



## *2009 Specification Book*



## SPECIFICATION

### PVC AR SUPPLY TUBING

#### Part # GPVCARXXXXXX

The subject non-rigid poly-vinyl-chloride (PVC) hose is to be extruded using GPH'S integrally compounded algae-resistant S-0214 material that shall conform to all of the following.

Hardness (A Shore) - 92 to 86 tested per ASTM Method D2240  
 Specific Gravity, nominal - 1.42 +/- .02 tested per ASTM Method D792(A)  
 100% Modulus: -1800 (psi)  
 Tensile Strength, minimum -2450 (psi) tested per ASTM Method D412  
 Brittleness Temp., maximum -20 C tested per ASTM Method D746(A)  
 Elongation: -270%

Algae resistant hose shall be in compliance with ASTM F-21-70\* (Fungus Testing) and ASTM G-42\* (Algal Testing). Hose shall be uniformly black in color, smooth inside and outside, free of foreign material contamination and have no cracks, pinholes, dents, wrinkles or blisters.

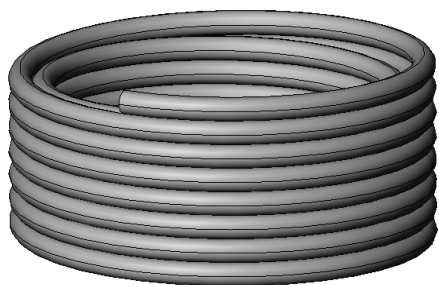
\*Independent laboratory test result data are available on request.

The tubing is UV Resistant as well as Algae Resistant. PVC AR Supply Tubing is compatible with schedule 40 slip fittings of the corresponding size. The fittings should be welded or "glued".

The "XX" designates the position within the part number where the tubing size (in IPS format) should be inserted.

Part No.	Size	Inside Dia. (in.)	Wall thickness (in.)	Outside Dia (in.)
GPVCAR050IRR	1/2(HOSE)	0.5	0.09	0.68
GPVCAR050IPS	1/2 (IPS)	0.56	0.14	0.84
GPVCAR075IPS	3/4 (IPS)	0.75	0.15	1.05
GPVCAR100IPS	1 (IPS)	1	0.16	1.32

Note: GPH recommends the use of P-70 Primer with IPS-795 PVC Solvent Cement for Schedule 40 fitting connections.



## SPECIFICATION

### PE SUPPLY TUBING

#### Part # GPEXXXXXX

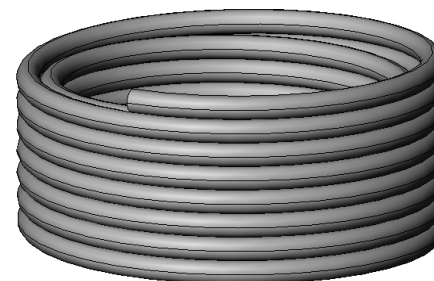
The polyethelene supply tubing shall be made of Linear Low Density Polyethylene and shall be sufficiently flexible to bend on a radius of one-quarter inch without kinking or suffering a permanent set which would affect its flow capacity.

The Polyethylene tubing shall be extruded from linear low density material with an antioxidant component. The tubing has an ultraviolet radiation inhibitor to minimize the hazards of solar radiation. Making it what we call "UV Resistant".

The tubing is to be uniformly black in color, homogeneous throughout and smooth inside and outside, free from foreign materials, cracks, holes, dents, wrinkles and blisters.

Part No.	Size	Inside Dia. (in.)	Wall thickness (in.)	Outside Dia (in.)
GPE620520XXX	1/2"	0.520"	0.05"	0.620"
GPE700600XXX	1/2"	0.600"	0.05"	0.700"
GPE710620XXX	1/2"	0.620"	0.045"	0.710"
GPE940820XXX	3/4"	.820"	0.06"	0.940"

The tubing shall withstand a minimum steady state internal pressure to 60 psi, at 68°F, without failure. The tubing should be used with the corresponding size of micro or distribution barb fittings or emitter barbs.



