

Orthorhombic

6. SCANNING TABLES

 Laue class $D_{2h} - mmm$

 No. 70 $Fddd$

$$\mathcal{G} = F \frac{2}{d} \frac{2}{d} \frac{2}{d} \quad \text{origin 1}$$

 D_{2h}^{24}

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group a' b' d	Scanning group \mathcal{H}	Linear orbit sd	Sectional layer group $\mathcal{L}(\mathbf{sd})$	
(001)	a b c	$Fddd$ ($\tau/8$)	$[0\mathbf{d}, \frac{1}{2}\mathbf{d};$ $\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$c222$	L22
(100)	b c a		$[\frac{1}{8}\mathbf{d}, \frac{5}{8}\mathbf{d};$ $\frac{3}{8}\mathbf{d}, \frac{7}{8}\mathbf{d}]$	$c222$ [[$\mathbf{a}' + \mathbf{b}'$]/4] $\widehat{p}112/b$ [[$\mathbf{a}' + \mathbf{b}'$]/8] $\widehat{p}112/a$ [[$3\mathbf{a}' + \mathbf{b}'$]/8 or ($\mathbf{a}' + 3\mathbf{b}'$)/8]	L22 L07 L07
(010)	c a b		$[\pm\mathbf{sd}, (\pm s + \frac{1}{4})\mathbf{d};$ $(\pm s + \frac{1}{2})\mathbf{d}, (\pm s + \frac{3}{4})\mathbf{d}]$	$\widehat{p}112$	L03

$$\tau = \mathbf{a}' + \mathbf{b}' + \mathbf{d}.$$

 No. 70 $Fddd$

$$\mathcal{G} = F \frac{2}{d} \frac{2}{d} \frac{2}{d} \quad \text{origin 2}$$

 D_{2h}^{24}

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group a' b' d	Scanning group \mathcal{H}	Linear orbit sd	Sectional layer group $\mathcal{L}(\mathbf{sd})$	
(001)	a b c	$Fddd$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d};$ $\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$\widehat{p}112/b$	L07
(100)	b c a		$[\frac{1}{8}\mathbf{d}, \frac{5}{8}\mathbf{d};$ $\frac{3}{8}\mathbf{d}, \frac{7}{8}\mathbf{d}]$	$\widehat{p}112/a$ ($\mathbf{a}'/4$ or $\mathbf{b}'/4$) $c222$ [[$\mathbf{a}' + \mathbf{b}'$]/8] $c222$ [[$3\mathbf{a}' + \mathbf{b}'$]/8]	L07 L22 L22
(010)	c a b		$[\pm\mathbf{sd}, (\pm s + \frac{1}{4})\mathbf{d};$ $(\pm s + \frac{1}{2})\mathbf{d}, (\pm s + \frac{3}{4})\mathbf{d}]$	$\widehat{p}112$ [[$\mathbf{a}' + \mathbf{b}'$]/8]	L03

 No. 71 $Immm$

$$\mathcal{G} = I \frac{2}{m} \frac{2}{m} \frac{2}{m}$$

 D_{2h}^{25}

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group a' b' d	Scanning group \mathcal{H}	Linear orbit sd	Sectional layer group $\mathcal{L}(\mathbf{sd})$	
(001)	a b c	$Immm$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$pmmm$	L37
(100)	b c a		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$pmmn$ [($\mathbf{a}' + \mathbf{b}'$)/4]	L46
(010)	c a b		$[\pm\mathbf{sd}, (\pm s + \frac{1}{2})\mathbf{d}]$	$pmm2$	L23

