



Aqua Pro Pump Systems

a Tomiko Inc. Company

Installation Operation & Maintenance Instructions

GEB SERIES



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OVERVIEW

GEB Description and Specifications: The GEB series packaged pressure booster systems are designed to boost pressure in domestic water applications from large residential to light commercial.

General Operating Limits: These limits range depending on the design of the individual system. Maximum pumping volumes of 50 to 180 gallons per minute and general maximum pressure of 100 psi is recommended not to be exceeded unless specified by the manufacture. All systems are designed based on an ambient temperature of 40° - 122° F. Any application exceeding these limits may cause damage to the system and will void the warranty.

C & D Model Pump Description and Specifications: The Models **C & D** have a close coupled, end suction, single stage, enclosed-impeller, back-pullout centrifugal pump. Connections are NPT threaded. All wetted metal pump parts are 18-8, 304SS, or better. Most parts are formed from stainless steel sheet. O-rings and elastomeric seal parts are Buna (Viton, EPDM are optional). Motors are NEMA 56J frame, with a C Face mounting flange and a threaded shaft. All pumps use a mechanical seal to prevent leakage around the motor shaft.

JCR10-F Model Pump Description and Specifications: The Model **JCR10-F** has a close coupled, end suction, single stage, enclosed-impeller, back-pullout centrifugal pump. Connections are NPT threaded. All wetted metal pump parts are 304SS, or better. Most parts are formed from stainless steel sheet. O-rings and elastomeric seal parts are Buna. Motors are IEC frame, with an IEC Face mounting flange and a threaded shaft. All pumps use a mechanical seal to prevent leakage around the motor shaft.

Notice: Upon receipt of this equipment, inspect the carton and the equipment for any damages that might have occurred during shipment and notify the carrier immediately. Damage that occurs during shipment is not the responsibility of Aqua Pro Pump Systems. Failure to notify the carrier will place responsibility on the purchaser for any repairs or damages occurring during shipment.

Damaged shipment: If your shipment is damaged do not receive it. Send the package back with the carrier as damaged freight and note the damage on the bill of lading. This must be done before the carrier leaves the delivery site.

Safety Instructions: To avoid serious or fatal injury and/or property damage, read and follow all instructions in this manual. Review all instructions and warnings included in this manual before attempting any work on your pump system. Do not remove or alter any decals.

The motor used to drive the pump(s) is an electrical device connected to a potentially lethal voltage power source. Take all precautions required when working with or on the motor or controls and its power source, including but not limited to:

1. Always disconnect and lockout the electrical power source before attempting any connection, maintenance or repairs. Failure to do so can cause electrical shocks, burns and death.
2. Install ground and wire motors and controls in accordance with all local and national electrical codes.
3. Install an all leg disconnect switch near the pumping system for quick access.
4. The electrical supply must match the motor & control nameplate specifications and must be wired per the wiring diagram on the motor body and control schematic to match the selected voltage. **Incorrect wiring can cause fire and damage and will void the warranty.**
5. All GEB series system control panels have a minimum protection of a single pump circuit breaker or 120v 1amp fuse that will disconnect power to the pumps when amperage overload occurs. If overload occurs and the breaker trips or the fuse burns out, breakers will need to be manually reset and fuses will

need to be replaced. Most single-phase motors and some three phase motors will have automatic thermal protection switches wired in the motor for additional protection. These switches will open and stop the motor if the motor overheats. As the motor cools, these switches will close and start the motor automatically and unexpectedly.

6. Motors which do not have thermal overloads must have a properly sized contactor or magnetic starters and overload switches (or fuses) in the starter panel. Three phase motors require all leg protection.

7. Use only stranded copper wire to motor and ground. Wire size must limit the maximum voltage drop to 10% of the motor nameplate voltage at the motor terminals.

8. Three phase motors can rotate in either direction. The pump will operate properly only in one direction (Clockwise when viewed from the motor end, counterclockwise when viewed from the pump end).

Operating the pump in the reverse rotation may damage or destroy the pump and motor and will void the warranty.

Installation:

Skid mounted units should be mounted and anchored on a level surface where flooding does not occur. Pump only units should be installed horizontally, at an angle or vertically with the motor above the pump.

Do not mount the motor below the pump as leakage from the pump will damage the motor and can cause a shock, burns or death.

- Check unions on the suction and discharge for leaks as they may have become loose during shipment.
- Locate the pump system suction as near to the water source as possible. The pump(s) must be primed with little or no air in the case to begin operation. The pump must be located below the liquid level when starting as this pump system is not self-priming.
- Protect the pump(s) and motor(s) from freezing. Although the pump(s) may survive a freeze up, the mechanical seal and O-Rings may not.
- Allow adequate space around the unit for service and ventilation.
- Units mounted horizontally should be located on a flat, rigid surface. Unit may be free standing, but some vibrations may occur. If attached to a foundation, tighten hold down bolts before connecting the piping.

Piping:

- All piping must be independently supported. No piping loads may be carried by the pump.
- Piping should be the same size as the pump discharge or discharge header connection.
- Proper Piping to the suction is critical for proper pump operation. Suction pipe should be short and direct, with a minimum of fittings and turns.
- Suction pipe must continuously rise to the pump(s) to avoid air pockets. All pipe connections must be airtight.
- If suction pipe is larger than the pump, an eccentric reducer must be used with the straight side on top to avoid an air pocket.
- Do not use any suction valve for throttling the pump(s). This will cause loss of prime and damage to the pump that is not covered by warranty.
- Be sure that the water source level is sufficient to prevent vortices from drawing air into the pump.
- Install a valve on the discharge line for use in regulating the pump flow and for isolating the pump during maintenance and inspection.

Control Panels:

- Before any electrical connections are made always first verify the available voltage matches what the control panel is rated to accept. This can be done by confirming the voltage rating on the wiring schematic located on the inside door of the controller.
- Any protrusions made in enclosure of the controller should be made with water tight electrical fittings.
- For correct wiring connections please see the electrical section under the appropriate system.

Rotation:

The APPS pumps will operate properly only in one direction (clockwise when viewed from the motor end, counterclockwise when viewed from the pump end). **Operating the pump in the reverse rotation may cause the impeller to unthread, breaking the shaft, damaging the pump and/or the motor, and will void the warranty.** This rotation warning applies mainly to three phase motors which have the ability to rotate in either direction. Single phase motors normally only rotate in the proper direction.

To check rotation, you must observe the motor shaft from the back of the motor.

- Remove the end cover from the center of the back of the motor by prying off the cap. You do not need to remove any screws on most motors. The power should be disconnected(off) while performing this action.
- Quickly switch the motor on and off while watching the shaft rotation as it slows down. Motor shaft should be turning in the clockwise direction when viewed from the back of the motor. This may require two maintenance persons.
- If your three-phase motor is turning in the wrong direction, **have a qualified electrician interchange two of the three motor power wires in the control panel where they connect to the contactor.** This should reverse the rotation. If a single-phase motor is turning in the wrong direction, it has been wired wrong internally. Consult Aqua Pro Pump Systems for instructions.
- Check the rotation again, if it is correct, replace the end cover cap.

Maintenance:

Scheduled maintenance should consist of the following:

Weekly: Valve inspection to insure all valves are in the open position except the bypass valve which should always be closed unless the pump system is completely shut down for maintenance.

Quarterly: An amperage test of each motor may be conducted at this time to check for excessive amperage draws if pump(s) is/are running 8 cycles or more per day.

Additional: Close-coupled pumps have no external bearing zerk fittings. Bearings in the motors are permanently grease lubricated and cannot be re-greased. Bearings can only be replaced. Mechanical seals will need to be replaced when leaking. O-Rings may harden with age and may need to be replaced when they begin to leak as well. Please contact APPS or your local distributor for replacement parts.

Motor Bearings and Pump Thrust: Model C2 & D Only

The APPS pumps on the GEB series generate a significant amount of thrust. A 4.38" diameter impeller operating at 20 psig generates about 150 pounds of thrust. This thrust load is carried by the motor bearings. The standard jet pump motor and the standard motors used with APPS pumps have a front and rear bearing (size 203) that are grease lubricated. These bearings have a B10 rated life of approximately 6,000 hours when operated with a thrust load of 150 pounds at 3500 RPM. This rating means that 10% of all bearings operated in this condition will fail within 6,000 hours of operation. The average bearing life will be 3 to 4 times the 6,000 hours.

Pumps and motors which operate intermittently, or only operate 40 hours per week, will usually have acceptable bearing lives with the standard jet pump motor bearing. Pumps that operate continuously, 24 hours per day, will have about 10% of their thrust bearings fail in the first year of operation.

