SG No. 50 D_{2h}^{4} *Pban* [orthorhombic]

* plus set: $+[0,\ 0,\ 0]$
* Wyckoff site: `2a`, site symmetry: `222`

Table 1: Wyckoff bond: `2a@2a`

No.	vector	center	mapping
1	$[0,\ 0,\ Z]$	$\left[\frac{1}{4},\ \frac{1}{4},\ 0\right]$	`[1,2,-3,-4]`
2	$[0,\ 0,\ -Z]$	$\left[\frac{3}{4},\ \frac{3}{4},\ 0\right]$	`[5,6,-7,-8]`

Table 2: Wyckoff bond: `2b@2a`

No.	vector	center	mapping
1	$[0,\ Y,\ 0]$	$\left[\frac{1}{4},\ \frac{1}{4},\ 0\right]$	`[1,-2,3,-4]`
2	$[0,\ -Y,\ 0]$	$\left[\frac{3}{4},\ \frac{3}{4},\ 0\right]$	`[5,-6,7,-8]`

Table 3: Wyckoff bond: `2c@2a`

No.	vector	center	mapping
1	$[X,\ 0,\ 0]$	$\left[\frac{1}{4},\ \frac{1}{4},\ 0\right]$	`[1,-2,-3,4]`
2	$[-X,\ 0,\ 0]$	$\left[\frac{3}{4},\ \frac{3}{4},\ 0\right]$	`[5,-6,-7,8]`

Table 4: Wyckoff bond: `4d@2a`

No.	vector	center	mapping
1	$[X,\ Y,\ 0]$	$\left[\frac{1}{4},\ \frac{1}{4},\ 0\right]$	`[1,-2]`
2	$[-X,\ Y,\ 0]$	$\left[\frac{1}{4},\ \frac{1}{4},\ 0\right]$	`[3,-4]`
3	$[-X,\ -Y,\ 0]$	$\left[\frac{3}{4},\ \frac{3}{4},\ 0\right]$	`[5,-6]`
4	$[X,\ -Y,\ 0]$	$\left[\frac{3}{4},\ \frac{3}{4},\ 0\right]$	`[7,-8]`

Table 5: Wyckoff bond: `4e@2a`

No.	vector	center	mapping
1	$[X,\ 0,\ Z]$	$\left[\frac{1}{4},\ \frac{1}{4},\ 0\right]$	`[1,-3]`
2	$[-X,\ 0,\ Z]$	$\left[\frac{1}{4},\ \frac{1}{4},\ 0\right]$	`[2,-4]`
3	$[-X,\ 0,\ -Z]$	$\left[\frac{3}{4},\ \frac{3}{4},\ 0\right]$	`[5,-7]`
4	$[X,\ 0,\ -Z]$	$\left[\frac{3}{4},\ \frac{3}{4},\ 0\right]$	`[6,-8]`

Table 6: Wyckoff bond: `4f@2a`

No.	vector	center	mapping
1	$[0, Y, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, 0\right]$	`[1,-4]`
2	$[0, -Y, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, 0\right]$	`[2,-3]`
3	$[0, -Y, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, 0\right]$	`[5,-8]`
4	$[0, Y, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, 0\right]$	`[6,-7]`

Table 7: Wyckoff bond: `8g@2a`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, 0\right]$	`[1]`
2	$[-X, -Y, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, 0\right]$	`[2]`
3	$[-X, Y, -Z]$	$\left[\frac{1}{4}, \frac{1}{4}, 0\right]$	`[3]`
4	$[X, -Y, -Z]$	$\left[\frac{1}{4}, \frac{1}{4}, 0\right]$	`[4]`
5	$[-X, -Y, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, 0\right]$	`[5]`
6	$[X, Y, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, 0\right]$	`[6]`
7	$[X, -Y, Z]$	$\left[\frac{3}{4}, \frac{3}{4}, 0\right]$	`[7]`
8	$[-X, Y, Z]$	$\left[\frac{3}{4}, \frac{3}{4}, 0\right]$	`[8]`

* Wyckoff site: `2b`, site symmetry: `222`

Table 8: Wyckoff bond: `2a@2b`

No.	vector	center	mapping
1	$[0, 0, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[1,2,-3,-4]`
2	$[0, 0, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[5,6,-7,-8]`

