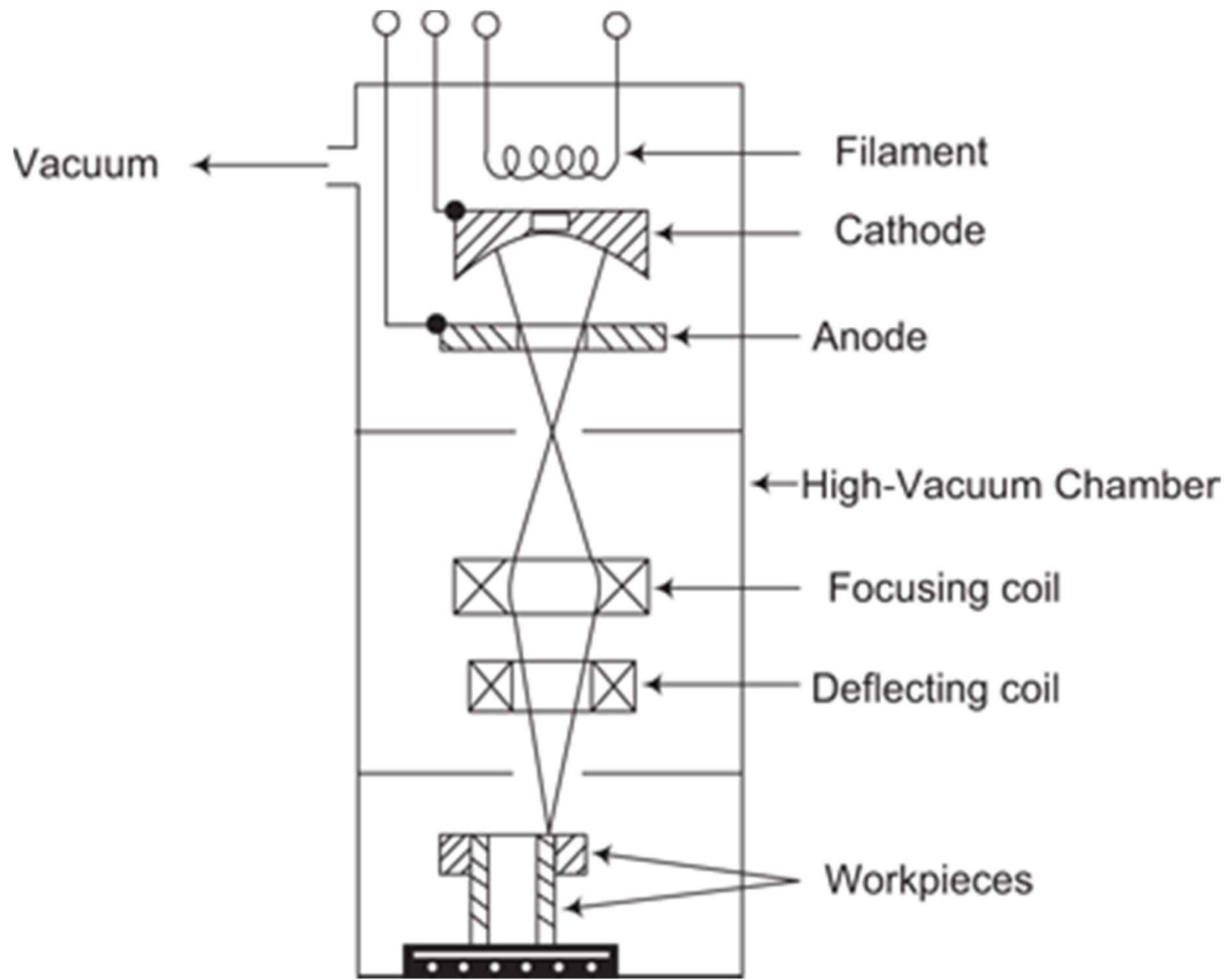


Electron beam machining/welding

- In the EBM, electrical energy is used to generate the electrons with high energy.
- In this process, a high velocity focused beam of electrons are used to remove the metal from the work-piece.
- These electrons are traveling at half the velocity of light.
- This process is best suited for the micro-cutting of materials.
- When the high-velocity beam of electrons strikes the work-piece, its kinetic energy is converted into heat.
- This concentrated heat raises the temperature of work-piece material and vaporizes a small amount of it, resulting in the removal of material from the work-piece.



Advantages of EBM

- Suitable for micro finishing
- High accuracy.
- There is no mechanical contact between the tool and the work-piece.
- Harder materials can also be machined at a faster rate than conventional machining.
- Brittle and fragile materials can be machined.
- Extremely close tolerances are obtained.

Limitation of EBM

- The cost of equipment is very high.
- High skilled operators are required to operate this machine.
- It is not suitable for large workpieces.
- High specific energy consumption.