For service applications that are critical, for installations that are difficult to access, or for pumps operating at differential pressures above 25 psig, Aqua Pro Pump Systems recommends that motors with a larger thrust bearings and higher load ratings be used. Consult factory for pricing and details.

Pump Disassembly:

Disconnect and lockout the electrical power before attempting any disassembly.

It is not necessary to remove piping from the case to disassemble. Pump is a back pullout design and unless casing needs to be repaired or replaced, it can stay in place during servicing.

- See page 18 for model C2, and page 19 for model D cross sectional drawings.
- 1. Close all valves and drain pump and pipes and flush if necessary.
- 2. Remove any motor hold down bolts.
- 3. Remove the eight (8) case/volute bolts with a 3/16" allen wrench.
- 4. Pull the motor and pump internals back out of the case/volute. Remove the case o-ring and inspect for damage or hardness. If the motor is a three phase motor, a locking mechanism is used to prevent the impeller from unthreading if run in the wrong direction. If motor horsepower is less than 1 HP, the starting torque is relatively weak. APPS uses a locking compound to prevent the impeller from unthreading at startup. If the motor horsepower is equal to or greater than 1.0 HP, APPS will provide a left hand threaded button head locking screw with an impeller washer to prevent unthreading. The locking screw is installed with removable Loctite to prevent it from coming out when operating in the correct rotation. Remove this locking screw by turning it **clockwise** while holding the impeller against rotation.
- 5. Remove the impeller by turning the impeller counterclockwise (when looking at the impeller from the pump end) while holding the motor shaft. It will be necessary to remove the motor shaft cover plate in the center of the rear of the motor to gain access to the shaft. Using a screwdriver, wrench or vise grips as needed, hold the shaft tightly against rotation while turning the impeller. **Do apply any heat to the components.** If you are unable to hold the shaft in this manner, remove the rear motor housing and grip the motor shaft with vise grips or other similar device (do not hold shaft where bearings will mount).
- 6. Remove the rotating element of the mechanical shaft seal. This element is held in place by the impeller only. If the rotating element does not come off easily, it is stuck to the shaft. Pry up the seal plate with a pair of screwdrivers or pry bars. The seal plate should compress the seal spring and force the seal off the shaft. If seal is still stuck, and you must pry with force, do not pry towards your face or body. The seal and seal plate can come free unexpectedly and cause injury.
- 7. If the seal plate did not come off with the seal, remove it now. If the seal stationary seal seat did not come out with the rotating face you will need to press it out from the back (It is always recommended to replace the stationary seal seat with the rotating face). Using a non-damaging tool push stationary seal out of the seal plate.
- 8. If you plan to replace the motor, remove the four motor adapter bolts with a 7/32" allen wrench and remove the motor adapter plate. If you are not replacing the motor, leave the adapter plate in place.
- 9. If the motor comes with a deflector, the deflector should go outside of the motor adapter plate and must be removed if the adapter plate is to be removed.
- 10. Check the suction o-ring in the case/volute suction nozzle. It may be difficult to remove. Use a sharp pointed awl or similar device to pry the o-ring from the groove. Replace if damaged, swollen, fretted, or just worn out.

Reassembly:

- Assembly of the pump and motor is easier when the motor is standing face up so that parts do not fall off, although access to the motor shaft at the rear of the motor will require a horizontal position.
- It is considered good practice to replace the mechanical seal whenever you have to disassemble the pump.
 1. If replacing the motor, remove the deflector from the motor shaft. There may not be enough room behind the motor adapter plate for the deflector to spin freely.
 2. Install the motor adapter plate with the four motor bolts using a 7/32" allen wrench. You must use the low profile button head socket screws that came with the pump or other low profile head bolts, as there is not enough room for a standard cap head screw/bolt. Tighten the bolts. Install the deflector now.
 3. Install the mechanical seal stationary seat into the Seal Plate by putting a suitable lubricant (dish soap) on the cup seat and gently pressing into the seal plate bore. **Do not get any lubricant on the seal faces (ceramic surface)**. Use the foam sheet from the seal box to protect the seal face from dirt and scratches while pressing into the seal plate. Place the seal plate onto the motor adapter plate.
 4. Lubricate the sealing elastomers on the rotating assembly of the mechanical seal and press gently onto the shaft. You may have to hold the seal in place until the impeller is installed.
 5. Install the suction o-ring. Replace if brittle, damaged or worn out.
 6. Join up the back pull out assembly with the case/volute. Do not force the pump into the case, as the suction O-ring can be pinched when installing. You may have to back out the pump from the case/volute, center the O-ring with your finger and slip in the pump assembly again.
 7. Before installing the case bolts, check to be sure the impeller is spinning freely by turning the shaft from the rear of the motor.

GEBS5040-12/32, GEBS6040-12/32, GEBS9040-12/32

Operating limits: These systems use the following single phase pumps: D36210/1, C25624/1, C25438/1, and/or the following 3 phase pumps D36210/3, C25624/3, C25438/3. These models are designed for a maximum working pressure of 100psi, a maximum volume of (55gpm-GEBS5040) (110gpm-GEBS6040)(160gpm-GEBS9040), and a maximum working temperature of 104° F. Each pump is equipped with a standard Type-6, carbon vs. ceramic with buna-n elastomers mechanical seal, and a maximum temperature limit of 250 deg. F (seal only)., with a Type-21 mechanical seal with Viton elastomers. The motor is limited to 20 starts per hour, evenly distributed.

Installation:

Plumbing: Each system is equipped with a 1-1/4", or 2" male NPT discharge and a 1-1/4", or 2" female or male NPT suction. The domestic water source will enter the suction of the pump or header and the threads will be sealed with thread joint compound and Teflon tape both. The discharge header is to be connected in the same manner using pipe joint compound and Teflon tape. It is recommended to install a bypass with a bypass valve if space permits. A full port isolation valve should also be installed prior to the suction of the pump system along with a full port isolation valve after the discharge for future maintenance.

Electrical:

1 phase: (12) First verify that the available voltage is compatible with the control and pump system. This can be done by confirming the voltage rating on the wiring schematic located on the inside door of the controller. Next you will need to drill 2 holes thru the fiberglass enclosure using a 22mm or 7/8" whole saw and inserting a 1/2" watertight fitting designed to make this type of transition. One hole will be for the 120/230v power to run the pump and the other hole will be for 120v power to run the control power. It is not recommended to "jumper" from the pump power to run the control. The 120/230v line will "land" on terminals (L1 & L2). The control power will "land" on terminals (L1 & N). Pressure switch connections will "land on terminals (1 & 4). The pump wires will "land" on terminals (T1 & T2). Please refer to figure "A" for visual instruction.

3 phase: (32) First verify that the available voltage is compatible with the control and pump system. This can be done by confirming the voltage rating on the wiring schematic located on the inside door of the controller. Next you will need to drill 1 hole thru the fiberglass enclosure using a 22mm or 7/8" whole saw and inserting a 1/2" watertight fitting designed to make this type of transition. This hole will be for the 230/460v power to run the pump and the low voltage control power. The loose labeled wire will need to be connected to the appropriate terminal of the transformer based on the incoming voltage. The 230/460v incoming wires will "land" on terminals (L1, L2 & L3). Two of these may need to be changed ("flip-flopped") later if the pump is running in reverse. Pressure switch connections will "land on terminals (1 & 4). The pump wires will "land" on terminals (T1, T2 & T3). Please refer to figure "B" for visual instruction.

3ph Breakers and Overloads: The breaker will be located in the upper center of the control panel and will have a place for adjustment. This adjustment will depend on the full load running amps (FLA) of the pump motor, and the breaker will need to be set to approximately 20% above the FLA. Your system may or may not have an additional overload indication and cutout connected to the contactor located in the lower right of the control panel. Please refer to figure "B" for visual instruction.

GEBJ7040-12/32

Operating limits: These systems use the following single phase pumps: D36210/1, RB204-F, and/or the following 3 phase pump D36210/3. These models are designed for a maximum working pressure of 100psi, a maximum combined volume of 75 gallons per minute, and a maximum working temperature of 104° F. Each pump is equipped with a standard Type-6, carbon vs. ceramic with buna-n elastomers mechanical seal, and a maximum temperature limit of 250 deg. F (seal only)., with a Type-21 mechanical seal with Viton elastomers. The motor is limited to 20 starts per hour, evenly distributed.