**SPECIFICATION**  
**PVC DISTRIBUTION TUBING**  
**Part # GPVCXXXXXX**

The emitter distribution tubing shall be made of plasticized PVC and shall be sufficiently flexible to bend on a radius of one-quarter inch without kinking or suffering a permanent set which would affect its flow capacity. The tubing is UV Resistant as well as Algae Resistant.

The flexible PVC tubing shall be extruded from non-rigid polyvinyl chloride PVC compound conforming to ASTM Designation D2287. S-0214 material that shall conform to all of the following.

Hardness (A Shore) - 92 to 86 tested per ASTM Method D2240  
 Specific Gravity, nominal - 1.42 +/- .02 tested per ASTM Method D792(A)  
 100% Modulus: -1800 (psi)  
 Tensile Strength, minimum -2450 (psi) tested per ASTM Method D412  
 Brittleness Temp., maximum -20 C tested per ASTM Method D746(A)  
 Elongation: -270%

The tubing is to be uniformly black in color, homogeneous throughout and smooth inside and outside, free from foreign materials, cracks, holes, dents, wrinkles and blisters.

Part No.	Size	Inside Dia. (in.)	Wall thickness (in.)	Outside Dia (in.)
GPVC187125	1/8"	0.125"	.062"	0.68
GPVC220160	1/4"	0.160"	0.06	0.84
GPVC250170	1/4"	0.170"	0.08	.220

The tubing shall withstand a minimum steady state internal pressure to 60 psi, at 68°F, without failure. The tubing should be used with the corresponding size of micro or distribution barb fittings. The Distribution tubing should not be welded or glued with these fittings. distribution tubing shall be made of Linear Low Density Polyethylene and shall be sufficiently flexible to bend on a radius of one-quarter inch without kinking or suffering a permanent set which would affect its flow capacity.



**SPECIFICATION**  
**PVC DISTRIBUTION TUBING**  
**Part # GPVCXXXXXX**

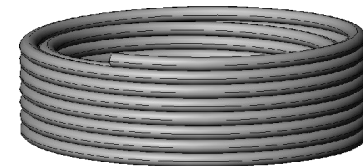
The Polyethylene tubing shall be extruded from linear low density material with an antioxidant component. The tubing has an ultraviolet radiation inhibitor to minimize the hazards of solar radiation. Making it what we call "UV Resistant".

Specific Gravity, nominal - .93 +/- .02 tested per ASTM Method D792(A)  
 100% Modulus: -2300 (psi)  
 Tensile Strength, minimum -2450 (psi) tested per ASTM Method D412  
 Brittleness Temp., maximum -20 C tested per ASTM Method D746(A)  
 Elongation: -490%

The tubing is to be uniformly black in color, homogeneous throughout and smooth inside and outside, free from foreign materials, cracks, holes, dents, wrinkles and blisters.

Part No.	Size	Inside Dia. (in.)	Wall thickness (in.)	Outside Dia (in.)
GPE187125	1/8"	0.125"	.062"	0.68
GPE220160	1/4"	0.160"	0.06	0.84
GPE250170	1/4"	0.170"	0.08	.220

The tubing shall withstand a minimum steady state internal pressure to 60 psi, at 68°F, without failure. The tubing should be used with the corresponding size of micro or distribution barb fittings. The Distribution tubing should not be welded or glued with these fittings.



## SPECIFICATION

### **DPX SWING PIPE**

**Part # GDPX100**

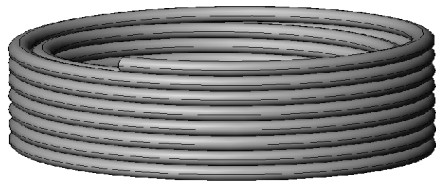
The DPX Flex, Textured Flex Swing Pipe shall be made of Linear Low Density Polyethylene and shall be sufficiently flexible to bend on a radius of six inches without kinking or suffering a permanent set which would affect its flow capacity.

