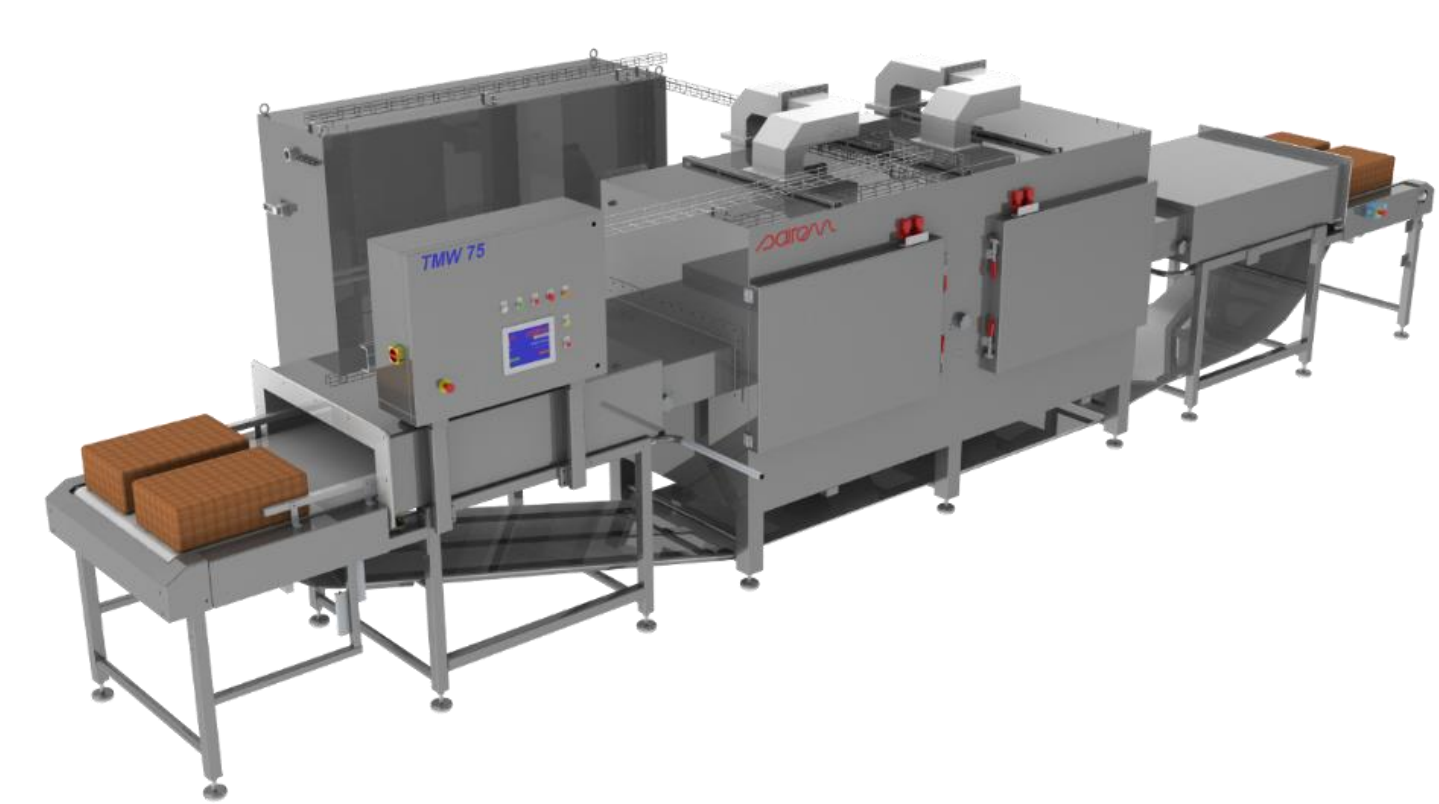
TMW75
MICROWAVE TEMPERING TUNNEL

The TMW75 allows deep frozen foods to be tempered or defrosted (butter) quickly. It is adapted for products like meat, poultry, fish, fruits, vegetables, cheese, butter, etc…



The distinctive feature of the TMW 75 is the use of the microwave technology to achieve the best tempering homogeneity while maintaining a good microwave efficiency. The large size of the cavity, the length under microwaves and the crossed coupling of microwaves above and below the blocks are a few examples of the solutions used to conciliate capacity, efficiency and homogeneity.
Exists in both directions, right to left or left to right and possibility of setting up the generator on a platform.

