



PROCE55 Manufacturing

Overview

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PROCE55 Manufacturing Introduction

PROCE55 Manufacturing is a manufacturing execution system (MES). The solution provides real-time information from production. It covers all production, logistics, and support processes. It can integrate equipment and systems used in production.

Based on real-time production information, PROCE55 Manufacturing optimizes the use of available resources: labor, equipment, materials. PROCE55 Manufacturing is a central hub for production process control, data collection, and report generation. Integration with other relevant tools enables to create on-demand reports required to support managerial decisions. Tools that can be integrated include SPC (statistical process control), employee attendance recording system, product data management system, maintenance management system, and others.

Solution Benefits

- » Increase of worker productivity
- » High and constant product quality
- » Error elimination (use of barcodes, RFIDs)
- » Real-time production overview, also in visual form
- » Shortening of production cycle, optimization of lead times
- » Significant simplification of process control for the users
- » Elimination or minimization of manual data entries
- » Decrease of work-in-process
- » Optimization of set-up times
- » Decrease of paper-based data keeping
- » Flexible reactions to unexpected events
- » Collection and evaluation of specific production data
- » Product traceability respecting the defined quality aspects
- » Implementation of industry- and plant-specific processes

PROCE55 Integration

PROCE55 Scheduling

PROCE55 Manufacturing is integrated with a scheduling system, PROCE55 Scheduling or other. It loads all the relevant information about work orders from scheduling application.

PROCE55 Manufacturing enables paperless visualization of production plans directly on production lines. It also sends real-time information about production (work orders in process, data about workers, changes in inventory etc.) back to the scheduling system.

PROCE55 Quality

PROCE55 Manufacturing can be integrated with a quality management system, PROCE55 Quality or other. This enables to transfer data from quality management system into the processes of quality measurement (production confirmation with quality control). Alternatively, quality management system data can be used to control production operations.

PROCE55 Manufacturing integrates quality control systems, product measurement and testing, including exception management. The solution can control related workflows, for example managing non-conforming products.

PROCE55 Manufacturing Characteristics

Work Order Management

Work orders can be entered into PROCE55 Manufacturing automatically or manually. The solution manages changes in orders and their priorities in production schedule. Work orders can be automatically loaded from PROCE55 Scheduling or ERP systems (e.g. SAP) via appropriate interfaces.

Production Orders

Based on the production schedule, production orders and related information are displayed at work stations (machine, production line). Information includes technological instruction (e.g. bills of materials, production formulas, production methods), which can be loaded from external sources (e.g. CAD systems). Display of production orders can be controlled by a pre-set algorithm (order defined by planners) or manually by operators.

Work Stations

PROCE55 Manufacturing is responsible for assigning processes to work stations. Work station loading takes time standards and total factory utilization into account.

Optimum Inventory Levels

Production optimization with PROCE55 Manufacturing leads to decrease in inventory.

Material Movements

Movement of inventory and information on the shop floor is controlled by PROCE55 Manufacturing. Material movements can be controlled manually (sending or printing commands) or automatically (commands sent to PLCs in robots, conveyor systems and other equipment).

Early Warning System

PROCE55 Manufacturing proposes reactions to unusual situations and contacts responsible workers. Examples include downtime at a work station, overloaded work stations, material unavailability, predicted order delays, etc. In such situations, the solution suggests appropriate actions to the workers.

Bar Coding

Use of barcodes or RFID's significantly decreases errors. Bar coding enables complete material and product traceability. It is used to record batches or production numbers.

Barcode Printing

PROCE55 Manufacturing enables to print barcodes on basic printers (e.g. laser printers – barcode is printed as a picture), or it can control professional barcode printers (e.g. Zebra printers). Printing on basic printers does not require purchase of specialized equipment and enables broad use of barcodes at reasonable costs.

Technological Breaks

PROCE55 Manufacturing can be used to control necessary technological breaks between production steps. In this case, PROCE55 Manufacturing is integrated with production line, and collects information about the production time of an item. The solution then controls that the item is stored in warehouse for the defined time. PROCE55 Manufacturing suggests to the workers which items can be moved to next production steps, based on the storage duration. The application also checks that items are not moved into production too early.

