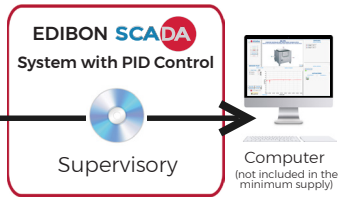
CA00 | Computer Controlled and Touch Screen Pilot Plants for the Production of Meat

12.- FOOD & WATER TECHNOLOGY

(Example of some available units in this catalog)



- **Research units, modular and expandable.**
- **Custom designs and own manufacture.**
- **Food grade materials.**
- **Possibility of production for commercialization.**

EXPANSIONS

The main reference could be expanded adding:

ESN
EDIBON Scada-Net Systems

ECL
EDIBON Cloud Learning

INNOVATE SYSTEMS

- **Advanced Real-Time SCADA and PID Control.**
- **Open Control + Multicontrol + Real-Time Control.**
- **Specialized EDIBON Control Software based on LabVIEW.**
- **Calibration exercises, which are included, teach the user how to calibrate a sensor and the importance of checking the accuracy of the sensors before taking measurements.**
- **Projector and/or electronic whiteboard compatibility allows the unit to be explained and demonstrated to an entire class at one time.**
- **Capable of doing applied research, real industrial simulation, training courses, etc.**
- **Remote operation and control by the user and remote control for EDIBON technical support, are always included.**
- **Totally safe, utilizing 4 safety systems (Mechanical, Electrical, Electronic & Software).**
- **Designed and manufactured under several quality standards.**
- **This unit has been designed for future expansion and integration. A common expansion is the EDIBON Scada-Net (ESN) System which enables multiple students to simultaneously operate many units in a network.**

WARRANTIES

SPARE PARTS AVAILABILITY 15-YEAR

WARRANTY 5-YEAR

CONTACT US:

+34 91.619.93.63 edibon@edibon.com

For detailed product information, visit:
www.edibon.com

INTRODUCTION

Meat products are one of the most common sources of protein, fat and vitamins in the human diet. These products are obtained from terrestrial mammals, the most consumed species are sheep, cattle, pigs and poultry.

The meat industry is the food industry that moves a greater volume of sales worldwide. The consumption of meat products, both raw meat and meat derivatives, is growing globally according to the growth of world population.

The meat industry has a long history but now requires modern and updated technology. Consequently, industrial processes have been developed allowing the meat to be treated in an adequate manner to reach final products that are suitable for human consumption. The main meat derivatives are minced meat (hamburgers), smoked meat (bacon), cured meat (cured ham), cooked meat (cooked ham), fresh sausages and cooked or cured sausages (chorizo, salami, etc.)

GENERAL DESCRIPTION

The Computer Controlled and Touch Screen Pilot Plants for the Production of Meat, "CA00", is a pilot plant to investigate the main processes of the meat industry, obtaining cured meat products, cooked meat products, sausages and pre-cooked products as final products.

The "CA00" pilot plant is subdivided in several pilot plants with the purpose of covering and giving a detailed solution to all the industries involved in the treatment of meat. In each of the different pilot plants aimed at the treatment of meat products, it is possible to add a weighing platform and a scale to determine the weight of the product to be treated (a necessary step for any subsequent process). In addition, there is a meat reception cabinet in which the raw pieces are kept at the right temperature for their preservation before being treated.

Other accessories are also available to increase the possibilities of each of the pilot plants involved in the different processes.

- **CA00/CUPS. Pilot Plant for the Production of Cured Pieces and Sausages.** With this pilot plant, designed by EDIBON, we are able to obtain cured products from untreated meat following the following process:

  First, the meat that has been weighed and cleaned of unwanted parts is fed into a mincer to obtain minced meat and then into a mixer in which the meat is mixed with the different additives (salt, spices, preservatives, etc.)

  The next step is the stuffing of the meat already kneaded, for which a stuffing machine is used to facilitate the introduction of the product into the casing, whether natural or artificial.

  The casing is then tied and fastened to seal the sausage, thus producing a fresh product.

  Finally, by using a drying cabin in which the humidity and temperature conditions are controlled, we obtain a product with the desired properties.

  This pilot plant also allows the production of whole cured pieces of meat undergoing a previous salting or marinating process. For this purpose, tanks suitable for the treatment of salted or marinated meat are supplied.

  It is also possible to produce cured pork loin. The last step consists of storing the cured or salted pieces for a long enough period of time under the conditions indicated for each product.

  For this pilot plant, the pieces produced can be vacuum-packed to guarantee greater durability and hygiene.

- **CA00/COPS. Pilot Plant for the Production of Cooked Pieces and Sausages.** With this pilot plant, designed by EDIBON, we are able to obtain cooked products from untreated meat, following the following process:

  To prepare this type of product, the first step is to inject brine into the pieces of meat to eliminate the remains of blood and add flavor and juiciness to the final product.

  Subsequently, we will use a maceration pump with a vacuum system to massage and achieve correct distribution of the brine throughout the piece.

  From here and depending on the purpose, we follow two different ways:

  1) If whole cooked pieces are going to be processed, the next step is to place the piece in an Electric Cooking Kettle and cook it.

2) On the other hand, if the final product is a cooked sausage, the massaged piece must be taken to a mincer, in which the blades will grind the meat until a very fine mass is obtained, at which time the additives are also added. Once the mass is ready, a vacuum filler must be used, since there can be no air inside the sausage during cooking. The sausage is then pressed and cooked in an Electric Cooking Kettle in water or steamed in a Forced Air and Steam Oven.

For this pilot plant, the pieces produced can be vacuum-packed to ensure greater durability and hygiene.

- **CA00/PM. Pilot Plant for the Production of Precooked Meat Products.** With this pilot plant, designed by EDIBON, it is possible to study and research in the elaboration of precooked food from meat products, mainly meatballs and croquettes. Meat processing is carried out in the following way:

  Previously, the meat is prepared by kneading it in hot dough and mincing it.

  The processed meat is then placed in a blast chiller to lower its temperature and avoid the proliferation of bacteria.

  If we want to make hamburgers, the meat goes through a hydraulic press. If we want to make meatballs, the meat will go through a breading machine.

  Once the meat has been treated, it goes through a fryer to cook it.

  In addition, there are two types of sealers, a conventional thermosealing machine and another that introduces an inert gas inside the tray to ensure better preservation.

  Finally, it is possible to label the containers using a scale with a labeler to indicate the weight of the product and its ingredients if the final product is to be marketed.

