



**ALDP and ALDPF SERIES
WATER BOOSTERS WITH
INLINE (COAXIAL) PUMP
OPERATION AND
MAINTENANCE MANUAL**

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INTRODUCTION

First of all, thank you for choosing ALARKO brand.

In this manual you will find operation and maintenance information for ALARKO ALDP and ALDPF Series Water Boosters with Inline (Coaxial) Pump.

Please read this manual carefully to operate your water booster with high efficiency and in an economical way and to ensure long and trouble-free use. In addition to the operation and maintenance information, the manual contains introductory and technical data regarding the water booster, as well as a summary of the installation, commissioning and operation. Keep this manual for reference when necessary and keep it handy.

For more detailed information about your device, please refer to the product brochure and, if necessary, contact our Customer Hotline at 444 0 128 to reach ALARKO CARRIER dealer and after-sales services.

After commissioning the water booster, our authorized dealers and services will provide you with the necessary information regarding the use and maintenance of the water booster. You can repeatedly ask questions that are not understood. Our experts will be pleased to answer your questions.

GENERAL WARNINGS

Do not touch any part of your device or its settings for any reason, such as operating, adjusting, or maintaining it, except as described in this manual.

The electrical connection of the installation must be disconnected before any intervention on the device for the purpose of cleaning, repair or maintenance.

This device may be used by children aged 8 years and older and persons with a lack of physical, sensory or mental abilities, or with a lack of experience and knowledge, provided that they have been supervised or instructed for the safe use of that device and that the hazards involved are understood by them. Children should not play with the device. Cleaning and user maintenance should not be carried out by unattended children.

WARRANTY AND SERVICE

This manual applies to all types of ALDI and ALDIF series water boosters.

Alarko Boosters are under guarantee of ALARKO CARRIER for 2 (two) years against material and manufacturing defects provided that the principles, warnings and standards specified in these operating manual are followed.

The warranty conditions are explained on the Warranty Certificate supplied with the water booster in accordance with the provisions of the relevant law. Please review this information carefully.

The Product Warranty Certificate will be filled and stamped by the authorized dealer of ALARKO CARRIER where you purchased the water booster, and signed by you. Then one copy will be given to you and the other copy will be sent to ALARKO CARRIER Customer Service Department.

You must maintain and keep your Warranty Certificate handy in order to show it to the authorized service personnel to carry out the warranty procedures during the service operations.

You can find the addresses of ALARKO CARRIER Authorized Services, where have trained and authorized people to commission, maintain and repair your water booster, on the website at "www.alarko-carrier.com.tr".

If you encounter any problems, you can call the Customer Hotline at 444 0128 with domestic tariff across all cities of Turkey, or you can reach Alarko Carrier Customer Service Department via Internet with e-mail info@alarko-carrier.com.tr

The warranty procedures are only valid for the operations of ALARKO CARRIER authorized services. The warranty does not cover failures that may result from non-standard, improper installation and repairs, irregularities in the power supply. The manufacturer and dealer companies are not responsible for the intervention of the product by unauthorized persons. For this reason, please contact your ALARKO CARRIER authorized service in case of any problem with your product. Our authorized services are always at your service.

Alarko Water Boosters have superior technology and high quality materials that can serve you for many years without any problems. The minimum service life specified by the Ministry of Industry and Trade for water boosters is 10 (ten) years. Pursuant to the relevant law, manufacturers and dealers undertake to service the water booster and to provide spare parts within this period.

Tariffs and spare parts prices of ALARKO CARRIER Authorized Services are listed separately. You can review the lists during service operations. In the event of a problem, you can contact the ALARKO CARRIER Customer Service Department from the address and telephone number given on the back cover of this manual.

GENERAL FEATURES

The main purpose of a water booster is to keep the pressurized water in the installation ready for use at any time.

There are three main parts in a water booster.

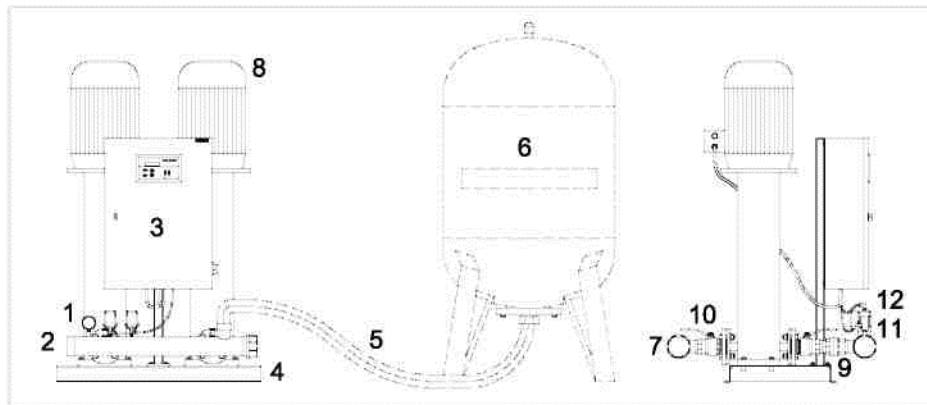
- Motor and Pump (Motopump)
- Automatic Control Equipment:
- Pressure Compensating Tank (must be purchased separately)

Motopump: It pressurizes water. ALDP water booster motors are three-phase and vertical.

Automatic Control Equipment: It is the equipment that provides the automatic operation of the water booster according to the pressure changes in the installation and whether the feed water is available.

Pressure Compensating Tank: Its main purpose is to compensate pressure changes in the installation and to keep the number of commissioning and decommissioning of the pump (number of switches) in the most appropriate number.

Figure 1: Water Booster with Triple Pump Diagram



Part names

1- Manometer	5- Flexible Hose	9- Check Valve
2- Water Booster Water Outlet	6- Water Booster Tank	10- Ball Valve
3- Electrical Panel	7- Water Booster Water Suction	11- Pressure Transmitter
4- Base	8- Motopump	12- Pressure Switch

NOTE: Ball valve is not supplied with the water boosters with single pump. Tank and flexible hose should be ordered separately in all water boosters. Standard delivery does not include tanks and flexible hoses.

HANDLING

Follow the instructions for handling the pumps:

- Pumps with motor power from 0,37 to 5,5 kW:

Lift the pump from the pump head with a hanger or similar tool.

- Pumps with motor power from 7,5 to 22 kW:

Lift the pump with the eye bolt.

Warning

Make sure the pumps are secured before transport.

Handle the pump paying attention to the center of gravity of it.

TYPE NAMING

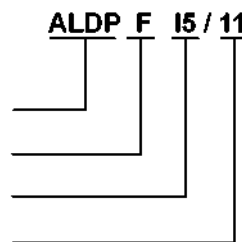
EXAMPLE:

Model

Added if Frequency Controlled

Rated Flow Rate

[m³/h] Number of Levels



INSTALLATION RULES

Location Selection:

The place where the water booster will work should be closed in such a way that it is protected from external factors such as rain and frost. It should be placed in such a way that it is not affected by heat sources such as burners and boilers that may be present in the vicinity. Gaps should be left around the water booster for maintenance and repair purposes.

If the water booster is to be fed from the tank, the distance (horizontal) between the tank and the water booster should be at most 10 meters.

Water Suction Installation:

The water booster should be fed from the water tank. Do not connect directly to the municipal water system.

The bottom of the tank should be in the same plane as the water booster. This ensures that there is always water in the water booster suction inlet and prevents the pump from producing air.

Suction from the tank at the lower level should never be done. Damage that may occur on the water booster as a result of such applications is not covered by the warranty.

All connections in the suction line must be sealed and air must not enter the suction pipe.

Pumps should not be forced during water suction. Inner diameters of plastic pipes are narrow compared to galvanized ones. If a plastic pipe is to be used, the dimension providing the inside diameter of the galvanized pipe should be used.

Other Installation Conditions:

The water booster inlet must be fitted with a gate valve, and its outlet must be fitted with a gate valve and a check valve. Thus, it will be possible to remove the water booster from the installation for maintenance and repair.

It is preferable to connect the water booster to the installation with flexible hoses. Thus, the loads in the installation will not be reflected to the water booster and the vibration and sound of the water booster will not pass to the installation.

The water booster must be fixed to the floor with bolts. In this way, the sound from vibration will be prevented to a great extent. The water booster can be used up to an altitude of 1000 meters.

Water Properties:

The water to be used in the water booster should be clean, free of solid particles and temperature between 0-35 °C. Ambient temperature should be maximum 40 °C. Ph values should be between 3-9. The water in the water booster should not be allowed to freeze.

The recommended assembly patterns are shown in the diagrams attached to this manual.

Precautions to Extend the Service Life of Mechanical Seal:

The mechanical seal is one of the most sensitive parts in the water booster. Inaccuracies or inadequacies in the installation and operating conditions cause the shaft seal to break down rapidly. The normal life of the mechanical seal is 8,000 hours under clean, cold (20°C), solid particle-free (without sodium carbonate, calcium carbonate) water conditions. Mechanical seal works according to the principle of forming a water film layer between carbon and ceramic or stainless surface. This water film layer formed during operation allows the surfaces to slide on each other without friction. Water also serves as cooling. Lack of water film layer and the dry running of the seal surfaces by rubbing against each other without a water layer between them causes burns and deteriorates them within 3-5 minutes.

The mechanical seal is at great risk in the following incorrect or inadequate operating conditions;

- If the motopump is sucking from the tank at the low level; This type of installation should not be done. There is a possibility of leakage of the valve at the suction end. In this case, the water in the suction pipe drains into the tank, no water remains in the pipe, the pump runs without water.
- If there is a strainer, check valve etc. between the motor pump and the tank: If the bottom of the tank is at the same level as the water booster base or the tank is higher than the water booster, a check valve is not required in the suction line. The check valve makes the water flow difficult. This is also a potential congestion point. The strainer should be checked and cleaned frequently. Otherwise, the water flow will be blocked and the pump will run without water or with insufficient water.
- If there is sand in the water: Sandy water will also penetrate into the film layer and corrode the surfaces, causing the seal to deteriorate.

WATER BOOSTER OPERATION

- 1- Check the compatibility of the water and electrical installation.
- 2- Check that there is sufficient water in the water tank.
- 3- Check that the waterless running protection (if any) is properly installed.
- 4- Check that the membrane tank has been installed correctly and that the pre-gas pressure is appropriate.
- 5- Arrows on the bottom of the pump indicate the direction of water flow.
- 6- Close the pump discharge valve and open the valve located on the suction side (See Figure 2).
- 7- Remove the filler plug and fill the pump with liquid. Refit the filler plug and tighten securely (See Figure 3).
- 8- Run the pump(s) briefly in a controlled manner. Check that the pump shafts rotate in the correct direction. If their direction of rotation is reversed, the terminals in the electrical connection must be repositioned. (See Figure 4).
- 9- Bleed the pump using the relief valve located at the pump head. At the same time, open the discharge valve slightly (See Figure 5).
- 10- Continue bleeding the pump. At the same time, open the discharge valve a little more. Check that the pump(s) are running within the required pressure ranges (See Figure 6). See Table 1 for setting the operating pressure range of the pump.

- 11- When a steady flow of fluid occurs, bleed the system and re-tighten. Fully open the discharge valve (See Figure 7).
- 12- For multi-pump water boosters, check that the pumps rotate each time they run. If the same pump always runs, there is a fault in the pressure switch connections. Check it from the diagram.
- 13- The commissioning of the water booster is now complete.

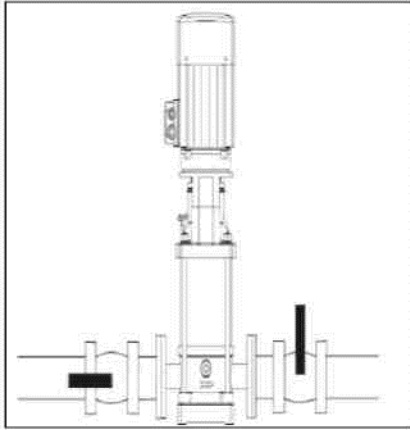


Figure 2

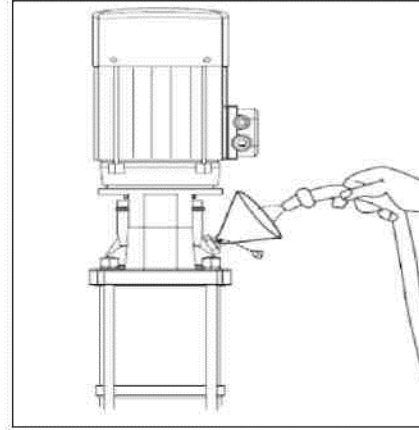


Figure 3

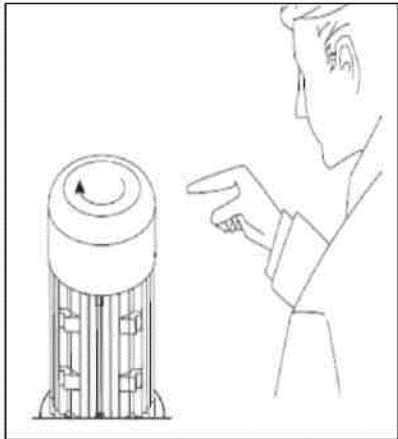


Figure 4

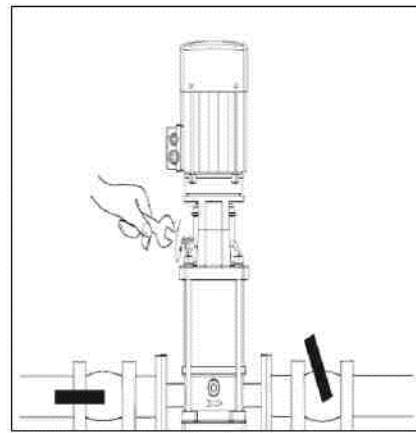


Figure 5

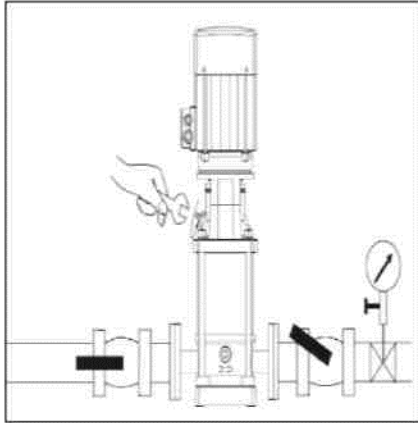


Figure 6

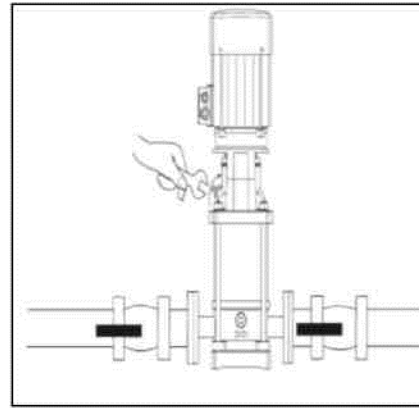


Figure 7

ALDP I3 and I5

For these types, we recommend opening the bypass valve during operation (See Figure 8.) The bypass valve makes filling easier. In case of stationary operation, close the bypass valve again. If the operating pressure is less than 6 bar during the transfer of air containing liquids, we recommend leaving the bypass valve open. If the operating pressure exceeds 6 bar, close the bypass valve. This prevents material wear in the bore due to the high viscosity.

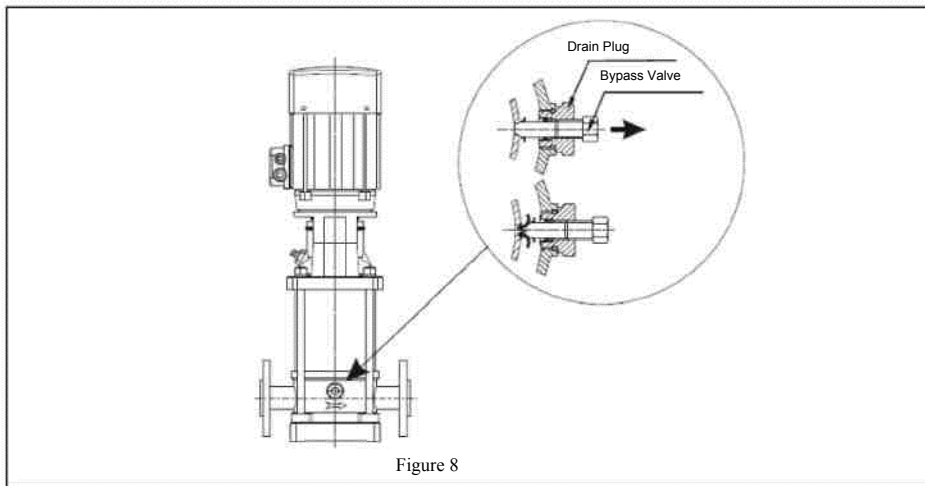


Figure 8

MEMBRANE TANK (Pressure Compensating Tank)

There are different applications for membrane tanks in water boosters;

ALDP and ALDPF Water Booster:

The user must use a membrane tank with the motopump assembly. The selection, installation and pressurization of this tank are described below.

Note: These calculations are for finding the minimum value of the tank volume. There is no inconvenience in using tanks larger than the value obtained from the calculation.

As the tank volume increases;

- Pressure fluctuations in water reduce.
- The commissioning and decommissioning sounds of the motopump reduce.
- The service life of the motor extends.
- Energy expenditure reduces.

