



# teknopomp

Teknolojik Pompa ve Hidrofor Sistemleri

## SERVICE MANUEL FOR BOOSTER INSTRUCTIONS FOR INSTALLATION, OPERATION & MAINTENANCE

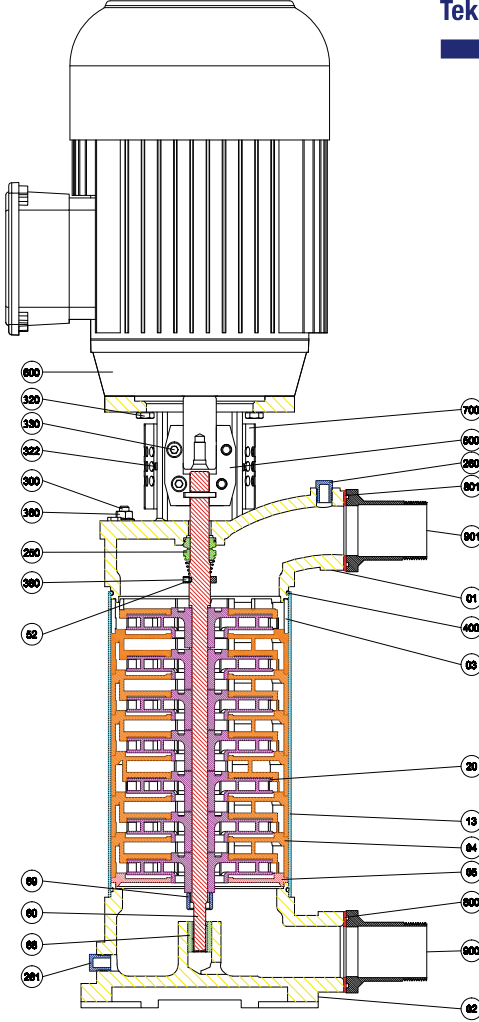


ISO 9001: 2008



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Teknolojik Pompa ve Hidrofor Sistemleri



NO	PART NAME
01	Outlet Casing
02	Inlet Casing
03	First Dif.
04	Dif. Stage
05	Dif. Cap
13	Pump Armor
20	Impeller
52	Mechanical Seal Bushing
60	Shaft
68	Thrust Tire
69	Thrust Nut
250	Mechanical Seal Q14
260	Blind Cap
261	Blind Cap
300	Lateral Stud
320	Hexagon Bolt
321	Pump Flange Bolt
322	Coupling Bolt
330	Allen Bolt
360	Lateral Stud Nuts
380	Seal Bushing Setscrew
400	O ring
500	Coupling
600	Engine
700	Coupling Guard
800	Inlet Flange Gasket 1 1/4"
801	Outlet Flange Gasket 1"
900	Inlet Flange 1 1/4"
901	Outlet Flange 1"

Sectional Drawing

This manual is intended to be a reference guide for users of booster providing information on

- "Booster installation and maintenance instructions,
- "Booster start-up, operation and shut - down procedures.

## IDENTIFICATION OF SAFETY AND WARNING SYMBOLS



Safety instructions in this manual which could cause danger to life if not observed.



The presence of a dangerous electric current.



Non – observance to this warning could damage the machine or affect its functions.

## GENERAL INSTRUCTIONS

This manual should be kept in a safe place and ALWAYS be available to the QUALIFIED operating and maintenance personnel responsible for the safe operation and maintenance of the booster.

Qualified personnel should be experienced and knowledgeable of safety standards.

To avoid faulty operation and malfunctioning of boosters the instructions in this manual are to be CAREFULLY studied and followed at all stages of the booster installation and operating life.

The user is responsible for ensuring that inspection and installation are carried out by authorized and qualified personnel who have studied this manual carefully.

The booster should be used ONLY in the operating conditions given on the order for which the booster and materials of the construction have been selected and tested.

If the booster is to be used for a different application please contact sales office or representative of the manufacturer. TEKNOPOMP refuses to assume any responsibility if the booster used for different applications without prior written permission.

If the booster is not to be installed and operated soon after arrival, it should be stored in a clean and dry place with moderate changes in ambient temperature. Extreme low or high temperatures may severely damage the booster unless suitable precautions are taken. The user is responsible for the verification of the ambient conditions where the pump will be stored or installed.

TEKNOPOMP does not guarantee repairs or alterations done by user or other unauthorized personnel. The use of original spare parts and accessories authorized by manufacturer will ensure safety.

This manual does not take into account any site safety regulation, which may apply.

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This booklet consists of montage, implantation and maintenance recommendations for Booster Unit within TEKNOPOMP product range.

Please read this booklet in order to prevent failure of the correctly chosen and used Booster Unit and provide its operation free of problems and apply all of the warnings. There are information about operational conditions, montage, commissioning, settings and main controllers.

These operation and maintenance instructions include TEKNOPOMP recommendations. In these instructions special information about operating and maintenance had been taken into consideration. These information must only given by production and planning responsible (system manufacturer).

Please refer to operational instructions of system manufacturer.

Please be careful about the warnings given in this booklet and provide this booklet to be read before the montage-implementation. TEKNOPOMP will not be held responsible from accidents caused by defects or their results. Please appeal for help from TEKNOPOMP for the questions and problems that you cannot find their answers in this booklet. When you appeal for help please notify Booster Unit tag value and serial number.

Safety instructions given in this booklet include valid national accident protection regulations. In addition to these customer's work, operation and occupational safety precautions must also be applied.

### 1.IMPORTANT SAFETY PRECAUTIONS

Following rules must be applied in order to minimize the occupational risks during connection and start-up.

1. Do not operate before taking necessary precautions about the equipment.  
Rope, safety line and mask must be used when it is necessary.
2. Be sure that there is adequate oxygen in area and there is no poisonous gas.
3. Control the welding and electrical device for blasting risk before using them.
4. In order to prevent risking your health, check the environment hygiene (dust, smoke..).
5. Please do not forget the risk of electrical hazards.

### Signs used in Operational Instructions



Please read these instructions carefully and keep this booklet in order to use when it is necessary.



Warning sign for Electricity Risks



Warning sign for user safety

6. Do not lift the Booster Unit before controlling the lifting equipment (crane, rope..)
7. Be sure that you have a by-pass line and your line is open.
8. Use helmet, glasses and protective shoes in order to provide your safety.
9. Mount protective barriers around the Booster Unit at determined safety distance for trip and fall risks
10. Dust, liquid and gas that may cause overheating, short circuit, oxidation and fire must be kept away from the Booster Unit unit and required safety measures must be taken.
11. Take measures by controlling noise levels (Ref. ISO EN 3744) against the effects, damages and rough running that may damage personnel and environment.
12. Be careful about the carriage and storage direction.
13. Please close the moving parts properly in order to prevent personnel injuries. Connect the coupling protection before operating the pump.
14. All electrical and electronic applications must be conducted according to EN60204-1 and/or local instructions by authorized personnel.
15. Protect the electrical equipment and motor against the overloading.
16. Do not expose the pump unit to sudden temperature changes.

