2/2 Poppet Valve

Datasheet

Safety Integrity Level
SIL 3
IEC 61508 / IEC 61511

VD2 Series

Up to 5000 L/min

Up to 355 Barg

Zero Leakage (< 1 drop per minute)

Aisi 316L stainless steel

Exotic materials on request

Bore and connection according to ISO 7368

• Technical specification

Materials of construction

Body	**SS316L (Special version on request)***
Internals	**SS316L – 17/4 PH**
Seals	**NBR – HNBR – VITON – FLUOROSILICON - PTFE**
Screws	**A4-70**

***exotic materials i.e. 6Mo , Hastelloy® C276 , Inconel® 625 …**

Media

Mineral oils (advised max 800 cst)

Water glycol

(Please contact for special Media and viscosity range)

Working pressure

355 BARG - NBR – VITON – HNBR

250 BARG - FLUOROSILICON

Working Ambient Temperature and environment

NBR	**-30°C /**	**+80°C**
HNBR	**-40°C /**	**+80°C**
VITON	**-20°C /**	**+120°C**
FLUOROSILICON	**-60°C /**	**+60°C**

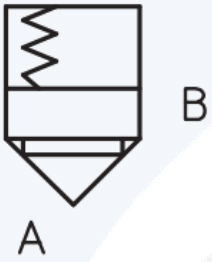
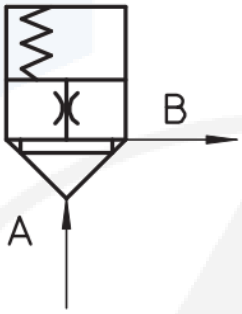
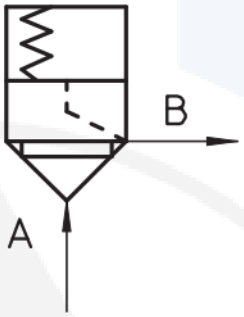
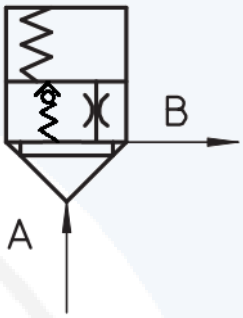
Max Relative Humidity 100% , Direct exposure to sunlight

Installation

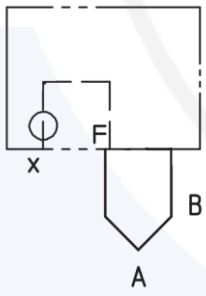
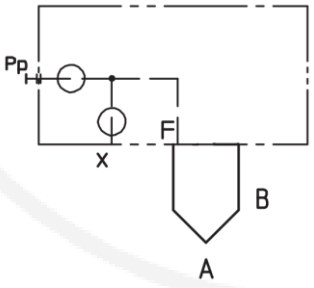
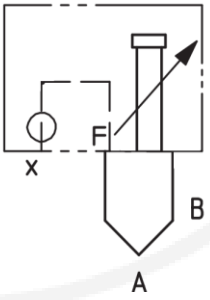
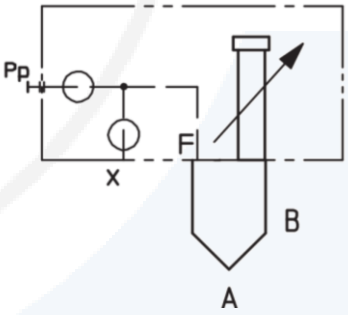
Minimum level Oil cleanliness requested 19/17/14 ISO 4406 – (NAS 8)

• Port Configurations

Valve configurations

1	2	3	4
			
POPPET TYPE	**POPPET TYPE WITH PILOT ORIFICE**	**POPPET TYPE WITH PILOT DRAIN**	**POPPET TYPE WITH PILOT ORIFICE AND NO RETURN VALVES**

Pilot flange configurations

A	B	C	D
			
Flanged pilot	**Flanged pilot + external threaded**	**Flanged pilot + stroke regulation**	**Flanged pilot + external threaded + stroke regulation**

