

Laue class $D_{3d} - \bar{3}m$

6. SCANNING TABLES

Trigonal

 No. 165 $P\bar{3}c1$

$$\mathcal{G} = P\bar{3}_c^2 1$$

 D_{3d}^4

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Scanning group \mathcal{H}	Linear orbit sd	Sectional layer group $\mathcal{L}(sd)$	
	\mathbf{a}'	\mathbf{b}'	\mathbf{d}				
(0001)	\mathbf{a}	\mathbf{b}	\mathbf{c}	$P\bar{3}c1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$ $[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p\bar{3}$	L66
						$p321$	L68
						$p3$	L65
(01 $\bar{1}$ 0)	\mathbf{c}	\mathbf{a}	$\mathbf{a} + 2\mathbf{b}$	$A12/a1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p12/a1$	L16
($\bar{1}$ 010)	\mathbf{c}	\mathbf{b}	$-(2\mathbf{a} + \mathbf{b})$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p12_1/a1$ ($\mathbf{b}'/4$)	L17
(1 $\bar{1}$ 00)	\mathbf{c}	$-(\mathbf{a} + \mathbf{b})$	$(\mathbf{a} - \mathbf{b})$		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p1a1$	L12
($\bar{1}$ 2 $\bar{1}$ 0)	\mathbf{c}	$2\mathbf{a} + \mathbf{b}$	\mathbf{b}	$A112/a$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p112/a$	L07
($\bar{1}$ 120)	\mathbf{c}	$(\mathbf{b} - \mathbf{a})$	$-(\mathbf{a} + \mathbf{b})$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p112/n$ ($\mathbf{b}'/4$)	L07
(2 $\bar{1}$ 10)	\mathbf{c}	$-(\mathbf{a} + 2\mathbf{b})$	\mathbf{a}		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$ ($\mathbf{a}'/4$)	L03

 No. 166 $R\bar{3}m$

$$\mathcal{G} = R\bar{3}_m^2$$

 D_{3d}^5

Orientation orbit		Conventional basis of the scanning group			Scanning group \mathcal{H}	Linear orbit sd	Sectional layer group $\mathcal{L}(sd)$	
HEXAG. AXES (<i>hkl</i>)	RHOMB. AXES (<i>hkl</i>)							
		\mathbf{a}'	\mathbf{b}'	\mathbf{d}				
(0001)	(111)	\mathbf{a}	\mathbf{b}	\mathbf{c}	$R\bar{3}m$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d},$ $\frac{1}{3}\mathbf{d}, \parallel \frac{5}{6}\mathbf{d},$ $\frac{2}{3}\mathbf{d}] \frac{1}{6}\mathbf{d}]$ $[\pm s\mathbf{d}, (\pm s + \frac{1}{3})\mathbf{d},$ $(\pm s + \frac{2}{3})\mathbf{d}]$	$p\bar{3}m1$	L72
							$p\bar{3}m1$ $[(2\mathbf{a} + \mathbf{b})/3]$	L72
							$p\bar{3}m1$ $[(\mathbf{a} + 2\mathbf{b})/3]$	L72
							$p3m1$	L69
(01 $\bar{1}$ 0)	(11 $\bar{1}$)	\mathbf{c}	\mathbf{a}	$-\mathbf{c}_r$	$I12/m1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p12/m1$	L14
($\bar{1}$ 010)	($\bar{1}$ 11)	\mathbf{c}	\mathbf{b}	$-\mathbf{a}_r$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p12_1/m1$ $[(\mathbf{a}' +$	L15
							$\mathbf{b}')/4]$	
						$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p1m1$	L11
($\bar{1}$ 2 $\bar{1}$ 0)	(01 $\bar{1}$)	\mathbf{c}	\mathbf{a}_r	\mathbf{b}	$I112/m$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p112/m$	L06
($\bar{1}$ 120)	($\bar{1}$ 01)	\mathbf{c}	\mathbf{b}_r	$-(\mathbf{a} + \mathbf{b})$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p112/n$	L07
							$[(\mathbf{a}' + \mathbf{b}')/4]$	
(2 $\bar{1}$ 10)	(1 $\bar{1}$ 0)	\mathbf{c}	\mathbf{c}_r	\mathbf{a}		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$	L03

