

GPH

Irrigation Products



**Professional-Grade
Drip Irrigation
Products Catalog**

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Preface



Versatility

There are many manufacturers of irrigation products in our industry, but few that are committed to the importance of delivering top quality, competitively priced solutions that help build successful irrigation projects.

At GPH Irrigation, our mission is to make the selection of drip irrigation components easier and more profitable for our design customers, wholesale distributors and contractors.

We bring the know how from developing one of the industry's most successful drip brands, to a new company focused on delivering superior service and competitive pricing.

We aim to set a new industry benchmark for personalized service. Experience the difference of people that care and genuinely appreciate your business.



Made in the USA

100% of our products are designed and manufactured right here in the USA. We start with the highest quality engineering grade materials while following through with a top notch quality assurance program.



Quality

Our veteran team understands landscape drip needs and can help you in specification of the right components for your project. Custom Products Available: Don't be afraid to ask for something special. Our complete in house capabilities allow us to custom manufacture products or components to meet your needs. We back up every sale with our Handshake Guarantee: If you're not 100% satisfied with our products or our service, we'll refund your money no ifs, ands, or buts. Just return any new or unused part within 90 days of the shipping date and we'll refund the full purchase price without any restocking fees. Our lower pricing comes from saving on overhead and marketing, not cutting corners in manufacturing.

Emitters

SpecFlow Threaded

The SpecFlow GPST emitters are designed to perform in the harshest environments, bringing commercial grade ruggedness to drip irrigation. They are turn key and maintenance free. From the integrated self sealing screen which eliminates the need for Teflon tape, to its industry-first chloramine stabilized silicone diaphragm the SpecFlow GPST is setting the standard in performance and reliability in drip irrigation.

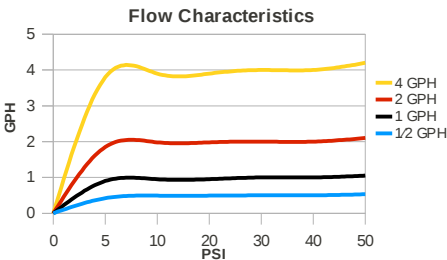


Features

- High Velocity Self-Cleaning Mechanism purges at every start-up ensuring reliable operation and less maintenance with out a hydraulic penalty.
- 1/2" FIPT Inlet x Diffuser Cap Outlet.
- Self sealing screen eliminates need for Teflon tape.
- ISO compliant C_v performance and wide pressure compensation range (5-50 psi) delivers more consistent emission uniformity over a wide range of inlet pressures and undulating terrain.
- Individually color coded for easy identification; flow rate molded into the cap.
- Engineering grade plastic and chloramine stabilized silicone diaphragm provide reliable performance in the toughest UV and chemical conditions.
- Ergonomic design eases installation fatigue.

Operating range

- Flow rates : 0.5GPH - 4GPH
- Pressure Compensating: 5-50 psi
- Filtration: 80 Mesh



How to Order:

GPST05D

Color:

- **D** (Desert Camo)
- **M** (Mulch Camo)
- *blank* (Std Colors)

Flow:

- **05** (1/2 GPH, Brown Cap)
- **1** (1 GPH, Black Cap)
- **2** (2 GPH, Green Cap)
- **4** (4 GPH, Yellow Cap)

SpecFlow Micro

The SpecFlow Micro emitters bring commercial grade ruggedness to on-line drip irrigation. The SpecFlow Micro is designed for years of trouble free performance. Ensuring this is its integrated velocity self-flush cycle and its industry-first chloramine stabilized silicone diaphragm. The SpecFlow Micro sets the bar for single outlet emitters.



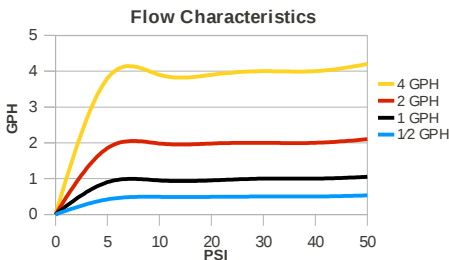
Features

- Velocity Self-Cleaning Mechanism purges at every start-up ensuring reliable operation and less maintenance with out a hydraulic penalty.
- Available with 10-32 Threaded or 1/4" Barbed Inlets and Diffused or Barbed Outlets.
- ISO compliant Cv performance and wide pressure compensation range (5-50 psi) delivers more consistent emission uniformity over a wide range of inlet pressures and undulating terrain.
- Color coded for easy flow identification.
- Engineering grade plastic and chloramine stabilized silicone diaphragm provide reliable performance in the toughest UV and chemical conditions.
- Ergonomic design eases installation fatigue.



