



## Appendix - Irrigation information from Waterscapes

REFERENCE DRAWING(S): -  
- BEL-BHS-ZZ-TP-DR-LA-0106-LEVEL 10.dwg

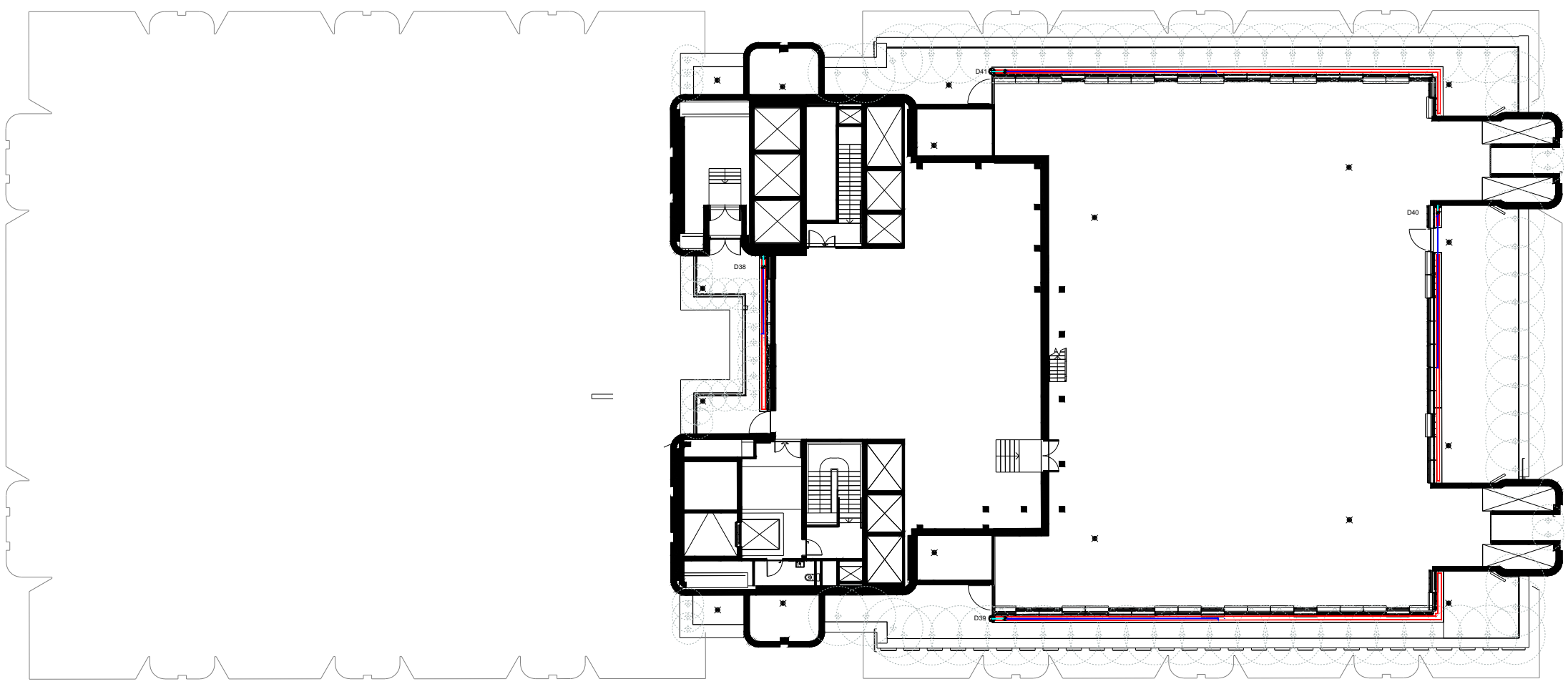
- NOTES: -
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- LEGEND:
- 25mm PE Pipework
  - 2.3 l/h, 33cm Spaced Pressure Compensating Dripline
  -  Solenoid Valve
  -  Water/Signal Cable Connection Point - Supply pipework and signal cable from irrigation plant room to connection points shown by M&E Contractors.

