Sitecna Srl a Socio Unico
Via G. Di Vittorio, 22
20068 Peschira Borromeo
Milano - ITALY

Tel. +39 025475482
Fax +39 0255303713
E-mail info@sitecna.eu
Web www.sitecna.eu

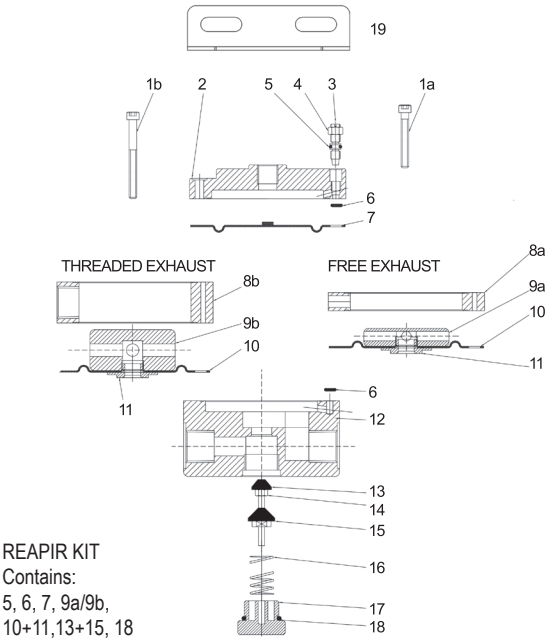
Installation, Regulation and Maintenance Instructions

Volume Boosters
Series 04, 06, 08, 12, 16
1/4", 3/8", 1/2, 3/4, 1"NPT

IP66

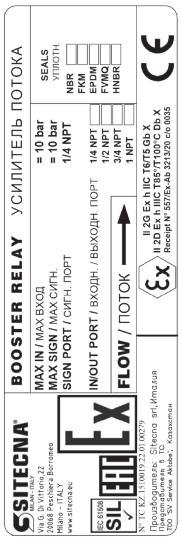
SERIES 04 , 06, 08 - 1/4"NPT, 3/8"NPT, 1/2"NPT

Pos.	Q.ty	Descrizione/Description
1a	6	SCREW FREE EX.
1b	6	SCREW THREADED EX.
2	1	BOOSTER TOP
3	1	ADJUSTMENT SCREW
4	1	NUT M6
5	1	O'RING 4,48 X 1,78
6	2	O'RING 4,5 X 1,5
7	1	UPPER DIAPRAGHM
8a	1	SPACER FREE EX
8b	1	SPACER THREADED EX.
9a	1	SPACER FREE EX
9b	1	SPACER THREADED EX.
10	1	LOWER DIAPRAGHM
11	1	DIAPRAGHM SEAT
12	1	BODY 1/4"NPT
13	1	SHUTTER
14	1	NUT M4
15	1	VALVE BODY
16	1	VALVE SPRING
17	1	PLUG
18	1	O'RING 18,72 X 2,62
19	1	BRACKET



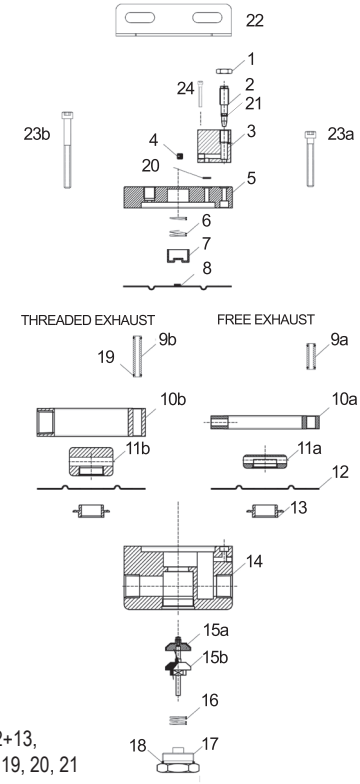
REAPIR KIT
Contains:
5, 6, 7, 9a/9b,
10+11,13+15, 18

LABEL



SERIES 12, 16 - 3/4"NPT, 1"NPT

Pos.	Q.ty	Descrizione/Description
1	1	NUT M10
2	1	ADJUSTMENT NEEDLE
3	1	ADJUSTMENT SEAT
4	1	GRAIN M6
5	1	BOOSTER TOP
6	1	COMPRESSION SPRING
7	1	PRESSER
8	1	UPPER DIAPRAGHM
9a	1	BYPASS FREE EX
9b	1	BYPASS THREADED EX.
10a	1	SPACER FREE EX
10b	1	SPACER THREADED EX.
11a	1	SPACER FREE EX
11b	1	SPACER THREADED EX.
12	1	LOWER DIAPRAGHM
13	1	DIAPRAGHM SEAT
14	1	BODY 3/4"NPT
15a	1	UPPER SHUTTER
15b	1	LOWER SHUTTER
16	1	VALVE SPRING
17	1	PLUG
18	1	O'RING 32,99 X 2,62
19	2	O'RING 6,75 X 1,78
20	2	O'RING 6,75 X 1,78
21	1	O'RING 4,48 X 1,78
22	1	BRACKET
23a	6	SCREW FREE EX
23b	6	SCREW THREADED EX.
24	2	SCREW ADJ. SEAT



