

Meat processing technology

Measure • Control • Record



JUMO – your partner for the meat processing industry



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JUMO, a leading manufacturer of measurement and control systems for more than sixty years, has been a competent partner for the meat processing technology.

Highly qualified staff and state-of-the-art technology have established JUMO and its products in the global markets.

Maximum innovation is achieved by new developments and improvements to existing products, as well as more economical production methods.

JUMO provides a variety of solutions for the various applications of meat processing technology.

Whatever is demanded of the measurement technology, JUMO will always meet every requirement. Because the aim is to produce products of a consistently high quality, it is imperative to have reliable and accurate measurements which can be controlled and monitored from a central point.

Whether you want to use the measurement variables of pressure, temperature, conductivity or the pH value to monitor the quality of your product, control cleaning, reduce production costs or improve productivity, your partner JUMO will be at your side, helping with all your problems and providing individual solutions.

This brochure gives an overview of our products in meat processing.

Use the stated product numbers to find precise, technical descriptions of our measuring instruments on the Internet at www.jumo.net.



Christina Hoffmann



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Measurement and control systems for the meat processing industry

Temperature probes

Temperature is an important factor in meat processing technology. JUMO has a large selection of sensors available for your measuring and monitoring requirements.

Our temperature probes are specially designed for the applications used in meat processing and provide you with optimum safety and reliability.

Humidity sensors

In addition to temperature, humidity is an especially important consideration in curing, drying and storing sausage products. JUMO provides hygrometric sensors for this purpose to monitor the storage or ripening process and to ensure consistent quality for your products.

JUMO humidity sensors with hair measuring element are sturdy and washable. They are available with standardized current and voltage outputs and with passive resistance outputs.

Pressure transmitter

Whether your need is for vacuum cutting or autoclaving, we have the right pressure transmitter for your process.

JUMO provides a variety of proven and reliable pressure measuring instruments with different front-flush process connections to meet your requirements.



Sensors

JUMO Screw-in temperature probe
with connecting cable
Type 902050



JUMO FOODtemp
RTD insertion temperature probes
Type 902350



JUMO Wtrans receiver
for RTD temperature probes
with wireless transmission
of the measured values
Type 902931



JUMO Wtrans temperature probe
with wireless measured value,
with temperature-resistant
electronics, can be used up to 125°C
Type 902930

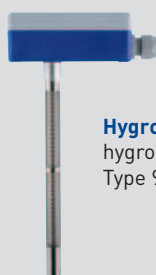


JUMO Dial Thermometers
Bimetal sensing system
Type 608002

JUMO STEAMtemp
Push-in temperature probes
in steam-tight version
Type 902830



JUMO Psychrometer
Humidity transducer



Hygro/hydrothermal transducers
hygrometric
Type 907031



JUMO dTRANS p30
Pressure transmitter
Type 404366



JUMO DELOS SI
Electronic pressure switch,
high-precision, programmable,
display, stainless steel housing,
also suitable for high
medium temperatures
Type 405052

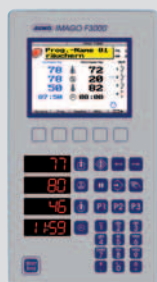


JUMO pH insertion electrode
for measurements in meat,
cheese, vegetables, etc.
Type 201030/60



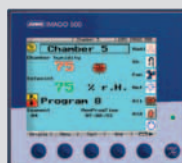
Measurement and control systems for the meat processing industry

Controllers, recorders and indicators



JUMO IMAGO F3000

Process controllers for boiling, smoking and air conditioning systems
Type 700101



JUMO IMAGO 500

Multi-channel process and program controller
Type 703590



JUMO LOGOSCREEN nt

Paperless recorder with stainless steel front, TFT display, CompactFlash® card, USB interfaces and Ethernet with integrated Web server
Type 706581



JUMO SVS3000

Plant visualization software with batch-related data report and evaluation in a network
Type 700755

JUMO Portable pH meter

microprocessor controlled
Type 202710



JUMO TB/TW

temperature limiter and monitor to DIN EN 14597 for mounting in panel or on C-rail
Type 701160/701170

JUMO cTRON

Compact controller with timer and ramp function
Type 702070



JUMO AQUIS 500 pH

Transmitter/Controller for pH
Type 202560



JUMO di eco

Digital indicator
Type 701540



JUMO di 08

Digital indicator
Type 701530



Controlling and regulating

In addition to instruments for measuring temperature and humidity, many processes also require regulating and control devices.

