

PRODUCT LIFECYCLE MANAGEMENT (PLM)

Prodesol SmarteManager is a complete product lifecycle management solution that centralizes complex product information.

What is PLM?

Product Lifecycle Management (PLM) has more to do with managing descriptions and properties of a product through its development and useful life, mainly from a business/engineering point of view. The process of managing the entire lifecycle of a product from its conception, through design and manufacture, to service and disposal. PLM integrates people, data, processes and business systems and provides a product information structure for companies and their extended enterprise. Complex engineered products, such as medical devices, automotive parts, machinery, industrial measurement and control instruments, communications and consumer electronics, aerospace components and military equipment, will especially receive the benefits of a PLM system.

PRODeSOL SMARTeMANAGER is a one step tool for creating and managing:

- **Projects, Products and processes**
- **Parts, Assembly**
- **eBOM, engineering bills of material for general and electronic assembly**
- **Documents management**
- **Parts compliances and standards**
- **Cad data for electronic assembly**
- **Revisions**
- **Engineering changes**
- **CAPA, Corrective and Preventive Actions**
- **Project and task time tracking**
- **Contact management, Users, manufacturers, suppliers, ...**
- **Assembly Process**
- **Tools**
- **Shop Floor Model**

CONTINUOUS IMPROVEMENT

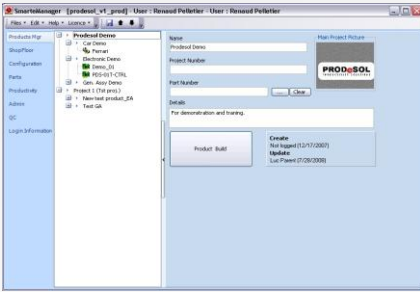
Creating new process is usually well controlled.

What about updating and improving existing process? Is it a challenge in your organization?

It becomes easy with Prodesol SmarteManager combined with SmarteModeler-GA. It manages complete Product Lifecycle Management such as revisions, engineering changes, CAPA, documents, BOM, mBOM, standards, parts and much more. The software handles complex process definition and it easily analyzes models to find optimized solutions.

Measuring is the first step to improvement. Use the SmarteMES for Real Time production data collection. All products in SmarteSolutions are ready to use for Real time process and parts tracking.

