

P432**No. 207****O¹**

Axes	Coordinates	Wyckoff positions					
		1a	1b 8g	3c 12h	3d 12i	4e 12j	6f 24k
I Maximal translationengleiche subgroups							
[2] P23 (195)		1a	1b $2 \times 4e$	3c $6g; 6h$	3d $12j$	6f $12j$	6i $2 \times 12j$
[4] R32 (rhombohedral axes) (155)		1a	1b $3d$	3d $2c; 6f$	3e $2 \times 6f$	6f $2 \times 3d; 6f$	6f $2 \times 3e; 6f$
(hex. axes) $\mathbf{a} - \mathbf{b}$, $\mathbf{b} - \mathbf{c}$, $\frac{1}{3}(2x-y-z), \frac{1}{3}(x+y-2z), \frac{1}{3}(x+y+z)$		3a	3b $6c; 18f$	9d $2 \times 18f$	9e $2 \times 9d; 18f$	18f $2 \times 9e; 18f$	18f $4 \times 18f$
conjugate: $-\mathbf{a} - \mathbf{b}$, $\mathbf{b} + \mathbf{c}$, $\frac{1}{3}(-2x-y+z), \frac{1}{3}(-x+y+2z), \frac{1}{3}(-x+y-z)$							
conjugate: $\mathbf{a} + \mathbf{b}$, $-\mathbf{b} + \mathbf{c}$, $\frac{1}{3}(2x+y+z), \frac{1}{3}(x-y+2z), \frac{1}{3}(x-y-z)$							
conjugate: $-\mathbf{a} + \mathbf{b}$, $-\mathbf{b} - \mathbf{c}$, $\frac{1}{3}(-2x+y-z), \frac{1}{3}(-x-y-2z), \frac{1}{3}(-x-y+z)$							
[3] P422 (89)		1a	1d $8p$	1c; 2f $4i; 4n; 4o$	1b; 2e $4j; 8p$	2g; 4l $4k; 8p$	2h; 4m $3 \times 8p$
conjugate: $\mathbf{b}, \mathbf{c}, \mathbf{a}$ y, z, x							
conjugate: $\mathbf{c}, \mathbf{a}, \mathbf{b}$ z, x, y							
II Maximal klassengleiche subgroups							
Enlarged unit cell, non-isomorphic							
[2] F432 2a, 2b, 2c (209)	$\frac{1}{2}x, \frac{1}{2}y, \frac{1}{2}z; +(\frac{1}{2}, 0, 0)$	4a; 4b	8c $2 \times 32f$	24d $96j$	24e $48g; 48h$	$2 \times 24e$ $96j$	48i $2 \times 96j$
[2] F432 2a, 2b, 2c (209)	$\frac{1}{2}x + \frac{1}{4}, \frac{1}{2}y + \frac{1}{4}, \frac{1}{2}z + \frac{1}{4}; +(\frac{1}{2}, 0, 0)$	8c	4a; 4b $2 \times 32f$	24e $96j$	24d $96j$	48i $48g; 48h$	24e $2 \times 96j$
[4] I432 2a, 2b, 2c (211)	$\frac{1}{2}x, \frac{1}{2}y, \frac{1}{2}z; +(\frac{1}{2}, 0, 0); +(0, \frac{1}{2}, 0); +(0, 0, \frac{1}{2})$	2a; 6b	8c $16f; 48j$	24h $2 \times 48j$	12d; 12e $2 \times 48j$	$2 \times 12e; 24g$ $2 \times 24i; 48j$	48j $4 \times 48j$
[4] I432 2a, 2b, 2c (211)	$\frac{1}{2}x + \frac{1}{4}, \frac{1}{2}y + \frac{1}{4}, \frac{1}{2}z + \frac{1}{4}; +(\frac{1}{2}, 0, 0); +(0, \frac{1}{2}, 0); +(0, 0, \frac{1}{2})$	8c	2a; 6b $16f; 48j$	12d; 12e $2 \times 48j$	24h $2 \times 24i; 48j$	48j $2 \times 12e; 24g$	48j $4 \times 48j$
Enlarged unit cell, isomorphic							
[27] P432 3a, 3b, 3c	$\frac{1}{3}x, \frac{1}{3}y, \frac{1}{3}z; \pm(\frac{1}{3}, 0, 0); \pm(0, \frac{1}{3}, 0); \pm(0, 0, \frac{1}{3}); \pm(\frac{1}{3}, \frac{1}{3}, 0); \pm(\frac{1}{3}, 0, \frac{1}{3}); \pm(0, \frac{1}{3}, \frac{1}{3}); \pm(\frac{1}{3}, \frac{1}{3}, \frac{1}{3})$	1a; 6e; 8g; $12i$	1b; 6f; 8g; $12j$	3c; 6f; 12h; $12i; 2 \times 24k$	3d; 6e; 12h; $12j; 2 \times 24k$	$3 \times 6e;$ $6 \times 24k$	$3 \times 6f;$ $6 \times 24k$
[p ³] P432 pa, pb, pc	$\frac{1}{p}x, \frac{1}{p}y, \frac{1}{p}z; +(\frac{u}{p}, \frac{v}{p}, \frac{w}{p})$ $p = \text{prime} > 2; u, v, w = 1, \dots, p-1$	$1a; \frac{p-1}{2} \times 6e; \frac{p-1}{2} \times 8g; \frac{p-1}{2} \times 12i; \frac{p^3-13p+12}{24} \times 24k$	$1b; \frac{p-1}{2} \times 6f; \frac{p-1}{2} \times 8g; \frac{p-1}{2} \times 12j; \frac{p^3-13p+12}{24} \times 24k$	$3c; \frac{p-1}{2} \times 6f; \frac{p-1}{2} \times 12h; \frac{p-1}{2} \times 12i; \frac{p^3-5p+4}{8} \times 24k$	$3d; \frac{p-1}{2} \times 6e; \frac{p-1}{2} \times 12h; \frac{p-1}{2} \times 12j; \frac{p^3-5p+4}{8} \times 24k$	$p \times 6e;$ $p \times 6f;$ $\frac{p(p^2-1)}{4} \times 24k$	$p \times 6f;$ $\frac{p(p^2-1)}{4} \times 24k$
						$p \times 12h;$ $p \times 12i;$ $\frac{p(p^2-1)}{3} \times 24k$	$p \times 12j;$ $p \times 12k;$ $\frac{p(p^2-1)}{2} \times 24k$
							$p^3 \times 24k$