Operating range

- Flow rates : 0.5GPH - 4GPH
- Pressure Compensating: 5-50 psi
- Filtration: 80 Mesh



How to Order:

GXBC051032M

Color:
 - **D** (Desert Camo)
 - **M** (Mulch Camo)
 - blank (Std Colors)

Inlet:
 - **1032** (Micro Thread)
 - blank (1/4" Barb)

Flow:
 - **05** (1/2 GPH, Blue)
 - **1** (1 GPH, Black)
 - **2** (2 GPH, Red)
 - **4** (4 GPH, Yellow)

Outlet:
 - **C** (Diffuser Cap)
 - blank (1/4" Barb)

Emitters

SpecFlow SL Series

Replaces Bowsmith™ SL 200 Series

The SpecFlow SL Series emitters bring ISO compliant Cv pressure compensation to the SL configuration. The series was designed to fill the need for a top quality pressure compensating 1/2" FIPT inlet x 1/4" barbed outlet configuration. Engineered with an integrated self sealing screen which eliminates the need for teflon tape. Performance guaranteed with the industry-first chloramine stabilized silicone diaphragm. The SpecFlow SL Series answers the call for a commercial grade threaded emitter.

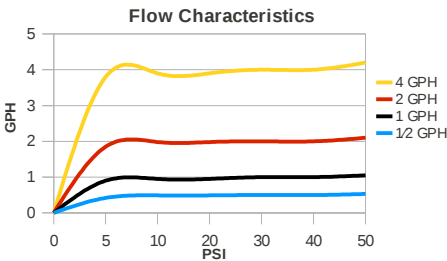


Features

- Velocity Self-Cleaning Mechanism purges at every start-up ensuring reliable operation and less maintenance without a hydraulic penalty.
- Self sealing screen eliminates teflon tape.
- ISO compliant Cv performance and wide pressure compensation range (5-50 psi) delivers consistent emission uniformity over a wide range of inlet pressures and undulating terrain.
- Color coded for easy flow identification.
- Engineering grade plastic and chloramine stabilized silicone diaphragm provide reliable performance in the toughest UV and chemical conditions.

Operating range

- Flow rates : 0.5GPH - 4GPH
- Pressure Compensating: 5-50 psi
- Filtration: 80 Mesh



How to Order:

GSL220D

Color:

- **D** (Desert Camo)
- **M** (Mulch Camo)
- blank (Std Colors)

Flow:

- **206** (1/2 GPH)
- **210** (1 GPH)
- **220** (2 GPH)
- **240** (4 GPH)

Bubblers

HiFlow Bubblers

Replaces RainBird™ 1400 Series PC Bubblers and Hunter™ PCB Series PC Bubblers

Pressure Compensating Full-Circle Bubblers irrigate tree, shrub and flower areas where pressure compensation is required. Deep watering without runoff.



Features

- Self sealing screen eliminates need for teflon tape
- Low flow rates allow water to be absorbed as needed
- Also available in Adjustable Flow version.
- Reduces runoff
- Flow will not fluctuate at pressures between 20 and 90 psi
- Maintains even flow
- Corrosion-proof plastic and rubber construction for long life
- Ergonomic design eases installation fatigue

Operating range

- Flow: 0.25 to 2.00 GPM
- Spacing: 1 to 3 feet
- Pressure: 20 to 90 psi

How to Order:

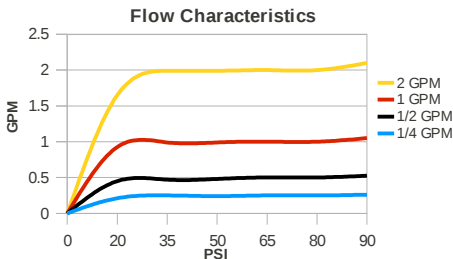
GPCB25D

Color:

- **D** (Desert Camo)
- **M** (Mulch Camo)
- *blank* (Black)

Flow:

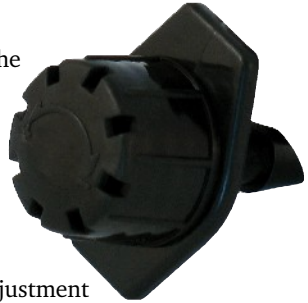
- **25** (1/4 GPM)
- **50** (1/2 GPM)
- **1** (1 GPM)
- **A** (Adjustable)



Bubblers

StreamFlow Bubblers

When precision is required in a micro spray bubbler, the StreamFlow delivers. Flow and radius is controlled simply by turning the cap. Spider-like pattern adjusts from 0 - 3 feet at 30 PSI. Our StreamFlow Bubblers allow the designer to choose from 90°, 180° or 360° patterns.



Features

- Simple twisting cap control for flow and radius adjustment
- 12 configurations allow for easy customization
- Manufactured from UV stabilized engineering grade plastics
- Ergonomic design eases installation fatigue
- Your choice of inlet options: Barbed, 10-32 Micro Thread or ½" FIPT

Operating range

- Flow: 0 - 20 GPH
- Spacing: 1 to 3 feet
- Pressure: 15 to 30 psi

How to Order:

GSBX180025M

Color:

- **D** (Desert Camo)
- **M** (Mulch Camo)
- *blank* (Black)

Inlet:

- **025** (1/4" Barb)
- **1032** (Micro Thread)
- **050** (1/2" FIPT)

Outlet:

- **90** (degrees)
- **180** (degrees)
- **360** (degrees)



Drip Accessories

Drip Filter

Our rugged design makes this filter capable of handling pressures up to 150 PSI. 3/4" MIPT x 3/4" MIPT easily threads into any 3/4" or 1" control valve. With only a 5 PSI loss at 15 GPM, this filter handles it all.