Arithmetic classes $321P$, $3m1P$ and $\bar{3}m1P$

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Auxiliary basis of the scanning group		
	a'	b'	d	\hat{a}	\hat{b}	\hat{c}
($0h\bar{h}l$)	a	$n(\mathbf{a} + 2\mathbf{b}) - m\mathbf{c}$	$p(\mathbf{a} + 2\mathbf{b}) + q\mathbf{c}$	a + 2b	c	a
($\bar{h}0hl$)	b	$-n(2\mathbf{a} + \mathbf{b}) - m\mathbf{c}$	$-p(2\mathbf{a} + \mathbf{b}) + q\mathbf{c}$	$-(2\mathbf{a} + \mathbf{b})$	c	b
($h\bar{h}0l$)	$-(\mathbf{a} + \mathbf{b})$	$n(\mathbf{a} - \mathbf{b}) - m\mathbf{c}$	$p(\mathbf{a} - \mathbf{b}) + q\mathbf{c}$	a - b	c	$-(\mathbf{a} + \mathbf{b})$
l odd $\Rightarrow n = l, m = 2h$; l even $\Rightarrow n = l/2, m = h$						

Arithmetic classes $321P$, $3m1P$ and $\bar{3}m1P$

Serial No.	150	152	154	156	158	164	165
Group type	D_3^2	D_3^4	D_3^6	C_{3v}^1	C_{3v}^2	D_{3d}^3	D_{3d}^4
Group	$P321$	$P3_121$	$P3_221$	$P3m1$	$P3c1$	$\bar{P}3m1$	$\bar{P}3c1$
($0h\bar{h}l$)	$B112$	$B112$ (c/3)	$B112$ (c/6)	$B11m$	$B11b$	$B112/m$	$B112/b$
($\bar{h}0hl$)		$B112$ (c/6)	$B112$ (c/3)				
($h\bar{h}0l$)		$B112$	$B112$				

Centring type R

Arithmetic classes $32R$, $3mR$ and $\bar{3}mR$

Orientation orbit		Conventional basis of the scanning group			Auxiliary basis of the scanning group		
HEXAG. AXES (<i>hkl</i>)	RHOMB. AXES (<i>hkl</i>)	a'	b'	d	\hat{a}	\hat{b}	\hat{c}
($0h\bar{h}l$)	(<i>hhl</i>)	a	$nc - mc_r$	$pc + qc_r$	c	c_r	a
($\bar{h}0hl$)	(<i>lhh</i>)	b	$nc - ma_r$	$pc + qa_r$	c	a_r	b
($h\bar{h}0l$)	(<i>hlh</i>)	$-(\mathbf{a} + \mathbf{b})$	$nc - mb_r$	$pc + qb_r$	c	b_r	$-(\mathbf{a} + \mathbf{b})$
Transformation of indices from hexagonal to auxiliary monoclinic basis l odd $\Rightarrow n = l - 2h, m = 6h$; l even $\Rightarrow n = l/2 - h, m = 3h$							
Transformation of indices from rhombohedral to auxiliary monoclinic basis l odd $\Rightarrow n = l, m = 2h + l$; l even $\Rightarrow n = l/2, m = h + l/2$							

Arithmetic classes $32R$, $3mR$ and $\bar{3}mR$

Serial No.	155	160	161	166	167
Group type	D_3^7	C_{3v}^5	C_{3v}^6	D_{3d}^5	D_{3d}^6
Group	$R32$	$R3m$	$R3c$	$\bar{R}3m$	$\bar{R}3c$
HEXAG. AXES	RHOMB. AXES				
($0h\bar{h}l$)	(<i>hhl</i>)	$I112$	$I11m$	$I11a$	$I112/m$
($\bar{h}0hl$)	(<i>lhh</i>)				$I112/a$
($h\bar{h}0l$)	(<i>hlh</i>)				