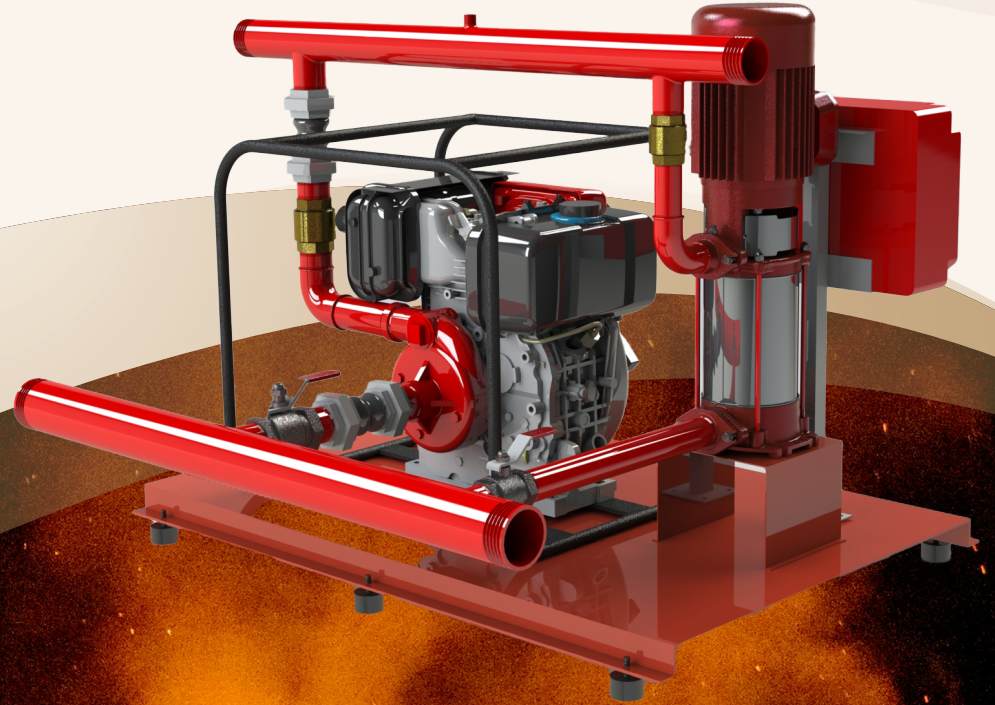


Bader Motor Technology'nin Dizel yangın pompası, yangın söndürme sistemlerinde su basıncını ve akışını artırarak güvenilir bir yangınla mücadele sağlar. Bu teknoloji, düşük veya düzensiz su basıncı olan yerlerde özellikle faydalıdır. Enerji tasarruflu motor sistemi sayesinde, işletme maliyetlerini düşürürken yüksek performans sunar. Kompakt tasarımı sayesinde mevcut su sistemlerine kolayca entegre edilebilir. Bu yangın pompası, yangınla mücadelede su basıncını sabit tutarak sistemin verimliliğini artırır ve güvenliği sağlar.



DİZEL YANGIN HİDROFORU

BAKIM/MONTAJ
KULLANIM KILAVUZU



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1 GENERAL INFORMATION

The purpose of this manual is to provide the user with the basic information necessary for the installation, use and maintenance of the vertical pump fire booster. Read this manual carefully before installing and using the product. Improper use of the product may cause personal injury and material damage and may void the warranty.

2 PRODUCT FEATURES

Horizontal booster system consists of two electrically driven pumps and one jockey pump. The pumps, which are connected to each other with the collector, are supplied as a set with compensator, ball valves, check valves, independent pressure switches and control panel with weekly test programme clock.

Vertical booster system consists of two electrically driven pumps and one electrically driven jockey pump. Pumps connected to each other with collector, compensator, ball valves, check valves, independent pressure switches and control panel with weekly test programme clock are offered as a set.

3 WORKING PRINCIPLES

The booster automatically starts and stops every week on the set day and time for the set time. At a time set in the weekly test programme, one pump is started at a time and all pumps are started respectively. If the water level falls below the minimum level in the water tank, the device cannot provide the required pressure and falls to the calibration pressure (a value just below the operating pressure). At this point, an audible and visual alarm is activated by the electronic circuit. If there is a water demand from the system during the weekly test programme, the test ends and the fire booster starts its normal operation.

