Table 11.2.2.1. *Matrices for point-group symmetry operations and orientation of corresponding symmetry elements, referred to a cubic, tetragonal, orthorhombic, monoclinic, triclinic or rhombohedral coordinate system (cf. Table 2.1.2.1)*

Symbol of symmetry operation and orientation of symmetry element	Transformed coordinates $\tilde{x},\tilde{y},\tilde{z}$	Matrix $\boldsymbol{W}$	Symbol of symmetry operation and orientation of symmetry element	Transformed coordinates $\tilde{x},\tilde{y},\tilde{z}$	Matrix $\boldsymbol{W}$	Symbol of symmetry operation and orientation of symmetry element	Transformed coordinates $\tilde{x},\tilde{y},\tilde{z}$	Matrix $\boldsymbol{W}$	Symbol of symmetry operation and orientation of symmetry element	Transformed coordinates $\tilde{x},\tilde{y},\tilde{z}$	Matrix $\boldsymbol{W}$
1	x, y, z	$\begin{pmatrix}1&0&0\\0&1&0\\0&0&1\end{pmatrix}$	$2\quad 0,0,z$ [001]	$\bar{x},\bar{y},z$	$\begin{pmatrix}\bar{1}&0&0\\0&\bar{1}&0\\0&0&1\end{pmatrix}$	$2\quad 0,y,0$ [010]	$\bar{x},y,\bar{z}$	$\begin{pmatrix}\bar{1}&0&0\\0&1&0\\0&0&\bar{1}\end{pmatrix}$	$2\quad x,0,0$ [100]	$x,\bar{y},\bar{z}$	$\begin{pmatrix}1&0&0\\0&\bar{1}&0\\0&0&\bar{1}\end{pmatrix}$
$3^+\quad x,x,x$ [111]	z, x, y	$\begin{pmatrix}0&0&1\\1&0&0\\0&1&0\end{pmatrix}$	$3^+\quad x,\bar{x},\bar{x}$ $[1\bar{1}\bar{1}]$	$\bar{z},\bar{x},y$	$\begin{pmatrix}0&0&\bar{1}\\\bar{1}&0&0\\0&1&0\end{pmatrix}$	$3^+\quad \bar{x},x,\bar{x}$ $[\bar{1}1\bar{1}]$	$z,\bar{x},\bar{y}$	$\begin{pmatrix}0&0&1\\\bar{1}&0&0\\0&\bar{1}&0\end{pmatrix}$	$3^+\quad \bar{x},\bar{x},x$ $[\bar{1}\bar{1}1]$	$\bar{z},x,\bar{y}$	$\begin{pmatrix}0&0&\bar{1}\\1&0&0\\0&\bar{1}&0\end{pmatrix}$
$3^-\quad x,x,x$ [111]	y, z, x	$\begin{pmatrix}0&1&0\\0&0&1\\1&0&0\end{pmatrix}$	$3^-\quad x,\bar{x},\bar{x}$ $[1\bar{1}\bar{1}]$	$\bar{y},z,\bar{x}$	$\begin{pmatrix}0&\bar{1}&0\\0&0&1\\\bar{1}&0&0\end{pmatrix}$	$3^-\quad \bar{x},x,\bar{x}$ $[\bar{1}1\bar{1}]$	$\bar{y},\bar{z},x$	$\begin{pmatrix}0&\bar{1}&0\\0&0&\bar{1}\\1&0&0\end{pmatrix}$	$3^-\quad \bar{x},\bar{x},x$ $[\bar{1}\bar{1}1]$	$y,\bar{z},\bar{x}$	$\begin{pmatrix}0&1&0\\0&0&\bar{1}\\\bar{1}&0&0\end{pmatrix}$
