

915 MHz MICROWAVE TEMPERING BATCH MACHINE

AMW 200 & AMW 200 Dual



Turn table / twin MW inlet by topside & downside above and below product

TEMPERING OF FROZEN BLOCKS

Capacity:

250 to 400 kg/h from -20 °C to -4 °C / -2 °C

Maximum microwave power 10 kW

ADVANTAGES

- ✓ **FAST:** very short time of treatment, 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**.

AMW 200 & AMW 200 DUAL



AMW 200



AMW 200 DUAL

The distinctive features of the AMW 200 are the use of a sliding table & a large pneumatic door making easier loading and unloading of 2 blocs simultaneously and equally its turn table & its microwave coupling system by two ways above and below the product.

The AMW 200 DUAL with double sliding tables makes possible to gain about 15 % of hourly capacity; while the AMW 200 is tempering two blocks inside, the outside table can be unloaded and loaded, i.e. 2 blocks in stand-by and two blocks under treatment.

TEMPERING CAPACITIES

The AMW 200 has a tempering capacity between 250 kg/h and 400 kg/h from initial -20 °C to final temperature -4 °C / -2 °C. The final temperature -4 °C / -2 °C is an 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.

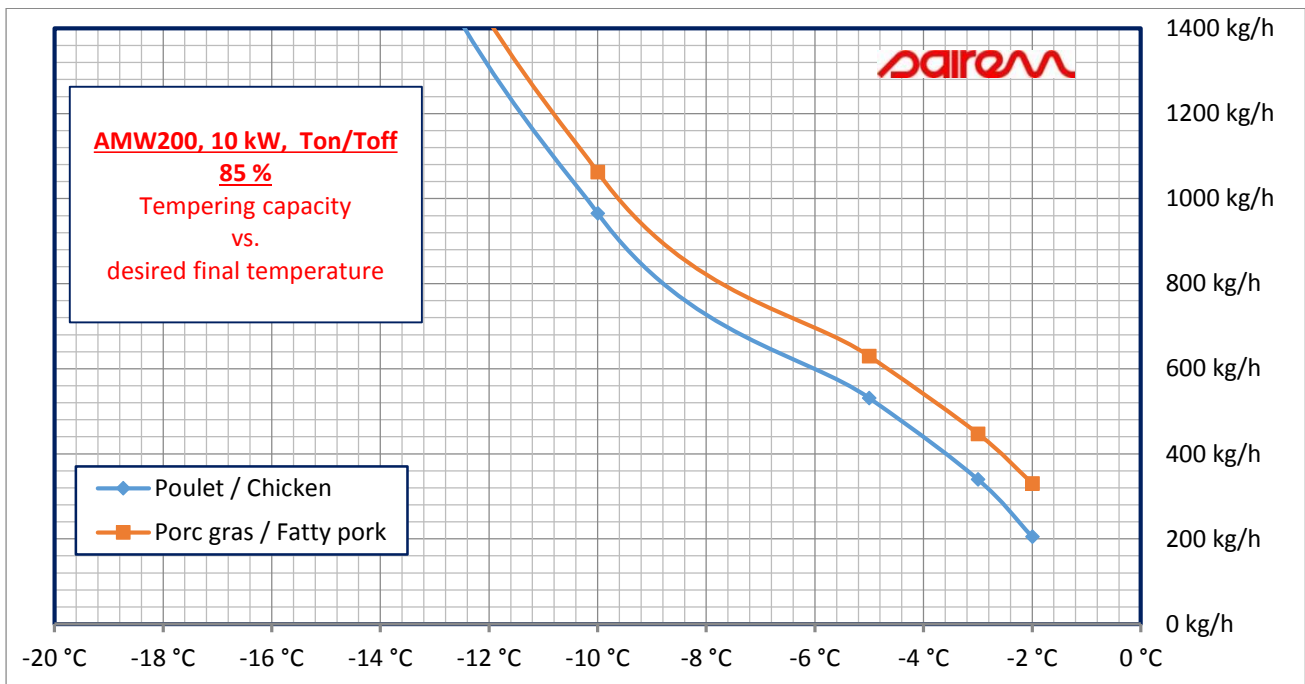
The data in the charts below are calculated operating the AMW 200 at 10 kW microwave power with t_{on}/t_{off} * optimum, for blocks with regular size and weight (25 kg, 600 mm x 400 mm x 150 mm) and for an initial temperature around -20 °C/-18 °C.

