Should I Specify Circuit Breaker or Disconnect Bypass?

ABB recommends you consider the following points concerning input disconnect devices when you specify and sell ACH550 Drives with E-Clipse Bypass. While a simple disconnect switch may be slightly less expensive in most cases, there are several reasons you may want to recommend a circuit breaker as the disconnecting means.

- Project coordination – the ABB E-Clipse Bypass with Non-Fused Disconnect Switch (VDR & BDR) package requires upstream overcurrent (short circuit) protection for the motor in the bypass mode. This means that the overcurrent protective device (Circuit Breaker or Fuses) in the circuit feeding the motor must be properly sized to protect the bypass & motor in the case of short circuit in the bypass mode. While all E-Clipse Bypasses include an I^2T type motor overload protection, the VDR and BDR packages do not include short circuit protection. The E-Clipse Bypass with Circuit Breaker (VCR & BCR) is manufactured to meet NEC requirements for overcurrent protection without the use of external devices.

- SCCR rating – All 208/230 and 480 Volt VCR and BCR packages have a Short Circuit Current Rating (SCCR) of 100 kA as standard. These packages have been tested by UL and passed the 100 kA testing without any upstream fuse requirements. All VDR and BDR packages have a Short Circuit Current Rating (SCCR) of 100 kA when installed with the appropriate upstream Class J or RK1 fuses. All VDR and all but a few BDR packages have a SCCR of 5 kA when installed ***without*** the appropriate fuses. The fact is many contractors do not add the upstream fuse protection and therefore, many installed packages only have a 5 kA SCCR.

- Local inspectors have recently become more conscientious about reading equipment nameplates and in some cases have required contractors to add the listed fuses in the field. This has resulted in unhappy contractors.

The best choice of input disconnect device for engineered and custom drives varies depending on project requirements. To make this less challenging the alternatives should be discussed before quoting. However, making a choice for standard product is pretty straightforward. Circuit Breakers offer “Peace-of-mind” in knowing the package you have provided meets code without relying on the contractor’s fuse contribution. Disconnects offer the lowest ABB supplied equipment cost.

See the link in the June HVAC Update newsletter for a copy of the latest *ACH550 Short Circuit Current Ratings (SCCR)*, dated July 10, 2011.

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