

Process Operating Manual



ATLANTIS-PAK
Leaders In Innovative
Packaging Solutions



AMIPAK CASING



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1. APPLICATION

The **AMIPAK** casing is designed for production of all types of frankfurters, wieners, hot dogs, and mini-sausages.

The **AMIPAK** casing is made from blends of high-quality synthetic and natural materials.

The **AMIPAK** casing is supplied straight or ring-shaped, thus providing for a wider assortment of products differing in their appearance.

The recommended shelf life is:

- 15 days for top-grade and first-grade frankfurters, first-grade wieners and top-grade hot dogs packaged in the **AMIPAK** casing at a storage temperature from 0°C to +6°C and air relative humidity not higher than 75%.

2. PROPERTIES AND ADVANTAGES OF THE AMIPAK CASING

2.1. Specifications of the casing

2.1.1. The **AMIPAK** casing is made on advanced equipment, which ensures:

- continuous control of all parameters;
- maximum automation of the production process

2.1.2. The basic quality characteristics and test conditions for the **AMIPAK** and **AMIPAK LS** casings are shown in Table 1.

Table 1

Parameter	Values	Unit measure	Test conditions
Thickness, mean value	17.5	µm	Schroeder thickness gauge with a ball measuring pad, T=(25±2)°C, humidity = (60±5)% RH
Utilization temperature range	from -40°C to +100°C	°C	
Water vapor transmission rate, not more	170 / 152	g/m ² * 24 hrs	At T=30°C, humidity=90% RH
Tensile strength, not more MD TD	16.2 / 17.7 24.3 / 20.2	kgf/mm ²	Shimadzu AGS H test machine, V=100mm/min, T=(25±2)°C, humidity=(60±5)% RH

Elongation at break, MD TD	170 / 151 74 / 138	%	Shimadzu AGS H test machine, V=100mm/min, T=(25±2)°C, humidity=(60±5)% RH
Tube width tolerance, not more	2	%	Electronic control system

2.2. Advantages of the casing

2.2.1. The **high mechanical strength** of the **AMIPAK** casing makes it possible to mold chubs not only by manual tying, but also by using various types of equipment to achieve a high rate of production and overstuffing relative to the nominal caliber. The caliber consistency in the **AMIPAK** casings provides for stable filling on frankfurter lines and stuffers with twisting devices.

2.2.2. **High barrier properties.** The oxygen and water vapor transmission rate of the **AMIPAK** casing is much lower than that of collagen and cellulose casings, which provides for the following advantages:

- minimal losses during the thermal processing (0 - 1.5%) and storage of frankfurters and wieners;
- excellent selling appearance of the finished products (no wrinkles) throughout the shelf life.

2.2.3 The **high heat resistance** of the polymers used to make the **AMIPAK** casings significantly extends the utilization temperature range of the casing in comparison with collagen and cellulose casings. The casing is stable at high temperatures.

2.2.4. **Microbiological resistance.** The polymers used for production of the **AMIPAK** casings are inert to the action of bacteria and mold fungi. This improves the hygienic characteristics of both the casing itself, and the finished products.

3. ASSORTMENT OF PRODUCTS

AMIPAK type A has a closed end in the shirred stick; the casing is designed for use on automatic equipment;

AMIPAK LS type A is an easy-peel casing for manual removal off the product; the casing has a closed end in the shirred stick and is designed for use on automatic equipment;

AMIPAK E type A is an economy version of the casing with a closed end of the shirred stick, designed for use on automatic equipment;

AMIPAK type R has an open end in the shirred stick and is designed for manual tying and use on stuffers with twisting devices;

AMIPAK LS type R is an easy-peel casing for manual removal off the product; the casing is designed for manual tying and use on stuffers with twisting devices;

AMIPAK E type R is an economy version of the casing with an open end in the shirred stick; the casing is designed for manual tying and use on stuffers with twisting devices;

AMIPAK type Ako is a ring-shaped casing with a closed end in the shirred stick, designed for use on automatic equipment;

AMIPAK type Rko is a ring-shaped casing with an open end in the shirred stick, designed for manual tying and use on stuffers with twisting devices;

The **AMIPAK** casings are supplied shirred.