* t_{on}/t_{off} is the microwave utilization within 1 hour including loading/unloading and door opening/closing; the optimum is 85 %. The AMW 200 DUAL version improves the results by 15 %.

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.

Fig.1. Tempering capacity vs. desired final temperature

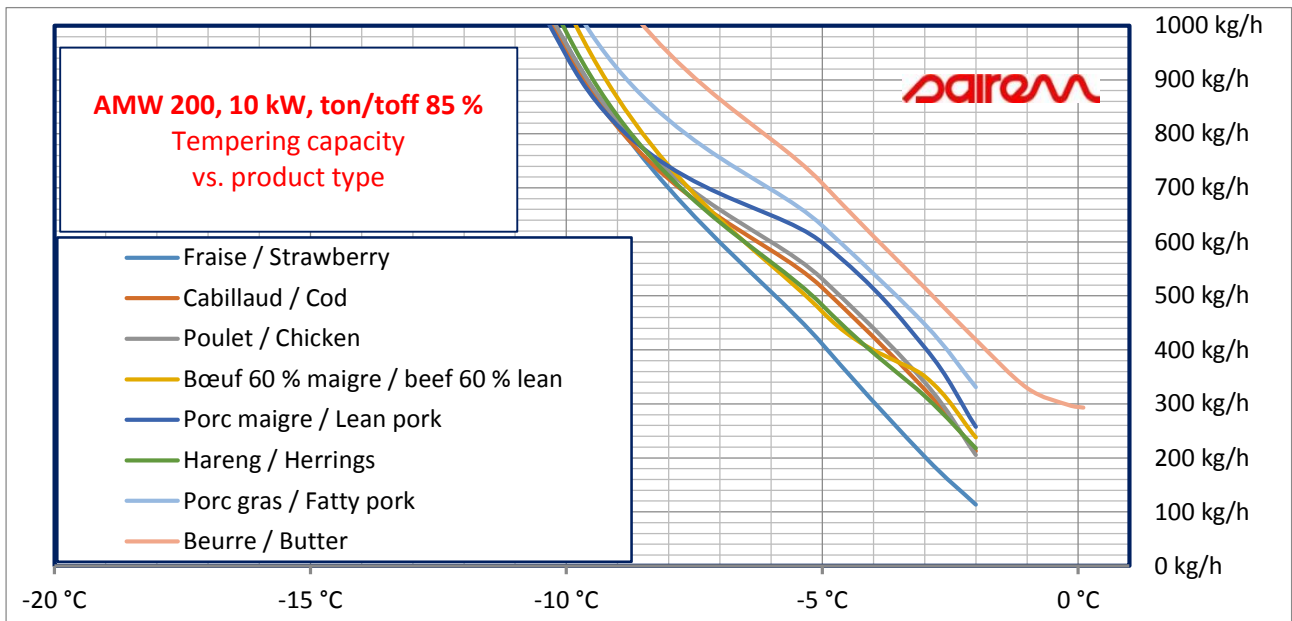


Example : Chicken ~ 570 kg/h from -18 °C to -5 °C or ~ 370 kg/h from -18 °C to -3 °C

Example : Fatty pork ~ 625 kg/h from -18 °C to -5 °C or ~ 450 kg/h from -18 °C to -3 °C

It has to be noted that starting at -20 °C or -18 °C has almost no effect on the AMW capacity if initial temperature is homogeneous in the whole product.

