

## Answers

How do I size the Balanced Flow for the appropriate pump/motor combination?

The Balanced Flow (BF) can accept any 3 phase, 230volt 4" submersible motor up to its rated amperage. The BF has an adjustable overload switch to dial in the correct full load or service factor amperage.

Can I use a 208 Volt motor?

Yes, The BF monitors amperage draw from the motor and as long as it is within the current rating set on the overload switch. Ensure the input voltage is 208V. The user may see a drop in performance if the SFA setting is less than the motor's SFA rating.

Can I run the Balanced Flow up to 80HZ?

Yes, as long as the rated amperage for the motor at 80HZ does not exceed the overload switch setting or max amps of the drive. Switch the setting on the controller to 80HZ max speed. Example: If you have a 1.5HP submersible wet end and use a 3HP motor, then size a 3HP Balanced Flow (BF30) which is rated for 10.9 max amps.

What are the recommended spare parts for a Balanced Flow? Can I repair?

The pressure transducer (sensor) is recommended to keep on hand for repair. At this time the other electronic boards are not field repairable.

Can I mount the Balanced Flow controller outside? If so what are the maximum conditions allowed?

The BF series is rated UL type 3R enclosure, outdoor or rain-tight and can accept ambient conditions up to 122 degrees F. If the controller gets too hot it will reduce speed to cool off and this will affect pump performance.

What if my BF controller is not putting out the recommended output in GPM?

Check rotation of the motor, verify ambient conditions, check motor wire and splices and finally check the pump for clogging or valve operation. Check SFA setting matches the motor's SFA rating. Lower input voltage can reduce pump performance.

Why does my pressure drop suddenly during start up?

A properly sized air diaphragm tank and pre-charge (see IOM) is necessary during rapid use of water at start up. Look at the pump depth, static levels and maximum system demand (GPM) to determine how much time is necessary for the water to reach the transducer placement. Remember, the BF controller is a soft-start and will take a few seconds to respond depending upon the distance between the pump discharge and transducer placement.

What about interference with AM radio or other devices?

The BF controller has several design features that reduce the unwanted electromagnetic interference caused by VFD's. Levels are established by the FCC for residential and commercial installations. It is necessary to always keep BF power and motor leads away from sensitive devices and ensure proper grounding for all components of the BF system including motor, piping, breaker and main panel.

Is the unit sensitive to lightning strikes or voltage disturbances?

Yes. Nothing can prevent direct hits from lightning, however, the BF does use surge arrestors to prevent damaging indirect strikes and voltage fluctuations. These protective devices are the same as used in expensive residential surge arrestors for computers and electronic protection.

Can I use the Balanced Flow with generators?

Yes, properly sized and equipped generators can be used. See IOM for sizing and requirements.

Can I use GFCI protected power for the BF controller?

No, like all VFD's there is a higher leakage current to ground that will cause nuisance tripping. It is designed for

equipment protection on short circuit NOT personnel protection.

Is my pressure transducer sensitive to stray voltage and electrical disturbances?

Yes. The pressure transducer also has electrical surge protection built into the electronics. It is still recommended to ground the metal piping and sensor casing for plastic pipe to ensure the transducer is bonded to the same ground point as the incoming power and submersible motor.

What type of breakers or fuses should I use?

Fast acting or quick trip type to ensure proper short circuit protection of the drive electronics.

Can I use aluminum wire?

No. Due to the differences in resistance and other properties, it is NOT recommended using aluminum wire (even if oversized) with the BF.

Will the Balanced Flow increase the life of my pump and motor compared to a conventional switch system?

All things being equal the Balanced Flow reduces the initial start up thrust, or water hammer associated with conventional systems. Soft-start, soft shut down, reduced wear on mechanical components of the pump and motor will help extend life. Proper installation and well conditions is still the key to longevity.