



# Power Plant Electrical Technologies (Pty) Ltd

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## Q-Flex - Low Voltage Power Factor Correction & Filter Bank Solution

### What is Power Factor ?

Most loads in modern electrical distribution systems are inductive, meaning they require a magnetic field to operate (such as electric motors and transformers). Inductive loads require Working Power (kW) to perform actual work, and Reactive Power (kVAR) to sustain the magnetic field. Together they make up Apparent Power (kVA) the measurement of demand power consumption for which the user is billed.

Power Factor is a measure of how efficiently incoming power is being consumed in your electrical system. Simply defined as the ratio of Working Power, performing actual work, to Apparent Power drawn from the mains.

Low Power Factor means you're not fully utilizing the electrical power you're paying for, and requires correction to avoid excessive utility bills or even penalties in extreme cases.

A system consisting of numerous inductive loads not running at full capacity will result in a low power factor, higher current flow and increased heating of equipment.

Power Factor Correction (PFC) is typically achieved by adding capacitors to the electrical system, which offsets the reactive power loading. Automatic PFC is made possible by use of intelligent PFC controllers, switching in or removing capacitors as the system requires to achieve a set Power Factor.



### Advantages of Power Factor Correction

- Reduced electric utility bills
- Improved system efficiency
- Increased electrical system capacity
- Load reduced on electrical distribution equipment and systems. Additional loads can be added.
- Improved system voltage conditions.
- Reduced system losses.
- Improved starting torque of motors.

### Effects of Low Power Factor

- Increased utility costs since more current is required for sustaining the system's reactive power requirements.
- Increased load on generators, transformers and distribution lines, resulting in unnecessary thermal stress on equipment and increased maintenance costs, and shortened life span.
- Reduces load handling capacity of the plants' electrical system.



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www.ppetech.co.za

# RANGES & ACCESSORIES

## STANDARD RANGES

0% de-tuned range (Reactors excluded) Full size, floor standing			
Voltage (50Hz)	Selection Range (kVAr)		Min. Step Size (kVAr)
	Min.	Max.	
380V - 415V	25	1000	25
440V - 525V	30	1200	30
550V	20	800	20
600V	25	1000	25
690V	30	1200	30

7% de-tuned range Full size, floor standing			
Voltage (50Hz)	Selection Range (kVAr)		Min. Step Size (kVAr)
	Min.	Max.	
380V - 415V	25	500	500
440V - 525V	30	600	600
500V - 525V	20	400	400
550V - 600V	25	500	500

12.5% de-tuned range Full size, floor standing			
Voltage (50Hz)	Selection Range (kVAr)		Min. Step Size (kVAr)
	Min.	Max.	
380V - 440V	25	500	25
480V - 550V	20	400	20
600V	25	500	25

## ENHANCED RVT CONTROLLER

For enhanced functionality, we recommend advanced RVT controller with the following features:

- Three-phase measurement and control
- Ethernet, USB 2, and RS-485 Modbus communication interfaces
- Complete graphical display, touchscreen with back lighting
- Multi-language
- Programmable protection thresholds



## OTHER ACCESSORIES



*Additional temperature probes (up to eight, with RVT Controller only)*



All RVT parameters are available through an RS485 Modbus adapter, allowing communication with a monitoring system.

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