VIP4Tools*Pro*
Minimal air/oil system lubrication

User and Maintenance Manual

Original Text Translation

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The manual has been prepared in compliance with Directive CE 06/42

C2121IE WK 51/15

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1. INTRODUCTION

This user's and maintenance manual refers to VIP4Tools*Pro* air/oil lubrication system.
This manual should be conserved in such a way that it remains undamaged over time and is readily available to personnel needing to consult it.
Further copies of this manual, updates or clarifications can be obtained by directly contacting the Technical Sales Office at Dropsa.
The manufacturer reserves the right to update the product and/or the user's and maintenance manual without the obligation to revise previous versions. It is however, possible to contact the Technical Sales Office for the latest revision in use, or to consult our web site at **http://www.dropsa.com**.
The use of the equipment referred to in this manual must be entrusted to qualified personnel with a basic knowledge of mechanics, hydraulics and electrical systems.
It is the responsibility of the installer to use tubing suitable for the system; the use of inadequate tubing can cause problems with the pump, injury to persons and create pollution.
Loosening of connections can cause serious safety problems; carry out a check before and after installation and, if necessary retighten them.
Never exceed the maximum working pressure values permitted for the panel and the components connected to it.
Before any maintenance or cleaning operation disconnect the power supply, close off the air supply and discharge the pressure from inside the equipment and the tubing connected to it.
Do not subject the panel, the connections, the tubing or parts under pressure to violent impacts; damaged tubing or connections are dangerous and should be immediately replaced.
After long periods of inactivity check air tightness of all parts subjected to pressure.
Personnel must use personal protection equipment, clothing and tools adequate for the location and the use of the panel both during its operation and during maintenance operations.
The panel, and any accessories mounted on it, should be carefully checked immediately on receipt and in the event of any discrepancy or complaint the Dropsa SpA Sales department should be contacted without delay.
Dropsa SpA declines to accept any responsibility for injuries to persons or damage to property in the event of the non-observance of the information presented in this manual.
Any modification to component parts of the system or the different destination of use of this system or its parts without prior written authorization from Dropsa SpA will absolve the latter from any responsibility for injury to persons and/or damage to property and will release them from all obligations arising from the guarantee

2. GENERAL DESCRIPTION

The VIP4Tools*Pro* panel is to be utilized for:

- Tool and cutter griding
- Boring
- Broaching
- Rollforming
- Chains
- Mono and bi-rails conveyors
- Pipes bending
- Gear cutting
- Tapping
- Drilling
- Milling
- Bending
- Punching
- Band and circular sawing

Designed for high performance at a low cost, it is distinguished by its compactness.
The system comprises a pneumatically controlled mini-pump and the mixer base. The mini-pump can be manually regulated to cover a wide range of needs (0-30 mm^3). The modularity of the system allows extreme versatility by allowing different numbers of base mixing-manifolds to be installed accordingly.

3. PRODUCT IDENTIFICATION

A yellow plate showing the product code and the basic characteristics is mounted on the front of the oil tank.

4. TECHNICAL CHARACTERISTICS

CHARACTERISTIC	VIP4Tools***Plus*** lubrication panel
Air supply pressure	5 ÷ 8 bar (73.5 ÷ 117.6 psi)
Working temperature	-5 °C ÷ +55 °C (+23 °F ÷ +131 °F)
Working humidity	90% max
Permitted lubricants	Mineral – synthetic
Oil viscosity at working temperature	32 - 320 cSt (150 ÷ 1480 SUS)
Conservation temperature	-20 °C ÷ +65 °C (-4 °F ÷ 149 °F)

SAMBA LEVEL	
Temperature:	-10°C - +80°C (+14 °F ÷ +176 °F)
Maximum switching power:	50 W 5 V
Maximum current:	1 A
Maximum voltage:	220 V AC

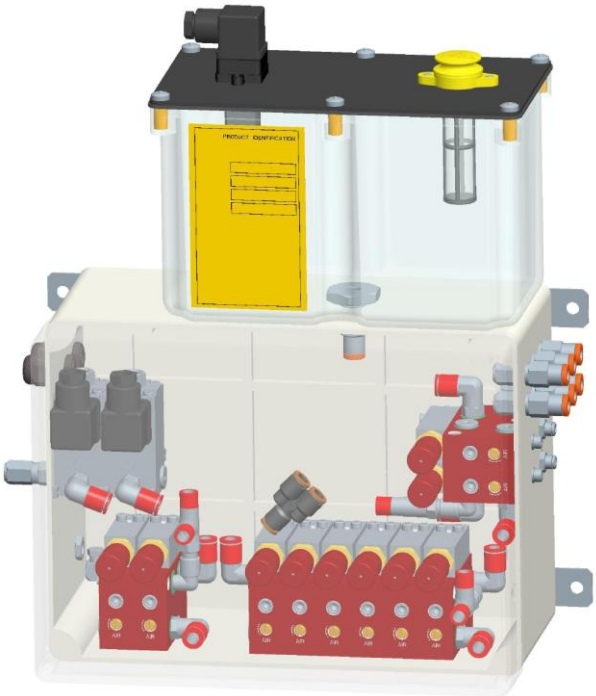
DO NOT supply the machine with voltages or pressures other than those indicated on the specification plate.

