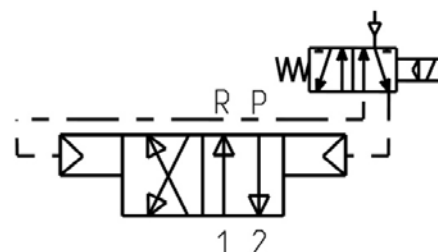


Electropneumatic valve (4/2)

Operation and maintenance manual



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Manual drafted in compliance with Directive
CE 06/42

C2281IE WK 03/17

1. INTRODUCTION

This operation and maintenance manual refers to **electropneumatic valves (4/2) for dual lines** and contains important information for the health and safety protection of the personnel who use this equipment.

The most recent version can be obtained by requesting it from the Sales Technical Office or online at <http://www.dropsa.com>.

This manual must be read carefully and kept so that it is always available to the operators who want to consult it.



2. GENERAL DESCRIPTION

The electropneumatic valve 4/2 has been designed to control the supply of dual-line installations (system 02) and can be operated with grease at a maximum pressure of 400 bar (5880 psi).

Its function entails alternately communicating with the pump of one of the lines, simultaneously allowing a release of pressure in the other to occur.

3. IDENTIFYING THE MACHINE

The product label has been inserted into the valve's packaging and indicates its code and basic characteristics.

PRODUCT IDENTIFICATION TEST CERTIFICATE	
PART NUMBER	0083580
VAR	
PACK QUANTITY	
KIT ELETTROPNEUM. VALVE (4/2) 24V DC	
FLOW	400 cc/min
PRESSURE	Max 400 bar
GREASE	MAX NLGI 2
VOLT	24V DC
WO: IT - - 0001	
Dropsa SpA, Milan Italy	
 Year: 2017 MADE IN ITALY	
Scan for Info Scannen für Info Telechargez-info Info Prodotto 扫描产品信息 Сканер штрих-кода	
L10000	www.DropsA.com

4. TECHNICAL SPECIFICATIONS

MAIN FEATURES	
Weight	6 Kg
ELECTRICAL SPECIFICATIONS	
Voltage	24V DC/AC – 110/230V AC
Absorption	1W (DC) – 3VA (AC)
Degree of protection of the coil	IP 65
HYDRAULIC SPECIFICATIONS	
Max. flow rate	400 cc/min
Maximum operating pressure	400 bar
Outlet connection	G3/8" BSP
Operating temperature	- 10 ÷ + 50 °C (+14÷+122F)
Operating humidity	90% R.H.
Permitted lubricants*	Grease, max. NLGI2;
Conservation Temperature	-40 ÷ +65 °C (+40÷+149F)

Please note: The following characteristics refers to an operating temperature of +20°C (+68°F)

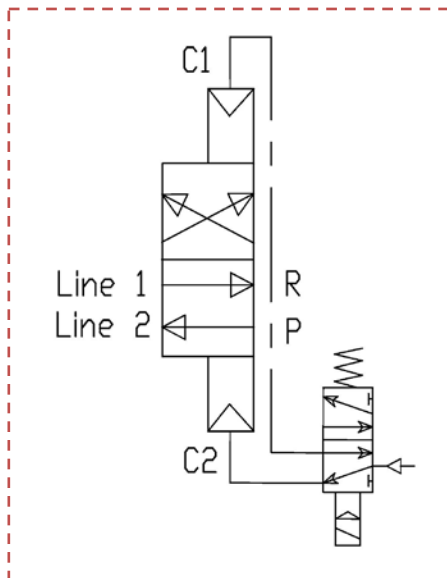
⁽¹⁾ If a different product is used, you must ask Dropsa S.p.A. if it is suitable for use



WARNING: Do not power the machine with voltage different than what is indicated on the label.