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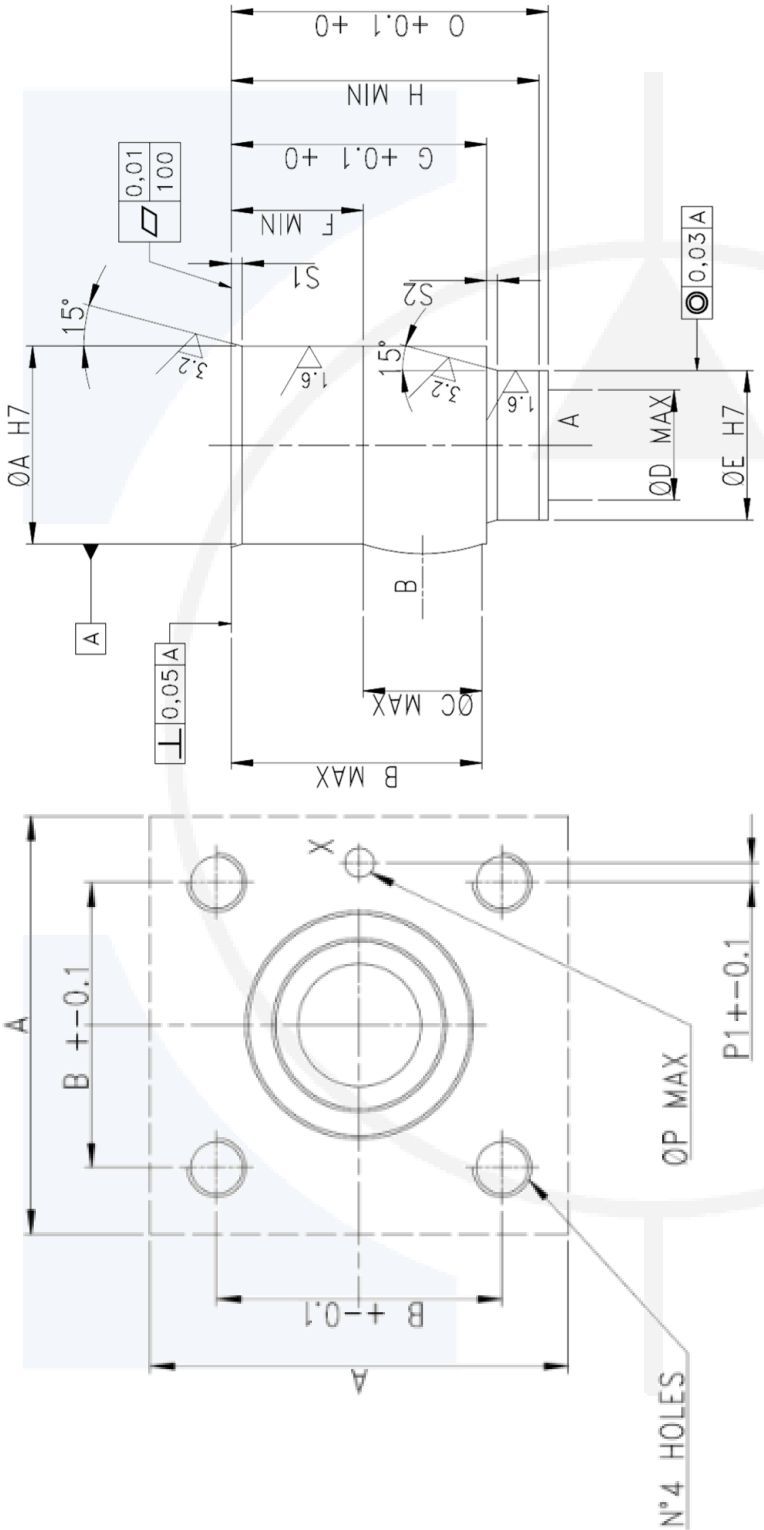
• Coding information

A							COSTANT
VD2							SERIES
	X	SS316L					EXTERNAL MATERIAL
	Z	SPECIAL					
		8	DN8				NOMINAL DIAMETER SIZE
		16	DN16				
		25	DN25				
		32	DN32				
		40	DN40				
		50	DN50				
		63	DN63				
		ZZ	SPECIAL				
			A	Flanged pilot			PILOT FLANGE CONFIGURATION
			B	Flanged pilot + external threaded			
			C	Flanged pilot + stroke regulation			
			D	Flanged pilot + external threaded + stroke regulation			
			Z	SPECIAL			
				N	NBR		SEAL MATERIAL
				H	HNBR		
				V	VITON		
				F	FLUOROSILICON		
				Z	SPECIAL		
					1	POPPET TYPE	VALVE CONFIGURATIONS
					2	POPPET TYPE WITH PILOT ORIFICE	
					3	POPPET TYPE WITH PILOT DRAIN	
					4	POPPET TYPE WITH PILOT ORIFICE AND NO RETURN VALVES	
					Z	SPECIAL	
						JJ	SEQUENTIAL NUMBER FOR SPECIAL VERSIONS
AVD2	X	25	A	N	1	00	EXAMPLE
2/2 VALVE BODY AISI 316L DN 25 mm FLANGED PILOT – NBR SEALS – POPPET TYPE							

• STORAGE AND TRASPORTATION

	NBR-HNBR	VITON	FLUOROSILICON
Min / Max Temperature [°C]	-40 °C ÷ +80 °C	-20 °C ÷ +120 °C	-60 °C ÷ +60°C
Max Relative Humidity	100%	100%	100%
Exposure to sunlight	admitted	admitted	admitted
Dust Contamination	19/17/14 ISO 4406 – (NAS 8)	19/17/14 ISO 4406 – (NAS 8)	19/17/14 ISO 4406 – (NAS 8)
Atmospheric Pressure	500mbar ÷ 1200mbar	500mbar ÷ 1200mbar	500mbar ÷ 1200mbar

• CAVITY DIMENSIONS (SEE ISO 7368)



SIZE	ØA	B	ØC	ØD	ØE	F	G	H	O
16	32	42.5	22.5	16	25	20	43	54	56
25	45	57	27	25	34	30	58	70	72
32	60	68.5	38.5	32	45	30	70	83	85
40	75	84.5	54.5	40	55	30	87	102	105
50	90	97.5	62.5	50	68	35	100	117	122
63	120	127	87	63	90	40	130	150	155

PIN REFERENCE NOT PRESENT IN AVD2 VALVE

SIZE	A (MIN)	B	ØP	P1	HOLES
16	65	46	4	2	M8
25	85	58	6	4	M12
32	102	70	8	6	M16
40	125	85	10	7.5	M20
50	140	100	10	8	M20
63	180	125	12	12.5	M30

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Certificate of Inspection

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Certificate No. **19_OR150_OLE_ADV3H_185_2019**

Issued October 7th, 2019

Object of Inspection	2/2 POPPET VALVE VD2 SERIES
Applicant	OLEODINAMICA REVA S.r.l., 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: *2/2 Poppet Valve VD2 Series Technical Datasheet DS-VD2-01 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 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.
Restrictions/ Conditions	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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Certificate of Inspection

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Certificate No. **19_OR150_OLE_ADV3H_185_2019**

LOGIC VALVES MODEL CODE	λ t	λ d	λ dd	λ s	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	λ t	λ d	λ dd	λ s	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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