5. DESCRIPTION OF COMPONENTS

Central VIP4Tools*Pro* Unit

The central unit of the lubrication system is composed of the following items:

- a *Tank*, made of transparent plastic material, compatible with lubricants on the market.
- a *System* for the regulation of the mixer air
- a modular *Subframe*
- a Samba type *Minimum level indicator,*
- an adjustable *Mini-pump*



6. INSTALLATION

6.1 UNPACKING

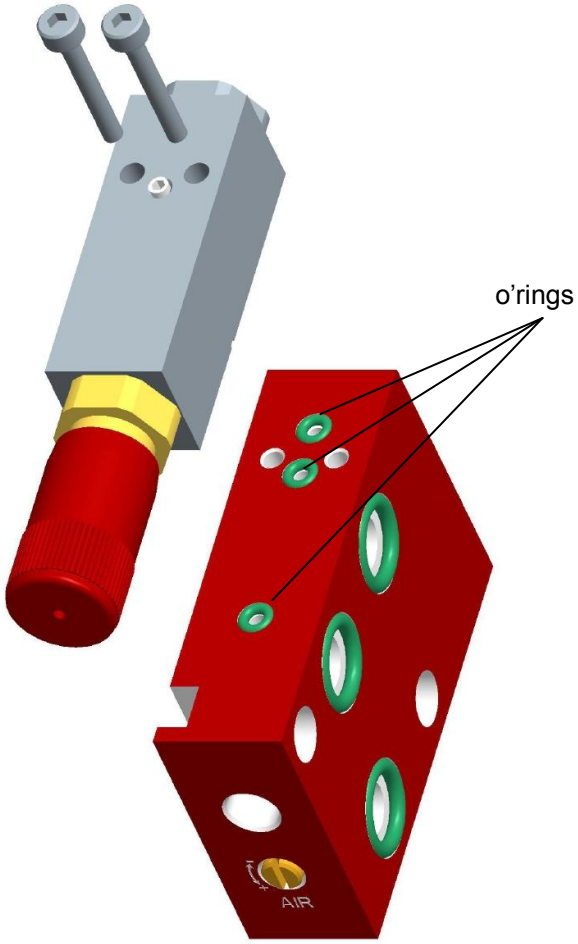
Once a suitable location has been identified for the installation, open the package and remove the equipment. Check that the VIP4Tools*Pro* has not sustained damage during transport and storage.
The packaging material does not require any special disposal precautions, not being in any way dangerous or polluting.

6.2 MOUNTING THE VIP4Tools PANEL

Provide adequate space for the installation, leaving a minimum room of 100 mm around the panel. Mount the VIP4Tools*Pro* panel at shoulder height to avoid unnatural posture or the possibility of sustaining impacts. Do not install the VIP4Tools*Pro* in particularly aggressive or explosive/flammable environments or on components subject to vibration.
Only use the supplied mounting bracket with N° 2 holes for Ø 6 mm (0.23 in.) bolts.

6.3 MOUNTING THE MINI-PUMPS ON THE MIXER BASES (for replacement or augmenting)

The mini-pumps are mounted on the mixer bases utilizing two securing screws.
Particular attention should be paid to the correct positioning of the o-rings between the mini-pump and the mixer base (see diagram below).



6.4 HYDRAULIC CONNECTIONS

The only connection to be undertaken is that of the individual pumps, provided with push-in connections, to the lubrication point. The piping can be either co-axial with 6mm external and 3mm internal tubing, or straight 4mm tube. (obtainable from Dropsa).

6.5 PNEUMATIC CONNECTIONS

Connect the air input to the push-in connector utilizing Ø 8mm nylon tubing both for the pump and the mixer, and provide a stop valve to permit shutting off the supply.
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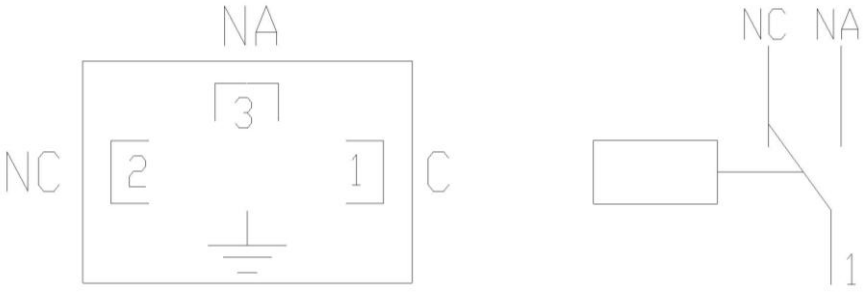
6.6 ELECTRICAL CONNECTIONS

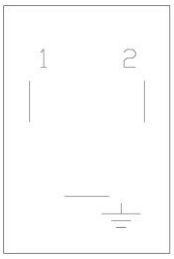
The only electrical connection required is that of the Samba level. (see paragraph 4 Technical specifications)



6.6.1 Schematic electrical connection Samba Level

NC electric level in the absence of lubricant.