**Apply all other health and safety instructions, Law and Regulations.**

## 2. GENERAL

Nowadays there are Booster Unit as pressure increase equipments are being used in high rise and wide spread buildings, industrial facilities, hotels in order to carry the clean water with adequate pressure and amount in places that mains water is not adequate or pressure is not adequate.

### 2.1. Usage areas of Booster Unit

- Apartments, sites and villas,
- Hotels, social facilities and holiday villages,
- Factories,
- Water treatment plants and industrial facilities,
- Greenhouse and farms,
- Hospital, school and business centers,
- Gardens and parks,
- Stores, refineries and shipyards.

**CAUTION** **teknopomp**

For correct selection of the pump type and other elements creating the Booster Unit, chemical and physical properties of the fluid must be taken into consideration.

### 2.2. Performance information

Real performance of the Booster Unit can be taken from catalogue. This information is written on the Booster Unit label.

Performance curves had been drawn for the fluid (water) with density  $\rho=1 \text{ kg/dm}^3$  and  $V=1\text{cst}$  kinematic viscosity. For the fluids that their density and kinematic viscosity is different than water are different, so please consult to our firm if it is necessary.

Please do not operate the Booster Unit with different motor power except from the values given on catalogue and label. There must be no operating point except of the value defined in order and provided by our firm.

In order to provide the safety of the procured Booster Unit defined instructions must be fulfilled.

### 2.3. Guarantee Conditions

Products within the scope of our sales program are under the safety and security of our firm and international TEKNOPOMP Company.

Guarantee conditions will become valid when installation and start up of the Booster Unit is done according to the warnings given in this booklet.

Repair of the device free of charges within the guarantee period, following conditions must be fulfilled.

- Have guarantee document approved by seller at the date that you buy this device.
- Obey the conditions about montage and operation that are given in user manual.
- In case of defect do not interfere anyone and call our authorized service.

Defects and problems caused because of the following conditions are not included within the scope of guarantee.

- Not obeying the conditions included in user manual,
- Maintenance and repairs done except of our authorized services.

- Wrong Booster Unit selection, faulty montage and misuse.
- Negative conditions of transport, storage and atmosphere conditions,
- Non-usage of the silt trap, solid particles in water (sand, gravel, nylon, etc.).
- Fault and damages caused by external physical (impact, scratch, breaking) and chemical effects.
- Faults caused due to floating socket.
- Low and excessive voltage or faulty electrical installation.

Solving the faults given above is made against remuneration.

#### **2.4. Test**

All Booster Unit are delivered from our factory after performance and pressure test has made. Booster Unit that performance guarantees is given by us are under TEKNOPOMP guarantee for exact operation and suitable material procurement.

### **3. SAFE WORKING CONDITIONS**

This booklet consists of basic safety instructions for montage, operation and maintenance. This booklet must be read by all personnel before montage and start-up. Instructions must be in montage place and at hand. Personnel must obey the important safety measures given at the first page together with general safety instructions and safety measures repeated in other parts.

#### **3.1. Personnel Training**

Operation, maintenance control and montage personnel must have necessary information to satisfy the given duty. Responsibilities, qualifications and control duties of these personnel must be determined by the customer and personnel must understand the content of the operation instructions. If personnel have not enough information; necessary training must be provided by business manager. There will be training support provided by manufacturer/seller when it is requested.

#### **CAUTION** **teknopomp**

Non-conformity to safety measures and lack of education of the personnel may create risk against the personnel and as well as system and environment. TEKNOPOMP will not be responsible from potential hazards.

#### **3.2. Potential dangers caused because of failure to comply with safety instructions**

In case of failure to comply with safety instructions people, environment and machine may be under danger, risk and hazard may be created.

Failure to comply the safety measures may cause the following hazards:

- Maintenance and service ways may be blocked
- Human life may be under danger due to electrical, mechanical or chemical effects.

#### **3.3. Safety measures for User/Operator**

Dangerous, hot or cold parts must be protected against accidental contact.

Moving parts (like coupling) must be protected against accidental contact. Protections of these parts mustn't demounted during booster is operating.

Dangers caused by the electrical energy must be removed. You can refer the IEC, VDE and local electrical regulations for details.

#### **3.4. Safety measures for maintenance and montage**

Firm must provide all maintenance, sub-control and montage works completed by authorized and qualified personnel.

Operation on booster must only be made when it is stopped. This operation requires the application of the instructions related with shutting down the booster that explained.

Pumps and sets that are pumping unhealthy liquids must be cleaned properly. At the end of the work, all safety and protective equipments must be mounted and made operational. Before setting into operation instructions given in "preparation for operation" must be applied.

#### **3.5. Part replacement**

Part replacement and modifications must only be made after negotiating with manufacturer. Replacement parts and accessories approved by manufacturer are important for safety.

NOTE: Usage of non-conforming parts is not under the TEKNOPOMP responsibility.

## 4. TECHNICAL INFORMATION

### 4.1. Selection criteria for Booster Unit

When determining the Booster Unit operation interval there must be selection made as coming highest point of the pump efficiency curve.

### 4.2. Operational Principle of the membrane

Water is in the membrane. There is nitrogen gas between galvanize and membrane. Water pressurized by the pump also fills the membrane at the same time. It compresses the gas out of the membrane until it comes to same pressure. When pressure comes to requested value, pump stops and water in tank under the pressure satisfies the consumptions. Pump steps in because of the lowered pressure due to increase in consumption. Main duty of the tank in Booster Unit system is to prevent pump to step in continuously and to provide energy saving and to prevent water fluctuations of pressure in water.

### 4.3. Usage of Booster Unit

- Booster Unit must not be operated without water.

#### **CAUTION** teknopomp

##### **Air of the pump must be taken.**

- Level floater given during delivery must be fitted to store.
- Pressure of the membrane tank must be controlled periodically.
- Freezing of water in Booster Unit must be prevented.

### 4.4. Correct Montage

- TEKNOPOMP Booster Unit are mounted on their own chassis. There is no need for separate mount.
- Booster Unit must be placed at the closed places in order to prevent external effects like rain, frost.
- There must be no negative suction for Booster Unit under its level (it must be positive feed). Booster Unit must be mounted as much closer as possible to the store that it will absorb.
- Booster Unit base plate must be fixed to the ground against sound and vibration.
- Suction and discharge connections must be same as Booster Unit collector sizes. Suction line must be chosen in suitable size according to the pump. Suction pump diameter must not be reduced.
- Use strainer at the Booster Unit suction line.
- Strainer must not be lower than suction pipe diameter and it must be cleaned periodically.

