



HIGH PRESSURE WATER JETTING MACHINE

OPERATION MANUAL



Model: 250E15_380V/440V

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Version: 1.0

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General Conditions

Introduction

Zisimopoulos S.A. thanks you for selecting its products. This machine has been designed and constructed to ensure maximum performance, comfort and operating facility in a wide range of conditions and jobs.

This manual is a guide for the proper use of the machine, and it also contains useful information about its function and maintenance.

To guarantee faultless conditions, this product has been precisely checked by our technical department and by our distributors. To maintain the machine in perfect condition, it is important that the periodical maintenance procedure is performed.

Please read this manual prior to operating the machine especially as far as the safety precautions are concerned. In case more information is needed please contact us or your local distributor.

Spare Parts

For the safety of the operator and the machine, you should only use original spare parts and accessories.

By ordering of parts and/or accessories, please indicate always the Serial Number and the exact model type.

Delivery and Guarantee Conditions

This machine has been dispatched in perfect condition. Observed external damages should be notified in written within one (1) week.

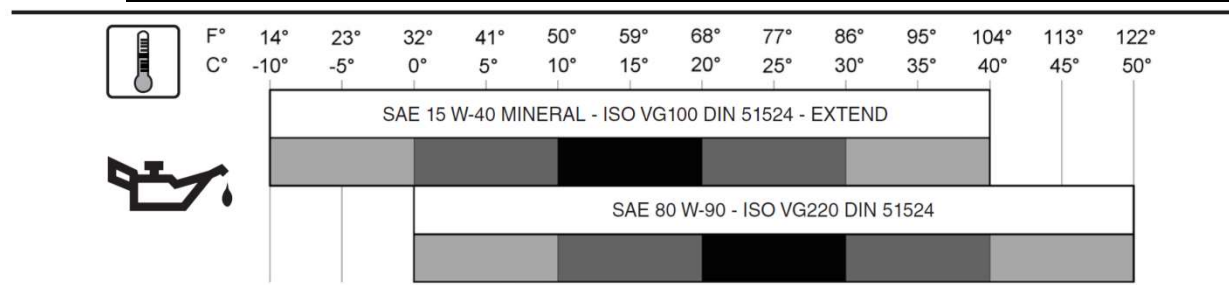
Guarantee

This machine is covered by a 1 year guarantee for quality. This guarantee includes and is limited to our choice either the repair or the replacement of any defective part. Please send us the defective parts free of freight charges.

This guarantee does not cover abrasion parts or damages caused by improper or careless use of the equipment.

Repairs should be exclusively done by authorized technicians.

Technical Data of HYDRO 250E15	
Nominal voltage	380V/440V 3ph
Nominal frequency	50HZ/60HZ
Nominal power consumption	7,5 KW / 10 HP
Protection type	CLASS F / IP 55
Type of pump	INTERPUMP E3B2515
Type of pump oil	SAE 15W40
Pump oil quantity	0,65 ltr
Max volume flow	15 lt/min @ 380 V/50 HZ
Max volume flow	18 lt/min @ 440 V/60 HZ
Adm. working pressure	250 bar
Nozzle size	040 @ 380 V/50 HZ
Nozzle size	050 @ 440 V/60 HZ
Noise level	72 Db(A)
Max operating pressure	270 bar
Max water intake temperature	40°
Weight in kg	94 kg
Dimensions LXWXH	86X66X73 cm



Important Safety Instructions

Please read carefully this chapter before starting the high pressure water cleaning machine.

This machine is a high pressure water jetting machine which produces a water jet under high pressure and can cause severe injuries. Complete understanding of this manual is necessary to prevent injuries and damage to objects and/or the equipment.

This manual includes basic information that must be always respected concerning the installation, start up, operation and maintenance of the machine. It must be therefore read carefully by the operator and should always be on site.

Training of personnel

The personnel responsible for the operation and maintenance should have the corresponding qualification for this job. The areas of responsibility, competence and supervision of the personnel should be exactly defined by the operator in charge. If the personnel do not possess the required knowledge, they must be trained and instructed. Furthermore, the operator supervisor must guarantee that the personnel have completely understood the contents of this manual.

Intended use

High Pressure equipment and their components are specially designed for professional use under hard situation. By using them, a variety of cleaning problems may be solved with environmentally friendly methods. Always use this equipment with clean water & original spare parts.

Risks in case of non-observance of the safety instructions

The non-observance of the safety instructions can result in a risk for people as well as the appliance and the environment. The non-observance of such instructions may lead to the loss of any claim for damages.

Safety conscious work

The safety instructions mentioned in this manual, the existing national regulations concerning the prevention of accidents as well as the company internal regulations governing the working environment must be applied. You are obliged to have your machine checked by an approved specialist with respect to the safe operation at least every 12 months. The result of the inspection must be recorded in written form.

