

5.0 Operation And Maintenance

5.1 Proof test without automatic testing

The objective of proof testing is to detect failures within the valve that are not detected by any automatic diagnostics of the system. Of main concern are undetected failures that prevent the safety instrumented function from performing its intended function.

The frequency of proof testing, or the proof test interval, is to be determined in reliability calculations for the safety instrumented functions for which a valve

is applied. The proof tests must be performed more frequently than or as frequently as specified in the calculation in order to maintain the required safety integrity of the safety instrumented function.

The following proof test is recommended. The results of the proof test should be recorded and any failures that are detected and that compromise functional safety should be reported to Bray Controls.

The suggested proof test consists of a full stroke of the Bray resilient seated butterfly valves' S20/21, S22/23, S30/31, S32/33, and S35/36 valve actuator.

Table1: Recommended Proof Test

Step	Action
1	Bypass the safety function and take appropriate action to avoid a false trip
2	Send a signal to the final element configuration to perform a full stroke and verify that this is achieved
3	Inspect the Bray resilient seated butterfly valves S20/21, S22/23, S30/31, S32/33, and S35/36 for any visible damage or contamination
4	Record any failures in your company's SIF inspection database
5	Remove the bypass and otherwise restore normal operation

This proof test coverage for Bray resilient seated butterfly valves S20/21, S22/23, S30/31, S32/33, and S35/36 are listed in the FMEDA report which is available from Bray Controls.

The person(s) performing the proof test of Bray resilient seated butterfly valves S20/21, S22/23, S30/31, S32/33, and S35/36 should be trained in SIS operations, including bypass procedures, valve maintenance and company Management of Change procedures.

5.2 Proof test with automatic partial operational stroke testing

An automatic testing scheme that performs a full stroke of the Bray resilient seated butterfly valves S20/21, S22/23, S30/31, S32/33, and S35/36 and measures valve movement timing will detect most potentially dangerous failure modes. It is recommended that a physical inspection (Step 2 from Table 1) be performed on a periodic basis with the time interval determined by plant conditions. A maximum inspection interval of five years is recommended.

5.3 Repair and replacement

Repair procedures in the Bray resilient seated butterfly valves S20/21, S22/23, S30/31, S32/33, and S35/36 Installation, Operation and Maintenance manuals must be followed.

5.4 Useful Life

The normal useful life of the Bray resilient seated butterfly valves S20/21, S22/23, S30/31, S32/33, and S35/36 is 10 to 15 years, or 10,000 cycles.

5.5 Manufacturer Notification

Any failures that are detected and that compromise functional safety should be reported to Bray Controls. Please contact Bray Controls customer service.

5.6 Product Registration

If the product is being used in a safety application and there is a desire to receive notices regarding the product, register the product with Bray Controls Customer Service.