In industrial applications where the water consumption rate is more standard than for social use, a smaller tank can be selected.

$$V_{\text{tank}} = \frac{0,33 * Q_{\text{max}} * (P_{\text{max}} + 10)}{AP * a}$$

V_{tank} : Volume of tank to be used (liters)

Q_{max} : Total flow rate of the pumps at operating pressure (liters/hour)

P_{min} : Starting pressure of pumps (mSS)

P_{max} : Stop pressure of pumps (mSS)

ΔP : $P_{\text{max}} - P_{\text{min}}$

a : Number of switches to be considered for motor (number/hour)

The volume of the membrane tank to be selected for ALDPF must be at least 10% of the membrane tank volume calculated for ALDP.

Caution: The maximum operating pressure of the membrane tank must be higher than the maximum operating pressure of the pump.

CONNECTION OF MEMBRANE TANK

The duty of the membrane tank is to reduce the number of switches (the number of starts and stops of the motor within 1 hour). Thus, the motopump does not need to be commissioned for small-scale uses. Therefore, the larger the tank, the lesser the number of switches.

Membrane tanks can be connected to the motopump assembly in two ways.

1- Connection to Collector:

There is a membrane tank connection outlet on the water booster pressure collector. The tank can be connected with a flexible steel braided hose, galvanized pipe or plastic pipe. In this connection, a piping at least at the membrane tank outlet diameter in the water booster pressure collector should be used. If the installation has a small diameter, the water transfer rate between the tank and the installation decreases. The required efficiency cannot be obtained from the tank. There may be disruptions in the operation of the water booster.

2- Connection to Installation:

It is possible to connect the tank directly to the installation. In this case, the membrane tank connection end in the collector should be closed and the total distance of the tank to the motopump assembly should not exceed 5 meters. Otherwise, the pressure switch will be delayed to detect pressure changes and irregular operation may occur.

PRE-GAS PRESSURE SETTING OF MEMBRANE TANK

Motopump assembly can not be used without tank. An active tank must be used. Konforal membrane tanks can be used for this purpose provided that the operating pressure values are appropriate. When the membrane tanks are shipped, very little amount of gas is pumped into them. The air pressure of the membrane tank should be adjusted according to the conditions of use. The tank pre-load pressure should be equal to the minimum switching pressure.

Tank Pressure = Water Booster Operating Pressure - 0.5 (bar)

Tank pressure for ALDF = Water booster set pressure x 0,7

Example 1:

If the booster is operated between 5-7 bar, the air pressure of the tank should be 4.5 bar.

Example 2:

The pressure of the tank of a water booster with triple pump with pressure switch adjustments of 5-7, 4.5-6.5 and 4-6 bar should be 3.5 bar.

Calculate the air required to be pumped into the tank for ALDP water boosters according to Table 1.

While the air is being pumped, the water booster must be disconnected from the water in the installation and any water remained in the water booster must be drained. Otherwise, the static water pressure of the building will cause additional pressure in the tank and the correct adjustment will not be made. A compressor or pedal air pump can be used to pump air.

Caution:

It is inconvenient to use tanks (galvanized tanks) where air and water are in direct contact as water booster tanks. Because in such tanks, the air in the tank dissolves in the water and continuously leaks from the tank with the water. In the motopump assembly, there is no air suction device to reinforce this decreasing air. Therefore, the motor-pump does not reinforce the decreasing air in the tank. The air ends after a while. The tank is completely filled with water and becomes unable to function. The number of switch of the motors increases excessively.

Caution:

The pressure of the air in the membrane tank should be checked periodically (every month, etc.). The air reduces by diffusion through the rubber membrane inside the MT into continuous water or by leaking in the flange and valve connections. If the air pressure drops in the tank, the number of switches of the water booster increases. Therefore, fluctuation in sound and water increases.

PRESSURE SWITCH

Pressure Switch Adjustment

The pressure switch has two spring bolts. The long bolt adjusts the starting pressure. The short bolt adjusts the stop pressure.

- 1- Loosen the short bolt fully.
- 2- Adjust the switching pressure of the pump using the long bolt.
- 3- Then tighten the short bolt until the desired stop pressure is reached.

PRESSURE SWITCH ADJUSTMENT BY DEVICE TYPE ON ALDP WATER BOOSTERS

The pressure switch adjustment for water booster with single pump should be made by the service at the place of use.

The pressure switches of the water boosters with twin and triple pump are adjusted at the factory and shipped according to Table 1.

Water Booster with Twin and Triple Pump

Note: In the water boosters with twin and triple pump, there is a delay of about 3 seconds for the motopump to detect the signal to prevent the pressure switch from being affected by the water hammer pulse. This delay should be considered as standard deviation.

The water booster must be operated in manual mode for adjustment.

CAUTION: In manual mode, the pressure switch is activated and stops and start the motopump according to its output.

The pressure switch adjustment should be made as follows.

1. Determine which pressure switches should be set to which values according to the table below.
2. Set the water booster to manual mode.
3. It is enough to use only one motopump when adjusting the pressure switch. The pressure in the installation will be increased by running the motopump, the pressure will be reduced by draining the water from the drain valve (or waiting for the water to be used in the installation). Pressure switches should be adjusted during these pressure changes.
4. Run the motopump. Once the key is pressed, the motopump starts. If it is pressed again, the motopump stops.
5. Firstly set the low pressure switch. Use the short and long bolts specified above for this purpose.
6. If the water booster has two pumps, the operation is ended by adjusting the high pressure switch. If it has three pumps, after the low pressure switch, the medium pressure switch should be set and then the high pressure switch should be set as well.
7. After the pressure switch adjustment is complete, press key 3 to set the water booster to automatic mode.
8. In automatic mode, check that the water booster operates at the desired pressure values and that the motors are switched on and off in sequence.

Table 1: Booster Pressure Switch Setting Table

Water Booster Type		Single Pump	Twin Pump		Triple Pump		
		1. Pump	1. Pump	2. Pump	1. Pump	2. Pump	3. Pump
		Start/Stop	Start/Stop	Start/Stop	Start/Stop	Start/Stop	Start/Stop
ALDP I3	10	3-5	3-5	2,5-4,5	3-5	2,5-4,5	2-4
	13	4-7	4-7	3,5-6,5	4-7	3,5-6,5	3-6
	17	6-9	6-9	5,5-8,5	6-9	5,5-8,5	5-8
	27	10-14,5	10-14,5	9,5-14	10-14,5	9,5-14	9-13,5
	31	11,5-16	11,5-16	11-15,5	11,5-16	11-15,5	10,5-15
ALDP I5	8	3-4,5	3-4,5	2,5-4	3-4,5	2,5-4	2-3,5
	11	4,5-6,5	4,5-6,5	4-6	4,5-6,5	4-6	3,5-5,5
	14	6-8,5	6-8,5	4-6	6-8,5	4-6	3,5-5,5
	22	9,5-12,5	9,5-12,5	9-12	9,5-12,5	9-12	8,5-11,5
	26	11-15,5	11-15,5	10,5-15	11-15,5	10,5-15	10-14,5
ALDP I10	5	3-5	3-5	2,5-4,5	3-5	2,5-4,5	2-4
	7	4,5-6,5	4,5-6,5	4-6	4,5-6,5	4-6	3,5-5,5
	9	6-8,5	6-8,5	5,5-8	6-8,5	5,5-8	5-7,5
	16	10-15	10-15	9,5-14,5	10-15	9,5-14,5	9-14
	18	12-16	12-16	11,5-15,5	12-16	11,5-15,5	11-15
ALDP I15	5	4,5-6,5	4,5-6,5	4-6	4,5-6,5	4-6	3,5-5,5
	7	6,5-9	6,5-9	6-8,5	6,5-9	6-8,5	5,5-8
	8	7,5-10,5	7,5-10,5	7-10	7,5-10,5	7-10	6,5-9,5
	10	10-13	10-13	9,5-12,5	10-13	9,5-12,5	9-12
	12	11,5-15,5	11,5-15,5	11-15	11,5-15,5	11-15	10,5-14,5
ALDP I20	5	4-6	4-6	3,5-5,5	4-6	3,5-5,5	3-5
	7	6-9	6-9	5,5-8,5	6-9	5,5-8,5	5-8
	8	7-10	7-10	6,5-9,5	7-10	6,5-9,5	6-9
	10	9-12,5	9-12,5	8,5-12	9-12,5	8,5-12	8-11,5
	12	10-15	10-15	9,5-14,5	10-15	9,5-14,5	9-14
ALDP I32	4	3,5-6	3,5-6	3-5,5	3,5-6	3-5,5	2,5-5
	5	4-7,5	4-7,5	3,5-7	4-7,5	3,5-7	3-6,5
	6	5-9,5	5-9,5	4,5-9	5-9,5	4,5-9	4-8,5
ALDP I45	3	4,5-6,5	4,5-6,5	4-6	4,5-6,5	4-6	3,5-5,5
	4	6,5-8,5	6,5-8,5	6-8	6,5-8,5	6-8	5,5-7,5
ALDP I64	3	4,5-7	4,5-7	4-6,5	4,5-7	4-6,5	3,5-6

ALDP WATER BOOSTERS SET PRESSURE AND MINIMUM FREQUENCY SETTING

1. Set Pressure (Required Pressure) shall be determined according to installation conditions.

Determination of Set Pressure

$$\text{Required Pressure} = H_{\text{min}} (\text{mSS}) = h + \Delta h + 15$$

h - Height (meter) between the place of water booster and top operating floor.

Δh - Pressure loss due to factors such as armature, water meter, calcified pipe in installation. Δh - , is considered 20% of the height (h).

$$\Delta h = 0,2 \cdot h$$

15 - The value obtained from the pressure that should be at the top operating height. For example; 15 meters for 1.5 bar pressure. If the desired pressure changes, this value also changes,

2. Set Pressure shall be set via the booster panel.

Adjusting Set Pressure

- PID Parameter is selected using up-down arrow keys.
- By pressing the MAN. key, PID parameters are entered.
- Reference value is selected using up-down arrow keys.
- By pressing the MAN. key, Reference value is entered.
- Reference value is set to the desired pressure using up-down arrow keys.
- By pressing the MAN. key, Reference value is confirmed and the operation is completed.



DETERMINATION OF MINIMUM FREQUENCY

Minimum Frequency Setting

The minimum frequency is set via the frequency converter as described below.

How are parameters searched and reprogrammed?

Panel operation	Led Display	Operation
	0.0	First status displays the Output frequency. Driver operation must be stopped before parameter changes can be made.
MODE	RUN	"Mode" key is pressed once.
	F2 - -	The setting dial is turned and "F2--" is selected.
	F200	The center of the setting dial is pressed. "F200" appears in the display.
	F202	The setting dial is turned and "F202" is selected.
	30.0	The center of the setting dial is pressed to reach the value of the parameter "F202". This value varies according to the pump capacity.
	33.0	If the setting dial is turned, the value of parameter "F202" is changed.
	33.0 ↔ F202	The center of the setting dial is pressed to confirm the change. The parameter name and value are displayed alternately.
MODE ↓ MODE ↓ MODE ↓ 0.0	Parameter display ↓ F2 ↓ Fr - F ↓ 0.0	The "mode" key is pressed several times to return to the standard display mode. (output frequency display)



PRESSURE TRANSMITTER

Pressure Transmitter Features

Brand	Keller
Model	PA-21 SR
Place of Use	ALDF
Pressure Range	0-16 Bar
Supply Voltage	3-28 V dc
Output Signal	4-20 mA
Precision Class	0.5%
Operating Temperature	-40...+100°C
Line Connection	G 1/4"
Electrical Connection	DIN 43650
Protection Class	IP 65

WATERLESS RUNNING PROTECTION

There are different applications on "waterless running protection" for Alarko water boosters.

ALDP Water Boosters:

Protection is included in the standard delivery. Water float switch is used.

ALDPF Water Boosters:

Minimum pressure and float switch protection is available.



The tank is empty. The water booster does not work.

The tank is full. The water booster works.

Figure 9: Placing the Water Float Switch in the Tank

DISASSEMBLY OF ONE OF THE PUMPS

If one of the pumps of the water boosters with twin or triple pumps is removed for repair or maintenance, the remaining pump(s) may continue to run without having to change the electrical connections. To run the system, the following procedure must be followed.

- Switch off the main switch at the power input of the water booster.
- Close the fuse for the pump to be removed from the control panel.
- Disconnect the pump motor cable connections. Isolate exposed ends.

CAUTION: If the switch is opened accidentally, the terminals are energized. Therefore, the cable terminals must be insulated in a way that they cannot be opened to prevent possible hazards.

- Close the water inlet valve of the pump and disconnect the pump from the flanges (The check valve on this line will prevent water from returning.) This end does not need to be neutralized).
- Energize the system by opening the main switch.

INSTALLATION DIAGRAMS

ALDP and ALDPF SERIES

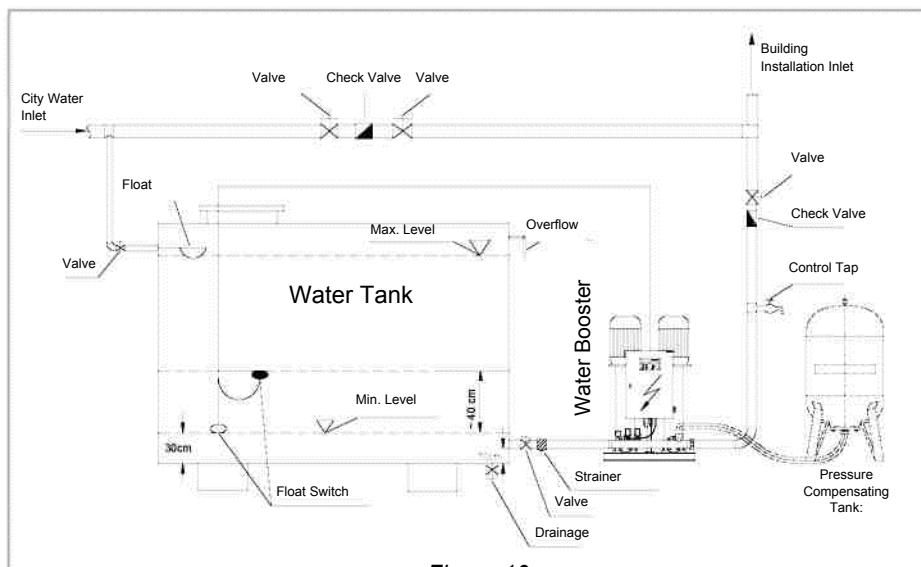


Figure 10

DIGITAL CONTROL PANELS OF WATER BOOSTERS WITH TWIN AND TRIPLE PUMPS

The water boosters with twin and triple pump are equipped with control panel with microprocessor and LCD screen mounted on the panel cover.

The front of the control panel is shown below. The panel changes according to the number of pumps. The panel in the figure is the panel of the water booster with triple pump.



1. LCD Display: The current operating mode of the water booster and other information can be viewed.
2. Manual Button and Light: It is used to switch to manual mode. In manual mode, the pumps get out of the control of the pressure switch. They can only be stopped or started by pressing the buttons 6. To avoid accidental switching to manual mode, it can only be switched to manual mode by pressing and holding the button for 8-10 seconds. To exit this mode, the automatic button must be pressed or the panel must be de-energized from the main switch.
3. Automatic Button and Light: It is used to return to automatic mode.
4. Parameter Values Change Button: This button works when and after entering the password.
5. Parameter Values Change Button: This button works when and after entering the password.
6. Pump Buttons: It is used to stop and start pumps in manual mode. When first pressed, it starts the pump to which it is connected, and stops the pump if pressed again.
7. Working Lights: The green light is on when the pump is running.
8. Fault Lights: The red light are on if the pump fails and stops.

Screen Display During Normal Operation:

There are two lines on the screen. The bottom line indicates the position/status of the device. On the top line, ALARKO - CARRIER will appear alternately with 4-5 seconds interval, together with the information on which engines are running and which ones have stopped.

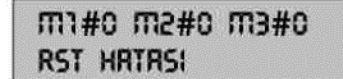


```
M2: 51857
OTOMATIK ÇALISMA
```

The automatic operation light and the running pump light are on.

Fault - Error Messages:

RST Error: This message appears on the display if the motor remains in two phases during start-up or operation, or if the mains connections are incorrect.



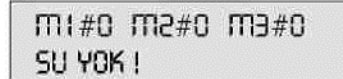
```
M1#0 M2#0 M3#0
RST HATAS!
```

Thermal Relay Tripped: This message appears on the display if the thermal relay of any of the motors trips. The number indicates which motor's thermal relay is tripped. At this time, the fault light is lit red.



```
M1#0 M2#1 M3#0
TERMİK ATTI - 1
```

No Water: When the tank is waterless, the panel cuts power and this warning appears on the display.



```
M1#0 M2#0 M3#0
SU YOK!
```

Encrypted Section:

This section is only for use by authorized services. Password can be entered by typing. Some settings of the water booster are made and historical information can be learned.