INCLUDED UNITS

PILOT PLANTS FOR THE PRODUCTION OF MEAT

- OPEN CONTROL
+
- MULTICONTROL
+
- REAL TIME CONTROL

CA00/CUPS. Pilot Plant for the Production of Cured Pieces and Sausages

MM/CTS
Computer Controlled and Touch Screen Meat Mincer

MK/CTS
Computer Controlled and Touch Screen Meat Kneader

SHF/CTS
Computer Controlled and Touch Screen Semi-Automatic Hydraulic Filler

MSS
Manual Sausage Stapler

PSS
Pneumatic Sausage Stapler

SST/CTS
Computer Controlled and Touch Screen Semi-automatic Sausage Tying Machine

ST
Salting Tank

MT
Marinade Tray

DC/CTS
Computer Controlled and Touch Screen Drying Cabinet

Cured Pieces

CA00/COPS. Pilot Plant for the Production of Cooked Pieces and Sausages

BIM
Manual Brine Injection Machine

MDV/CTS
Computer Controlled and Touch Screen Maceration Drum with Vacuum System

FCMA/CTS
Computer Controlled and Touch Screen Fine Cutting Machine

VF/CTS
Computer Controlled and Touch Screen Vacuum Filler

PVSS
Pneumatic Vacuum Sausage Stapler

CK/CTS
Computer Controlled and Touch Screen Cooking Kettle

FSF/CTS
Computer Controlled and Touch Screen Forced Air and Steam Furnace

Cooked Pieces and Sausages

CA00/PM. Pilot Plant for the Production of Precooked Meat Products

HK/CTS
Computer Controlled and Touch Screen Hot Kneeder

MM/CTS
Computer Controlled and Touch Screen Meat Mincer

BC/CTS
Computer Controlled and Touch Screen Blast Chiller

HM/CTS
Computer Controlled and Touch Screen Hamburger Maker

CBB/CTS
Computer Controlled and Touch Screen Compact Batter Breading Machine

FEP/CTS
Computer Controlled and Touch Screen Fryer for Elaborate Products

THS
Tray Heat Sealer

TIGI/CTS
Computer Controlled and Touch Screen Thermosealing Machine with Inert Gas Injection

Precooked Meat Products

EXERCISES AND PRACTICAL POSSIBILITIES

Guided practical exercises included in this pilot plant:

1.- Study of the mincing process of raw meat.
2.- Study of the kneading of minced meat and the additives used.
3.- Study of the sausage making process in a conventional sausage maker.
4.- Study of the influence of the speed of operation on the sausage making process.
5.- Study of the sausage tying process.
6.- Study the stapling process using a manual stapler.
7.- Study of the stapling process of sausages using a pneumatic stapler.
8.- Study of the vacuum packing process.
9.- Injection of brine into meat pieces.
10.- Study of the massage process of meat pieces injected with brine.
11.- Study of the influence of brine injection on the final product.
12.- Study of the process and speed of mincing in a meat cutter.
13.- Study the sausage process using a vacuum filler.
14.- Study the differences between a traditional sausage and a vacuum sausage.
15.- Study the process of molding cooked pieces.
16.- Study of the cooking process of sausages and meat pieces. Influence of the time and temperature in cooking process.
17.- Cooking of steamed meat products.
18.- Study of the differences between cooking in kettle and steaming.
19.- Study of the salting process of meat pieces.
20.- Study of the marinating process of meat pieces.
21.- Study of the maturing process of meat products.
22.- Influence of the humidity and temperature in the process of maturation.
23.- Preparation of meatballs and croquettes.
24.- Study of the preparation of cooked food from meat products.
25.- Study of the operation of a temperature chiller.
26.- Study of the functioning of a thermosealing machine.
27.- Study the operation of a thermosealing machine with inert gas injection.
28.- Influence of the frying time on cooked food.
29.- Weighing and labeling of processed foods.

Additional practical possibilities:

30.- Sensors calibration.

Other possibilities to be done with this pilot plant:

31.- Many students view results simultaneously.

To view all results in real time in the classroom by means of a projector or an electronic whiteboard.

32.- Open Control, Multicontrol and Real Time Control.

Each unit allows intrinsically and/or extrinsically to change the span, gains; proportional, integral, derivative parameters, etc. in real time.

33.- The Computer Control System with SCADA and PID Control allow a real industrial simulation.

34.- Each unit is totally safe as uses mechanical, electrical/electronic, and software safety devices.

35.- Each unit can be used for doing applied research.

36.- Each unit can be used for giving training courses to Industries even to other Technical Education Institutions.

37.- Visualization of all the sensors values used in the CA00 pilot plant process.

Additional practical possibilities with the expansions:

ESN. EDIBON Scada-Net Systems

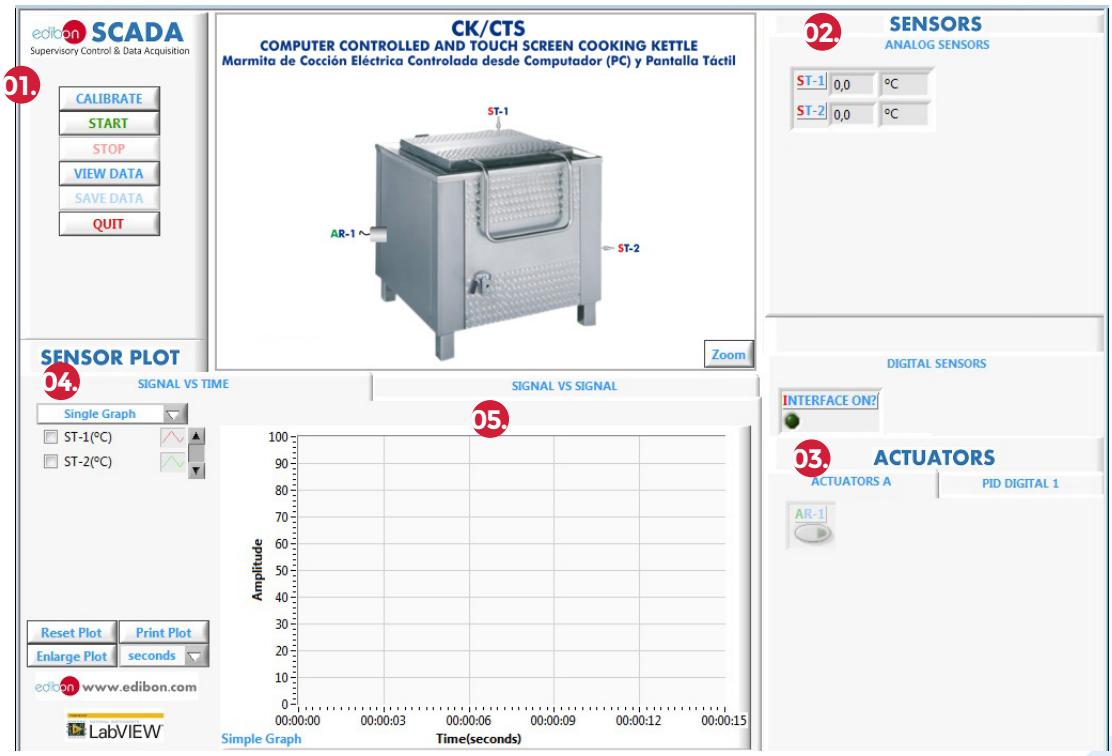
38.- Control any unit from any post located in the laboratory.
39.- Supervise different experiments about data acquisition and representation, from the units, in real time.
40.- Visualize any experiment from any laboratory post.
41.- Supervise as many experiments as desired, performed in different units at the same time.
42.- Generate reports with the results obtained with the units.
43.- Perform different experiments at the same time.
44.- Show to the laboratory members the appropriate manual or automatic operations to perform with each laboratory unit.
45.- Create more elaborate practical exercises using more than one unit from the laboratory.
46.- Suggest multidisciplinary experiments, in other words, mix in the same experiment units from different study fields.
47.- Modify any parameter of any unit included in the system from any workstation in the laboratory.
48.- Cause an abnormal functioning in a unit for the students to practice fault finding exercises.
49.- Assess the knowledge of a student or group of students about a particular unit (any unit included in the "ESN" system).
50.- Develop guided practical exercises for a better understanding of each unit.
51.- Individual training practical exercises.
52.- Group exams or practical exercises.
53.- Perform interactive exercises (using the chat between manager-users).
54.- Exchange of obtained results among the members of the "ESN" system.
55.- Any exercise directly related to the SCADA software of each unit.
56.- Some of the practical possibilities may be done only with the "ESN" complete system.