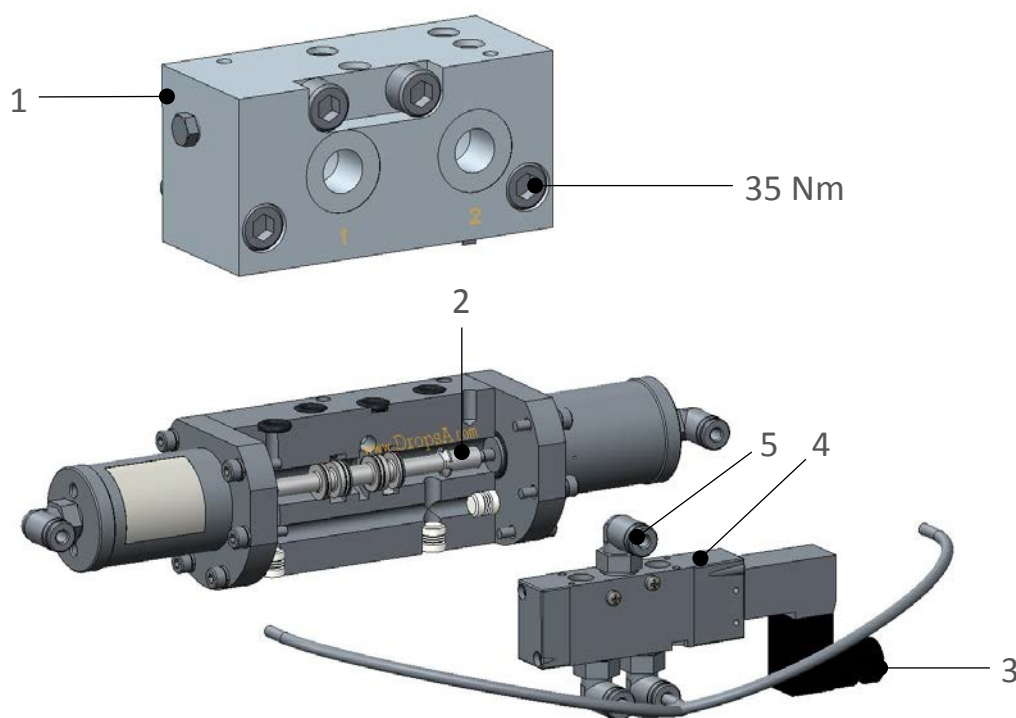
4.1 Hydraulic system

Below the hydraulic diagram:



Pressurising the cylinder, C1 switches from line 2 to line 1.
Pressurising the cylinder, C2 switches from line 1 to line 2.

5. VALVE COMPONENTS



VALVE COMPONENTS	
1	Adapter plate for SUMO/MINISUMO
2	Control piston
3	Coil
4	Valve 5/2
5	Air inlet $\varnothing 4$

6. UNPACKING AND INSTALLATION

6.1 Unpacking

Once you have identified the suitable place for the installation, open the package and remove the modular valve. Ensure that no damage occurred during transport and storage. The packing material does not require special disposal precautions as it is in no way dangerous or pollutant. For disposal, refer to local regulations.

6.2 Installation on the SUMO2/MINISUMO pumps

- Attach the valve on the pump using the four M10 screws included within the scope of supply tightening with a torque of 35 Nm. Pay attention to the correct positioning of the OR.
- Connect the outlet tubes to the G3/8" holes labelled **1** and **2** on the adapter plate.

6.3 Free installation on the system

- Attach the valve onto a stable surface using the two M6 holes positioned above (see page 6, dimensions).
- Connect the flow and return lines to the G3/8" holes receptively label with a **P** and an **R** on the adapter plate.
- Connect the outlet tubes to the G3/8" holes labelled **1** and **2** on the adapter plate.

⚠ : Install in a place that is protected from impact occurring






7. OPERATING INSTRUCTIONS

7.1 Start-up

Measures to be taken prior to start-up

- Check the integrity of the valve;
- Ensure that the valve is at operating temperature and that the piping is free of any air bubbles.
- Check that the electrical connection has been carried out correctly (CEI 64/8, IEC 364).
- Ensure that the valve reverses properly;
- Ensure that there are no lubricant leaks;
- Ensure that the locking screws have been appropriately tightened;
- Use gloves and eye protection as required by the oil lubricant safety data sheet.
- DO NOT use lubricants that are aggressive to NBR gaskets. If you are unsure, contact the Dropsa SpA technical office for a detailed list of recommended oils.
- Never ignore health hazards and always follow sanitary regulations.

8. PROBLEMS AND SOLUTIONS

TROUBLESHOOTING TABLE		
FAULT	CAUSE	Remedial action to be taken
The valve does not reverse	There is no electrical power supply.	Check the power supply
	Seizing of the piston	Ensure that the piston slides properly 
		Possible replacement of the valve
	Reaching the maximum pressure threshold	regulate the system pressure to a maximum of 400 Bar (5880 psi)
	conspicuous leaking of lubricant from one of the connection lines	Check the condition of the lines and the relative connections to the fittings. Replace worn lines
No breakage or failure of the gaskets	Replacement of the gaskets 	
The valve does not seal the lines in the resting position	Seizing of the piston	Ensure that the piston slides properly 
		Possible replacement of the valve
	Failure of the piston-return springs	Replacement of the springs 
The valve is leaking lubricant	Failure of the internal gaskets	Replacement of the gaskets 

 : Operation may only be carried out by Dropsa specialised personnel (send the product to Dropsa headquarters).