- Installation load should not be carried to booster.

• Main sizes of the TEKNOPOMP Booster Unit had been given on tables. According to this there must be 30 cm of distance left from each direction for montage around the Booster Unit.

- You can do tank connection easily by the help of flexible hose.

• Vertical shaft pumps has been designed for positive suction. In cases that suction is required, do not use without taking information from our firm.

- Electrical connections has to be make by expert electrician.

• Do not use your Booster Unit without water.

• By the help of the floater given together with Booster Unit, pump stops automatically when water level decreased. Therefore self-protection against operating without water had been provided.

- Have first operation of your Booster Unit done at TEKNOPOMP Authorized Services.

### 4.5. Electrical Connection

TEKNOPOMP uses electrical control box pumps that provide safe and ordinary operation of Multiple Pump Booster Unit. There are contactors and thermal relays. Also it has connection place on floater and pressure switch.

TEKNOPOMP Booster Unit are delivered together with floater that provides protection against operation without water. Electrical connection will be made on connector directly.

### 4.6. Pressure Switches

Pressure switches provide Booster Unit to operate in significant pressure interval. Pump switches on in lower pressure value that pump switch adjusted and it switches off at the upper (higher) pressure value.

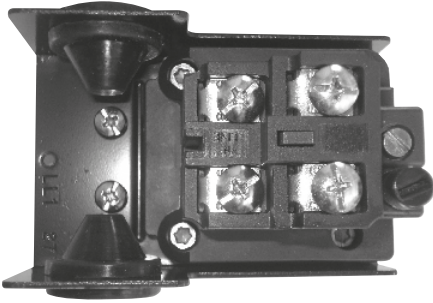
#### **CAUTION** teknopomp

Pressure switches that are used in TEKNOPOMP Booster Unit are factory set. Do not change it. Pressure switch which is out of order with any reason, must be fixed by TEKNOPOMP authorized services as described at the following.

#### **CAUTION** teknopomp

Different types of Booster Unit have different pressure settings. While setting the pressure of the Booster Unit, sub pressure and gauge pressure must be chosen on Pump

Characteristics Curve. It must be not lowered under the lower pressure level allowed in Pump Characteristics Curve.



### 1-Pressure Adjustment Screw

Sub pressure can be adjusted by this screw. Pressure rises when it is turned to clockwise direction.

### 2- Pressure Range Adjustment Screw

Pressure difference is adjusted from this screw. When it is turned to clockwise direction gauge pressure increases.

### 4.7. Initial Start-up

Control the conditions described in user manual. When there is a condition that is not meeting the requirements described and shown in montage figures, provide their correction before start up. Faults that are occurred because of not obeying any of the conditions included in user manual are out of the scope of guarantee. Control whether if there is water in tank, conformity of the electrical connection, connection of the floater and three phases coming to electrical panel.

Open all vanes of Booster Unit in suction line.

Control the tank connection. If there is a vane on this line, open it. Evacuate the pump by loosening the air relief cock on the pump. Tighten it after uninterrupted water came from air relief cock. Open and close the operation button on box switch, provide the direction of the rotation for the motor is the same direction with the arrow on pump. If direction of the rotation is the opposite then change any two of the R-S-T phase inputs and provide electric motor to move in correct direction.

**IMPORTANT:** There is 12V DC voltage at pressure switch and floater. Do not give 220 V of energy, devices will damage seriously. If pumps are not self-operated for 24 hours, pumps are self tested for 10 sec. +

Operate the pump by using the switch. Control the increase in pressure at manometer by closing the valve in power line. Pump must be operated up to highest pressure level and then it must be stopped. By opening and closing the valve on force, control whether if pump operates at sub pressure and stops at gauge pressure.

## 5.PKR 1 T USER MANUAL

### PANEL PROPERTIES:

1. Usage of same panel for all motors ranging between 0,37 KW and 5,5 KW.
2. Adjustable current and voltage control.
3. Protection against operation without water and accumulation of air by moment controlled low current protection.
4. IP55 protection class.
5. Automatic Manual choice, operation when pressed to test button in manual.

### FRONT PANEL DISPLAY:

**HIGH CURRENT:** It lights when measured current value is higher than the adjusted value and system stops the motor at the end of the adjusted time.

**LOW CURRENT:** It lights when measured current value is lower than the adjusted value and system stops the motor at the end of the adjusted time.

**NO WATER:** If no water led lights, then floater does not see the water or

**PHASE ERROR:** Phase error lights when one or more than phase comes out of the adjusted limit and system stops the motor at the end of the adjusted time.

**PHASE ORDER ERROR:** It lights when phase order error is the opposite. System does not work. Change the phase order from input. If this light is lighting and motor is turning at the opposite direction change the motor ends.

**PRESSURE:** It lights when pressure switch is enabled and starts the motor.

**PUMP ENABLED:** It lights when motor is enabled.

**THERMAL ERROR:** It lights in high and low voltage conditions, system stops the motor at the end of the adjusted time.

**AUTOMATIC:** It lights when device operates at the automatic mode.

**MANUAL:** It lights when device operates at the manual mode.



## 6-TWO PUMPS CONTROL PANEL USER MANUAL



**OTO  
MAN**

*It takes the system to automatic or manual.*

**TEST**

*It operates when pressed to test button in manual mode and it stops when did not pressed to button.*

**RESET**

*It resets the system that passes to fault conditions of high current, low current, high voltage, low voltage. System operates if faults are fixed and if not, system passes to fault.*



### CAUTION!!!

Do not use this device without reading the user manual and do not give energy! It is important to obey the warnings and rules given in user manual! In case of not obeying the instructions and warnings included in user manual this device will be out of the scope of guarantee and our firm or products will not held responsible for the problems might occur.

### DEFINITION FOR THE BUTTONS:



Start Button



Stop Button

### POWER RANGE FOR CONTROLS:

- TPP-2P/5,5: It is used for 0,37-5,5 kW range direct starting tri-phase motor control.
- TPP-2P/7,5: It is used for 0,37-7,5 kW range direct starting tri-phase motor control.
- TPP-2P/11: It is used for 0,37-11 kW range direct starting tri-phase motor control.

### APPLICATION AREAS:

- Deep well and drainage pumps
- Domestic water and Garden watering Booster Unit
- Fire Booster Unit (Automatic Test, Sound and Light Alarm)

**PERIODIC MAINTENANCE AND SERVICE:**

There is no maintenance and intervention that will be applied by end user. All maintenance works must be done by authorized services or authorized personnel.

**GUARANTEE:**

Our products are guaranteed against material, manufacturing and montage errors by the date of invoice for 2 (two) years.