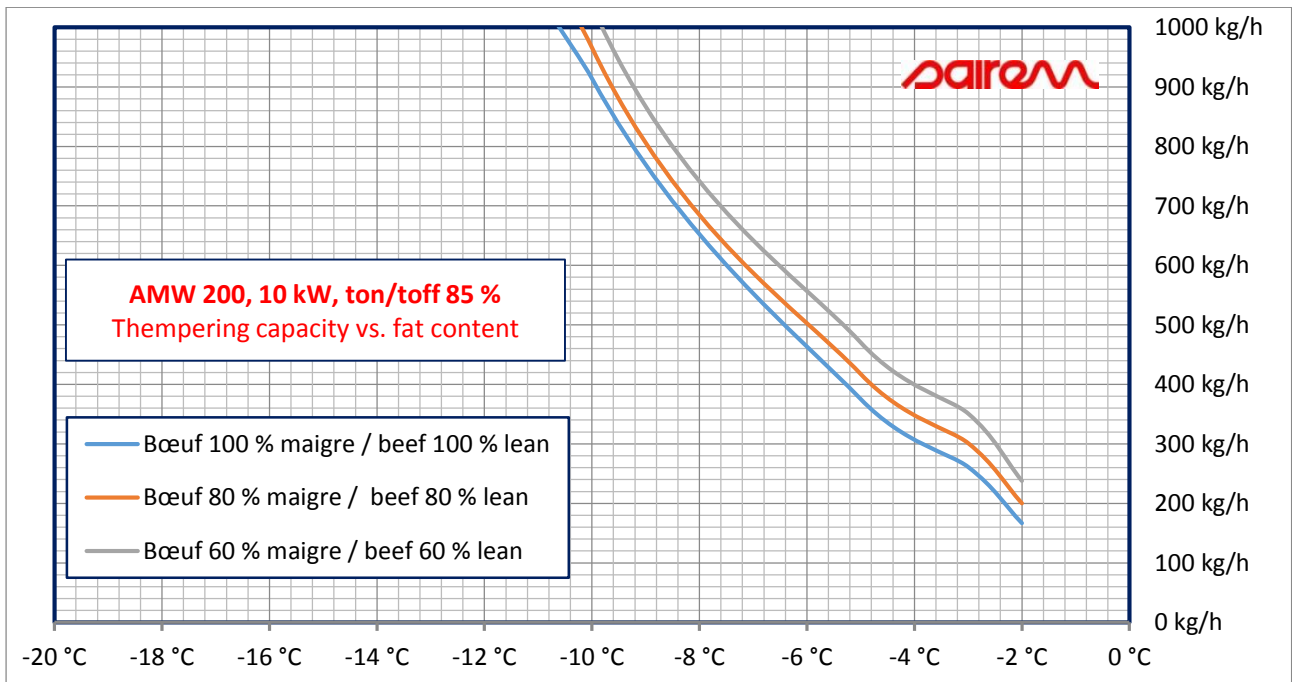
Fig.2. Tempering capacity vs. product type



Tempering capacity is highly variable according to the product.

Example: Fatty pork ~ 540 kg/h at -4°C or beef 60 % lean ~ 400 kg/h at -4°C

Fig.3. Tempering capacity vs. fat content



Example from -18 °C to -3 °C : capacity ~ 350 kg/h for beef 60 % lean or 260 kg/h for beef 100 % lean

Examples of blocks processed with the AMW 200



Beef 25% fat, 50 kg (2 x 25 kg)

Capacity : ~380 to 420 kg/h from -20 °C to -6 °C and -4 °C



Turkey filets, 40 kg (2 x 20 kg)

Capacity : ~ 320 to 360 kg/h from -20 °C to -4 °C / -2 °C
or Capacity : ~250 to 290 kg/h from -20 °C to -3 °C / -1.5 °C



Pork shoulder, 10 to 15 % fat, 50 kg (2 x 25 kg)

Capacity : ~ 250 to 290 kg/h from -20 °C to -3 °C and
-1 °C



Spinach in cubes IQF 40 kg (2 x 20 kg)

