



SACMI

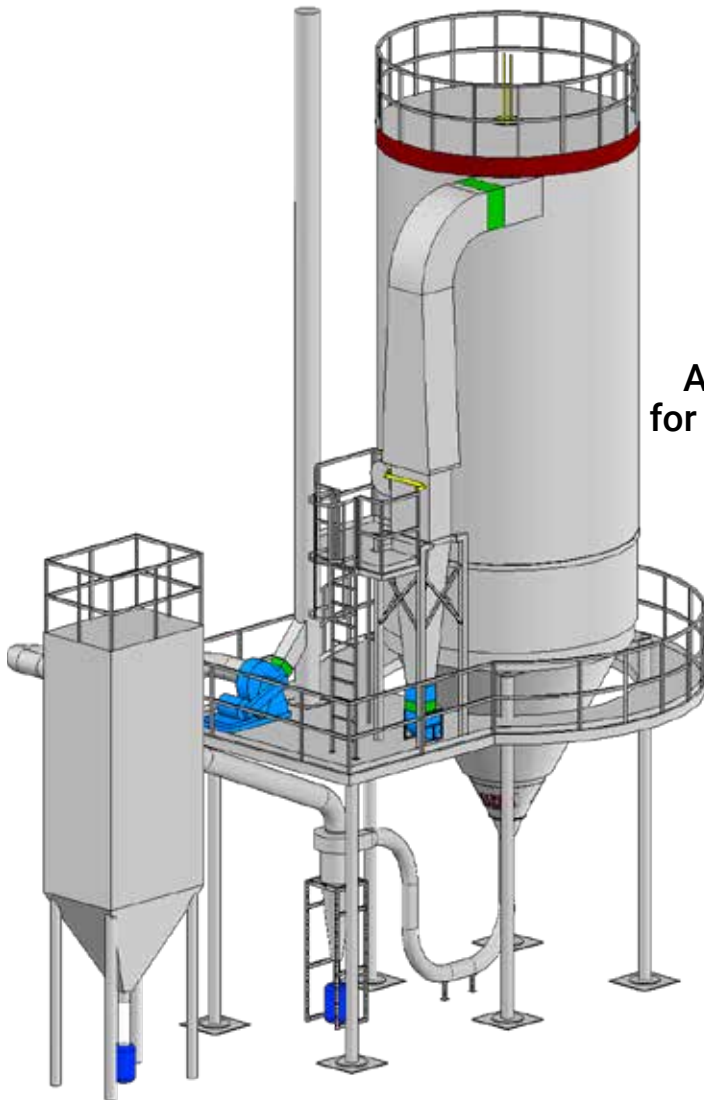
ENDLESS INNOVATION SINCE 1919

ATL SERIES

Spray dryers for LFP cathode active material

SACMI SPRAY DRYER

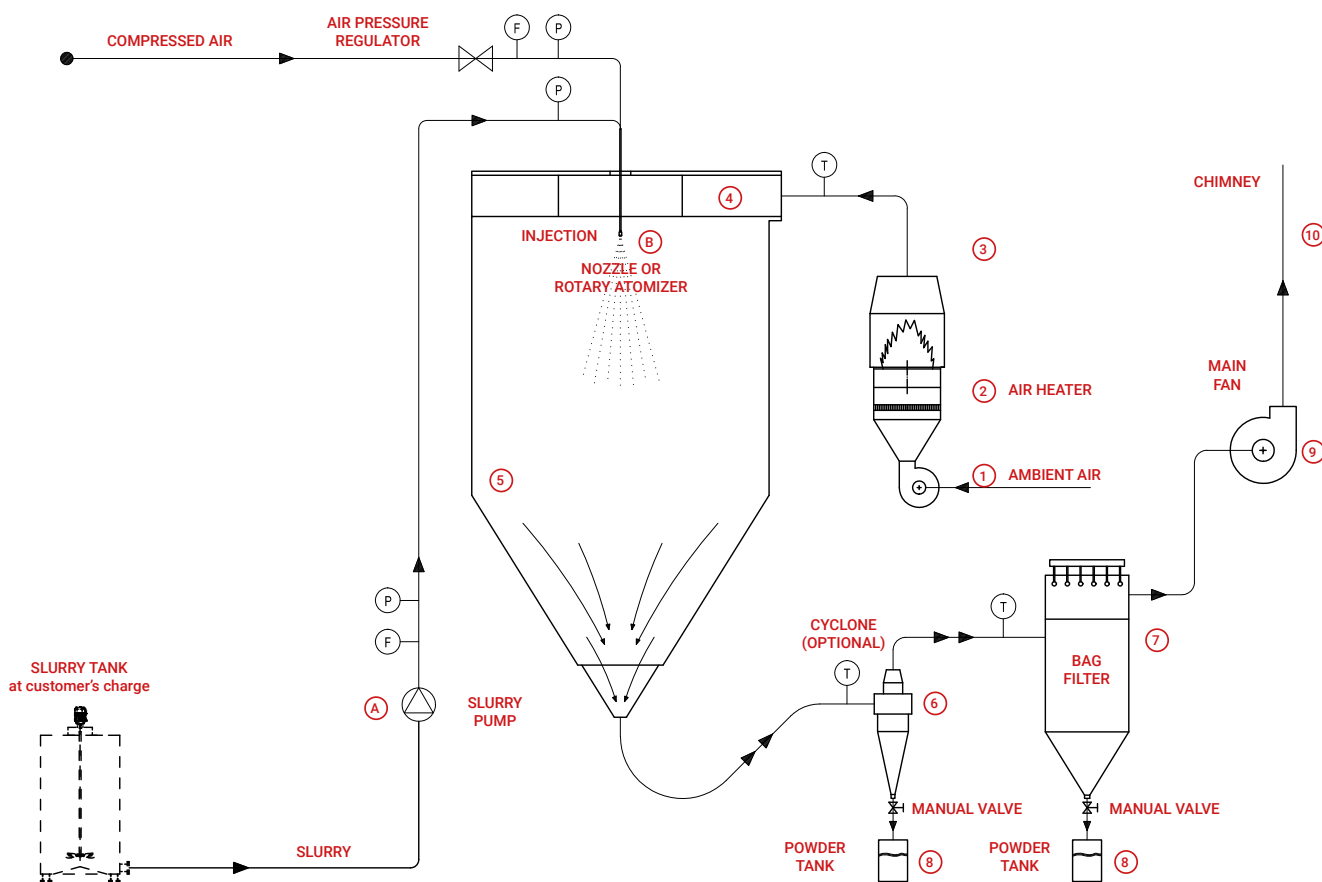
**A well-established machine
for drying plenty of materials.**



The SACMI spray dryer is thus a highly versatile, efficient machine, ideal for drying many different materials, including LFP cathode powders. Slip particles are dried by a hot air flow emitted at constant speed, pressure and volume. This uniform-density flow is finely balanced around the central axis of the space within which it spins. The produced vortex is a finely-targeted stream of air, which guarantees constant humidity and particle-size grading, in a plant that reduces any dispersion to the minimum and thus provides concrete savings in terms of both time and energy.

More than 50 years of experience in spray dryers design for dozens of different materials, combined with more than 1.500 machines installed all over the world, give SACMI a unique knowledge of spray drying technology that can be put at disposal of the market to develop the right machine for every process.

Ranging from small pilot line productivity up to extremely high water evaporation rate, these machines can be personalized according to the process needs.