In case of fire, the jockey pump is activated first to meet the water demand of the system, if the jockey pump cannot meet the demand and the pressure continues to drop, the 1st main pump is activated. If the water demand increases, the 2nd main pump is also activated automatically.

4 TRANSPORT

Check whether there is any damage on the booster during the transport of the booster. If necessary, call our nearest dealer. Do not use the motor hooks, suction or discharge collectors as a means of transport. The booster must be transported using a suitable transport device. Since large booster units are unpackaged, they should be lifted from the main chassis with the help of a sling. Take care to place the device gently on the ground.

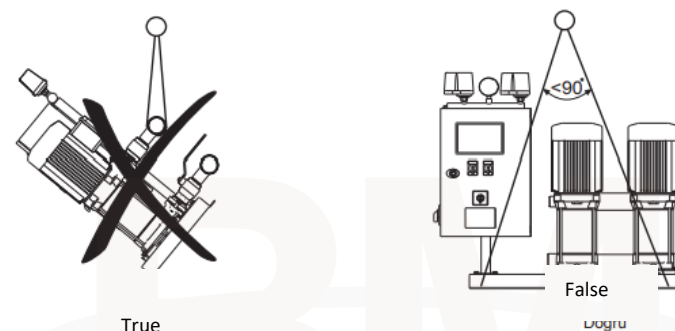


Figure 4.1 The correct transport point

5 USAGE

Fire Booster Booster;

- ❖ Residential and commercial buildings.
- ❖ In hospitals and schools.
- ❖ Used in hotels and holiday villages.

Not suitable for the following liquids;

- ❖ Liquids containing abrasives.
- ❖ Liquids containing solid and fibrous objects.
- ❖ Flammable and explosive liquids.

6 ASSEMBLY

- ❖ The fire booster must be installed in a place where there is no danger of freezing and explosion and in a damp-free place with very good ventilation.
- ❖ In the booster room or booster station, suitable environment and equipment should be provided in order to ensure the temperature above +4 °C continuously.
- ❖ The room must be of sufficient size for easy entry and exit.
- ❖ If the room is at minus level, a staircase should be built to allow easy up and down (It is very important to intervene as soon as possible in case of emergency). The lighting of the room should be sufficient and there should be enough sockets in the room.
- ❖ The fire booster should be placed as close as possible to the water tank or cistern. The suction pipe should be short and its diameter should be at least the diameter of the pump suction or larger, and a place where it can be installed using the least number of bends or elbows should be selected.
- ❖ Pipe connections (collectors, suction line, discharge line) should be arranged in such a way that they do not prevent access to the entrance exits, emergency access parts and control panels.
- ❖ When placing the fire booster, it should be taken into consideration that the engine and/or pump group can be dismantled and taken out of the room in case of a malfunction. (Pipe and collector connections should not prevent the dismantling and removal of the pump and/or engine, which are other boiler room equipment).
- ❖ The floor should be sloped for adequate water drainage. If the group room is at minus level, the accumulated water should be discharged by using a submersible pump and the submersible pump should be backed up.
- ❖ If there is a possibility of flooding in the room; electrical control panels should be mounted above the floor as much as possible. If necessary, it should be moved to a section that is not likely to be flooded.
- ❖ If the control panels are on the chassis of the pump group; the control panel should be mounted in such a way that it can be easily accessed and its cover can be fully opened (for malfunction-maintenance).
- ❖ If the control panels are separate from the chassis of the pump group; the control panel should be mounted in a place where it can be easily reached and, if possible, the front panel can be seen directly when entering the room.
- ❖ **Control panels must be earthed.**

7 SUCTION/DISCHARGE PIPES

Pipes resistant to the maximum booster pressure must be used, the suction pipe must be well sealed and the suction pipe must be of suitable size. The diameter of the suction pipe must be at least larger than the diameter of the booster collector or pump inlet.