Table 2: ALDP Water Booster Panel Dimensions

MOTOR POWER (HP)		SINGLE PUMP		TWIN PUMP		TRIPLE PUMP	
		PART CODE	DIMENSIONS (AxBxH) mm	PART CODE	DIMENSIONS (AxBxH) mm	PART CODE	DIMENSIONS (AxBxH) mm
DIRECT STARTER	1*	62010820001	95x96,5x152	62010820023	350x150x300	62010820032	350x160x300
	1,5*	62010820002		62010820024		62010820033	
	2*	62010820003		62010820025		62010820034	
	3	62010820004		62010820026		62010820035	
	4	62010820005		62010820027		62010820036	
	5,5	62010820006		62010820028		62010820037	
	7,5	62010820007		62010820029		62010820038	
STAR / TRIANGLE	10	62010820008	300x190x400	62010820030	350x150x450	62010820039	350x160x600
	15	62010810090		62010820031		62010820040	
	20	62010820078		62010820081	500x200x700	62010820084	500x200x700
	25	62010820079		62010820082		62010820085	
	30	62010820080		62010820083		62010820086	

Table 3: ALDPF Water Booster Panel Dimensions

MOTOR POWER (HP)		SINGLE PUMP		TWIN PUMP		TRIPLE PUMP		
		PART CODE*	DIMENSIONS (AxBxH) mm	PART CODE	DIMENSIONS (AxBxH) mm	PART CODE	DIMENSIONS (AxBxH) mm	
DIRECT STARTER	1	62010820042	350x210x350	62010820051	350x230x450	62010820060	350x230x450	
	1,5	62010820043		62010820052		62010820061		
	2	62010820044		62010820053		62010820062		
	3	62010820045	400x230x400	62010820054		400x230x500	62010820063	400x230x500
	4	62010820046		62010820055			62010820064	
	5,5	62010820047		62010820056			62010820065	
	7,5	62010820048		62010820057			62010820066	
STAR / TRIANGLE	10	62010820049	400x230x500	62010820058	400x250x600	62010820067	400x250x600	
	15	62010820050	400x250x600	62010820059	500x250x700	62010820068	500x250x700	
	20	62010820087	500x300x700	62010820090	600x300x900	62010820100	600x300x900	
	25	62010820088		62010820091		62010820101		
	30	62010820089		62010820099		62010820102		

Descriptions of messages that will appear on the ALDPF Digital Display

In normal operation, the display will show the pressure and control percentage (%) and the mode in which the water booster runs.



While the water booster is in stop operation mode, the total running time and number of switches of each pump can be monitored on the screen by pressing the down arrow key.



If the motor remains in two phases during start-up or operation, or if the mains connections are incorrect, the panel will turn off the power by not allowing the motor to rotate in the opposite direction and "RST HATASI" will appear on the screen.



When thermal relay of any of the motors is tripped, "THERMAL RELAY TRIPPED-1" warning will appear on the display. (Number 1 is given as an example, indicating the motor that thermal relay is tripped)



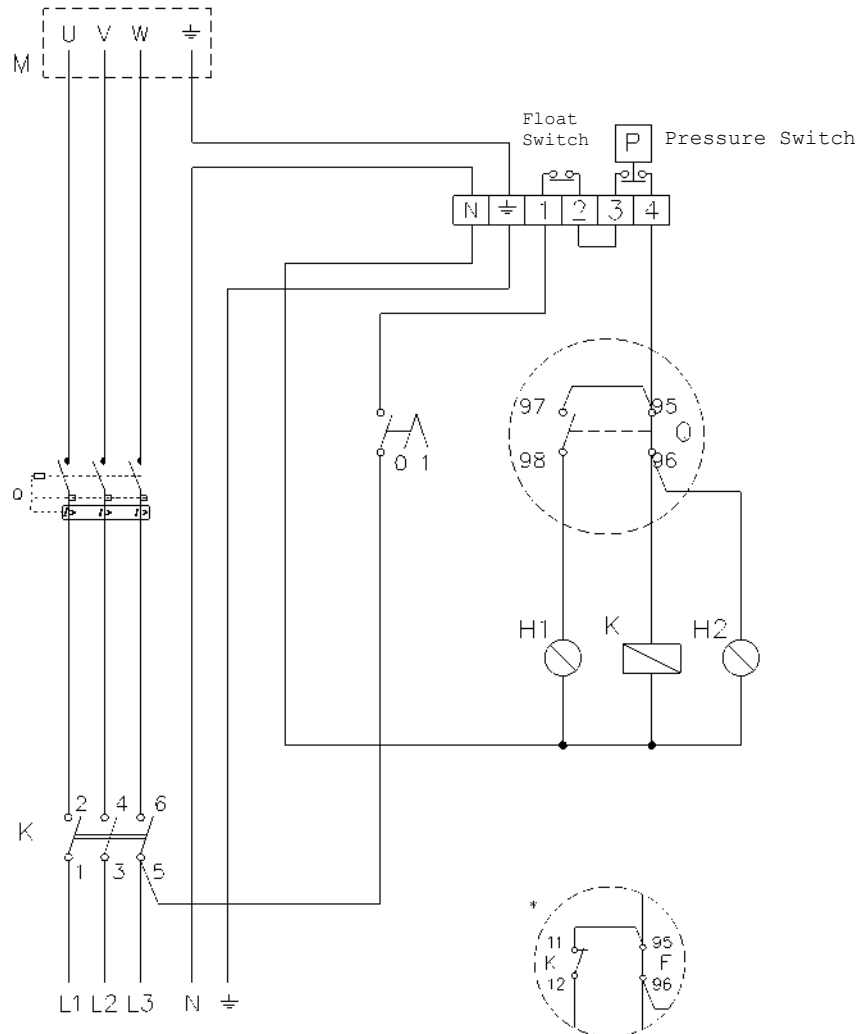
The panel will cut off energy when the tank is waterless and "NO WATER!" warning will appear on the screen.



ALDP SERIES WATER BOOSTER WITH COMPACT FLOAT SWITCH

Types: I3/10, I3/13, I3/17, I3/27, I3/31, I5/8, I5/11, I5/14, I5/22, I5/26, I10/5, I10/7, I10/9, I10/16, I15/5, I15/7, I20/5

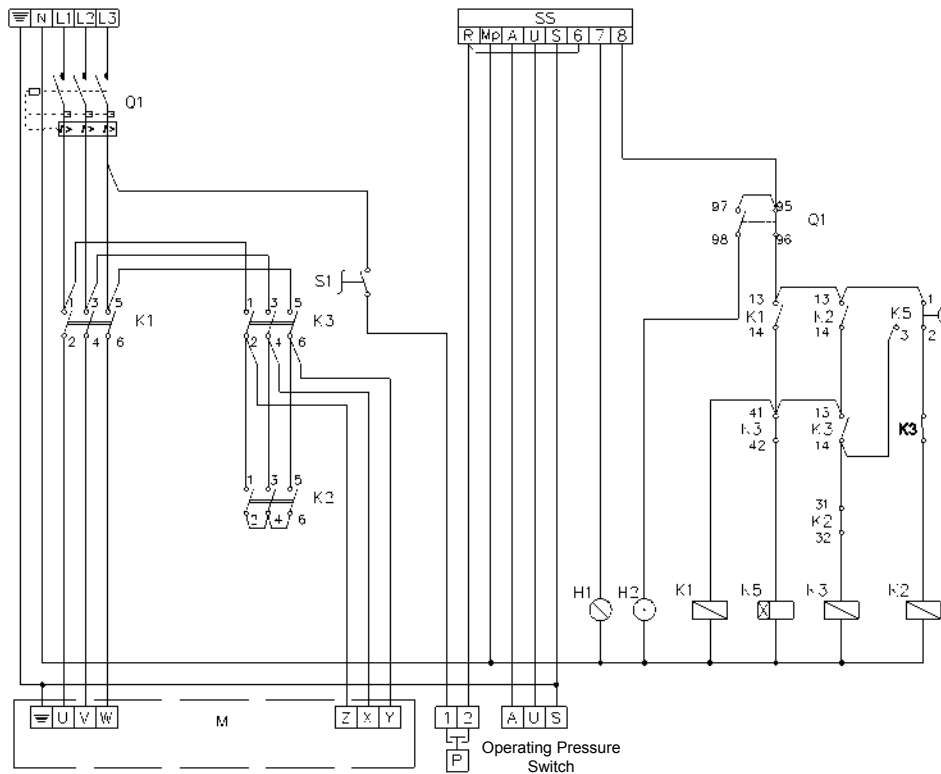
ELECTRICAL DIAGRAM



* NOTE: For Siemens 3TG10 type contactor.

ALDP SERIES S/T STARTER WATER BOOSTER WITH SINGLE PUMP

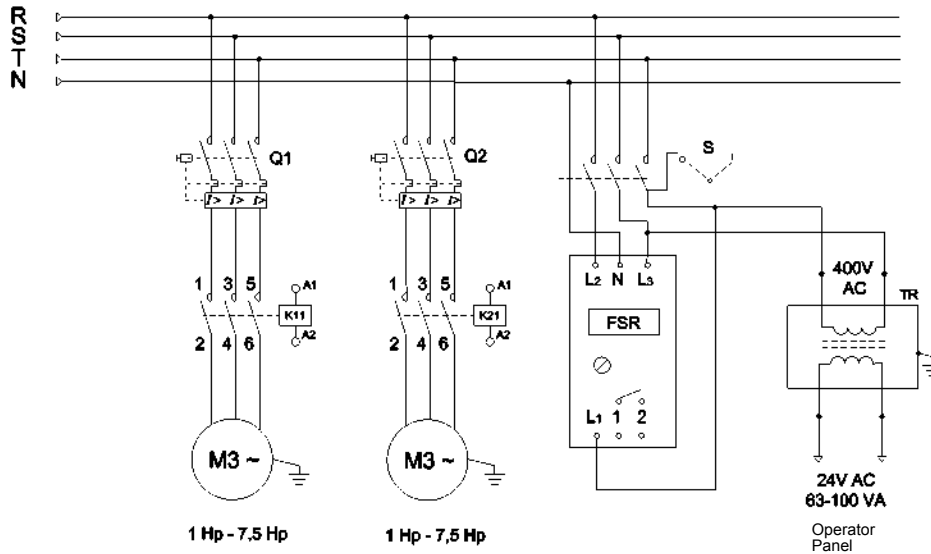
Types; I10/18, I15/8, I20/7, I32/4, I15/10, I15/12, I20/8, I20/10, I32/5, I32/6,
I45/3, I20/12, I45/4, I64/3, I90/3

ELECTRICAL DIAGRAM

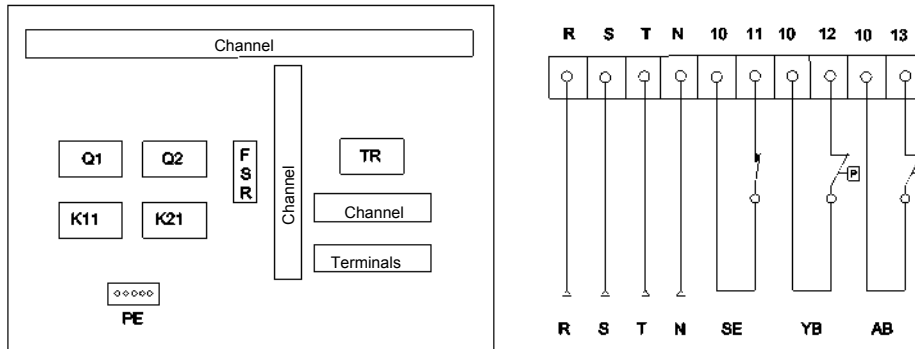
ALDP TYPE DIRECT STARTER WATER BOOSTER WITH TWIN PUMP

Types; I3/10, I3/13, I3/17, I3/27, I3/31, I5/8, I5/11, I5/14, I5/22, I5/26, I10/5, I10/7, I10/9, I10/16, I15/5, I15/7, I20/5

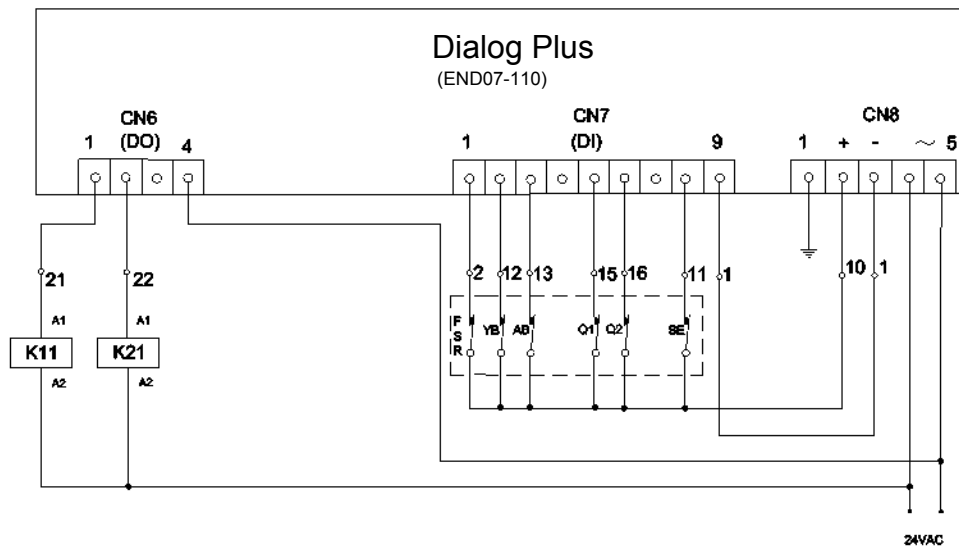
ELECTRICAL DIAGRAM



PANEL LAYOUT



CONTROL PANEL CONNECTION

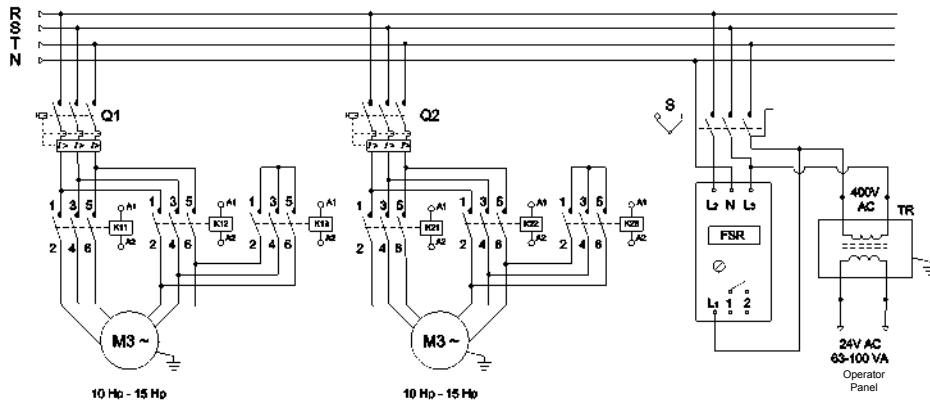


- K11.K21 : Contactors
- TR: Transformer
- Q1 ,Q2 : Thermal Magnetic Switch
- FSR: Phase Sequencing and Protection Relay
- SE : Water Level Contact
- AB : Low Pressure
- YB: High Pressure
- PE : Earth Bus
- R,S,T,N : 380V AC+Neutral Network Input

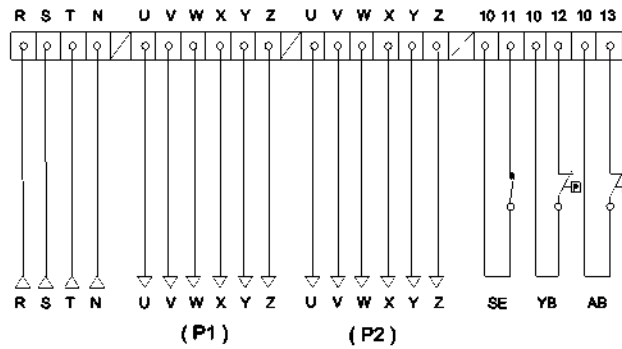
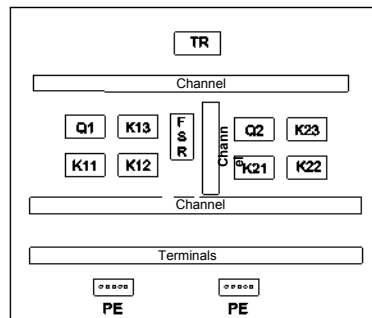
ALDP TYPE S/T STARTER WATER BOOSTER WITH TWIN PUMP

Types; I10/18, I15/8, I20/7, I32/4, I15/10, I15/12, I20/8, I20/10, I32/5, I32/6, I45/3, I20/12, I45/4, I64/3, I90/3

