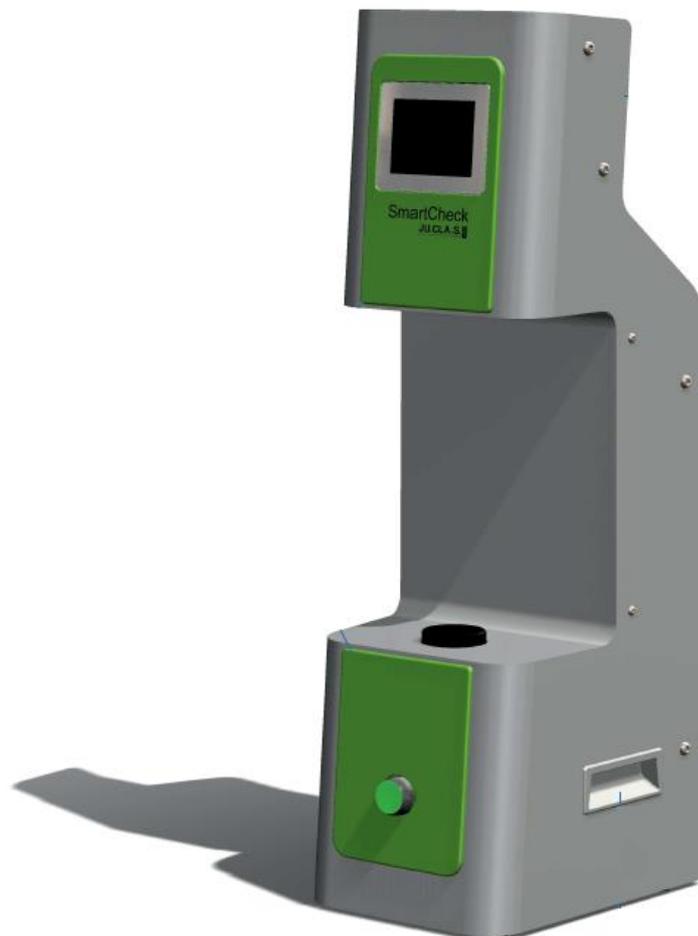


USE AND MAINTENANCE MANUAL

SmartCheck



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Based on the model, the accessories supplied, possible customised configuration and continual technical evolution, the figures may not be those of your machine, however, the operating procedures remain the same

List of contents

General Information.....	6
Introduction	6
Warranty	8
CE marking.....	9
Description and main features.....	10
Machine identity plate	10
Description of machine	11
Functioning principle.....	11
Main components	11
Technical data	12
Safety and accident prevention standards	13
Safety signs.....	13
Danger levels.....	14
General warnings	15
Machine operators.....	15
Clothing	17
Ecology and pollution.....	17
Use in safety	17
Maintenance in safety.....	18
Machine installation.....	18
Loading and unloading	18
Transport and maintenance	18

Services required.....	18
Essential services.....	18
Environment conditions.....	19
Lighting.....	19
Positioning.....	20
Preliminary operations.....	20
Installation.....	21
Electrical and hydraulic connection	21
Long periods of inactivity	21
Disposal	21
Instructions for use	21
Foreseen use	22
Counter-indications of use	22
Hazardous zones	22
Protection devices.....	22
Residua risks.....	23
Risks regarding electrical energy.....	23
Chemical risks.....	23
Putting the machine into service	23
Before start-up	23
Start-up and operation.....	23
User interface.....	24
Cooling water adjustment.....	24
Settings.....	26

Last test	26
Washing.....	27
Test.....	27
Calibration	28
Temperature calibration	29
Conductivity calibration	29

General Information

Introduction

Ju.Cla.S. SmartCheck®: new laboratory technology 4.0 for the tartaric stabilisation of wines.

New laboratory instrumentation, intuitive and versatile, to obtain results concerning the tartaric stability of the wines and to interface with the company systems in accordance with the industrial rules 4.0

A technical benchmark on which the stability of wine is based, the tartaric stability, is always taken into account in the wine-production laboratories. Every wine has its own stability level, which is to be assessed with very different methods and according to the instrumentation available and the specific production requirements.

The most rigorous test to check the tartaric stability of a wine is carried out with a stabling for six days at a temperature of -4°C. Observation of the deposits that form during the test, define in an obvious manner the stability of a wine.