LFP FLOW SHEET

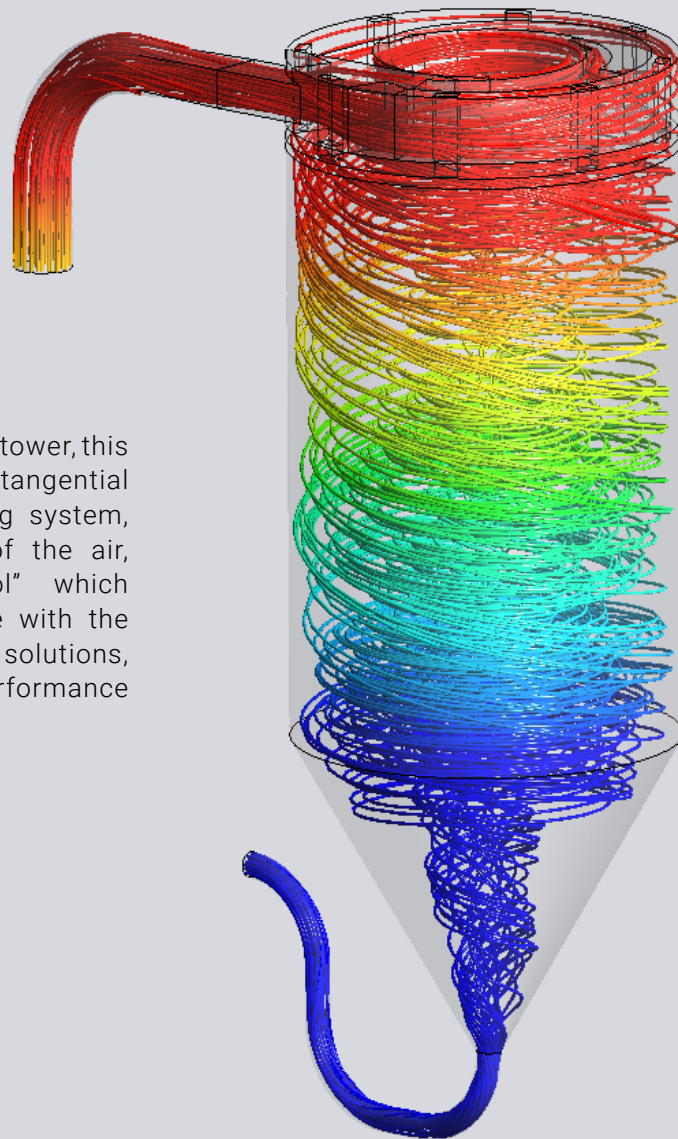
The pressurization fan (1) forces the air through the (2) heater which heats it. Along a thermally insulated steel duct (3) the air comes into the ring distributor (4) which starts rotating it inside the drying tower (5).

Here the hot air collides with the slurry, fed at constant throughput by the pump (A) into a suitable injection device (B: nozzle or rotary atomizer) that nebulize the slurry itself.

Thus dried, the product falls to the bottom of the tower where it is sucked with damp air by the main fan (9) and sent to the stack (10) through the separator cyclone (6, optional) and then to the filtering system (7). The dried powder is captured at one or more collection points (8): cyclone outlet (in case of any) and filter discharging. The clean air is expelled through the stack (10). The entire cycle is controlled electronically.

Co-current top down slurry injection from the top of the tower.

TANGENTIAL HOT AIR DISTRIBUTOR



Located at the top of the drying tower, this is characterized by a tangential peripheral inlet and a ducting system, which generate a rotation of the air, thus creating a "whirlpool" which facilitates the heat exchange with the material. Compared to other solutions, this system gives increased performance and reduced consumption.