ECL. EDIBON Cloud Learning

**Ask us for information about the practices that you could perform remotely with each of our units.*

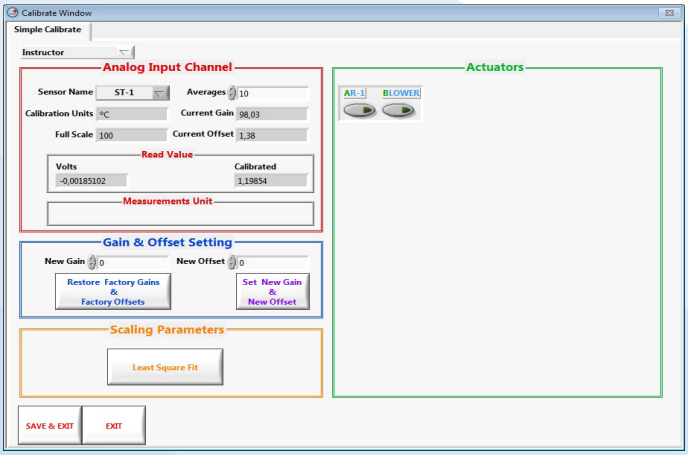
RESULTS

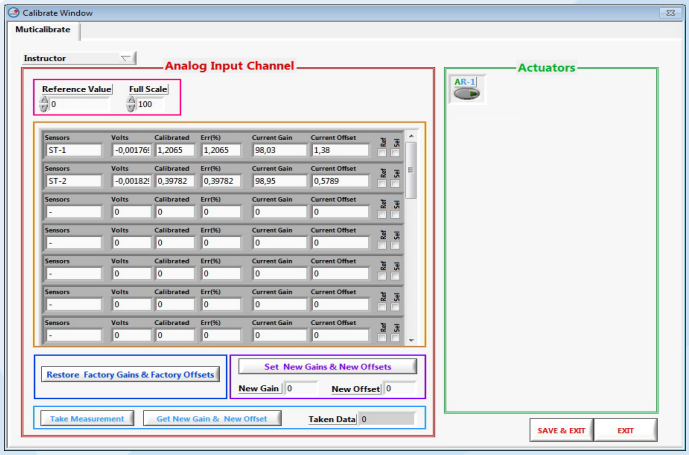
SOFTWARE MAIN SCREEN (Example of one of the unit belonging to CA00)



1. Main software operation possibilities.
2. **Sensors displays, real time values, and extra output parameters. Sensors:** ST=Temperature sensor.
3. **Actuators controls. Actuators:** AR=Heating element.
4. Channel selection and other plot parameters.
5. Real time graphics displays.

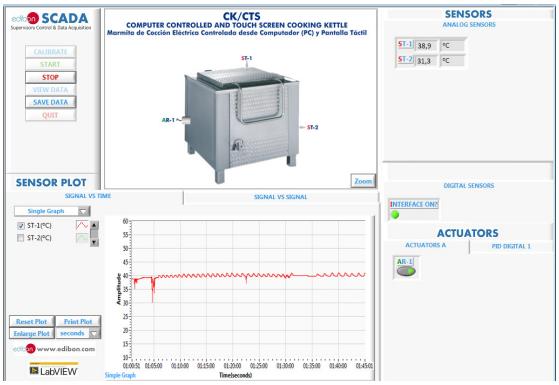
SOFTWARE FOR SENSORS CALIBRATION (Example of screens)





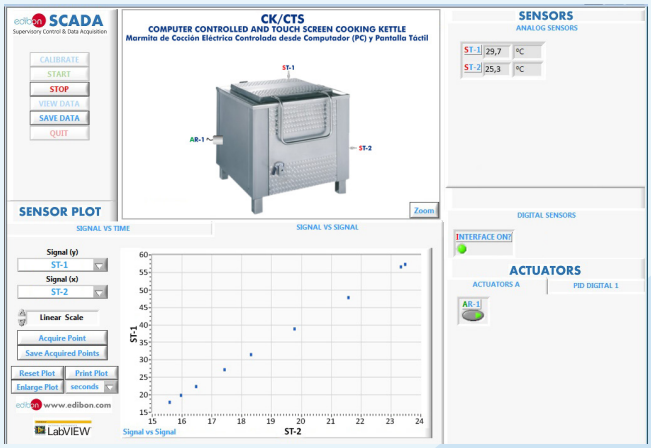
The researcher, the teacher and the students can calibrate the unit with a password provided by EDIBON. Factory calibration can be restored at any time.

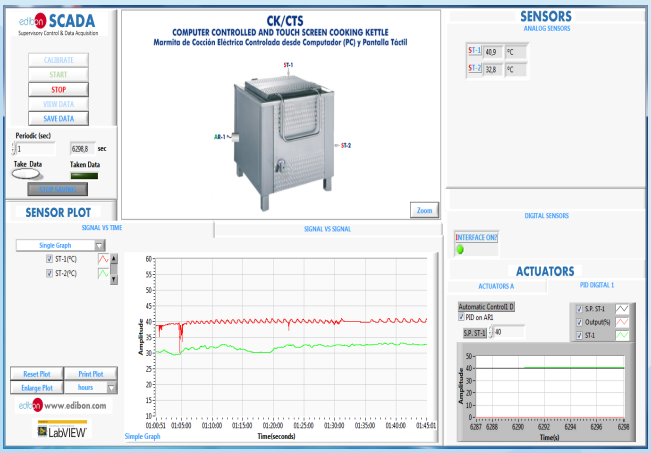
RESULTS:



Representation in real time of the measured magnitudes.

