

AMW100 MICROWAVE TEMPERING BATCH MACHINE

The AMW100 allows deep frozen foods to be tempered or defrosted (butter only) quickly such as meat, poultry, fish, fruits, vegetables, cheese, butter, etc...

The distinctive features of the AMW 100 are the use of a sliding table & a large pneumatic door making easier loading and unloading of 1 block and equally its turn table & its microwave coupling system by two ways above and below the product.



ADVANTAGES

- **FAST:** very short time of treatment, less than 10 minutes, high production flexibility;
- **EASY TO USE:** rolling tray for loading / unloading, pneumatic door movement, PLC with colour touch screen;
- **ECONOMIC:** product gain from 5 to 10 %, continuous flow operation, minimum floor space, fast return on investment;
- **HOMOGENEOUS:** use of a turn table, microwave power inlets above and under the product, cross coupling of microwaves and built-in proprietary structures for the uniform repartition of microwaves;
- **RELIABLE:** very good control of final temperature;
- **HYGIENIC:** no bacteriological growth, complies with all hygiene regulations and standards, keeps taste and texture qualities;
- **FLEXIBLE:** can be used for tempering of meat, fish, vegetables, packed (carton without metallic staple or plastic film) or not packed.

AMW100

MICROWAVE TEMPERING BATCH MACHINE

MAIN APPLICATION

FOOD INDUSTRY APPLICATION

- Tempering

KEY BENEFITS

DESIGN

- Very compact equipment with a small footprint
- Large pneumatic door

TECHNOLOGY

- 915 MHz microwave optimized designed chamber (with a special modelisation software)
- Microwave distributed on the right side, from the top and the bottom of the chamber

CONTROLS

- HMI 7" with remote control (quick intervention possible from a long distance)
- USB and ethernet connexions

TEMPERING CAPACITIES

The AMW 100 offers has a tempering capacity between 125 kg/h and 200 kg/h from initial -18°C to final temperature -4 °C/-2 °C. The final temperature of - 4 °C /-2 °C is the average temperature measured just after the microwave treatment.

This capacity is variable and depends on the final required temperature, on the product type (meat, fish, vegetables, fruits, butter etc.) its shape and its fat concentration. The charts in the following pages show the figures.

The data in the charts below are calculated operating the AMW 100 at 5 kW microwave power with t_{on}/t_{off} *optimum, for blocks with regular size and weight (25 kg, 600 mm x 400 mm x 150 mm) and for an initial temperature around -18 °C.

* t_{on}/t_{off} is the microwave utilization within 1 hour including loading/unloading and door opening/closing; the optimum is 85 %.

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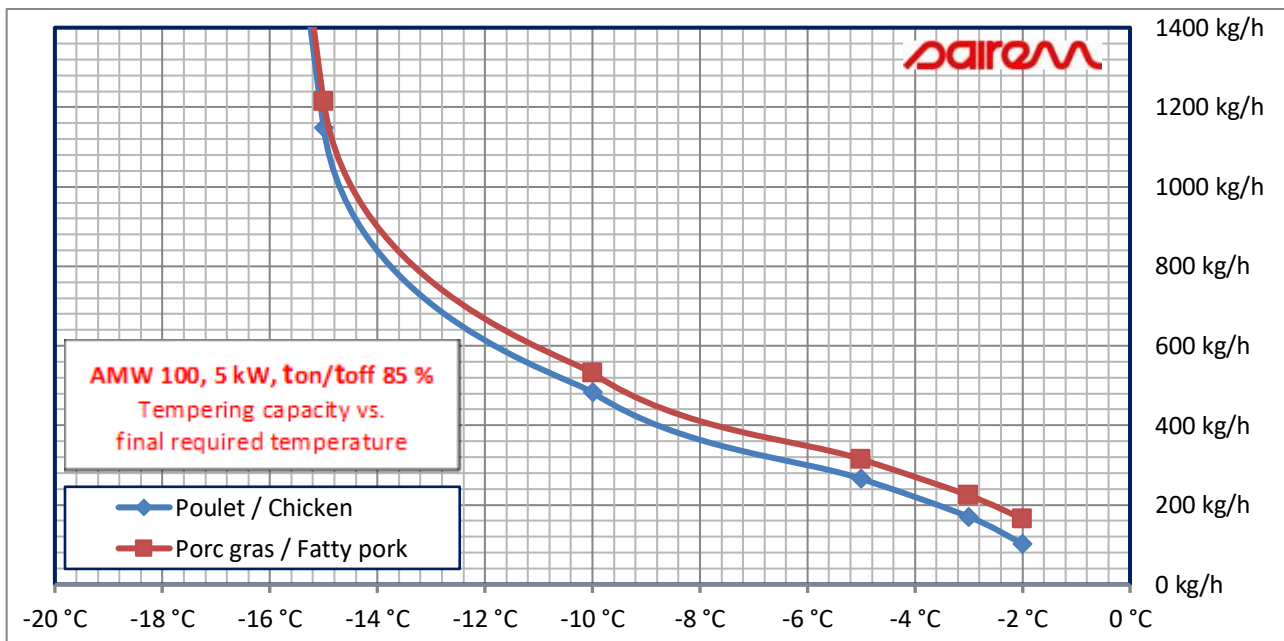
MICROWAVE TEMPERING