JUMO also offers a wide selection of models to meet this need. The IMAGO F3000 is an especially important instrument in this context. It was developed especially for use in meat processing.

The JUMO product range extends from transmitters to temperature monitors and our multifunctional process controller, providing a complete measurement chain to support all your processes.

Recording, archiving and evaluating

With the JUMO LOGOSCREEN range of paperless recorders, measurement values that require verification can be recorded, archived and evaluated in an easy and tamper-proof way. The new JUMO LOGOSCREEN nt generation in particular features an integrated web server (online visualization on a PC), a remote alarm option in the event of a fault and batch documentation.

Visualization with the SVS3000

The SVS3000 process visualization system provides effective operator control, visualization and documentation.

Batch documentation is a special feature of this system: process data is saved with a reference to the relevant batch. The feature also includes a user-friendly operator interface with numerous functions.



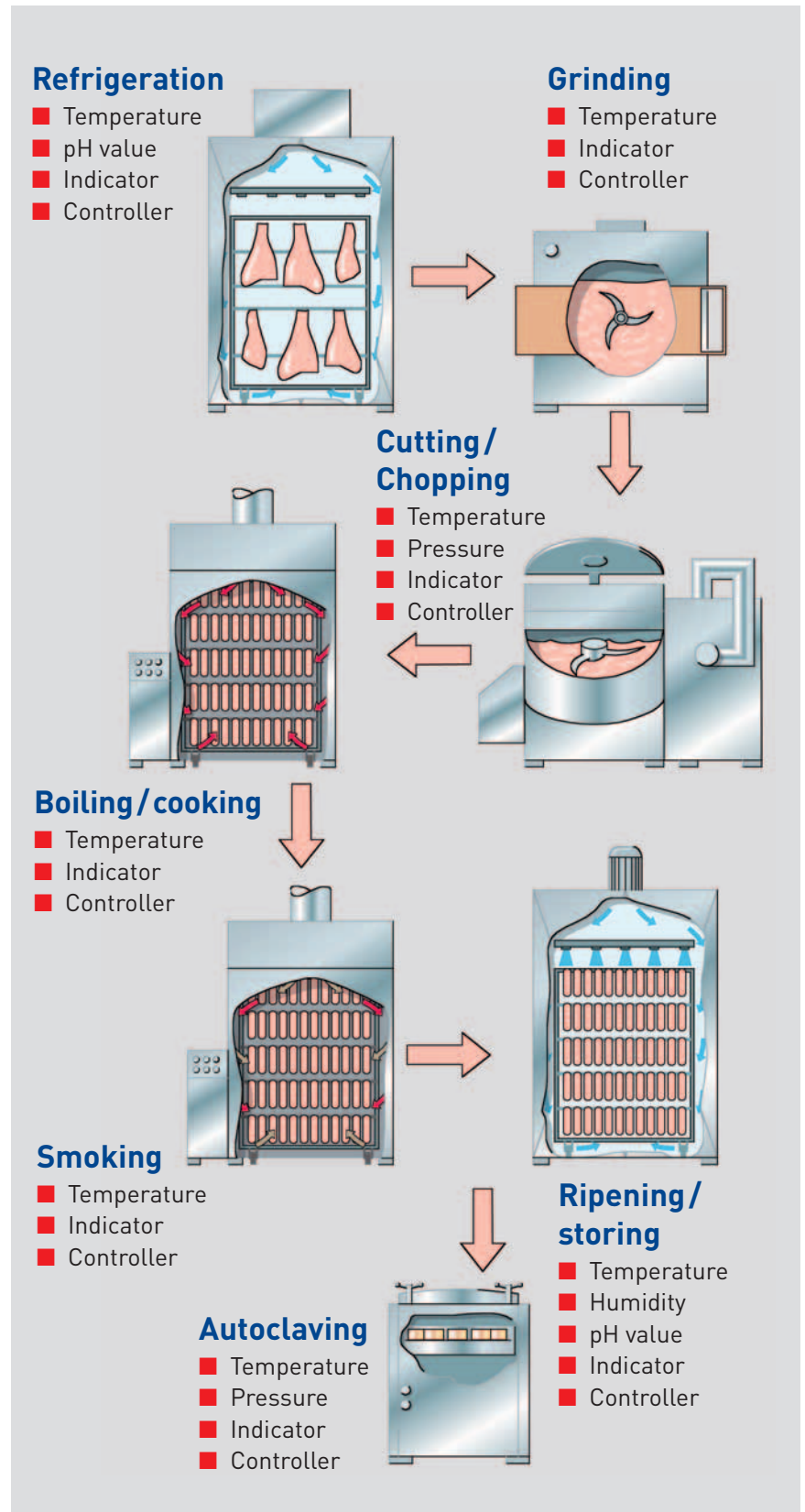


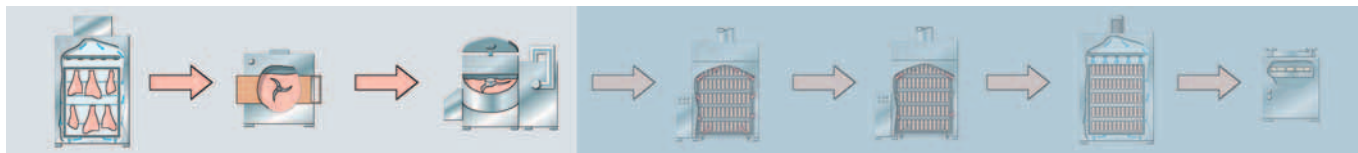
Overview of meat processing

Meat processing

