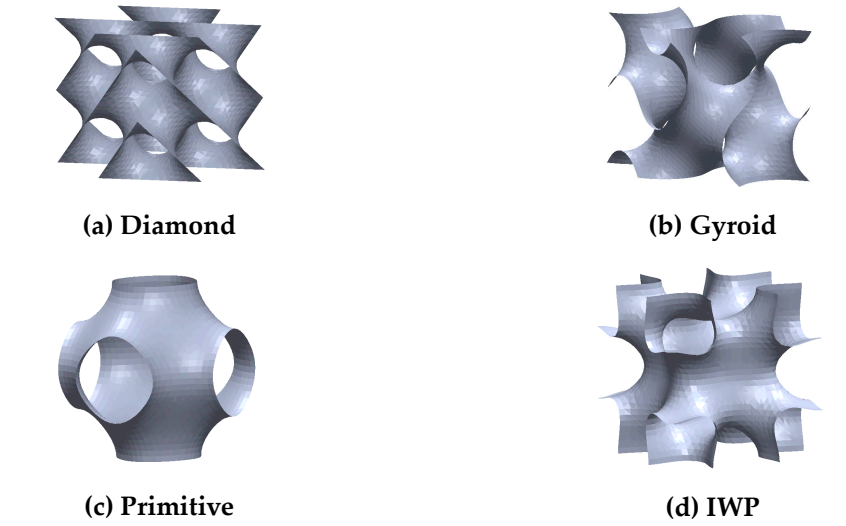


Figure S1. Unit cell of four typical TPMS topologies.

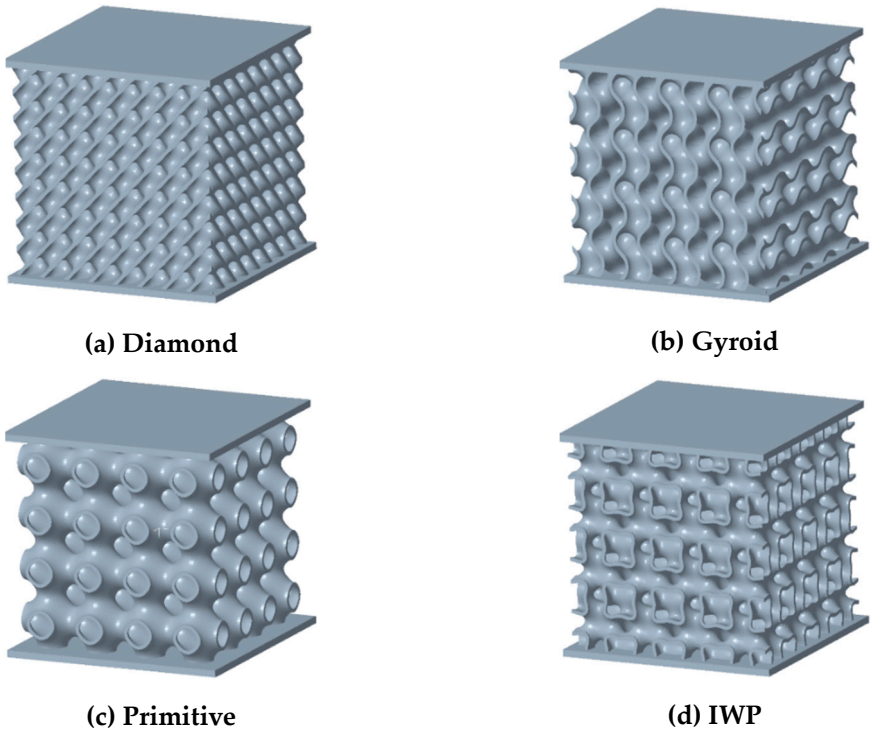
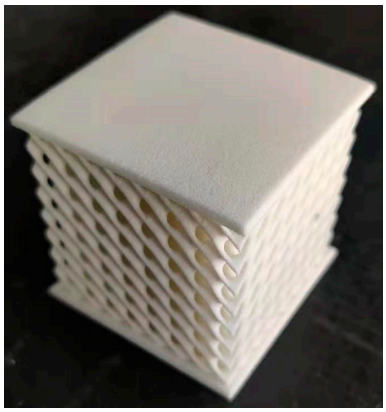
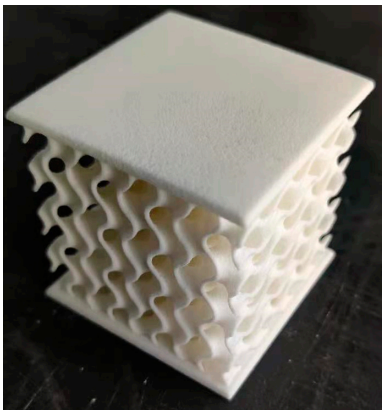


