$$K_{55}^2 = \begin{bmatrix} \frac{-6\,U}{t} & \frac{-\left(\sqrt{3}\left(4\,t^2+U^2\right)\right)}{2\,t^2} & 0 & 0 & 0 & 2\,\sqrt{3} & \frac{-\left(\sqrt{3}\,U\right)}{2\,t} & 0 \\ \frac{-\left(\sqrt{3}\left(4\,t^2+U^2\right)\right)}{2\,t^2} & \frac{-5\,U}{2\,t} & \frac{\sqrt{3}\,U}{2\,t} & \frac{3\,U}{t} & 0 & \frac{3\,U}{2\,t} & 4 & 2-\frac{U^2}{2\,t^2} \\ 0 & \frac{\sqrt{3}\,U}{2\,t} & \frac{-9\,U}{2\,t} & 0 & 0 & \frac{-\left(\sqrt{3}\,U\right)}{2\,t} & \frac{\sqrt{3}\,U^2}{2\,t^2} & 0 \\ 0 & \frac{3\,U}{t} & 0 & \frac{-3\,U}{t} & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & \frac{-6\,U}{t} & 0 & \frac{-3\,U}{t} & 0 \\ 2\,\sqrt{3} & \frac{3\,U}{2\,t} & \frac{-\left(\sqrt{3}\,U\right)}{2\,t} & 0 & 0 & \frac{-7\,U}{2\,t} & -4-\frac{U^2}{2\,t^2} & -2 \\ \frac{-\left(\sqrt{3}\,U\right)}{2\,t} & 4 & \frac{\sqrt{3}\,U^2}{2\,t^2} & 0 & \frac{-3\,U}{t} & -4-\frac{U^2}{2\,t^2} & \frac{-13\,U}{2\,t} & \frac{3\,U}{2\,t} \\ 0 & 2-\frac{U^2}{2\,t^2} & 0 & 0 & 0 & -2 & \frac{3\,U}{2\,t} & \frac{-4\,U}{t} \end{bmatrix}$$