International Tables for Crystallography (2006). Vol. A1, Wyckoff relations for space group 7, pp. 446–447.

Pc $P1c1$ No. 7 $P1n1$ $P1a1$ C_s^2

UNIQUE AXIS b

CELL CHOICE 1			Wyckoff positions	CELL CHOICE 2			CELL CHOICE 3		
	Axes	Coordinates		Axes		Coordinates	Axes		Coordinates
			$2a$						
I Maximal *translationengleiche* subgroups									
[2] $P1$ (1)			$2\times1a$	$P1$			$P1$		
II Maximal *klassengleiche* subgroups									
Enlarged unit cell, non-isomorphic									
[2] $C1c1$ (9)	$2\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	$\frac{1}{2}x, \frac{1}{2}y, z; +(0, \frac{1}{2}, 0)$	$2\times4a$	$A1n1$	$\mathbf{a}-\mathbf{c}, 2\mathbf{b}, 2\mathbf{c}$	$x, \frac{1}{2}y, \frac{1}{2}(x+z); +(0, \frac{1}{2}, 0)$	$I1a1$	$\mathbf{a}, 2\mathbf{b}, \mathbf{a}+2\mathbf{c}$	$x-\frac{1}{2}z, \frac{1}{2}y, \frac{1}{2}z; +(0, \frac{1}{2}, 0)$
[2] $C1c1$ (9)	$2\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	$\frac{1}{2}x, \frac{1}{2}y+\frac{1}{4}, z; +(0, \frac{1}{2}, 0)$	$2\times4a$	$A1n1$	$\mathbf{a}-\mathbf{c}, 2\mathbf{b}, 2\mathbf{c}$	$x, \frac{1}{2}y+\frac{1}{4}, \frac{1}{2}(x+z); +(0, \frac{1}{2}, 0)$	$I1a1$	$\mathbf{a}, 2\mathbf{b}, \mathbf{a}+2\mathbf{c}$	$x-\frac{1}{2}z, \frac{1}{2}y+\frac{1}{4}, \frac{1}{2}z; +(0, \frac{1}{2}, 0)$
Enlarged unit cell, isomorphic									
[2] $P1c1$	$\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	$x, \frac{1}{2}y, z; +(0, \frac{1}{2}, 0)$	$2\times2a$	$P1n1$	$\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	$x, \frac{1}{2}y, z; +(0, \frac{1}{2}, 0)$	$P1a1$	$\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	$x, \frac{1}{2}y, z; +(0, \frac{1}{2}, 0)$
[2] $P1c1$	$\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	$x, \frac{1}{2}y+\frac{1}{4}, z; +(0, \frac{1}{2}, 0)$	$2\times2a$	$P1n1$	$\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	$x, \frac{1}{2}y+\frac{1}{4}, z; +(0, \frac{1}{2}, 0)$	$P1a1$	$\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	$x, \frac{1}{2}y+\frac{1}{4}, z; +(0, \frac{1}{2}, 0)$
[3] $P1c1$	$\mathbf{a}, 3\mathbf{b}, \mathbf{c}$	$x, \frac{1}{3}y, z; \pm(0, \frac{1}{3}, 0)$	$3\times2a$	$P1n1$	$\mathbf{a}, 3\mathbf{b}, \mathbf{c}$	$x, \frac{1}{3}y, z; \pm(0, \frac{1}{3}, 0)$	$P1a1$	$\mathbf{a}, 3\mathbf{b}, \mathbf{c}$	$x, \frac{1}{3}y, z; \pm(0, \frac{1}{3}, 0)$
[p] $P1c1$	$\mathbf{a}, p\mathbf{b}, \mathbf{c}$	$x, \frac{1}{p}y, z; +(0, \frac{u}{p}, 0)$	$p\times2a$	$P1n1$	$\mathbf{a}, p\mathbf{b}, \mathbf{c}$	$x, \frac{1}{p}y, z; +(0, \frac{u}{p}, 0)$	$P1a1$	$\mathbf{a}, p\mathbf{b}, \mathbf{c}$	$x, \frac{1}{p}y, z; +(0, \frac{u}{p}, 0)$
	p = prime; $u = 1, \ldots, p-1$				p = prime; $u = 1, \ldots, p-1$			p = prime; $u = 1, \ldots, p-1$	
[2] $P1c1$	$2\mathbf{a}, \mathbf{b}, \mathbf{c}$	$\frac{1}{2}x, y, z; +(\frac{1}{2}, 0, 0)$	$2\times2a$	$P1n1$	$\mathbf{a}-\mathbf{c}, \mathbf{b}, 2\mathbf{c}$	$x, y, \frac{1}{2}(x+z); +(0, 0, \frac{1}{2})$	$P1a1$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	$x, y, \frac{1}{2}z; +(0, 0, \frac{1}{2})$