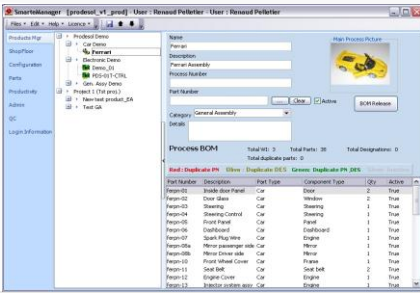
Product Screenshots



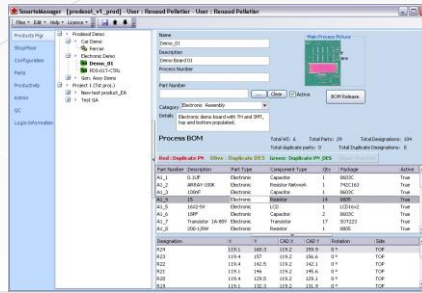
Project Manager



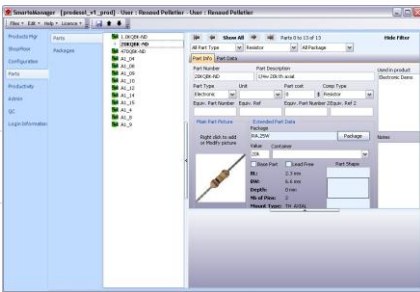
Products manager



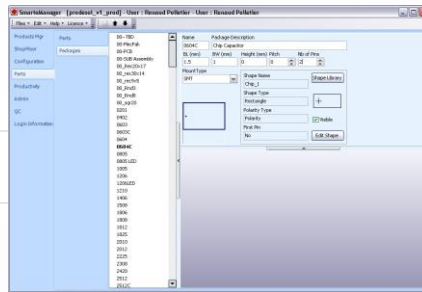
Process eBOM



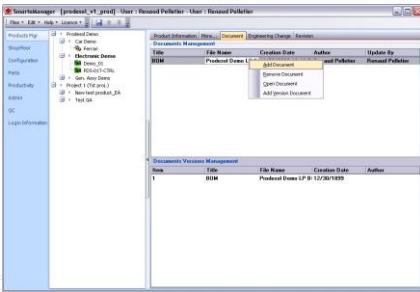
Process eBOM & CAD Data



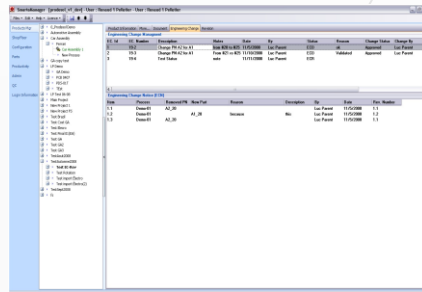
Parts & assembly



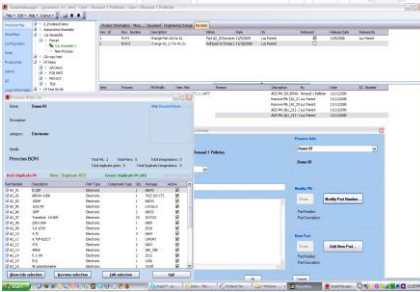
Electronic Packages



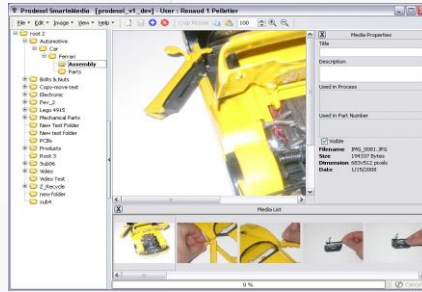
Document manager



Engineering Changes



Products & process revisions



SmarteMedia

- Benefits:**
- ✓ Reduced time to market
 - ✓ Improved product quality
 - ✓ Reduced prototyping costs
 - ✓ Savings through the re-use of original data
 - ✓ A framework for product optimization
 - ✓ Reduced waste
 - ✓ Savings through the complete integration of engineering workflows
 - ✓ Server system for real time process update
 - ✓ Collaborative work

- Features:**
- ✓ Project Management with agenda and time tracking
 - ✓ Product Management
 - ✓ Process management.
 - ✓ eBOM, General and Electronic assy
 - ✓ Import and export to Excel
 - ✓ Products Revisions
 - ✓ Products Engineering changes
 - ✓ Documents Management
 - ✓ Parts compliances and standards
 - ✓ CAPA
 - ✓ Parts management.
 - ✓ Electronic packages.
 - ✓ Tools & Safety
 - ✓ Shop Floor Model
 - ✓ Contacts
 - ✓ Manufacturers
 - ✓ Suppliers
 - ✓ Pictures and video Manager (SmarteMedia).
 - ✓ Server Database

System requirements
MySQL Database server.
PC Pentium P4 or Equivalent
Microsoft Windows XP or Vista
512 MB Ram (minimum)
Super VGA (800 x600) minimum,
1024 x 768, 19" monitor with Higher resolution
(recommended) for higher efficiency

TAKE CONTROL OF YOUR MANUFACTURING PROCESS with Production - Preparation - Process = 3P Method

Production Preparation Process (3P) is one part of an overall Lean design approach that includes the rapid testing of ideas and the embedding of Lean manufacturing principles into process and product design. It's one of the most powerful and advanced manufacturing tool. It is typically used by organizations that have experience implementing other lean methods. Whereas kaizen and other lean methods take a production process as a given and seek to make improvements, the Production Preparation Process (3P) focuses on eliminating waste through product and process design. The 3P method finds the best manufacturing process.

