

VIP4 TOOLS

Lubrication System

Operating and maintenance Manual

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www.dropsa.com/contact or write to sales@dropsa.com

1. INTRODUCTION

This operating and maintenance manual refers to the VIP4Tools/Air air/oil lubrication system.

We recommend storing the manual for safe keeping so that it will not be easily damaged over time and to always make it available to personnel wishing to consult it.

Other copies, updates or clarification of this manual can be requested by contacting the DropsA Technical Sales Office directly.

The manufacturer reserves the right to update the product and/or operating and maintenance manual without any obligation to revise the previous versions. In any case, the most recent version available can be requested from the Technical Sales Office or by consulting our website <http://www.dropsa.com>.

Operation of the equipment described in this manual must be entrusted to qualified personnel with basic mechanical, hydraulic and electrical knowledge.

It is the installer's responsibility to install suitable piping for the system. The use of unsuitable piping may generate problems with the pump, damage to people and cause pollution.

The loosening of the connections may cause serious safety problems. Check them before and after installation and, if necessary, tighten them.

Never exceed the maximum permitted operating pressure value for the panel and the components connected to it.

Before carrying out any maintenance or cleaning operation, disconnect the electrical power, close the air supply and discharge the pressure within the equipment and the piping connected to it.

Do not subject the panel, the fittings, the pipes and the parts under pressure to violent bumps. Damaged pipes or fittings are dangerous. Replace them.

After long periods of inactivity, check the seal on all the parts subject to pressure.

Personnel must use protection equipment, clothing and tools needed in relation to the location and the use of the panel both during operation and maintenance.

The integrity of the panel and any installed accessories must be checked straight away upon receiving it. For any complaints, contact the DropsA SpA sales office immediately.

Dropsa SpA will not be liable for any damage to persons or objects in the event of failure to observe the indications in this manual.

Any modifications to the parts that make up the system or any different use of it or its parts without the written authorisation of DropsA SpA release the same from any liability for damages to persons and/or objects and exonerate them from the warranty obligations.

2. GENERAL DESCRIPTION

The **VIP4Tools** manual must be used for applications on spindle, without control on machines for lubrication of tools and chains.

Designed for high performance with low cost, it is distinguished by its compactness.

The system is made up of a pneumatically controlled mini-pump and the mixer base. Mini-pumps are manually adjustable in order to cover any possible need

(0-30 mm³). The modular design of the system makes it extremely versatile; up to a maximum of **8** mixer bases can be installed. The system can be timed by applying the pneumatic pulse generator kit, P/N 3132572 or controlling it from the machine PLC.

3. IDENTIFYING THE MACHINE

A yellow label is located on the front part of the oil reservoir that indicates the product code and the basic characteristics.

4. TECHNICAL CHARACTERISTICS

CHARACTERISTICS	VIP4Tools/Air lubrication panel
Air supply pressure	5 ÷ 8 bar (73.5 ÷ 117.6 psi)
Operating temperature	-5 ÷ +55 °C (+23 °F ÷ 131 °F)
Humidity	90% max
Lubricants	Mineral - synthetic
Oil Viscosity at Working Temperature	32 ÷ 320 cSt (150 ÷ 1480 SUS)
Conservation Temperature	-20 ÷ +65 °C (-4 °F ÷ 149 °F)

SAMBA LEVEL	
Temperature:	-10°C ÷ +80°C (+14 °F ÷ +176 °F)

Maximum switchable power:	50 W
Maximum current:	1 A
Maximum voltage:	220 V CA



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

5. MACHINE COMPONENTS

5.1 VIP4TOOLS CENTRAL UNIT

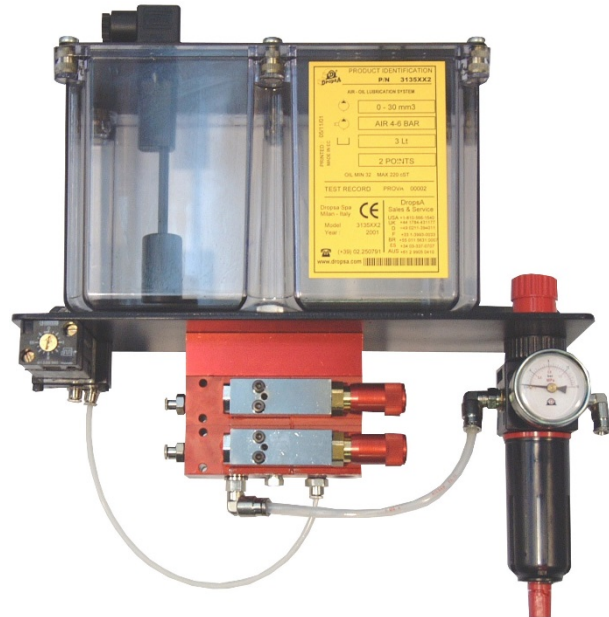
The central unit of the lubrication system is made up of the following elements:

- *Reservoir*, made of transparent plastic material compatible with lubricants that are readily available on the market.
- Mixing air adjustment system
- *Modular sub-base*
- *Samba type minimum level sensor*
- *Adjustable mini-pumps*

