POPUP IRRIGATION SYSTEMS



ENGINEERED SOLUTIONS FOR IRRIGATION

REDSHIFT ENVIRONMENTAL SYSTEMS (I) PVT. LTD.

INTRODUCTION

Sprinkler irrigation is a modern method of watering crops by spraying water through pipes and sprinkler nozzles, similar to natural rainfall. It helps distribute water uniformly, reduces water wastage, and improves crop growth. It is widely used in agriculture, gardens, lawns, and nurseries.The main objective of sprinkler irrigation is to provide the required amount of water to crops efficiently, uniformly, and economically, while reducing water loss and improving agricultural productivity.





LAYOUT


Pop-Up Sprinkler Irrigation System
(Complete Layout)
Water Source (Tank / Borewell)
Automatic Control Panel
Pop-Up Sprinkler
Filter
Solenoid Valve
Control Valve
Pump
Lateral Pipe
Mainline Pipe (HDPE / PVC)
Sub Main Line Pipe

TYPES OF POPUP SPRINKLER

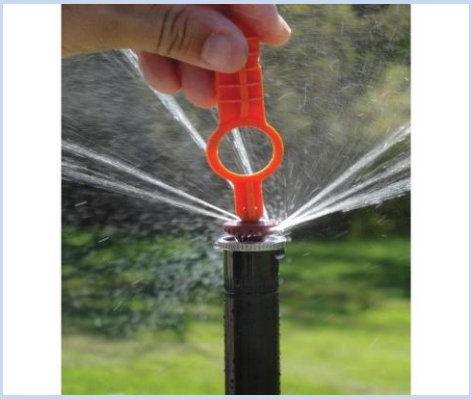
1. Spray Pop-Up Sprinkler:-

- Produces a fixed fan-shaped spray.
- Suitable for small areas.
- Common spray angles: 90°, 180°,270° and 360°.



2. Rotary Nozzle Pop-Up Sprinkler:-

- Produces multiple rotating water streams.
- Uses less water than conventional spray heads.
- Suitable for medium-sized lawns.



3. GEAR-DRIVEN POP-UP SPRINKLER

- Uses an internal gear mechanism.
- Provides uniform water distribution.
- Suitable for gardens, parks and lawns.



4. ROTARY NOZZLE POP-UP SPRINKLER



- Multiple rotating water streams.
- Lower precipitation rate than many spray nozzles.
- Suitable for water-efficient irrigation.

5. SHRUB SPRINKLER

- Fixed above ground.
- Used for shrubs and landscaped areas.
- Available with different nozzles.



6. IMPACT POP-UP

- Uses an impact arm to rotate the sprinkler.



7. BUBBLER POP-UP

- Delivers concentrated water around trees and plants.



POP-UP SPRINKLER SYSTEM – COMPLETE EQUIPMENT LIST

A fully automatic pop-up sprinkler irrigation system requires the following equipment and accessories.

1. Main Equipment

Pop-Up Sprinkler Head

- 2-inch, 3-inch, 4-inch, 6-inch, 12-inch
- Spray type
- Rotor type
- Rotary nozzle type



2. Sprinkler Nozzle

- Fixed spray nozzle
- Adjustable nozzle
- Rotary nozzle
- Full-circle nozzle
- Half-circle nozzle
- Quarter-circle nozzle

3. Solenoid Valve

- 24V AC solenoid valve
- Automatic ON/OFF control
- Different sizes as per pipeline



4. Automatic Irrigation Controller

- Digital controller
- Zone-wise programming
- Automatic watering schedule
- Rain sensor compatibility



5. Water Pump

- Centrifugal pump
- Suitable pressure and flow capacity
- Automatic pump control



