

Although "bad power factor" can apply to capacitive loads, it is normally the inductive load which causes trouble in industry, due to the use of motors, transformers and other plant which give rise to inductive "Wattless current". Such current only burdens cables and power stations unnecessarily, and involves supply authorities in expense which many are no longer prepared to accept.

The usual method of obtaining the necessary correction, is to connect capacitors in parallel with the inductive load, these capacitors being normally rated by the manufacturer in kVAr.

TO OBTAIN kVAr.

- (1) Ascertain the power factor and total wattage of the load.
- (2) Set arrow upon the Power Factor Improvement scale to desired power factor.
- (3) Read multiplication figure opposite existing power factor.
- (4) The kVAr required to correct the circuit is then given by multiplying the wattage of the load by the factor obtainable in (3) above.

If when this kVAr figure has been obtained, it is desired to know the value of the required correction capacitance, it can be found from the following formula:—

$$\text{Capacitance in } \mu\text{F} = \frac{\text{kVAr} \times 10^9}{2\pi f (V^2)}$$

Where:— $\pi = 3.14$. f = frequency of supply. V = voltage of supply.

For balanced three phase working, the capacitance is divided into three equal banks.