DIPOLE

Far from the source, the wave looks spherical:

$$p(r,\theta) = \mathrm{j}2\underbrace{\frac{A}{r}e^{\mathrm{j}(\omega t - kr)}}_{\text{spherical wave}}\underbrace{\sin\left(\tfrac{1}{2}kd\sin\theta\right)}_{\text{directivity function}}$$

where:

$p = \mathscr{P} - \mathscr{P}_0$ acoustic pressure [Pa]

r = radial distance from the center of the source [m]

ω = frequency [rad/s]

k = wave number or propagation constant [rad./m]

ρ_0 = equilibrium (ambient) density [kg/m^3]

$c = \frac{dx}{dt}$ is the phase speed (speed of sound) [m/s]

u = particle velocity (due to vibration, not flow) [m/s]