

## 1. LOW-TEMPERATURE COOKING

Since the invention of sous-vide or vacuum cooking by George Pralus, we have had the opportunity to witness and experience one of the greatest culinary revolutions in history since freezing. In this era of constant innovation, various techniques, products, tools, machines and cutting-edge materials have enhanced the way cooking has traditionally been understood and practiced, though perhaps none have been as exploited and developed as vacuum cooking.

Vacuum cooking set out on its journey without much fanfare. It has attracted various levels of interest both by chefs and the food industry itself, taking leaps both forwards and backwards. Today, nobody is surprised to see fresh foods or even dishes prepared by the most eminent chefs inside a plastic pouch. However, it was not that long ago that some professionals were unabashedly skeptical of this cooking method. We still recall the first manuals that made their appearance in Spain in the 1980s and 90s, as well as specialist courses, videos and publications concerning the vacuum-packed technique and vacuum cooking. Almost all of them were inaccurate, ridden with errors and fears due to a partial unfamiliarity with some of the results and the lack of research. The absence of clear legislation only served to strengthen the myth of this unknown technique and fears about practicing it.

A number of French books drew us closer to the best practices of assembly cooking with a little more precision. Vacuum machinery manufacturers themselves did their utmost to explain the benefits of this food conservation method, though at times without much success.

Vacuum-packed foods began to appear on the market in different ranges and stages of preparation only very gradually. These vacuum-packed products finally managed to win over most of the restaurant industry, possibly on account of their quality and due to their high market price, persuading many chefs to take the bull by the horns and begin putting out their own products.

The vacuum-packing technique was the first to overcome the hurdles and establish itself as a system within production. This first step was extremely conducive to fostering a greater understanding and introduction of the technique into kitchens. Then came the pasteurization of portions and, finally, its adoption as a cooking method, which is almost always *mise en place*. That was how the first vacuum-packing machines and the first steam ovens got to our kitchens. Initial reluctance gave way and the first portions began to be prepared in the most up-to-date kitchens, so as to make the most of down time and offer specialized dishes with little turn-around on the menu.

The day-to-day experience, the appearance of the first cook books, the professionalism brought by a number of chefs who may have been trained in the finest restaurants in France and the technical data that the food industry gradually provided made vacuum cooking change the way some cooking methods are understood once and for all, not to mention *avant-garde* cooking.

A second phase was embarked upon with the use of the first laboratory thermal baths as cooking appliances. At the outset, chef Joan Roca and his team of collaborators began researching and developing their possibilities as well as discovering new forms of vacuum preparation and cooking. Low-temperature cooking is a new alternative when cooking meat and fish as well as other prepared foods.

The collaboration and intervention of other professional disciplines in the realm of cooking has brought the essential additional expertise to facilitate the advance and understanding of everything related to

the physical and chemical processes to which the food is subjected with the temperature changes during cooking. However, the greatest accomplishment was managing to spur on chefs' concern and interest in this new way of understanding cooking methods.

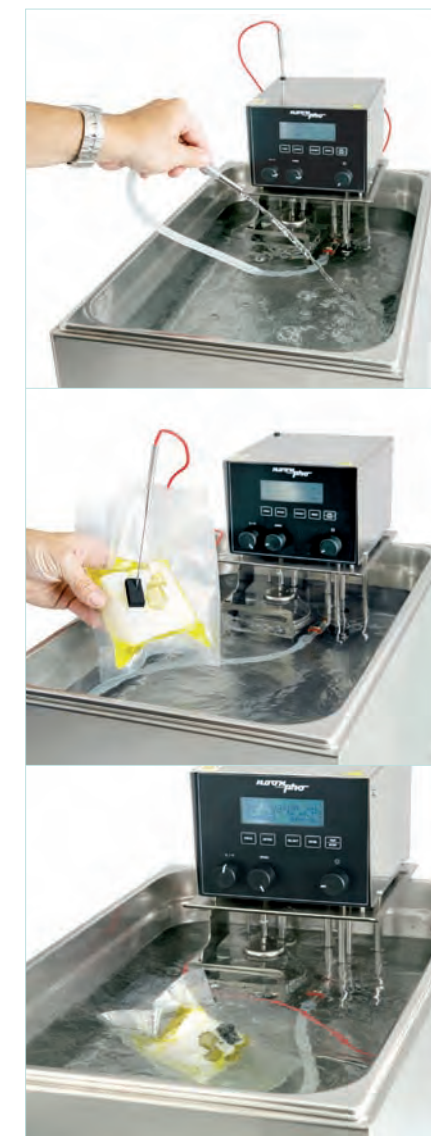
A thirst for culinary knowledge bolstered by the rapid growth and spread of information about this technique enables many professionals to start using this technique rapidly, thereby enhancing its development.