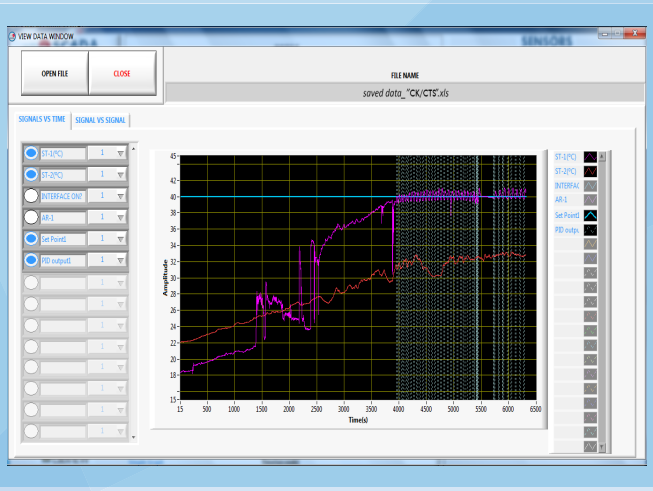
Chart representing signal vs signal of the measured variables.





Temperature control of the is done through a PID control. When the target temperature is reached at the temperature sensor (ST-1), the heating element is turned off.

Visualization and representation of saved data.



COMPLETE TECHNICAL SPECIFICATIONS

CA00 Pilot Plants:

- Three complete production plants for the elaboration of the main meat products.
- Real unit used in meat industry.
- Sensors and actuators which allows the study and understanding of the differents processes of meat products production.
- Modular layout to allow adaptation to different spaces.

Production of *Cured Pieces and Sausages*

1. CA00/CUPS. Pilot Plant for the Production of Cured Pieces and Sausages:

MM/CTS. Computer Controlled and Touch Screen Meat Mincer.

- Completely built entirely stainless steel.
- With external mouth group: it avoids the transmission of heat to the meat and is very easy to disassemble for cleaning.
- Transmissions by very silent gears bathed in oil.
- They chop all types of meat, soft or hard.
- Uniform and continuous output of the meat through the mouth.

MK/CTS. Computer Controlled and Touch Screen Meat Kneader.

- Built entirely in stainless steel.
- Capacity: 20 l (12 kg approx.).
- Transmission by gears in oil bath.
- Power: 0.24 kW.
- Dimensions: 580 x 320 x 500 mm.
- Weight: 50 kg approx.

SHF/CTS. Computer Controlled and Touch Screen Semi-Automatic Hydraulic Filler.

- Cylinder capacity: 12 l (10 kg approx.).
- Power: 0.55 kW.
- Stainless steel construction except for the anodized aluminium cover and the polyethylene cylinder.
- Independent hydraulic oil tank.
- Adjustable speed and working pressure.
- Three stainless steel funnels of 12, 20 and 30 mm diameter for sausages of different diameters.

MSS. Manual Sausage Stapler.

- Machine for closing natural or artificial casings, nets and bags, full or empty, with an aluminum clip.
- Does not require electricity or compressed air.
- Manual lever operation.
- Dimensions: 400 x 400 x 700 mm.
- Weight: 9 kg.

PSS. Pneumatic Sausage Stapler.

- Fast action machine to close natural or artificial casings, nets and bags, full or empty, with an aluminum clip.
- Stapling by means of a lever without having to release the piece.
- Working pressure: 6 bar.
- Air consumption: 1 l/cycle.
- Dimensions: 400 x 400 x 700 mm approx.
- Weight: 10 kg.

SST/CTS. Computer Controlled and Touch Screen Semi-automatic Sausage Tying Machine.

- Natural and artificial casing.
- Adjustable speed and number of turns per tying programmable.
- Automatic stop if strangers are detected between the stranglers.
- Commercial twine not subject to a single supplier.
- Easy cleaning due to no inaccessible parts.
- Quiet operation due to electronic motors.
- Speed: up to 140 ties/min.
- Programming of number of turns per bundle, speed, diameter, separation ball and stop.
- Maximum caliber: 54 mm.
- Power: 0.95 kW.
- Dimensions: 870 x 400 x 1030 mm.
- Weight: 75 kg.

DC/CTS. Computer Controlled and Touch Screen Drying Cabinet.

- Electronic control of temperature and humidity.
- Discontinuous drying cycle.
- Ventilated cooling system.
- Forced evaporation system.
- Temperature range: 4 ˚C to 16 ˚C.
- Dimensions: 1385 x 700 x 2060 mm.

ST. Salting Tank.

- Container made of high density polyethylene.
- Tested under the action of acid and alkaline solutions.
- High resistance to impacts.
- Dimensions: 1200 x 800 x 760 mm.

MT. Marinade Tray.

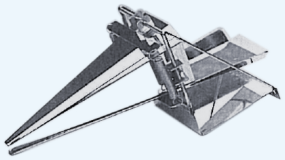
- Large capacity rectangular container.
- Smooth walls for easy cleaning.
- Rolling base for easy handling.
- Dimensions: 790 x 600 x 685 mm.

ADDITIONAL RECOMMENDED ELEMENTS (Not included)

For CA00/CUPS:

MST. Manual Stuffer.

- Buit entirely in AISI 304 stainless steel.



Production of *Cooked Pieces and Sausages*

2. CA00/COPS. Pilot Plant for the Production of Cooked Pieces and Sausages:

BIM. Manual Brine Injection Machine.

- Built in stainless steel AISI 304L.
- Steel wall thickness: 2 mm.
- Stainless steel tank of 40 l.
- Three-needle coupling gun.
- Three needles.
- Mounted on four wheels for easy transport.
- Suction filter.
- Pump for sanitary use:
  - Speed: 1500 rpm.
  - Pressure: 3 bar.
  - Power: 0.25 kW.
- Dimensions: 350 x 930 mm.
- Weight: 24 kg.

MDV/CTS. Computer Controlled and Touch Screen Maceration Drum with Vacuum System.

- Built in food grade stainless steel.
- Digital programmer to work with up to 30 different programs and with protection against humidity.
- Controlled vacuum circuit.
- Vacuum circuit protection system with oil filter.
- Automatic discharge by inversion of the direction of rotation.
- Volume of the drum: 70 l.
- Vacuum pump:
  - Maximum flow rate: 8 m^3/h.
  - Power: 0.5 kW.
- Dimensions: 1280 x 600 x 870 mm.
- Weight: 100 kg.

FCMA/CTS. Computer Controlled and Touch Screen Fine Cutting Machine.

