$$K_{83}^{2} = \begin{bmatrix} \frac{-3\,U}{t} & -\left(\frac{\sqrt{2}\,U^{2}}{t^{2}}\right) & \frac{3\,\sqrt{2}\,U}{t} & -4 \\ -\left(\frac{\sqrt{2}\,U^{2}}{t^{2}}\right) & 0 & -4-\frac{U^{2}}{t^{2}} & \frac{2\,\sqrt{2}\,U}{t} \\ \frac{3\,\sqrt{2}\,U}{t} & -4-\frac{U^{2}}{t^{2}} & \frac{-2\,U}{t} & 0 \\ -4 & \frac{2\,\sqrt{2}\,U}{t} & 0 & \frac{-4\,U}{t} \end{bmatrix}$$