**WARNING:**

This user manual consist information about faultless operation of TPP-2P series two pump remote control panel and pump group. This user manual must be kept as long as this product used. If this user manual is lost or damaged that cannot be read please request for new user manual from our authorized services or authorized dealer.

**USAGE OF AUTOMATIC RECOGNITION PROPERTY:**

This property is developed for making adjustments without any need of user to enter the menus. Following steps must be followed to use this property.

- 1- Take the pump to manual operation in main screen.
- 2- Press the pump for 10 seconds until hearing the MAN.START warning beep of the pump.
- 3- At the end of this duration warning must be heard, do not press MAN START button.

4- Low current, high current and very high current values can be seen on screen, respectively and the value at the left (low current value) will blink.

5- Fine adjustments on blinking value can be made by up-down buttons. When it comes to suitable values then take the related value to the memory by pressing SETTINGS button.

6- After pressing to SETTINGS button, the value at the middle will blink. Adjustment is made by repeating the previous step.

**SAMPLE (ADJUSTMENT OF HIGH, LOW AND VERY HIGH CURRENTS OF PUMP FROM THE MENU):**

1. Press the SETTINGS button in main screen.
2. Go to the [PUMP SETTINGS INPUT MENU] and press to SETTINGS button again.
3. There will be [PUMP 1 HIGH CURRENT VALUE] seen. Press the SETTINGS button again, in order to change it.
4. There will be [PASSWORD ENTER MENU] seen. Press to up arrow until it writes 35 and approve the password by pressing SETTINGS button.
5. Screen will turn to [PUMP 1 HIGH CURRENT VALUE] automatically.
6. Reach the value you want by using up or down arrow buttons and press to SETTINGS button. High current will be adjusted.
7. Press the down arrow button once. There will be [PUMP1 LOW CURRENT VALUE] seen on the screens. Press the SETTINGS button

MENU NAME	VALUE	UNIT
<b>DEEP WELL MODE SETTINGS:</b>		
Well filling mode (0:OFF/1:ON)	0	OFF
SSR Well filling delay time	15	Minutes
Low current protection waiting periods	15	Minutes
Choosing 2-3 electrodes		
<b>AUTOMATIC TEST SETTINGS:</b>		
Automatic test mode selection	0	Closed
Automatic test period	24	Hour
Automatic test operation duration	10.0	Second
Solenoid valve delay	3.0	Second
Pump 2 Joker pump selection (0:OFF/1:ON)	0	-
<b>PRESSURE TRANSMITTER SETTINGS:</b>		
Pressure sensor mode (0:2 switch/ 1:1 Switch/ 2: B. Transmitter)	0	B.Switch
Pressure transmitter minimum current value	4.00	mA
Pressure transmitter maximum pressure value	10.0	Bar
Pump cut-in pressure	5.50	Bar
Pump cut-out pressure	6.50	Bar
<b>FACTORY DEFAULT SETTINGS</b>		
Factory settings loading menu	-	-
Menu language selection (0: Turkish/1: English)		
<b>OPERATION DURATION OF PUMP:</b>		
Operation duration of Pump 1	Max. 65.535	Hour
Operation duration Pump 2	Max. 65.535	Hour
<b>PAST ALARMS:</b>		
Past alarm menu		
(Last 15 alarms are being taken to the memory.)		

change it. Use up and down arrows and OK button then press to SETTINGS button again, when it reaches the value you desired.

8. Press the down arrow button once. There will be [PUMP 1 VERY HIGH CURRENT VALUE] writing will be seen. Press the SETTINGS button to change it. By using the up and low OK buttons, press the SETTINGS button again when it reaches to the value you desired.

By this way high, low and very high currents of the pump will be adjusted. Other parameters can be changed in the same way. It is enough to enter password once and there will be no password screen for other parameters.

If there will be no action for 10 minutes, password must be entered again.

### CREATION OF FACTORY SETTINGS AND RESTORING FACTORY SETTINGS:

After parameters are changed, they have recorded

to microprocessor. Also all recorded parameters can be recorded as factory setting. By this way in case of any changes due to unconscious or unauthorized interventions, it is easy to restore to the recorded settings as factory settings.

When on main screen press the SETTINGS button. Go back to the FACTORY SETTINGS INPUT MENU and press to SETTINGS button again. LOAD FACTORY SETTINGS will be seen.

#### Recording as Factory Setting;

Press to SETTINGS button. Reach up to 20 by pressing up arrow and press SETTINGS button again. Now all settings had been recorded as factory settings.

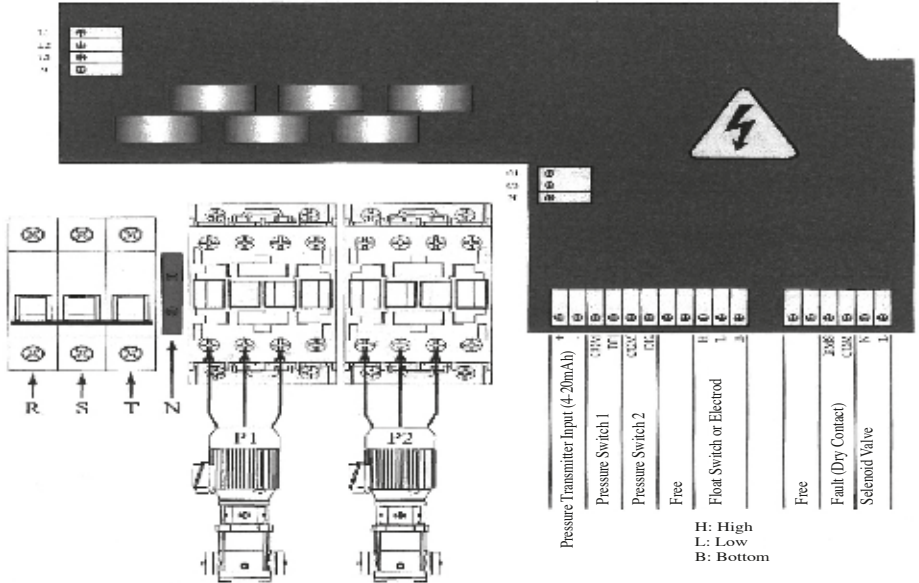
#### Restoring Factory Settings;

Press SETTINGS button at main screen. Go back to FACTORY SETTINGS INPUT MENU and press to SETTINGS button twice. Also all of the first settings you made will be restored.

