

Entity-Relationship Diagram (ERD) Report for Daikin Manufacturing Plant, Neemrana

1. Introduction

This report provides a detailed overview of the **Entity-Relationship Diagram (ERD)** for the **Daikin Manufacturing Plant in Neemrana, Rajasthan**. The ERD represents key entities, attributes, and relationships that define the manufacturing ecosystem, aiding in effective database design and process optimization.

2. Entities and Attributes

Below are the primary entities identified in the manufacturing plant's operational structure:

2.1 Plant

• Plant\_ID (Primary Key)

- Name
- Location
- Area
- Establishment\_Year

2.2 Department

• Dept\_ID (Primary Key)

- Name
- Function
- Plant\_ID (Foreign Key) (Links to the Plant entity)

2.3 Employee

• Employee\_ID (Primary Key)

- Name
- Designation
- Salary
- Dept\_ID (Foreign Key) (Links to the Department entity)

2.4 Production Line

• Line\_ID (Primary Key)

- Name
- Capacity
- Plant\_ID (Foreign Key)

2.5 Machine

• Machine\_ID (Primary Key)

- Name
- Type
- Line\_ID (Foreign Key) (Links to Production Line)

2.6 Product

• Product\_ID (Primary Key)

- Name
- Category (e.g., AC, HVAC, Refrigerators)
- Price
- Production\_Date

2.7 Supplier

• Supplier\_ID (Primary Key)

- Name
- Contact
- Materials\_Supplied

2.8 Material

• Material\_ID (Primary Key)

- Name
- Supplier\_ID (Foreign Key)
- Quantity

2.9 Inventory

• Inventory\_ID (Primary Key)

• Material\_ID (Foreign Key)

- Quantity
- Storage\_Location

2.10 Orders

• Order\_ID (Primary Key)

• Product\_ID (Foreign Key)

- Quantity
- Order\_Date
- Delivery\_Date

2.11 Customer

• Customer\_ID (Primary Key)

- Name
- Address
- Contact

3. Relationships

The relationships between these entities are crucial for maintaining data integrity and operational efficiency. Below are the relationships illustrated in the ERD:

- Plant - Department** (1:N) → One plant has multiple departments.
- Department - Employee** (1:N) → A department employs multiple employees.
- Plant - Production Line** (1:N) → A plant operates multiple production lines.
- Production Line - Machine** (1:N) → A production line has multiple machines.
- Plant - Product** (1:N) → A plant manufactures multiple products.
- Supplier - Material** (1:N) → A supplier provides multiple materials.
- Material - Inventory** (1:N) → Inventory stores multiple materials.
- Product - Orders** (1:N) → A product is included in multiple orders.
- Orders - Customer** (N:1) → A customer places multiple orders.

4. Entity-Relationship Diagram (ERD)

The ERD for the **Daikin Manufacturing Plant in Neemrana** visually represents the above entities and relationships. The diagram provides insights into how different elements interact within the manufacturing ecosystem, aiding in decision-making and process optimization.

Entity Relationship Diagram(ERD): DAIKIN Manufacturing

