

# Zirantec

## Control Panels



[www.zirantec.com](http://www.zirantec.com)



FABBRICA ITALIANA POMPE SOMMERGIBILI S.r.l



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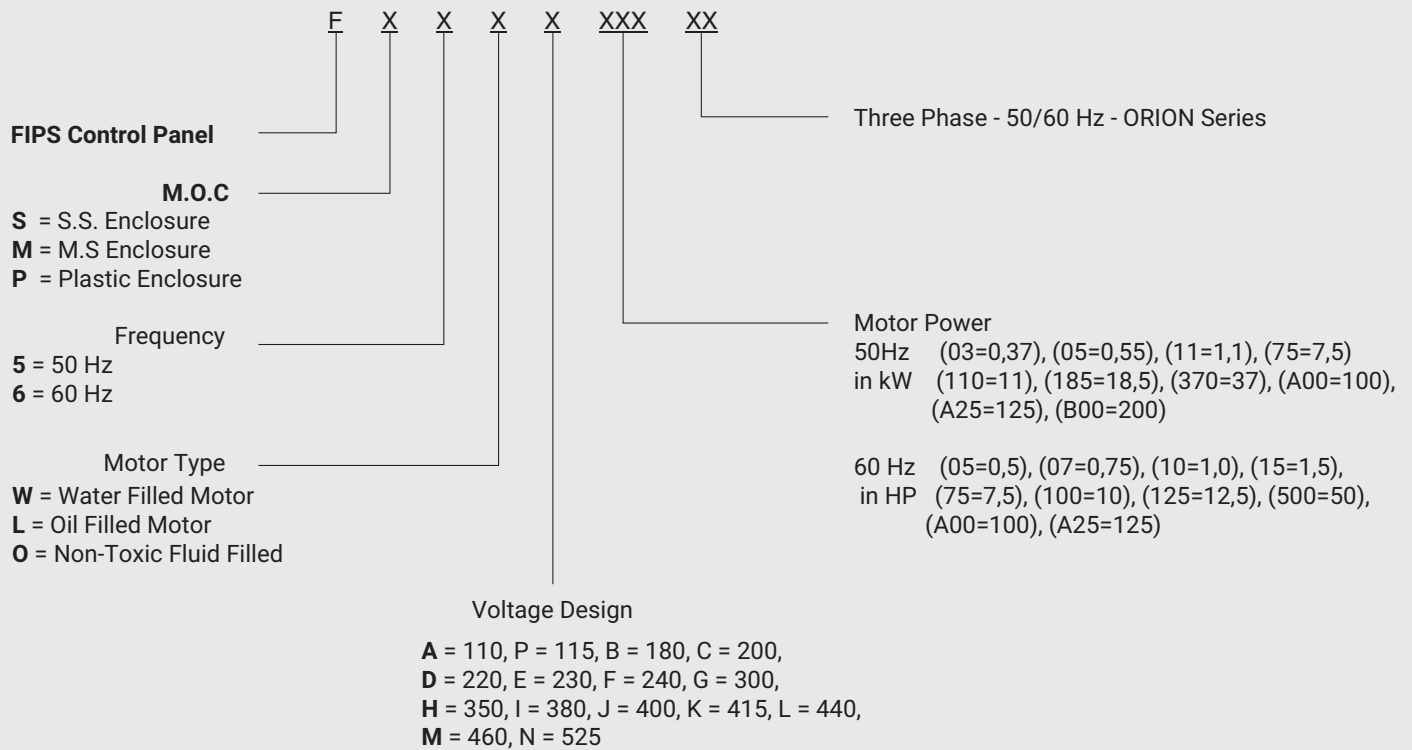
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Zirantec Control boxes are made of hi-tech components and designed to perfection with various features to give ultimate protection to the prime movers such as Submersible motors, Centrifugal pumps etc. Different types of single-phase and three-phase control boxes are available which can be selected according to the control measures and features required.