[2] $P1n1$	$2\mathbf{a}, \mathbf{b}, \mathbf{c}$	$\frac{1}{2}x, y, z; +(\frac{1}{2}, 0, 0)$	$2\times2a$	$P1a1$	$\mathbf{a}-\mathbf{c}, \mathbf{b}, 2\mathbf{c}$	$x, y, \frac{1}{2}(x+z); +(0, 0, \frac{1}{2})$	$P1n1$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	$x, y, \frac{1}{2}z; +(0, 0, \frac{1}{2})$
[3] $P1c1$	$3\mathbf{a}, \mathbf{b}, \mathbf{c}$	$\frac{1}{3}x, y, z; \pm(\frac{1}{3}, 0, 0)$	$3\times2a$	$P1n1$	$\mathbf{a}-2\mathbf{c}, \mathbf{b}, 3\mathbf{c}$	$x, y, \frac{1}{3}(2x+z); \pm(0, 0, \frac{1}{3})$	$P1a1$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	$x, y, \frac{1}{3}z; \pm(0, 0, \frac{1}{3})$
[3] $P1c1$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	$x, y, \frac{1}{3}z; \pm(0, 0, \frac{1}{3})$	$3\times2a$	$P1n1$	$3\mathbf{a}, \mathbf{b}, \mathbf{c}$	$\frac{1}{3}x, y, z; \pm(\frac{1}{3}, 0, 0)$	$P1a1$	$3\mathbf{a}, \mathbf{b}, \mathbf{a}+\mathbf{c}$	$\frac{1}{3}(x-z), y, z; \pm(\frac{1}{3}, 0, 0)$
[3] $P1c1$	$\mathbf{a}+\mathbf{c}, \mathbf{b}, 3\mathbf{c}$	$x, y, \frac{1}{3}(-x+z); \pm(0, 0, \frac{1}{3})$	$3\times2a$	$P1n1$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	$x, y, \frac{1}{3}z; \pm(0, 0, \frac{1}{3})$	$P1a1$	$3\mathbf{a}, \mathbf{b}, \mathbf{c}$	$\frac{1}{3}x, y, z; \pm(\frac{1}{3}, 0, 0)$
[3] $P1c1$	$\mathbf{a}-\mathbf{c}, \mathbf{b}, 3\mathbf{c}$	$x, y, \frac{1}{3}(x+z); \pm(0, 0, \frac{1}{3})$	$3\times2a$	$P1n1$	$2\mathbf{a}+\mathbf{c}, \mathbf{b}, \mathbf{a}+2\mathbf{c}$	$\frac{1}{3}(2x-z), y, \frac{1}{3}(-x+2z); \pm(\frac{1}{3}, 0, \frac{1}{3})$	$P1a1$	$3\mathbf{a}, \mathbf{b}, -\mathbf{a}+\mathbf{c}$	$\frac{1}{3}(x+z), y, z; \pm(\frac{1}{3}, 0, 0)$
[p] $P1c1$	$p\mathbf{a}, \mathbf{b}, \mathbf{c}$	$\frac{1}{p}x, y, z; +(\frac{u}{p}, 0, 0)$	$p\times2a$	$P1n1$	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	$x, y, \frac{1}{p}z; +(0, 0, \frac{u}{p})$	$P1a1$	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	$x, y, \frac{1}{p}z; +(0, 0, \frac{u}{p})$
	p = prime; $u = 1, \ldots, p-1$;				p = prime; $u = 1, \ldots, p-1$;			p = prime; $u = 1, \ldots, p-1$;	
[p] $P1c1$	$\mathbf{a}+q\mathbf{c}, \mathbf{b}, p\mathbf{c}$	$x, y, \frac{1}{p}(-qx+z); +(0, 0, \frac{u}{p})$	$p\times2a$	$P1n1$	$p\mathbf{a}, \mathbf{b}, 2q\mathbf{a}+\mathbf{c}$	$\frac{1}{p}(x-2qz), y, z; +(\frac{u}{p}, 0, 0)$	$P1a1$	$p\mathbf{a}, \mathbf{b}, q\mathbf{a}+\mathbf{c}$	$\frac{1}{p}(x-qz), y, z; +(\frac{u}{p}, 0, 0)$
	p = prime > 2; $u = 1, \ldots, p-1$; $-\frac{1}{2}(p-1) \le q \le \frac{1}{2}(p-1)$				p = prime > 2; $u = 1, \ldots, p-1$; $-\frac{1}{2}(p-1) \le q \le \frac{1}{2}(p-1)$			p = prime > 2; $u = 1, \ldots, p-1$; $-\frac{1}{2}(p-1) \le q \le \frac{1}{2}(p-1)$	

Space groups of the series of isomorphic subgroups appear in different sequences for cell choices 1, 2 and 3