9. MAINTENANCE PROCEDURES

The electropneumatic valve 4/2 does not require special tools for any check and/or maintenance operations. In any case, it is recommended to use suitable equipment and personal protective equipment (gloves, protection goggles, etc.) that in good condition in accordance with applicable regulations to avoid injury or damage to parts of the pump.

The unit has been designed and built in such a way that it requires a minimum level of required maintenance. Nevertheless, it is recommended to always keep the body of the equipment clean and periodically check the tube joints in order to be able to readily detect any leaks.

CHECK	FREQUENCY INTERVAL	INTERVENTION
Line attachment	After the first 500 hours of operation	Check the joint fittings.
	Every 1500 hours of operation	Check the fastening to the parts of the machine.



WARNING: Ensure that the electrical power and hydraulic supplies are disconnected before carrying out any maintenance operations.

In the event of doubts and/or irresolvable problems, do not search for the fault by disassembling parts of the machine, but rather contact the Dropsa Technical Office S.p.A.

10. DISPOSAL

During maintenance on the valve, or in the event of its demolition, do not dispose of contaminated parts into the environment. See local regulations for their correct disposal. Upon demolition of the valve, the identification label and any other document must be destroyed.

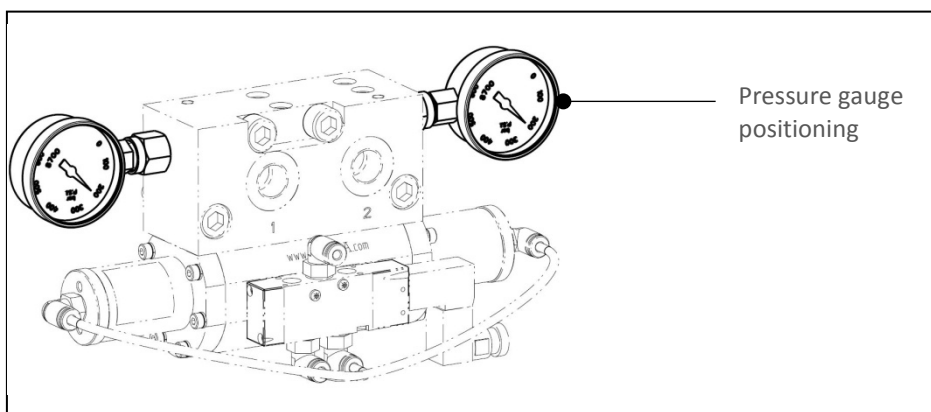
11. ORDER INFORMATION

11.1. Electropneumatic valve 4/2

Name	Code
Electropneumatic valve 4/2 - 24V DC	0083580
Electropneumatic valve 4/2 - 24V AC	0083581
Electropneumatic valve 4/2 - 110V AC	0083582
Electropneumatic valve 4/2 - 230V AC	0083583

11.2. Optional

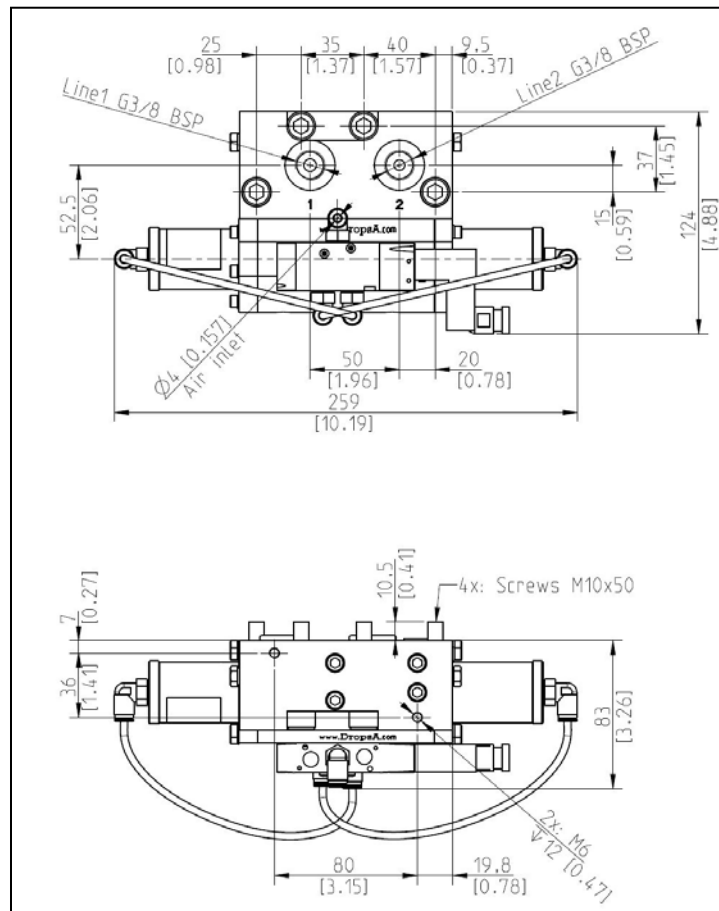
Description	Code
Pressure gauge kit	3133910



