

1 EU - Type Examination Certificate

- 2 Equipment intended for use in Potentially Explosive Atmospheres Directive 2014/34/EU
- 3 Certificate Number: ExVeritas 19 ATEX 0588X Issue: 0
- 4 Equipment: Range of Valves & Loading Spouts (see Section 13)
- 5 Manufacturer: Salina Vortex Corporation
- 6 Address: 1725 Vortex Avenue, Salina, KS 76401, USA
- 7 This equipment and any acceptable variation thereto are specified in the schedule to this certificate and the documents therein referred to.
- 8 ExVeritas, Notified Body number 2585 in accordance with Article 179 of the Council Directive 2014/34/EU of 26 February 2014, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to design and construction of equipment and protective systems for use in potentially explosive atmospheres given in Annex II to the Directive
- 9 Compliance with the applicable Essential Health and Safety Requirements has been assured by compliance with the following Standards and section 16 of this certificate:

EN ISO 80079-36:2016

EN ISO 80079-37:2016

- 10 If the sign "X" is placed after the certificate number, it indicates that the equipment is subject to special conditions for safe use specified in the schedule to this certificate.
- 11 This EU-Type Examination Certificate relates only to the design, construction, examination and tests of the specified equipment or protective system in accordance to the Directive 2014/34/EU. Further requirements of the Directive apply to the manufacturing process and supply of this equipment or protective system. These are not covered by this certificate.
- 12 The marking of the equipment shall include the following:



II 1/2 D Ex h IIIC T100°C Da/Db T_a -29°C to +40°C (valves & loading spouts) II 1/3 D Ex h IIIC T100°C Da/Dc T_a -29°C to +40°C (loading spouts)



Certification Wanager

No. 8613



13 Description of Equipment or Protective System

The Salina Vortex Range of Valves are for bulk powders, aggregates and dry solids handling. The valves are Category I D (Zone 20) internally and Category 2 D (Zone 21) externally. The valves are actuated with suitable certified pneumatic, electric or hydraulic actuators. When required the actuated valves may incorporate a suitable certified gearbox. When required the valves may be manually operated.

The body is fabricated from aluminium, stainless steel or carbon steel. An internal flap plate known as a gate is also stainless steel or carbon steel, with a rubber or polymer wiper seal. Valves can be utilized to stop or divert material flow. When stopping material flow, the gate will move in a linear motion to either open or close the opening of the valve. When diverting material flow, the gate can move in a linear or rotary motion to divert material from a single inlet to two or more outlets. For more abrasive applications, a bucket type diverter may be used where an internal chute is moved back and forth to divert product flow. Since these units are fabricated, practically any size or divert angle can be manufactured. Units are available as 2-way (one inlet and two outlets) or 3-way (one inlet and three outlets) in the rotary diverters and 2way (one inlet and two outlets), 3-way (one inlet and four outlets) in the linear diverters.

Gate Valves:

Gate valves also known as Slide Gate valves are linear motion valves designed to stop or regulate the flow of material within a conveying system. These valves are recommended for use in gravity flow, vacuum or low pressure dilute phase pneumatic conveying systems. Gate valves consist of a body and bonnet that contains a closure element, called a gate. The closure element opens and closes by moving perpendicular to the flow stream giving straight through flow.

Gate valve lines come in many variations in design and flanged aperture sizes up to ø508mm or 2438mm square (including rectangular).