Safety Instructions during Operation

Incorrect use of the high pressure machine can cause severe injuries. For your own safety and the safety of other people, the following rules should be adhered to:

- Never aim the water jet at people, animals, and electrical installations or directly at the high pressure cleaner.
- Never try to clean clothes or shoes that you or other people are wearing.
- Switch off the machine before cleaning or servicing.
- Never suck up solvent liquids such as thinners, petrol or oil as the resulting spray is highly inflammable, explosive and toxic.
- Do not operate the machine in areas subject to danger of explosions.
- Do not cover the machine during operation.

- When working the machine with a pressure of more than 200bar, the operator must always wear medium protection clothes all over.
- Always wear protective clothing.
- People that are in immediate proximity to the cleaning area, must protect themselves against spurting particles.
- According to the law in force, people under 18 years of age are not allowed to operate such kind of equipment with an operating pressure exceeding 1000 psi.
- Vehicle tires and tire valves must be cleaned only with a flat jet nozzle and a minimum spray distance of at least 30 cm.



WARNING!

Increased hazard caused by short spray equipment (less than 750 mm from the handle to the nozzle)! Never direct the jet against parts of the body! Protect yourself from any particles splashing back against you!

Flexible High Pressure Hoses

Use only high pressure hoses duly certified and treat them as high pressure vessel under pressure.

- Never exceed the maximum allowed water temperature.
- Use hoses up to their maximum allowed pressure.
- Never use damaged or worn out hoses.
- Always use high pressure connections suitable to operate on or above maximum pressure provided by the equipment.
- Locate the high pressure connection in such a way to prevent danger in case of leakage, breaks or false coupling.

Location of equipment

The HYDRO 250E15 water jetting unit is designed to be placed and operated under normal environmental conditions according to DIN 500100-1 and DIN 50014.

Before operating, please check that installation is proper.

- Do not operate HYDRO 250E15 in places with explosions or fire danger.
- Secure that installation is horizontal and steady.
- Secure against scrolling.
- Check the oil level.

Tips for working with a high pressure cleaner

When you transport the high pressure cleaner on vehicles or trucks please fasten it on a suitable transport pallet.

The environment temperature when the high pressure cleaner operates should be min +2° C and max + 40° C.

The choice of working pressure depends on the cleaning job.

The working pressure depends on the size of the spraying nozzle and the adjustment of the pressure regulation valve, the working pressure is limited on top by the pressure regulation valve.

The ray of the spraying nozzle is near working pressure and working pressure and distance from cleaning object are conclusive for the cleaning effect.

A rotating round ray nozzle (mud milling cutter) has the highest mechanical effect and you take it for example when you clean very dirty plains.

Normally you work with a 15° nozzle.

By cleaning large objects, for example floors, you could use a 25° nozzle.

Water Quality Requirements

The environment temperature when the high-pressure cleaner operates should be min +2° C and max + 40° C.

Notes on the requirements for the water used.

The STANDARD pumps work with clean, soft water, at a maximum temperature of 40° C, and, only for short periods, up to 60° C.

