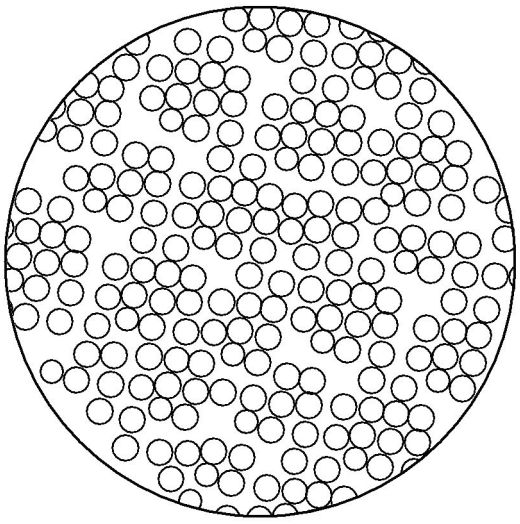
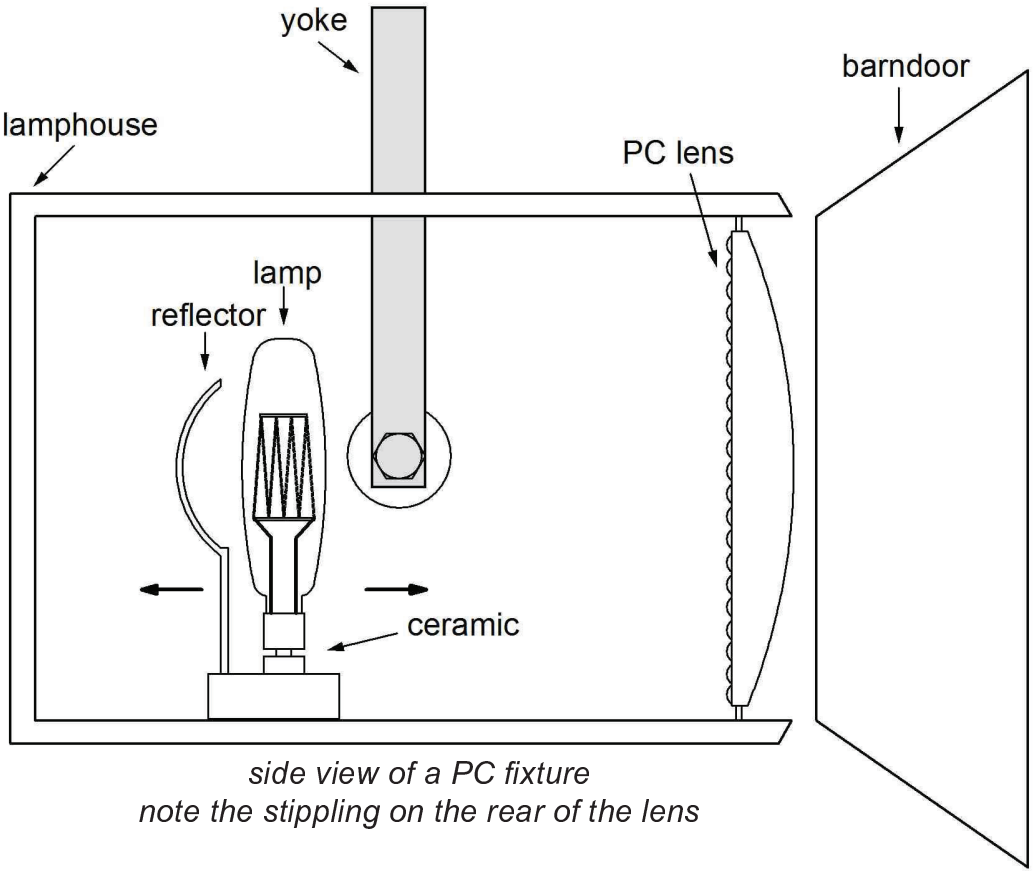
PC Data Sheet



A pebble convex lens.