1-litre reservoir



3-litre reservoir

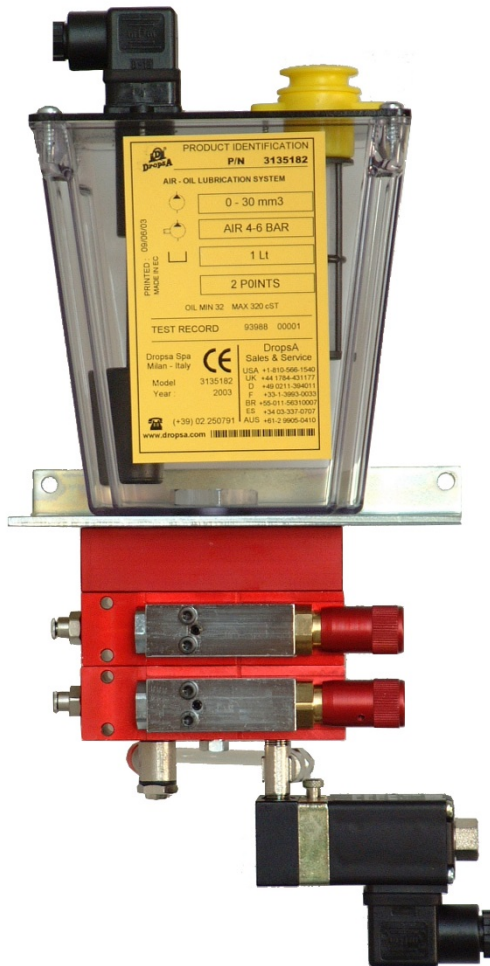


EX: (version complete with timer kit)

5.2 VIP4TOOLS CENTRAL UNIT WITH AIR SOLENOID VALVE

The central unit of the lubrication system is made up of the following elements:

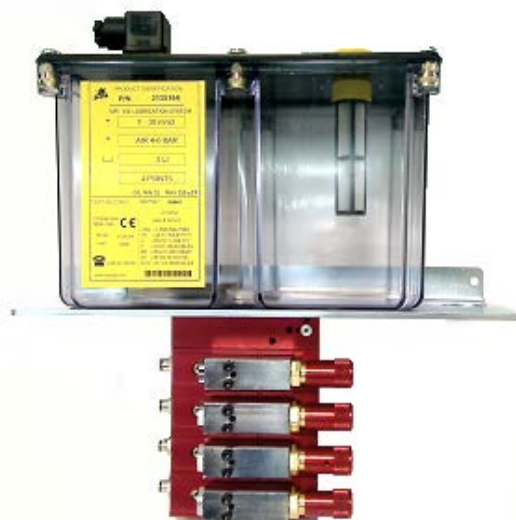
- *Reservoir*, made of transparent plastic material compatible with lubricants that are readily available on the market.
- *Modular sub-base*
- *Samba type minimum level sensor*
- *Adjustable mini-pumps*
- *Solenoid valve 3v – G 1/8" BSP – 24 Vdc*



5.3 VIP4TOOLS CENTRAL UNIT WITH SEPARATE CONTROLS

The central unit of the lubrication system is made up of the following elements:

- *Reservoir, made of transparent plastic material compatible with lubricants that are readily available on the market.*
- *Modular sub-base*
- *Samba type minimum level sensor*
- *Adjustable mini-pumps*



The VIP4TOOLS with separate controls, unlike the previous ones, has separate inlets for the air supply that controls the mini-pumps and for the oil mixing air supply. In particular, each mini-pump can be controlled independently, therefore for each element a different cyclic setup can be set.

6. UNPACKING AND INSTALLATION

6.1 UNPACKING

Once the suitable location for installation has been identified, open the packing and remove the equipment. Ensure that no damage has occurred to the VIP4Tools/Air during transport and storage.

The packing material does not require special disposal precautions as it is in no way dangerous or pollutant.

6.2 INSTALLATION OF THE VIP4Tools/Air PANEL

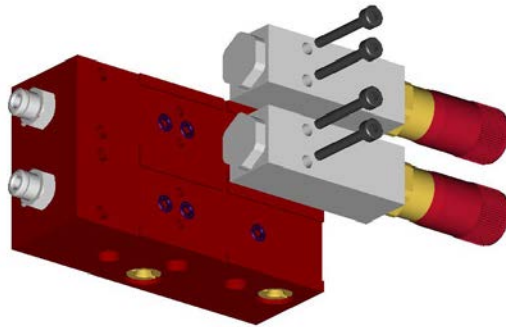
Provide adequate space for the installation, leaving a minimum perimeter area of 100 mm. Install the VIP4Tools/Air at "labourer height" in order to prevent abnormal posture or the possibility of impact. Do not install the VIP4Tools/Air in particularly aggressive or explosive/flammable environments or on parts subject to vibration.

Use only the mounting bracket pre-drilled with 2 holes for \varnothing 6 mm screws.

6.3 ASSEMBLY OF THE MINI-PUMPS ON THE MIXING BASES (for expansion or replacement)

Assembly of the mini-pumps on the mixing bases takes place using the two fixing screws.

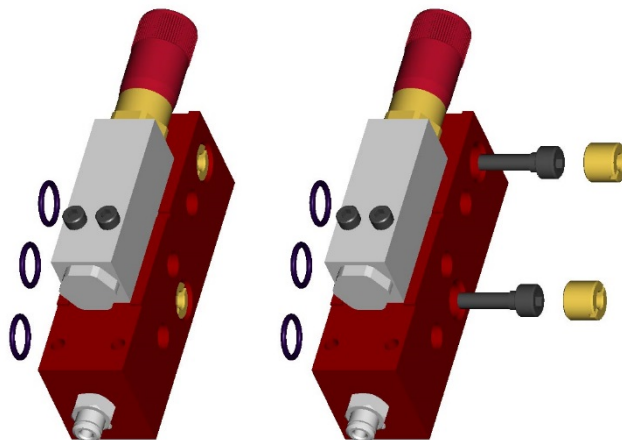
Take care to correctly position the O-ring gaskets between the mini-pump and the mixing base (see the drawing below).



6.4 ASSEMBLY OF THE MIXING UNIT ON THE VIP4TOOLS/AIR (for expansion or replacement)

To insert a new mixing element, proceed as follows:

1. Empty the oil reservoir.
2. Pneumatically disconnect and unscrew the fittings located on the base.
3. Connect the new base, tightening the element with the two screws provided, paying particular attention to the alignment and the positioning of the gaskets
4. Reposition the fittings on the new base.



