

**volume viscosity (or dilatational viscosity)**

A quantity  $\zeta$  which enters into equations at any point where the flow involves a change in volume, i.e. is dilatational. If the deformation is purely dilatational, the average of three normal stress components is:

$$\begin{aligned}\sigma &= (1/3)(\sigma_{xx} + \sigma_{yy} + \sigma_{zz}) \\ &= -p + \zeta(\partial v_x/\partial x + \partial v_y/\partial y + \partial v_z/\partial z)\end{aligned}$$

where  $p$  is the hydrostatic pressure at the point considered in the absence of motion.

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