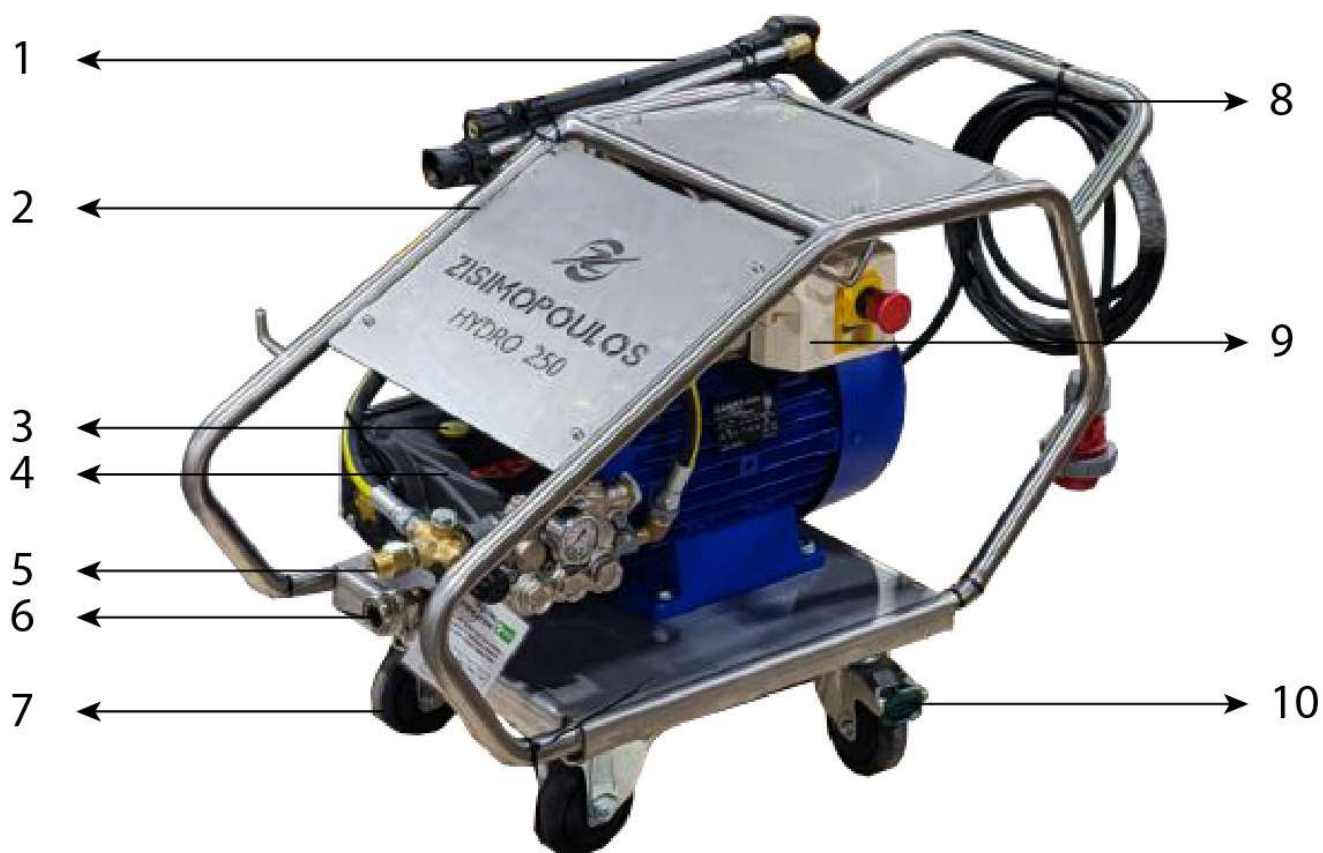
The water must be free of abrasive materials, undissolved gases, and air bubbles. Max. 5 mg/l filterable materials.

The filter sizes used are defined and must be adhered to: Working pressure up to 1000 bar: max 50 µm.

Working pressure from 1000 bar: max 5 µm.

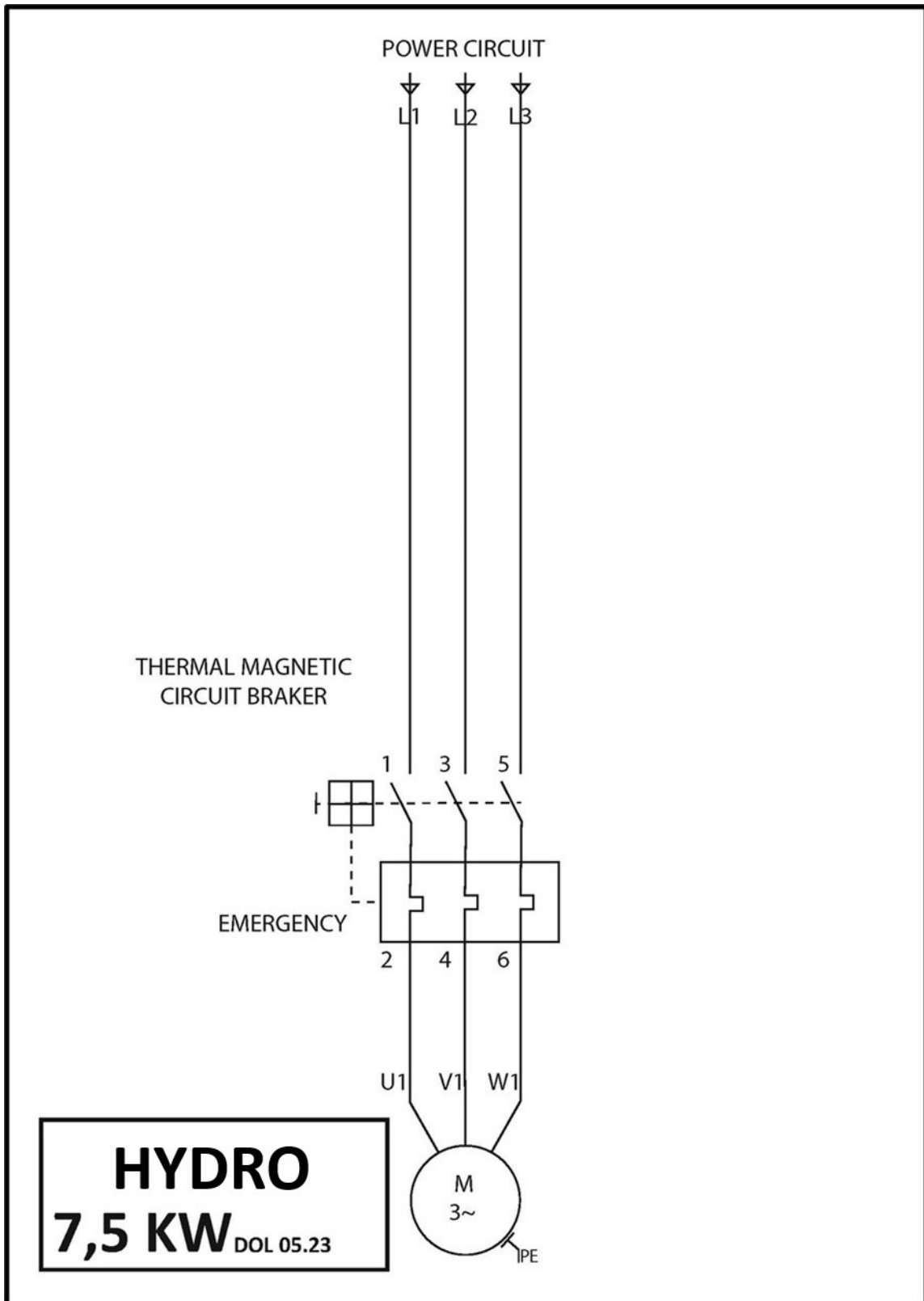
The conductivity at 20° C must be below 2000 µs/cm.

