International Tables for Crystallography (2006). Vol. E, Scanning table for space group 126, pp. 486–487.

No. 126 $P4/nnc$ D_{4h}^4

$$\mathcal{G} = P\frac{4}{n}\frac{2}{n}\frac{2}{c} \quad \text{origin 2}$$

Orientation orbit (hkl)	Conventional basis of the scanning group $\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	**a**	**b**	**c**	$P4/nnc$ (origin 2)	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p4/n$ $[(\mathbf{a}+\mathbf{b})/4]$	L52
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p422$ $[(\mathbf{a}+\mathbf{b})/4]$	L53
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$p4$ $[(\mathbf{a}+\mathbf{b})/4]$	L49
(100)	**b**	**c**	**a**	$Pnnn$ (origin 2)	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p112/n$	L07
(010)	$-\mathbf{a}$	**c**	**b**		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p222$ $[(\mathbf{a}'+\mathbf{b}')/4]$	L19
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$p112$ $[(\mathbf{a}'+\mathbf{b}')/4]$	L03
(110)	$(-\mathbf{a}+\mathbf{b})$	**c**	$(\mathbf{a}+\mathbf{b})$	$Bbcb$ (or. 1) $[(\mathbf{b}'+\mathbf{d})/4]$ or $Bbcb$ (or. 2) $[(\mathbf{a}'+\mathbf{d})/4]$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$pbab$	L43
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$pban$ $(\mathbf{a}'/4)$	L39
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$pba2$ $(\mathbf{b}'/4)$	L25
$(1\bar{1}0)$	$(\mathbf{a}+\mathbf{b})$	**c**	$(\mathbf{a}-\mathbf{b})$	$Bbcb$ (or. 1) $[(\mathbf{a}'+\mathbf{b}')/4]$ or $Bbcb$ (or. 2)	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$pban$	L39
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$pbab$ $(\mathbf{a}'/4)$	L43
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$pba2$ $[(\mathbf{a}'+\mathbf{b}')/4]$	L25

No. 127 $P4/mbm$ D_{4h}^5

$$\mathcal{G} = P\frac{4}{m}\frac{2_1}{b}\frac{2}{m}$$

Orientation orbit (hkl)	Conventional basis of the scanning group $\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	**a**	**b**	**c**	$P4/mbm$	$0\mathbf{d}, \frac{1}{2}\mathbf{d}$	$p4/mbm$	L63
					$[s\mathbf{d}, -s\mathbf{d}]$	$p4bm$	L56
(100)	**b**	**c**	**a**	$Pcma$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p12/m1$	L14
(010)	$-\mathbf{a}$	**c**	**b**		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2_1ma$	L28
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$p1m1$	L11
(110)	$(-\mathbf{a}+\mathbf{b})$	**c**	$(\mathbf{a}+\mathbf{b})$	$Bmmm$ $[(\mathbf{a}'+\mathbf{d})/4]$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$pmma$	L41
$(1\bar{1}0)$	$(\mathbf{a}+\mathbf{b})$	**c**	$(\mathbf{a}-\mathbf{b})$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$pmmm$ $(\mathbf{a}'/4)$	L37
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$pmm2$ $(\mathbf{a}'/4)$	L23

No. 128 $P4/mnc$ D_{4h}^6

$$\mathcal{G} = P\frac{4}{m}\frac{2_1}{n}\frac{2}{c}$$

Orientation orbit (hkl)	Conventional basis of the scanning group $\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	**a**	**b**	**c**	$P4/mnc$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p4/m$	L51
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p42_12$	L54
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$p4$	L49
(100)	**b**	**c**	**a**	$Pnmn$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$p12/m1$	L14
(010)	$-\mathbf{a}$	**c**	**b**		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$p2_1mn$	L32
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$p1m1$	L11
(110)	$(-\mathbf{a}+\mathbf{b})$	**c**	$(\mathbf{a}+\mathbf{b})$	$Bbmb$ $[(\mathbf{a}'+\mathbf{d})/4]$	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	$pbmn$	L42
$(1\bar{1}0)$	$(\mathbf{a}+\mathbf{b})$	**c**	$(\mathbf{a}-\mathbf{b})$		$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$pbmb$ $(\mathbf{a}'/4)$	L38
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	$pbm2$ $[(\mathbf{a}'+\mathbf{b}')/4]$	L24

