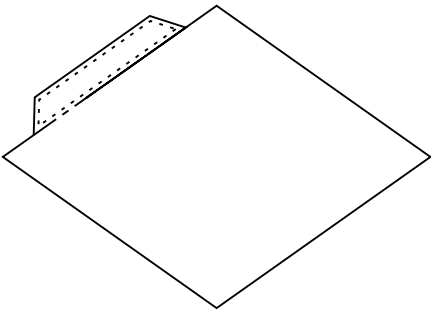


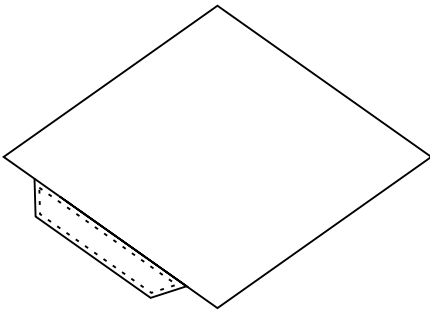
Rhombic Dodecahedron

rhombic-dodecahedron / 1.0.0 / Letter / Template page 1

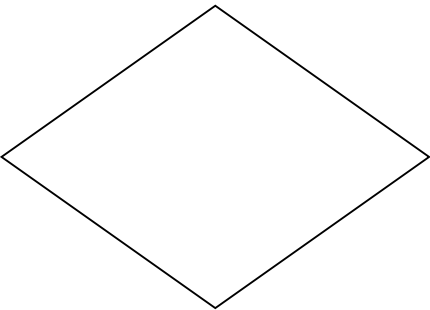
P10 | cut 1
56.57 x 40.00 mm



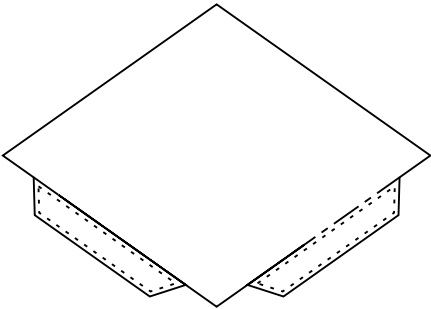
P11 | cut 1
56.57 x 40.00 mm



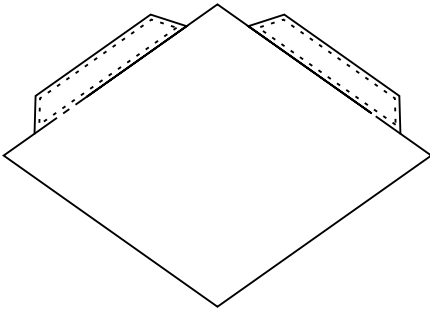
P12 | cut 1
56.57 x 40.00 mm



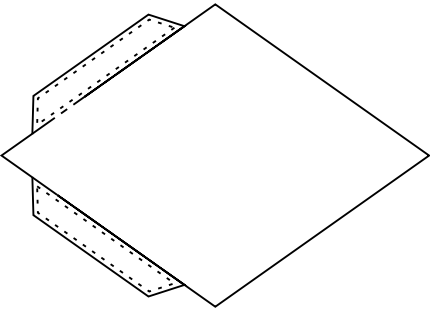
P07 | cut 1
56.57 x 40.00 mm



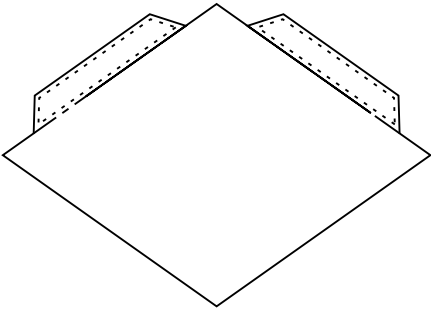
P08 | cut 1
56.57 x 40.00 mm



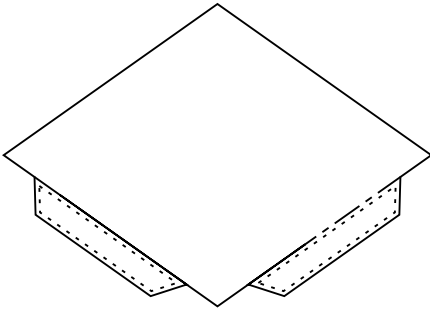
P09 | cut 1
56.57 x 40.00 mm



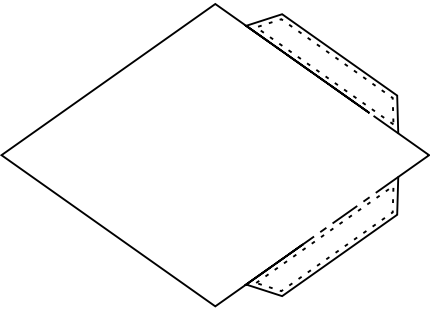
P04 | cut 1
56.57 x 40.00 mm



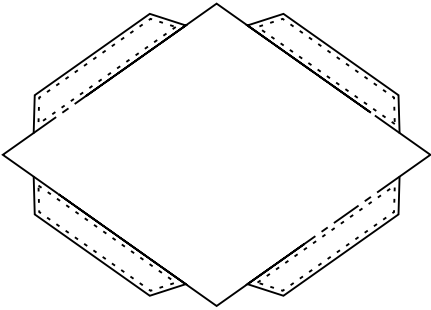
P05 | cut 1
56.57 x 40.00 mm



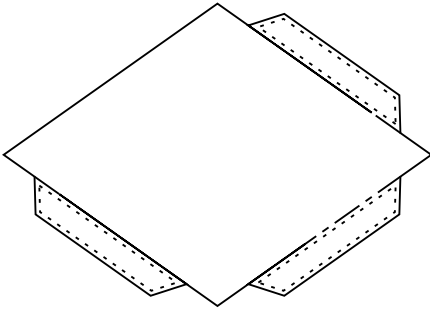
P06 | cut 1
56.57 x 40.00 mm



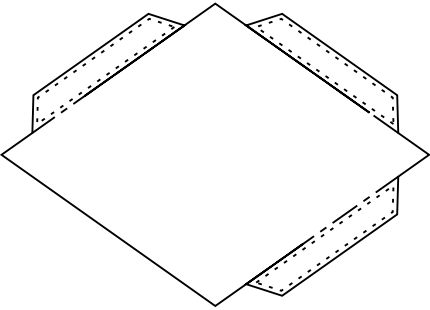
P01 | cut 1
56.57 x 40.00 mm



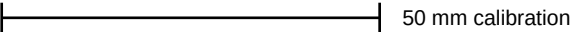
P02 | cut 1
56.57 x 40.00 mm



P03 | cut 1
56.57 x 40.00 mm



Solid: cut | Dashed: valley | Dash-dot: mountain | Dotted: glue



Rhombic Dodecahedron

rhombic-dodecahedron / 1.0.0 / Letter / Assembly instructions

Finished size: 80 x 80 x 80 mm (axis-aligned bounds)

Materials: 160-200 gsm cardstock; Scissors or craft knife; Ruler and blunt scoring tool; Pencil; PVA glue and fine brush; Blunt tool for pressing inside seams

Original analytic construction: 12 congruent rhombi, 24 equal edges, 14 vertices. Face angles are 70.529 and 109.471 degrees; internal dihedral is 120 degrees.