Table 9: Wyckoff bond: `2b@2b`

No.	vector	center	mapping
1	$[0, Y, 0]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[1,-2,3,-4]`
2	$[0, -Y, 0]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[5,-6,7,-8]`

Table 10: Wyckoff bond: `2c@2b`

No.	vector	center	mapping
1	$[X, 0, 0]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[1,-2,-3,4]`
2	$[-X, 0, 0]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[5,-6,-7,8]`

Table 11: Wyckoff bond: `4d@2b`

No.	vector	center	mapping
1	$[X, Y, 0]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[1,-2]`
2	$[-X, Y, 0]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[3,-4]`
3	$[-X, -Y, 0]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[5,-6]`
4	$[X, -Y, 0]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[7,-8]`

Table 12: Wyckoff bond: `4e@2b`

No.	vector	center	mapping
1	$[X, 0, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[1,-3]`
2	$[-X, 0, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[2,-4]`
3	$[-X, 0, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[5,-7]`
4	$[X, 0, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[6,-8]`

Table 13: Wyckoff bond: `4f@2b`

No.	vector	center	mapping
1	$[0, Y, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[1,-4]`
2	$[0, -Y, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[2,-3]`
3	$[0, -Y, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[5,-8]`
4	$[0, Y, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[6,-7]`

Table 14: Wyckoff bond: `8g@2b`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[1]`
2	$[-X, -Y, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[2]`
3	$[-X, Y, -Z]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[3]`
4	$[X, -Y, -Z]$	$\left[\frac{3}{4}, \frac{1}{4}, 0\right]$	`[4]`
5	$[-X, -Y, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[5]`
6	$[X, Y, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[6]`
7	$[X, -Y, Z]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[7]`
8	$[-X, Y, Z]$	$\left[\frac{1}{4}, \frac{3}{4}, 0\right]$	`[8]`

* Wyckoff site: `2c`, site symmetry: `222`

Table 15: Wyckoff bond: `2a@2c`

No.	vector	center	mapping
1	$[0,\ 0,\ Z]$	$\left[\frac{3}{4},\ \frac{1}{4},\ \frac{1}{2}\right]$	`[1,2,-3,-4]`
2	$[0,\ 0,\ -Z]$	$\left[\frac{1}{4},\ \frac{3}{4},\ \frac{1}{2}\right]$	`[5,6,-7,-8]`

Table 16: Wyckoff bond: `2b@2c`

No.	vector	center	mapping
1	$[0,\ Y,\ 0]$	$\left[\frac{3}{4},\ \frac{1}{4},\ \frac{1}{2}\right]$	`[1,-2,3,-4]`
2	$[0,\ -Y,\ 0]$	$\left[\frac{1}{4},\ \frac{3}{4},\ \frac{1}{2}\right]$	`[5,-6,7,-8]`

Table 17: Wyckoff bond: `2c@2c`

No.	vector	center	mapping
1	$[X,\ 0,\ 0]$	$\left[\frac{3}{4},\ \frac{1}{4},\ \frac{1}{2}\right]$	`[1,-2,-3,4]`
2	$[-X,\ 0,\ 0]$	$\left[\frac{1}{4},\ \frac{3}{4},\ \frac{1}{2}\right]$	`[5,-6,-7,8]`

Table 18: Wyckoff bond: `4d@2c`

No.	vector	center	mapping
1	$[X,\ Y,\ 0]$	$\left[\frac{3}{4},\ \frac{1}{4},\ \frac{1}{2}\right]$	`[1,-2]`
2	$[-X,\ Y,\ 0]$	$\left[\frac{3}{4},\ \frac{1}{4},\ \frac{1}{2}\right]$	`[3,-4]`
3	$[-X,\ -Y,\ 0]$	$\left[\frac{1}{4},\ \frac{3}{4},\ \frac{1}{2}\right]$	`[5,-6]`
4	$[X,\ -Y,\ 0]$	$\left[\frac{1}{4},\ \frac{3}{4},\ \frac{1}{2}\right]$	`[7,-8]`

