Extruders for Aquafeed production
(suitable for floating pellets)

The process:

1) Batch mixing of all dry ingredients is done in a batch mixer. It is important to ensure that raw-materials consist of finely ground particles without any insoluble impurities like scales, dust particles, bones, and such other. The ingredients are: fish meal, corn, wheat or rice flours, starch, soy proteins, etc.
2) Premixed materials are conveyed by lifting screw to Pre conditioner in which materials are mixed along with required moisture (water) so that every particle absorbs moisture. This is ensured by injecting water at high pressure via. Dosing pump and nozzles placed inside the Pre conditioner. Meat slurry can also be added in the Pre conditioner. At the same time, steam can also injected inside the chamber to raise the temperature of mix and precook the starchy materials at tempt. Of approx. 100 deg. C. This Preconditioning step ensures that ingredients are provided necessary retention time so that they absorb moisture and tempt. Of mix is raised before being fed to Cooker Extruder.
3) Hydrated & Precooked materials are fed via Auger feeder into Cooker Extruder. The raw-materials are processed in the Kneading, Cooking and Pump zone of specially designed screw which provides mechanical shear and forward pushing of the cooked mass towards the die. The screw assembly consists of feed screws, steam locks, paddles, reverse pitch elements & final conical helical discharge section. The raw-materials are cooked due the frictional energy of the screw rotating at high speed to push out the material through the die provided with many round holes of approx.1.5mm. Friction also raises the temperature of raw-materials and the barrel walls are constantly cooled by water to limit the temperature rise and ensure a good quality extrudate.
   An important feature is provision of adjustable orifice so that the back pressure inside the extruder can be controlled to achieve the low density of the floating pellets. This also enables degree of mechanical shear to be varied as per requirement. As the product emerges out of die openings, water inside the product rapidly flashes off the product as steam giving the product porosity & spherical shape with low density typically 22-28 lb/cu.ft (356-453 Kg/cu.m) for floating feeds.
   A continuous operating high speed rotary cutter cuts the extrudate into small lengths (pellets) which still contains appreciable moisture in it.
4) The pellets are transferred to Hot Air Continuous Dryer to bring down the final moisture content between 8-11% to avoid mould growth.
5) These are then coated with colours and fats in a coating drum, cooled, packaged & stored.

Sinking feeds are produced using above setup for cooking the ingredients followed by low shear densification/compaction of the cooked mass in a Forming Extruder to produce high density required for sinking pellets.

Extruder unit for floating feeds 300 Kg/h

With our expertise, we are offering efficient Extrusion cooking systems for producing floating fish feeds, micro pellets, shrimp feeds:
Screw diameters from 100 thru 150mm for throughput ranging from 300 Kgs to 700 Kgs/h.

A- Material Bin.
B- Pre-conditioner.
C- Cooker Extruder.
D- Diehead with pressure control choke.


View of Cutter & Die

Manufacturers:

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