

1. INTRODUCTION

Throughout this manual there are a number of HAZARD WARNINGS that must be read and adhered to in order to prevent possible personal injury and/or damage to equipment. Three signal work "DANGER", "WARNING" and "CAUTION" are used to indicate the severity of a hazard, and are preceded by the safety alert symbol.

**Caution** Denotes the most serious hazard and is used when serious injury or death WILL result from misuse or failure to follow specific instructions.

**Warning** Used when serious injury or death MAY result from misuse or failure to follow specific instructions.

**Danger** Used when injury or product/equipment damage may result from misuse or failure to follow specific instructions.

**Caution** It is the responsibility and duty of all personnel involved in the installation, operation and maintenance of the equipment on which this device is used, to fully understand the procedures by which hazards can be avoided.

The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Only personnel with appropriate training should operate machinery and equipment.

Do not service or attempt to remove the machinery or equipment until safety is confirmed.

2. DESCRIPTION

The VSR is a quick exhaust valve that facilitates the release of air from a pressurized chamber, air cylinders, clutches, brakes or other pneumatics devices. In essence it provides an exhaust port at the chamber rather than exhausting through long supply lines and control components. The function they perform is especially important in high speed cycling equipment. They prevent sluggish operation, overlap and excessive wear. Their importance in an air control system cannot be overemphasized.

Exhaust noise from the valve can be reduced by using a muffler, which threads into the tapped hole in the end cap

3. OPERATION

The VSR contains a diaphragm designed to function on a pressure differential. Air pressure at the valve inlet seats the diaphragm on the end Port 1, closing the exhaust Port 3. Applied pressure, acting on the outer unsupported diaphragm area, deflects it and allows air to flow to the Port 2. See Fig. 1. When a pressure drop occurs in the air supply, the pressure differential lifts the diaphragm from the exhaust Port 3 and seats it on the inlet Port 1.

Air from the pressurized device can now flow freely to atmosphere through the valve's exhaust Port 3.

If the cylinder pressure falls below the inlet pressure, the pressure differential on the diaphragm will close the exhaust Port 3, preventing further exhaust.

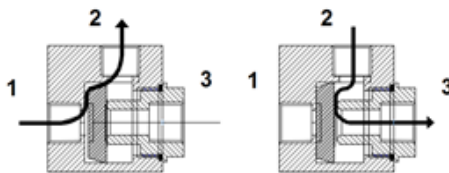
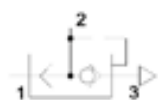


Fig. 1 valve pressurized

Fig. 2 valve open to exhaust

4. PNEUMATIC DIAGRAM



5. TECHNICAL FEATURES

- Medium: compressed air or inert gases, filtered, lubricated and non lubricated
- Port thread: 1/4, 3/8, 1/2, 3/4, 1"NPT
- Operating pressure: 2/12 bar
- Max signal/output: 7 bar
- Materials: Body SS316L or copper free aluminum alloy
- Internal parts stainless steel
- Element in PU or silicon

MATERIAL		TEMPERATURE		
DIAPHRAGM	SEALS	TRANSPORT	STORAGE	OPERATING
PU	NBR	-20°C...+80°C	-20°C...+80°C	-20°C...+80°C
PU	FKM	-25°C...+90°C	-25°C...+90°C	-25°C...+90°C
SILICON	EPDM	-40°C...+80°C	-40°C...+80°C	-40°C...+80°C
SILICON	HNBR	-60°C...+90°C	-60°C...+90°C	-60°C...+90°C

6. TRANSPORTATION & STORAGE

The preferred storage location is a clean, dry and protected warehouse. If the components have to be stored outside, precautions should be taken to keep valves clean and dry. For storage temperatures, refer to the table in paragraph "TECHNICAL FEATURES".

To avoid contamination of impurities during the storage period, don't remove thread protection caps; remove them just before the installation phase.

7. INSTALLATION

**Warning** Before performing any work, read this manual and study all figures. Assure yourself that you understand and you can do what is required in each step. Failure to follow these instructions may affect quick release valve operation and may result in exposure to personal injury.

Before installing the valve, set and block the machine or equipment in a secure position; close the air shutoff valve and exhaust air from air lines and disconnect all electrical power.

- For fastest response time, use an inlet pipe size equal to or larger than the quick release valve size. Minimize the length of pipe between the quick release valve and air control valve. Keep the number of fittings, bends and other restrictions in the inlet line to a minimum.
- Piping should be free of foreign material such as pipe thread sealant, metal chips, etc. Pipe and tubing ends must be reamed after cutting to prevent a reduction of effective pipe or tube diameter
- Caution** Do not allow foreign matter to enter the quick release valve. Particles of foreign matter can prevent diaphragm sealing and cause air leakage.