It is a very valid test, but unfortunately, to carry it out, several days are necessary: often in the cellar the production decisions have to be made in a much shorter time, therefore other tests have been progressively developed, each with advantages and defects, according to the type and mode of execution.

The most practical test which is widely used in the wine laboratories is the minicontact, which follows the drop in conductivity after the addition of potassium bitartrate, in a wine submitted to continual agitation, at a low temperature.

Based on this principle, the Research and Development Department of Ju.Cla.S.®, plant engineering company of the VASONGROUP, has developed internally the SmartCheck®, an innovative laboratory tool to assess the tartaric stability.

A modern tool, in line with the industrial rules 4.0

Starting from vast experience developed in the management of electro dialysis in the design of the SmartCheck® the Research and Development Department of Ju.Cla.S.®, in important teamwork with the Vason Wine laboratory, has taken into consideration all the possible variables of the test. After a meticulous optimisation, a very versatile instrumentation has been developed of limited dimensions.

With regard to this, it can be considered that the assessment using SmartCheck®

can be carried out at 5 possible temperatures for the time decided by the operator; This makes

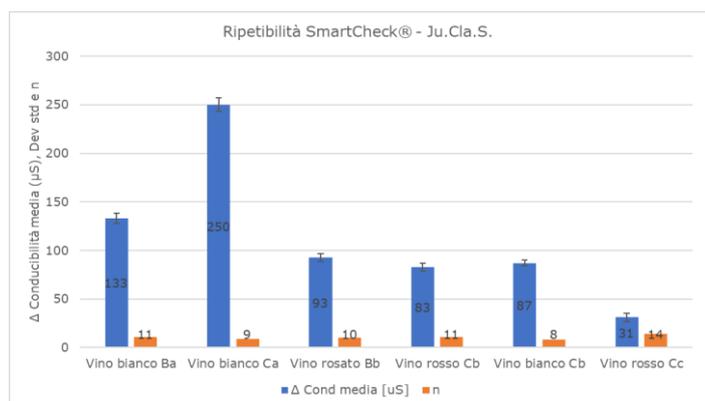


Figure 1

it a “direct” tool, that can be used either for scientific research investigations or to control the production stages by obtaining a parameter which is certain, also regarding repeatability (Fig. 1).

The results can be seen in real time on an intuitive display of screen pages, where the test can be followed through five parameters: temperature, initial, instantaneous, differential conductivity and minutes remaining before the end of the assessment.

The tool can be connected either to a smartphone that controls the test, or to a connected PC interacting on line.

Using a tool like SmartCheck®, the wine laboratory can be considered as motor of knowledge, that delivers production inputs for an interconnected wine-production industry, in the most modern manner that meets the rules of industry 4.0.

Features of the SmartCheck®

- Test execution with the choice of 5 possible temperatures
- Test execution for a chosen time
- Possibility to suspend the test in advance
- Limited dimensions for easy positioning on the laboratory bench
- Electronic area protected against condensation and well separated from the fluids zone
- Easy washing of the fluids zone
- Cooling is modulated and automatic with precision at 0.1°C, in water current
- Remote control interconnection with smartphone to switch on, view, store and switch off
- Provision for interface with cellar management system 4.0
- Updating applicable also at later date with original Ju.Cla.S software .

Warranty

JU.CLA.S. Srl guarantees that the plant sold is free of flaws that make it unsuitable for the use for which it has been designed and that it is in conformity with the specifications of the laws in force regarding safety.

Duration. The warranty covers a period of twelve months from the date of delivery for the machinery and plants, six months for wear.

Terms of the warranty. The warranty obliges the Manufacturer Company to provide, in its own works, the replacement or upon its incontestable technical discretion the repair, free of charge and with no labour charges, of any parts of the system acknowledged as defective having original manufacturing defects. The plants or components that are to be replaced shall remain the property of the Manufacturer Company. Any redhibitory or estimatory act of the purchaser is excluded as well as any claims for compensation of damages.

Resolution. The Manufacturer Company has the right, at any time, to free itself from the obligations of the warranty, resolving the contract with the purchaser, with consequent reconsignment of the capital goods involved and reimbursement, without interest, of the amounts received from the purchaser in payment of the purchased product.