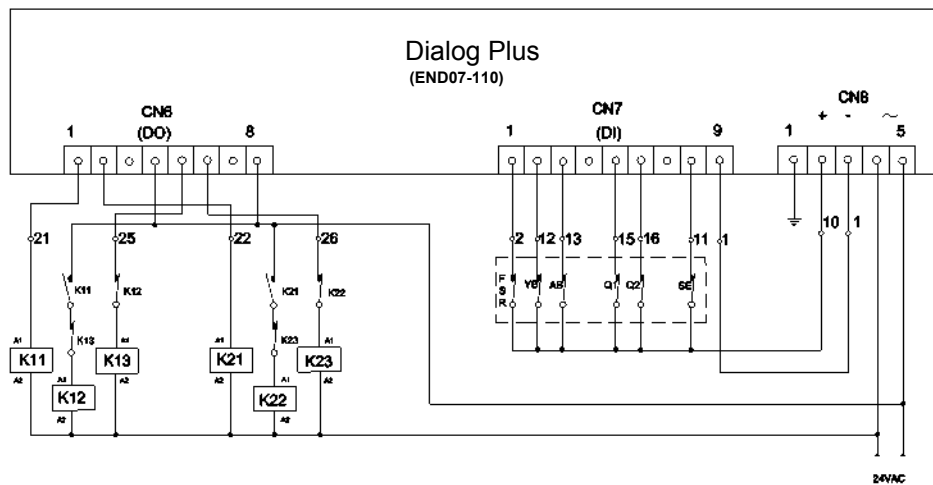
ELECTRICAL DIAGRAM



PANEL LAYOUT



CONTROL PANEL CONNECTION

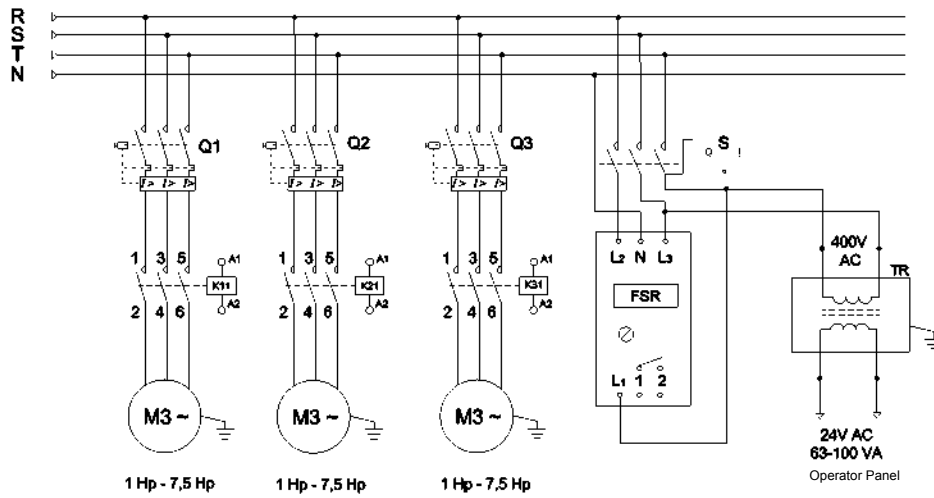


- K11,K12,K13,K21,K22,K23 : Contactors
- TR : Transformer
- Q1 ,Q2: Thermal Magnetic Switch
- FSR : Phase Sequencing and Protection Relay
- SE : Water Level Contact
- AB : Low Pressure
- YB : High Pressure
- PE : Earth Bus
- P1.P2 : Motor Terminal
- R,S,T : 380V AC Network Input

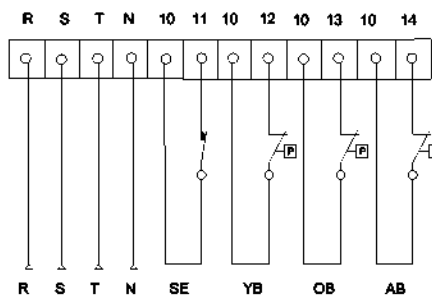
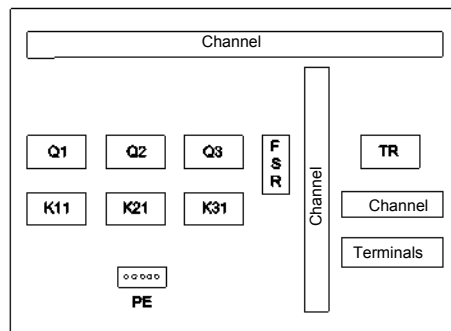
ALDP TYPE DIRECT STARTER WATER BOOSTER WITH TRIPLE PUMP

Types; I3/10, I3/13, I3/17, I3/27, I3/31, I5/8, I5/11, I5/14, I5/22, I5/26, I10/5, I10/7, I10/9, I10/16, I15/5, I15/7, I20/5

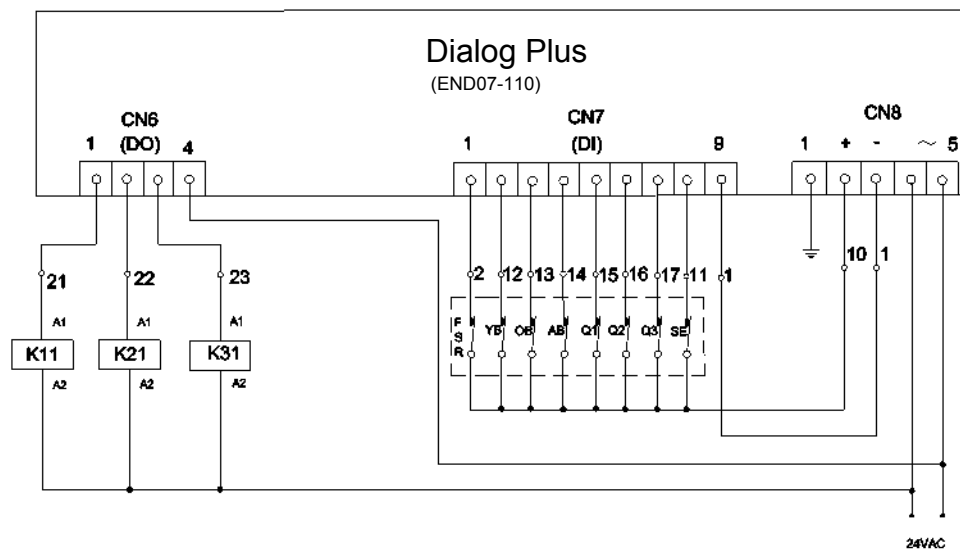
ELECTRICAL DIAGRAM



PANEL LAYOUT



CONTROL PANEL CONNECTION

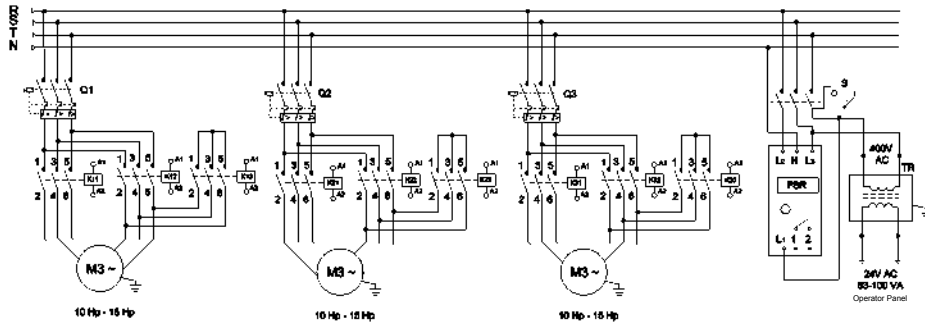


- K11.K21.K31 : Contactors
 TR: Transformer
 Q1 ,Q2,Q3 : Thermal Magnetic Switch
 FSR : Phase Sequencing and Protection Relay
 SE : Water Level Contact
 AB : Low Pressure
 OB : Medium Pressure
 YB: High Pressure
 PE : Earth Bus
 R,S,T,N : 380V AC+Neutral Network Input

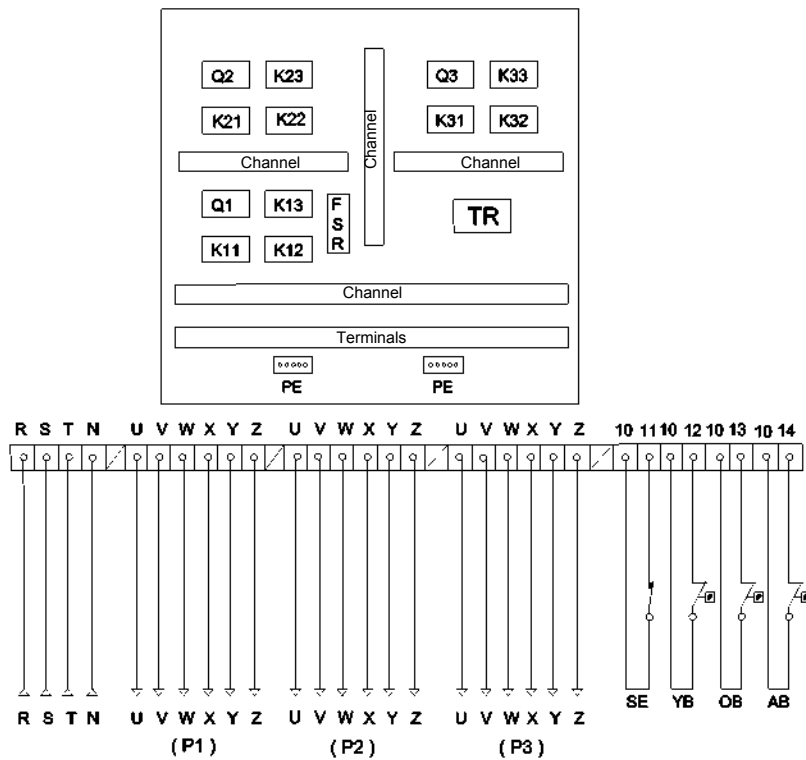
ALDP TYPE S/T STARTER WATER BOOSTER WITH TRIPLE PUMP

Types; I10/18, I15/8, I20/7, I32/4, I15/10, I15/12, I20/8, I20/10, I32/5, I32/6, I45/3, I20/12, I45/4, I64/3, I90/3

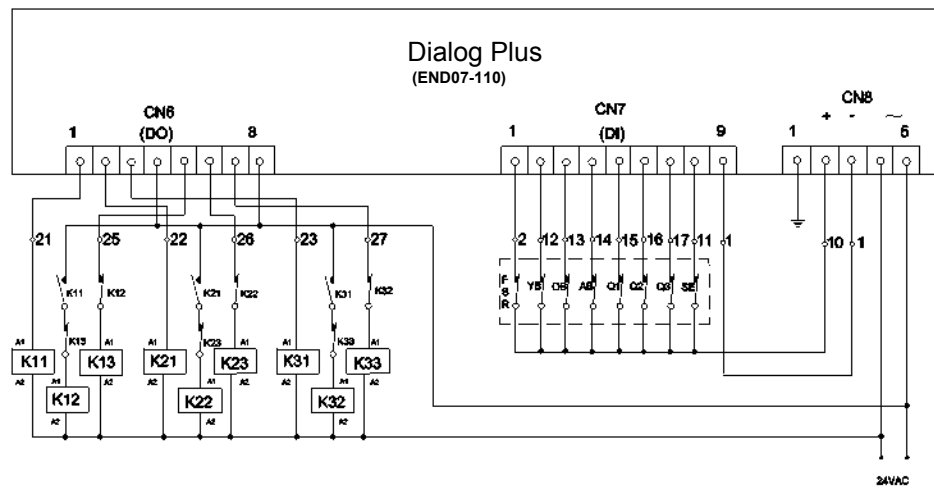
ELECTRICAL DIAGRAM



PANEL LAYOUT



CONTROL PANEL CONNECTION

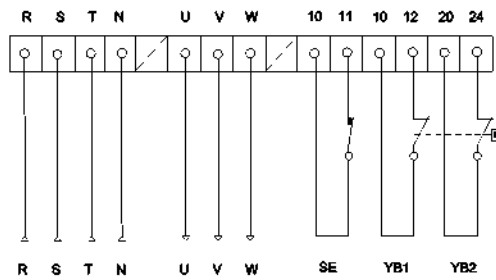
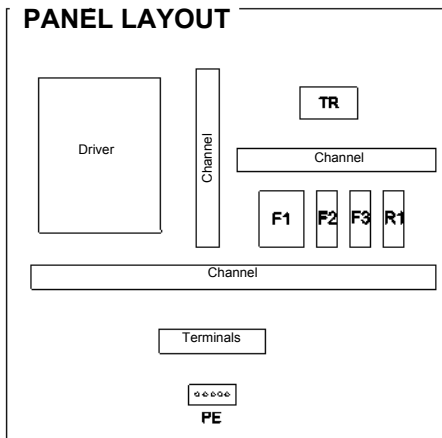
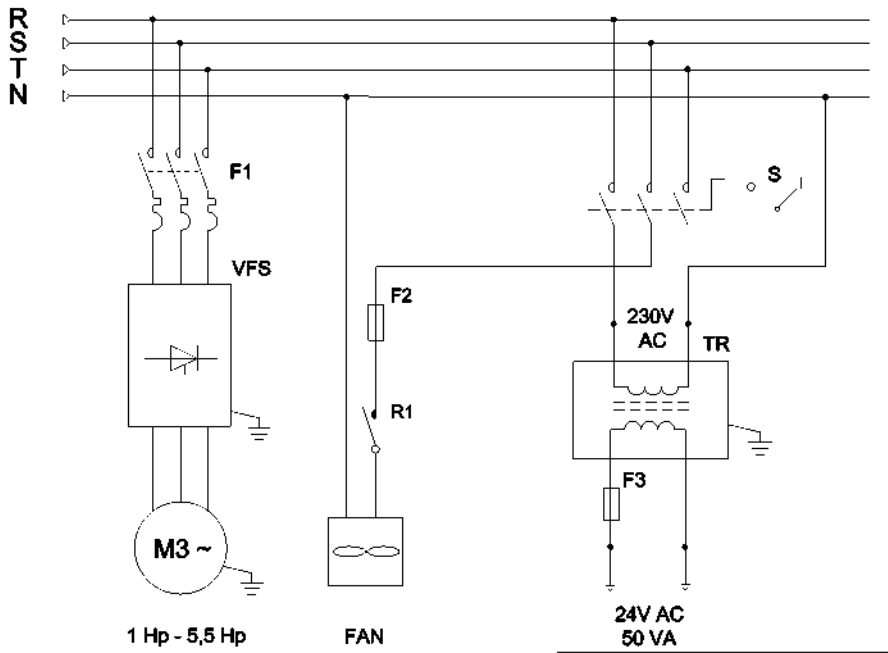


- K11,K12,K13,K21,K22,K23,K31,K32,K33: Contactors
 TR : Transformer
 Q1 ,Q2,Q3 : Thermal Magnetic Switch
 FSR : Phase Sequencing and Protection Relay
 SE : Water Level Contact
 AB : Low Pressure
 OB : Medium Pressure
 YB : High Pressure
 PE : Earth Bus
 P1,P2,P3 : Motor Terminal
 R,S,T,N : 380V AC+Neutral Network Input

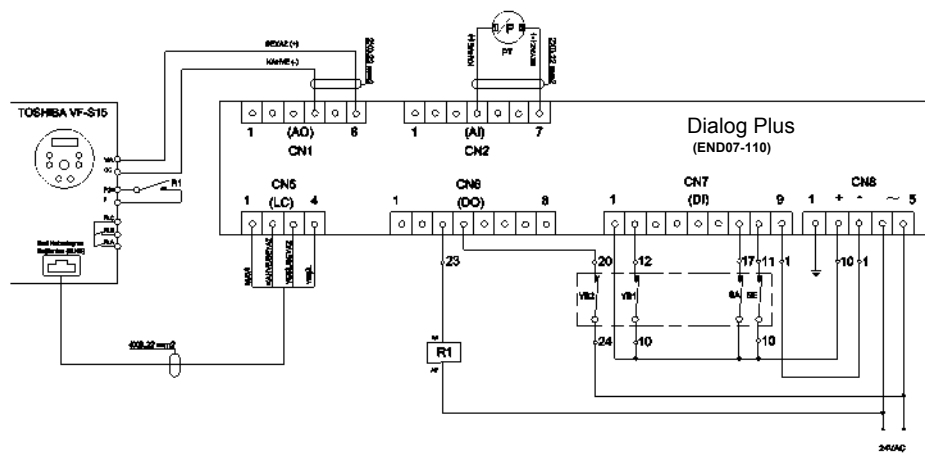
ALDPF TYPE FREQUENCY INVERTER STARTER WATER BOOSTER WITH SINGLE PUMP

Types; I3/10, I3/13, AI3/17, I3/27, I3/31, I5/8, I5/11, I5/14, I5/22, I5/26, I10/5, I10/7, I10/9, I10/16, I15/5, I15/7, I20/5, I10/18, I15/8, I20/7, I32/4, I15/10, I15/12, I20/8, I20/10, I32/5, I32/6, I45/3, I20/12, I45/4, I64/3, I90/3

ELECTRICAL DIAGRAM



CONTROL PANEL CONNECTION

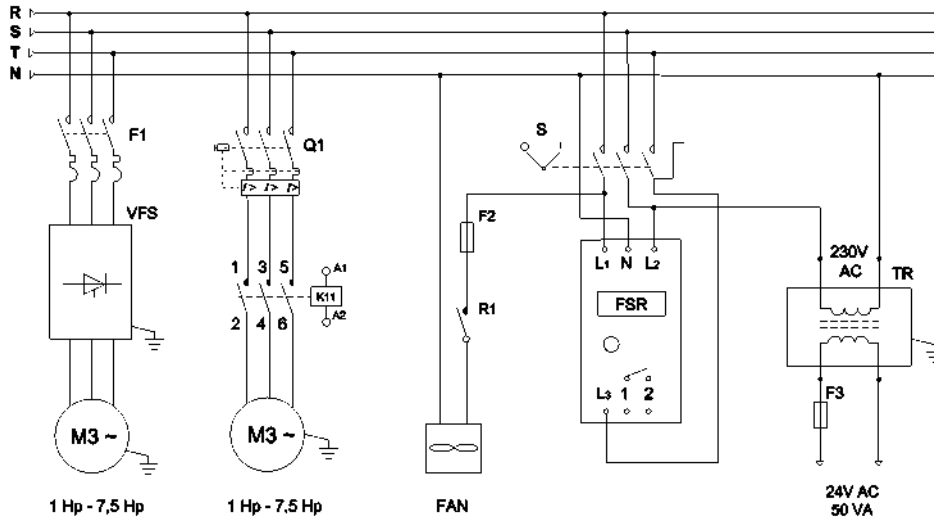


- R1 : Driver starter relay
- TR : Transformer
- YB : High Pressure Contact
- SA : Driver Fault Contact (FLA-FLC)
- SE : Water Level Contact
- PT : Pressure Transmitter
- PE : Earth Bus
- U,V,W Motor Terminal
- R,S,T,N : 380V AC+Neutral Network Input
- F1,F2,F3: Automatic Fuse