Machine Description



POSITION	CODE	DESCRIPTION
1	UNIJ000070	HP COMPLETE GUN WITH LANCE
2	UNIJ000164	SST CART WITH HANDLE AND TOP COVER
3		PUMP'S OIL FILLING CAP
4	INTE000206	HP PUMP
5	PAI0000127	HP WATER OUTLET M22x1.5
6	PAI0000140	LP WATER INLET COUPLING
6A	PAI0000141	HOSE BARB (NOT SHOWN)
7	VL00000842	FRONT WHEELS
8		10 M. ELEC. CABLE (INCL. IN UNIJ000124)
9	UNIJ000124	ELECTRICAL BOARD 7,5KW
10	VL00000841	BACK ROTARY WHEELS WITH BRAKE

Electric Diagram



Description and Function of The Security Installations

Using and Descriptions

HYDRO 250E15 is a covered portable high pressure water jetting machine.

The working pressure is procreated by a triplex pump with 3 ceramic plungers.

On the high-pressure side of the pump there is a pressure regulation valve that switches on bypass when the gun closes, the water gets back to the high-pressure pump without pressure, till the engine runs and the pump is unloaded.



CAUTION!

When you interrupt working or you have breaks for more than 10 minutes, you should switch off the high pressure cleaner. When the gun is closed, the machine is running in circulation mode, and the water temperature increases.

Unloader Valve

The valve regulates the max pressure of the system through a piston, which acts on a ball correctly positioned, that closes the bypass opening. A check valve cuts out the delivery section, the pressure of which controls the drive of the piston. Each regulation should be made when the system is operational, and the nozzle opens.

Protection against freezing

Freeze can destroy equipment which has not been emptied completely with water. The best protection against freezing is to place the device in a room protected against frost.

Storage for long time without use

If you need to store the machine for a long time without use always fill the pump with antifreeze fluid. It serves as a pump conditioner and prolongs the life of the machine.

Operating Instructions

- Place the high-pressure cleaner on a plain and secure it against rolling.
- Check the oil level of the high-pressure pump. If it is too low, refill oil like specifications on the data sheet.
- The maximum oil level from the high-pressure pump is on the top mark of the oil dip stick or in the middle of the window.
- Do not overfill the pump with oil.

Water connections

- Connect the water intake hose to the high-pressure cleaner.
- Water intake pressure should have pressure min 2.5 bar and max 4.0 bar.
- Always ensure that the water flow intake is constant and undisturbed.

Connection of high-pressure hose

- Screw one end from the high-pressure hose on the pressure exit nipple from the machine.
- The other end is to be tightened to the spraying gun.

Electrical connection

The voltage shown on the motor plate should correspond to the source. The current lead must be fused with 20 A. No higher fuse is allowed.

1. **380 V/50 Hz/3 ph – max 20A**
2. **440 V/60 Hz/3 ph – max 20A**

Operation

The electrical system is equipped with DOL starter.

- Insert the 4-pole plug into the appropriate socket.
- Connect the water supply and the pressure hoses without the nozzle.
- Open the tab to fill the machine with water.
- Push the red button and the machine will be activated.
- Pull spray gun trigger. The pump at first empties the device from air. After a while, water comes out of the spray gun. Hold firmly the gun until a steady jet of water is ejected.

- Close the gun and switch off the device.
- Screw the lance with nozzle into the spray gun.
- The device is now ready for operation at 250 bar.

Adjusting the operating pressure

- Adjust the operating pressure, according to the job, which is to be performed, by using the unloader valve.
- By turning the knob clockwise pressure rises, anticlockwise pressure decreases.

