

JIS

JAPANESE INDUSTRIAL STANDARD

**Design Rules for Safety and
Sanitation of Marine
Product Machinery**

JIS B 9654—1988

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In the event of any doubt arising,
the original Standard in Japanese is to be final authority.

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Design Rules for Safety and Sanitation
of Marine Product Machinery

B 9654-1988

1. Scope

This Japanese Industrial Standard specifies general matters concerning safety countermeasures and sanitation countermeasures for design, manufacture, setting and operation of marine product machinery and its attachments, hereinafter referred to as the "machinery", in addition to specifications of JIS B 9650.

Remark: The marine product machinery specified in this Standard means the fish meat taking machine, back screening machine, cutters (silent cutter, bowl cutter), forming machine (fish paste forming machine, KAMABOKO forming machine, fry KAMABOKO forming machine), heating devices (fish paste grilling machine, KAMABOKO steam boiling machine, fry KAMABOKO frying machine) and cooling machines (fish paste and fry KAMABOKO cooling machine, KAMABOKO cooling machine), out of many machines used for general manufacturing processes for cooking to fish meat kneaded products by dressing meat taking, mixing, agitating, kneading, forming, baking, frying, steam boiling, boiling, and cooling of fishes and shell-fishes.

2. Definitions

For the purposes of this Standard the following definitions apply in addition to JIS B 9650:

- (1) fish meat taking machine The machine to take fish meat by separating bones, skins, scales, etc. from the fish body removed of head part and internal organs. There are mainly the following machines:
 - (a) The machine to take with separating bones, skins, scales, etc. from fish meat by roll type.
 - (b) The machine to take with separating bones, skins, scales, etc. from fish meat by stamp type.
- (2) back screening machine The machine to remove by separating further impurities such as small bones, stripes, scales, etc. from the taken fish meat.
- (3) cutter The machine to cut thinly, mix, and agitate the raw materials such as fish meat, liquid, powders, etc., having agitator moving by power in inside. There are mainly the following machines:

Applicable Standard:

JIS B 9650-General Design Rules for Safety and Sanitation of Food
Processing Machinery

- (a) silent cutter The machine to cut thinly, mix and agitate fish meat, having agitating dish for preparing fish meat minced flesh.
- (b) bowl cutter The machine to cut thinly, mix, and agitate the fish meat, having agitating bowl for making fish meat mince flesh.
- (4) forming machine The machine having feed pump, extruder, molding device, winder, compositor, cutter, extender, etc. required for forming minced flesh of fish meat. There are mainly the following machines:
 - (a) The machine for forming by molding each definite amount of minced flesh of fish meat for fish paste to feed out and by winding to pipe.
 - (b) The machine for forming in multicolour by extruding each definite amount of minced flesh for KAMABOKO and by placing on a plate or filling in a tube.
 - (c) The machine for forming to spherical shape, round bar shape, square bar shape, flat-round shape, flat square shape, etc. by moulding or extruding each definite amount of minced flesh for frying.
- (5) heating device The machine having heating mechanism required for heat treatment of mince flesh of fish meat or its processed goods. There are mainly the following machines:
 - (a) The machine having mechanism for grilling fish paste forms.
 - (b) The machine having mechanism for steam boiling of KAMABOKO forms.
 - (c) The machine having mechanism for frying fried KAMABOKO forms and the oil holding device.
- (6) cooling device The machine and electric fan integrated with the house or cabinet having such mechanism required for cooling the products after heating. Mainly, there are following machines:
 - (a) The machine having mechanism required for cooling the fish paste products.
 - (b) The machine having mechanism required for cooling KAMABOKO products.
 - (c) The machine having mechanism required for cooling fried KAMABOKO products.

3. Safety and Sanitation Countermeasures for Individual Types

3.1 Fish Meat Taking Machine

3.1.1 Safety Countermeasures The safety countermeasures shall be as follows:

- (1) The transmission and driving mechanisms shall be of such structure that the hand fingers and other part of personal body are so protected as not to enter by safety cover or guard without fail.

- (2) The machine shall be provided with window opening for inner part checking so as to make the check, regulation, and repairing easy.

Further, the structure shall be such that attaching and detaching of safety cover and guard can be conducted safely and easily.

- (3) The structure shall be such that at the time of cleaning or washing, the light matters can be detached easily, and the heavy matters can be washed without detaching by using mechanism such as reversing and the like.
- (4) The feed oil shall be of such structure that provided with autogreaser or the like so that oil feeding can be conducted safely even during operation.
- (5) The portion of large inertia motion of driving device shall be of safety structure provided with a torque limiter or the like.
- (6) In the case of stamp type, the structure shall be such that the parts having the action of buffer safety valve for protecting the machine body due to continuous instantaneous forces are assembled.
- (7) The emergency stop switch shall set at a position where it is possible to reach quickly and safely from the working position.

Further, as required, those shall be set at plural places.

- (8) The net roll and knife of roll type as well as the disc and knife of stamp type to be used shall be applied with quench hardening treatment.
- (9) The machine shall be of such structure having no dangerous portion such as protrusion, sharp edge, etc.

3.1.2 Sanitation Countermeasures The sanitation countermeasures shall be as follows:

- (1) The structure shall be such that the poured oil does not mix in the foods.
- (2) For bolts, machine screws, washers, etc. to be used at the place to contact the foods, stainless steel shall be used and those having dent, not be used.
- (3) The structure shall be such that at the time of cleaning and checking, the required portions can be decomposed and assembled by means of simple tools and, washed easily.
- (4) The edge and corner of food contact part shall be rounder by not less than 6 mm to be smooth and, of such structure that it is capable of draining over the whole body and no water reserves.
- (5) For the intermediate roller of roll type, corrosion resistant aluminium or synthetic resin having quality equivalent or superior thereto shall be used.

3.2 Back Screening Machine

3.2.1 Safety Countermeasures The safety countermeasures shall be as follows:

- (1) The back screening machine into which the raw material is injected automatically shall be of such structure that in order to prevent the danger of worker the safety guard is so provided that his hand and finger do not enter the raw material injection device (raw material pressing-in screw or propeller) so as not to contact the raw-material pressing-in screw or propeller of rotary part.
- (2) The back screening machine into which raw material is injected by hand shall be of such structure that in order to prevent the danger of worker his hand and finger do not enter from the dangerous portion of injection opening so as not to contact the blade screw of rotary part.
- (3) In the case where in order to carry out effective feed of raw material, further larger injection opening is provided, the structure shall be such that it is able to prevent securely the reaching of finger and the like to the blade screw by providing the safety guard at the upper part of injection opening.
- (4) The safety guard of raw material injection opening shall be of such structure that even in the case where the feed tray is detached it remains.
- (5) The operation board to be attached at the outside of back screening machine shall be of drop preventive structure and as required, water preventive structure.
- (6) The structure shall be such that the position of back screening machine is not shifted and excessive vibrations are not generated.

3.2.2 Sanitation Countermeasures The sanitation countermeasures shall be as follows:

- (1) The structure shall be such that for cleaning and checking of food contact parts (blade screw, cylinder, and hopper), speed reducer, electric motor, lower part of transmission part attaching, etc. the cover and the like can be attached and detached by means of simple tools.
- (2) The corner part of food contact part shall be made smooth by rounding without fail so as to be such structure that it is able to exhaust to the whole body and water is not remained.
- (3) The transmission part including electric motor, bearing part, etc. shall be set at food no-contact part and applied with such treatment that the raw material does not contact directly.
- (4) The structure shall be such that the juice and meat grease to be accumulated at parts of blade screw and cup joint can be exhausted.