

All single-phase motor starters that are used on pumps with full load amp range between 15 and 30 amps shall be the PENTEK® INTELLISAFE™. The starter shall have the following features:

The starter is to be a complete, self-contained, single-phase starter integrated as one component. This starter must combine the functions traditionally performed by a contactor, solid state overload, and start relay.

The starter shall be mounted by means of four two screws through mounting tabs integral to the starter housing, or on a DIN rail.

The starter shall include wiring terminals for the supply voltage, starter must protect the start capacitor by monitoring its usage. If its usage is excessive, the starter will disable the capacitor for a period of time, allowing for cool-down time. The starter must be capable of re-enabling the start capacitor once it has completed the cool-down time.

For grinder pump applications, the starter shall re-energize the start circuit adding additional torque during grinding conditions to keep the flow up near 85% of normal flow. Start systems that allow flow to drop below 50% before re-energizing the start circuit or systems that cannot provide for re-energizing the start circuit, are not acceptable. Maintaining the speed of the pump allows greater water flow to pull shredded debris through and out of the pump as well as greater speed and momentum of the cutters to shred debris.

The starter must properly protect the pump and start capacitor even when an incorrect start capacitor capacitance value is used for that particular pump. A start system that does not protect the capacitor in the event of mistakenly using the wrong capacitance value will not be acceptable. The starter shall use zero cross technology to increase the reliability of the built-in power contacts.

The starter shall be Underwriters Laboratories (UL) listed, or equivalent, under an Industrial Control Panel component category (NLDX; Motor Controllers, Magnetic). Start relays that are in categories not listed under the SA.1 tables of the UL 508A standard will not be acceptable.

The starter shall be capable of protecting the motor with the following protection: adjustable class 10 solid state overload, underload, and low voltage protection. The solid state overload shall be user-selectable to auto-reset or to require manual reset.

The starter shall provide a potential free auxiliary contact which closes when the motor is running, rated 0.3A 120VAC.

The starter shall provide a potential free contact which operates in the event of a fault condition, rated 0.3A 120VAC.

The starter must be capable of working with any of the following single-phase voltages for incoming power and for start/stop signaling without requiring a different model number starter: 115V, 208V, and 230V.

The starter must accept a motor run signal (aka “coil”) voltage range of 100–250 VAC.

The starter shall provide three LED indicators: GREEN to indicate that motor power is supplied to the starter, YELLOW to indicate when the motor is running, and RED to indicate any faults