rsAutomazione
ADVANCED TECH SERVICES

rsMES

Manufacturing Execution System

Index

Who We Are

rsAutomazione: made in Italy since 1993

We are a supplier of integrated solutions for production processes optimization.

We develop and implement strategies, services and software for your business. We believe our multi-disciplinary engineering approach, attitude to continuous improvement and preferential assistance are key to help you succeed.

Our Mission

Since its foundation, rsAutomazione has offered expertise and solutions aimed at improving the efficiency of numerical control processing and related activities, guaranteeing partner companies significant benefits in terms of costs and time to market.

Our mission is to set up a technological center that fully supports companies in their challenge to competitiveness.

What is a Manufacturing Execution System (MES)?

The MES is a production management system to monitor and manage information relating to the production department.

The objective is to control the production status in real time by monitoring times, costs, productivity, consumption and energy savings for each order.

It is possible to acquire and analyze information on the functioning of individual systems and machines or on the progress of work orders and processes.

The acquisition and processing of the main production KPIs thus allows the implementation and management of a data flow between the production department and other company functions.

rsMES Funcions

	Funcion	Description
1	Machine Monitor	• Real-time display of machine data • Graphs of the production trend • Productivity of the machine • Deviation between estimated time and real time
2	Machine data acquisition	• Real-time data acquisition: machine status, operating mode, cycle time, piece counter, alarms etc.
3	Item List Management	• Creation and management of the item list
4	Production Order Management	• Visualization and management of production orders • Integration between orders and item list • Attachments: drawings, photos, videos, pdfs • Notes

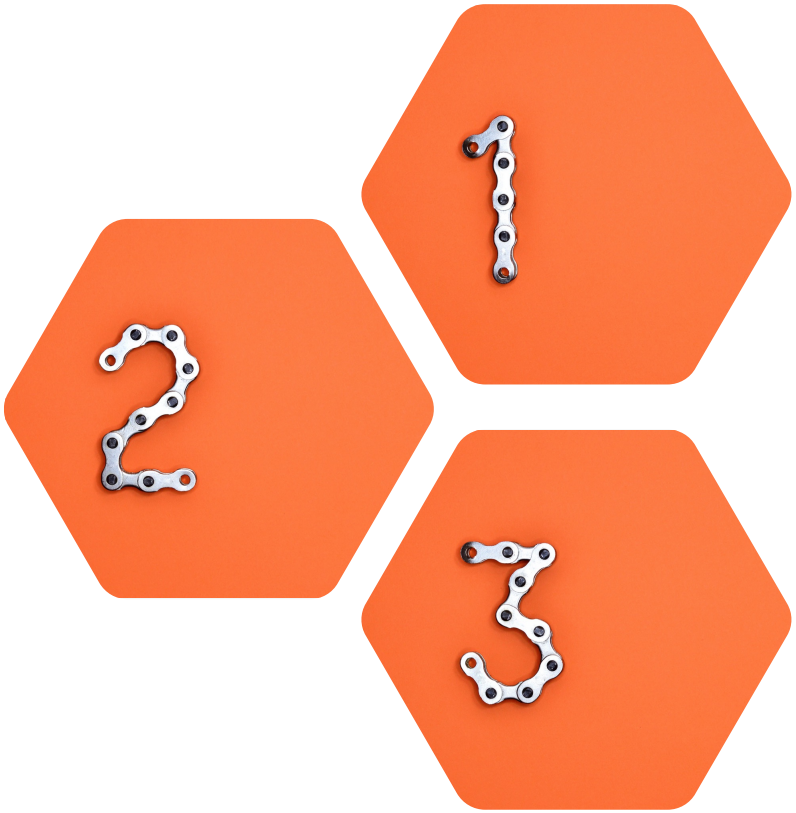
rsMES Funcions

Function	Description
Production Phase Management	• Production phases input • Time detail of each production phase • Final calculation of machine downtime costs due to breakdowns
Production Scheduling	• Automatic management of the machine calendar • Automatic management of the production order Gantt
Quality Module	• Automatic notifications on quality check • Measurement data input • Tracking
Maintenance Module	• Maintenance calendar • Automatic deadline alerts
Energy Consumption Monitor	• Acquisition of energy consumption data • Real-time consumption monitor • Correlation between consumption and order • Reports
Web server	• Web server implementation for using rsMES with tablets and smartphones • Operator monitor on board the machine
ERP Interface	• Import data flow from the ERP • Data flow export to the ERP

Supported CNCs

rsMES communicates directly with the CNCs through the standard protocols provided by the manufacturers.

- Fanuc (Focas libraries)
- Heidenhain (RemoTool SDK, librerie Heidenhain)
- Mitsubishi CNC (Communication SDK, Mitsubishi libraries)
- Mitsubishi DNC (TCP protocol)
- Mazak (standard MtConnect)
- Haas (standard MtConnect)
- Siemens CNC (OPC-UA protocol)
- Siemens PLC (S7 Siemens protocol)
- Keyence (Marking Builder libraries)
- Schneider PLC (MODBUS-TCP protocol)
- Selca (Selca libraries)
- Visel (HTTP protocol)
- Tacchella (XML file)
- Roboteco (FTP protocol)