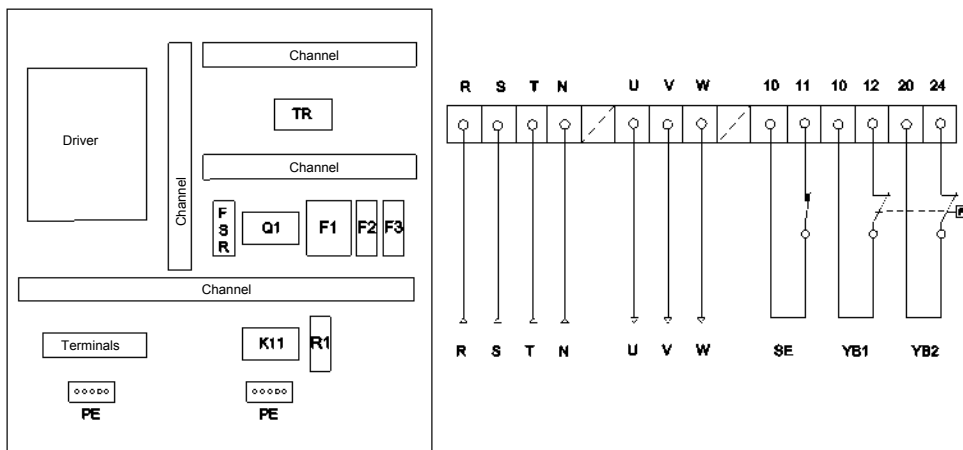
ALDPF TYPE FREQUENCY INVERTER & DIRECT STARTER WATER BOOSTER WITH TWIN PUMP

Types; I3/10, I3/13, I3/17, I3/27, I3/31, I5/8, I5/11, I5/14, I5/22, I5/26, I10/5, I10/7, I10/9, I10/16, I15/5, I15/7, I20/5

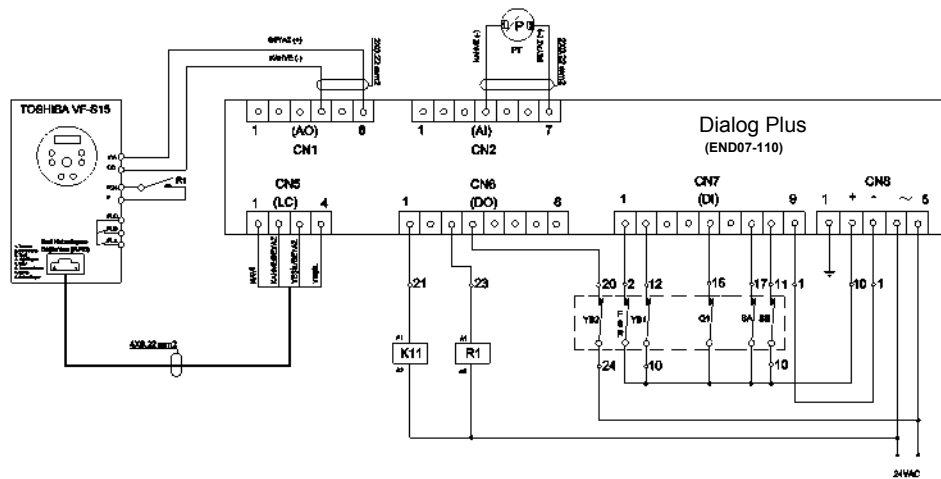
ELECTRICAL DIAGRAM



PANEL LAYOUT



CONTROL PANEL CONNECTION

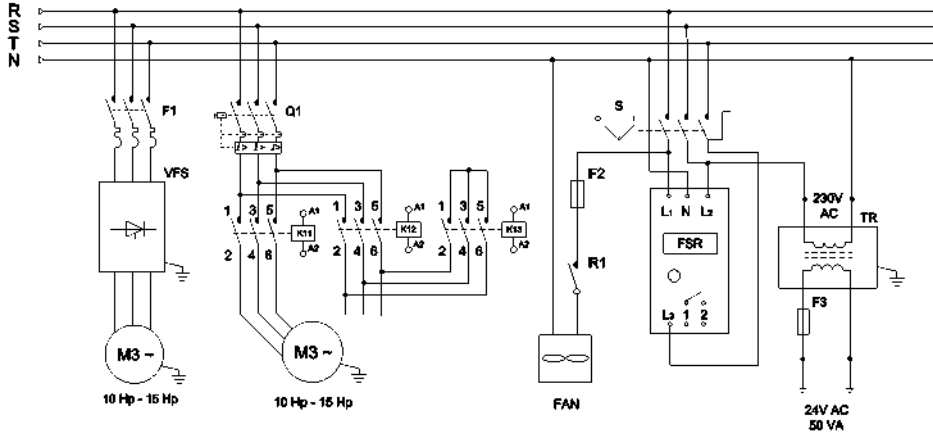


- K11 : Contactor
- R1 : Driver starter relay
- TR : Transformer
- Q1 : Thermal Magnetic Switch
- FSR : Phase Sequencing and Protection Relay
- YB : High Pressure Contact
- SA : Driver Fault Contact (FLA-FLC)
- SE : Water Level Contact
- PT : Pressure Transmitter
- PE : Earth Bus
- U,V,W: Motor Terminal
- R,S,T,N : 380V AC+Neutral Network Input
- F1.F2.F3: Automatic Fuse

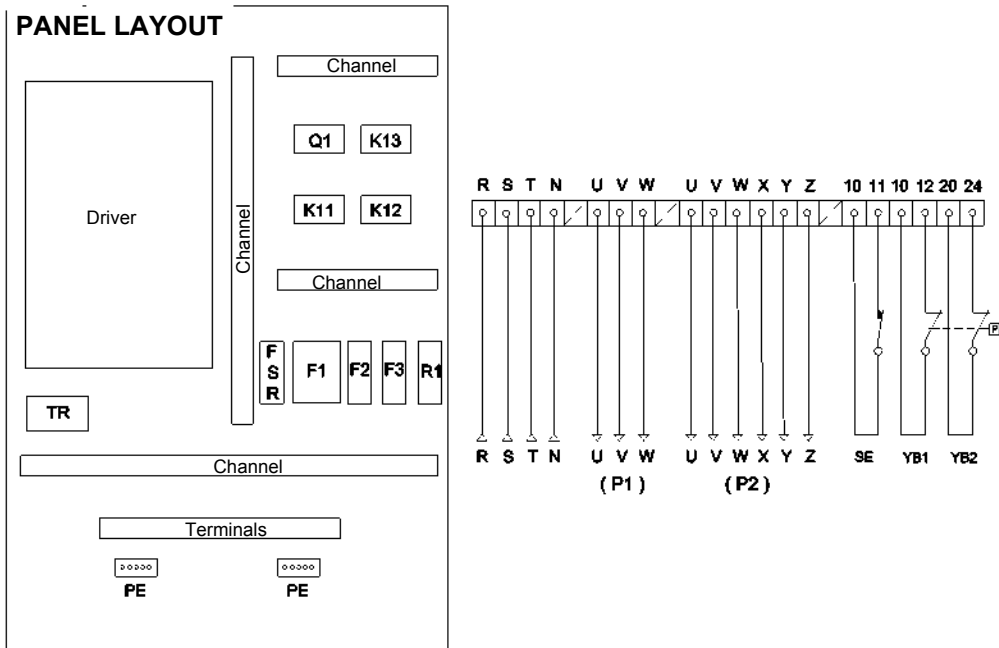
ALDPF TYPE FREQUENCY INVERTER & S/T STARTER WATER BOOSTER WITH TWIN PUMP

Types; I10/18, I15/8, I20/7, I32/4, I15/10, I15/12, I20/8, I20/10, I32/5, I32/6, I45/3, I20/12, I45/4, I64/3, I90/3

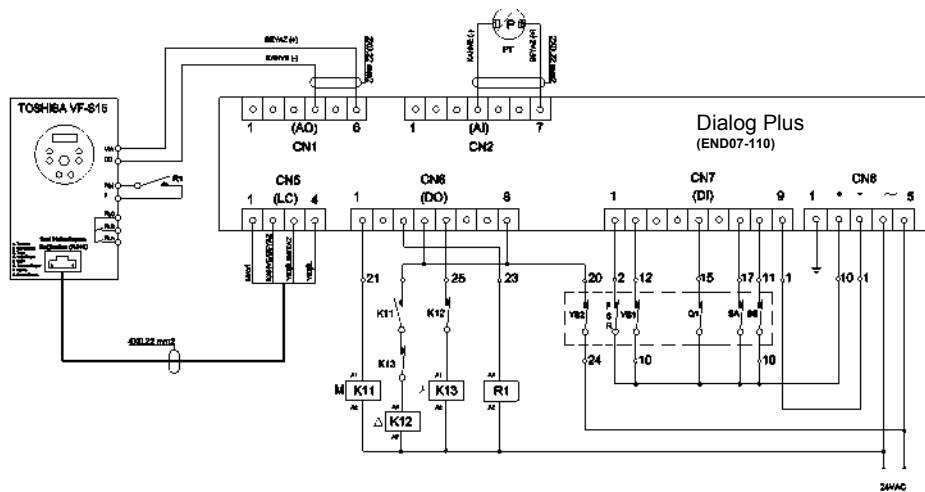
ELECTRICAL DIAGRAM



PANEL LAYOUT



CONTROL PANEL CONNECTION

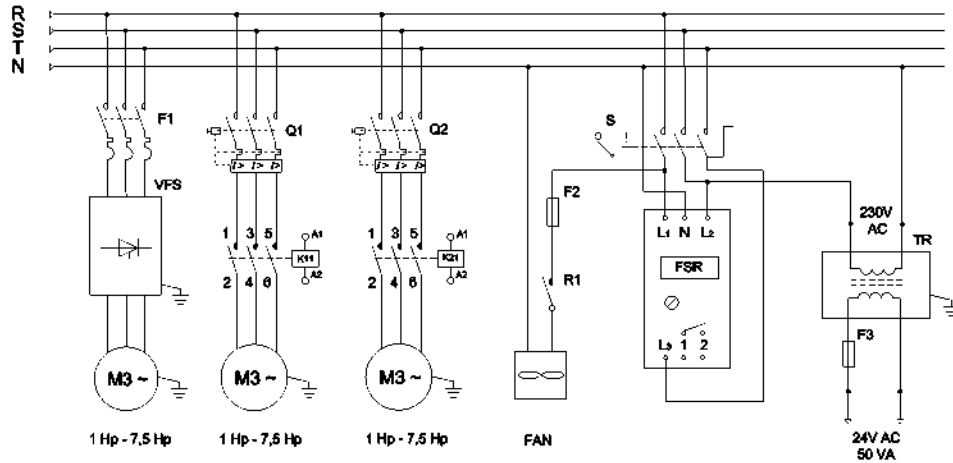


- K11,K12,K13:Contactor
 R1 : Driver starter relay
 TR : Transformer
 Q1 : Thermal Switch NC Contacts
 FSR : Phase Sequencing and Protection Relay
 YB : High Pressure Contact
 SA : Driver Fault Contact (FLA-FLC)
 SE : Water Level Contact
 PT : Pressure Transmitter
 PE : Earth Bus
 P1.P2 : Motor Terminal
 R,S,T,N : 380V AC+Neutral Network Input
 F1 ,F2,F3 :Automatic Fuse

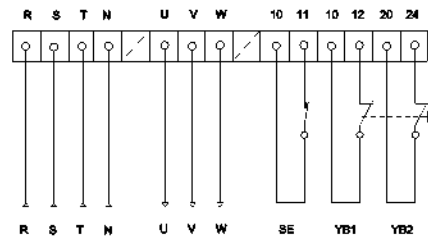
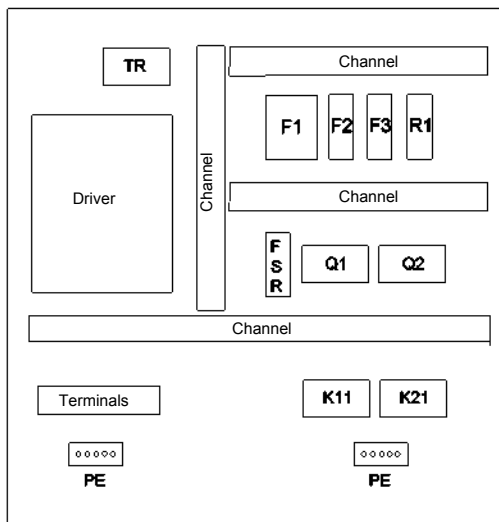
ALDPF TYPE FREQUENCY INVERTER & DIRECT STARTER WATER BOOSTER WITH TRIPLE PUMP

Types; I3/10, I3/13, I3/17, I3/27, I3/31, I5/8, I5/11, I5/14, I5/22, I5/26, I10/5, I10/7, I10/9, I10/16, I15/5, I15/7, I20/5

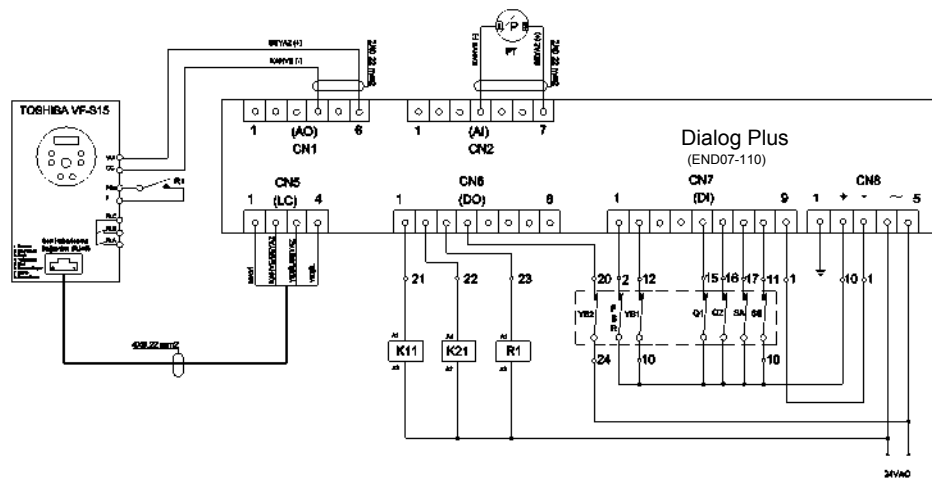
ELECTRICAL DIAGRAM



PANEL LAYOUT



CONTROL PANEL CONNECTION

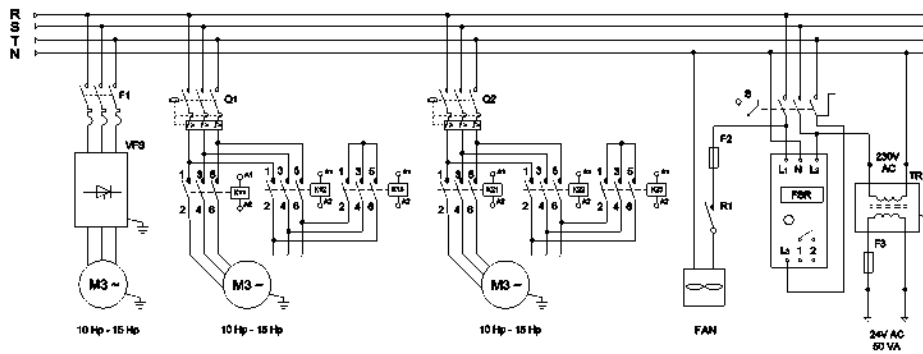


- K11.K21 : Contactors
- R1 : Driver starter relay
- TR: Transformer
- Q1 ,Q2 : Thermal Magnetic Switch
- FSR : Phase Sequencing and Protection Relay
- YB: High Pressure Contact
- SA : Driver Fault Contact (FLA-FLC)
- SE : Water Level Contact
- PT: Pressure Transmitter
- PE: Earth Bus
- U,V,W: Motor Terminal
- R,S,T,N : 380VAC+Neutral Network Input

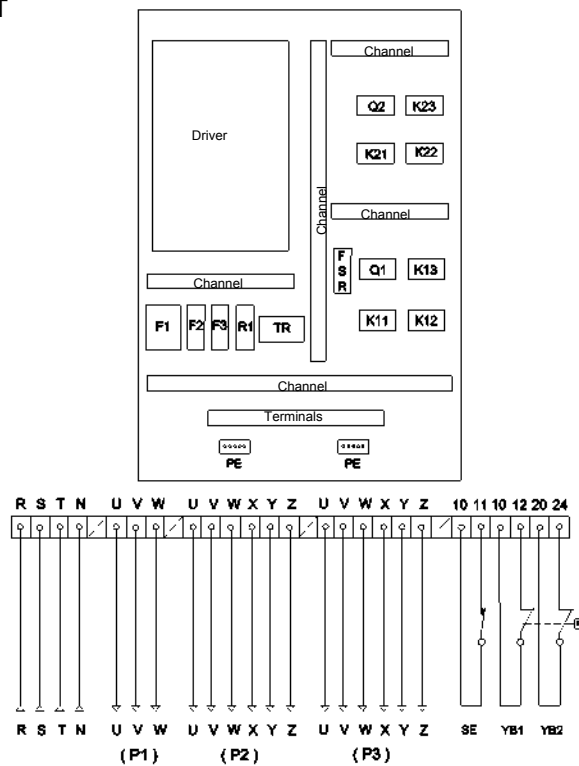
ALDPF TYPE FREQUENCY INVERTER & DIRECT STARTER WATER BOOSTER WITH TRIPLE PUMP

Types; I3/10, I3/13, I3/17, I3/27, I3/31, I5/8, I5/11, I5/14, I5/22, I5/26, I10/5, I10/7, I10/9, I10/16, I15/5, I15/7, I20/5

