

[SAM] Bi-conical spiral mixing dryer

Professional sealing, excellent mixing and drying, Automatic control

Features

1. Hermetic operation with professional sealing technology

Thanks to our professional sealing technology, processing within SAM is one completely hermetic step that ensure the product purity; therefore, SAM is able to process with combustible, explosive or toxic products; hygienic grade sealing is possible to satisfy the latest GMP criteria, and enables SAM to be implemented in operation environments subject to strict safety or hygiene regulations.

2. High efficient mixing capability

Spiral stirring structure and assistant crush component running produces mixtures with high level homogeneity in short time; with coordination of the cone shaped wall, materials are well mixed, elevated and crushed before falling; the stirring speed is relatively high but smooth for intense mixing rapidly; SAM mixing capability is approximately 1-2 times higher than that of traditional mixers; we can provide specific reliable solution for materials with high viscosity (e.g. Starch).

3. High efficient drying capability

The temperature circulation system including the hollow spiral stirring structure and jacket layer is full of heat media during drying process; materials receive the maximum heat energy and intensively mixed by the stirring; drying capability is approximately 1-2 times higher than that of traditional drying processes; for the batch production line application, we have accumulated 15 years of a wealth of experience.

4. Automatic control system

Considering reduce the customer labor demand during processing, automatic control center is implemented basing on user-friendly concept; operation training programme is provided.

5. Alternative materials

We manufacture in various grades of stainless steel or alloys to satisfice customer individual application; polished surface is possible.

6. Process tests

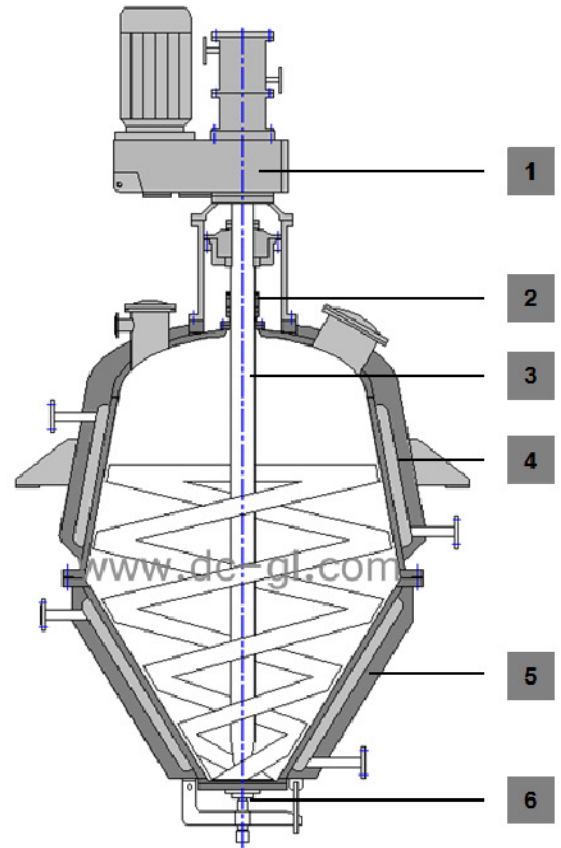
SAM equipment is available in our test center for customer specific filtration tests; test reports are offered as reliable basis for product selection.



Structural principle & Process steps

Structures

- ① Drive structure (with anti-dust cover)
The main stirring shaft is driven by the ATEX certified motor while anti-dust shield is adaptable for strict operation environment hygiene regulation;
- ② Mechanical sealing
Professional sealing part designed and manufactured by DING CHANG;
- ③ Stirring structure
The stirring structure covers all active filtration area during running, including hollow stirring shaft, hollow spiral and straight mixing blade; temperature controlling media is cycling internally;
- ④ Upper cone part
Process integration connectors and SAM functional connectors are distributed on the sealing head; cylinder wall is jacketed by temperature circulatory layer and heat preservation layer; mounting brackets, temperature and sampling ports and temperature controlling media cycling ports are located on cylinder wall;
- ⑤ Lower cone part
The cone part is jacketed by temperature circulatory layer and insulation layer, ensuring the process boundary condition; temperature controlling media cycling ports are located on cone wall;
- ⑥ Discharging structure
Automatic controlled discharging structure with no dead angle design; specific sealing mechanism ensure the hermetic operation.



Process steps

a. One batch feed and drying

One batch of pending processed materials are fed into SAM; at the same time, feed heat media into the temperature controlling circulation system; stirring is activated for rapid material mixing while vacuuming is processed for drying; material can maximum obtain heat exchange for intense drying;

b. Automatic discharge

After drying, vacuum will be stopped; discharge valve will be automatically opened when internal pressure reaches environment level; stirring structure is reversely driven for auto-discharging.

Applications

Pharmaceuticals/ Food/ Chemicals/ Organic chemicals/ Agrochemicals/ Dyes/ Textiles/ Metallurgy/ Ceramics and so on.

Performance data and dimensions

Items	Types	SAM - 0.5	SAM -1.0	SAM - 2.0	SAM - 3.0	SAM - 5.0	SAM - 10
	Volume	[m ³]	0.5	1.0	2.0	3.0	5.0
Temperature Exchange area	[m ²]	5.0	9.0	14	18	23	38
Drying type	Hermetic vacuum drying						
Drive power	[kw]	7.5	11	15	18.5	22	30
Material	Carbon steel, stainless steel, titanium, alloy and so on (coated design is possible)						
Dimensions		φ 1000	φ 1400	φ 1600	φ 1800	φ 2200	φ 2600
Cylinder Diameter x Hight	[mm]	×2700	×3200	×3800	×4000	×4300	×5500
Weight	[t]	1.8	2.7	4.7	5.5	7.3	11.8
Others	Depends on the requirement, equipments with volume range of 0.3- 10m ³ are possible						

DING CHANG national patented products :

- Cylinder cone filtering&washing&cryng equipment
- Cylinder cone press filter
- Bi-conical spiral mixing dryer
- Continuous press filter with composite rotary plate
- Horizontal crystallizing&washing&filtering&drying equipment
- Multi-tube continuous filtration concentrator
- Multi-plate continuous filtration concentrator
- Spiral mixing continuous crystallization reactor



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