Meat processing and sausage production can be reduced to a few basic processes: After slaughtering and carving, the most important consideration is refrigerating the meat until further processing. Depending on specific local requirements, the meat is refrigerated or frozen while being transported to the next processing station. The basic processes of grinding, cutting, smoking, cooking and ripening are applied differently depending on whether the final product is dry sausage, boiled sausage or cooked sausage. For example there is no cooking process in the production of dry sausage.

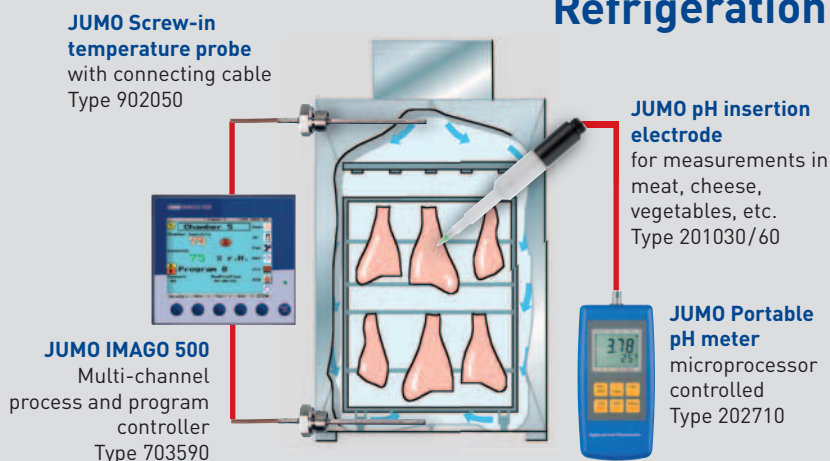
Products are handled and stored differently depending on the type of sausage and the required shelf life. The correct storage temperature must also be maintained. For example, no refrigeration is required for sausage that has been autoclaved in jars or cans. On the other hand, refrigeration is indispensable when storing boiled sausage. For various types of smoked sausage, the length of the smoking time determines whether or not refrigeration is necessary.





Standard processes in meat processing

Refrigeration



pH value measurements in fresh meat with the JUMO pH insertion electrode

The importance of the pH value for meat is based on the fact that the pH value has a significant effect on quality factors of the meat. The pH value can be used to draw conclusions about color, tenderness, taste, water binding capacity and shelf life. After slaughtering, biochemical decay processes begin in meat that affect the pH value. Measuring the pH value provides information about the speed of these processes and about meat quality.