6. Filtration & Protection Equipment





Pipe & Fittings



HDPE PIPE



PVC PIPE

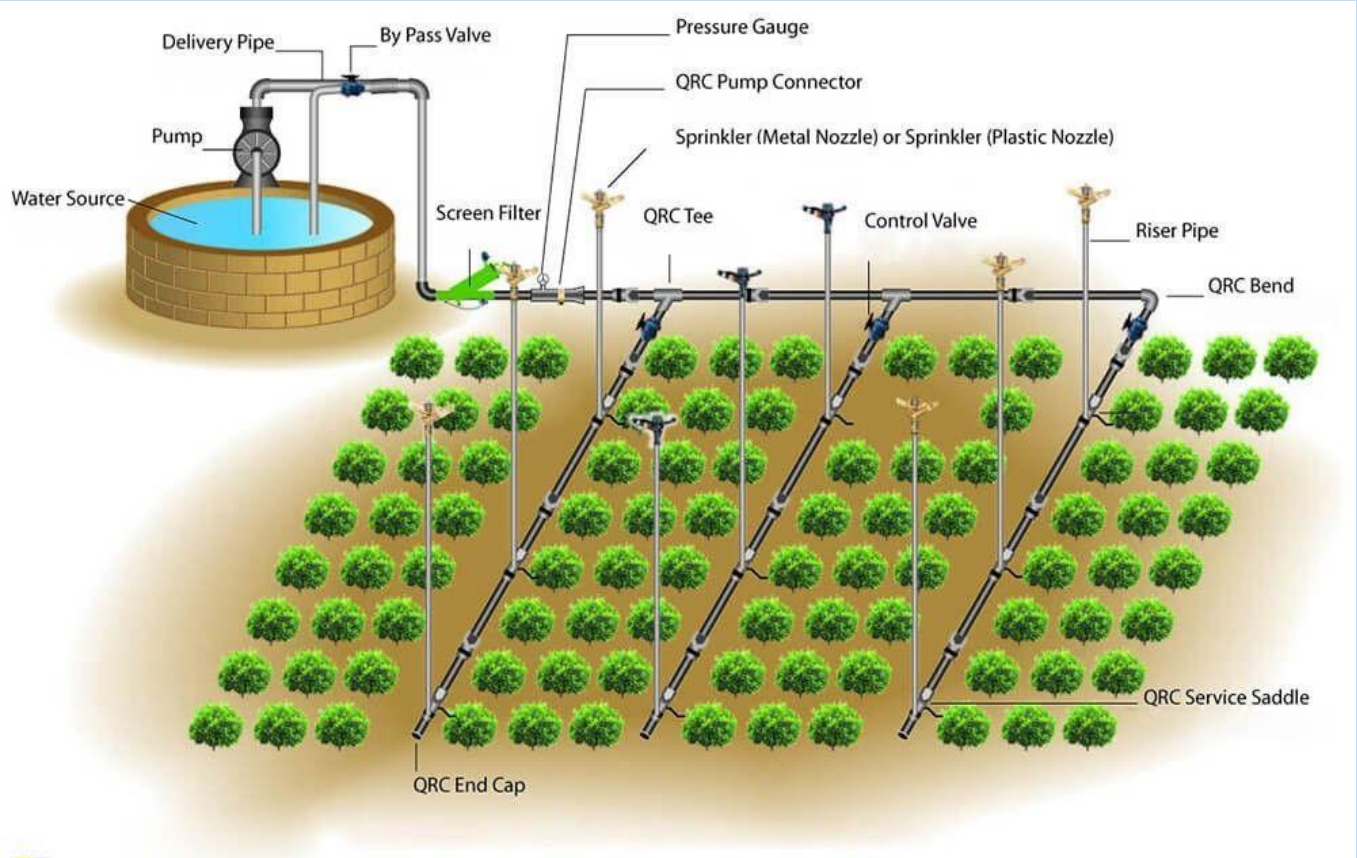
Swing Joint / Flexible Pipe



FITTING


POP-UP SPRINKLER SYSTEM – ALL FITTING ITEMS
Pop-Up Sprinkler (2" / 3" / 4" / 6" / 12")
Sprinkler Nozzle (Fixed / Rotary)
Solenoid Valve (24V AC)
Automatic Irrigation Controller
Water Pump
Disc Filter
Screen Filter
Pressure Gauge
Air Release Valve
Pressure Regulator
Ball Valve
Y-Strainer
Check Valve
Flow Sensor (Optional)
Pressure Sensor (Optional)
HDPE Main Pipe
PVC Pipe
HDPE Tee
HDPE Elbow
Reducer
Coupler
Nipple
End Cap
Swing Joint / Flexible Pipe
Riser Pipe
Valve Box
Pipe Clamp
Pipe Saddle
Nozzle Filter
Drain Valve
Thread Seal Tape
Pump Starter Panel
MCB
Contactor
Overload Relay
Rain Sensor
Soil Moisture Sensor (Optional)
Solenoid Cable
Waterproof Junction Box

SPRINKLER IRRIGATION



TYPES OF SPRINKLER

RS/SPB/05



- Connection: 3/4" BSP/NPT male threaded
- Pressure: 2.0 - 4.0 kg/cm* or
- Spacing: 10m for higher
- Rotation: 360 deg

RS/SPB/02



- Pressure: 2.0 - 4.0 kg/cm* or
- Spacing: 9 m for higher
- Rotation: 180 deg

RS/SPB/04



- Connection: 3/4" BSP/NPT male threaded
- Pressure: 2.0 - 4.0 kg/cm* or
- Spacing: 8 m for higher
- Rotation: 180 deg

RS/SPB/06



- Connection: 3/4" BSP/NPT male threaded
- Pressure: 2.0 - 4.0 kg/cm* or
- Spacing: 9 m for higher
- Rotation: 360 deg

RS/SPB/03



- Connection: 3/4" BSP/NPT male threaded
- Pressure: 2.0 - 4.0 kg/cm* or
