STEELPUMPS

# SPV-LQDL

## Centrifugal vertical multistage pumps

**EN** Original Instructions



## Dichiarazione CE di conformità

Noi STEELPUMPS srl dichiariamo sotto la nostra esclusiva responsabilità che le pompe SPV tipo e numero di serie riportati in targa, sono conformi alle prescrizioni di sicurezza della Direttiva Macchine 2006/42/CE, della Direttiva Bassa Tensione 2014/35/UE e della Direttiva sulla Compatibilità Elettromagnetica 2014/30/UE.

## EC Declaration of Conformity

STEELPUMPS srl declares, under its own responsibility, that the SPV pumps, with the models and serial numbers specified on the nameplate, are compliant with the safety requirements of the Machine Directive 2006/42/CE, of the Low Voltage Directive 2014/35/UE and in the Electromagnetic Compatibility Directive 2014/30/UE.

## Déclaration de conformité CE

STEELPUMPS srl déclare sous son entière responsabilité que les pompes SPV et numéro de série reportés sur la plaque - sont confonmes aux prescriptions de sécurité imposées par la Directive Machines 2006/42/CE par la Directive Bass~ Tension 2014/35/UE et par la Directive sur la Compatibilité Electromagnétique 2014/30/UE.

## EG-Konformitatserklarung

Wir, das STEELPUMPS, erklaren unter unserer ausschlieBlichen Verantwortung, dass die Pumpen SPV mit dem am Typenschild angegebenen Modelltyp und Seriennummer den Schutzanforderungen der EG~ aschinenrichtlinie 2006/42/CE sowie der Niederspannungsrichtlinie 2014/35/UE und der EWGRichtlinie über die elektromagn~!ische Vertraglichkeit 2014/30/UE.

## Declaraci6n de conformidad CE

STEELPUMPS srl. declara bajo su exclusiva responsabilidad, que las bombas SPV, tipo y numero de serie tal como resultan en la placa de identificacion correspondiente, son confonmes con las prescripciones de seguridad estipuladas por la Directiva de Maquinas 2006/42/CE con la Directiva de Baja Tension 2014/35/UE y con la Directiva sobre Compatibilidad Electromagnética 2014/30/UE.

## Declaraçao CE de conformidade

A STEELPUMPS srl declara, baixo a propria e exclusiva responsabilidade, que as bombas SPV, tipo e numero de série anotados na placa, estao conforme às prescriç6es de segurança da Directiva Maquinas 2006/42/CE, da Directiva Baixa Tensao 2014/35/UE e da Directiva sobre a Compatibilidade Electromagnética 2014/30/UE.

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L'amministratore

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# 1. GENERAL SAFETY INFORMATION

Please follow the directions in this manual carefully.

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, except under the supervision or instruction concerning use of the appliance by a person responsible for their safety. It is necessary to ensure that children do not play with this apparatus.

- The user must always observe the local accident prevention regulations in force in the country where the product is installed.

- During repair or maintenance services on the electric pump, remove the plug from the socket and/or disconnect the switch (if any), thus cutting off the power supply to the electric pump. This is to prevent accidental start-up that could cause damage to people and/or property.

- Do not service, install or move the electric pump when the electrical system is live: this can cause serious accidents, even fatal ones, to people.

- During operation, do not remove or move the electric pump.

- Check each time, before using the electric pump, that the cable and all electrical devices are efficient, repaired and protected. When starting the electric pump (by inserting the plug in the socket and/or turning on the switch), avoid being barefoot and having wet hands.

- Failure to comply with the procedures and safety precautions contained in the documentation provided will exclude STEELPUMPS S.r.l. from any responsibility.

## 2. SCHEDULED USES

The machine is designed, manufactured and protected to allow the transfer, circulation and pressure increase of the following types of liquids:

- Water temperature up to +70 °C and ambient temperature up to +40 °C.
- Liquids with water-like viscosity, neutral, non-explosive.
- The machine has been designed, manufactured and protected to allow a liquid flow rate depending on the desired head (see "Product sheet").
- The pump should not be used with acidic and/or corrosive substances.

## 3. REQUIRED INSTALLATION MODE

The machine is designed, manufactured and protected to be installed in environments:

- Interior
- Exterior, with weather protection

The machine is designed, manufactured and protected to be:

- Permanently installed vertically using the 4 holes at the base of the pump for anchorage and using the corresponding bolts and self-locking nuts to prevent them from loosening due to vibrations when the pump is in service.
- Horizontal installation is not recommended

The machine has been designed, manufactured and protected to be powered by electricity having one of the following characteristics:

- 230 V, 50 Hz, single-phase
- 230/400 V, 50 Hz, three-phase

NOTE: STEELPUMPS S.r.l. does not assume any responsibility for any damage to people, animals or things deriving from an unintended use of the machine.