Services Required

Water Supply - Suitable CAT 5 water supply at the penetration points shown minimum flow required 0.3 litres per second at min. pressure 3.0 bar, regulated to a max. pressure 5.0 bar

Signal Cable : Screened 2 Core 2.5mm LV signal cable from controller location to each connection point by M&E contractors



Rev.	Date	Description	Drm.	Chd.	App.
P02	24.11.22	Issued for stage 4a	PDB	MC	-

Landscape Architect:  
**Bradley-Hole  
Schoenaich Landscape**

Irrigation Consultant:



1 Murray Court  
Wincanton Business Park  
Wincanton  
Somerset, BA9 9RX  
Tel: 01963 824166 Fax: 01963 824443  
Email: info@waterscapeslimited.com

Project Title:  
**Belgrove House**

Drawing Title:  
**Irrigation Layout  
Level 10**

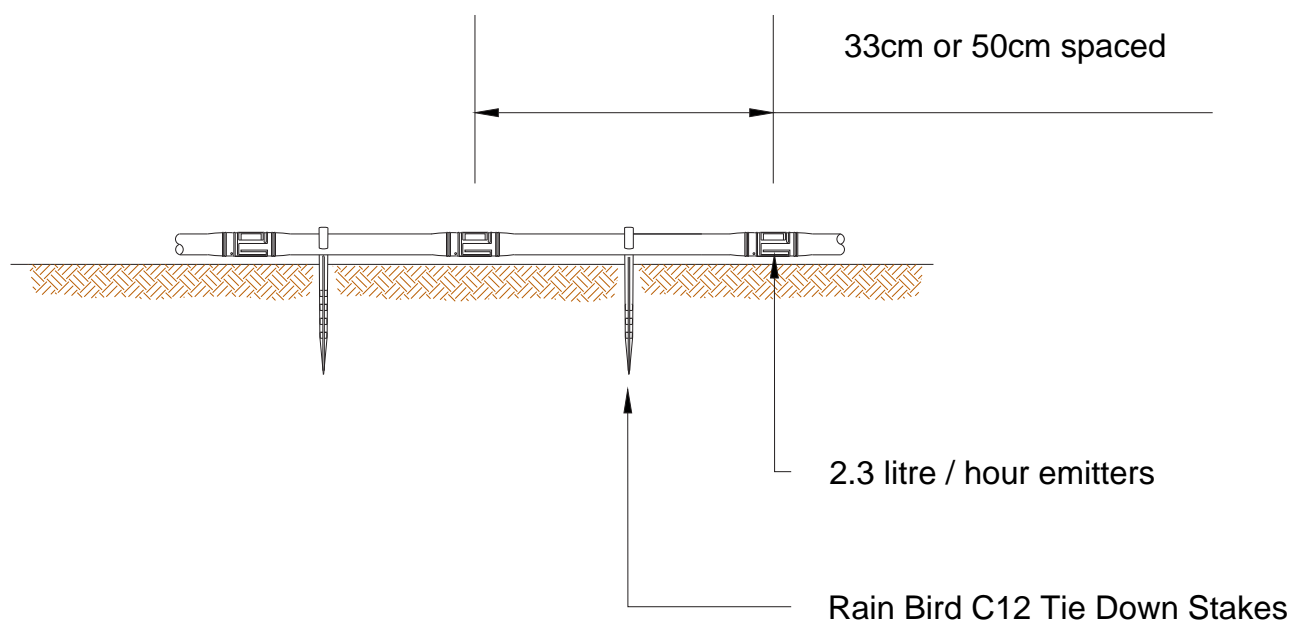
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Drawn: PDB	Checked: MC	Approved: -
Date: 01.11.22	Date: 01.11.22	Date: -