Features

- Flow-rates from 0 to 15 GPM
- Stainless Steel Screen for years of trouble free use
- 3/4" or 1" MIPT Inlet and Outlet makes quick work of connections
- Flush cap allows for easy cleaning of screen with out having to take the filter apart
- Made from highly inert materials that are resistant to chemicals
- Durable plastic construction is UV-resistant

How to Order:

GYFI150075

Size:

- 075 (3/4" MIPT)
- 100 (1" MIPT)

Pressure Regulator

Our Commercial Grade Pre-Set Pressure Regulator has been engineered to work in the harshest environments. Manufactured from engineering-grade thermoplastics with a stainless steel spring and TPR diaphragm.



Features

- Fixed pre-set outlet pressure
- Heavy-duty stainless steel spring
- Large diaphragm provides precise control on the flow curve
- Ultrasonically welded to eliminate accidental flow change
- Compact design for extra strength
- Made from highly inert materials that are resistant to chemicals
- Compact design for extra strength

How to Order:

GPR25

Operating range

- Flow: 0 - 7 GPM
- Outlet Pressure: 25 psi
- Max Inlet: 100 psi

Drip Accessories

Emitter Outlet Check Valve

A bug cap with a check valve. Our EOCV will prevent insect intrusion and back siphoning by checking the line pressure up to 3 feet of head.



Features

- Unbreakable PVC construction.
- Compatible with 1/4" Micro Tubing or 1/4" emitter outlets.

How to Order:

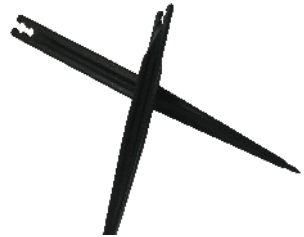
GEOCV125

For Tubing:

- 125 - 1/8" (0.125" OD)
- 220 - 1/4" (0.220"-0.250" OD)

Plastic Stake

The 6" Micro Tubing Stake firmly supports tubing 0.187" OD, 0.220" OD and 0.250" OD. Manufactured from UVR engineering grade plastic to ensure performance in the harshest soil applications. The two slots allow for use with 3/8" and 1/4" PE or Vinyl tubing. Its also designed with a built in hole punch to aid in emitter installation. This stake does it all.



Features

- Works with all Micro / Distribution tubing sizes
- Professional grade quality
- Built in hole punch

How to Order:

GDT520400B

Color:

- **B** (Black)
- blank (Brown)

PVC Coated Stake

These 9" PVC Coated Galvanized Supply Tubing Stakes firmly support tubing from 0.620" to 1.200" (1/2" - 1" IPS) OD in size. This stake is manufactured from galvanized wire with a UV stabilized black PVC coating that blends well with the tubing and has rust resistance. Its a great way to hold supply tubing in place in an on-grade or on-slope application.



Features

- PVC-coated galvanized wire to ensure rust resistance
- Compatible with 1/2" to 1" tubing
- Ideal for high profile applications

How to Order:

GDT530750

For Tubing:

- **30750** (Distribution)
- **140900** (Supply)

Galvanized Stake

These 6" Galvanized Supply Tubing Stakes firmly support tubing from 0.620" to 1.000" ($\frac{1}{2}$ " – 1" Poly) OD in size. This stake is manufactured from galvanized wire for rust resistance. Its a great way to hold supply tubing in place in an on-grade or on-slope application.

Features

- Galvanized wire for rust resistance
- Compatible with $\frac{1}{2}$ " to 1" IPS tubing



How to Order:
GTDS050

Goof Plugs

These well designed goof plugs fill unused or mis-punched holes. The barbed end keeps the goof plugs in place while prohibiting flow.

Features

- Plugs misplaced or unneeded punctures in supply tubing
- Two sided, plugs 0.187" ($\frac{1}{8}$ ") and 0.250" ($\frac{1}{4}$ ") size hole



How to Order:
GGP250

Hole Punch

Compact ergonomically designed hole punch designed for use with PE Supply Hose and Tubing. Brightly colored blue makes it easy to spot on the job site or in the toolbox.

Features

- Punches correct size hole for all emitters
- Works great on all PE Hose and Tubing
- Designed to ease the installation of hundreds of emitters



How to Order:
GHP250

Risers

Eco IH Risers

We developed the Eco-Riser to provide a top quality flex riser at a lower cost. With the Eco Riser you get all the durability and ruggedness that you have come to expect from the IH riser.

Our patent pending fitting design allows for a higher level of assembly automation reducing manufacturing cost while increasing quality and performance uniformity.

The Eco-Riser applies an internal hose retainer and an external hose barb to create a mechanical seal that is leak free and swivels 360° to aid in installation. As a result, the use of solvents is bypassed, making a more Eco-friendly product.



Features

- Available in lengths from 6" to 144" long.
- Accepts any Emitter, Bubbler or Spray Head with a 1/2" FIPT inlet.
- On grade or below grade installation.
- UV resistant.
- Available pre-assembled with a GPST2 emitter.

How to Order:

GECO12ABR

Hose Color:
- **BR** (Brown)
- *blank* (Black)

Assembly:
- **A** (Assembled w/ GPST2)
- *blank* (No emitter)

Length:
- **6, 12, 18, 24, ... 120** (inches)
- Custom Lengths Available



IH Riser

A flexible PVC riser that is pre-assembled with (2) 1/2" MIPT male adapters . It gives when kicked or stepped on unlike a traditional riser. It is ideal for slopes, medians and high traffic areas. Its the "unbreakable" riser.