Now easier to implement!

Thanks to Prodesol SmarteModeler – PLM Estimator for General Assembly.

PRODeSOL SMARTeMODELER is a one step tool for creating:

- Quotes, (labor and parts)
- Advanced Cost Analysis
- mBOM (Manufacturing BOM)
- Detailed manufacturing processes
- Optimized routing
- Assembly Lines with optimization and line balancing tools
- Methods (Visual work instructions automatic creation)

Manufacturing process becomes critical in today's highly competitive market. A good process is essential but an optimized process will produce competitive advantages. PRODeSOL SMARTeMODELER-GA is the complete tool for high mix assembly of all levels of complexity. The system will identify bottlenecks before it reaches manufacturing and no details, parts or steps will be left out.

The immediate results are:

- MAXIMIZED EFFICIENCY
- 100% QUALITY
- REDUCED MANUFACTURING COSTS
- INCREASED THROUGHPUT

CONTINUOUS IMPROVEMENT

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Product Screenshots

Look at your process in a glance. Labor, parts and resources analysis are easily performed. Complex processes become easily optimized for lean manufacturing.

Benefits:

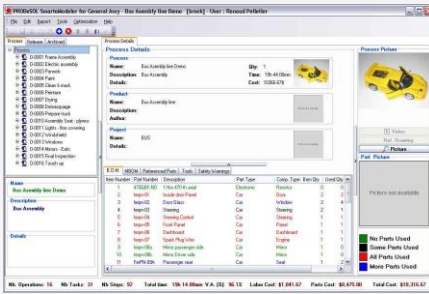
- ✓ Reliable advanced quote system.
- ✓ Accurate mBOM management.
- ✓ Maximized work center load.
- ✓ Maximized assembly process reliability.
- ✓ Maximized value added activities.
- ✓ Quick and Easy changes and improvements.
- ✓ Quick Bottlenecks evaluation and reduction.
- ✓ Maximized workflow.
- ✓ Error free electronic work instructions.
- ✓ Reduce operator training and learning period.

Features:

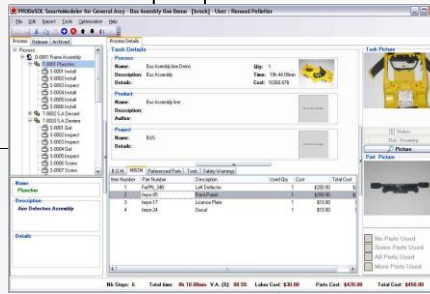
- ✓ Advanced product design tools.
- ✓ Based on value added activities.
- ✓ mBOM management.
- ✓ Department based cost.
- ✓ Part management (consumed and referenced).
- ✓ Tool usage & Safety Control.
- ✓ Operation (phase) Planning with Gantt.
- ✓ Operation (phase) routing.
- ✓ Cost Analyzer, Parts & Labor.
- ✓ Pareto analysis.
- ✓ Task line balancing.
- ✓ Reusable template.
- ✓ Excel Reports.
- ✓ Step picture, drawing and video.
- ✓ Automatic work instructions creation.
- ✓ Server Database

System requirements

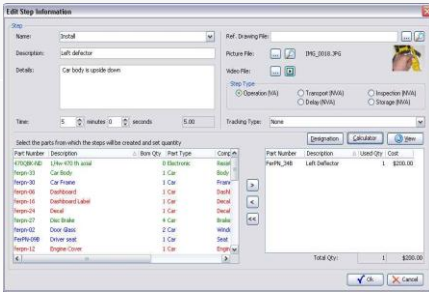
MySQL Database server.
 PC Pentium P4 or Equivalent
 Microsoft Windows XP or Vista
 512 MB Ram (minimum)
 Super VGA (800 x600) minimum,
 1024 x 768, 19" monitor with Higher resolution (recommended) for higher efficiency