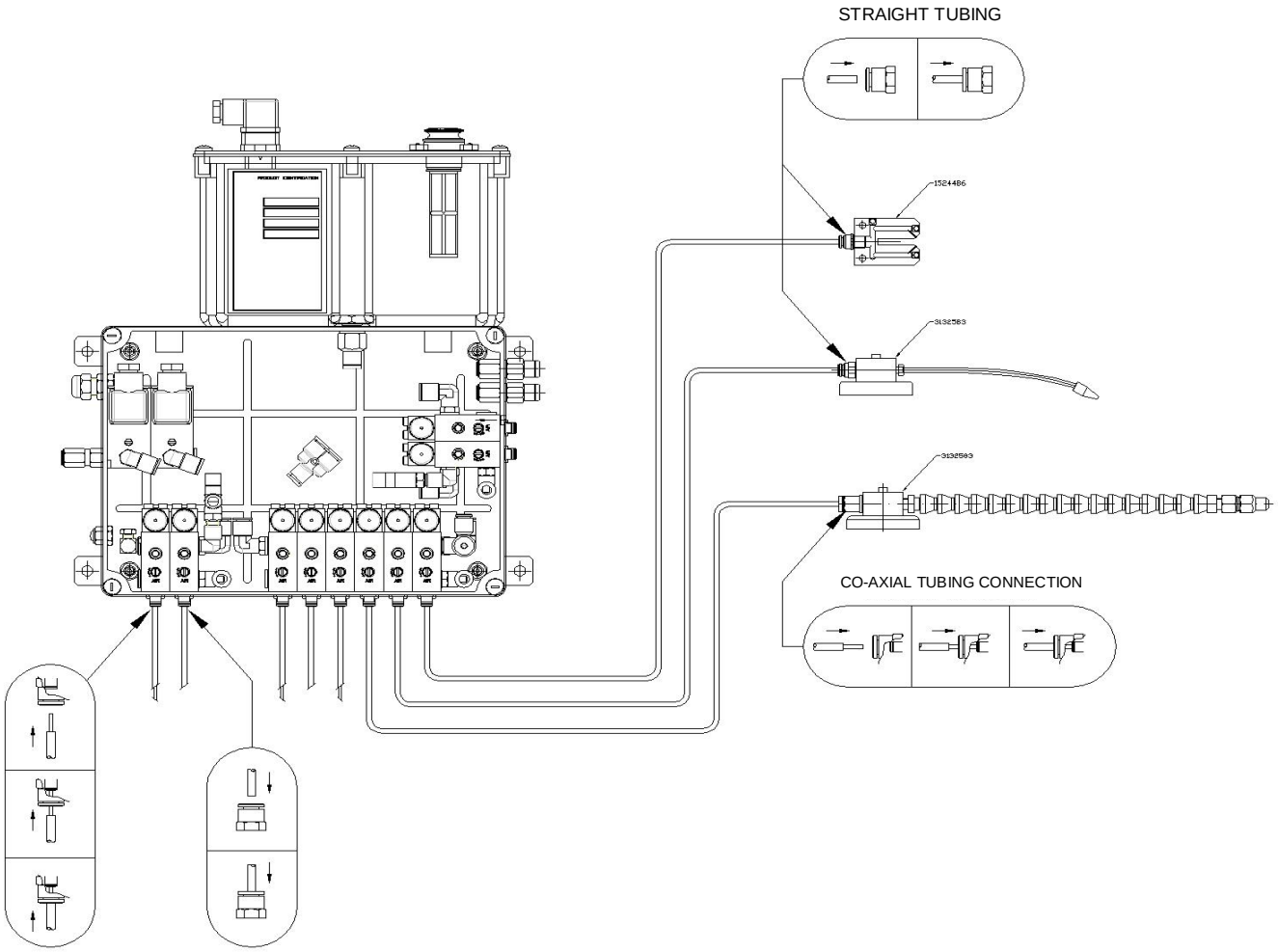
6.6.2 Schematic electrical solenoid connection