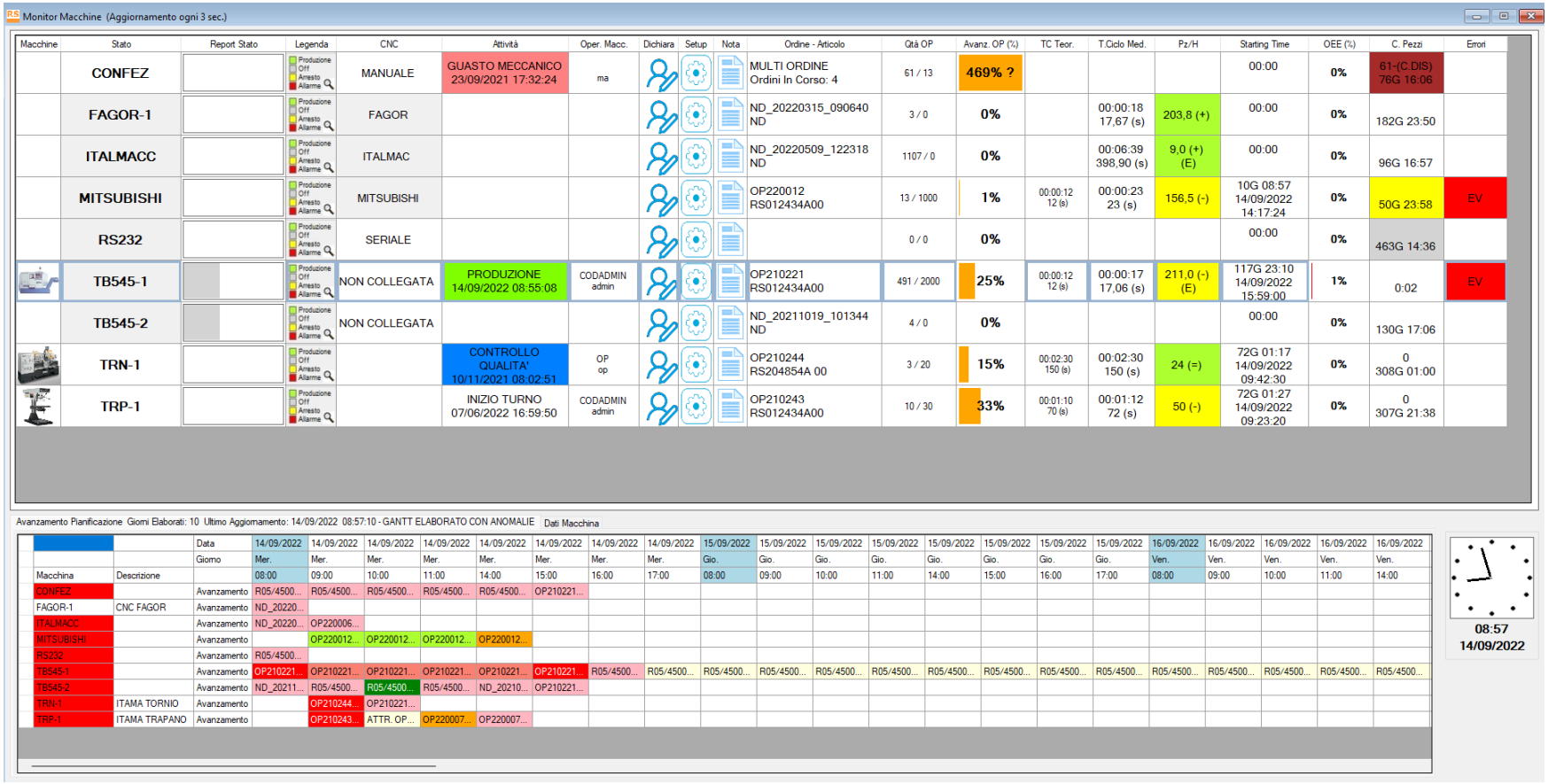
Supported Communication Protocol

rsMES communicates directly with the CNCs through the standard protocols provided by the manufacturers.

- TCP-IP
  - OPC-UA
  - MT-CONNECT STANDARD (HTTP)
  - HTTP
  - FTP
  - MODBUS-TCP (Schneider)
  - S7 (Siemens)
- FILE
- DATABASE
- Third part libraries

The list is constantly updated. Other controls and communication protocols not listed can still be supported and integrated according to the needs of the customer and the manufacturer.

