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Types of EQs and Their Controls

Equalization filters come in three types: peak, shelving and pass filters (high- and lowpass). EQs can use passive or active electronic elements, digital algorithms, or even vacuum tubes to shape the tone of the source audio signal. (Contrary to what you might think, vacuum tubes used for audio purposes do not create a sucking sound like a vacuum cleaner.) Digital EQs use programming algorithms instead of electronic elements to alter the signal. Both analog and digital EQs generally use the same set of controls to alter the frequency content.

Peak Filters

Peak filters are the most flexible and probably the most often-used filter types. They have three variables or controls: frequency, Q and cut/boost.

The frequency control, as the name suggests, allows you to select the center frequency of the peak filter. Peak filters operate using a bell curve, in which equalization is heaviest at a center frequency that falls at the top, or peak, of the bell curve. This process allows for smooth operation across a wide range of frequencies.

The Q control adjusts the width of the bell curve. By changing the Q, you can adjust the width of the frequency range around the chosen center frequency. A higher Q setting will affect a narrow bandwidth around the center frequency. A lower Q setting will affect a wider bandwidth around the center frequency. See examples on page 10.

The cut/boost or gain control determines the level of the selected frequencies. A cut, or gain reduction, will make the frequencies softer; a boost, or gain increase, will make the frequency selection louder.

▲ *Peak filters*