

D_{2h}^{11} $P2/b\bar{2}_1/c\bar{2}_1/m$

No. 57

 $Pbcm$

Axes

Coordinates

		4a	4b	4c	4d	8e	
I Maximal translationengleiche subgroups							
[2] $Pbc2_1$ (29)		4a	4a	4a	4a	$2 \times 4a$	
$\cong Pca2_1$	b, a, -c	$y, x, -z$					
[2] $P2cm$ (28)		$x, y + \frac{1}{4}, z$	4d	4d	$2a; 2b$	$2 \times 2c$	$2 \times 4d$
$\cong Pma2$	c, b, -a	$z, y + \frac{1}{4}, -x$					
[2] $Pb2_1m$ (26)		$x, y, z + \frac{1}{4}$	4c	4c	4c	$2a; 2b$	$2 \times 4c$
$\cong Pmc2_1$	c, a, b	$z + \frac{1}{4}, x, y$					
[2] $P22_12_1$ (18)		$x, y + \frac{1}{4}, z$	4c	4c	$2a; 2b$	4c	$2 \times 4c$
$\cong P2_12_12$	b, c, a	$y + \frac{1}{4}, z, x$					
[2] $P12_1/c1$ (14)			$2a; 2c$	$2b; 2d$	4e	4e	$2 \times 4e$
[2] $P2/b11$ (13)			$2a; 2d$	$2b; 2c$	$2e; 2f$	4g	$2 \times 4g$
$\cong P12/c1$	c, a, b	z, x, y					
[2] $P112_1/m$ (11)			$2a; 2b$	$2c; 2d$	4f	$2 \times 2e$	$2 \times 4f$

II Maximal klassengleiche subgroups

Enlarged unit cell, non-isomorphic

[2] $Pbnm$ (62)	2a, b, c	$\frac{1}{2}x, y, z; +(\frac{1}{2}, 0, 0)$	4a; 4b	8d	8d	$2 \times 4c$	$2 \times 8d$
$\cong Pnma$	b, c, 2a	$y, z, \frac{1}{2}x; +(0, 0, \frac{1}{2})$					
[2] $Pbnm$ (62)	2a, b, c	$\frac{1}{2}x + \frac{1}{4}, y, z; +(\frac{1}{2}, 0, 0)$	8d	4a; 4b	8d	$2 \times 4c$	$2 \times 8d$
$\cong Pnma$	b, c, 2a	$y, z, \frac{1}{2}x + \frac{1}{4}; +(0, 0, \frac{1}{2})$					
[2] $Pbca$ (61)	2a, b, c	$\frac{1}{2}x, y, z; +(\frac{1}{2}, 0, 0)$	4a; 4b	8c	8c	8c	$2 \times 8c$
[2] $Pbca$ (61)	2a, b, c	$\frac{1}{2}x + \frac{1}{4}, y, z; +(\frac{1}{2}, 0, 0)$	8c	4a; 4b	8c	8c	$2 \times 8c$
[2] $Pbna$ (60)	2a, b, c	$\frac{1}{2}x, y, z; +(\frac{1}{2}, 0, 0)$	4a; 4b	8d	$2 \times 4c$	8d	$2 \times 8d$
$\cong Pbcn$	c, 2a, b	$z, \frac{1}{2}x, y; +(0, \frac{1}{2}, 0)$					
[2] $Pbna$ (60)	2a, b, c	$\frac{1}{2}x + \frac{1}{4}, y, z; +(\frac{1}{2}, 0, 0)$	8d	4a; 4b	$2 \times 4c$	8d	$2 \times 8d$
$\cong Pbcn$	c, 2a, b	$z, \frac{1}{2}x + \frac{1}{4}, y; +(0, \frac{1}{2}, 0)$					

Enlarged unit cell, isomorphic

[2] $Pbcm$	2a, b, c	$\frac{1}{2}x, y, z; +(\frac{1}{2}, 0, 0)$	4a; 4b	8e	$2 \times 4c$	$2 \times 4d$	$2 \times 8e$
[2] $Pbcm$	2a, b, c	$\frac{1}{2}x + \frac{1}{4}, y, z; +(\frac{1}{2}, 0, 0)$	8e	4a; 4b	$2 \times 4c$	$2 \times 4d$	$2 \times 8e$
[3] $Pbcm$	3a, b, c	$\frac{1}{3}x, y, z; \pm(\frac{1}{3}, 0, 0)$	4a; 8e	4b; 8e	$3 \times 4c$	$3 \times 4d$	$3 \times 8e$
[p] $Pbcm$	p a, b, c	$\frac{1}{p}x, y, z; +(\frac{u}{p}, 0, 0)$	$4a; \frac{p-1}{2} \times 8e$	$4b; \frac{p-1}{2} \times 8e$	$p \times 4c$	$p \times 4d$	$p \times 8e$
		$p = \text{prime} > 2; u = 1, \dots, p-1$					
[3] $Pbcm$	a, 3b, c	$x, \frac{1}{3}y, z; \pm(0, \frac{1}{3}, 0)$	4a; 8e	4b; 8e	4c; 8e	$3 \times 4d$	$3 \times 8e$
[p] $Pbcm$	a, pb, c	$x, \frac{1}{p}y, z; +(0, \frac{u}{p}, 0)$	$4a; \frac{p-1}{2} \times 8e$	$4b; \frac{p-1}{2} \times 8e$	$4c; \frac{p-1}{2} \times 8e$	$p \times 4d$	$p \times 8e$
		$p = \text{prime} > 2; u = 1, \dots, p-1$					
[3] $Pbcm$	a, b, 3c	$x, y, \frac{1}{3}z; \pm(0, 0, \frac{1}{3})$	4a; 8e	4b; 8e	4c; 8e	$4d; 8e$	$3 \times 8e$
[p] $Pbcm$	a, b, pc	$x, y, \frac{1}{p}z; +(0, 0, \frac{u}{p})$	$4a; \frac{p-1}{2} \times 8e$	$4b; \frac{p-1}{2} \times 8e$	$4c; \frac{p-1}{2} \times 8e$	$4d; \frac{p-1}{2} \times 8e$	$p \times 8e$
		$p = \text{prime} > 2; u = 1, \dots, p-1$					

Nonconventional settings

interchange letters and sequences in Hermann–Mauguin symbols, axes and coordinates:

 $Pmca \quad a \rightarrow b \rightarrow c \rightarrow a \quad \mathbf{a} \rightarrow \mathbf{b} \rightarrow \mathbf{c} \rightarrow \mathbf{a} \quad x \rightarrow y \rightarrow z \rightarrow x$ $Pbma \quad a \leftarrow b \leftarrow c \leftarrow a \quad \mathbf{a} \leftarrow \mathbf{b} \leftarrow \mathbf{c} \leftarrow \mathbf{a} \quad x \leftarrow y \leftarrow z \leftarrow x$ $Pcam \quad a \rightleftharpoons b \quad \mathbf{a} \rightleftharpoons -\mathbf{b} \quad x \rightleftharpoons -y$ $Pmab \quad a \rightleftharpoons c \quad \mathbf{a} \rightleftharpoons -\mathbf{c} \quad x \rightleftharpoons -z$ $Pcmb \quad b \rightleftharpoons c \quad \mathbf{b} \rightleftharpoons -\mathbf{c} \quad y \rightleftharpoons -z$