

## Turf Swing Joints

### TSJ Series and TSJ-PRS Series Swing Joints

#### Primary Application

Rain Bird's patented Turf Swing Joints (TSJ) connect rotors and quick coupler valves to lateral irrigation pipes. Made from rigid PVC, Type I, the ¾", 1" and 1 ½" swing joints are designed to optimize rotor performance, reduce costs associated with irrigation system installation, and to be maintenance free. Available with and without pressure-regulation, they allow irrigation professionals to adjust rotor heads to grade and prevent heads or pipes from breaking when run over by equipment.

#### Optimize Rotor Performance

Rain Bird's Turf Swing Joints are over 50 percent more efficient than the competition. As water flows through poorly designed swing joints, it experiences turbulence and pressure loss due to sharp inner corners and internal obstructions. Rain Bird's smooth, swept elbow design reduces pressure loss, resulting in higher efficiency and better rotor performance.

#### Reduce Installation Costs

Rain Bird's preassembled swing joints come in a variety of sizes in order to address multiple irrigation installation requirements. Oversized threaded inlets and grips simplify hand tightening. Each is ready-to-install, saving contractors time when connecting lateral lines to the rotor heads. Contractors, distributors and landscape architects install Rain Bird swing joints knowing that they have been tested to the industry's highest standards.



TSJ-075-PRS, TSJ-100-PRS



TSJ-12075, TSJ-12, TSJ-12150, TSJ-18

#### Maintenance Free

Rain Bird's swing joints are designed with double O-rings that provide extra protection against leaks and keeps threads clean of debris. Visible thread stops prevent over-tightening. Once installed, the contractor will not need to worry about this aspect of the installation ever again.

#### Pressure Regulation

Rain Bird's Turf Swing Joint with Pressure Regulating System (TSJ-PRS) models control and maintain preset inlet pressures for rotors with ¾" and 1" inlets. Pressure regulation at the rotor gives designers more control over the irrigation system performance. In high pressure or fluctuating pressure situations, the TSJ-PRS ensures optimal droplet size and eliminates misting, resulting in improved uniformity and reduced water consumption. The TSJ-PRS can be used to provide the same pressure to each rotor on a zone in applications where high flow rates result in significant friction losses or where there are elevation changes.

#### How to Specify

##### TSJ - xxxxxx - PRS

**Optional Feature**  
PRS: Pressure Regulating System

##### Size

**12075:** 12" long, ¾" M x M NPT  
**12:** 12" long, 1" M x M NPT  
**12-150:** 12" long, 1 ½" M x M NPT  
**18:** 18" long, 1" M x M NPT

**075:** ¾" M x M NPT  
**100:** 1" M x M NPT

##### Model

TSJ: Turf Swing Joint

**TSJ & TSJ-PRS General Features**

- Patented swept elbow design minimizes turbulence and pressure loss while maximizing rotor performance.
- No sharp inner corners (as some competitors have).
- No internal obstructions (as some competitors have).
- Preassembled units save the contractor time and reduce installation costs.
- The structural integrity from the swept elbow design reduces costs associated with fatigue-related failures.
- Oversized threaded inlets, extra large grips, and large visible stops make hand tightening trouble-free.
- Patented double O-rings provide extra protection against leaks and keep threads clean of debris during installation.
- Patented low pressure relief vent prevents pressure from building up between the primary and secondary O-rings when the swing joint is assembled in water, eliminating blown O-rings.
- Built to last from rigid PVC Type I, cell classification 12454-B, conforming to ASTM D1784. All NPT threads, sockets, and spigots are PVC Schedule 80 per ASTM D2464 and D2467.

**TSJ-PRS Only Features**

- Maintains a constant, uniform pressure into the rotor regardless of nozzle used:
  - » 45 psi (3,1 bar) for ¾" swing joints
  - » 70 psi (4,8 bar) for 1" swing joints
- Allows each rotor on a zone to operate at the same pressure, improving consistency and overall system performance.
- Reduces misting, fogging, and other performance problems caused by high pressure.
- Regulator housing is made of PVC that matches the high pressure rating of the Rain Bird turf swing joint and exceeds the pressure rating of rotors.
- Diaphragm is made of a durable fabric reinforced elastomer for long life.
- Porous filter provides atmospheric reference without allowing contamination to enter, enabling the system to be buried in any kind of soil.