Table 19: Wyckoff bond: `4e@2c`

No.	vector	center	mapping
1	$[X,\ 0,\ Z]$	$\left[\frac{3}{4},\ \frac{1}{4},\ \frac{1}{2}\right]$	`[1,-3]`
2	$[-X,\ 0,\ Z]$	$\left[\frac{3}{4},\ \frac{1}{4},\ \frac{1}{2}\right]$	`[2,-4]`
3	$[-X,\ 0,\ -Z]$	$\left[\frac{1}{4},\ \frac{3}{4},\ \frac{1}{2}\right]$	`[5,-7]`
4	$[X,\ 0,\ -Z]$	$\left[\frac{1}{4},\ \frac{3}{4},\ \frac{1}{2}\right]$	`[6,-8]`

Table 20: Wyckoff bond: `4f@2c`

No.	vector	center	mapping
1	$[0, Y, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[1,-4]`
2	$[0, -Y, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[2,-3]`
3	$[0, -Y, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[5,-8]`
4	$[0, Y, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[6,-7]`

Table 21: Wyckoff bond: `8g@2c`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[1]`
2	$[-X, -Y, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[2]`
3	$[-X, Y, -Z]$	$\left[\frac{3}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[3]`
4	$[X, -Y, -Z]$	$\left[\frac{3}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[4]`
5	$[-X, -Y, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[5]`
6	$[X, Y, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[6]`
7	$[X, -Y, Z]$	$\left[\frac{1}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[7]`
8	$[-X, Y, Z]$	$\left[\frac{1}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[8]`

* Wyckoff site: `2d`, site symmetry: `222`

Table 22: Wyckoff bond: `2a@2d`

No.	vector	center	mapping
1	$[0, 0, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[1,2,-3,-4]`
2	$[0, 0, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[5,6,-7,-8]`

Table 23: Wyckoff bond: `2b@2d`

No.	vector	center	mapping
1	$[0, Y, 0]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[1,-2,3,-4]`
2	$[0, -Y, 0]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[5,-6,7,-8]`

Table 24: Wyckoff bond: `2c@2d`

No.	vector	center	mapping
1	$[X, 0, 0]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[1,-2,-3,4]`
2	$[-X, 0, 0]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[5,-6,-7,8]`

Table 25: Wyckoff bond: `4d@2d`

No.	vector	center	mapping
1	$[X, Y, 0]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[1,-2]`
2	$[-X, Y, 0]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[3,-4]`
3	$[-X, -Y, 0]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[5,-6]`
4	$[X, -Y, 0]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[7,-8]`

Table 26: Wyckoff bond: `4e@2d`

No.	vector	center	mapping
1	$[X, 0, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[1,-3]`
2	$[-X, 0, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[2,-4]`
3	$[-X, 0, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[5,-7]`
4	$[X, 0, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[6,-8]`

Table 27: Wyckoff bond: `4f@2d`

No.	vector	center	mapping
1	$[0, Y, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[1,-4]`
2	$[0, -Y, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[2,-3]`
3	$[0, -Y, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[5,-8]`
4	$[0, Y, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[6,-7]`

Table 28: Wyckoff bond: `8g@2d`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[1]`
2	$[-X, -Y, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[2]`
3	$[-X, Y, -Z]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[3]`
4	$[X, -Y, -Z]$	$\left[\frac{1}{4}, \frac{1}{4}, \frac{1}{2}\right]$	`[4]`
5	$[-X, -Y, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[5]`
6	$[X, Y, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[6]`
7	$[X, -Y, Z]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[7]`
8	$[-X, Y, Z]$	$\left[\frac{3}{4}, \frac{3}{4}, \frac{1}{2}\right]$	`[8]`

* Wyckoff site: `4e`, site symmetry: `-1`

Table 29: Wyckoff bond: `4a@4e`

No.	vector	center	mapping
1	$[X, Y, Z]$	$[0, 0, 0]$	`[1,-5]`
2	$[-X, -Y, Z]$	$\left[\frac{1}{2}, \frac{1}{2}, 0\right]$	`[2,-6]`
3	$[-X, Y, -Z]$	$\left[\frac{1}{2}, 0, 0\right]$	`[3,-7]`
4	$[X, -Y, -Z]$	$\left[0, \frac{1}{2}, 0\right]$	`[4,-8]`

