



How to correct Power factor?

By installing a capacitor bank it is possible to reduce the reactive power absorbed by the inductive loads in the system and consequently to improve power factor. It is suitable to have $\cos\theta$ a little in excess of 0.9 to avoid paying the penalties provided for by the law. $\cos\theta$ must not be too close to unity, to avoid the leading currents in the electrical system.

The choice of the correct power factor correction equipment depends on the type of loads present and by their way of working.

The choice is between CENTRAL COMPENSATION and INDIVIDUAL COMPENSATION.

Individual compensation: power factor correction is wired at each single load (i.e. motor terminals)

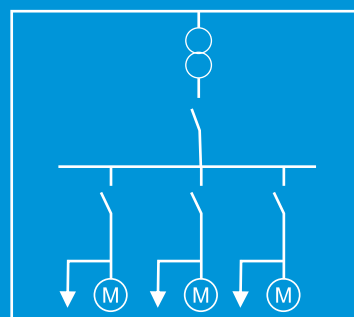
Central compensation: there is only one bank of capacitors on the main power distribution switch board or substation.

The individual compensation is a simple technical solution, the capacitor and the user equipment follow the same starts during the daily work, so the regulation of the $\cos\theta$ becomes systematic and closely linked to the load. Another great advantage of this type of power factor correction is the simple installation with low costs.

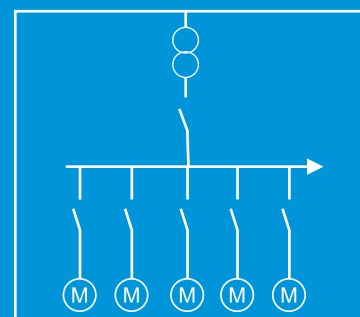
The daily trend of the loads has a fundamental importance for the choice of most suitable power factor correction. In many systems, not all the loads work in the same time and some of them work only a few hours per day. It is clear that the solution of the individual compensation becomes too expensive for the high number of capacitors that have to be installed. Most of these capacitors will not be used for long period of time.

The individual compensation is more effective if the majority of the reactive power is concentrated on a few loads that work over a long period of time.

Central compensation is best suited for systems where the load fluctuates throughout the day. If the absorption of reactive power is very variable, it is advisable to use automatic regulation in preference to fixed capacitor.



Individual Compensation



Central Compensation