## MODEL IDENTIFICATION CODE



## CONTROL PANELS 3 PHASE

### Direct - Online Starter



Direct - Online Starters are the simplest form of motor starter for starting induction motor and these starters basically consist of MCB / Circuit Breaker, Contactor and an overload relay for protection, electromagnetic contactor can be opened by the thermal overload relay under fault conditions. Typically, the contactor will be controlled by separate start and stop buttons, and an auxiliary contact on the contactor is used, across the start button, as a hold in contact. i.e. the contactor is electrically latched / closed while the motor is operating.

#### TYPES & SPECIFICATIONS

|                      |                                                |
|----------------------|------------------------------------------------|
| Power Range          | 0,37 kW to 185 kW                              |
| Version              | Three Phase, 50/60 Hz, A.C.                    |
| Nominal Voltage      | 380V - 415V                                    |
| Degree of Protection | IP 54 / IP 55 & 65 (Optional)                  |
| Panel Box            | MS Powder Coated / S.S (Optional)              |
| Components           | Schneider / L&T / ABB / Siemens / Reputed Make |

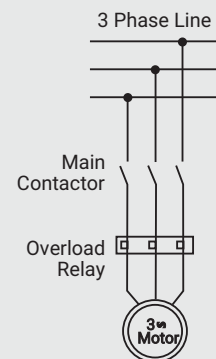
#### PROTECTION

- Over Voltage
- Under Voltage
- Over Load
- Short Circuit
- No Load
- Dry running
- Phase Failure
- Phase reversal (Optional)
- PT sensor (Optional)
- Level sensors
- Local / remote operation
- & customized features against requirement

#### COMPONENTS

- Contactor
- Pump Protective Relay (PPR)
- CT Coil
- Timer
- On/Off Switch
- MCB / Load Breaking Switch
- Ammeter
- Voltmeter
- Run-Hour meter (Optional)
- Selector Switch
- Indicator Lamps
- Powder Coated MS Box with Lock & Key.
- Hand selector Switch

#### Schematic Diagram



#### ADVANTAGES

- Most Economical and Cheapest Starter
- Simple to establish, operate and maintain
- Simple Control Circuitry
- Easy to understand and troubleshoot.
- It provides 100% torque at the time of starting.
- Only one set of cable is required from starter to motor.
- Manual / Auto Operation
- Optional Control Circuit Voltages

## CONTROL PANELS 3 PHASE

### Star- Delta Starter



Star-Delta starters are the most common starters used widely to start AC motors. In these starters the starting current is controlled by applying reduced voltage, achieved by connecting motor winding in "Star" mode. Theoretically the current is reduced by a factor of  $1/\sqrt{3}$  times and once the motor attains its normal running stage, full voltage is applied to the motor by changing the connection to "Delta" mode and remains in the same stage till the motor is stopped.

#### TYPES & SPECIFICATIONS

|                      |                                                |
|----------------------|------------------------------------------------|
| Power Range          | 0,37 kW to 220 kW                              |
| Version              | Three Phase, 50/60 Hz, A.C.                    |
| Nominal Voltage      | 380V - 415V                                    |
| Degree of Protection | IP 54 / IP 55 & 65 (Optional)                  |
| Panel Box            | MS Powder Coated / S.S (Optional)              |
| Components           | Schneider / L&T / ABB / Siemens / Reputed Make |

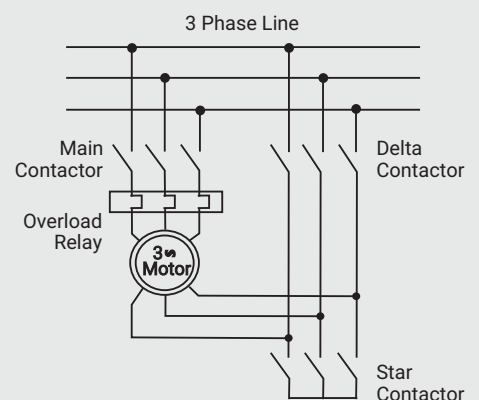
#### PROTECTION

- Over Voltage
- Under Voltage
- Over Load
- Short Circuit
- No Load
- Dry running
- Phase Failure
- Phase reversal (Optional)
- PT sensor (Optional)
- Level sensors
- Local / remote operation
- & customized features against requirement

