with Table 3.
- Trench or ditch should be just wide enough to place and compact backfill around the entire pipe. Recommended trench widths should be within a minimum of the pipe OD plus 6 inches to a maximum of the pipe OD plus 24 inches.
- For parallel pipe installations, allow space between pipe runs for proper compaction, minimum spacing shall be no less than ½ of the pipe diameter between the parallel pipe runs.
- As with any pipe, groundwater or seasonal high water tables may impede installation. De-watering is necessary for proper and efficient installation.
- Trench or ditch bottoms containing bedrock, soft muck or refuse, or other material unable to provide long-term pipe support are unacceptable and shall be removed and replaced with acceptable materials.
- Remove rock or unyielding material 1-foot below grade and a minimum of 6-in on either side of pipe.
- Excavate soft areas approximately 2 feet below grade and three times pipe width.
- In areas where soil migration is a concern, a non-woven synthetic fabric (geotextile) shall be used to separate the backfill from the native soil.

Backfill Material Selection

- The selection of proper backfill materials is critical to ensuring adequate pipe support.
- Native soil may be used provided it meets the classification descriptions provided in Table 3.
- Non-cohesive sand, sand/gravel mixes and other Class II or III materials must be compacted to remove voids.
- Class IVA materials provide reduced structural support, compared with Class I, II, III, therefore, additional pipe deflection may be experienced in applications utilizing Class IVA backfill materials. This additional deflection is anticipated and shall not compromise service performance provided the compaction and maximum burial depth criteria is followed as outlined in this document and in ASTM F449.

Table 3
Acceptable Backfill Material and Compaction Requirements

Description	Soil Classification ASTM D2321	Soil Classification ASTM D2487	Minimum Compaction Standard Density (%)	Maximum* Layer Height (in.)
Graded or crushed stone Crushed gravel	Class I	-	Dumped**	18
Well-graded sand, gravel, and gravel/sand mixtures; Poorly graded sand, gravel and gravel/sand mixtures; little or no fines	Class II	GW GP SW SP	85%	12
Silty or clayey gravel, Gravel/sand/silt or gravel and/clay mixtures, silty or clayey sands, sand/clay or sand/silt mixtures	Class III	GM GC SM SC	90%	9
Inorganic silts and low to medium plasticity clays; gravelly, sandy, or silty clays; some fine sands	Class IVA	ML CL	90%	6

*Layer Heights should not exceed one-half the pipe diameter. Layer heights may also need to be reduced to accommodate compaction method.
** Material shall be "knifed" into the haunch area of the pipe by use of a shovel or similar means

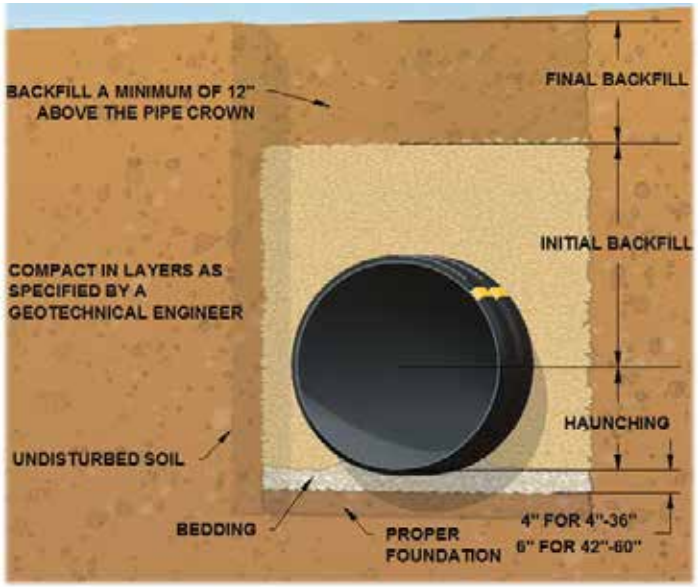


FIGURE 4
Trench Construction for Burial Depths Greater Than 8 Feet

Backfill Placement and Compaction

- Place and compact backfill in layers to meet requirements of ASTM F449 and as outlined in Table 3.
- Place and compact initial backfill in layers around pipe and at least 6" above the crown as shown in Figure 4.
- Avoid impacting pipe with compaction equipment.
- The final minimum cover shall be 2' over the crown of the pipe where live vehicular or equipment loading is present and shall be no less than 1' in areas not subjected to live loading.
- The maximum burial depth is influenced by the pipe diameter, backfill material, degree of compaction, trench dimensions and anticipated loading. Contact your local Prinsco Representative for maximum burial depths.
- The maximum allowed pipe deflection is limited to 10% of the pipe diameter in all burial depth calculations.