The material cost alone are less pre-assembled than purchased separately in parts. Pre-assembly also reduces installation costs by up to 50%!

Also comes pre-assembled with the option of a DPST 1/2" thread x diffuser cap emitter which makes for the most rugged drip irrigation install in the industry.



Features

- Pre-assembled with two black 1/2" MIPT UVR male adapters.
- Color options of Black or Brown.
- On grade or below grade installation.
- Accepts any 1/2" FIPT emitter.

How to Order:

GIH12ABR

Hose Color:
 - BR (Brown)
 - blank (Black)

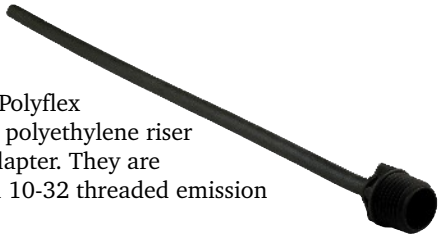
Assembly:
 - A (Assembled w/ GPST2)
 - blank (No emitter)

Length:
 - 6, 12, 18, 24, ... 120 (inches)
 - Custom Lengths Available

PolyFlex Riser/PE Micro Riser

Replaces Rainbird™ PFR Series Flex Risers

Save time an money installing drip with a Polyflex Riser, they are a thick-walled, high density polyethylene riser that comes assembled with a 1/2" MIPT adapter. They are designed to accept all emitters, Sprays and 10-32 threaded emission devices.



Features

- Use PFR to install emitters into PVC laterals for a durable system.
- Available in 6", 8", 12" and 24" lengths.
- Riser tubing can be easily cut to contour to the landscape.

How to Order:

GPFR12

Length:
 - 12 (12")
 - 18 (18")

PVC Hose & Tubing

Our Super Flexible and Ultra tough Supply Tubing has a long life expectancy, greater than 20 years! Its flexibility ensures it will not kink, which makes it a perfect fit for high traffic areas. You can bend it and loop it more easily than most tubing on the market. Manufactured from our durable UVR non-rigid PVC resin with a proprietary Algae Resistance package that is compounded into the tubing in the manufacturing process. Algae resistance is particularly important in on grade applications where increased water temperatures provide a host environment for algae growth that can clog emitters.



P-70 Primer with IPS-795 PVC Solvent Cement recommended for Schedule 40 fitting connections

Features

- Constructed from durable, UVR, S-0214 non-rigid PVC blend materials.
- Also available without algaeicide.
- Available in 4 different sizes: ½" Irrigation Size (¾"IPS), ½" IPS, ¾" IPS and 1" IPS.
- Kink resistant
- Can be installed at or below grade
- PVC Tubing is compatible with schedule 40 slip fittings of the corresponding size when welded or "glued".

Supply Tubing

Part Number <i>Add coil length in feet to end of Part #</i>	Without AR	Avail. Coil Lengths	OD	ID
GPVCAR050IRR	GPVC050IRR	500 ft	0.680"	0.500"
GPVCAR050IPS	GPVC050IPS	100, 200 ft	0.840"	0.560"
GPVCAR075IPS	GPVC075IPS	200 ft	1.050"	0.750"
GPVCAR100IPS	GPVC100IPS	100 ft	1.315"	1.000"

Also available in brown, call for more information.

Micro Tubing

Part Number <i>Add coil length in feet to end of Part #</i>	Available Coil Lengths	OD	ID
GPVC187125	50, 100, 1000, 2000 ft	0.187"	0.125"
GPVC220160	50, 100, 1000, 2000 ft	0.220"	0.160"
GPVC250170	50, 100, 1000, 2000 ft	0.250"	0.170"

PE Hose & Tubing

Constructed from high quality, UVR resin blend materials, this tubing is rated up to 80 psi. Available in 50, 100, 500, and 1,000 foot coils, tubing can be purchased individually, by the pallet or truckload. All for a very reasonable price.



Features

- Manufactured from the Highest Quality DOW Fingerprint® Resin
- Available in 3 different sizes: 700x600, 710x620 and 940x820
- Constructed from durable, UV resistant, resin blend materials
- 60 psi rating exceeds competitor specs
- Can be installed at or below grade
- Compatible barb fittings or with standard compression fittings
- 100', 500' and 1,000' coils sold individually, by the pallet and truckload

Supply Tubing

Part Number <i>Add coil length in feet to end of Part #</i>	Available Coil Lengths	OD	ID
GPE620520	50, 100, 500, 1000 ft	0.620"	0.520"
GPE700600	50, 100, 500, 1000 ft	0.700"	0.600"
GPE710620	50, 100, 500, 1000 ft	0.710"	0.620"
GPE940820	100, 500, 1000 ft	0.940"	0.820"
GPE12001060	100, 500 ft	1.200"	1.060"

Micro Tubing

Part Number <i>Add coil length in feet to end of Part #</i>	Available Coil Lengths	OD	ID
GPE187125	50, 100, 1000, 2000 ft	0.187"	0.125"
GPE220160	50, 100, 1000, 2000 ft	0.220"	0.160"
GPE250170	50, 100, 1000, 2000 ft	0.250"	0.170"

Fittings

Micro Fittings

1/4" Micro Fittings are a great way to connect your 1/4" distribution tubing to supply hose or to connect two pieces of distribution tubing together.