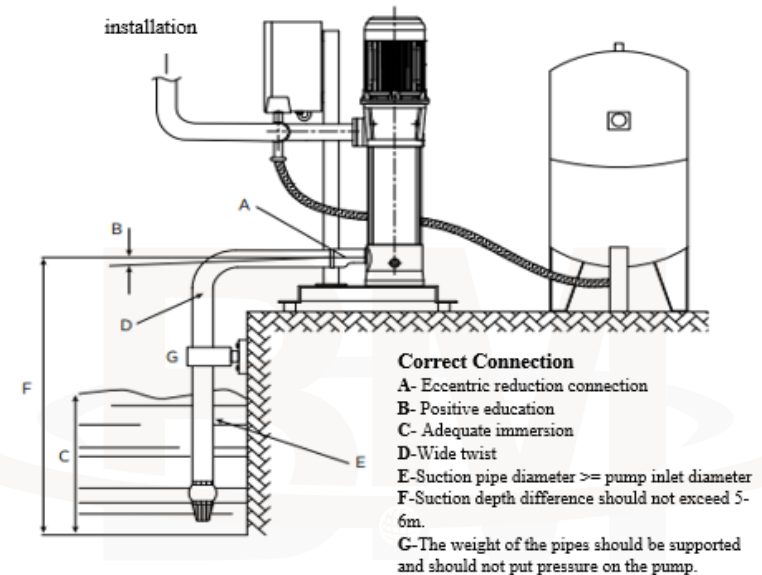


Figure 7.1 Proper connection assembly of the booster pump

The suction pipe of a hydrophore that will operate by suctioning from an underground water tank or source should be as short as possible, single elbow and at least pump inlet diameter, and should be made with a slope rising 1-2 degrees from the elbow towards the pump. (Figure 7.1) In reverse sloped installations, an air pocket is formed as shown in Figure 7.2 and the pump cannot suction. It is inconvenient to use a check valve at the outlet of the pump other than the vertical valve or check valve installed at the end of the pipe. When the non-return valve or check valve fails, the booster will leak water and cause pressure loss and the booster will make itself felt with frequent activation of the booster and will ensure that it is maintained. Otherwise, the failure of the suction valve will not

be felt due to the check valve present in the pressure line and the suction line will remain without water as the water escaping backwards will not be noticed and will cause damage to the pump or pumps. Another issue is that it is extremely unfavourable to use a common suction collector in multi-pump booster systems. Since the suction collector will have a large diameter due to the large diameter of the suction collector, it will cause a separate load loss in case of operation of a single pump and if it breaks down, it will cause damage to all pumps in the booster set. Therefore, in multi-pump systems, it is of great benefit to have the pumps suctioned separately.