Auxiliary tables for Laue class $D_{2h} - mmm$ Centring types P and I

Orientation orbit (hkl)	Conventional basis of the scanning group			Auxiliary basis of the scanning group		
	\mathbf{a}'	\mathbf{b}'	\mathbf{d}	$\hat{\mathbf{a}}$	$\hat{\mathbf{b}}$	$\hat{\mathbf{c}}$
($mn0$)	\mathbf{c}	$n\mathbf{a} - m\mathbf{b}$	$p\mathbf{a} + q\mathbf{b}$	\mathbf{a}	\mathbf{b}	\mathbf{c}
($\bar{m}n0$)	\mathbf{c}	$n\mathbf{a} + m\mathbf{b}$	$-p\mathbf{a} + q\mathbf{b}$			
($0mn$)	\mathbf{a}	$n\mathbf{b} - m\mathbf{c}$	$p\mathbf{b} + q\mathbf{c}$	\mathbf{b}	\mathbf{c}	\mathbf{a}
($0\bar{m}n$)	\mathbf{a}	$n\mathbf{b} + m\mathbf{c}$	$-p\mathbf{b} + q\mathbf{c}$			
($n0m$)	\mathbf{b}	$nc - ma$	$pc + qa$	\mathbf{c}	\mathbf{a}	\mathbf{b}
($n0\bar{m}$)	\mathbf{b}	$nc + ma$	$-pc + qa$			

Arithmetic class $222P$

Serial No.	16	17	18	19
Group type	D_2^1	D_2^2	D_2^3	D_2^4
Group	$P222$	$P222_1$	$P2_12_12$	$P2_12_12_1$
($mn0$)	$P112$	$P112_1$	$P112$	$P112_1$
($\bar{m}n0$)				($\mathbf{a}/4$)
($0mn$)		$P112$	$P112_1$	$P112_1$
($0\bar{m}n$)			($\mathbf{b}/4$)	($\mathbf{b}/4$)
($n0m$)		$P112$	$P112_1$	$P112_1$
($n0\bar{m}$)		($\mathbf{c}/4$)	($\mathbf{a}/4$)	($\mathbf{c}/4$)

Arithmetic class $mm2P$

Serial No.	25	26	27	28	29	30	31	32	33	34	
Group type	C_{2v}^1	C_{2v}^2	C_{2v}^3	C_{2v}^4	C_{2v}^5	C_{2v}^6	C_{2v}^7	C_{2v}^8	C_{2v}^9	C_{2v}^{10}	
Group	$Pmm2$	$Pmc2_1$	$Pcc2$	$Pma2$	$Pca2_1$	$Pnc2$	$Pmn2_1$	$Pba2$	$Pna2_1$	$Pnn2$	
($mn0$)	$P11m$	$P112_1$	$P112$	$P112$	$P112_1$	$P112$	$P112_1$	$P112$	$P112_1$	$P112$	
($\bar{m}n0$)								($\mathbf{a}/4$)			
($0mn$)		$P11m$	$P11m$	$P11b$	$P11m$	$P11b$	$P11n$	$P11m$	$P11a$	$P11n$	$P11n$
($0\bar{m}n$)				($\mathbf{a}/4$)	($\mathbf{a}/4$)				($\mathbf{a}/4$)	($\mathbf{a}/4$)	($\mathbf{a}/4$)
($n0m$)		$P11a$	$P11a$	$P11b$	$P11b$	$P11a$	$P11n$	$P11b$	$P11b$	$P11n$	
($n0\bar{m}$)						($\mathbf{b}/4$)		($\mathbf{b}/4$)	($\mathbf{b}/4$)	($\mathbf{b}/4$)	

Arithmetic classes $222I$, $mm2I$ and $mmmI$

Serial No.	23	24	44	45	46	71	72	73	74		
Group type	D_2^8	D_{2v}^9	C_{2v}^{20}	C_{2v}^{21}	C_{2v}^{22}	D_{2h}^{25}	D_{2h}^{26}	D_{2h}^{27}	D_{2h}^{28}		
Group	$I222$	$I2_12_12_1$	$Imm2$	$Iba2$	$Ima2$	$Immm$	$Ibam$	$Ibca$	$Imma$		
($mn0$)	$I112$	$I112$	$I112$	$I112$	$I112$	$I112/m$	$I112/m$	$I112/b$	$I112/b$		
($\bar{m}n0$)		($\mathbf{b}/4$)									
($0mn$)		$I112$	$I11m$	$I11b$	$I11m$				$I112/b$		$I112/m$
($0\bar{m}n$)		($\mathbf{c}/4$)					($\mathbf{a}/4$)				
($n0m$)		$I112$	$I11a$	$I11b$		$I112/a$		$I112/m$			
($n0\bar{m}$)		($\mathbf{a}/4$)						($\mathbf{a} + \mathbf{b} + \mathbf{c}/4$)			