Features

- Secure and easy installation without glue or clamps
- Large inside diameter for maximum flow
- One piece construction
- UV-resistant
- Fits 1/4" (0.145 - 0.190 ID) distribution tubing
- Operating Pressure: Up to 30 PSI
- Made of Acetal, a strong material that won't crack or snap.



How to Order:

GQBT

Configuration:

- C (Coupler)
- E (Elbow)
- T (Tee)

ProLock Compression Fittings

GPH compression fittings are constructed of molded UV resistant high impact plastic and are available to fit most sizes of 1/2" drip hose. Our ProLock Compression Fittings ensure a reliable mechanical seal and come in a wide range of configurations to meet all applications of drip irrigation systems.

Features

- Available in color coded sizes:
 - 0.620" OD – Green
 - 0.700" OD – Black
 - 0.710" OD – Blue
- High impact plastic
- UV-resistant
- Secure and easy installation without glue or clamps



How to Order:

GCEL700

Tubing Size:

- 600 (0.600")
- 700 (0.700")
- 710 (0.710")

Configuration:

- MA (1/2" Male Adapter)
- A (PVC Glue-In Adapter)
- SA (1/2" Slip x Comp. Adapter)
- C (Coupler)
- EL (Elbow)
- EP (End Plug w/Threaded Cap)
- T (Tee)
- SAW (3/4" FHT Swivel Adapter)
- ST (3/4" FHT Swivel Tee)

ProLock Figure 8 End Closure

The most common fitting used to end a line. Simply slip over the end of the line, bend the tubing over, and slide the figure 8 back over the remaining hose for a leak proof fit.



Features

- For use with all 1/2" PE Hose, 0.610" OD, 0.700" OD & 0.710" OD.
- High impact plastic
- UV-resistant
- Secure and easy installation without glue or clamps

How to Order:

GF8

PVC Male Adapters

The GPH Male Adapter is a Black UVR 1/2" Male Pipe Thread Schedule 40 Male Adapter. Its manufactured from high impact PVC to meet all applicable ASTM standards.



Features

- Available in:
 - 1/2" MIPT X 1/2" Socket
 - 1/2" MIPT x 1/2" Irrigation Size Socket (3/8" IPS).
- High impact plastic.
- UV-resistant.
- Standard solvent welding technique.

How to Order:

G436073BR

Color:

- **B** (Black)
- **BR** (Brown)

Slip Size:

- **073** (1/2" Irr. / 3/8" IPS)
- **005** (1/2" IPS)

Swing Joints & Spray Accessories

Swing Joints

Use our Pre-Assembled Swing Joint to Maximize the Performance of Your Rotors or Sprays. Connects 1/2" or 3/4" sprinklers or quick coupler valves to lateral pipes. Allows easy adjustment of head and prevents heads or pipes from breaking when run over by equipment or kicked by foot traffic.



Features

- 1/2" x 6" Long and 1/2" x 12" long.
- Pre-assembled with Marlex St. Ell for leak free adjustments.
- Speeds up sprinkler installs, easy adjustment makes properly positioning heads a snap.
- less contractor call backs.
- Up to 80 psi and 110° F.

How to Order:

GSJ7506

Length:

- 06 (6")
- 12 (12")

Adapter Size:

- 05 (1/2" MIPT)
- 75 (3/4" MIPT)

Spiral Barb Fittings

The GPH Spiral Barb Ells have a positive locking design that insures against leaking and blow out. Fittings are made of robust acetal material to make connecting swing pipe fast and easy with the simple twist-in insertion. No glue or clamps needed for installation. Aggressive barb lip makes a secure connection that is less likely to leak and reduces likelihood of contractor call backs.

Features

- Easily handles pressures up to 150 psi at 110° F
- Less contractor call backs
- For use in conjunction with Swing Pipe as a flexible swing assembly.



How to Order:

GSBE050

Thread*:

- **050** (1/2" MIP/T)

- **075** (3/4" MIP/T)

* Only for Swing El and Adaptors.

Configuration:

- **C** (Coupler)

- **E** (Swing Joint Elbow)

- **T** (Tee)

- **A** (Adapter)

Marlex Ell

A Male Threaded by Female Threaded street elbow fitting typically used in connection from lateral to sprinkler to provide adjustment of sprinkler head. Manufactured from self sealing High Density Polyethylene which allows for leak free operation with out the use of Teflon tape.

When used in pairs or triplicate, Marlex street ells provide stability to support sprinkler head during installation and enough flexibility when backfilling to fine adjust the sprinkler head to desired grade-level and vertical orientation.

Features

- Manufactured of a self lubricating, semi-flexible material.
- 30% more tapered threads than others to accommodate standard variance found in industry threaded components.



How to Order:

GM412005

Swing Joints & Spray Accessories

Swing Pipe

Replaces Rainbird™ SPX-100 Super Flex Swing-Pipe

Designed to simplify spray head installation, this tubing is ideal for challenging landscapes and hard-to-reach areas. Superior flexibility allows pipe to be efficiently routed around hard scape, terraces, and uneven terrain.

