Laue class $C_{6h} - 6/m$ 6. SCANNING TABLES   Hexagonal

No. 172 $P6_4$ C_6^5

$$\mathcal{G} = P6_4$$

Orientation orbit ($hkil$)	Conventional basis of the scanning group a' b' d	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(0001)	$\mathbf{a}$ $\mathbf{b}$ $\mathbf{c}$	$P6_4$	$[s\mathbf{d}, (s+\frac{1}{3})\mathbf{d}, (s+\frac{2}{3})\mathbf{d}]$	$p112$	L03

No. 173 $P6_3$ C_6^6

$$\mathcal{G} = P6_3$$

Orientation orbit ($hkil$)	Conventional basis of the scanning group a' b' d	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(0001)	$\mathbf{a}$ $\mathbf{b}$ $\mathbf{c}$	$P6_3$	$[s\mathbf{d}, (s+\frac{1}{2})\mathbf{d}]$	$p3$	L65

Geometric class $C_{3h} - \overline{6}$

No. 174 $P\overline{6}$ C_{3h}^1

$$\mathcal{G} = P\overline{6}$$

Orientation orbit ($hkil$)	Conventional basis of the scanning group a' b' d	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(0001)	$\mathbf{a}$ $\mathbf{b}$ $\mathbf{c}$	$P\overline{6}$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$p\overline{6}$	L74
			$[s\mathbf{d}, -s\mathbf{d}]$	$p3$	L65

Geometric class $C_{6h} - 6/m$

No. 175 $P6/m$ C_{6h}^1

$$\mathcal{G} = P6/m$$

Orientation orbit ($hkil$)	Conventional basis of the scanning group a' b' d	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(0001)	$\mathbf{a}$ $\mathbf{b}$ $\mathbf{c}$	$P6/m$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$p6/m$	L75
			$[s\mathbf{d}, -s\mathbf{d}]$	$p6$	L73

No. 176 $P6_3/m$ C_{6h}^2

$$\mathcal{G} = P6_3/m$$

Orientation orbit ($hkil$)	Conventional basis of the scanning group $\mathbf{a}'$ $\mathbf{b}'$ $\mathbf{d}$			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(0001)	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$	$P6_3/m$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p\bar{3}$	L66
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p\bar{6}$	L74
					$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p3$	L65

Auxiliary tables for Laue class $C_{6h} - 6/m$

Centring type P

Orientation orbit ($hkil$)	Conventional basis of the scanning group $\mathbf{a}'$ $\mathbf{b}'$ $\mathbf{d}$			Auxiliary basis of the scanning group $\widehat{\mathbf{a}}$ $\widehat{\mathbf{b}}$ $\widehat{\mathbf{c}}$		
$(mn\overline{m+n}0)$	$\mathbf{c}$	$n\mathbf{a} - m\mathbf{b}$	$p\mathbf{a} + q\mathbf{b}$	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$
$(\overline{m+n}mn0)$	$\mathbf{c}$	$m\mathbf{a} + (m+n)\mathbf{b}$	$-q\mathbf{a} + (p-q)\mathbf{b}$	$\mathbf{b}$	$-(\mathbf{a}+\mathbf{b})$	$\mathbf{c}$
$(n\overline{m}+nm0)$	$\mathbf{c}$	$-(m+n)\mathbf{a} - n\mathbf{b}$	$(q-p)\mathbf{a} - p\mathbf{b}$	$-(\mathbf{a}+\mathbf{b})$	$\mathbf{a}$	$\mathbf{c}$

Arithmetic classes $6P$, $\bar{6}P$ and $6/mP$

Serial No.	168	169	170	171	172	173	174	175	176
Group type	C_6^1	C_6^2	C_6^3	C_6^4	C_6^5	C_6^6	C_{3h}^1	C_{6h}^1	C_{6h}^2
Group	$P6$	$P6_1$	$P6_5$	$P6_2$	$P6_4$	$P6_3$	$P\bar{6}$	$P6/m$	$P6_3/m$
$(mn\overline{m+n}0)$ $(\overline{m+n}mn0)$ $(n\overline{m}+nm0)$	$P112$	$P112_1$	$P112_1$	$P112$	$P112$	$P112_1$	$P11m$	$P112/m$	$P112_1/m$

Laue class $D_{6h} - 6/mmm$

Geometric class $D_6 - 622$

No. 177 $P622$ D_6^1

$$\mathcal{G} = P622$$

Orientation orbit ($hkil$)	Conventional basis of the scanning group $\mathbf{a}'$ $\mathbf{b}'$ $\mathbf{d}$			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(0001)	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$	$P622$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$p622$	L76
					$[s\mathbf{d}, -s\mathbf{d}]$	$p6$	L73
$(01\bar{1}0)$	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{a}+2\mathbf{b}$	$A222$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p222$	L19
$(\bar{1}010)$	$\mathbf{c}$	$\mathbf{b}$	$-(2\mathbf{a}+\mathbf{b})$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p22_12$	L20
$(1\bar{1}00)$	$\mathbf{c}$	$-(\mathbf{a}+\mathbf{b})$	$(\mathbf{a}-\mathbf{b})$		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$	L03
$(\bar{1}2\bar{1}0)$	$\mathbf{c}$	$2\mathbf{a}+\mathbf{b}$	$\mathbf{b}$	$A222$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p222$	L19
$(\bar{1}\bar{1}20)$	$\mathbf{c}$	$(\mathbf{b}-\mathbf{a})$	$-(\mathbf{a}+\mathbf{b})$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p22_12$	L20
$(2\bar{1}\bar{1}0)$	$\mathbf{c}$	$-(\mathbf{a}+2\mathbf{b})$	$\mathbf{a}$		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$	L03