

**GOVERNMENT APPROVED TEST LABORATORY**  
 IN TERMS OF ARP 0108: "REGULATORY REQUIREMENTS FOR EXPLOSION PROTECTED APPARATUS"

**IA CERTIFICATE**

Date Issued: **30 Sep 2021**  
 \*Expiry date: **30 Sep 2024**  
**Page 1 of 3**  
**Issue: 2**

**Ex – Type Examination Certificate**

Certificate Number: **S-XPL/16.0829 X**  
 Equipment: **Safety Valve**  
 Model / Type: **ASV, ASVG, KVAZ, FDS/VE, GSV**  
 Applicant: **Heaton Valves Africa (Pty) Ltd**  
**PO Box 10**  
**Molendrift**  
**6537**

Manufacturer: **Albrecht-Automatik GmbH**  
 Serial No: All serial numbers imported between issued- and expire date and all serial numbers covered by a valid report or acceptable product certification mark.

Supplied by  
**Heaton Valves Africa (Pty) Ltd**  
 Identified by Inspection Authority number  
**S-XPL/16.0829 X**

And as described in the Explolabs file number **XPL/17601/16.0829 Issue 2** is hereby certified "Explosion Protected (Refer to clause 1, for Ex Rating)", having been examined and inspected in accordance with the relevant requirements of South African Standards.

- EN 1127-1: 2007** Explosive atmospheres. Explosion prevention and protection. Basic concepts and methodology
- prEN 13463-1:2007** Non-electrical equipment for use in potentially explosive atmospheres - Part 1: Basic method and requirements.
- prEN 13463-5: 2009** Non-electrical equipment intended for use in potentially explosive atmospheres. Protection by constructional safety 'c'
- IEC 61508-1: 2010** Functional safety of electrical/electronic/ programmable electronic safety-related systems. General requirements
- IEC 61508-2: 2010** Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 2: Requirements for electrical/electronic/programmable electronic safety-related systems
- IEC 61508-4: 2010** Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 4: Definitions and abbreviations
- IEC 61508-7: 2007** Functional safety of electrical/electronic/programmable electronic safety-related systems - Part 7: Overview of techniques and measures
- IEC 61511-2: 2004** Functional safety - Safety instrumented systems for the process industry sector, Part 2: Guidelines for the application
- IEC 61511-3: 2004** Functional safety – Safety instrumented systems for the process industry sector – Part 3: Guidance for the determination of the required safety integrity levels



**1. GENERAL**

The marking of the Safety Valve shall include the following:

**II -/2 GD c IIB Tx X**

Intended application

Safety Function: Move into safe position on loss of auxiliary energy. The valves are suitable for use in a safety instrumented system up to SIL 2. Under consideration of the minimum required hardware fault tolerance HFT = 1 the values may be used in a redundant structure up to SIL 3.

Device-Specific Values

Probability of Dangerous Failure on Demand	PFD <sub>spec</sub>	2,05 E-04
Test Interval	Ti	1a
Confidence Level	1-a	95%
Safe Failure Fraction	SFF	89,25%
Hardware Fault Tolerance	HFT	0
Diagnostic Coverage	DC	0%
Type of Sub System		Type A
Mode of Operation		Low Demand
Proof Test Coverage	PTC	Not considered
Partial Stroke Test Coverage	PSTC	Not considered

Derived Values for 1001-Architecture

Assumed Demands per Year	f <sub>ap</sub>	1/a	1,14 E-04/h
Total Failure Rate	A <sub>S</sub> + A <sub>D</sub>	2,18 E-07/h	218FIT
Lambda Dangerous Detected	A <sub>DD</sub>	0,00 E+00/h	0FIT
Lambda Dangerous Undetected	A <sub>DU</sub>	2,34 E-08/h	23FIT
Lambda Safe	A <sub>S</sub>	1,94 E-07/h	194FIT
Mean Time Between Failures	MTBF	4,59 E+06 h	524a
Mean Time Between Dangerous Failures	MTBF <sub>O</sub>	4,27 E+07h	4.877a
Average Probability of Failure on Demand	PFD <sub>avg</sub>		1,03 E-04

Time of Usage

A time of usage of more than 5 years (1.5 years of storage) can only be favoured under responsibility of the operator, consideration of specific external conditions (securing of required quality of media, max. temperature, time of impact), and adequate test cycles.