Textured surface makes product easier to handle, contributing to labor efficiency, especially under wet conditions. Up to 30% more flexible than competitors.

Use with Swing Joint Ell's as a flexible swing assembly for sprays and rotors.



How to Order:

GDPS100

Finish:

- S (Smooth)
- X (Textured)

Features

- Enhanced kink resistance
- Specifications Inside diameter: 0.49"
- Operating pressure up to 80 psi at 110° F

4 in 1 Cut off Nipple

Replaces DFW Plastics™ 4 in 1 Series Cut Off Nipples

The 4 In 1 nipple allows you to choose several different sizes with just one nipple.

Features

- Available in 1/2" and 3/4"
- Reduce Inventory
- No Waste
- Reduce Contractor Down Time
- No Cross Threaded Nipples
- One 6" nipple be easily cut to provide the following configurations:
 - One close nipple and one 4 1/2" nipple
 - One close nipple, one 2" nipple and one 2-1/2" nipple
 - Two close nipples and one 2-1/2" nipple



How to Order:

G41CN075

Size:

- 050 (1/2" MIPT)
- 075 (3/4" MIPT)

Shrub Adapter

Replaces Rainbird™ PA-8S

Ultra Tough Shrub Adapter, manufactured from self sealing engineering grade resins. No need to Teflon tape your riser when you use this Shrub Adapter. Designed for all female threaded nozzles.



Features

- Adapts all female threaded nozzles to ½" MPT threaded risers
- Accepts all protective filter screens
- Durable, non-corrosive plastic construction.

How to Order:

GPA8S

Reference

Flex PVC Friction Loss

This table shows the friction loss in PSI per 100ft of Flex PVC Supply Hose. Values in red denote flows that exceed the recommended velocity of 5 ft/s, and should be avoided. Table is for reference only.

GPH	3/8" IPS		1/2" IPS		3/4" IPS		1" IPS		GPM
	ID: 0.500 in ft/s	PSI	ID: 0.560 in ft/s	PSI	ID: 0.750 in ft/s	PSI	ID: 1.000 in ft/s	PSI	
5	0.14	0.02	0.11	0.01	0.06	0.00	0.03	0.00	0.1
10	0.27	0.06	0.22	0.03	0.12	0.01	0.07	0.00	0.2
20	0.54	0.21	0.43	0.12	0.24	0.03	0.14	0.01	0.3
30	0.82	0.45	0.65	0.26	0.36	0.06	0.20	0.02	0.5
40	1.09	0.77	0.87	0.44	0.48	0.11	0.27	0.03	0.7
50	1.36	1.16	1.09	0.67	0.61	0.16	0.34	0.04	0.8
75	2.04	2.45	1.63	1.41	0.91	0.34	0.51	0.08	1.3
100	2.72	4.18	2.17	2.40	1.21	0.58	0.68	0.14	1.7
125	3.40	6.31	2.71	3.63	1.51	0.88	0.85	0.22	2.1
150	4.09	8.84	3.26	5.09	1.82	1.23	1.02	0.30	2.5
175	4.77	11.76	3.80	6.77	2.12	1.63	1.19	0.40	2.9
200	5.45	15.06	4.34	8.67	2.42	2.09	1.36	0.51	3.3
225	6.13	18.72	4.88	10.78	2.72	2.60	1.53	0.64	3.8
250	6.81	22.75	5.43	13.10	3.03	3.16	1.70	0.78	4.2
275	7.49	27.14	5.97	15.63	3.33	3.77	1.87	0.93	4.6
300	8.17	31.88	6.51	18.36	3.63	4.42	2.04	1.09	5.0
350	9.53	42.39	7.60	24.41	4.24	5.88	2.38	1.45	5.8
400			8.68	31.25	4.84	7.53	2.72	1.86	6.7
450			9.77	38.86	5.45	9.37	3.06	2.31	7.5
500					6.05	11.38	3.40	2.80	8.3
550					6.66	13.58	3.74	3.35	9.2
600					7.26	15.95	4.09	3.93	10.0
700					8.47	21.22	4.77	5.23	11.7
800					9.68	27.16	5.45	6.69	13.3
900							6.13	8.32	15.0
1000							6.81	10.11	16.7

Values calculated with the Hazen-Williams formula with a friction coefficient (c) of 130 for Flex PVC.

PE Friction Loss

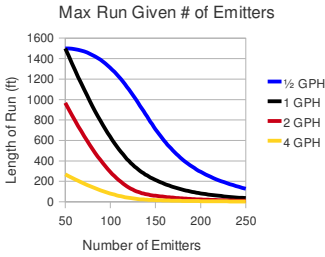
This table shows the friction loss in PSI per 100ft of Polyethylene Supply Hose. Values in red denote flows that exceed the recommended velocity of 5 ft/s, and should be avoided. Table is for reference only.

