



# Certificate / Certificat

## Zertifikat / 合格証

BUE 2006049 P0042 C002

exida hereby confirms that the:

### Pilot-operated solenoid valves:

2/2 way 0290-A-\*\*\*, 2/2 way 5404-A-\*\*\*,  
3/2 way 6518-C-\*\*\*, 3/2 way 6518-D-\*\*\*,  
3/2 way and 5/2 way 6519-W-\*\*\*,  
5/2 way 6519-H-\*\*\*, 4/2 way 5470-G-\*\*\*

**Bürkert Werke GmbH & Co. KG**  
Ingelfingen, Germany

Have 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 Element**

**SIL 2 @ HFT=0; SIL 3 @ HFT = 1; Route 2<sub>H</sub>**

**PFD<sub>avg</sub> and Architecture Constraints  
must be verified for each application**

### Safety Function:

The Valve will move to the designed safe position within the specified safety time.

### Application Restrictions:

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



*C. Krupke*

Evaluating Assessor

*J. Hochhaus*

Certifying Assessor

The manufacturer may use the mark:



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Revision 2.0 April 19, 2024  
Surveillance Audit Due  
April 30, 2027



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**Random Capability: Type A Element**

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must be verified for each application**

## Systematic Capability:

The products have 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 element meets *exida* criteria for Route 2<sub>H</sub>.

## IEC 61508 Failure Rates in FIT\*

Device	$\lambda_{Safe}$	$\lambda_{Dang}$
2/2 way 0290-A-***	52	87
2/2 way 5404-A-***	87	66
3/2 way 6518-C-***	62	277
3/2 way 6518-D-***	62	287
5/2 way 6519-H-***	62	425
3/2 way and 5/2 way 6519-W-***	62	421
4/2 way 5470-G-***	55	231

\* FIT = 1 failure / 10<sup>9</sup> hours

## SIL Verification:

The Safety Integrity Level (SIL) of an entire Safety Instrumented Function (SIF) must be verified via a calculation of PFD<sub>avg</sub> 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:** BUE 20-06-049 R008 V2R0 Assessment Report Valves

**Safety Manual:** Safety Manual\_00\_00815378, Rev -

Pilot-operated solenoid  
valves:

2/2 way 0290-A-\*\*\*,  
2/2 way 5404-A-\*\*\*,  
3/2 way 6518-C-\*\*\*,  
3/2 way 6518-D-\*\*\*,  
3/2 way and 5/2 way  
6519-W-\*\*\*,  
5/2 way 6519-H-\*\*\*,  
4/2 way 5470-G-\*\*\*

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