



cimag
Production

MES/MOM
Software for Industry 4.0





Production
Cycle
- 40%



WIP
Inventory
- 57%



Document
Management
- 63%



Scrap
- 15%



Reactivity
+ 45%



*Source MESA Study onto companies who have implemented an MES system, across all sectors.
Data is from 75% manufacturers, 16% continuous processes, and 9% mixed manufacturing.*



Hours/Days



Minutes



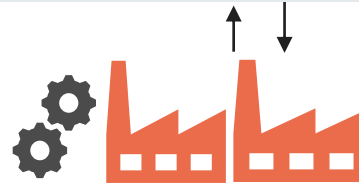
MES



THE MES SOFTWARE FOR INDUSTRY 4.0

CIMAG-PRODUCTION: Data collection, monitoring and management of the manufacturing processes

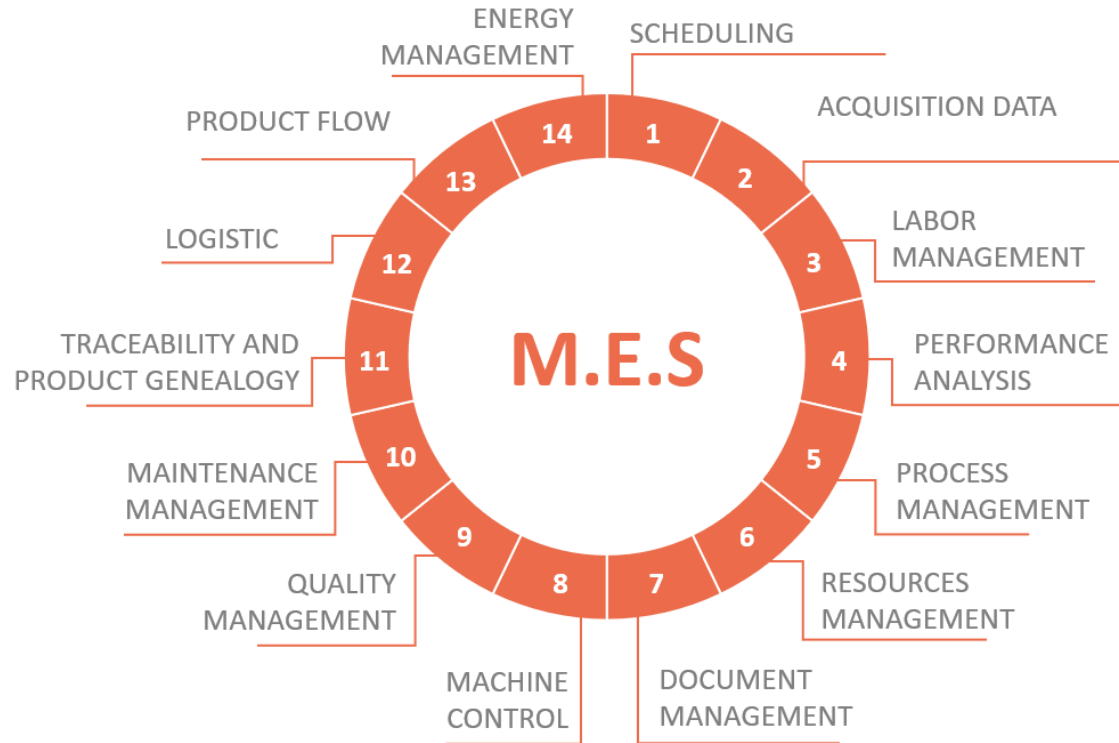
Seconds



Work in progress on a factory floor



CIMAG-Production covers more than 11 of the features defined in the ISA – 95 certification



 Partenaire de vos développements	 OUTILLAGE DÉCOUPAGE	
		
	 SISA-PLASTICS plastic	 ZURFLÜH-FELLER
 Votre partenaire en plasturgie		 World Class Power Solutions
 Advancing Possible		

Metallurgy, Plastics, Glass, Ceramics

 COMBUSTION-CHRONOMETRIE		 L'ÉQUIPE FIDEMECA	 AVIATION ENGINES
 INDUSTRIE AUTOMATIQUE		 L'ÉQUIPE TRÉFINMÉTAUX	 PRECISION PACKAGING
			
 A PEC COMPANY		 NEXTEAM GROUP	
	 CRÉER & VALORISER VOS RESSOURCES		

Mechanical, Turning, Watches

	 preparing tomorrow's surfaces		
	 EST. 1919 MULHOUSE FRANCE		
 La martiniquaise PRODUCE			
 Allergan			 Parquet de qualité française La nature à vos pieds
 ET L'ESPACE VIT	 PARIS	 FRANCE	 COMPOSITE EXPERTISE