Stopping

- Close handgun.
- Pull out anticlockwise the red button to stop the motor.
- Open gun to allow the remaining pressure to escape.
- Close water supply.
- Close gun and secure trigger.
- Remove plug from socket.
- Store hoses without hanging.

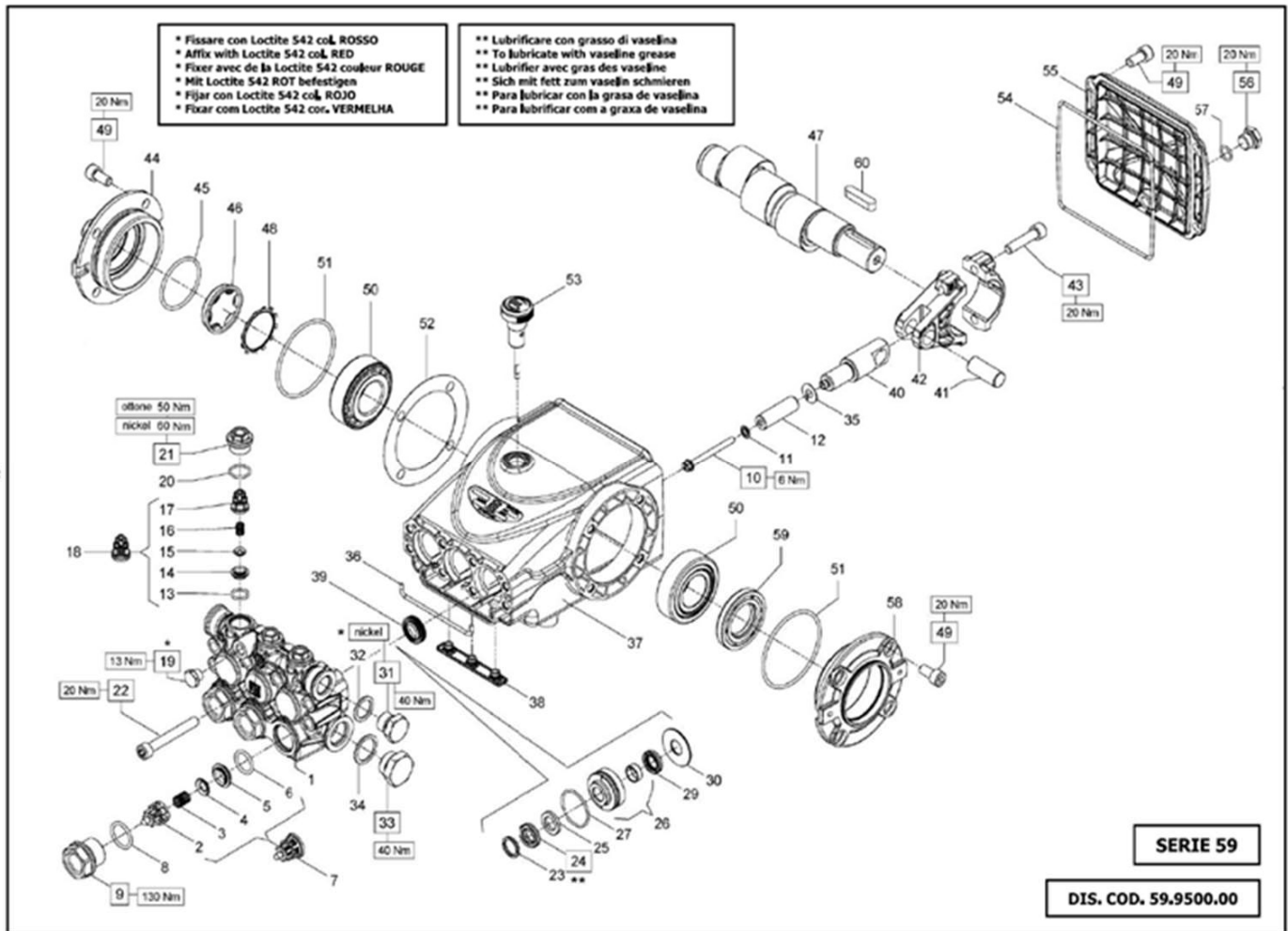
Spare parts

Pump assembly



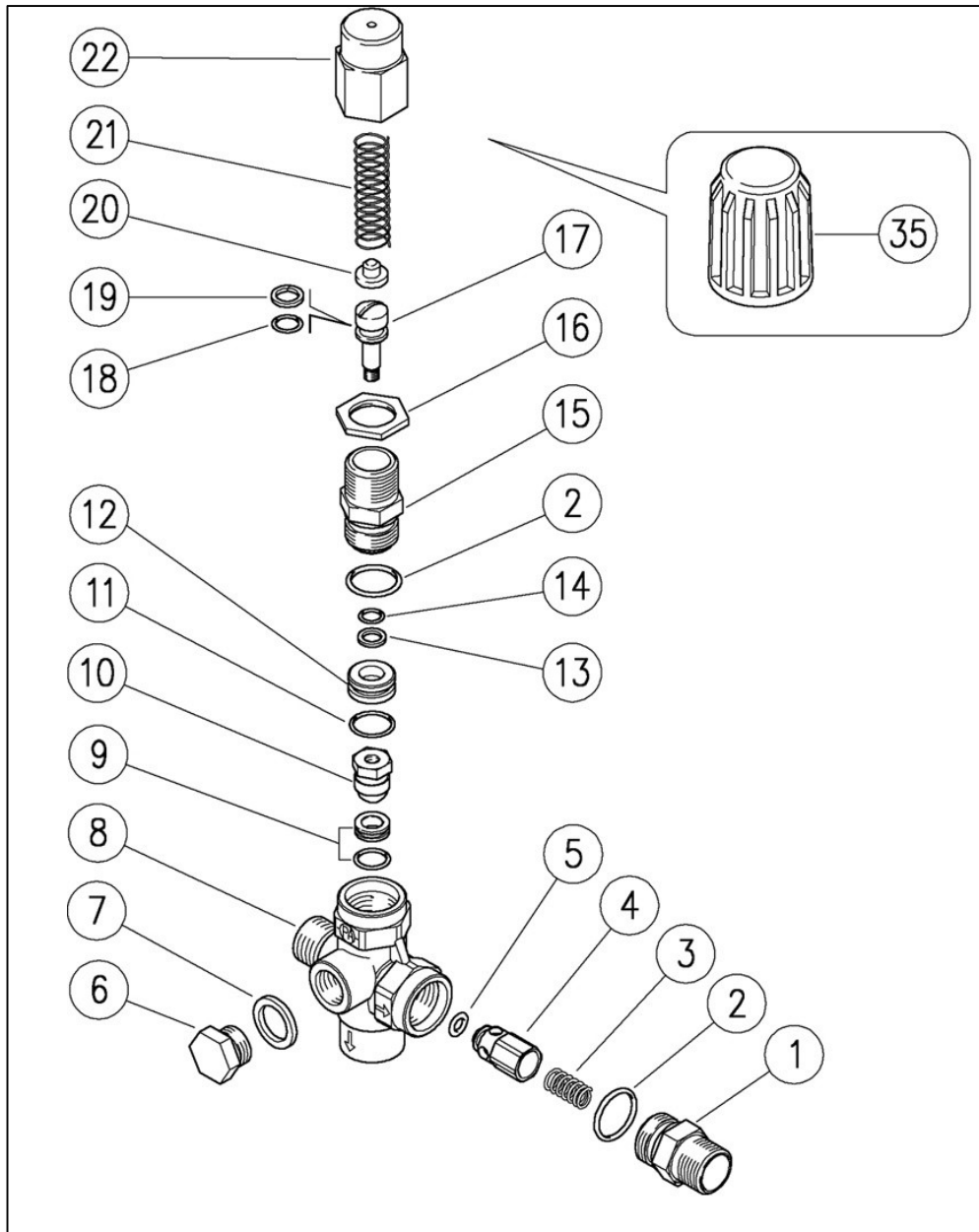
POSITION	CODE	DESCRIPTION
1	PAI0000127	HP WATER OUTLET M22x1.5
2	PAI0000261 PAI0000217	UNLOADER VALVE VB3 WITH KNOB
3	PAI0000140	LP WATER INLET CONNECTION
3A	PAI0000141	HOSE BARB (NOT SHOWN)
4	KOTS000013	FILTER STRAINER 1/2"
5	ITAL000002	HP GAUGE 0/400 BAR
6	UNIJ000067	UNLOADER BYPASS HOSE 3/8" WITH FITTINGS
7	TIEF000027	MALE NIPPLE 3/8" - 1/2" BSPP
8	KOTS000015	LP ELBOW 1/2"
		ALL OTHER ITEMS UPON REQUEST

HP Pump



POSITION	CODE	DESCRIPTION
	INTE000206	COMPLETE PUMP
KIT 269	INTE000265	KIT 269 INTAKE/DELIVERY VALVES (INCL. POS. 2,3,4,5,6,13,14,15,16,17,(7),(18) x3 PCS.)
KIT 292	INTE000272	KIT 292 VALVE PLUGS (INCL. POS. 8,9,20,21 x3PCS.)
KIT 271	INTE000267	KIT 271 OIL SEAL D.15 58/59 SERIES (INCL. POS. 39 x 3PCS.)
KIT 285	INTE000270	KIT 285 PACKING D.20 59 SERIES (INCL. POS. 23,24,25,27,29 x 3PCS.)
KIT 290	INTE000271	KIT 290 CPL.SEAL D.20 59 SER (INCL. POS. 23,24,25,26,27,29,30 x1PC.)
		ALL OTHER ITEMS UPON REQUEST

