Certificate / Certificat
Zertifikat / 合格証

CRE 2201139 P0043 C004

exida hereby confirms that the:

Crane® FK-TrieX™
Full Port Triple Offset Valve

Crane ChemPharma & Energy,
Xomox International GmbH & Co. OHG
Kreuztal, Germany

Have been assessed per the relevant requirements of:

IEC 61508 : 2010 Parts 1-7

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

Safety Function:

The Valve 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 1.0 April 14, 2022
Surveillance Audit Due
May 30 , 2025

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

exida Certification

Evaluating Assessor

Certifying Assessor

Certificate / Certificat / Zertifikat / 合格証

CRE 2201139 P0043 C004

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

Crane® FK-TrieX™

Full Port Triple Offset Valve

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.

IEC 61508 Failure Rates in FIT*

Full Port Triple Offset Valve

Application	λ_{SD}	λ_{SU}	λ_{DD}	λ_{DU}
Full Stroke, Clean Service	0	0	0	487
Tight Shutoff, Clean Service	0	0	0	1416
Open on Trip, Clean Service	0	187	0	300
Full Stroke, Severe Service	0	0	0	896
Tight Shutoff, Severe Service	0	0	0	2668
Open on Trip, Severe Service	0	351	0	546

* 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: CRA 22/01-139-C R009 V1 R0

Safety Manual: CPE-KROMBACH FK-TrieX Safety Manual V1R0

80 N Main St
Sellersville, PA 18960