Installation:

Plumbing: Each system is equipped with a 2" male NPT discharge and a 2" female NPT suction. The domestic water source will enter the suction of the pump and the threads will be sealed with thread joint compound and Teflon tape. The discharge header is to be connected in the same manner using pipe joint compound and Teflon tape. It is recommended to install a bypass with a bypass valve if space permits. A full port isolation valve should also be installed prior to the suction of the pump system along with a full port isolation valve after the discharge for future maintenance.

Electrical:

1 phase: (12) First verify that the available voltage is compatible with the control and pump system. This can be done by confirming the voltage rating on the wiring schematic located on the inside door of the controller. Next you will need to drill 2 holes thru the fiberglass enclosure using a 22mm or 7/8" whole saw and inserting a ½" watertight fitting designed to make this type of transition. One hole will be for the 120/230v power to run the pump and the other hole will be for 120v power to run the control power. It is not recommended to "jumper" from the pump power to run the control. The 120/230v line will "land" on terminals (L1 & L2). The control power will "land" on terminals (L1 & N). Flow switch connections will "land" on terminals (1 & 4). The pump wires will "land" on terminals (T1 & T2). Please refer to figure "A" for visual instruction.

3 phase: (32) First verify that the available voltage is compatible with the control and pump system. This can be done by confirming the voltage rating on the wiring schematic located on the inside door of the controller. Next you will need to drill 1 hole thru the fiberglass enclosure using a 22mm or 7/8" whole saw and inserting a ½" watertight fitting designed to make this type of transition. This hole will be for the 230/460v power to run the pump and the low voltage control power. The loose labeled wire will need to be connected to the appropriate terminal of the transformer based on the incoming voltage. The 230/460v incoming wires will "land" on terminals (L1, L2 & L3). Two of these may need to be changed ("flip-flopped") later if the pump is running in reverse. Flow switch connections will "land" on terminals (1 & 4). The pump wires will "land" on terminals (T1, T2 & T3). Please refer to figure "B" for visual instruction.

3ph Breakers and Overloads: The breaker will be located in the upper center of the control panel and will have a place for adjustment. This adjustment will depend on the full load running amps (FLA) of the pump motor, and the breaker will need to be set to approximately 20% above the FLA. Your system may or may not have an additional overload indication and cutout connected to the contactor located in the lower right of the control panel. Please refer to figure "B" for visual instruction.

RB204-F: The RB204-F will need only to be plugged into a 120v power outlet, and will run completely separate from the larger pump as it has its own controller built into the control body. The larger pump will run when called on by the flow switch located in the header assembly and connected to the control panel.

GEBD10040/12/32, GEBD14040/12/32, GEBD18040-32

Operating limits: These systems use the following single phase pumps: D36210/1, C25624/1, C25438/1, and/or the following 3 phase pumps D36210/3, C25624/3, C25438/3. These models are designed for a maximum working pressure of 100psi, a maximum combined volume of (110gpm-GEBD10040)(220gpm-GEBD14040)(320gpm-GEBD18040), and a maximum working temperature of 104° F. Each pump is equipped with a standard Type-6, carbon vs. ceramic with buna-n elastomers mechanical seal, and a maximum temperature limit of 250 deg. F (seal only)., with a Type-21 mechanical seal with Viton elastomers. The motor is limited to 20 starts per hour, evenly distributed.

Installation:

Plumbing: Each system is equipped with a 2" male NPT (GEBD10040) or 3" ANSI flanged discharge (GEBD14040 & GEBD18040) and a 2" male NPT (GEBD10040) suction or 3" ANSI flanged suction (GEBD14040 & GEBD18040). For NPT fittings the domestic water source will enter the suction header and the threads will be sealed with thread joint compound and Teflon tape. The discharge header is to be connected in the same manner using pipe joint compound and Teflon tape. ANSI flanged connections will need to be connected with stainless steel bolts, lock washers, fender washers, nuts, and 3" flange gaskets. It is recommended to install a bypass with a bypass valve if space permits. A full port isolation valve should also be installed prior to the suction of the pump system along with a full port isolation valve after the discharge for future maintenance.

Electrical:

1 phase: (12) First verify that the available voltage is compatible with the control and pump system. This can be done by confirming the voltage rating on the wiring schematic located on the inside door of the controller. Next you will need to drill 2 holes thru the fiberglass enclosure using a 22mm or 7/8" whole saw and inserting a ½" watertight fitting designed to make this type of transition. One hole will be for the 120/230v power to run the pump and the other hole will be for 120v power to run the control power. It is not recommended to "jumper" from the pump power to run the control. The 120/230v line will "land" on terminals (L1 & L2). The control power will "land" on terminals (L1 & N). Pressure switch connections will "land on terminals (1 & 4 lead – black & white * 5 & 6 lag - yellow). The pump wires will "land" on terminals (T1 & T2 – pump 1 * T1 & T2 – Pump 2). Please refer to figure "C" for visual instruction.

3 phase: (32) First verify that the available voltage is compatible with the control and pump system. This can be done by confirming the voltage rating on the wiring schematic located on the inside door of the controller. Next you will need to drill 1 hole thru the fiberglass enclosure using a 22mm or 7/8" whole saw and inserting ½" a watertight fitting designed to make this type of transition. This hole will be for the 230/460v power to run the pump and the low voltage control power. The loose labeled wire will need to be connected to the appropriate terminal of the transformer based on the incoming voltage. The 230/460v incoming wires will "land" on terminals (L1, L2 & L3). Two of these may need to be changed ("flip-flopped") later if the pumps are running in reverse. Pressure switch connections will "land on terminals (1 & 4 lead - black & white * 5 & 6 lag - yellow). The pump wires will "land" on terminals (T1 & T2 – pump 1 * T1 & T2 – Pump 2). Please refer to figure "D & D2" for visual instruction.

3ph Breakers and Overloads: The breaker will be located in the upper center of the control panel and will have a place for adjustment. This adjustment will depend on the full load running amps (FLA) of the pump motor, and the breaker will need to be set to approximately 20% above the FLA. Your system may or may not have an additional overload indication and cutout connected to the contactor located in the lower right of the control panel. Please refer to figure "D & D-2" for visual instruction.

Alternating relays: All duplex control panels will come standard with alternating relays. This relay should always be set to the "Automatic" mode unless otherwise directed by a professional.

Control Panel:

S10-MR Control Panel: The S10-MR is a NEMA 1 (Indoor rated) SINGLE PHASE SIMPLEX control panel that will operate at 115V, 208V, or 230V pump for domestic water applications. This panel operates with (1) pressure switch wired to terminal blocks 1(off) and 4(start). An HOA switch is used to manually run the pump. A green pump run indicator is located on the front door of the panel and will indicate if the pump is running. A Minimum Run Timer will guarantee the pump will run for a set amount of time.

Minimum Run Timers: Should your minimum run timer need adjustment the settings will be as follows: Mode – “B”, Range – “S”, and the timer should be set to 7 (seconds) with the 6 in approximately the one o'clock position.

S32-MR Control Panel: The S32-MR is a NEMA 1 (Indoor rated) Three Phase Simplex control panel used for domestic water applications. The panel operates 208/230/460 VAC pumps. The loose labeled wire will need to be connected to the appropriate terminal of the transformer based on the incoming voltage (208,230,460v). It includes a pump overload relay to shut down the system if the pump motor(s) overloads. This panel operates with (1) pressure switch wired to terminal blocks 1(off) and 4(start). An HOA switch provides manual pump control. A green pump run indicator is located inside of the control panel and will indicate if the pump is running. The motor protective switch will shut off the pump when the amp draw exceeds the setting on the Motor protective switch. A Minimum Run Timer will guarantee the pump will run for a set amount of time.

Minimum Run Timers: Should your minimum run timer need adjustment the settings will be as follows: Mode – “B”, Range – “S”, and the timer should be set to 7 (seconds) with the 6 in approximately the one o'clock position.

D10-MR Control Panel: The D10-MR is a NEMA 1 (Indoor rated) SINGLE PHASE DUPLEX control panel that will operate at 115V, 208V, or 230V pumps for domestic water applications. This panel operates with (2) pressure switches wired to terminal blocks 1(off) and 4(start) for the lead (black & white) and 5(off) and 6(on) lag (yellow). An HOA switches are used to manually run the pumps. A green pump run indicator is located on the front door of the panel for each pump and will indicate if the pump(s) is/are running. A Minimum Run Timer will guarantee the pump will run for a set amount of time.

Minimum Run Timers: Should your minimum run timer need adjustment the settings will be as follows: Mode – “B”, Range – “S”, and the timer should be set to 7 (seconds) with the 6 in approximately the one o'clock position.

