

4000

SERIES
INDEXING
VALVE

K
RAIN®

INTRODUCTION

The 4000 Series Automatic Indexing Valve offers cost-effective and reliable control to multiple zoned irrigation systems. It has the versatility to operate on pump or city water systems and the flexibility to change the number of operating zones quickly and easily.

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VALVE OPTIONS

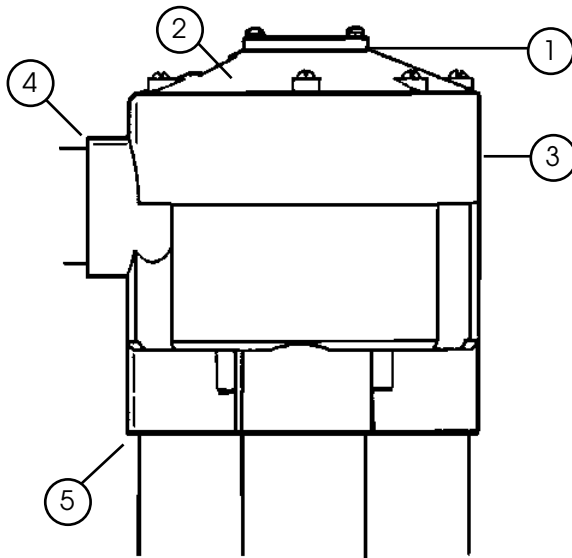
The 4000 Series Indexing Valve is available with the following outlet and cam combinations:

VALVE Model No.	Description	Check Your Model
4402	Two zone valve with four outlet bottom	()
4403	Three zone valve with four outlet bottom	()
4404	Four zone valve with four outlet bottom	()
4602	Two zone valve with six outlet bottom	()
4603	Three zone valve with six outlet bottom	()
4604	Four zone valve with six outlet bottom	()
4605	Five zone valve with six outlet bottom	()
4606	Six zone valve with six outlet bottom	()

4400 Series four outlet valves have interchangeable cams for two, three or four zone operation.

4600 Series six outlet valves have interchangeable cams for two, three, four, five or six zone operation.

VALVE FUNCTIONS



VALUE FUNCTIONS

- 1. CAM Used to index the valve to the next zone and controls how many outlets are to be used. May be changed to increase or decrease number of operating zones. Secured to valve top with two cam retaining screws.

- 2. VALVE TOP A high-strength ABS plastic top connection to valve body and secured with seven valve top retaining screws.

- 3. VALVE BODY A high-strength ABS plastic housing.

- 4. INLET Allows for slip and glue connection of 1 1/4" pipe.

- 5. OUTLETS 4 outlet model 1 1/4" PVC pipe
6 outlet model 1" PVC pipe

CAM REPLACEMENT INSTRUCTIONS

Replacement cams are available to increase or decrease the number of operating outlets on the 4000 Series Indexing Valve.

BE SURE YOU HAVE THE CORRECT REPLACEMENT CAM. Except for the two zone cam, cams for the four outlet valves and the six outlet valves are NOT interchangeable. The correct bottom to be used is marked on the top of the cam.

To remove cam, remove two cam retaining screws and pry up gently with screwdriver.

To install a new cam, partially insert the cam into the valve top and rotate it counter-clockwise while applying gentle downward pressure. This allows the upper lug on the stem in the valve to slip into the cam. The cam should slip into place easily. When installed correctly, the cam should slide down in place with NO tendency to spring back. Improper installation will cause the valve to jam and prevent the valve from advancing properly.

Rotate the cam until the locating notch on the top of the cam engages and is seated around the cam locating pin on the valve top. Install and tighten the two cam retaining screws.

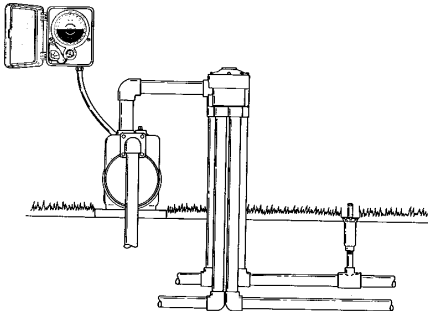
CAUTION

Cams for operation of fewer than the full number of outlets have one or more camming slots blocked. Because of this, it is important to make sure that the cam is lowered in the valve so that the lug on the stem in the valve is inserted into an open cam slot in the cam.

VALVE INSTALLATION INSTRUCTIONS

Prior to installation of 4000 Series Indexing Valve, make sure that the system is designed using adequate pipe sizes and control valves to ensure maximum performance of the valve.

For installation with large terrain elevations, or applications with high lift requirements such as overhead systems in greenhouses, the valve should be installed at the highest point in the system, or check-valves should be installed near the valve in the elevated lines to prevent the back-flow of water from the higher locations to the lower zones.