**Specifications**

- Pressure Rating: 315 psi at 73° F (21,7 bar at 22.8° C) (per ASTM D3139)
  - » Tested without leakage for 60 minutes at 790 psi (54,5 bar)
  - » Tested without leakage for short term exposure at 1000 psi (68,9 bar)
- ¾" Joint Pressure Loss: 0.3 psi at 6 gpm (0,02 bar at 0,4 l/s).
- 1" Joint Pressure Loss: 1.5 psi at 18 gpm; 2.5 psi at 23 gpm (0,1 bar at 1,1 l/s; 0,2 bar at 1,5 l/s).
- 1½" Joint Pressure Loss: 0.5 psi at 40 gpm; 1.6 psi at 70 gpm (0,03 bar at 2,5 l/s; 0,1 bar at 4,4 l/s).
- TSJ-PRS Maximum Flow: 22 gpm (1,41 l/s).
- See charts for pressure loss comparison and pressure regulation.

The TSJ-PRS is not recommended for use in systems where the pressure in the lateral lines is equal to or less than the nominal regulation pressure, as the increased pressure drop may adversely affect the performance of such systems.

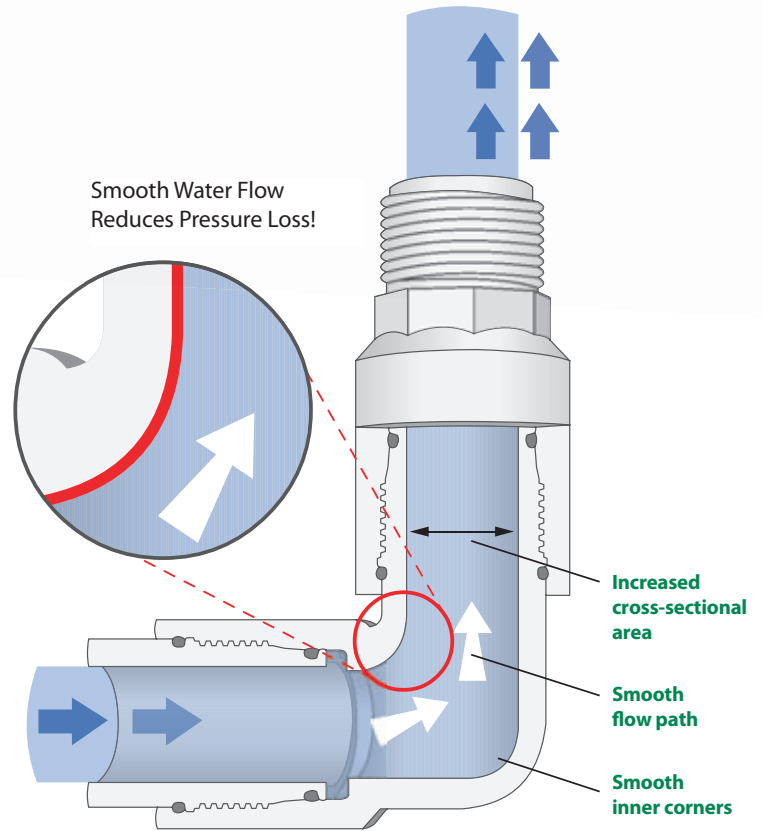
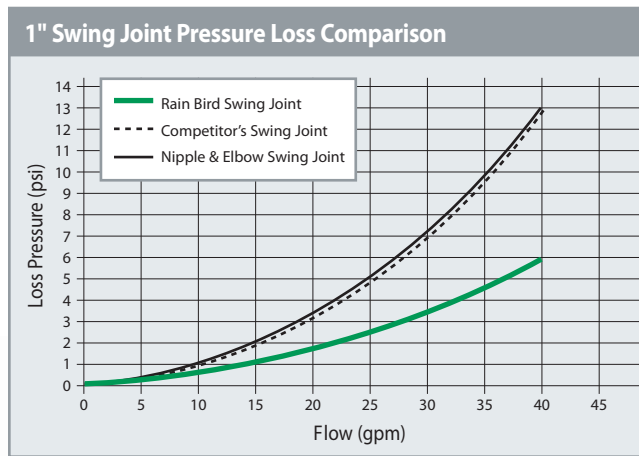
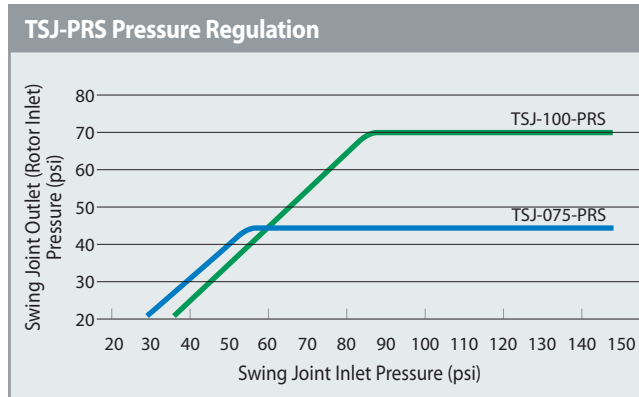
To reduce the effects of water hammer, Rain Bird recommends flow rates in the supply line not exceed 5 ft/sec (1,5 m/s). The TSJ-PRS is not intended to function as a water hammer prevention device.