Agribusiness, Chemicals, Medical, and Other Industries

Your Needs

- Scheduling
- Monitoring
- Collecting
- Sharing
- Controlling
- Managing



Your Production Data



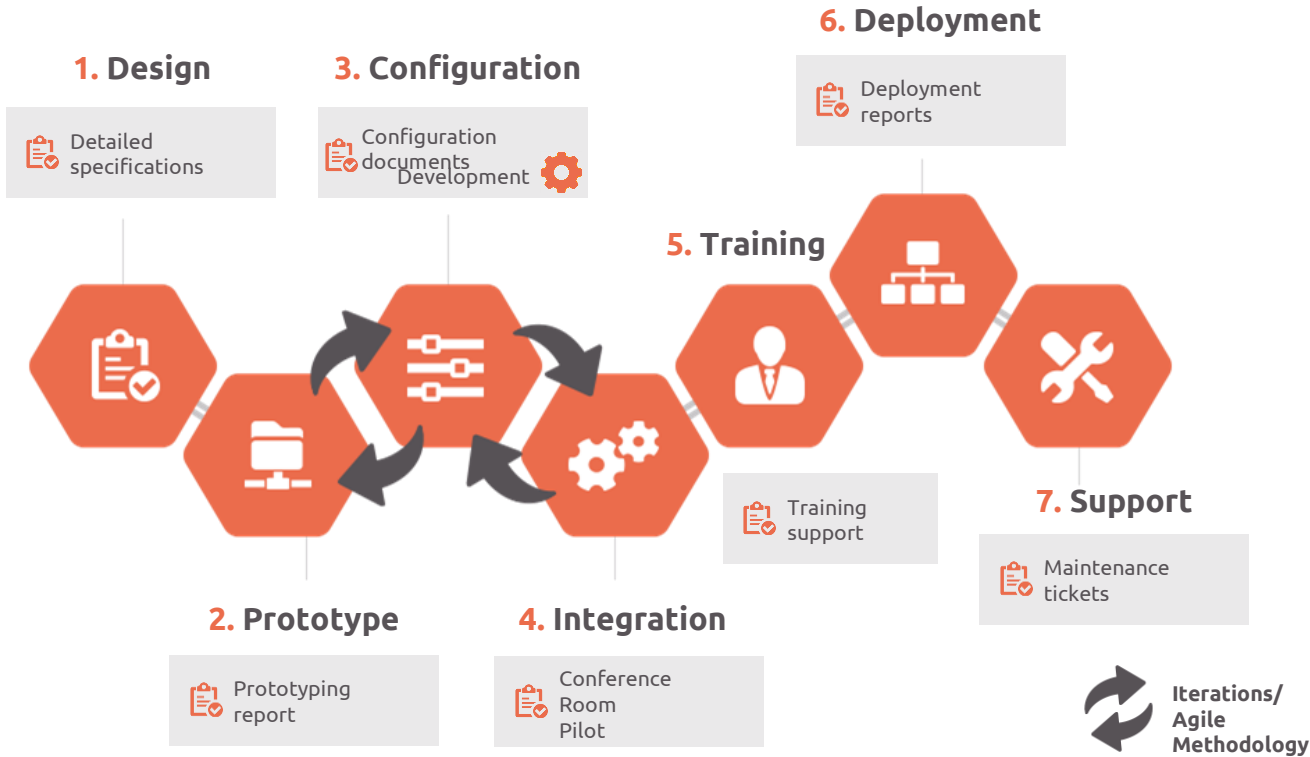
Key Benefits

- Performance
- Reactivity
- Optimization of working conditions
- Traceability
- Continuous improvement

Our Package

 <p>Unique and custom MES/MOM solutions with 14 functionality features that meet ISA/95 standards</p>	 <p>From SMEs to large international groups, our solutions can be adapted to fit the needs of all types of companies.</p>	 <p>Our solutions can be fully customized for your industrial organization: Challenges, Lean Management, Key Performance Indicators, etc.</p>	 <p>Solutions are available in 10 languages and can be locally hosted with the Core Model, or hosted multi-site by the cloud.</p>
 <p>Total integration with your information system (ERP, business applications, etc.)</p>	 <p>A team of experts is always available (project managers, developers, analysts, etc.) to help you meet your industrial challenges.</p>	 <p>An intuitive visual management solution that promotes collaborative work and provides performance indicators in real time.</p>	 <p>The promise of operational excellence dedicated to a successful project including cost, time, features, etc.</p>

Our Skills ▶ An approved methodology for project management



Our assets

▶ A human-sized structure as close as possible to the needs and requirements of the field

Your Concern ▶ Scheduling production in real time and increasing responsiveness

Your Challenges

- Managing and optimizing your schedule
- Improving customer service rate and the reliability of your deadlines
- Reducing loading times and processing times
- Optimizing the time allocated to the creation of schedules
- Sharing the schedules in real time with your workshop

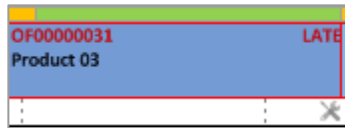
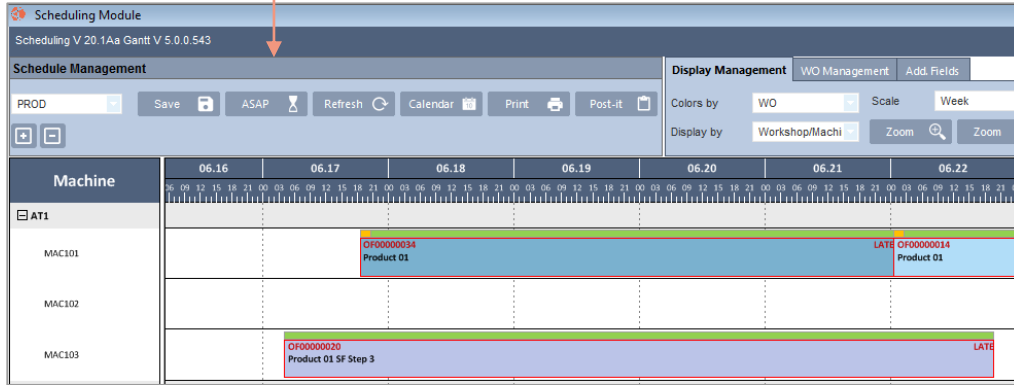


Scheduling Features

- ▶ Management of multi-resource constraints (machines, operators, tools, etc.), products, and processes
- ▶ Finite capacity scheduling
- ▶ Manual scheduling with drag-and-drop
- ▶ Real time updates of schedules according to manufacturing progress
- ▶ Work orders addressed by priority
- ▶ Visual alerts of scheduling conflicts (delays, tools, inventory, etc.)
- ▶ Module APS (Advanced Planning and Scheduling) as an option

Scheduling features ▶ Concrete examples with CIMAG

Automatic activities sequencing based on finite capacities.



