# **📖 Exploded View Description – Drilling Mechanism**

The exploded view of the drilling mechanism shows how each component fits together into the final assembly. Each part has a distinct role in transferring torque, supporting alignment, and ensuring safe operation.

### **1. Drill Bit (my drill 3.SLDPRT)**

* Placed at the **front end** of the assembly.
* Directly engages with the workpiece to perform the drilling operation.
* Inserted into the **rotating storage (chuck)** and secured in place.

### **2. Rotating Storage / Chuck (my rotating storage.SLDPRT)**

* Positioned **behind the drill bit**.
* Holds the drill bit securely while transmitting torque from the motor or drive shaft.
* Connected to the **drill support** to maintain stability during rotation.

### **3. Drill Support (my drill support 1.SLDPRT)**

* Sits **behind and around the rotating storage**.
* Provides radial and axial support to minimize vibration.
* Connects the rotating parts (bit + chuck) to the **main frame** of the mechanism.

### **4. Drill Covering (my drill covering 1.SLDPRT)**

* Mounted **around the support and rotating components**.
* Provides protective housing that prevents debris and accidental contact with the rotating drill bit.
* Acts as the outer shell of the assembly.

### **5. Sub-assembly – Iris Mechanism (iris.SLDASM)**

* Likely integrated near the **bit-holder interface**.
* Functions as a clamping or controlling mechanism (like an iris diaphragm) to regulate engagement or secure parts.

### **6. Main Assembly (my assembly drilling 2.SLDASM)**

* Combines **all the above components**:
  + Drill bit at the front.
  + Rotating storage/chuck behind the bit.
  + Drill support keeping the chuck aligned.
  + Covering enclosing the system.
  + Optional iris mechanism for control.
* This results in a fully functional drilling unit.

### **🔄 Assembly Workflow (inside → outside)**

1. Insert **drill bit** into **rotating storage**.
2. Mount **rotating storage** into **drill support**.
3. Enclose the setup with the **drill covering**.
4. Add the **iris sub-assembly** if required.
5. Integrate everything into the **main assembly**.

### **📌 Notes for Report/Docs**

* You can create a **CAD exploded view render** and add labels (1 = Drill Bit, 2 = Rotating Storage, 3 = Support, 4 = Covering, 5 = Iris).
* Place this description underneath the figure in docs/ as the caption/explanation.