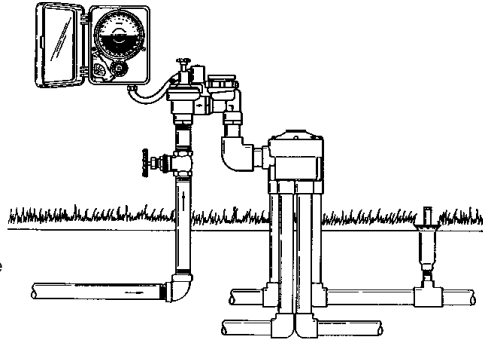


Pump Fed Applications: The 4000 Series Indexing Valve can be installed directly off the discharge side of the pump. The valve is cycled as the pump is turned off and on. It is important to install the valve as close to the pump as possible.

VALVE INSTALLATION INSTRUCTIONS (continued)

City Water Applications: For city water supplied applications, an in-line solenoid valve must be installed between the city water source and the 4000 Series Indexing Valve. Ensure that proper backflow prevention is used in compliance with local codes.

The 4000 Series Indexing Valve may be installed below ground in a valve box or directly buried.



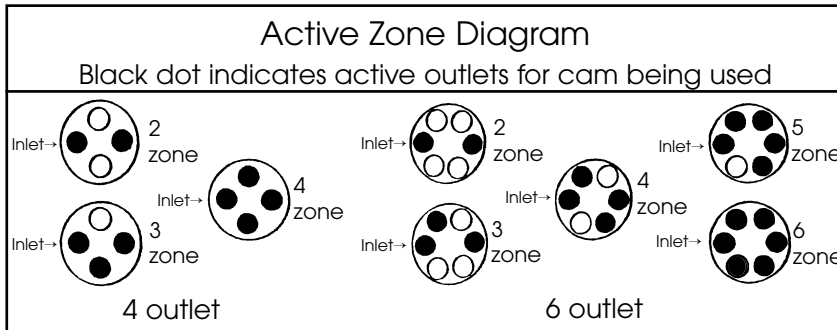
When connecting the lines to the valve outlets, ensure that the correct cam is installed. Install lines to outlets corresponding to numbers on the cam. See diagram for proper zone hookup of outlets.

Do NOT turn the valve upside down when gluing the inlet and outlet lines into the valve as glue may run down into the valve and interfere with proper operation. Allow glue to dry for at least two hours before operating or testing the valve. For best results, use a multi-purpose glue.

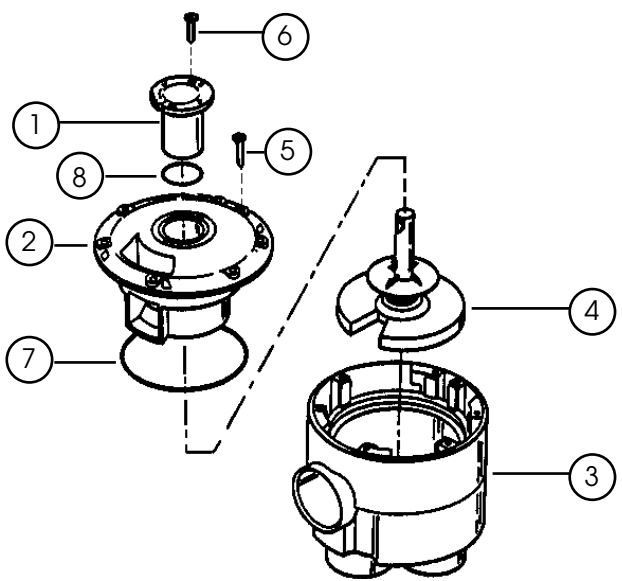
VALVE INSTALLATION INSTRUCTIONS (continued)

To seal off any unused outlets, install a piece of PVC pipe at least six inches in length to the outlet and cap the pipe. This will allow additional zones to be added easily at a later time. Make sure proper cam is installed for number of zones to be used.

In regions of the country where winter temperatures may cause damage to exterior pipes, the 4000 Series Indexing Valve should be winterized. To protect the control valve and other irrigation components from damage, the entire system should be drained or cleared using compressed air. Contact your K-Rain dealer for information on the winterization requirements in your area.



VALVE DIAGRAM



PARTS LIST

1	Two zone cam for four or six outlet valve	P6107042
	Three zone cam for four outlet valve	P6107043
	Four zone cam for four outlet valve	P6107044
	Three zone cam for six outlet valve	P6107063
	Four zone cam for six outlet valve	P6107064
	Five outlet cam for six outlet valve	P6107065
	Six zone cam for six outlet valve	P6107066
2	Valve Top	P7005000
3	Four outlet valve body	P7005504
	Six outlet valve body	P7005506
4	Stem/disk assy. w/.028 spring (white)	P7005507
	Light stem/disk assy. w/.025 spring (blue)	P7005509
	Heavy stem/disk assy. w/.032 spring (red)	P7005511
5	Valve top retaining screw set (7) (10 x 1 Phil Pan SS)	P7005520
6	Cam retaining screw set (2) (10-24 x 3/4 Phil Pan SS)	P6200400
7	Valve Top O-Ring	P7005610
8	Cam O-Ring	P6000412

TROUBLESHOOTING

1. **PROBLEM:** Valve Does Not Change or Cycle to Next Zone or Outlet

CAUSE: The stem and disk assembly is not rotating when water flow is turned OFF and then back ON.