Possibility to configure visual alerts in the schedule.

Possibility to manually set up different characteristics for the scheduling of WOs

Edit operation settings

WO/OP modification in progress

WO Code: OF00000041 Operation Code: 0010

Item Code: PROD01 Product: 01

Launching: 11/16/2015 Expected End: 11/16/2015

Detail

SCHEDULE

Machine: MAC101 Work Cen AT1

Start Date: 04/28/2019 02:26:00

End Date: 05/01/2019 07:26:00

Priority: 3,606,940

Min. Sched: 04/25/2019 15:26:00

Max. Sched: 07/27/2020 00:00:00

Operation Locked:

Job Type	No.
Operator	5.00

Time

Quantity (Prod=0)	150,000.0000	=	4,500 Minutes (75 h)
Output (Units/hr)	2,000.0000		
Setup Time (hrs)	2.00	=	120 Minutes (2 h)
Disassembly Time (hrs)	0.00		
Setup/Disassembly Affects Time	Actual Duration		4,620 Minutes (77 h)
	Total Duration of Op		4,620 Minutes (77 h)

Validate ✓

Your Concern ▶ Collecting field data in real time

Your Challenges

- Easily collecting machine times, production counters, and causes of machine breakdowns
- Ensuring the reliability of information in the workshop
- Reducing the time spent entering data in the ERP
- Collecting mixed data from programmable logic controllers, scales, etc.
- Monitoring productivity and the production process



Acquisition Features

- ▶ Automated data acquisition in real time
- ▶ Retrieving machine information by direct connection to terminals
- ▶ Monitoring of the machine status (production, configuration, cleaning, breakdown, etc.)
- ▶ Monitoring throughput times, finished products, and scraps
- ▶ Connection to other equipment (scales, etc.)
- ▶ Management of raw materials and components by barcodes or RFID

Acquisition Features ▶ Concrete examples with CIMAG

LABOR PRODUCTION QUALITY MACHINE DOCUMENT 03 14:09:41

Production

MAC103 Machine 3 Machining 1 O.E.E. 58%

Quantity Produced: 163
Quantity to Produce: 80 000
Efficiency Graph: 81%

Monitoring Graphs: Quantity Produced, Quantity to Produce, Real Time, Theo Time

Quantities Graph: Good Quantity 163 100%

The PANEL PC collects different indicators in real time such as the quantity produced, and time spent. All indicators can be configured according to your needs with a drag & drop system.

Settings Machine screen details

Code	Description
801	VO Information
802	Production Quantity Gauge
803	Production efficiency percentage
804	Setup Time, set up and stop time
805	Machine status chart
806	Quantity produced chart
807	Details VO information
808	Overall Equipment Efficiency
809	Machine Status
810	Post 8 to the VO in progress
811	Operating time (prod & set up)
812	Next VO List
823	Widget Control
824	Cancelled 2
824	Cancelled 3
825	Cancelled 4
826	OEE Evolution chart
827	Documents overview
828	Main Document
829	Main Document 2
830	Main Document 3
831	Hourly Quality
832	Quality Entry
833	Theoretical and real times

LABOR PRODUCTION QUALITY MACHINE DOCUMENT 03 14:36

MACHINE STATUS HISTORY

STATUS REQUALIFICATION

CURRENT STATUS	NEW STATUS
Start date: 04/25/2019 at 14:12:05	Start date: 04/25/2019 at 14:12:05
Duration: 36s	Duration: 36s
Status: Automatic stop	Status: Automatic stop

Validate ✓

It is possible to monitor the status of the machine and requalify a status directly on the PANEL PC.

Your Concern ▶ Monitoring the workforce in real time

Your Challenges

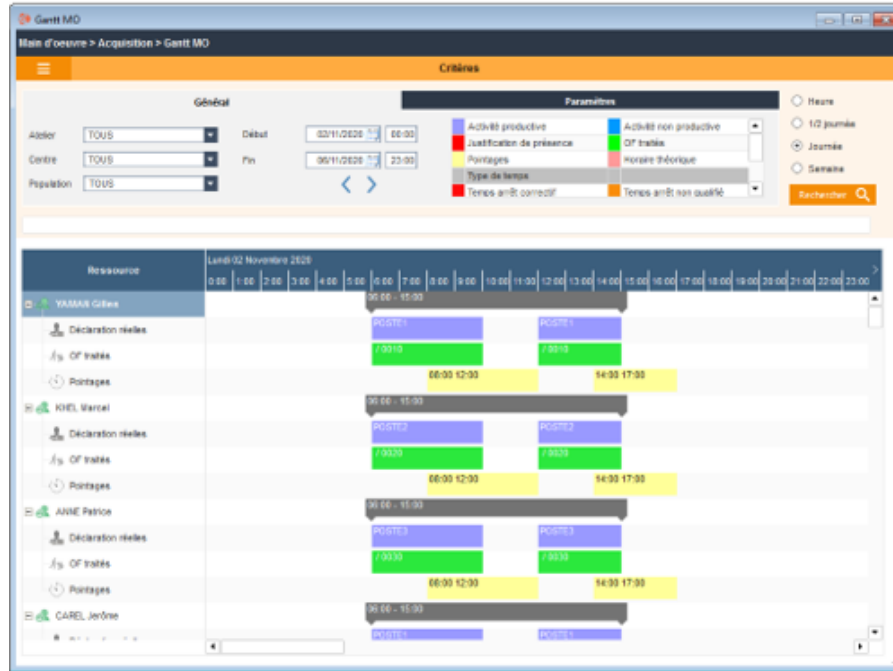
- Easily collecting labor times
- Assigning the right resources to the right jobs
- Organizing work teams according to constraints (absences, turnover of teams, etc.)
- Knowing labor occupancy times
- Managing accreditations and skills