Unloader Valve

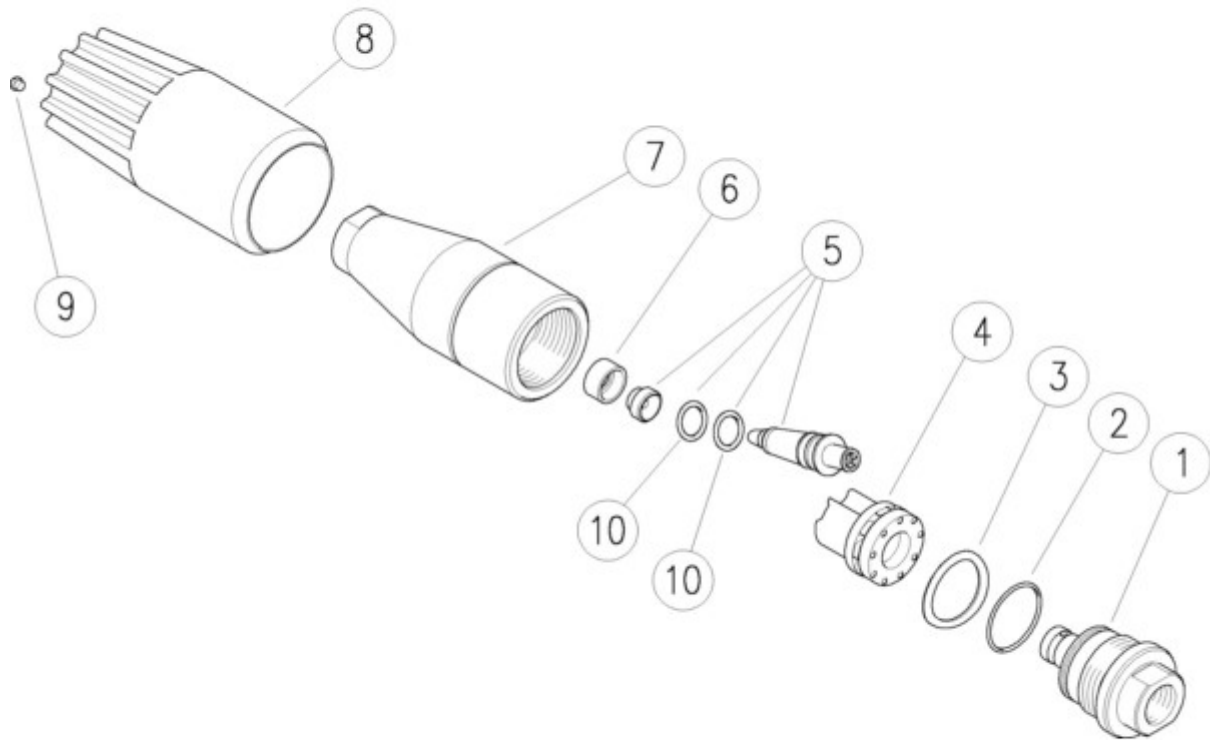


POSITION	CODE	DESCRIPTION
	PAI0000261	PRESSURE REGULATING UNLOADER VALVE
35	PAI0000217	PLASTIC KNOB FOR REGULATOR VALVE
K1	PAI0000263	SPARES KIT – 9 PIECES (INCL. POS. 2,5,14,15,16,18,19,23,24)
		ALL OTHER ITEMS UPON REQUEST

HP Gun

POSITION	CODE	DESCRIPTION
	UNIJ000070	RL COMPLETE GUN WITH LANCE
	TECO000015	FLAT JET NOZZLE 15 040 @ 380 V/50 HZ
	TECO000014	FLAT JET NOZZLE 15 050 @ 400 V/50 HZ
		ALL OTHER ITEMS UPON REQUEST

Rotating Nozzle (Optional Equipment)



POSITION	CODE	DESCRIPTION
	UNIJ000135	ROTATING NOZZLE 035 @50 HZ WITH NIPPLE
5		SPARES KIT FOR ROTATING NOZZLE 035
	UNIJ000136	ROTATING NOZZLE 040 @60 HZ WITH NIPPLE
5	PAI0000104	SPARES KIT FOR ROTATING NOZZLE 040
4	PAI0000103	TURBINE
		ALL OTHER ITEMS UPON REQUEST

Maintenance Plan

Your HYDRO 250E15 high pressure cleaner is extremely easy to maintain, a fact that helps you to increase the efficiency of your work considerably. To guarantee a long and trouble-free service life, however, the machine requires a minimum amount of care and maintenance.

During daily use please respect the following:

Free the water supply and the high-pressure hoses, and particularly their couplings from dirt before assembly.

Clean the lance and gun, particularly their connections before assembly.

