

Orthorhombic

6. SCANNING TABLES

Laue class $D_{2h} - mmm$ No. 37 $Ccc2$

$$\mathcal{G} = Ccc2$$

 C_{2v}^{13}

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Scanning group \mathcal{H}	Linear orbit \mathbf{sd}	Sectional layer group $\mathcal{L}(\mathbf{sd})$	
	\mathbf{a}'	\mathbf{b}'	\mathbf{d}				
(001)	\mathbf{a}	\mathbf{b}	\mathbf{c}	$Ccc2$	$[\mathbf{sd}, (s + \frac{1}{2})\mathbf{d}]$	$\widehat{p}112$	L03
(100)	\mathbf{b}	\mathbf{c}	\mathbf{a}	$Bb2b$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm\mathbf{sd}, (\pm s + \frac{1}{2})\mathbf{d}]$	$pb2b$ $pb2n (\mathbf{a}'/4)$ $pb11$	L30 L34 L12
(010)	\mathbf{c}	\mathbf{a}	\mathbf{b}	$A2aa$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm\mathbf{sd}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p2aa$ $p2an (\mathbf{b}'/4)$ $p1a1$	L30 L34 L12

No. 38 $Amm2$

$$\mathcal{G} = Amm2$$

 C_{2v}^{14}

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Scanning group \mathcal{H}	Linear orbit \mathbf{sd}	Sectional layer group $\mathcal{L}(\mathbf{sd})$	
	\mathbf{a}'	\mathbf{b}'	\mathbf{d}				
(001)	\mathbf{a}	\mathbf{b}	\mathbf{c}	$Amm2$	$[\mathbf{sd}, (s + \frac{1}{2})\mathbf{d}]$	$pmm2$	L23
(100)	\mathbf{b}	\mathbf{c}	\mathbf{a}	$Cm2m$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[\mathbf{sd}, -\mathbf{sd}]$	$cm2m$ $cm11$	L35 L13
(010)	\mathbf{c}	\mathbf{a}	\mathbf{b}	$B2mm$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm\mathbf{sd}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p2mm$ $p2_1ma$ $p1m1$	L27 L28 L11

No. 39* $Aem2$

$$\mathcal{G} = Abm2$$

 C_{2v}^{15}

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Scanning group \mathcal{H}	Linear orbit \mathbf{sd}	Sectional layer group $\mathcal{L}(\mathbf{sd})$	
	\mathbf{a}'	\mathbf{b}'	\mathbf{d}				
(001)	\mathbf{a}	\mathbf{b}	\mathbf{c}	$Abm2$	$[\mathbf{sd}, (s + \frac{1}{2})\mathbf{d}]$	$pbm2$	L24
(100)	\mathbf{b}	\mathbf{c}	\mathbf{a}	$Cm2a$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[\mathbf{sd}, -\mathbf{sd}]$	$cm2e$ $cm11 (\mathbf{a}'/4)$	L36 L13
(010)	\mathbf{c}	\mathbf{a}	\mathbf{b}	$B2cm$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm\mathbf{sd}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p2aa$ $p2_1am$ $p1a1$	L30 L29 L12

*New symbol. Old symbol: $Abm2$.

Arithmetic class $mmmP$

Serial No.	47	48		49	50	
Group type	D_{2h}^1	D_{2h}^2		D_{2h}^3	D_{2h}^4	
Group	$Pmmm$	$Pnnn$		$Pccm$	$Pban$	
		Origin 1	Origin 2		Origin 1	Origin 2
$(mn0)$	$P112/m$	$P112/n$ [[a + b + c]/4]	$P112/n$	$P112/m$	$P112/n$	$P112/n$
$(\bar{m}n0)$					[[a + b]/4]	
$(0mn)$				$P112/b$	$P112/a$	$P112/a$
$(0\bar{m}n)$					[[a + b]/4]	
$(n0m)$				$P112/a$	$P112/b$	$P112/b$
$(n0\bar{m})$					[[a + b]/4]	

Serial No.	51	52	53	54	55	56
Group type	D_{2h}^5	D_{2h}^6	D_{2h}^7	D_{2h}^8	D_{2h}^9	D_{2h}^{10}
Group	$Pmma$	$Pnna$	$Pmna$	$Pcca$	$Pbam$	$Pccn$
$(mn0)$	$P112/a$	$P112/a$	$P112_1/a$	$P112/a$	$P112/m$	$P112/n$
$(\bar{m}n0)$						
$(0mn)$	$P112_1/m$	$P112/n$	$P112/m$	$P112_1/b$	$P112_1/a$	$P112_1/b$
$(0\bar{m}n)$						
$(n0m)$	$P112/m$	$P112_1/n$	$P112/n$	$P112/a$	$P112_1/b$	$P112_1/a$
$(n0\bar{m})$						