Labor Management Features

- ▶ Operator badge identification
- ▶ Analysis of the workforce performance
- ▶ Monitoring of the productive and non-productive times
- ▶ Analysis of labor occupancy times
- ▶ Integration with the Time and Attendance module
- ▶ Skill and accreditation management
- ▶ Operator hours reporting

Labor Management Features ► Concrete examples with CIMAG



Your Concern ▶ Implementing a Lean Management approach

Your Challenges

- Having an overview of the status of the factory floor
- Managing one or several workshops in real time
- Implementing visual management
- Making the right decisions at the right moment
- Monitoring production progress



Performance Analysis Features

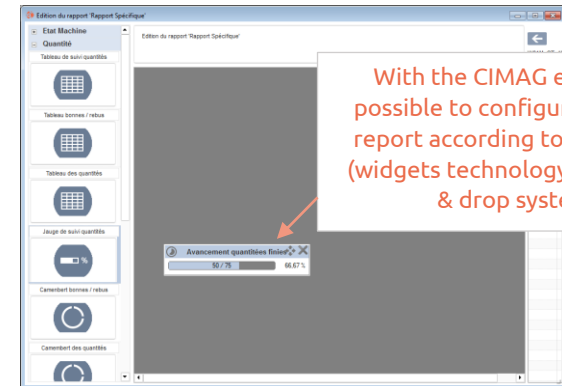
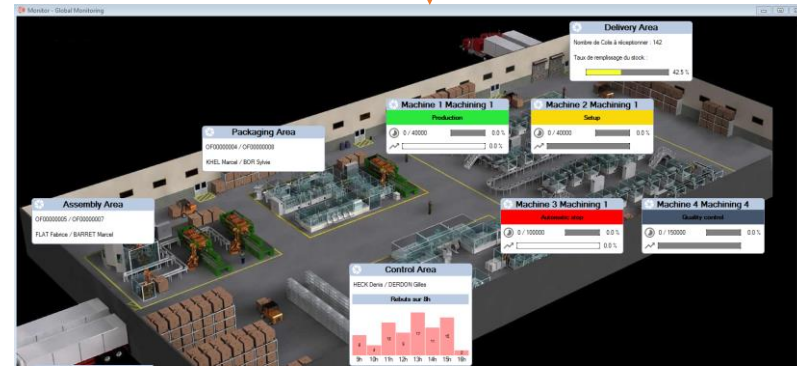
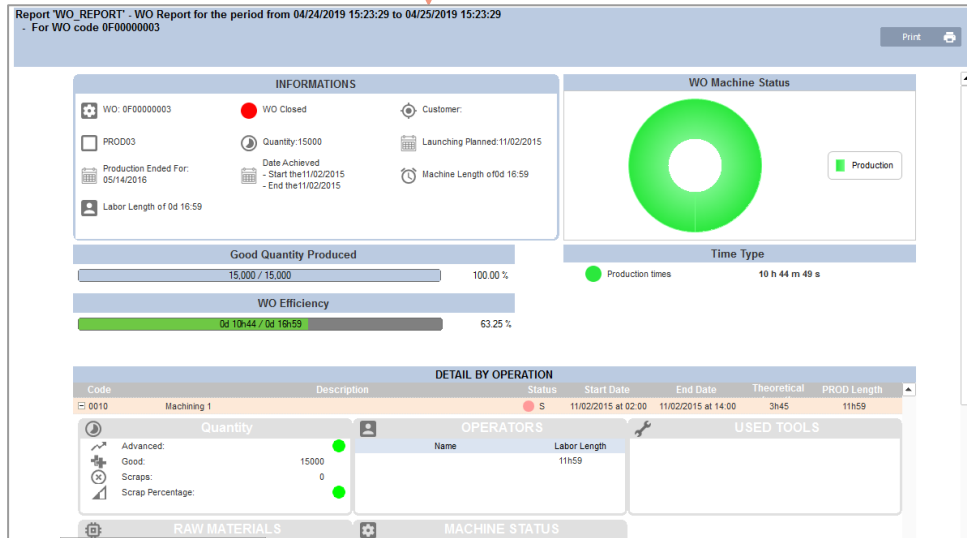
- ▶ Monitoring OEE, OOE, efficiency, etc.
- ▶ Time track machines and workforce
- ▶ Time analysis, WO reporting, and labor assessment
- ▶ Instant performance reporting
- ▶ Manufacturing Business Intelligence
- ▶ Dynamic dashboards (ANDON system, etc.)



Performance Features ► Concrete examples with CIMAG

CIMAG enables real time monitoring of your workshop

In CIMAG, there are predefined reports to analyze performance. For example, the "WO report" enables users to see key performance indicators related to the WO.

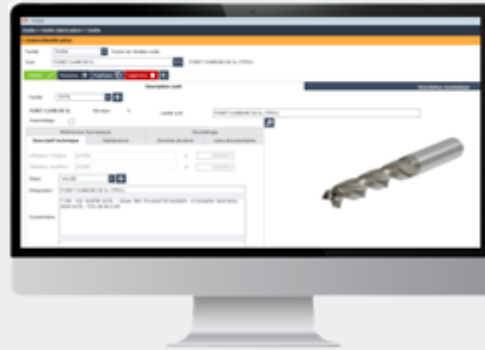


With the CIMAG editor, it is possible to configure your own report according to your needs (widgets technology with a drag & drop system).