With all the accumulated experience, professionals gradually set forth new motions, both in the system and the possibilities for food preparation. They put forward and drew up new temperature tables, making the previous cooking temperatures relative. Perhaps the main innovation that arose was that food could be cooked in two stages in order to achieve different textures in the dish. However, it came off to a poor start because the first trials seemed very similar texture-wise.

In order to understand the advantage of working with these cooking appliances compared to conventional steam oven systems, attention could be drawn to its precision and tightly controlled temperature cooking, allowing limits to be reached that had never been achieved before. This same precision also allows for cooking at specific temperatures in order to soften the food's fibers, change its physical and chemical state, exchange flavors between foods, etc., thus taming and making the most of the finest properties of each food.

The precision of the maximum temperature to which a food is subjected will be determined both by the exact final point of doneness and the maximum degree of temperature which, starting from a determined value, can cause undesired changes in taste or texture.

Another paramount factor to bear in mind is the cooking time or the application that will be given to the food concerned.



Long cooking times, which even exceed 24 hours at times, have not been a stumbling block to achieving the widespread adoption and popularization of this technique.

The entry of new batches of school-trained chefs into the profession has led to some standardization in many restaurants' form of cooking. Therefore, we can regularly spot the description "low-temperature cooking" on menus with the same prominence as roasting, poaching, grilling, etc.

Modern cooking's various applications and service systems means that each chef works differently. These include individual food portioning, the use of vacuum cooking at banquets, the use of mise en place as a unique and indispensable work method and vacuum cooking as a means of preserving cooked foods for a longer length of time, thereby capitalizing on down time in the kitchen. All these contributions, whether immediate or preparatory, have made low-temperature cooking trickle down sufficiently for the machinery industry to provide technical resources and solutions to the profession's growing needs.

Needless to say, it was Joan Roca who blazed the trail by marketing these appliances. The Roner thermostat by J.P. Selecta was the pioneer and precursor of other appliances, which, as the first, were taken from corporate catalogues that marketed laboratory components. Small adjustments concealed their origin even though their main function was solved, given that both the recirculation and temperature precision and control facilitated their main purpose. (It is rare not to see a water bath or accurate thermostat in kitchens of a certain standing.)

The widespread installment of thermal baths from laboratories in restaurants all over the world, the great evolution of the low-temperature cooking technique and the final qualitative progress of vacuum cooking in cuisine worldwide has given rise to technical requirements

that have gradually spawned the development of a new generation of constant-temperature thermal baths of the highest precision exclusively designed for cooking.

New appliances with similar features and comparable work capacity are coming to the surface in many countries. All of them compete against each other to occupy a place of honor in the finest kitchens around the world. New compact laboratory models with different capacities are breaking through the wide-ranging appliances available. However, they still have not brought forth the improvements and changes that can foster the development of vacuum cooking once and for all. There are even some thermostats on the market hidden beneath a suspiciously low price with very little power and features. We advise those just starting out to do some research before acquiring a new appliance.

It was not until the beginning of 2008 that **100%Chef**, a new Spanish company, burst onto the market with a completely different model designed exclusively for chefs' enjoyment and passion. The internationally-patented appliances, marketed under the name of **noon**<sup>®</sup>, have two categories of features, depending on the needs of each establishment.

