

Certificate of Inspection

Certificate No. 19_OR150_OLE_ADV3H_185_2019

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Issued October 7th, 2019

<i>Object of Inspection</i>	2/2 POPPET VALVE VD2 SERIES
<i>Applicant</i>	OLEODINAMICA REVA S.r.l., Via Isacchi, 3-42 124 Reggio Emilia (Italy)
<i>Engineering</i>	OLEODINAMICA REVA S.r.l., Via Isacchi, 3-42 124 Reggio Emilia (Italy)
<i>Manufacturing</i>	OLEODINAMICA REVA S.r.l., Via Isacchi, 3-42 124 Reggio Emilia (Italy)
<i>System Architecture</i>	As defined in: 2/2 Poppet Valve VD2 Series Technical Datasheet DS-VD2-01 Rev. 02.19
<i>Equipment type</i>	MECHANICAL EQUIPMENT
<i>Inspection Requirements</i>	IEC 61508:Ed. 2 - 2010 Functional safety of electrical/electronic/programmable electronic safety-related systems IEC 61511: Ed. 2 - 2016 Functional safety – Safety instrumented systems for the process industry sector
<i>Inspection Result</i>	BUREAU VERITAS ITALY states that the 2/2 POPPET VALVE VD2 SERIES four types of configuration (1, 2, 3 and 4) and four types of pilot flange configuration (A, B, C and D), type "A", are suitable for use of up to SIL 3 Safety Integrity Level as a single device (HFT=0) for Fail To Open (FTO) and Fail To Close (FTC) in Safety Instrumented functions. Route 1H applies. Route 1S applies. IEC 61511 Ed. 2: 2016, Part 1, §11.4.3 clause (2nd bullet) is also respected.
<i>Restrictions/ Conditions</i>	As per Safety Manual SFM-VD2-02 Safety Manual and Safety Analysis Report code: 19_OR150_OLE_ADV3H_AS02 V1.0



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LOGIC VALVES MODEL CODE	λt	λd	λdd	λs	SFF (%)	SIL Arch. Constraints HFT=0	SIL (Systematic capability)	SIL
AVD2%%C (D)%2%%	3,45E-06	5.95E-08	5.95E-08	3.39E-06	98,3%	3	3	3
AVD2%%C (D)%4%%	3,82E-06	6.35E-08	6.35E-08	3.76E-06	98,3%	3	3	3
AVD2%%A (B)%1%%	2.27E-06	1.08E-08	1.08E-08	2.26E-06	99,5%	3	3	3
AVD2%%A (B)%2%%	2.28E-06	1.48E-08	1.48E-08	2.26E-06	99,4%	3	3	3
AVD2%%A (B)%3%%	2.27E-06	1.08E-08	1.08E-08	2.26E-06	99,5%	3	3	3
AVD2%%A (B)%4%%	2.64E-06	1.88E-08	1.88E-08	2.63E-06	99,3%	3	3	3
AVD2%%C (D)%3%%	3.45E-06	5.55E-08	5.55E-08	3.39E-06	98,4%	3	3	3
AVD2%%C (D)%1%%	3.45E-06	5.67E-08	5.67E-08	3.39E-06	98,4%	3	3	3

Table A – 2/2 Poppet Valves FTO Safety function failure rates, SFF, SIL

LOGIC VALVES MODEL CODE	λt	λd	λdd	λs	SFF (%)	SIL Arch. Constraints HFT=0	SIL (Systematic capability)	SIL
AVD2%%C (D)%2%%	1,41E-08	1,41E-08	1,41E-08	0,00E+00	0,00%	1	3	1
AVD2%%C (D)%4%%	1,41E-08	1,41E-08	1,41E-08	0,00E+00	0,00%	1	3	1
AVD2%%A (B)%1%%	1,47E-08	1,47E-08	1,47E-08	0,00E+00	0,00%	1	3	1
AVD2%%A (B)%2%%	1,47E-08	1,47E-08	1,47E-08	0,00E+00	0,00%	1	3	1
AVD2%%A (B)%3%%	1,47E-08	1,47E-08	1,47E-08	0,00E+00	0,00%	1	3	1
AVD2%%A (B)%4%%	1,47E-08	1,47E-08	1,47E-08	0,00E+00	0,00%	1	3	1
AVD2%%C (D)%3%%	1,41E-08	1,41E-08	1,41E-08	0,00E+00	0,00%	1	3	1
AVD2%%C (D)%1%%	1,41E-08	1,41E-08	1,41E-08	0,00E+00	0,00%	1	3	1

Table B – 2/2 Poppet Valves FTC Safety function failure rates, SFF, SIL

List of Evaluated Documents

The reference List is contained in the Safety Analysis Report 19_OR169_ATS_SIL31_AS02 V1.0
The report issued by Bureau Veritas Italia S.p.A. is an integral part of this Inspection Certificate.

Validity

This certificate is valid until *October 6th, 2022* as long as the Object of Inspection and the relevant technical documentation are not modified. BVI must be informed about any modifications without delay.

Date of first issue
October 7th, 2019

Signature

Name: Tommaso Ghiara

Title: General Manager



On behalf of Bureau Veritas Italia, Viale Brigata Bisagno, 2/41 - 16129 Genova (IT)



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