#### COMPONENTS

- Contactor
- Pump Protective Relay (PPR)
- CT Coil
- Timer
- On/Off Switch
- MCB / Load Breaking Switch
- Ammeter
- Voltmeter
- Run-Hour meter (Optional)
- Selector Switch
- Indicator Lamps
- Powder Coated MS Box with Lock & Key.
- Hand selector Switch

#### Schematic Diagram



#### ADVANTAGES

- The operation of the star-delta method is simple and rugged
- It is relatively cheap compared to other reduced voltage methods.
- Good Torque/Current Performance.
- It draws 2 times starting current of the full load ampere of the motor connected
- Manual / Auto Operation
- Optional Control Circuit Voltages

## CONTROL PANELS 3 PHASE

### Impedance Panel

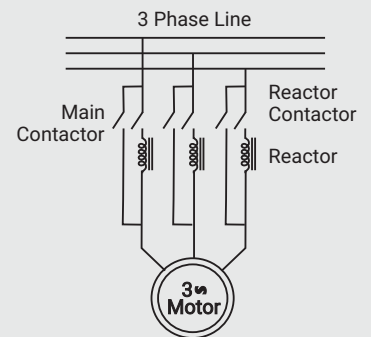


Starter is similar to Start- Delta Starter but a set of Series Reactors are connected in series with the motor winding while starting. So this method is often called as Series Reactor Starter. Once the motor comes to its running mode these reactors are disconnected and the motor runs like DOL method. The starting current is controlled by the Impedance produced by reactors connected in series.

#### TYPES & SPECIFICATIONS

|                      |                                                |
|----------------------|------------------------------------------------|
| Power Range          | 0,37 kW to 530 kW                              |
| Version              | Three Phase, 50/60 Hz, A.C.                    |
| Nominal Voltage      | 380V - 415V                                    |
| Degree of Protection | IP 54 / IP 55 (Optional)                       |
| Panel Box            | MS Powder Coated                               |
| Componants           | Schneider / L&T / GIC / Minelec / Reputed Make |

#### Schematic Diagram



#### PROTECTION

- Over Voltage
- Under Voltage
- Over Load
- Short Circuit
- No Load
- Dry running
- Phase Failure
- Phase reversal (Optional)
- PT sensor (Optional)
- Level sensors
- Local / remote operation
- & customized features against requirement

#### ADVANTAGES

- Simple /Rugged Construction
- Reduced Starting Current
- Good Current / Torque properties
- Only one set of cable is required from starter to motor
- Manual / Auto Operation
- Optional Control Circuit Voltages

#### COMPONENTS

- Reactors
- Contactor
- Pump Protective Relay (PPR)
- CT Coil
- Timer
- On/Off Switch
- MCB / Load Breaking Switch
- Ammeter | Voltmeter
- Run-Hour meter (Optional)
- Selector Switch
- Indicator Lamps
- Powder Coated MS Box with Lock & Key
- Hand selector Switch

## CONTROL PANELS 3 PHASE

### Auto Transformer Starter

An Auto-Transformer starter is another type of conventional method of starting AC motors with the aid of Auto-Transformer. In this method the starting current is reduced by applying reduced voltage by means of Auto-Transformer for a while and once the motor comes to normal running condition the full voltage is applied across the motor winding.

#### TYPES & SPECIFICATIONS

|                      |                                                |
|----------------------|------------------------------------------------|
| Power Range          | 0,37 kW to 530 kW                              |
| Version              | Three Phase, 50/60 Hz, A.C.                    |
| Nominal Voltage      | 380V - 415V                                    |
| Degree of Protection | IP 54 / IP 55 (Optional)                       |
| Panel Box            | MS Powder Coated                               |
| Components           | Schneider / L&T / GIC / Minelec / Reputed Make |