MENU NAME	VALUE	UNIT
Main Screen (L-N/L-L/P1 Current/P2 Current)		
System settings input menu	-	-
Pump 1 settings input menu	-	-
Pump 2 settings input menu	-	-
Deep well settings input menu	-	-
Automatic test settings input menu	-	-
Pressure transmitter settings input menu	-	-
Factory settings input menu	-	-
Pump operating time input menu	-	-
Past alarm listing input menu	-	-
<b>SYSTEM SETTINGS:</b>		
Current setting menu bounded to motor power	-	-
Automatic reset number for current protection	3	Units
Waiting period between two reset	60	Seconds
Upper value of voltage protection	440	Volt
Lower value of voltage protection	310	Volt
Delay in voltage protection cut-in	3.0	Seconds
Delay in voltage protection cut-out	3.0	Seconds
Delay in sudden start	2.0	Seconds
Selection of rotation type (0: classical type/1: Time dependent)	1	
Equal aging time	60	Minutes
Protection of number of the switches (0:OFF/1:ON)	0	-
Upper limit of switch number	150	Units
Starting duration (first starting duration for not measuring current)	3.0	Second
Delay in current protection	3.0	Second
Delay in SSR cut-in	3.0	Second
Delay in SSR cut-out	3.0	Second
Rotation at operation time (0:OFF/1:ON)	0	-
Sound alarm selection (0:Mute/1:30 Sec./2: Continuously)	1	-
Delay in pump cut-in	2.0	Second
Delay in pump cut-out	2.0	Second
<b>PUMP 1 SETTINGS:</b>		
Pump 1 high current value	1.0	Ampere
Pump 1 low current value	1.0	Ampere
Pump 1 very high current value	18.0	Ampere
<b>PUMP 2 SETTINGS:</b>		
Pump 2 high current value	1.0	Ampere
Pump 2 low current value	1.0	Ampere
Pump 2 very high current value	18.0	Ampere

**CAUTION: !!! Parameters that are included in settings must be changed by only authorized services or authorized personnel. Faults can be caused due to unconscious or unauthorized interventions are evaluated as non-warrant. Our firm or our products cannot be held responsible for every kind of problem that might cause due to such faults!!!!**

## 7-ELECTRIC WIRING DIAGRAM



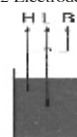
### CAUTION:

!!!! Electrical connection must be done by authorized personnel.  
!!!! Make sure the electrical connection fuse is switched off before opening the control panel.  
!!!! Working on the powered control panel can cause serious injury or death.

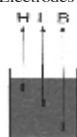
Float Switch Operation



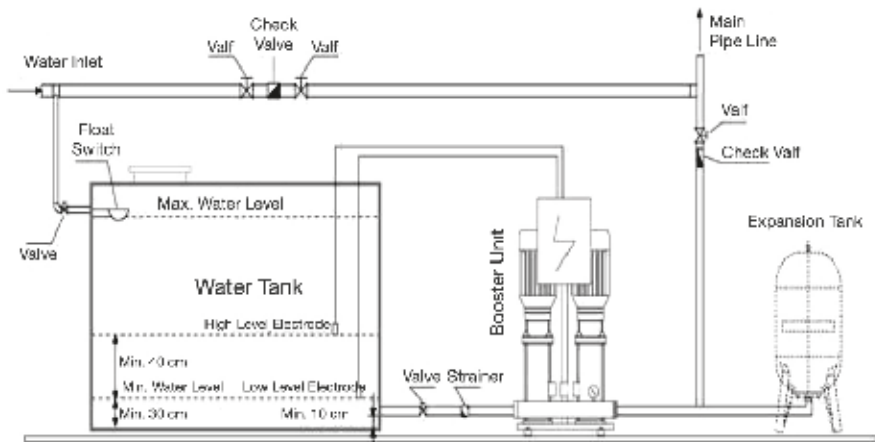
Operation with 2 Electrodes



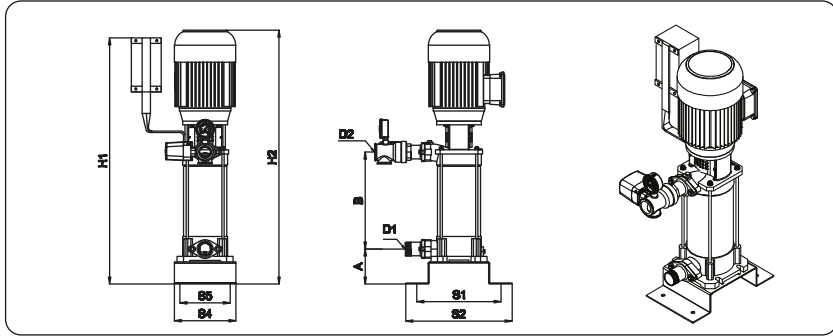
Operation with 3 Electrodes



## 8-SAMPLE BOOSTER INSTALLATION



## MNV SERIES SINGLE PUMP BOOSTER SIZES



TYPE	MOTOR kw	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
1 x MNV 25-205	0,75	1 1/4" - 1"	85	202	600	627	270	320	12	250	170
1 x MNV 25-206	0,75	1 1/4" - 1"	85	224	600	649	270	320	12	250	170
1 x MNV 25-207	1,1	1 1/4" - 1"	85	248	600	671	270	320	12	250	170
1 x MNV 25-208	1,1	1 1/4" - 1"	85	268	600	682	270	320	12	250	170
1 x MNV 25-209	1,1	1 1/4" - 1"	85	290	700	715	270	320	12	250	170
1 x MNV 25-210	1,5	1 1/4" - 1"	85	312	700	740	270	320	12	250	170
1 x MNV 25-211	1,5	1 1/4" - 1"	85	334	700	762	270	320	12	250	170
1 x MNV 25-212	1,5	1 1/4" - 1"	85	356	700	784	270	320	12	250	170

TYPE	MOTOR kw	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
1 x MNV 32-408	1,5	1 1/4" - 1 1/4"	90	345	790		240	350	12	300	280
1 x MNV 32-410	2,2	1 1/4" - 1 1/4"	90	415	870		240	350	12	300	280
1 x MNV 32-412	3	1 1/4" - 1 1/4"	90	485	930		240	350	12	300	280