D32-MR Control Panel: The D32-MR is a NEMA 1 (Indoor rated) Three Phase Duplex control panel used for domestic water applications. The panel operates 208/230/460 VAC pumps. The loose labeled wire will need to be connected to the appropriate terminal of the transformer based on the incoming voltage (208,230,460v). It includes a pump overload relay to shut down the system if the pump motor(s) overloads. This panel operates with (2) pressure switches wired to terminal blocks 1(off) and 4(start) for the lead (black & white) and 5(off) and 6(on) lag (yellow). An HOA switch provides manual pump control. A green pump run indicator is located inside of the control panel and will indicate if the pump(s) is/are running. The motor protective switch will shut off the pump when the amp draw exceeds the setting on the motor protective switch. A Minimum Run Timer will guarantee the pump will run for a set amount of time.

Minimum Run Timers: Should your minimum run timer need adjustment the settings will be as follows: Mode – “B”, Range – “S”, and the timer should be set to 7 (seconds) with the 6 in approximately the one o'clock position.

Startup: All plumbing, electrical, and start up should be conducted by a licensed professional. Before startup all power to the control panel should be off and all connections should be double checked for correct positioning and proper installation, and that there are no loose wires. For correct wiring connections please see the electrical section under the appropriate system.

1Phase Systems: With the breaker(s) and the HOA switch(s) in the off position check that the incoming power is the correct voltage for the control panel. This can be done by confirming the voltage rating on the wiring schematic located on the inside door of the controller.

1. If the electrical has not been connected please refer to the electrical section corresponding to your system model and voltage.
2. Double check that all the wires are secure in their terminal blocks.
3. Push the breaker(s) into the on position.
4. Push the HOA switch(s) into the automatic position.
5. The pump(s) should start and build pressure, then shut down at 60psi (factory setting). This may be different depending on your application.

3Phase Systems: All plumbing, electrical, and start up should be conducted by a licensed professional. Before startup all power to the control panel should be off and all connections should be double checked for correct positioning and proper installation, and that there are no loose wires. For correct wiring connections please see the electrical section under the appropriate system.

6. If the electrical has not been connected please refer to the electrical section corresponding to your system model and voltage.
7. Check that the lead going to the transformer is in the correct position for the appropriate incoming voltage H1 (460V), H2 (230V), H3 (208V).
8. Double check that all the wires are secure in their terminal blocks.
9. Push the breaker(s) into the on position.
10. Push the HOA switch(s) into the automatic position.
11. The pump(s) should start and build pressure, then shut down at 60psi (factory setting). This may be different depending on your application.

Operation:

Misc:

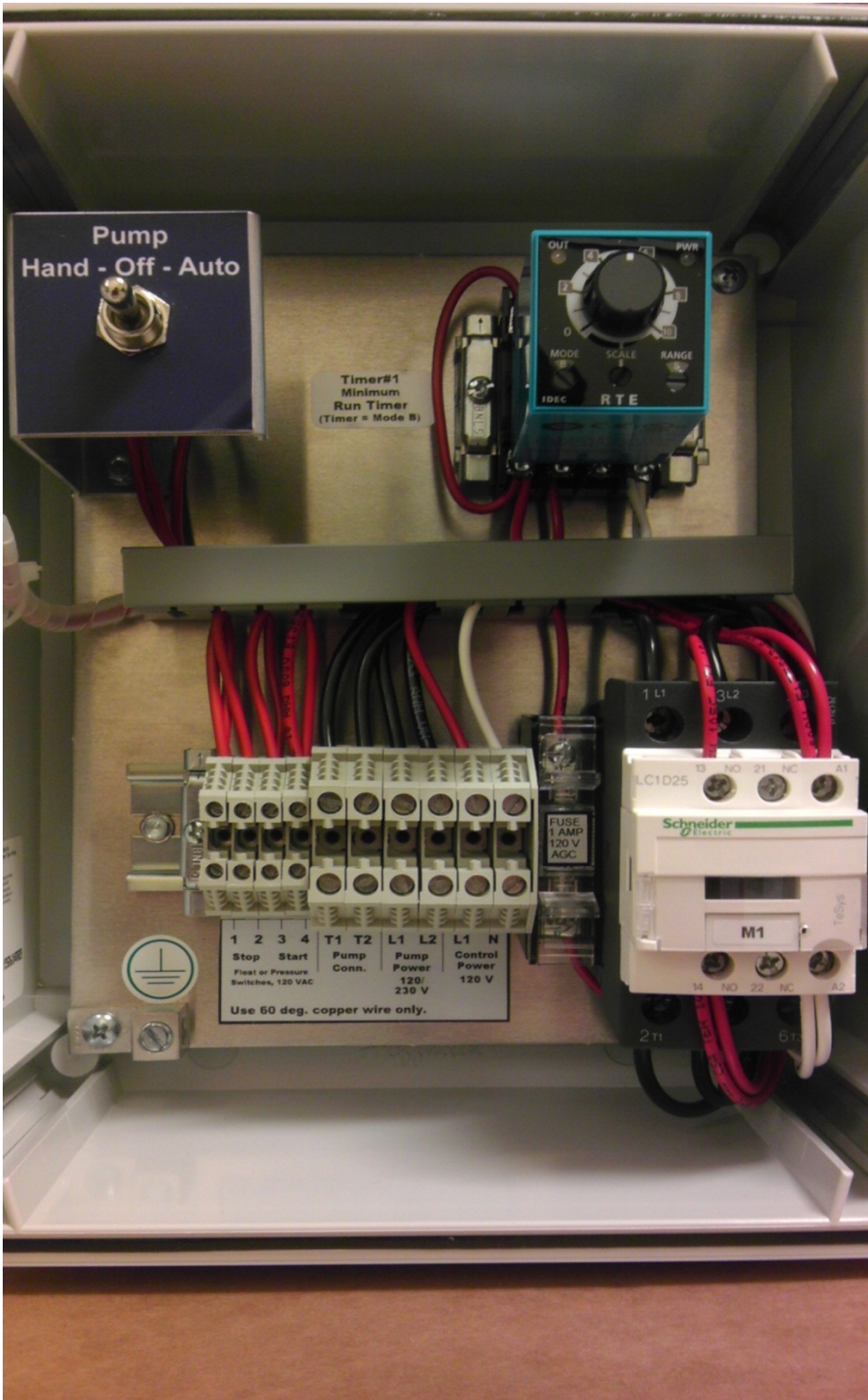
- Pump system must be completely primed before starting. Air in the suction lines or case **must** be vented.
- Do not operate the pump system at or near zero flow.** At zero flow, heat will build up in the pump(s) and can cause extreme damage to the pump(s), property damage and/or possible injury to operating personal. Minimum flows of 10% of the pumps best efficiency point are recommended unless otherwise authorized by APPS.
- Do not operate the pump system beyond the flow rates shown on published curves. Noisy pump(s) or the sounds of "pumping rocks" may be signs of cavitation or operation beyond the pumps capacity. Shut down the system immediately and contact APPS right away.
- Check pump and motor for excessive vibration. Excessive vibration may be a sign of pipe strain, insufficient mounting or operation beyond the pumps capacity. Some amount of vibration will occur as this is a mechanical device physically moving a medium. If needed vibration isolators can be installed on the suction and discharge to deaden some of the vibration and sound.
- The GEB series pump systems are designed for domestic water boosting and are not designed for handling any types of solids.

Sequence of operations: Simplex

- The pump system comes factory preset to turn the pumps on at 40psi and off at 60psi unless otherwise arranged with a factory professional.

