

VIP4Air/Slave

Lubrication System

User and Maintenance Manual

Warranty information

TABLE OF CONTENTS

1. INTRODUCTION
2. GENERAL DESCRIPTION
3. PRODUCT – MACHINE IDENTIFICATION
4. TECHNICAL CHARACTERISTICS
5. PUMP COMPONENTS
6. UNPACKING AND INSTALLING THE PUMP
7. PUMP OPERATION
8. TROUBLESHOOTING
9. MAINTENANCE PROCEDURE
10. DISPOSAL
11. ORDERING INFORMATION
12. DIMENSIONS
13. HANDLING AND TRASPORTATION
14. OPERATING HAZARDS
15. PRECAUTIONS
16. WARRANTY INFORMATION
17. DECLARATION OF COMPLIANCE WITH STANDARDS



1. INTRODUCTION

This manual refers to the Air/Oil Lubrication System VIP4Air/Slave. You can find additional copies and newer revisions of this document from our website <http://www.dropsa.com>. Alternatively contact one of our sales offices.

Please read this manual carefully, as it contains important information on health and safety issues. A copy of this manual should remain with the user of the product.

2. GENERAL DESCRIPTION

The panel **VIP4Air/Slave** has been designed for use in operations with spindles and machine tools.

This panel has been designed for achieving high performances with reduced costs and distinguishing for compactedness.

The system comprises a central unit that manages and controls the whole system.

The central unit adjusts and controls the mixing elements operations. The modules are constituted by a pneumatic minipump and a mixer. The minipumps are equipped with a series of distance rings that allow the minipump delivery adjustment, so as to satisfy various customer needs.

The central unit uses a flow controller, located inside the mixer, to verify the correct operational status of the equipment.

The panel modularity makes the system extremely versatile allowing the installation of a variable number of mixers which is extendable to the maximum of 7 elements.

The high technology used for this panel provides the complete control of lubricating operations and easy assembling avoiding occasional wire connections.

3. PRODUCT – MACHINE IDENTIFICATION

The pump identification label is located on the front side of the pump reservoir and contains details of the operating parameters of the pump including input voltage.

4. TECHNICAL CHARACTERISTICS

LUBRICATION PANEL VIP4AIR/SLAVE	
Power supply	24 V DC
Absorbed power	5 W each element
Supplying air pressure	73 ÷ 118 psi (5 ÷ 8 bar)
Outlet signals	Remote alarm connector: max 250 V 1 A NO/NC
Operating temperature	23 ÷ 131 °F (-5 ÷ +55 °C)
Permissible operating humidity	90% max
Grade of protection	IP-44
Compatible lubricants	Oils
Oil viscosity at working temperature	150 ÷ 1018 SUS (32 ÷ 220 cSt)
Storage temperature	-4 ÷ 149 °F (-20 ÷ +65 °C)



CAUTION: Operate the pump only with the voltage indicated on the product label and within the specific operating parameters.

5. PANEL COMPONENTS

Central unit VIP4Air/Slave

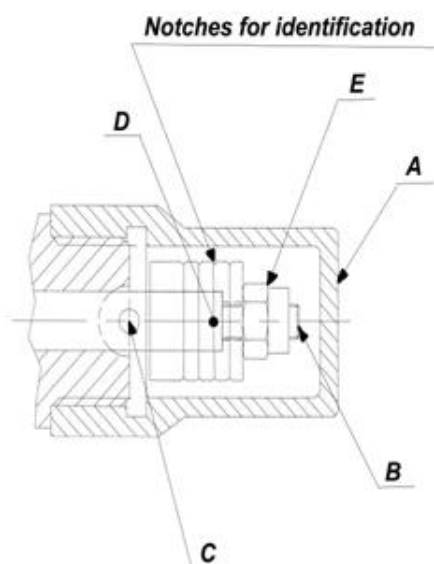
The central unit comprises three main elements:

- **Oil Reservoir:** constructed in transparent plastic and compatible with commercial lubricants.
- **Modular sub-bases** whereon the minipump is located and where the flow control device is integrated.
- **The Panel VIP4Air/Slave** that controls the whole lubrication process: mixing flow, air pressure and oil level.

Pneumatic minipumps

The minipumps have extremely reduced dimensions and being installed onto the mixers. These minipumps are equipped with distance rings that allow delivery adjustments. See the table below for ordering information. Substitution of distance rings must be managed according to the following instructions:

1. Unscrew the cap in brass (A);
2. Rotate the shaft (B) so as to align the hole (C) with its relative slot;
3. Insert a retaining pin of 0.08 in. ($\varnothing 2$ mm.) through in the hole (C) so as to block the shaft (B);
4. Unscrew the nut (E) using a setscrew wrench 0.2 in. (5,5 mm.);
5. Withdraw the distance ring (D) and substitute it with the desired one.
6. Screw completely the nut (D); extract the retaining pin and replace the cap (A).