- Spacing: 8 m for higher
- Rotation: 360 deg

RS/SPP/03



- Connection: 3/4" BSP/NPT male threaded
- Pressure: 2.0 - 4.0 kg/cm* or
- Spacing: 9 m for higher
- Rotation: 360 deg

RS/SPP/04



- Connection: 3/4" BSP/NPT male threaded
- Pressure: 2.0 - 4.0 kg/cm* or
- Spacing: 9 m for higher
- Rotation: 180 deg

RS/SPB/01



- Connection: 1/2" BSP/NPT male threaded
- Pressure: 2.0 - 4.0 kg/cm* or
- Spacing: 10 m for
- Rotation: 360 deg

RS/SPP/01



- Connection: 1/2" BSP/NPT male threaded
- Pressure: 2.0 - 4.0 kg/cm* or
- Spacing: 9 m for higher
- Rotation: 360 deg

RS/SPP/02



- Connection: 1/2" BSP/NPT male threaded
- Pressure: 2.0 - 4.0 kg/cm* or
- Spacing: 5 m for higher
- Rotation: 180 deg

COMPLETE WATER FLOW SEQUENCE

WATER SOURCE (BOREWELL / POND / RIVER / TANK)

⬇

WATER PUMP

⬇

SCREEN / SAND FILTER (AS REQUIRED)

⬇

MAIN CONTROL VALVE

⬇

MAIN PIPELINE (HDPE / PVC)

⬇

SUB-MAIN PIPELINE

⬇

ZONE CONTROL VALVES

⬇

LATERAL PIPELINE

⬇

SPRINKLER CONNECTORS / RISERS

⬇

SPRINKLER HEADS

STEP –BY –STEP INSTALLATION

STEP 1 – WATER SOURCE

Select the water source according to availability and water requirement.

- **Borewell**
- **Open well**
- **Pond**
- **River**
- **Water storage tank**







STEP 2 – WATER PUMP

Install a suitable pump to provide the required water pressure and flow.

- **Centrifugal pump**
- **Submersible pump**
- **Monoblock pump**





Select pump capacity based on total flow and operating pressure.