Significant structural modifications and improvements in performance, power, operating time control and programming, internal and external food temperature measurement, specific programs for repeat cooking, perfectly even temperature distribution in the water regardless of the container used as well as a new series of accessories and services (shock-resistant travel case, shiny basins with personalized lids, self-emptying systems and connections to other basins, etc.): all these improvements and features are coupled with other innovations related to food safety, an exclusive maintenance service, an exclusive club for online users and the specialization and robustness of its components.

These improvements aim to gain much more precise control to achieve ideal cooking temperatures, learn what is happening within the food thanks to its inner thermometer probe and investigate new possibilities and cooking systems. In a nutshell, they make for new ways to continue exploring and developing the vacuum cooking of the future.

Now chefs have at their disposal a tool wholly and exclusively designed with them in mind. The technique's logical development has once again been bolstered by technological evolution, which will allow chefs to finish their daily work faster, more comfortably and more safely. **With the new 27- and 54-liter Noon Compact**, the revolution has arrived. The new generation of accurate thermostats for the kitchen has come on the scene.



## 2. BENEFITS AND APPLICATIONS

- You can cook previously vacuum-packed products (meat, shellfish, fish, poultry, vegetables, terrines, pâtés, jams, sauces, conserves, aromatic oils, etc.).
- **Pasteurization** (85 °C) of foods prepared using traditional methods.
- Thermal **regeneration** of finished vacuum-packed products.
- Cooking with this system **prevents the loss of liquids, dehydration and drying-out of the products**, which can reach 25% using traditional methods.
- This technique **respects the food's natural structure** as much as possible (gelatins, collagens, proteins, etc.).
- Vacuum cooking **enhances and sets the aromas and flavors** of the foods.
- By respecting the chain of cooking, **we extend the shelf life of foods considerably** and it allows us to work with plenty of time in advance.
- By stewing, vacuum-packing, pasteurizing (10 min. at 85 °C) and cooling in ice, we obtain a product which **is perfectly conserved for 21 days**.
- Regeneration, cooking according to a product table, time, temperature.
- Given that cooking is performed in such a stable medium as water, we can guarantee **much more precise results than in a convection oven** in which the medium is air and the temperature oscillation is much greater.
- By drawing up a **table for the product/time/temperature**, we guarantee **perfect and precise cooking throughout all the applications**, which eradicates problems arising from the chef's guesswork. In ad-

dition, we standardize various satellite kitchens more easily (catering companies).

- The various safety mechanisms **noon®** appliances have (see technical specifications) allow **continuous operation of the machine without the need for supervision of the process** nor fear of accidents, which means that production is not brought to a standstill even during down time in the kitchen.