GATE VALVE TYPE	MODEL NUMBERS					
Quantum Orifice Gate	GRXX, GRAXX, GRECXX, GRXCXX, GRHWXX, GRCWXX and GRHCXX					
Orifice Gate	FXX, FAXX, FECXX, FXCXX, FHWXX, FCWXX, FCWXX, FHCXX, BXX, BAXX, BECXX, BXCXX, BHWXX, BCWXX and BHCXX					
Quick Clean Orifice Gate	QCXX					
Roller Gate (F= Stainless Version, R= Rectangular)	*S(F)XXX(V1), S(F)ECXX(V1), S(F)HCXX(V1), S(F)HWXX(V1), S(F)CWXX(V1), *SD(F)XX, SD(F)ECXX and R(F)XXX					
Maintenance Gate	MSCXX, MRCXX, MSCWXX and MSHWXX					
Aggregate Gate	AXX, ACWXX, AHWXX, AHDXX, AECXX and Spencer Aggregate Gate Valve.					
HDP Gate	HDPXX, HDPV2XX					
Clear Action Gate	JAXX, JECXX, JXCXX, JHCXX, JHWXX JCWXX, JAXXVI, JHCXXVI, JHWXXVI, JCWXXVI and JECXXVI					
TS Abrasion Resistant Gate	TSXX, TSECXX, TSXCXX, TSHCXX, TSHWXX and TSCWXX					
Titan Pressure Valve	TPVXX, TPVXX-HS					
Rounded Blade Gate	RBGXX, RBGECXX, RBGXCXX					
Titan Maintenance Gate	TMGHCXX, TMGCWXX, TMGHWXX, TMGXX, TMGHCXXRV1, TMGCWXXRV1, TMGHWXXRV1, TMGXXRV1,					

Gate Valves consist of the following types ('XX' denotes valve size):

* Note that specific model types SDF400-MG-HT3-PX-AX-E17543B, SDF600-MG-HT3-PX-AX-E17543B and SFA600-HT3-RS-SR-AX-E17569 have an ambient range of -40°C to +49°C.

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Linear Diverters:

Linear diverter valves also known as Wye Line Diverters are linear motion valves designed to direct flow from an inlet to one of two or more outlets. These valves are recommended for use in gravity flow, vacuum or low pressure dilute phase pneumatic conveying systems of diverse industries.

Linear diverter valves consist of a body and bonnet that contains an actuating element, called a slide gate. The slide gate contains an opening or openings that move back and forth between the paths created by the inlet and outlets by moving perpendicular to the flow stream. The configurations of the inlets and outlets of the linear diverter valves can vary depending on end user requirements with flanged apertures up to ø610mm or 610mm square (including rectangular).

Linear Diverters consist of the following types ('XX' denotes valve size):

LINEAR DIVERTER TYPE	MODEL NUMBERS			
Quantum Diverter Valve	DRXX, DRECXX, DRXCXX, DRHWXX and DRCWXX			
Wye Diverter	DXX, DECXX, DXCXX, DHWXX and DCWXX			
Flex Tube	TXX, TXX-P, TECXX and TXCXX			
Fill Pass Diverter	DXX-XSSHC and DXX-XSSSF			
Gravity VEE	VAXX, VECXX, VXCXX and VHWXX			
Two Way Diverter	DSM 2-WAY DIVERTER VALVE			

Rotary Diverters:

Rotary Diverter valves are processing valves designed to direct flow from an inlet to one of two or more outlets. They can also be used for flow control and to converge two lines into one. Vortex diverter valves are primarily used to handle powders, aggregates and dry solids. These valves are recommended for use in gravity flow conveying systems of diverse industries. Rotary Diverter valves consist of a body and hinged blade or bucket at the intersection to close one of two or more outlets. In the case of more than two outlets, multiple blades are utilized to direct the material flow. Vortex diverter valves come in many variations in design within each type with flanged apertures up to ø1625 and 1625mm square ((including rectangular).

Rotary Diverters consist of the following types ('XX' denotes valve size):

ROTARY DIVERTER TYPE	MODEL NUMBERS
Seal-Tite Diverter	ZXX, ZECXX, ZXCXX and ZHLXX
Aggregate Diverter	BDXX, BDECXX, BDXCXX and BDHLXX
Pivoting Shoot Diverter	PCXX, PCECXX AND PCHDXX

Loading Spouts:

The Loading Spout is a fixed installation that has a metal pan and tub arrangement incorporating a series of metal cones that stack inside each other within a dissipative non-metallic dust sleeve, creating a telescopic tube-in-tube design, that is lowered down to enable the transfer of powder/granular/pellet media from upstream to downstream equipment using gravity and negative pressure. The Loading Spout is not secured to the downstream equipment.

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The type VES incorporates a metal scavenger at the bottom of the spout for location over/in the downstream equipment. It can be used with an optional VLS Self-Sealing Discharge unit mounted to the bottom of the existing fixed installation VES Loading Spout, to enable the end of the Loading Spout to be sealed to stop dry media flow under gravity flow applications. The VES spout is for enclosed loading to load into vessels with a hatch or port so the scavenger rests on the opening when loading.