FUEL

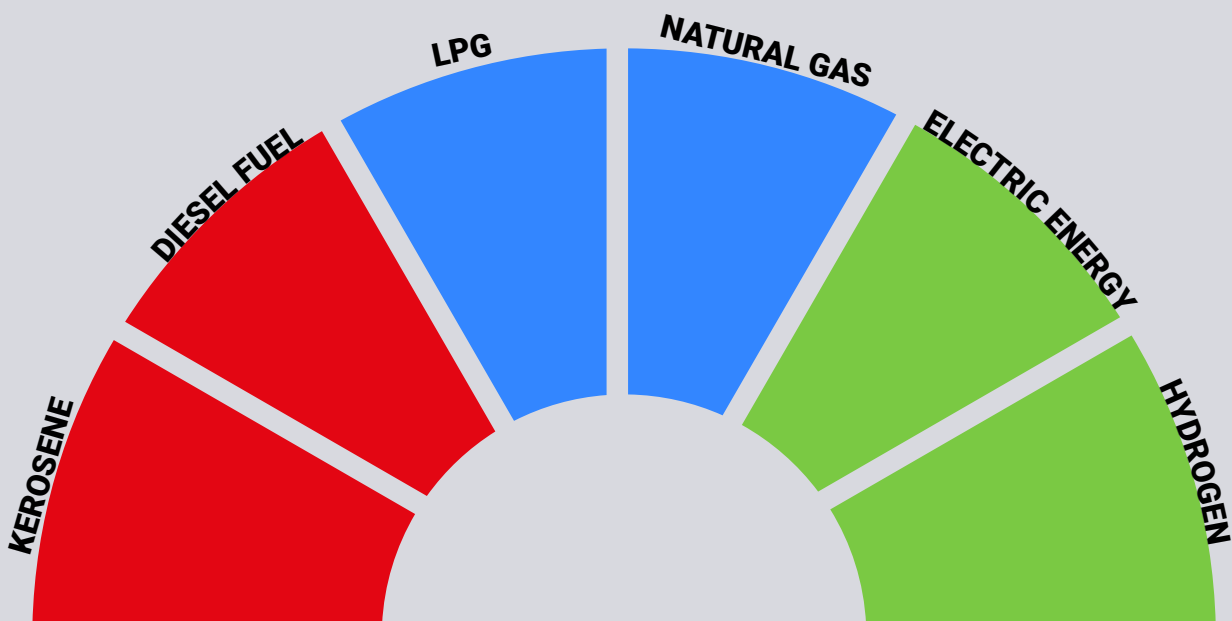
From traditional to the greener ones.

ATM spray dryers are designed in the most accurate way, keeping always in high consideration the environmental impact.

Years of experience allowed SACMI to have a complete control of the direct combustion system of the spray dryers, using different burners suitable for different types of fuel.

The last developments have been relevant to new solutions toward the sustainability of the process and CO2 reduction, by means of adopting heaters able to work with hydrogen or electrical energy, in different percentages.

Energy saving is a well established concept of the machine, that is designed to reduce at the minimum the energy requirement of the process by means of in-built solutions or external systems like the hot air recovery from the thermal wastes of the plant.



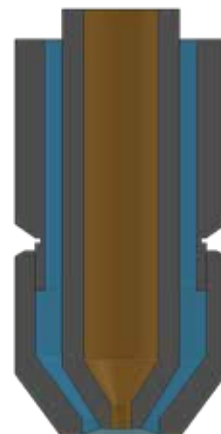
GRANULOMETRY AS PER YOUR CHOICE

Every process has its own requirements. LFP CAM powder is a material with many peculiarities that requires the most advanced regulations of the spray drier in terms of temperatures, pressures, air volumes, slurry feed ratio and burner setting.

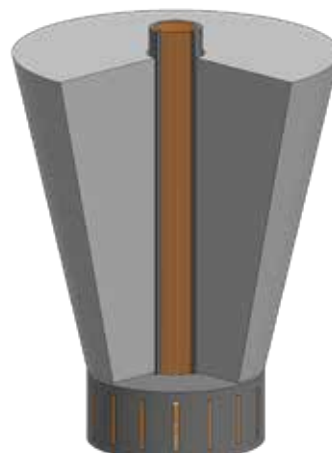
Thanks to the outstanding experience in drying, SACMI developed a fully integrated electronic system able to manage all the regulations in an easy and prompt manner, in order to optimize the process and to get the high chemical and physical properties required by Li-ion batteries.

With the right combination of the process parameters, it is possible to obtain the most appropriate granulometry of the final powder, from the finest to the coarsest ones.

Multiple solutions of slurry injection are available in order to give the maximum flexibility to the whole system, from dual fluid nozzles (1) to rotary atomizing devices (2), according to the required productivity and granulometry.



1. DUAL FLUID NOZZLE



2. ROTARY ATOMIZER

GIVE IT A TRY.

SACMI Lab Machine

At SACMI Imola there is a lab spray dryer available for trials, both to test the performances and to carry out developments on the final materials.

The machine is able to produce up to 100 kg/h of powder and can be set to grant the production of powder with humidity and particle-size distribution at the value requested in a constant way.





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