Production Confirmation

With PROCE55 Manufacturing, products can be confirmed at work stations or dedicated confirmation places. Work and material movements are automatically recorded into ERP system. The production confirmation process can collect data from machines, equipment and sensors, through barcodes / RFID or manual data entry. At the point of production confirmation, barcode labels are printed to control the following material flows.

Backward and Forward Traceability

PROCE55 Manufacturing enables 100% traceability. Although the standard ERP systems include backward and forward traceability, its quality and reliability depends on the structure of data objects used in production control (production schedules, bills of materials). Even if batches are used for this purpose, too often the link between incoming materials and semi-products is broken. ERP systems solve these limits only by changes in the data structures – production schedules, bills of materials. However, this leads to complicated data maintenance and management.

PROCE55 Manufacturing overcomes the existing limits by generating own identifiers in all production steps. Traceability with PROCE55 reaches 100% preciseness, by tracking more elements and events than common batch-tracking of ERP systems.

Environment Parameters

PROCE55 Manufacturing can record and evaluate data on environment (temperature, humidity, etc.). This is commonly used in pharmaceutical and food industries.

Container Management

The solution considers packing instructions, including pair parts, subordinate packages, and other container management principles. In the process of production confirmation, barcode

labels can be printed for specific final product packaging or for the final consumer.

Time Management and Performance

Measurement

PROCE55 Manufacturing records production tracking data – events, times, intervals, downtimes, their causes, and repair times. It can monitor real-time speed of machine and compare it with defined (optimal) state. The solution collects detailed time data on personal level.

In case of any event or deviation, the solution can notify appropriate workers (Early Warning System). Deviations can be measured at any point of production process. The data are recorded automatically from the machines, equipments and sensors through PLC's, or they are entered manually.

Reporting

Events and their time aspects can be evaluated in production reporting, customized to individual customer needs.

Integration with ERP Systems

PROCE55 Manufacturing is seamlessly integrated with ERP systems. Throughout the production process, necessary objects in ERP system are accessed, such as work orders, warehouses, material entries, bills of materials, production formulas, work stations, etc. These objects and related data structures enable to manage manufacturing operations (e.g. visualization of work order with appropriate material components at a work station).

Transactions in ERP system can be controlled by PROCE55 Manufacturing. This mostly includes transactions related to material movements and production confirmation. Integration with ERP system makes it possible to transfer data from ERP system and to control transactions in ERP system on-line.

Production processes are not impacted by unavailability of ERP system. For this purpose, production-related data are continually stored in PROCE55 cache/queue mechanism. The data is automatically synchronized after the connection has been reestablished. Production worker will not even notice unavailability of ERP system, because the production continues without any change.

Equipment and System Integration

Equipment which is directly related to process control can be integrated with PROCE55 Manufacturing. Such equipment includes production lines, robots, warehouse management systems, measurement tools etc. Data structures

used to control the equipment and processes are transferred automatically. Elimination of manual data entry results in increased process productivity and decrease of errors. Signals from production lines and processes are used for automatic transaction control.

Additional Functions

- » Management of non-conforming products
- » Tools management
- » Indirect materials
- » Container management (received and dispatched containers)
- » Material scrap related to workplace, operator, production area

Reporting

Reporting is a standard part of PROCE55 solution. Events and their time aspects can be evaluated in production reporting, with reports customized to individual customer needs.

PROCE55 Manufacturing records detailed process data:

- » Transaction time data
- » Information about downtimes and their causes
- » Precise time data for KPI's
- » Information about technical condition of tools
- » Information about wear of machines and tools
- » Information about environment (e.g. temperature, pressure, humidity)
- » Material movements
- » Quantities of materials (consumption and production) related to workplace, operator, production area
- » Use of containers
- » Batches, backward and forward traceability, product quality certificate

Recorded data can be used to create standard and ad hoc reports; both during the production process control and later for statistical evaluation of production processes and their optimization. The data can be used to report required KPI's (Key Performance Indicators) in various forms, including OEE (Overall Equipment Effectiveness) reports.