The swing pipe shall be extruded from linear low density material with an antioxidant component. The swing pipe has an ultraviolet radiation inhibitor to minimize the hazards of solar radiation. Making it what we call "UV Resistant".

The swing pipe is to be uniformly black in color, homogeneous throughout and smooth inside and outside, free from foreign materials, cracks, holes, dents, wrinkles and blisters.

Part No.	Inside Dia. (in.)	Wall thickness (in.)	Outside Dia (in.)
GDPX100	.490"	.100"	.690"

The swing pipe shall withstand a minimum steady state internal pressure to 80 psi, at 68 °F, without failure. The tubing should be used with the corresponding size of fittings (swing els).



## SPECIFICATION

### **SINGLE OUTLET EMITTER**

**¼" Barb Inlet x Diffuser Cap**

**Part # GDPJXX**

GDPJ's are a single outlet emitter with ¼" inlet barb x diffuser cap outlet. The emitters can be either punched into a supply flexible hose, polyethylene hose and placed next to the plants root zone or inserted into distribution tubing at the plant material.

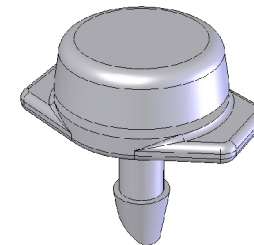
The emitters have fixed flow (non-adjustable) and are available in 4 different flows. The GDPJ emitters are fully pressure compensated from (5 - 45psi ; 0.33-3bars) and will deliver a flow rate of one-half, one, two or 4 gallons per hour, plus or minus 10 percent over a pressure range, at the emitter, of ten to fifty pounds per square inch.

The punch-in end of the emitter, or inlet shaft, has a length of 0.270 inch nominal. This is of sufficient length for easy entry, and retention of the emitter into various types of drip irrigation hose of wall thickness up to 0.160 inches (or riser adapters of web thickness up to 0.160 inch). The barbs have a nominal diameter of 0.170 inch at the neck and 0.190 inch at the shoulder. The GDPJ emitters are compatible with GPH's PVC distribution tubing as well as our Polyethylene distribution tubing having a .160" ID as well as .170" ID (both 1/4" sizes that we offer).

The outlet of the emitters are covered with a protective cap such that the water outlet flows out of the inside periphery of the emitter.

Emitters are color coded to distinguish flow rates and are made of high impact resistant abs thermoplastic with an ultraviolet radiation inhibitor to minimize the hazards of solar radiation.

Part No.	Flow Rate (gallons per hour)	Color	Configuration
GDPJ02	½ GPH	blue	¼" inlet x diffuser cap
GDPJ04	1 GPH	black	¼" inlet x diffuser cap
GDPJ08	2 GPH	red	¼" inlet x diffuser cap
GDPJ16	4 GPH	yellow	¼" inlet x diffuser cap



## SPECIFICATION

### SINGLE OUTLET EMITTER

**¼" Barb Inlet x ¼" Barb Outlet**

**Part # GXBXXPC**

GXB emitters are available in ¼" barb inlet x ¼" barb outlet. Properly installed, the GXB emitter should be inserted inlet side into the Supply PVC Hose or Supply PE Tubing. A Hose punch with the same dimension as the corresponding dimension to the ¼" barb should be used to punch a hole in the tubing and then the emitter inserted. The outlet side of the emitter then should have the compatible ¼" distribution tubing leading to the plant.

The emitters have fixed flow (non-adjustable) and are available in 4 different flows. The GXB emitters are fully pressure compensated from (5 - 45psi ; 0.33-3bars) and will deliver a flow rate of one-half, one, two or 4 gallons per hour, plus or minus 10 percent over a pressure range, at the emitter, of ten to fifty pounds per square inch.

The punch-in end of the emitter, or inlet shaft, has a length of 0.270 inch nominal. This is of sufficient length for easy entry, and retention of the emitter into various types of drip irrigation hose of wall thickness up to 0.160 inches (or riser adapters of web thickness up to 0.160 inch). The barbs have a nominal diameter of 0.170 inch at the neck and 0.190 inch at the shoulder.

