

# TECHNICAL BULLETIN

»» 650 SERIES

HydraRester™

**SUBJECT:** Water Hammer Arresters - Endurance Test

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**PAGE:** 1 of 1

## 500,000 Cycle Endurance Test

In order to establish a higher criteria for our water hammer arrester performance, and to address concerns posed by engineers and contractors regarding our o-ring performance, Sioux Chief Manufacturing Company conducted a 500,000 cycle endurance test. We chose to test our 654-C Hydra-Rester because it has the LONGEST piston stroke of any Sioux Chief arrester, and therefore the wear and resistance on the o-ring is tested most stringently.

The endurance test was performed on a shock cycle tester which hydraulically plunged the piston simulating the maximum allowable system surge as outlined by the ANSI/ASSE 1010 standard. During the plunging process, each piston stroke travelled five inches up the arrester chamber and back. During the test, the piston was plunged thirty times per minute, twenty four hours a day, for twelve consecutive days.

At different intervals throughout the test, the arrester was removed from the shock cycle tester and subjected to the performance testing equipment consistent with the ANSI/ASSE 1010 standard for certifying water hammer arresters. The testing apparatus consisted of a 50 foot run of one inch galvanized pipe with a 60 PSIG flow pressure. The arrester was then subjected to a 400 PSIG pressure spike, and was required to keep the line pressure below 150 PSIG. The Sioux Chief Hydra-Rester kept the pressure spike below the specified 150 PSIG at each interval and at the completion of the 500,000 cycle test. The exact results of the test are found below.

## Test Results

Cycle No	Line Pressure	Actual Peak Shock Pressure	Max Allowable Shock Pressure*
1	60 PSIG	115 PSIG	150 PSIG
70,000	60 PSIG	123 PSIG	150 PSIG
185,000	60 PSIG	137 PSIG	150 PSIG
375,000	60 PSIG	139 PSIG	150 PSIG
500,000	60 PSIG	144 PSIG	150 PSIG

\*Allowed by ANSI/ASSE 1010 Standard

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