

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)	a	b	c	$P2_12_12_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p2_111$ ($\mathbf{b}'/4$)	L09
(100)	b	c	a		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p12_11$	L09
(010)	c	a	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)	a	b	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)	b	c	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)	c	a	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)	a	b	c	$C222$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$c222$	L22
					$[s\mathbf{d}, -s\mathbf{d}]$	$\widehat{p}112$	L03
(100)	b	c	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)	c	a	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)	a	b	c	$F222$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$c222$	L22
(100)	b	c	a		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$c222$ [$(\mathbf{a}' + \mathbf{b}')/4$]	L22
(010)	c	a	b		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$\widehat{p}112$	L03

Centring type F

Orientation orbit (hkl)	Conventional basis of the scanning group			Auxiliary basis of the scanning group		
	\mathbf{a}'	\mathbf{b}'	\mathbf{d}	$\hat{\mathbf{a}}$	$\hat{\mathbf{b}}$	$\hat{\mathbf{c}}$
($hk0$)	\mathbf{c}	$n\hat{\mathbf{a}} - m\hat{\mathbf{b}}$	$p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$	$(\mathbf{a} - \mathbf{b})/2$	$(\mathbf{a} + \mathbf{b})/2$	\mathbf{c}
($\bar{h}k0$)	\mathbf{c}	$n\hat{\mathbf{a}} + m\hat{\mathbf{b}}$	$-p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$			
($0hk$)	\mathbf{a}	$n\hat{\mathbf{a}} - m\hat{\mathbf{b}}$	$p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$	$(\mathbf{b} - \mathbf{c})/2$	$(\mathbf{b} + \mathbf{c})/2$	\mathbf{a}
($0\bar{h}k$)	\mathbf{a}	$n\hat{\mathbf{a}} + m\hat{\mathbf{b}}$	$-p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$			
($k0h$)	\mathbf{b}	$n\hat{\mathbf{a}} - m\hat{\mathbf{b}}$	$p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$	$(\mathbf{c} - \mathbf{a})/2$	$(\mathbf{c} + \mathbf{a})/2$	\mathbf{b}
($k0\bar{h}$)	\mathbf{b}	$n\hat{\mathbf{a}} + m\hat{\mathbf{b}}$	$-p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$			

h even, k odd or h odd, k even $\Rightarrow n = h + k, m = h - k$
 h, k odd $\Rightarrow n = (h + k)/2, m = (h - k)/2$

Arithmetic classes $222F, mm2F$ and $mmmF$

Serial No. Group type Group	22	42	43	69	70	
	D_2^7 $F222$	C_{2v}^{18} $Fmm2$	C_{2v}^{19} $Fdd2$	D_{2h}^{23} $Fmmm$	D_{2h}^{24} $Fddd$	
					Origin 1	Origin 2
($hk0$)	$I112$	$I112$	$I112$	$I112/m$	$I112/b$	$I112/b$
($\bar{h}k0$)					$[(\mathbf{a} + \mathbf{b} + \mathbf{c})/8]$	
($0hk$)		$I11m$	$I11b$			
($0\bar{h}k$)					$(\mathbf{a}/8)$	
($k0h$)						
($k0\bar{h}$)						