The outlet of the emitter has a barb configuration that is designed to accept distribution tubing of a nominal 1/4" inside diameter.

Emitters are color coded to distinguish flow rates and made of high impact resistant abs thermoplastic with an ultraviolet radiation inhibitor to minimize the hazards of solar radiation.

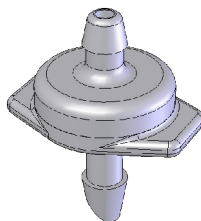
Part No.	Flow Rate (gallons per hour)	Color	Configuration
GXB05	½ GPH	blue	¼" inlet x ¼" outlet
GXB1	1 GPH	black	¼" inlet x ¼" outlet
GXB2	2 GPH	red	¼" inlet x ¼" outlet
GXB4	4 GPH	yellow	¼" inlet x ¼" outlet

Operating Range:

P.C.: .5,1,2 & 4 GPH

Pressure: 5-45 PSI

Filtration: 80-150 mesh



## SPECIFICATION

### GPST SERIES EMITTERS

**Part #: GPSTXX**

The inlet of the emitter shall be threaded with one-half inch female threads so that it may be screwed onto a standard one-half inch male threaded fitting or nipple. The emitters shall be available in flow rates of one-half, one, two and four gallons per hour. Each outlet of each emitter shall be fully pressure-compensated and self-flushing with a diffuser cap. The outlet of the emitter shall have a separate silicone elastomer control element to provide pressure compensation.

Features:

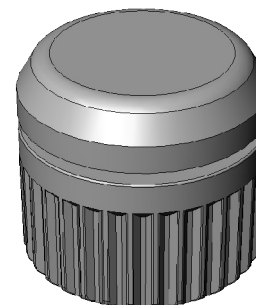
- Stamped Flow and Color Coded for Easy Installation  
Fully Pressure Compensating Design delivers uniform flow throughout a wide pressure range (5-45 psi; 0.33-3 bars), regardless of pressure inconsistencies (from elevation changes, etc..)
- 1/2" FIPT (PST) or Barbed Base (PS) configuration to handle every design situation.
- Available in flow rates of 0.5, 1, and 2 GPH. Flow rates and flow direction are clearly molded into diffuser cap.  
Rugged design using UV Inhibiting Engineering Grade plastics to ensure maximum life span.
- Barbed emitters are compatible with PVC or Polyethylene Tubing. 1/2" FIPT emitters are compatible with all standard 1/2" MIPT fittings.

Operating Range:

P.C. Flow: 0.5, 1, 2 & 4 GPH

Pressure: 5-65 PSI

Filtration: 80-150 Mesh



## SPECIFICATION

### GSL SERIES EMITTERS

Part #: GSL2XX

The inlet of the emitter shall be threaded with one-half inch female threads so that it may be screwed onto a standard one-half inch male threaded fitting or nipple. The emitters shall be available in flow rates of one-half, one, two and four gallons per hour. Each outlet of each emitter shall be fully pressure-compensated and self-flushing with a 90° 1/4" Barb. The outlet of the emitter shall have a separate silicone elastomer control element to provide pressure compensation.

#### Features:

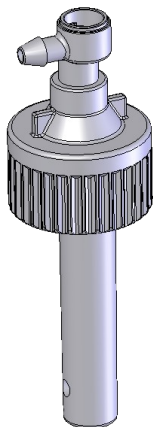
- Stamped Flow and Color Coded for Easy Installation  
Fully Pressure Compensating Design delivers uniform flow throughout a wide pressure range (5-45 psi; 0.33-3 bars), regardless of pressure inconsistencies (from elevation changes, etc..)
- 1/2" FIPT (PST) or Barbed Base (PS) configuration to handle every design situation.
- Available in flow rates of 0.5, 1, and 2 GPH. Flow rates and flow direction are clearly molded into diffuser cap.  
Rugged design using UV Inhibiting Engineering Grade plastics to ensure maximum life span.
- Barbed emitters are compatible with PVC or Polyethylene Tubing. 1/2" FIPT emitters are compatible with all standard 1/2" MIPT fittings.