With PROCE55 Manufacturing, real-time state of production can be visualized for the managers (e.g. dashboard, incl. mobile devices), or displayed on screens directly in the production. These visual reports usually show real-time utilization of production resources.

Implemented Solution Cases

These are screenshots of already implemented solutions. The screens (human-machine-interface) are fully customizable and always optimized for particular project.

Production Confirmation

Oven

COILS:

Coil nr.: **Insert** **Remove**

Coil Nr.
1 1000
2 1001
3 1002

STRANDING CONDUCTOR:

Order Nr.: **Continue**

Selected Order

Order Nr.: **9275461** Material: **JQ19187504** Material text: **50 AL-SEKT 3-LEDER GLODNING**

Used materials:

Mat. Nr.	Text	Quant.	Unit
JQ19187509	50mm² AL-SEKT 3-LEDER LAGSNOET	4000,000	M

Stock overview:

Stock	Batch	Quantity	Date
43	6001404737	1600	22.12.2009
43	6001428951	1600	14.10.2011
43	6001428952	1600	14.10.2011

Selected batch: **Create new batch**

Back

Proposed Transactions

Goods issue:

Material: 50mm² AL-SEKT 3-LEDER LAGSNOET
 Quantity: M
 Batch:

Confirmation and Goods Receipt:

Material: 50 AL-SEKT 3-LEDER GLODNING
 Quantity: M

Process

Back

Selected Order

Order Nr.: **9275461** Material: **JQ19187504** Material text: **50 AL-SEKT 3-LEDER GLODNING**

Used materials:

Mat. Nr.	Text	Quant.	Unit
JQ19187509	50mm² AL-SEKT 3-LEDER LAGSNOET	4000,000	M

reset

Stock overview:

Stock	Batch	Quantity	Date
43	6001428951	1600	14.10.2011
43	6001428952	1600	14.10.2011

reset

Selected batch:

Create new batch
 Status GI: **OK**
 Status CO11: **OK**
 New batch: **6001428953**

PROCE55 Technology

PROCE55 Manufacturing is a set of pre-configured components developed by East-Gate on the BPM platform PROCE55. These components are individually customized with every implementation. Users are not distracted by unnecessary functionalities. New functionalities and processes can be easily added with new components.

Flexibility

PROCE55 solution delivers applications with functions customized to each company. Development of PROCE55-based applications and their changes are extremely fast. Solution flexibility is significantly higher in comparison with standard ERP systems. Changes can be implemented in response to quick and unexpected changes in the processes. Even if the company changes its processes as often as every month, PROCE55 solution can adequately respond to such frequent changes.

Rapid Implementation

Implementation process is also characterized by high solution flexibility. Implementation can already begin with the first concept, without a precise specification. Next, optimal solution is iteratively developed based on the real customer need. PROCE55 implementation is not based on lengthy specifications. On the other hand, time is spent on continuous development of functions, together with the customer.

Simple Use

User interface is customized to processes and workers. It simplifies work with applications and process control. User training is fast because the screens are easy-to-understand and can be used intuitively. Friendly user interface leads to minimum user errors. The human-machine interface is a significant advantage compared to standard ERP systems, whose complex screens require highly qualified and trained staff.

Favorable License Conditions

East-Gate's license and pricing policy is favorable when compared with other solutions. PROCE55 is provided under a server license. Number of end users is not restricted.

PROCE55 Solution Repository

Solution repository is a set of configurable solutions, which are used for accelerated development of specific solutions.

PROCE55 Solution Repository includes:

- » PROCE55 Manufacturing
Manufacturing system (MES)
- » PROCE55 Warehouse
Logistics and warehouse system (WMS)
- » PROCE55 Scheduling
Operations scheduling
- » PROCE55 Maintenance
Maintenance system (CMMS)
- » PROCE55 Quality
Quality management
- » PROCE55 Mobile
Field operations management
- » PROCE55 Labs
Laboratory system (LIMS)
- » DigiSWord
Document digitization
- » PROCE55 AIM
Asset & inventory management

Contact

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