

# Parameters and Profiles for the zero-hot-particle-beta Case

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**geometry:** circular tokamak with aspect ration  $R/a = 2.763$ .

**density profile:** uniform and fixed in time.

**pressure profile:**

$$p = p_0 e^{-\bar{\Psi}/\Psi_0} \quad (1)$$

with  $\Psi_0 = 0.249$ .  $\bar{\Psi}$  is the poloidal flux normalized to zero at magnetic axis and unity at the plasma edge. The peak plasma beta is 8% where the beta is defined with the vacuum magnetic field at the geometric center.

**$q$  profile:**

$$q = q_0 + \bar{\Psi} \left[ q_1 - q_0 + (q'_1 - q_1 + q_0) \frac{(1 - \Psi_s)(\bar{\Psi} - 1)}{\bar{\Psi} - \Psi_s} \right] \quad (2)$$

where  $\Psi_s = (q'_1 - q_1 + q_0)/(q'_0 + q'_1 - 2q_1 + 2q_0)$ ,  $q_0 = 0.6$ ,  $q_1 = 2.5$ ,  $q'_0 = 0.78$  and  $q'_1 = 5.0$ . Note that  $q'_0$  and  $q'_1$  are the value of  $dq/d\bar{\Psi}$  at the axis and the edge respectively, and  $\Psi_s$  simulates the effect of an X-point.