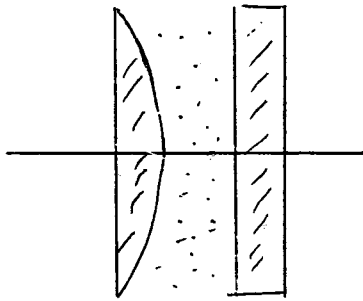


Fluid Lens



↑
Fluid (n_F)

- All the power comes from the single curved surface.
- The plane parallel plate contributes no power.
- The element thicknesses also do not matter.

- The fluid must be in contact with the curved lens surface.

Lens alone: $\phi = \frac{1}{f} = (C_2 - C_1)(n_2 - n_1)$

$$f = 100 \quad C_1 = 0 \quad n_2 = 1 \quad n_1 = 1.517$$

$$C_2 = -.0193/\text{mm} \quad R_2 = -51.7 \text{ mm}$$

With the fluid:

$$\phi = (n_F - 1.517) C_2 = (1.517 - n_F) .0193/\text{mm}$$

$$f = \frac{1}{\phi} = \frac{51.7}{(1.517 - n_F)}$$

Range: $n = 1.3 \quad \phi = .00420/\text{mm} \quad f = 238 \text{ mm}$

$n = 1.7 \quad \phi = -.00355/\text{mm} \quad f = -282 \text{ mm}$

$$-.00355/\text{mm} < \phi < .00420/\text{mm}$$

$$f < -282 \text{ mm} \quad \text{or} \quad f > 238 \text{ mm}$$

Note: when $n = 1.517$, the system has zero power ($f = \infty$)