Your Concern ▶ Coordinating the management of the production workshop's overall resources (humans, machines, components)

Your Challenges

- Knowing the resources available at all times (workforce, machines, components, etc.)
- Accessing and maintaining updated information on quality status, assignment, and availability of resources to be used
- Accessing and maintaining updated information on equipment used for maintenance, quality, etc.
- Ensuring successful workload scheduling
- Managing tools and equipment



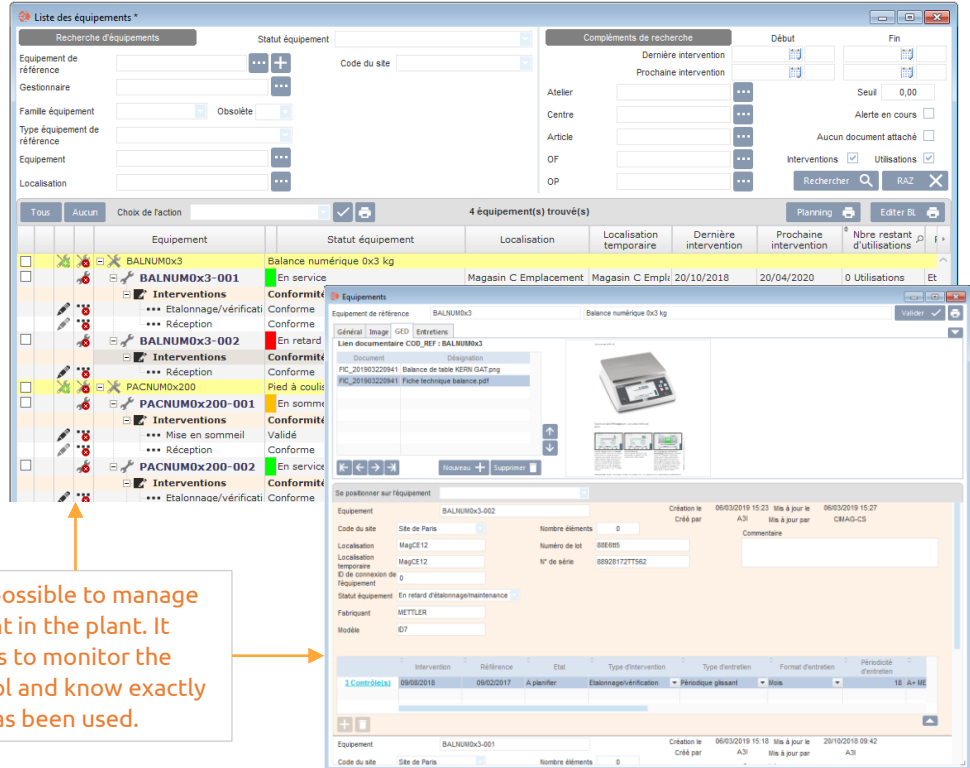
Resources Features

- ▶ Workshop scheduling with customizations
- ▶ Management of material and workforce flows
- ▶ Calculation of machine times
- ▶ Management of personnel's accreditations and equipment certifications
- ▶ Management of hazardous material and material quantities
- ▶ Management of on-call staff, etc.
- ▶ Creation and administration of tool sequences
- ▶ Monitoring the use of tools and equipment

Resources Features ► Concrete examples with CIMAG



With the "Monitoring Management" screen, you have a global view in real time of your resources (workforce and machines) in order to manage them.

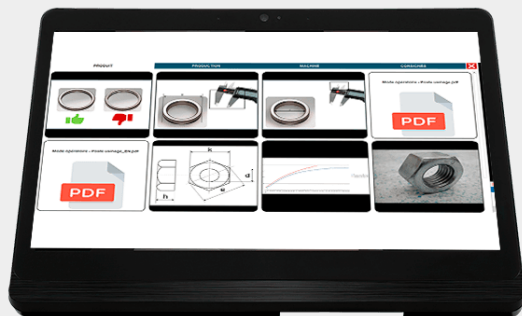


In CIMAG, it is possible to manage all equipment in the plant. It enables users to monitor the lifecycle of a tool and know exactly when it has been used.

Your Concern ▶ Providing your collaborators with the latest versions of documents (technical drawings, etc.)

Your Challenges

- Zero paper in the workshop (space and time saving and reactivity gain)
- Minimizing the circulation of paper documents in order to avoid data loss
- Mobility gain: accessing documents from any workstation
- Answering the challenges of your quality-based approach
- Ensuring that the correct versions of documents are shared and read

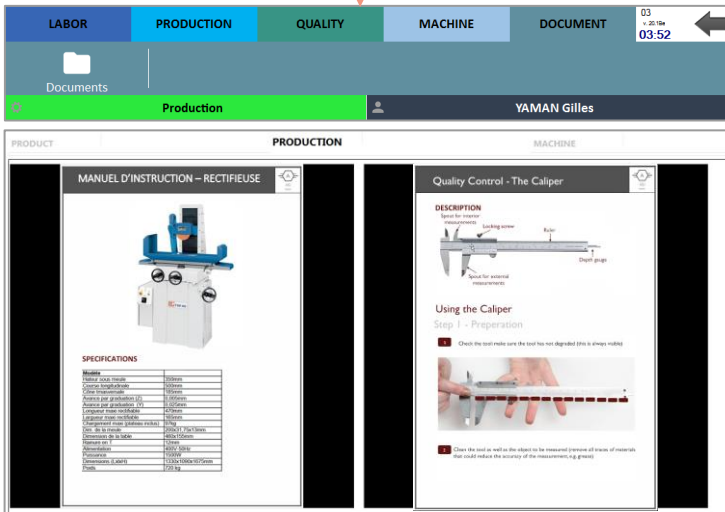


Document Management Features

- ▶ Electronic Document Management
- ▶ Configuration of document links with references of parts, WOs, machines, etc.
- ▶ Access to the latest version of documents in real time on any devices
- ▶ Traceability of the document consultation by collaborators
- ▶ Automatic display of documents in the operator input scenario
- ▶ Database recording of consultations and confirmation of reading (full document access traceability)

Document Management Features ▶ Concrete examples with CIMAG

At any time, operators have access to the different documents they need on the PANEL PC.



