

P321**No. 150** **D_3^2**

Axes	Coordinates	Wyckoff positions						
		1a	1b	2c	2d	3e	3f	6g
I Maximal translationengleiche subgroups								
[2] $P3$ (143)		1a	1a	$2 \times 1a$	$1b; 1c$	$3d$	$3d$	$2 \times 3d$
[3] $C121$	$2\mathbf{a}+\mathbf{b}, \frac{1}{2}x, -\frac{1}{2}x+y, z;$ (5) \mathbf{b}, \mathbf{c}	2a	2b	4c	4c	$2a; 4c$	$2b; 4c$	$3 \times 4c$
	conjugate: $\mathbf{a}-\mathbf{b}, \frac{1}{2}(x-y), \frac{1}{2}(x+y), z;$ $\mathbf{a}+\mathbf{b}, \mathbf{c}$							
	conjugate: $\mathbf{a}+2\mathbf{b}, \frac{1}{2}y, -x+\frac{1}{2}y, z;$ $-\mathbf{a}, \mathbf{c}$							
II Maximal klassengleiche subgroups								
Enlarged unit cell, non-isomorphic								
[3] $P3_221$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	$x, y, \frac{1}{3}z; \pm(0, 0, \frac{1}{3})$	3a	3b	6c	$3a; 6c$	$3b; 6c$	$3 \times 6c$
(154)								
[3] $P3_121$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	$x, y, \frac{1}{3}z; \pm(0, 0, \frac{1}{3})$	3a	3b	6c	$3a; 6c$	$3b; 6c$	$3 \times 6c$
(152)								
[3] $P312$	$2\mathbf{a}+\mathbf{b}, \frac{1}{3}(x+y), \frac{1}{3}(-x+2y), z;$ (149) $-\mathbf{a}+\mathbf{b}, \mathbf{c}$	$\pm(\frac{2}{3}, \frac{1}{3}, 0)$	1a; 1c; 1e	1b; 1d; 1f	2g; 2h; 2i	6l	$3 \times 3j$	$3 \times 6l$
Enlarged unit cell, isomorphic								
[2] $P321$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	$x, y, \frac{1}{2}z; +(0, 0, \frac{1}{2})$	1a; 1b	2c	$2 \times 2c$	$2 \times 2d$	$3e; 3f$	$6g$
[2] $P321$	$\mathbf{a}, \mathbf{b}, 2\mathbf{c}$	$x, y, \frac{1}{2}z + \frac{1}{4}; +(0, 0, \frac{1}{2})$	2c	1a; 1b	$2 \times 2c$	$2 \times 2d$	$6g$	$3e; 3f$
[3] $P321$	$\mathbf{a}, \mathbf{b}, 3\mathbf{c}$	$x, y, \frac{1}{3}z; \pm(0, 0, \frac{1}{3})$	1a; 2c	1b; 2c	$3 \times 2c$	$3 \times 2d$	$3e; 6g$	$3f; 6g$
[p] $P321$	$\mathbf{a}, \mathbf{b}, p\mathbf{c}$	$x, y, \frac{1}{p}z; +(0, 0, \frac{u}{p})$ $p = \text{prime} > 2; u = 1, \dots, p-1$	$1a; \frac{p-1}{2} \times 2c$	$1b; \frac{p-1}{2} \times 2c$	$p \times 2c$	$p \times 2d$	$3e; \frac{p-1}{2} \times 6g$	$3f; \frac{p-1}{2} \times 6g$
[4] $P321$	$2\mathbf{a}, 2\mathbf{b}, \mathbf{c}$	$\frac{1}{2}x, \frac{1}{2}y, z; +(\frac{1}{2}, 0, 0);$ $+ (0, \frac{1}{2}, 0); + (\frac{1}{2}, \frac{1}{2}, 0)$	1a; 3e	1b; 3f	2c; 6g	2d; 6g	$2 \times 3e; 6g$	$2 \times 3f; 6g$
[p^2] $P321$	$p\mathbf{a}, p\mathbf{b}, \mathbf{c}$	$\frac{1}{p}x, \frac{1}{p}y, z; +(\frac{u}{p}, \frac{v}{p}, 0)$ $p = \text{prime} \neq 3;$ $u, v = 1, \dots, p-1$	$1a; (p-1) \times 3e;$ $\frac{(p-1)(p-2)}{6} \times 6g$	$1b; (p-1) \times 3f;$ $\frac{(p-1)(p-2)}{6} \times 6g$	$2c; \frac{p^2-1}{3} \times 6g$	$2d; \frac{p^2-1}{3} \times 6g$	$p \times 3e;$ $\frac{p(p-1)}{2} \times 6g$	$p \times 3f;$ $\frac{p(p-1)}{2} \times 6g$