* Wyckoff site: `4f`, site symmetry: `-1`

Table 30: Wyckoff bond: `4a@4f`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[0, 0, \frac{1}{2}\right]$	`[1,-5]`
2	$[-X, -Y, Z]$	$\left[\frac{1}{2}, \frac{1}{2}, \frac{1}{2}\right]$	`[2,-6]`
3	$[-X, Y, -Z]$	$\left[\frac{1}{2}, 0, \frac{1}{2}\right]$	`[3,-7]`
4	$[X, -Y, -Z]$	$\left[0, \frac{1}{2}, \frac{1}{2}\right]$	`[4,-8]`

* Wyckoff site: `4g`, site symmetry: `2..`

Table 31: Wyckoff bond: `4a@4g`

No.	vector	center	mapping
1	$[0, Y, Z]$	$\left[x, \frac{1}{4}, 0\right]$	`[1,-4]`
2	$[0, -Y, Z]$	$\left[\frac{1}{2} - x, \frac{1}{4}, 0\right]$	`[2,-3]`
3	$[0, -Y, -Z]$	$\left[-x, \frac{3}{4}, 0\right]$	`[5,-8]`
4	$[0, Y, -Z]$	$\left[x + \frac{1}{2}, \frac{3}{4}, 0\right]$	`[6,-7]`

Table 32: Wyckoff bond: `4b@4g`

No.	vector	center	mapping
1	$[X, 0, 0]$	$\left[x, \frac{1}{4}, 0\right]$	`[1,4]`
2	$[-X, 0, 0]$	$\left[\frac{1}{2} - x, \frac{1}{4}, 0\right]$	`[2,3]`
3	$[-X, 0, 0]$	$\left[-x, \frac{3}{4}, 0\right]$	`[5,8]`
4	$[X, 0, 0]$	$\left[x + \frac{1}{2}, \frac{3}{4}, 0\right]$	`[6,7]`

Table 33: Wyckoff bond: `8c@4g`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[x, \frac{1}{4}, 0\right]$	`[1]`
2	$[-X, -Y, Z]$	$\left[\frac{1}{2} - x, \frac{1}{4}, 0\right]$	`[2]`

continued ...

Table 33

No.	vector	center	mapping
3	$[-X, Y, -Z]$	$\left[\frac{1}{2}-x, \frac{1}{4}, 0\right]$	`[3]`
4	$[X, -Y, -Z]$	$\left[x, \frac{1}{4}, 0\right]$	`[4]`
5	$[-X, -Y, -Z]$	$\left[-x, \frac{3}{4}, 0\right]$	`[5]`
6	$[X, Y, -Z]$	$\left[x+\frac{1}{2}, \frac{3}{4}, 0\right]$	`[6]`
7	$[X, -Y, Z]$	$\left[x+\frac{1}{2}, \frac{3}{4}, 0\right]$	`[7]`
8	$[-X, Y, Z]$	$\left[-x, \frac{3}{4}, 0\right]$	`[8]`

* Wyckoff site: `4h`, site symmetry: `2..`

Table 34: Wyckoff bond: `4a@4h`

No.	vector	center	mapping
1	$[0, Y, Z]$	$\left[x, \frac{1}{4}, \frac{1}{2}\right]$	`[1,-4]`
2	$[0, -Y, Z]$	$\left[\frac{1}{2}-x, \frac{1}{4}, \frac{1}{2}\right]$	`[2,-3]`
3	$[0, -Y, -Z]$	$\left[-x, \frac{3}{4}, \frac{1}{2}\right]$	`[5,-8]`
4	$[0, Y, -Z]$	$\left[x+\frac{1}{2}, \frac{3}{4}, \frac{1}{2}\right]$	`[6,-7]`

Table 35: Wyckoff bond: `4b@4h`

No.	vector	center	mapping
1	$[X, 0, 0]$	$\left[x, \frac{1}{4}, \frac{1}{2}\right]$	`[1,4]`
2	$[-X, 0, 0]$	$\left[\frac{1}{2}-x, \frac{1}{4}, \frac{1}{2}\right]$	`[2,3]`
3	$[-X, 0, 0]$	$\left[-x, \frac{3}{4}, \frac{1}{2}\right]$	`[5,8]`
4	$[X, 0, 0]$	$\left[x+\frac{1}{2}, \frac{3}{4}, \frac{1}{2}\right]$	`[6,7]`