Exclusion of responsibility. The Manufacturer Company, except for the limits deriving from the imperative regulations applicable for the matter hand, is not held to respond for contractual or out-of-contract damages, direct or indirect, accidental or consequential, deriving from the object sold, the installation, the service or the use of it indirectly caused by lack of use of the plant. Nor shall it be held liable to reimburse the loss of the product used (wine or other) or other damages caused.

Exclusions. The warranty is excluded when the plant has been used for treatment of a product different to that for which it has been constructed. The warranty does not cover breakages or faults that occur during transport or defects caused by assembly and/or installation of the goods sold that are carried out in a manner that does not conform with the indications in the attached instructions handbook, or any instructions provided by the Manufacturer Company technicians, nor faults caused by improper use or in any way not in compliance with the manual for use, by negligence or wrong maintenance, by repairs and/or modifications carried out by the purchaser or by other persons not authorised by the Manufacturer Company, by use out of the environment specifications foreseen for the plants, the machinery and the equipment, or by the wrong preparation and maintenance of the rooms where the capital goods are installed, the non-observance of the relevant standards of hygiene specified by law, indicated in the instructions manual or the customised quotation.

Forfeiture. The purchaser shall lose right of warranty if the conformity defect is not claimed in writing to the vendor within eight days from the date when the defect was discovered. The

right to the warranty is also annulled if repairs or modifications have been carried out by persons not authorised in writing by the Manufacturer.

Provisions. Defects not deliberately hidden by the vendor are limited to within twelve months from delivery of the goods.

CE marking

Directive 2006/42/CE, commonly known as “Machines Directive”, specifies the conditions with which a machine can be introduced on the market.

This Directive specifies that the machines can be marketed and put into service only if they do not jeopardise the health and safety of persons, domestic animals or goods.

To declare conformity to the requirements of the Directive, before putting on the market, the manufacturer has submitted the machine to an accurate examination to verify it meets the essential health and safety and requirements specified in 2006/42/CE.

The manufacturer has analysed the risks, preparing the machine technical folder, to ascertain that the machine has been designed and manufactured in conformity with the same, and that it can be used in safety under the service conditions foreseen, checking that the standards used have been applied correctly.

The results of the risks assessment performed by the manufacturing company authorise the drafting of the CE declaration of conformity and the application of the CE marking on the machine.

The machine, constructed in conformity with the provisions contained in Directive 2006/42/CE, meets the relevant requirements, and hence when introduced on the market it has CE marking and is accompanied by the CE declaration of conformity.

Description and main features

Machine identity plate

The machine identity plate, located on the electric panel, is illustrated below.

The identity plate is to always remain firmly fixed on the machine and is not to be removed for any reason.

			
MODELLO			
NUMERO DI MATRICOLA			
ANNO	200		
MASSA			Kg
TENSIONE DI ALIMENTAZIONE	V	F	Hz
POTENZA ELETTRICA	KW	In	A

10



WARNING

The plates are to always remain firmly fixed to the machine and are not to be removed for any reason.

Description of machine

Functioning principle

System to analyse the tartaric stability of musts and wines with cooling/heating by Peltier cells and liquid dissipation.

Main components



1. PLC touchscreen
2. Analysis well
3. On/off key
4. Power supply, USB, Ethernet connections
5. Water supply inlet/outlet

Technical data

The technical data and characteristics of the Machine are indicated below and are to be used as reference when contacting the Service Department of the Manufacturer.

Description	Measurement unit	Smart Check Juclas
Height	mm	670
Width	mm	221
Length	mm	242
Overall weight	kg	8
Electric power installed	kW	0,12
Nominal electric voltage	Volt	220
Auxiliary circuits voltage	Volt	24
Operating electrical frequency	Hz	50

Safety and accident prevention standards

Safety signs

The machine is equipped with adhesive labels (symbols), some provide indications regarding safety for the operator and for machine integrity, these are illustrated with comments for clearer understanding.

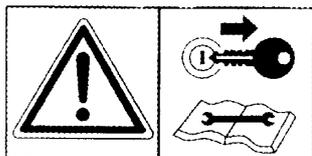
WARNING

(Black labels on yellow field)

:



Read the instructions for use and maintenance manual with attention before starting to operate with the machine.



Before starting any maintenance operation, stop the machine, disconnect the plug from the electric power supply socket and consult the instructions for use and maintenance manual.