No. 142 $I4_1/acd$ D_{4h}^{20}

$\mathcal{G} = I\frac{4_1}{a}\frac{2}{c}\frac{2}{d}$ origin 2

Orientation orbit (hkl)	Conventional basis of the scanning group $\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	Scanning group $\mathcal{H}$	Linear orbit $s\mathbf{d}$	Sectional layer group $\mathcal{L}(s\mathbf{d})$	
(001)	**a**	**b**	**c**	$I4_1/acd$ (origin 2)	$[0\mathbf{d}, \frac{1}{2}\mathbf{d};$	*pbab*	L43
					$\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	*pbaa* $[(\mathbf{a}+\mathbf{b})/4]$	L43
					$[\frac{1}{8}\mathbf{d}, \frac{5}{8}\mathbf{d};$	$p\bar{4}b2$ $(3\mathbf{b}/4)$	L60
					$\frac{3}{8}\mathbf{d}, \frac{7}{8}\mathbf{d}]$	$p\bar{4}b2$ $(\mathbf{b}/4)$	L60
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{4})\mathbf{d},$		
					$(\pm s+\frac{1}{2})\mathbf{d}, (\pm s+\frac{3}{4})\mathbf{d}]$	*pba*2 $(\mathbf{b}/4)$	L25
(100)	**b**	**c**	**a**	*Ibca*	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	*pbab*	L43
					$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	*pbaa* $[(\mathbf{a}'+\mathbf{b}')/4]$	L43
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	*pba*2 $(\mathbf{b}'/4)$	L25
(010)	$-\mathbf{a}$	**c**	**b**	*Ibca*	$[0\mathbf{d}, \frac{1}{2}\mathbf{d}]$	*pbaa*	L43
				$[(\mathbf{a}'+\mathbf{b}'+\mathbf{d})/4]$	$[\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	*pbab* $[(\mathbf{a}'+\mathbf{b}')/4]$	L43
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{2})\mathbf{d}]$	*pba*2 $(\mathbf{a}'/4)$	L25
(110)	$(-\mathbf{a}+\mathbf{b})$	**c**	$(\mathbf{a}+\mathbf{b})$	*Fddd* (or. 1)	$[0\mathbf{d}, \frac{1}{2}\mathbf{d};$	$\widehat{p}112/b$	L16
				$[3(\mathbf{a}'+\mathbf{b}'+\mathbf{d})/8]$	$\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$\widehat{p}112/a$ $(\mathbf{a}'/4$ or $\mathbf{b}'/4)$	L16
				or	$[\frac{1}{8}\mathbf{d}, \frac{5}{8}\mathbf{d};$	$c222$ $[(\mathbf{a}'+\mathbf{b}')/8]$	L22
				Fddd (or. 2)	$\frac{3}{8}\mathbf{d}, \frac{7}{8}\mathbf{d}]$	$c222$ $[3(\mathbf{a}'+\mathbf{b}')/8]$	L22
					$[\pm s\mathbf{d}, (\pm s+\frac{1}{4})\mathbf{d};$		
					$(\pm s+\frac{1}{2})\mathbf{d}, (\pm s+\frac{3}{4})\mathbf{d}]$	$\widehat{p}112$ $[(\mathbf{a}'+\mathbf{b}')/8]$	L03
$(1\bar{1}0)$	$(\mathbf{a}+\mathbf{b})$	**c**	$(\mathbf{a}-\mathbf{b})$	*Fddd* (or. 1)	$[0\mathbf{d}, \frac{1}{2}\mathbf{d};$	$\widehat{p}112/b$	L16
				$[(\mathbf{a}'+\mathbf{b}'+3\mathbf{d})/8]$	$\frac{1}{4}\mathbf{d}, \frac{3}{4}\mathbf{d}]$	$\widehat{p}112/a$ $(\mathbf{a}'/4$ or $\mathbf{b}'/4)$	L16
				or	$[\frac{1}{8}\mathbf{d}, \frac{5}{8}\mathbf{d};$	$c222$ $[3(\mathbf{a}'+\mathbf{b}')/8]$	L22
				Fddd (or. 2)	$\frac{3}{8}\mathbf{d}, \frac{7}{8}\mathbf{d}]$	$c222$ $[(\mathbf{a}'+\mathbf{b}')/8]$	L22
				$[(\mathbf{a}'+\mathbf{b}')/4]$	$[\pm s\mathbf{d}, (\pm s+\frac{1}{4})\mathbf{d};$		
					$(\pm s+\frac{1}{2})\mathbf{d}, (\pm s+\frac{3}{4})\mathbf{d}]$	$\widehat{p}112$ $[(\mathbf{a}'+\mathbf{b}')/8]$	L03