STEP 3 – FILTRATION UNIT

Install filters to remove dirt, sand and suspended particles.

- **Sand media filter**
- **Screen filter**
- **Disc filter**
- **Hydrocyclone filter**

(if required for sand removal)





STEP 4 – MAIN PIPELINE

Connect the main pipeline from the pump and filter unit to the agricultural field.

- **HDPE pipe**
- **PVC pipe**
- **Main control valve**
- **Pressure gauge**
- **Air release valve**







STEP 5 – SUB-MAIN PIPELINE

Connect the sub-main pipeline to distribute water to different irrigation zones.

- **HDPE sub-main pipe**
- **HDPE tee**
- **HDPE reducer**
- **Control valve**
- **Flush valve**

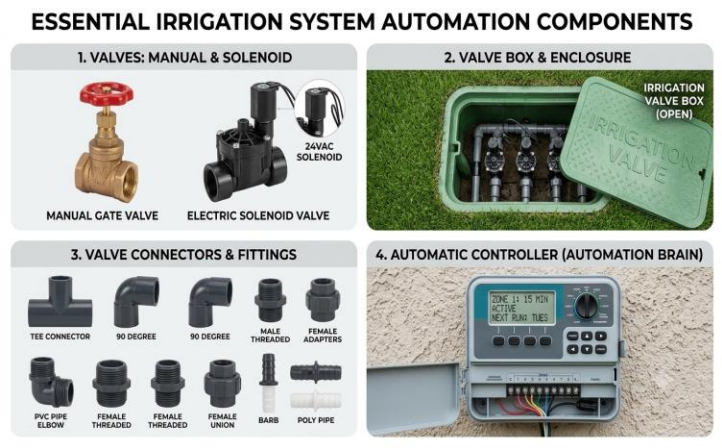






STEP 6 – ZONE CONTROL VALVES

Divide the field into different zones and install valves to control water supply independently.



- **Manual valve or solenoid valve**
- **Valve box**
- **Valve connectors**
- **Automatic controller**

(for automation)

STEP 7 – LATERAL PIPELINE

Connect lateral pipes to the sub-main or zone lines.

- **HDPE lateral pipe**
- **PVC lateral pipe**
- **Pipe connectors**
- **End caps**









STEP 8 – RISER AND SPRINKLER CONNECTORS

Install sprinkler risers and connectors at the calculated spacing.

- **Riser pipe**
- **Riser HDPE SADDLE**
- **Take-off connectors**
- **Sprinkler adapters**
- **Rubber gromeet**








STEP 9 – SPRINKLER INSTALLATION

Install the correct sprinkler according to crop type, spacing and water pressure.

- **Impact sprinkler**
- **Part-circle sprinkler**
- **Full-circle sprinkler**
- **Rain gun**
- **Mini sprinkler**
- **Micro sprinkler**





