SITECNA®
Flow Control Technologies

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Installation, Regulation and Maintenance Instruction

Spool Valves 5/2
Series 04, 06, 08, 12 - 1/4", 3/8", 1/2", 3/4"NPT

For technical information refer to the corresponding technical data sheet

HOW TO ORDER

TYPE

DP = Operator: Pilot / Return: Spring
DPP = Operator: Pilot / Return: Pilot
DP.....-M1 = Operator: Knob/ Return: Spring
DP.....-M2 = Operator: Knob/ Return: Knob

DP	32	AL	04N	FK	-M1

WAYS
32= 3 ways, 2 positions
52= 5 ways, 2 positions

MATERIAL
SS= 316-316L Stainless steel
AL= Copper free aluminum alloy with epoxy paint

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

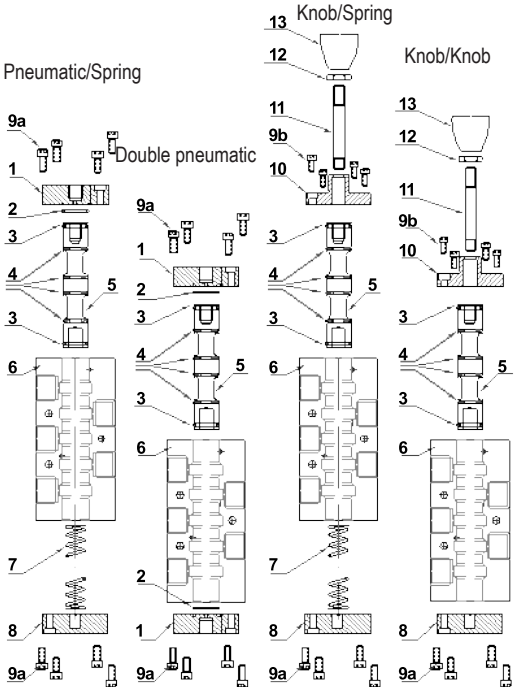
DIAPHRAGM & SEALS MATERIAL
FK= FKM (WT-25° +90°C)
LT= EPDM (WT-40° +80°C
NB= NBR (WT-20° +80°C)
HN= HNBR (WT -55° +90°)

DRAWING OF 1/4" SPOOL VALVES

LABEL

REPARING KIT

K-code of the item.
Example: K-DP5204NSSNB
Contains: 2, 3, 4, 5, 7

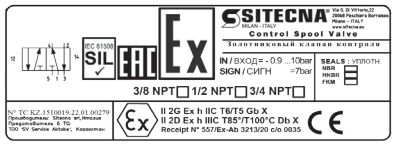


PART LIST

POS	DP	DPP	DP -M1	DP -M2	DESCRIPTION
1	1	2	0	0	PNEUMATIC COVER
2	1	2	0	0	O-RING PNEUMATIC COVER 17.17x1.78
3	2	2	2	2	O-RING 12.42x1.78
4	4	4	4	4	SPOOL DIAPHRAGM
5	1	1	1	1	SPOOL
6	1	1	1	1	BODY
7	1	0	1	0	SPRING
8	1	0	1	1	SPRING COVER
9a	8	8	4	4	SCREW M4x16
9b	0	0	4	4	SCREW M4x10
10	0	0	1	1	MANUAL COVER
11	0	0	1	1	SWIVEL
12	0	0	1	1	NUT
13	0	0	1	1	KNOB

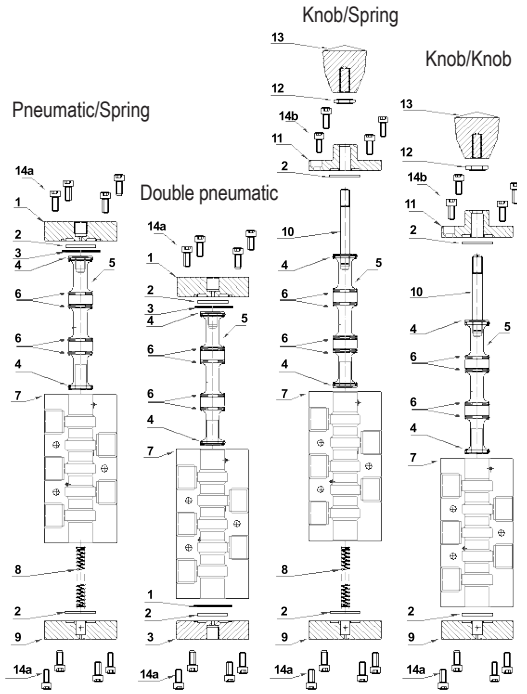
DRAWING OF 3/8, 1/2, 3/4" SPOOL VALVES

LABEL



REPARING KIT

K-code of the item.
Example: K-DP3208NSSNB
Contains: 2, 3, 4, 5, 6, 8



PART LIST

POS	DP	DPP	DP -M1	DP -M2	DESCRIPTION
1	1	2	0	0	PNEUMATIC COVER
2	1	2	0	0	O-RING PNEUMATIC COVER 17.17x1.78
3	2	2	2	2	BUFFER
4	2	2	2	2	O-RING 17.17x1.78
5	1	1	1	1	SPOOL
6	4	4	4	4	SPOOL DIAPHRAGM
7	1	1	1	1	BODY
8	1	0	1	0	SPRING
9	1	0	1	1	SPRING COVER
10	0	0	1	1	MANUAL COVER
11	0	0	1	1	SWIVEL
12	0	0	1	1	NUT
13	0	0	1	1	KNOB
14a	8	8	4	4	SCREW M4x16
14b	0	0	4	4	SCREW M4x10

INSTALLATION, REGULATION & MAINTENANCE INSTRUCTIONS

AISI316 and Aluminium 5/2 pilot Valves - 04, 06, 08, 12 Serie

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

The pneumatic valve are devices that control the compressed air direction, therefore allow the actuation of the actuators and the distribution of compressed air in the system.

