

Laue class  $D_{2h} - mmm$ 

6. SCANNING TABLES

Orthorhombic

 No. 19  $P2_12_12_1$ 

$$\mathcal{G} = P2_12_12_1$$

 $D_2^4$ 

Orientation orbit ( <i>hkl</i> )	Conventional basis of the scanning group			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
	$\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$				
(001)	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$	$P2_12_12_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p2_111$ ( $\mathbf{b}'/4$ )	L09
(100)	$\mathbf{b}$	$\mathbf{c}$	$\mathbf{a}$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p12_11$	L09
(010)	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{b}$		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p1$	L01

 No. 20  $C222_1$ 

$$\mathcal{G} = C222_1$$

 $D_2^5$ 

Orientation orbit ( <i>hkl</i> )	Conventional basis of the scanning group			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
	$\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$				
(001)	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$	$C222_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$c211$	L10
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$c121$	L10
					$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$\widehat{p}1$	L01
(100)	$\mathbf{b}$	$\mathbf{c}$	$\mathbf{a}$	$B22_12$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p22_12$	L20
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2_12_12$	L21
					$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$	L03
(010)	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{b}$	$A2_122$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p2_122$ ( $\mathbf{a}'/4$ )	L20
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2_12_12$ ( $\mathbf{a}'/4$ )	L21
					$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$ ( $\mathbf{a}'/4$ )	L03

 No. 21  $C222$ 

$$\mathcal{G} = C222$$

 $D_2^6$ 

Orientation orbit ( <i>hkl</i> )	Conventional basis of the scanning group			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
	$\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$				
(001)	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$	$C222$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$c222$	L22
					$[s\mathbf{d}, -s\mathbf{d}]$	$\widehat{p}112$	L03
(100)	$\mathbf{b}$	$\mathbf{c}$	$\mathbf{a}$	$B222$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p222$	L19
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2_122$	L20
					$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$	L03
(010)	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{b}$	$A222$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p222$	L19
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p22_12$	L20
					$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$	L03

 No. 22  $F222$ 

$$\mathcal{G} = F222$$

 $D_2^7$ 

Orientation orbit ( <i>hkl</i> )	Conventional basis of the scanning group			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
	$\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$				
(001)	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$	$F222$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$c222$	L22
(100)	$\mathbf{b}$	$\mathbf{c}$	$\mathbf{a}$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$c222$ [ $(\mathbf{a}' + \mathbf{b}')/4$ ]	L22
(010)	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{b}$		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$\widehat{p}112$	L03

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		
	$\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	$\hat{\mathbf{a}}$	$\hat{\mathbf{b}}$	$\hat{\mathbf{c}}$
( $mn0$ )	$\mathbf{c}$	$n\mathbf{a} - m\mathbf{b}$	$p\mathbf{a} + q\mathbf{b}$	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$
( $\bar{m}n0$ )	$\mathbf{c}$	$n\mathbf{a} + m\mathbf{b}$	$-p\mathbf{a} + q\mathbf{b}$			
( $0mn$ )	$\mathbf{a}$	$n\mathbf{b} - m\mathbf{c}$	$p\mathbf{b} + q\mathbf{c}$	$\mathbf{b}$	$\mathbf{c}$	$\mathbf{a}$
( $0\bar{m}n$ )	$\mathbf{a}$	$n\mathbf{b} + m\mathbf{c}$	$-p\mathbf{b} + q\mathbf{c}$			
( $n0m$ )	$\mathbf{b}$	$n\mathbf{c} - m\mathbf{a}$	$p\mathbf{c} + q\mathbf{a}$	$\mathbf{c}$	$\mathbf{a}$	$\mathbf{b}$
( $n0\bar{m}$ )	$\mathbf{b}$	$n\mathbf{c} + m\mathbf{a}$	$-p\mathbf{c} + q\mathbf{a}$			

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	$Pmm2$	$Pmc2_1$	$Pcc2$	$Pma2$	$Pca2_1$	$Pnc2$	$Pmn2_1$	$Pba2$	$Pna2_1$	$Pnm2$
( $mn0$ )	$P112$	$P112_1$	$P112$	$P112$	$P112_1$	$P112$	$P112_1$	$P112$	$P112_1$	$P112$
( $\bar{m}n0$ )							( $\mathbf{a}/4$ )			
( $0mn$ )	$P11m$	$P11m$	$P11b$	$P11m$	$P11b$	$P11n$	$P11m$	$P11a$	$P11n$	$P11n$
( $0\bar{m}n$ )				( $\mathbf{a}/4$ )	( $\mathbf{a}/4$ )			( $\mathbf{a}/4$ )	( $\mathbf{a}/4$ )	( $\mathbf{a}/4$ )
( $n0m$ )		$P11a$	$P11a$	$P11b$	$P11b$	$P11a$	$P11n$	$P11b$	$P11b$	$P11n$
( $n0\bar{m}$ )						( $\mathbf{b}/4$ )		( $\mathbf{b}/4$ )	( $\mathbf{b}/4$ )	( $\mathbf{b}/4$ )

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