Temperature control in the refrigeration grinder during grinding with JUMO di eco

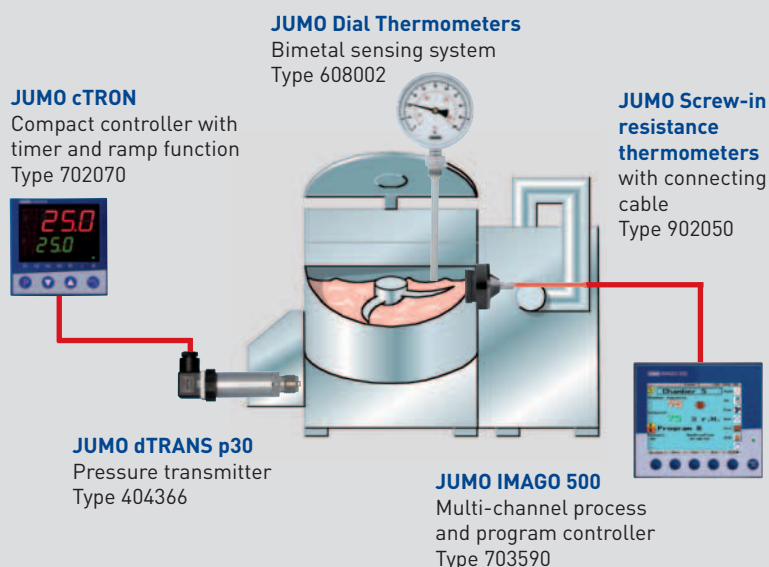
Grinding is one of the basic processes in the meat industry. It is performed with special devices of different sizes ranging from hand-operated grinders to large industrial systems.

It is important not to expose meat to any large fluctuations in temperature, especially not in the range above 7°C. Because of this, the cold chain must be maintained during grinding as well and if necessary additional refrigeration may be used during processing.

Grinding



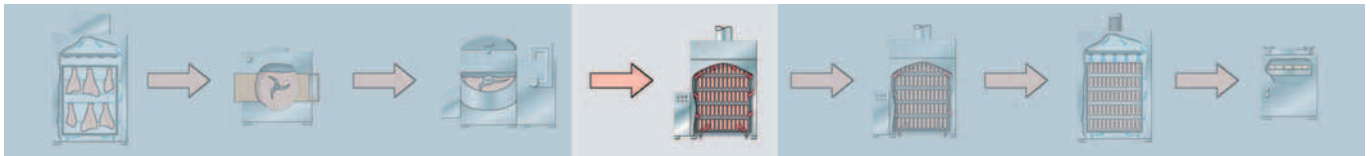
Cutting / Chopping



Monitoring the temperature and pressure during vacuum cooking -cutters

Vacuum cutters are designed to improve the color of meat and cutting quality. Using a vacuum cooking-cutter system also saves the cost of separately boiling pieces of meat, for example in the production of cooked sausage. The temperature plays an enormous role in these devices, since it is one of the basic factors determining the final quality of the sausage.





Standard processes in meat processing

Control of cooking and smoking processes with IMAGO F3000

Two key processes in sausage production are cooking and smoking. Usually cooking and smoking chambers are used for this purpose. In large industrial plants today the two processes are frequently combined in "continuous" or "semi-continuous" systems. The IMAGO F3000 is at home in these applications, since it was specially designed for this type of system.

The device features an extensive range of control functions and easy, intuitive operation. Special function keys can be assigned by the user and up to 99 program can be entered. Integrated functions for self-optimizing and monitoring cleaning intervals and the recording function make the IMAGO F3000 a multifunctional product that should not be missing in any meat processing system.

Boiling/cooking

JUMO SVS3000

Plant visualization software with batchrelated data report and evaluation in a network
Type 700755



