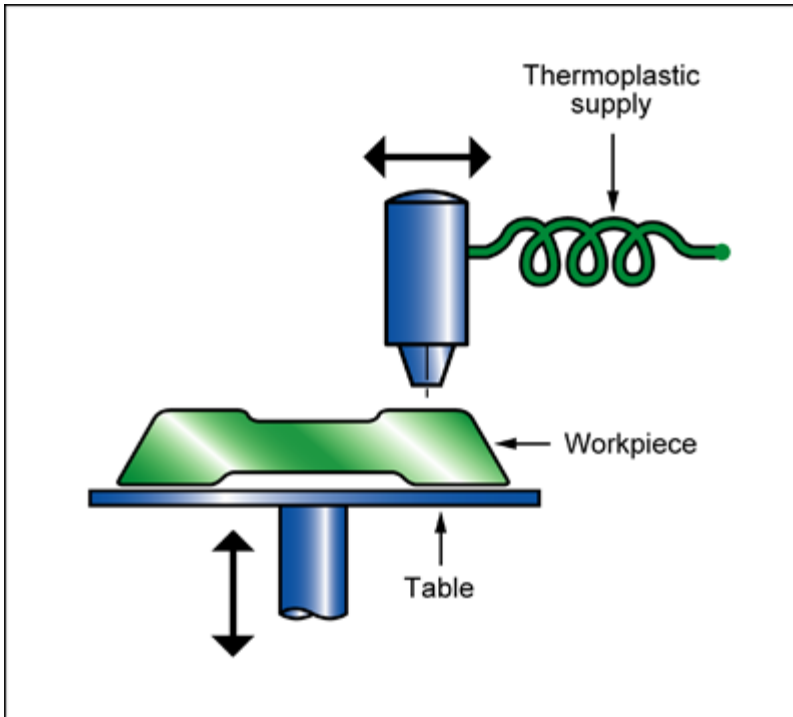


## Description

### Process schematic



### The process

BALLISTIC PARTICLE MANUFACTURE (BPM) is a rapid prototyping technique in which microscopic particles of molten thermoplastic are shot by a piezoelectric jetting system and freeze when they hit the object being created. A wide range of materials can be used. As with other rapid prototyping processes, a CAD solid model of the part is required.

The process is now obsolete, having been superseded by inkjet methods (3D printing).

## Material compatibility

Polymers - thermoplastics



## Shape

Circular prismatic



Non-circular prismatic



Flat sheet



Dished sheet



Solid 3-D



Hollow 3-D



## Economic compatibility

Economic batch size (units)

1

- 10

## Physical and quality attributes

Mass range	0.1	-	8	kg
Range of section thickness	1.5	-	100	mm
Tolerance	0.36	-	2	mm
Roughness	100	-	330	μm

## Process characteristics

Primary shaping processes	✓
Discrete	✓
Prototyping	✓

## Cost model and defaults

Capital cost	1.89e5	-	3.77e5	USD
Material utilization fraction	* 0.9	-	0.98	
Production rate (units)	0.06	-	0.08	/hr
Tooling cost	37.7	-	94.3	USD
Tool life (units)	1	-	10	

## Supporting information

### Design guidelines

All shapes can be made. The only finish available is in

### Technical notes

The system uses materials which can be easily melted and solidified such as thermoplastics, aluminum and wax.

### Typical uses

Making prototypes and models quickly from CAD systems.

### The environment

No particular environmental hazards. No material is wasted in this process.

## Links

MaterialUniverse

Reference