Considering a Cartesian coordinate frame, Eqs. (5.1) and (5.2) can also be rewritten in the component form

$$\partial_t \varrho + \nabla_i(\varrho u_i) = 0, \tag{5.4a}$$
$$\varrho\,(\partial_t u_i + u_j \partial_j u_i) = F_i - \partial_i p + \partial_j \hat{T}_{ji}. \tag{5.4b}$$

To close the system of equations (5.4), one still needs to

(i) fix the equation of state

$$p = p[\varrho, \ldots],$$

(ii) choose an ansatz the symmetric stress-energy tensor

$$\hat{T} = (\hat{T}_{ij}[\varrho, \boldsymbol{u}, \ldots]),$$

(iii) specify an appropriate set of initial and boundary conditions.

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[2] 'deviatoric':= without hydrostatic stress (pressure); a 'full' stress-energy tensor $\hat{\sigma}$ may be defined by

$$\hat{\sigma}_{ij} := -p\,\delta_{ij} + \hat{T}_{ij}.$$