Auxiliary tables for Laue class $D_{4h}-4/mmm$

Centring type *P*

Orientation orbit (hkl)	Conventional basis of the scanning group $\mathbf{a}'$	$\mathbf{b}'$	$\mathbf{d}$	Auxiliary basis of the scanning group $\widehat{\mathbf{a}}$	$\widehat{\mathbf{b}}$	$\widehat{\mathbf{c}}$
$(mn0)$	**c**	$n\mathbf{a}-m\mathbf{b}$	$p\mathbf{a}+q\mathbf{b}$	**a**	**b**	**c**
$(\bar{n}m0)$	**c**	$m\mathbf{a}+n\mathbf{b}$	$-q\mathbf{a}+p\mathbf{b}$			
$(\bar{m}n0)$	**c**	$n\mathbf{a}+m\mathbf{b}$	$-p\mathbf{a}+q\mathbf{b}$			
$(nm0)$	**c**	$m\mathbf{a}-n\mathbf{b}$	$q\mathbf{a}+p\mathbf{b}$			
$(0mn)$	**a**	$n\mathbf{b}-m\mathbf{c}$	$p\mathbf{b}+q\mathbf{c}$	**b**	**c**	**a**
$(0\bar{m}n)$	**a**	$n\mathbf{b}+m\mathbf{c}$	$-p\mathbf{b}+q\mathbf{c}$			
$(m0n)$	**b**	$m\mathbf{c}-n\mathbf{a}$	$q\mathbf{c}+p\mathbf{a}$	**c**	**a**	**b**
$(m0\bar{n})$	**b**	$m\mathbf{c}+n\mathbf{a}$	$-q\mathbf{c}+p\mathbf{a}$			
(hhl)	$\mathbf{a}-\mathbf{b}$	$n(\mathbf{a}+\mathbf{b})-m\mathbf{c}$	$p(\mathbf{a}+\mathbf{b})+q\mathbf{c}$	$\mathbf{a}+\mathbf{b}$	**c**	$\mathbf{a}-\mathbf{b}$
$(\bar{h}\bar{h}l)$	$\mathbf{a}-\mathbf{b}$	$n(\mathbf{a}+\mathbf{b})+m\mathbf{c}$	$-p(\mathbf{a}+\mathbf{b})+q\mathbf{c}$			
$(h\bar{h}l)$	$\mathbf{a}+\mathbf{b}$	$n(\mathbf{b}-\mathbf{a})-m\mathbf{c}$	$p(\mathbf{b}-\mathbf{a})+q\mathbf{c}$	$\mathbf{b}-\mathbf{a}$	**c**	$\mathbf{a}+\mathbf{b}$
$(\bar{h}hl)$	$\mathbf{a}+\mathbf{b}$	$n(\mathbf{b}-\mathbf{a})+m\mathbf{c}$	$-p(\mathbf{b}-\mathbf{a})+q\mathbf{c}$			
l odd $\Rightarrow n=l, m=2h$; l even $\Rightarrow n=l/2, m=h$						

Arithmetic class $4/mmmP$

Serial No.	123	124	125		126	
Group type	D_{4h}^1	D_{4h}^2	D_{4h}^3		D_{4h}^4	
Group	$P4/mmm$	$P4/mcc$	$P4/mbm$		$P4/nnc$	
			Origin 1	Origin 2	Origin 1	Origin 2
$(mn0)$ $(\overline{n}m0)$ $(\overline{m}\overline{n}0)$ $(nm0)$	$P112/m$	$P112/m$	$P112/n$ $(\mathbf{a}+\mathbf{b})/4$	$P112/n$	$P112/n$ $(\mathbf{a}+\mathbf{b}+\mathbf{c})/4$	$P112/n$
$(0mn)$ $(0\overline{m}n)$	$P112/m$	$P112/b$	$P112/a$ $(\mathbf{a}+\mathbf{b})/4$	$P112/a$	$P112/n$ $(\mathbf{a}+\mathbf{b}+\mathbf{c})/4$	$P112/n$
$(m0n)$ $(m0\overline{n})$		$P112/a$	$P112/b$ $(\mathbf{a}+\mathbf{b})/4$	$P112/b$		
(hhl) $(\overline{h}\overline{h}l)$	$B112/m$	$B112/b$	$B112/m$ $(\mathbf{a}-\mathbf{b})/4$	$B112/m$ ($\mathbf{a}/2$ or $\mathbf{b}/2$)	$B112/b$ $(\mathbf{a}-\mathbf{b}+\mathbf{c})/4$	$B112/b$ ($\mathbf{a}/2$ or $\mathbf{b}/2$)
$(h\overline{h}l)$ $(\overline{h}hl)$			$B112/m$ $(\mathbf{a}+\mathbf{b})/4$	$B112/m$	$B112/b$ $(\mathbf{a}+\mathbf{b}+\mathbf{c})/4$	$B112/b$