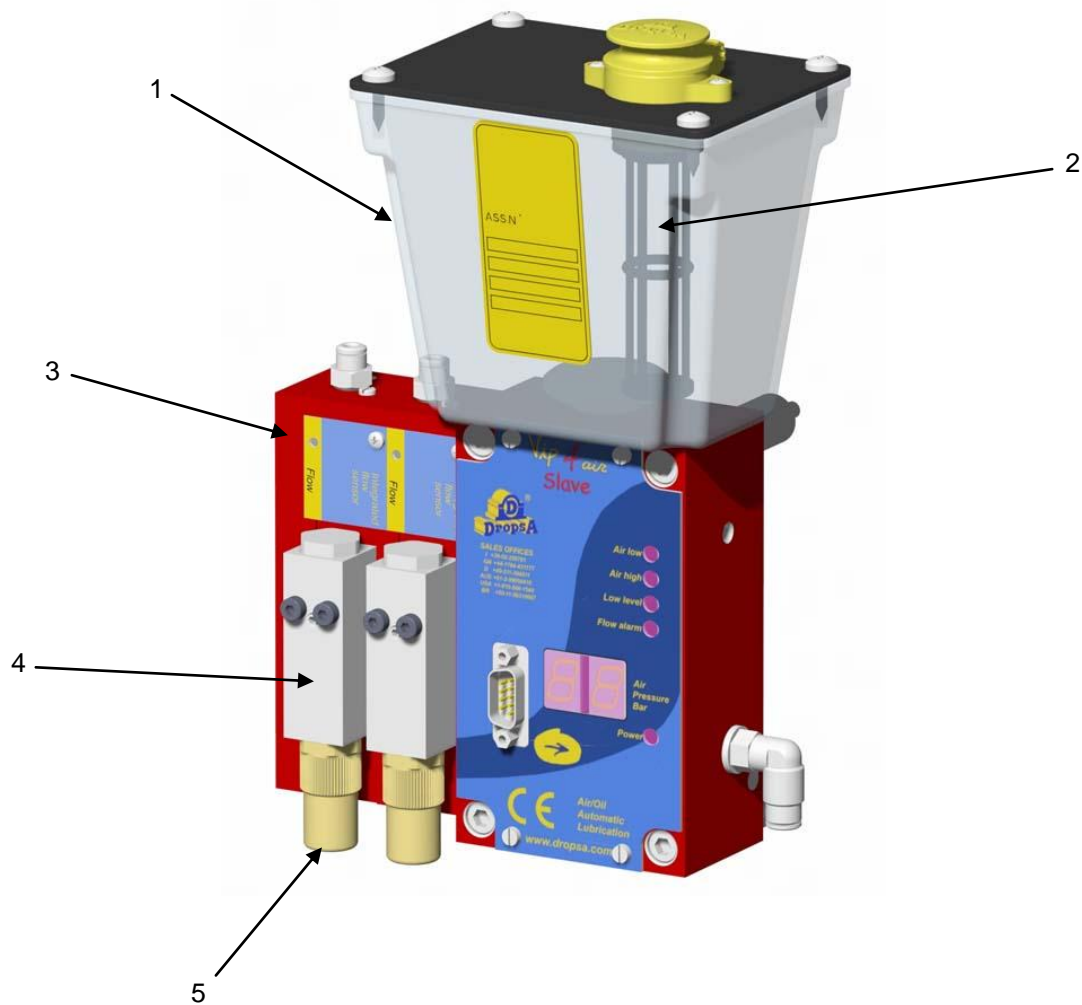
N° NOTCHES	DELIVERY (cu.in./cycle)	DISTANCE RINGS CODE
1	0.18 (30 mm ³ /cycle)	3233188
3	0.9 (15 mm ³ /cycle)	3233191
4	0.04 (7 mm ³ /cycle)	3233193

Mixer with delivery sensor

An operated lubrication detection system with an automatic setting sensor is integrated inside the mixer. This sensor doesn't need to be set, as it automatically adapts its operations to the machine operational conditions and kind of lubricant.

The detection system has been interfaced through an electrical connection integrated in the mixer, while the Panel **VIP4Air/Slave** has been mounted onto the central unit. When an operational error occurs the central unit detects and signals it. The operational status has been signalled also by a LED positioned onto the mixer.

When the **VIP4Air/Slave** starts a lubrication cycle, the LED, positioned on the mixer, automatically switches on until when the lubrication cycle has been completed. During the pause the LED is switched off.



Item	CODE	DESCRIPTION
1	3044331	Full Reservoir
2	3130139	Oil re-filling filter
3	1524408	Mixer with flow controller
4	3103115	Pneumatic Minipump with a set of distance rings
5	3233193	Cap with distance rings for 0.04 cu.in. (7 mm ³) delivery
	3233191	Cap with distance rings for 0.9 cu.in. (15 mm ³) delivery
	3233188	Cap with distance rings for 1.8 cu.in. (30 mm ³) delivery
6	5717300	Flexible tube Ø0.16 in. (Ø4 mm.)

