Pump Safety & Protection Recommendations

PUMP SUPERMARKET
MIAMI

Δ Important Notice Δ

▪ ***All electrical appliances need protection system.***

Failing to use protection system, not only can seriously harm the equipment, but can also invalidate every right to assistance under warranty.

▪ Protection Percentage of Protective systems on Single phase

1- Thermal protection direct connection to power Electricity (Overload) outside and Inside assembly

Built-in thermal protector is installed directly on single-phase pumps winding by the manufacturer and has only 50% protection depending on the power of the motor. For example an electric motor with a power of 0.37kw is protected up to 60% by using built-in thermal control protector.

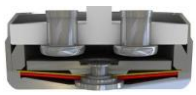
Look at the following table.

Protection percentage of built-in thermal control protector for single-phase electric-motor 110V/220 V

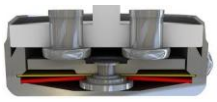
Wiring with overload

Thermal Protector (Overload)

Power - KW	110V – 50/60 Hz	220V 50/60 Hz
0.25	60%	70%
0.37	50%	60%
0.75	30%	50%
1.1	25%	40%
1.5	15%	30%
2.2	5%	15%



overload in protected position



overload in normally Closed position

Advantages and disadvantages of overloads installed inside coils

Advantages This system :

User does not charge any additional fees at the time of purchase.
All manufacturers use this system for maximum of 1.5 HP and some up to 2 HP.
Protection of this system to prevent burning of the coil in normal working mode and according to the power of the electric motor can operate up to about 60%

Disadvantages this System :

This overload controls the system by measuring the temperature, so when your Pump find the problem, the temperature of the winding rises as the amperage consumption increases, and this overload cuts off the electricity by measuring the temperature, but after cooling and lowering the degree, automatically connects the electricity and pump will be turn on auto

Very important point:

Given that, the number of disconnection and connection times and the lifespan of each type of overload is determined by the manufacturer according to the Amper passing through it.

And if your pump is stuck for any reason and can't work, a lot of Ampers will pass through it.

Especially in high power, for example, 1.5 HP or 2 HP at 110 V will be passing 30 to 40 Ampers, Too much amperage can cause severe sparks, and platinum may be welded together .If there is no other reliable protection system in the input power line, your pump will certainly burn out.

For example, the life of a good overload in 6 A is about 10,000 times, but in 15 A it is 200 times and in 30 amps it is only 10 to 20 times.

▪Three phases Overload system ,

Note

Some of the three-phase electric-pumps are equipped with thermal protection systems (Thermo guards) placed inside an external control panel on the circuit line.

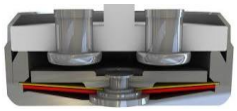
This protection system for all pumps with different powers can provide up to 75% complete protection.

The manufacture use two kind of thermal protector for three phases , 1- Thermo Guard (on-off Contact) 2- PTC (resistance system) 3- PT100 sencore

1- Thermo Guard (on-off Contact) ; this system need one controller that can be adjust with with this protection such as swes 0000

Over load sensore for three phases

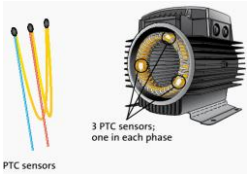
copper wiring

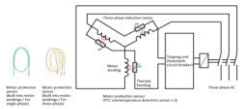


Overload inside

2- PTC (resistance system): this system need one controller that can be adjust with PTC sencore

PTC





drawing of three phases motor with PTC controller

PTC Controller

3- PT 100 Sencore : this system usualy used for Liquid temperture , and in this case used for Submersible water cold Motors , and need PT100 Converter

PT 100 sensore

PT 100 Covertor