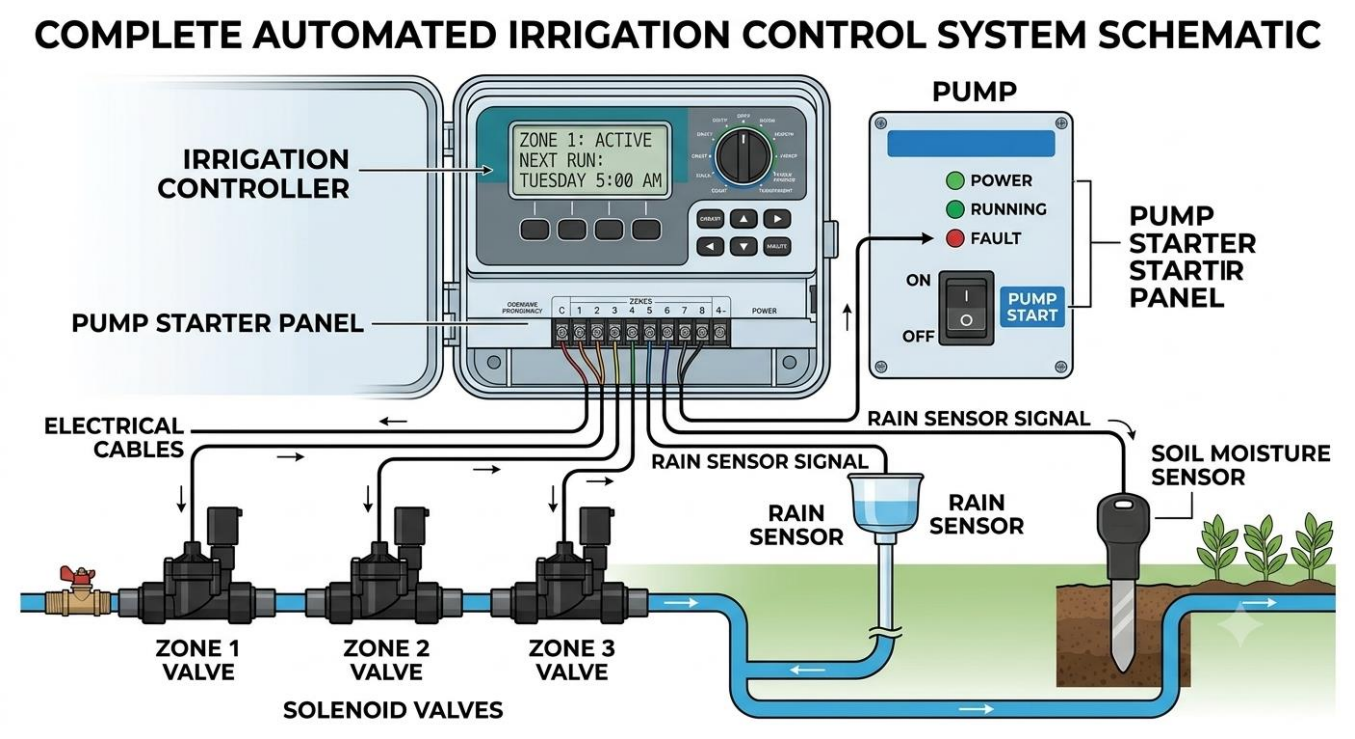




STEP 10 – AUTOMATION SYSTEM (OPTIONAL)

Install an automatic controller to operate the irrigation system.

- **Irrigation controller**
- **Solenoid valves**
- **Electrical cables**
- **Rain sensor (if required)**
- **Soil moisture sensor (if required)**
- **Pump starter panel**



MINI SPRINKLER





SETUP MINI SPRINKLER

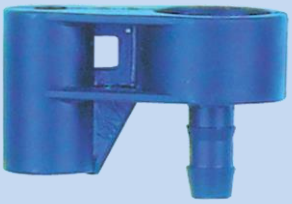
Mini Sprinkler Nozzle -



Mini Sprinkler Tube-



Mini sprinkler Adaptor-



Mini Sprinkler MS Riser Road



MICRO SPRINKLER







MICRO SPRINKLER STNAD









RAINGUN IRRIGATION

RS/RG/01



- Connection: 1" BSP/NPT Female Thread.
- Pressure: 2-5 Kg/cm2.
- Spacing: 20 m for higher distributor uniformly.
- Full/part-circle options

RS/RG/02



- Connection: 1.25" BSP/NPT Female Thread.
- Pressure: 2-5 Kg/cm2.
- Spacing: 30 m for higher distributor uniformly.
- Full/part-circle options

RS/RG/03



- Connection: 1.5" BSP/NPT Female Thread.
- Pressure: 2-5 Kg/cm2.
- Spacing: 36 m for higher distributor uniformly.
- Full/part-circle options

RS/RG/04



- Connection: 2" BSP/NPT Female Thread.
- Pressure: 2-5 Kg/cm2.
- Spacing: 36 m for higher distributor uniformly.
- Full/part-circle options

