

Laue class $T_h - m\bar{3}$

6. SCANNING TABLES

Cubic

No. 198 $P2_13$ $\mathcal{G} = P2_13$ T^4

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	a	b	c	$P2_12_12_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p2_122$ (b' /4)	L20
(100)	b	c	a		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p12_11$	L09
(010)	c	a	b		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p1$	L01
(111)	a – b	b – c	τ	With respect to origin at P			
($\bar{1}\bar{1}\bar{1}$)	b – a	–b – c	τ_3	With respect to origin at $P + (\mathbf{a} + \mathbf{c})/2$			
($\bar{1}\bar{1}\bar{1}$)	a + b	c – b	τ_1	With respect to origin at $P + (\mathbf{b} + \mathbf{a})/2$			
($\bar{1}\bar{1}\bar{1}$)	–a – b	b + c	τ_2	With respect to origin at $P + (\mathbf{c} + \mathbf{b})/2$			
				$R3$	$[s\mathbf{d}, (s + \frac{1}{3})\mathbf{d}, (s + \frac{2}{3})\mathbf{d}]$	$p3$	L65

No. 199 $I2_13$ $\mathcal{G} = I2_13$ T^5

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	a	b	c	$I2_12_12_1$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p2_122$ (b' /4)	L20
(100)	b	c	a		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p22_12$ (b' /4)	L20
(010)	c	a	b		$[\pm s\mathbf{d}, (\pm s + \frac{1}{2})\mathbf{d}]$	$p112$ (b' /4)	L03
(111)	a – c	b – a	$\tau/2$	With respect to origin at P			
($\bar{1}\bar{1}\bar{1}$)	–a – c	a – b	$\tau_3/2$	With respect to origin at $P + \mathbf{b}/2$			
($\bar{1}\bar{1}\bar{1}$)	a + c	–a – b	$\tau_1/2$	With respect to origin at $P + \mathbf{c}/2$			
($\bar{1}\bar{1}\bar{1}$)	c – a	a + b	$\tau_2/2$	With respect to origin at $P + \mathbf{a}/2$			
				$R3$	$[s\mathbf{d}, (s + \frac{1}{3})\mathbf{d}, (s + \frac{2}{3})\mathbf{d}]$	$p3$	L65

Geometric class $T_h - m\bar{3}$ No. 200 $Pm\bar{3}$ $\mathcal{G} = P_m^2\bar{3}$ T_h^1

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group			Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	a	b	c	$Pmmm$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$pmmm$	L37
(100)	b	c	a		$[s\mathbf{d}, -s\mathbf{d}]$	$pmm2$	L23
(010)	c	a	b				
(111)	a – b	b – c	τ	$R\bar{3}$	$[0\mathbf{d}, [\frac{1}{2}\mathbf{d},$	$p\bar{3}$	L66
($\bar{1}\bar{1}\bar{1}$)	b – a	–b – c	τ_3		$\frac{1}{3}\mathbf{d}, \parallel \frac{2}{3}\mathbf{d},$	$p\bar{3} [(2\mathbf{a}' + \mathbf{b}')/3]$	L66
($\bar{1}\bar{1}\bar{1}$)	a + c	c – b	τ_1		$\frac{2}{3}\mathbf{d}] \frac{1}{6}\mathbf{d}]$	$p\bar{3} [(\mathbf{a}' + 2\mathbf{b}')/3]$	L66
($\bar{1}\bar{1}\bar{1}$)	–a – b	b + c	τ_2		$[\pm s\mathbf{d}, (\pm s + \frac{1}{3})\mathbf{d}, (\pm s + \frac{2}{3})\mathbf{d}]$	$p3$	L65

Auxiliary tables for Laue class $T_h - m\bar{3}$ **Centring types P and I**

Orientation orbit (<i>hkl</i>)	Conventional basis of the scanning group a' b' d			Auxiliary basis of the scanning group $\hat{a}$ $\hat{b}$ $\hat{c}$		
(<i>mn</i> 0)	c	<i>na - mb</i>	<i>pa + qb</i>	a	b	c
($\bar{m}n$ 0)	c	<i>na + mb</i>	<i>-pa + qb</i>			
(0 <i>mn</i>)	a	<i>nb - mc</i>	<i>pb + qc</i>	b	c	a
(0 $\bar{m}n$)	a	<i>nb + mc</i>	<i>-pb + qc</i>			
(<i>n</i> 0 <i>m</i>)	b	<i>nc - ma</i>	<i>pc + qa</i>	c	a	b
(<i>n</i> 0 $\bar{m}$)	b	<i>nc + ma</i>	<i>-pc + qa</i>			

Arithmetic classes $23P$ and $23I$

Serial No.	195	198	197	199
Group type	T^1	T^4	T^3	T^5
Group	$P23$	$P2_13$	$I23$	$I2_13$
(<i>mn</i> 0)	$P112$	$P112_1$	$I112$	$I112$
($\bar{m}n$ 0)		(a /4)		(b /4)
(0 <i>mn</i>)		$P112_1$		$I112$
(0 $\bar{m}n$)		(b /4)		(c /4)
(<i>n</i> 0 <i>m</i>)		$P112_1$		$I112$
(<i>n</i> 0 $\bar{m}$)		(c /4)		(a /4)

Arithmetic classes $m\bar{3}P$ and $m\bar{3}I$

Serial No.	200	201		205	204	206
Group type	T_h^1	T_h^2		T_h^6	T_h^5	T_h^7
Group	$Pm\bar{3}$	$Pn\bar{3}$		$Pa\bar{3}$	$Im\bar{3}$	$Ia\bar{3}$
		Origin 1	Origin 2			
(<i>mn</i> 0)	$P112/m$	$P112/n$	$P112/n$	$P112_1/a$	$I112/m$	$I112/b$
($\bar{m}n$ 0)		(a + b + c)/4				
(0 <i>mn</i>)						
(0 $\bar{m}n$)						
(<i>n</i> 0 <i>m</i>)						
(<i>n</i> 0 $\bar{m}$)						