## 3. PRODUCTION SYSTEMS AND TEMPERATURE TABLES

### a. Immediate cooking: ready to serve

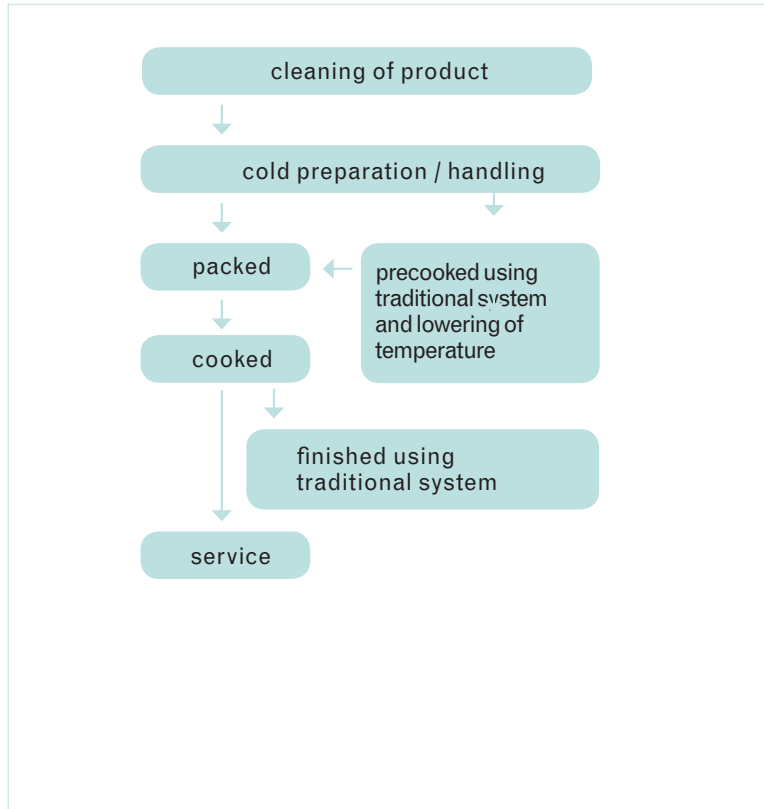
In vacuum cooking, the product is generally prepared, vacuum-packed, portioned, sometimes uncooked, sometimes marinated, etc. When it is ready to produce and serve instantly, we will call it immediate or direct cooking. Once cooked, the food should be eaten immediately given that the short cooking time makes for close degrees of doneness at the core.

### b. Indirect cooking: cooking, lowering of temperature, conservation and regeneration

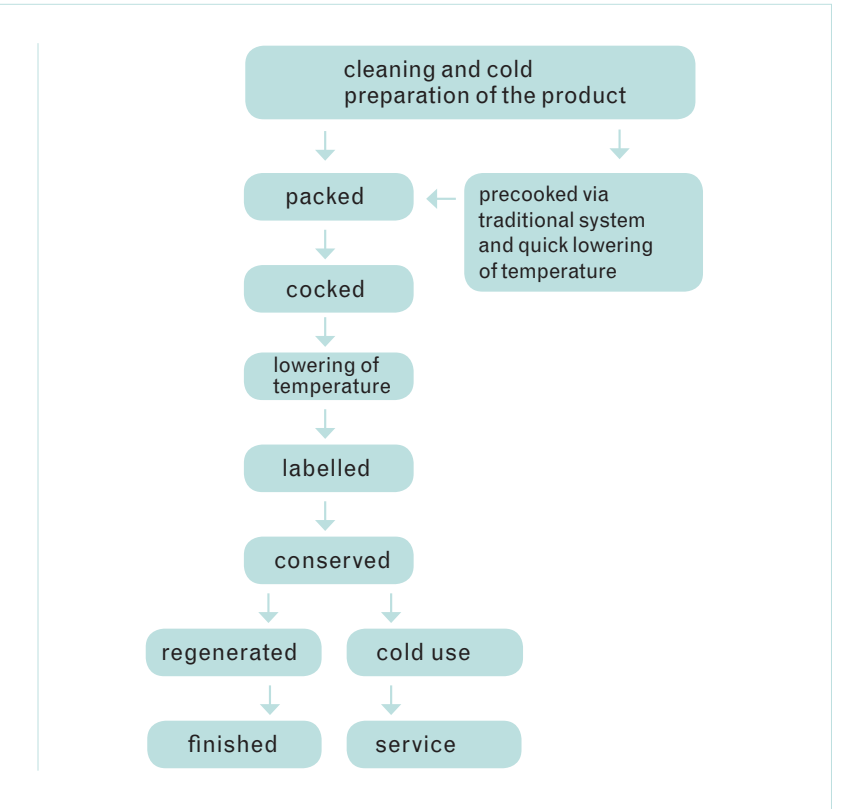
Vacuum cooking is relatively practical for preparing and cooking during down time thanks to the considerable staying power of food cooked with long cooking times, thanks to pasteurization.