3. OPERATION

5/2 DP - Pnematic/ Spring DP

When pressure on Pilot Signal (12*) goes to zero, and the spring (14*) commutates the position of the spool valve, closing the supply line (1-4*) and discharging a cylinder chamber of the actuator from exhaust (5*), and open a second charge line (1-2*) to charge a second chamber of the actuator.

5/2 DPP - Double Pnematic

There are two different Pilot Signal (12 – 14*), as in one device the pressure goes to zero and in the second increases, the pressure modifies the position of the spool valve, closing the supply line and discharging a cylinder chamber of the actuator to the exhaust.

5/2 DP-M1 - Knob/Spring

With pushed knob (12*) the valve switches, with the knob not pressed the spring (14*) commutates the position of the valve.

5/2 DP-M2 - Knob/knob

With pushed knob (12*) the valve commutates; to switch the valve, pull the knob(12*)

* refers to "PNEUMATIC DIAGRAM"

4. PNEUMATIC DIAGHRAM

size 1/4"NPT size 1/2"NPT

Fig.1 DP - Pneumatic Spring

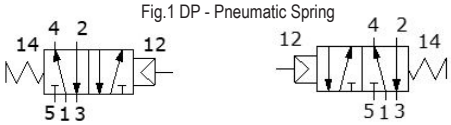


Fig.2 DPP - Double Pneumatic

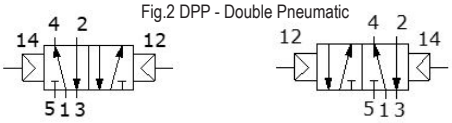


Fig.3 DP-M1 - Knob/ Spring

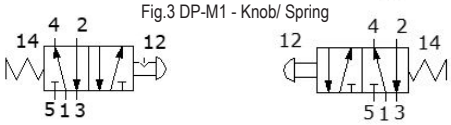
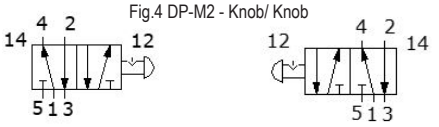


Fig.4 DP-M2 - Knob/ Knob



5. TECHNICAL FEATURES

Medium: compressed air or commpatible gases
Port thread: 1/4", 3/8", 1/2"NPT
Pilot thread: 1/8"NPT
Working pressure: 0.9 - 10 bar
Signal pressure: 2.5 - 10bar
Orefice: Dn 8mm (1/4"NPT), Dn 12 (3/8", 1/2"NPT)
Materials: Body in SS316L or aluminum alloy
Spool in SS316 (AISI vers) or aluminum (all vers.)
Screws & spring in stainless steel
Gasket & seals in synthetic rubber

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
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.

NB: only Pneumatic/Spring & Double Pneumatic Version are subject to SIL.

9. TESTING

- For DP and DPP apply the supply pressure in the inlet port. For DP-M1 and DP-M2 push the knob (see "TECHNICAL FEATURES").

NOTE: the DP is a universal valve and can work in NO, NC and Multi-Directional Line version

- **5/2 DP Pneumatic/Spring**, **5/2 DPP Double Pneumatic:** when the air pressure signal goes up to the 2.5bar in the Pilot Signal port (12*) commutates the spool (5**), opens the line pressure (1-2*) and discharges to the exhaust (5*).
  5/2 DP Pneumatic/Spring: when the air pressure signal goes to zero in Pilot Signal port (12*) the spool (5**) returns in the position for thrust of the spring (14*), opens the line pressure (1-4*) and discharges to the exhaust (3*).
- 5**/2 DPP Double Pneumatic**: when the air pressure signal goes to zero and in the second Pilot Signal port (14*) increases, the pressure modifies the position of the spool valve (5**), opens the line pressure (1-4*) and discharges to the exhaust (3*)
- **5/2 DP Knob/Spring**, **5/2 DPP Knob/Knob:** with the knob pushed, the spool (5**) commutates and opens the line pressure (1-2*).
- **5/2 DP Knob/Spring**: with knob not pushed, the spool (3**/4**) returns in the position for thrust of the spring (14*), closes the line pressure (1-2*) and discharges to the exhaust (3*)
- **5/2 DP Knob/Knob**: to return to the previous position, pull the knob, the spool valve (5**), closes the line pressure (1-2*) and discharges to the exhaust (3*)

* refers to "PNEUMATIC DIAGRAM"
** refers to "EXPLODED VIEW"

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 DP should be periodically checked for proper functioning:

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

B. Troubleshooting

Issue	Possible Cause	Fixes
pneumatic valve doesn't move	lack of pneumatic supply	check supply line
	low pressure signal	adjust pressure signal
	damaged internal parts (spring, seal, spool, etc…)	Replace part with REPAIR KIT or contact SITECNA technical support for more information
leakages	Deterioration and/or damage of gasket	Replace part with REPAIR KIT or contact SITECNA technical support for more information

After replacing the DP & DPP "TESTING" phase

C. Disassembly

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

D. Repair Kit

- K-code of the item. Example: K-DP5204NSSNB

E.Assembly

- Lubricate O-ring and seals with alight coat of good quality.
- 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 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.

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 sobstitutes T amb depending on used seales based on the following corrispondance:

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 / Series 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

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

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C.C.I.A.A. 1259759