KEY BENEFITS

- **Profitable:** save money by avoiding drip losses
- **Fast:** very short time of treatment, between 5 to 15 minutes
- **User friendly:** easy loading / unloading, colour touch screen HMI 12''
- **Homogeneous**: excellent temperature homogeneity thanks to multiple microwave inlets (above and below)
- **Reliable**: no need for regular maintenance, except daily cleaning
- **Hygienic**: no bacteriological growth, complies with all hygiene regulations and standards, keeps the organoleptic qualities
- **Flexible**: can be used for tempering packed (cardboard, plastic film …) or unpacked food
- **Connected:** USB and ethernet connection for remote control

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TEMPERING CAPACITIES

The TMW75 offers a tempering capacity between 2 t/h and 3 t/h from - 20 °C to a final temperature of - 4 °C / - 2 °C in 95% of the block, which is the optimum temperature for processing: dicing, grinding, cutting, slicing… The capacity is calculated to temper frozen blocks with standard dimensions 600 mm x 400 m x 200 mm and a weight of about 20 / 25 kg. If fatty products are to be processed, fat ought to be very homogeneously distributed in the block, otherwise the limit temperature for homogeneity is - 4 °C.

The tempering capacity is variable and depends on the final required temperature and on the product (meat, fish, vegetables, fruits, butter, etc. Figures below show these variations.

The data in the charts are calculated for the TMW 75 operating at 60 kW power, with $\mathbf{t_{on}/t_{off}}$[1] optimum at 95 %, for blocks with regular size and weight 25 kg (600 mm x 400 mm x 200 mm) and for a starting temperature around -20 °C/-18 °C**.**

The maximum microwave power which can be used in processing is limited by the products and not the tunnel. Recipes power vs. time must be chosen according to the compromise between capacity and homogeneity of heating.

[1] Microwave utilization within 1 hour including loading/unloading; the optimum is 95 %.