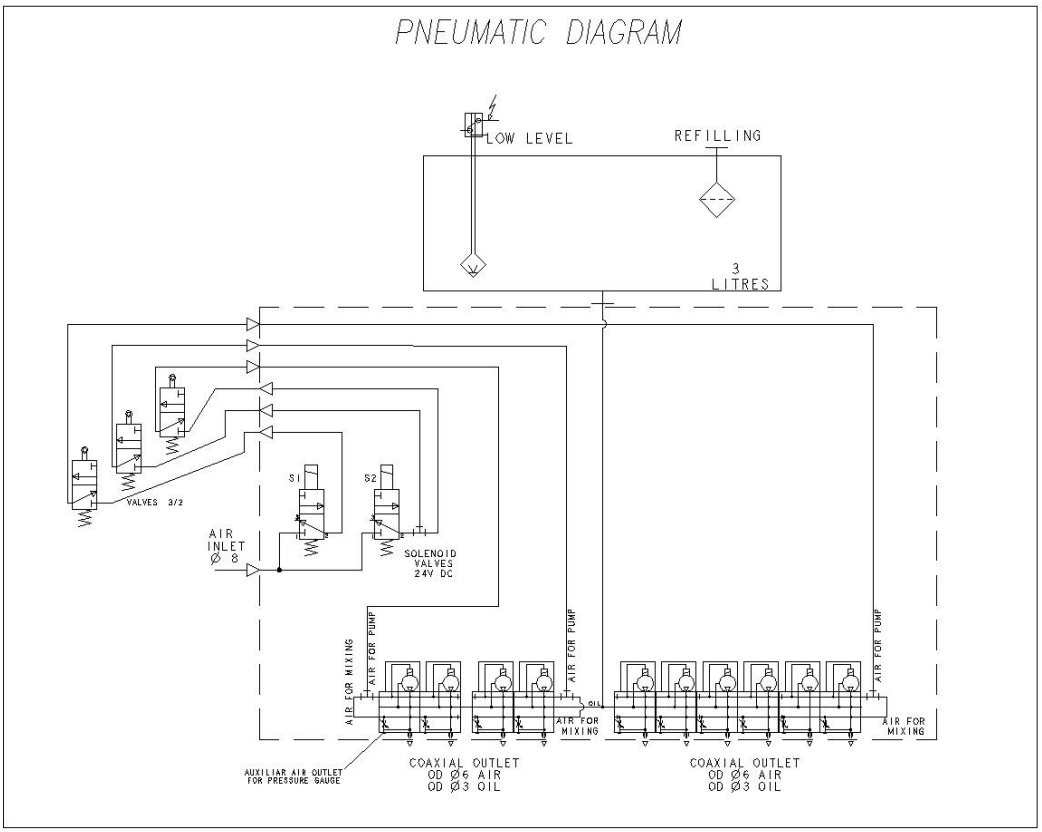


Connector 39979- EV 24 V DC non polarized.

N.B.: After all connecting up has been completed ensure the tubing and cables are protected from impacts and are suitably secured.

EXAMPLE OF TUBING AND NOZZLE CONNECTION.





7. INSTRUCTIONS FOR USE

7.1 STARTING THE VIP4Tools*Pro* PANEL

Before using the VIP4Tools*Pro* panel, it is necessary to carry out some preliminary checks:

- check the integrity of the equipment
- check that the electrical and pneumatic connections have been effected correctly
- vent the residual air from the pump using the vent screw, located at the center of the securing screws, until lubricant exits (retighten the vent screw without using excessive force).
- to facilitate the venting, regulate the pumps to maximum flow and operate for some cycles.

7.2 EXCLUDING LUBRICANT DELIVERY FROM AN INDIVIDUAL PUMP

Unscrew (anticlockwise) the red cap at the end of the pump to its stop, so completely blocking off the delivery.

7.3 REGULATING LUBRICANT DELIVERY FLOW:

Use the red cap to determine the nominal flow of the individual pump. Completely unscrew the pump red regulating cap (0 mm^3 flow) turn clockwise for 1.5 turns (min. flow 5 mm^3) after which every turn corresponds to an increase in flow of 5 mm^3 until reaching 30 mm^3 at the 7th turn. **(see table)**

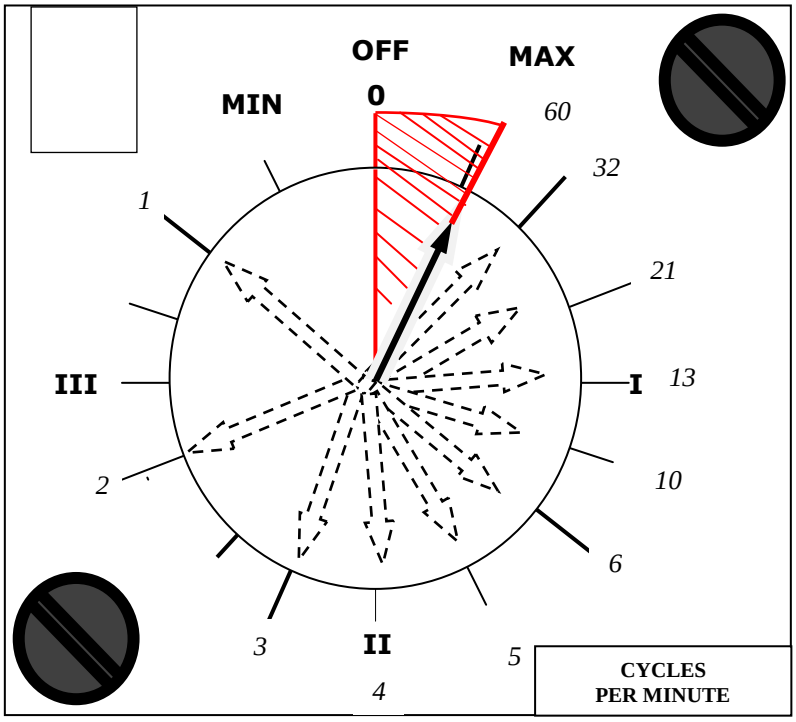
FLOW (mm^3 / stroke)	TURNS
30	6.5
25	5.5
20	4.5
15	3.5
10	2.5
5	1.5
0 = no pump delivery	Completely unscrewed