- Equipped with three blades.
- Built in 18/10 stainless steel.
- Trough capacity: 14 l (9 kg approx).
- Two blades motor speeds.
- Two trough motor speeds.
- Dimensions: 900 x 630 x 570 mm.
- Weight: 110 kg.

VF/CTS. Computer Controlled and Touch Screen Vacuum Filler.

- Compact and versatile machine for producing traditional sausages.
- It allows frequent production changes in a quick and easy way.
- Programmable stuffing parameters with memory for up to 100 programs.
- Production per hour: 2800 kg/h.
- Portioner speed: 400 pieces/min for 25 g pieces.
- Portion weight: from 5 g to 16 kg.
- Maximum drawing pressure: 35 bar.
- Total power: 5 kW.
- Hopper capacity: 70 l.
- Dimensions: 900 x 750 x 1750 mm.
- Weight: 325 kg.

ADDITIONAL RECOMMENDED ELEMENTS (Not included)

VF-TMH. Twisting and Mechanical Hand.

PVSS. Pneumatic Vacuum Sausage Stapler.

- Manually operated machine to close natural or artificial casing sausages. The stapler is operated with a lever without having to release the sausage with either hand.
- Pneumatic operation.
- Working pressure: 6 bar.
- Air consumption: 4.9 l/cycle.
- Dimensions: 600 x 400 x 700 mm.
- Weight: 23 kg.

CK/CTS. Computer Controlled and Touch Screen Cooking Kettle.

- Built entirely in stainless steel.
- Fully welded and polished stainless steel pan, rounded corners and slight inclination towards the drain.
- Thermal insulation which means a significant energy saving and a maintenance of the temperature for a longer period of time.
- Exterior of the pot with four uprights and panels.
- Double wall cover with insulation and silicone gasket around the perimeter.
- Security system to prevent accidental falling of the same.
- Easy disassembly of the different elements to facilitate cleaning.
- Programming of the working and starting time.
- Acoustic signal at the end of the cooking time.
- Adjustable height legs for better adaptation to the floor.
- Capacity: 200 l.

FSF/CTS. Computer Controlled and Touch Screen Forced Air and Steam Furnace.

- Capacity for six trays.
- Touch panel and programmer with up to 1200 programs in 12 steps.
- Power: 5.7 kW.
- Seven cooking modes for different foods.
- Fast and safe cooling function of the cooking chamber.
- Homogeneous distribution of the energy in the cooking chamber.
- Operation modes:
  Steam: 30˚C - 130˚C. (Allows the elaboration of cooked pieces).
  Hot air (convection): 30˚C - 300˚C.
  Combination of steam and convection: 30°C - 300˚C.
- Dimensions. 660 x 560 x 570 mm.
- Weight: 72 kg.

ADDITIONAL RECOMMENDED ELEMENTS (Not included)

For CA00/COPS:

MHB. Mold for Ham Block.

- Made of food grade stainless steel.
- Dimensions: 100 x 100 x 250 mm.

PMCP. Press Mold for Cooked Products.

- Made of food grade stainless steel.

Production of *Precooked Meat Products*

3. CA00/PM. Pilot Plant for the Production of Precooked Meat Products:

HK/CTS. Computer Controlled and Touch Screen Hot Kneeder.

- Machine suitable for fast and uniform cooking. Designed for different elaborations: croquettes, sauces, pastry cream, syrups, etc.
- Completely made of stainless steel.
- Heating by means of electrical resistances immersed in thermal oil.
- Removal blade with Teflon scrapers to prevent the product from sticking to the
- pot. Removable for easy cleaning.
- Mounted on wheels for easy movement.
- Control panel with general switch:
  - Digital thermostat up to 160°C.
  - Digital programmable timer.
  - Emergency stop.
  - Operation and resistance pilot light.
- Power of the resistors: 3 kW.
- Engine power: 0.37 kW.
- Capacity: 10 l.
- Dimensions: 670 x 480 x 1340 mm.
- Weight: 60 kg.

MM/CTS. Computer Controlled and Touch Screen Meat Mincer.

- Completely built entirely stainless steel.
- With external mouth group: it avoids the transmission of heat to the meat and is very easy to disassemble for cleaning.
- Transmissions by very silent gears bathed in oil.
- They chop all types of meat, soft or hard.
- Uniform and continuous output of the meat through the mouth.

BC/CTS. Computer Controlled and Touch Screen Blast Chiller.

- Built in stainless steel AISI 430.
- R-290 refrigerant.
- Interior with rounded corners and bottoms.
- Pivoting hinge with opening lock and integrated handle.
- Heated door frame to prevent ice accumulation.
- Forced evaporation system.
- Compressor power: 0.37 kW.

HM/CTS. Computer Controlled and Touch Screen Hamburger Maker.

- It allows to make hamburgers from 20 to 100 mm in diameter and 25 mm thick.
- Hourly production: 1800 hamburgers or 3600 meatballs.
- Speed variator.
- Safety in the lid and on the dosing plate.
- Engine power: 0.26 kW.
- Dimensions: 380 x 420 x 710 mm.
- Weight: 47 kg.

ADDITIONAL RECOMMENDED ELEMENTS (Not included)

HM-MM. Meatball Mould.

HM-CM. Croquette Mould.

CBB/CTS. Computer Controlled and Touch Screen Compact Batter Breading Machine.

- Automatic batter and breading.
- Belt speed: 10 m/min.
- Hourly production: 2000 pieces.
- Power of the motor: 180 W.
- Totally dismountable for easy cleaning.
- Built in stainless steel and plastics suitable for the food industry.
- Useful width: 150 mm.
- Dimensions: 1000 x 485 x 400 mm.
- Weight: 55 kg.

FEP/CTS. Computer Controlled and Touch Screen Fryer for Elaborate Products.

- Capacity: 6 l.
- Removable head.
- Timer and thermostat.
- Electrical supply.
- Power: 2.5 kW.
- Dimensions: 280 x 461 x 310 mm.
- Weight: 3.8 kg.

TIGI/CTS. Computer Controlled and Touch Screen Thermosealing Machine with Inert Gas Injection.

- AISI 304 stainless steel structure.
- Vacuum control by means of pressure or time value.
- Inert gas inlet control by pressure or time value.
- Temperature control.
- Programmer with touch screen and capacity for 25 programs.
- Vacuum pump of 21 m^3/h.
- Capacity for: 1 tray GN ½, 2 tray GN ¼ or 4 tray 1/8 (including molds).
- Cutting of the excess of the trays.
- Power: 3 kW.
- Dimensions: 520 x 640 x 1020 mm.
- Weight: 100 kg approx.

THS. Tray Heat Sealer.

- Stainless steel bodywork.
- Controls and digital display.
- Capacity for: 1 barqueta GN ½, 2 barquetas GN ¼ or 4 barquetas 1/8 (including moulds).
- Interchangeable anticorrosive aluminium plates with electronic temperature regulation.
- Perfect welding even in the presence of liquids and grease.
- Fixed working plane that guarantees the uniformity of the weld on the whole contour.
- One film reel included.
- Mould for sealing GN trays ½.
- Power: 1 kW.