Table 36: Wyckoff bond: `8c@4h`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[x, \frac{1}{4}, \frac{1}{2}\right]$	`[1]`
2	$[-X, -Y, Z]$	$\left[\frac{1}{2}-x, \frac{1}{4}, \frac{1}{2}\right]$	`[2]`
3	$[-X, Y, -Z]$	$\left[\frac{1}{2}-x, \frac{1}{4}, \frac{1}{2}\right]$	`[3]`
4	$[X, -Y, -Z]$	$\left[x, \frac{1}{4}, \frac{1}{2}\right]$	`[4]`
5	$[-X, -Y, -Z]$	$\left[-x, \frac{3}{4}, \frac{1}{2}\right]$	`[5]`
6	$[X, Y, -Z]$	$\left[x+\frac{1}{2}, \frac{3}{4}, \frac{1}{2}\right]$	`[6]`
7	$[X, -Y, Z]$	$\left[x+\frac{1}{2}, \frac{3}{4}, \frac{1}{2}\right]$	`[7]`
8	$[-X, Y, Z]$	$\left[-x, \frac{3}{4}, \frac{1}{2}\right]$	`[8]`

* Wyckoff site: `4i`, site symmetry: `.2.`

Table 37: Wyckoff bond: `4a@4i`

No.	vector	center	mapping
1	$[X,\ 0,\ Z]$	$\left[\frac{1}{4},\ y,\ 0\right]$	`[1,-3]`
2	$[-X,\ 0,\ Z]$	$\left[\frac{1}{4},\ \frac{1}{2}-y,\ 0\right]$	`[2,-4]`
3	$[-X,\ 0,\ -Z]$	$\left[\frac{3}{4},\ -y,\ 0\right]$	`[5,-7]`
4	$[X,\ 0,\ -Z]$	$\left[\frac{3}{4},\ y+\frac{1}{2},\ 0\right]$	`[6,-8]`

Table 38: Wyckoff bond: `4b@4i`

No.	vector	center	mapping
1	$[0,\ Y,\ 0]$	$\left[\frac{1}{4},\ y,\ 0\right]$	`[1,3]`
2	$[0,\ -Y,\ 0]$	$\left[\frac{1}{4},\ \frac{1}{2}-y,\ 0\right]$	`[2,4]`
3	$[0,\ -Y,\ 0]$	$\left[\frac{3}{4},\ -y,\ 0\right]$	`[5,7]`
4	$[0,\ Y,\ 0]$	$\left[\frac{3}{4},\ y+\frac{1}{2},\ 0\right]$	`[6,8]`

Table 39: Wyckoff bond: `8c@4i`

No.	vector	center	mapping
1	$[X,\ Y,\ Z]$	$\left[\frac{1}{4},\ y,\ 0\right]$	`[1]`
2	$[-X,\ -Y,\ Z]$	$\left[\frac{1}{4},\ \frac{1}{2}-y,\ 0\right]$	`[2]`
3	$[-X,\ Y,\ -Z]$	$\left[\frac{1}{4},\ y,\ 0\right]$	`[3]`
4	$[X,\ -Y,\ -Z]$	$\left[\frac{1}{4},\ \frac{1}{2}-y,\ 0\right]$	`[4]`
5	$[-X,\ -Y,\ -Z]$	$\left[\frac{3}{4},\ -y,\ 0\right]$	`[5]`
6	$[X,\ Y,\ -Z]$	$\left[\frac{3}{4},\ y+\frac{1}{2},\ 0\right]$	`[6]`
7	$[X,\ -Y,\ Z]$	$\left[\frac{3}{4},\ -y,\ 0\right]$	`[7]`
8	$[-X,\ Y,\ Z]$	$\left[\frac{3}{4},\ y+\frac{1}{2},\ 0\right]$	`[8]`