6.5 HYDRAULIC CONNECTIONS

The only connection to make is that of the individual pumps fitted with push-in connections at the point to be lubricated. The piping must be in \varnothing 4 mm nylon (can be ordered separately from Dropsa).

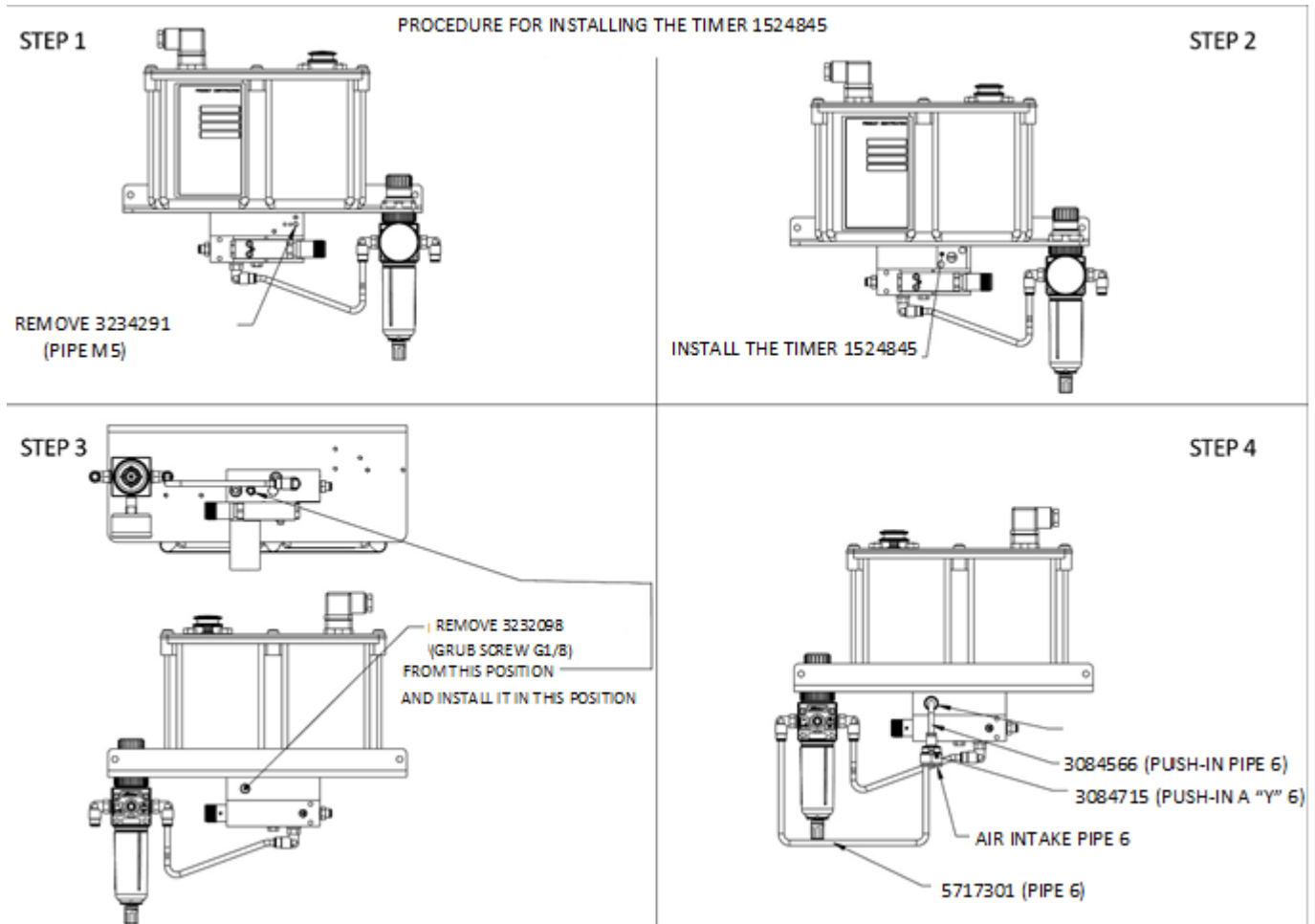
6.6 PNEUMATIC CONNECTIONS

Connect the push-in air inlet using the \varnothing 6 mm nylon line both for the pump and for the mixing component and provide a shut-off valve that allows interruption of the supply.



Note: For the fixed flow rate pump version that is available, use \varnothing 4 mm pipes

To install the timer, follow the procedure below:



6.7 ELECTRICAL CONNECTIONS

The only electrical connection that must be made is the Samba level connection. (see **section 4** technical data)

The Vip4Tools/Air with fixed flow rate pump comes with an inductive proximity sensor (PNP NO 10-30Vdc) to check for successful oil delivery.

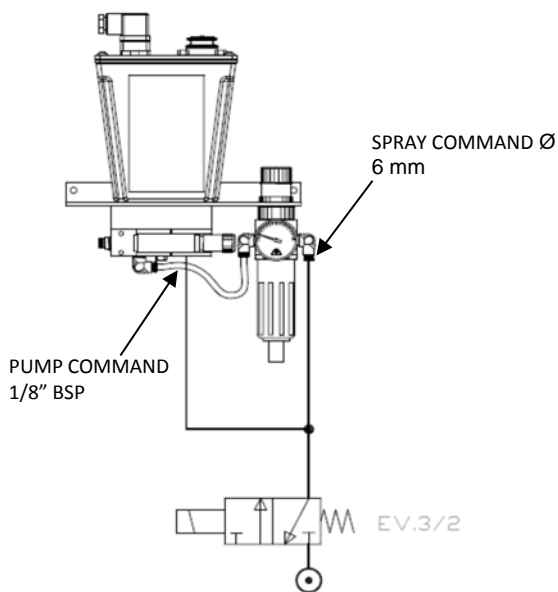
- Temperature limits: - 25 ~ + 70 °C
- 24V absorption: <18mA
- Maximum current output: 200mA
- Operating voltage: 10 ~ 30 Vdc