S10-MR

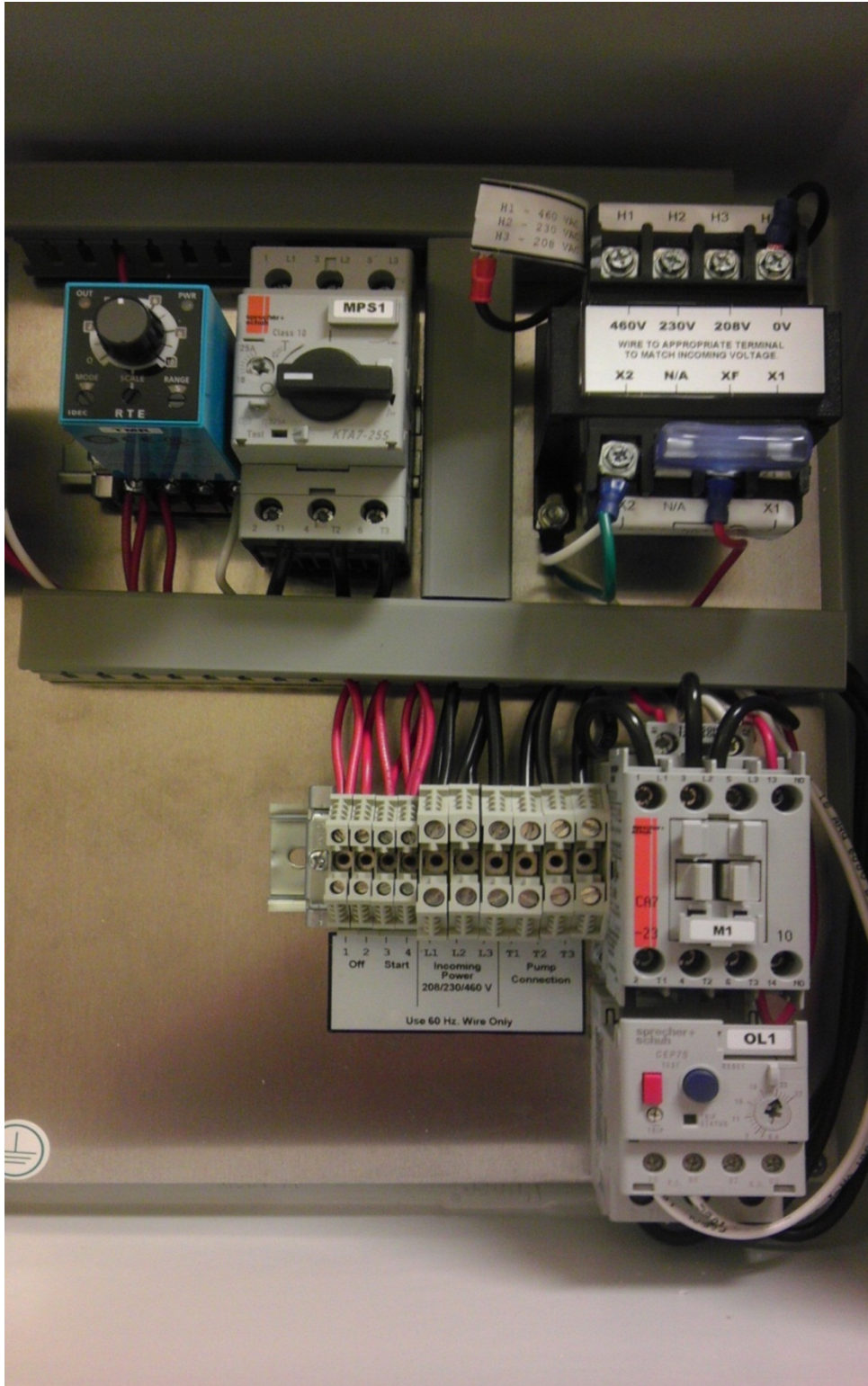
(figure A)



- A) HOA switch
- B) Minim run timer
- C) Contactor
- D) Terminal block

S32-MR

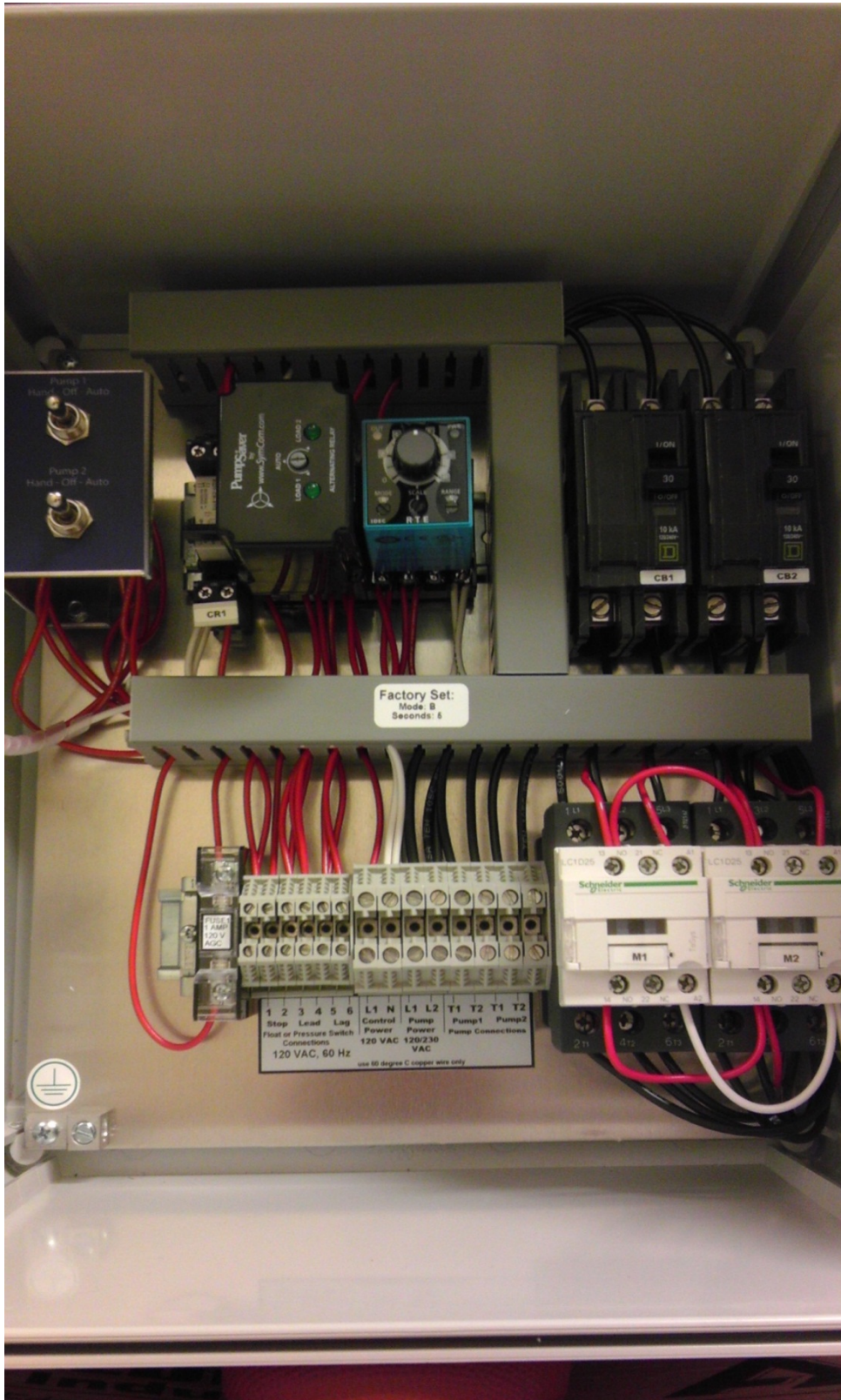
(figure B)



- A) Minimum run timer
- B) Breaker with adjustable overload
- C) Transformer & lose wire that will need to be connected to the appropriate terminal based on incoming voltage
- D) Terminal block
- E) Contactor
- F) Adjustable overload

