### **DIMENSION TABLES**

EACH DIMENSION TABLE PROVIDES additional business context to analyze inventory trends.

* **DimensionDate**: Provides time-based context for analyzing inventory trends, tracking stock movements over different time periods.
  + **DateKey** – the key for the dimension table
  + **DateValue** – The specific date entry.
  + **DayNumber** – Numeric representation of the day in the month.
  + **CalendarMonthNumber** – Month number in the calendar year (1-12).
  + **CalendarYear** – The full calendar year.
* **DimensionSupplier**: Helps analyze supplier reliability, delivery performance, and sourcing trends.
  + **SupplierKey** – Unique identifier for the supplier.
  + **WWISupplierID** – Internal supplier ID.
  + **Supplier** – Name of the supplier company.
  + **Category** – Type of supplier (e.g., Local, International).
  + **PrimaryContact** – Name of the supplier's main representative.
  + **SupplierReference** – Reference code for supplier identification.
  + **PaymentDays** – Number of days allowed for invoice payment.
  + DeliveryMethodID
* **DimensionStockItem**: Provides details on stock characteristics such as brand, size, and packaging.
  + **StockItemKey** – Unique identifier for each stock item.
  + **StockItemID** – Internal ID assigned to stock items.
  + **Color** – Color specification of the stock item.
  + **SellingPackage** – Packaging format for sale (e.g., "Box of 10").
  + **BuyingPackage** – Packaging format for procurement (e.g., "Carton of 50").
  + **Brand** – Brand name of the stock item.
  + **Size** – Size specifications of the stock item.
  + **QuantityPerOuter** – Number of units per outer packaging.
  + **Barcode** – Universal barcode for scanning.
  + **TaxRate** – Tax percentage applied to the item.
  + **UnitPrice** – Price per individual unit.
  + **TypicalWeight** – Approximate weight of the stock item.
  + **StockItemName** – Official product name.

### **DimPurchasingOrderLine Table Schema**

The DimPurchasingOrderLine table is a dimension in the data warehouse that captures detailed information about individual purchasing order lines. This table supports analysis related to suppliers, stock items, and purchasing performance over time.

| **Attribute Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **PurchasingOrderDimID** | int (PK, Identity) | A surrogate primary key uniquely identifying each purchasing order line in the dimension table. Automatically generated during the ETL process. |
| **WWI\_PurchasingOrderID** | int | The original ID of the purchasing order from the source system (World Wide Importers operational DB). Used to maintain referential integrity with the source data. |
| **SupplierID** | int | Foreign key referencing the supplier associated with the order line. It allows analysis by supplier. |
| **OrderDate** | date | The date on which the purchasing order was created. Useful for time-based analysis. |
| **ExpectedDeliveryDate** | date | The date on which the goods are expected to be delivered. Used for comparing planned vs actual delivery performance. |
| **DeliveryMethodName** | nvarchar(50) | The name of the delivery method (e.g., Courier, Standard Shipping). Helps in logistics analysis and supplier performance metrics. |
| **StockItemID** | int | Foreign key identifying the stock item being purchased. Enables item-level analysis across multiple purchasing orders. |
| **PackageTypeName** | int | Foreign key (possibly to a PackageType dimension) representing the type of packaging used for the item. Important for logistics and storage planning. |
| **OrderOuters** | int | The number of outer units ordered. An outer is a group of units packaged together (e.g., a box of items). |
| **ReceivedOuters** | int | The number of outer units actually received. Enables the tracking of discrepancies between ordered and received quantities. |
| **ExpectedUnitPrice** | decimal(18,2) | The expected price per unit of the item ordered. Useful for budgeting and procurement cost analysis. |
| **LastReceiptDate** | date (Nullable) | The most recent date on which part or all of the order was received. Important for analyzing delivery timelines and supplier reliability. |

**WarehouseTransactionDim Table Schema**

The WarehouseTransactionDim table is a dimension in the data warehouse that captures detailed records of warehouse transactions. It supports analysis of stock movements, transaction types, supplier and customer interactions, and overall warehouse activity.

| **Attribute Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **WarehouseTransactionDimID** | int (PK, Identity) | A surrogate primary key uniquely identifying each warehouse transaction in the dimension. Automatically generated during the ETL process. |
| **WWIStockItemTransactionID** | int | The original transaction ID from the World Wide Importers source system. Maintains referential integrity with the source data. |
| **StockItemID** | int | Foreign key identifying the specific stock item involved in the transaction. Enables tracking of stock movement at the item level. |
| **TransactionTypeName** | nvarchar(50) | The name or type of transaction (e.g., Purchase, Sale, Adjustment, Return). Critical for analyzing transaction behavior and warehouse operations. |
| **TransactionOccurredWhen** | datetime2(7) | The timestamp indicating when the transaction occurred. Used for time-based analysis and trend monitoring. |
| **Quantity** | decimal(18,3) | The quantity of items involved in the transaction. Allows precise inventory and movement tracking, including fractional units. |
| **CustomerID** | int (Nullable) | Foreign key referencing the customer involved in the transaction, if applicable (e.g., in a sales transaction). Useful for analyzing customer-related stock movements. |
| **SupplierID** | int (Nullable) | Foreign key referencing the supplier involved in the transaction, if applicable (e.g., in a purchase transaction). Enables supplier-level analysis of warehouse activity. |

**FactInventoryMovement Table Schema**

The FactInventoryMovement table is a fact table in the data warehouse that centralizes key measures related to the movement of inventory through the procurement and warehouse processes. It integrates foreign keys from multiple dimension tables and provides detailed quantitative metrics for business analysis.

**🔑 Foreign Keys (Dimensional Keys)**

| **Attribute Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **POrderDateKey** | int | Foreign key referencing the date the purchasing order was created. Used for tracking procurement over time. |
| **POrderExpectedDelDateKey** | int | Foreign key referencing the expected delivery date of the purchasing order. Helps in analyzing delivery timeliness. |
| **ItemLReceiptDateKey** | int | Foreign key referencing the last date a receipt was recorded for the item in the purchasing order. Used to monitor delivery completion. |
| **StockReceiptDateKey** | int | Foreign key referencing the date the stock was actually received and recorded in the warehouse system. Useful for measuring lead times. |
| **StockItemKey** | int | Foreign key referencing the stock item involved. Enables item-level analysis of movement and inventory performance. |
| **PurchasingOrderKey** | int | Foreign key linking to the DimPurchasingOrderLine table. Provides context on the purchasing order related to the inventory movement. |
| **SupplierKey** | int | Foreign key referencing the supplier involved in the inventory movement. Useful for supplier performance analysis. |
| **WarehouseTransactionDimID** | int | Foreign key linking to the WarehouseTransactionDim table. Integrates warehouse activity with purchasing and stock records. |

**📐 Fact Measures**

| **Attribute Name** | **Data Type** | **Description** |
| --- | --- | --- |
| **QuantityOrdered** | int | The total quantity of stock ordered from the supplier. Key metric for procurement volume analysis. |
| **QuantityReceived** | int | The actual quantity of stock received from the supplier. Used to identify discrepancies and track fulfillment rates. |
| **QuantityStored** | int | The amount of stock that was successfully stored in the warehouse. Important for inventory control and warehousing efficiency. |
| **LeadTimeDays** | int | The number of days between the purchasing order date and the actual receipt of stock. Crucial for lead time and supplier reliability analysis. |

**🔒 Primary Key**

The composite primary key consists of all foreign key fields, ensuring the uniqueness of each fact record based on its multi-dimensional context.