PG No. 22 C_{3h} $\bar{6}$ [hexagonal]

* generator : 3^{+}_{001}, m_{001}
* conjugacy class

$$
\begin{aligned}
[1]: &\quad 1 \\
[3^{+}_{001}]: &\quad 3^{+}_{001},\ 3^{-}_{001} \\
[\mathrm{m}_{001}]: &\quad \mathrm{m}_{001} \\
[-6^{+}_{001}]: &\quad -6^{+}_{001},\ -6^{-}_{001}
\end{aligned}
$$

* symmetry operation

Table 1: Symmetry operations for 3d polar vector.

No.	tag	matrix (polar)	det
1	1	$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
2	3^{+}_{001}	$\begin{bmatrix} 0 & -1 & 0 \\ 1 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
3	3^{-}_{001}	$\begin{bmatrix} -1 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
4	m_{001}	$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	-1
5	-6^{-}_{001}	$\begin{bmatrix} 0 & -1 & 0 \\ 1 & -1 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	-1
6	-6^{+}_{001}	$\begin{bmatrix} -1 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	-1