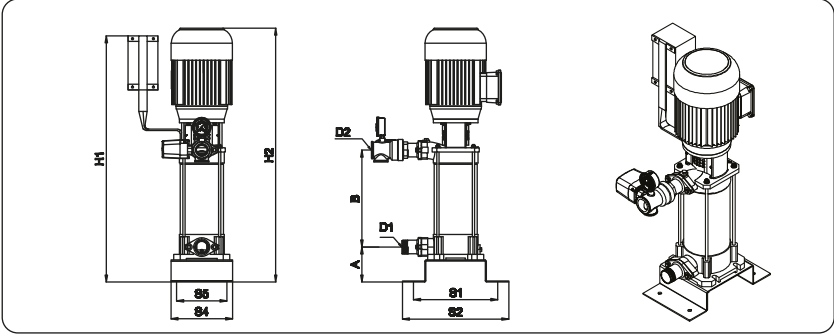
TYPE	MOTOR kw	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
1 x MNV 32-604	1,5	1 1/4" - 1 1/4"	92	202	640	613	330	380	12	280	200
1 x MNV 32-605	2,2	1 1/4" - 1 1/4"	92	230	640	641	330	380	12	280	200
1 x MNV 32-606	2,2	1 1/4" - 1 1/4"	92	258	640	669	330	380	12	280	200
1 x MNV 32-607	3	1 1/4" - 1 1/4"	92	286	750	723	330	380	12	280	200
1 x MNV 32-608	3	1 1/4" - 1 1/4"	92	314	750	751	330	380	12	280	200
1 x MNV 32-609	3	1 1/4" - 1 1/4"	92	342	750	779	330	380	12	280	200

TYPE	MOTOR kw	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
1 x MNV 40-806	2,2	1 1/2" - 1 1/2"	105	360	840		330	380	12	280	200
1 x MNV 40-808	3	1 1/2" - 1 1/2"	105	445	950		330	380	12	280	200
1 x MNV 40-810	4	1 1/2" - 1 1/2"	105	530	1070		330	380	12	280	200
1 x MNV 40-812	5,5	1 1/2" - 1 1/2"	105	615	1200		330	380	12	280	200

TYPE	MOTOR kw	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
1 x MNV 40-1203	3	1 1/2" - 1 1/2"	105	203	701	708	330	380	12	280	200
1 x MNV 40-1204	4	1 1/2" - 1 1/2"	105	236	790	785	330	380	12	280	200
1 x MNV 40-1205	5,5	1 1/2" - 1 1/2"	105	267	790	838	330	380	12	280	200
1 x MNV 40-1206	5,5	1 1/2" - 1 1/2"	105	302	865	851	330	380	12	280	200
1 x MNV 40-1207	5,5	1 1/2" - 1 1/2"	105	335	865	884	330	380	12	280	200



## MNV SERIES SINGLE PUMP BOOSTER SIZES



TYPE	MOTOR kW	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
1 x MNV 50-1504	3	2" - 2"	110	309	850		350	400	12	350	200
1 x MNV 50-1505	4	2" - 2"	110	357	898		350	400	12	350	200
1 x MNV 50-1506	5,5	2" - 2"	110	405	973		350	400	12	350	200
1 x MNV 50-1507	7,5	2" - 2"	110	453	1054		350	400	12	350	200

TYPE	MOTOR kW	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
1 x MNV 50-2504	5,5	2" - 2"	110	419	877		350	400	12	350	200
1 x MNV 50-2505	7,5	2" - 2"	110	467	958		350	400	12	350	200
1 x MNV 50-2506	7,5	2" - 2"	110	515	1006		350	400	12	350	200
1 x MNV 50-2507	11	2" - 2"	110	563	1054		350	400	12	350	200

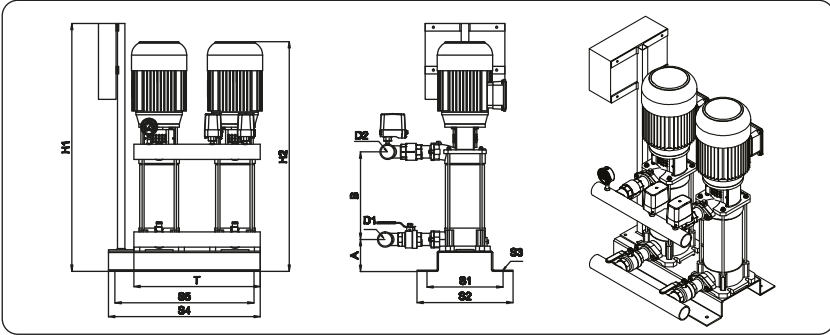
TYPE	MOTOR kW	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
1 x MNV 50-3503	5,5	2 1/2" - 2 1/2"	110	371	829		350	350	12	350	200
1 x MNV 50-3504	7,5	2 1/2" - 2 1/2"	110	419	910		350	350	12	350	200
1 x MNV 50-3505	11	2 1/2" - 2 1/2"	110	467	958		350	350	12	350	200
1 x MNV 50-3506	11	2 1/2" - 2 1/2"	110	515	1006		350	350	12	350	200
1 x MNV 50-3507	15	2 1/2" - 2 1/2"	110	563	1172		350	350	12	350	200

TYPE	MOTOR kW	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
1 x MNV 65-5003	11	3" - 2 1/2"	121	363	1200	1124	360	350	14	300	220
1 x MNV 65-5004	15	3" - 2 1/2"	121	437	1200	1198	360	350	14	300	220
1 x MNV 65-5005	15	3" - 2 1/2"	121	511	1200	1272	360	350	14	300	220
1 x MNV 65-5006	18,5	3" - 2 1/2"	121	585	1200	1346	360	350	14	300	220

TYPE	MOTOR kW	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
1 x MNV 80-6502/B	22	3" - 2 1/2"	Please contact!								
1 x MNV 80-6502/A	30	3" - 2 1/2"									
1 x MNV 80-6503/B	37	3" - 2 1/2"									
1 x MNV 80-6503/A	45	3" - 2 1/2"									



## MNV SERIES TWO PUMPS BOOSTER SIZES



TYPE	MOTOR kw	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
2 x MNV 25-205	2x0,75	1 1/2" - 1 1/4"	85	202	600	627	270	320	12	500	420
2 x MNV 25-206	2x0,75	1 1/2" - 1 1/4"	85	224	600	649	270	320	12	500	420
2 x MNV 25-207	2x1,1	1 1/2" - 1 1/4"	85	248	600	671	270	320	12	500	420
2 x MNV 25-208	2x1,1	1 1/2" - 1 1/4"	85	268	600	682	270	320	12	500	420
2 x MNV 25-209	2x1,1	1 1/2" - 1 1/4"	85	290	700	715	270	320	12	500	420
2 x MNV 25-210	2x1,5	1 1/2" - 1 1/4"	85	312	700	740	270	320	12	500	420
2 x MNV 25-211	2x1,5	1 1/2" - 1 1/4"	85	334	700	762	270	320	12	500	420
2 x MNV 25-212	2x1,5	1 1/2" - 1 1/4"	85	356	700	784	270	320	12	500	420

TYPE	MOTOR kw	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
2 x MNV 32-408	2x1,5	1 1/2" - 1 1/2"	90	345	790	240	320	12	550	470	440
2 x MNV 32-410	2x2,2	1 1/2" - 1 1/2"	90	415	870	240	320	12	550	470	440
2 x MNV 32-412	2x3	1 1/2" - 1 1/2"	90	485	930	240	320	12	550	470	440