Production Monitor

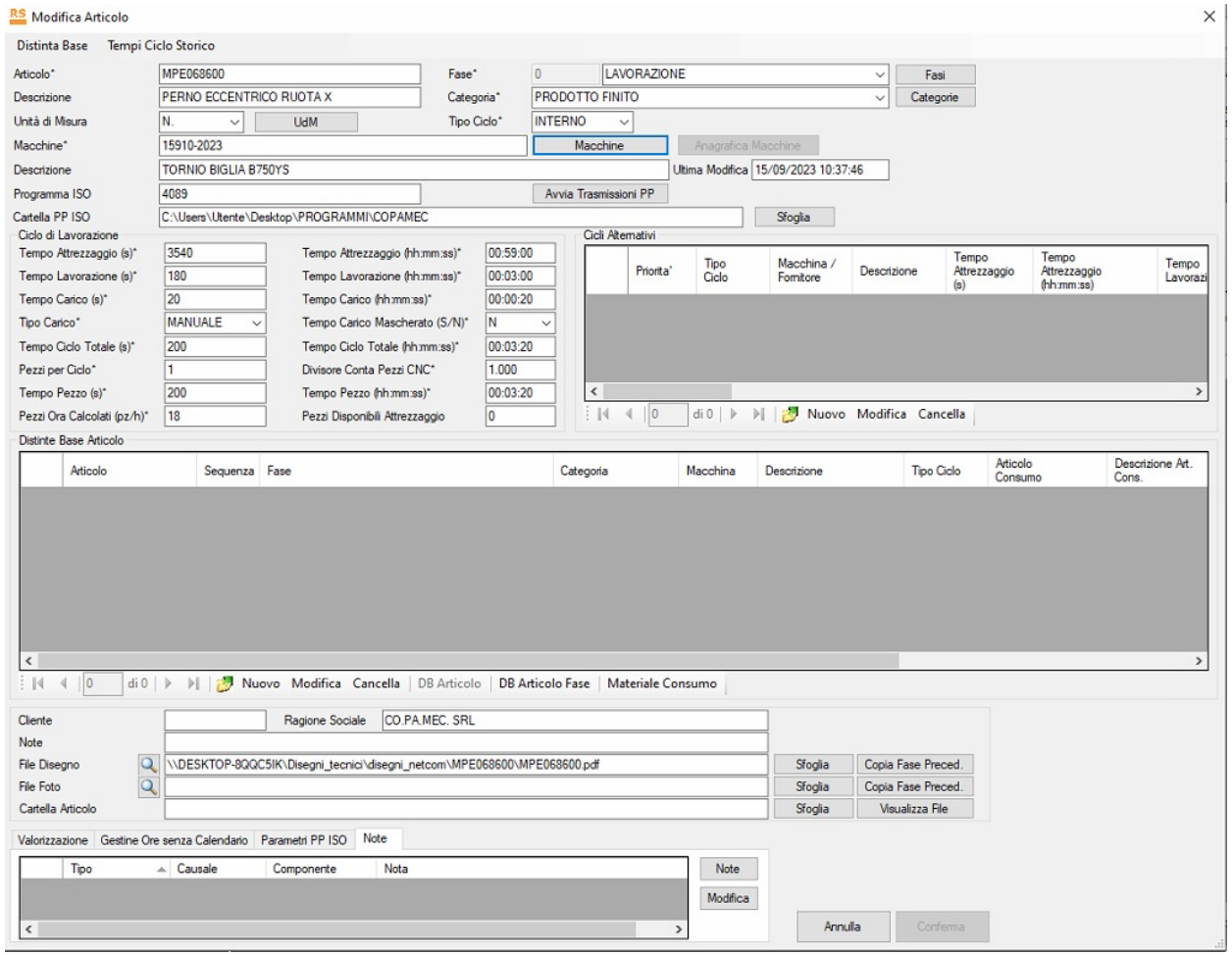


Production Monitor

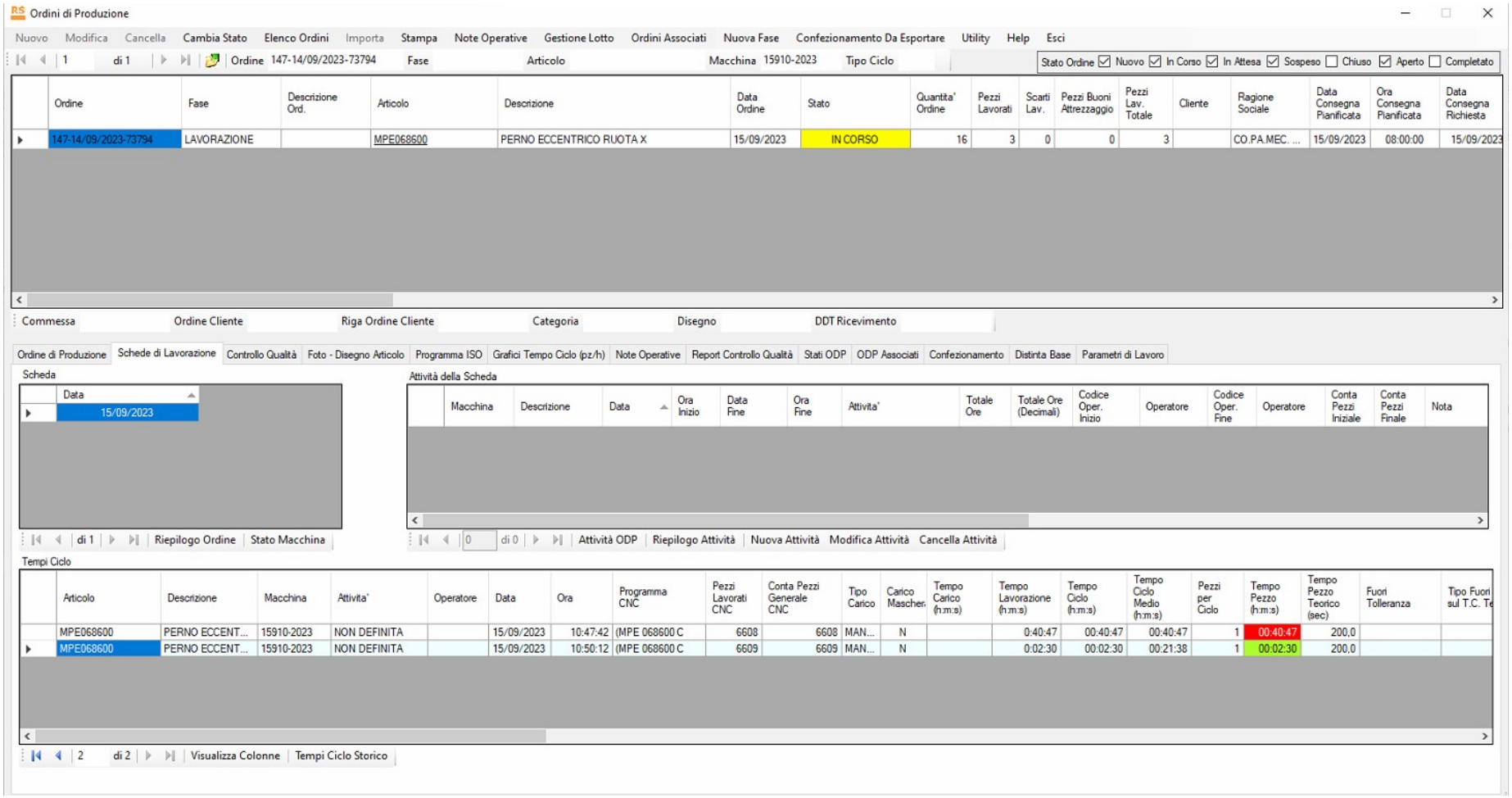
The production monitor is the rsMES main screen. Here you can manage the following information:

