



# Design for cleaning

## Design for HP MJF: Design guidelines

### Introduction

Ease of cleaning is one of the advantages of HP Multi Jet Fusion technology compared with other 3D printing technologies. However, in terms of 3D printing production, designers should take into account several recommendations in order to facilitate the cleaning process and minimize the cost once the part is printed.

### Drain holes

When printing hollow parts, add at least two drain holes on opposite faces of the part for efficient powder removal, which is critical to obtain the largest weight reduction. The minimum recommended diameter of the drain holes is 5 mm.

### Lattice structures

Unfused powder can be difficult to remove from a part through drain holes when a part has a lattice structure inside. Therefore, it is recommended to leave the powder trapped inside or to leave the lattice partially open. The minimum gap recommended in a lattice structure to ensure that the material inside the part can be removed is 5 mm.

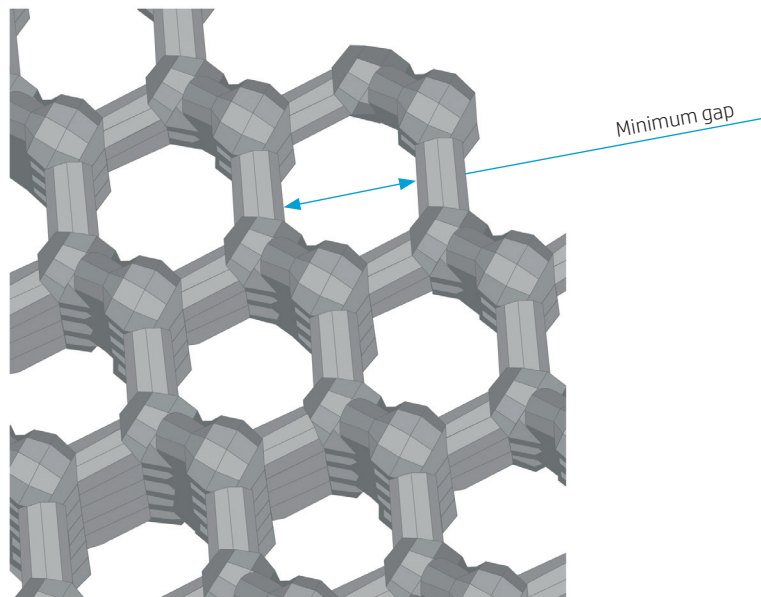


Figure 1. Minimum gap for lattice structures

## Ducts

To remove material from narrow ducts, design and print a strip or a chain through the duct. When the part has been printed, the chain can be pulled out to dislodge most of the material. Any remaining material can be removed through the normal cleaning process.



*Figure 2. Duct cleaning*

For ducts narrower than 5 mm, clean the inside with a flexible screw once the part has been printed. To improve the flexible screw cleaning performance, it can be attached to a drill.



*Figure 3. Flexible screw*