Capacity : ~ 220 kg/h from -20 °C to -2 °C / -1 °C
or Capacity : ~ 310 kg/h from -20 °C to -3 °C / -1 °C



Hake flesh in 10 kg blocks (2 x 10 kg)

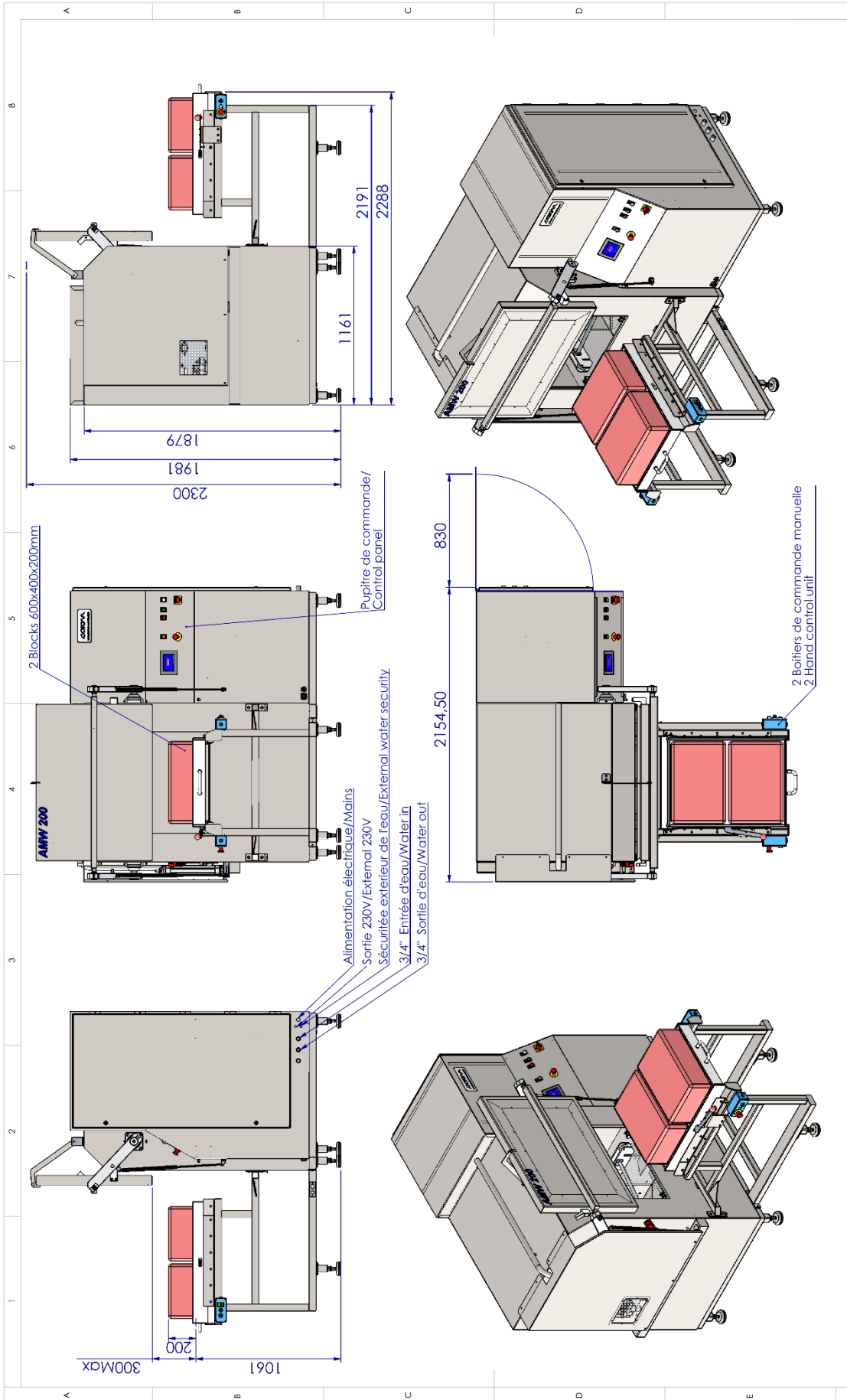
Capacity : ~ 240 kg/h from -20 °C to -5 °C / -2 °C