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$P11a$ No. 7 $P11n$ $P11b$ Pc

UNIQUE AXIS c

CELL CHOICE 1			Wyckoff positions	CELL CHOICE 2			CELL CHOICE 3		
	Axes	Coordinates	$2a$		Axes	Coordinates		Axes	Coordinates
I Maximal *translationengleiche* subgroups									
[2] $P1$ (1)			$2\times1a$	$P1$			$P1$		
II Maximal *klassengleiche* subgroups									
Enlarged unit cell, non-isomorphic									
[2] $A11a$ (9)	$\mathbf{a},2\mathbf{b},2\mathbf{c}$	$x,\frac{1}{2}y,\frac{1}{2}z;+(0,0,\frac{1}{2})$	$2\times4a$	$B11n$	$2\mathbf{a}$, $-\mathbf{a}+\mathbf{b},2\mathbf{c}$	$\frac{1}{2}(x+y),y,\frac{1}{2}z;+(0,0,\frac{1}{2})$	$I11b$	$2\mathbf{a}+\mathbf{b}$, $\mathbf{b},2\mathbf{c}$	$\frac{1}{2}x,-\frac{1}{2}x+y,\frac{1}{2}z;+(0,0,\frac{1}{2})$
[2] $A11a$ (9)	$\mathbf{a},2\mathbf{b},2\mathbf{c}$	$x,\frac{1}{2}y,\frac{1}{2}z+\frac{1}{4}$; $+(0,0,\frac{1}{2})$	$2\times4a$	$B11n$	$2\mathbf{a}$, $-\mathbf{a}+\mathbf{b},2\mathbf{c}$	$\frac{1}{2}(x+y),y,\frac{1}{2}z+\frac{1}{4}$; $+(0,0,\frac{1}{2})$	$I11b$	$2\mathbf{a}+\mathbf{b}$, $\mathbf{b},2\mathbf{c}$	$\frac{1}{2}x,-\frac{1}{2}x+y,\frac{1}{2}z+\frac{1}{4}$; $+(0,0,\frac{1}{2})$
Enlarged unit cell, isomorphic									
[2] $P11a$	$\mathbf{a},\mathbf{b},2\mathbf{c}$	$x,y,\frac{1}{2}z;+(0,0,\frac{1}{2})$	$2\times2a$	$P11n$	$\mathbf{a},\mathbf{b},2\mathbf{c}$	$x,y,\frac{1}{2}z;+(0,0,\frac{1}{2})$	$P11b$	$\mathbf{a},\mathbf{b},2\mathbf{c}$	$x,y,\frac{1}{2}z;+(0,0,\frac{1}{2})$
[2] $P11a$	$\mathbf{a},\mathbf{b},2\mathbf{c}$	$x,y,\frac{1}{2}z+\frac{1}{4};+(0,0,\frac{1}{2})$	$2\times2a$	$P11n$	$\mathbf{a},\mathbf{b},2\mathbf{c}$	$x,y,\frac{1}{2}z+\frac{1}{4};+(0,0,\frac{1}{2})$	$P11b$	$\mathbf{a},\mathbf{b},2\mathbf{c}$	$x,y,\frac{1}{2}z+\frac{1}{4};+(0,0,\frac{1}{2})$
[3] $P11a$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$x,y,\frac{1}{3}z;\pm(0,0,\frac{1}{3})$	$3\times2a$	$P11n$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$x,y,\frac{1}{3}z;\pm(0,0,\frac{1}{3})$	$P11b$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$x,y,\frac{1}{3}z;\pm(0,0,\frac{1}{3})$
[p] $P11a$	$\mathbf{a},\mathbf{b},p\mathbf{c}$	$x,y,\frac{1}{p}z;+(0,0,\frac{u}{p})$ $p=$ prime; $u=1,\ldots,p-1$	$p\times2a$	$P11n$	$\mathbf{a},\mathbf{b},p\mathbf{c}$	$x,y,\frac{1}{p}z;+(0,0,\frac{u}{p})$ $p=$ prime; $u=1,\ldots,p-1$	$P11b$	$\mathbf{a},\mathbf{b},p\mathbf{c}$	$x,y,\frac{1}{p}z;+(0,0,\frac{u}{p})$ $p=$ prime; $u=1,\ldots,p-1$
[2] $P11a$	$\mathbf{a},2\mathbf{b},\mathbf{c}$	$x,\frac{1}{2}y,z;+(0,\frac{1}{2},0)$	$2\times2a$	$P11n$	$2\mathbf{a}$, $-\mathbf{a}+\mathbf{b},\mathbf{c}$	$\frac{1}{2}(x+y),y,z;+(\frac{1}{2},0,0)$	$P11b$	$2\mathbf{a},\mathbf{b},\mathbf{c}$	$\frac{1}{2}x,y,z;+(\frac{1}{2},0,0)$
