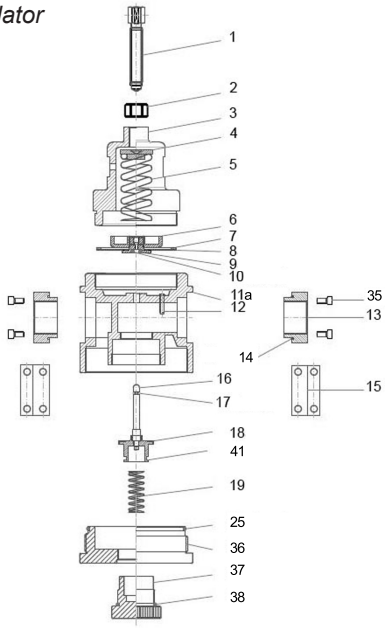
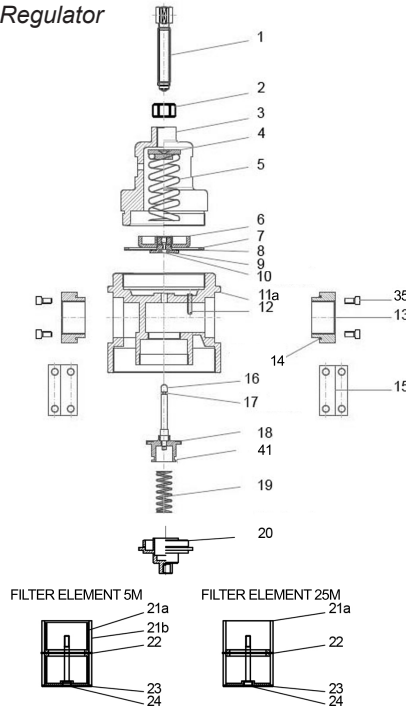


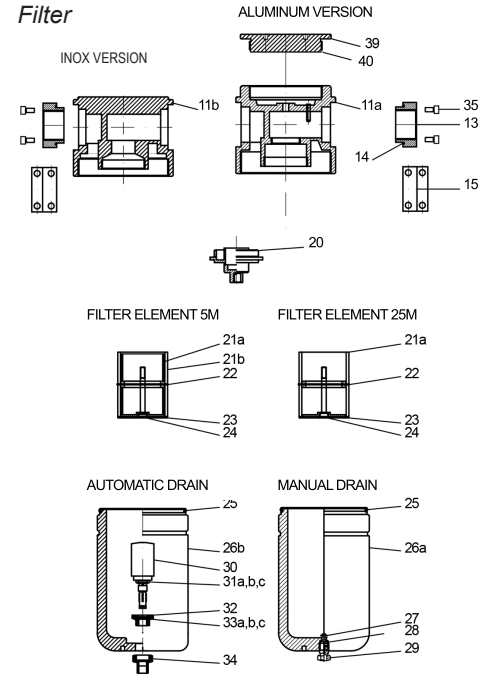
Regulator



Filter Regulator



Filter



Installation, Regulation and Maintenance Instructions

Filter, Regulator & Filter Regulators
Series 12, 16 - 3/4", 1"NPT



HOW TO ORDER

TYPE	SIZE	RANGE	ACCESSORIES
F= Filter FR= Filter Regulator R= Regulator	04= 1/4" NPT 06= 3/8" NPT 08= 1/2" NPT 12= 3/4" NPT 16= 1" NPT 24= 1 1/2" NPT* 32= 2" NPT*	0= None 1= 0.2-2 bar 2= 0.2-4 bar 3= 0.4-8 bar 4= 0.4-10 bar 5= 0.4-12 bar	0= None 2= SS bracket kit 3= Panel nut&handwheel 4= Customised Tag 5= SS bracket kit + nut&handwheel 6= SS bracket kit+custom.Tag

* only for filters

↓

FR	06	3	1	1S	5	6	SS	FK	2	#	#
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FILTER ELEMENT	OPTION	DIAPHRAGM & SEALS MATERIAL
0= None 1= 5 micron 2= 25 micron 3= 40 micron	00= None 05= No relieving 06= 1/4" gauge port 07= Automatic drain 56= No relieving 1/4" gauge port 57= No relieving Automatic drain 67= 1/4" gauge port Automatic drain	FK= FKM (WT-25° +90°C) NB= NBR (WT-20° +80°C) LT= EPDM (WT-40° +80°C) FL= Special compound (WT-60° +90°C) HN= HNBR (WT -60 +90°C)

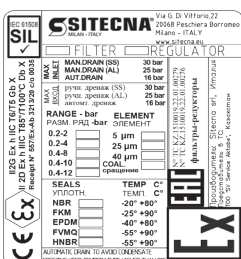
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PRESSURE GAUGE	MATERIAL
0= None 1S= AISI304 or AISI316 case (SS316 connection) 1B= AISI304 case (brass connect.)	SS= 316-316L Stainless steel AL= Copper free aluminum alloy