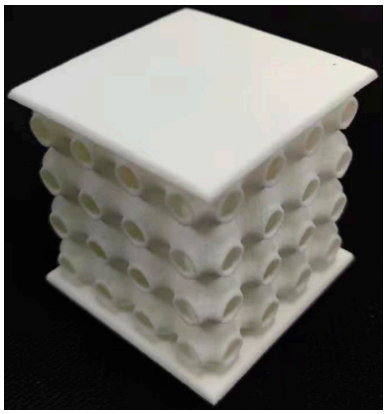
Figure S2. Geometry model of cubic specimens with 4 x 4 x 4 cell numbers for four typical TPMS.



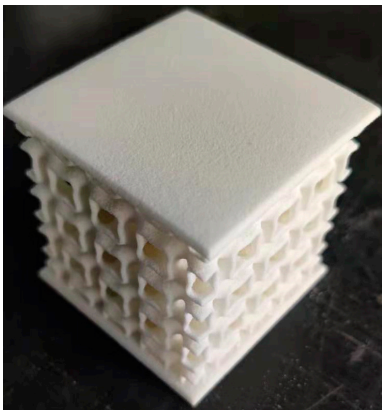
(a) Diamond



(b) Gyroid



(c) Primitive



(d) IWP

Figure S3. Cubic specimens of TPMS fabricated by SLS technique**.**

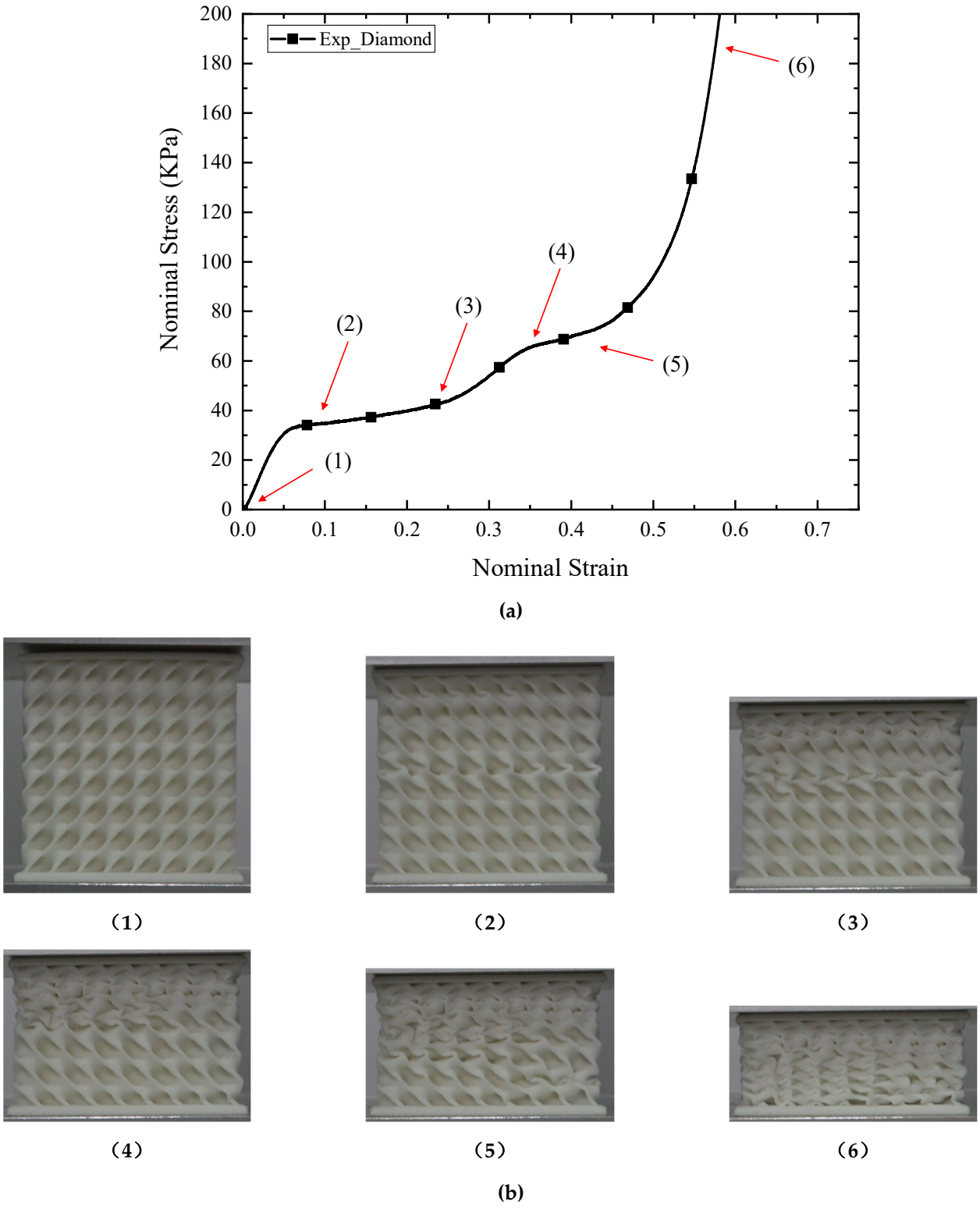
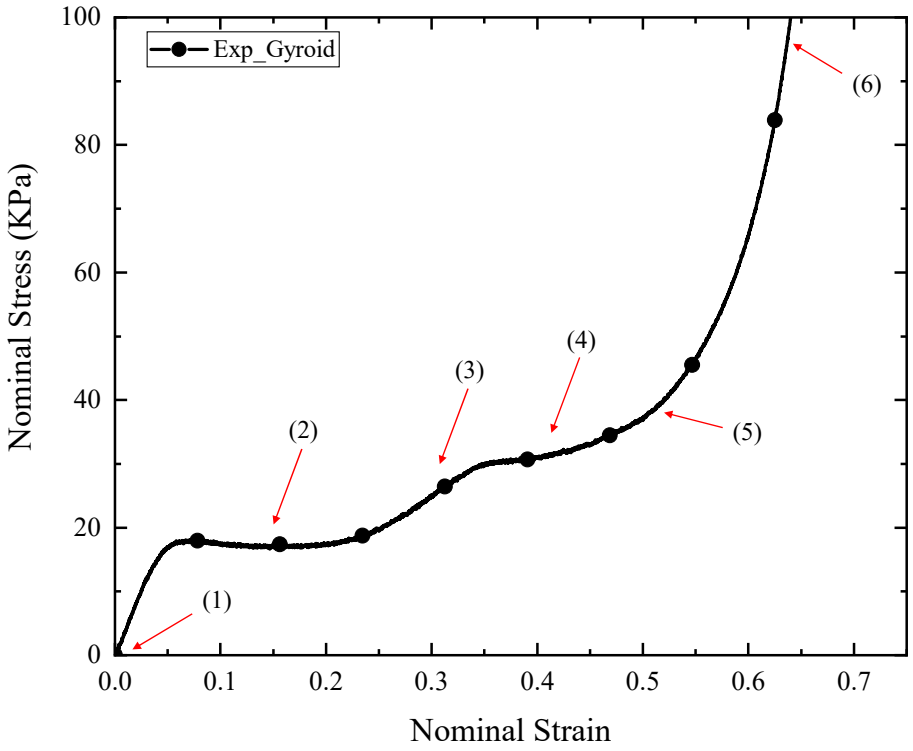
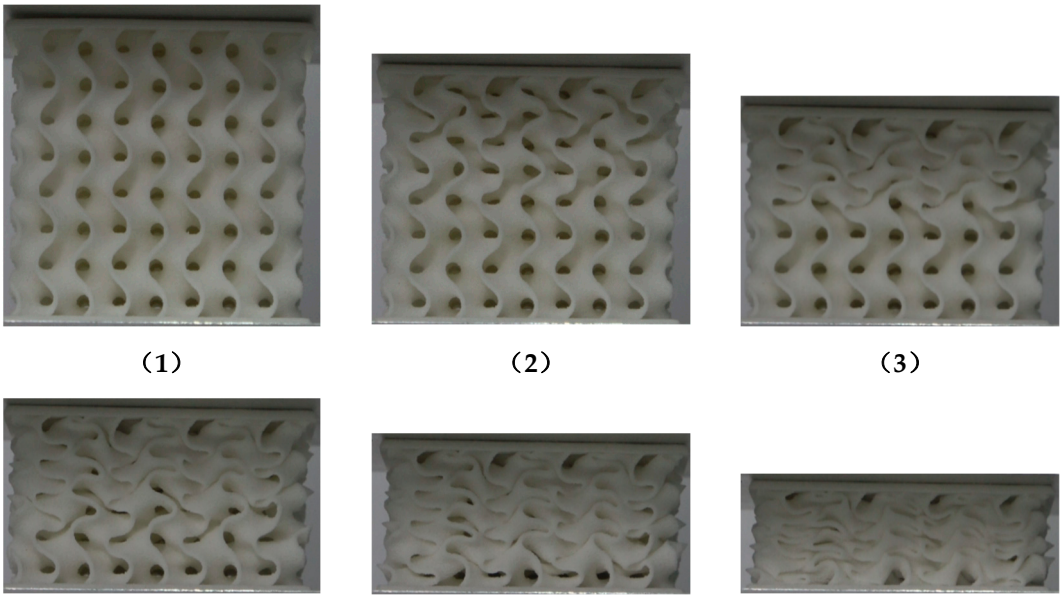