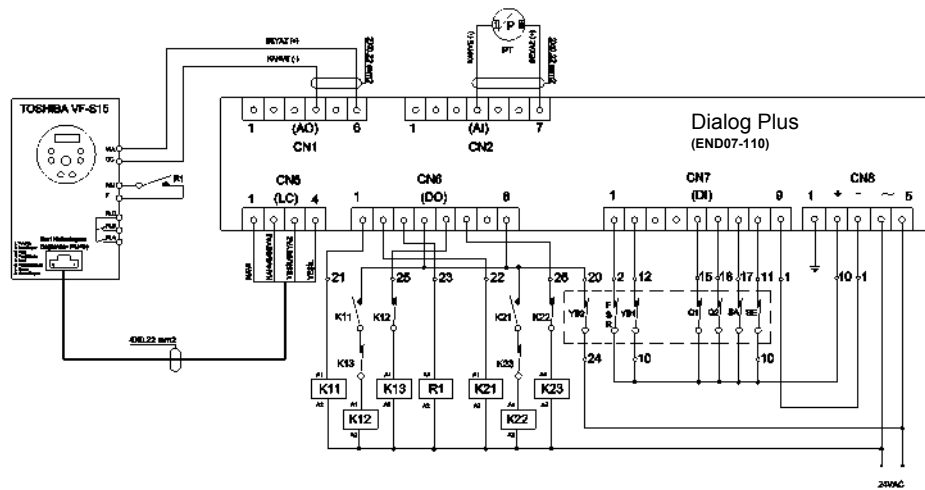
ELECTRICAL DIAGRAM



PANEL LAYOUT

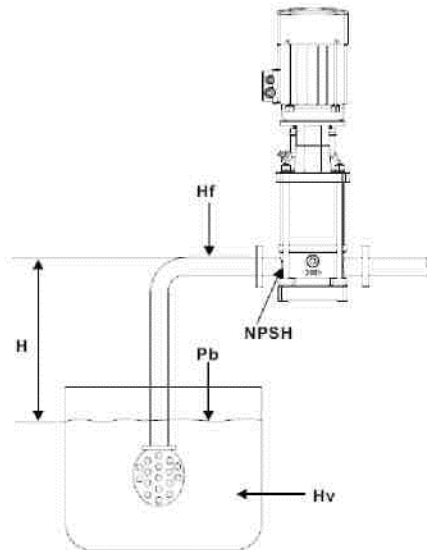


CONTROL PANEL CONNECTION



- K11,K12,K13,K21,K22,K23 : Contactors
 R1 : Driver starter relay
 TR : Transformer
 Q1,Q2 : Thermal Magnetic Switch
 FSR : Phase Sequencing and Protection Relay
 YB : High Pressure Contact
 SA : Driver Fault Contact (FLA-FLC)
 SE : Water Level Contact
 PT : Pressure Transmitter
 PE : Earth Bus
 P1 ,P2,P3 : Motor Terminal
 R,S,T,N : 380V AC+Neutral Network Input
 F1 ,F2,F3 : Automatic Fuse

MINIMUM INPUT PRESSURE – NPSH :



The maximum suction height (“H”) is calculated as follows:

$$H = P_b \times 10.2 - NPSH - H_f - H_v - H_s$$

P_b = Barometric pressure. The pressure should be set to 1 bar.

P_b in closed systems indicates the system pressure in bar.

$NPSH$ = Net Positive Suction Height

H_f = Friction loss in the suction manifold as the head in meters at the highest flow rate of the pump.

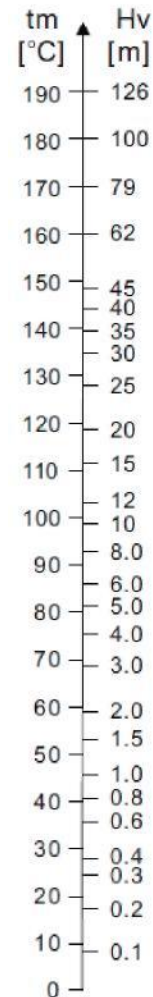
H_v = Vapor pressure (Figure 11)

H_s = Safety Margin

The pressure during operation should be equal to the calculated “H” value.

If “H” is positive, the pump can start to operate at maximum “H” meter suction application.

If “H” is negative, a suction pressure of minimum “H” meter head is required.



EXAMPLE:

Pb = 1 bar

Pump type = ALDP I10

Flow rate = 10 m³/h

NPSH (See Pump Curves) = 2.1 meters

Liquid temperature = 50°

Hv (Vapor pressure) = 1.3

Hf = 3 meters Hm

$H = Pb \times 10.2 - NPSH - Hf - Hv - Hs$

$H = 1 \times 10.2 - 2.1 - 3.0 - 1.3 - 0.5 = 3.3$ meters

This means that the pump can operate a suction lift with a maximum head of 3.3 meters.

Pressure (bar) : $3,3 \times 0,0981 = 0,324$ bar.

Pressure (kPa): $3,3 \times 9,81 = 32,4$ kPa.

MAXIMUM INPUT PRESSURE AND OPERATING PRESSURE

Table 4 shows the maximum permissible input pressure. However, the sum of the current input pressure and the pressure in the closed valve must be lower than the maximum permissible operating pressure. If the maximum permissible operating pressure is exceeded, the conical bearing on the motor may be damaged and the service life of the shaft seal may be reduced.

	Number of Level	Maximum operating pressure	Maximum input pressure
ALDP I3	10	25 bar	10 bar
	13	25 bar	10 bar
	17	25 bar	10 bar
	27	25 bar	10 bar
	31	25 bar	15 bar
ALDP I5	8	25 bar	10 bar
	11	25 bar	10 bar
	14	25 bar	10 bar
	22	25 bar	15 bar
	26	25 bar	15 bar
ALDP I10	5	16 bar	8 bar
	7	16 bar	8 bar
	9	16 bar	10 bar
	16	16 bar	10 bar
	18	22 bar	10 bar
ALDP I15	5	16 bar	10 bar
	7	16 bar	10 bar
	8	16 bar	10 bar
	10	16 bar	10 bar
	12	25 bar	10 bar
ALDP I20	5	16 bar	10 bar
	7	16 bar	10 bar
	8	16 bar	10 bar
	10	16 bar	10 bar
	12	16 bar	10 bar
ALDP I32	4	16 bar	4 bar
	5	16 bar	10 bar
	6	16 bar	10 bar
ALDP I45	3	16 bar	10 bar
	4	16 bar	10 bar
ALDP I64	3	16 bar	10 bar
ALDP I90	3	16 bar	10 bar

Determination of operating and input pressures:

Operating and input pressures should be handled together.

EXAMPLE 1:

Pump Type/Level = ALDP I5 /12
Max. operating pressure = **25 bar**
Max. input pressure = **15 bar**
Closed valve pressure = 14.6 bar (See Pump Curves)

This pump is not allowed to operate at an input pressure of 15 bar.

An input pressure of $25-14.6= 10.4$ bar is allowed.

EXAMPLE 2:

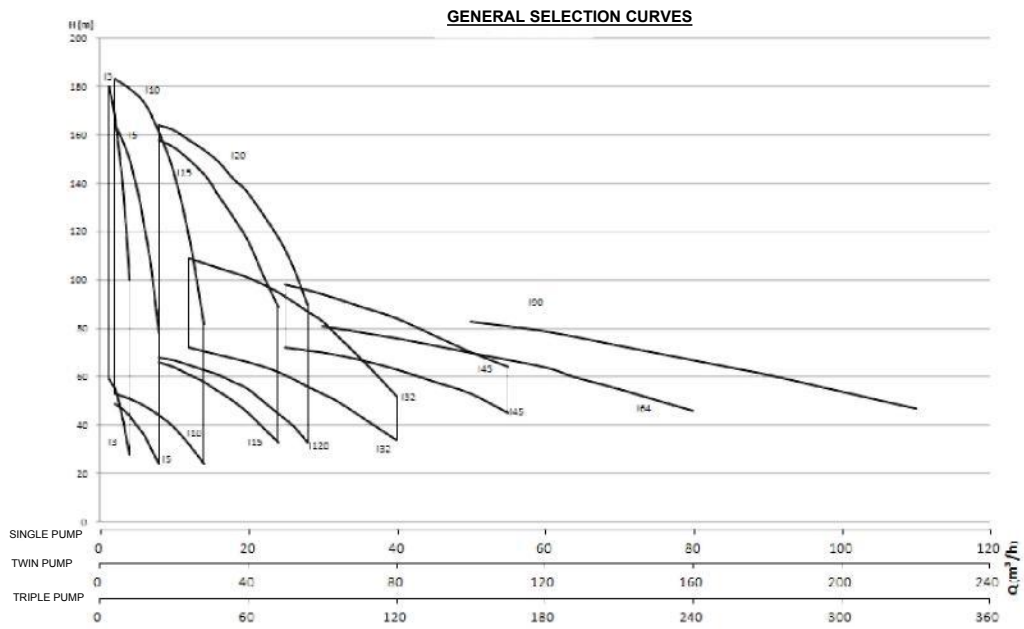
Pump Type/Level = ALDP I10 /5
Max. operating pressure = **16 bar**
Max. input pressure = **8 bar**
Closed valve pressure = 5.4 bar (See Pump Curves)

This pump is allowed to operate at an input pressure of 8 bar.

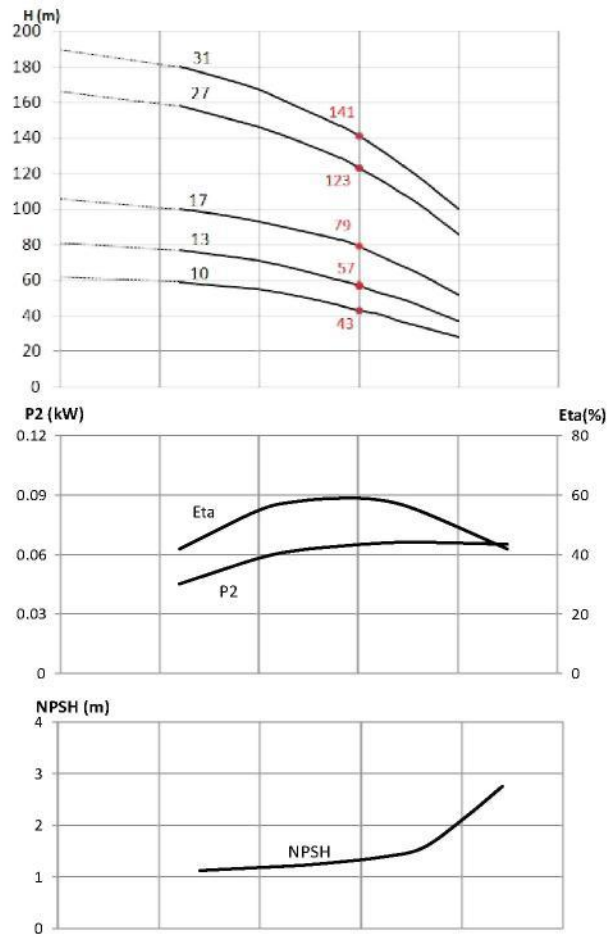
The pump gives an operating pressure of $8+5.4 = 13.4$ bar.

The maximum operating pressure of this pump is 16 bar.

PUMP CURVES



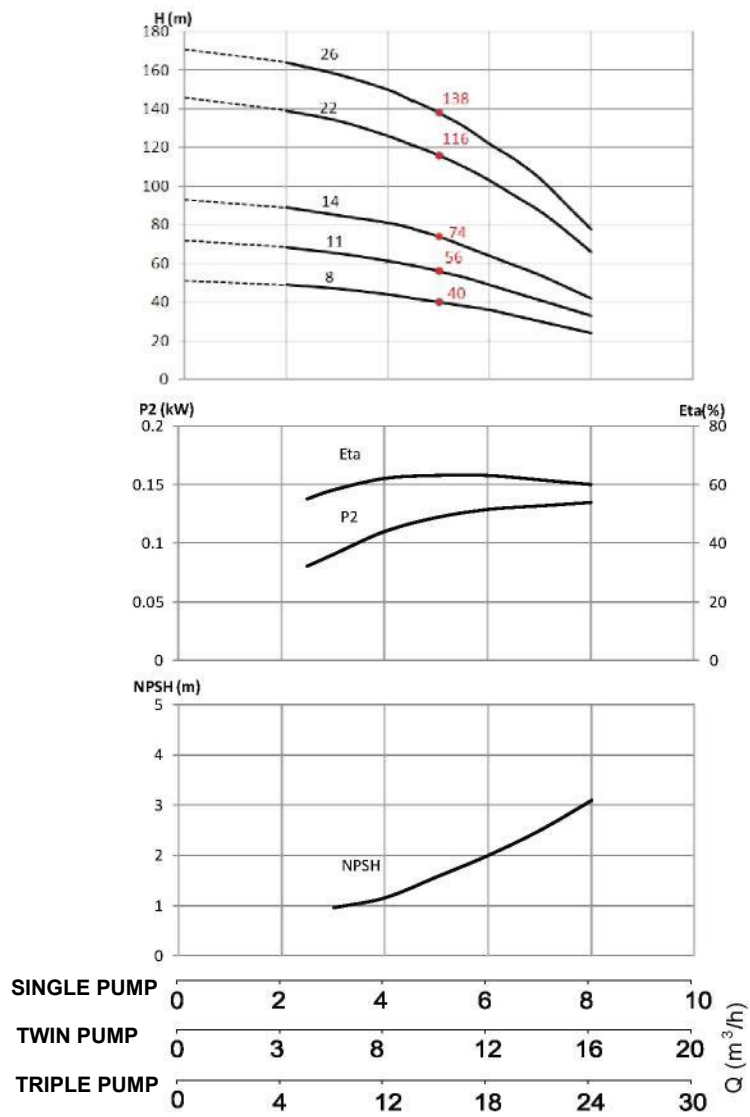
ALDP I3



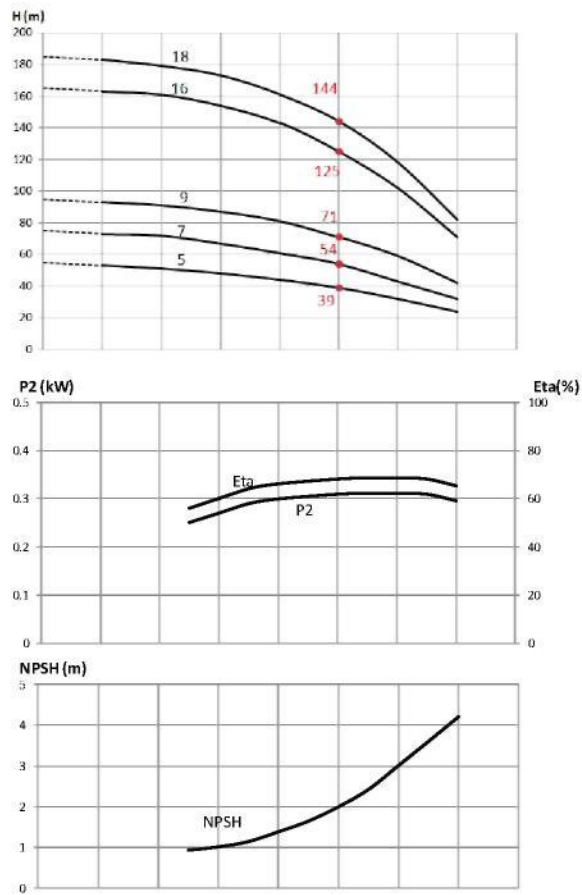
SINGLE PUMP	0	1	2	3	4	5
TWIN PUMP	0	2	4	6	8	10
TRIPLE PUMP	0	3	6	9	12	15

Q (m^3/h)

ALDP I5



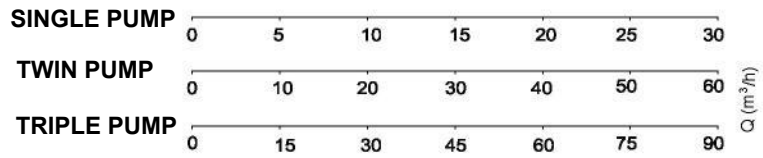
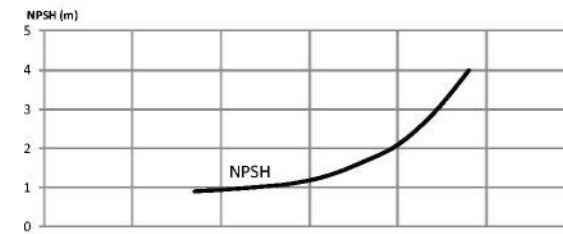
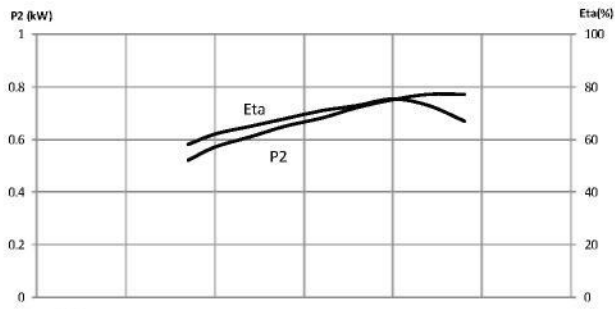
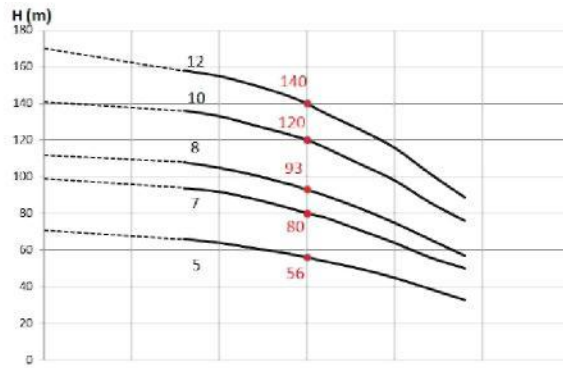
ALDP I10