D10-MR

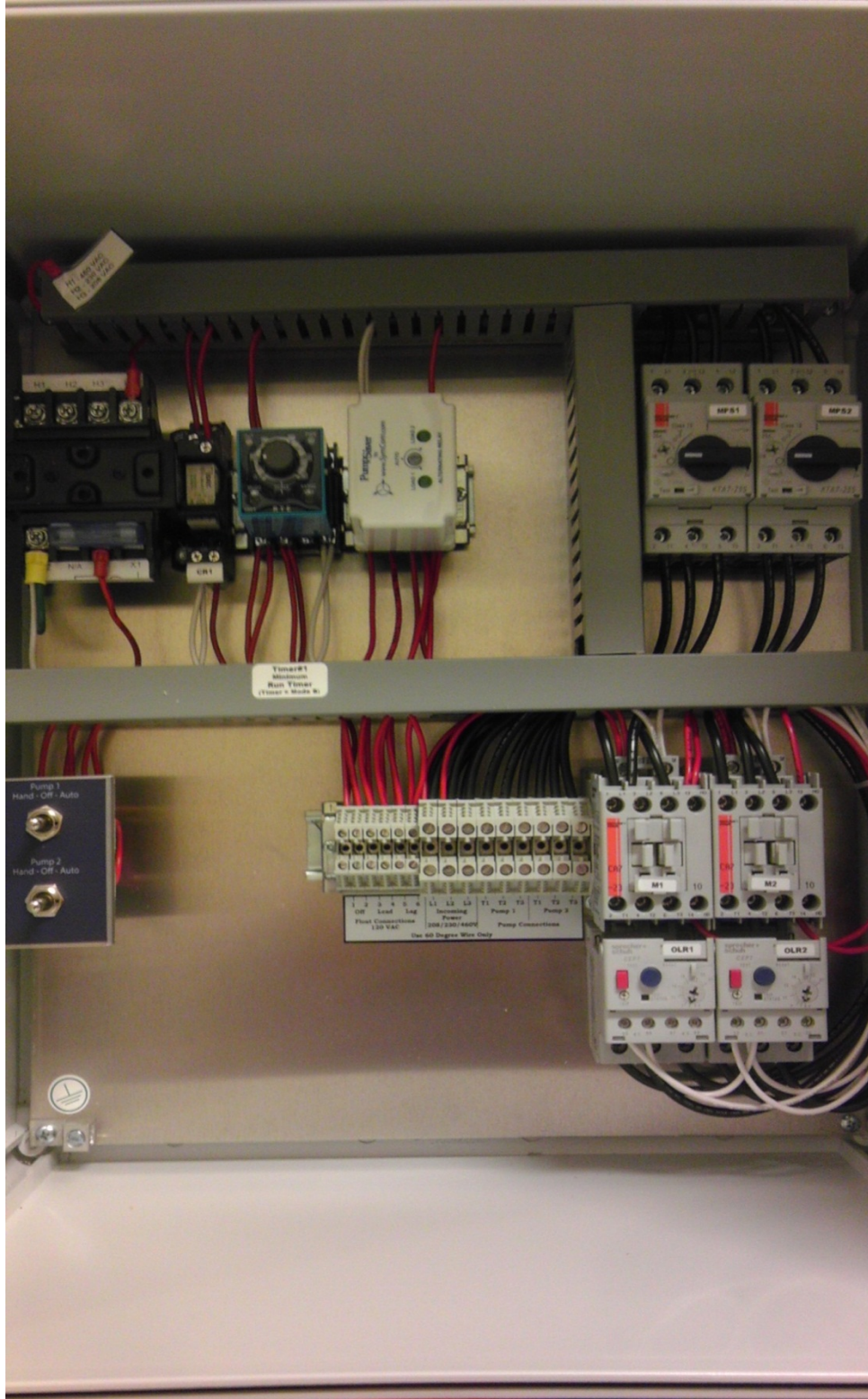
(figure c)



- A) HOA switches
- B) Alternating relay
- C) Minimum run timer
- D) Breakers
- E) Terminal block
- F) Contactors

D32-MR

(figure D)

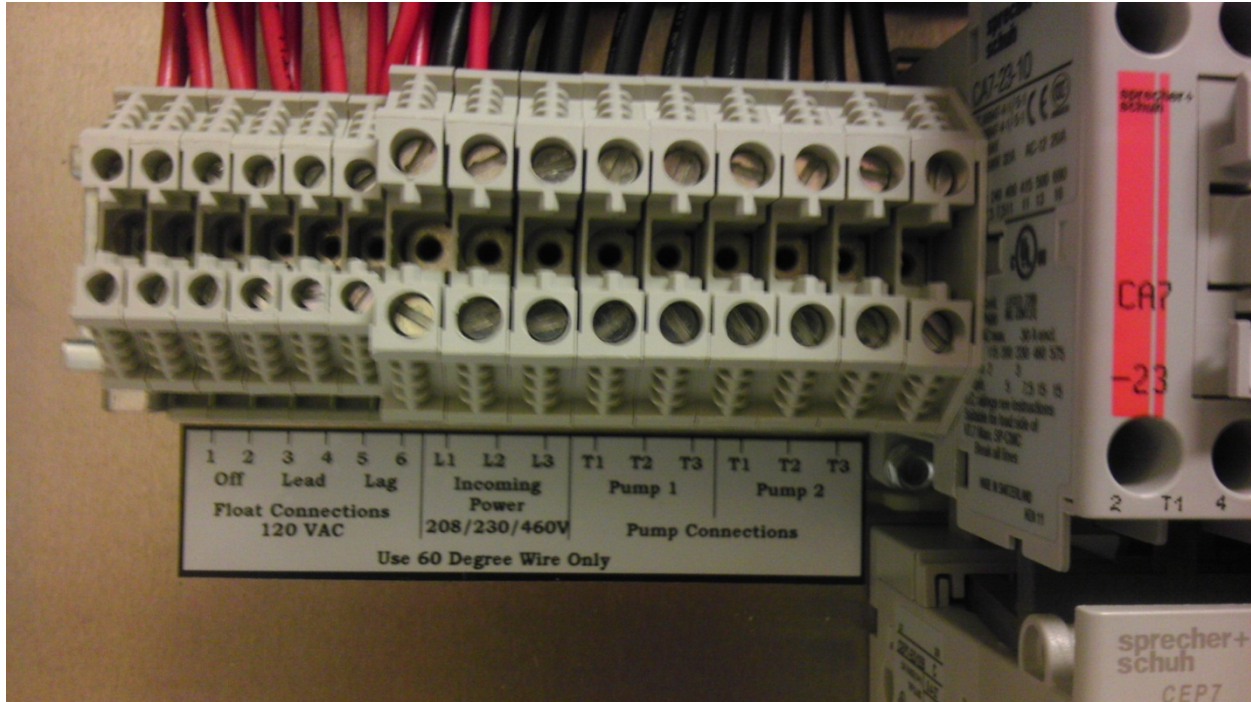


- A) Transformer & loose wire that will need to be connected to the appropriate terminal based on incoming voltage
- B) Minimum run timer
- C) Alternating relay
- D) Breakers with adjustable overloads
- E) HOA switches
- F) Terminal block
- G) Contactors
- H) Adjustable overloads

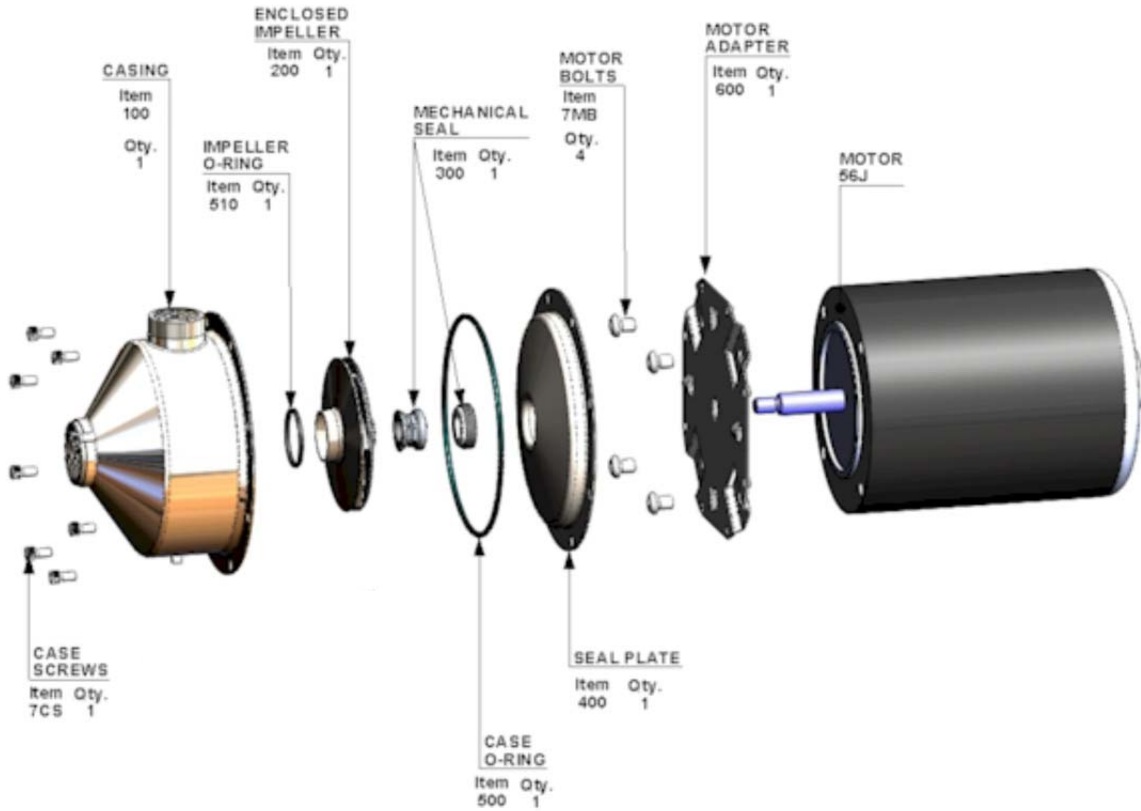
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D32-MR