- List of connected machines
- Connection status
- Status of the CNC
- Current activities
- Order in execution
- Production order quantity
- Percentage of progress of the production order
- Average cycle time
- Pieces produced per hour
- OEE (coefficient of production efficiency)
- Count pieces
- Energy consumption

Item list


Modifica Articolo
Distinta Base
Tempi Ciclo Storico
Articolo* MPE068600
Descrizione PERNO ECCENTRICO RUOTA X
Unità di Misura N.
UdM
Macchine* 15910-2023
Descrizione TORNIO BIGLIA B750YS
Programma ISO 4089
Cartella PP ISO C:\Users\Utente\Desktop\PROGRAMMI\COPAMEC
Fase* 0 LAVORAZIONE
Categoria* PRODOTTO FINITO
Tipo Ciclo* INTERNO
Macchine
Anagrafica Macchine
Ultima Modifica 15/09/2023 10:37:46
Avvia Trasmissioni PP
Sfoglia
Fasi
Categorie
Ciclo di Lavorazione
Tempo Attrezzaggio (s)* 3540
Tempo Lavorazione (s)* 180
Tempo Carico (s)* 20
Tipo Carico* MANUALE
Tempo Ciclo Totale (s)* 200
Pezzi per Ciclo* 1
Tempo Pezzo (s)* 200
Pezzi Ora Calcolati (pz/h)* 18
Tempo Attrezzaggio (hh:mm:ss)* 00:59:00
Tempo Lavorazione (hh:mm:ss)* 00:03:00
Tempo Carico (hh:mm:ss)* 00:00:20
Tempo Carico Mascherato (S/N)* N
Tempo Ciclo Totale (hh:mm:ss)* 00:03:20
Divisore Conta Pezzi CNC* 1.000
Tempo Pezzo (hh:mm:ss)* 00:03:20
Pezzi Disponibili Attrezzaggio 0
Cicli Alternativi
Priorita* Tipo Ciclo Macchina / Fornitore Descrizione Tempo Attrezzaggio (s) Tempo Attrezzaggio (hh:mm:ss) Tempo Lavorazi
Nuovo Modifica Cancella
Distinte Base Articolo
Articolo Sequenza Fase Categoria Macchina Descrizione Tipo Ciclo Articolo Consumo Descrizione Art. Cons.
Nuovo Modifica Cancella DB Articolo DB Articolo Fase Materiale Consumo
Cliente
Ragione Sociale CO.PA.MEC. SRL
Note
File Disegno \\DESKTOP-8QQC5IK\Disegni_tecnici\disegni_netcom\MPE068600\MPE068600.pdf
File Foto
Cartella Articolo
Sfoglia Copia Fase Preced.
Sfoglia Copia Fase Preced.
Sfoglia Visualizza File
Valorizzazione Gestione Ore senza Calendario Parametri PP ISO Note
Tipo Causale Componente Nota
Note
Modifica
Annulla
Conferma

Production Order



Item List and Production Order

The item list and the production order modules are used to:

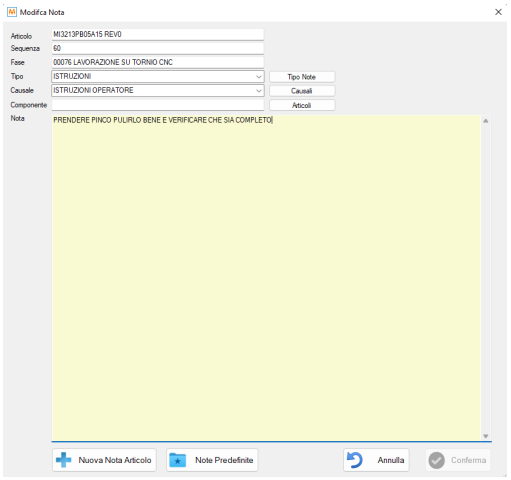
- Manage data of the items that will be produced
- Manage production orders

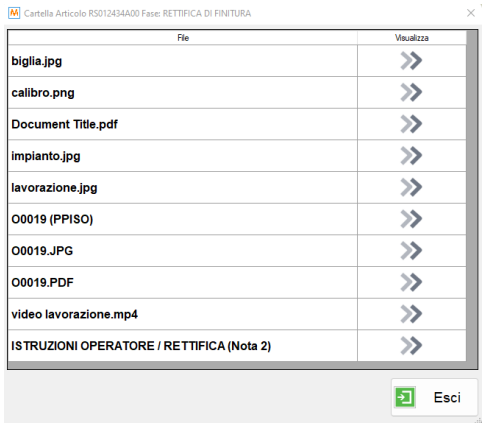
The presence of these two modules makes it possible to use the "stand alone" rsMES software (ie without the need to connect it to a company management system). rsMES is however able to interface with all types of management software through its import / export module and automatically populate the item list and production order fields.

