

MSG No. 151.30 $P3_1121'$ [Type II, trigonal]

* symmetry operation

Table 1: Symmetry operations for 3d polar vector.

No.	tag	matrix (polar)	det	TR
1	{1 0}	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$	1	1
2	{3 ⁺ ₀₀₁ 00 ₃ ¹ }	$\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & -1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{3} \end{bmatrix}$	1	1
3	{3 ⁻ ₀₀₁ 00 ₃ ² }	$\begin{bmatrix} -1 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{2}{3} \end{bmatrix}$	1	1
4	{2 ₂₁₀ 0}	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$	1	1
5	{2 ₁₂₀ 00 ₃ ¹ }	$\begin{bmatrix} -1 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{3} \end{bmatrix}$	1	1
6	{2 ₁₋₁₀ 00 ₃ ² }	$\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{2}{3} \end{bmatrix}$	1	1
7	{1' 0}	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix}$	1	-1
8	{3 ⁺ ₀₀₁ ' 00 ₃ ¹ }	$\begin{bmatrix} 0 & -1 & 0 & 0 \\ 1 & -1 & 0 & 0 \\ 0 & 0 & 1 & \frac{1}{3} \end{bmatrix}$	1	-1
9	{3 ⁻ ₀₀₁ ' 00 ₃ ² }	$\begin{bmatrix} -1 & 1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & 1 & \frac{2}{3} \end{bmatrix}$	1	-1
10	{2 ₂₁₀ ' 0}	$\begin{bmatrix} 1 & 0 & 0 & 0 \\ 1 & -1 & 0 & 0 \\ 0 & 0 & -1 & 0 \end{bmatrix}$	1	-1
11	{2 ₁₂₀ ' 00 ₃ ¹ }	$\begin{bmatrix} -1 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & -1 & \frac{1}{3} \end{bmatrix}$	1	-1
12	{2 ₁₋₁₀ ' 00 ₃ ² }	$\begin{bmatrix} 0 & -1 & 0 & 0 \\ -1 & 0 & 0 & 0 \\ 0 & 0 & -1 & \frac{2}{3} \end{bmatrix}$	1	-1