SOLUTION: Ensure that there is no debris inside the cam. Clean and carefully reinstall the cam.

SOLUTION: If fewer than the maximum number of outlets are being used, check the installation of the cam. Ensure that the stem and disk assembly is not being held down by an improperly installed cam. Refer to the Cam Replacement Instructions.

SOLUTION: Remove the valve top and check for proper movement of stem and disk assembly. Check for and remove any debris or foreign objects that may jam or retard the movement of the disk.

SOLUTION: Check for freedom of movement of stem and disk assembly up and down over the center pin in bottom of valve. Scale deposits may build up on the pin and hold stem and disk assembly down. Clean pin and again check for freedom of movement.

SOLUTION: Be sure that all operating outlets are not capped and that the flow to operating zones is not restricted in any manner. This would cause pressure to build up in the valve and lock the stem and disk assembly in the down position.

SOLUTION: The backflow of water from uphill lines may be preventing the valve from cycling properly. This can happen when the valve is placed too far below an elevated irrigation line. If the valve cannot be placed close to the high point of the system, a check valve should be installed near the valve in the outlet line that runs uphill from the valve.

TROUBLESHOOTING (continued)

2. **PROBLEM:** Water Comes Out of all the Valve Outlets

CAUSE: Stem and disk assembly not seating properly on valve outlet.

SOLUTION: Check for sufficient water flow. A minimum of 10 GPM is required to properly seat the disk. For water flow between 6 and 10 GPM, a stem and disk assembly with a lighter spring is available.

SOLUTION: Remove the valve top and check the inside walls to ensure that nothing is interfering with the up and down movement of the stem and disk assembly inside the valve.

SOLUTION: Make sure that the operating outlets are not capped and that the flow to the operating zones is not restricted in any manner.

CAUSE: Too many sprinkler heads on a zone will cause insufficient pressure for disk to seat firmly over valve outlet.

SOLUTION: Reduce the number of heads on the zone to obtain the proper sprinkler operating pressure.

3. **PROBLEM:** Valve Skips Outlets or Zones.

CAUSE: For a pump installation, the pump may be losing its prime, causing the water flow to surge. This will cause the valve to cycle quickly several times, skipping one or more zones. Verify that the flow to the valve is constant by removing the valve top and watch the flow when the pump is turned ON after having been OFF for at least 15 minutes. The flow should be steady and uninterrupted.

SOLUTION: Seal any pump suction line leaks.

SOLUTION: Replace or install suction line check valve to prevent pump from losing its prime.

CAUSE: The stem and disk assembly is being advanced past the desired outlet.

SOLUTION: Ensure that the correct cam for the desired number of zones is installed and that the outlet lines are installed to the correct outlet ports of the valve as indicated by the zone numbers on the top of the cam.

TECHNICAL SPECIFICATIONS

Flow Range:	10-50 gallons per minute Stem and disk assembly for lower flows available (see parts list).
Valve Top and Body Construction:	High strength ABS plastic
Inlet:	Slip and glue connection to 1 1/4" PVC pipe
Outlets:	4 outlet accepts 1 1/4" PVC pipe with slip and glue connection. 6 outlet accepts 1" PVC pipe with slip and glue connection.

FLOW CHARACTERISTICS

4400 Series 4 Outlet Valve

Flow (GPM)	10	20	30	40	50
Pressure (PSI)	2.0	3.0	4.5	6.4	10.0

4600 Series 6 Outlet Valve

Flow (GPM)	10	20	30	40
Pressure (PSI)	2.5	4.5	7.5	11.5

TWO YEAR LIMITED WARRANTY

K-Rain products carry a "LIMITED WARRANTY." For two years from the date of purchase, K-Rain will repair or replace (at K-Rain's option) the product or any part if the product is found to be defective as to workmanship or material. This warranty does not extend to damage to a K-Rain product resulting from misuse, neglect or abuse, normal wear and tear, or accident, to exterior appearance or color or due to improper installation.

This warranty extends only to an original user of a K-Rain product.

IN NO EVENT SHALL K-RAIN BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES. ALL IMPLIED WARRANTIES ARE LIMITED IN DURATION TO TWO YEARS FOLLOWING DATE OF PURCHASE. Some states do not permit the exclusion or limitation of incidental or consequential damages or of implied warranties. Therefore, the above exclusions or limitations may not apply to you.

If a defect arises in a K-Rain product within the two-year warranty period, you should promptly contact your K-Rain installer, distributor or

K-RAIN MANUFACTURING CORP, 1640 Australian Avenue, Riviera Beach, Florida 33404

Please allow up to 4 weeks for completion of repairs or replacement and return of the product. If a product is replaced, the replacement product is covered only for the remainder of the original warranty period dating from the purchase of the original product.

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. If you have any questions concerning the warranty or its application, please write to K-Rain Manufacturing Corporation, 1640 Australian Avenue, Riviera Beach, FL 33404, Attn: Product Manager.



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