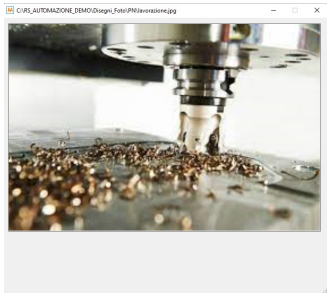
Attachments and notes

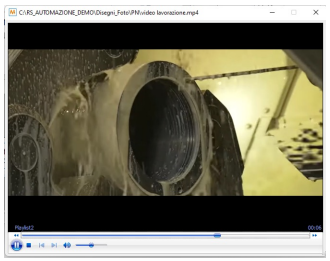
It is possible to add notes or attachments (eg photos, videos, pdfs) to the production orders.

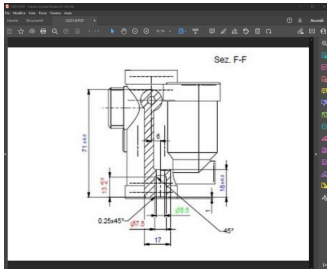
This function goes from a "paperless" perspective: the target is to digitize as much as possible the data flow within the production departments.



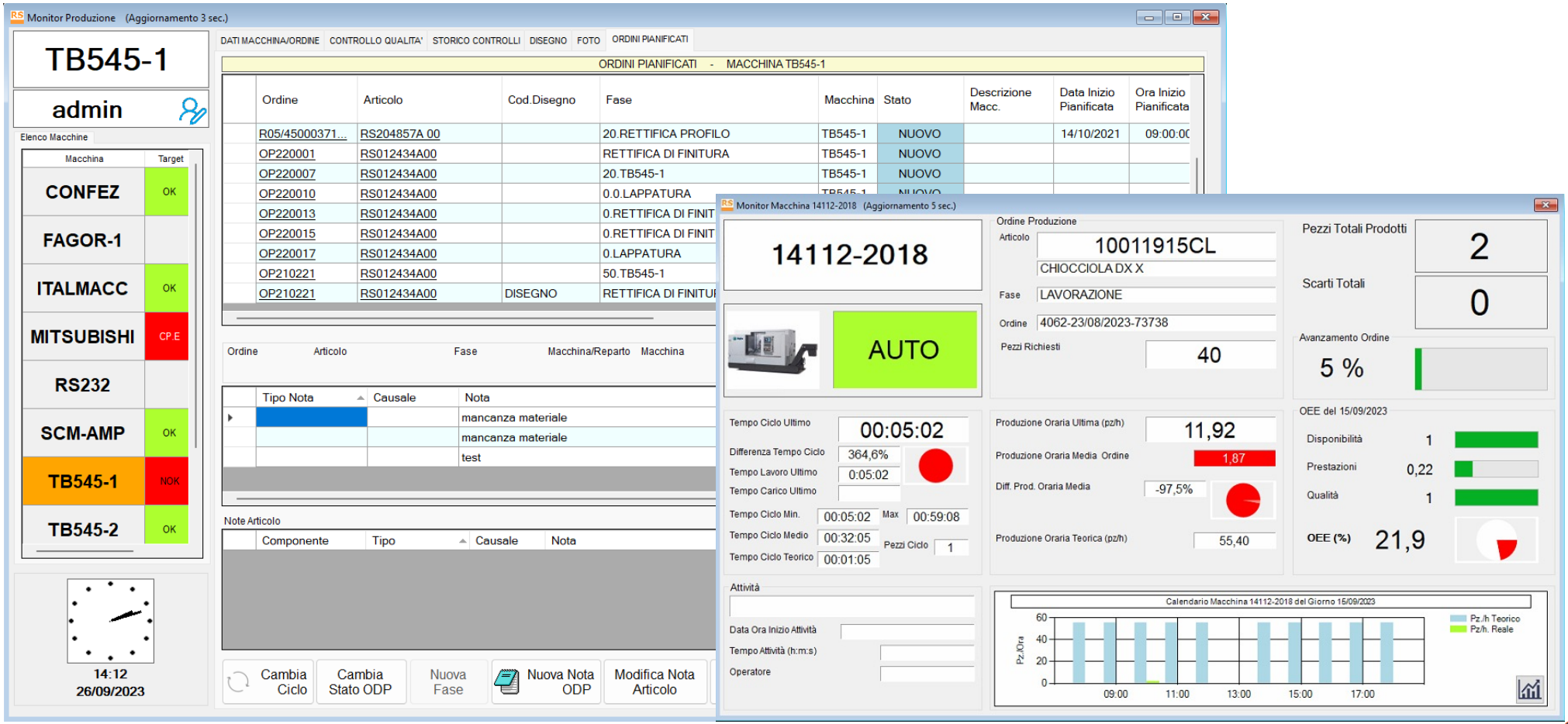








Operator Monitor



Operator Monitor

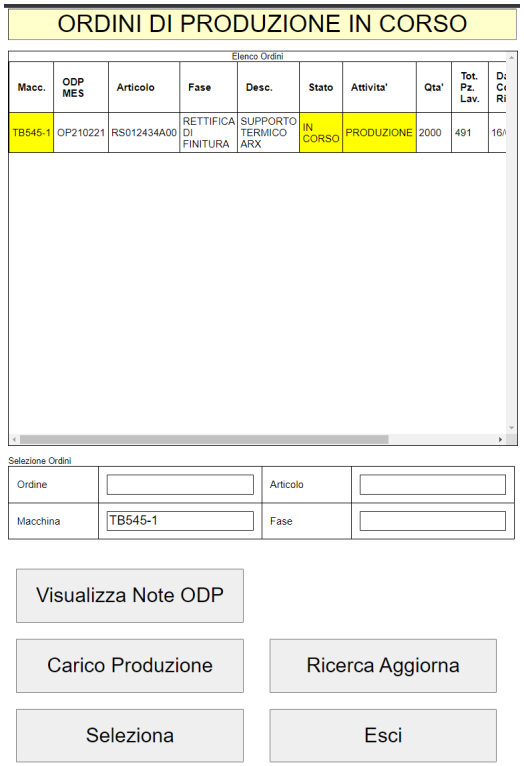
The user has several options to use the rsMES system:

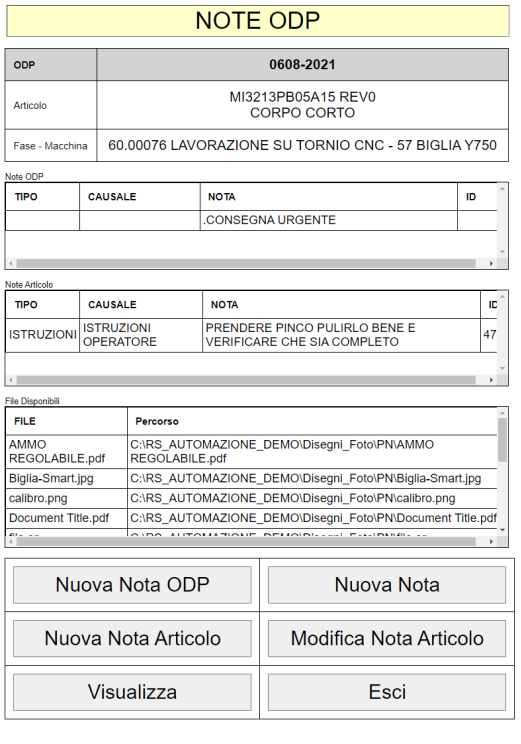
- Desktop rsMES
- Web app rsMES (on tablet and smartphone)

The user may carry out the following activities:

- Production phases management.
- Operator activity selection and start / stop phase.
- Machine status check as well as cycle times, hourly production and production progress.
- Attachments and notes management.
- Management of the machine calendar or the production Gantt.

Web Server and Web App





Web Server and Web App

The web server functionality allows the use of rsMES with mobile devices such as tablets or smartphones. Everything is very simple and streamlined because it works with any device connected to the company network: there is no need to purchase expensive industrial tablets and access to the software is via a web browser (without the installation of specific apps).

- Operators can access rsMES with the tablet.
- Easy interface to manage the activities on the software with just a few taps.
- Management of production orders and process phases.
- Display of machine part programs.
- Notes and attachments management.