#### Operating Range:

P.C. Flow: 0.5, 1, 2 & 4 GPH

Pressure: 5-65 PSI

Filtration: 80-150 Mesh



## SPECIFICATION

### *Plastic Tubing Stakes* *Distribution Tubing Stake*

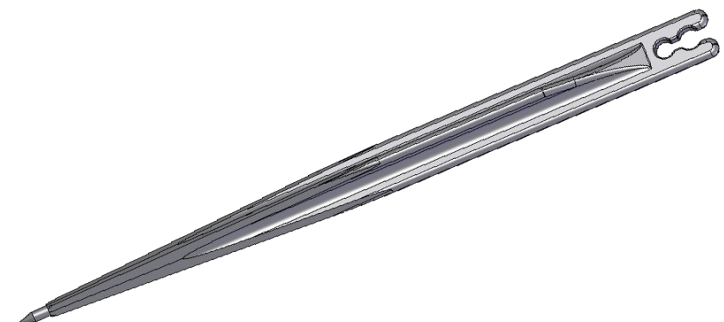
Part # GDTs20400

Tubing stakes shall be no less than six inches in length. They shall be made of plastic and include provision for securing emitter distribution tubing of different diameters ranging from 0.187 inch O.D. to 0.250 inch O.D.. Provisions for securing the tubing shall be such that it is not necessary to thread the tubing through a hole.

The stake shall be reinforced with vertical ribs for maximum bending strength. It shall be made of UV resistant polypropylene injection molding grade resin with the following properties at approximately 23°C.

Density	0.90g/sq cm
Yield strength	5,200 psi
Elongation at break	30%
Flexure modulus	200,000 psi
Durometer	76 shore D
Rockwell Hardiness	104 R scale

The stake shall be pointed, at the end which does not support the distribution tubing, to facilitate penetration into the soil.



## **SPECIFICATION**

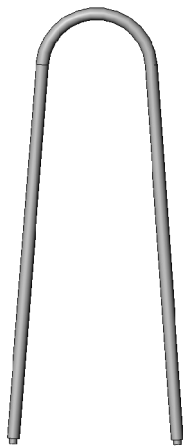
### ***PVC Coated Wire Stake Distribution Tubing Stake***

**Part # GDTS30750**

The purpose of the tubing stake is to secure distribution tubing, up to 0.30 inches in diameter, in various types of soils so that the drip irrigation emitter outlet stays directed in the location desired.

The tubing stakes shall be made of 12 gauge high grade cold drawn galvanized steel wire. The wire shall be clad with plasticized polyvinyl chloride. The polyvinyl chloride coating shall be of sufficient thickness such that the overall diameter of the clad wire is approximately 0.155 inches. The stakes shall be "U" shaped and have an overall nominal length of 7½ inches. The legs of the "U" shall be relatively straight and parallel. The inside diameter of the "U" shall be nominally 0.3 inches and the outside diameter approximately 0.510 inches.

The polyvinyl chloride coating shall be free of tears and holes so as to inhibit premature rusting of the galvanized steel. The coating shall be black in color.



## **SPECIFICATION**

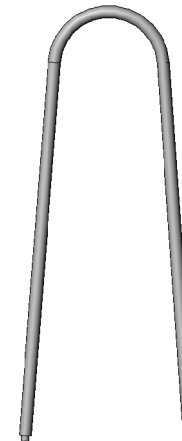
### ***PVC Coated Wire Stake Supply Tubing Stake***

**Part # GDTS140900**

The purpose of the tubing stake is to secure tubing or pipe, up to 1.40 inches in diameter, in various types of soils so that the drip irrigation hose or pipe stays in the location desired.