* Wyckoff site: `4j`, site symmetry: `.2.`

Table 40: Wyckoff bond: `4a@4j`

No.	vector	center	mapping
1	$[X,\ 0,\ Z]$	$\left[\frac{1}{4},\ y,\ \frac{1}{2}\right]$	`[1,-3]`
2	$[-X,\ 0,\ Z]$	$\left[\frac{1}{4},\ \frac{1}{2}-y,\ \frac{1}{2}\right]$	`[2,-4]`
3	$[-X,\ 0,\ -Z]$	$\left[\frac{3}{4},\ -y,\ \frac{1}{2}\right]$	`[5,-7]`
4	$[X,\ 0,\ -Z]$	$\left[\frac{3}{4},\ y+\frac{1}{2},\ \frac{1}{2}\right]$	`[6,-8]`

Table 41: Wyckoff bond: `4b@4j`

No.	vector	center	mapping
1	$[0,\ Y,\ 0]$	$\left[\frac{1}{4},\ y,\ \frac{1}{2}\right]$	`[1,3]`
2	$[0,\ -Y,\ 0]$	$\left[\frac{1}{4},\ \frac{1}{2}-y,\ \frac{1}{2}\right]$	`[2,4]`
3	$[0,\ -Y,\ 0]$	$\left[\frac{3}{4},\ -y,\ \frac{1}{2}\right]$	`[5,7]`
4	$[0,\ Y,\ 0]$	$\left[\frac{3}{4},\ y+\frac{1}{2},\ \frac{1}{2}\right]$	`[6,8]`

Table 42: Wyckoff bond: `8c@4j`

No.	vector	center	mapping
1	$[X,\ Y,\ Z]$	$\left[\frac{1}{4},\ y,\ \frac{1}{2}\right]$	`[1]`
2	$[-X,\ -Y,\ Z]$	$\left[\frac{1}{4},\ \frac{1}{2}-y,\ \frac{1}{2}\right]$	`[2]`
3	$[-X,\ Y,\ -Z]$	$\left[\frac{1}{4},\ y,\ \frac{1}{2}\right]$	`[3]`
4	$[X,\ -Y,\ -Z]$	$\left[\frac{1}{4},\ \frac{1}{2}-y,\ \frac{1}{2}\right]$	`[4]`
5	$[-X,\ -Y,\ -Z]$	$\left[\frac{3}{4},\ -y,\ \frac{1}{2}\right]$	`[5]`
6	$[X,\ Y,\ -Z]$	$\left[\frac{3}{4},\ y+\frac{1}{2},\ \frac{1}{2}\right]$	`[6]`
7	$[X,\ -Y,\ Z]$	$\left[\frac{3}{4},\ -y,\ \frac{1}{2}\right]$	`[7]`
8	$[-X,\ Y,\ Z]$	$\left[\frac{3}{4},\ y+\frac{1}{2},\ \frac{1}{2}\right]$	`[8]`

* Wyckoff site: `4k`, site symmetry: `..2`

Table 43: Wyckoff bond: `4a@4k`

No.	vector	center	mapping
1	$[X,\ Y,\ 0]$	$\left[\frac{1}{4},\ \frac{1}{4},\ z\right]$	`[1,-2]`
2	$[-X,\ Y,\ 0]$	$\left[\frac{1}{4},\ \frac{1}{4},\ -z\right]$	`[3,-4]`
3	$[-X,\ -Y,\ 0]$	$\left[\frac{3}{4},\ \frac{3}{4},\ -z\right]$	`[5,-6]`
4	$[X,\ -Y,\ 0]$	$\left[\frac{3}{4},\ \frac{3}{4},\ z\right]$	`[7,-8]`

Table 44: Wyckoff bond: `4b@4k`

No.	vector	center	mapping
1	$[0,\ 0,\ Z]$	$\left[\frac{1}{4},\ \frac{1}{4},\ z\right]$	`[1,2]`
2	$[0,\ 0,\ -Z]$	$\left[\frac{1}{4},\ \frac{1}{4},\ -z\right]$	`[3,4]`
3	$[0,\ 0,\ -Z]$	$\left[\frac{3}{4},\ \frac{3}{4},\ -z\right]$	`[5,6]`
4	$[0,\ 0,\ Z]$	$\left[\frac{3}{4},\ \frac{3}{4},\ z\right]$	`[7,8]`