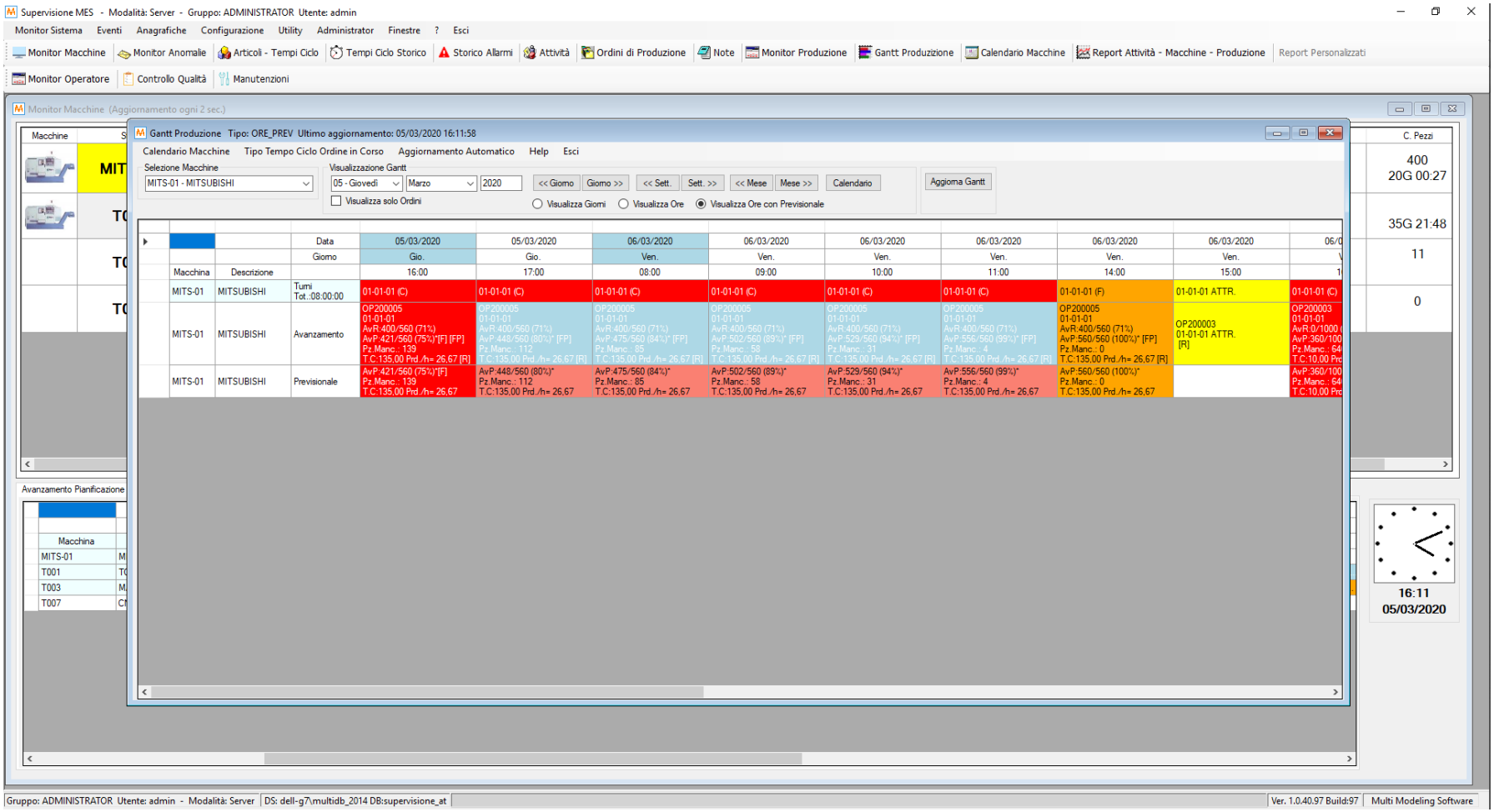
Energy Consumption Monitor

Energy Consumption Monitor

The energy consumption monitor is the tool that allows you to keep system consumption under control. Thanks to the data acquired and managed by the MES, consumption is correlated with the running program and the work order in progress.

- Real-time monitor of energy consumption.
- Correlation between consumption, part program and ODP.
- Measurement, in terms of energy efficiency or energy saving, of the deltas obtained from process optimization activities.

Production Scheduling

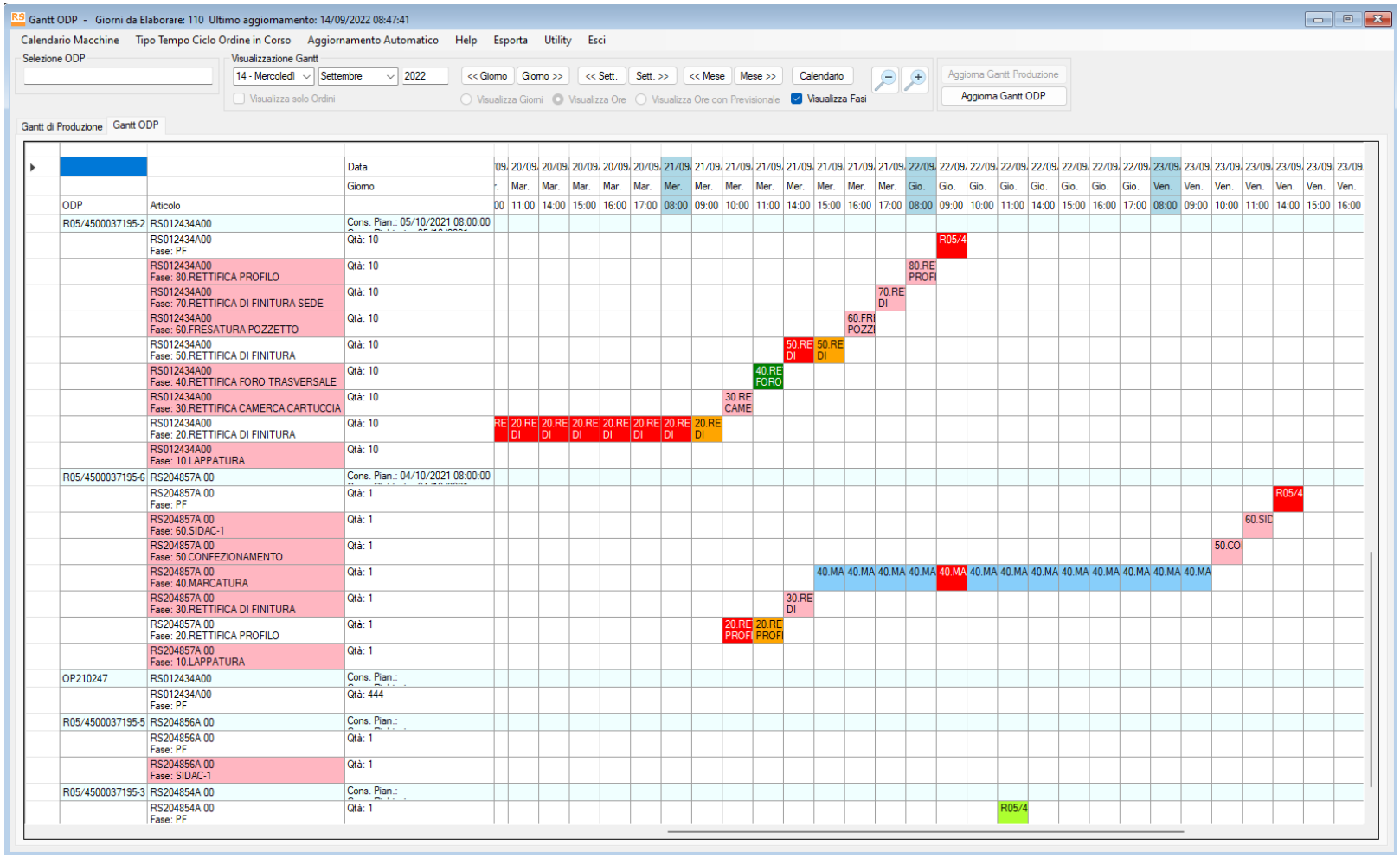


Production Scheduling

The machine calendar is automatically filled by setting the system properly, according to the number of pieces to be produced, the theoretical set-up times, the planned start (or end) date and the number of pieces to be produced.

