$$
H_{18} = \begin{bmatrix}
-2\,h-6\,\mu+U & -\left(\frac{t}{\sqrt{3}}\right) & 0 & -\left(\sqrt{3}\,t\right) & 0 & \frac{-2\,t}{\sqrt{3}} & 0 & 0 & 0 & 0 & 0 & -\left(\sqrt{3}\,t\right) \\
-\left(\frac{t}{\sqrt{3}}\right) & -2\,h-6\,\mu+U & 0 & 0 & 2\,t & 0 & 0 & 0 & 2\,\sqrt{\frac{2}{3}}\,t & -2\,\sqrt{\frac{6}{6-\sqrt{6}}}\,t+\frac{2\,t}{\sqrt{6-\sqrt{6}}} & -2\,\sqrt{\frac{6}{6+\sqrt{6}}}\,t-\frac{2\,t}{\sqrt{6+\sqrt{6}}} & 0 \\
0 & 0 & -2\,h-6\,\mu+2\,U & -\left(\sqrt{2}\,t\right) & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2\,\sqrt{2}\,t \\
-\left(\sqrt{3}\,t\right) & 0 & -\left(\sqrt{2}\,t\right) & -2\,h-6\,\mu+2\,U & t & 0 & -\left(\sqrt{6}\,t\right) & \sqrt{3}\,t & 0 & 0 & 0 & 0 \\
0 & 2\,t & 0 & t & -2\,h-6\,\mu+2\,U & -t & 0 & 0 & 0 & 0 & 0 & 2\,t \\
\frac{-2\,t}{\sqrt{3}} & 0 & 0 & 0 & -t & -2\,h-6\,\mu+U & 0 & \sqrt{3}\,t & -2\,\sqrt{\frac{2}{3}}\,t & 0 & 0 & 0 \\
0 & 0 & 0 & -\left(\sqrt{6}\,t\right) & 0 & 0 & -2\,h-6\,\mu+2\,U & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 0 & \sqrt{3}\,t & 0 & \sqrt{3}\,t & 0 & -2\,h-6\,\mu+2\,U & 0 & 0 & 0 & 0 \\
0 & 2\,\sqrt{\frac{2}{3}}\,t & 0 & 0 & 0 & -2\,\sqrt{\frac{2}{3}}\,t & 0 & 0 & -2\,h-6\,\mu+U & 0 & 0 & 0 \\
0 & -2\,\sqrt{\frac{6}{6-\sqrt{6}}}\,t+\frac{2\,t}{\sqrt{6-\sqrt{6}}} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2\,h-6\,\mu & 0 & -\left(\sqrt{\frac{6}{6-\sqrt{6}}}\,t\right)-\frac{4\,t}{\sqrt{6-\sqrt{6}}} \\
0 & -2\,\sqrt{\frac{6}{6+\sqrt{6}}}\,t-\frac{2\,t}{\sqrt{6+\sqrt{6}}} & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & -2\,h-6\,\mu & -\left(\sqrt{\frac{6}{6+\sqrt{6}}}\,t\right)+\frac{4\,t}{\sqrt{6+\sqrt{6}}} \\
-\left(\sqrt{3}\,t\right) & 0 & -2\,\sqrt{2}\,t & 0 & 2\,t & 0 & 0 & 0 & 0 & -\left(\sqrt{\frac{6}{6-\sqrt{6}}}\,t\right)-\frac{4\,t}{\sqrt{6-\sqrt{6}}} & -\left(\sqrt{\frac{6}{6+\sqrt{6}}}\,t\right)+\frac{4\,t}{\sqrt{6+\sqrt{6}}} & -2\,h-6\,\mu+U
\end{bmatrix}
$$