BATCH MACHINE

OBSERVATIONS

- If fatty products are to be processed, fat ought to be very homogeneously distributed in the block, otherwise the final temperature for good tempering homogeneity is limited at -4 °C;
- At -4/-2 °C the blocks are at the optimum temperature for processing: dicing, grinding, cutting, slicing...
- The maximum microwave power which can be used in tempering is limited by the products and not by the AMW. Recipes power vs. time must be chosen according to the compromise between capacity and homogeneity of heating.

TEMPERING CAPACITY VS. DESIRED FINAL TEMPERATURE



Example: Chicken \approx 270 kg/h from -18 °C to -5 °C or \sim 170 kg/h from -18 °C to -3 °C

Example: Fatty pork \approx 310 kg/h from -18 °C to -5 °C or \sim 225 kg/h from -18 °C to -3 °C

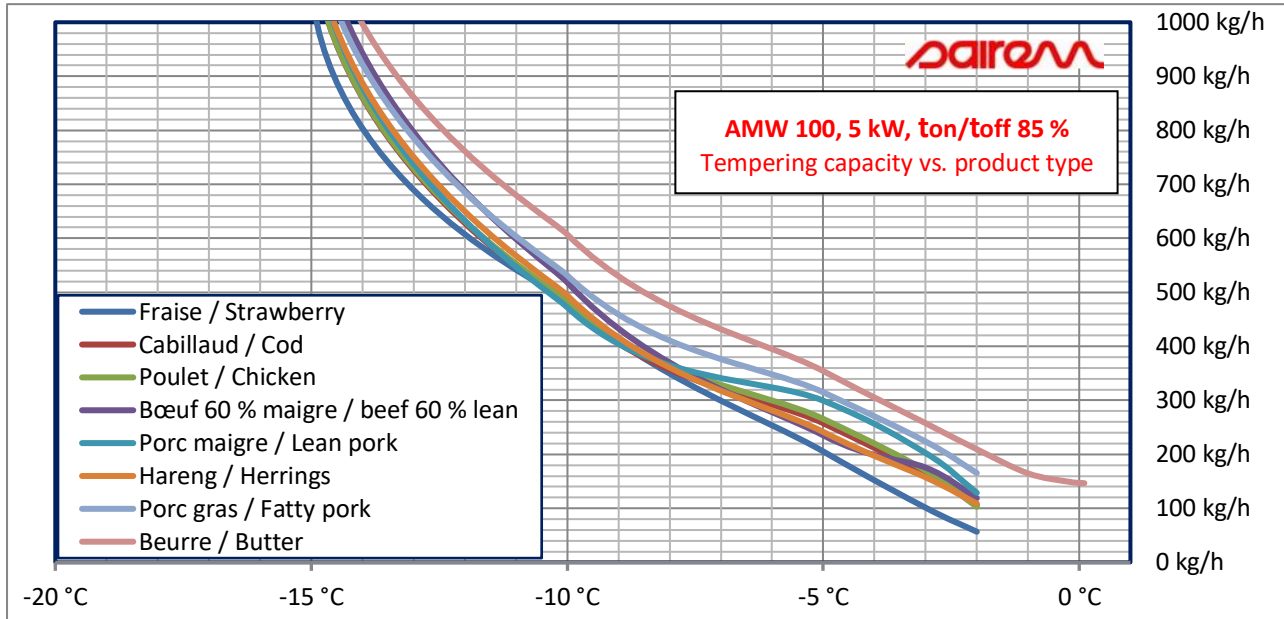
It has to be noted that starting at -18 °C has almost no effect on the AMW capacity if initial temperature is homogeneous in the whole product.