7.4 OUTLET AIR FLOW REGULATION

Regulate the integrated brass screw at on the base mixing-manifold labelled “AIR”.
By turning the screw clockwise the air flow can be closed off completely. Conversely, by turning the screw counter-clockwise the maximum air flow can be achieved (approx 3 turns).
Do not unscrew more than 3 turns otherwise the flow regulation neddle will be dismantled from the base

7.5 ADJUSTING THE PNEUMATIC TIMER (PN. 1524845)

The illustration below shows how to adjust the frequency of lubrication cycles when using models that contain the Pneumatic Timer.



Above Cycle frequency is based on 6 bar (90 PSI) inlet pressure.

• If inlet pressure is 8 BAR (120 PSI) reduce the values by 8%
• If inlet pressure is 7 BAR (105 PSI) reduce the values by 4%
• If inlet pressure is 5 BAR (75 PSI) increase the values by 7%

Do not set a cycle frequency rate of less than a second.
MAX CYCLE RATE OF MICROPUMP = 1 second

7.6 APPROXIMATE CONSUMPTION FOR LRT OILS (3226661) USAGE

Grams per lubrication nozzle in 8 hours operating time

	ALUMINIUM LEADED BRASS	LEADED STEEL SOFT STEEL	ALLOY STEEL STAINLESS STEEL	REFRACTORY AND TITANIUM ALLOYS
Saw cutting Turning Shearing Cutting off	35-40	30	30	30-60
Boring Drilling Milling Slotting	30-40	30	60	70
Threading Tapping Planing Shaving	60	70	80	90
Threading blind tapping	60	70	80	90-100
Moulding and standard drawing	60	70	80-90	90-100
Broaching Toothing Bending	70	80	90	100/110

8. MAINTENANCE

The pump has been designed and constructed so as to reduce maintenance to a minimum.
To simplify maintenance it is recommended that the equipment be mounted in an easily reached location **(see paragraph 6.2)**.
Periodically check the tubing connections for leaks. Always maintain the equipment in a clean condition in order that any leaks will be immediately evident.
When necessary replace the oil filling filter P/N 3130139.
Periodically empty the pressure regulator condensate trap by rotating the small red valve located at its base.
The machine does not require any special tools for carrying out checks and/or maintenance tasks. It is recommended that suitable tools and personal protection clothing (gloves) are used in accordance with current regulation(Safety at Work legislation), and that they are in good condition (according to current regulation) in order to avoid injury to persons and damage to the machine.

Ensure that electrical, pneumatic and hydraulic supplies are disconnected before undertaking any maintenance tasks.

9. DISPOSAL

During the maintenance of the machine, or in the event of its being scrapped, do not discard polluting components in the environment. Refer to local regulations for their correct disposal. At the time of final disposal of the machine it is necessary to destroy the identification plate and all other documentation.

10. ORDERING INFORMATION

VERSIONS

Code	Model	Reservoir Size	Solenoid Voltage
3701110	1 Lubrication Point with pneumatic timer	1 Liter	110V AC
3701120	2 Lubrication Points with pneumatic timer	1 Liter	220V AC
3701122	2+2 Lubrication Points for external limit switch	1 Liter	24V DC
3701322	2+2 Lubrication Points for external limit switch	3 Liters	24V DC
3701332	3+2 Lubrication Points for external limit switch	3 Liters	24V DC
3701342	2+2+1+1 Lubrication Points for external limit switch	3 Liters	110V AC
3701344	2+2+2+2 Lubrication Points for external limit switch	3 Liters	24V AC
3701346	2+2+6 Lubrication Points for external limit switch	3 Liters	24V DC
3702130	3 punti di Lubrificazione	1 Liter	24V DC
3702321	2+1 Lubrication Points for external limit switch	3 Liters	24V AC 50/60Hz
3702322	2+2 Lubrication Points for external limit switch	3 Liters	24V AC 50/60Hz
3702370	7 Lubrication Points with pneumatic timer	3 Liter	24V DC
3703160	6 Lubrication Points with pneumatic timer	1 Liter	24V DC
3703310	1 Lubrication Points with pneumatic timer	3 Liters	24V DC
3703320	2 Lubrication Points with pneumatic timer	3 Liters	24V DC
3703330	3 Lubrication Points with pneumatic timer	3 Liters	24V DC
3703340	4 Lubrication Points with pneumatic timer	3 Liters	24V DC
3703350	5 Lubrication Points with pneumatic timer	3 Liters	24V DC
3703360	6 Lubrication Points with pneumatic timer	3 Liters	24V DC
3704310	1 Lubrication Points with pneumatic timer	3 Liters	24V AC 50/60Hz
3704320	2 Lubrication Points with pneumatic timer	3 Liters	24V AC 50/60Hz
3704330	3 Lubrication Points with pneumatic timer	3 Liters	24V AC 50/60Hz
3704333	3+3 Lubrication Points w/pneumatic timer. Dual air pressure regulator	3 Liters	24V DC
3704340	4 Lubrication Points with pneumatic timer	3 Liters	24V AC 50/60Hz
3704350	5 Lubrication Points with pneumatic timer	3 Liters	24V AC 50/60Hz
3704360	6 Lubrication Points with pneumatic timer	3 Liters	24V AC 50/60Hz
3705322	2+2 Lubrication Points w/pneumatic timer. Dual air pressure regulator	3 Liters	220V AC 50/60Hz
3706330	3 Lubrication Points w/pneumatic timer. Dual air pressure regulator	3 Liters	Non presente