Figure S4. Results of quasi-static compression tests of Diamond structure: (a) Nominal stress-nominal strain curves; (b) Deformation process.

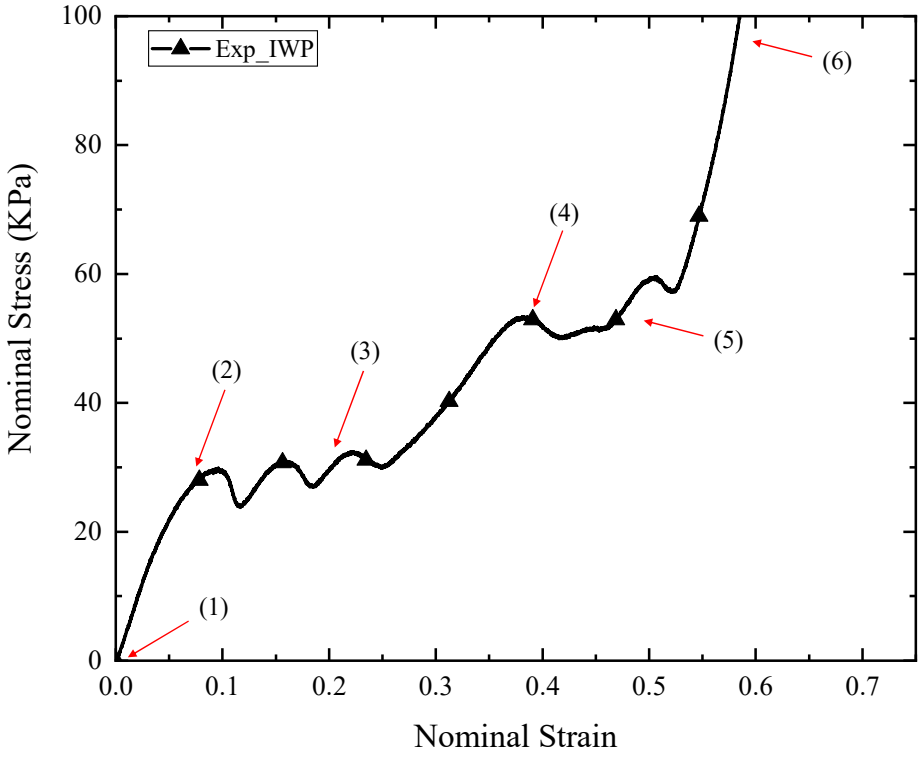


(a)

