Number of vertices $n = 8$.
Adjacencies of Graph

1. vertex 1 adjacent to 2 4 5 8
2. vertex 2 adjacent to 1 3 5 6
3. vertex 3 adjacent to 2 4 6 7
4. vertex 4 adjacent to 1 3 7 8
5. vertex 5 adjacent to 1 2 6 8
6. vertex 6 adjacent to 2 3 5 7
7. vertex 7 adjacent to 3 4 6 8
8. vertex 8 adjacent to 1 4 5 7

Size of automorphism group of the graph=16
Full group: $|Aut(polytope)| = 2048$
Restricted group: $|Aut(G) \times switch| = 2048$
Number of orbits for the full group : 3
List of orbits of facets for the full group: Total number of orbits = 3 Total number of facets = 176

1. Inequality 1 with incidence 96 and stabilizer of size 64. Orbit size is 32 nature: 3-cycle inequality, C=[2, 3, 6] F=[2, 3]

(1,2) : 0	(1,4) : 0	(1,5) : 0	(1,8) : 0	(2,3) : -1	(2,5) : 0
(2,6) : 1	(3,4) : 0	(3,6) : 1	(3,7) : 0	(4,7) : 0	(4,8) : 0
(5,6) : 0	(5,8) : 0	(6,7) : 0	(7,8) : 0		

2. Inequality 2 with incidence 64 and stabilizer of size 128. Orbit size is 16 nature: 4-cycle inequality, C=[2, 3, 4, 1] F=[2, 3]

(1,2) : 1	(1,4) : 1	(1,5) : 0	(1,8) : 0	(2,3) : -1	(2,5) : 0
(2,6) : 0	(3,4) : 1	(3,6) : 0	(3,7) : 0	(4,7) : 0	(4,8) : 0
(5,6) : 0	(5,8) : 0	(6,7) : 0	(7,8) : 0		

3. Inequality 3 with incidence 40 and stabilizer of size 16. Orbit size is 128 nature: 5-cycle inequality, C=[1, 5, 6, 7, 4] F=[1, 5]

(1,2) : 0	(1,4) : 1	(1,5) : -1	(1,8) : 0	(2,3) : 0	(2,5) : 0
(2,6) : 0	(3,4) : 0	(3,6) : 0	(3,7) : 0	(4,7) : 1	(4,8) : 0
(5,6) : 1	(5,8) : 0	(6,7) : 1	(7,8) : 0		