6. UNPACKING AND INSTALLING THE PANEL

6.1 UNPACKING

Once a suitable location has been found to install the unit remove the panel from the packaging. Check the **VIP4Air/Slave** has not been damaged during transportation or storage. No particular disposal procedures are necessary as packaging materials are no dangerous for health or environment. However, packing should be disposed of in accordance with regulations that may be in force in your area or state.

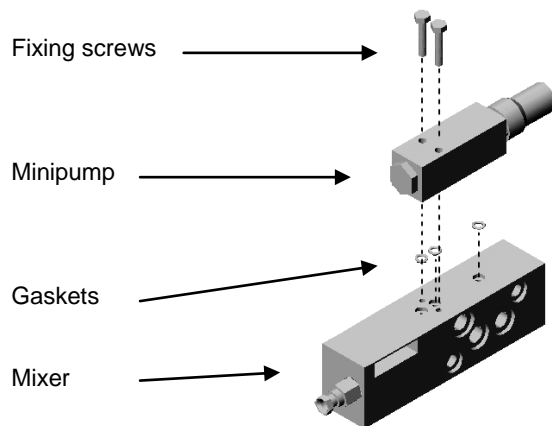
6.2 INSTALLING THE PANEL VIP4Air/Slave

Allow sufficient space of at least 3.9 in. (100 mm.) around the **VIP4Air/Slave** for easy of maintenance. Install the **VIP4Air/Slave** at a suitable level to allow the user easily watching the control panel and avoid collisions. Do not install the **VIP4Air/Slave** neither in aggressive environments such as close to explosive materials, nor on vibrating planes. Fix the panel only using the 4 screws of M 6 supplied with the panel.

6.3 INSTALLING THE MINIPUMPS ONTO THE MIXERS (for widening or substitution)

Install the minipump onto the mixers using the two fixing screws.

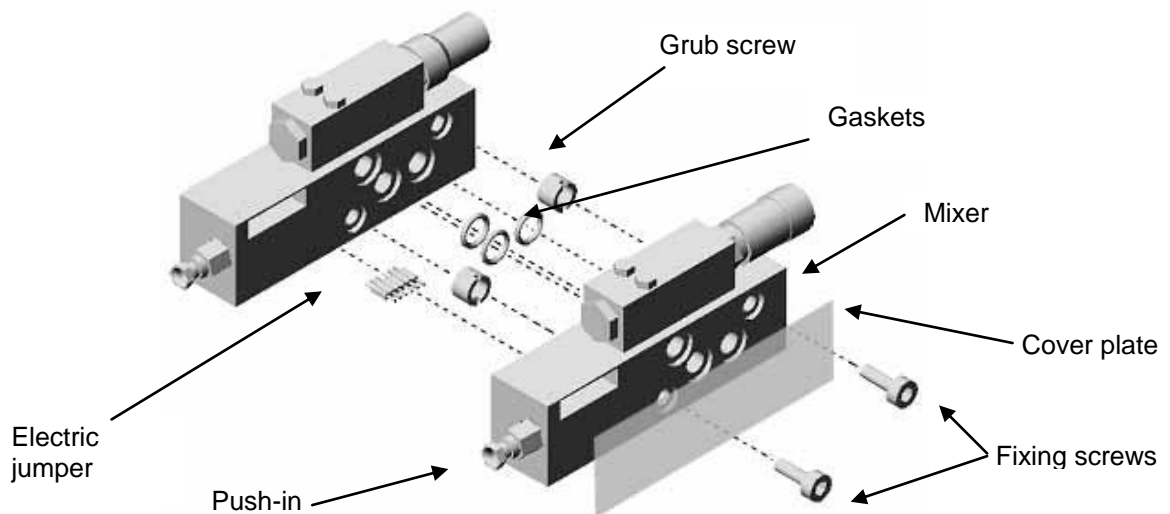
Pay attention in correctly positioning the o-ring gaskets in between the minipump and the mixer (see the picture below).



6.4 INSTALLING THE FEEDING ASSEMBLY ONTO THE PUMP (for widening or substitution)

Act as follows to install a new mixer:

1. Disconnect the Panel VIP4Air/Slave electrical connections and empty the oil reservoir;
2. Disconnect pneumatically and unscrew the fixing screws;
3. Unscrew the cover plate fixing screws;
4. Connect the new assembly by means of an electric jumper paying a lot of attention to alignment. Fix the element using the two supplied screws;
5. Re-place the cover plate.



6.5 HIDRAULIC CONNECTIONS

The only required connection is from the pump already provided with push-in to the place to lubricate. Tubing must be in nylon $\varnothing 0.16$ in. ($\varnothing 4$ mm.). It can be supplied by Dropsa.

6.6 PNEUMATIC CONNECTIONS

Connect the air inlet to the push-in using a tube in nylon $\varnothing 0.24$ in. ($\varnothing 6$ mm.) with a three-way command. Also provide an on-off valve useful to interrupt the oil supply.