Drawing No: **WSL3209-10**      Revision: **P02**  
10

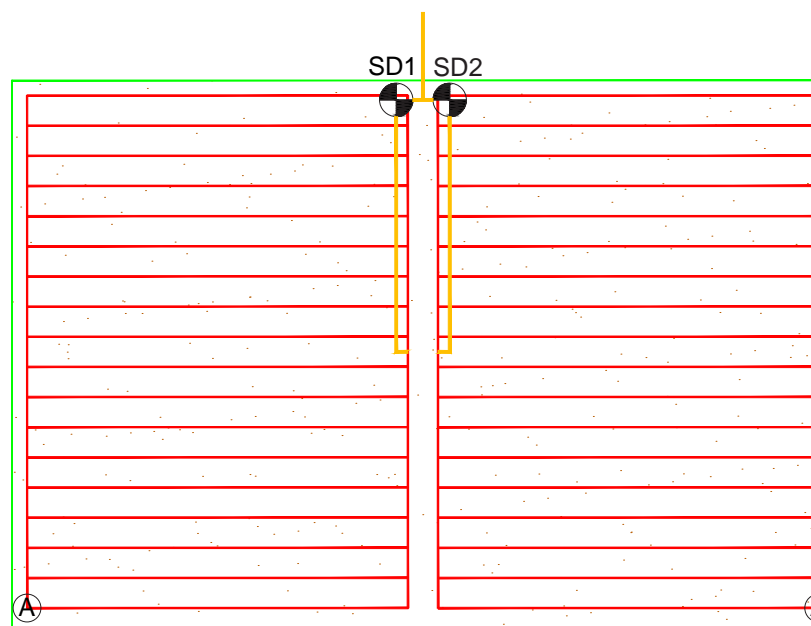
REFERENCE DRAWING(S): -

NOTES: -

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Section View - Installed on Soil Surface before mulching



Typical Grid Style Installation

Legend

- Drip Pipework
- Pipework
- Solenoid Valve
- Air Relief Valve

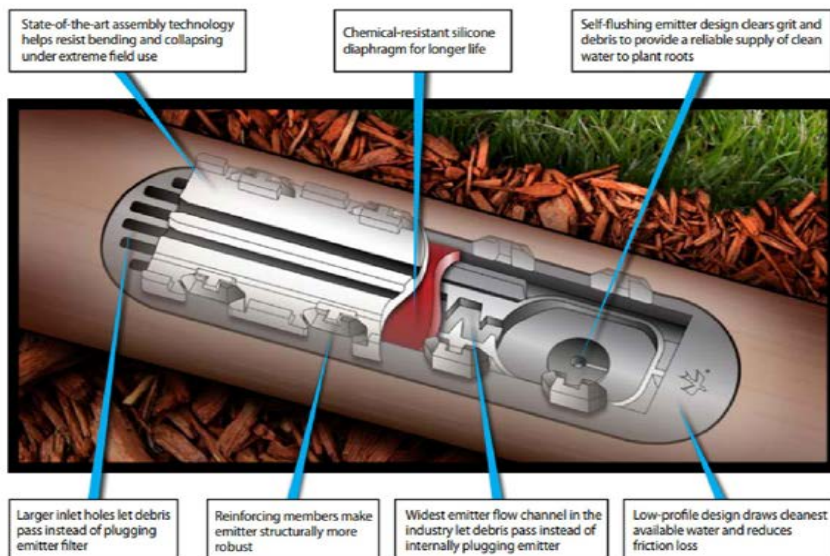


XFD DRIPLINE FOR ON-SURFACE APPLICATIONS



RAIN BIRD FLAT EMITTER TECHNOLOGY

Superior Design for Superior Reliability



**XF™ Series Dripline**

The most flexible, kink resistant tubing

**Applications**

Rain Bird XF™ Series Dripline is the latest innovation in the Rain Bird Xerigation™ family. Because it is the most flexible, kink-resistant tubing available, it's ideal for irrigating areas where traditional drip tubing is difficult to install. XF™ dripline is perfect for small, narrow and tight planting areas, as well as areas with tight curves or many switchbacks. Because it accepts 17mm insert fittings, and Lock type fittings makes it easier than ever to design with, and install Rain Bird dripline.

XF™ Series Dripline is **simple, reliable** and **durable**.

**Features**

- Simple**
- Unique material offers significantly greater flexibility and kink-resistance for fast, easy installation.
  - The bend radius for XF™ dripline is 7,6 cm no matter which way you bend the tube. Other driplines will bend 10,2 cm if bending with the natural curve of the coil and only 17,8 cm if bending against the natural curve of the coil.
  - Greater flexibility assures design capability of tight curves and spaces.
  - Accepts Rain Bird 17mm insert fittings and Lock type fittings.
  - Variety of spacing and coil lengths provides design flexibility for a number of nonturfgrass applications.

**Reliable**

- The pressure-compensating emitter design provides a consistent flow over the entire lateral length ensuring higher uniformity for increased reliability in the pressure range of 0,59 to 4,14 bar.

**Durable**

- Dual-layered tubing (brown over black) provides unmatched resistance to chemicals, algae growth and UV damage.

