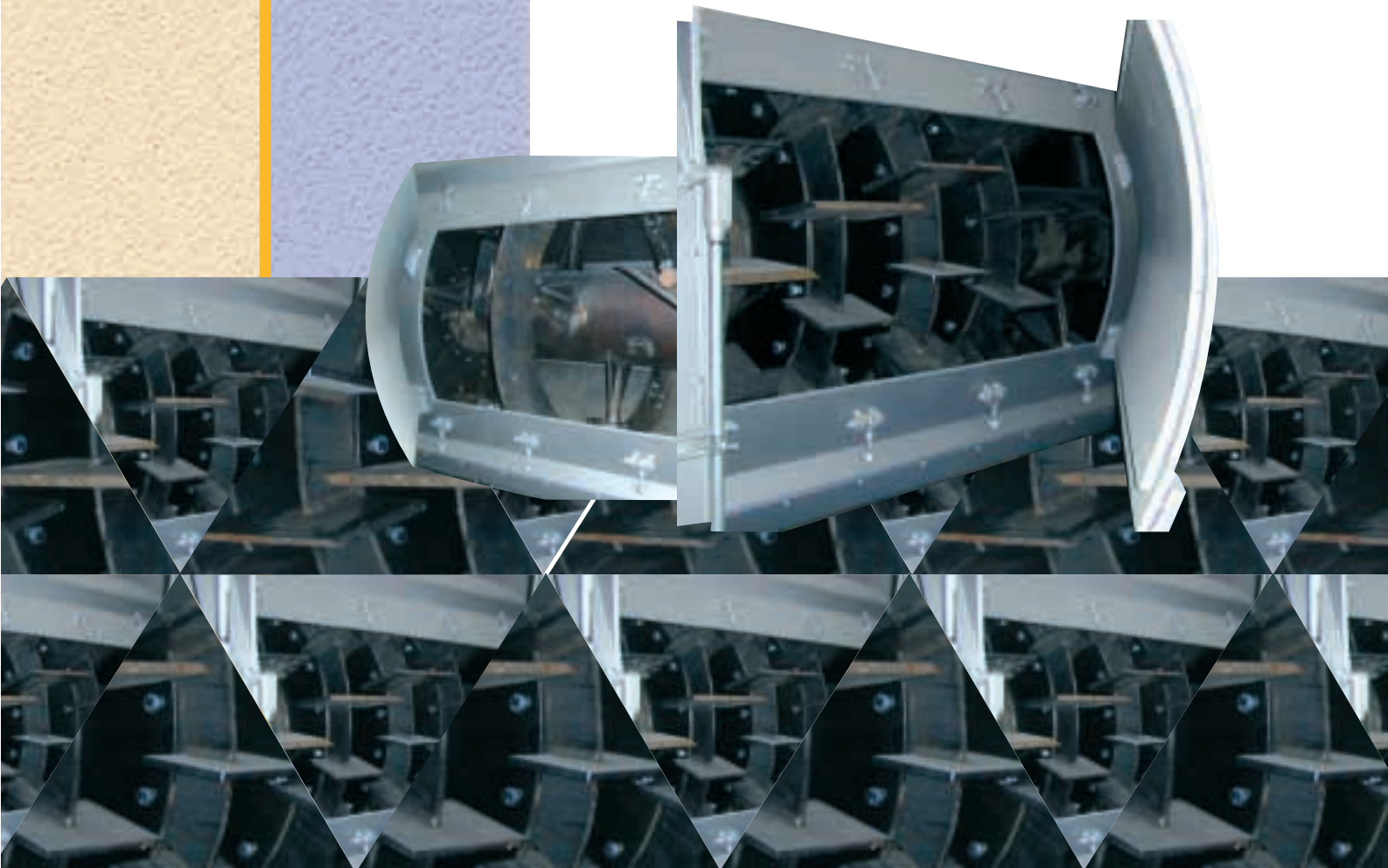




ATRITOR

**The Atritor-Scott
AST Dryer**



Powder Perfection

The Atritor-Scott AST Dryer

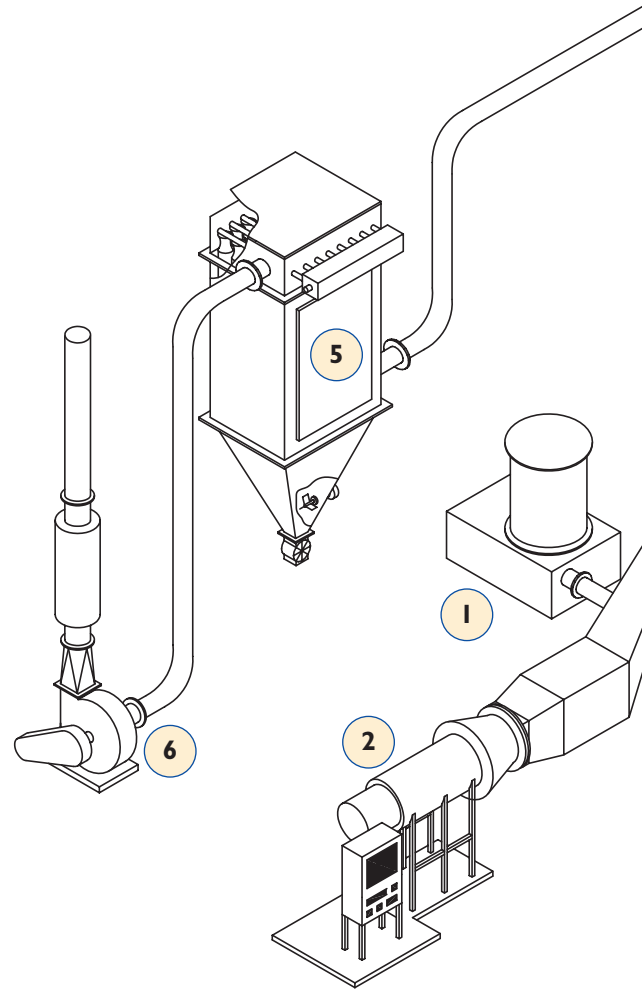
The AST Dryer complements Atritor's range of drying mills, being uniquely capable of drying materials with as much as 95% moisture in the feed, without resort to any form of feed conditioning. It is equally capable of processing relatively dry feed-stocks.

As the degree of turbulence and the residence time in the AST are independently variable, the product can range in size from granular to powder. The residual moisture content of the product is a function of the dryer exit temperature and the product size, but can vary from more than 10% to less than 1%.