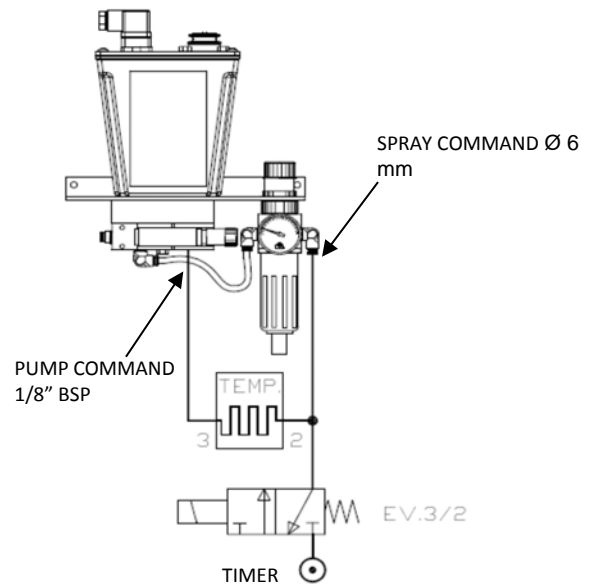
Once all the connections have been made, ensure that the pipes and cables are protected from any impact and that they have been appropriately secured.

6.8. CONNECTIONS DIAGRAM

PUMP COMMAND CONNECTION DIAGRAM WITH SOLENOID VALVE



PNEUMATIC TIMER CONNECTION DIAGRAM



Note: For the VIP4TOOLS with separate controls, if you want a different cyclic setting for the various pumps, the connection diagram must have a dedicated solenoid valve for each air inlet for the pump command.

7. OPERATING INSTRUCTIONS

7.1 STARTING UP THE VIP4Tools/Air PANEL

Before using the VIP4Tools/Air, some preliminary checks must be carried out:

- check the integrity of the equipment
- ensure that the electrical and pneumatic connections have been carried out correctly
- Bleed the residual air from the pump, acting on the specific bleed screw located at the centre of the fixing screws until lubricant comes out (when re-tightening the bleed screw, do not tighten excessively).
- To facilitate the bleeding operation, adjust the pumps to the maximum flow rate, running a few cycles.

7.2 BY-PASSING LUBRICANT DELIVERY OF THE SINGLE PUMP:

- Unscrew (anti-clockwise) the red cap located on the end of the pump until it stops, thereby completely blocking delivery.

7.3 ADJUSTING THE LUBRICANT FLOW RATE:

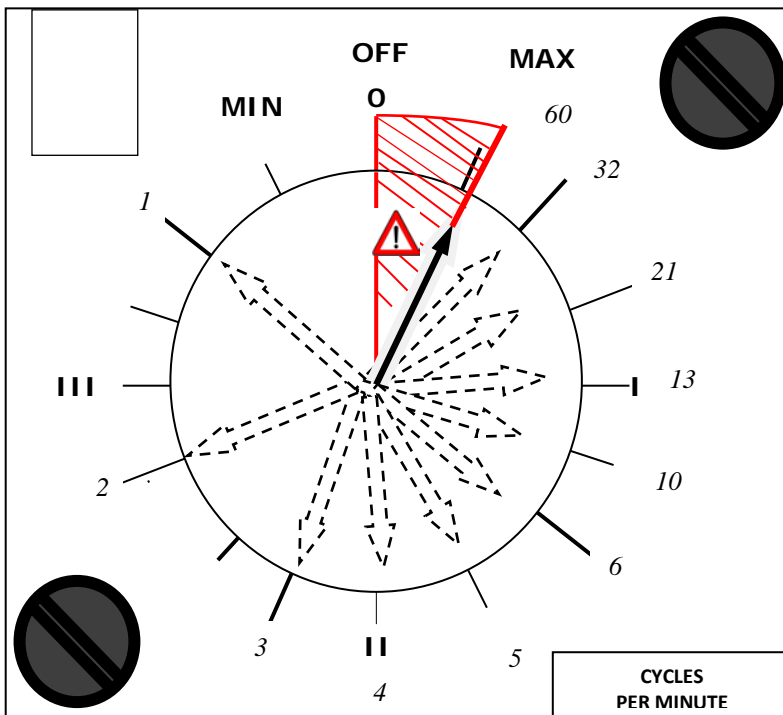
Act on the red cap to determine the nominal flow rate of the individual pump.

- Unscrew the pump adjustment cap all the way (flow rate 0 mm³) screw in 1.5 turns (minimum flow rate 5 mm³) after which, each turn corresponds to a flow rate increase of 5 mm³ until reaching 30 mm³ on the 7th turn. **(see table)**

FLOW RATE (mm ³ / stroke)	TURN
30	6.5
25	5.5
20	4.5
15	3.5
10	2.5
5	1.5
0 = pump flow rate by-passed	Unscrewed all the way


7.5 TIMER ADJUSTMENT (P/N 1524845)

Some versions have a timer to adjust the operating cycles of the mini-pumps. The adjustment modes are indicated below.



Setting the frequency generator cycles with air at 6 BAR (90 PSI).

- With a pressure at 8 BAR (120 PSI) the values must be reduced by 8%
- With a pressure at 7 BAR (105 PSI) the values must be reduced by 4%
- With a pressure at 5 BAR (75 PSI) the values must be increased by 7%



Do not set operation cycles lower than one second.
1 MINI-PUMP CYCLE = MAX 1s

8. MAINTENANCE PROCEDURES

The pump has been designed and built in a way to require minimum maintenance.

