$$
\begin{aligned}
&+\frac{\pi a_{vy} v_y}{2L}\cos\left(\frac{\pi y a_{vy}}{L}\right)\left\{\left(\left[u_x\sin\left(\frac{\pi x a_{ux}}{L}\right)+u_y\cos\left(\frac{\pi y a_{uy}}{L}\right)+u_z\cos\left(\frac{\pi z a_{uz}}{L}\right)+u_0\right]^2+3\left[v_x\cos\left(\frac{\pi x a_{vx}}{L}\right)+v_y\sin\left(\frac{\pi y a_{vy}}{L}\right)+v_z\sin\left(\frac{\pi z a_{vz}}{L}\right)+v_0\right]^2+\right.\\
&\quad\left.+\left[w_x\sin\left(\frac{\pi x a_{wx}}{L}\right)+w_y\sin\left(\frac{\pi y a_{wy}}{L}\right)+w_z\cos\left(\frac{\pi z a_{wz}}{L}\right)+w_0\right]^2\right)\left[\rho_x\sin\left(\frac{\pi x a_{\rho x}}{L}\right)+\rho_y\cos\left(\frac{\pi y a_{\rho y}}{L}\right)+\rho_z\sin\left(\frac{\pi z a_{\rho z}}{L}\right)+\rho_0\right]+\\
&\quad+\left[p_x\cos\left(\frac{\pi x a_{px}}{L}\right)+p_y\sin\left(\frac{\pi y a_{py}}{L}\right)+p_z\cos\left(\frac{\pi z a_{pz}}{L}\right)+p_0\right]\frac{2\gamma}{\gamma-1}\Bigg\}+\\
&+\frac{\pi a_{vz} v_z}{L}\cos\left(\frac{\pi z a_{vz}}{L}\right)\left[w_x\sin\left(\frac{\pi x a_{wx}}{L}\right)+w_y\sin\left(\frac{\pi y a_{wy}}{L}\right)+w_z\cos\left(\frac{\pi z a_{wz}}{L}\right)+w_0\right]\left[v_x\cos\left(\frac{\pi x a_{vx}}{L}\right)+v_y\sin\left(\frac{\pi y a_{vy}}{L}\right)+v_z\sin\left(\frac{\pi z a_{vz}}{L}\right)+v_0\right]\cdot\\
&\quad\cdot\left[\rho_x\sin\left(\frac{\pi x a_{\rho x}}{L}\right)+\rho_y\cos\left(\frac{\pi y a_{\rho y}}{L}\right)+\rho_z\sin\left(\frac{\pi z a_{\rho z}}{L}\right)+\rho_0\right]+\\
&+\frac{\pi a_{wx} w_x}{L}\cos\left(\frac{\pi x a_{wx}}{L}\right)\left[w_x\sin\left(\frac{\pi x a_{wx}}{L}\right)+w_y\sin\left(\frac{\pi y a_{wy}}{L}\right)+w_z\cos\left(\frac{\pi z a_{wz}}{L}\right)+w_0\right]\left[u_x\sin\left(\frac{\pi x a_{ux}}{L}\right)+u_y\cos\left(\frac{\pi y a_{uy}}{L}\right)+u_z\cos\left(\frac{\pi z a_{uz}}{L}\right)+u_0\right]\cdot\\
&\quad\cdot\left[\rho_x\sin\left(\frac{\pi x a_{\rho x}}{L}\right)+\rho_y\cos\left(\frac{\pi y a_{\rho y}}{L}\right)+\rho_z\sin\left(\frac{\pi z a_{\rho z}}{L}\right)+\rho_0\right]+\\
&+\frac{\pi a_{wy} w_y}{L}\cos\left(\frac{\pi y a_{wy}}{L}\right)\left[w_x\sin\left(\frac{\pi x a_{wx}}{L}\right)+w_y\sin\left(\frac{\pi y a_{wy}}{L}\right)+w_z\cos\left(\frac{\pi z a_{wz}}{L}\right)+w_0\right]\left[v_x\cos\left(\frac{\pi x a_{vx}}{L}\right)+v_y\sin\left(\frac{\pi y a_{vy}}{L}\right)+v_z\sin\left(\frac{\pi z a_{vz}}{L}\right)+v_0\right]\cdot\\
&\quad\cdot\left[\rho_x\sin\left(\frac{\pi x a_{\rho x}}{L}\right)+\rho_y\cos\left(\frac{\pi y a_{\rho y}}{L}\right)+\rho_z\sin\left(\frac{\pi z a_{\rho z}}{L}\right)+\rho_0\right]+\\
&-\frac{\pi a_{wz} w_z}{2L}\sin\left(\frac{\pi z a_{wz}}{L}\right)\left\{\left(\left[u_x\sin\left(\frac{\pi x a_{ux}}{L}\right)+u_y\cos\left(\frac{\pi y a_{uy}}{L}\right)+u_z\cos\left(\frac{\pi z a_{uz}}{L}\right)+u_0\right]^2+\left[v_x\cos\left(\frac{\pi x a_{vx}}{L}\right)+v_y\sin\left(\frac{\pi y a_{vy}}{L}\right)+v_z\sin\left(\frac{\pi z a_{vz}}{L}\right)+v_0\right]^2+\right.\\
&\quad\left.+3\left[w_x\sin\left(\frac{\pi x a_{wx}}{L}\right)+w_y\sin\left(\frac{\pi y a_{wy}}{L}\right)+w_z\cos\left(\frac{\pi z a_{wz}}{L}\right)+w_0\right]^2\right)\left[\rho_x\sin\left(\frac{\pi x a_{\rho x}}{L}\right)+\rho_y\cos\left(\frac{\pi y a_{\rho y}}{L}\right)+\rho_z\sin\left(\frac{\pi z a_{\rho z}}{L}\right)+\rho_0\right]+\\
&\quad+\left[p_x\cos\left(\frac{\pi x a_{px}}{L}\right)+p_y\sin\left(\frac{\pi y a_{py}}{L}\right)+p_z\cos\left(\frac{\pi z a_{pz}}{L}\right)+p_0\right]\frac{2\gamma}{\gamma-1}\Bigg\}
\end{aligned}
$$