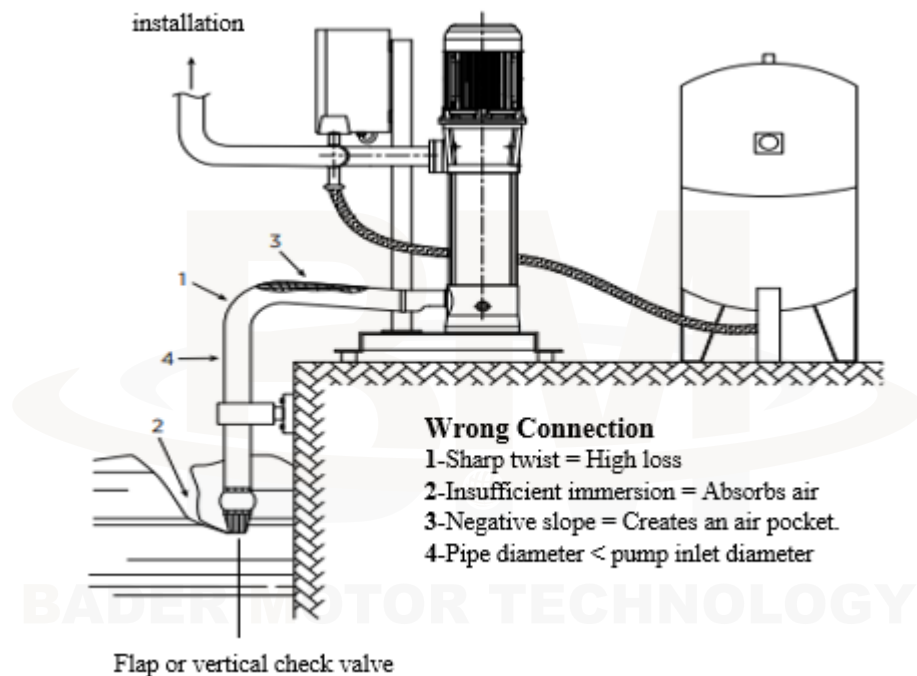


Figure 7.2 Incorrect connection assembly of the booster pump

8 OPERATION OF FIRE HYDROPHORE SYSTEM

Boosters are driven by single-phase or three-phase motors in accordance with European standards. Boosters must be connected by a qualified electrician or our technical service

in accordance with the current electrical legislation. The booster must be earthed before any operation.

- ❖ Single-phase and single-pump three-phase booster pumps are manufactured with float switches that prevent waterless operation.
- ❖ Multi-pump and three-phase booster pumps are manufactured with main switch, fuses, contactors, phase protection relay, electronic phase sequencing relay, float switch that prevents running without water, automatic / manual operation, reset switches and electrical panel containing no water warning lamp.

8.1 Pre-Run

The suction pipe and pumps must be filled with water in order to operate the fire booster for trial purposes. Make pipework connections as shown in Figure 8.1 and Figure 8.2 and connect the float switch.

Booster Air Intake;

Remove the bleed plug (Figure 8.1), open the suction valve and wait. Close the plug when water comes in.



Figure 8.1. Booster air plug

Control of the direction of rotation of three-phase motors;



Figure 8.2 Booster rotation direction

After the connections and water filling are completed, start the booster pump with the discharge line valve closed and check the direction of rotation by looking through the holes of the motor fan cooling cover or by looking at the coupling. The direction of rotation must be in the direction of the arrow shown on the booster pump. If the arrow directions are not correct, replace the two cables from the main electrical connection (junction box).

8.2 Negative Suction Fire Booster System

The most important situation to be considered in negative suction systems is to prevent the fire booster system from running without water. In order for the booster to operate without damage, care should be taken not to operate without water. It is important to remove the air in the indirect pump and add water to the pump.

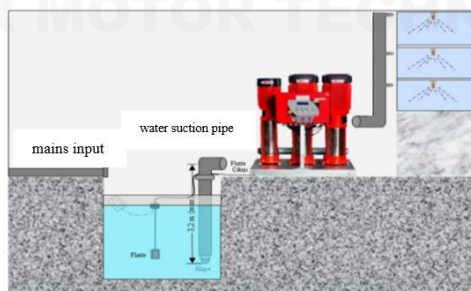


Figure 8.3 Negative suction fire booster system diagram

8.3 Positive Suction Fire Booster System

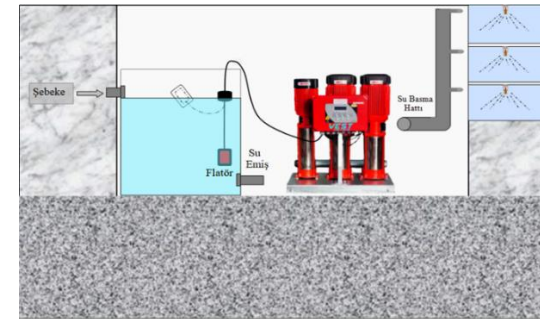


Figure 8.4 Positive suction fire booster system diagram

8.4 Electricity Connection

- ❖ Firstly, make the grounding of the booster thoroughly.
- ❖ Open the main control panel, connect the three phase power line to the main fuse and connect the neutral line to the terminal.
- ❖ Check the rotation direction of the main pumps/jockey pump. If it is wrong, reverse the two phases.
- ❖ Finally, install the level float and adjust it as shown in Figure 8.5.