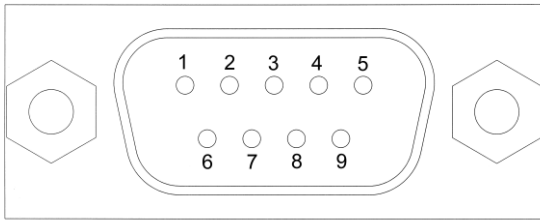
6.7 ELETRICAL WIRING

Before carry out any wiring, verify the correct power supply which has been indicated on the label positioned close to the connector.

The panel must be interconnected with the emergency switches of the assembled machine.

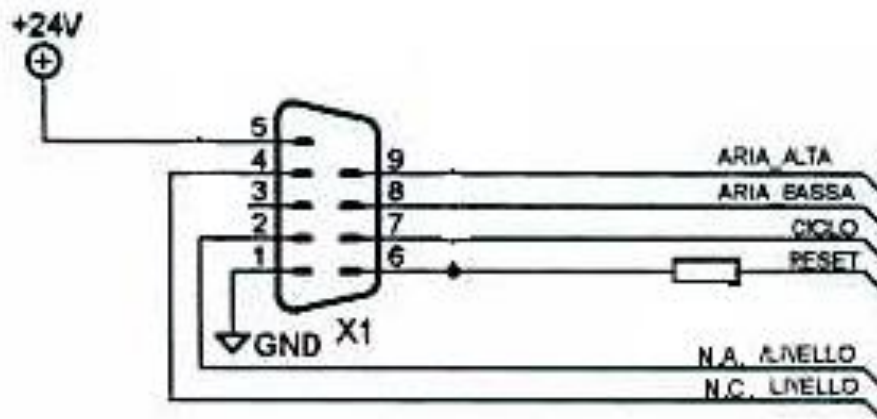
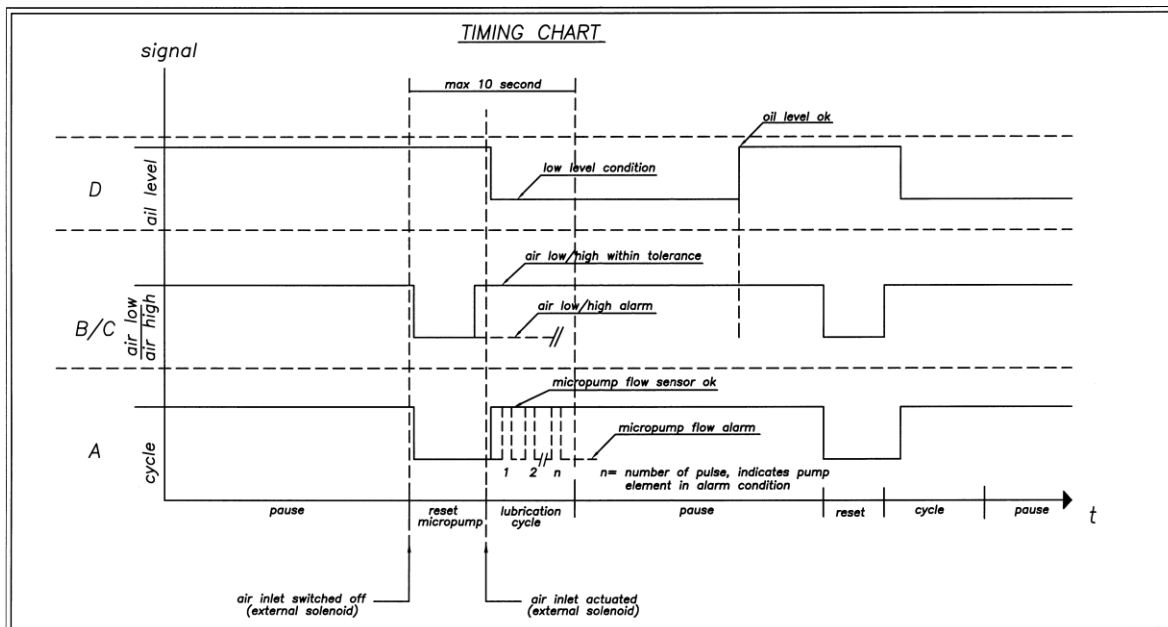
The switch must be set to either operate normally open (NO) or normally close (NC) for safety reasons.

Refer to the diagram below for correctly connecting electrical wiring. The diagram shows the connector positioned onto the lubrication panel.



Pin N°	Contact	Signal
1	Gnd	
2		
3		
4	Min level	D
5	+ 24V DC	
6	External reset	
7	Cycle	A
8	Low air	B
9	High air	C

Notice: After completing the installation, ensure that all cables and tubing are protected against possible damage from moving parts within the installation environment.