**Operating Range**

- Pressure: 0,59 to 4,14 bar
- Flow rates: 2,3 l/hr
- Temperature:
  - Water: Up to 38° C
  - Ambient: Up to 52° C
- Required Filtration: 120 mesh

**Specifications**

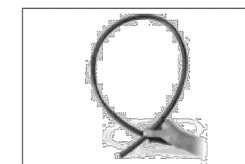
- OD: 16,10 mm
- ID: 13,61 mm
- Thickness: 1,24 mm
- 33 cm, 40 cm and 50 cm spacing
- Available in 25 m, 50 m, 100 m and 200 m coil

**Models**

- XFD-23-33-25
- XFD-23-33-50
- XFD-23-33-100
- XFD-23-33-200
- XFD-23-40-50
- XFD-23-40-100
- XFD-23-50-100
- XFD-23-50-200

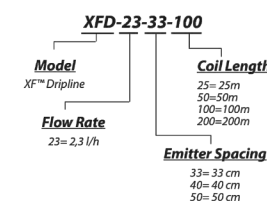


XF™ Dripline Coil



XF™ Dripline offers increased flexibility for easy installation.

**How to Specify/Order:**



Rev.	Date	Description	Drn.	Chd.	App.

Landscape Architect:

**Bradley-Hole  
Schoenaich Landscape**

Irrigation Consultant:



1 Murray Court  
Wincanton Business Park  
Wincanton  
Somerset, BA9 9RX  
Tel: 01963 824166 Fax: 01963 824443  
Email: info@waterscapeslimited.com

Project Title:

**Belgrove House**

Drawing Title:

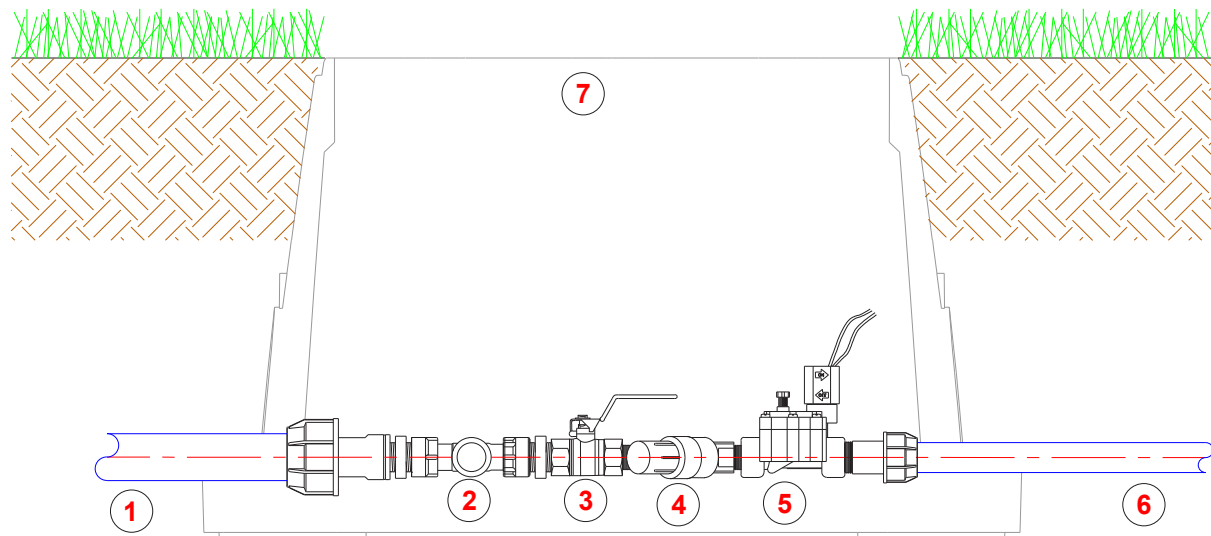
**Example Drip Pipework  
Installation**

Scale at A1:	Status:	CAD File Name:
NTS	For information	WSL3209-EX1
Drawn:	Checked:	Approved:
PDB	MC	-
Date:	Date:	Date:
24.11.22	24.11.22	-

