

ADDITIVE MANUFACTURING:

A PROCESS OF JOINING MATERIALS TO MAKE OBJECTS FROM 3D MODEL DATA, USUALLY LAYER UPON LAYER, AS OPPOSED TO SUBTRACTIVE MANUFACTURING METHODOLOGIES.

ADDITIVE MANUFACTURING INCLUDES THE FOLLOWING PROCESSES:

BED-BASED MATERIALS (POWDER OR LIQUID)

Binder Jetting: a liquid bonding agent is selectively deposited to join powder materials.

Powder Bed Fusion: thermal energy selectively fuses regions of a powder bed.

Vat Photopolymerization: liquid photopolymer in a vat is selectively cured by light-activated polymerization.

LAMINATION

Sheet Lamination: sheets of material are bonded to form an object.

FEEDER-BASED MATERIALS (POWDER, WIRE, OR FILAMENT)

Directed Energy Deposition: focused thermal energy is used to fuse materials by melting as the materials are being deposited.

Material Jetting: droplets of build material are selectively deposited.

EXTRUSION

Material Extrusion: material is selectively dispensed through a nozzle or orifice.

ADDITIVE MANUFACTURING BED-BASED MATERIAL PROCESS

STEP 1

After the item that will be printed is selected, it is scanned into 3d cad software.



STEP 2

The wrench is manipulated by selecting individual parts in software.



STEP 3

Customize parts by selecting colors. Then press print.



STEP 4

The printer injects ink and binder into powdery composite material in thin layers.



STEP 5

Retrieve the wrench from the composite tray.



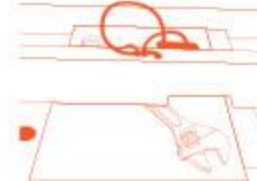
STEP 6

Remove excess the composite material from the wrench.



STEP 7

Cure the wrench if necessary.



STEP 8

Now compare the original wrench with the fabricated wrench.