The tubing stakes shall be made of 9 gauge high grade cold drawn galvanized steel wire. The wire shall be clad with plasticized polyvinyl chloride. The polyvinyl chloride coating shall be of sufficient thickness such that the overall diameter of the clad wire is approximately 0.192 inches. The stakes shall be "U" shaped and have an overall nominal length of 9 inches. The legs of the "U" shall be relatively straight and parallel. The inside diameter of the "U" shall be nominally 1.4 inches and the outside diameter approximately 1.7 inches.

The polyvinyl chloride coating shall be free of tears and holes so as to inhibit premature rusting of the galvanized steel. The coating shall be black in color.



## SPECIFICATION

### ***Emitter Outlet Check Valve EOCV or "Bug Cap"***

#### **Part # GEOCVXXX**

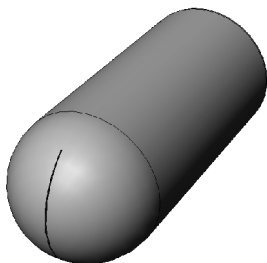
Part #:	GEOCV125	GEOCV220
Inside diameter	0.172 inches	0.203 inches
Outside diameter	0.232 inches	0.263 inches
Wall thickness	0.038 inches	0.038 inches
Inside length	0.500 inches	0.500 inches
Color, lead free	Green	Black

#### MATERIALS:

Polyvinyl chloride, plasticized.  
Exceeds MIL 20689 specifications.  
Hardness: 59 durometers.  
Tensile strength: 2000 psi.  
Operating temperature: 32 deg. To 212 deg. F.

#### INSTALLATION NOTE:

Insertion depth of distribution tube for proper operation should be 3/16 to 1/4 inches. No. adhesives should be used



## SPECIFICATION

### ***IH SERIES FLEXIBLE RISER***

#### **Part # GIHXX**

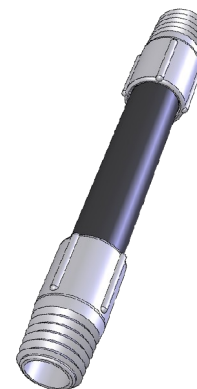
The subject non-rigid vinyl-chloride ½” irrigation hose(3/8” IPS) is to be extruded from integrally algae-resistant poly-vinyl chloride (PVC) resin conforming to ASTM Designation D2287 with the following characteristics:

Durometer Hardness (A Scale) D2240	- 88 to 94 tested per ASTM Method
Specific Gravity, nominal D792(A)	- 1.40 to 1.44 tested per ASTM Method
Tensile Strength, minimum D412	- 1,800 psi tested per ASTM Method
Brittleness Temp., maximum D746(A)	- 15 C tested per ASTM Method

The IH Series is available in any length required. The “XX” designates the position within the part number where the length (in inches) should be inserted.

The hose to be uniformly black in color, homogeneous throughout and smooth inside and outside, free from foreign materials, cracks, holes, dents, wrinkles and blisters. The shape must remain concentric for proper contact with the fittings.

The rigid vinyl-chloride fittings are to be **BLACK** in color and ½” Irrigation size(3/8”) slip x ½” threaded. The solvent used to weld the hose and fittings together must meet the designation by GPH to conform with the assembly process. A thorough coating of primer (# P-70) shall be used to conform with proper welding techniques. GPH’s proprietary engineered assembly machine shall be used to ensure and test a quality interface between the hose and the fittings.



## SPECIFICATION

### ***IH SERIES FLEXIBLE RISER ASSEMBLY***

#### **Part # GIHXXA**

The subject non-rigid vinyl-chloride ½” irrigation hose(3/8” IPS) is to be extruded from integrally algae-resistant poly-vinyl chloride (PVC) resin conforming to ASTM Designation D2287 with the following characteristics:

Durometer Hardness (A Scale) D2240	- 88 to 94 tested per ASTM Method
Specific Gravity, nominal D792(A)	- 1.40 to 1.44 tested per ASTM Method
Tensile Strength, minimum D412	- 1,800 psi tested per ASTM Method
Brittleness Temp., maximum D746(A)	- 15 C tested per ASTM Method

The IH Series is available in any length required. The “XX” designates the position within the part number where the length (in inches) should be inserted.