JUMO LOGOSCREEN nt

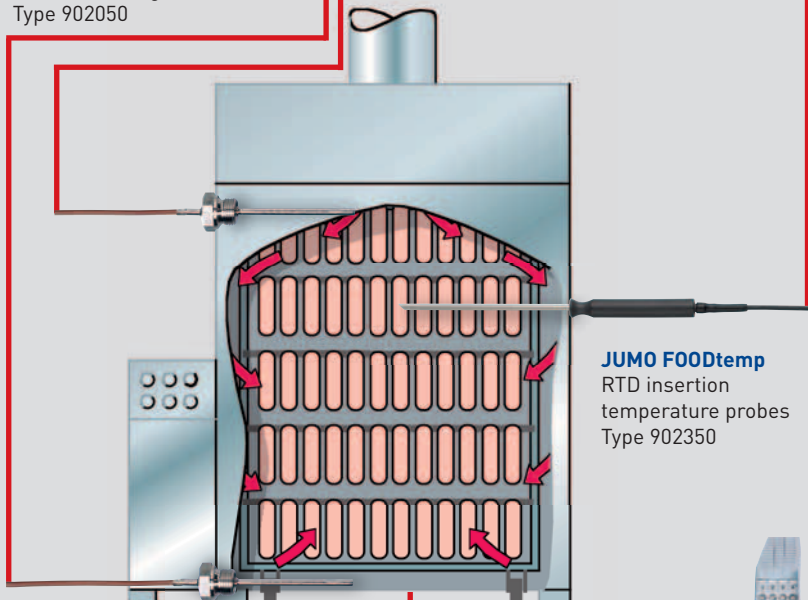
Paperless recorder with stainless steel front, TFT display, CompactFlash® card, USB interfaces and Ethernet with integrated Web server
Type 706581



JUMO IMAGO F3000

Process controllers for boiling, smoking and air conditioning systems
Type 700101

JUMO Screw-in temperature probe
with connecting cable
Type 902050



JUMO FOODtemp

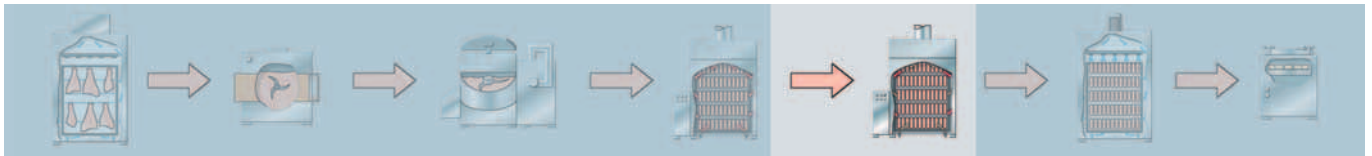
RTD insertion temperature probes
Type 902350



JUMO TB/TW

temperature limiter and monitor
to DIN EN 14597 for mounting
in panel or on C-rail
Type 701160/701170





Standard processes in meat processing

Smoking

JUMO SYS3000

Plant visualization software with batch-related data report and evaluation in a network
Type 700755



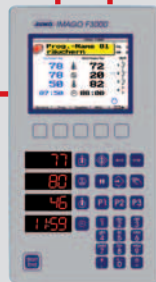
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Paperless recorder with stainless steel front, TFT display, CompactFlash® card, USB interfaces and Ethernet with integrated Web server
Type 706581



JUMO Wtrans receiver

for RTD temperature probes with wireless transmission of the measured values
Type 902931

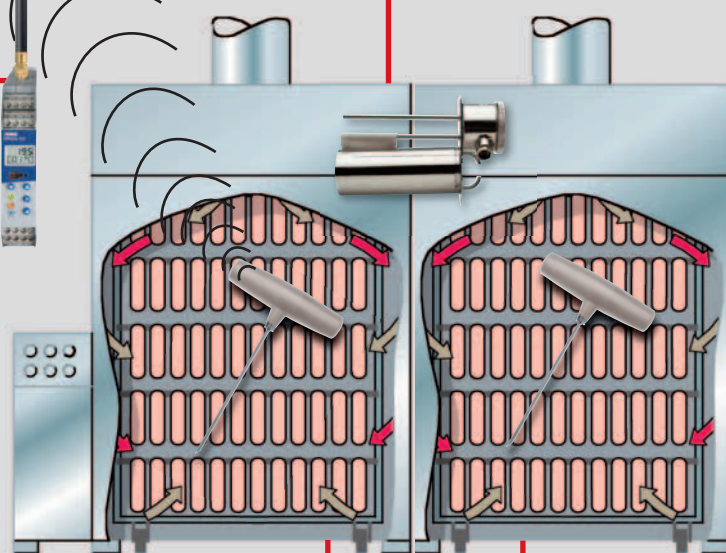


JUMO IMAGO F3000

Process controllers for boiling, smoking and air conditioning systems
Type 700101

JUMO Psychrometer

Humidity transducer



JUMO Wtrans temperature probe

with wireless measured value, with temperature-resistant electronics, can be used up to 125 °C
Type 902930