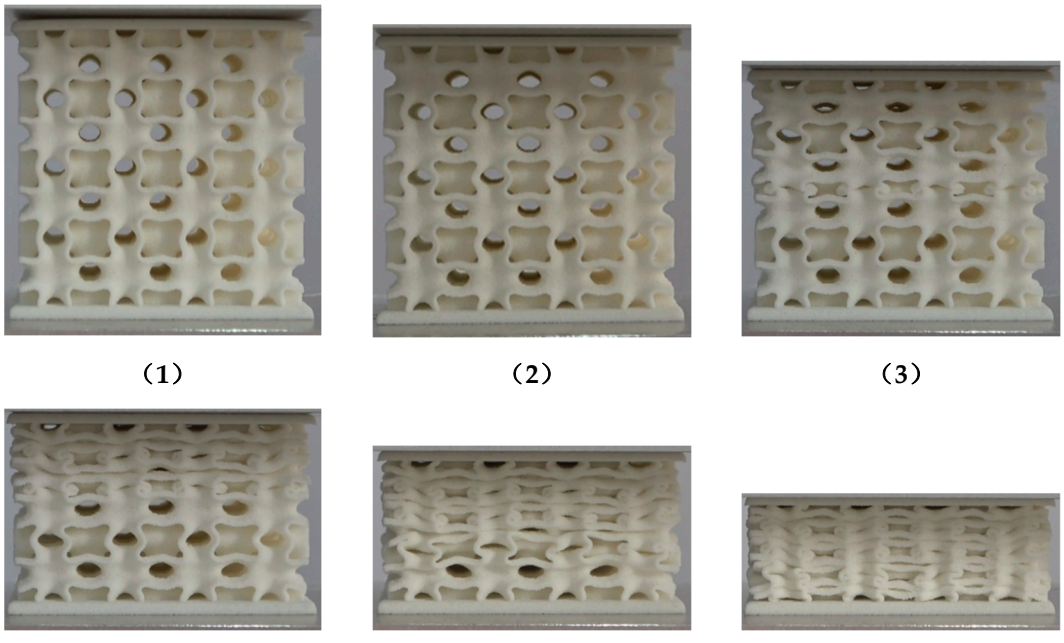


(b)

Figure S5. Results of quasi-static compression tests of Gyroid structure: (a) Nominal stress-nominal strain curves; (b) Deformation process.