The product is generally prepared and cooked a number of days in advance and kept chilled at 3 °C. Once service time arrives, it is regenerated in its own pouch never above its cooking temperature and is usually finished with some element of traditional cooking to restore its crunch and caramel color, also placing it in the roaster or braiser for a moment. Alternatively, it is sometimes served cold like terrine or candied fruit.

### a. Immediate cooking



### b. Indirect cooking



**c. The tables below are simply a sample of different parameters,** coming from the fruit of experience and each of which should be tailored to your needs, products and particular preference regarding cooking temperatures. It is also a good guideline for all those who wish to learn or compare.

The way the food is prepared prior to cooking will have a direct influence on its required cooking time. If cut in smaller pieces, it will take less time. The opposite is also true.

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TABLES: pages 10 and 11

IMMEDIATE COOKING	INTERNAL TEMPERATURE °C	COOKING TEMPERATURE °C	APPROX. TIME IN MINUTES	OBSERVATIONS
Tuna 150 g	38	50	11	sautéée on griddle 2 min
Cod 200 g	38-40	50	12	direct service
Mackerel 100 g	43	43	8	direct service
Sea bass 200 g	45	50	15	sautéée on griddle 2 min
Hake 200 g	50	60	12	direct service
Monkfish 180g	48	60	12	hot oven 1 min
Stingray 150 g	50	55	10	direct service
Salmon 200 g	38	50	13	direct service
Walnut scallops	55	66	15	sautéée on griddle 1 min
Full oysters	38	55	2	direct service
Turbot 200 g	50	60	14	direct service
Sole fillet 200 g	50	55	8	direct service
Lobster tail 250 g	60	70	8	sautéée on griddle 2 min
Veal fillet 200 g	50	65	15	sautéée on griddle 2 min
Foie gras 300 g	60	65	20	sautéée on griddle 2 min
Loin of lamb 200 g	60	65	20	sautéée on griddle 2 min
Poulard breast 180 g	62	65	20	sautéée on griddle 2 min
Roast beef 350 g	55	65	17	sautéée on griddle 2 min
Artichokes 500 g	90	90	45	serve as product
Banana 100 g	65	65	20	direct service
Peach half	63	65	15	direct service
Pineapple slice	65	65	20	direct service
Pear 100 g	95	95	35	direct service
Whole apple	85	95	15	direct service

INDIRECT COOKING	INTERNAL TEMPERATURE °C	COOKING TEMPERATURE °C	APPROX. TIME IN MINUTES	OBSERVATIONS
<b>Vegetables</b>				
Artichokes 500 g	90	90	45	serve as product
Mushrooms 500 g	70	80	20	serve as product
Onions 500 g	70	70	60	serve as product
Asparagus 500 g	95	98	30	serve as product
Sliced carrots 500 g	90	95	25	serve as product
Potato scoop 500 g	90	90	90	serve as product
Turnips 500 g	85	85	45	serve as product
Scallion	85	85	60	serve as product
<b>Meat</b>				
Beef cheek 320 g	68	68	18 hours	regeneration
Fillet of pork 320 g	76	76	40	regeneration
Pork ribs 400 g	72	72	15 hours	sautéée on griddle 3 min
Suckling pig 375 g	70	70	12 hours	sautéée on griddle 3 min
Shoulder of lamb 350 g	63	63	24 hours	sautéée on griddle 3 min
Pork jowl 900 g	70	70	17 hours	sautéée on griddle 3 min
Veal kidneys 350 g	62	65	25	regeneration
Pigeon breast 80 g	62	65	25	serve cold
Full pigeon 620 g	62	62	2 hours	regenerate and sautéée
Liver and quince terrine	60	70	30	serve cold
Hare terrine	63	63	30 hours	regeneration
Duck with pears	63	75	2 hours	serve cold
Duck magret 250 g	60	60	2 hours	sautéée on griddle 3 min

INDIRECT COOKING	INTERNAL TEMPERATURE °C	COOKING TEMPERATURE °C	APPROX. TIME IN MINUTES	OBSERVATIONS
Other products				
Strawberry infusion	65	65	45	serve cold
Eggs	62	62	45	serve cold
Banana 100 g	65	65	20	direct service

**NOON**®  
**TO COOK WITH PRECISION...**



## SELF-ADHESIVE TURBIGOM JOINT

### 80/0033

Self-adhesive Turbigom joint for cooking.  
10 mts. roll/ Thickness: 8mm.

