

Low Voltage Motor Control Centres (MCC's) Operating at 690Vac

Traditionally low voltage MCC systems operate at 400Vac. Whilst this is the accepted national standard, certain larger installation can benefit from using a higher voltage level (i.e. 690Vac) but still be categorised as 'LV'. The benefit is that as the system voltage increases the current decreases in approximate proportion. The result is smaller cable sizes, busbars and components.

A recent project undertaken in the power distribution sector has demonstrated tangible benefits from adopting this system. The current in LV motors was reduced by 40% thus resulting in a measurable reduction of cable, busbar and component sizes. An approximate saving of 25% was also demonstrated on cable containment material (ladder rack and tray).

In the current climate of increasing copper and steel prices the savings demonstrated on large plants are a real benefit.



Benefits of 690Vac LV Motor Control Centres

- Standard dual voltage 'Euro-Norm' motors sized from 0.37kW to 710kW will operate on voltages of 400Vac or 690Vac. (690v has natural $\sqrt{3}$ 'relationship' with 400v)
- Reduction of cable, busbar and component sizes of around 40%.
- Reduction of cable containment sizes of around 25%.
- Smaller components, less steelwork, fewer MCC columns, lower costs.
- LV components can be readily sourced from usual suppliers.
- Also can be used as a viable alternative to 3.3kV for motor drives around 500kW.
- Still classified as LV and can be maintained by competent LV qualified personnel.

Drawbacks of 690Vac LV Distribution

- Needs a dedicated transformer winding.
- Viable on large projects only, on total loads over 1000kVA.

For more information contact Fred Aspinall of Boulting Group on +44(0)1925 726661