Only the electricians or qualified technicians are allowed to open the electric panel doors or act in those points where this label is applied

Danger levels

Where present, pay attention to the sign and observe the safety precautions specified in this manual. The safety signs are of three levels:



DANGER

This sign warns that the operations described, if not carried out correctly, can cause risks for health, serious injuries or even death.



WARNING

Carefully read the following regulations. Non-application of these regulations could cause harm to persons or damage to the machine.



CAUTION

This sign warns that if the operations described are not carried out correctly, they may cause damage to the machine or to some of its components.

The manufacturer company declines any responsibility for damages caused by non-observance of the safety and accident-prevention standards described below.

General warnings

The operator is to carefully read the information contained in this manual, paying special attention to the precautions and safety warnings listed below:

- Only use the machine after having read this manual.
- Do not use the machine if under phyco-physical stress.
- Do not allow unskilled persons or who have not been opportunely trained to use the machine.
- Before starting to operate, it is recommended to familiarise with the control devices and their functions.
- Keep the machine and the working area clean and tidy.
- Do not remove or bypass the machine safety systems.
- Before using the machine, check intactness of the safety systems.
- Do not remove or alter the plates applied on the machine by the manufacturer.
- It is most important to carry out a general cleaning of the machine at the end of every processing.
- Periodically check correct functioning and seal of the valves.
- Do not change the length of the pipes and cables provided by the manufacturer.
- Use the foreseen detergents correctly, observing the instructions of the labels on the product containers.
- For the disposal of washing water, observe any limits applied by the laws in force in the country where the machine is used.
- Regarding use and storage of hazardous chemical products required for the processing, carry out the safety procedures contained in this manual.
- Provide appropriate containers to stock the fittings needed for functioning.

Machine operators

The operators are to have (or acquire by appropriate instruction and training) the following qualifications indicated, and are also to have read this manual and be aware of all the information regarding safety:

- General and technical culture of a sufficient level to understand the contents of the manual and correctly interpret the figures, diagrams and drawings.
- Knowledge of the main standards regarding hygiene, accident-prevention and technology.
- Overall knowledge of the machine and the factory where it is installed.
- Specific experience in wine laboratory technologies.
- Know how to act in an emergency, where to obtain the personal protection clothing and how to use it correctly.



WARNING

The maintenance technicians, as well as the requirements listed above, are also to have an appropriate technical preparation.

Clothing

The operator is to always wear a lab coat or appropriate working overalls to prevent that splatter of the product or hazardous substances come into contact with the clothes.

Where foreseen, the operator shall also wear:

- Rubber gloves of material appropriate for contact with food products and to avoid direct contact with hazardous products.
- Tightly laced safety shoes, or if hazardous products are used, wear rubber boots.
- Protective goggles.
- Respiratory system protective mask, or even better, a specific helmet with forced ventilation.



WARNING

All the clothing and personal protection devices indicated are to be in perfect condition; of necessary, ask for immediate replacement.

Ecology and pollution

Observe the laws in force in the country where the machine is used regarding use and disposal of products used for lubrication, cleaning and washing, scrupulously following the indications on the labels of the containers of these products.

17

Use in safety



DANGER

During all the operations necessary for the loading, transport, unloading, positioning, hydraulic and electrical connections it is obligatory to observe the general safety and accident-prevention regulations in force in the country where the machine is used.



DANGER

Do not make hydraulic connections with the machine in operation.

Maintenance in safety

To ensure safe maintenance of the machine, the following provisions must be observed:

- Periodically check intactness and functioning of safety devices.
- Never remove or tamper with safety devices.
- Disconnect the plug from the electric power supply socket of the distribution panel when it is necessary to carry out repairs or maintenance.
- Maintenance is only to be carried out by qualified technicians, following the instructions contained in this manual.
- Maintenance is to be executed scrupulously, replacing damaged or worn parts with original spare parts of the same type.
- The symbols (labels) applied on the machine provide opportune indications in an essential manner to avoid accidents.
- These symbols are to be kept clean and immediately replaced if they have been removed, even partially, or if they become damaged. Never operate with the machine if even only one of these symbols is missing from the point where it was applied by the Manufacturer.

Machine installation

Loading and unloading

The loading and unloading operations are to be carried out by hand.

18

Transport and maintenance

Transport is to be carried out by qualified operators.

All protections, guards, machine hatches are to be correctly closed and secured; it is also necessary to provide possible inter-positions between machine and transport vehicle to avoid possible impacts and stress.

