

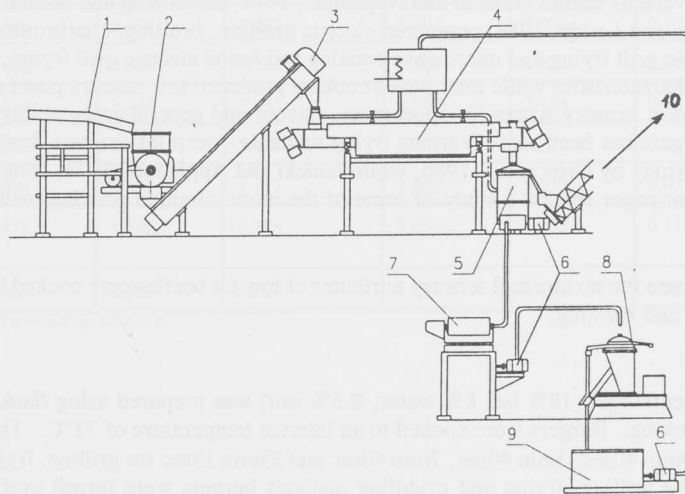
A LINE FOR BONES DEFATTING

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Usage of low-frequency oscillations - vibrations is one of efficient ways of technological processes intensification. Vibrational equipment ensures fat extraction from bones in a continuous flow for a minimum time at moderate temperatures, guaranteeing high quality of ready produce. The line provides bones defatting by a "wet method". The process is done according to the following scheme:

- Line for bones defatting:
 1 - table for bones defatting
 2 - bones crusher
 3 - transporter
 4 - vibrational extractor
 5 - washer-separator
 6 - pump
 7 - decanter
 8 - separator
 9 - receptacle for waste water
 10 - for drying



The bones are crushed into pieces 12-15 mm. Then the crushed bones go continuously to a vibrational extractor, where during 5 min. the fat is being melted. Operational parameters of fat extraction: amplitude 2-3 mm, vibration frequency 25 Hz, pressure of the heating steam - 0.2-0.4 MPa. Water with the temperature 90-95°C is supplied to the housing of the extractor. Application of vibrations on moving layer of bones leads to significant turbulization of the medium, increase of the relative velocity of water and bones at the interface of phases, decrease of the thickness of the boundary diffusion film on bones surfaces, decrease of the viscosity of the system, thus intensifying the process of mass exchange at the apparatus. From the extractor the defatted bones go to washer-separator, and the water-fat emulsion - to the decanter. The water at 90-95°C goes to washer-separator, from where the washed bones go to drying, and the water-fat emulsion is cleared in the decanter from small bones particles and is transferred to separation.

The waste water after separation is heated and comes back to the vibrational extractor and washer-separator. The average output of edible fats from the bones as obtained at Moscow meat-processing plant is 80% of higher grade and not more than 20% of first grade. The fats as manufactured at this line comply with the State Standard of Russia.

Technical description of the line

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| Capacity, kg/h (in terms of raw materials)..... | 1000 |
| Fat output, % (from the weight of initial raw materials)..... | up to 17 |
| Steam consumption, kg per 1 kg of raw materials..... | 0,15 |
| Consumption of hot water (90-95°C) per 1 kg of raw materials, l..... | 0,03 |
| Output of electrical equipment, kW..... | 90 |
| Floor space, m ² | 60 |
| Period of paying off..... | less than 1 year |