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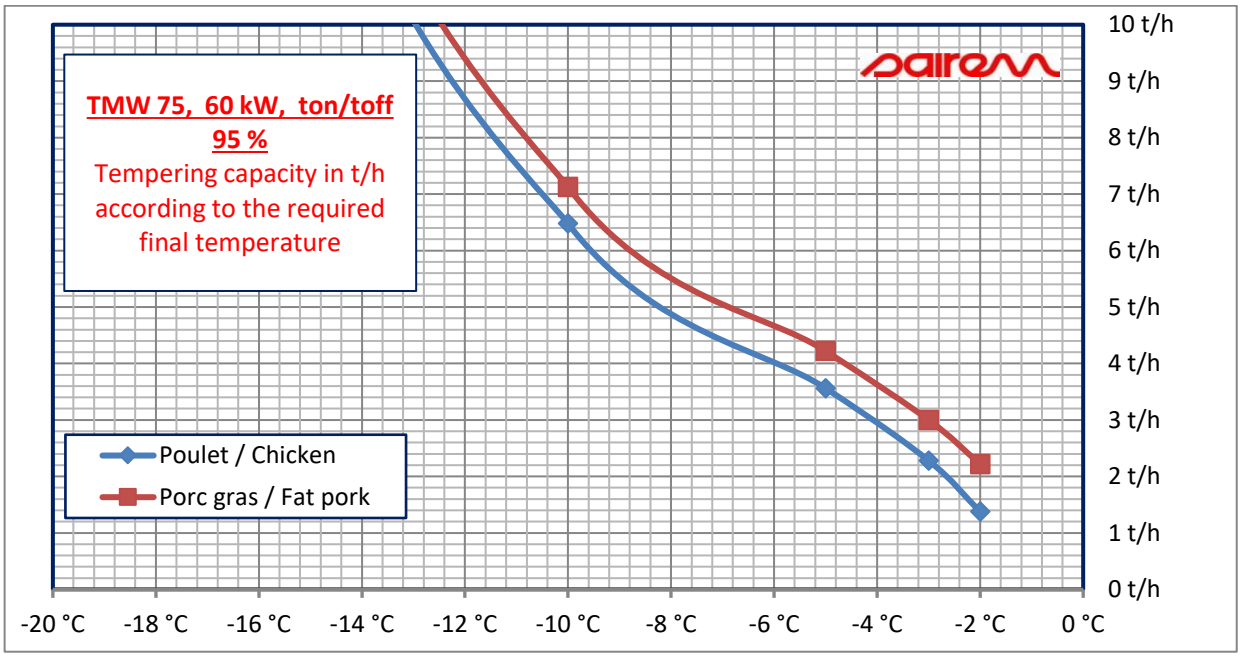
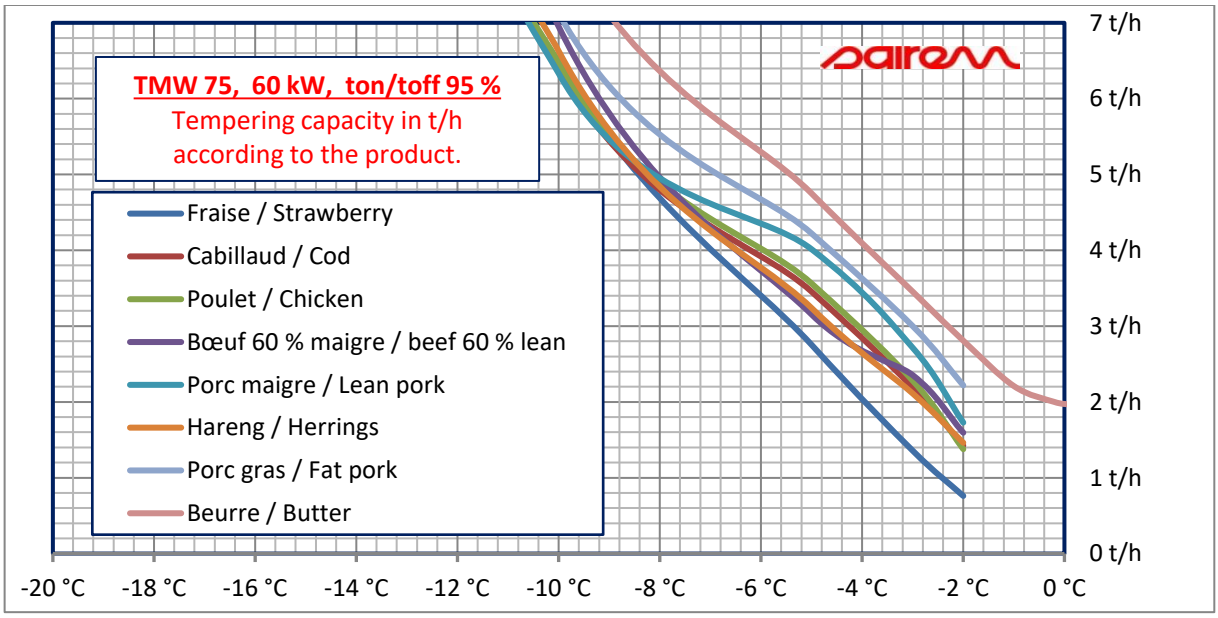
TEMPERING CAPACITY VS. DESIRED FINAL TEMPERATURE



Example: Chicken ≃ 3.6 t/h from -18 °C to -5 °C or ≃ 2.3 t/h from -18 °C to -3 °C.
Example: Fatty pork ≃ 4.2 t/h from -18 °C to -5 °C or ≃ 3.0 t/h from -18 °C to -3 °C.

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

TEMPERING CAPACITY VS. PRODUCT TYPE



Examples: butter (3.5 t/h at -3°C) or beef 60 % lean (2.3 t/h at -3°C) for the same final temperature.