The machine is to be transported firmly anchored to the transport vehicle and positioned in the correct operating position.

Services required

For machine functioning the following services are required:

- Electric power supply 220V 50 Hz supplied by plug and socket connection, performed in a workmanlike manner by qualified technicians (who shall issue the relevant certificate of competence), with cable of appropriate dimensions, for an overall power depending on the plant subject of this manual.
- Softened water supply with quick coupling to pipe with diameter 6 mm

Essential services

Electrical energy and softened water supply

Environment conditions

The machine does not require particular environment conditions, but must be placed inside an industrial building sufficiently spacious, ventilated and with a solid, flat floor.

The environment temperature range is to be between 5 and 25°C (with humidity not over 50% at 25 °C or not over 90% at 5 °C).

Lighting

The lighting of the site is to be in conformity with the laws in force in the country where the machine is used and in any case is to ensure good visibility in every point, not create hazardous reflections and permit clear reading of the control instruments.

Positioning

The positioning is to be carried out by qualified personnel.

Choice of the position is to be such to have free access to carry out the normal operations during the machine functioning and for maintenance operations.



CAUTION

The machine is to be positioned level on a stable, dry surface.



WARNING

To limit risks caused by stagnation of liquids during processing that could cause formation of an environment with major electrical risk, it is recommended that the resting surface is dry

Preliminary operations

Before starting to position the machine, check and if necessary, adapt the technical plants already installed in the company, in detail:

- The static pressure of the water supply plant is not to exceed 2 bar (\approx 20 m water column); otherwise provide a pressure reducer valve.
- Check the voltage and operating frequency of the machine, which are to be the voltage and frequency of the company distribution mains.



DANGER

Do not connect the electrical plant of the machine directly to the main distribution plant. A failure on the main distribution plant could cause irreparable damage to the machine control panel and serious injuries to the operator.

Installation

Before installing the machine, check that none of the parts have been damaged during transport.



WARNING

All the operations that follow for the installation, adjustment and testing are to be carried out exclusively by responsible qualified technicians who guarantee to operate in compliance with the safety standards applicable regarding the mechanical, electronic and hydraulic sectors; if this is not possible, contact the manufacturer company.



WARNING

Read with care all the instructions described below; if in doubt, contact the manufacturer company.

The manufacturer company shall not be held in any way liable for damages caused by non-observance of the safety and accident-prevention regulations contained in this manual.

Electrical and hydraulic connection

To be carried out by qualified technicians.

Long periods of inactivity

The machine is to be placed in a closed area, protected against impacts and stress, against humidity and drastic temperature changes. The analysis well is to be dry and the cooling hydraulic circuit emptied (open the cooling valve and inject air into the inlet circuit with a syringe until no water comes out from the outlet circuit).

Avoid that the machine comes into contact with corrosive substances.

Disposal

During the processing, waste substances are generated that are to be collected, recycled or disposed of in accordance with the laws in force in the country where the machine is used.

The substances produced during the washing may be:

- Washing water,
- Watery solutions,
- Processing rejects (watered wine).

Instructions for use

Foreseen use

The machine has been designed and constructed for the analysis of tartaric stability of musts and wines.

Counter-indications of use

The machine is not to be used:

- for uses that differ from those indicated
- in explosive, aggressive atmospheres or with high concentration of dust or oily substances in suspension in the air.
- in atmospheres with risk of fire

Hazardous zones

The machine does not present mechanical risks since there is no exposure to accidental contact or parts in motion.

The “hazardous zones” remain in the areas involved in the manual connection and disconnection of electrical and hydraulic energy sources.

However, there could be risks deriving from the handling of chemical products.

Therefore, the operators in charge of running the plant are to be appropriately trained and informed of the risk involved.

22**Protection devices**

The machine is fitted with adequate guards necessary to prohibit access to the more delicate areas, which under certain conditions could expose the operators to electrical risk.

Residua risks

During the normal processing cycle and during maintenance, the operators are exposed to some residual risks that, due to the type of operations, cannot be eliminated completely.

Risks regarding electrical energy

To avoid risks regarding electrical energy, do not operate in the points indicated by specific danger warning signs before first cutting-out the voltage; in this case the operations are to be carried out by the qualified maintenance technicians.

