



Certificate / Certificat Zertifikat / 合格証

MOG 2110081 C001

exida hereby confirms that the:

Coker DV-4 Switch Valve

Mogas Industries, Inc.

Houston, TX - USA

The manufacturer
may use the mark:



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 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

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

Revision 1.0 July 29, 2022
Surveillance Audit Due
July 1, 2025

Safety Function:

The safety function of Coker DV-4 Switch Valve is to connect the inlet to one of two outlets and isolate the remaining outlet and the Bypass port to the required leakage specification and to switch state when commanded.

Application Restrictions:

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



Evaluating Assessor

Certifying Assessor

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Systematic Capability: SC 3 (SIL 3 Capable)

Random Capability: Type A, Route 2_H Device

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Systematic Capability :

The product has met manufacturer design process requirements of Safety Integrity Level (SIL) 3. 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:

| Valve Series | Sizes | Pressure Class |
|-------------------------|-----------|----------------------|
| Coker DV-4 Switch Valve | 6" to 16" | ASME 600 / 900 Class |

IEC 61508 Failure Rates in FIT¹

| Device | λ_{SD} | λ_{SU} | λ_{DD} | λ_{DU} |
|--------------------------------|----------------|----------------|----------------|----------------|
| Full Stroke, Clean Service | 0 | 0 | 0 | 500 |
| Tight Shut Off, Clean Service | 0 | 0 | 0 | 1051 |
| Open on Trip, Clean Service | 0 | 128 | 0 | 372 |
| Full Stroke, Severe Service | 0 | 0 | 0 | 839 |
| Tight Shut Off, Severe Service | 0 | 0 | 0 | 1916 |
| Open on Trip, Severe Service | 0 | 249 | 0 | 590 |

¹ FIT = 1 failure / 10⁹ 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: MOG 21/10-081 R001 V1 R1 (or later)

Safety Manual: SIL Safety Manual DV-4 Switch Valve



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