GPH	620x520		700x600		710x620		940x820		1200x1060		GPM
	ft/s	PSI	ft/s	PSI	ft/s	PSI	ft/s	PSI	ft/s	PSI	
5	0.13	0.01	0.09	0.01	0.09	0.01	0.05	0.00	0.03	0.00	0.1
10	0.25	0.04	0.19	0.02	0.18	0.02	0.10	0.00	0.06	0.00	0.2
20	0.50	0.15	0.38	0.08	0.35	0.07	0.20	0.02	0.12	0.00	0.3
30	0.76	0.32	0.57	0.16	0.53	0.14	0.30	0.04	0.18	0.01	0.5
40	1.01	0.55	0.76	0.28	0.71	0.23	0.41	0.06	0.24	0.02	0.7
50	1.26	0.83	0.95	0.42	0.89	0.35	0.51	0.09	0.30	0.03	0.8
75	1.89	1.77	1.42	0.88	1.33	0.75	0.76	0.19	0.45	0.06	1.3
100	2.52	3.01	1.89	1.50	1.77	1.28	1.01	0.33	0.61	0.09	1.7
125	3.15	4.55	2.36	2.26	2.21	1.93	1.27	0.49	0.76	0.14	2.1
150	3.78	6.37	2.84	3.17	2.66	2.70	1.52	0.69	0.91	0.20	2.5
175	4.41	8.47	3.31	4.22	3.10	3.60	1.77	0.92	1.06	0.26	2.9
200	5.04	10.84	3.78	5.40	3.54	4.60	2.03	1.18	1.21	0.34	3.3
225	5.67	13.48	4.26	6.72	3.99	5.73	2.28	1.47	1.36	0.42	3.8
250	6.29	16.39	4.73	8.16	4.43	6.96	2.53	1.78	1.51	0.51	4.2
275	6.92	19.55	5.20	9.74	4.87	8.30	2.78	2.13	1.67	0.61	4.6
300	7.55	22.96	5.67	11.44	5.31	9.75	3.04	2.50	1.82	0.72	5.0
350	8.81	30.54	6.62	15.21	6.20	12.97	3.54	3.32	2.12	0.95	5.8
400			7.56	19.47	7.08	16.60	4.05	4.25	2.42	1.22	6.7
450			8.51	24.21	7.97	20.64	4.56	5.29	2.73	1.52	7.5
500			9.46	29.43	8.86	25.08	5.06	6.43	3.03	1.84	8.3
550					9.74	29.92	5.57	7.67	3.33	2.20	9.2
600							6.08	9.01	3.64	2.58	10.0
700							7.09	11.98	4.24	3.43	11.7
800							8.10	15.33	4.85	4.39	13.3
900							9.11	19.07	5.45	5.46	15.0
1000									6.06	6.64	16.7

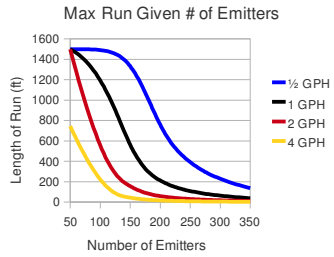
Values calculated with the Hazen-Williams formula with a friction coefficient (c) of 140 for Polyethylene.

Maximum Emitters on a Line

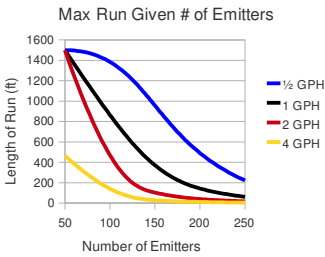
3/8" IPS



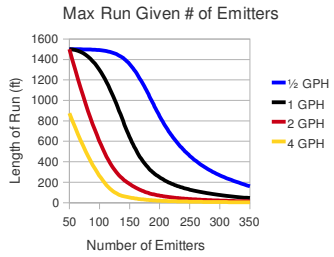
700x600 PE



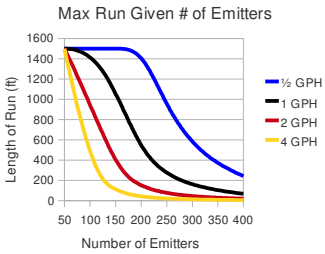
1/2" IPS



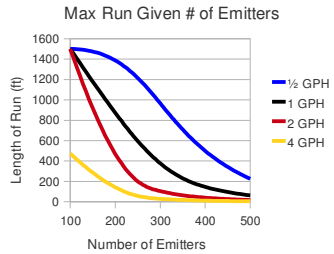
710x620 PE



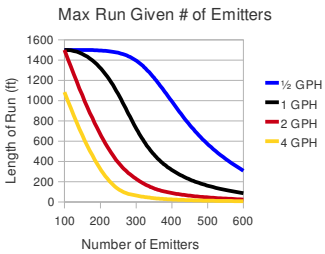
3/4" IPS



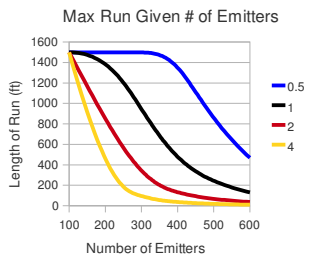
940x820 PE



1" IPS



1200x1060 PE



Equations

Flow in a pipe

$$Q = A \times V$$

Where:

Q = Discharge (ft³/s)

A = Cross Sectional Area (ft²)

V = Average Velocity (ft/s)

Velocity in a pipe

$$V = \frac{0.408 \times Q}{(ID)^2}$$

Where:

