$\operatorname{div}\,\mathbf{F} = y^2 + 0 + x^2 = x^2 + y^2$ so

$$\begin{aligned}\iint_S \mathbf{F}\cdot d\mathbf{S} &= \iiint_E (x^2+y^2)dV = \int_0^{2\pi}\int_0^1\int_{r^2} r^2\cdot r\,dz\,dr\,d\theta \\ &= \int_0^{2\pi}\int_0^1 r^3(1-r^2)\,dr\,d\theta = \int_0^{2\pi} d\theta \int_0^1 (r^3-r^5)\,dr \\ &= 2\pi\left[\tfrac{1}{4}r^4 - \tfrac{1}{6}r^6\right]_0^1 = \tfrac{1}{6}\pi\end{aligned}$$