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# Winfactory 4.0





All raw materials and final products batches are traceable



All alarms are clearly visible



All data are stored up to 10 years

# INDUSTRY 4.0 PROCESS CONTROL

Winfactory 4.0 is the production process control and management software developed by Piovan for the digital factory.

The integration between hardware and software assures automatic recipe setup, prevention of human errors and production repeatability.

It allows management of automation systems from the storage area to the finished product keeping everything under control:

- Raw materials and final product batches
- Alarms
- KPI and troubleshooting tools for supporting every department.

Winfactory 4.0, furthermore, can include equipment manuals in case is required.

Winfactory 4.0 is available with versions specifically developed for the sectors:

- Automotive
- PET and preforms
- Flexible film
- Medical.













Thermoforming & Technical Sheets









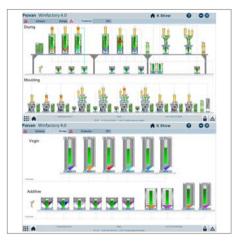
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#### Fibres Strappi

Recycling

## SOFTWARE

Integration	Advantages
QMS	Batches traceability
WMS	Warehouse management and stock optimisation
MES/ERP	Automatic line set-up and consumption tracking
BMS	Energy consumption tracking



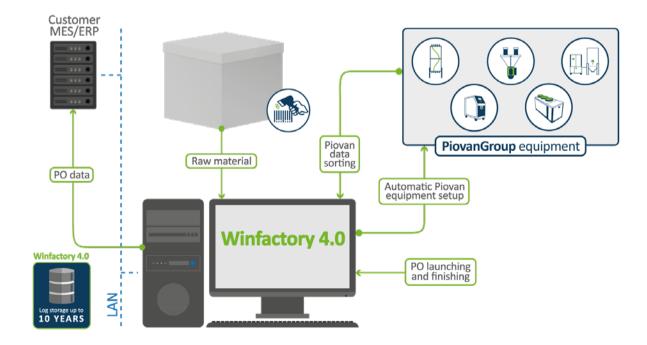
User-friendly and fast-customisable interface for immediate status overview



Poka-yoke (mistake-proof) solutions for product loading by means of bar codes and electric lock



Pareto chart highlights the most important sources of alarms among a set of factors and supports the user in decision making



# Winenergy





Complete monitoring of the energy consumption



Reports and analysis for consumption optimization



╞

Open for the integration of multiple energy meters

**[** 

solutions

Flexible Film

 $\square$ 

& Technical Sheets

# ENERGY CONSUMPTION UNDER CONTROL

Winenergy is a powerful tool that provides customers with a complete analysis of what the real consumption is. This information can be particularly helpful in many countries where the energy usage has to be reported by law and it has to be periodically updated.

The monitoring system is based on distributed measuring devices connected with a data-manager able to collect and save all the detected data. Different physical parameters can be measured (electricity, gas or water flows, temperatures, pressures...).

Winenergy can be installed as a stand alone application or as an additional package of Winfactory 4.0





99899

### RECYCLING

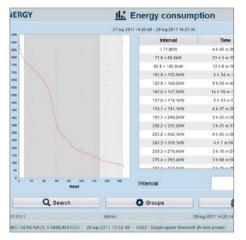
# Installation package Energy meter connection Language available

Stand alone or as WF4.0 additional tool Wire or wireless (radio frequency transmitter) Spanish, German, France, Italian, Portuguese, English



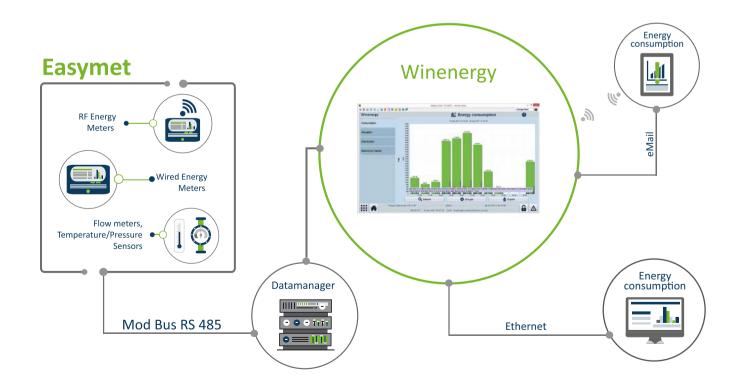
The measuring system installed in field can be displayed on a map of customer site



