

CFW-11 The New Inverter Generation from WEG

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WEG is setting a new benchmark for variable frequency drive (VFD) operation with the launch of the new CFW-11 frequency inverter. The CFW-11 has a patented Optimal Flux feature that minimizes the losses of Totally Enclosed Fan-Cooled (TEFC) induction motors used with constant and variable torque loads, especially at low speeds where motor ventilation systems are inefficient. Optimal Flux overcomes the problem of reduced torque under these operating conditions, and the costs of traditional solutions such as motor over sizing and additional ventilation; providing instead an integrated, low cost solution for keeping motor temperature rise within the thermal limits of its insulation class.



Optimal Flux is the end product of WEG's analysis of the composition of losses in electric motors, and their relationship to voltage, frequency, magnetic flux and current. The results of the analysis, and those of a supplementary study on the influence of ventilation on the temperature rise of motors, have been combined in the development of a new

algorithm for an optimal voltage/frequency ratio, which minimises total motor losses. The algorithm has been integrated into the software of the CFW11 inverter, enabling motor loss minimisation to be achieved automatically, keeping motor torque constant, and motor temperature elevation within the thermal class limit, even at low operating frequencies where ventilation is reduced.

In addition to delivering optimised control of motors at low speeds, the CFW-11 provides users with an easy-to-use, universal drive platform; offering plug-and-play technology that enables automatic configuration of the inverter to suit the widest range of drive applications: stand alone, and centralised and decentralised with networks.

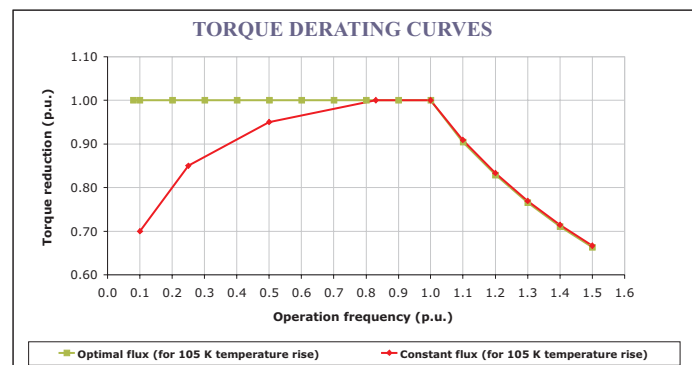
What makes the CFW11 so unique is the number of features that combine to produce an overall systems platform. Principle among these are Plug-and Play technology which automatically recognises and



configures accessories and option modules used for customisation, enabling easy installation and safe operation, while eliminating the cost and time taken for manual configuration; Universal Drive Selection - the CFW11 can perform in V/f, V.V.W voltage vector, sensorless vector and vector encoder modes; Plug-in Accessory Modules - that tailor the drive both in terms of scalable control (i.e. in replacing a PLC), and in terms of communications, with a wide choice of fieldbus options available; USB interface - for connection to a PC for programming and monitoring; Normal and Heavy Duty Ratings - allowing the drive to be adapted optimally to all types of load; Man/Machine Interface a fully functioned HMI with backlit graphic display, soft keys and a real time clock to facilitate inverter programming and monitoring; Harmonic Suppression - built-in DC link inductors that enable compliance with IEC61000-3-12 regarding harmonics, without the need for external line reactors; EMC Compliance - built-in filters for compliance with EN61800-3 even with long motor cables (100m).

Other important features include high level language programming (based on IEC 61131-3) to enable the user to configure his own application, Flash memory card for storing parameters/software, Safety Stop in compliance with EN954-1 cat III, possibility of surface or flange (with the heat sink outside of the enclosure) mounting.

Initial launching of the CFW-11 series is scheduled for June/2007 in the power range from 0.75 to 45kW and line voltages of 200-240/380-480V. Other powers/voltages will follow.



The derating curves above evidence the advantages provided by the optimal flux solution