In order to simplify maintenance, we recommend installing it in a position that is easy to reach (**see section 6.2**).

Periodically check the joints of the lines for any leaks. Moreover, always keep the equipment clean in order to quickly detect any leaks.

When necessary, replace the oil filler filter P/N: 3130139.

Periodically empty the condensation recipient from the pressure regulator, rotating the red valve located at its base.

The machine does not require special tools for any check and/or maintenance operations. We recommend using tools and personal protection equipment (gloves) suitable for use with reference to Legislative Decree 81/08, and in good condition in order to prevent damage to personnel or parts of the machine.

Ensure that the electrical power supply and hydraulic and pneumatic power are disconnected before carrying out any maintenance operations.

9. DISPOSAL

During maintenance on the machine, 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 machine, the identification label and any other document must be destroyed.

10. ORDER INFORMATION

10.1 VIP4TOOLS central unit

VERSIONS

No. of dosing units	1-Litre reservoir	3-Litre reservoir
1	3135091	3135111
2	3135092	3135112
3	3135093	3135113
4	3135094	3135114
5	3135095	3135115
6	3135096	3135116
7	3135097	3135117
8	3135098	3135118

COMPONENTS

PART NUMBER	DESCRIPTION
3130139	Oil filling filter
1524445	Mixer Base
3103116C	Adjustable pneumatic mini-pump: along with the mini pump, assembly screws must also be ordered. Code 14067 - quantity 2.
5717300	Tube, flexible Ø 4 (0.16 in.)
3044338	1-Litre reservoir
6770072	3-Litre reservoir
20685	Reducing filter
1655583	Samba Level

ACCESSORIES

PART NUMBER	DESCRIPTION
5717300	Tube, flexible Ø 4 (0.16 in.)
5717301	Tube, flexible Ø 6 (0.23 in.)
3132572	1s ÷ 1 min. timer kit
3132574	Solenoid valve – 24 Vdc: along with the kit, the following must be ordered separately: P/N 39979 – connector - quantity 1; P/N 53923 – screws - quantity 3; P/N 16077 – washers - quantity 3
3132575	Solenoid valve – 110 Vac: along with the kit, the following must be ordered separately: P/N 39979 – connector - quantity 1; P/N 53923 – screws - quantity 3; P/N 16077 – washers - quantity 3
1524486	Lubrication nozzle 32 mm (1.26 in.)
1524487	Lubrication nozzle 48 mm (1.89 in.)
3132583	Spray tube with magnetic base = 180 mm (7.08 inch.)
3132714	Spray tube with magnetic base = 400 mm (15.74 inch.)
3226661	LRT 30 Oil for iron and aluminium – 1l pack
3133283	Spare parts kit for mini-pumps 3103115 - 3103116

10.2 VIP4TOOLS central unit with solenoid valve

VERSIONS

No. of dosing units	1-Litre reservoir
1	3135181
2	3135182
3	3135183
4	3135184
5	3135185
6	3135186
7	3135187
8	3135188

COMPONENTS

PART NUMBER	DESCRIPTION
3130139	Oil filling filter
1524445	Mixer Base
3103116C	Adjustable pneumatic mini-pump: along with the mini pump, assembly screws must also be ordered. Code 14067 - quantity 2.
5717300	Tube, flexible Ø 4 (0.16 in.)
3044338	1-litre reservoir
1655583	Samba Level

ACCESSORIES

PART NUMBER	DESCRIPTION
5717301	Tube, flexible Ø 6 (0.24 in.)
3132572	1s ÷ 1 min. timer kit
45351	Solenoid valve 3v - 1/8" GAS – 24 Vdc
1524486	Lubrication nozzle 32 mm (1.26 in.)
1524487	Lubrication nozzle 48 mm (1.89 in.)
3226661	LRT 30 Oil for Steel – in 1l container

10.3 Vip4tools central unit with fixed flow rate mini-pumps and proximity sensor

VERSIONS

No. of dosing units	3-Litre reservoir
1	3135261
2	3135262
3	3135263
4	3135264
5	3135265
6	3135266
7	3135267
8	3135268

COMPONENTS

PART NUMBER	DESCRIPTION
3130139	Oil filling filter
1524515	Mixer Base
3103053	Fixed flow rate mini-pump with proximity sensor
5717300	Tube, flexible Ø 4 (0.16 in.)
6770072	3-litre reservoir
1655583	Samba Level
1523868	Inductive proximity sensor (PNP NO 10-30Vdc)

ACCESSORIES

PART NUMBER	DESCRIPTION
5717301	Tube, flexible Ø 6 (0.24 in.)
1524845	1s ÷ 1 min. timer
1524486	Lubrication nozzle 32 mm (1.26 in.)
1524487	Lubrication nozzle 48 mm (1.89 in.)
3226661	LRT 30 Oil for Steel – in 1l container
3226662	LRT 50 Oil for Aluminium – in 1l container

10.4 VIP4Tools central unit with separate controls

VERSIONS

No. of dosing units	3-Litre reservoir
1	3135161
2	3135162
3	3135163
4	3135164
5	3135165
6	3135166
7	3135167
8	3135168

COMPONENTS

PART NUMBER	DESCRIPTION
3130139	Oil filling filter
1524515	Mixer Base
3103116C	Adjustable pneumatic mini-pump: along with the mini pump, assembly screws must also be ordered. Code 14067 - quantity 2.
6770072	3-Litre reservoir
1655583	Samba Level