MORE EXAMPLES:

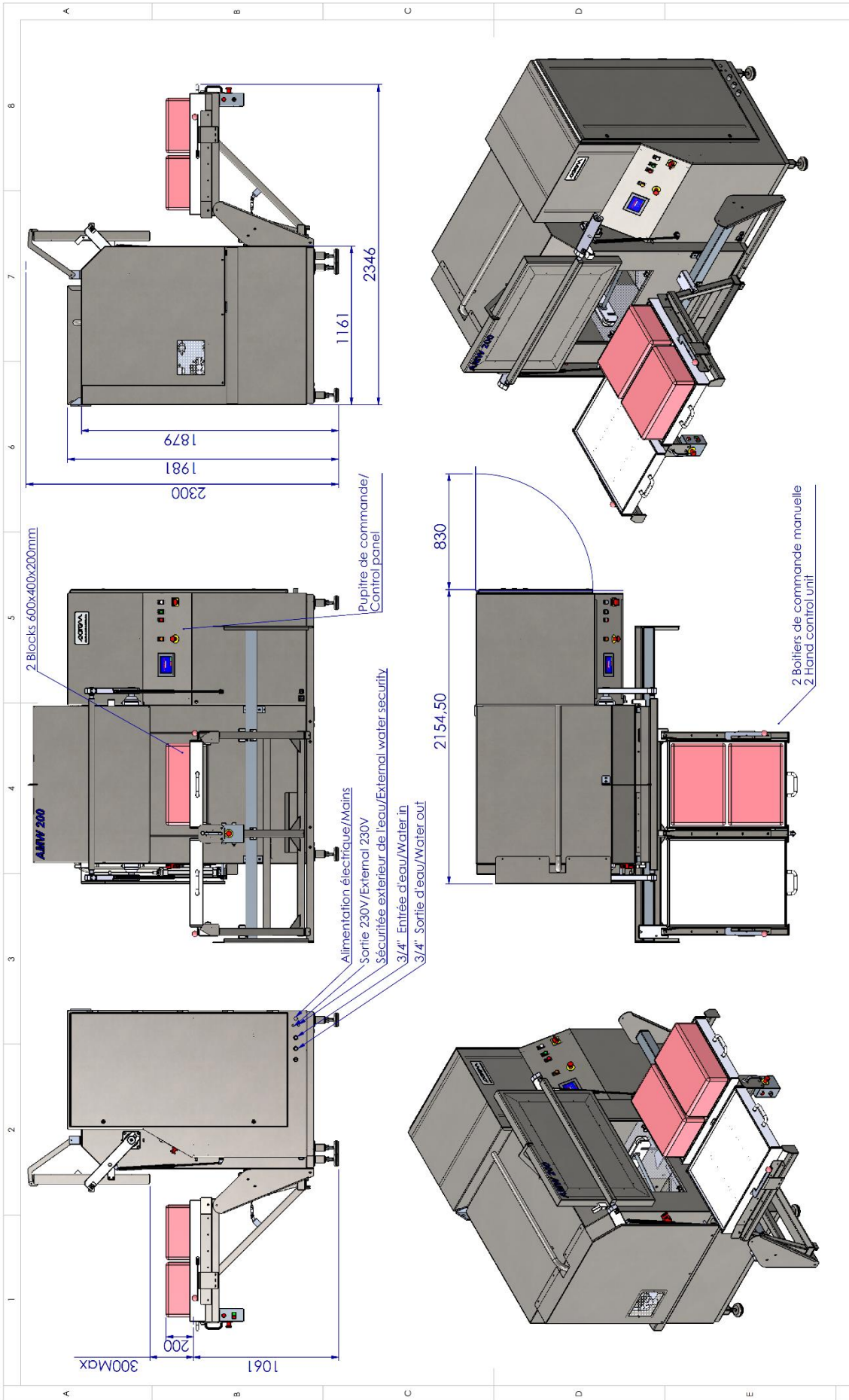
- **Poultry filets, 40 kg (2 x 20 kg)**, capacity ~ 500 to 540 kg/h at -6 °C / -4 °C or
- **Poultry filets, 40 kg (2 x 20 kg)**, capacity ~ 280 to 320 kg/h at -4 °C / -2 °C.
- **Game (doe), 40 kg (2 x 20 kg)**, capacity ~ 320 to 360 kg/h at -4 °C / -2 °C or
- **Game (doe), 40 kg (2 x 20 kg)**, capacity ~ 250 to 290 kg/h at -3 °C / -1.5 °C.