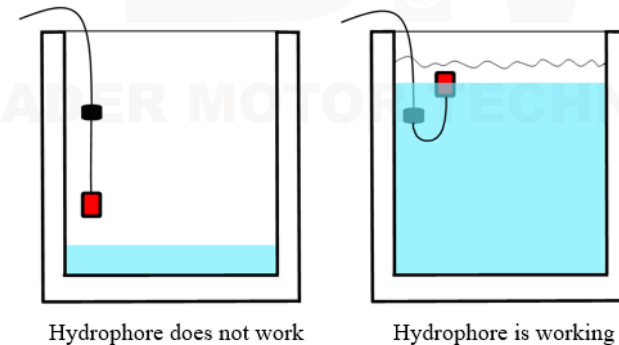


Figure 8.5 Floater usage method

8.5 Principle of Operation

Switch on the booster when the discharge valve is closed and watch the pump(s) reach the stop pressure on the pressure gauge. Then open the service tap and check that the pressure drops and the pump/pumps are activated at operating pressure. If everything is OK, pressurise the system at booster pressure by opening all valves in the outlet line.

For Fire Booster Boosters with Two Pumps; Starting and stopping of the pumps is determined by the values set on the pressure switch. Each switch is connected to a single pump with sequential changeover. Differential pressure is the pressure between starting pressure and stopping pressure. It is set at the same differential pressure values for each pump.

Water is drawn from the tank on demand.

- ❖ When the pressure drops to P1, the 1st pump starts.
- ❖ If water consumption increases, the pressure drops to P2 and the 2nd pump starts.
- ❖ When the consumption decreases, if the pressure increases and reaches P2, one of the pumps stops.
- ❖ If the consumption continues to decrease, the pump charges the membrane tank and stops at P1s.
- ❖ A different pump is switched on alternately each time.

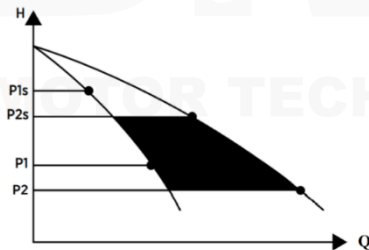


Figure 8.6 Pump operation stop graph

9 JOKEY PUMP

Jokey pump is generally used in large systems to meet small water consumption in dead hours instead of the main pump. Therefore, it saves energy.

9.1 CARE

Fire Boosters do not require periodic maintenance. However, depending on the operating conditions, it is important to carry out some of the following checks.

- ❖ Leaks
- ❖ Number of switches per hour (Number of switching on/off)
- ❖ Noise and Abnormal Operation

In case of any malfunction, refer to the troubleshooting section. Check the air in the membrane tank periodically (1 in 6 months). Pumps do not require routine maintenance. However, major maintenance may be required over time, such as cleaning the pumps, replacing mechanical seals or worn parts.

10 TROUBLESHOOTING

Disconnect the electricity supply to the fire booster before maintenance is carried out.

FAILURE	REASON	TROUBLESHOOTING
The booster is not working.	<ul style="list-style-type: none"> ✓ There is no electricity. ✓ The fuse may have blown, the motor or the supply cable may have short-circuited. 	<ul style="list-style-type: none"> ✓ Provide electricity. ✓ Repair the motor or replace the cable.
Booster does not flood, intermittent or little water	<ul style="list-style-type: none"> ✓ The pipe is blocked or the valve is stuck. ✓ The pump does not pump water because it is not filled with water, there is a leak in the suction pipe or vertical 	<ul style="list-style-type: none"> ✓ Remove, clean or replace the pipe. ✓ Fill the pump with water. Reduce the level difference of the suction pipe or vertical flapper. Use a smaller diameter pipe.