- The production calendar will initially be organized according to the theoretical times set in the production order (obtained from the estimate or from the history). The calendar is automatically updated as the piece counter and cycle time are detected by the machine.
- The automatic calendar update changes not only the start (and / or end) time of the current production order, but also of the subsequent ones.
- It is possible to manually modify each production order by anticipating or postponing its programming, resulting in a cascade update of all other orders.
- The operator will be able to see upcoming orders and prepare for any change in production.

Production Gantt



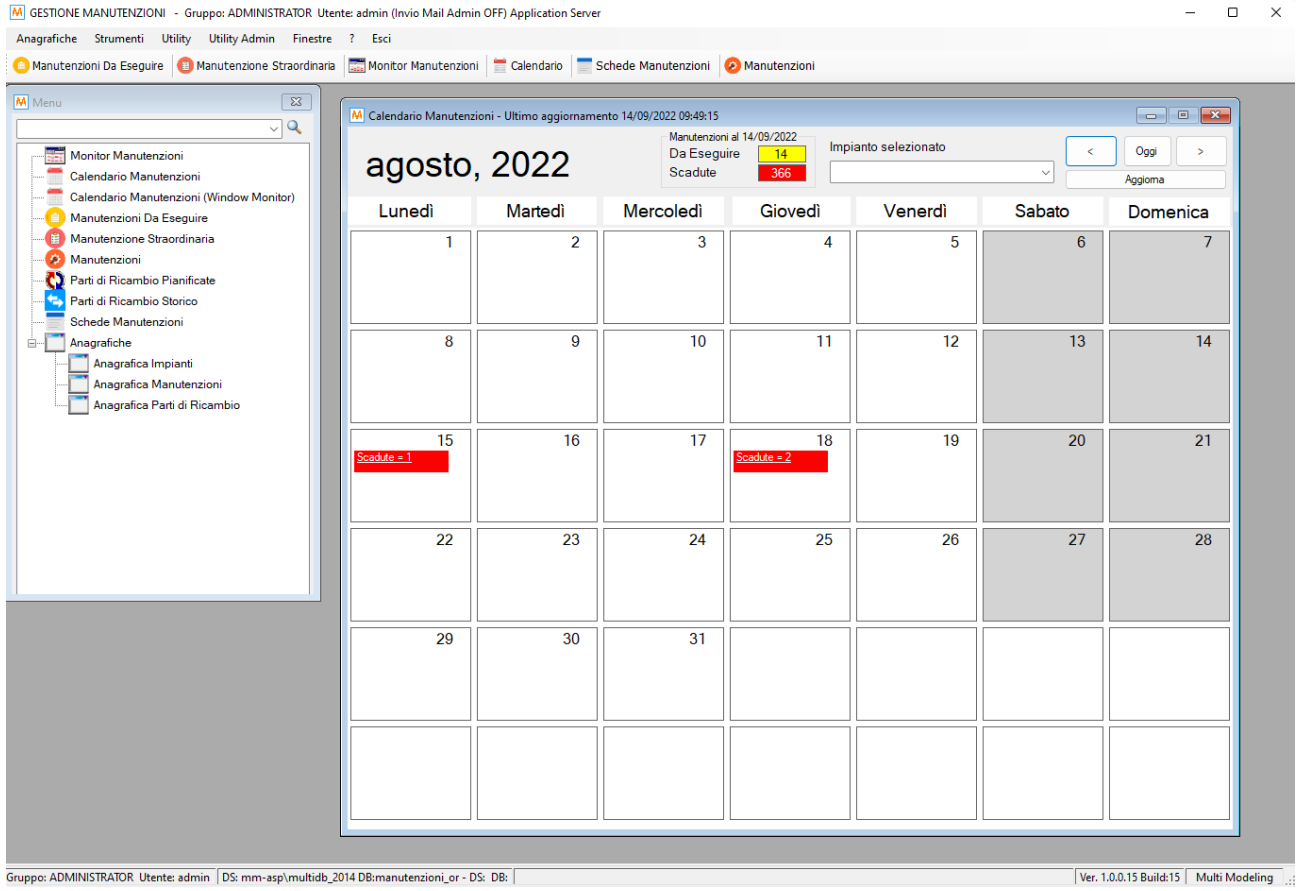
Production Gantt

A Gantt chart is a graphical representation of the calendar of activities you want to track. This tool is useful in order to plan, coordinate and track processes giving a clear illustration of the progress of the order. Through an overview of the planned tasks, all stakeholders are aware of the tasks and their deadlines.

The production Gantt is automatically created and it manages the progress of the production order through all processes (machine with CNC or virtual machine) that are monitored by the MES system.

Together with the automatic calendar of the machines, the production Gantt is a powerful tool to automating the analysis of the order progress and keeping all process phases, machine loading and delivery times under control.

Maintenance



Maintenance

The maintenance sheet allows you to manage, for each machine, the scheduled maintenance deadlines and record all the data relating to extraordinary maintenance.

- Creation of the maintenance calendar for each machine.
- Pop-up warns of the impending maintenance deadline.
- It is possible to filter, for each machine, the list of all maintenance to be performed and already performed.
- Notes can be entered.

Thank you

rsAutomazione srl

Corso Lombardia 75, 10099 San Mauro (TO), Italy

Phone: +39 (0)11 2740840

Mail: rsautoma@rsautoma.com

www.rsautomazione.com