The type VOS incorporates a non-metallic skirt at the bottom of the spout for location over/in the downstream equipment. The VOS spout is for open loading and so will usually be used to stockpile material onto a surface with the skirt limiting the material dust when loading.

The dust sleeve is supported by a series metal dust sleeve rings along its length and these rings are linked together by a four metal cables and cable fixings. The cones are linked together by a three metal cables and cable fixings.

The drive to lower and raise the spout, via the metal cables and pulley arrangement, is carried out by an electrical or pneumatic motor and gearbox combination that is suitable for the zone of use. The drive system is fitted and set to operate at a maximum permitted speed of 1m/s by Salina Vortex Corporation. ExVeritas does not verify the suitability of the drive system fitted in each application.

Optional Sensing Devices: To suit customers' requirements, the Loading Spout may be supplied fitted with suitably certified upper limit switches, slack limit switches and a tilt probe. ExVeritas does not verify the suitability of the sensing devices fitted in each application.

The Taylors Loading Spout is a fixed installation that has a metal pan, scavenger and tube arrangement within a dissipative non-metallic dust sleeve between the pan and scavenger with integral flange gasket. The scavenger is moved up and down by 3 air cylinders. The scavenger is lowered on to the down equipment and creates a flexible seal interface design to enable the transfer of powder/granular/pellet media from upstream to downstream equipment using gravity and negative pressure. The Loading Spout is not secured to the downstream equipment.

The drive to lower and raise the spout is via an air cylinder arrangement attached to the scavenger. The drive system is fitted and set to operate at a maximum permitted speed of 1m/s by Salina Vortex Corporation. ExVeritas does not verify the suitability of the drive system fitted in each application.

To suit customers' requirements, the Loading Spouts may be lowered/raised by a manual hand-crank.

LOADING SPOUT TYPE	MODEL NUMBERS				
Enclosed loading	VES - (EDX1, EXD2 OR AX) - (SIZE: 10, 25, 40, 70 or 120) – (VOLTAGE) – (MATERIAL CONSTRUCTION) – (SDX)				
Open loading	VOS/VOST -(EDX1, EXD2 OR AX) - (SIZE: 10, 25, 40, 70 or 120) – (VOLTAGE) – (MATERIAL CONSTRUCTION) – (SDX)				

Loading Spouts consist of the following types:

The loading spouts can used with the following equipment:

VLS Self-Sealing Discharge units (SDX)

To prevent trace amounts of material to fall from a VES spout on retracting or extending by plugging up the scavenger when not in use. The SSD sleeve is retracted when the spout is seated in a hatch to allow flow of material, when the spout is retracted out of the hatch the SSD cone will seat into position and block the scavenger automatically without operator command.

VLS- (SIZE–10, 25, 40, 70 or 120) – SD(X) –AX, (X) = constructed of Carbon steel (C) or Stainless steel (S). Construction material and size will be the same as the attached spout.

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VSP Single Axis Positioner.

Single Axis Positioner with (X) feet of travel from the centreline of the positioner pan. The Single Axis Positioner allows the operator to traverse the accompanying loading spout along the X axis (Left to Right). The unit is designed with a fixed support pan, sealed traversing hopper with dual chain drive which connects to the spout and allows for exact positioning.

• The hopper sealing is maintained with high density felt, which can be manually adjusted for wear, against a painted mild steel sealing surface.

· Travel protected by slip clutches.

• This unit is equipped with two (2) "End of Travel" Safety Proximity Switch (S.P.D.T.), adequately VSP-AX (21 or 22) - (SIZE: 10, 25, 40, 70 or 120) - T(XX)-C; XX = TRAVEL = 2, 4, 6, 8 or 10 FT

VDP Dual Axis Positioner

Vortex Model Number VDP-(XX) Dual Axis Positioner with (X) x (Y) feet of travel from the centre line of the positioner pan in two directions. The Dual Axis Positioner allows the operator to traverse the accompanying loading spout along the X axis (Left to Right), as well as the Y axis (Forward (toward) to Back (away from)). The unit is designed with a fixed support pan, sealed traversing hopper with dual chain drive for each direction which connects to the spout and allows for exact positioning.