Evaporative capacities from 380 kg/hour to 8,800 kg/hour are achievable.



Large sludge drying plant



Typical Products

Inorganic Materials

Alumina trihydrate
Bentonite
Calcium carbonate
Coal fines
Gypsum board
Iron oxides
Kaolin
Magnesium oxide
Silica
Titanium dioxide

Organic Materials

Bone meal
Cellulose
Ceramic fibre
Cereals
Gluten
Pigments
PVC resin
Seaweed
Soy protein
Wood flour

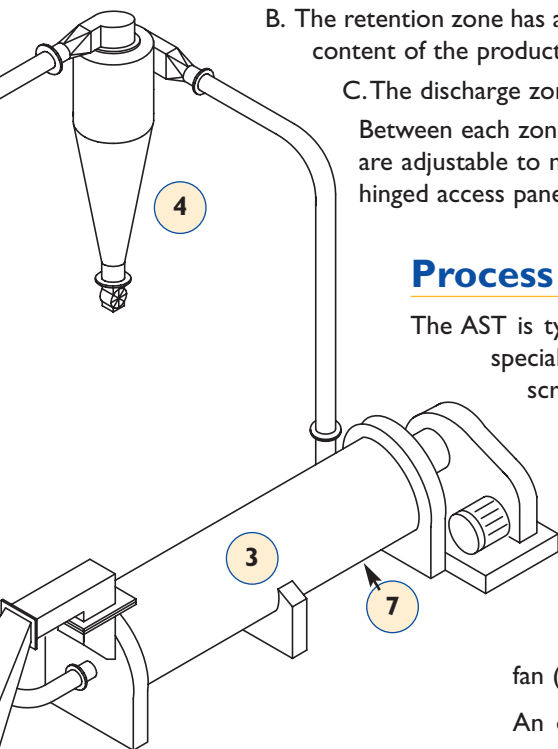
Waste Materials

Brewer's grains
Chicken manure
Citrus pulp
Coagulated blood
Coconut fibres
Feather meal
Paper sludge
Pork skin residues
Sawdust chips
Sewage sludge