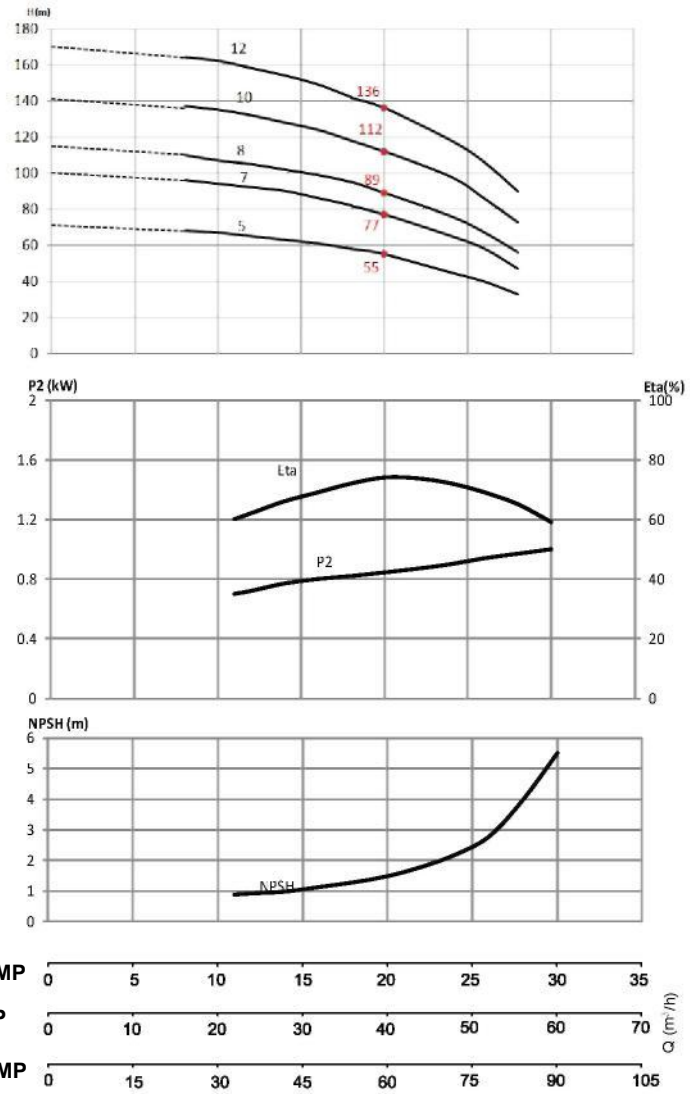
SINGLE PUMP	0	4	8	12	16
TWIN PUMP	0	8	16	24	32
TRIPLE PUMP	0	12	24	36	48

Q (m^3/h)

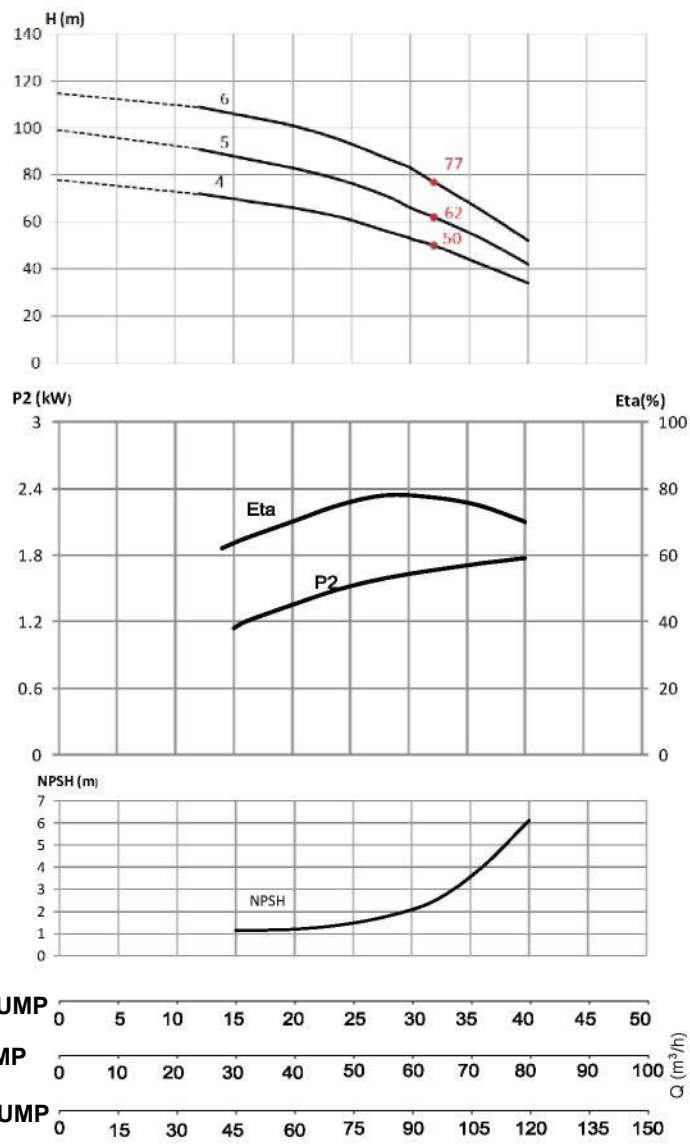
ALDP I15



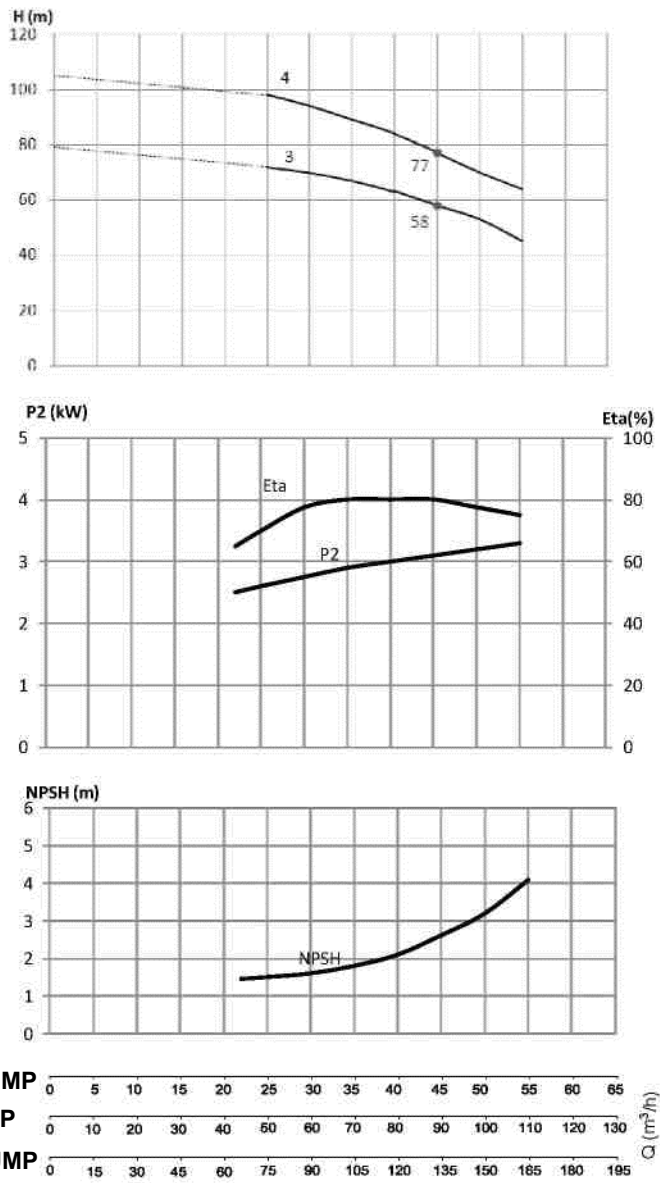
ALDP I20



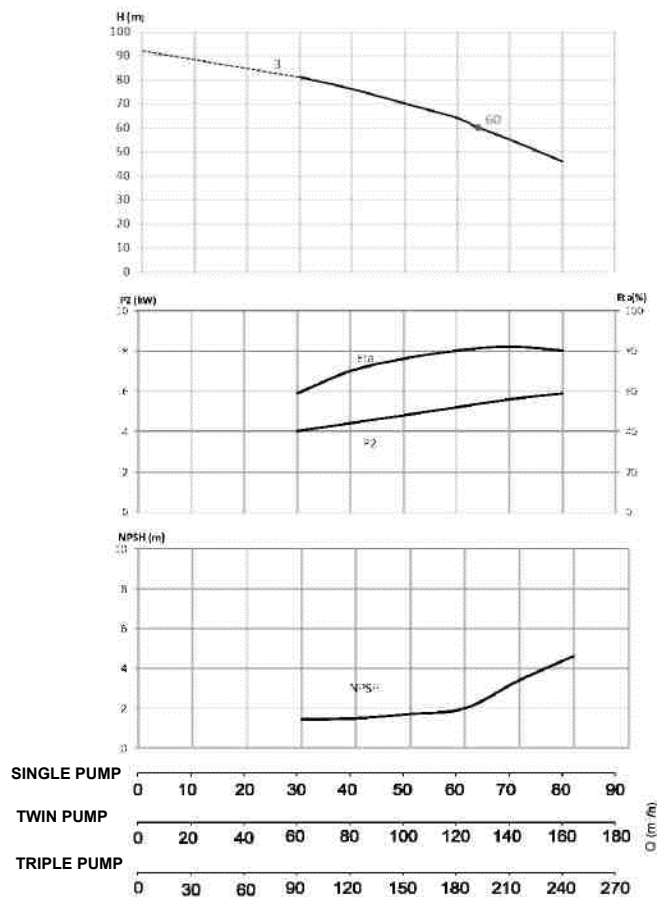
ALDP I32



ALDP I45



ALDP I64



TECHNICAL SPECIFICATIONS

The motors of all types are 3-phase, 380 V, 50Hz.

Protection against waterless running is done with float switch.

Water boosters should be used with a pressure compensating tank. Tank coupling with pump assembly can be easily done with flexible connection hose.

By means of sequence-controlled operation, the pumps are activated in sequence-controlled manner to keep the set factory pressure and desired water flow rate constant, and they are deactivated in sequence as usage decreases. First commissioning pump changes automatically after each use. Thus, the service life of the motors and pumps is equalized.

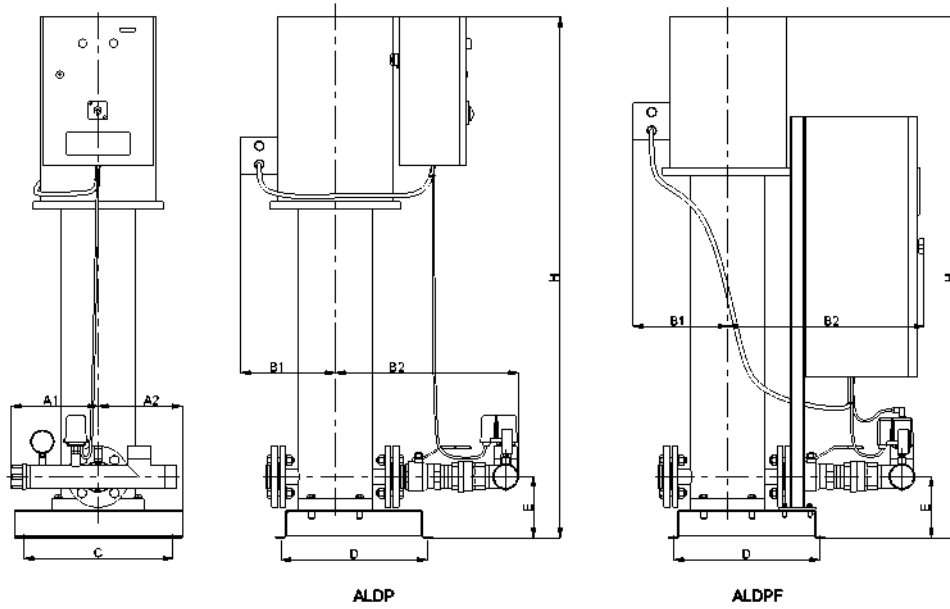
Table 5: Technical Specifications Table

		SINGLE PUMP TYPES	MOTOR POWER	WATER INLET/OUTLET**	M.T Connectio	Weight	
						ALDP	ALDPF
ALDP I3	10	ALDP I3/10-1	1	DN32/DN32	R1	39	64
	13	ALDP I3/13-1	1,5		R1	42	67
	17	ALDP I3/17-1	2		R1	48	73
	27	ALDP I3/27-1	3		R1	55	82
	31	ALDP I3/31-1	4		R1	61	88
ALDP I5	8	ALDP I5 /8-1	1,5		R1	43	68
	11	ALDP I5 /11-1	3		R1	51	78
	14	ALDP I5 /14-1			R1	55	82
	22	ALDP I5 /22-1	5,5		R1	72	99
	26	ALDP I5 /26-1			R1	75	102
ALDP I10	5	ALDP I10 /5-1	3	DN40/DN40	R1 1/2	63	90
	7	ALDP I10 /7-1	4		R1 1/2	70	97
	9	ALDP I10 /9-1			R1 1/2	72	99
	16	ALDP I10 /16-1	7,5		R1 1/2	110	137
	18	ALDP I10 /18-1	10		R1 1/2	142	162
ALDP I15	5	ALDP I15 /5-1	5,5	DN50/DN50	R2	78	104
	7	ALDP I15 /7-1	7,5		R2	113	138
	8	ALDP I15 /8-1	10		R2	125	143
	10	ALDP I15 /10-1	15		R2	168	186
	12	ALDP I15 /12-1			R2	173	191
ALDP I20	5	ALDP I20 /5-1	7,5		R2	103	129
	7	ALDP I20 /7-1	10		R2	118	136
	8	ALDP I20 /8-1	15		R2	159	177
	10	ALDP I20 /10-1			R2	165	183
	12	ALDP I20 /12-1	20		R2	174	192
ALDP I32	4	ALDP I32 /4-1	10	DN65/DN65	R2	151	169
	5	ALDP I32 /5-1	15		R2	206	224
	6	ALDP I32 /6-1			R2	211	229
ALDP I45	3	ALDP I45 /3-1	15	DN80/DN80	R2 1/2	215	234
	4	ALDP I45 /4-1	20		R2 1/2	227	246
ALDP I64	3	ALDP I64 /3-1	25	DN100/DN100	R2 1/2	254	271
ALDP I90	3	ALDP I90 /3-1	30		R2 1/2	314	331

		SINGLE PUMP TYPES		TWIN PUMP TYPES		MOTOR POWER	WATER INLET/OUTLET**	M.T Connection	Weight			
									ALDP	ALDPF		
ALDP I3	10	ALDP I3/10-1	ALDP I3	10	ALDP I3/10-2	1	DN50/DN50	R1	94	99		
	13	ALDP I3/13-1		13	ALDP I3/13-2	1,5		R1	100	105		
	17	ALDP I3/17-1		17	ALDP I3/17-2	2		R1	112	117		
	27	ALDP I3/27-1		27	ALDP I3/27-2	3		R1	126	131		
	31	ALDP I3/31-1		31	ALDP I3/31-2	4		R1	138	143		
ALDP I5	8	ALDP I5 /8-1	ALDP I5	8	ALDP I5 /8-2	1,5		DN50/DN50	R1	102	107	
	11	ALDP I5 /11-1		11	ALDP I5 /11-2	3			R1	118	123	
	14	ALDP I5 /14-1		14	ALDP I5 /14-2				R1	126	131	
	22	ALDP I5 /22-1		22	ALDP I5 /22-2	5,5			R1	160	165	
	26	ALDP I5 /26-1		26	ALDP I5 /26-2				R1	166	171	
ALDP I10	5	ALDP I10 /5-1	ALDP I10	5	ALDP I10 /5-2	3	DN65/DN65		R1 1/2	146	152	
	7	ALDP I10 /7-1		7	ALDP I10 /7-2	4			R1 1/2	160	166	
	9	ALDP I10 /9-1		9	ALDP I10 /9-2				R1 1/2	164	170	
	16	ALDP I10 /16-1		16	ALDP I10 /16-2	7,5			R1 1/2	240	247	
	18	ALDP I10 /18-1		18	ALDP I10 /18-2	10			R1 1/2	289	296	
ALDP I15	5	ALDP I15 /5-1	ALDP I15	5	ALDP I15 /5-2	5,5		DN80/DN80	R2	181	187	
	7	ALDP I15 /7-1		7	ALDP I15 /7-2	7,5			R2	251	258	
	8	ALDP I15 /8-1		8	ALDP I15 /8-2	10			R2	260	267	
	10	ALDP I15 /10-1		10	ALDP I15 /10-2	15			R2	345	353	
	12	ALDP I15 /12-1		12	ALDP I15 /12-2				R2	355	363	
ALDP I20	5	ALDP I20 /5-1	ALDP I20	5	ALDP I20 /5-2	7,5	DN80/DN80		R2	231	238	
	7	ALDP I20 /7-1		7	ALDP I20 /7-2	10			R2	246	253	
	8	ALDP I20 /8-1		8	ALDP I20 /8-2	15			R2	327	335	
	10	ALDP I20 /10-1		10	ALDP I20 /10-2				R2	339	347	
	12	ALDP I20 /12-1		12	ALDP I20 /12-2	20			R2	356	364	
ALDP I32	4	ALDP I32 /4-1	ALDP I32	4	ALDP I32 /4-2	10		DN100/DN100	R2	319	325	
	5	ALDP I32 /5-1		5	ALDP I32 /5-2	15			R2	428	436	
	6	ALDP I32 /6-1		6	ALDP I32 /6-2				R2	438	446	
ALDP I45	3	ALDP I45 /3-1	ALDP I45	3	ALDP I45 /3-2	15			DN125/DN125	R2 1/2	491	496
	4	ALDP I45 /4-1		4	ALDP I45 /4-2	20				R2 1/2	515	520
ALDP I64	3	ALDP I64 /3-1	ALDP I64	3	ALDP I64 /3-2	25	DN150/DN150		R2 1/2	583	588	
ALDP I90	3	ALDP I90 /3-1	ALDP I90	3	ALDP I90 /3-2	30		R2 1/2	703	708		