COMPONENTS

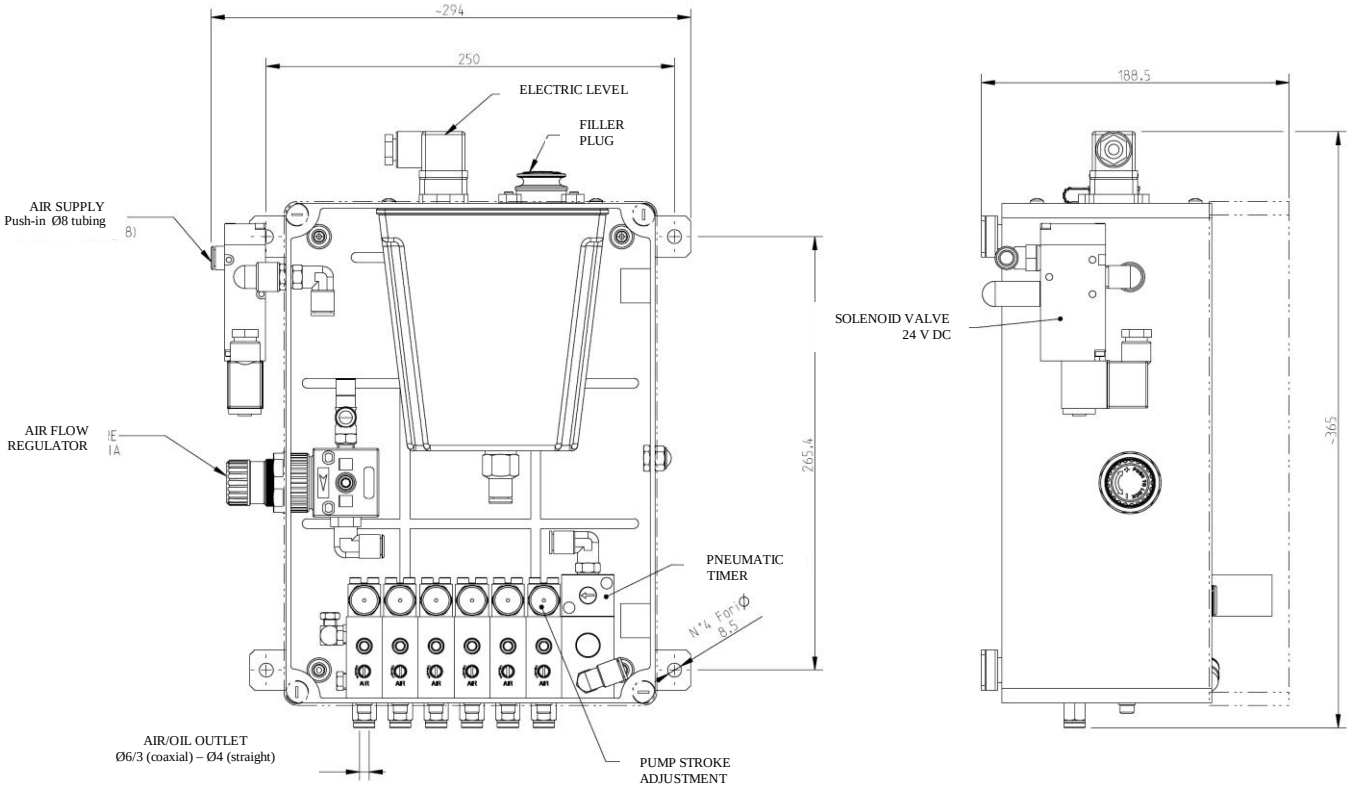
Code	Description
3130139	Oil Refill Filter
1525072	Modular Mixing Base
3103116C	Pneumatic Micropump module. (Also Order 2x fixing screws PN 14067)
5717251	Tube, flexible Ø8
3044337	Tank, 1 lt
6770072	Tank, 3 lt
1655590	Level, SambaSensor
1524845	Pneumatic Timer
20686	Air Pressure Regulator
3155214	EV 24V C.C. (Per 3701346-3704333)
3155148	EV 24V C.C. (for 3701122-3701322-3701332-3703160-3703310-3703320-3703330-3703340-3703350-3703360)
3155219	EV 24V C.A. (3702322-3704310-3704320-3704330-3704340-3704350-3704360)
3155220	EV 220V C.A. (3705322)
3155224	EV 110V C.A. (3701342)
3155225	EV 24V C.A. (3701344)