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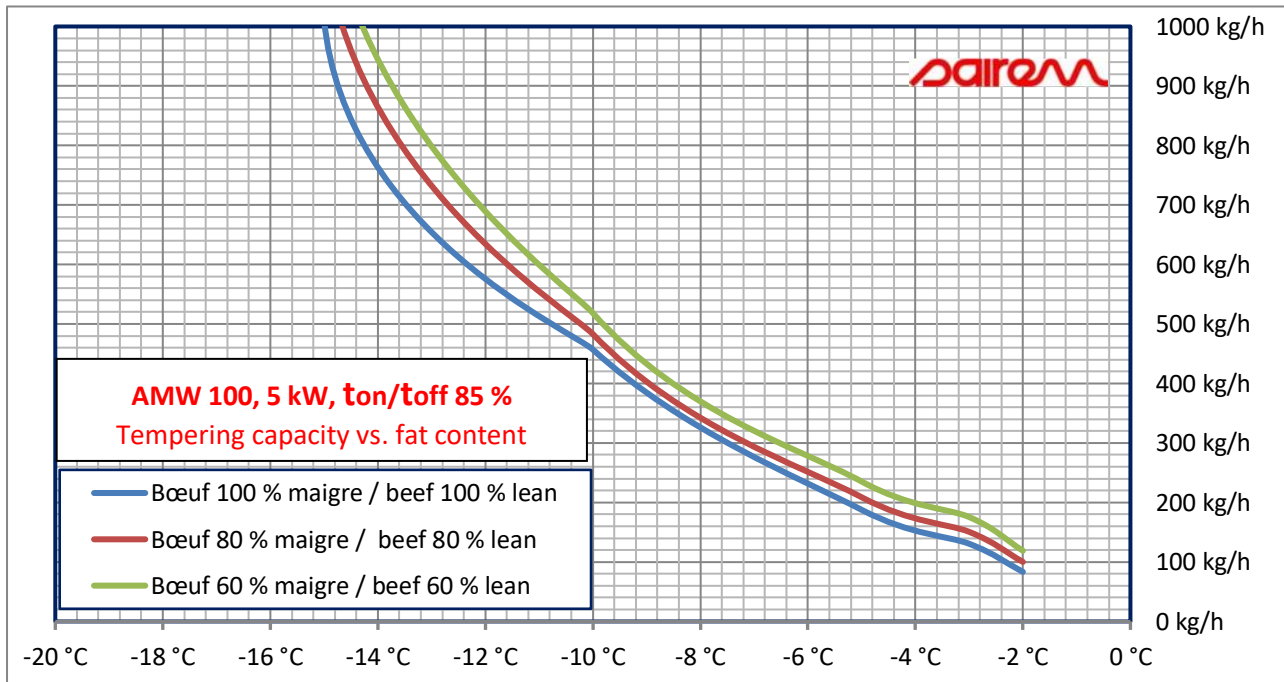
TEMPERING CAPACITY VS. PRODUCT TYPE



Tempering capacity is highly variable according to the product.