A modern PC is a lamp with a 'pebble convex' lens. They are curved (convex) on the front and bubbled (pebbled) on the back.They have a harder beam edge than a fresnel but are still soft enough to make blending beams together possible. They are often used for creating highlights amongst fresnel washes. In some venues they are used as the main FOH fixture instead of Profiles.

Origins Traditionally PC actually means 'Plano Convex' - a convex lens with a clear surface on the rear. These have many uses in standard optics and were the original form of theatre PC. The need for a softer beam and improvements in lens making lead to the modern 'pebble convex'.

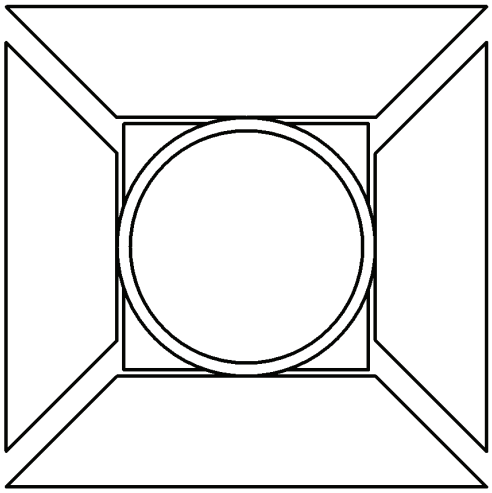


side view of a PC fixture
note the stippling on the rear of the lens

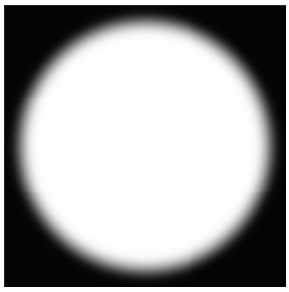
Use The beam angle (zoom) of a PC is controlled by moving the lamp and reflector in relation to the lens. As the lamp/reflector assembly moves closer to the lens the beam floods - becomes larger. As the lamp/reflector assembly moves away the lens the beam spots - becomes smaller. Technicians focusing a PC (or any other single lens fixture) should be very gentle as rough movements of the lamp/reflector assembly can cause a hot filament to shatter. The optical arrangement is very similar to that of a fresnel, however a PC will usually have a greater zoom, in the 5º - 60º range.

Accessories The most common accessory for PCs is a set of barndoors - four hinged metal flaps that can be used to give a circular beam selective straight edges. These straight edges will retain the same soft edge quality as the original circular beam. Barndoors are usually fitted by simply sliding into a set of runners on the front of the fixture.

Like most conventional fixtures PCs can be fitted with a standard colour frame or alternatively a colour changing device such as a scroller.



front view of barndoors



normal PC beam

PC beam with lower barndoor in

Application Some lighting designers prefer PC's over Fresnels for standard wash duties, and vice versa. Vis a vis some venues stock PC's rather than Fresnels and vice versa. So whilst you may develop a preference over time you will often have to work with what is available. When both are available than the main advantage of a PC over a fresnel is less spill. I.E no light 'scatter' over long distances. For this reason some perceive them as more punchy than fresnels due to the greater contrast between lit and unlit areas. The marginally softer beam may mean more PC's are required to cluster closer together to get a smooth wash, although this will depend on the makes, models and distances involved. Like everything in theatre you must experiment and form your own opinion.

Selecon Acclaim PC. 650w. Small PC's like this are very common in small venues (or anywhere budgets are tight) as their wide zoom range makes them equally useful for both creating washes and more isolated spots of light. They also make a decent sidelight with the addition of barn doors.
Image courtesy of Selecon.

Strand Harmony PC. 1000w. 1k PCs are occasionally found as the main FOH light in some med - large venues. They can also be found as back or top light, providing a more focused highlight amongst a wash of Frensels. Many PC's and Fresnels of this age (80s) and size use a worm drive to move their lenses.
Image courtesy of Strand Archive.

Reference McGrath, Ian. 1991. *An approach to stage lighting.* Corrimal East, N.S.W. : I. McGrath.