ACCESSORIES

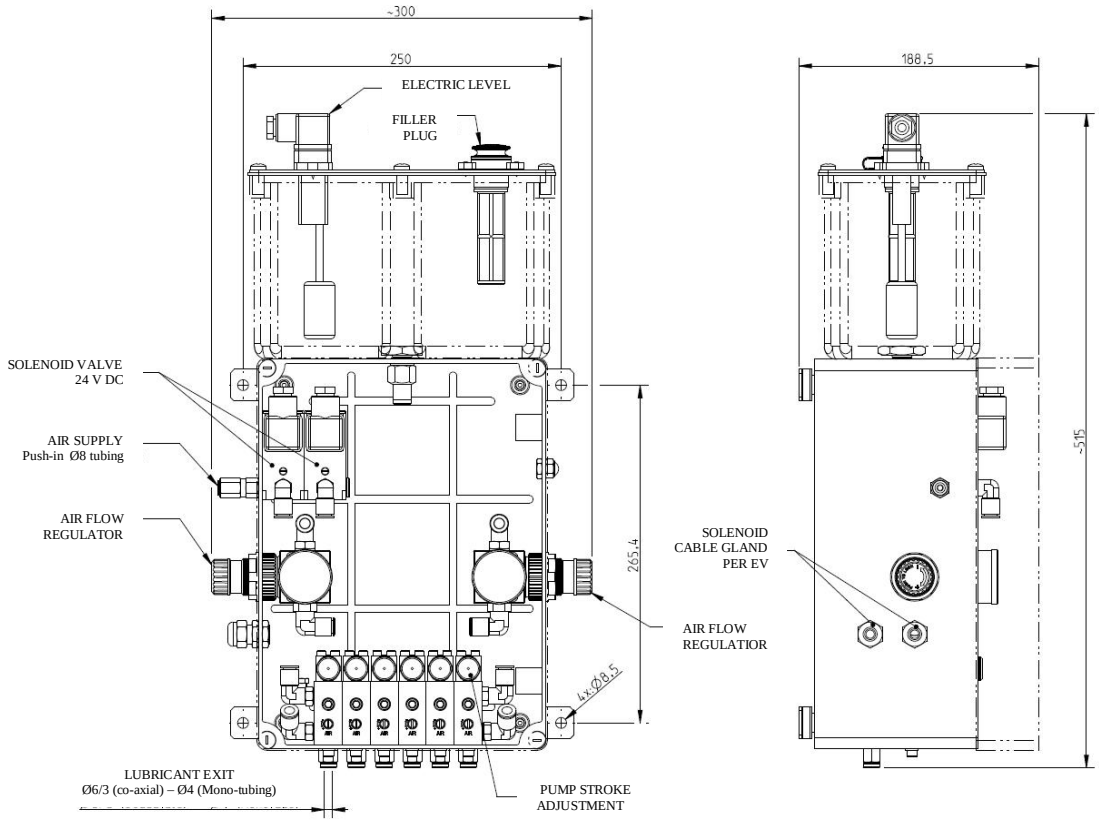
Code	Description
5717300	Tube, flexible Ø4 (0,16 in.)
5717301	Tube, flexible Ø 6 (0,23 in.)
1524486	Lubrication nozzle 32 mm (1,26 in)
1524487	Lubrication nozzle 48 mm (1,89 in)
3132583	Spray tube with magnetic base L = 180 mm. (7.08 inch.)
3132714	Spray tube with magnetic base L = 400 mm. (15.74 inch.)