# 4. CHARACTERISTICS OF THE INSTALLATION AREA

The installation site for the machine must have the following characteristics:

- Allow easy positioning and access to the machine.
- Allow safe connection to the electrical syste
- Allow safe connections to piping
- Provide adequate natural and/or artificial lighting for safe operation
- Provide a minimum distance of 150 mm between each point of the machine and any obstacle
- Provide sufficient ventilation for the motor fan.

CAUTION: Do not cover or obstruct the motor fan cover grille.

# 5. CONNECTION

The piping to which the machine is to be connected must have the following characteristics:

- Minimum diameters suitable for the machine
- Suction line length reduced to a minimum (< 0.5 m).
- If the machine is assembled on top of the machine, check valve on the suction line
- Gate valves on delivery and suction piping
- If the machine feeds a boiler, check valve on the delivery piping

The electrical supply network must have the following characteristics

- Have differential protection
- Have voltage and frequency values corresponding to the values indicated on the machine's motor data plate
- Have a power output not lower than the value indicated on the nameplate of the machine motor
- Have a contactor with adequate thermal protection
- Have a self-compensated thermal relay regulated according to the real current absorbed.

- Have a disconnecting switch with protection fuses
- Have cables of sufficient section for the current absorbed by the motor

## 6. ELECTRICAL SYSTEM CONNECTION

- It will be the responsibility of the installer to make sure that the power supply system has an efficient grounding system in accordance with current regulations.
- Before removing the motor terminal board cover and before any work on the electric pump, make sure that the power supply line has been disconnected.
- Electrical connections should only be made by qualified personnel in accordance with local regulations regarding electrical connections.

To connect the machine to the electrical system, for THREE-PHASE ENGINES, carry out the following operations:

- Make sure the motor is suitable for the mains voltage
- Disconnect the electrical system by means of a disconnecting switch
- Unscrew the screws that secure the terminal box cover
- Insert the power cable in the cable gland
- Connect the phases and ground to the terminals
- Put back the terminal box cover with the gasket and tighten the screws that fix the terminal box cover
- Switch on the power supply through the disconnecting switch
- Check the direction of rotation

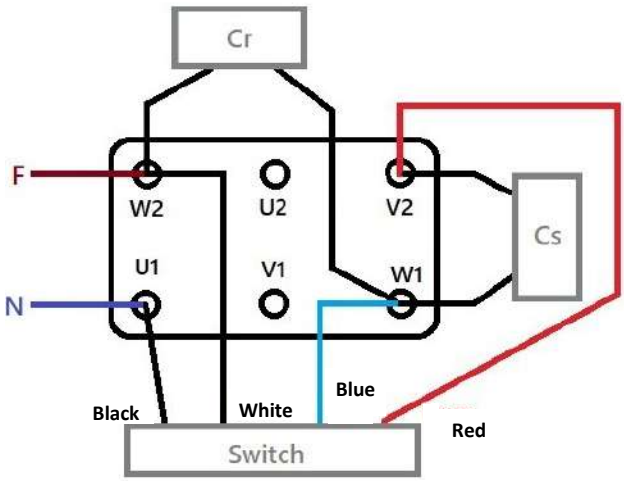
If the direction of rotation agrees with the direction of rotation indicated by the arrows on the machine head, the connections are correct.

If the direction of rotation is opposite to the direction of rotation indicated by the arrows on the machine head, carry out the following operations:

- Disconnect the electrical system by means of the disconnecting switch
- Reverse the connection of two phases

To connect the machine to the electrical system, for SINGLE-PHASE ENGINES, carry out the following operations:

- Make sure the motor is suitable for the mains voltage
- Disconnect the electrical system using a disconnect switch
- Unscrew the screws of the terminal cover
- Insert the power cable into the cable gland
- Connect the lines and ground and replace the terminal cover with the gasket




- Tighten the screws of the terminal cover and switch on the power supply through the disconnecting switch
- Check the direction of rotation

If the direction of rotation agrees with the direction of rotation indicated by the arrows on the machine head, the connections are correct.

If the direction of rotation is opposite to the direction of rotation indicated by the arrows on the machine head, perform the following operations:

- Disconnecting the electrical system using a disconnect switch
- Unscrew the screws that secure the terminal cover
- Using a jumper, momentarily short-circuit the ends of the capacitor
- Change the position of the jumpers and remove the jumper
- Replace the terminal cover with the gasket
- Tighten the screws on the terminal cover

# 7. PRIMING

To fill a machine under head, perform the following steps:

- Close the gate valve on the delivery line
- Unscrew the priming plug and open the gate valve on the suction line