ACCESSORIES

PART NUMBER	DESCRIPTION
5717300	Tube, flexible Ø 4 (0.16 in.)
5717301	Tube, flexible Ø 6 (0.23 in.)
3132572	1s ÷ 1 min. timer kit
20685	Reducing filter
3132574	Solenoid valve – 24 Vdc: along with the kit, the following must be ordered separately: P/N 39979 – connector - quantity 1; P/N 53923 – screws - quantity 3; P/N 16077 – washers - quantity 3
3132575	Solenoid valve – 110 Vac: along with the kit, the following must be ordered separately: P/N 39979 – connector - quantity 1; P/N 53923 – screws - quantity 3; P/N 16077 – washers - quantity 3
1524486	Lubrication nozzle 32 mm (1.26 in.)
1524487	Lubrication nozzle 48 mm (1.89 in.)
3132583	Spray tube with magnetic base = 180 mm (7.08 inch.)
3132714	Spray tube with magnetic base = 400 mm (15.74 inch.)
3226661	LRT 30 Oil for iron and aluminium – 1l pack

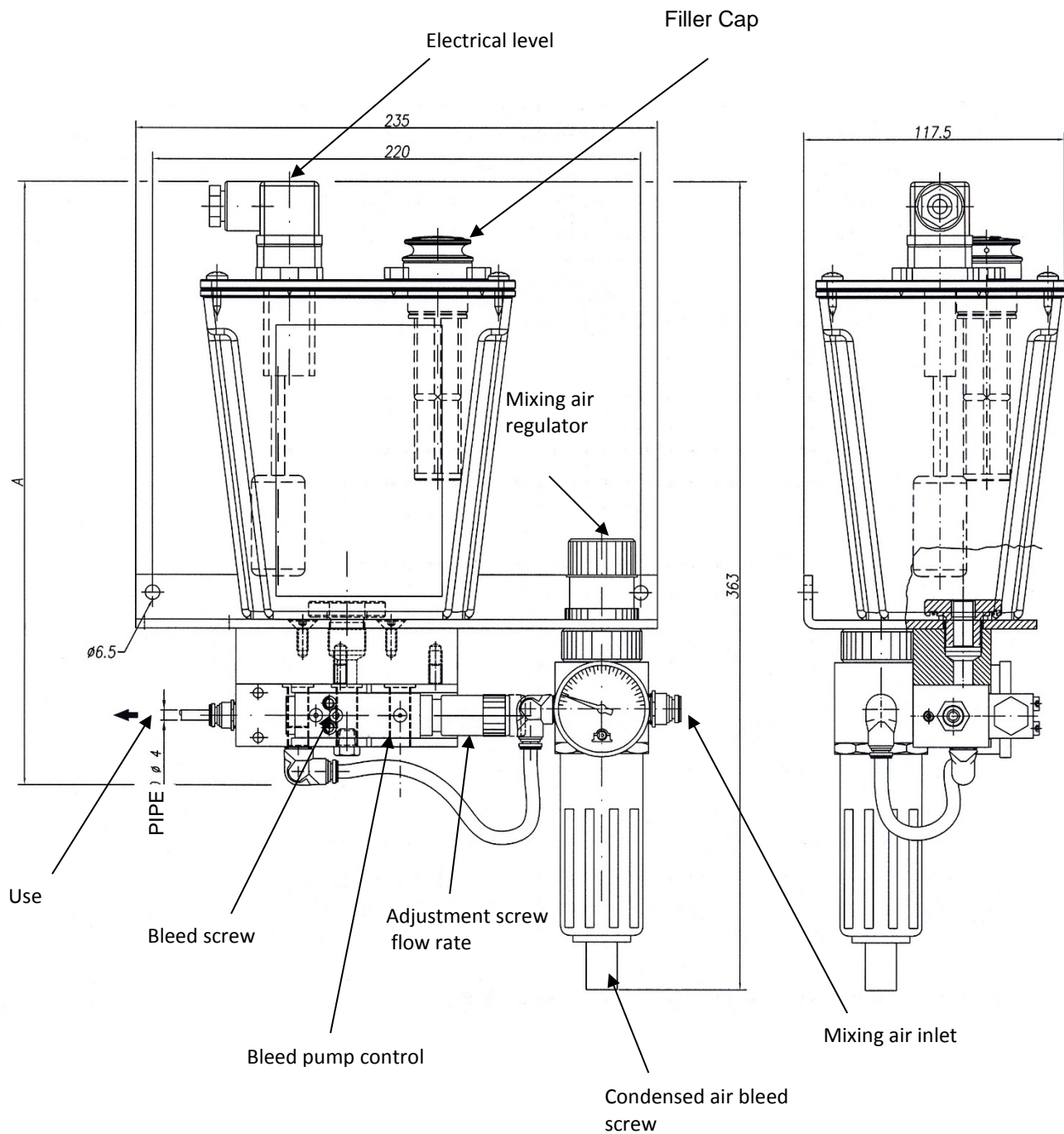
INDICATION TABLE FOR LRT USE (3226661)

In grams for each delivery nozzle in 8 hours of operation.

	ALUMINIUM PB BRASS	PB STEEL SOFT STEEL	ALLOY STEEL STAINLESS STEEL	REFRACTORY AND TITANIUM ALLOYS
<ul style="list-style-type: none"> • Saw cut • Lathe turning • Blanking • Shearing 	35-40	30	30	30-60
<ul style="list-style-type: none"> • Boring • Boring • Milling • Slotting 	30-40	30	60	70
<ul style="list-style-type: none"> • Threading • Tapping • Planing • Shaving 	60	70	80	90
<ul style="list-style-type: none"> • Threading and blind tapping 	60	70	80	90-100
<ul style="list-style-type: none"> • Moulding and medium drawing 	60	70	80-90	90-100
<ul style="list-style-type: none"> • Broaching • Serration • Bending 	70	80	90	100/110