7. VIP4AIR/SLAVE OPERATION

7.1 COMMISSIONING THE PANEL VIP4Air/Slave

Before using the panel, it is necessary to perform some preliminary checks:

- Check the integrity of the panel; ensure there is no physical damage;
- Check electrical and pneumatic connections have been carried out correctly;
- Check the dipswitches located inside the panel and whether necessary set them.

Once the number of elements which must be controlled and the air control parameters have been set, the machine is ready for use.

7.2 OPERATING THE PANEL

The lubrication cycle starts when the control air pressure falls under 3 psi (0,2 bar). At this status the air supply is interrupted and it will be re-activate in another moment. When air is not supplied, the panel operates supplying lubricant to the pumps. During the pause, the air alarm is working and the low air pressure LED, located onto the panel, blinks.

When air is supplied again the lubrication stroke starts and being electronically controlled by sensors. The alarm signal goes in stand-by for 4 seconds when the cycle control has been completed. If the lubricant metering is incorrect, the signal alarm is kept in stand-by. If the sensors detects a correct lubricant metering, the signal is re-activated (the cycle lasts at least 5 seconds to allow the control of whole parameters).

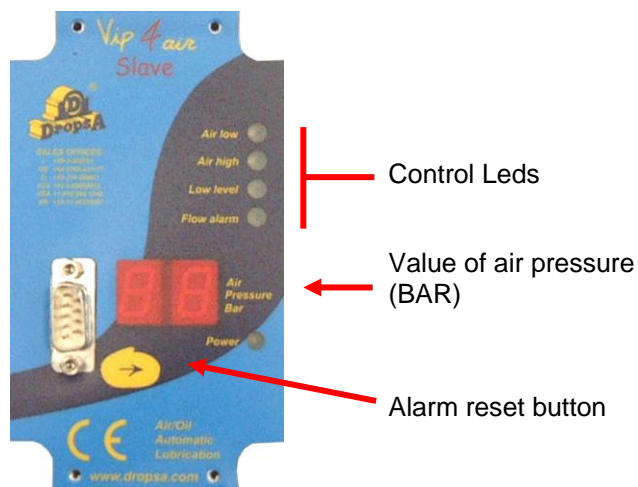
Once cycle control has been completed, air pressure controllers are activated for as long as air is supplied to the machine.

The lubrication cycle ends when air supply is interrupted.

Remove air supply to reset alarm.

The oil minimum level alarm is activated both during pause and cycle and it is automatically reset.

The low air LED, located onto the panel, lights up during the cycle and blinks during the pause.



7.3 SETTING THE PANEL

The dipswitches, mounted on the card, have been designed to allow several panel settings so as to obtain the correct panel setting for each operative situation. Remove the panel main card cap to set dipswitches.

The table below shows how to set correctly dipswitches for satisfying any customer's needs.

TABLE FOR SETTING OF SENSOR CONTROL DIPSWITCHES			
DIP 1	DIP 2	DIP 3	RESULT
0	0	0	Non-active pumps control
0	0	1	Control of 1 sensor
0	1	0	Control of 2 sensors
0	1	1	Control of 3 sensors
1	0	0	Control of 4 sensors
1	0	1	Control of 5 sensors
1	1	0	Control of 6 sensors
1	1	1	Control of 7 sensors

TABLE FOR SETTING OF AIR CONTROL DIPSWITCHES			
DIP 4	DIP 5	DIP 6	RESULT
0	0	0	Non-active air control
0	0	1	Air pressure set at 29 psi +/- 7 psi (2,0 bar +/- 0,5 bar)
0	1	0	Air pressure set at 37 psi +/- 7 psi (2,5 bar +/- 0,5 bar)
0	1	1	Air pressure set at 44 psi +/- 7 psi (3,0 bar +/- 0,5 bar)
1	0	0	Air pressure set at 51 psi +/- 7 psi (3,5 bar +/- 0,5 bar)
1	0	1	Air pressure set at 59 psi +/- 7 psi (4,0 bar +/- 0,5 bar)
1	1	0	Air pressure set at 66 psi +/- 7 psi (4,5 bar +/- 0,5 bar)
1	1	1	Air pressure set at 73 psi +/- 7 psi (5,0 bar +/- 0,5 bar)

8. TROUBLESHOOTING

The following table highlights some of the most common problems encountered when using the Panel VIP4Air/Slave and how to resolve them.

In the event of doubts or problems not listed, do not dismantle the panel but contact a DropsA technical centre for assistance.