Operating Principle

The AST is a cylindrical dryer rotating at modest speed and is divided into three zones:

- A. The inlet zone has fixed agitator plates with closely packed blades, the geometry of which creates high material velocities for maximum turbulence and flash drying.
 - B. The retention zone has a series of adjustable paddles that can affect the residence time and thereby the moisture content of the product.
 - C. The discharge zone also contains adjustable paddles but these are set to convey the product to the exit.
- Between each zone is a series of flow controllers, passing drier and retaining wetter fractions. These dams are adjustable to material characteristics. All adjustments to the internal parts can be done through large, hinged access panels in each zone of the dryer. Cleaning can also be achieved through these panels.



Process System

The AST is typically fed by a variable speed screw auger or a pump directly into the inlet zone. A specially designed mass flow feeder (1) is available to work in conjunction with a volumetric screw. This device is extremely versatile and will process the most difficult materials.

A hot air generator (2), mounted adjacent to or above the dryer, provides air to the inlet of the dryer at temperatures up to 600°C. This is typically fuelled by natural gas, but other gases or oil are suitable. The fuel firing rate is controlled by a temperature instrument in the discharge duct of the dryer. This temperature determines the residual moisture of the product and is therefore used as the process set-point.

Air and dry material leave the dryer (3) through the exit duct to a cyclone (4) and/or a bag filter (5) to separate material from air. The air then passes to the main process fan (6) and the product is discharged from the base of the collectors.

An option used for the production of moist, granular materials is to discharge them by gravity from the base of the third zone (7).

Product temperatures rarely exceed 60°C.

System Inerting

The AST is an excellent tool for processing potentially explosive materials, as the entire system can operate under inert conditions. Exhaust gases are returned to the hot air generator where they are reheated to the dryer inlet temperature. The proportion of return gases is controlled by an oxygen analyser set to a safe process level. An artificial drying load is introduced to reduce the oxygen level before the feed is introduced.

Materials of Construction

The AST can be manufactured in carbon steel, stainless steel grades 304 and 316, hasteloy and abrasion resistant steels. The internals can be polished to fine grit finishes or coated with epoxy and other materials.

Test Facilities

To ensure customer confidence in the capabilities of Atritor equipment and processes, we operate a comprehensive pilot plant in Coventry where our range of equipment, including the AST, is available for client product evaluation trials. To eliminate scale-up problems, all the equipment in the pilot plant is small production size. It is supported by a well equipped laboratory and experienced test engineers.

Complete Engineered Solutions

Atritor can provide the following services to ensure complete customer satisfaction:

- Full process plant design using the very latest AutoCAD software
- Process control systems with custom programmed PLCs
- Supply of all equipment for a complete process
- Full installation service
- Experienced engineers for commissioning and operator training
- Process guarantees
- After sales service and spare parts supply

Technical Data

Model	Heat Input (KJ/hour)	Air flow (am ³ /h)	Evaporation Rate (kg/h)	Motor kW	Length (mm)	Width (mm)	Height (mm)
1610	1.0 x 10 ⁶	2,500	380	15	3900	1200	850
2010	1.5 x 10 ⁶	3,750	570	22	4100	1500	1000
3012	2.5 x 10 ⁶	6,250	750	45	5100	1800	1250
3612	4.0 x 10 ⁶	10,000	1,200	75	5200	2200	1400
4815	6-9 x 10 ⁶	22,500	2,650	110	6700	2900	1800
6018	9-15 x 10 ⁶	37,500	4,400	132	8800	3500	2400
7220	12-18 x 10 ⁶	45,000	5,250	200	10400	3800	2700
8422	16-24 x 10 ⁶	60,000	7,000	250	11600	4200	3000
9624	24-30 x 10 ⁶	75,000	8,800	300	12200	4600	3350

Other Equipment in the Atritor Range



Multirotor Cell Mills



Dryer-Pulverisers



Micronising Mills



Opposed Jet Mills



DCM Mills

Website

For more information about the company visit our website
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