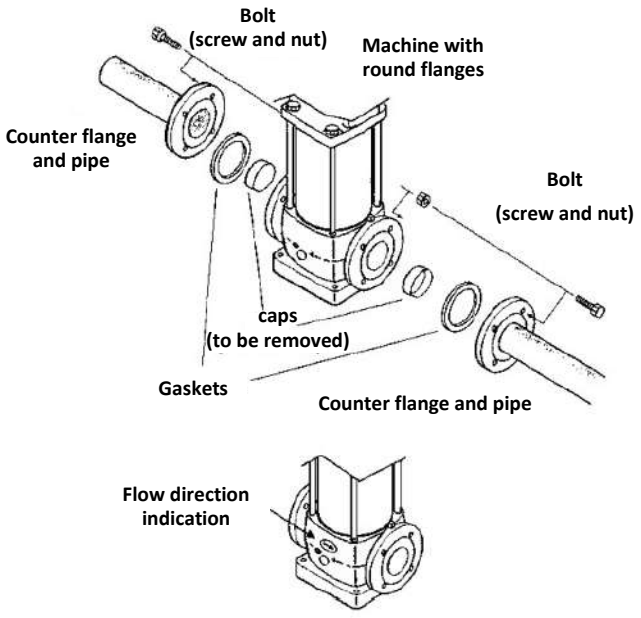
When liquid comes out of the priming cap continuously, perform the following steps:

- Screw the priming cap back on
- Completely open the gate valve on the suction and delivery piping
- Screw back the priming cap
- Completely open the gate valve on the suction and delivery pipe

To fill an overhead machine, perform the following steps:

- Check that the length of the suction pipe is < 0.5 mt
- Check the presence of the check valve on the bottom of the suction pipe
- Check the presence of gate valves on the delivery and suction pipes
- If the machine feeds a boiler, check valve on the delivery pipe
- Open the gate valve on the suction pipe and, if possible, fill it with liquid
- Close the gate valve on the delivery line

Perform the following steps to connect the machine to the piping:



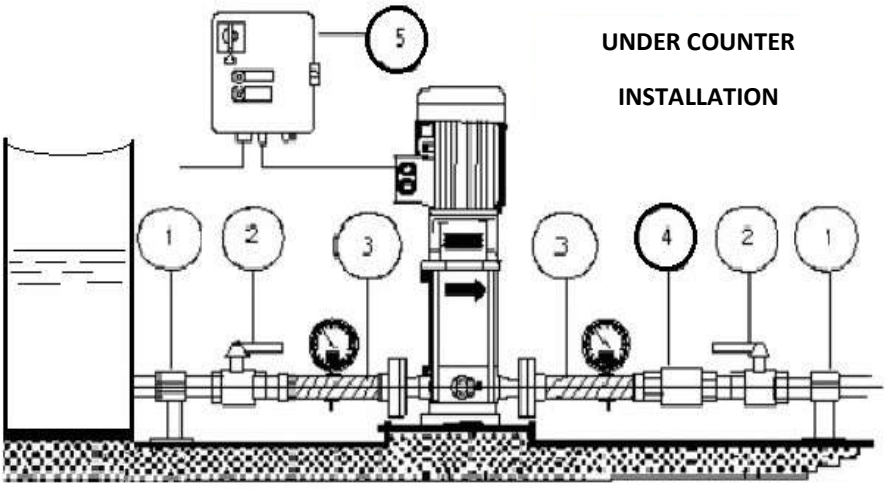

• Attach on the ends of the pipes two counterflanges with dimensions corresponding to the dimensions of the machine flanges.
• Remove the two protective caps from the machine flanges.
• Position the machine so that the arrows on the base correspond to the liquid flow direction.
• Insert two circular gaskets between the counterflanges and the flanges.
• Insert the screws in the holes of the flanges and counterflanges.
• Tighten adequately and alternately the nuts on the screws.

When liquid comes out of the priming cap continuously, perform the following steps:

- Screw the priming cap back on
- Open the gate valve on the suction line completely
- Open the gate valve on the delivery pipe halfway
- Start the machine for about 10 seconds
- If the machine does not deliver liquid, it may be necessary to repeat the filling operation.