RS/RG/05



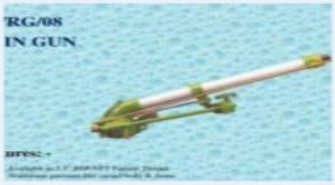
- Connection: 2.5" BSP/NPT Female Thread.
- Pressure: 2-5 Kg/cm2.
- Spacing: 36 m for higher distributor uniformly.
- Full/part-circle options

RS/RG/06



- Connection: 1.5" BSP/NPT Female Thread.
- Pressure: 2-5 Kg/cm2.
- Spacing: 30 m for higher distributor uniformly.
- Full/part-circle options

RS/RG/08



- Connection: 2.5" BSP/NPT Female Thread.
- Pressure: 2-5 Kg/cm2.
- Spacing: 36 m for higher distributor uniformly.
- Full/part-circle options

RS/RG/08



- Recommended pressure: 2–5 kg/cm²
- Full/part-circle options

COMPLETE RAINGUN SYSTEM FLOW LAYOUT

WATER SOURCE





PUMP SET





HYDROCYCLONE FILTER



SAND FILTER



SCREEN FILTER



MAIN HDPE / PVC PIPELINE





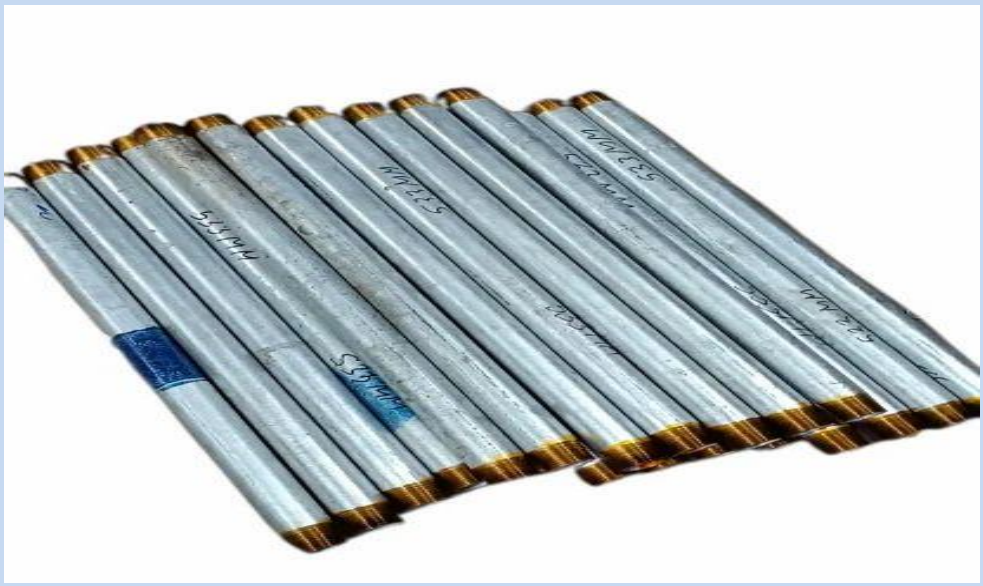
CONTROL VALVE







RAISER PIPE



STAND



RAINGUN SPRINKLER ADATER





RAINGUN SPRINKLER







HDPE PIPE FITTINGS





| Benefits & Project Support

Typical project scope

Depending on the purchase order and technical offer, a project scope may cover site data review, system design, equipment supply, ducting and supports, electrical/control items, installation supervision, commissioning and operator guidance. Confirm the final inclusions, exclusions, guarantees and delivery schedule in the approved quotation.

LET'S DISCUSS YOUR IRRIGATION REQUIREMENTS

Share your process details, layout, requirements for a project-specific proposal.

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IRRIGATION SYSTEMS

Note: Images are illustrative concept visuals, not confirmation of a specific supplied installation. Equipment details and performance are subject to final technical approval.