			$2\quad x,x,0$ [110]	$y,x,\bar{z}$	$\begin{pmatrix}0&1&0\\1&0&0\\0&0&\bar{1}\end{pmatrix}$	$2\quad x,0,x$ [101]	$z,\bar{y},x$	$\begin{pmatrix}0&0&1\\0&\bar{1}&0\\1&0&0\end{pmatrix}$	$2\quad 0,y,y$ [011]	$\bar{x},z,y$	$\begin{pmatrix}\bar{1}&0&0\\0&0&1\\0&1&0\end{pmatrix}$
			$2\quad x,\bar{x},0$ $[1\bar{1}0]$	$\bar{y},\bar{x},\bar{z}$	$\begin{pmatrix}0&\bar{1}&0\\\bar{1}&0&0\\0&0&\bar{1}\end{pmatrix}$	$2\quad \bar{x},0,x$ $[\bar{1}01]$	$\bar{z},\bar{y},\bar{x}$	$\begin{pmatrix}0&0&\bar{1}\\0&\bar{1}&0\\\bar{1}&0&0\end{pmatrix}$	$2\quad 0,y,\bar{y}$ $[01\bar{1}]$	$\bar{x},\bar{z},\bar{y}$	$\begin{pmatrix}\bar{1}&0&0\\0&0&\bar{1}\\0&\bar{1}&0\end{pmatrix}$
			$4^+\quad 0,0,z$ [001]	$\bar{y},x,z$	$\begin{pmatrix}0&\bar{1}&0\\1&0&0\\0&0&1\end{pmatrix}$	$4^+\quad 0,y,0$ [010]	$z,y,\bar{x}$	$\begin{pmatrix}0&0&1\\0&1&0\\\bar{1}&0&0\end{pmatrix}$	$4^+\quad x,0,0$ [100]	$x,\bar{z},y$	$\begin{pmatrix}1&0&0\\0&0&\bar{1}\\0&1&0\end{pmatrix}$
			$4^-\quad 0,0,z$ [001]	$y,\bar{x},z$	$\begin{pmatrix}0&1&0\\\bar{1}&0&0\\0&0&1\end{pmatrix}$	$4^-\quad 0,y,0$ [010]	$\bar{z},y,x$	$\begin{pmatrix}0&0&\bar{1}\\0&1&0\\1&0&0\end{pmatrix}$	$4^-\quad x,0,0$ [100]	$x,z,\bar{y}$	$\begin{pmatrix}1&0&0\\0&0&1\\0&\bar{1}&0\end{pmatrix}$
$\bar{1}\quad 0,0,0$	$\bar{x},\bar{y},\bar{z}$	$\begin{pmatrix}\bar{1}&0&0\\0&\bar{1}&0\\0&0&\bar{1}\end{pmatrix}$	$m\quad x,y,0$ [001]	$x,y,\bar{z}$	$\begin{pmatrix}1&0&0\\0&1&0\\0&0&\bar{1}\end{pmatrix}$	$m\quad x,0,z$ [010]	$x,\bar{y},z$	$\begin{pmatrix}1&0&0\\0&\bar{1}&0\\0&0&1\end{pmatrix}$	$m\quad 0,y,z$ [100]	$\bar{x},y,z$	$\begin{pmatrix}\bar{1}&0&0\\0&1&0\\0&0&1\end{pmatrix}$
$\bar{3}^+\quad x,x,x$ [111]	$\bar{z},\bar{x},\bar{y}$	$\begin{pmatrix}0&0&\bar{1}\\\bar{1}&0&0\\0&\bar{1}&0\end{pmatrix}$	$\bar{3}^+\quad x,\bar{x},\bar{x}$ $[1\bar{1}\bar{1}]$	$z,x,\bar{y}$	$\begin{pmatrix}0&0&1\\1&0&0\\0&\bar{1}&0\end{pmatrix}$	$\bar{3}^+\quad \bar{x},x,\bar{x}$ $[\bar{1}1\bar{1}]$	$\bar{z},x,y$	$\begin{pmatrix}0&0&\bar{1}\\1&0&0\\0&1&0\end{pmatrix}$	$\bar{3}^+\quad \bar{x},\bar{x},x$ $[\bar{1}\bar{1}1]$	$z,\bar{x},y$	$\begin{pmatrix}0&0&1\\\bar{1}&0&0\\0&1&0\end{pmatrix}$