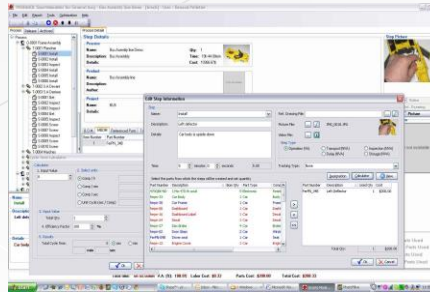
Overall Process



mBOM Structure



Step Definition



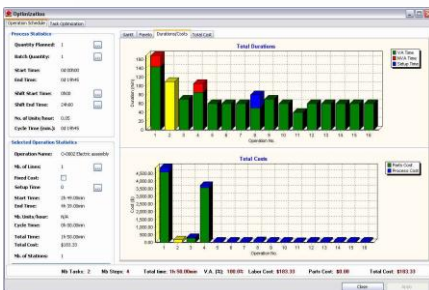
Detailed Step Definition with calculator



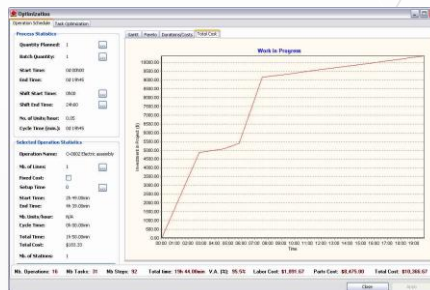
Duration & routing analysis with Gantt



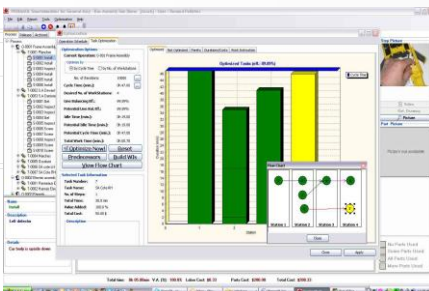
Pareto Analysis



Duration and Cost Analysis



Process Total Cost Analysis



Line Balancing



Automatic Work Instruction Generation

Bill of materials handling with Prodesol SmarteSolutions

The engineering bill of materials (eBOM) is the master product definition. It generally includes parts and instruction that allows manufacturing engineers to derive the manufacturing bill of materials (mBOM). The mBOM is developed by re-sequencing the eBOM in the context of the real assembly process and manufacturing cost optimization. The process information is transformed to allow the new part to become production ready.

The re-sequenced eBOM becomes the mBOM, and the process information needed to build the product is called Assembly Process. The Prodesol next generation manufacturing process knowledge management uses a PLM (Product Lifecycle Management) strategy. Optimization now occurs with PLM knowledge and this results in build processes which have all the information for the MES to execute successfully.

ERP uses the mBOM and routing information derived from the Assembly Process for product costing, resource planning, and scheduling. The MES (Manufacturing Execution System) also utilizes mBOM and all the Assembly Process information from the shop floor to execute the manufacturing plan. It is in this transition between the eBOM (from the design systems) and the build process into the business planning and execution systems that you can see the largest gains from integrating MES and PLM.

Traditionally, users reenter product design and process specification data into disconnected factory information systems many times to provide all the shopfloor systems with the data needed to build a product. Reentering data from one system to another is one of the main sources of production errors and quality issues, as well as work stoppages. Direct electronic transfer of data from a PLM system into a collaborative MES system becomes an important business requirement in today's manufacturing environment.

PRODeSOL advanced BOM import tools handles multiple BOMs in Excel format.

PRODeSOL required BOM fields are:

- Part Number and Quantity for general assembly
- Reference designators for electronic assembly

Optional fields are:

- Customer part number, item number and note.

Errors verification tool checks every part imported. New parts are added to the system parts database. CAD files for electronic assembly are imported and associated with the corresponding BOM.

Prodesol Products Configuration

