

Orthorhombic

6. SCANNING TABLES

Laue class $D_{2h} - mmm$ Laue class $D_{2h} - mmm$ Geometric class $D_2 - 222$ No. 16 $P222$

$$\mathcal{G} = P222$$

 D_2^1

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}	$P222$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$p222$	L19
(100)	\mathbf{b}	\mathbf{c}	\mathbf{a}		$[s\mathbf{d}, -s\mathbf{d}]$	$p112$	L03
(010)	\mathbf{c}	\mathbf{a}	\mathbf{b}				

No. 17 $P222_1$

$$\mathcal{G} = P222_1$$

 D_2^2

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}	$P222_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p211$	L08	
(100)	\mathbf{b}	\mathbf{c}	\mathbf{a}		$P22_12$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[s\mathbf{d}, -s\mathbf{d}]$	$p22_12$	L20
(010)	\mathbf{c}	\mathbf{a}	\mathbf{b}		$P2_122$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[s\mathbf{d}, -s\mathbf{d}]$	$p2_122 (\mathbf{a}'/4)$	L20
						$p112 (\mathbf{a}'/4)$	L03	

No. 18 $P2_12_12$

$$\mathcal{G} = P2_12_12$$

 D_2^3

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}	$P2_12_12$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$ $[s\mathbf{d}, -s\mathbf{d}]$	$p2_12_12$	L21	
(100)	\mathbf{b}	\mathbf{c}	\mathbf{a}		$P2_122_1$	$[s\mathbf{d}, -s\mathbf{d}]$	$p112$	L03
(001)	\mathbf{a}	\mathbf{b}	\mathbf{c}	$P2_12_12$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p121$	L08	
(100)	\mathbf{b}	\mathbf{c}	\mathbf{a}		$P2_122_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p2_111$	L09
(010)	\mathbf{c}	\mathbf{a}	\mathbf{b}		$P22_12_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p1$	L01
(001)	\mathbf{a}	\mathbf{b}	\mathbf{c}	$P22_12_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p211$	L08	
(100)	\mathbf{b}	\mathbf{c}	\mathbf{a}		$P2_122_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p12_11$	L09
(010)	\mathbf{c}	\mathbf{a}	\mathbf{b}		$P22_12_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p1$	L01

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

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