### 80/0034

Self-adhesive Turbigom joint for cooking.  
5 mts. roll/ Thickness: 8mm.

Its compact neopren and rubber mousse allows a cooking probe to go through it without letting any air in. Its small and flexible alveolae instantly recover their shape when withdrawing the probe, thus keeping the vacuum.

Its 8 mm thickness makes it one of the safest and most used joints in the market.



## TRAVEL CASE

### 80/0035

Protect your machine during transfers or relocations with this exclusive case. Its shock-resistant design guarantees that nothing will happen to your Noon, no matter what you do.

Take your Noon wherever you go without worries!



## TERMOLOGGER NOON®

### 80/0054

#### Thermobutton logger, autoclave and noon multifunctionality for controlling pasteurization

The smallest *thermologger* in the world, ideal for calculating pasteurization and sterilization of all kinds of vacuum-cooked dishes, preserves, sauces, etc.

Pre-program each task on a data-recording button, starting from nearly **16 mm and 3 grams** of weight and enter **more than 8,000 programmed measurements**, which are stored in its powerful memory within **0.1 °C of accuracy**.

Once the data *logger* is placed inside the container (can, vacuum bag, jar, etc.) and in direct contact with the food, it will provide all the necessary parameters during the cooking or pasteurization time as well as when lowering the temperature.

Later, you will be able to download these measurements onto your computer, view detailed graphics about them and calculate their pasteurization values, finding out the exact figure that will later let you calculate the expiration date. You'll be able to set safety criteria and specific control values for each measurement, adjustable for each criterion, which help you to control all the critical points of the cooking and temperature-lowering process with incredible accuracy.

A series of utilities will make it much more comfortable for you when working in and navigating its screens. It prints, saves and sends totally customized reports via email (your company name and logo, the name of the dish, date, etc.). **Its powerful software is totally available in five languages: English, French, Spanish, Italian and German.**

## MANY MORE APPLICATIONS

In addition, you can use noon *thermologgers* to control the temperature of your refrigerators and freezers, work spaces and areas, catering and merchandise food transport, dishwasher performance, etc., while remaining constantly aware of the times at which the indicated safety temperatures you have customized for each measurement are surpassed.

Characterist.	Termobotón 21 G
Range temperature	-40 / +85 °C
Precision	+/- 1 °C
Resolution	0,5 °C
Number of measures	2048
Measurement frequency	1 sec. a 255 min.

## LABEL ADHESIVE TAPE

### 80/0051

Roll of 55 meters x 19 mm.

Internal diameter for use in roll: 76 mm.

Colors: white, yellow, green, red, orange, blue.

Ideally affordable!

For labeling vacuum bags, trays and all kinds of containers (glass, plastic, stainless steel, etc.).

Water-resistant. Can be used in steam ovens, baths, freezers, refrigerators, hot plates or stoves.

You can write on the tape with any pencil, pen or permanent marker.

Does not leave behind residue when removed.



RESISTOR PROTECTOR

**80/0031**

This protector has been designed to avoid the contact of the food with the resistor. Also, its height prevents the bags from blocking the buoy and thus interrupting the security level control system.