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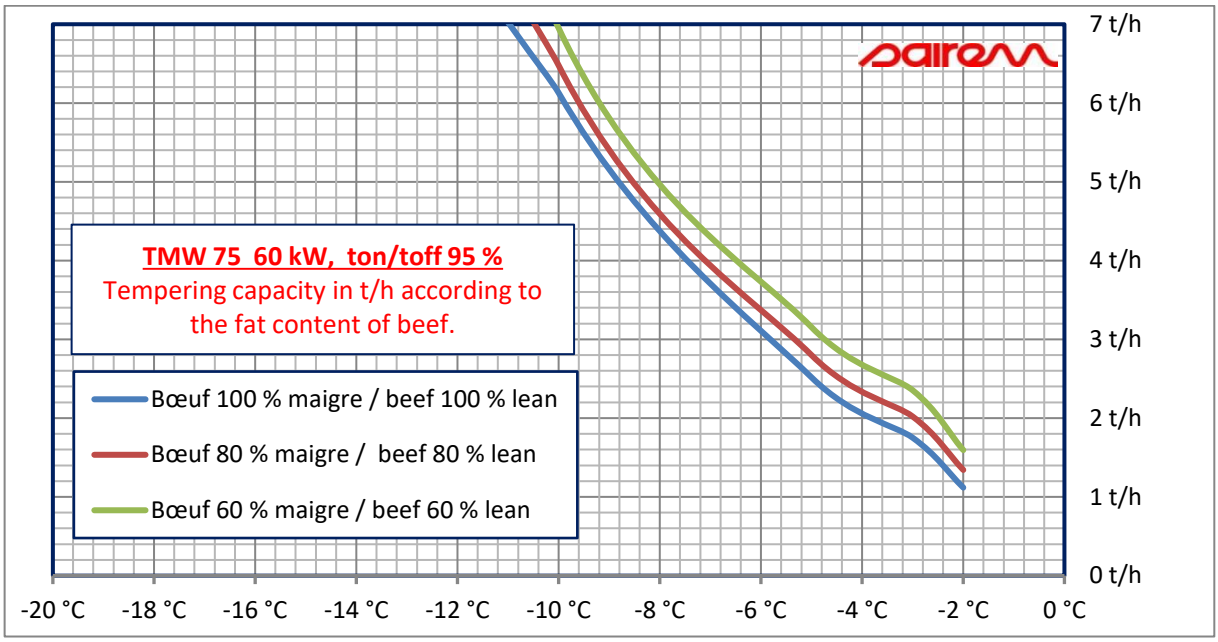
TEMPERING CAPACITY VS. FAT CONTENT



Example: capacity ≃ 2.4 t/h for beef 60 % lean, or ≃ 1.8 t/h for beef 100 % lean from -18 °C to -3 °C

Capacity is highly variable if final temperature is -7 °C or -3 °C, or if meat is lean beef or fat pork. Such variations are linked to physical laws such as for example, latent heat of fusion. Capacity varies according to the processed product (lean beef, pork…), its fat content and the final required temperature.

All the above charts are calculated for a TMW75 operating under following conditions:

- Power of microwave generator at 60 kW
- $\mathbf{T_{on}/T_{off}}$ at 95 %
- Blocks or products with regular mass and shape
- Blocks or products regularly placed on the belt
- Starting temperature between -20 °C and -18 °C homogeneous in all the blocks or products

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EXAMPLES OF BLOCKS PROCESSED WITH THE TMW75

Beef
25% fat, 250 kg (10 x 25 kg)
2100 kg/h from -18 °C to -4°C/-2°C
Block size: 600 x 400 x 260 mm

Pork shoulder
10 to 15 % fat, 250 kg (10 x 25 kg)
2000 kg/h from -18 °C to -3°C / -1°C
Block size: 600 x 400 x 260 mm

Chicken breasts
150 kg (10 x 15kg)
1500 kg/h from -18°C to -4°C/-2°C
Block size: 600 x 400 x 260 mm

Strawberries
100 kg bags (10 x 10 kg)
1000 kg/h from -18 °C to -3 °C/-1 °C

Rhubarb
100 kg bags (10 x 10 kg)
1000 kg/h from -18 °C to -3 °C/-1 °C

Broccolis
200 kg bags (10 x 20 kg)
1700 kg/h from - 18 °C to - 3 °C/- 1 °C

To get the complete data sheet :

- full specifications
- technical drawings

CONTACT US !

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