Serial No.	57	58	59		60	61	62
Group type	D_{2h}^{11}	D_{2h}^{12}	D_{2h}^{13}		D_{2h}^{14}	D_{2h}^{15}	D_{2h}^{16}
Group	$Pbcm$	$Pnmm$	$Pmnm$		$Pbcn$	$Pbca$	$Pnma$
			Origin 1	Origin 2			
$(mn0)$	$P112_1/m$	$P112/m$	$P112/n$	$P112/n$	$P112_1/n$	$P112_1/a$	$P112_1/a$
$(\bar{m}n0)$			[[a + b]/4]				
$(0mn)$	$P112/a$	$P112_1/n$	$P112_1/m$	$P112_1/m$	$P112_1/a$		$P112_1/n$
$(0\bar{m}n)$			[[a + b]/4]				
$(n0m)$	$P112_1/a$				$P112/a$		$P112_1/m$
$(n0\bar{m})$							

Centring type C

Orientation orbit (hkl)	Conventional basis of the scanning group a' b' d			Auxiliary basis of the scanning group $\hat{\mathbf{a}}$ $\hat{\mathbf{b}}$ $\hat{\mathbf{c}}$		
$(hk0)$	c	$n\hat{\mathbf{a}} - m\hat{\mathbf{b}}$	$p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$	$(\mathbf{a} - \mathbf{b})/2$	$(\mathbf{a} + \mathbf{b})/2$	c
$(\bar{h}k0)$	c	$n\hat{\mathbf{a}} + m\hat{\mathbf{b}}$	$-p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$			
h even, k odd or h odd, k even $\Rightarrow n = h + k, m = h - k$						
h, k odd $\Rightarrow n = (h + k)/2, m = (h - k)/2$						
$(0mn)$	a	$n\mathbf{b} - m\mathbf{c}$	$p\mathbf{b} + q\mathbf{c}$	b	c	a
$(0\bar{m}n)$	a	$n\mathbf{b} + m\mathbf{c}$	$-p\mathbf{b} + q\mathbf{c}$			
$(n0m)$	b	$n\mathbf{c} - m\mathbf{a}$	$p\mathbf{c} + q\mathbf{a}$	c	a	b
$(n0\bar{m})$	b	$n\mathbf{c} + m\mathbf{a}$	$-p\mathbf{c} + q\mathbf{a}$			

Arithmetic classes $222C$ and $mm2C$

Serial No.	20	21	35	36	37
Group type	D_2^5	D_2^6	C_{2v}^{11}	C_{2v}^{12}	C_{2v}^{13}
Group	$C222_1$	$C222$	$Cmm2$	$Cmc2_1$	$Ccc2$
$(hk0)$	$P112_1$	$P112$	$P112$	$P112_1$	$P112$
$(\bar{h}k0)$					
$(0mn)$	$B112$	$B112$	$B11m$	$B11m$	$B11b$
$(0\bar{m}n)$					
$(n0m)$	$A112$	$A112$	$A11m$	$A11a$	$A11a$
$(n0\bar{m})$	$(c/4)$				

Arithmetic class $mmmC$

Serial No.	63	64	65	66	67	68	
Group type	D_{2h}^{17}	D_{2h}^{18}	D_{2h}^{19}	D_{2h}^{20}	D_{2h}^{21}	D_{2h}^{22}	
Group	$Cmcm$	$Cmce$	$Cmmm$	$Cccm$	$Cmme$	$Ccce$	
						Origin 1	Origin 2
$(hk0)$	$P112_1/m$	$P112_1/n$	$P112/m$	$P112/m$	$P112/n$	$P112/n$	$P112/n$
$(\bar{h}k0)$						$[(b+c)/4]$	
$(0mn)$	$B112/m$	$B112/m$	$B112/m$	$B112/b$	$B112/m$	$B112/n$	$B112/n$
$(0\bar{m}n)$						$[(a+c)/4]$	
$(n0m)$	$A112/a$	$A112/n$	$A112/m$	$A112/a$	$A112/m$	$A112/a$	$A112/a$
$(n0\bar{m})$					$[(a+b)/4]$	$[(b+c)/4]$	

Centring type A

Orientation orbit	Conventional basis of the scanning group			Auxiliary basis of the scanning group		
(hkl)	\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}	$n\mathbf{a} + m\mathbf{b}$	$-p\mathbf{a} + q\mathbf{b}$			
$(0kl)$	\mathbf{a}	$n\hat{\mathbf{a}} - m\hat{\mathbf{b}}$	$p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$	$(b-c)/2$	$(b+c)/2$	\mathbf{a}
$(\bar{k}l0)$	\mathbf{a}	$n\hat{\mathbf{a}} + m\hat{\mathbf{b}}$	$-p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$			
k even, l odd or k odd, l even $\Rightarrow n = k + l, m = k - l$						
k, l odd $\Rightarrow n = (k + l)/2, m = (k - l)/2$						
$(n0m)$	\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 $mm2A$

Serial No.	38	39	40	41
Group type	C_{2v}^{14}	C_{2v}^{15}	C_{2v}^{16}	C_{2v}^{17}
Group	$Amm2$	$Aem2$	$Ama2$	$Aea2$
$(mn0)$	$A112$	$A112$	$A112$	$A112$
$(\bar{m}n0)$				
$(0kl)$	$P11m$	$P11n$	$P11m$	$P11n$
$(0\bar{k}l)$			$(a/4)$	$(a/4)$
$(n0m)$	$B11m$	$B11m$	$B11b$	$B11b$
$(n0\bar{m})$		$(b/4)$		$(b/4)$