Table 2

Caliber, mm	Type of casing	Type of shirring	Length of strand in stick, m
15	A/R	hard	25.0
16	A/R	hard	25.0
17	A/R	hard	25.0
18	A/R	hard	25.0
19	A/R	hard	25.0
20	A/R	hard	25.0
21	A/R	hard	25.0
22	A/R	hard	33.3
24	A/R	hard	33.3 (40.0)
26	A/R	hard	33.3
27	A/R	hard	33.3
28	A/R	hard	33.3
29	A/R	hard	33.3
30	A/R	hard	33.3
31	A/R	hard	33.3
32	A	hard	33.3
34	A	hard	33.3
32	R	soft	30.0
34	R	soft	50.0 (30.0)
38	R	soft	50.0 (30.0)
22	Ako/Rko	hard	25.0

24	Ako/Rko	hard	25.0
32	Rko	soft	30.0
34	Rko	soft	30.0
38	Rko	soft	30.0
AMIPAK E casing			
22	A/R	hard	33.3
24	A/R	hard	33.3 (40.0)
32	A	hard	33.3
34	P	soft	50.0 (30.0)

Colors of the **AMIPAK** casing: clear, red, light smoke, smoke, smoke 1, orange, crimson, pink 2, pink 3.

Colors of the **AMIPAK E** casing: smoke, light smoke.

Single- or double-sided printing is possible on the casing. The number of print colors varies from 1+0 to 4+2. CMYK printing is optional.

Printing on the ring-shaped casings is not regulated.

The **AMIPAK E** casing is supplied marked only. The number of print colors is up to 2+1.

The following exclusive services can be ordered:

- shirring options: bespoke length of the stick or of the shirred strand;

4. CASING UTILIZATION TECHNOLOGY

4.1. Storage and transportation of the casing

4.1.1. The casing must be stored in the original packing in closed dry and clean rooms conforming to the sanitary-hygienic standards for the relevant sector of the food industry, at a distance of not less than 800mm from heaters, in the absence of strong-smelling or corrosive substances, at a temperature from 5°C to 35°C and air relative humidity not more than 80%.

4.1.2. The **AMIPAK** casing must be transported at a temperature not exceeding +40°C, and protected against direct sunlight.

4.1.3. If the casing was stored at a temperature from -5 °C to +5 °C, hold it at room temperature for not less than 24 hours before opening and use.

4.1.4. Never drop the boxes with casings or subject them to impacts.

4.2. Preparation of the casing for use

The procedure for preparation of the **AMIPAK** casing for stuffing consists in the following:

Bring the original packing to the production shop from the store, put it on a dry surface (floor, table), then open the manufacturer's packing immediately before processing of the casing.

The **AMIPAK (types A, Ako)**, **AMIPAK® LS type A** and **AMIPAK® E type R** casings need no additional preparation before stuffing on frankfurter lines.

When the **AMIPAK (types R, Rko)**, **AMIPAK LS type R** and **AMIPAK E type R** casings are used on stuffers with twisting devices, the casing must be pre-soaked in potable water at a temperature of 25-30°C during 30-60 minutes. Never soak the casing in hot water, otherwise the casing may shrink during the soaking.

Take care to keep the shirred stick fully submerged underwater. Water must freely penetrate inside the stick, driving out the air.

After soaking, remove the residual water from the tube, and put the casing over the stuffer horn.

Do not soak more casing than is required. If too much casing was soaked, take the casing out of the water, remove the excess water, and leave until the eventual processing in a cold room (shop) away from any sources of heat or air drafts. Prior to reuse of the casing, wet it by dipping before stuffing.

If these requirements are observed, the casing will acquire a high elasticity, which significantly facilitates the stuffing process, and provides for uniform filling.

4.3. Preparation of the emulsion

For production of frankfurters and wieners in the **AMIPAK** casing the quantity of the moisture added to the emulsion. It should be, on the average, 5-10% less in comparison with the recipes for natural, collagen, or viscose-reinforced casings.

In the development of new recipes according to the regulatory documentation (specifications), the amount of the added water should be determined with regard to the moisture-retaining properties of the gelling agents used (such as carrageenans, plant or animal proteins, etc.), and the relevant instructions on use must be followed to avoid formation of water and fat pockets.

4.4. Molding of the products

Molding of the **AMIPAK** casing starts with inspection of the equipment and the work table.

Make sure that there are no burrs on the equipment parts, or sharp objects, indentations, or rough areas on the working surface of the table, in order to avoid damages to the casing.

Never puncture the frankfurters and wieners (perforate the casing). The casing will burst, if punctured.

Observe the direction of stuffing - the shirred sticks must be put on the horn with the 'herring-bone' inward, i.e. with the 'herring-bone' apex towards the stuffer.

The rate of stuffing of the **AMIPAK** casing on twisting devices must be adjusted with regard to the technical condition of the equipment.

In the molding of the products, bear in mind that the packing indicates not the nominal caliber of the **AMIPAK** casing, but the minimal stuffed caliber.