	<ul style="list-style-type: none"> ✓ flapper, or the mechanical seal leaks water. ✓ There is a level difference or suction resistance. ✓ Inccorrent rotation direction (three phase motors). ✓ There is air in the suction pipe or pump. 	<ul style="list-style-type: none"> ✓ Check the vertical valve or use a larger diameter valve. ✓ Reduce the level difference. ✓ The direction of rotation is corrected by changing the phase ends on the electric fuse. ✓ Evacuate the air inside the pump.
The pumps are noisy and vibrating.	<ul style="list-style-type: none"> ✓ There is a worn motor bearing or a problem in the pump bearing. ✓ There is foreign material between the fixed and rotating parts of the pump. 	<ul style="list-style-type: none"> ✓ Replace bearings and housings. ✓ Clean or repair the pump.
The pump reverses when it stops.	<ul style="list-style-type: none"> ✓ There is a leak in the suction pipe. ✓ There is air in the suction pipe of damaged check valve or vertical valve. 	<ul style="list-style-type: none"> ✓ Repair or replace. ✓ Bleed the air.
The pumps do not work alternately.	<ul style="list-style-type: none"> ✓ Incorrect pressure switch setting. 	<ul style="list-style-type: none"> ✓ Adjust the pressure switch, replace it if it is broken.