Serial No.	127	128	129		130	
Group type	D_{4h}^5	D_{4h}^6	D_{4h}^7		D_{4h}^8	
Group	$P4/mbm$	$P4/mnc$	$P4/nmm$		$P4/ncc$	
			Origin 1	Origin 2	Origin 1	Origin 2
$(mn0)$ $(\overline{n}m0)$ $(\overline{m}\overline{n}0)$ $(nm0)$	$P112/m$	$P112/m$	$P112/n$ $(\mathbf{a}+\mathbf{b})/4$	$P112/n$	$P112/n$ $(\mathbf{a}+\mathbf{b})/4$	$P112/n$
$(0mn)$ $(0\overline{m}n)$	$P112_1/a$	$P112_1/n$	$P112_1/m$ $(\mathbf{a}+\mathbf{b})/4$	$P112_1/m$	$P112_1/b$ $(\mathbf{a}+\mathbf{b})/4$	$P112_1/b$
$(m0n)$ $(m0\overline{n})$	$P112_1/b$				$P112_1/a$ $(\mathbf{a}+\mathbf{b})/4$	$P112_1/a$
(hhl) $(\overline{h}\overline{h}l)$	$B112/m$ ($\mathbf{a}/2$ or $\mathbf{b}/2$)	$B112/b$ ($\mathbf{a}/2$ or $\mathbf{b}/2$)	$B112/m$ $(\mathbf{a}-\mathbf{b})/4$	$B112/m$	$B112/b$ $(\mathbf{a}-\mathbf{b})/4$	$B112/b$
$(h\overline{h}l)$ $(\overline{h}hl)$			$B112/m$ $(\mathbf{a}+\mathbf{b})/4$	$B112/m$ ($\mathbf{a}/2$ or $\mathbf{b}/2$)	$B112/b$ $(\mathbf{a}+\mathbf{b})/4$	$B112/b$ ($\mathbf{a}/2$ or $\mathbf{b}/2$)

Serial No.	131	132	133		134	
Group type	D_{4h}^9	D_{4h}^{10}	D_{4h}^{11}		D_{4h}^{12}	
Group	$P4_2/mmc$	$P4_2/mcm$	$P4_2/nbc$		$P4_2/nnm$	
			Origin 1	Origin 2	Origin 1	Origin 2
$(mn0)$ $(\overline{n}m0)$ $(\overline{m}\overline{n}0)$ $(nm0)$	$P112/m$	$P112/m$	$P112/n$ $(\mathbf{a}+\mathbf{b}+\mathbf{c})/4$	$P112/n$	$P112/n$ $(\mathbf{a}+\mathbf{b}+\mathbf{c})/4$	$P112/n$
$(0mn)$ $(0\overline{m}n)$	$P112/m$	$P112/b$	$P112/a$ $(\mathbf{a}+\mathbf{b}+\mathbf{c})/4$	$P112/a$	$P112/n$ $(\mathbf{a}+\mathbf{b}+\mathbf{c})/4$	$P112/n$
$(m0n)$ $(m0\overline{n})$		$P112/a$	$P112/b$ $(\mathbf{a}+\mathbf{b}+\mathbf{c})/4$	$P112/b$		
(hhl) $(\overline{h}\overline{h}l)$	$B112/b$	$B112/m$	$B112/b$ $(\mathbf{a}-\mathbf{b}+\mathbf{c})/4$	$B112/b$ ($\mathbf{a}/2$ or $\mathbf{b}/2$)	$B112/m$ $(\mathbf{a}-\mathbf{b}+\mathbf{c})/4$	$B112/m$ ($\mathbf{a}/2$ or $\mathbf{b}/2$)
$(h\overline{h}l)$ $(\overline{h}hl)$			$B112/b$ $(\mathbf{a}+\mathbf{b}+\mathbf{c})/4$	$B112/b$	$B112/m$ $(\mathbf{a}+\mathbf{b}+\mathbf{c})/4$	$B112/m$