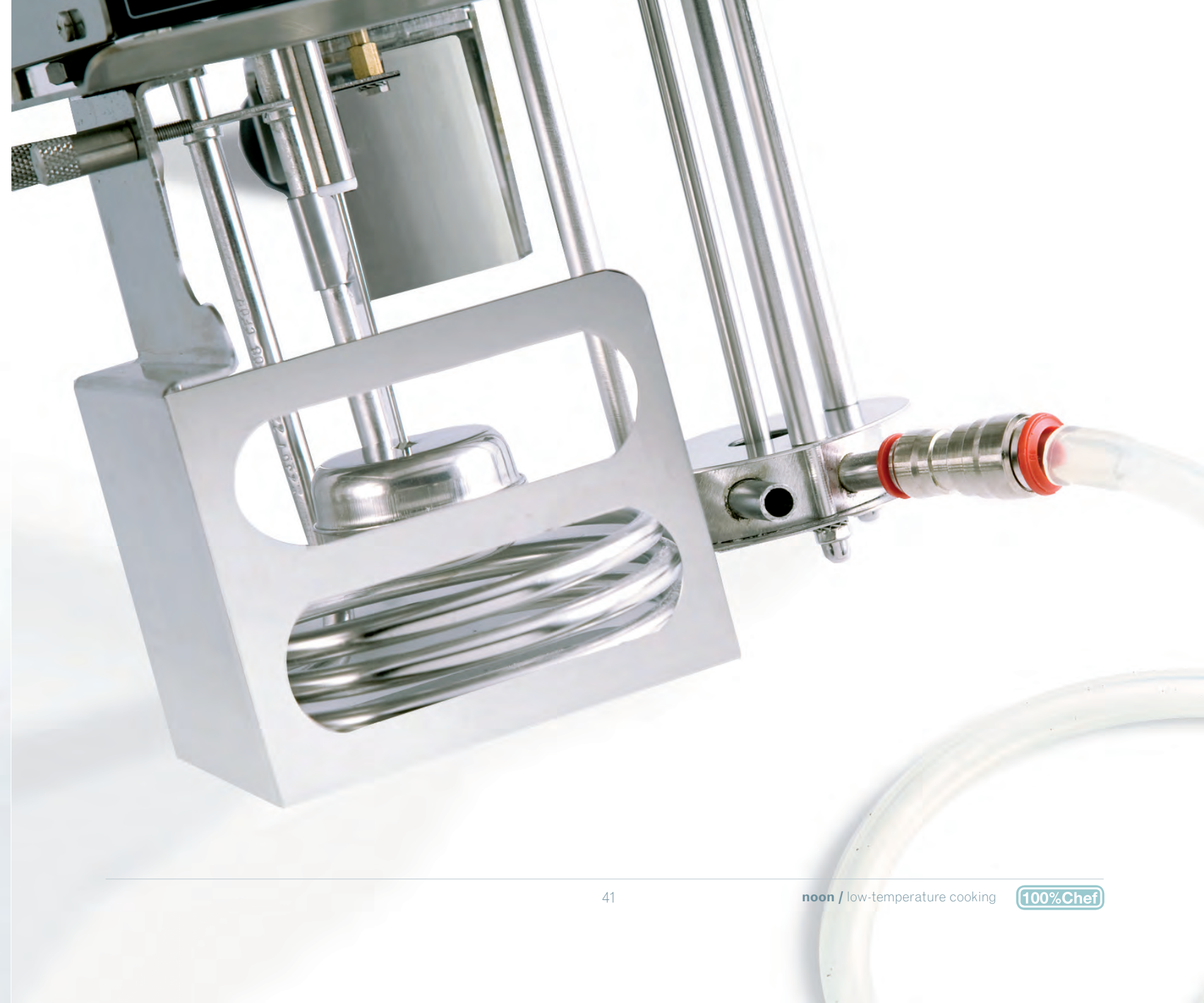
CONNECTION PIPE

**80/0038**

1 mm silicon rubber and automatic connection.

The connection pipe will allow you to redirect one of the reflow pump outlets wherever you want. Even if you're working with vertical pots, you'll be able to move the water downwards, thus avoiding the temperature differentials.

Empty your bath or move the liquid from your bath to an annex by simply pressing a button.