Drawing No: WSL3209-EX1 Revision: P01

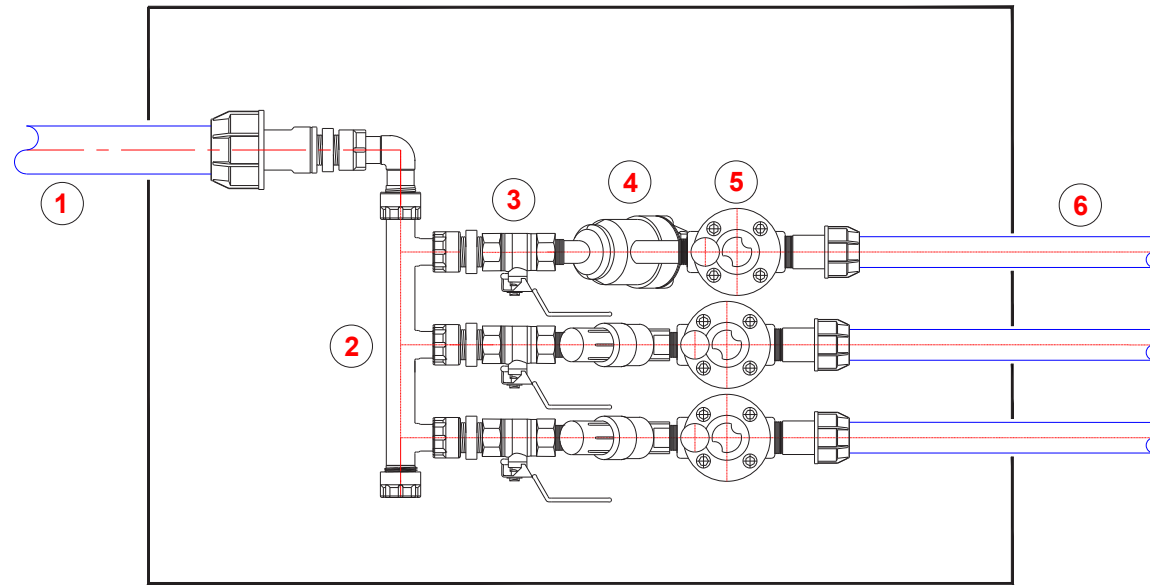


Section View



1. Irrigation Main Line Pipework
2. Dura Manifold
3. Full Flow Valve
4. In-line Filter
5. Rain Bird Solenoid Valve
6. Outgoing water to irrigated landscape
7. Buried Rain Bird valve box

Plan View



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REFERENCE DRAWING(S): -

NOTES: -

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Rev.	Date	Description	Drn.	Chd.	App.

Landscape Architect:

**Bradley-Hole  
Schoenaich Landscape**

Irrigation Consultant:



1 Murray Court  
Wincanton Business Park  
Wincanton  
Somerset, BA9 9RX  
Tel: 01963 824166 BA9 9RX  
Email: info@waterscapeslimited.com

Project Title:

**Belgrove House**

Drawing Title:

**Example Solenoid  
Valve Assembly**

Scale at A1: Status: CAD File Name:

NTS For information WSL3209-EX2

Drawn: PDB Checked: MC Approved: -

Date: 17.11.2022 Date: 17.11.2022 Date: -

Drawing No: WSL3209-EX2 Revision: P01



Tech Spec

**DV Series Valves**  
The Industry Leader for Over 20 Years.

- Features**
- Double filtered pilot flow design for maximum reliability
  - Balanced pressure diaphragm for long life
  - External bleed to manually flush system of dirt and debris during installation and system start up
  - Internal bleed for spray-free manual operation
  - Energy efficient, low power encapsulated solenoid with captured plunger and 163 micron solenoid filter
  - Buna-N diaphragm with self-cleaning 163 micron pilot water filter and captive spring
  - Operates in low flow and Xerigation® applications when a minimum 75 micron filter is installed upstream
  - 3.2 cm stainless steel Phillips head screws
  - Accepts latching solenoid for use with Rain Bird battery-operated controllers
- Available as:**
- 1" (26/34) and 1 1/2" (39/48) standard in-line configuration
  - 1 1/2" (39/48) Male-by-Male (MM) configuration
- DVF SERIES**
- Incorporates all features of DV Series valves
  - Unique, easy-to-turn pressure-assisted flow control mechanism
- Operating Range**
- Pressure: 1 to 104 bar
  - 0.75 DV Flow: 0.05 to 5.0 m³/h; 0.01 to 1.39 l/s for flows below 0.75 m³/h; 0.21 l/s or any Xerigation application, when a minimum 75 micron filter is installed upstream
  - 100-DV/DVF Flow: 0.05 to 9.08 m³/h; 0.01 to 2.52 l/s for flows below 0.75 m³/h; 0.21 l/s or any Xerigation application, when a minimum 75 micron filter is installed upstream
  - Temperature: Up to 43° C
  - Ambient air temperature up to 52° C