JUMO TB/TW
temperature limiter and monitor to DIN EN 14597 for mounting in panel or on C-rail
Type 701160/701170

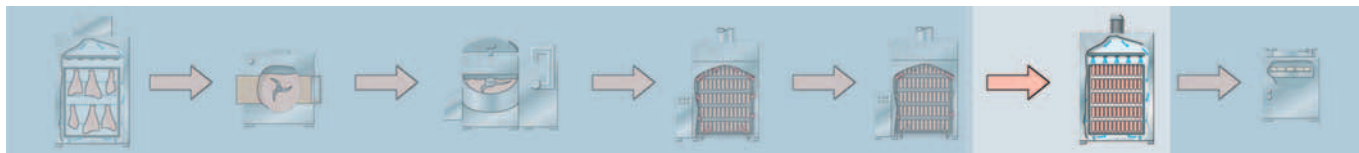


Recording the core temperature in continuous systems

Ideally products for recording the core temperature can be fitted with a Wtrans wireless transmitter. In this case the temperature can be recorded continuously wireless. This makes it possible to record the temperature precisely and without interruptions in continuous systems, an advantage not only for documentation but also for system control.

Using Wtrans wireless transmitters saves money for new installations, maintenance work and repairs because the installation requires no cables. When fitted with electronics that provide high-temperature stability, the system can be exposed to temperatures of up to 125 °C.





Standard processes in meat processing

Controlled curing in dry sausage production

Ripening and drying play the most important role in dry sausage production. Products must be dried to a residual water content that meets the requirements of food regulations.

It is important for water to be released at an even rate and not too quickly. Otherwise the high quality of the final product cannot be guaranteed. To prevent drying errors, the relative humidity should be in equilibrium with the a_w (water activity) value of the dry sausage at the beginning of the drying process. Then it should slowly be reduced to allow the water to emerge from the inside of the sausage. Program controllers IMAGO F3000 and IMAGO 500 are ideal for this application.

pH value measurement in meat and sausage products

The pH value is related to the capacity of meat to bind water. Meat has its lowest capacity to bind water at a pH value of about 5. There is no uniform optimum value for sausage making. The best value varies from one final product to another. In the production of dry sausage, for example, the meat should have a low water binding capacity to ensure even drying. The pH value should therefore be about 5.

By contrast, the same value would have a negative effect for boiled sausage or cooked sausage: If the water binding capacity is too low for those types of sausage, increased amounts of aspic and fat may be deposited.



Ripening / storing

JUMO LOGOSCREEN nt

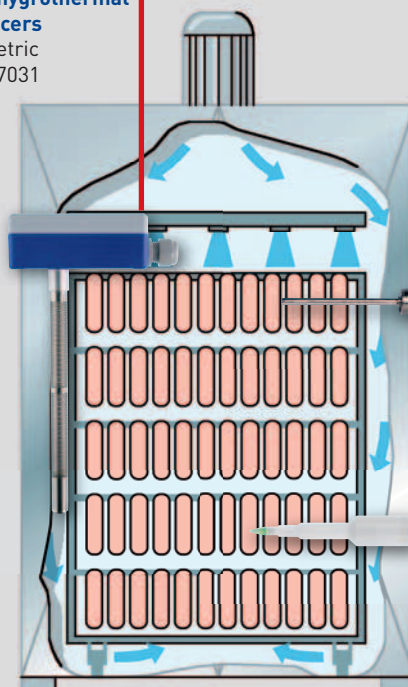
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Type 706581



JUMO IMAGO F3000

Process controllers for boiling, smoking and air conditioning systems
Type 700101

Hygro/hygrothermal transducers
hygrometric
Type 907031

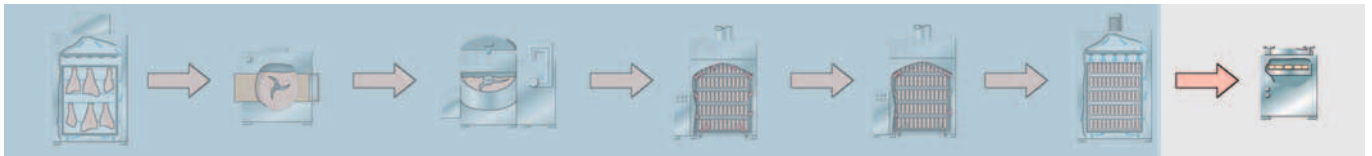


JUMO Screw-in temperature probe
with connecting cable
Type 902050

JUMO pH insertion electrode
for measurements in meat, cheese, vegetables, etc.
Type 201030/60

