



# Instruction and Operation Manual



**Model: TW1111**

**NEMA 4**

**Variable Speed Booster System**

# 1. Safety Instructions



**WARNING! Plumbing code requirements for a closed system:**

The check valve installed on the booster pump system creates a closed system which restricts backflow of water. If the Pressure Relief Valve starts to leak water, there is probably a thermal expansion issue.



The TW1111 is designed to withstand wash down, water spray, rain, sun, and humidity, etc.

*All local building, electrical and plumbing codes must be followed while installing and operating a TW Booster System.*

**PRE-WIRED**

**&**

**TESTED**

**Note:** Your pump system has been assembled, power tested and water tested against leaks in our factory. Some residual pipe sealant and water may be left in the pump and piping.

**You will enjoy great pressure and energy savings from our Booster Pump System !**

**Thank you for your purchase**

# 2a. Installation Instructions

*Follow local building, electrical, and plumbing codes during installation.*

## System Installation

- \_\_\_ Verify all parts are in plumbing parts kit. Follow directions [2b. Getting Started]
- \_\_\_ Affix Booster System frame to Support Frame (supplied by others)
- \_\_\_ Verify Power and Circuit breaker match VFD (variable frequency drive) Nameplate.
- \_\_\_ Make electrical connections to Disconnect Box
- \_\_\_ Install Discharge & Suction Assembly [2c]
- \_\_\_ Ready for Start up [3. Start up]
- \_\_\_ Refer to troubleshooting page for troubleshooting. [4. Troubleshooting]
- \_\_\_ Look for Blue and White Serial Number Sticker on frame and record number here for future



# 2b. Installation Instructions

## GETTING STARTED

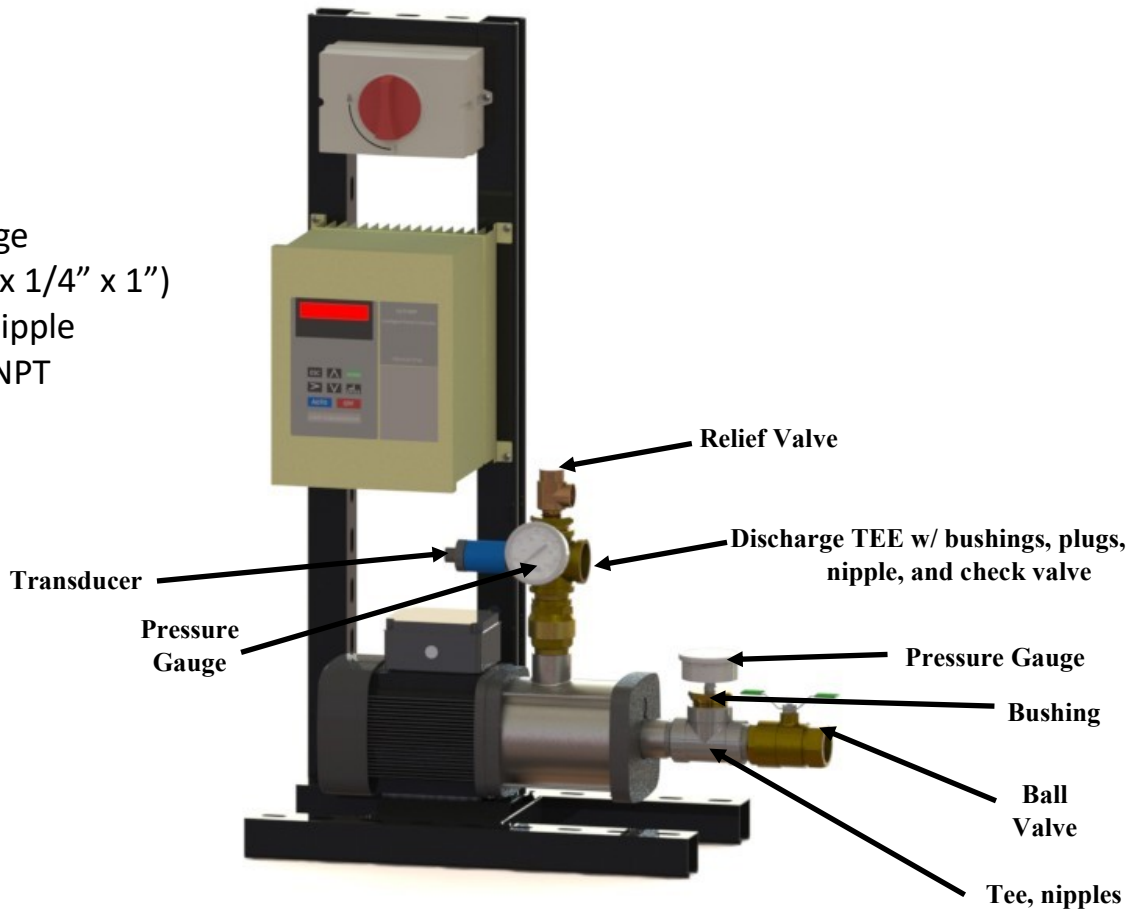
Verify that all parts are included in your kit.