**Dimensions**

**DV SERIES**

- Height: 11.1 cm
- Length: 10.1 cm (MM) 146 mm
- Width: 8.4 cm

**DVF SERIES**

- Height: 14.2 cm
- Length: 11.1 cm
- Width: 8.4 cm

**Models**

- 075-DV: 1" (26/34)
- 100-DV: 1 1/2" (39/48)
- 100-DV-MMA: 1" (26/34)
- 100-DV-MM: 1 1/2" (39/48)
- 100-DV: 1 1/2" (39/48)

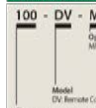
**100-DV Male x Male**

Flow (m³/h)	l/s	100-DV (1.14 to 34.05 m³/h)	100-DV (0.05 to 9.08 m³/h)
0.25	0.06	0.18	0.15
0.75	0.21	0.18	0.15
1.0	0.28	0.20	0.17
2.0	0.56	0.24	0.19
5.0	1.39	0.31	0.26
7.5	2.08	0.48	0.40
9.1	2.52	-	0.60

**100-DV Male x Male**

Flow (m³/h)	l/s	Male x Male (1.14 to 34.05 m³/h)	Male x Male (0.05 to 9.08 m³/h)
0.25	0.06	0.15	0.15
0.75	0.21	0.15	0.15
1.0	0.28	0.17	0.17
2.0	0.56	0.19	0.19
5.0	1.39	0.36	0.36
7.5	2.08	0.72	0.72
9.1	2.52	1.27	1.27

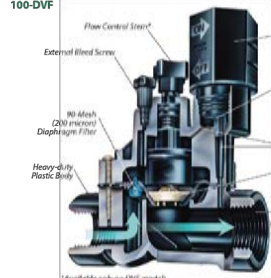
**How To Specify**



- Electrical Specifications**
- 24VAC 50/60 Hz (typical) solenoid
  - Holding current: 0.19 A (4.6 VA) at 60 Hz
  - Coil resistance: 42-55 Ohms
  - Not compatible with ESP-LXD decoders. Use Rain Bird commercial valves (PGA, PEL, GB, EPB-CP and BPE series)

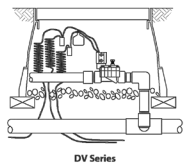


Tech Spec



**Specifications**

- 075-DV, 100-DV, 100-DV-MM Electric Remote Control Valves**
- The valve shall be normally closed 24VAC 50/60 Hz (cycles per second) solenoid actuated, balanced pressure type capable of a flow rate of \_\_\_\_\_ l/s m³/h with a pressure loss not to exceed \_\_\_\_\_ bar. The valve pressure rating shall not be less than 10.4 bar. The valve body and bonnet shall be constructed of high impact weather resistant plastic, stainless steel and other chemical/UV resistant materials. The valve shall have a one unit diaphragm constructed of durable Buna-N rubber material with a ring resistant metering orifice. The valve shall have one 90-mesh (200 micron) pilot filter attached to the diaphragm. The valve shall have one fully encapsulated solenoid with captured plunger.
- The valve shall have one 90-mesh (200 micron) filter attached to the solenoid base.
- The valve body shall be one of the following: a 3/4" globe configuration (20/27) or 1" (26/34) (BSP) inlet and outlet or a 1" (26/34) (MDF) inlet and outlet configuration.
- The valve shall be actuated by a low power 0.30 A (7.2 VA) in-rush current and 0.21 A (5.0 VA) holding current. The valve shall be capable of an off control by turning the solenoid 1/4 turn. The valve shall provide a flush mode that is manually activated by 1/2 turn of the bleed screw where external porting is permissible.
- When so indicated on the design, the DVF valve shall have all the specifications of the DV Series remote control valve plus a unique, easy-to-turn pressure-assisted flow control mechanism.
- The remote control valve with flow control shall be as manufactured by Rain Bird Corporation, Azusa, California.