DIAGNOSTIC TABLE		
ALARM SIGNAL	CAUSE	SOLUTION
Signal from pin 7 Pump cycle - The flow sensor has not detected the correct metering.	- Presence of air in the circuit, that causes an incorrect delivery. - The pump is not operating in the correct way. - The flow sensor is not operating.	- Carry out bleed cycles. - Carry out bleed cycles while verifying the pump delivery. - Check the sensor electrical connections or substitute the sensor. - Check the oil level in the reservoir.
Signal from pin 9 High air - Air pressure is too high.	- The air alarm operations depend on the set values.	- Check the air pressure value indicated on the display and adjust the value using a setscrew wrench to turn the pin, located under the main base, clockwise for increasing air flow (and therefore the pressure) and anticlockwise for decreasing it. (Figure 1)
Signal from pin 8 Low air - Air pressure is too low.	- The air alarm operations depend on the set values.	- Check the air pressure value indicated on the display and adjust the value using a setscrew wrench to turn the pin, located under the main base, clockwise for increasing air flow (and therefore the pressure) and anticlockwise for decreasing it. (Figure 1)
Signal from pin 4 Oil minimum level - The oil level is insufficient.	- Insufficient oil quantity in the reservoir.	- Re-fill the oil reservoir. The alarm automatically switch off.

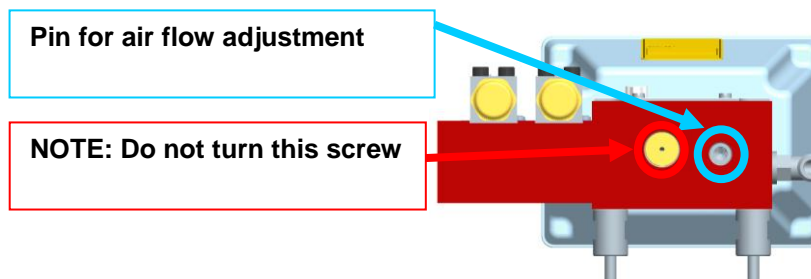


Figure 1

9. MAINTENANCE PROCEDURE

The pump has been designed and constructed in this specific way to require minimum maintenance interventions.

To facilitate maintenance it is suggested that the pump be installed in an easily accessible location.

Check periodically tubing joints to verify that possible leaks have not occurred. In addition, keep always cleaned the equipment to timely find possible leaks.

When required, substitute the oil re-filling filter whose ordering code is 3130139.

Empty out periodically the water trap container of the pressure regulator rotating the red small valve positioned on the bottom of the container.

The machine does not require any special tools to carry out checks or maintenance tasks. However, it is recommended that only tools suitable for the tasks and in good condition should be used to avoid injury to persons or damage to machine parts.

Be sure that all electrical and pressurized hydraulic components are disconnected prior to any maintenance.

10. DISPOSAL

During maintenance or disposal of the machine care should be taken to properly dispose of environmentally sensitive items such as oils or other lubricants. Refer to local regulations in force in your area.

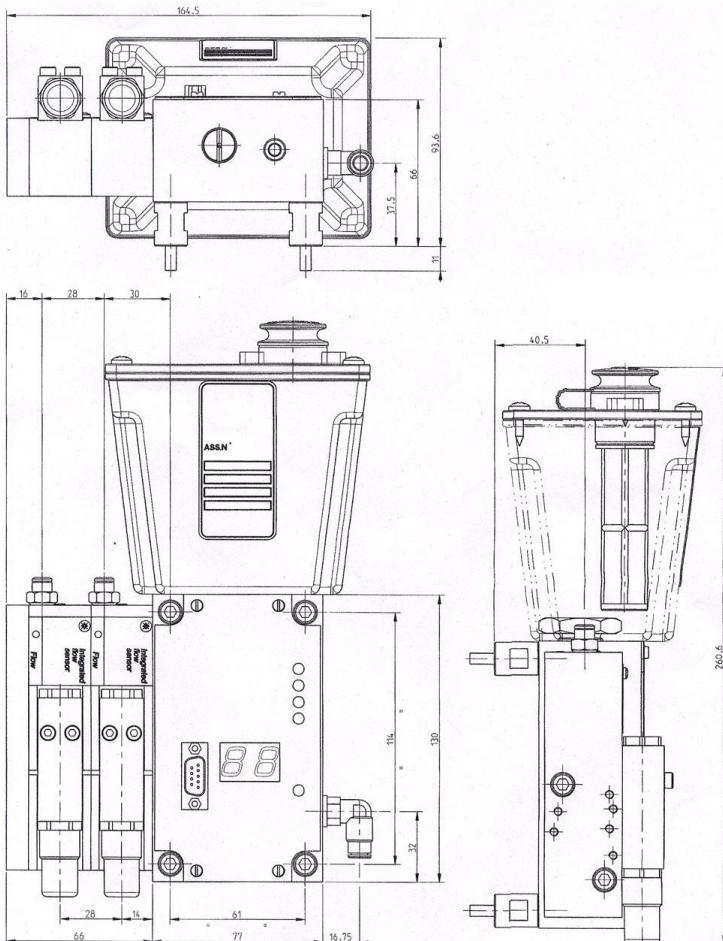
When disposing of this unit, it is important to ensure that the identification label is also destroyed.