		SINGLE PUMP TYPES		TRIPLE PUMP TYPES		MOTOR POWER	WATER INLET/OUTLET**	M.T Connection	Weight		
									ALDP	ALDP F	
ALDP I3	10	ALDP I3/10-1		10	ALDP I3/10-3	1	DN50/DN50	R1	141	140	
	13	ALDP I3/13-1		13	ALDP I3/13-3	1,5		R1	150	149	
	17	ALDP I3/17-1		17	ALDP I3/17-3	2		R1	168	167	
	27	ALDP I3/27-1		27	ALDP I3/27-3	3		R1	189	189	
	31	ALDP I3/31-1		31	ALDP I3/31-3	4		R1	207	207	
ALDP I5	8	ALDP I5 /8-1		8	ALDP I5 /8-3	1,5		R1	153	152	
	11	ALDP I5 /11-1		11	ALDP I5 /11-3	3		R1	177	177	
	14	ALDP I5 /14-1		14	ALDP I5 /14-3			R1	189	189	
	22	ALDP I5 /22-1		22	ALDP I5 /22-3	5,5		R1	240	240	
	26	ALDP I5 /26-1		26	ALDP I5 /26-3			R1	249	249	
ALDP I10	5	ALDP I10 /5-1		5	ALDP I10 /5-3	3	DN65/DN65	R1 1/2	219	220	
	7	ALDP I10 /7-1		7	ALDP I10 /7-3	4		R1 1/2	240	241	
	9	ALDP I10 /9-1		9	ALDP I10 /9-3			R1 1/2	246	247	
	16	ALDP I10 /16-1		16	ALDP I10 /16-3	7,5		R1 1/2	360	361	
	18	ALDP I10 /18-1		18	ALDP I10 /18-3	10		R1 1/2	435	434	
ALDP I15	5	ALDP I15 /5-1		5	ALDP I15 /5-3	5,5		DN100/DN100	R2	282	283
	7	ALDP I15 /7-1		7	ALDP I15 /7-3	7,5			R2	387	388
	8	ALDP I15 /8-1		8	ALDP I15 /8-3	10			R2	402	401
	10	ALDP I15 /10-1		10	ALDP I15 /10-3	15			R2	528	528
	12	ALDP I15 /12-1		12	ALDP I15 /12-3				R2	543	544
ALDP I20	5	ALDP I20 /5-1		5	ALDP I20 /5-3	7,5	R2		357	358	
	7	ALDP I20 /7-1		7	ALDP I20 /7-3	10	R2		381	380	
	8	ALDP I20 /8-1		8	ALDP I20 /8-3	15	R2		501	502	
	10	ALDP I20 /10-1		10	ALDP I20 /10-3		R2		520	520	
	12	ALDP I20 /12-1		12	ALDP I20 /12-3	20	R2		546	546	
ALDP I32	4	ALDP I32 /4-1		4	ALDP I32 /4-3	10	DN125/DN125	R2	525	524	
	5	ALDP I32 /5-1		5	ALDP I32 /5-3	15		R2	687	688	
	6	ALDP I32 /6-1		6	ALDP I32 /6-3			R2	702	703	
ALDP I45	3	ALDP I45 /3-1		3	ALDP I45 /3-3	15	DN150/DN150	R2 1/2	734	735	
	4	ALDP I45 /4-1		4	ALDP I45 /4-3	20		R2 1/2	770	770	
ALDP I64	3	ALDP I64 /3-1		ALDP I64	3	ALDP I64 /3-3	25	DN200/DN200	R2 1/2	852	852
ALDP I90	3	ALDP I90 /3-1		ALDP I90	3	ALDP I90 /3-3	30		R2 1/2	1096	1096

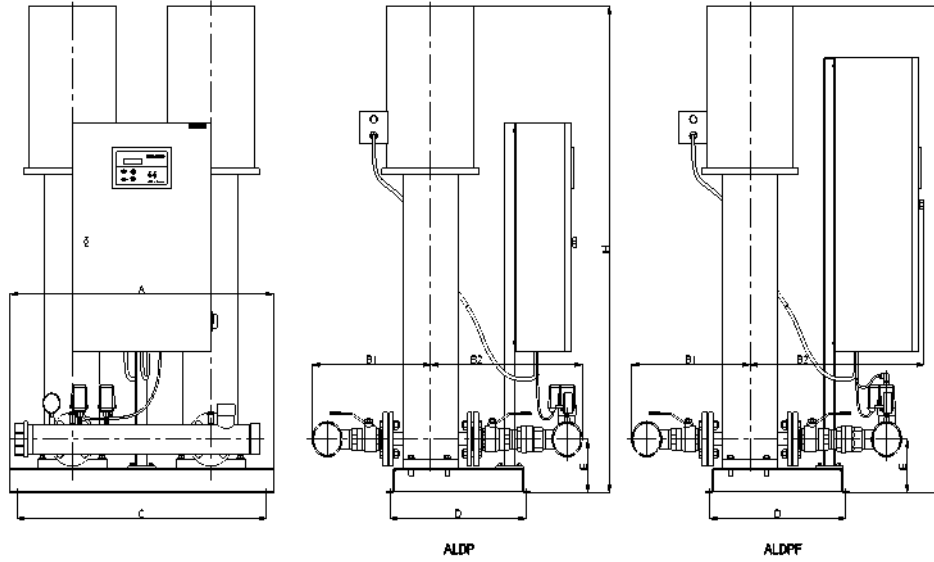
SINGLE PUMP ALDP and ALDPF WATER BOOSTER DIMENSIONS



SINGLE PUMP TYPES		A	A1	A2	B	B1	B2	C	D	E	H
ALDP13	10 ALDP 13/10-1	444	234	210	578	157	421	318	341	165	704
	13 ALDP 13/13-1										796
	17 ALDP 13/17-1										913
	27 ALDP 13/27-1										1113
31 ALDP 13/31-1										1212	
ALDP15	8 ALDP 15/8-1										778
	11 ALDP 15/11-1										924
	14 ALDP 15/14-1										1005
	22 ALDP 15/22-1										1282
26 ALDP 15/26-1										1390	
ALDP110	5 ALDP 110/5-1				635	174	461				839
	7 ALDP 110/7-1										926
	9 ALDP 110/9-1										986
	16 ALDP 110/16-1				643	182					1336
18 ALDP 110/18-1										1396	
ALDP115	5 ALDP 115/5-1	460		226	689	186	503	401	393		974
	7 ALDP 115/7-1										1171
	8 ALDP 115/8-1										1216
	10 ALDP 115/10-1				758	255					1404
12 ALDP 115/12-1										1494	
ALDP120	5 ALDP 120/5-1				689	186					1081
	7 ALDP 120/7-1										1171
	8 ALDP 120/8-1										1313
	10 ALDP 120/10-1				758	255					1403
12 ALDP 120/12-1										1494	
ALDP132	4 ALDP 132/4-1	462	236		867	200	667			180	1193
	5 ALDP 132/5-1				922	255					1488
	6 ALDP 132/6-1										1558
ALDP145	3 ALDP 145/3-1	458	232		989		734			215	1399
	4 ALDP 145/4-1										1479
ALDP164	3 ALDP 164/3-1				1013		758				1453
ALDP190	3 ALDP 190/3-1				1051	285	766				1530

SINGLE PUMP TYPES		A	A1	A2	B	B1	B2	C	D	E	H
ALDPF13	10 ALDPF 13/10-1	585	375	210	595	157	438	401	393	165	785
	13 ALDPF 13/13-1										796
	17 ALDPF 13/17-1										913
	27 ALDPF 13/27-1	610	400		615		458				1113
31 ALDPF 13/31-1										1212	
ALDPF15	8 ALDPF 15/8-1	585	375		595		438				785
	11 ALDPF 15/11-1	610	400		615		458				924
	14 ALDPF 15/14-1										1005
	22 ALDPF 15/22-1				620	162					1282
26 ALDPF 15/26-1										1390	
ALDPF110	5 ALDPF 110/5-1				635	174	461				839
	7 ALDPF 110/7-1										926
	9 ALDPF 110/9-1										986
	16 ALDPF 110/16-1				643	182					1336
18 ALDPF 110/18-1										1396	
ALDPF115	5 ALDPF 115/5-1	800	574	226	689	186	503	600			974
	7 ALDPF 115/7-1										1171
	8 ALDPF 115/8-1										1216
	10 ALDPF 115/10-1				758	255					1404
12 ALDPF 115/12-1										1494	
ALDPF120	5 ALDPF 120/5-1				689	186					1081
	7 ALDPF 120/7-1										1171
	8 ALDPF 120/8-1										1313
	10 ALDPF 120/10-1				758	255					1403
12 ALDPF 120/12-1										1494	
ALDPF132	4 ALDPF 132/4-1	801	575		867	200	667			180	1193
	5 ALDPF 132/5-1				922	255					1488
	6 ALDPF 132/6-1										1558
ALDPF145	3 ALDPF 145/3-1				989		734			215	1399
	4 ALDPF 145/4-1	851	625								1479
ALDPF164	3 ALDPF 164/3-1				1013		758				1453
ALDPF190	3 ALDPF 190/3-1				1051	285	766				1530

TWIN PUMP ALDP and ALDPF WATER BOOSTER DIMENSIONS



		TWIN PUMP TYPES									
		A	A1	A2	B	B1	B2	C	D	E	H
ALDP 13	10 ALDP 13/10-2										735
	13 ALDP 13/13-2										796
	17 ALDP 13/17-2										913
	27 ALDP 13/27-2										1113
	31 ALDP 13/31-2										1212
ALDP 15	8 ALDP 15/8-2				762	328	434				778
	11 ALDP 15/11-2										924
	14 ALDP 15/14-2	768	-	-				718			1005
	22 ALDP 15/22-2										1282
	26 ALDP 15/26-2										1390
ALDP 110	5 ALDP 110/5-2										839
	7 ALDP 110/7-2										926
	9 ALDP 110/9-2				868	375	493				986
	16 ALDP 110/16-2								441	165	1336
	18 ALDP 110/18-2										1396
ALDP 115	5 ALDP 115/5-2										974
	7 ALDP 115/7-2										1171
	8 ALDP 115/8-2										1216
	10 ALDP 115/10-2										1404
	12 ALDP 115/12-2										1494
ALDP 120	5 ALDP 120/5-2				975	427	548				1081
	7 ALDP 120/7-2										1171
	8 ALDP 120/8-2										1313
	10 ALDP 120/10-2	951						901	492		1403
	12 ALDP 120/12-2										1494
ALDP 132	4 ALDP 132/4-2										1193
	5 ALDP 132/5-2				1275	533	742			180	1488
	6 ALDP 132/6-2										1558
ALDP 145	3 ALDP 145/3-2										1399
	4 ALDP 145/4-2				1488	652	836				1479
ALDP 164	3 ALDP 164/3-2				1581	714	867			215	1453
ALDP 190	3 ALDP 190/3-2				1595	721	874				1530

		TWIN PUMP TYPES									
		A	A1	A2	B	B1	B2	C	D	E	H
ALDPF 13	10 ALDPF 13/10-2										885
	13 ALDPF 13/13-2										913
	17 ALDPF 13/17-2										1113
	27 ALDPF 13/27-2										1212
	31 ALDPF 13/31-2										1212
ALDPF 15	8 ALDPF 15/8-2				762	328	434				778
	11 ALDPF 15/11-2										924
	14 ALDPF 15/14-2	768	-	-				718			1005
	22 ALDPF 15/22-2										1282
	26 ALDPF 15/26-2										1390
ALDPF 110	5 ALDPF 110/5-2										839
	7 ALDPF 110/7-2										926
	9 ALDPF 110/9-2				897	375	522				986
	16 ALDPF 110/16-2								441	165	1336
	18 ALDPF 110/18-2				917		542				1396
ALDPF 115	5 ALDPF 115/5-2										974
	7 ALDPF 115/7-2										1171
	8 ALDPF 115/8-2										1216
	10 ALDPF 115/10-2										1404
	12 ALDPF 115/12-2										1494
ALDPF 120	5 ALDPF 120/5-2				985	427	588				1081
	7 ALDPF 120/7-2										1171
	8 ALDPF 120/8-2										1313
	10 ALDPF 120/10-2	951						901	492		1403
	12 ALDPF 120/12-2										1494
ALDPF 132	4 ALDPF 132/4-2										1193
	5 ALDPF 132/5-2				1275	533	742			180	1488
	6 ALDPF 132/6-2										1558
ALDPF 145	3 ALDPF 145/3-2										1399
	4 ALDPF 145/4-2				1488	652	836				1479
ALDPF 164	3 ALDPF 164/3-2				1581	714	867			215	1453
ALDPF 190	3 ALDPF 190/3-2				1595	721	874				1530

ELECTRICAL INFORMATION

See engine nameplate.

START AND STOP FREQUENCY

Table 9:

Motor Power (kW)	Maximum number of starts per hour
≤4 kW	100
≤5.5 kW	<u>20</u>

MOTOR SOUND LEVEL

Table 10:

Motor (kW)	50Hz (kW)
	LpA [dB(A)]
0.75	53
1.1	55
1.5	58
2.2	58
3	59
4	66
5.5	73
7.5	73
11	75
15	70
18.5	70
22	69

Electrical Connection

The motor must be grounded.

Make sure the power supply is turned off before removing the terminal box cover and dismantling the pump.

The electrical connection must be made by Authorized persons.

The operating voltage and frequency can be found on the motor nameplate.

Make sure that the power supply for which the motor is to be used is appropriate and that the motor terminal connection is correct.

The terminal box can be rotated to four positions in 90° increments.

Follow the following steps:

1. If necessary, remove the coupling housing. Do not disassemble the coupling.
2. Remove the bolts that secure the motor to the pump.
3. Turn the motor to the required position.
4. Insert and tighten the bolts.
5. Refit the coupling housing.

Make the electrical connections as shown in the diagram inside the terminal box cover.

Maintenance

Disconnect all electrical connections before working on the pump.

The shaft seal and pump bearings are maintenance-free.

In case of starting the motor when it has been idle for more than 6 months, we recommend you to lubricate the engine when the pump has stopped running.

Mechanical shaft seal is automatically adjusted, lubricated by the pumped liquid between the moving and stationary surface.

The bearings are lubricated with pump fluid.

Frost protection

Unused pumps must be drained during months of freezing.

To drain the pump, loosen the air-purge valve on the pump head and remove the drain plug from the base.

Do not tighten the air-purge valve until the pump is reused and do not install the drain plug.

TROUBLESHOOTING GUIDE

If the water booster is not working

- a) **Electricity:** Check the power supply.
- b) **Tank:** Check that there is sufficient water in the tank. If there is no water in the tank, waterless running protection has been activated and cut off the electricity. When the tank is full, the water booster will restart.
- c) **The thermal relay may be blown.** Contact the service.

If the water booster is running but water does not flow from the taps or is depressurized:

- a) **Valve:** Check that the water booster inlet valve is closed.
- b) **Air Getting Trapped in the Pump:** Open the air bleed plug and fill with water and tighten the plug again.
- c) **Air Leak:** There may be air leakage in the suction line. Check it. Block if any.
- d) **Direction of Rotation of Motor can be Reverse.** Check that the pump shaft rotates in the direction of the arrow marked on the nameplate. If the direction of rotation is reverse, contact the service.

If the water booster turns on and off frequently:

- a) **Pierced Membrane:** Remove the screwed plastic valve cover on the tank. Press the valve with an object like a pen. If water comes in, the membrane is cracked and cannot function. The membrane must be changed and the operating pressure must be pressurized with x 0,9 bar.
- b) **Low Pressure Tank:** The gas or air pressure inside the membrane tank may be insufficient. Contact the service.
- c) **Overpressure Tank:** The gas or air pressure inside the membrane tank may be excessive. Contact the service. The pressure of the gas in the tank should be about 0.5 bar lower than the operating pressure of the pumps.
- d) Pressure switch setting may be incorrect.

ALARKOALARKO CARRIER
SANAYİ VE TİCARET A.Ş.

İSTANBUL

ANKARA

İZMİR

ADANA

ANTALYA

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