The “A” shall designate a 2 GPH GPST Emitter to be preinstalled onto the riser.

The hose to be uniformly black in color, homogeneous throughout and smooth inside and outside, free from foreign materials, cracks, holes, dents, wrinkles and blisters. The shape must remain concentric for proper contact with the fittings.

The rigid vinyl-chloride fittings are to be BLACK in color and ½” Irrigation size(3/8”) slip x ½” threaded. The solvent used to weld the hose and fittings together must meet the designation by GPH to conform with the assembly process. A thorough coating of primer (# P-70) shall be used to conform with proper welding techniques. GPH’s proprietary engineered assembly machine shall be used to ensure and test a quality interface between the hose and the fittings.



## SPECIFICATION

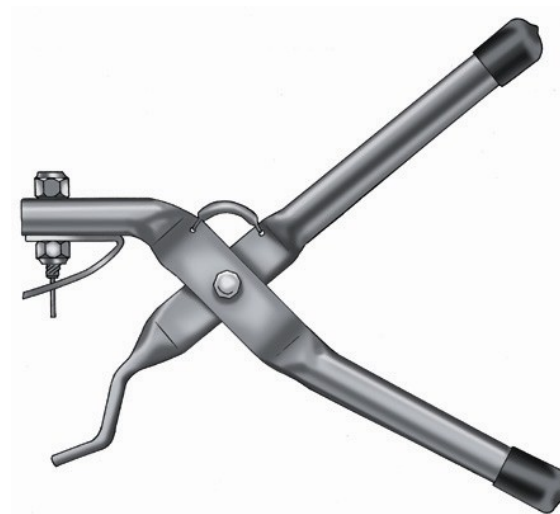
### **STAINLESS STEEL HOSE PUNCH, PLIER TYPE**

#### **PART # GHP125**

GPH’s stainless steel hose punch shall be manufactured from 420 stainless steel tubing. The HP125 shall consist of a stainless steel punch tip (HPT125), a recoil protector, a stainless steel spring and two vinyl protective end caps.

The HP125 shall have a punch tip that is designed to work with ¼” shank diameter emitters. The punch shall work on all types of drip tubing. It is recommended that all GPH emitters be installed with the HP125, versus any other means of coring tool.

All GPH’S hose punches are warranted for five years.



## SPECIFICATION

### *Swing Joint Assemblies*

**Part # GSJXXXX**

Swing Assemblies

Connects heads to lateral pipes. This low-cost, reliable, and flexible connection prevents heads or pipes from breaking when run over by equipment and allows easy adjustment of the heads to grade.

- Preassembled units save the contractor time and reduce installation costs
- Swing arm lengths allow quick adjustment of spray heads to grade preventing damage from lawn equipment
- Quad Swing Assembly is the most adaptable product, making installation of spray heads on inclines fast and easy

The operating range of the swing assemblies matches or exceeds the operating range for most 1/2" (1,3 cm) sprays and 3/4" (1,9 cm) rotors.

- Operating pressure up to 80 psi (5,5 bar)
- Surge pressure up to 240 psi (16,6 bar)
- Temperature up to 110° F (43° C)
- Maximum flow is 8 gpm (0.5 l/sec)
- Pressure loss at 6 gpm (0.38 l/sec) is 2.0 psi (0.14 bar)



## SPECIFICATION

### **SBE Series – Spiral Barb Ells**

**Part # GSBEXXX**

For use in conjunction with Any Manufacturers Swing Pipe as a flexible swing assembly.

### **Features & Benefits**

- Fittings are made of robust acetal material to make connecting swing pipe fast and easy
- Easy twist-in insertion – no glue or clamps needed for installation
- Aggressive barb lip makes a secure connection that is less likely to leak
- Broad range of shapes and sizes allow the contractor to choose the best fitting for the application
- Extended length and aggressive barb lip prevent blow outs, reducing likelihood of contractor call backs

### **Specifications**

- Up to 80 psi (5,5 bar) and 110° F (43° C)