8. MOUNTING

a) Screw the quick exhaust valve into the port of the device using a minimum of pipe thread sealant. Use a wide, flat faced wrench which will not crimp or damage the valve body. The quickexhaust valve must be torqued enough to produce a tight seal.

**Warning** Do not position the exhaust Port 3 in the up position or allow foreign matter to enter the valve housing. Particles of foreign matter will enter the exhaust air stream and/or prevent diaphragm seating. This condition could result damage to equipment and personal injury

**Warning** Position the quick exhaust Port 3 so that the exhaust air stream does not strike operating personnel. Particles of foreign matter picked up by the air stream can cause personal injury

**Caution** Position the exhaust Port 3 so that there are no restrictions to the exhaust air flow. Any restriction will slow down the valve response time

b) Mount the quick exhaust valve with the Port 2 directly on the use or as near as possible avoiding elbows or bottlenecks.

9. TESTING

- a) Apply air pressure to the quick release valve. The valve and its connections should not leak under pressure. If the valve leaks, refer to the Maintenance section in this manual.
- b) Cycle the valve several times to ensure proper operation. If the valve response time appears sluggish, check for restrictions in the air supply line.

10. MAINTENANCE

**Warning** Before performing any work, read this manual and study all figures. Assure yourself that you understand and can do what is required in each step. Failure to follow these instructions may affect quick release valve operation and may result in exposure to personal injury.

A. Ordinary maintenance

- Caution** The VSR should be periodically checked for proper functioning
- Clean the VSR from impurities and dirt;
- Visually check of the integrity of the body and exhaust seat ;

- Check that there aren't leakages;
- Check the correct functionality of the VSR;

B. Troubleshooting

Issue	Possible Cause	Fixes
Leakage from the exhaust seat during the valve pressurized phase	Diaphragm/ seal damaged	Replace the quick exhaust valve or contact SITECNA technical support for more information
Quick exhaust valve locked in phase of "valve pressurized"	Diaphragm stucked	Replace the quick exhaust valve or contact SITECNA technical support for more information
Quick exhaust valve locked in phase of "valve open to exhaust"	Diaphragm stucked	Replace the quick exhaust valve or contact SITECNA technical support for more information

After replacing repeat "TESTING" phase

C. Disassembly

- Disassemble in general accordance with the item numbers on exploded view.

D. Assembly

- Assemble in general accordance with the item numbers on exploded view..

11. MARKING ACORDING TO 2014/34/UEAtex

II 2G Ex h IIC T6/T5 Gb X  
II 2D Ex h IIC T85°C/T100°C Db X

For using these equipment in potentially explosive atmospheres, it is recommended - for the installation and the maintenance operation - to use tools and instruments that can produce only a single spark (for instance: screwdrivers, spanners). Avoid use of tools that can produce sparks like disk saw or grinder

Action must be taken to put to earth the units through a suitable connection, checking that all the metal components (fittings and pipe line) have to be equitable potential.

Equipment have to be installed in the corresponding zone according to the marking.

NOTE: special conditions for safe use (X conditions)

Before performing any work, read this manual and assure yourself you understand. X at the end of ATEX substitutes T amb depending on used seals based on the following correspondance:

- Series VB, EP, VSR, LK04: NBR=-20°C+80°C, FMK=-25°C+90°C, EPDM=-40°C+80°C, FVMQ & HNBR= -60°C+90°C
- Series DP, RF, LK08, TF: NBR=-20°C+80°C, FMK=-25°C+90°C, EPDM= -40°C+80°C, FVMQ & HNBR= -55°C+90°C
- Serie FP: -30°+180°C / Serie SLHF, SLVP, SLSC: -55°C+150°C
- Serie PV, PVSL: -20°C+80°C / Serie SCLP: 2°C+80°C
- Serie FLGS: -20°C+90°C / Serie VS: -50°C+230°C