11. DIMENSIONS

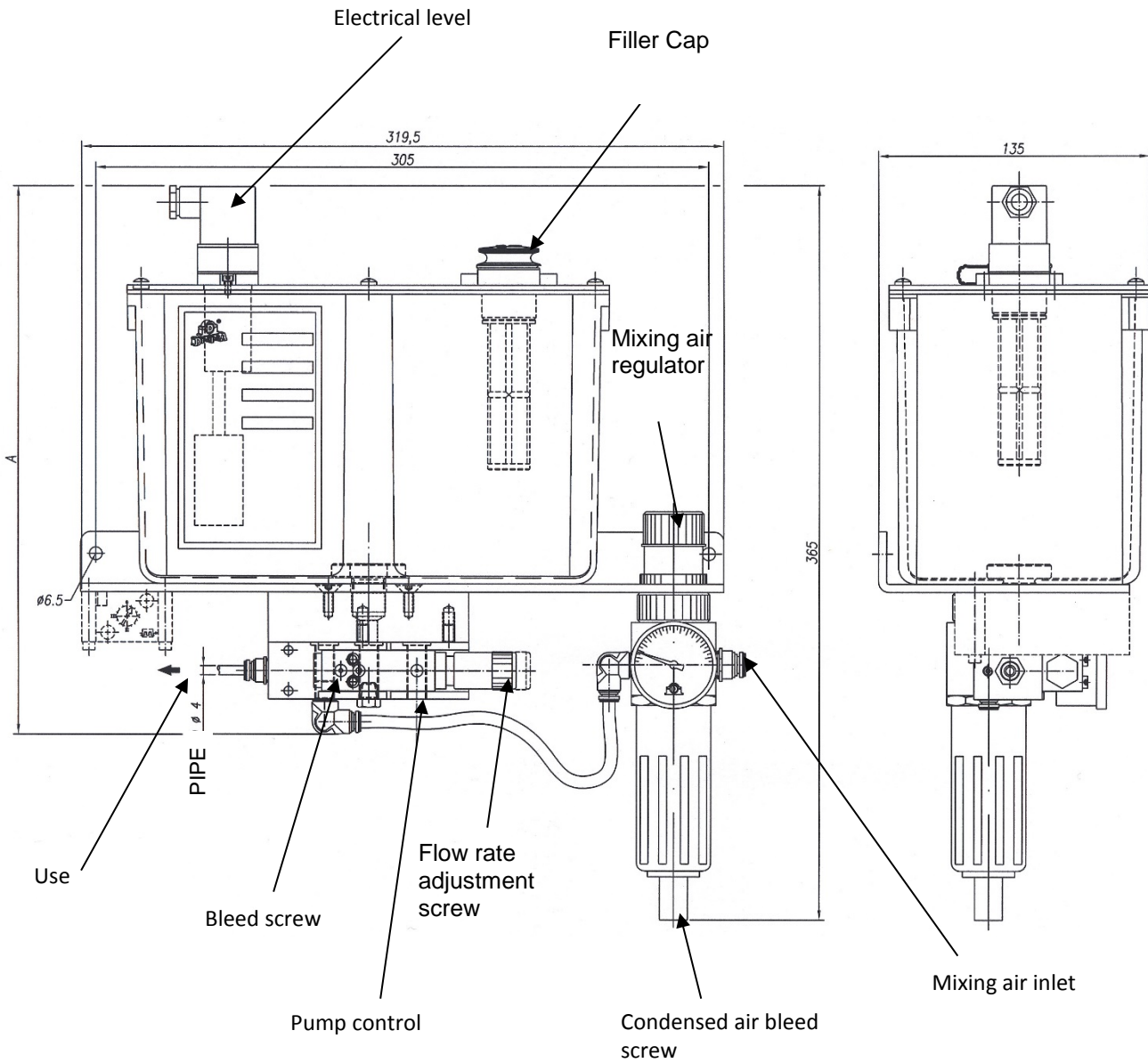
11.1 VIP 1 LITRE



The panel is installation ready for the timer kit (optional) P/N 3132572

Number of elements	A		Weights	
	(mm)	(in)	(Kg)	(lb)
1	363	14.3	2.7	5.9
2	391	15.4	3.2	7.0
3	419	16.5	3.7	8.1
4	447	17.6	4.2	9.2
5	475	18.7	4.7	10.3
6	503	19.8	5.2	11.4
7	531	20.9	5.7	12.5
8	559	22.0	6.2	13.6