There are no user-serviceable parts inside. The internal spring is under compression. Do not open the PRS unit under any circumstances.

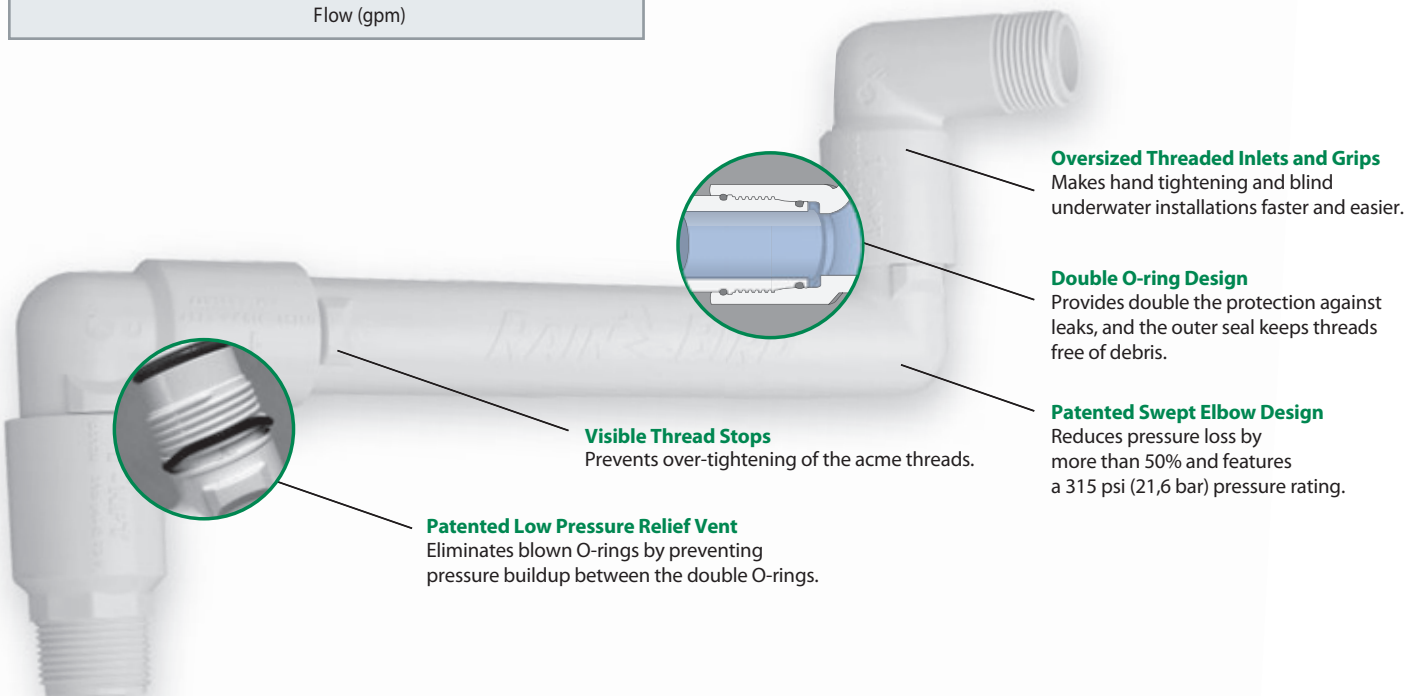
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Swing Joint Specifications									
Model Number	Length		Inlet		Outlet		Thread	Pressure Regulation	
	US	METRIC	US	METRIC	US	METRIC		US	METRIC
TSJ-12075	12"	30,5 cm	¾"	20/27 M	¾"	20/27 M	NPT	n/a	n/a
TSJ-12	12"	30,5 cm	1"	26/34 M	1"	26/34 M	NPT	n/a	n/a
TSJ-12-150	12"	30,5 cm	1½"	40/49 M	1½"	40/49 M	NPT	n/a	n/a
TSJ-18	18"	45,7 cm	1"	26/34 M	1"	26/34 M	NPT	n/a	n/a
TSJ-075-PRS	12"	30,5 cm	¾"	20/27 M	¾"	20/27 M	NPT	45 psi	45 psi
TSJ-100-PRS	12"	30,5 cm	1"	26/34 M	1"	26/34 M	NPT	70 psi	70 psi

Swing Joint Features



The Rain Bird TSJ Series Swing Joint's swept elbow design helps to reduce pressure loss by more than 50% over competitors!



