$$H_{28} = \left[\begin{array}{cccccccc} -2\,h-6\,\mu+U & -t & -\left(\sqrt{3}\,t\right) & 0 & 0 & 0 & 0 & t \\ -t & -2\,h-6\,\mu+U & 0 & -2\,t & -2\,t & 0 & 0 & 0 \\ -\left(\sqrt{3}\,t\right) & 0 & -2\,h-6\,\mu+2\,U & -\left(\sqrt{3}\,t\right) & 0 & 0 & t & 0 \\ 0 & -2\,t & -\left(\sqrt{3}\,t\right) & -2\,h-6\,\mu+2\,U & 0 & t & 0 & -2\,t \\ 0 & -2\,t & 0 & 0 & -2\,h-6\,\mu & 0 & 0 & 0 \\ 0 & 0 & 0 & t & 0 & -2\,h-6\,\mu+U & -\left(\sqrt{3}\,t\right) & 0 \\ 0 & 0 & t & 0 & 0 & -\left(\sqrt{3}\,t\right) & -2\,h-6\,\mu+2\,U & 0 \\ t & 0 & 0 & -2\,t & 0 & 0 & 0 & -2\,h-6\,\mu+U \end{array}\right]$$