Example: Fatty pork \approx 270 kg/h at -4°C or beef 60 % lean \approx 210 kg/h at -4°C

TEMPERING CAPACITY VS. FAT CONTENT



Example: capacity \approx 175 kg/h for beef 60 % lean or 130 kg/h for beef 100 % lean from -18°C to -3°C

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EXAMPLES OF BLOCKS PROCESSED WITH THE AMW100



Beef
25% fat, 50 kg (1 x 25 kg)
190 kg/h to 210 kg/h from -18 °C to
-6 °C/-4 °C



Pork shoulder,
10 to 15 % fat, 25 kg (1 x 25 kg)
Capacity: ≈ 125 to 145 kg/h from
-18 °C to -3 °C and -1 °C



Chicken breasts, 15kg (1 x 15kg)
Capacity: ≈ 140kg/h from
-18°C to -4°C/-2°C



Strawberries in 10 kg blocks (1 x 10
kg)
Capacity: ≈ 100 kg/h from -18 °C to
-3 °C/-1 °C



Rhubarb in 10 kg blocks (1 x 10 kg)
Capacity: ≈ 100 kg/h from -18 °C to
-3 °C/-1 °C



Broccolis 20 kg (1 x 20 kg)
Capacity: ≈ 160 kg/h from - 18 °C to
- 3 °C/- 1 °C

MORE EXAMPLES:

- **Poultry filets, 20 kg:** 250 to 270 kg/h ≈ capacity from -18°C to -6 °C/-4 °C or 140 to 160 kg/h ≈ capacity from -18°C to -4 °C/-2 °C
- **Game (doe), 20 kg:** 160 to 180 kg/h ≈ capacity from -18°C to -4 °C/-2°C or 125 to 145 kg/h ≈ capacity from -18°C to -3 °C/-1.5 °C

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MICROWAVE TEMPERING BATCH MACHINE

KEY SPECIFICATIONS

Reference	<ul style="list-style-type: none"> • AMW 100
Construction	<ul style="list-style-type: none"> • Batch: 304 L stainless steel, microwave door with $\frac{1}{4} \lambda$ choke, sliding door pneumatically driven, turn table with automatic stop, touch screen, MW inlet distribution above and below, • Microwave generator: integrated, IP54, interchangeable microwave power supply with quick connectors for easy maintenance, high reliability.
Tempering capacity	<ul style="list-style-type: none"> • Depends on final temperature, product, fat content.
Sliding table(s)	<ul style="list-style-type: none"> • 1 off, polyethylene, with usable surface 610 x 410 mm, sliding mechanism consists of rollers with position locking. Load per sliding table: 1 block
Maximum size of block	<ul style="list-style-type: none"> • 600 x 400 x 250 (height) mm, 30 kg maximum per block.
Microwave frequency	<ul style="list-style-type: none"> • 915 MHz (other frequencies are available according to specific regulations of each country)
Microwave power	<ul style="list-style-type: none"> • 5 kW maximum, adjustable from 1 kW to 5 kW
HMI (Human Machine interface) and PLC	<ul style="list-style-type: none"> • 7" digital touch screen, remote control, multi lingual, control of microwave power and time, 50 programmable recipes, oven status, faults history etc. Microwave start, door opening/closing push buttons installed on each side of the sliding table, emergency stop etc.
Specific safety	<ul style="list-style-type: none"> • A microwave leakage detector signals any accidental leakage.
Mains electricity & consumption	<ul style="list-style-type: none"> • 400 V, 3-phase, no neutral + earth 50/60 Hz, 9 kVA at full power.
Cooling water	<ul style="list-style-type: none"> • Recirculated water, flow min. 9 l/min, with differential pressure min. 3 bar, inlet temperature 18 °C to 22 °C, max power to dissipate 4 kW; $\frac{1}{2}$" GF. Optional: air/water chiller
Compressed air for pneumatic door	<ul style="list-style-type: none"> • Min. 6 bar, consumption 20 l/min during 10 s (for door opening/closing). Average 0.7 l/min
Cleaning	<ul style="list-style-type: none"> • With low or high-pressured water jet for cleaning inside the AMW, evacuation under the oven
EC standards	<ul style="list-style-type: none"> • 89/392, 91/368, 73/23, 89/336, 92/31, 519-6 CEE/EWG EN55011 (specific)
Size (W x H x D)	<ul style="list-style-type: none"> • 1832 x 2230 x 1790 mm
Weight	<ul style="list-style-type: none"> • 630 kg

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MAIN DIMENSIONS