In CIMAG, it is possible to link documents to a product, quality control, tool, etc. If collaborators modify a document, the PANEL PC will automatically have the modified version.



Your Concern ▶ Collecting your field data and making it available in real time

Your Challenges

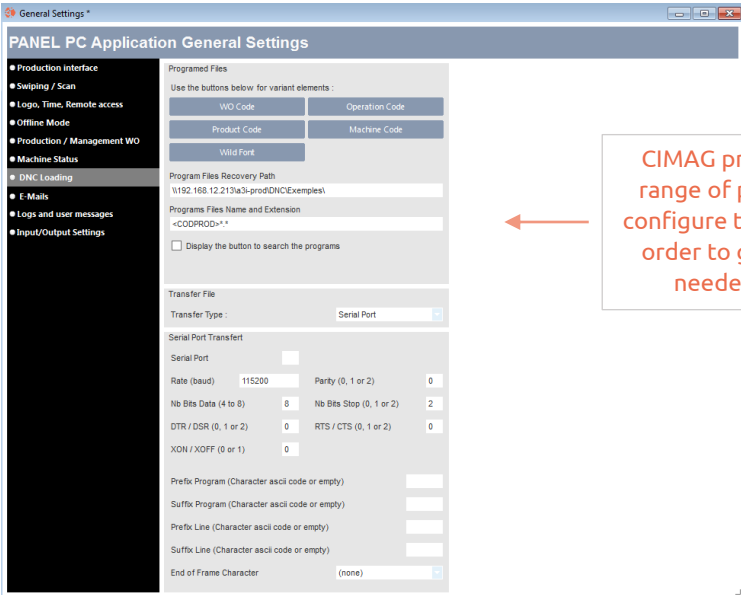
- Monitoring the factory floor (alerting teams of workshop events in real time)
- Controlling machine settings in real time
- Easily collecting machine data, causes of downtimes, counters, etc.
- Leading team meetings and sharing collected information
- Optimizing workshop productivity



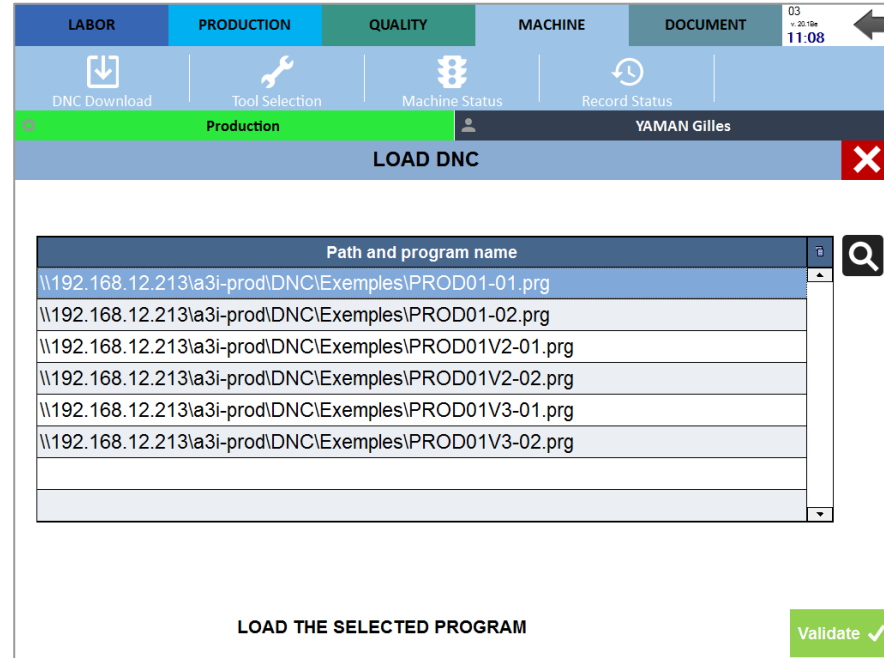
Control Features

- ▶ Retrieve machine data in real time by direct connection to PLCs
- ▶ Traceability and monitoring of machine settings
- ▶ Ability to communicate with most PLCs on the market through a communication gateway or by OPC
- ▶ Connection to other equipment (scales, etc.)
- ▶ Visual management: instant performance, team management, collaborative work, etc.
- ▶ ANDON system: instant awareness of production issues in order to take immediate actions

Control Features ▶ Concrete examples with CIMAG



CIMAG provides a wide range of possibilities to configure the PANEL PC in order to guarantee the needed features.



It is possible to control the machine settings in real time with the "DNC download" functionality in the PANEL PC

Your Concern ▶ Implementing a quality-based approach to ensure the competitiveness of your workshop

Your Challenges

→ Implementing a quality approach based on continuous improvement

→ Enhancing customer satisfaction

→ Editing quality control reports

→ Recording and tracking quality controls performed on production

→ Reducing production costs and losses due to non-compliance



Quality Management Features

- ▶ Management of quality control plans
- ▶ SPC (Statistical Process Control: acquisition of measurements, creation of control charts and calculation of indicators (Cp, Cpk, Pp, Ppk, etc.)
- ▶ Data acquisition with all types of measuring devices and PLCs
- ▶ Raw material quality controls
- ▶ Automatic quality control entry

Quality Management Features ► Concrete examples with CIMAG

LABOR PRODUCTION QUALITY MACHINE DOCUMENT 03 10:27

Material Declaration Control Definition Print Label

Production YAMAN Gilles

ENTER QUALITY CONTROL

Item to control : 1
Control: Look



It is possible to perform quality controls on the PANEL PC and on CIMAG.