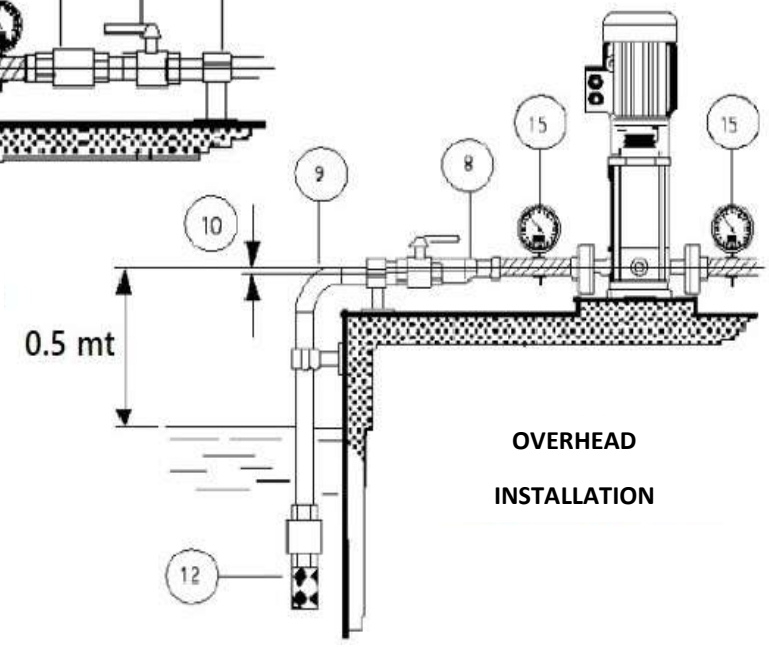
The following operations are recommended for the first start-up:

- Open the gate on the discharge pipe and start the machine
- Slowly open the gate valve on the delivery piping to avoid water hammer on the delivery piping
- Adjust the connection and disconnection pressure of the start-up automatism and, if present, check the calibration of the expansion tank according to the start/stop device.




**UNDER COUNTER INSTALLATION**

**1) Pipe support**
**2) Gate valve**
**3) Flexible pipe**
**4) Check valve**
**5) Electric box**
**6) Water tank**




**OVERHEAD INSTALLATION**

**8) Eccentric reduction to increase the suction diameter**
**9) 45 degree bend to limit pressure drops**
**10) Pipe with positive gradient to avoid the formation of air bubbles**
**12) Foot valve with filter**
**15) Pressure gauge**

# 8. OPERATING PROBLEMS

| PROBLEM | CAUSES |
|---|---|
| THE ENGINE DOES NOT RUN WHEN STARTING | 1) Line voltage is interrupted. |
| | 2) Blown fuse. |
| | 3) Thermal relay has tripped. |
| | 4) Motor starter contacts do not conduct or coil is defective. |
| | 5) Auxiliary circuit fuses are blown. |
| | 6) The machine motor is faulty. |
| THE THERMAL MOTOR STARTER TRIPS WHEN VOLTAGE IS APPLIED | 1) Blown fuse. |
| | 2) Motor starter contacts are faulty. |
| | 3) Electrical connections are faulty. |
| | 4) Motor windings are defective. |
| | 5) The machine is mechanically blocked. |
| | 6) The setting of the thermal relay is too low. |
| THE THERMAL RELAY OCCASIONALLY TRIPS FOR NO APPARENT REASON | 1) The setting of the thermal relay is too low. |
| | 2) Line voltage is missing periodically. |
| | 3) Line voltage during peak periods is too low. |
| THE THERMAL RELAY DID NOT INTERVENE BUT THE MACHINE DOES NOT WORK | 1) Line voltage is interrupted. |
| | 2) Blown fuse. |
| | 3) Motor starter contacts do not conduct or coil is defective. |
| | 4) Auxiliary circuit fuses are blown. |
| THE FLOW RATE OF THE MACHINE IS NOT CONSTANT | 1) Suction tube is undersized. |
| | 2) Suction liquid availability is insufficient. |
| | 3) Liquid level is too low. |
| | 4) The suction pressure is insufficient. |
| | 5) Suction tube is partially clogged. |
| THE MACHINE WORKS BUT DOES NOT DISPENSE LIQUID | 1) The suction pipe or pump is clogged. |
| | 2) The foot valve (or check valve) is stuck in the closed position. |
| | 3) There are leaks in the suction pipe. |
| | 4) There is air in the suction line or pump. |
| AT THE MOMENT OF STOPPING THE MACHINE TURNS BACKWARDS | 1) There are leaks in the suction pipe. |
| | 2) The foot valve (or check valve) is defective. |
| | 3) The foot valve (or check valve) is blocked in partial or total opening position. |

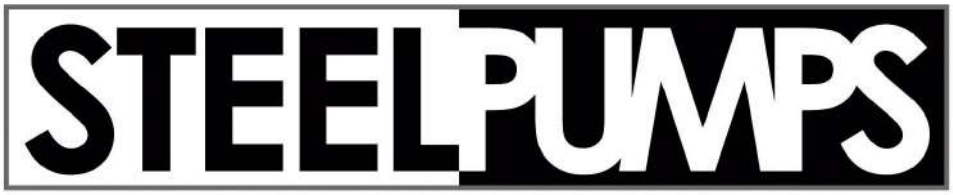
# 9. DISPOSAL

STEELPUMPS S.r.l declines any responsibility in case of recycling or reuse of machine parts.

WARNING: The machine is made of non-biodegradable materials.

NOTE: Please take the machine to an equipped deposit for disposal.

# 10. NOTES




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