

Surge Guard Series

LASCO Fittings, Inc. is pleased to announce...

Third Party Cyclic Strength Testing Results: Surge Guard Tees are 3x Stronger than Sch 80 Tees

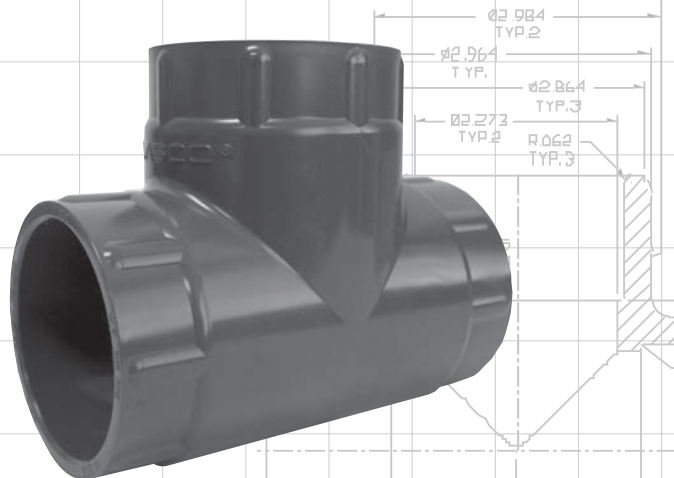
Our Patent Pending LASCO Surge Guard Fittings were designed to be the strongest and most forgiving PVC Golf Course Fittings we have ever produced.

We now have third party testing results to verify:

The LASCO Surge Guard Tees are 3X Stronger than Sch 80 Tees based on repeat high stress failure testing from:

The Center for Irrigation Technology (CIT) at Fresno State University.

This Third Party Cyclic Strength Test was designed to force fitting failure to determine the life cycle ratio of Sch 80 to Surge Guard Tees. This Accelerated Life Testing was intentionally more severe than any Golf Course application.



Part No	Size	Description	Ctn Qty
301-020	2	Tee	25
301-249	2 x 1	Tee	10
301-250	2 x 1¼	Tee	10
301-251	2 x 1½	Tee	10
7301-J	63mm	Tee	25
306-020	2	90° EII	25
306-249	2 x 1	90° EII	25
306-250	2 x 1¼	90° EII	25
306-251	2 x 1½	90° EII	25
7306-J	63mm	90° EII	25
317-020	2	45° EII	25
7317-J	63mm	45° EII	25

SURGE GUARD

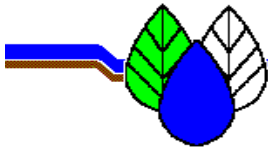


Read the full CIT report on the back.

Contact Us:

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Center for Irrigation Technology

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Development of a Protocol to Determine the Cyclic Strength of PVC Pipe Fittings when Stressed to Failure

Major components built into the testing jig (see Figure 1) are described as follows:

1. **Nitrogen tank (yellow) equipped with a pressure regulator.** This arrangement is capable of supplying a controlled supply of gas at pressures to 3000 psi.
2. **Gas over water bladder tank (blue).** With a pressure-controlled gas inlet, the tank is capable of delivering a supply of water to the test jig at a specified pressure in a pulse-free manner. For these tests the water pressure was set at 250-260 psi. The supply pressure gauge is visible near the end of the tank.
3. **Three-way solenoid valve.** On signal from the timer circuit (see Figure 2), the solenoid valve alternately opens, thereby pressurizing the PVC tee, and closes thereby isolating the supply and depressurizing the PVC tee. For these tests, a 34-second cycle was used subjecting the tee to 17 seconds at 250 psi followed by 17 seconds at atmospheric pressure. The timer circuit also has a relay and an electrically-actuated cycle counter. The timer is a model H3C-R as manufactured by Anly Electronics Co, Ltd.
4. **A data logger** is required to record the maximum cycle pressure and document the time when the fitting failed. A model DLI2 by Dwyer Instruments was selected.



Figure 1. Test bench general arrangement



Figure 2. 2-in. Surge Guard PVC tee installed in the test jig with related components



Figure 3. Failure crack in a 2-in. Schedule 80 tee

Figure 2 also shows a Surge Guard PVC tee installed in the test jig. The tee sockets are fitted with schedule 40 2-in. x 1/2-in. reducer bushings (SP x F). The solvent welding was accomplished using IPS P70 primer and IPS 711 solvent cement. A pressure gauge is fitted into the vertical connection. A ball valve is fitted into the downstream port and is used to vent the air in the system. During the test, the lab room temperature was kept between 60° and 65° F. The failure crack shown in Figure 3 is representative of the location noted in all test work.

Test results are as follows:

Component Tested	Cycles to failure					Average
	Test #1	Test #2	Test #3	Test #4	Test #5	
Schedule 80 tee	2,282	1,123	2,159	1,968	2,032	1,912.8
Surge Guard tee	4,423	4,838	6,823	7,200	7,254	6,107.6

Disclaimer

All tees were provided by Lasco Fittings, Inc. All other materials were purchased and assembled by the Center for Irrigation Technology (CIT), California State University, Fresno personnel. All tests were conducted by CIT, Fresno State personnel. Tests were conducted from December, 2009 through January 2010. The cycle time and maximum pressure selected reflect an attempt to develop a protocol useful for comparative purposes. The results of this protocol must not be interpreted as applying to specific field situations.

CIT report dated February 2, 2010

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