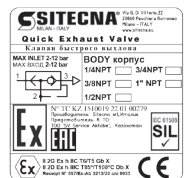
PART LIST

Pos.	Q.ty	Descrizione
1	1	BODY
2	1	SEAT
3	1	O'RING
4	1	DIAPHRAGM
5	4	SCREW

REPAIR KIT

Contains: diaphragm 4  
O'ring 3

LABEL



HOW TO ORDER

MATERIAL

SS= 316-316L Stainless steel

AL= Copper free aluminum alloy with epoxy paint

VSR	04N	SS	FK
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SIZE

- 02N= 1/4" NPT
- 04N= 1/4" NPT
- 06N= 3/8" NPT
- 08N= 1/2" NPT
- 12N= 3/4" NPT
- 16N= 1" NPT

DIAPHRAGM & SEALS MATERIAL

- FK= FKM ( WT-25° +90°C )
- NB= NBR ( WT-20° +80°C )
- LT= EPDM ( WT-40° +80°C )
- FL= FVMQ (WT -60° +90°C)
- HN= HNBR (WT -60° +90°C)

**Dichiarazione di conformità UE**

In accordo con la Direttiva Europea 2014/34/UE

**EU-Declaration of Conformity**

In accordance with Directive 2014/34/EU

Noi, Sitecna Srl, dichiariamo che i seguenti prodotti / Sitecna Srl declares that the following equipment:

Product	mod.	Product	mod.	Product	mod.
Filter	F	Control spool valve	DP	Vacuum pump	ST-VP
Regulator	R	Poppet Valves	EP	Silencer	SLHF, SLVP, SLSC
Filter Regulator	FR	Quick exhaust valve	VSR	Dust excluder	PV, PVSL
Back Pressure valve	BP	Lock-up valve	LK	Pressure gauge	MBSS, MBS6, MBSN
2 ways switching valve	SV	Overload protector	SCLP	Vacuum pump	ST-VP
3 ways switching valve	S3	Flow regulator	RF	Ball valve	VS
Volume Booster	VB	Tee Filter	TF		

Sono conformi alla normativa di armonizzazione dell'Unione / They comply with the Union harmonization legislation:

<b>Direttiva 2014/34/UE ATEX</b>	Direttiva 2014/34/UE del Parlamento europeo e del Consiglio, del 26 febbraio 2014, concernente l'armonizzazione delle legislazioni degli Stati membri relative agli apparecchi e sistemi di protezione destinati a essere utilizzati in atmosfera potenzialmente esplosiva (rifusione) Testo rilevante ai fini del SEE.
	Directive 2014/34/EU of the European Parliament and of the Council of 26 February 2014 on the harmonisation of the laws of the Member States relating to equipment and protective systems intended for use in potentially explosive atmospheres (recast) Text with EEA relevance.

Secondo le seguenti Norme di riferimento / As per following reference Normative Documents:

<b>EN ISO 80079-36:2016</b>	Atmosfere esplosive - Apparecchi non elettrici per atmosfere esplosive - Metodo di base e requisiti
	Explosive atmospheres - Non-Electrical equipment for explosive atmospheres - Basic method and requirements
<b>EN ISO 80079-37:2016</b>	Atmosfere esplosive - Apparecchi non elettrici per atmosfere esplosive - Tipo di protezione non elettrica per sicurezza costruttiva "c", per controllo della sorgente di accensione "b", per immersione in liquido "k"
	Explosive atmospheres - Non-Electrical equipment for explosive atmospheres - Non-electrical type of protection constructional safety "c", control of ignition sources "b", liquid immersion "k"
<b>N 1127-1:2011</b>	Atmosfere esplosive - Prevenzione dell'esplosione e protezione contro l'esplosione - Concetti fondamentali e metodologia
	Explosive atmospheres - Explosion prevention and protection - Basic concepts and methodology

Ai sensi della Direttiva 2014/34/EU, i prodotti sopra indicati riportano la seguente marcatura / According to the Directive 2014/34/EU, above mentioned products reports the following marking:



**II 2G Ex h IIC T6/T5 Gb X**  
**II 2D Ex h IIIC T85°C/T100°C Db X**

Inoltre, ai sensi della direttiva 2014/34/UE, i prodotti sopra menzionati sono oggetto, per gli aspetti relativi sia alla progettazione sia alla fabbricazione, al controllo interno di fabbricazione (Allegato VIII – Modulo A). Ref 557/Ex-Ab 3213/20 c/o N° 0035 TÜV Rheinland.

In conformity to Directive 2014/34/EU, the afore mentioned equipment, regarding their design and production, are object to internal manufacturing check (Attachment VIII – Module A). Ref 557/Ex-Ab 3213/20 c/o N° 0035 TÜV Rheinland.

La presente dichiarazione di conformità è rilasciata sotto la responsabilità esclusiva del fabbricante.

This declaration of conformity is issued under exclusive responsibility of the manufacturer.

Milan, 08/02/2022  
Davide Matteo De Corrado  
Managing Director