CIMAG provides real-time analysis of measurements collected.

Controls Input

Inspector ID: ANTOINE THEODORE

Select Data to Inspect: Scan/download PC Manual data processor

Machine: MAC101

Item: PROD01
WO: OF00000004
OP: 0010

Quality Control 1/6 Quality Control 2/6 Quality Control 3/6 Quality Control 4/6 Quality Control 5/6 Quality Control 6/6

Quality control in progress:

Code: DINT Description: Inside Diameter Unit: mm

Minimum: 9.9 Maximum: 10.1 Unit: mm
Normal: 10 Target: 0

Comments:

Quality Control Results:

Reference Equipment: Digital Caliper 5h200 Observations:

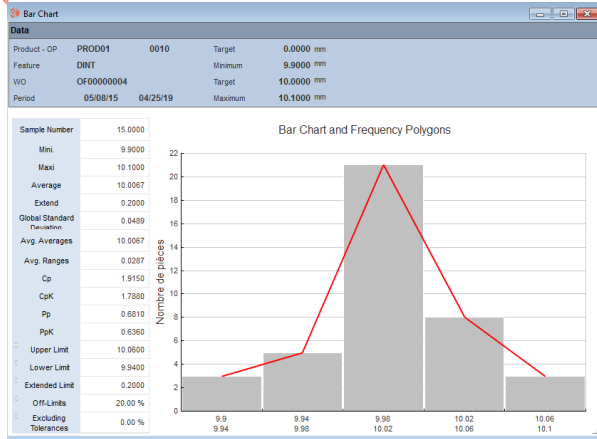
Quality Control Equipment:

Result:

Measures Map Measurement Values

Indicators

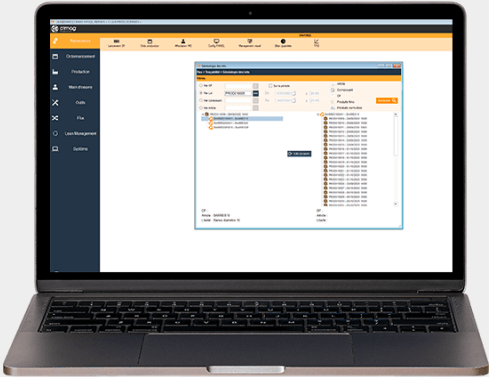
Average of Averages: 10.067
Overall Average: 0.029
Cp: 0.008 Pp: 0.007
Cpk: 0.008 Ppk: 0.006



Your Concern ▶ Accurately recording, tracking and tracing all products, components and equipment in your plant

Your Challenges

- Producing in accordance with bills of materials
- Ensuring product compliance
- Recording and tracking the use of each batch
- Monitoring process settings
- Complying with regulations and customers' requirements



Traceability – Batch Genealogy Features

- ▶ Raw material traceability: batch management, consumption input, and batches produced
- ▶ Monitoring of components and WIP inventory by barcodes or RFID
- ▶ Process traceability of each operation sequence
- ▶ Traceability of tools and production equipment
- ▶ Automatic timestamping of each stage of the process
- ▶ Printing of barcode label and coding of RFID tag
- ▶ Batch genealogy: upstream and downstream batch traceability

Traceability – Batch Genealogy Features ▶ Concrete examples with CIMAG

In CIMAG, the “Batch Genealogy” screen enables you to see (for example):

- The list of components of a finished product.
- The list of finished products manufactured with a specific component.

Machine	Inspector	Control Date	WO Code	Operation	Control Value	Conformity	Piece	Goal	Tool
MAC101	00000001	02/21/19 4:04 PM	OF00000004	0010	9.98	CONF	1	15	PCOUL
MAC101	00000001	02/21/19 4:04 PM	OF00000004	0010	9.99	CONF	2	15	PCOUL
MAC101	00000001	02/21/19 4:04 PM	OF00000004	0010	10.1	CONF	3	15	PCOUL
MAC101	00000001	02/21/19 4:03 PM	OF00000004	0010	10	CONF	1	14	PCOUL
MAC101	00000001	02/21/19 4:03 PM	OF00000004	0010	10	CONF	2	14	PCOUL
MAC101	00000001	02/21/19 4:03 PM	OF00000004	0010	10.1	CONF	3	14	PCOUL
MAC101	00000001	02/21/19 4:02 PM	OF00000004	0010	10	CONF	1	13	PCOUL
MAC101	00000001	02/21/19 4:02 PM	OF00000004	0010	9.99	CONF	2	13	PCOUL
MAC101	00000001	02/21/19 4:02 PM	OF00000004	0010	9.95	CONF	3	13	PCOUL
MAC101	00000001	02/21/19 4:02 PM	OF00000004	0010	10	CONF	1	12	PCOUL
MAC101	00000001	02/21/19 4:02 PM	OF00000004	0010	10	CONF	2	12	PCOUL
MAC101	00000001	02/21/19 4:02 PM	OF00000004	0010	10	CONF	3	12	PCOUL
MAC101	00000001	02/21/19 4:01 PM	OF00000004	0010	9.95	CONF	1	11	PCOUL
MAC101	00000001	02/21/19 4:01 PM	OF00000004	0010	9.95	CONF	2	11	PCOUL
MAC101	00000001	02/21/19 4:01 PM	OF00000004	0010	9.95	CONF	3	11	PCOUL
MAC101	00000001	02/21/19 4:00 PM	OF00000004	0010	10	CONF	1	10	PCOUL
MAC101	00000001	02/21/19 4:00 PM	OF00000004	0010	10.02	CONF	2	10	PCOUL
MAC101	00000001	02/21/19 4:00 PM	OF00000004	0010	10.03	CONF	3	10	PCOUL
MAC101	00000001	02/21/19 3:58 PM	OF00000004	0010	9.99	CONF	1	9	PCOUL
MAC101	00000001	02/21/19 3:58 PM	OF00000004	0010	9.99	CONF	2	9	PCOUL
MAC101	00000001	02/21/19 3:59 PM	OF00000004	0010	9.99	CONF	3	9	PCOUL
MAC101	00000001	02/21/19 3:58 PM	OF00000004	0010	10.02	CONF	1	8	PCOUL
MAC101	00000001	02/21/19 3:58 PM	OF00000004	0010	10.02	CONF	2	8	PCOUL

Tracking of the equipment is also included. For example: it is possible to track the tools used in order to perform a quality control.