$\bar{3}^-\quad x,x,x$ [111]	$\bar{y},\bar{z},\bar{x}$	$\begin{pmatrix}0&\bar{1}&0\\0&0&\bar{1}\\\bar{1}&0&0\end{pmatrix}$	$\bar{3}^-\quad x,\bar{x},\bar{x}$ $[1\bar{1}\bar{1}]$	$y,\bar{z},x$	$\begin{pmatrix}0&1&0\\0&0&\bar{1}\\1&0&0\end{pmatrix}$	$\bar{3}^-\quad \bar{x},x,\bar{x}$ $[\bar{1}1\bar{1}]$	$y,z,\bar{x}$	$\begin{pmatrix}0&1&0\\0&0&1\\\bar{1}&0&0\end{pmatrix}$	$\bar{3}^-\quad \bar{x},\bar{x},x$ $[\bar{1}\bar{1}1]$	$\bar{y},z,x$	$\begin{pmatrix}0&\bar{1}&0\\0&0&1\\1&0&0\end{pmatrix}$
			$m\quad x,\bar{x},z$ [110]	$\bar{y},\bar{x},z$	$\begin{pmatrix}0&\bar{1}&0\\\bar{1}&0&0\\0&0&1\end{pmatrix}$	$m\quad \bar{x},y,x$ [101]	$\bar{z},y,\bar{x}$	$\begin{pmatrix}0&0&\bar{1}\\0&1&0\\\bar{1}&0&0\end{pmatrix}$	$m\quad x,y,\bar{y}$ [011]	$x,\bar{z},\bar{y}$	$\begin{pmatrix}1&0&0\\0&0&\bar{1}\\0&\bar{1}&0\end{pmatrix}$
			$m\quad x,x,z$ $[1\bar{1}0]$	y,x,z	$\begin{pmatrix}0&1&0\\1&0&0\\0&0&1\end{pmatrix}$	$m\quad x,y,x$ $[\bar{1}01]$	z,y,x	$\begin{pmatrix}0&0&1\\0&1&0\\1&0&0\end{pmatrix}$	$m\quad x,y,y$ $[01\bar{1}]$	x,z,y	$\begin{pmatrix}1&0&0\\0&0&1\\0&1&0\end{pmatrix}$
			$\bar{4}^+\quad 0,0,z$ [001]	$y,\bar{x},\bar{z}$	$\begin{pmatrix}0&1&0\\\bar{1}&0&0\\0&0&\bar{1}\end{pmatrix}$	$\bar{4}^+\quad 0,y,0$ [010]	$\bar{z},\bar{y},x$	$\begin{pmatrix}0&0&\bar{1}\\0&\bar{1}&0\\1&0&0\end{pmatrix}$	$\bar{4}^+\quad x,0,0$ [100]	$\bar{x},z,\bar{y}$	$\begin{pmatrix}\bar{1}&0&0\\0&0&1\\0&\bar{1}&0\end{pmatrix}$
			$\bar{4}^-\quad 0,0,z$ [001]	$\bar{y},x,\bar{z}$	$\begin{pmatrix}0&\bar{1}&0\\1&0&0\\0&0&\bar{1}\end{pmatrix}$	$\bar{4}^-\quad 0,y,0$ [010]	$z,\bar{y},\bar{x}$	$\begin{pmatrix}0&0&1\\0&\bar{1}&0\\\bar{1}&0&0\end{pmatrix}$	$\bar{4}^-\quad x,0,0$ [100]	$\bar{x},\bar{z},y$	$\begin{pmatrix}\bar{1}&0&0\\0&0&\bar{1}\\0&1&0\end{pmatrix}$

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references