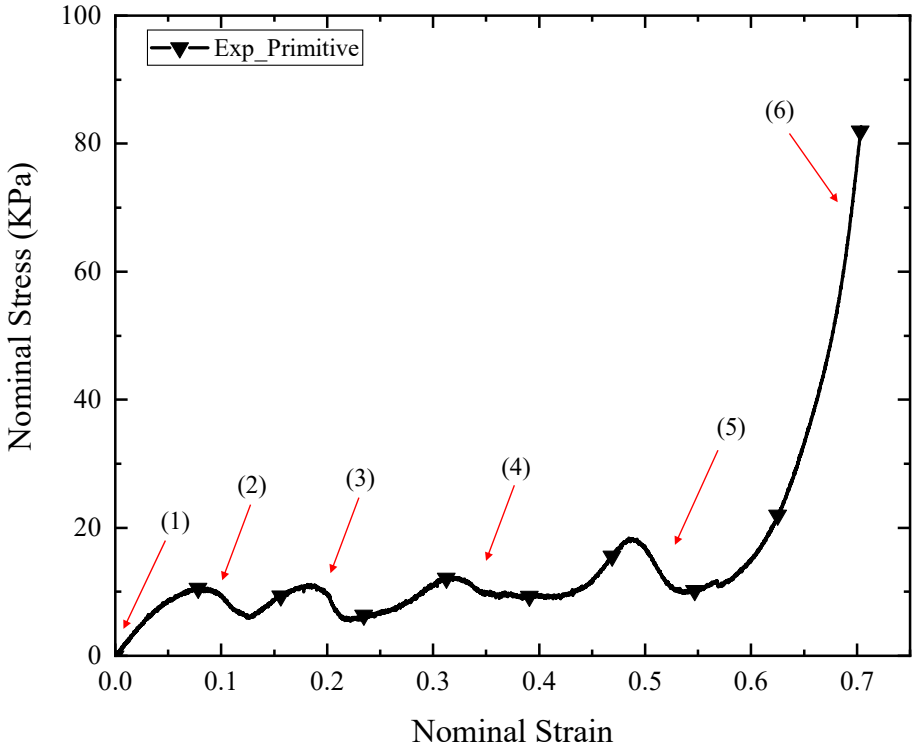


(a)

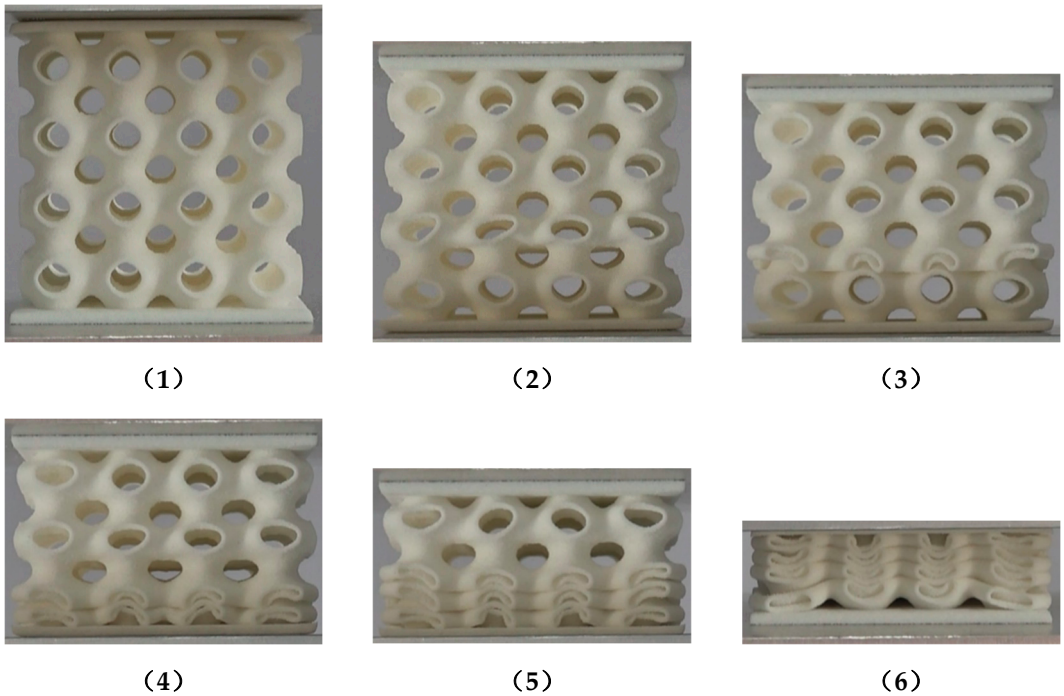


(b)

Figure S6. Results of quasi-static compression tests of IWP structure: (a) Nominal stress-nominal strain curves; (b) Deformation process.



(a)



(b)

Figure S7. Results of quasi-static compression tests of IWP structure: (a) Nominal stress-nominal strain curves; (b) Deformation process.

(a) (b)

Figure S8. Fabricated paratrooper boots with the design cushion sole: (a) Fabricated paratrooper boots; (b) Fabricated paratrooper boots and exoskeletons on lower extremities for jumping.