DV Series

**100-DV Electric Remote Control Valves with Flow Control**

- Optional Feature Specifications**
- When so indicated on the design, the DVF valve shall have all the specifications of the DV Series remote control valve plus a unique, easy-to-turn pressure-assisted flow control mechanism.
  - The remote control valve with flow control shall be as manufactured by Rain Bird Corporation, Azusa, California.

**Rain Bird Corporation**  
6911 E. Southpoint Road  
Tucson, AZ 85756  
Phone: (520) 741-6100  
Fax: (520) 741-6522

**Rain Bird Corporation**  
970 West Sierra Madre Avenue  
Azusa, CA 91702  
Phone: (626) 812-3400  
Fax: (626) 812-3411

**Rain Bird International, Inc.**  
1000 West Sierra Madre Ave.  
Azusa, CA 91702  
Phone: (626) 963-9911  
Fax: (626) 852-7343

**Rain Bird Europe S.A.B.L.**  
900 Rue Ardenne, BP 2200013792  
Aix-En-Provence Cedex 3 FRANCE  
Phone: (33) 4 42 24 44 41  
Fax: (33) 4 42 24 24 72

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Tech Spec

**PGA Series Valves**  
Versatility at an affordable price.

- Whether the job calls for a globe or angle valve, PGA Series valves are the right choice. Loaded with features, these heavy-duty PVC valves are economical, easy to install and built to withstand constant 150 psi (10.35 bar) pressure and 2 to 150 gpm (0.45 to 34.05 m³/h; 7.8 to 568 l/m) flows.
- The PGA Series from Rain Bird - built to last... and last!

- Features**
- Globe and angle configuration for flexibility in design and installation
  - PVC and glass reinforced nylon construction
  - Filtered pilot flow to resist debris and clogging of solenoid ports
  - Slow closing to prevent water hammer and subsequent system damage
  - Manual internal bleed operates the valve without allowing water into the valve box
  - One-piece solenoid design with captured plunger and spring for easy servicing
  - Non-rising flow control handle adjusts water flow as needed
  - Normally closed, forward flow design
- Options (order separately)**
- Accommodates optional, field installed PRS-D pressure regulating module
  - Optional purple flow control handle for easy identification of non-potable water system
  - PGA-NP-HAN (1" and 1 1/2")
  - PGA-NP-HAN-2 (1")
  - Accepts latching solenoid for use with Rain Bird battery-operated controllers up to 150 psi (10.35 bar)
  - Compatible with ESP-LXD decoders

**Operating Range**

- Pressure: 15 to 150 psi (1.04 to 10.35 bar)
- Flow: 2 - 150 gpm (0.45 to 34.05 m³/h)
- Flow with PRS-D: 5 - 150 gpm (1.14 to 34.05 m³/h; 19.2 to 568 l/m)
- Water Temperature: up to 110° F (43° C)
- Ambient Temperature: up to 120° F (52° C)

**Electrical Specifications**

- Power: 24VAC 50/60 Hz (cycles/sec)

- Inrush current:** 0.41 A (0.84 VA) at 60 Hz  
**Holding current:** 0.28 A (6.72 VA) at 60 Hz  
**Coil resistance:** 30-39 Ohms

**PGA Series Valve Pressure Loss (bar)**

Flow (gpm)	100	100	100	100	100	100	100
l/s	0.45	0.91	1.36	1.82	2.27	2.73	3.18
10	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20	0.1	0.1	0.1	0.1	0.1	0.1	0.1
30	0.1	0.1	0.1	0.1	0.1	0.1	0.1
40	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.1	0.1	0.1	0.1	0.1	0.1	0.1
60	0.1	0.1	0.1	0.1	0.1	0.1	0.1
70	0.1	0.1	0.1	0.1	0.1	0.1	0.1
80	0.1	0.1	0.1	0.1	0.1	0.1	0.1
90	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100	0.1	0.1	0.1	0.1	0.1	0.1	0.1