To protect against wearing the components of the unit to particularly heavy duty, specified maintenance and inspection works must be carried out in certain time intervals.

In connection with these works the following safety instructions must be observed by all means:

Maintenance work must be carried out only with a stopped motor and pressure-free hoses. Danger of injury due to rotating parts!

Daily inspection – Testing

For the safety of the machine and operator please check the following points:

- High pressure pump
- Pressure manometer - gauge
- High pressure hoses
- High pressure pistol
- Pressure regulator
- Electric current cable
- Function of main switch.
- Water strainer, check and clean if necessary.

Weekly inspection – Testing

- First oil change of high-pressure pump after 50 working hours, then every 500 working hours.
- Checking oil level of high-pressure pump.
- Checking oil quality.
- Cleaning water filter.
- **Check electrical board screws and tight in case of loose screws (after the first 30 working hours).**

6 Month inspection

- Change of pump oil every 6 months every 500 working hours (whichever comes first)

12 Month inspection

- This yearly inspection including changes of parts must be carried out by authorized technicians.

Water filter

- Unscrew the brass cover of the strainer.
- Clean the dirty strainer or replace it if damaged.
- Screw the cover.

Time interval for filter cleaning depends on water supply quality. In case of the existence of particles or soil, the cleaning should be done frequently – even daily.

Fault and Remedies

FAULTS	POSSIBLE CAUSE	REMEDY
Pump motor does not run	Incorrect power supply	Check power supply.
	missing one phase	Motor protection activated check reason for motor overload
	Pilot fuse damaged	Change fuse
	Water supply pressure too high (more than 5 bar/70psi)	Reduce water supply pressure with pressure reducer
High pressure shock in case of release trigger from hand	Unloader valve did not operate correct	Check function of pressure regulator
		Replace seal kit
Unloader valve switched all the time during handgun is closed	Leak in hp-hose, handgun or in the check valve from valve	Seal the leak by changing O-rings of hp-handgun and valve
Operating pressure too low	Wrong size of hp-nozzle	Use hp-nozzle as shown on number plate
	Safety valve adjusted to a low pressure	Call technician.
	Dirt in the safety valve (by-pass seal)	Call technician.
	Valves from hp-pump are damaged or dirt on the valves	Call technician.
	v-sleeves are damaged	Replace v-sleeve kit
	Hp-pump sucking incorrect air into suction pipe	Seal suction pipe
Operating pressure too high	Pressure gauge damaged	Replace pressure gauge
	Unloader valve not correct adjusted	Adjust unloader valve to right pressure
	Unloader valve damaged	Replace unloader valve
	Too long or small hp-hose	Reduce length of hp-hose
Hp-pump is very noisy	Water supply is not enough	Clean water filter, check water supply
	Hp-pump sucking incorrect air in suction pipe	Seal suction pipe
	Supply water temperature too high	Supply water with lower temperature
No operating pressure, no water supply	Suction pressure valves are dirty	Clean the valves
	Gaskets are dry, brittle, damage malfunction electro motor	Replace gaskets
	Suction pipe coupling is leaking	Replace and ventilate
	Dirty high pressure nozzle	Clean/replace high pressure nozzle
	Wrong adjustment of pressure regulation valve	Adjust of needed pressure
	Pressure of water too low	Check water supply
	Valves / gaskets are damaged	Replace valves / gaskets

General Guarantee Conditions

Guarantee Period

The guarantee period of new high pressure devices and accessories is 12 months from the date of purchase. In all cases the guarantee is based on normal utilization of the devices and accessories. Guarantee services are limited to services that are immediately related to the products delivered. Any consequential or accompanying damage such as idle run times, lost production or other damages that do not occur directly to the product are excluded from service under the guarantee.

Guarantee Limitations

The guarantee includes and is limited to our choice the repair or the replacement of any defective part. In case of repair, this will be performed by our technical department. Please send us the defective part(s) free of freight charge.

Requirements

Zisimopoulos S.A. is only obliged to honor claims made under guarantee if the requirements listed below have been met by the customer:

- Devices and accessories have been used exclusively in accordance with the requirements of the operating instructions or other items of documentation provided.
- The devices have been operated exclusively with original high pressure/Zisimopoulos S.A. accessory parts.
- All maintenance tasks and safety checks have been performed within the prescribed period by a Zisimopoulos S.A. authorized service center.

Exclusions

No guarantee is extended for unusual operating conditions for which Zisimopoulos S.A. has not issued express written approval. In addition, all damage and detrimental effects that are attributable to normal wear and tear are excluded from guaranteed coverage.

Further criteria for exclusion are:

- Calcification
- Wear and tear
- Fatigue
- Corrosion

- Frost influence
- Dirt from air, water and consumable materials
- Defective intake and air quality output

Guarantee Services

Guarantee services include replacement delivery or repairs of the goods on our premises, where they should be sent with no freight charge.



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