

$p2$

No. 2

 $p2$ Generators selected (1); $t(1,0)$; $t(0,1)$; (2)

General position

Multiplicity,
Wyckoff letter,
Site symmetry2 e 1

Coordinates

(1) x,y (2) \bar{x},\bar{y} I Maximal *translationengleiche* subgroups[2] $p1$ (1) 1II Maximal *klassengleiche* subgroups

• Enlarged unit cell

[2] $\mathbf{a}' = 2\mathbf{a}$

$p2$ (2)	$\langle 2 \rangle$	$2\mathbf{a}, \mathbf{b}$	
$p2$ (2)	$\langle 2 + (1,0) \rangle$	$2\mathbf{a}, \mathbf{b}$	$1/2, 0$

[2] $\mathbf{b}' = 2\mathbf{b}$

$p2$ (2)	$\langle 2 \rangle$	$\mathbf{a}, 2\mathbf{b}$	
$p2$ (2)	$\langle 2 + (0,1) \rangle$	$\mathbf{a}, 2\mathbf{b}$	$0, 1/2$

[2] $\mathbf{a}' = 2\mathbf{a}, \mathbf{b}' = 2\mathbf{b}$

$c2$ (2, $p2$)	$\langle 2 \rangle$	$2\mathbf{a}, -\mathbf{a} + \mathbf{b}$	
$c2$ (2, $p2$)	$\langle 2 + (1,0) \rangle$	$2\mathbf{a}, -\mathbf{a} + \mathbf{b}$	$1/2, 0$

[3] $\mathbf{a}' = 3\mathbf{a}$

$\left\{ \begin{array}{l} p2 \text{ (2)} \\ p2 \text{ (2)} \\ p2 \text{ (2)} \end{array} \right.$	$\langle 2 \rangle$	$3\mathbf{a}, \mathbf{b}$	
	$\langle 2 + (2,0) \rangle$	$3\mathbf{a}, \mathbf{b}$	$1, 0$
	$\langle 2 + (4,0) \rangle$	$3\mathbf{a}, \mathbf{b}$	$2, 0$

[3] $\mathbf{a}' = 3\mathbf{a}, \mathbf{b}' = -\mathbf{a} + \mathbf{b}$

$\left\{ \begin{array}{l} p2 \text{ (2)} \\ p2 \text{ (2)} \\ p2 \text{ (2)} \end{array} \right.$	$\langle 2 \rangle$	$3\mathbf{a}, -\mathbf{a} + \mathbf{b}$	
	$\langle 2 + (2,0) \rangle$	$3\mathbf{a}, -\mathbf{a} + \mathbf{b}$	$1, 0$
	$\langle 2 + (4,0) \rangle$	$3\mathbf{a}, -\mathbf{a} + \mathbf{b}$	$2, 0$

[3] $\mathbf{a}' = 3\mathbf{a}, \mathbf{b}' = -2\mathbf{a} + \mathbf{b}$

$\left\{ \begin{array}{l} p2 \text{ (2)} \\ p2 \text{ (2)} \\ p2 \text{ (2)} \end{array} \right.$	$\langle 2 \rangle$	$3\mathbf{a}, -2\mathbf{a} + \mathbf{b}$	
	$\langle 2 + (2,0) \rangle$	$3\mathbf{a}, -2\mathbf{a} + \mathbf{b}$	$1, 0$
	$\langle 2 + (4,0) \rangle$	$3\mathbf{a}, -2\mathbf{a} + \mathbf{b}$	$2, 0$

[3] $\mathbf{b}' = 3\mathbf{b}$

$\left\{ \begin{array}{l} p2 \text{ (2)} \\ p2 \text{ (2)} \\ p2 \text{ (2)} \end{array} \right.$	$\langle 2 \rangle$	$\mathbf{a}, 3\mathbf{b}$	
	$\langle 2 + (0,2) \rangle$	$\mathbf{a}, 3\mathbf{b}$	$0, 1$
	$\langle 2 + (0,4) \rangle$	$\mathbf{a}, 3\mathbf{b}$	$0, 2$

• Series of maximal isomorphic subgroups

[p] $\mathbf{a}' = p\mathbf{a}, \mathbf{b}' = -q\mathbf{a} + \mathbf{b}$

$p2$ (2)	$\langle 2 + (2u, 0) \rangle$	$p\mathbf{a}, -q\mathbf{a} + \mathbf{b}$	$u, 0$
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prime $p > 2$; $0 \leq q < p$; $0 \leq u < p$
 p conjugate subgroups for each pair of q and p

[p] $\mathbf{b}' = p\mathbf{b}$

$p2$ (2)	$\langle 2 + (0, 2u) \rangle$	$\mathbf{a}, p\mathbf{b}$	$0, u$
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prime $p > 2$; $0 \leq u < p$
 p conjugate subgroups

I Minimal *translationengleiche* supergroups[2] $p2mm$ (6); [2] $p2mg$ (7); [2] $p2gg$ (8); [2] $c2mm$ (9); [2] $p4$ (10); [2] $p6$ (16)II Minimal non-isomorphic *klassengleiche* supergroups

none