Chemical risks

There may also be risks deriving from the handling of chemical products.

The processing management phases require the use of specific products; these are to be used and managed in compliance with the indications of the labels on the containers of the product.

The operators who use the machine and the reactor, even if equipped with the appropriate personal protection devices (DPI), are to be properly trained and informed of these risks.

Putting the machine into service

23

Before start-up

The operations to prepare the machine for the first start-up are to be carried out by a technician assigned by the manufacturer company, possibly in cooperation with the technician of the customer who can learn the information necessary to subsequently carry out maintenance activities.

Start-up and operation

After supplying the plant through the start key, the screen page shown in the figure below is automatically displayed.

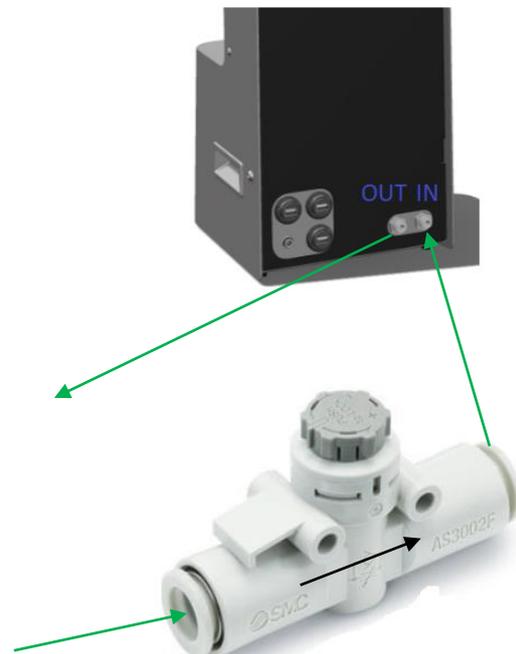
User interface



The screen page shown above is the main screen where the operator can have access to the various functions of the tool

Cooling water adjustment

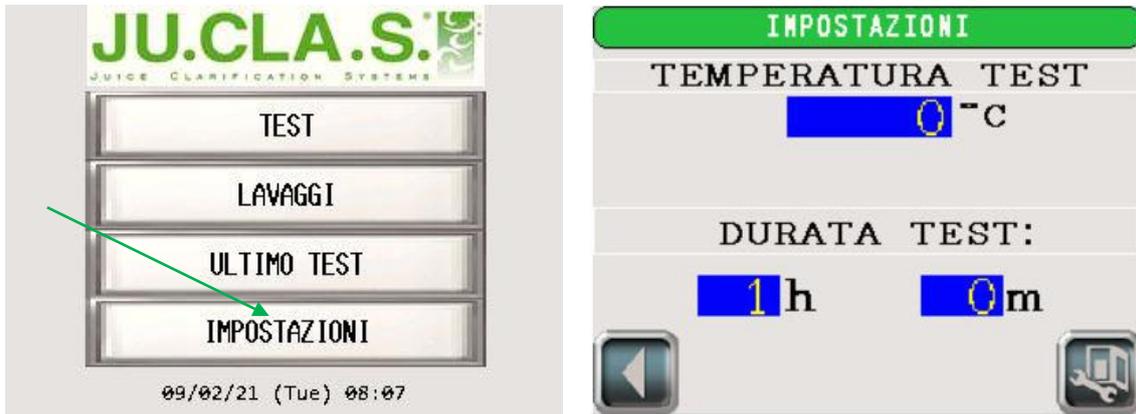
Before using the Smart Check it is necessary to provide a suitable cooling circuit with water from the mains. The tool is provided with quick couplings having diameter 6 mm. Also supplied there is a flow regulator to avoid wasting water, and is to be installed at the tool inlet as shown in the next figure. **NB: do not install the regulator on the outlet circuit, which could cause loss of water caused by excessive over-pressure.**



After connecting the circuit as described in the figure, and taking care to observe the same direction of the regulator, access the washing menu and open the cooling water circuit as shown in the figure below. Now adjust the flowrate, turning the wheel on the top of the regulator clockwise to slow down and vice-versa. A suitable flowrate is around 5/10 l/h according to the temperature, and can be measured collecting the outlet water in a calibrated cylinder, counting the filling time.



Settings



Accessing the settings, the temperature and duration of the test can be modified. The temperatures may be 0°C, -1°C, -2°C, -3°C, -4°C, the time can be set either in hours or in minutes.