11 MAIN COMPONENTS OF FIRE HYDROPHORE



Figure 11.1 Fire Booster

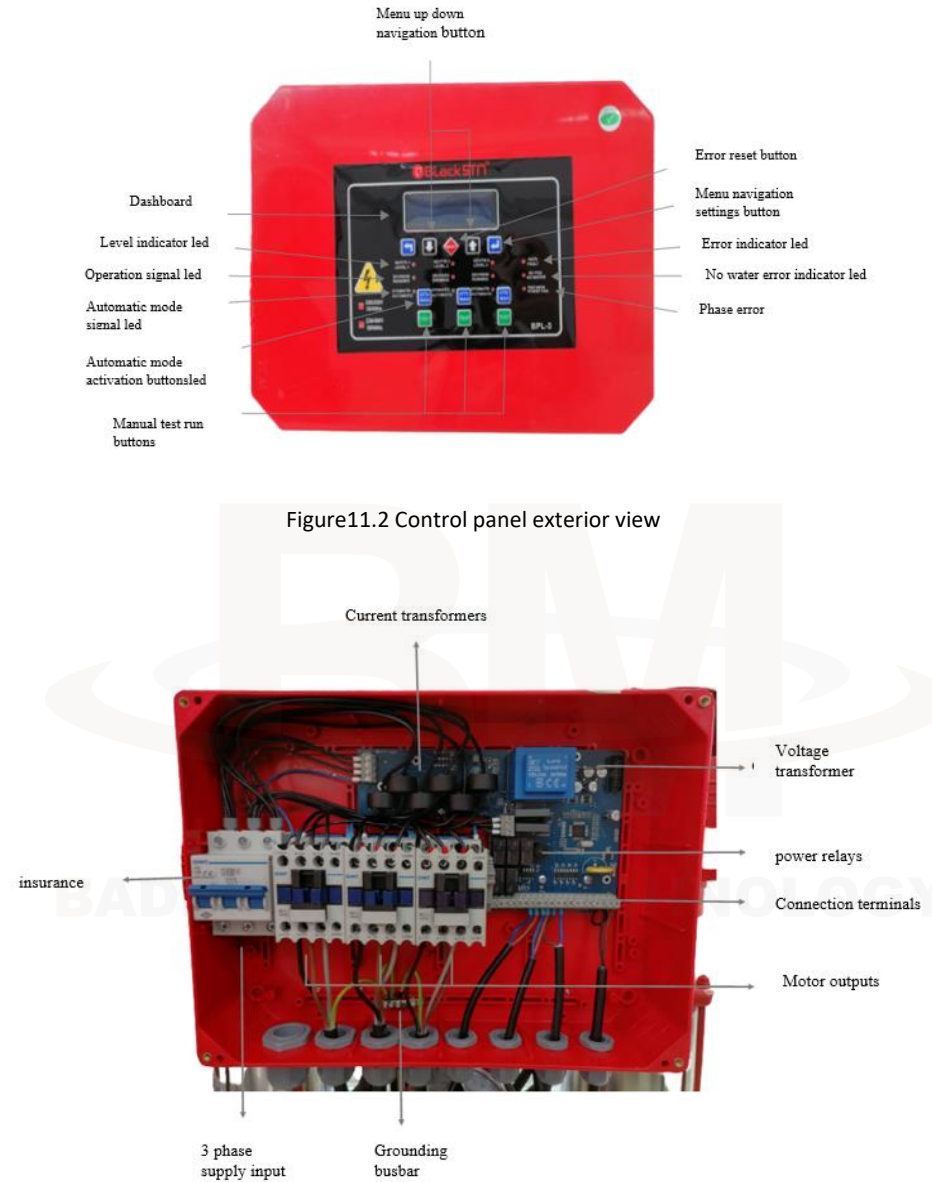


Figure11.2 Control panel exterior view

Figure 11.3 Control panel interior view

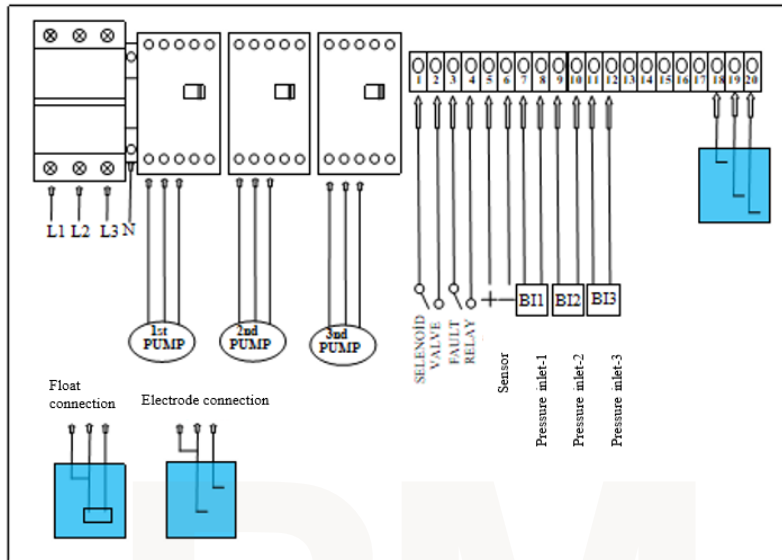


Figure 11.4 Control panel diagram

12 COMMISSIONING OF FIRE HYDROPHORE

12.1 Starting the Electric Pump

12.1.1 Manual Mode

Auto/MAN button is pressed to switch off the automatic led. Press and hold the TEST button and the fire pump U-V-W terminals are energised. When the TEST button is released, the fire pump is stopped and U-V-W ends are de-energised. The fire pump operates as long as the TEST button is pressed and stops when the TEST button is released.

12.1.2 Automatic Mode

By pressing the AUTO/MAN button, the automatic led is switched on. In this case, the TEST button no longer works. The fire pump is operated automatically according to the information received from the pressure switch. Pressure switches are connected to

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terminals 7-8,9-10,11-12. When the pressure drops, the LEVEL led lights up and the fire pump U-V-W terminals are energised. When the pressure level reaches the stop pressure, the LEVEL indicator goes out and the fire pump is stopped. Subsequently, the energy at the U-V-W ends is cut off.

13 MATTERS TO BE CONSIDERED

13.1 Matters to be Considered in Negative Suction Operation

- ❖ The installation pipe diameter in the pump suction line should not be smaller than the pump inlet diameter.
- ❖ Pump suction line should not be drawn as a very long line. If the pump suction line length exceeds 5m, one diameter larger pipe diameter should be used.
- ❖ If the above mentioned points are complied with, pump suction will be smooth. If these points are not followed, excessive resistance in the pump suction line will cause cavitation and damage to the pump impeller. At the same time, sufficient pressure will not be obtained at the outlet side of the pump.
- ❖ If the pump is operated under negative suction conditions, another problem to be encountered is the formation of an air pocket in the pump suction line. In this case, the pump suction will stop and the pump may run dry. This kind of situation causes very serious damage to the pump impeller and diffusers. The reason for the formation of an air pocket in the pump suction line is that the valve in the pump suction line mouth leaks water and the line takes air. In this case, the pump cannot suction. If the pump cannot suction, the control panel will not start the pump to prevent damage to the pump. In this way, dry running of the pump will be prevented.