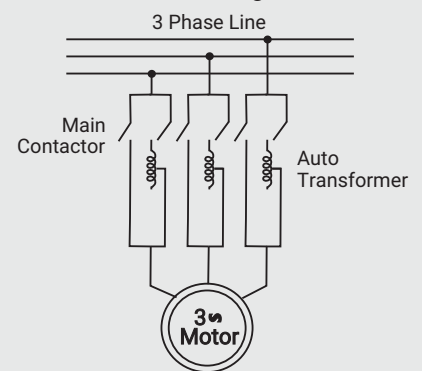
#### PROTECTION

- Over Voltage
  - Under Voltage
  - Over Load
  - Short Circuit
  - No Load
  - Dry running
  - Phase Failure
  - Phase reversal (Optional)
  - PT sensor (Optional)
  - Level sensors
  - Local / remote operation
- & customized features against requirement

#### COMPONENTS

- Auto Transformer
- Contactor
- Pump Protective Relay (PPR)
- CT Coil
- Timer
- On/Off Switch
- MCB / Load Breaking Switch
- Ammeter
- Voltmeter
- Run-Hour meter (Optional)
- Selector Switch
- Indicator Lamps
- Powder Coated MS Box with Lock & Key
- Hand selector Switch

#### Schematic Diagram

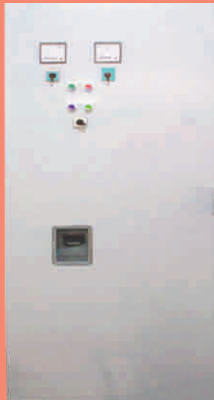


#### ADVANTAGES

- Can set desired starting voltage
- Simple / Rugged Construction
- Reduced Starting Current
- Good Current / Torque properties
- Only one set of cable is required from starter to motor
- Manual / Auto Operation
- Optional Control Circuit Voltages

## CONTROL PANELS 3 PHASE

### Soft Starters

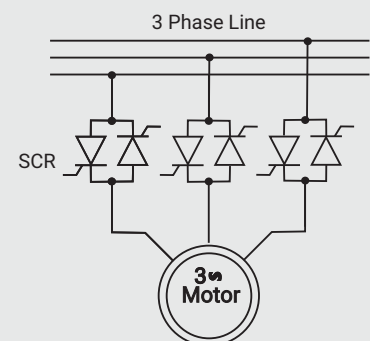


Soft starter is an advanced method of starting electrical motors by application of electronic devices like micro processor, SCR / Thyristor etc., and provides numerous advantageous over other types of starters. In this panel voltage reduction and other vital features like controlled acceleration of motor are achieved by triggering SCRs at the desired firing angle by microprocessor. Once triggered the SCR allows current in one direction and turns off at zero current.

#### TYPES & SPECIFICATIONS

|                      |                                                |
|----------------------|------------------------------------------------|
| Power Range          | 0,37 kW to 530 kW                              |
| Version              | Three Phase, 50/60 Hz, A.C.                    |
| Nominal Voltage      | 380V - 415V                                    |
| Degree of Protection | IP 54 / IP 55 (Optional)                       |
| Panel Box            | MS Powder Coated                               |
| Components           | Schneider / L&T / GIC / Minelec / Reputed Make |

#### Schematic Diagram



#### PROTECTION

- Over Voltage
- Under Voltage
- Over Load
- Short Circuit
- No Load
- Dry running
- Phase Failure
- Phase reversal (Optional)
- PT sensor (Optional)
- Level sensors
- Local / remote operation
- & customized features against requirement

#### ADVANTAGES

- Reduced stresses and wear on the mechanics of the system
- Reduced starting currents
- Reduced peak inrush starting currents.
- Ramp profiling to better match type of load such as variable torque loads
- Reduced heating in motor at low speeds
- Minimize voltage dips on the supply
- Lowered Peak demand charges
- Smooth acceleration of motor / load
- No instability due to changing power factor
- No instability due to slot ripple in 3 wire and 6 wire operation
- Better control of deceleration through closed loop torque control system.

#### COMPONENTS

- Reactors
- Contactor
- Pump Protective Relay (PPR)
- CT Coil
- Timer
- On/Off Switch
- MCB / Load Breaking Switch
- Ammeter | Voltmeter
- Run-Hour meter (Optional)
- Selector Switch
- Indicator Lamps
- Powder Coated MS Box with Lock & Key

# NOTES

[illegible]

# NOTES





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