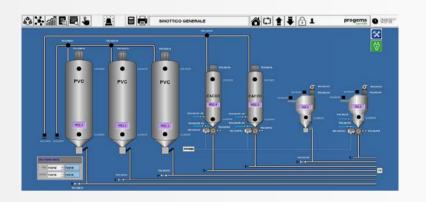


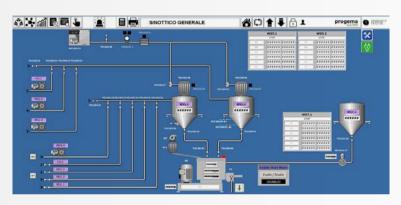
The architecture for the data collection is composed by data logger and energy meter, according to customer system

Winenergy records all the data about energy consumption and displays them in a graphical pages easily readable



# Industrial automation





Complete control and monitoring of the process



High level of customization



PET Preforms

& Bottles

Integration of different systems

# AUTOMATION AND CONTROL SYSTEMS

Piovan has the capability of designing automation and industrial process control systems, supporting customers from the initial analysis stage to the definition of system functionality and the final installation.

The complete automation of the process occurs on two levels: process logic, with the design and implementation of a PLC system and supervision managed by SCADA. Both these systems are designed and implemented according to customer requests, on a highly customized platform.

The typical scope of supply includes also the design and building of the electrical panels, for the power supply and managing of all the equipment involved.



components



**⊢** 

Medical

solutions











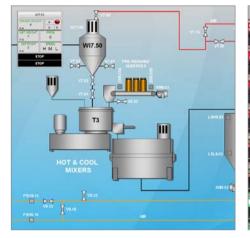
#### SOFTWARE

#### **System integrators**

Siemens (Tia portal, Step 7, WinCC, Protool, Imap, Simatic TI), Rockwell (RSL500, Logix5000, RS Visual Studio), Wonderware (Intouch), Microsoft (SQL Server)

#### **Application sector**

Plastic (recycling, rigid and soft PVC, Plastisol<sup>®</sup> production, WPC, Polyolefin), food and beverage (backery products, pasta and mills, frozen food, confectionery, beverages), industrial (graphite products, sand treatment)



The interface layout was developed to make available all the relevant information at the first glance



The turnkey solutions include also the design and manufacturing of the electrical panels

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System architecture, PLC selection and operator interface are selected and realised with a high level of customization

# **VENTO** FILM COOLING AND AUTOMATIC GAUGE CONTROL SYSTEM

# Features

#### Single Inlet

No air distributor is needed. Easy installation and reduced space and costs.

#### Vento Design

The design, in synergy with the single input, drastically reduces pressure drops and turbulence, providing homogeneous cooling and greater energy efficiency.

#### **Triple Flow System**

Three air flows optimized for triple action: control, stability and cooling.

#### Air modulation

The air for profile corrections is automatically managed by servomotor controlled valves equipped with encoders, which don't require any calibration or reset. High responsiveness for improved output quality.

#### Lipset

Available for high or low stalk extrusion lines.

# Advantages

**Reduced energy consumption**: thanks to the special design, the ring requires less pressure generated by the fan to deliver the required air flow, with a consequent reduction in energy consumption.

**Quick and accurate corrections**: the use of valves controlled by servomotors ensures rapid and precise variations in the localized air flow, significantly reducing the time required to correct the thickness.

**Faster start-up**: during the line start-up, it is possible to increase the speed with which the measurements are made, reducing the 2Sigma more quickly and consequently reducing waste of material.

**Traceability**: thanks to the historical data, it is possible to monitor the performance of the line over time and obtain useful information for quality control analysis.

**Flexibility**: thanks to the upgrade kit it is possible to switch at any time from VENTO ST (only homogeneous bubble cooling) to the fully automatic system with profile thickness adjustment.



# **VENTO** SYSTEM COMPONENTS

Automatic triple flow cooling ring.

Kündig thickness gauge.

WBox operator interface:

- colour touch screen
- solid state memory drive
- available in 15", 18" or 21" panel version
- which can be positioned on an industrial cabinet, inclined or vertical console, according to the layout requirements

# **PROTUNE** CONTROL SOFTWARE

Intuitive and easy-to-use user interface.