11. ORDERING INFORMATION

Embodiments VIP 4Air/Slave

Feeders N°	Code
1	3135141
2	3135142
3	3135143
4	3135144
5	3135145
6	3135146
7	3135147

12. DIMENSIONS



Element number	Height	Width	Depth	Weight
1	10.2 in. (260,6 mm.)	5.4 in. (136,5 mm.)	3.7 in. (93,6 mm.)	4.8 lb. (2,2 kg.)
2		6.5 in. (164,5 mm.)		5.9 lb. (2,7 kg.)
3		7.6 in. (192,5 mm.)		7 lb. (3,2 kg.)
4		8.7 in. (220,5 mm.)		8.4 lb. (3,8 kg.)
5		9.8 in. (248,5 mm.)		9.5 lb. (4,3 kg.)
6		10.9 in. (276,5 mm.)		10.6 lb. (4,8 kg.)
7		12 in. (304,5 mm.)		11.7 lb. (5,3 kg.)

Allow sufficient space of at least 3.9 in. (100 mm.) around the VIP 4Air/Slave for easy of maintenance

13. HANDLING AND TRANSPORTATION

Panels VIP4Air/Slave are accurately packed and dispatched in cardboard containers. During transportation and storage always maintain the panel the right way up as indicated on the box.

On receipt, check that the packaging has not been damaged and store the panel in a dry place. Considered the small weight of the panel, this does not need any hoister for its transportation. The box is provided with catching devices.

14. OPERATING HAZARDS

It is necessary to read and understand the possible hazards and risks involved when using a lubrication pump. The operator must fully understand the hazards explained in this manual.

Electrical Power

No maintenance must be performed on the unit without having detached and isolated the power supply and ensuring that it cannot be reconnected for the duration of the maintenance task. Always remember to ensure that equipment is properly earthed.

Flammable substances.

Mineral oils generally used in lubrication systems are not normally flammable. However, it is desirable to avoid contact with extremely hot substances or naked flames.

Pneumatic & Hydraulic Pressure

Before any maintenance or connection task, ensure that all pressure has been properly bled from the system. Residual pneumatic or hydraulic pressure can cause the release of undesired spurts of liquid, which may hit the operator. Always wear safety glasses and glove when working with pneumatic and hydraulic systems.

Noise and Vibration

The Panel VIP4Air/Slave does not produce excessive vibration or noise (less than 70 dB(A)).

CAUTION: Before substituting minipumps, be sure that lubricant has been completely removed from the reservoir.

15. PRECAUTIONS

The Panel VIP4Air/Slave does not have particular hazards and requires specific attention only for the followings:

- Contact with oil caused by bursting of the tubing. The operator must wear appropriate protective clothing and take appropriate protective measures.
- Contact with oil during re-filling operations. The operator must wear appropriate protective clothing and take appropriate protective measures.
- Use of incompatible lubricants.

Examples of incompatible/non-permissible fluids.

Fluid	Danger
Lubricants containing abrasive additives	Premature wear of pump
Lubricants containing silicon	Pump failure
Petrol, solvents and flammable liquids	Fire, explosion, seal damage
Corrosive products	Pump damage – danger to persons
Water	Pump oxidization
Food products	Contamination of products

16. WARRANTY INFORMATION

All products manufactured and marketed by Dropsa are warranted to be free of defects in material or workmanship for a period of at least 12 months from date of delivery. Extended warranty coverage applies as follows:

Complete system installation by Dropsa: 24 Months

All other components: 12 months from date of installation; if installed 6 months or more after ship date, warranty shall be maximum of 18 months from ship date.

If a fault develops, notify us giving a complete description of the alleged malfunction. Include the part number(s), test record number where available (format xxxxx-xxxxx), date of delivery and installation and operating conditions of subject product(s). We will subsequently review this information and, at our option, supply you with either servicing data or shipping instruction and returned materials authorization (RMA) which will have instructions on how to prepare the product for return. Upon prepaid receipt of subject product to an authorized Dropsa Sales & Service location, we will then either repair or replace such product(s), at our option, and if determined to be a warranted defect, we will perform such necessary product repairs or replace such product(s) at our expense.

Dropsa reserves the right to charge an administration fee if the product(s) returned are found to be not defective.

This limited warranty does not cover any products, damages or injuries resulting from misuse, neglect, normal expected wear, chemically caused corrosion, improper installation or operation contrary to factory recommendation. Nor does it cover equipment that has been modified, tampered with or altered without authorization.

Consumables and perishable products are excluded from this or any other warranty.

No other extended liabilities are stated or implied and this warranty in no event covers incidental or consequential damages, injuries or costs resulting from any such defective product(s).

The use of Dropsa product(s) implies the acceptance of our warranty conditions. Modifications to our standard warranty must be in writing and approved by Dropsa.

