Certificate / Certificat
Zertifikat / 合格証

STR 1011040 C001

exida hereby confirms that the:

Metal Seated & Soft Seated Piston Valves

Strahman Valve, Inc.
Bethlehem, PA - USA

Has been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-2

and meets requirements providing a level of integrity to:

Systematic Capability: SC 2 (SIL 2 Capable)

Random Capability: Type A, Route 2_H Device

PFH/PFD_{avg} and Architecture Constraints must be verified for each application

Safety Function:

The Metal Seated and Soft Seated Piston Valves will move to the designed safe position per the actuator design within the specified safety time.

Application Restrictions:

The unit must be properly designed into a Safety Instrumented Function per the Safety Manual requirements.

The manufacturer may use the mark:

Revision 2.0 April 29, 2022
Surveillance Audit Due
May 1, 2025

ANAB
ANSI National Accreditation Board
ACCREDITED
ISO/IEC 17065
PRODUCT CERTIFICATION BODY
#1004

exida Certification

Evaluating Assessor

Certifying Assessor

Certificate / Certificat / Zertifikat / 合格証

STR 1011040 C001

Systematic Capability: SC 2 (SIL 2 Capable)

Random Capability: Type A, Route 2_H Device

PFH/PFD_{avg} and Architecture Constraints must be verified for each application

Metal Seated & Soft Seated Piston Valves

Systematic Capability:

The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 2. These are intended to achieve sufficient integrity against systematic errors of design by the manufacturer.

A Safety Instrumented Function (SIF) designed with this product must not be used at a SIL level higher than stated.

Random Capability:

The SIL limit imposed by the Architectural Constraints must be met for each element. This device meets *exida* criteria for Route 2_H.

Versions:

Application	Valve Series	Sizes	Pressure Rating
Soft Seated (SV)	SV Series	3/8" through 14"	CL 150 - 600 PN 10 to PN 630
Metal Seated (MS)	M Seal, Rising Stem	3/8" through 14" PN 10 to PN 630	CL 600 - 1500 PN 10 to PN 630
	M Ring Seal, Rising Stem		
	Dual Seal, Rising Stem		
	M Seal, Telescopic Stem		
	M Ring Seal, Telescopic Stem		
	Dual Seal, Telescopic Stem		

IEC 61508 Failure Rates in FIT[1]

Device	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Full Stroke, Clean Service	0	0	0	476
Tight Shut Off, Clean Service	0	0	0	1077
Open on Trip, Clean Service	0	137	0	339
Full Stroke, Severe Service	0	0	0	833
Tight Shut Off, Severe Service	0	0	0	2036
Open on Trip, Severe Service	0	272	0	561

[1] FIT = 1 failure / 10^9 hours

SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFH/PFD_{avg} considering redundant architectures, proof test interval, proof test effectiveness, any automatic diagnostics, average repair time and the specific failure rates of all products included in the SIF. Each element must be checked to assure compliance with minimum hardware fault tolerance (HFT) requirements.

The following documents are a mandatory part of certification:

Assessment Report: STR 10/11-040 R003 V4 R1 (or later)

Safety Manual: : QMS 12.001 SVI Safety Manual (or later)

80 N Main St
Sellersville, PA 18960

T-062, V5R2