ADDITIONAL RECOMMENDED ELEMENTS (Not included)

For CA00/CUPS, CA00/COPS and CA00/PM:

RRC/CTS. Computer Controlled and Touch Screen Refrigerator Reception Cabinet.

- Temperature: -2 / +8 ˚C.
- Touch control with IP65 protection.
- Built-in LED lighting.
- Dimensions: 1130 x 775 x 2060 mm.

WPD. Weighing Platform and Display (0 - 60 kg).

- Floor or tabletop installation.
- One load cell.
- Iron frame, aluminum load cell and stainless steel plate.
- Dimensions: 400 x 400 mm.
- Max load: 60 kg.

- Multifunction Indicator for Weighing Platform:
  - IP65 plastic and stainless steel housing.
  - Keyboard with six buttons.
  - Six-digit LED display, 14 mm high.
  - Programmable indicator from 1 kg to 150 Tn.
  - Number of divisions: 100 - 10000.
  - Automatic tare function.
  - Piece counting function.
  - RS-232 output for computer or printer.

SCA. Scale (0 - 3.5 kg).

- International food safety standard HACCP and CE.
- Protection level IP68.
- Anti-vibration design.
- Operating conditions:
  - Temperature: -10 - +40 ˚C.
  - Relative humidity: ≤ 90%.
- Rechargeable battery 6 V / 4 Ah.
- Six-digit red LED display.
- Tare: 100 % of maximum capacity.
- Working with different units: lb, kg or g.
- Parts counting function.
- Power saving and auto shut off function.
- Capacity: 3 kg (Division of 0.1 g to 1 g).
- Dimensions: 225 x 290 x 110 mm.
- Weight: 3.6 kg.

CT. Cutting table (Two Cutters).

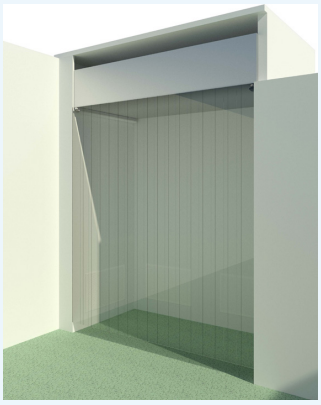
- Construction in stainless steel AISI-304.
- Finishing by projection of ceramic microspheres.
- Table panel 1.5 mm plate with lower reinforcements.
- Four tubular legs.
- Suspenders between legs.
- Reinforcement braces.
- Height regulators.
- Two sanitary white polyethylene cutters of easy extraction.
- Dimensions: 1500 x 1080 x 850 mm.

FPWB. Food Products Working Table.

- Construction in stainless steel AISI-304.
- Reinforced construction and easy to clean.
- Four round legs adjustable in height.
- Finished by projection of ceramic microspheres.
- Panel table plate of 1.5 mm with lower reinforcements.
- Dimensions: 1400 x 800 x 850 mm.

CRCA. Clean Room Cabinet.

- AISI 304 stainless steel sheet metal cabinet, dimensions: 2500 x 4200 x 2200 mm.
- Low-level return louvres in anodised extruded aluminium sheeting.
- Curtain made of 2 mm thick transparent PVC slats, overlapping each other, at the access.
- Filters and filter holders on the low-level return line.
- High efficiency filters located on the discharge (minimum 4 filtration units).
- Flow rate of the filtration unit: 4800 m^3/h.
- High efficiency centrifugal fans.
- Air diffusion in unidirectional flow by means of a diffuser sheet (veil).
- LED bar.
- Particle size: ≥0.5 µm.



ASCD. Air Shower Cabin for Decontamination.

- Compact and self-supporting module, dimensions: 1200 x 1000 x 2000 mm.
- AISI 304 stainless steel.
- Doors with perimeter gasket to improve the tightness of the whole unit.
- Sight glass with integral vision.
- Status signalling and emergency push button.
- Hygienic and bacteriostatic PVC floor, suitable for clean areas.
- Integrated stainless steel nozzles with fixed orientation arranged in vertical columns (minimum 12 nozzles).
- Large air return surface, which increases the speed and efficiency of the cycle.
- Flow rate: 30 m/s.
- Air filtered through H14 filters.
- Cycle control by means of a small PLC, which allows programming modifications.

VP/CTS. Computer Controlled and Touch Screen Vacuum Packing Machine.

- Construction in stainless steel AISI 304.
- Inner chamber made of one piece with rounded corners.
- Oval lid made of high resistance methacrylate.
- Control panel with 10 programs.
- Vacuum control by sensor + extra time.
- Sealing time control (seconds).
- Vacuum pump maintenance program.
- Stop button to interrupt the cycle (with or without sealing).
- Easy maintenance and oil change.
- Dimensions: 480 x 610 x 450 mm.
- Weight: 62 kg.

VPLP/CTS. Computer Controlled and Touch Screen Vacuum Packing Machine for Large Pieces.

- Large capacity chamber.
- Robust stainless steel construction.
- Digital control panel with 20 programs.
- Progressive air inlet (programmable).
- Vacuum control by pressure and action time control.
- Sealing time control.
- STOP key to interrupt the cycle.
- High resistance methacrylate oval cover.
- Vacuum pump:
  Maximum flow rate: 40 m^3/h.
- Chamber dimensions: 590 x 470 x 140 mm.
- Dimensions: 720 x 680 x 1000 mm.
- Weight: 106 kg.

WLM. Weighing - Labeling Machine.

- Electronic scale with high visibility LED display.
- Label printer.
- Complies with EU regulation 1169/2011 on mandatory food information.
- Extensive information on the labels: text up to 3000 characters.
- Range: 5 g - 15 kg (3000 divisions).
- Materials:
  ABS plastic housing.
  Stainless steel plate.
- Label printer:
  Thermal printer: 54 mm.
  High resolution: 8 dots/mm.
  Speed: 100 mm/s.