Developed in HTML 5.0.

Remote technical support included.

Notification and alarm system.

Three different types of graphs to choose from for viewing profiles.

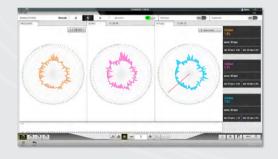
Customizable data history and advanced reporting system.

With **Wbox VISTA** option, on the same panel, it is possible to simultaneously control other processes such as: dosing, extrusion, material loading and layflat.





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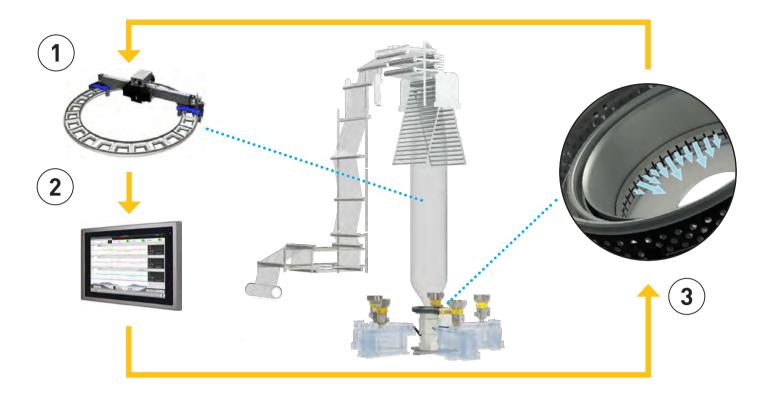


VENTO is also available without automatic thickness control, ideal for processes where only cooling of the film is required. The double air flow allows you to maximize cooling efficiency while ensuring maximum bubble stability.

Should production requirements change, it is possible to switch to the fully automatic version at any time by installing the upgrade kit.



# **HOW DOES VENTO WORK?**



**1)** The gauge sensor detects the thickness of the film along the circumference of the bubble.

- 2) The measurements are sent to the supervisor to compare them with the reference thickness set by the operator.
- **3)** The instructions relating to the necessary corrections are sent to the servomotors placed on the ring. The motors, operated by the supervisor, control the valves to regulate the intensity of the flow, which will convey the right amount of air to correct the thickness:

• if the sensor detects a thicker section than the intended value, the localised air flow in line with the area in question is reduced; the warmer film is "stretched" more, with a consequent reduction in thickness

• if a thinner section than the intended value is detected, the localised air flow in line with the area in question is increased; the colder film is "stretched" less, with a consequent increase in thickness

This corrective process is repeated cyclically to reduce variability and make the film thickness as even as possible and close to the value set by the operator.



# Winflo SUPERVISION SOFTWARE FOR COOLING EQUIPMENT

- Easy to use interface
- Energy and water consumption monitoring
- Global overview of the cooling devices in the plant

A flexible software system for monitoring and controlling industrial cooling equipment by Thermal Care, for transforming field data into business-relevant information and optimize the operation and management of remote assets.

Winflo is the right tool for Cooling Engineers, Operators, Facilities and Quality managers, since it releases them from performing unnecessary remote checks, reducing the risk of human errors, maximizing uptime and avoiding the need for complex monitoring equipment to be installed in inaccessible areas. Winflo, in fact

• gives a **global overview of the cooling devices** in the plant and the **status of individual units** 

• has an **easy to use interface** suitable to both a normal PC and a **43**" **screen** (available on request), for high visibility in the plant or via remote management

- provides **ER and COP values** with the possibility to set **thresholds for trigging alarms**
- analyzes data and reduces waste by means of **Pareto analysis tool**

• **reminds when periodical maintenance is due**, for maximizing uptime of the equipment

• informs by email Facility Managers and Thermal Care technicians of critical alarms, allowing prompt intervention

• allows **remote assistance** by secure VPN connection between Thermal Care service center and the installation site

• **monitors the energy and water consumption** to help in detecting problems, or simply track costs.

Winflo can, also monitor status, generic alarms and important analogue process parameters of third party equipment, by using an acquisition board (available on request).

Winflo can be easily integrated with Winfactory 4.0 and Winenergy, for a global overview of the line automation and the energy consumption. The three software systems are effective tools for quality procedures, automation and traceability.

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