• The hopper sealing is maintained with high density felt, which can be manually adjusted for wear, against a painted mild steel sealing surface.

· Travel protected by slip clutches.

• This unit is equipped with four (4) ""End of Travel"" Safety Proximity Switch (S.P.D.T.), adequately rated VDP- AX (21 or 22) - (SIZE: 10, 25, 40, 70 or 120) -T(XxY)-C; XxY = TRAVEL = 2X2, 4X2, 4X4 or 6X4 FT

VFS Compact Inline filter

In-Line Filter System. The unit is equipped with a main withdrawal fan with integral dampener designed to collect fugitive dusts by means of air withdrawal. The unit is attached inline to a loading spout the blower draws up dusts filters them out of the air via filter cartridges and an automatic reverse pulse jet allows the captured dust to re-enter the stream to be loaded into the vessel, minimising product loss.

VFS- AX (21 or 22) - (SIZE: 10, 25, 40, 70 or 120) V1

14 Descriptive Documents

14.1 Associated Report and Certificate History:

Report Number	Cert Issue Date	Issue	Comment	
1963/A/1	2020-03-02	0	Initial issue of the Prime Certificate	

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14.2 Compliance Drawings:

Issue 0

Number	Pages	lss	Date	Description
QOGV-AX	2	2	06/08/13	Gate valve — Quantum orifice gate
OGV-AX	2	1	09/08/10	Gate valve — Orifice gate
QCOG-AX	2	1	15/11/10	Gate valve — Quick clean orifice gate
QC-AX	2	0	06/08/13	Gate valve — Quick clean orifice gate
RGV-AX	2	3	11/02/20	Gate valve — Roller gate
MGV-AX	2	1	26/08/10	Gate valve — Maintenance gate
AGV-AX	2	1	26/08/10	Gate valve — Aggregate gate
HDPV2-AX	2	1	24/01/20	Gate valve — HDP
CAG-AX	2	2	06/08/13	Gate valve — Clear action gate
CAGV1-AX	2	0	30/05/13	Gate valve — Clear action gate
TSGV-AX	2	2	29/10/10	Gate valve — TS Abrasion resistant gate
QDV2-AX	3	1	25/08/10	Linear diverter — Quantum diverter valve
QDV3-AX	3	1	26/08/10	Linear diverter — Quantum diverter valve
QDV4-AX	3	1	26/08/10	Linear diverter — Quantum diverter valve
DV2-AX	3	1	09/11/10	Linear diverter — Wye diverter
DV3-AX	1	1	15/11/10	Linear diverter — Wye diverter
DV4-AX	1	1	15/11/10	Linear diverter — Wye diverter
FHDV3-AX	2	2	06/08/13	Linear diverter — Flex tube
FPDV-AX	2	1	15/11/10	Linear diverter — Fill pass diverter
GVDV-AX	2	2	26/08/10	Linear diverter — Gravity VEE
STDV-AX	2	1	26/08/10	Rotary diverter — Seal-Tite diverter
STDV-AX STDV3-AX	2	1	26/08/10	Rotary diverter — Seal-Tite diverter
ADV-AX	2	1	26/08/10	Rotary diverter — Aggregate diverter
	2	0	07/11/14	TPV gate valve
TPV-AX	2	0	01/11/13	RGB gate valve
RGB-AX	3	0	17/07/15	VSP single axis positioner
VSP-AX	4	0	17/07/15	VDP dual axis positioner
VDP-AX	2			VFS compact inline filter
VFS-AX		0	07/10/14	Spencer Aggregate Gate Valve — with seal
A1400X800-MG-AX-E15727	1	1	11/01/17	
VES-AX	4	1	15/02/17	VES Loading Spout — with scavenger
VOS-AX	4	1	15/02/17	VOS Loading Spout — with skirting
Z200X2230-2SS-30-MG-AX- E16653	1	2	21/09/17	DSM 2-Way diverter valve
ATEX TAGS	1	3	29/11/19	Certification label (Valves, spout & SSD)
SPECIAL PROJECTS ATEX TAGS	1	1	25/02/20	Certification label (Valves, spout & SSD)
VES-3-5-X-B-S4-E15785A	2	0	12/02/18	Taylors loading spout
VXS-SSD-AX	3	3	18/10/18	Self-Sealing Discharge
SDF400-MG-HT3-PX-AX- E17543B	2	0	07/01/19	SDF 400 Gate Valve
SDF600-MG-HT3-PX-AX- E17543B	2	0	07/01/19	SDF 600 Gate Valve
SFA600-HT3-RS-SR-AX- E17569	3	0	07/01/19	SFA 600 Gate Valve
PC WYE	3	0	29/10/19	Pivoting chute wye
PC SL	3	0	29/10/19	Pivoting chute straight leg
PC 3WAY	3	0	29/10/19	Pivoting chute 3-way
TMG12-ATEX	2	0	29/10/19	Titan Maintenance Gate - Square
TMG12-ATEX	2	0	29/10/19	Titan Maintenance Gate – Round
VE12623	22	0		Instruction and Operation Manual