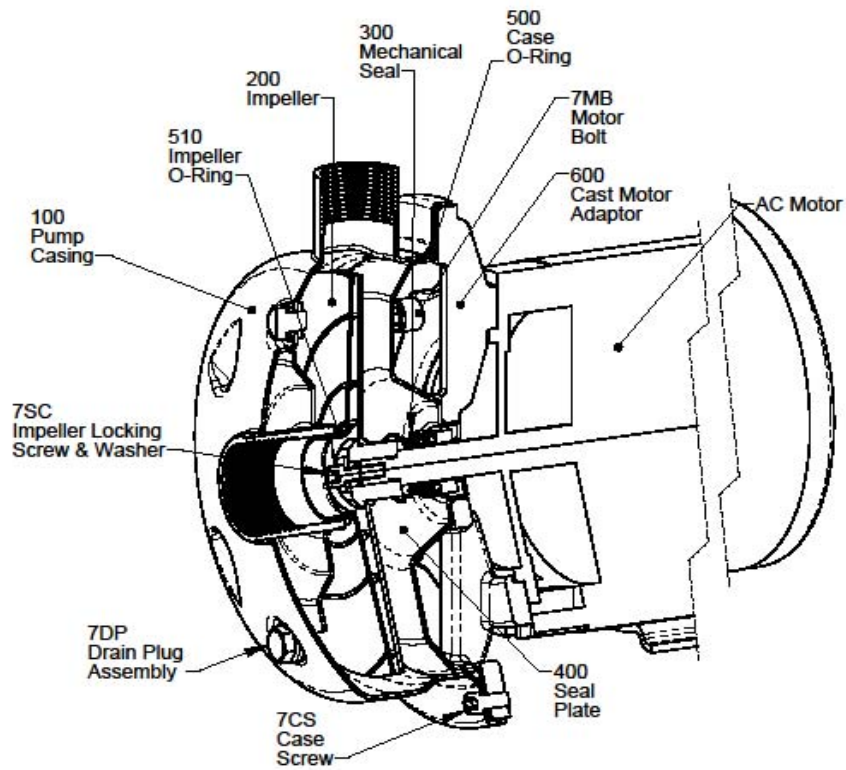
(figure D-2)