Table 45: Wyckoff bond: `8c@4k`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, z\right]$	`[1]`
2	$[-X, -Y, Z]$	$\left[\frac{1}{4}, \frac{1}{4}, z\right]$	`[2]`
3	$[-X, Y, -Z]$	$\left[\frac{1}{4}, \frac{1}{4}, -z\right]$	`[3]`
4	$[X, -Y, -Z]$	$\left[\frac{1}{4}, \frac{1}{4}, -z\right]$	`[4]`
5	$[-X, -Y, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, -z\right]$	`[5]`
6	$[X, Y, -Z]$	$\left[\frac{3}{4}, \frac{3}{4}, -z\right]$	`[6]`
7	$[X, -Y, Z]$	$\left[\frac{3}{4}, \frac{3}{4}, z\right]$	`[7]`
8	$[-X, Y, Z]$	$\left[\frac{3}{4}, \frac{3}{4}, z\right]$	`[8]`

* Wyckoff site: `4l`, site symmetry: `..2`

Table 46: Wyckoff bond: `4a@4l`

No.	vector	center	mapping
1	$[X, Y, 0]$	$\left[\frac{1}{4}, \frac{3}{4}, z\right]$	`[1,-2]`
2	$[-X, Y, 0]$	$\left[\frac{1}{4}, \frac{3}{4}, -z\right]$	`[3,-4]`
3	$[-X, -Y, 0]$	$\left[\frac{3}{4}, \frac{1}{4}, -z\right]$	`[5,-6]`
4	$[X, -Y, 0]$	$\left[\frac{3}{4}, \frac{1}{4}, z\right]$	`[7,-8]`

Table 47: Wyckoff bond: `4b@4l`

No.	vector	center	mapping
1	$[0, 0, Z]$	$\left[\frac{1}{4}, \frac{3}{4}, z\right]$	`[1,2]`
2	$[0, 0, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, -z\right]$	`[3,4]`
3	$[0, 0, -Z]$	$\left[\frac{3}{4}, \frac{1}{4}, -z\right]$	`[5,6]`
4	$[0, 0, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, z\right]$	`[7,8]`

Table 48: Wyckoff bond: `8c@4l`

No.	vector	center	mapping
1	$[X, Y, Z]$	$\left[\frac{1}{4}, \frac{3}{4}, z\right]$	`[1]`
2	$[-X, -Y, Z]$	$\left[\frac{1}{4}, \frac{3}{4}, z\right]$	`[2]`
3	$[-X, Y, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, -z\right]$	`[3]`
4	$[X, -Y, -Z]$	$\left[\frac{1}{4}, \frac{3}{4}, -z\right]$	`[4]`
5	$[-X, -Y, -Z]$	$\left[\frac{3}{4}, \frac{1}{4}, -z\right]$	`[5]`
6	$[X, Y, -Z]$	$\left[\frac{3}{4}, \frac{1}{4}, -z\right]$	`[6]`
7	$[X, -Y, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, z\right]$	`[7]`
8	$[-X, Y, Z]$	$\left[\frac{3}{4}, \frac{1}{4}, z\right]$	`[8]`

* Wyckoff site: 8m, site symmetry: 1

Table 49: Wyckoff bond: 8a@8m

No.	vector	center	mapping
1	$[X, Y, Z]$	$[x, y, z]$	[1]
2	$[-X, -Y, Z]$	$\left[\frac{1}{2} - x, \frac{1}{2} - y, z\right]$	[2]
3	$[-X, Y, -Z]$	$\left[\frac{1}{2} - x, y, -z\right]$	[3]
4	$[X, -Y, -Z]$	$\left[x, \frac{1}{2} - y, -z\right]$	[4]
5	$[-X, -Y, -Z]$	$[-x, -y, -z]$	[5]
6	$[X, Y, -Z]$	$\left[x + \frac{1}{2}, y + \frac{1}{2}, -z\right]$	[6]
7	$[X, -Y, Z]$	$\left[x + \frac{1}{2}, -y, z\right]$	[7]
8	$[-X, Y, Z]$	$\left[-x, y + \frac{1}{2}, z\right]$	[8]