The actual stuffed caliber depends on many factors, such as temperature, emulsion consistence, and condition of the stuffing equipment. The lower the emulsion temperature, the less is the stuffed caliber. In this case we recommend to use the minimal stuffed caliber and reduce the stuffing speed by 10-20%. In practice, the stuffed caliber for the **AMIPAK** casing is determined on site, and may change depending on the type of the product and equipment used.

Table 3

Caliber of casing, mm	Type	Recommended stuffed caliber, mm	Recommended horn diameter, mm
15	A, R	15.5 – 16.0	8
16	A, R	16.5 – 17.0	8
17	A, R	17.5 – 18.0	8
18	A, R	18.5 – 19.0	8
19	A, R	19.5 – 20.0	10
20	A, R	20.5 – 21.0	10
21	A, R	22.0 – 22.5	10
22	A, R, Ako, Rko	23.0 – 23.5	11 – 12 (13,5)
24	A, R, Ako, Rko	25.0 – 25.5	11 – 12 (13,5)
26	A, R	27.0 – 27.5	11 – 12 (13,5)
27	A, R	28.0 – 28.5	11 – 12 (13,5)
28	A, R	29.0 – 29.5	12 – 14
29	A, R	30.0 – 30.5	12 – 14
30	A, R	31.0 – 31.5	12 – 14

31	A, R	32.0 – 32.5	14 – 16
32	A	33.0 – 33.5	17
34	A	35.0 – 36.5	17
32	R	33.0 – 33.5	16 – 18
34	R, Rko	35.0 – 36.0	16 – 18
38	R, Rko	39.0 – 40.0	16 – 18
32	Rko	33.0 – 33.5	16 – 18

The production rate and the percentage of stuffing of the **AMIPAK** casing on the frankfurter and wiener equipment should be selected with regard to the technical condition of the equipment. The required molding parameters are achieved by adjustment of the molding equipment in accordance with the technical characteristics of the equipment.

Compliance with the recommended stuffed caliber ensures a good appearance of the finished products, increases the stuffing capacity, and reduces the risk of water and fat pockets.

4.5. Thermal processing

Thermal processing of frankfurters and wieners in the **AMIPAK** casing is made in shaft-type stationary chambers or in universal heat chambers.

Manufacturers should choose their individual heat treatment conditions, because the capacity of the equipment (shaft-type stationary chambers or universal heat chambers) is all-important in this process.


Thermal processing of products in the **AMIPAK** casing consists in cooking and cooling. The technological process stages of drying and roasting can be dispensed with.

For the **AMIPAK** casing, it is recommended to use either staged cooking, or delta cooking (if the equipment is adequate for that). In either case, cooking should start at a temperature of not more than 50-55°C to trigger the coloring reactions. Higher starting temperatures may cause separation of the stuffing emulsion and color defects (grey rings).

Staged cooking consists in step-by-step raising of the temperature in the heat chamber as the product core temperature is reaching the temperature of the heating medium. The first stages consist in heating at moderate temperatures (55, 65, 75°C) to ensure a slow coagulation of the proteins and redistribution of the temperature throughout the product volume. The last stage is bringing of the product to consumption readiness (72 °C in the chub core).

Example of thermal processing conditions for the caliber 24 **AMIPAK** casing:

- 55 °C in a heat chamber at 100% humidity, 10 minutes;

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- 65 °C in a heat chamber at 100% humidity, 15 minutes;
 - 75 °C in a heat chamber at 100% humidity, 15 minutes;
 - 80 °C in a heat chamber at 100% humidity, until 72°C in the chub core is reached.

4.6. Cooling

After completion of the thermal processing, the products in the **AMIPAK** casing must be immediately cooled. Cooling can be carried out under running water or shower, by means of time-delayed spraying devices, until the chub core temperature is down to 25 - 35 °C.

Cold air cooling is not allowed. Exclude any exposure of the finished products to air drafts, because this may cause wrinkles on the surface.

The **AMIPAK LS type A** or **AMIPAK LS type R** casings can be removed off the products manually, after their cooling, at the processor's facility or by the seller.

4.7. Transportation and storage of the products

Transportation and storage of sausage products manufactured with the use of the **AMIPAK** casing shall be in accordance with the relevant regulatory documents.

5. MANUFACTURER'S GUARANTEES

5.1 The Manufacturer guarantees conformity of the casing with the requirements of the Specifications subject to compliance with the required conditions of transportation and storage at the user's warehouse.

5.2 The guarantee term of storage of the casing is 3 years from manufacture, subject to integrity of the manufacturer's packing.



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