The complete pilot plant includes as well:

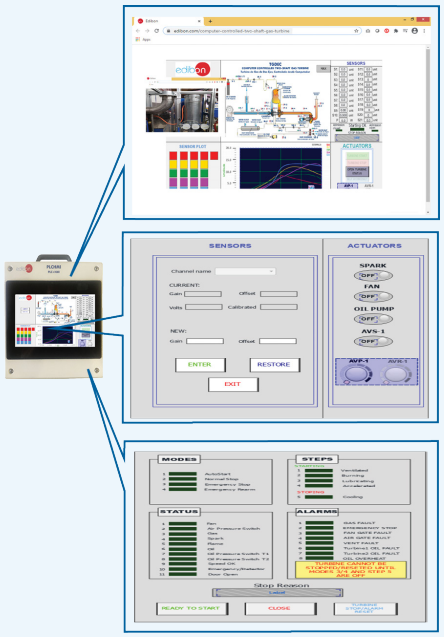
- **Advanced Real-Time SCADA and PID Control.**
- **Open Control + Multicontrol + Real-Time Control.**
- **Specialized EDIBON Control Software based on LabVIEW.**
- **Calibration exercises, which are included, teach the user how to calibrate a sensor and the importance of checking the accuracy of the sensors before taking measurements.**
- **Projector and/or electronic whiteboard compatibility allows the unit to be explained and demonstrated to an entire class at one time.**
- **Capable of doing applied research, real industrial simulation, training courses, etc.**
- **Remote operation and control by the user and remote control for EDIBON technical support, are always included.**
- **Totally safe, utilizing 4 safety systems (Mechanical, Electrical, Electronic & Software).**
- **Designed and manufactured under several quality standards.**
- **This unit has been designed for future expansion and integration. A common expansion is the EDIBON Scada-Net (ESN) System which enables multiple students to simultaneously operate many units in a network.**

4. PLCHMI. IIoT Local/Remote Control and Monitoring with HMI (included):

- The expansion for PLC and HMI, "PLCHMI", is a system composed of an interface that includes PLC modules such as CPU, digital I/O module, analog I/O module, communications module, etc. and a control box with HMI display.

- PLC interface:
  - PLC controller:
    - Panasonic FP7 CPS31E CPU.
  - Digital I/O modules:
    - 16 digital inputs; input range 0 V to 24 V.
    - 16 digital outputs; relay output.
  - Analogue I/O modules:
    - 16 analog inputs; 16-bit resolution. Input range -10 V to +10 V.
    - 4 analog outputs; 16-bit resolution. Output range -10 V to +10 V.
  - Connectors and Communication Ports:
    - 2-Port Ethernet Switch.
    - SCSI connector.
  - USB, DB-9 Series or DB-25 (if required).

- HMI control box and display:
  - HMI display:
    - Touch Screen: Analog Resistive.
    - Size: 10" 16:9 TFT.
    - Resolution: 1024 x 600, WVGA.
    - Colors: 64 K.
    - Ethernet port.



5. CA00/CCSOF. Supervision Software + Control Software + Data Acquisition Software + Data Management Software:

SCADA System is composed of four Software Package with the following features:

- **The Supervision Software** is in charge of monitoring in real time start and stop elements, unexpected conditions and process evolution. In case of being necessary, it actuates on the system and notifies the user the incorrect operations.
- **The Control Software** allows to manage multiple process and variables in real time either a manual way or automatic way. Several type of algorithms of control such PID CONTROL are implemented depending on the field of study.
- **The Data Acquisition Software** focus on measuring and processing signals from the process with very high accuracy getting a synchronized and fast response of the system. A calibration system is part of this software to adjust the sensor measurements.
- **The Data Management Software** stores and represents, alarms, variables and process evolution in real time both in a graphic format and in a numeric format such time charts or process diagram. Printable reports can be generated or historian data can be loaded to study the experiments in detail.

The Software is open and flexible architecture that facilities to access different work levels both instructors and students. It is supported by current Windows operating system and industrial standards. The graphical user interface is intuitive and user- friendly.

6. Cables and Accessories, for normal operation.

7. Manuals:

Each unit is supplied with 8 manuals: Required Services, Assembly and Installation, Interface and Control Software, Starting-up, Safety, Maintenance, Calibration & Practices Manuals.

References 1 to 7 are always included in the minimum supply (according to choice):

- CA00/CUPS: MM/CTS, MK/CTS, SHF/CTS, MSS, PSS, SST/CTS, DC/CTS, ST and MT.
- CA00/COPS: BIM, MDV/CTS, FCMA/CTS, VF/CTS, PVSS, CK/CTS and FSF/CTS.
- CA00/PM: HK/CTS, MM/CTS, BC/CTS, HM/CTS, CBB/CTS, FEP/CTS, TIGI/CTS and THS.
- PLCHMI.
- CA00/CCSOF.
- Cables and Accessories.
- 8 Manuals for enabling normal and full operation.

REQUIRED SERVICES

- Electrical supply:
  - Single-phase 200 VAC – 240 VAC/50 Hz or 110 VAC – 127 VAC/60 Hz.
  - Three-phase, 380 VAC – 400 VAC/50 Hz or 190 VAC – 240 VAC/60 Hz, 1 kW.
- Computer.

CONSUMABLES

- **Required (not included)**
  - Meat.

ELEMENTS

- **Additional recommended (not included)**

For CA00/CUPS:
- MST. Manual Stuffer.

For CA00/COPS:
- MHB. Mold for Ham Block.
- PMCP. Press Mold for Cooked Products.

For CA00/CUPS, CA00/COPS and CA00/PM:
- RRC/CTS. Computer Controlled and Touch Screen Refrigerator Reception Cabinet.
- WPD. Weighing Platform and Display (0 - 60 kg).
- SCA. Scale (0 - 3.5 kg).
- CT. Cutting table (Two Cutters).
- FPWB. Food Products Working Table.
- CRCA. Clean Room Cabinet.
- ASCD. Air Shower Cabin for Decontamination.
- VP/CTS. Computer Controlled and Touch Screen Vacuum Packing Machine.
- VPLP/CTS. Computer Controlled and Touch Screen Vacuum Packing Machine for Large Pieces.
- WLM. Weighing - Labeling Machine.

SIMILAR UNITS AVAILABLE

Offered in this catalog:

- CA00. Computer Controlled and Touch Screen Pilot Plants for the Production of Meat.

Offered in other catalogs:

- CE00. Computer Controlled and Touch Screen Pilot Plants for the Production of Cereals.
- AC00. Computer Controlled and Touch Screen Pilot Plant for the Production of Oil.
- AS00. Computer Controlled and Touch Screen Pilot Plants for the Production of Seeds Oil.
- CI00. Computer Controlled and Touch Screen Pilot Plants for the Production of Citrus Fruits.
- FR00. Computer Controlled and Touch Screen Pilot Plants for the Production of Fruits.
- LE00. Computer Controlled and Touch Screen Pilot Plants for the Production of Dairy Products.
- TO00. Computer Controlled and Touch Screen Pilot Plants for the Production of Tomatoes.
- UV00. Computer Controlled and Touch Screen Pilot Plant for the Grape Treatment.
- VE00. Computer Controlled and Touch Screen Pilot Plants for the Production of Vegetables.

Additionally to the main items (1 to 7) described, we can offer, as optional, other items form 8 to 9. All these items try to give more possibilities for:

ESN. EDIBON SCADA-Net System.

ECL. EDIBON Cloud Learning.

