



# SIMATIC IT for Assembly and Complex Manufacturing

## SIMATIC IT

SIMATIC IT, our Manufacturing Execution system, is a collection of integrated components, designed to integrate the control and business systems in each factory, standardize production across the entire enterprise and keep manufacturing processes aligned with supply chain activities.

It is based on three SIMATIC IT system pillars:

- SIMATIC IT Production Modeler, which is a framework to model plant logic and set up integrations with other SIMATIC IT Industry Libraries (for example, Assembly and Complex Manufacturing, Mechanical and Electronic Assembly, ERP integration, TeamCenter PLM integration, etc.).
- SIMATIC IT CAB, the native Client Application Builder offers template web pages. It provides two basic working environments:
  - A Supervisor environment for: order release and hold, production orders progress monitoring, certifications management to assign suitable operators at specific processes, data tracking and analyzing.
  - A (touchscreen based) Operator environment for: operations execution (such as start, pause, hold or complete), collecting tool or material related data and measures, and accessing operation related electronic work instructions to assist in faultless execution.
- Data warehouse and standard reports for data analysis

It also comes with a libraries approach, bundling industry specific functionality, plant logic and rules into industry libraries.

One of these libraries is the Assembly and Complex Manufacturing Industry Library which provides an expert tool for managing orders inherent to the assembly and complex manufacturing industry (i.e. Aerospace Structural parts and Engines, Aerospace assembly, Engine Assembly, Electronic Large Drives, Transformers, Turbines, Wind Power blades, Agricultural & Construction Equipment, Assembly machinery, and any typical Job Shop process).

## What it offers:

- The ability to manage engineering data originating from PLM systems for a seamless transition from the design phase to production through engineering
- Integrated quality management, including visual inspection, non-conformance detection, defect management and analysis through GUI, supporting quality management initiatives such as Six Sigma
- A modelling approach with automated workflows to easily adopt new production methodologies and process improvements
- ERP interoperability for master data synchronization, real-time production order scheduling and operation sequencing, and performance feedback
- Reports and Data warehousing combining quality, production, personnel, equipment, and material data for genealogy, process control, KPIs and trends

## Manufacturing Execution Systems

Answers for industry.

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# SIMATIC IT for Assembly and Complex Manufacturing Key Functionality

## Profiling Management

Defines, at the engineering level, what can be displayed and executed at runtime level by the logged-on users.

This security can be twined with LDAP central directories.

## Order Management

Orders are downloaded from the ERP system and validated for coherence against existing templates. If orders are created at the MES level, they can be manually released for production. Also, it is possible to assign priorities to the orders to establish an execution priority.

## Booking Styles

Defines the execution sequence of the operations in released orders. The library manages the dependencies between operations according to the applied booking styles. Defining a dependency means specifying the operations that must be completed before a certain operation can be started. Booking styles can be received from the ERP system.

## Control Work in Progress

The Work In Progress page provides a set of supervisor functionalities, such as overview of the process, manage entries in hold status, set an order in future hold status, split orders, create process lots.

## Serialization Management

Allows authorized users to manage the serialization of components/parts per order.

There are two types of orders:

- Assembly orders require the consumption of part numbers that can be traced by serial numbers. Serial numbers are inserted at material consumption.
- Manufacturing orders are orders that require the execution of manufacturing operations on a certain part number (e.g. a blade, an engine, a screw etc.).

At the end of the manufacturing process, the part number is identified through a unique serial number.

## Work Booking:

The operator can start the required operation, pause it, print a report, or start several orders at a time. Some operations can be auto-started or autocompleted. Finally, an electronic signature can be set to be required upon certain operations.

## Defect Management

Provides an "off-the-shelf" MES solution for managing quality data. This package can identify defective parts along all the different steps of production, from product design to finished product and this throughout the supply chain.

## Non-Conformance Management

A set of use-cases that allows the user to open and close a procedure of Non-Conformance during the runtime phase. When a Non-Conformance is found, the operator opens the Non-Conformance procedure and selects the defect type that has been found. To close the Non-Conformance, the operator can choose from various follow up actions, such as scrapping or reworking the order, deleting the Non Conformance or requesting a change in the work procedure.

## Display Process Data

An As-Built web page is available to display process data. It allows the user for example to attach images to be displayed in reports, to print reports, to disassemble materials.

## Electronic Work Instructions

Electronic Work Instructions containing images, documents, and data collection forms can be generated and associated to operation steps.

## First Article Inspection

In case of new products, new materials or new assemblies, the system submits the first result to a First Article Inspection (FAI) procedure. The FAI execution process invokes a future hold on the final order operation until the FAI is complete.



## Key Benefits

- Production / Resource Optimization and Synchronization
- Support for Parallel execution
- Up to date Operator Instructions
- Manufacturing oriented grouping
- Advanced Defect declaration and management environment
- Support for Process and Product Quality
- Material and Process based Inspections
- Regulated environment Quality Support
- Detailed Tracking and Tracing
- Paperless manufacturing working environment

## Get more information

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