Your Concern ▶ Managing your organization's flows, from receiving raw materials to dispatching finished products

Your Challenges

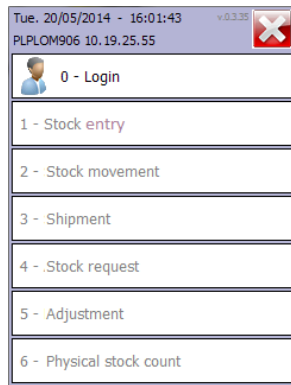
- Managing upstream logistics (inbound flows from suppliers)
- Tracking and monitoring downstream logistics (customer dispatches)
- Avoid errors (e.g. preventing loading the wrong goods to departing trucks)
- Managing warehouse slotting
- Managing product status according to quality control guidelines



Logistics Features

- ▶ WMS: inventory management, inbound and outbound processing, order preparation, and dispatch
- ▶ Warehouse slotting
- ▶ Manage inventory by slots, products or status
- ▶ Perform inbound processing directly on portable terminals or PC
- ▶ Manage documents linked to inbound processing (delivery note, quality reports, etc.)
- ▶ Inventory: global, by location, or reference

Logistics Features ► Concrete examples with CIMAG



The main WMS functionalities are available on the CIMAG mobile terminal with real time Wi-Fi access.

It includes 3 types of barcode identification:

- operator (for traceability reasons and to define access level on mobile terminals).
- all products (raw materials, semi-finished products, finished goods).
- all locations (in this case, a fixed location label is attached to all physical locations).

Your Concern ▶ Staying informed of your inventory status and tracking production progress

Your Challenges

→ Enhancing the reliability rate of the data regarding your inventory

→ Further improving the efficiency of your supply chain

→ Knowing the consumption of raw materials by location and WO

→ Monitoring the flow of semi-finished products and finished products

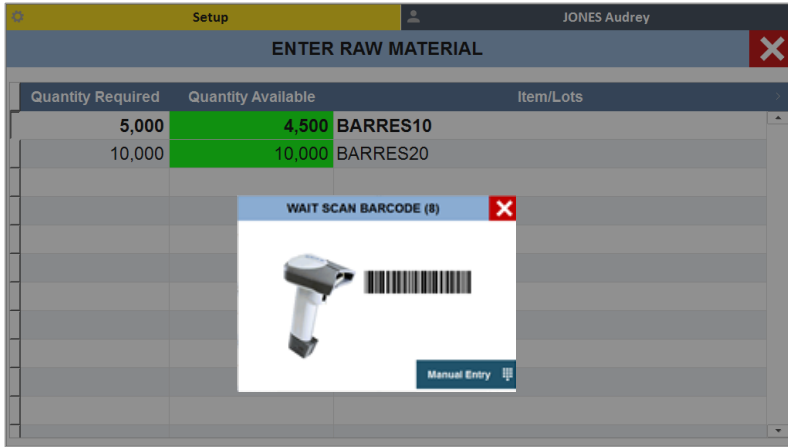
→ Providing logistics with controlled finished products



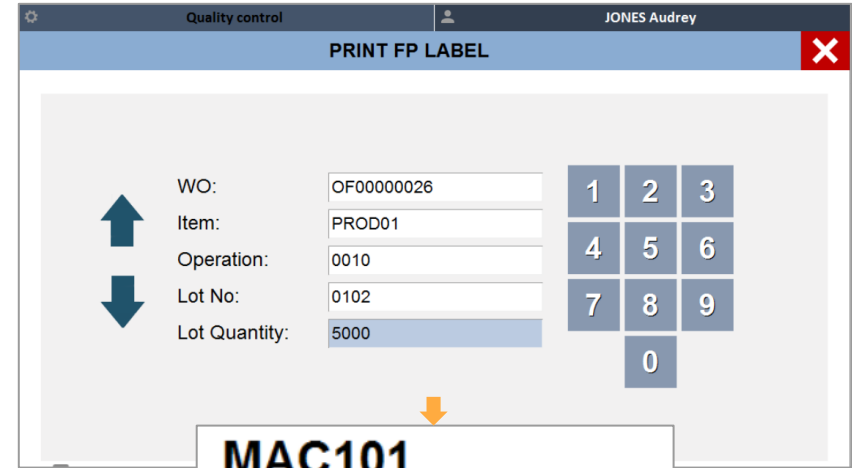
Product Flow Features

- ▶ Identification of the raw materials and components used in each stage of the production process
- ▶ Access to an accurate overview of product availability in real time
- ▶ Monitoring of the location and status of each product
- ▶ Management of supply lists by WO/ production chain/location
- ▶ Product identification according to various standards: RFID EPC, GS1 barcodes, GALIA barcodes, etc.

Product Flow Features ▶ Concrete examples with CIMAG



Raw materials used for the production are tracked.



The progress made is identified with a barcode. This enables users to monitor the location and status of each product.



Thank You

Alpha-3i Contact

José GALLARDO

jgallardo@alpha3i.com

Tel +33 (0)4.50.01.44.00