$$\phi_0 = \frac{2\mu\mathrm{ch}\mu x_0}{\mu\mathrm{ch}\mu + \mathrm{sh}\mu - \alpha x_0 \mathrm{sh}\mu x_0}$$

$$d_0 = c^2 \frac{3\mu\mathrm{sh}3\mu + 24\mu\mathrm{sh}\mu - \alpha\mathrm{ch}3\mu x_0 - 12\alpha\mu x_0\mathrm{sh}\mu x_0}{16\mu(\mu\mathrm{ch}\mu + \mathrm{sh}\mu - \alpha x_0\mathrm{sh}\mu x_0)}$$