17. DECLARATION OF COMPLIANCE WITH CE STANDARDS

Dropsa

Dropsa Spa
Via Benedetto Croce, 1
20090 Vimodrone (MI)
Italy

Tel.: (+39) 02. 250.79.1
Fax Sales: (+39) 02. 250.79.767
E-mail: sales@dropsa.it
Web site: <http://www.dropsa.com>



DICHIARAZIONE **CE** DI CONFORMITÀ/DECLARATION OF COMPLIANCE WITH STANDARDS/ DECLARATION DE CONFORMITE/ KONFORMITÄTSERLÄRUNG DES STANDARDS /DECLARACIÓN DE CONFORMIDAD/ DECLARAÇÃO DE CONFORMIDADE

La società Dropsa S.p.A., con sede legale in Milano, Via Besana,5/ Dropsa S.p.A., registered office in Milan, Via Besana,5 / Dropsa S.p.A. au Siège Social à Milan, Via Besana,5/ Dropsa S.p.A., Sitz in Milano, Via Besana 5/ La sociedad Dropsa S.p.a., con sede legal en Milán, Via Besana,5/ A Dropsa S.p.A, com sede em Milão, via Besana, nº 5

DICHIARA /CERTIFIES / CERTIFIE/ ZERTIFIZIERT, DASS/ DECLARA/ CERTIFICA:

che il prodotto denominato/that the product called/ le produit appellé/ das Produkt mit dem Namen/ el producto que se llama/ o produto chamado:

Descrizione/ Description/ Description/ Beschreibung/ Descripción/ Descrição:	Sistema di lubrificazione aria-olio / Air-oil lubrication system
Nome Commerciale/ Product Name/ Dénomination/ Handelsname/ Denominación/ Denominação:	Vip4 air slave
Versioni/ Versions/ Versions/ Versionen/ Versiones/ Versões:	Tutte
Codici/ Codes/ Códigos/:	3135141-3135142-3135143-3135144- 3135145-3135146-3135147

Copy of the original document

è conforme alle condizioni previste dalle Direttive CEE /has been constructed in conformity with the Directives Of The Council Of The European Community on the standardization of the legislations of member states/ a été construite en conformité avec les Directives Du Conseil Des Communautés Europeennes/ Entsprechend den Richtlinien des Rates Der Europäischen Union, für die Standarisierung der Legislative der Mitgliederstaaten, konstruiert wurde/ cumple con las condiciones establecidas por las directivas comunitarias/ foi construído em conformidade com as diretivas do Conselho das Comunidades Europeias:

- 2006/42 CE Direttiva macchine /Machinery Directive/ Directive machines/ Maschinenrichtlinien/Maquinaria / Directiva Máquinas;



La persona autorizzata a costituire il Fascicolo Tecnico presso Dropsa S.P.A.
The person authorized to compile the Technical File care of Dropsa S.P.A.

Technical Director:
Maurizio Greco

Legal representative
Milena Gavazzi


Vimodrone (MI), Novembre 2011

18. DISTRIBUTORI

 **Dropsa S.p.A.**
Via B. Croce,1
20090 Vimodrone (MI) Italy.
Tel: (+39) 02 - 250.79.1
Fax: (+39) 02 - 250.79.767
E-mail: sales@dropsa.it (Export)
E-mail: vendite@dropsa.it (National)


 **Dropsa (UK) Ltd**
Unit 6, Egham Business Village,
Egham, Surrey, TW20 8RB
Tel: (+44) 01784 - 431177
Fax: (+44) 01784 - 438598
E-mail: salesuk@dropsa.com

 **Dropsa USA Inc.**
6645 Burroughs Ave
48314-2132 Sterling Hts, Mi Us -USA
Tel: (+1) 586-566-1540
Fax: (+1) 586-566-1541
E-mail: salesusa@dropsa.com

 **Dropsa GmbH**
Volmerswerther Strasse 80
40221 Dusseldorf 1, Deutschland
Tel: (+49) 0211/39 4011
Fax: (+49) 0211/39 4013
E-mail: sales@dropsa.de

 **Dropsa Ame**
23, Av. des Morillons
Z.I. des Doucettes 91140
Garges Les Gonesse, France
Tel: (+33) 01 39 93 00 33
Fax: (+33) 01 39 86 26 36
E-mail: salesfr@dropsa.com

 **Dropsa do Brazil Ind. E Com. Ltda**
Rua Sobralia 175,
Sao Paulo, Brazil
Tel: (+55) 011-5631-0007
Fax: (+55) 011-5631-9408
E-mail: salesbr@dropsa.com

 **Dropsa Lubrication Systems**
Nr 8 Dongxing Road,
Songjiang Industrial Zone
(Shanghai) Co., Ltd
Tel: +86 (021) 67740275
Fax: +86 (021) 67740205
E-mail: china@dropsa.com

 **Dropsa Australia Pty.**
C20/148 Old Pittwater Road
Brookvale, NSW 2100
Tel: +61 (02) 9938 6644
Fax: +61 (02) 99 386 611
E-mail: salesau@dropsa.com



Web site: <http://www.dropsa.com> - E-mail: sales@dropsa.com