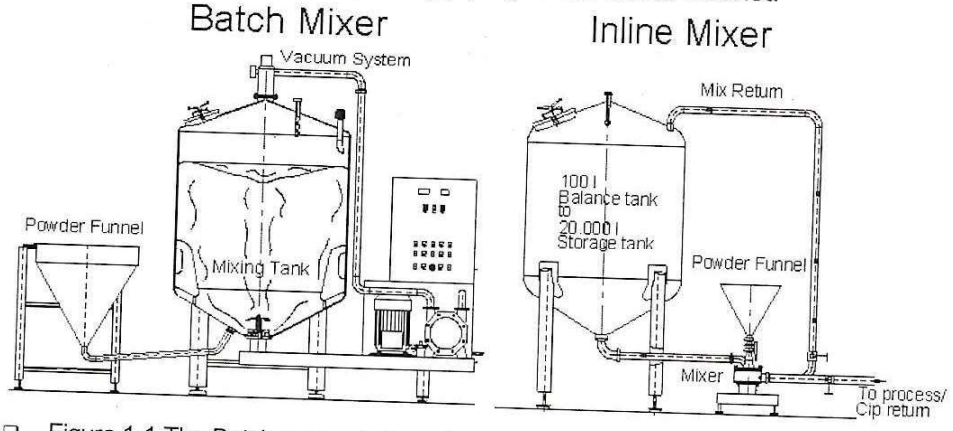
1. The Scanima Concept

Scanima A/S is a limited company with its registered head office in Aalborg, Denmark. Scanima employs approximately 80 people.

❑ Scanima Head office

Scanima A/S is specialised in manufacturing and developing Turbo Process Mixing Systems, High Shear Mixing Plants, Blending Vessels, Cooling Vessels and In-Line Mixing – supplying to the world market.



❑ Figure 1-1 The Batch versus In-line mixer principle

Scanima can meet all national standards and regulations when supplying equipment. Our highly educated and experienced staff will make sure that the Scanima Systems will work to your satisfaction.

The Scanima Systems are used for producing:

Dairy Products, Prepared Food, Baby Food, Convenience Food, Pre Spray Dried, Health Care, Cosmetic, Veterinarian, Dental, Technical, Chemical and Pharmaceutical Products.

The Scanima Systems technology gives optimal powder/liquid or liquid/liquid mixing, with or without high shear mixing.

Products/ingredients homogenise, emulsify and disperse in a matter of a few seconds, even products with a very high total solids or very high viscosity. Particles can be blended gently into the product. All powder and additives can be drawn into the system by vacuum, and the product can be de-aerated. All these functions can be fully automated to suit the individual product and process.

To achieve this total process, technology has taken several years of on-going research and development. Scanima can confidently say that we can provide equipment which will give you an "**All in one process**" production and therefore reduce processing time, handling time, down time for CIP/cleaning and down time for maintenance.

The Scanima system "**All in one process**" gives you:

- Turbo Mixing
- High Shear Mixing
- Gentle Mixing
- Blending
- Homogenising
- Emulsions
- Pasteurisation
- Dispersing
- In-Direct Heating
- Direct Heating
- De-Aerating
- Cooking
- Cooling

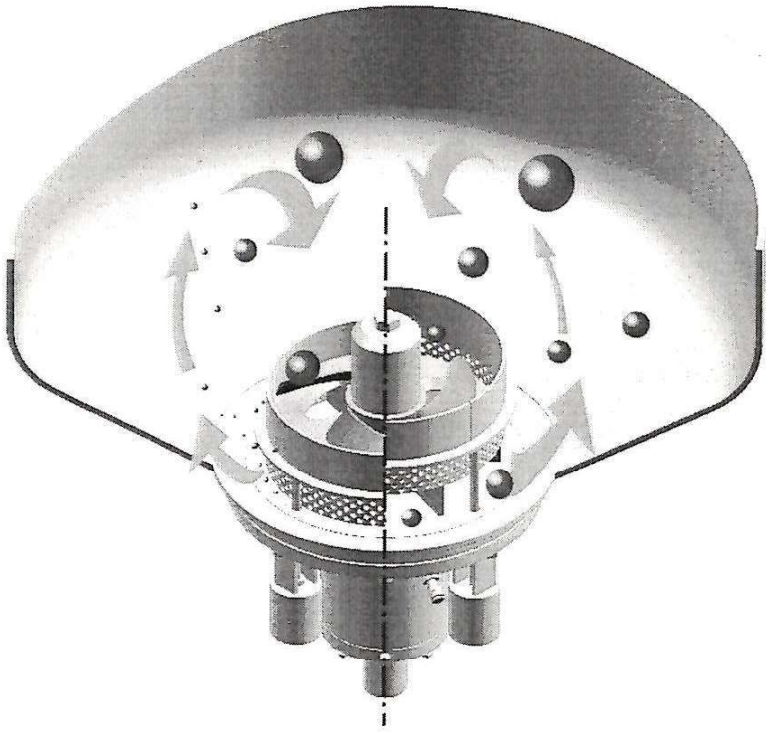
Please refer to WWW.scanima.dk for further information.

3.1.2 Turbo unit principle

The mixing plant is built around the specially designed turbo wheel with separate knife (Knife is optional), and adjustable stator.

Manual/Automatic Lift of the Stator
Flexibility is one of the great advantages of the adjustable stator ring. The adjustable stator makes it possible to switch between using the stator ring or not - and thereby also to switch between homogenising/dispersing and agitating/blending.

When homogenising / dispersing the product is pushed through the small holes in the stator ring, however with the adjustable stator ring you can lift the ring and by that create "free flow". The mixer will then work as agitator/blender.



❑ Figure 3-2 Function Principle
Adjustable stator in the Scanima Mixer.
Left side: Stator ring in homogenising/dispersing position.
Right side: Stator ring elevated for agitating/blending mode

3.1.3 Process principle

When operating the turbo unit, the stator can be put into one of two positions. With the adjustable stator you can put the stator ring in the Homogenising /dispersing position. In that position the product is sucked down into the turbo wheel and pressed out through the holes in the perforation ring. On its way through the perforation ring the impeller wings cut the product.

With the adjustable stator in the agitating/blending position, the product will be sucked down into the turbo wheel and out through the bottom, under the perforation ring. In that position the wings will not cut the product.

The turbo unit can, depending on how the customer wants to run the mixing plant, be equipped with a knife or a blind cap, perforation rings with different shape of holes.

Vacuum system

The mixing unit is equipped with a vacuum system that can suck vacuum in the mixing vessel down to approximately –0,85 bar. This feature has two advantages:

- Powder can be sucked into the vessel due to the vacuum in the vessel.
- Product can be de-aerated, because air are sucked out of the product. (Applicable to batch mixers only)

The vacuum are established by a vacuum pump. The capacity in terms of powder transport are in theory equal to the capacity of the vacuum pump. In practice capacity in terms of kilos is reduced by other parameters: Air in powder, Humidity, Powder type and geometry of the powder convey line. Capacity of a specific application must be determinated by trials.