EXPANSIONS

8. ESN. EDIBON Scada-Net Systems

The EDIBON Scada-Net Systems, "ESN", consists on the integration of EDIBON computer controlled units into the SCADA system in a local network.
The main feature of this system is the remote control of any EDIBON unit belonging to it from any control station included in the local network. In addition, any of these units can be visualized from any workstation.
Consequently, the efficiency of a laboratory with the "ESN" system is higher than the efficiency of a conventional laboratory.

- Higher laboratory performance since several students can work simultaneously. Several users can operate various units at the same time.
- Possibility of dividing the classroom into workgroups.
- Several experiments can be performed at the same time.
- Collaborative experiments performance.
- There are different user levels (manager, basic, intermediate and advanced) with different permissions.
- The manager has the absolute control of the system.
- The manager/teacher can supervise from his/her computer the operations every user is performing in any unit of the laboratory.
- Users and manager are connected at all times.
- Real time display and control of the whole system from an interactive whiteboard (touchscreen).
- CENTRALIZED AND SECURE SYSTEM, it can be totally controlled from the central computer (manager).
- The "ESN" System is MODULAR, OPEN and EXPANDIBLE.
- A vision system for real time monitoring of experiments is supplied.
- Visualization of the changes in a unit from any computer of the laboratory.
- All units can work simultaneously.
- The system is made up of as many units as required.
- The required infrastructure, both hardware and software is provided.

For more information see ESN catalog. Click on the following link: www.edibon.com/en/edibon-scada-net

9. ECL. EDIBON Cloud Learning

EDIBON Cloud Learning expansion, "ECL", is a solution designed to control EDIBON Technology based laboratories remotely in a simple and easy way.

EDIBON Cloud Learning, "ECL", is divided in two platforms:

Users Online Platform:
The main advantages of the Users Online Platform are:

- The **administrators** have full control over their laboratories thanks to the powerful class-administrator tool that allows the users management, logs visualization and progression monitoring. It also enables to assign users permissions to let them control EDIBON units or just display them. Furthermore, the administrator can upload and download measurements, data and multimedia resources.
- The **users** can learn interactively in a flexible environment as if they were in the laboratory, accessing through the Remote App to work with EDIBON units. Several users can work with one unit or one user with several units. The users can also upload and download measurements, data and graphs, multimedia resources and reports.

Remote App Platform:
Thanks to the Remote App Platform, the users can control EDIBON units and EDIBON SCADA software as if they were in the laboratory and share their expertise with the users community.

For more information see ECR catalog. Click on the following link: www.edibon.com/en/edibon-cloud-learning

ORDER INFORMATION

CA00. Computer Controlled and Touch Screen Pilot Plants for the Production of Meat:

Main Items (EDIBON recommends the acquisition of all the units for a complete study of the process, although the following could be acquired):

1. **CA00/CUPS. Pilot Plant for the Production of Cured Pieces and Sausages:**

Units:

MM/CTS. Computer Controlled and Touch Screen Meat Mincer.
MK/CTS. Computer Controlled and Touch Screen Meat Kneader.
SHF/CTS. Computer Controlled and Touch Screen Semi-Automatic Hydraulic Filler.
MSS. Manual Sausage Stapler.
PSS. Pneumatic Sausage Stapler.
SST/CTS. Computer Controlled and Touch Screen Semi-automatic Sausage Tying Machine.
DC/CTS. Computer Controlled and Touch Screen Drying Cabinet.
ST. Salting Tank.
MT. Marinade Tray.

2. **CA00/COPS. Pilot Plant for the Production of Cooked Pieces and Sausages:**

Units:

BIM. Manual Brine Injection Machine.
MDV/CTS. Computer Controlled and Touch Screen Maceration Drum with Vacuum System.
FCMA/CTS. Computer Controlled and Touch Screen Fine Cutting Machine.
VF/CTS. Computer Controlled and Touch Screen Vacuum Filler.
PVSS. Pneumatic Vacuum Sausage Stapler.
CK/CTS. Computer Controlled and Touch Screen Cooking Kettle.
FSF/CTS. Computer Controlled and Touch Screen Forced Air and Steam Furnace.

3. **CA00/PM. Pilot Plant for the Production of Precooked Meat Products:**

Units:

HK/CTS. Computer Controlled and Touch Screen Hot Kneeder.
MM/CTS. Computer Controlled and Touch Screen Meat Mincer.
BC/CTS. Computer Controlled and Touch Screen Blast Chiller.
HM/CTS. Computer Controlled and Touch Screen Hamburger Maker.
CBB/CTS. Computer Controlled and Touch Screen Compact Batter Breading Machine.
FEP/CTS. Computer Controlled and Touch Screen Fryer for Elaborate Products.
TIGI/CTS. Computer Controlled and Touch Screen Thermosealing Machine with Inert Gas Injection.
THS. Tray Heat Sealer.

4. **PLCHMI. IIoT local/remote Control and Monitoring with HMI.**
5. **CA00/CCSOF. PID Computer Control + Data Acquisition + Data Management Software.**
6. **Cables and Accessories,** for normal operation.
7. **Manuals.**

*IMPORTANT: Under CA00 we always supply all the elements for immediate running as 1, 2, 3, 4, 5, 6 and 7.

Optional items (supplied under specific order):

- **EXPANSIONS:**
  8. ESN. EDIBON Scada-Net Systems.
  9. ECL. EDIBON Cloud Learning.
- **ADDITIONAL RECOMMENDED ELEMENTS:**

For CA00/CUPS:

MST. Manual Stuffer.

For CA00/COPS:

MHB. Mold for Ham Block.

PMCP. Press Mold for Cooked Products.

For CA00/CUPS, CA00/COPS and CA00/PM:

RRC/CTS. Computer Controlled and Touch Screen Refrigerator Reception Cabinet.

WPD. Weighing Platform and Display (0 - 60 kg).

SCA. Scale (0 - 3.5 kg).

CT. Cutting table (Two Cutters).

FPWB. Food Products Working Table.

CRCA. Clean Room Cabinet.

ASCD. Air Shower Cabin for Decontamination.

VP/CTS. Computer Controlled and Touch Screen Vacuum Packing Machine.

VPLP/CTS. Computer Controlled and Touch Screen Vacuum Packing Machine for Large Pieces.

WLM. Weighing - Labeling Machine.

QUALITY CERTIFICATES

ISO 9001 · ISO 14001 · OHSAS 18001 · CE · UL · CSA

WARRANTIES

SPARE PARTS AVAILABILITY 15-YEAR

WARRANTY 5-YEAR

C/ Julio Cervera, 10-12-14. Móstoles Tecnológico.
28935 MÓSTOLES. (Madrid). ESPAÑA - SPAIN.
Telf.: 34-91-6199363 **Fax**: 34-91-6198647
e-mail: edibon@edibon.com **Web**: www.edibon.com

Edition: ED01/21
Date: September/2021

REPRESENTATIVE: