Number of vertices $n = 12$.
Adjacencies of Graph

1. vertex 1 adjacent to 2 6 7 12

2. vertex 2 adjacent to 1 3 7 8

3. vertex 3 adjacent to 2 4 8 9

4. vertex 4 adjacent to 3 5 9 10

5. vertex 5 adjacent to 4 6 10 11

6. vertex 6 adjacent to 1 5 11 12

7. vertex 7 adjacent to 1 2 8 12

8. vertex 8 adjacent to 2 3 7 9

9. vertex 9 adjacent to 3 4 8 10

10. vertex 10 adjacent to 4 5 9 11

11. vertex 11 adjacent to 5 6 10 12

12. vertex 12 adjacent to 1 6 7 11

Size of automorphism group of the graph=24
  Full group: $|Aut(polytope)| = 49152$
  Restricted group: $|Aut(G) \times switch| = 49152$
  Number of orbits for the full group : 5
  List of orbits of facets for the full group: Total number of orbits $= 5$ Total
number of facets $= 2032$

1. Inequality 1 with incidence 1536 and stabilizer of size 1024. Orbit size
   is 48 nature: 3-cycle inequality, C=[9, 10, 4] F=[9, 10]

(1,2) : 0	(1,6) : 0	(1,7) : 0	(1,12) : 0	(2,3) : 0	(2,7) : 0
(2,8) : 0	(3,4) : 0	(3,8) : 0	(3,9) : 0	(4,5) : 0	(4,9) : 1
(4,10) : 1	(5,6) : 0	(5,10) : 0	(5,11) : 0	(6,11) : 0	(6,12) : 0
(7,8) : 0	(7,12) : 0	(8,9) : 0	(9,10) : -1	(10,11) : 0	(11,12) : 0

2. Inequality 2 with incidence 384 and stabilizer of size 768. Orbit size is 64 nature: 6-cycle inequality, C=[1, 2, 3, 4, 5, 6] F=[1, 2]

(1,2) : -1	(1,6) : 1	(1,7) : 0	(1,12) : 0	(2,3) : 1	(2,7) : 0
(2,8) : 0	(3,4) : 1	(3,8) : 0	(3,9) : 0	(4,5) : 1	(4,9) : 0
(4,10) : 0	(5,6) : 1	(5,10) : 0	(5,11) : 0	(6,11) : 0	(6,12) : 0
(7,8) : 0	(7,12) : 0	(8,9) : 0	(9,10) : 0	(10,11) : 0	(11,12) : 0

3. Inequality 3 with incidence 224 and stabilizer of size 64. Orbit size is 768 nature: 7-cycle inequality, C=[1, 2, 8, 9, 10, 11, 6] F=[1, 2]

(1,2) : -1	(1,6) : 1	(1,7) : 0	(1,12) : 0	(2,3) : 0	(2,7) : 0
(2,8) : 1	(3,4) : 0	(3,8) : 0	(3,9) : 0	(4,5) : 0	(4,9) : 0
(4,10) : 0	(5,6) : 0	(5,10) : 0	(5,11) : 0	(6,11) : 1	(6,12) : 0
(7,8) : 0	(7,12) : 0	(8,9) : 1	(9,10) : 1	(10,11) : 1	(11,12) : 0

4. Inequality 4 with incidence 224 and stabilizer of size 64. Orbit size is 768 nature: 7-cycle inequality, C=[8, 9, 10, 11, 6, 1, 7] F=[8, 9]

(1,2) : 0	(1,6) : 1	(1,7) : 1	(1,12) : 0	(2,3) : 0	(2,7) : 0
(2,8) : 0	(3,4) : 0	(3,8) : 0	(3,9) : 0	(4,5) : 0	(4,9) : 0
(4,10) : 0	(5,6) : 0	(5,10) : 0	(5,11) : 0	(6,11) : 1	(6,12) : 0
(7,8) : 1	(7,12) : 0	(8,9) : -1	(9,10) : 1	(10,11) : 1	(11,12) : 0

5. Inequality 5 with incidence 128 and stabilizer of size 128. Orbit size is 384 nature: 8-cycle inequality, C=[2, 3, 9, 10, 5, 6, 12, 7] F=[2, 3]

(1,2) : 0	(1,6) : 0	(1,7) : 0	(1,12) : 0	(2,3) : -1	(2,7) : 1
(2,8) : 0	(3,4) : 0	(3,8) : 0	(3,9) : 1	(4,5) : 0	(4,9) : 0
(4,10) : 0	(5,6) : 1	(5,10) : 1	(5,11) : 0	(6,11) : 0	(6,12) : 1
(7,8) : 0	(7,12) : 1	(8,9) : 0	(9,10) : 1	(10,11) : 0	(11,12) : 0