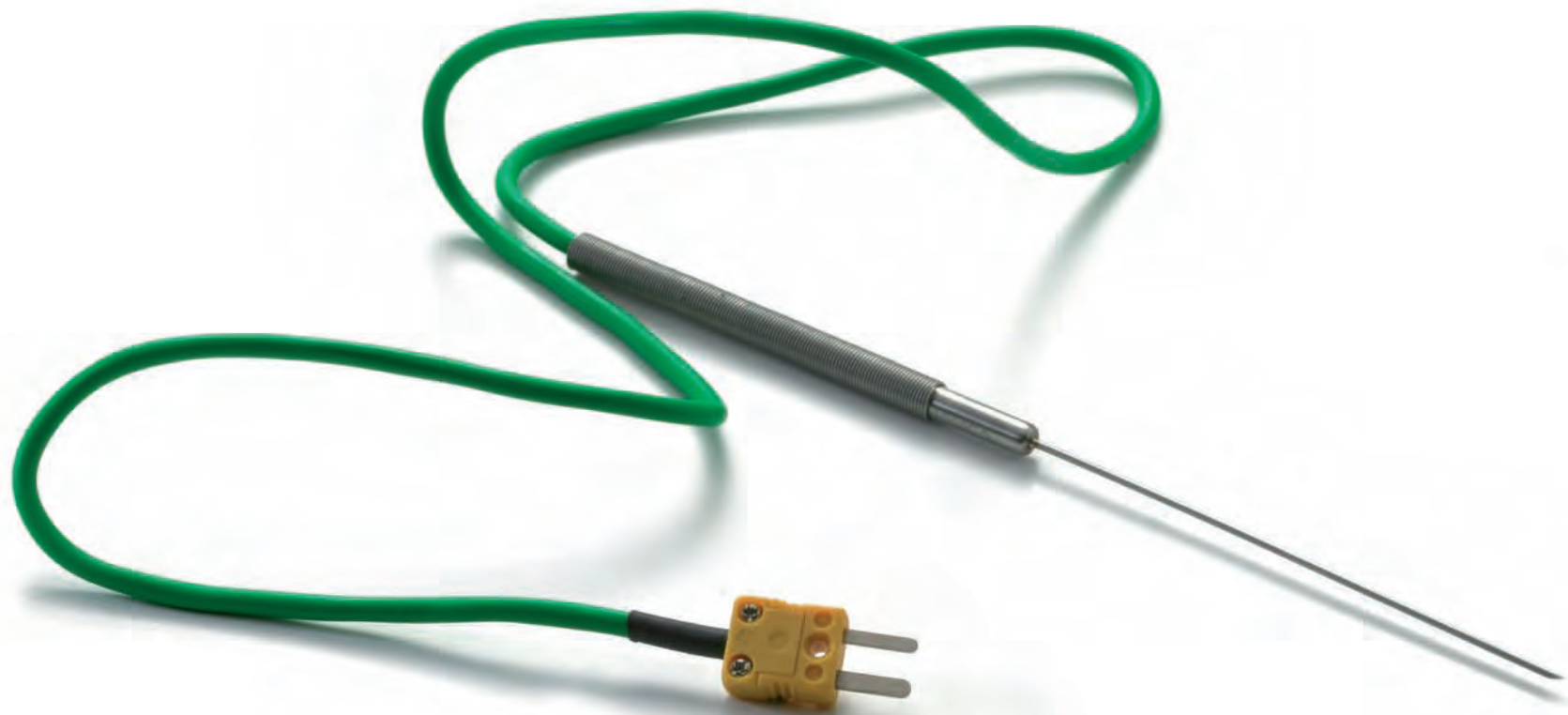
## VACUUM THERMOMETER-PROBE

80/0032

A probe specially designed to measure the inner temperature of the food and keep constant track, through your Noon's display, of their cooking process.

Also, thanks to the "center cooking" program, you'll be able to program them max temperature you want your products to reach during their cooking.

AVAILABLE  
ONLY FOR THE  
NOON PRO®



**NOON**®  
**AND GO TO SLEEP...**





**100%Chef**

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