**PGA Series Valve Pressure Loss (bar)**

Flow (m³/h)	100	100	100	100	100	100	100
l/s	0.45	0.91	1.36	1.82	2.27	2.73	3.18
10	0.1	0.1	0.1	0.1	0.1	0.1	0.1
20	0.1	0.1	0.1	0.1	0.1	0.1	0.1
30	0.1	0.1	0.1	0.1	0.1	0.1	0.1
40	0.1	0.1	0.1	0.1	0.1	0.1	0.1
50	0.1	0.1	0.1	0.1	0.1	0.1	0.1
60	0.1	0.1	0.1	0.1	0.1	0.1	0.1
70	0.1	0.1	0.1	0.1	0.1	0.1	0.1
80	0.1	0.1	0.1	0.1	0.1	0.1	0.1
90	0.1	0.1	0.1	0.1	0.1	0.1	0.1
100	0.1	0.1	0.1	0.1	0.1	0.1	0.1

**How To Specify**



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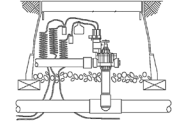
**Specifications**

- The electric remote control valve shall be a normally closed 24 VAC 50/60 Hz (cycles/sec) solenoid actuated globe/angle pattern design. The valve pressure rating shall not be less than 150 psi (10.35 bar). The valve shall have the following characteristics (circle one):
- Flow rate: \_\_\_\_\_ gpm m³/h l/m
- Pressure loss not to exceed: \_\_\_\_\_ psi bar
- The valve body and bonnet shall be constructed of high-impact, water-resistant PVC for the body and glass-filled nylon for the bonnet with stainless steel screws.
- The valve shall have manual open/close control (internal bleed) for manual opening and closing of valve without electrically energizing the solenoid. The valve's internal bleed shall prevent flooding of the valve box.
- The valve shall house a fully-encapsulated, one-piece solenoid. The solenoid shall have a captured plunger with a removable retainer for easy servicing, and a leverage handle for easy turning. This 24VAC 50/60 Hz solenoid shall open with 19.6 VAC, minimum at 150 psi (10.35 bar). At 24 VAC, average inrush current shall not exceed 0.41 amps. Average holding current shall not exceed 0.28 amps.
- The valve shall have a flow control stem for accurate manual regulation and/or shut off of outlet flow. The valve must open or close in less than 1 minute at 150 psi (10.35 bar), and less than 30 seconds at 20 psi (1.38 bar).
- The valve construction shall provide for all internal parts to be removable from the top of the valve without disturbing the valve installation. The body shall have a removable O-ring plug for installation in either globe or angle configuration.

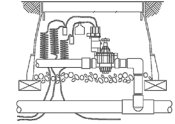
**Optional Feature Specification**

- PRS-D Pressure Regulating Module**  
100PGA-PRS-D, 150PGA-PRS-D, 200PGA-PRS-D
- When so indicated on the design, the electric remote control valve shall have a pressure regulating module (PRS-D) capable of regulating outlet pressure between 15 and 100 psi (1.04 and 6.90 bar (±0.21 bar)).
- The PRS-D module shall have an adjusting knob for setting pressure and Schrader valve connection for monitoring pressure. The pressure shall be adjustable from the PRS-D when the valve is internally manually bled or electrically activated.
- Non-Potable Flow Control Handle**  
PGA-NP-HAN-1 - Fits 1" and 1 1/2"  
PGA-NP-HAN-2 - Fits 2"
- When so indicated on the design, the valve shall have a purple flow control handle to indicate to the user that non-potable water is being used. There shall be no difference between the black and purple handles except for the color.

Plastic Electric Remote Control  
100PGA-PRS-D using bottom inlet



Plastic Electric Remote Control  
PGA Valve with PRS-D using side inlet



**Rain Bird Corporation**  
6911 E. Southpoint Road  
Tucson, AZ 85756  
Phone: (520) 741-6100  
Fax: (520) 741-6522

**Rain Bird Corporation**  
970 West Sierra Madre Avenue  
Azusa, CA 91702  
Phone: (626) 812-3400  
Fax: (626) 812-3411

**Rain Bird International, Inc.**  
1000 West Sierra Madre Ave.  
Azusa, CA 91702  
Phone: (626) 963-9911  
Fax: (626) 852-7343

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**Bradley-Hole Schoenaich Landscape**

10 Stoney Street  
London SE1 9AD  
United Kingdom

+44 (0)20 8939 1749  
[info@bhsla.co.uk](mailto:info@bhsla.co.uk)

[www.bhsla.co.uk](http://www.bhsla.co.uk)