REAPIR KIT
Contains:
8, 11a/11b, 12+13,
15a+15b, 18, 19, 20, 21

HOW TO ORDER

TYPE
VB= Volume Booster

SIZE
04= 1/4" NPT
06= 3/8" NPT
08= 1/2" NPT
12= 3/4" NPT
16= 1" NPT

DIAPHRAGM & SEALS MATERIAL
FK= FKM (WT-25° +90°C)
NB= NBR (WT-20° +80°C)
LT= EPDM (WT-40° +80°C)
FL= Special compound (WT-55°+90°C)
HN= HNBR (WT-55°+90°C)

ACCESSORIES
0= None
2= SS bracket kit
4= Customised Tag

Specials

VB	04	0	0	00	0	0	SS	FK	0	#	#

OPTION
00= Free Exhaust port
88= Threaded Exhaust port

MATERIAL
SS= 316-316L Stainless steel
AL= Copper free Aluminum alloy whit epoxy painting

INSTALLATION, REGULATION & MAINTENANCE INSTRUCTIONS

AISI316 and Aluminium Volume Booster - 1/4", 3/8", 1/2, 3/4, 1"NPT

IP66

SITECNA Flow Control Technologies

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.

⚠ Danger 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.

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

⚠ Caution **⚠ Warning** **⚠ Danger** 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

Volume booster relay is used in pneumatic control valve.

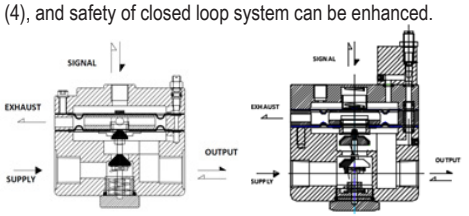
The VB receive the positioner output signal and supply air pressure to the actuator for reduce response and adjusting time.

Product charateristics

- Supplies constant air pressure at the rate of 1:1
- By-passing control enhance safety of control valve
- Responses to slight changes in input signal, which increases accuracy of output of air pressure to actuator

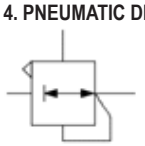
3. OPERATION

1/4", 1/8"NPT: air pressure is being supplied to actuator by the supply pressure from regulator, which sends output signal to signal port. The upper diaphragm (7) is being pushed down the valve assembly (13,15) into the plug (17). The air pressure then will be supplied to actuator through outlet port. Balanced output and signal pressure will move upper diaphragm (7) which would maintain the rate 1:1 constantly. If output is higher than signal pressure, then diaphragm assembly (10+11) will be raised which would result exhaustion of output pressure through exhaust ring. Output pressure's sensitivity to signal can be adjusted by rotating adjust bolt (4), and safety of closed loop system can be enhanced.



3/4", 1"NPT: air pressure is being supplied to actuator by the supply pressure from regulator, which sends output signal to signal port. The upper diaphragm (8) is being pushed down the valve assembly (15) into the plug (18). The air pressure then will be supplied to actuator through outlet port. Balanced output and signal pressure will move upper diaphragm (8) which would maintain the rate 1:1 constantly. If output is higher than signal pressure, then diaphragm assembly (12+13) will be raised which would result exhaustion of output pressure through exhaust ring. Output pressure's sensitivity to signal can be adjusted by rotating adjust bolt (1), and safety of closed loop system can be enhanced.

4. PNEUMATIC DIAGHRAM



5. TECHNICAL FEATURES

Medium: compressed air or inert gases, filtered, lubricated and not lubricated
Port thread: 1/4" - 3/8" - 1/2"- 3/4" - 1"NPT
Signal connection: 1/4"NPT
Max supply pressure: 10 bar
Max signal/output: 10 bar
Flow rate CV: 1/4 - input 2.20; exhaust 2.40
1/2 - input 2.80; exhaust 2.80
3/4 - input 5.60; exhaust 6.50
1 - input 8.00; exhaust 8.00
Materials: Body SS316L or aluminum alloy
Internal part stainless steel

MATERIAL		TEMPERATURE		
DIAPHRAGM	SEALS	TRANSPORT	STORAGE	OPERATING
NBR	NBR	-20°C...+80°C	-20°C...+80°C	-20°C...+80°C
FKM	FKM	-25°C...+90°C	-25°C...+90°C	-25°C...+90°C
EPDM	EPDM	-40°C...+80°C	-40°C...+80°C	-40°C...+80°C
FVMQ	FVMQ	-55°C...+90°C	-55°C...+90°C	-55°C...+90°C
HNBR	HNBR	-55°C...+90°C	-55°C...+90°C	-55°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".