PART LIST

Pos.	Q.ty R	Q.ty FR	Q.ty F	Descrizione/Description
1	1	1	0	ADJUSTMENT SCREW
2	1	1	0	LOCK ADJUSTMENT NUT
3	1	1	0	BONNET
4	1	1	0	UPPER SPRING SEAT
5	1	1	0	ADJUSTMENT SPRING
6	1	1	0	LOWER SPRING RESET
7	1	1	0	SLIP RING
8	1	1	0	DIAPHRAGM
9	1	1	0	VALVE SEAT
10	1	1	0	O'RING VALVE SEAT (ONLY FOR RELIEVING)
11a	1	1	0	FR & R BODY
11b	0	0	1	F BODY
12	1	1	0	SIPHON
13	2	2	2	CONNECTION
14	2	2	2	O'RING
15	2	2	2	BRACKET
16	1	1	0	VALVE STEAM
17	1	1	0	O'RING
18	1	1	0	VALVE
19	1	1	0	VALVE SPRING
20	0	1	1	FILTER ELEMENT SUPPORT
21a	0	2	2	FILTER ELEMENT 5 MICRON
21b	0	2	2	FILTER ELEMENT 25 MICRON
22	0	1	1	FILTER ELEMENT RING
23	0	1	1	FILTER ELEMENT PLUG
24	0	1	1	FILTER ELEMENT SCREW
25	0	1	1	O'RING BOWL
26a	0	1	1	MANUAL DRAIN BOWL
26b	0	1	1	AUTOMATIC DRAIN BOWL
27	0	1	1	BENZIN
28	0	1	1	O'RING DRAIN
29	0	1	1	MANUAL DRAIN
30	0	1	1	AUTOMATIC DRAIN
31	0	1	1	O'RING AUTO DRAIN
32	0	1	1	AUTOMATIC DRAIN SEAT
33	0	1	1	O'RING AUTO DRAIN
34	0	1	1	AUTOMATIC DRAIN SEAT
35	8	8	8	SCREW
36	1	0	0	REGULATOR BOTTOM
37	1	0	0	REGULATOR VALVE SEAT
38	1	0	0	O'RING
39	0	0	1	FILTER TOP
40	0	0	1	O'RING
41	1	1	0	O'RING VALVE

LABEL



REPAIRING KIT

Contains: 8, 10, 14, 16, 17, 25, 27, 28, 31, 33, 38, 40, 41
+ for 5 micron FR & F: 21a, 21b
+ for 25 micron FR & F: 21b

For technical information refer to the corresponding technical data sheet

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 word "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 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

Before you can feed a plant with a gaseous fluid, it must be processed to remove contaminants such as water and oil particles, dirt and is also necessary to reduce the pressure to the level required by the equipment downstream.

- Filters are designed to remove airborne solid and liquid contaminants which may plug small orifices and hinder performance or cause excessive wear and premature equipment failure.
- Regulators provide controlled, consistent air pressure as required for specific pneumatic equipment connected to the air system.
- Filter/regulators are designed to remove airborne solid and liquid contaminants which may plug small orifices and hinder performance or cause excessive wear and premature equipment failure. In addition to filtration the regulators portion provides controlled, consistent air pressure as required for specific pneumatic equipment connected to the air system

3. OPERATION

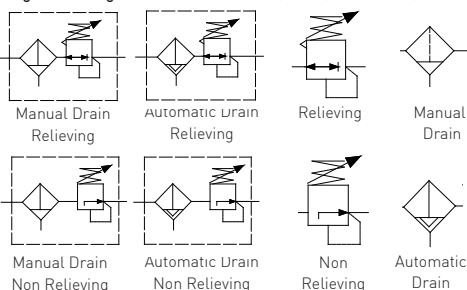
In these devices, the main spring (5) exerts a force on a diaphragm assembly (6,7,8,9,10). This force can be adjusted by turning the adjustment screw (1). By readjusting the main spring, the regulator valve assembly (16,17,18, 41) is pushed down and the seat of the lower seal is released, while the front side of the adjusting piston continues to be sealed by the element sealing in the diaphragm. This allows the flow from the pressure to the processing lines for the supply and exhausting of the system. Small pressure fluctuations can be compensated by slight movements of the piston adjustment and changes of the flow on the lower valve seat. If the pressure on the line of work exceeds the set pressure of work, this generates a force on the lower side of the diaphragms that pushes the diaphragm upwards, the air then flows over the sealing element in the diaphragm and through a light of drain on the body of the compressed air regulator.

