

# Reinvent prototyping and manufacturing

See how you can unlock the full potential of 3D printing with HP Multi Jet Fusion technology.

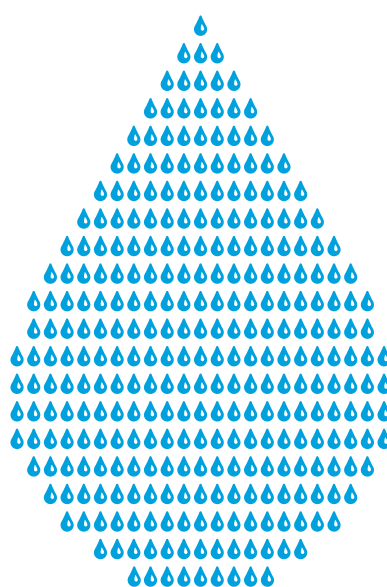
## HP's proprietary multi-agent process



## Precision at speed

**30 million drops delivered per second per inch**

Extreme dimensional accuracy and fine detail through multi-agent printing.



## Thermal control of every layer

Predictive corrections at the voxel level. Uniform melting processes achieve optimal mechanical properties.<sup>2</sup>



## Up to 10x faster<sup>3</sup>

HP's proprietary printing technologies combines speed and quality with predictable results.

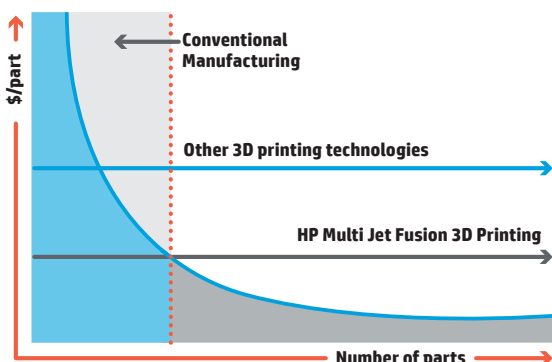
### 3D Printing of gears



Material Extrusion	Laser Sintering	HP Multi Jet Fusion
	<b>Printing time:</b> <b>03:00</b>	
<b>36</b> gears	<b>79</b> gears	<b>1000</b> gears

## Breakthrough economics

HP 3D printing can deliver breakthrough economics providing a cost per part advantage over conventional manufacturing.



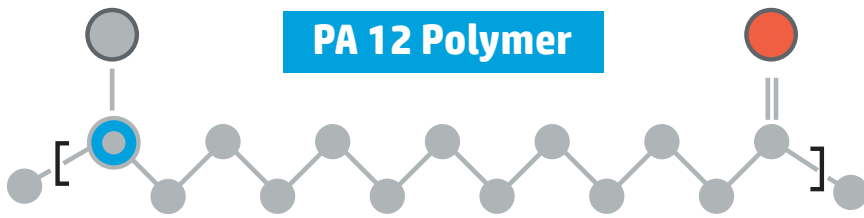
## Lowest cost per part<sup>4</sup>

Optimize cost and part quality, with cost-efficient materials that offer industry-leading reusability.<sup>5</sup>



## Industry-leading materials reusability<sup>5</sup>

Unlike some other point-to-point 3D printing technologies, HP Multi Jet Fusion doesn't require reactive materials polymers, enabling higher reusability<sup>5</sup> with HP 3D High Reusability PA 12.

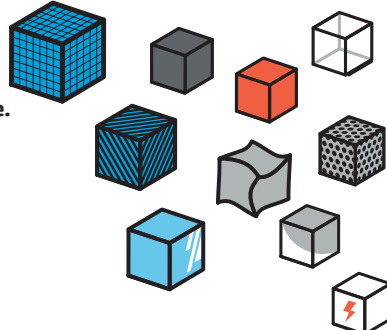


## Voxel level control

**Voxel (volumetric pixel): Building block of the future.**

Voxels are used to create the physical and mechanical properties of a part. Each voxel contains volumetric information that brings a product to life with the desired properties.

**HP Multi Jet Fusion can enable unlimited possibilities in the future by transferring colour, strength, elasticity, transparency or texture at voxel level.**



For more information visit [hp.com/go/3Dprint](http://hp.com/go/3Dprint)



keep reinventing

1. Based on HP's unique multi-agent printing process. Excellent dimensional accuracy and fine detail within allowable margin of error. Based on dimensional accuracy of  $\pm 0.2$  mm/0.008 inches on XY for hollow parts below 100 mm/3.94 inches and  $\pm 0.2\%$  for hollow parts over 100 mm/3.94 inches, using HP 3D High Reusability PA 12 material, measured after sandblasting. See [hp.com/go/3Dmaterials](http://hp.com/go/3Dmaterials) for more information on materials specifications.

2. Based on the following mechanical properties: Tensile strength at 48 MPa (XYZ), Modulus at 1700 - 1800 MPa (XYZ). ASTM standard tests with HP 3D High Reusability PA 12 material. See [hp.com/go/3Dmaterials](http://hp.com/go/3Dmaterials) for more information on materials specifications.

3. Based on internal testing and simulation. HP Jet Fusion 3D average printing time is up to 10 times faster than average printing time of comparable fused deposition modeling (FDM) and selective laser sintering (SLS) printer solutions from \$100,000 USD to \$300,000 USD on market as of April, 2016. Testing variables for the HP Jet Fusion 4210/4200 Printing Solutions: Part quantity: 1 full build chamber of parts from HP Jet Fusion 3D at 20% of packing density versus same number of parts on above-mentioned competitive devices; Part size: 30 cm<sup>3</sup>; Layer thickness: 0.08 mm/0.003 inches.

4. Based on internal testing and public data for solutions on market as of April, 2016. Cost analysis based on: standard solution configuration price, supplies price, and maintenance costs recommended by manufacturer. Common cost criteria: using HP 3D High Reusability PA 12 material, and the powder reusability ratio recommended by manufacturer. HP Jet Fusion 3D 4200 Printing Solution average printing cost per part is half the average cost of comparable fused deposition modeling (FDM) and selective laser sintering (SLS) printer solutions from \$100,000 to \$300,000 USD. Cost criteria: printing 1 build chamber per day/5 days per week over 1 year of 30 cm<sup>3</sup> parts at 10% packing density. HP Jet Fusion 3D 4210 Printing Solution average printing cost per part is 65% lower versus the average cost of comparable FDM and SLS printer solutions from \$100,000 to \$300,000 USD and is 50% lower versus the average cost of comparable SLS printer solutions for \$300,000 to \$450,000 USD. Cost criteria: printing 1.4 full build chambers of parts per day/5 days per week over 1 year of 30 cm<sup>3</sup> parts at 10% packing density on fast print mode.

5. HP Jet Fusion 3D Printing Solutions using HP 3D High Reusability PA 12 provide 80% post-production surplus powder reusability, producing functional parts batch after batch. For testing, material is aged in real printing conditions and powder is tracked by generations (worst case for recyclability). Parts are then made from each generation and tested for mechanical properties and accuracy.