

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 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 $(hkl)$	Conventional basis of the scanning group			Auxiliary basis of the scanning group		
	$\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	$\hat{\mathbf{a}}$	$\hat{\mathbf{b}}$	$\hat{\mathbf{c}}$
$(mn0)$	$\mathbf{c}$	$n\mathbf{a} - m\mathbf{b}$	$p\mathbf{a} + q\mathbf{b}$	$\mathbf{a}$	$\mathbf{b}$	$\mathbf{c}$
$(\bar{m}n0)$	$\mathbf{c}$	$n\mathbf{a} + m\mathbf{b}$	$-p\mathbf{a} + q\mathbf{b}$			
$(0kl)$	$\mathbf{a}$	$n\hat{\mathbf{a}} - m\hat{\mathbf{b}}$	$p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$	$(b-c)/2$	$(b+c)/2$	$\mathbf{a}$
$(\bar{k}l0)$	$\mathbf{a}$	$n\hat{\mathbf{a}} + m\hat{\mathbf{b}}$	$-p\hat{\mathbf{a}} + q\hat{\mathbf{b}}$			
$k$ 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	$Amm2$	$Aem2$	$Ama2$	$Aea2$
$(mn0)$	$A112$	$A112$	$A112$	$A112$
$(\bar{m}n0)$				
$(0kl)$	$P11m$	$P11n$	$P11m$	$P11n$
$(0\bar{k}l)$			$(a/4)$	$(a/4)$
$(n0m)$	$B11m$	$B11m$	$B11b$	$B11b$
$(n0\bar{m})$		$(b/4)$		$(b/4)$