Twelve separate cut pieces include all 24 tabs. No face-body folds, hidden connectors or curved approximations. Numbers S01-S24 are in the assembly list; pencil them onto the specified edges before joining.

Exact zero-thickness rigid-face geometry. Tab overlaps are deliberately coplanar with receiving faces in the preview. Paper/glue thickness and springback are not simulated.

Automated assertions check all 24 paired edges, dihedrals, tab isometries, tab/glue containment and receiving-tab separation. Physical printing, cutting and assembly pending.

Part inventory (cut each instance once):

P01: Rhombus 01

P02: Rhombus 02

P03: Rhombus 03

P04: Rhombus 04

P05: Rhombus 05

P06: Rhombus 06

P07: Rhombus 07

P08: Rhombus 08

P09: Rhombus 09

P10: Rhombus 10

P11: Rhombus 11

P12: Rhombus 12

1. Measure, identify and score all twelve panels [P01]: Print at 100%; check the 50 mm ruler. Cut P01-P12 once each. Each face has 34.641 mm sides, a 56.569 mm long diagonal and a 40.000 mm short diagonal. With the printed side facing you and the long diagonal horizontal, pencil A at the left acute corner, B at the bottom obtuse corner, C at the right acute corner and D at the top obtuse corner, ignoring tabs. Edges AB, BC, CD, DA are respectively lower-left, lower-right, upper-right, upper-left. Copy the S01-S24 seam numbers below beside BOTH matching edges before assembly. Score only tab roots; mountain-fold tabs away from the printed exterior by 60 degrees from flat. Leave each rhombus face flat. Glue goes on the printed side of tabs, inside the dotted boundary.