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15 <u>Conditions of Certification</u>

15.1 Special Conditions for Safe Use: Valves

- 1. The valves shall be suitably earth bonded via the mounting flanges.
- 2. The valves shall not be operated at speeds greater than 1m/s.
- 3. The pneumatic valves shall be operated with clean air or inert gas as standard. If pneumatic actuation uses a flammable gas then a risk assessment shall be carried out by the end user, the gas shall not be in its flammable range and gas compression shall not be a potential ignition risk.
- 4. To prevent single impact ignition risks inside the valves, do not allow any metal objects in the powder/media flow greater in mass than specified in the graph shown in Salina Vortex Corporation Instructions.
- 5. Do not allow dust layers to build up on this product.

Special Conditions for Safe Use: Loading Spouts

- 1. The Loading Spout shall be suitably earth bonded via the earth stud located on the pan/housing.
- 2. The Loading Spout shall not be operated at speeds greater than 1m/s.
- 3. The Loading Spout shall be lowered over the downstream equipment prior to dispensing of media.
- 4. To prevent single impact ignition risks inside the Loading Spout shoot, do not allow any metal objects in the powder/media flow greater in mass than specified in the graph shown in Salina Vortex Corporation Instructions.
- 5. The Loading Spout shall be fully raised and retracted prior to the downstream equipment being moved away.
- 6. Do not allow dust layers to build up on this product.

Special Conditions for Safe Use: Self-Sealing Discharge units

- 1. The Self-Sealing Discharge shall only be mounted to the bottom of the Salina Vortex VES Loading Spout.
- 2. The Self-Sealing Discharge shall suitably earth bonded via the mounting to the VES Loading Spout and upstream installation.
- 3. The Self-Sealing Discharge cone seal assembly shall not be operated at speeds greater than 1m/s.
- 4. The Loading Spout and Self-Sealing Discharge Assembly shall be lowered over the downstream equipment prior to dispensing of media.
- 5. To prevent single impact ignition risks inside the Loading Spout and Self-Sealing Discharge Assembly, do not allow any metal objects in the powder/media flow greater in mass than specified in the graph shown in Salina Vortex Corporation Instructions.
- 6. The Loading Spout and Self-Sealing Discharge Assembly shall be fully raised and retracted prior to the downstream equipment being moved away.
- 7. Do not allow dust layers to build up on the product. Do not allow dust to build-up in moving parts or as layering in media flow areas, as this can lead to potential flammable dust smouldering issues and subsequent fire and explosion risk. Regular inspection and cleaning of the product both internally and externally is required.

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Special Conditions for Safe Use: SDF and SFA Valves

- The drive equipment and any accessories used shall be suitable for the ambient temperature range and the elevated media temperatures shall not take these devices outside their specified temperature range.
- 2. The SFA600-HT3 version incorporates a locking hook, locking bar and pin. The end user shall ensure their actuator is fully engaged in the valve receiver and the actuator pin has raised the locking hook out of the way of the locking bar, allowing the blade to move. Actuating the valve gate or applying thrust force beyond 350LBF while the locking bar is secured inside, may result in the locking pin causing damage to the valve's gate that could then lead to a potential ignition risk.

15.2 Routine Tests None

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Essential Health and Safety Requirements

Essential Health and Safety Requirements are addressed by the standards listed in section 9 and where required the report listed in section 14.1

The manufacturer shall inform the Notified Body of any modifications to the design of the product described by this schedule.

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