11.2. Spare parts

Description	Code
Solenoid valve 24V DC	3155154
Solenoid valve 24V DC	3155155
Solenoid valve 110V AC	3155156
Solenoid valve 230V AC	3155157
Gaskets, OR valve / pump	3190500
Right pressure gauge	3292172
Left pressure gauge	3292171

12. DIMENSIONS



Dimensions in *mm [in]*.

13. HANDLING AND TRANSPORT

Before shipment, the valves are carefully packed inside a cardboard box. During transport and storage of the equipment, pay attention to the direction indicated on the box. Upon receipt, check that the packaging is not damaged and store the product in a dry place.

14. PRECAUTIONS FOR USE



WARNING: Please carefully read the warnings about the risks that the use of an inverter involves. The user must be familiar with operation through the Operation and Maintenance Manual.

Electrical power supply

No operations must be carried out on the machine before disconnecting it from the electrical power supply and ascertaining that no-one can reconnect it during the operation. All installed equipment (electric and electronic) must be connected to the earthing system.

Flammability

The lubricant generally used in the lubrication circuits is not a normally inflammable fluid. In any case, all possible measures must be taken to prevent it coming into contact with very hot parts or naked flames.

Pressure

Before any operation/service check the absence of residual pressure on each branch of the lubricating circuit or in the air circuit, which may result in spurts of oil when disassembling fittings or components.

Noise

The equipment does not emit excessive noise as it does not exceed the value of 70 dB (A).

14.1 LUBRICANTS



**NOTE: The valve is designed to work with maximum NLGI 2 grade lubricants.
Use NBR gasket compatible lubricants.
Any residual lubricant inside that was used for assembly and testing is NLGI 2 grade.**

A table is shown that compares the NLGI (National Lubricating Grease Institute) and ASTM (American Society for Testing and Materials) categories for greases, limitedly to the values that involve the valve.

GREASES	
NLGI	ASTM
00	400 – 430
0	355 – 385
1	310 – 340
2	265 – 295

For further information on the technical characteristics and the safety measures to adopt, see the Product Safety Data Sheet (Directive 93/112/EEC) related to the type of lubricant selected and supplied by the manufacturer.

15. CONTRAINDICATION OF USE

Compliance with the essential safety requirements and machine directive provisions has been checked through the completion of check lists already drafted and contained in the *technical file*.

Three types of lists were used:

- Risk appraisal (appendix A of EN 1050).
- Compliance with essential safety requirements (Machine Directive).
- Electrical safety requirements (EN 60204-1).

The hazards that have not been entirely eliminated, but that have been deemed acceptable, are listed below:

- During the maintenance phase, low pressure spurts of lubricant are possible. (For this reason, maintenance operations must be carried out using suitable PPE).
- Contact with the lubricant during maintenance → Protection from direct or indirect contact with the lubricant must be ensured by the user of the machine. (See the regulation on proper use according to applicable regulations).
- Electrocution. → This can occur only in the event of serious negligence by the user who, however, is qualified.
- Use of unsuitable lubricant. → The characteristics of the lubricant are indicated both on the lubricant and in this *Operation and maintenance manual* (in the event of any doubt, contact the Dropsa S.p.A. Technical Office):

PROHIBITED FLUIDS	
Fluids	Hazards
Lubricants with abrasive additives	High wear of the contaminated parts
Lubricants with silicon additives	Seizing of the valve
Petrol – solvents – flammable liquids	Fire – explosion – damage to the gaskets
Corrosive products	Corrosion of the valve – injury to people
Water	Oxidation of the valve
Food substances	Contamination of the same