Quality Management

These statements are bound to a proven and verified deployment of safety-related quality management of the manufacturer.

The issue of this certificate is based upon an examination, whose results are documented in Report No. V178.09/15 dated 2015-04-07.

This certificate is valid only for products which are identical with the product tested. It becomes invalid at any change or the codes and standards forming the basis of testing for the intended application.

Based on the following documentation: V 178.09/15

**2. INSTALLATION INSTRUCTIONS**

It is the manufacturer's responsibility to supply installation instructions with each unit offered for sale as required by IEC/SANS 60079-0 Clause 30.

**3. SPECIAL CONDITIONS FOR SAFE USE** (denoted by "X" after certificate number)

The instructions of the associated installation and operating manual shall be considered.

**4. SCHEDULE OF LIMITATIONS** (denoted by "U" after certificate number)

None.

5. **CONDITIONS OF CERTIFICATION**

All production units must be covered by a QAN (Quality Assurance Notification), Product Mark Scheme or batch evaluation.

6. **MARKING**

The following (or similar) information have to be clearly and permanently marked on all units:

- Supplier : Heaton Valves Africa (Pty) Ltd
- Manufacturer : Albrecht-Automatik GmbH
- Equipment : Safety Valve
- Model/Type : ASV, ASVG, KVAZ, FDS/VE, GSV
- Serial No. : ---
- Ex Rating : II -/2 GD c IIB Tx X
- IA Certificate No : S-XPL/16.0829 X

*This certification indicates compliance with R10.1 of the Mines Health and Safety Act and/or EMR 9(2) of the Occupational Health and Safety Act, provided that the apparatus is used as relevant in accordance with:*

- i) SANS 10086 and IEC/SANS 61241-14 requirements as applicable;
  - ii) Any conditions mentioned in the above report;
  - iii) Any relevant requirements and codes of practice enforced in terms of the Mine Health and Safety Act or Occupational Health and Safety Act; and
  - iv) Any restrictions and conditions enforced by the Chief Inspector of Mines or the Principal Inspector or the Chief Inspector: Occupational Health and Safety.
- v) A revision certificate replaces all previous version of the certificate.  
 \* - Only covers equipment Imported between the "Issued" and "Expire" dates.  
 vi) If and when your QAN (Quality Assurance Notification) Certificate for your equipment manufacturer expires during the valid period of the IA Certification (issued for your equipment) and a new certificate is not submitted the existing IA Certification will then be cancelled. It is thus the client's responsibility to always submit the updated and valid QAN certificate(s) to Explolabs (Pty) Ltd  
 vii)

**Responsible Testing Officer:**

**L Odendaal**  
**Technical Specialist**  
**EXPLOLABS EXPLOSION PREVENTION SERVICES**

*This report/certificate shall not be reproduced except in full without the written approval of the company* Explolabs (Pty) Ltd shall not be liable for any losses or damages sustained on account of any failure or omission to properly perform our duties in terms of any contract undertaken by us. This disclaimer is immutable and automatically incorporated in any contract undertaken by us; notwithstanding anything to the contrary, save for the express written waiver of our managing director. By marking the equipment in accordance with the documentation/standard, the manufacturer attests on his own responsibility that the equipment has been constructed in accordance with the applicable requirements of the relevant standards and that the routine verifications and tests have been successfully completed and that the product complies with the documentation and standard(s). The contents of electronic reports/certificates cannot be guaranteed. Original certification documents will be kept on file at Explolabs (Pty) Ltd

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This report supersedes all previous documents bearing the reference no XPL/17601/16.0829 Issue 1.