2. Start the open shell with P01 [P01]: Keep printed sides outside. Each tab is integral to the lower-numbered panel and goes under the higher-numbered receiving panel. Faces meet edge-to-edge with zero body overlap and a 120 degree internal dihedral. Tab depth is 4 mm; its root stops 5 mm short of each vertex and its tip stops 8 mm short. Glue boundary is inset 0.6 mm. Dry-fit each new panel before applying a thin coat of PVA.

3. Attach P02 [P02, P01]: S01: P01 edge AB tab under P02 edge DA. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Join these seams in listed order. Press the tabs

Rhombic Dodecahedron

rhombic-dodecahedron / 1.0.0 / Letter / Assembly instructions continued

from inside the open shell with a blunt tool and let the glue grip before adding the next panel. Keep the remaining opening accessible.

4. Attach P03 [P03, P01]: S02: P01 edge DA tab under P03 edge AB. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Join these seams in listed order. Press the tabs from inside the open shell with a blunt tool and let the glue grip before adding the next panel. Keep the remaining opening accessible.

5. Attach P04 [P04, P01, P02]: S03: P01 edge BC tab under P04 edge AB; S04: P02 edge CD tab under P04 edge BC. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Join these seams in listed order. Press the tabs from inside the open shell with a blunt tool and let the glue grip before adding the next panel. Keep the remaining opening accessible.

6. Attach P05 [P05, P01, P03]: S05: P01 edge CD tab under P05 edge DA; S06: P03 edge BC tab under P05 edge CD. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Join these seams in listed order. Press the tabs from inside the open shell with a blunt tool and let the glue grip before adding the next panel. Keep the remaining opening accessible.

7. Attach P06 [P06, P02, P03]: S07: P02 edge AB tab under P06 edge DA; S08: P03 edge DA tab under P06 edge AB. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Join these seams in listed order. Press the tabs from inside the open shell with a blunt tool and let the glue grip before adding the next panel. Keep the remaining opening accessible.

8. Attach P07 [P07, P02, P06]: S09: P02 edge BC tab under P07 edge CD; S10: P06 edge CD tab under P07 edge DA. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Join these seams in listed order. Press the tabs from inside the open shell with a blunt tool and let the glue grip before adding the next panel. Keep the remaining opening accessible.

9. Attach P08 [P08, P03, P06]: S11: P03 edge CD tab under P08 edge BC; S12: P06 edge BC tab under P08 edge AB. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Join these seams in listed order. Press the tabs from inside the open shell with a blunt tool and let the glue grip before adding the next panel. Keep the remaining opening accessible.

10. Attach P09 [P09, P04, P05]: S13: P04 edge DA tab under P09 edge CD; S14: P05 edge AB tab under P09 edge BC. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Join these seams in listed order. Press the tabs from inside the open shell with a blunt tool and let the glue grip before adding the next panel. Keep the remaining opening accessible.

11. Attach P10 [P10, P04, P07, P09]: S15: P04 edge CD tab under P10 edge BC; S16: P07 edge BC tab under P10 edge CD; S17: P09 edge DA tab under P10 edge AB. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Join these seams in listed order. Press the tabs from inside the open shell with a blunt tool and let the glue grip before adding the next panel. Keep the remaining opening accessible.

12. Attach P11 [P11, P05, P08, P09]: S18: P05 edge BC tab under P11 edge CD; S19: P08 edge CD tab under P11 edge BC; S20: P09 edge AB tab under P11 edge DA. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Join these seams in listed order. Press the tabs from inside the open shell with a blunt tool and let the glue grip before adding the next panel. Keep the remaining opening accessible.

13. Close with P12 [P12, P07, P08, P10, P11]: S21: P07 edge AB tab under P12 edge BC; S22: P08 edge DA tab under P12 edge CD; S23: P10 edge DA tab under P12 edge AB; S24: P11 edge AB tab under P12 edge DA. Match endpoints in reverse order: first letter of the owner edge to second letter of the receiver edge. Align the full 34.641 mm face edges, not tab tips. Dry-fit this final rhombus over all four tabs. Glue three seams first, holding the last edge open for access. Apply glue to the final tab with a fine brush, then close and press gently from outside. Do not force the shell out of shape. Allow to dry fully.