TECHNICAL CHARACTERISTICS

Reference	AMW 200 or AMW 200 DUAL
Construction	<p>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 distribution above and below,</p> <p>Microwave generator: integrated, IP54, interchangeable microwave power supply with quick connectors for easy maintenance, high reliability.</p>
Tempering capacity	Depends on final temperature, product, fat content.
Sliding table(s)	1 off in version AMW200, 2 off in version AMW200 DUAL, polyethylene, with usable surface 840 x 620 mm, sliding mechanism consists of rollers with position locking. Load per sliding table : 2 blocks
Maximum size of blocks	600 x 400 x 250 (height) mm, 30 kg maximum per block.
Microwave frequency	915 MHz (other frequencies are available according to specific regulations of each country)
Microwave power	10 kW maximum, adjustable from 2 kW to 10 kW.
HMI (Human Machine interface) and PLC	6.5" digital touch screen, 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	In option , a microwave leakage detector ref. SAIREM DFM L24 DC signals any accidental leakage.
Mains electricity & consumption	400 V, 3-phase, no neutral + earth 50/60 Hz, 18 kVA at full power.
Cooling water	Recirculated water, flow min. 18 l/min with differential pressure min. 3 bar, inlet temperature 18 °C to 22 °C, max power to dissipate 5 kW; 3/4" GF. Optional: air/water chiller
Compressed air for pneumatic door	Min. 6 bar, consumption 20 l/min during 10 s (for door opening/closing). Average 0.7 l/min
Cleaning	With low pressured water jet for cleaning inside the AMW, evacuation under the AMW.
EC standards	89/392, 91/368, 73/23, 89/336, 92/31, 519-6 CEE/EWG EN55011 (specific)
Size, weight	See drawings below, weight 1250 kg



MATERIE :		TRAITEMENT :		REPRODUCTION INTERDITE - DROITS RESERVES		TITRE :	
						AMW200	
				12, Porte du GRAND LYON 01700 NEYRON Cedex - FRANCE Tel: 04 72 01 81 60 Fax: 04 72 01 81 79		FORMAT: A3 ECHELLE: 1/25 WEIGHT: 3248-COM1	
INDEXE	DATE	VERIFIE	APPROUVE	MODIFICATION	DU DESSIN	INDEXE DU DOCUMENT	
B	04-02-11	BDE		MAJ TEXTES			
A	25/1/09	ML		EMISSIION ORIGINALE			
				VERIFIE APPROUVE	MODIFICATION DU DESSIN		



REPRODUCTION INTERDITE - DROITS RESERVES		TITRE	
MATIERE:		AMW200 DUAL	
TRAITEMENT:		FORMAT: A3	
B 04-02-11 BDE		ECHELLE: 1/25	
A 25/11/09 ML		DESIGN. NO.	
INDICE DATE DESSINE		WEIGHT:	
VERIFIE APPROUVE MODIFICATION DU DESSIN		3248-COM2	
INDICE DU DOCUMENT		3248-COM2	

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