[2] $P11n$	$\mathbf{a},2\mathbf{b},\mathbf{c}$	$x,\frac{1}{2}y,z;+(0,\frac{1}{2},0)$	$2\times2a$	$P11b$	$2\mathbf{a}$, $-\mathbf{a}+\mathbf{b},\mathbf{c}$	$\frac{1}{2}(x+y),y,z;+(\frac{1}{2},0,0)$	$P11n$	$2a,\mathbf{b},\mathbf{c}$	$\frac{1}{2}x,y,z;+(\frac{1}{2},0,0)$
[3] $P11a$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$x,\frac{1}{3}y,z;\pm(0,\frac{1}{3},0)$	$3\times2a$	$P11n$	$3\mathbf{a}$, $-2\mathbf{a}+\mathbf{b},\mathbf{c}$	$\frac{1}{3}(x+2y),y,z$; $\pm(\frac{1}{3},0,0)$	$P11b$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$\frac{1}{3}x,y,z;\pm(\frac{1}{3},0,0)$
[3] $P11a$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$\frac{1}{3}x,y,z;\pm(\frac{1}{3},0,0)$	$3\times2a$	$P11n$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$x,\frac{1}{3}y,z;\pm(0,\frac{1}{3},0)$	$P11b$	$\mathbf{a}+\mathbf{b},3\mathbf{b},\mathbf{c}$	$x,\frac{1}{3}(-x+y),z;\pm(0,\frac{1}{3},0)$
[3] $P11a$	$3\mathbf{a}$, $\mathbf{a}+\mathbf{b},\mathbf{c}$	$\frac{1}{3}(x-y),y,z$; $\pm(\frac{1}{3},0,0)$	$3\times2a$	$P11n$	$3\mathbf{a},\mathbf{b},\mathbf{c}$	$\frac{1}{3}x,y,z;\pm(\frac{1}{3},0,0)$	$P11b$	$\mathbf{a},3\mathbf{b},\mathbf{c}$	$x,\frac{1}{3}y,z;\pm(0,\frac{1}{3},0)$
[3] $P11a$	$3\mathbf{a}$, $-\mathbf{a}+\mathbf{b},\mathbf{c}$	$\frac{1}{3}(x+y),y,z$; $\pm(\frac{1}{3},0,0)$	$3\times2a$	$P11n$	$2\mathbf{a}+\mathbf{b}$, $\mathbf{a}+2\mathbf{b},\mathbf{c}$	$\frac{1}{3}(2x-y),\frac{1}{3}(-x+2y),z$; $\pm(\frac{1}{3},\frac{1}{3},0)$	$P11b$	$\mathbf{a}-\mathbf{b}$ $3\mathbf{b},\mathbf{c}$	$x,\frac{1}{3}(x+y),z$; $\pm(0,\frac{1}{3},0)$
[p] $P11a$	$\mathbf{a},p\mathbf{b},\mathbf{c}$	$x,\frac{1}{p}y,z;+(0,\frac{u}{p},0)$ $p=$ prime; $u=1,\ldots,p-1$;	$p\times2a$	$P11n$	$p\mathbf{a},\mathbf{b},\mathbf{c}$	$\frac{1}{p}x,y,z;+(\frac{u}{p},0,0)$ $p=$ prime; $u=1,\ldots,p-1$;	$P11b$	$p\mathbf{a},\mathbf{b},\mathbf{c}$	$\frac{1}{p}x,y,z;+(\frac{u}{p},0,0)$ $p=$ prime; $u=1,\ldots,p-1$;
[p] $P11a$	$p\mathbf{a}$, $q\mathbf{a}+\mathbf{b},\mathbf{c}$	$\frac{1}{p}(x-qy),y,z$; $+(\frac{u}{p},0,0)$ $p=$ prime >2; $u=1,\ldots,p-1$; $-\frac{1}{2}(p-1)\le q\le\frac{1}{2}(p-1)$	$p\times2a$	$P11n$	$\mathbf{a}+2q\mathbf{b}$, $p\mathbf{b},\mathbf{c}$	$x,\frac{1}{p}(-2qx+y),z$; $+(0,\frac{u}{p},0)$ $p=$ prime >2; $u=1,\ldots,p-1$; $-\frac{1}{2}(p-1)\le q\le\frac{1}{2}(p-1)$	$P11b$	$\mathbf{a}+q\mathbf{b}$, $p\mathbf{b},\mathbf{c}$	$x,\frac{1}{p}(-qx+y),z$; $+(0,\frac{u}{p},0)$ $p=$ prime >2; $u=1,\ldots,p-1$; $-\frac{1}{2}(p-1)\le q\le\frac{1}{2}(p-1)$

Space groups of the series of isomorphic subgroups appear in different sequences for cell choices 1, 2 and 3