### DISCHARGE

- TEE
- Pressure Gauge
- Transducer
- Relief Valve
- Plug (one 1/4")
- Bushings (one 1"x1/2", one 1/2"x1/4")
- (2) 1" Close Nipple
- Check Valve

### Suction

- 1" Tee
- Pressure Gauge
- Bushings ( 1" x 1/4" x 1")
- (2) 1" Close Nipple
- 1" Ball Valve NPT



## 2c. Installation Instructions

### **Caution: DO NOT USE TEFLON TAPE TO INSTALL CHECK VALVE**

1. Check valve [embossed arrow must be pointing away from pump]
2. Teflon tape may foul the check valve.
3. Only use pipe sealant such as Loctite.

### **Discharge Tank Tee**

Follow procedure to attach the Tank tee to the pump:

*(use pipe sealant or Teflon tape)*

1. Attach Check Valve to pump discharge using the nipple provided.
2. Attach Tank Tee to check valve using the nipple provided.
3. Attach two bushings, relief valve, and plug in locations shown on Figure 1.
4. Attach the transducer to the 1/2" x 1/4" bushing as shown on Figure 2.
5. Attach the wire from VF Drive to the transducer.
6. Attach the pressure gauge as shown on Figure 2.

**Do not aim PRV towards any electrical components / VFD.**

Figure 1



Figure 2



### **Suction Assembly**



## Yaskawa VF Drive

**NOTE: The VF Drive is factory preset. DO NOT change the settings in the VF Drive.**

Make sure the necessary power connections are based on the type of power provided (See sticker on disconnect switch): 220-230V /1PH, 220-230V /3PH, or 460-480V/3PH

### System Start-up

## Do not power up system yet

- Fill pump with water by opening supply line to pump and then open a downstream valve. This will fill the pump with water and let air out of the pipes. Wait a couple of minutes before proceeding
- Turn on circuit breaker
- Turn on disconnect switch
- Once power is provided, pump will start automatically. If it does not, press AUTO
- Close downstream valve

If Pump System does not turn on automatically:

- Verify downstream valve is open.
- Press the AUTO button.
- Pump will start up because there is demand for water.

Pump will automatically stop when there is no water demand.

You are ready to enjoy great water pressure!



# 4. Troubleshooting

## **Loss of incoming water supply:**

- Systems are programmed to stop and start automatically upon loss/restoration of incoming water supply. However, if the pump system does not start normal operation automatically, turn off disconnect switch, wait until the VF drive display goes blank and turn the power ON by turning on Disconnect switch.

## **Loss of power supply:**

- If pump system does not turn on automatically, press the RESET then AUTO button. If the pump still does not turn on, and there is demand for water, turn off the system using disconnect switch, wait until the VF drive display goes blank. Turn the system back ON using the disconnect switch.

## **Short cycling:**

### ***Issue:***

- Pump turns ON / OFF every few minutes / seconds

### ***Solution:***

- Check for leaks in the line going from the pump to the equipment.
- As mentioned in the assembly section, it is essential to install a ball valve on the suction and discharge of the pump. Close the ball valve on the discharge side of the pump and check to see if the pump turns OFF. If it does, there may be a leak in the water line or equipment. If the pump continues to run after the discharge shut off valve is OFF, the water may be leaking back through the check valve. Shut ball valve on pump suction side, if pump stops running then check valve may be fouled and has something in it. Debris in check valve must be flushed out by running a lot of water through system or removed and cleaned.

## **Pump continually runs:**

### ***Issue:***

- Pump operates constantly without any demand for water. Air may be trapped within the line causing the pump to not reach the pressure set point.

### ***Solution:***

- Open downstream valve to purge out air.