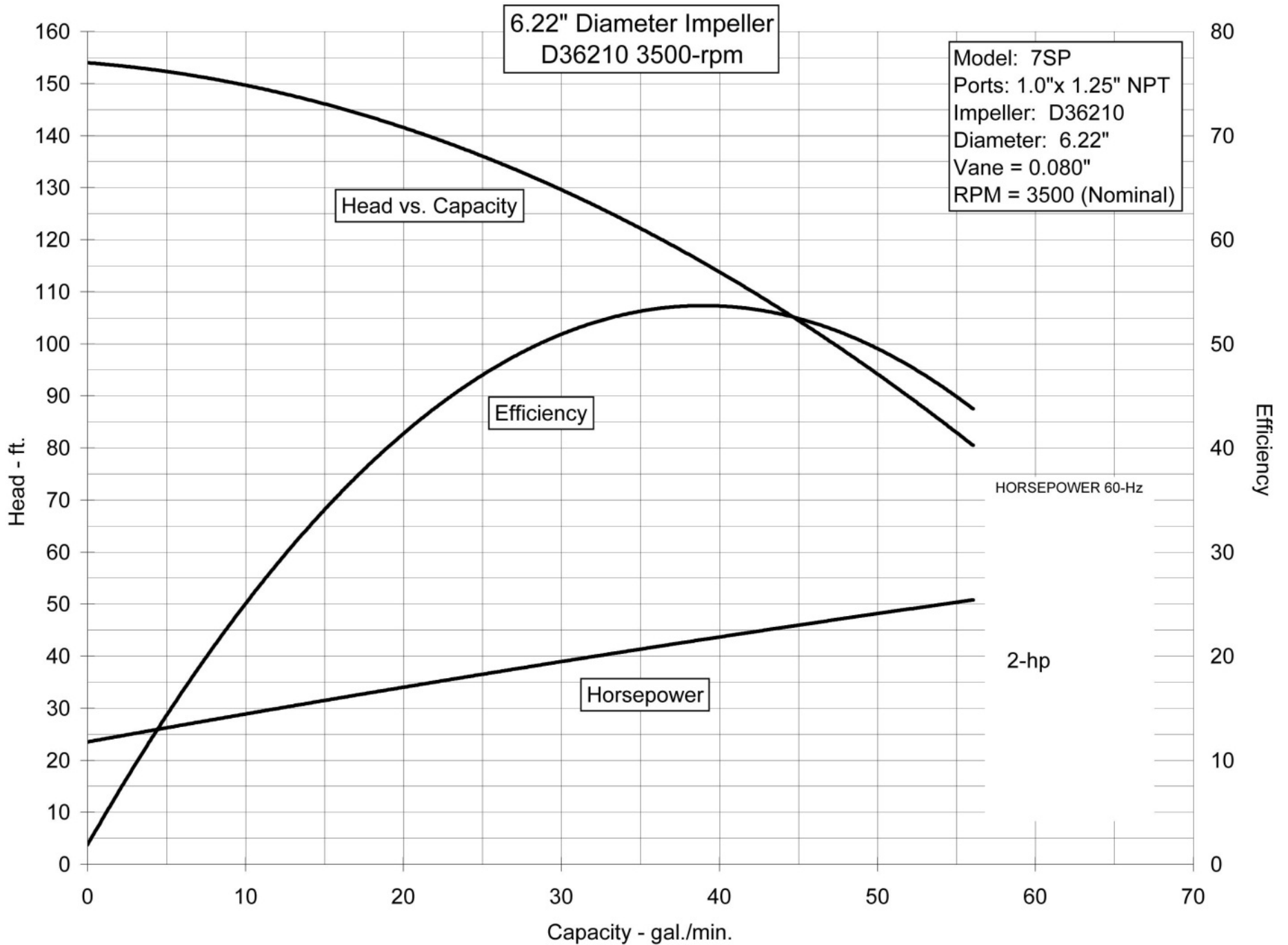
C2 Model Pumps



D model Pumps



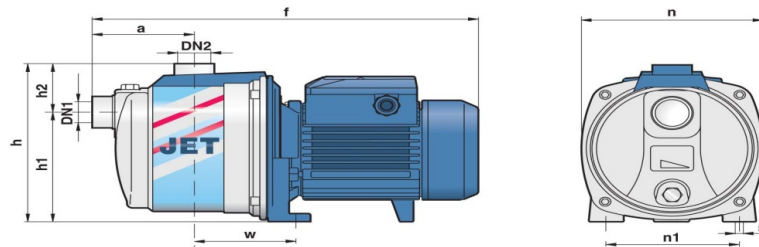
GEB5040, 7040, 10040 Pump Curve



GEB7040 Jockey Pump

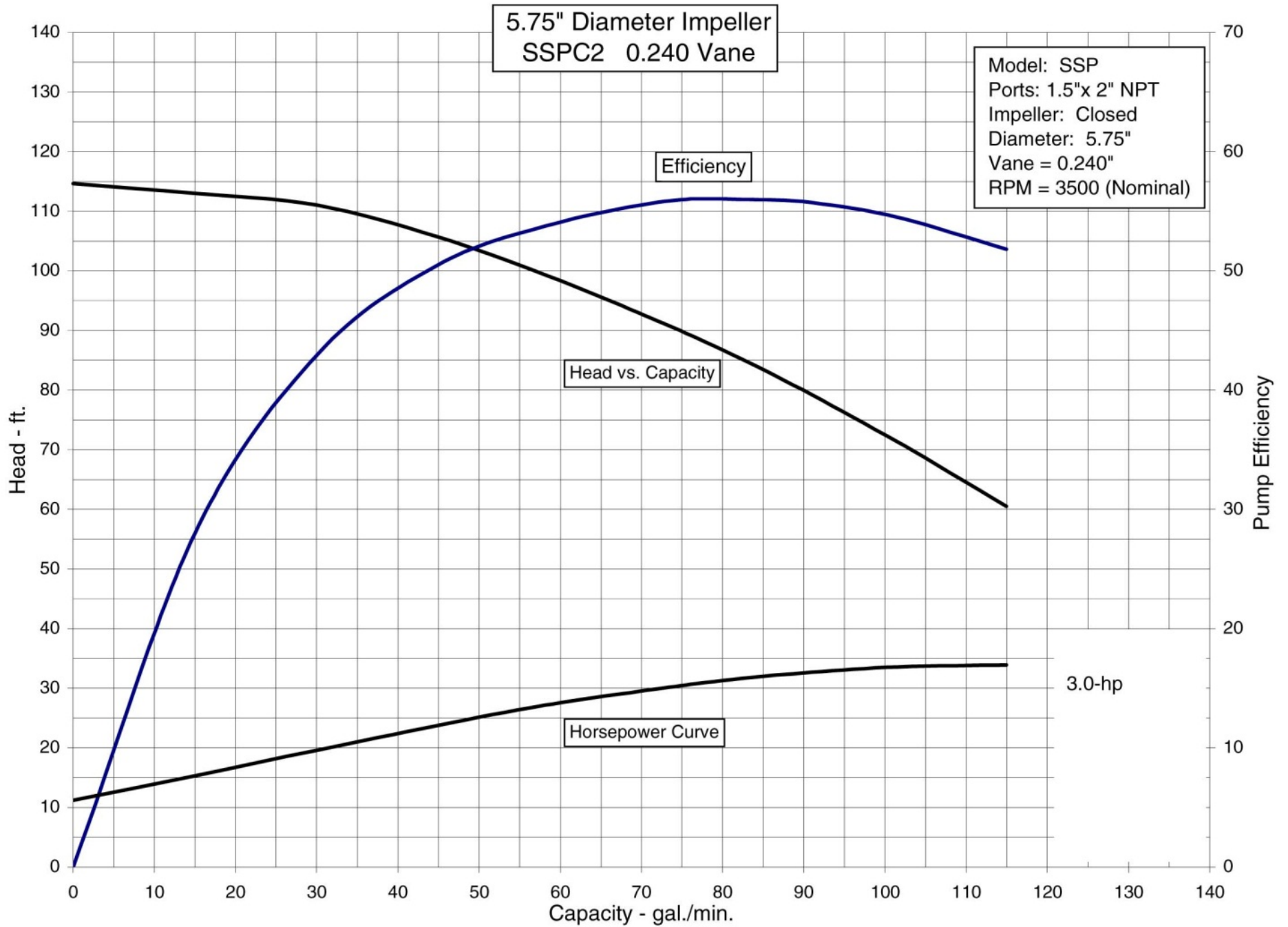
Suction Lift Depth (feet)	Discharge Pressure - PSI				Max Shut OFF PSI
	30	40	50	60	
	Discharge Capacity US GPM				
5	22	21	15.9	10	79
10	22	21	14.5	8.5	77
15	21	20	12.6	7.2	75
20	20	18.5	10.6	5	73
25	20	18	10.3	4	71

DIMENSIONS AND WEIGHT



MODEL	SUCTION /DISCH		DIMENSIONS INCHES										LBS	
	DN1	DN2	a	f	h	h1	h2	n	n1	w	s	1~	3~	
JCR-JCRH 10	1 1/4"	1"	4.6	16.0	8.1	5.7	2.2	7.2	5.3	4.3	0.4	23.8	22.9	

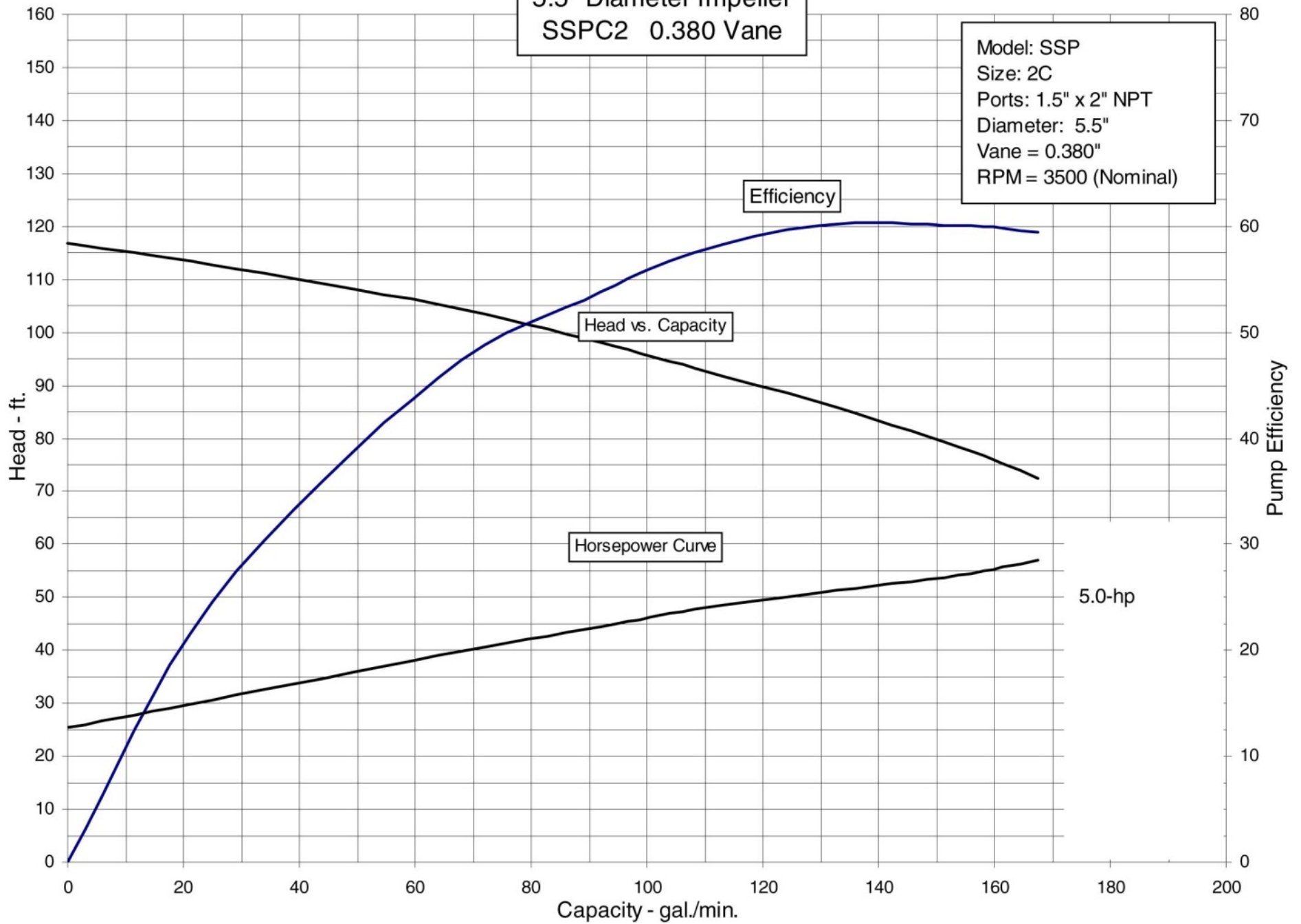
GEB6040, 14040 Pump Curve



GEB9040, 18040 Pump Curve

5.5" Diameter Impeller
SSPC2 0.380 Vane

Model: SSP
Size: 2C
Ports: 1.5" x 2" NPT
Diameter: 5.5"
Vane = 0.380"
RPM = 3500 (Nominal)





Aqua Pro Pump Systems
a Tomiko Inc. Company

PUMP SYSTEM

LIMITED WARRANTY

Aqua Pro Pump Systems

Aqua Pro Pump Systems warrants that its products are free of defects in materials and workmanship. Aqua Pro Pump Systems will repair or replace at its option any product or part at no charge in case of defect, malfunction or failure to function as stated, within one year from its manufacture date. Aqua Pro Pump Systems will not accept any claims for labor costs incurred by the consumer or contractor in removing or replacing any product or part. The warranty does not apply if the failure is a result of improper use, accident, abuse, misuse, improper installation, unauthorized alteration, or lack of proper maintenance. **In no event will Aqua Pro Pump Systems be held liable for incidental or consequential damages. No other warranties, whether implied or written which the consumer may have, including merchant ability, and fitness for a particular purpose, shall bear any validity. Warranty is limited to the conditions within this document.**

In order to obtain service under this warranty the contractor must promptly contact Aqua Pro Pump Systems. This notification must include the installation address, the model number and serial number of the system, and the problems being experienced. A return goods authorization (RGA) will be issued if the system or any of its components are required to be shipped back to APPS for inspection and or warranty to determine the cause of the problem.

Returns

All products returned to APPS for warranty evaluation must be authorized in advance by the issuance of a Return Goods Authorization number (RGA#) by APPS accounting. The returned equipment must be clearly tagged with the RGA#, as well as the name and address of the consignor. Any products proven to APPS's satisfaction to be defective will be replaced or repaired at the APPS's option. APPS will not pay for any transportation charges to or from its facilities.

sales@tomikoinc.com