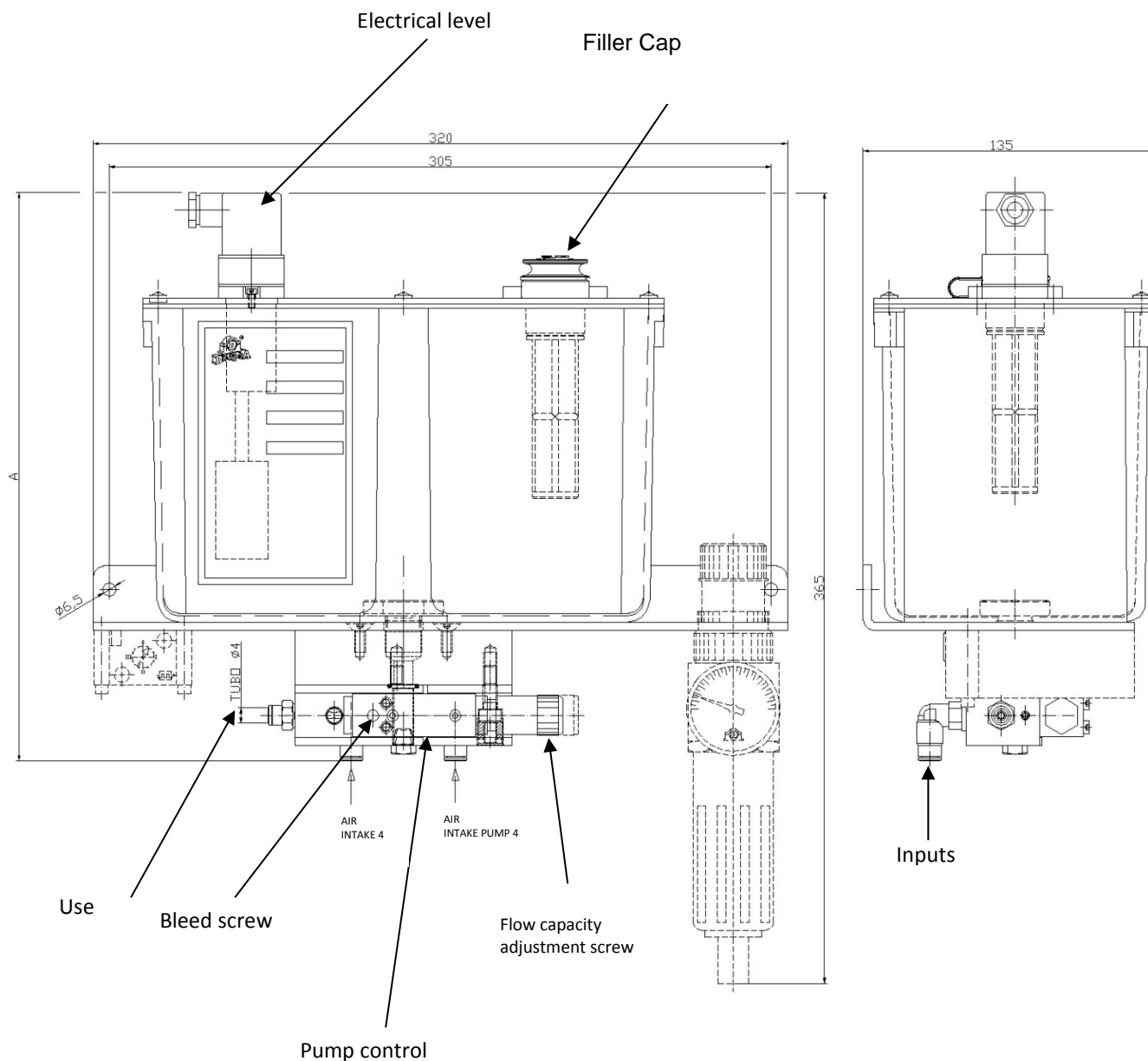
11.2 VIP 3 LITRES



The panel is installation ready for the timer kit (optional) P/N 3132572

Number of elements	A		Weights	
	(mm)	(in.)	(Kg.)	(lb)
1	365	14.4	3.6	7.9
2	393	15.5	4.1	9.0
3	421	16.6	4.6	10.1
4	449	17.7	5.1	11.2
5	477	18.8	5.6	12.3
6	505	19.9	6.1	13.4
7	533	21.0	6.6	14.5
8	561	22.1	7.1	15.6

11.3 VIP 3 LITRES WITH SEPARATE CONTROLS



The panel is installation ready for the timer kit (optional) P/N 3132572 and the reducing filter (optional) P/N 20685.

Number of elements	A		Weights	
	(mm)	(in.)	(Kg.)	(lb)
1	362	14.25	3.4	7.5
2	390	15.35	3.9	8.6
3	418	16.46	4.4	9.7
4	446	17.56	4.9	10.8
5	474	18.66	5.4	11.9
6	502	19.76	5.9	13
7	530	20.87	6.4	14.1
8	558	21.97	6.9	15.2

12. HANDLING AND TRANSPORT

Before shipment, the VIP4Tools/Air lubrication panels 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 equipment in a dry place.

13. PRECAUTIONS FOR USE

The warnings and risks that using the panel implies must be carefully read. The user must be familiar with operation through the Operating Manual.

Electrical current

Do not carry out any operations on the machine before disconnecting it from the electrical power supply (on an electrical level) and ensuring that no one can reconnect it during the operation.

All of the installed, electrical, electronic equipment, reservoirs and base structures must be connected to the ground line. **(see section 6.7).**

Flammability

The oil used in the lubrication circuits is a fluid that is not normally flammable. 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, check for the absence of any residual pressure in all branches of the lubricant circuit, that could cause spurts of oil in the event that fittings or components are disassembled

(see section 6.6).

Noise

The VIP4Tools/Air lubrication panel does not emit excessive noise, remaining below 70 dB (A).



WARNING: before replacing the mini-pumps, remove the lubricant from the reservoir.

CHARACTERISTICS OF THE AIR

Characteristics	Operating Type
Pressure at the hook-up point	6 bar min (88.2 psi)
Max. quantity of particles in suspension	15 mg / Nmc
Max. diameter of the particles	0.05
Dew point	2° C (35.6 °F)
Max. quantity of oil in suspension	5 mg / Nmc

If natural-based oils compatible with prevailing health regulations are not used, the mixing pressure must be calibrated in order to prevent the formation and dispersion of spray into the environment.

The approximate mixing pressure is between 1 bar (14.7 psi) and 2.5 bar (36.7 psi).

14. CONTRAINDICATIONS OF USE

The VIP4Tools/Air panel does not have any particular contraindications except for the following points:

- Contact of the operator with fluid due to breakage/opening of adduction piping.

The operator must have suitable PPE (tit. VIII – 626).

- Inappropriate posture.

Follow the instructions indicated in **section 6.2**.

- Contact with oil during top-up/maintenance.

The operator must have suitable PPE (tit. VIII – 626).

- Use of unsuitable lubricant.

Main prohibited fluids.

Fluids	Hazards
Lubricants with abrasive additives	High wear of the contaminated parts
Lubricant with silicon additives	Seizing of the pump
Petrol, solvents, flammable liquids	Fire, explosion, damage to the gaskets
Corrosive products	Corrosion of the pump, damage to personnel
Water	Oxidation of the pump
Food substances	Contamination of the same