

Laue class $D_{2h} - mmm$

6. SCANNING TABLES

Orthorhombic

 No. 46 $Ima2$

$$\mathcal{G} = Ima2$$

 C_{2v}^{22}

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	$Ima2$	$[\mathbf{sd}, (s + \frac{1}{2})\mathbf{d}]$	$pma2$	L24
(100)	b	c	a	$Ic2m$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm\mathbf{sd}, (\pm s + \frac{1}{2})\mathbf{d}]$	$pb2n$ $pb2_1m$ ($\mathbf{a}'/4$) $pb11$ ($\mathbf{a}'/4$)	L34 L29 L12
(010)	c	a	b	$I2mb$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm\mathbf{sd}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p2mb$ $p2_1ma$ ($\mathbf{b}'/4$) $p1m1$ ($\mathbf{b}'/4$)	L31 L28 L11

 Geometric class $D_{2h} - mmm$

 No. 47 $Pmmm$

$$\mathcal{G} = P \begin{smallmatrix} 2 & 2 & 2 \\ m & m & m \end{smallmatrix}$$

 D_{2h}^1

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	$Pmmm$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$pmmm$	L37
(100)	b	c	a		$[\mathbf{sd}, -\mathbf{sd}]$	$pmm2$	L23
(010)	c	a	b				

 No. 48 $Pnnn$

$$\mathcal{G} = P \begin{smallmatrix} 2 & 2 & 2 \\ n & n & n \end{smallmatrix} \text{ origin 1}$$

 D_{2h}^2

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	$Pnnp$ ($\tau/4$)	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p222$	L19
(100)	b	c	a		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p112/n$ [$(\mathbf{a}' + \mathbf{b}')/4$]	L07
(010)	c	a	b		$[\pm\mathbf{sd}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$	L03

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

 No. 48 $Pnnp$

$$\mathcal{G} = P \begin{smallmatrix} 2 & 2 & 2 \\ n & n & n \end{smallmatrix} \text{ origin 2}$$

 D_{2h}^2

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	$Pnnp$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p112/n$	L07
(100)	b	c	a		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p222$ [$(\mathbf{a}' + \mathbf{b}')/4$]	L19
(010)	c	a	b		$[\pm\mathbf{sd}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$ [$(\mathbf{a}' + \mathbf{b}')/4$]	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		
	a'	b'	d	\hat{a}	\hat{b}	\hat{c}
($mn0$)	c	$na - mb$	$pa + qb$	a	b	c
($\bar{m}n0$)	c	$na + mb$	$-pa + qb$			
($0mn$)	a	$nb - mc$	$pb + qc$	b	c	a
($0\bar{m}n$)	a	$nb + mc$	$-pb + qc$			
($n0m$)	b	$nc - ma$	$pc + qa$	c	a	b
($n0\bar{m}$)	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	$P222$	$P222_1$	$P2_12_12$	$P2_12_12_1$
($mn0$)	$P112$	$P112_1$	$P112$	$P112_1$
($\bar{m}n0$)				($a/4$)
($0mn$)		$P112$	$P112_1$	$P112_1$
($0\bar{m}n$)			($b/4$)	($b/4$)
($n0m$)		$P112$	$P112_1$	$P112_1$
($n0\bar{m}$)		($c/4$)	($a/4$)	($c/4$)

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

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