cold phase growth rate

$$\dot{E}_{cool} \propto \left(t_{mix}/t_{cool}\right)^{1/4} \quad \text{Mach} \sim \left(\frac{\chi^{1/2} L}{v_{rel}\, t_{cool}}\right)^{1/4} \left(\frac{v_{rel}}{c_s}\right) \propto \frac{L^{1/4}\, v_{rel}^{3/4}}{t_{cool}^{1/4}}$$

Question:

For a cold cloud moving in a wind, what actually happens with vrel?
Once the momentum mixes all the way to the core doesn't vrel start to drop?
Is this decrease in vrel the real reason for the decrease in v_turb?

In a cloud geometry the amount of mass and momentum contained within a shell decreases as you go in...

What would happen if I start a simulation with less initial cold gas?

Cooling v. Turbulence – Layer thickness

When $t_{mix} < t_{cool}$:

$h \propto (t_{mix}/t_{cool})^0$ Mach $\propto v_{rel}$

When $t_{mix} > t_{cool}$:

$h \propto (t_{mix}/t_{cool})^{1/2}$ Mach$^0 \propto (v_{rel} t_{cool})^{1/2}$