11. DIMENSIONS

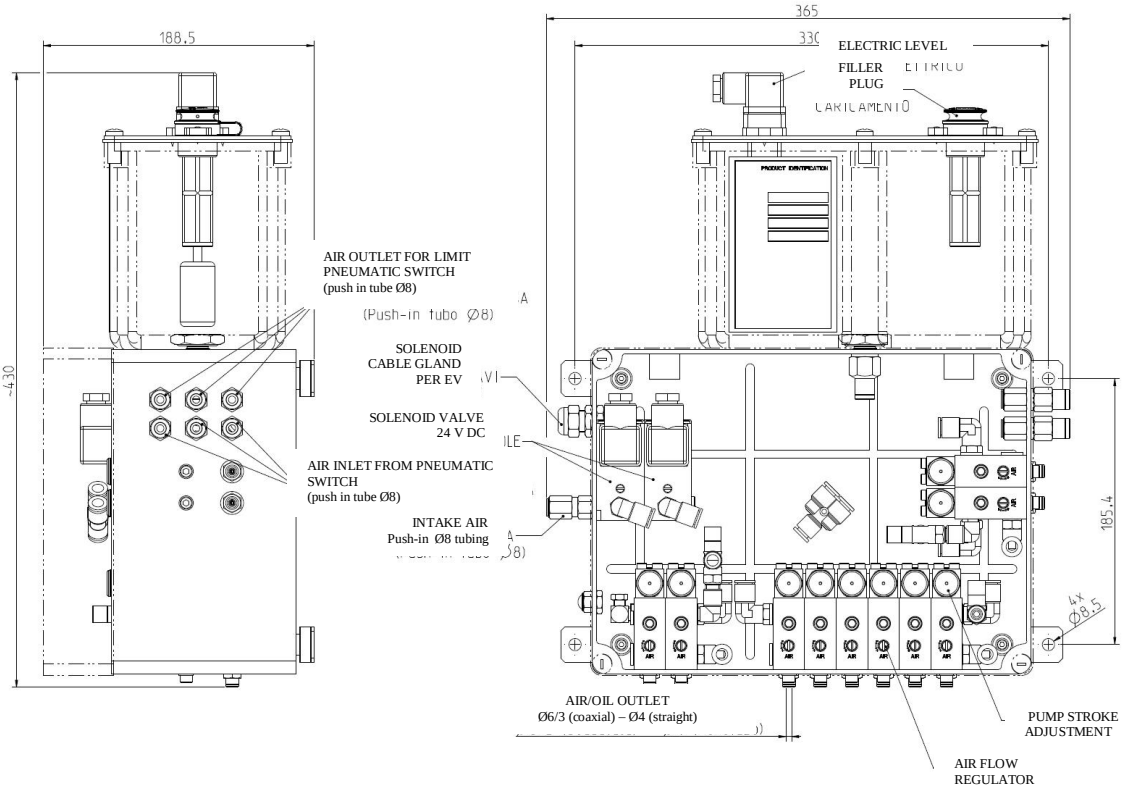
11.1 VIP4Tools*Pro* 1 LITER. (6 Lubrication Points with pneumatic timer)



11.2 VIP4Tools*Pro* 3 LITERS. (3+3 Lubrication Points w/pneumatic timer. Dual air pressure regulator)



11.3 VIP4Tools*Pro* 3 LITERS. (2+2+6 Lubrication Points for external limit switch)



12. HANDLING AND TRANSPORTATION

Prior to dispatch VIP4Tools*Pro* lubrication panels are carefully packed in a cardboard carton. During transportation and storage maintain the equipment the right way up as indicated on the carton.
On receipt, check that the packaging is not damaged and store the equipment in a dry place.

13. PRECAUTIONS IN USE

It is necessary to carefully read the warnings and the risks involved in using the lubrication panel. The operator must understand the functioning of the unit by studying the user's manual.

Electric currents
No intervention must be attempted on the equipment without first having disconnected the electrical power supply (electric level) and ensuring that it cannot be reconnected during the intervention.
All installed equipment, electrical, electronic, tank and base structure, must be connected to the ground line. **(see paragraph 6.7).**
Flammability
The oil employed in the lubrication circuit is not normally flammable. It is nonetheless indispensable to take every precaution against the oil coming into contact with very hot parts or open flames.
Pressure
Prior to any intervention on the equipment ensure that pressure is released from all branches of the lubrication circuit. Failure to do this could result in oil being discharged under pressure where connections or components are disassembled **(see paragraph 6.6).**
Noise
T 4Tools*Pro* lubrication panel does not emit excessive noise, remaining below 70 dB(A).

Before carrying out the replacement of the mini-pumps, empty the tank of lubricant.

Characteristic	Requirement
Pressure at point of connection	Min. 6 Bar (88.2 psi)
Max. quantity of particles in suspension	15 mg/Nmc
Max. diameter of particles	0.05
Dew point	2° C (35.6 °F)
Max. quantity of oil in suspension	5 mg/Nmc

Whenever not utilizing natural base oils compatible with existing health regulations, it is necessary to adjust the mixer pressure so as to avoid the formation and dispersion of oil mist into the environment.
The mixing pressure is indicatively between 1 bar (14.7 psi) and 2.5 bar (36.7 psi).

14. CONTRAINDICATIONS

The VIP4Tools*Pro* panel does not have any particular contraindications except for the following points:

- The operator coming into contact with fluid due to breakage/opening of supply tubing.
- The operator must be furnished with suitable personal protection clothing/equipment (according to current regulation).
- Abnormal posture.
- Take note of the indications shown in **paragraph 6.2.**
- Contact with oil during filling/maintenance.
- The operator must be furnished with suitable personal protection clothing/equipment (according to current regulation).Use of unsuitable lubricants.

Main inadmissible fluids.

Fluid	Danger
Lubricants with abrasive additives	High wear rate of contacted parts
Lubricants with silicon based additives	Seizure of the pump
Petrol – solvents – flammable liquids	Fire – explosion – damage to seals
Corrosive products	Corrosion of the pump– injury to persons
Water	Oxidation of the pump
Food substances	Contamination of the substances themselves