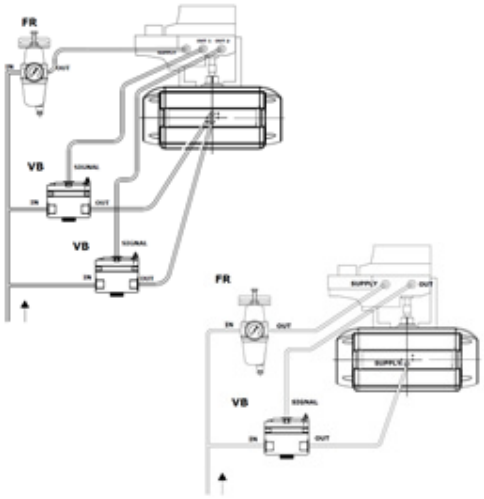
To avoid contamination of impurities during the storage period, don't remove thread protection caps; remove them just before the installation phase.

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.

- **⚠ Caution** It is recommendable to check its condition s before the application
- A pressure reducer is necessary when air pressure is higher than max operating pressure.
- Install the pneumatic connections according to the pneumatic diagram enclosed
- **⚠ Caution** Gradually increase air supply to the max operating pressure.



8. MOUNTING

⚠ Caution **For Energize-to-trip operation**:

All the requirements of IEC 61511-1 par. 11.2.11 shall be met.

For this reason, as a pressure switch or pressure transmitter mounted downstream the DP or upstream the DP (signal line) would be ineffective, the corresponding tubing connections' length shall be reduced at a minimum.

9. TESTING

1. The operating requirement of the volume booster is adjustments of the by-pass to stabilize the actuator.
2. Turn the bypass adjusting screw counter clockwise to the fully opened position.
3. With the actuator in operation, slowly turn the by-pass screw until the booster operates in response to large changes in the input signal, yet allows small changes to move the actuator without booster activation.
4. If the ON/OFF actuator is to be used, the bypass should be closed.

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.

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

A.Ordinary maintenance

⚠ Caution The VB should be periodically checked for proper functioning:

- Clean the VB from impurities and dirt;
- Visually check of the integrity of the body and cup of VB;
- Check that there aren't leakages;
- Check the correct functionality of the VB;

B. Troubleshooting

Issue	Possible Cause	Fixes
when the signal is off, the valve does not close	leakage / high bleed	Check valve seat. Ensure that the diaphragm is not punctured or contact SITECNA technical support for more information
leakage / high bleed	bonnet or retainer screws reliefe valve Supply valve sipply seat diaphragm assemblies	Tighten the bonnet or retainer screws If contaminated clean the source. If damaged, install or contact SITECNA technical support for more information

After replacing the VB "TESTING" phase

C. Disassembly

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

D. Repair Kit

K-VBxx-yy-zz (see other page for components)
xx refers to size: 04=1/4"NPT, 06=3/8"NPT, 08=1/2"NPT, 12= 3/4"NPT, 16=1"NPT
yy refers to material: SS=SS316, AL=aluminum alloy
zz refers to seal type: NB=NBR, FK=FKM, LT=EPDM, FL=FVQM, HN=HNBR

E.Assembly

Assemble the unit as shown on theexploded view.

11. MARKING ACORDING TO 2014/34/UEAtex

II 2G Ex h IIC T6/T5 Gb X
II 2D Ex h IIIC 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.

NB: Special conditions for safe use (X conditions):

Before performing any work, read this manual and assure yourself that you understand. X at the end of ATEX sobstitutes T amb for series VB, DP, VSR, RF, LK, SCLP, TF, FLGSS, VP, SLHF, SLVP, SLSC, PV. T amb depends on used seals, based on the following correspondance:
NBR=-20°C...+80°C; FMK=-25°C...+90°C,
EPDM= -40°C...+80°C; FVMQ & HNBR= -55°C...+90°C

SITECNA®
Flow Control Technologies

Trace No: xxxx

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…	Volume Booster	VB…	Flow regulator	RFB…, RFU…
Regulator	R…	Control spool valve	DP…	Glass tube flowmeter	FLGSS…
Filter Regulator	FR…	Quick exhaust valve	VSR…	Vacuum pump	ST-VP…
Back Pressure valve	BP	Lock-up valve	LK…	Silencer	SLHF…, SLVP…, SLSC…
2 ways switching valve	SV…	Overload protector	SCLP…	Dust excluder	PV…, PVSL…
3 ways switching valve	S3…	Tee Filter	TF	Pressure gauge	MBSS…, MBS6…, MBSN…

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

Direttiva 2014/34/UE ATEX	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 folowing reference Normative Documents:

EN ISO 80079-36:2016	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
EN ISO 80079-37:2016	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"
N 1127-1:2011	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, 20/05/2020
Davide Matteo De Corrado
Managing Director

Sitecna Srl a socio unico
Via G. Di Vittorio, 22
20068 Peschiera Borromeo
Milano - Italy (Europe)

Tel. +39 025475482 ra
+39 025473182 ra
Fax +39 0255303713
e-mail : info@sitecna.eu

P.IVA/C.FISC. 08973090155
NR MECC. MI253803
C.C.I.A.A. 1259759