How will subsurface water management affect overall farming operations?

Subsurface water management allow soils to shed excess moisture and warm up faster in the spring allowing for field operations to commence earlier in the season. It will also help fields with intermittent wet spots dry more uniformly.

Will subsurface water management stress crops in dry years?

While the greatest benefits of subsurface water management are realized in wet years, it also promotes deep root development which gives crops better access to soil moisture in dry years. By using a control structure with subsurface water management systems, water can also be held back throughout the growing season to keep moisture available to crops when it is needed most.

Will adding subsurface water management to a field increase chances of flooding in local streams?

Prinsco subsurface water management systems promote greater infiltration rates in the soil. This allows for more water to be pulled down into the soil, decreasing the amount of runoff. Water that is pulled into the soil is released from tile into waterways more slowly than it would be flowing over land. Therefore, the chance for flooding actually decreases. Research has shown that adding subsurface water management increases the base flow by 5-10%, but only after the chance for flooding has dissipated.

What tile spacing should I use for a field?

There are several factors that affect how you should space between tile lines, including soil type, tile depth, drainage coefficient, and tile diameter. Drainage coefficients determine the rate at which water will be removed from the soil and typically range from 1/8" - 1" per 24 hours. Depending on your soil type, the drainage coefficient you use will determine what spacing you need to maximize the yield and profitability of your system.

When should I consider smaller pipe perforations or the use of pipe sock?

First, it is necessary to understand the properties of the soil at the depth your pipe will be installed. A soil test should be performed to determine the soil type and particle size. Heavy soils such as clay or loam will typically require standard perforated pipe, while sandy soils will likely require sock or narrow slot pipe. When deciding between sock versus narrow slot pipe, consider the 25% rule — if soils are less than 25% clay, they probably need sock pipe.

How should dual wall pipe joints be assembled?

Pipe equipped with integral bell and spigot joints, such as Prinsco's ECOFLO® 100 or GOLDFLO WT®, must be installed by inserting the spigot into the bell. Pushing the bell onto the spigot increases the likelihood of bedding material being forced into the joint, disrupting the gasket and severely undermining joint performance. Pipe laying should always begin at the outlet with the spigots pointed downgrade.

When are fields too flat to drain? How would I provide an adequate outlet for a subsurface water management system?

In order for tile laterals to provide proper subsurface water management, a minimum grade of 0.05 to 0.1% should be maintained. Where the topography does not allow for a gravity flow outlet, pumped outlets can be used. Prinsco's Ag Catch Basins provide the right storage solution for pumped outlets.

What is the maximum burial depth for the pipe?

Achieving maximum burial depths is largely dependent on proper installation practices. For burial depths of 8 feet or less, Prinsco recommends a shaped-bottom trench. For burial depths of more than 8 feet, a standard trench installation should be used as shown in our Ag Installation Guide on page 28. Proper installation positively contributes to the load carrying capacity of the pipe, resulting in greater burial depths. Contact your local Prinsco representative to discuss maximum burial depths for your installation.

Can water be sent from one watershed into a different watershed?

No. Most state drainage laws are clear that water may not be transferred from one watershed to another. Adding water to a watershed can cause increased erosion. For example, increasing water flow in a stream can cause an unstable stream bank.

Contact your Prinsco Sales Representative for more information
800.992.1725

GOLDLINE®

- ASTM F 405: Corrugated Polyethylene (PE) Pipe and Fittings
- ASTM F 667: Standard Specification for 3 through 24 in. Corrugated Polyethylene Pipe and Fittings

AASHTO grade GOLDLINE pipe meets the above standards, plus the list below

- AASHTO M 252: Standard Specification for Corrugated Polyethylene Drainage Pipe
- AASHTO M 294: Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter

ECOFLO® 100

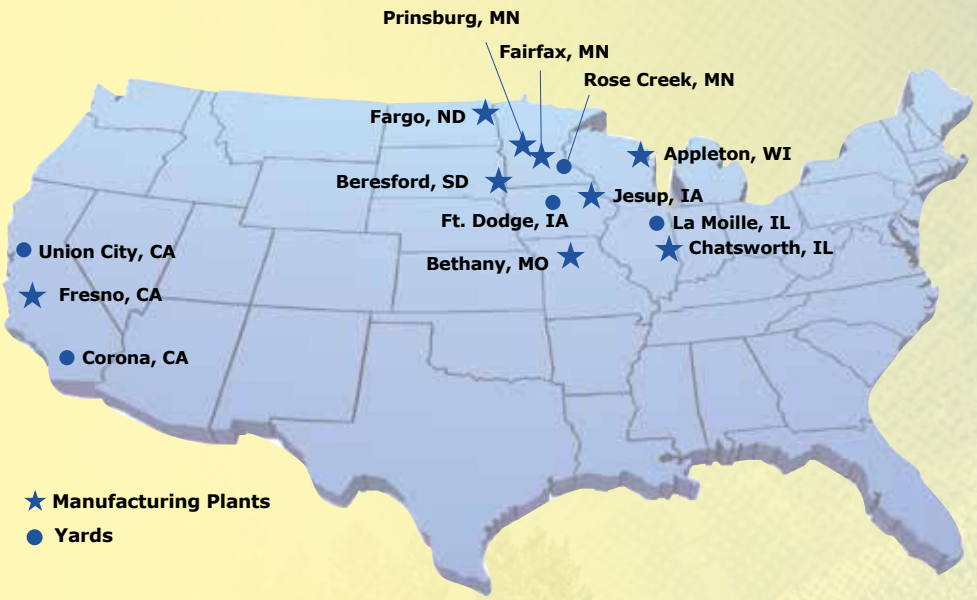
- ASTM F 2306: Standard Specification for 12 to 60 in. (300 to 1500 mm) Annular Corrugated Profile-Wall Polyethylene (PE) Pipe and Fittings for Gravity-Flow Storm Sewer and Subsurface Drainage Applications
- AASHTO M 294: Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter*
- ASTM F 477: Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
- ASTM D 3212: Standard Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals

GOLDFLO WT®/ GOLDFLO®

- AASHTO M 252: Standard Specification for Corrugated Polyethylene Drainage Pipe
- AASHTO M 294: Standard Specification for Corrugated Polyethylene Pipe, 300- to 1500-mm (12- to 60-in.) Diameter
- ASTM F 477: Standard Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe
- ASTM D 3212: Standard Specification for Joints for Drain and Sewer Plastic Pipes using Flexible Elastomeric Seals

** ECOFLO® 100 meets the material and finished product performance requirements of this standard but is manufactured with a minimum 40% recycled content.*

PRINSCO MANUFACTURING PLANTS & YARDS



PRINSCO
ENGINEERED WITH INTEGRITY

1717 16TH STREET NE
WILLMAR, MN 56201
800.992.1725
WWW.PRINSCO.COM

FIND US ON:

PRINSCO DELIVERS QUALITY

Prinsco delivers quality from manufacturing right down to the service we provide on delivery.

The chart to the right gives approximate full-load quantities for a Prinsco 53-foot trailer. The quantities may vary according to the length of the trailer or if common carriers are employed for shipment. In mixed-size load situations, calculate the percentage of the load that each size will constitute. Then total the percentages to determine the extent of the load. If pipe lengths are shipped, small diameter pipe may be nested inside the larger sizes. This will maximize load quantities and reduce freight costs.The chart is strictly "rule of thumb" to give you a general idea of load quantities. For more specific figures, call our customer service department.

DIAMATER	UNIT	UNITS PER LOAD	FOOTAGE
GOLDLINE CORRUGATED PIPE:			
3"	Micro	260	26,000
	Mini	88	26,400
	Maxi	6	31,800
4"	Micro	170	17,000
	Mini	76	19,000
	Maxi	6	18,000
5"	Mini	76	12,540
	Maxi	6	13,800
6"	Mini	76	7,600
	Maxi	6	8,700
8"	20' Lengths	266	5,320
	Maxi	6	4,950
10"	20' Lengths	180	3,600
	Maxi	6	3,150
12"	20' Lengths	120	2,400
	Maxi	6	1,920
15"	20' Lengths	70	1,400
ECOFLO 100 / GOLDFLO DUAL-WALL PIPE:			
12"	10' Lengths	225	2,250
	20' Lengths	120	2,400
15"	10' Lengths	155	1,550
	20' Lengths	80	1,600
18"	11' Lengths	92	1,012
	20' Lengths	48	960
24"	11' Lengths	57	627
	20' Lengths	30	600
30"	11' Lengths	33	360
	20' Lengths	18	363
36"	11' Lengths	22	242
	20' Lengths	12	240
42"	11' Lengths	16	176
	20' Lengths	8	160
48"	11' Lengths	11	121
	20' Lengths	6	120
60"	11' Lengths	7	77
	20' Lengths	4	80

NESTING/TELESCOPING:
All sizes through 36" will nest in the next larger size.
FITTINGS:
Many of our fittings and accessories are packed in bags or bundles.
For quantity packs, refer to catalog pages.

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800.992.1725

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