JUMO AQUIS 500 pH
Transmitter/Controller
for pH
Type 202560





Standard processes in meat processing

Autoclaving

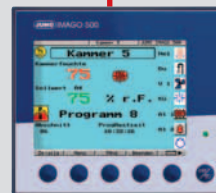
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Type 706581



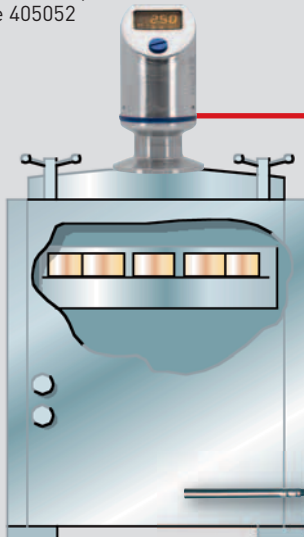
JUMO IMAGO 500

Multi-channel process and program controller
Type 703590



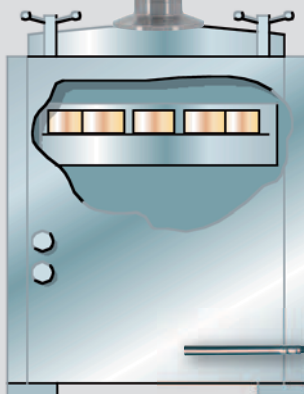
JUMO DELOS SI

Electronic pressure switch, high-precision, programmable, display, stainless steel housing, also suitable for high medium temperatures
Type 405052



JUMO STEAMtemp

Push-in temperature probes in steam-tight version
Type 902830



Monitoring the temperature/ time curve when preserving sausage with LOGOSCREEN nt

A process that has long been commonly used to preserve sausage is canning or preserving. This type of sausage is packaged in closed containers (jars/cans). They are preserved in an autoclave to provide extended shelf life.

Depending on the type of preservation involved, a specific temperature/time program must be followed to achieve the required F values.

Measured values from the autoclave and the core temperature of the sausage are recorded and archived with the LOGOSCREEN nt for documentation.



Further industry brochures



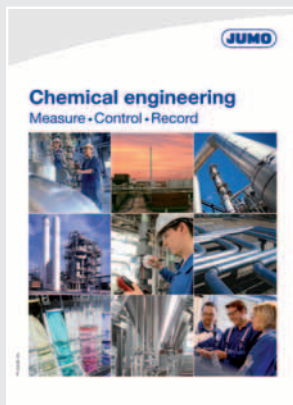
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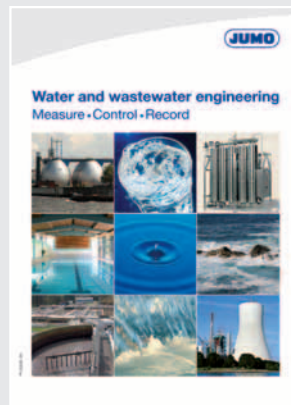
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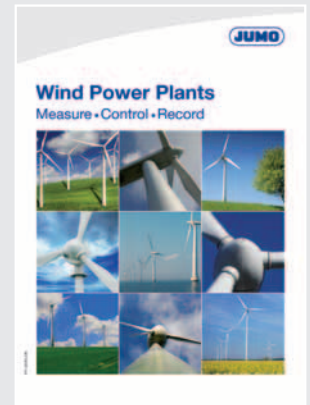
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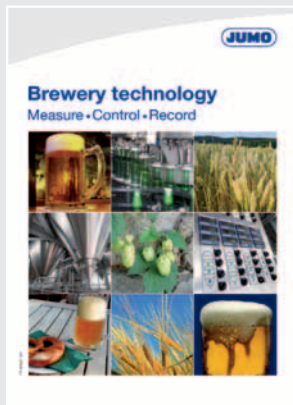
PR 00056 EN



PR 00059 EN



PR 00063 EN



PR 00057 EN



PR 00061 EN



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