

Orthorhombic

6. SCANNING TABLES

 Laue class $D_{2h} - mmm$

 No. 43 $Fdd2$

$$\mathcal{G} = Fdd2$$

 C_{2v}^{19}

Orientation orbit (hkl)	Conventional basis of the scanning group \mathbf{a}' \mathbf{b}' \mathbf{d}	Scanning group \mathcal{H}	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	\mathbf{a} \mathbf{b} \mathbf{c}	$Fdd2$	$[s\mathbf{d}, (s + \frac{1}{4})\mathbf{d}, (s + \frac{1}{2})\mathbf{d}, (s + \frac{3}{4})\mathbf{d}]$	$\widehat{p}112$	L03
(100)	\mathbf{b} \mathbf{c} \mathbf{a}	$Fd2d$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}, \frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\frac{1}{8}\mathbf{d}, \frac{5}{8}\mathbf{d}, \frac{3}{8}\mathbf{d}, \frac{7}{8}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{4})\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}, (\pm s + \frac{3}{4})\mathbf{d}]$	$c121$ $c121 (\mathbf{a}'/4)$ $\widehat{p}11b$ $\widehat{p}11a$ $p1$	L10 L10 L09 L09 L01
(010)	\mathbf{c} \mathbf{a} \mathbf{b}	$F2dd$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}, \frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\frac{1}{8}\mathbf{d}, \frac{5}{8}\mathbf{d}, \frac{3}{8}\mathbf{d}, \frac{7}{8}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{4})\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}, (\pm s + \frac{3}{4})\mathbf{d}]$	$c211$ $c211 (\mathbf{b}'/4)$ $\widehat{p}11b$ $\widehat{p}11a$ $p1$	L10 L10 L09 L09 L01

 No. 44 $Imm2$

$$\mathcal{G} = Imm2$$

 C_{2v}^{20}

Orientation orbit (hkl)	Conventional basis of the scanning group \mathbf{a}' \mathbf{b}' \mathbf{d}	Scanning group \mathcal{H}	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	\mathbf{a} \mathbf{b} \mathbf{c}	$Imm2$	$[s\mathbf{d}, (s + \frac{1}{2})\mathbf{d}]$	$pmm2$	L23
(100)	\mathbf{b} \mathbf{c} \mathbf{a}	$Im2m$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}, \frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$pm2m$ $pm2_1n$ $pm11$	L27 L32 L11
(010)	\mathbf{c} \mathbf{a} \mathbf{b}	$I2mm$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}, \frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p2mm$ $p2_1mn$ $p1m1$	L27 L32 L11

 No. 45 $Iba2$

$$\mathcal{G} = Iba2$$

 C_{2v}^{21}

Orientation orbit (hkl)	Conventional basis of the scanning group \mathbf{a}' \mathbf{b}' \mathbf{d}	Scanning group \mathcal{H}	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	\mathbf{a} \mathbf{b} \mathbf{c}	$Iba2$	$[s\mathbf{d}, (s + \frac{1}{2})\mathbf{d}]$	$pba2$	L25
(100)	\mathbf{b} \mathbf{c} \mathbf{a}	$Ic2a$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}, \frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$pb2b$ $pb2_1a (\mathbf{a}'/4)$ $pb11$	L30 L33 L12
(010)	\mathbf{c} \mathbf{a} \mathbf{b}	$I2cb$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}, \frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p2aa$ $p2_1ab (\mathbf{b}'/4)$ $p1a1$	L30 L33 L12

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	$Pmm2$	$Pmc2_1$	$Pcc2$	$Pma2$	$Pca2_1$	$Pnc2$	$Pmn2_1$	$Pba2$	$Pna2_1$	$Pnn2$	
($mn0$)	$P112$	$P112_1$	$P112$	$P112$	$P112_1$	$P112$	$P112_1$	$P112$	$P112_1$	$P112$	
($\bar{m}n0$)								($\mathbf{a}/4$)			
($0mn$)		$P11m$	$P11m$	$P11b$	$P11m$	$P11b$	$P11n$	$P11m$	$P11a$	$P11n$	$P11n$
($0\bar{m}n$)				($\mathbf{a}/4$)	($\mathbf{a}/4$)				($\mathbf{a}/4$)	($\mathbf{a}/4$)	($\mathbf{a}/4$)
($n0m$)		$P11a$	$P11a$	$P11b$	$P11b$	$P11a$	$P11n$	$P11b$	$P11b$	$P11n$	
($n0\bar{m}$)					($\mathbf{b}/4$)			($\mathbf{b}/4$)	($\mathbf{b}/4$)	($\mathbf{b}/4$)	

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	$I222$	$I2_12_12_1$	$Imm2$	$Iba2$	$Ima2$	$Immm$	$Ibam$	$Ibca$	$Imma$		
($mn0$)	$I112$	$I112$	$I112$	$I112$	$I112$	$I112/m$	$I112/m$	$I112/b$	$I112/b$		
($\bar{m}n0$)		($\mathbf{b}/4$)									
($0mn$)		$I112$	$I11m$	$I11b$	$I11m$				$I112/b$		$I112/m$
($0\bar{m}n$)		($\mathbf{c}/4$)					($\mathbf{a}/4$)				
($n0m$)	$I112$		$I11a$	$I11b$		$I112/a$		$I112/m$			
($n0\bar{m}$)	($\mathbf{a}/4$)							($\mathbf{a} + \mathbf{b} + \mathbf{c}/4$)			