

Certificate of Inspection

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Certificate No. 19_OR150_OLE_ADV3H_184_2019

Issued October 7th, 2019

Object of Inspection	3/2 PILOTED POPPET VALVE VD3 SERIES
Applicant	OLEODINAMICA REVA SRL, Via Isacchi, 3-42 124 Reggio Emilia (Italy)
Engineering	OLEODINAMICA REVA S.r.l., Via Isacchi, 3-42 124 Reggio Emilia (Italy)
Manufacturing	OLEODINAMICA REVA S.r.l., Via Isacchi, 3-42 124 Reggio Emilia (Italy)
System Architecture	As defined in: 3/2 Piloted Poppet Valve VD3 Series Technical Datasheet DS-VD3-01 Rev. 02.19
Equipment type	MECHANICAL EQUIPMENT
Inspection Requirements	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
Inspection Result	BUREAU VERITAS ITALY states that the 3/2 PILOTED POPPET VALVE VD3 SERIES are suitable for use of up to SIL 3 in De-energized mode Safety Functions and in Energized mode of up to SIL 2 as a Single device (HFT=0), Table A and of up to SIL 3 as a redundant device (HFT=1) Safety Functions, Table B. Route 1H, route 2H apply. Route 1S applies. Systematic capability (SC) 3 IEC 61511 Ed. 2: 2016, Part 1, §11.4.3 clause (2 nd bullet) is also respected.
Restrictions/Conditions	As per Safety Manual 79.000.008 SFM - Safety Manual VD3 and Safety Analysis Report code: 19_OR150_OLE_ADV3H_AS01 V1.0



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Bureau Veritas Italia S.p.A.
Viale Brigata Bisagno, 2/41 - 16129 Genova (IT)
Sede legale: Viale Monza, 347 - 20126 Milano (IT)
www.bureauveritas.it

DE-ENERGIZED SAFETY FUNCTION	λ_t	λ_d	λ_{dd}	λ_s	ARCHITECTURAL CONSTRAINTS	HFT	SIL
CASE 1a: VALVE N.C.	5,23E-08	8,37E-11	8,37E-11	5,22E-08	ROUTE 1H	0	3
CASE 2b: VALVE N.O.	5,23E-08	4,13E-09	4,13E-09	4,82E-08			

Table A – 3 /2 Piloted Poppet Valves DE-ENERGIZED Safety function failure rates, HFT, SIL

ENERGIZED SAFETY FUNCTION	λ_t	λ_d	λ_{dd}	λ_s	ARCHITECTURAL CONSTRAINTS	HFT	SIL
CASE 1b: VALVE N.C.	5,23E-08	5,23E-08	5,23E-08	0.0	ROUTE 2H	0	2
						1	3
CASE 2a: VALVE N.O.	5,23E-08	2,03E-08	2,03E-08	3,20E-08	ROUTE 1H/2H	0	2
						1	3

Table B – 3 /2 Piloted Poppet Valves ENERGIZED Safety function failure rates, HFT, SIL

List of Evaluated Documents

The reference List is contained in the Safety Analysis Report 19_OR169_ATS_SIL31_AS01 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 – Italy



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