Application Guidance Notes: Technical Information from Cummins Generator Technologies

AGN 010 – UCD274 Alternators

The UCD 274 J and K core lengths are only offered as UCD, not UC. The main difference between UCD and UC lies in the coupling arrangement, particularly the Drive End (DE) adaptor. The specially designed UCD voluted DE adaptor, along with a different UCD fan design, enhances the cooling circuit of the alternator, which enabled the UCD27 J and K ratings to be achieved.

The enhanced cooling system was introduced to improve the alternator's thermal stability when operating at its Peak Standby Ratings (PR) where the danger of thermal instability - and thermal 'runaway' - is always a risk. For this reason, the PR kVA levels have been carefully considered with no margin to increase.

Identifying the change to an output with a change to the ambient temperature can be achieved by a simple calculation. At an ambient temperature of 27°C, we allow typically 3% more for a PR rating than the published 40°C ambient rating. This means that for every 4°C reduction in ambient between 40°C > 27°C a rating increase of 1% is possible. Strictly this should not be a straight line, but it does keep things simple.

DIRECTION OF ROTATION.

The air outlet arrangement of the UCD design is optimised for clock-wise direction of rotation (DoR) as viewed from the DE only. Therefore, anti-clockwise DoR is not allowed for UCD designs as the performance of the cooling system will be compromised.