

PG No. 10 $S_4 \bar{4}$ [tetragonal]

* generator : $2_{001}, -4_{001}^+$

* conjugacy class

[1] : 1

[2_{001}] : 2_{001}

[-4_{001}^+] : $-4_{001}^+, -4_{001}^-$

* 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	2_{001}	$\begin{bmatrix} -1 & 0 & 0 \\ 0 & -1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$	1
3	-4_{001}^+	$\begin{bmatrix} 0 & 1 & 0 \\ -1 & 0 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	-1
4	-4_{001}^-	$\begin{bmatrix} 0 & -1 & 0 \\ 1 & 0 & 0 \\ 0 & 0 & -1 \end{bmatrix}$	-1