Last test

26



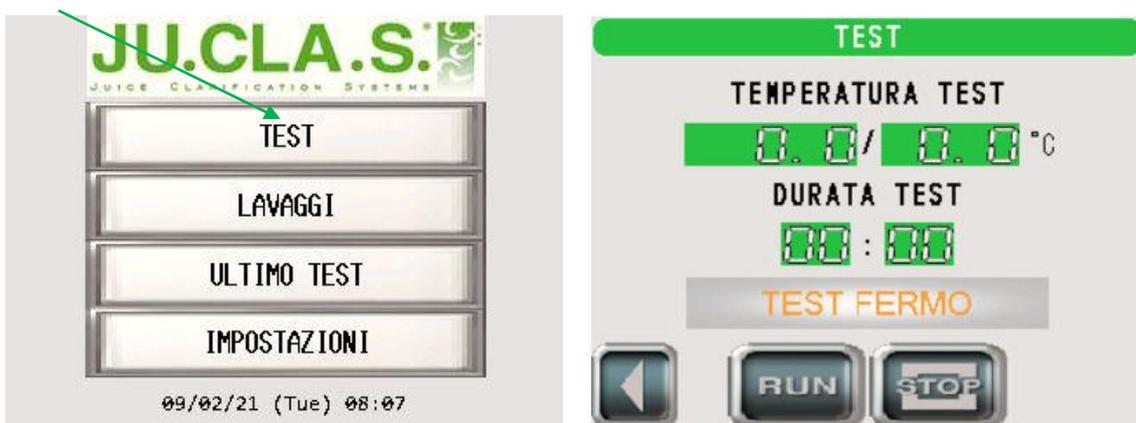
The “last test” option contains the information regarding the last test run. The screen page updates when the next test is run and does not remain in memory.

Washing



The “washing” option allows the operator to activate the agitation of the analysis chamber for easier cleaning by the remixing of the deposits. At the end of analysis, the wine samples will be sucked up by a specific syringe and the analysis cell will be accurately cleaned with hot water, in its turn removed by aspiration. With the “washing” item it is also possible to open the cooling circuit valve, to favour correct setting of the flow during installation and for further cleaning operations to remove encrustations that could form over time, please contact the staff of Ju.Cla.S for the instructions regarding the cleaning protocol to be followed.

Test



The “test” option gives access to the screen through which it is possible to start the analysis. Once the test is started, the sample will be adjusted to the temperature set, and after a brief stabilising time, the tool, through the specific screen page and an acoustic signal, will ask the operator to add the nucleating agent KHT according to the instructions received during the start-up.

The test will then proceed autonomously, During the analysis the following will be continually displayed in three different windows:

- Temperature set and temperature read
- Duration set
- Initial conductivity
- Conductivity measured
- Conductivity delta (initial Cond. – current Cond.)
- Time remaining before end of test

At the end of the test the tool will display a screen showing the result of the analysis. Please contact Ju.Cla.S or Enologica Vason for the correct interpretation of the results obtained.

Calibration

It is reminded that the tools are submitted to calibration in the factory and other calibrations are not required, furthermore, a variation, even if minor, at repetition of the analysis is physiological. If it should be necessary to check deviations considered significant, contact Ju.Cla.S for the instructions.



From the settings menu, using the specific password it is possible to access the calibration procedure.

Temperature calibration

Introduce 25 ml of wine with alcoholic content over 10%vol in the analysis chamber and press "Start". The sample will be brought to 0°C and a window will be displayed that will ask the temperature measured. Measure the temperature of the sample with a reference thermometer and enter the value measured, pressing "Confirm".

The sample will then be brought to 4°C, repeat the operations described in the previous step and confirm.

Conductivity calibration

It is recommended to first carry out the temperature calibration, since the conductivity depends on this, it could undergo variations following a modification of the reading scale.

Insert 25 ml of standard calibration with known conductivity taking care to have perfectly cleaned the analysis chamber and have copiously rinsed with wine, then press the "Start" key. The sample will be brought to a temperature of 0°C and a window will be displayed asking for the known conductivity of the standard, Enter the conductivity value read at 0°C, usually 730 $\mu\text{S}/\text{cm}$ for standard classic solutions of 1413 $\mu\text{S}/\text{cm}$ at 25°C, then press confirm.

