MARS Tech Disconnect Switches (Safety Switches)

All heating, cooling and refrigeration equipment should have some means for disconnecting the power supply at the equipment. Some equipment has a built- in method for disconnecting the power, such as a circuit breaker or fuse blocks. However, in most cases a disconnecting device must be supplied and installed by an electrician or a licensed HVAC/R mechanic. Disconnect switches are relatively simple and easy to install once the correct selection is made.

A disconnect switch is a two or three pole switch mounted in an enclosure. The switch can be purchased with or without a space for fuses. Disconnect switches, in most cases, have a grounding lug mounted in the enclosure. The switches can have different arrangements. For example, a four-pole-three-fuse switch would be used on a three-phase circuit and would have a ground lug. A three-pole-three-fuse switch would be used for three-phase circuits and would not have a ground lug. A three-pole-two-fuse switch would be used on single-phase circuits and would have a ground lug.

Disconnect switches can be purchased for general duty or heavy duty. The heavy-duty disconnect switch would be installed for equipment that would require frequent use. The general-duty switch would be used for equipment requiring infrequent use.

The purpose of disconnect switch can be twofold. First, it can be used as a means of disconnecting the power supply going to the equipment. Second, it can be used as a safety device when fused correctly. If the only purpose of a disconnect switch is to break the power supply, than a non-fusible disconnect switch should be used. If a means of protection for the wire or equipment is needed, a fusible disconnect switch should be used with the proper size fuses. Most equipment manufacturers will give the fuse sizes needed in the installation instructions. If fuse sizes are not given, the NATIONAL ELECTRICAL CODE should be consulted.

The selection of a fusible disconnect switch is determined by duty, enclosure type, and size. Fuses are designed so that one size covers several different ampacities. The same fuse size can be purchased to cover from 1 to 30 amperes, from 30 to 60 amperes, from 70 to 100 amperes and from 100 to 200 amperes. There are larger sizes available, but they are not used frequently.

Disconnect switches are rated 30 amperes, 60 amperes, 100 amperes, 200 amperes, 400 amperes and 600 amperes. A 30 ampere disconnect switch would be used for any load from 1 to 30 amperes. A 200 ampere disconnect switch can be used with fuses from 100 to 200 amperes. Other determining factors of the switches can easily be selected from the manufacturers catalog

Portions of this copy were excerpted from "Electricity for Refrigeration, Heating and Air Conditioning" Duxbury Press