## Specifications (continued)

- High operating pressure rating (315 psi; 21,6 bar) is perfect for use in constant pressure situations.
- Spigot inlet available on 1" (2,5 cm) swing joints.

The swing joints shall be used as a height adjustable connector between lateral lines and ¾" (1,9 cm), 1" (2,5 cm), and 1 ½" (3,8 cm) sprinklers or quick coupler valves. The swing joint internal elbows shall have an enlarged cross-section and radiused corners for superior flow characteristics that reduce pressure losses by at least 50 percent compared to other swing joints.

The swing joint shall be molded from rigid PVC, Type 1, cell classification 12454-B, conforming to ASTM D1784, with a pressure rating of 315 psi (21,6 bar) at 73° F (22° C) when tested in accordance with ASTM D3139, including 60 minutes at 790 psi (54,1 bar), and short term exposure of 1000 psi (68,5 bar) without leakage. All NPT threads, sockets, and spigots shall be Schedule 80 per ASTM D2464 and D2467.

All components shall be factory preassembled, available with ¾" (1,9 cm), 1" (2,5 cm), and 1 ½" (3,8 cm) inlet/outlet and in lengths of 12" (30,5 cm) and 18" (45,7 cm). Spigot inlets shall be available for 1" (2,5 cm) swing joints. All rotating joints shall be modified stub ACME threads. All rotating joints shall have two EPDM rubber O-rings for positive sealing and thread protection. The swing joint shall have oversized threaded inlets with large grips and visible thread stops to make hand tightening and blind (underwater) installations easier.

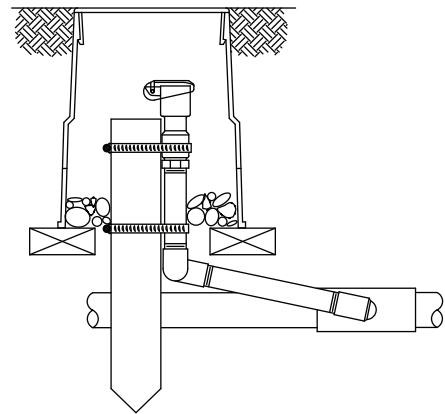
The color of the ¾" (1,9 cm) and 1" (2,5 cm) swing joints shall be white for easy identification when installed and the 1 ½" (3,8 cm) swing joint shall be dark gray.

## Additional TSJ-PRS Specifications

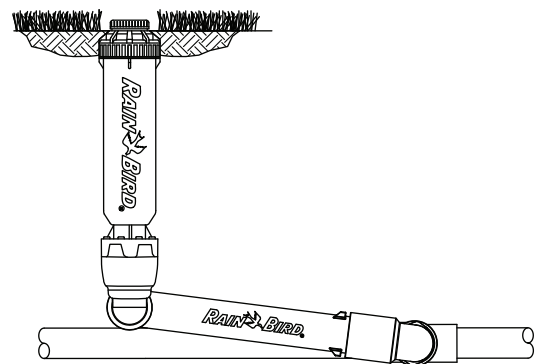
The pressure regulating system (PRS) shall consist of the outlet elbow of a Rain Bird Turf Swing Joint (TSJ). The TSJ-PRS shall allow pressure to increase uniformly within the rotor up to the preset regulation pressure before regulation occurs. Pressure regulation shall be provided to rotors with ¾" (1,9 cm) and 1" (2,5 cm) inlets by means of a spring-loaded diaphragm attached to a flow tube. Regulation shall occur at the nominal preset pressure of 45 psi (3,1 bar) for the ¾" TSJ-075-PRS and 70 psi (4,8 bar) for the 1" TSJ-100-PRS.

Atmospheric reference for regulation shall be provided through a porous filter that prevents contaminants from entering the system when the regulator is buried.

The regulator housing shall be constructed of high strength PVC. All metal components shall be made of stainless steel. The diaphragm shall be a fabric reinforced elastomer.



Swing Joint Installation with Quick-coupler Valve



8005 Rotor with TSJ-100-PRS

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