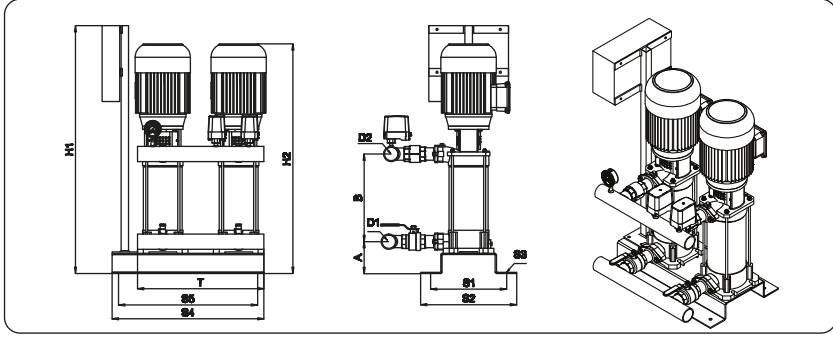
TYPE	MOTOR kw	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
2 x MNV 32-604	2x1,5	1 1/2" - 1 1/2"	92	202	640	330	380	12	550	470	470
2 x MNV 32-605	2x2,2	1 1/2" - 1 1/2"	92	230	640	330	380	12	550	470	470
2 x MNV 32-606	2x2,2	1 1/2" - 1 1/2"	92	258	640	330	380	12	550	470	470
2 x MNV 32-607	2x3	1 1/2" - 1 1/2"	92	286	750	330	380	12	550	470	470
2 x MNV 32-608	2x3	1 1/2" - 1 1/2"	92	314	750	330	380	12	550	470	470
2 x MNV 32-609	2x3	1 1/2" - 1 1/2"	92	342	750	330	380	12	550	470	470

TYPE	MOTOR kw	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
2 x MNV 40-806	2x2,2	2" - 2"	105	360	840	280	350	12	600	520	540
2 x MNV 40-808	2x3	2" - 2"	105	445	950	280	350	12	600	520	540
2 x MNV 40-810	2x4	2" - 2"	105	530	1070	280	350	12	600	520	540
2 x MNV 40-812	2x5,5	2" - 2"	105	615	1200	280	350	12	600	520	540

TYPE	MOTOR kw	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
2 x MNV 40-1203	2x3	2" - 2"	105	203	701	330	380	12	600	520	500
2 x MNV 40-1204	2x4	2" - 2"	105	236	790	330	380	12	600	520	500
2 x MNV 40-1205	2x5,5	2" - 2"	105	267	790	330	380	12	600	520	500
2 x MNV 40-1206	2x5,5	2" - 2"	105	302	865	330	380	12	600	520	500
2 x MNV 40-1207	2x5,5	2" - 2"	105	335	865	330	380	12	600	520	500



## MNV SERIES TWO PUMPS BOOSTER SIZES



TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
2 x MNV 50-1504	2x3	3" - 3"	140	309	880	480	560	12	700	520	630
2 x MNV 50-1505	2x4	3" - 3"	140	357	928	480	560	12	700	520	630
2 x MNV 50-1506	2x5,5	3" - 3"	140	405	1003	480	560	12	700	520	630
2 x MNV 50-1507	2x7,5	3" - 3"	140	453	1084	480	560	12	700	520	630

TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
2 x MNV 50-2504	2x5,5	3" - 3"	140	309	880	480	560	12	700	520	630
2 x MNV 50-2505	2x7,5	3" - 3"	140	357	928	480	560	12	700	520	630
2 x MNV 50-2506	2x7,5	3" - 3"	140	405	1003	480	560	12	700	520	630
2 x MNV 50-2507	2x11	3" - 3"	140	453	1084	480	560	12	700	520	630

TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
2 x MNV 50-3503	2x5,5	DN100 - 3"	140	261	859	480	560	12	700	520	630
2 x MNV 50-3504	2x7,5	DN100 - 3"	140	309	940	480	560	12	700	520	630
2 x MNV 50-3505	2x11	DN100 - 3"	140	357	988	480	560	12	700	520	630
2 x MNV 50-3506	2x11	DN100 - 3"	140	405	1036	480	560	12	700	520	630
2 x MNV 50-3507	2x15	DN100 - 3"	140	453	1202	480	560	12	700	520	630

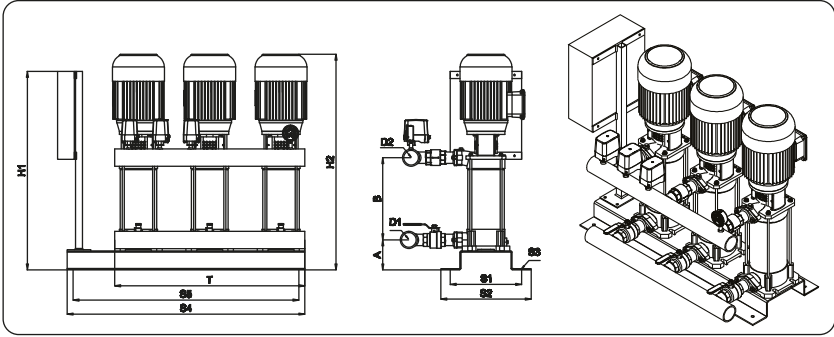
TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
2 x MNV 65-5003 Flaşlı	2x11	DN125 - DN125	121	363	1200	330	360	14	725	595	725
2 x MNV 65-5004 Flaşlı	2x15	DN125 - DN125	121	437	1200	330	360	14	725	595	725
2 x MNV 65-5005 Flaşlı	2x15	DN125 - DN125	121	511	1200	330	360	14	725	595	725
2 x MNV 65-5006 Flaşlı	2x18,5	DN125 - DN125	121	585	1200	330	360	14	725	595	725

TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
2 x MNV 80-6502/B	2x22	DN125 - DN125	Please contact!								
2 x MNV 80-6502/A	2x30	DN125 - DN125									
2 x MNV 80-6503/B	2x37	DN125 - DN125									
2 x MNV 80-6503/A	2x45	DN125 - DN125									





## MNV SERIES THREE PUMPS BOOSTER SIZES



TYPE	MOTOR kW	D1 - D2	A	B	H1	H2	S1	S2	S3	S4	S5
3 x MNV 25-205	3x0,75	2" - 1 1/2"	85	202	600	627	270	320	12	800	720
3 x MNV 25-206	3x0,75	2" - 1 1/2"	85	224	600	649	270	320	12	800	720
3 x MNV 25-207	3x1,1	2" - 1 1/2"	85	248	600	671	270	320	12	800	720
3 x MNV 25-208	3x1,1	2" - 1 1/2"	85	268	600	682	270	320	12	800	720
3 x MNV 25-209	3x1,1	2" - 1 1/2"	85	290	700	715	270	320	12	800	720
3 x MNV 25-210	3x1,5	2" - 1 1/2"	85	312	700	740	270	320	12	800	720
3 x MNV 25-211	3x1,5	2" - 1 1/2"	85	334	700	762	270	320	12	800	720
3 x MNV 25-212	3x1,5	2" - 1 1/2"	85	356	700	784	270	320	12	800	720

