



[Cutaway view](#) of a dynamic loudspeaker.

Driver design

A stamped steel loudspeaker basket frame is clearly visible (here, blue-grey).

The most common type of driver uses a lightweight (质轻的) [diaphragm](#), or cone, connected to a rigid (刚性的) basket, or frame, via a flexible (柔软的) suspension that constrains (绑住) a coil of fine wire to move axially through a cylindrical (圆柱形的) magnetic gap. When an electrical signal is applied to the [voice coil](#), a [magnetic field](#) is created by the electric [current](#) in the voice coil, making it a variable electromagnet. The coil and the driver's magnetic system interact, generating a mechanical force that causes the coil (and thus, the attached cone) to move back and forth, thereby reproducing sound under the control of the applied electrical signal coming from the [amplifier](#). The following is a description of the individual (单个的) components of this type of loudspeaker.

The diaphragm is usually manufactured with a cone- or dome-shaped profile (外形, 轮廓). A variety of different materials may be used, but the most common are paper, plastic, and metal. The ideal material would be stiff (硬), to prevent uncontrolled cone motions; light, to minimize starting force requirements and energy storage issues; and well [damped](#) (阻尼), to reduce vibrations (振动) continuing after the

signal has stopped. In practice, all three of these criteria(标准) cannot be met

simultaneously (同时地) using existing materials; thus, driver design involves

trade-offs (交替使用). For example, paper is light and typically well damped, but

is not stiff; metal may be stiff and light, but it usually has poor damping; plastic

can be light, but typically, the stiffer it is made, the poorer the damping. As a

result, many cones are made of some sort of composite(复合) material. For example,

a cone might be made of cellulose (纤维) paper, into which some carbon (碳纤)

fiber, Kevlar (合纤), fiberglass, or hemp (大麻纤) or bamboo fibers have been added;

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