4. PNEUMATIC DIAGRAM

Fig.1 Filter Regulator

Fig.2 Regulator

Fig.3 Filter



5. TECHNICAL FEATURES

Medium: compressed air or inert gases, filtered
Port thread: 3/4" - 1"NPT
Gauge connection: 1/8" - 1/4"NPT
for FR & F: 5, 25, 40 micron, coalescing (only F)
Max inlet pressure: 25 bar (for aluminum version)
30 bar (for AISI 316 version)
16 bar (only for F, FR with automatic drain)

Drain valve: manual or automatic

Flow rate: FR,R:11500 dm3/min CV=11.5 (P.in 10bar - P.reg.6bar - Δ P 1bar)

F12: 7500 dm3/min CV=7,10 (P.in 10bar - delta P 0.35bar)

F16: 10000 dm3/min CV=10,0 (P.in 10bar - delta P 0.35bar)

Pressure range: 0.2/2, 0.2/4, 0.4/8, 0.4/10, 0.4/12 bar

Materials: Body SS316L or aluminum alloy

Filter element SS316

Internal parts 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	-60°C...+90°C	-60°C...+90°C	-60°C...+90°C
HNBR	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. Assume 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.

- Upstream of lubricators and cycling valves
- As close as possible to the air supply when used as a main line filter
- As close as possible to the device being serviced when used as a final filter

⚠ Caution In the version with automatic drain and with hazardous area medium but compatible with the materials, you must remember that the device is designed with allowable leakage. In the cases, it is necessary to provide for the conveyance of the discharge in safe area. No responsibility will be charged to SITECNA to unsafe use.

8. MOUNTING

- Vertically (bowl down),
- With air flow in direction of arrow on body,
- Connect piping to proper ports using pipe thread sealant on male threads only. Do not allow sealant to enter the unit.
- Install a pressure gauge or plug the gauge ports. Gaugeports can also be used as additional outlets for regulated air

9. TESTING

- Before applying inlet pressure to filter/regulator, turn adjustment (1) counterclockwise to remove all force on regulating spring (5).
- Apply inlet pressure, then turn adjustment (1) clockwise to increase and counterclockwise to decrease outlet pressure setting.
- Always approach the desired pressure from a lower pressure. When reducing from a higher to a lower setting, first reduce to some pressure less than that desired, then bring up to the desired pressure.

NOTE

⚠ Warning As option is available an "Anti-tamper system" to avoid the un-authorized modification of the setting. This option is mandatory for safety related applications.

⚠ Caution With non-relieving filter/regulators, make pressure reductions with some air flow in the system. If made under no flow (dead-end) conditions, the filter/regulator will trap the over-pressure in the downstream line.

- Once required pressure is achieved tighten locknut (2) to lock setting.

10. MAINTENANCE

⚠ Warning Before performing any work, read this manual and study all figures. Assume 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 electrical power.

- Filter/regulator can be disassembled without removal from air line.
- Shut off inlet pressure. Reduce pressure in inlet and outlet lines to zero.
- Turn adjustment screw fully counter clockwise.
- Disassemble in general accordance with the item numbers on exploded view. Do not remove the drains unless replacement is necessary. Remove and replace drains only if they malfunction.

A. Ordinary maintenance

⚠ Caution The FR, F and R should be periodically checked for proper functioning:

- Clean the FR, F and R from impurities and dirt;
- Visually check of the integrity of the body and cup
- Check that there aren't leakages;
- Check the correct functionality of the FR, F and R;
- For manual drain models, regularly open drain to expel accumulated liquids. Keep liquids below filter element (21)
- At approximately 6 month intervals it is advisable to remove the bowl assembly by removing the securing screws (27) and unscrewing the filter element (21) for inspection;
- Clean or replace filter element when dirty.

B. Troubleshooting

Issue	Possible Cause	Fixes
leakage between body and lower cup for FR, F, R	Seal damage	replace the o-ring (25) or contact SITECNA technical support for more information
no adjustment pressure for FR and R	Diaphragm or valve damaged	replace diaphragm assembly (6,7,8, 9, 10, 11) and valve assembly (16, 17,18) or contact SITECNA technical support for more information
pressure drop reaches or exceeds 10psig (0.7bar)	dirty filter element	replace filter element (21) or contact SITECNA technical support for more information

After replacing repeat "TESTING" phase

C. Assembly

- Lubricate threads and nose of adjusting screw (1) at regular intervals with suitable grease.
- Lubricate seals (17) with light coat of good quality grease.
- Assemble the unit as shown on the 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, FKM=-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, FKM=-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, PVS: -20°C+80°C / Serie SCLP: 2°C+80°C

Serie FLGS: -20°C+90°C / Serie VS: -50°C+230°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:

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

