Generators selected (1); $t(1,0,0)$; $t(0,1,0)$; $t(0,0,1)$; (2); (3)

General position

Multiplicity, Wyckoff letter, Site symmetry		Coordinates
4	h 1	(1) x,y,z (2) $\bar{x},\bar{y},z$ (3) $y,\bar{x},\bar{z}$ (4) $\bar{y},x,\bar{z}$

I Maximal *translationengleiche* subgroups

[2] $P2$ (3, $P112$) 1; 2

II Maximal *klassengleiche* subgroups

- **Enlarged unit cell**

[2] $\mathbf{c}' = 2\mathbf{c}$			
$P\bar{4}$ (81)	$\langle 2;\ 3\rangle$	$\mathbf{a},\mathbf{b},2\mathbf{c}$	
$P\bar{4}$ (81)	$\langle 2;\ 3+(0,0,1)\rangle$	$\mathbf{a},\mathbf{b},2\mathbf{c}$	$0,0,1/2$
[2] $\mathbf{a}' = 2\mathbf{a},\ \mathbf{b}' = 2\mathbf{b}$			
$C\bar{4}$ (81, $P\bar{4}$)	$\langle 2;\ 3\rangle$	$\mathbf{a}-\mathbf{b},\mathbf{a}+\mathbf{b},\mathbf{c}$	
$C\bar{4}$ (81, $P\bar{4}$)	$\langle 2+(1,1,0);\ 3+(0,1,0)\rangle$	$\mathbf{a}-\mathbf{b},\mathbf{a}+\mathbf{b},\mathbf{c}$	$1/2,1/2,0$
[2] $\mathbf{a}' = 2\mathbf{a},\ \mathbf{b}' = 2\mathbf{b},\ \mathbf{c}' = 2\mathbf{c}$			
$F\bar{4}$ (82, $I\bar{4}$)	$\langle 2;\ 3\rangle$	$\mathbf{a}-\mathbf{b},\mathbf{a}+\mathbf{b},2\mathbf{c}$	
$F\bar{4}$ (82, $I\bar{4}$)	$\langle 2;\ 3+(0,0,1)\rangle$	$\mathbf{a}-\mathbf{b},\mathbf{a}+\mathbf{b},2\mathbf{c}$	$0,0,1/2$
[3] $\mathbf{c}' = 3\mathbf{c}$			
$P\bar{4}$ (81)	$\langle 2;\ 3\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	
$P\bar{4}$ (81)	$\langle 2;\ 3+(0,0,2)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$0,0,1$
$P\bar{4}$ (81)	$\langle 2;\ 3+(0,0,4)\rangle$	$\mathbf{a},\mathbf{b},3\mathbf{c}$	$0,0,2$

- **Series of maximal isomorphic subgroups**

[p] $\mathbf{c}' = p\mathbf{c}$			
$P\bar{4}$ (81)	$\langle 2;\ 3+(0,0,2u)\rangle$ $p>2;\ 0\le u<p$ p conjugate subgroups for the prime p	$\mathbf{a},\mathbf{b},p\mathbf{c}$	$0,0,u$
[p^2] $\mathbf{a}' = p\mathbf{a},\ \mathbf{b}' = p\mathbf{b}$			
$P\bar{4}$ (81)	$\langle 2+(2u,2v,0);\ 3+(u-v,u+v,0)\rangle$ $p>2;\ 0\le u<p;\ 0\le v<p$ p^2 conjugate subgroups for prime $p\equiv 3\ (\mathrm{mod}\ 4)$	$p\mathbf{a},p\mathbf{b},\mathbf{c}$	$u,v,0$
[$p=q^2+r^2$] $\mathbf{a}' = q\mathbf{a}-r\mathbf{b},\ \mathbf{b}' = r\mathbf{a}+q\mathbf{b}$			
$P\bar{4}$ (81)	$\langle 2+(2u,0,0);\ 3+(u,u,0)\rangle$ $q>0;\ r>0;\ p>4;\ 0\le u<p$ p conjugate subgroups for prime $p\equiv 1\ (\mathrm{mod}\ 4)$	$q\mathbf{a}-r\mathbf{b},r\mathbf{a}+q\mathbf{b},\mathbf{c}$	$u,0,0$

I Minimal *translationengleiche* supergroups

[2] $P4/m$ (83); [2] $P4_2/m$ (84); [2] $P4/n$ (85); [2] $P4_2/n$ (86); [2] $P\bar{4}2m$ (111); [2] $P\bar{4}2c$ (112); [2] $P\bar{4}2_1m$ (113); [2] $P\bar{4}2_1c$ (114); [2] $P\bar{4}m2$ (115); [2] $P\bar{4}c2$ (116); [2] $P\bar{4}b2$ (117); [2] $P\bar{4}n2$ (118)

II Minimal non-isomorphic *klassengleiche* supergroups

- **Additional centring translations**

[2] $I\bar{4}$ (82)

- **Decreased unit cell** none