

1.0 PM Master Data

Various objects (called "Master Data") are used in SAP/PM module to represent and describe technical installations

- **Functional Locations**
- **Equipment**
- **Assemblies**
- **Bill of Materials / Materials**

These data can be complemented using

- **Classification data**
- **DMS** (document management system)
- **Measuring Points**

Another Master Data used in Plant Maintenance is the **Service Master**, used to describe services that are subcontracted with vendors. Click [here](#) to access the explanation in details.

Work Centers - used to identify teams of Maintenance workers and Subcontractors - are described in section [03. Plant Organizational Structure](#).

Click on the headings in blue here below to get the details for each type of Master data.

1.1 Functional Location

Functional Locations

- allows to represent/describe technical installations (production units, laboratories, warehouses...) in SAP with a technical, geographical, process oriented approach.
- are organized in a hierarchical structure according to functional, process-related or spatial criteria, so that upper levels functional locations in the hierarchy represent large areas or main functions (a complete Production Unit with its different sections/sub-sections) and can be detailed into smaller items, down to the level of individual locations / process functions (identified on the P&ID sheets by tag numbers, like a reactor, a vessel, a pump,...).

Each individual Functional Location represents a place/a process function at which maintenance tasks can be performed.

Functional Locations structure is the backbone of the Maintenance information system. It allows to organize most data used in Maintenance (technical documentations, procedures, breakdowns, costs...)

Technical objects (Equipment) can for example be installed at Functional Locations, in order to describe the physical devices used to fulfill the process function identified by the Functional Location.

1.2 Equipment

A piece of Equipment identifies an individual physical device / machine in the technical installations (a reactor, a pump, a motor ...), which is maintained independently. Equipment are generally installed on a Functional Location, and can - during its lifetime - be moved to different locations.

Using Equipment allows you to perform the following functions in the system:

- manage individual data from a maintenance perspective for each individual machine/device : general information, technical characteristics, instructions for maintenance, list of spare parts...
- record individual maintenance activities for each piece of Equipment, to be planned (Maintenance Plan) or at each breakdown
- keep historical information of all the maintenance tasks performed for a technical object.

1.3 Materials, Assemblies and Bill of Materials

Materials are used in SAP to describe spare parts used in Maintenance.

Assemblies are used

- to define - generically - the main basic components of a category of Equipment. For example for pumps: impeller, shaft, coupling,... At each breakdown of a piece of Equipment, it will allow to specify the part which is damaged.
- to organize long bill of materials in sub-sections, so that each Assembly will regroup spare parts logically ; for example those for a specific part of a type of Equipment (eg. spare parts for the shaft in a Pump).

Bill of Materials

A **Bill of Material (BOM)** is a complete, formally structured list of the components (spare parts) making up a technical object or an Assembly. It contains the material numbers of the individual components together with their quantity and unit of measure. The components can be stock or non-stock spares.

- can be specific to a Piece of Equipment or a Functional Location, or can be generic (for example : for all pumps of a specific model)
- can be organized in a structural way (using Assemblies) so that each Assembly in a level allows to define a sub-level grouping spare parts specific to the Assembly.

Maintenance BOMs are used to easily identify the appropriate spare parts when repairing a piece of Equipment or a Functional Location.

1.4 Document Management System

The Document Management System (**DMS**) allows

- to store / link any kind of document (Drawing, procedure, pictures,...) in SAP,
- to define the main properties of these documents (description, owner, status....), allowing to sort and search them easily
- to link these documents to various objects (Equipment, Functional locations, Materials...)

The documents can either be located (stored) on a shared drive, in an External application, on Internet or in the SAP database (vault).

The DMS allows for example

- to store/identify all technical documents related to an Equipment (eg. Technical repair manual, procedure for inspection...) for easy retrieval/access during a repair
- to store any kind of information related to Maintenance activities (Inspection reports...)

1.5 Classification System

The classification system allows you to define and use **characteristics** to describe all types of objects, and to group similar objects in **classes**. You then use the classes to help you to find objects more easily, using the characteristics defined in them as search criteria. This ensures that you can find objects with similar or identical characteristics.

1.6 Measuring Point

Measuring points describe tags assigned to Functional Locations or Equipment, where parameters can be measured or process conditions examined. **Measuring documents** recorded at each Measuring Point will allow to keep track of values measured periodically during the lifetime of the Equipment, and check if they comply with expected value (target value, range...). In case of non compliance, a request for Maintenance can be (automatically) created,

Example : temperature of a fluid, pressure at a valve, running time of a piece of Equipment, number of revolutions at a rotor shaft, state of Equipment (parameters in correct range).

Click [here](#) to go to Plant Maintenance Main Page.