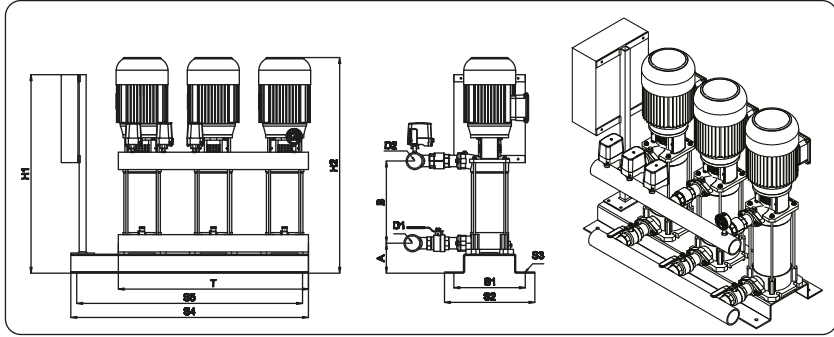
TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
3 x MNV 32-408	3x1,5	2" - 2"	90	345	790	280	350	12	785	770	780
3 x MNV 32-410	3x2,2	2" - 2"	90	415	870	280	350	12	785	770	780
3 x MNV 32-412	3x3	2" - 2"	90	485	930	280	350	12	785	770	780

TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
3 x MNV 32-604	3x1,5	2" - 2"	92	202	640	330	380	12	850	770	740
3 x MNV 32-605	3x2,2	2" - 2"	92	230	640	330	380	12	850	770	740
3 x MNV 32-606	3x2,2	2" - 2"	92	258	640	330	380	12	850	770	740
3 x MNV 32-607	3x3	2" - 2"	92	286	750	330	380	12	850	770	740
3 x MNV 32-608	3x3	2" - 2"	92	314	750	330	380	12	850	770	740
3 x MNV 32-609	3x3	2" - 2"	92	342	750	330	380	12	850	770	740

TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
3 x MNV 40-806	3x2,2	2 1/2" - 2 1/2"	90	375	840	280	350	12	910	820	820
3 x MNV 40-808	3x3	2 1/2" - 2 1/2"	90	460	950	280	350	12	910	820	820
3 x MNV 40-810	3x4	2 1/2" - 2 1/2"	90	545	1070	280	350	12	910	820	820
3 x MNV 40-812	3x5,5	2 1/2" - 2 1/2"	90	630	1200	280	350	12	910	820	820

TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
3 x MNV 40-1203	3x3	2 1/2" - 2 1/2"	105	203	701	330	380	12	900	820	800
3 x MNV 40-1204	3x4	2 1/2" - 2 1/2"	105	236	790	330	380	12	900	820	800
3 x MNV 40-1205	3x5,5	2 1/2" - 2 1/2"	105	267	790	330	380	12	900	820	800
3 x MNV 40-1206	3x5,5	2 1/2" - 2 1/2"	105	302	865	330	380	12	900	820	800
3 x MNV 40-1207	3x5,5	2 1/2" - 2 1/2"	105	335	865	330	380	12	900	820	800

## MNV SERIES THREE PUMPS BOOSTER SIZES



TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
3 x MNV 50-1504	3x3	DN100 - DN100	140	309	880	480	560	12	1030	700	960
3 x MNV 50-1505	3x4	DN100 - DN100	140	357	928	480	560	12	1030	700	960
3 x MNV 50-1506	3x5,5	DN100 - DN100	140	405	1003	480	560	12	1030	700	960
3 x MNV 50-1507	3x7,5	DN100 - DN100	140	453	1084	480	560	12	1030	700	960

TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
3 x MNV 50-2504	3x5,5	DN100 - DN100	140	309	880	480	560	12	1030	700	960
3 x MNV 50-2505	3x7,5	DN100 - DN100	140	357	928	480	560	12	1030	700	960
3 x MNV 50-2506	3x7,5	DN100 - DN100	140	405	1003	480	560	12	1030	700	960
3 x MNV 50-2507	3x11	DN100 - DN100	140	453	1084	480	560	12	1030	700	960

TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
3 x MNV 50-3503	3x5,5	DN125 - DN100	140	261	859	480	560	12	1030	700	960
3 x MNV 50-3504	3x7,5	DN125 - DN100	140	309	940	480	560	12	1030	700	960
3 x MNV 50-3505	3x11	DN125 - DN100	140	357	988	480	560	12	1030	700	960
3 x MNV 50-3506	3x11	DN125 - DN100	140	405	1036	480	560	12	1030	700	960
3 x MNV 50-3507	3x15	DN125 - DN100	140	453	1202	480	560	12	1030	700	960

TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
3 x MNV 65-5003 Flanşlı	3x11	DN150 - DN125	121	363	1200	330	360	14	1100	970	110
3 x MNV 65-5004 Flanşlı	3x15	DN150 - DN125	121	437	1200	330	360	14	1100	970	110
3 x MNV 65-5005 Flanşlı	3x15	DN150 - DN125	121	511	1200	330	360	14	1100	970	110
3 x MNV 65-5006 Flanşlı	3x18,5	DN150 - DN125	121	585	1200	330	360	14	1100	970	110

TYPE	MOTOR kW	D1 - D2	A	B	H1	S1	S2	S3	S4	S5	T
3 x MNV 80-6502/B	3x22	DN150 - DN150	Please contact!								
3 x MNV 80-6502/A	3x30	DN150 - DN150									
3 x MNV 80-6503/B	3x37	DN150 - DN150									
3 x MNV 80-6503/B	3x37	DN150 - DN150									
3 x MNV 80-6503/A	3x45	DN150 - DN150									

## Warranty Terms & Conditions

- The warranty period begins on the date of delivery of the products and two years.
- All parts of the products are guaranteed by our company except electrical motors.
  - If the user uses the product against the manual, the warranty terms are not applied.

Pump Type	: .....
Serial No	: .....
Capacity	: .....m <sup>3</sup> /h
Head	: .....m
Motor Power	: .....kW
Speed	: .....rpm

**teknopomp**

**Teknolojik Pompa ve Hidrofor Sistemleri**



Factory – Center Service and Spare Parts

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**Teknopomp Teknolojik Pompa ve Hidrofor Sistemleri Tic. ve San. Ltd. Şti.**

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