V = Average Velocity (ft/s)

Q = Discharge (GPM)

ID = Inside Diameter of pipe (in)

Hazen-Williams Formula

$$P = \left(\frac{4.52 \times Q^{1.852}}{c^{1.852} \times D^{4.87}} \right) \times (length)$$

Where:

P = Pressure Drop (PSI)

Q = Discharge (GPM)

c = Friction Coefficient

– PVC: 130

– PE: 140

– Copper: 135

– Galvanized Pipe: 120

D = Pipe Inside Diameter (in)

Length = Length of Pipe (ft)

Pumps

$$Q = \frac{HP \times 2178}{ft_h}$$

$$ft_h = \frac{HP \times 2178}{Q}$$

$$HP = \frac{W}{745.7}$$

Where:

Q = Discharge (GPM)

HP = Brake Horsepower

ft_h = Feet of Head

W = Wattage (Watts)

Electricity

$$V = I \times R$$

$$I = \frac{V}{R}$$

$$R = \frac{V}{I}$$

$$W = V \times I = \frac{V^2}{R} = I^2 \times R$$

Where:

V = Voltage (Volts)

I = Current (Amps)

R = Resistance (Ohms)

W = Wattage (Watts)

Reference

Conversions

Length

Inch	= 0.08333 ft = 25.4 mm = 2.54 cm
Foot	= 12 in = 0.3333 yds = 304.8 mm = 30.4 cm
Yard	= 36 in = 3 ft = 91.44 cm = 0.9144 m
Mile	= 5,280 ft = 1,760 yds = 1,609.3 m = 1.609 km
Millimeter	= 0.0394 in
Centimeter	= 0.3937 in
Meter	= 39.37 in = 3.281 ft = 1.094 yds
Kilometer	= 3,280.87 ft = 1,093.6 yds = 0.6214 mi = 1,000 m

Area

Acre	= 43,560 ft ² = 4840 yd ² = 0.001563 mi ² = 4,046.85 m ²
Sq. Mile	= 27,878,400 ft ² = 3,097,600 yd ² = 2,589,988.11 m ²
Sq. km	= 10,763,910.4 ft ² = 1,195,990.1 yd ² = 0.3861 mi ² = 1,000,000 m ²
Hectare	= 107,639.1 ft ² = 11,959.9 yd ² = 0.003861 mi ² = 10,000 m ²

Volume

US Gallon	= 128 fl oz. = 8 pints = 4 quarts = 0.1337 ft ³ = 3.785 L = 8.36 lbs (H ₂ O)
Cu. Foot	= 7.481 gal = 28.317 L = 62.4 lbs (H ₂ O)
Acre-Inch	= 27,154.3 gal = 3630 ft ³
Acre-Foot	= 325,851.4 gal = 43,560 ft ³
Liter	= 0.2642 gal = 0.0353 ft ³

Mass

Pound	= 453.6 g = 0.4536 kg = 0.12 gal (H ₂ O) = 0.016 ft ³ (H ₂ O)
Kilogram	= 2.21 lbs = 0.264 gal (H ₂ O) = 0.035 ft ³ (H ₂ O)

Flow

GPH	= 0.0167 GPM = 3.785 LPH = 0.0631 LPM
GPM	= 60 GPH = 227.13 LPH = 3.785 LPM = 0.1337 ft ³ /m
ft ³ /s	= 0.00223 GPM
LPH	= 0.264 GPH = 0.0044 GPM
LPM	= 15.85 GPH = 0.264 GPM

Pressure

PSI	= 2.31 ft _h = 0.0689 bar = 6.895 kpa
Foot Head	= 0.433 PSI = 0.0298 bar = 2.985 kpa

Terms & Conditions

Terms

GPH Irrigation Product's standard terms are net 30 days. A late payment charge of 1.5% per month may be assessed on all past due accounts.

Freight

All sales are FOB, San Bernardino County, California – unless quoted otherwise.

Current Sales Price

Products are sold at prices in effect at the time an order is received. Prices are subject to change without prior notice.

Returned Merchandise Authorization

Authorization must be obtained from the factory before any products can be returned. We reserve the right to impose a twenty percent (20%) restocking charge. All returned goods must be returned freight prepaid and must be of current design and resalable condition.

Product Design

We reserve the right to make changes in design or improvements without assuming liability to change products previously sold.

Warranty

GPH Irrigation Products warrants against any manufacturing defects for a period of three years from the date of sale. The warranty is constrained by the fact that the irrigation system is designed, installed and maintained in accordance with the directions available through GPH Irrigation Products. No warranty shall extend beyond the description of goods sold as shown on GPH's sales Invoice. This warranty is limited to repair or replacement of such parts or components proven to be defective in material or workmanship when manufactured by GPH Irrigation Products. GPH Irrigation Products shall not be responsible for any consequential damages. GPH Irrigation Products only obligation, in the event the goods sold do not conform to its physical or performance description, is limited to replacement, as stated above, of nonconforming goods or parts. The warranty does not cover: nonconforming performance due to improper design, installation or maintenance; acts of God; damage due to animals, freezing or contamination to any of GPH Irrigation Products. The use of any registered trade marks or trade names are owned by their respective companies.



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