14 SERICE

During the warranty period (2 years), faults occurring within the scope of the warranty are repaired free of charge by our authorised services.

15 SPARE PARTS SUPPLY

You can contact our company or our authorised services for spare parts supply.

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16 GUARANTEE

16.1 Guarantee Terms

- ❖ The warranty period starts from the date of delivery of the product and lasts for 2 years.
- ❖ All parts of the product, including all parts of the product, are covered by our company's warranty.
- ❖ If the product fails within the warranty period, the time spent in repair shall be added to the warranty period.
- ❖ The repair period of the product is 20 working days. This period starts from the date of notification to the service station, or in the absence of a service station, to the seller, dealer, agent, representative, importer or manufacturer of the goods.
- ❖ In the event that the product fails due to material and workmanship defects within the warranty period, it will be repaired without any charge under the name of labor cost, replaced part cost or any other name..
- ❖ The product;
 - ✓ Continuous inability to use the product as a result of more than two repetitions of the same malfunction or more than four occurrences of different malfunctions within one year, provided that it remains within the warranty period from the date of delivery,
 - ✓ Exceeding the maximum time required for repair,
 - ✓ In the absence of a service station, if it is determined that it is not possible to repair the malfunction with a report issued by one of the dealer, dealer, agency, representative, importer or manufacturer, respectively, free replacement will be made..
- ❖ Malfunctions caused by the use of the product contrary to the points in the user manual are not covered by the warranty.
- ❖ For problems that may arise regarding the warranty certificate, they can apply to the Ministry of Industry and Trade General Directorate for the Protection of Consumers and Competition.

16.1 Out of Warranty Conditions

Faults not covered by the warranty are as follows:

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- ❖ Malfunctions caused by installation, use and maintenance operations performed without following the rules specified in the User Manual.
- ❖ In case of intentional damage,
- ❖ Damage and malfunctions caused by misuse.
- ❖ Damages and malfunctions caused by faulty installation and incomplete installation. Damage and malfunctions caused by transportation, vibration, storage, physical impacts, chemical factors and environmental conditions.
- ❖ Damages and failures caused by fire, lightning, flood, earthquake, freezing and other natural disasters.
- ❖ Damage and malfunctions caused by not using a suitable electrical panel.
- ❖ Damages and failures due to incorrect fluid selection, transportation of fluids containing solids, or chemical properties and contamination of the fluid.
- ❖ 220 and 380 Volt mains voltage drop, rise, phase interruption and damage and malfunctions caused by imbalances between phases.
- ❖ Damages, malfunctions and complaints arising from the inappropriateness or inadequacy of the cables used in the electrical installation.
- ❖ Motor combustion and damage caused by water ingress into electric motors.
- ❖ Damages and malfunctions caused by waterless operation of the pumps are not covered by the warranty.

16.2 Procedure for Defective Products

- ❖ In case of malfunction of the product you have purchased, our company is contacted before sending the product and preliminary information about the malfunction and the product is given and approval is obtained..
- ❖ The product specified as defective is forwarded to the service of the importer or manufacturer, examined and approved.
- ❖ If no defect is detected by the warranty provider, the product is returned to the customer.
- ❖ If there is an out-of-warranty malfunction and if it can be repaired, it will be repaired at a cost by obtaining approval from the customer.
- ❖ The product that is determined by the warranty provider to be defective and within the scope of the warranty shall be processed for repair. If the product

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cannot be repaired, a new one will be issued. If the stock status is not available, the equivalent is offered by deciding with the customer.

- ❖ Products sent for repair and maintenance must be packed in such a way that they will not be damaged in cargo. Unpacked products will not be received.
- ❖ For products sent for repair and maintenance, the shipping fee is paid by the sender.

17 AUTHORIZED DEALERS

Website, address and contact information of authorized dealers and dealers are listed.

18 COMMUNICATION

www.badermotor.com

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Sanayi OSB Mah. EOSB 5. Kısım 47. Sok. No: 15/1 Yazıkonak/ Elazığ
+90 424 503 44 44

Mersis No: 0129062228000001

Tax No: Hazar V.D. 129 062 22 80

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19 CERTIFICATES



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