

Installation, Regulation and Maintenance Instructions

Spool Valves 3/2

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



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)
NB= NBR (WT.-20° +80°C)
HN= HNBR (WT.-55° +90°C)

For technical information refer to the corresponding technical data sheet

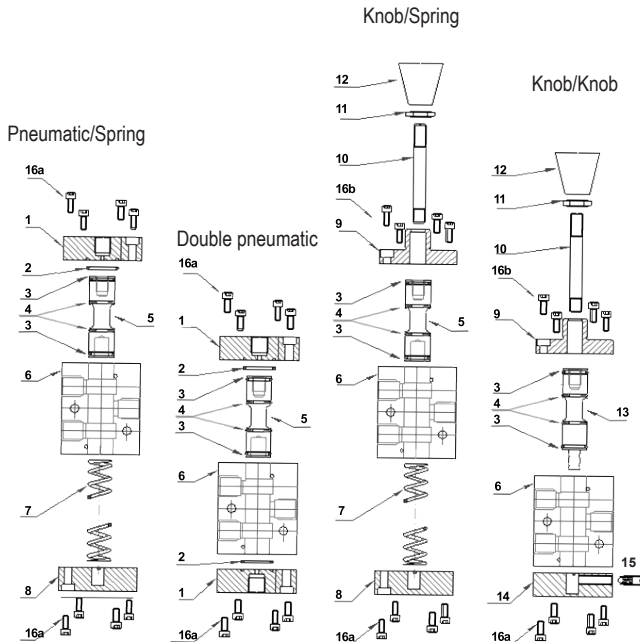
1/4" SPOOL VALVES

LABEL



REPAIRING KIT

K-code of the item.
Example: K-DP3204NSSNB
Contains: 2, 3, 4, 5, 7



PART LIST

POS	DP	DPP	-M1	-M2	DESCRIPTION
1	1	2	0	0	PNEUMATIC COVER
2	1	2	0	0	O-RING 17.17x1.78
3	2	2	2	2	O-RING 12.42x1.78
4	2	2	2	2	SPOOL DIAPHRAGM
5	1	1	1	0	SPOOL
6	1	1	1	1	BODY
7	1	0	1	0	SPRING
8	1	1	0	0	SPRING COVER
9	0	0	1	1	MANUAL COVER
10	0	0	1	1	SWIVEL
11	0	0	1	1	NUT
12	0	0	1	1	KNOB
13	0	0	0	1	SPOOL M2
14	0	0	0	1	MANUAL COVER M2
15	0	0	0	1	PIN
16a	8	8	4	4	SCREW M4x16
16b	0	0	4	4	SCREW M4x10

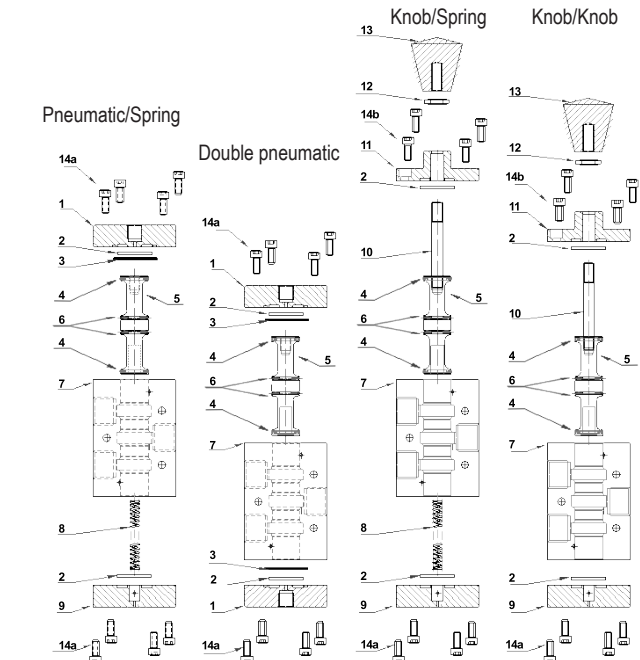
3/8, 1/2, 3/4" SPOOL VALVES

LABEL



REPAIRING 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	2	2	2	2	BUFFER
3	1	2	0	0	O-RING PNEUMATIC COVER 26.7x1.78
4	2	2	2	2	O-RING 17.17x1.78
5	1	1	1	1	SPOOL
6	2	2	2	2	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	SWIVEL
11	0	0	1	1	MANUAL COVER
12	0	0	1	1	NUT
13	0	0	1	1	KNOB
14a	8	8	4	4	SCREW M5x16
14b	0	0	4	4	SCREW M5x10

INSTALLATION, REGULATION & MAINTENANCE INSTRUCTIONS

AISI316 and Aluminium 3/2 Spool 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 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

3/2 DP - Pneumatic/ Spring

When the air pressure input goes to zero, there isn't pressure on Pilot Signal (12*), and the spring (10*) commutates the position of the spool valve, closing the supply line and discharging the cylinder chamber of the actuator to the exhaust.

3/2 DPP - Double Pneumatic

With a spool valve double pneumatic, there are two air pressure inputs two different Pilot Signal (10 – 12*). As in one Pilot Signal 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 the cylinder chamber of the actuator to the exhaust.

3/2 DP-M1 - Knob/Spring

With pushed knob (12*) the valve switches, with the knob not pressed the spring (10*) commutates the position of the valve.

3/2 DP-M2 - Knob/knob

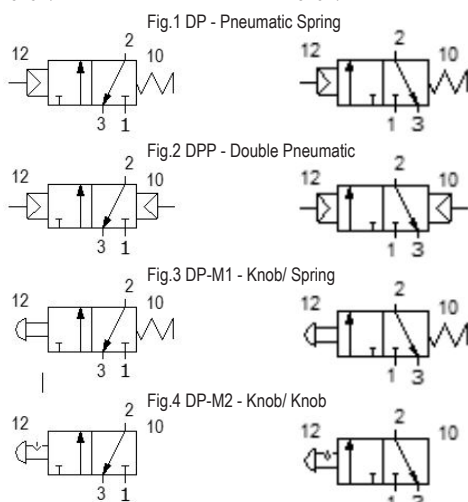
With pushed knob (12*) the valve commutates; to switch the valve, pull the knob (10*)

* refers to "PNEUMATIC DIAGRAM"

4. PNEUMATIC DIAGRAM

size 1/4"NPT

size 1/2"NPT



5. TECHNICAL FEATURES

Medium: compressed air or compatible 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 conditions 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

3/2 DP Pneumatic/Spring, 3/2 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 (3*).

3/2 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 (10*), closes the line pressure (1-2*) and discharges to the exhaust (3*).

3/2 DPP Double Pneumatic: when the air pressure signal goes to zero and in the second Pilot Signal port (12*) increases, the pressure modifies the position of the spool valve (5**), closes the line pressure (1-2*) and discharges to the exhaust (3*).

3/2 DP Knob/Spring, 3/2 DPP Knob/ Knob: with the knob pushed, the spool (5**) commutates and opens the line pressure (1-2*).

3/2 DP Knob/Spring: with knob not pushed, the spool (5**) returns in the position for thrust of the spring (10*), closes the line pressure (1-2*) and discharges to the exhaust (3*).

3/2 DP Knob/ Knob: to return to the previous position, pull the knob, the spool valve (13**) 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-DP3204NSSNB.

E. Assembly

- Lubricate O-ring and seals with alight coat of good quality.
- Assemble the unit as shown on the exploded view.

11. MARKING ACCORDING 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 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, PVSLL: -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

