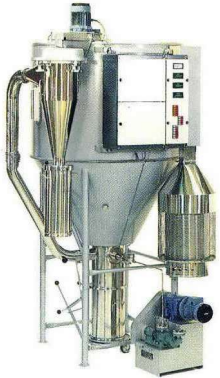


Other available pilot plants

SPRAY DRYER

Type: Utility
Water evaporative capacity: up to 35 kg/h



SPRAY DRYER

Type: P-6.3
Water evaporative capacity:
up to 60 kg/h



SPRAY DRYER

Type: FSD Pilot
Water evaporative capacity: up to 42 kg/h



FALLING FILM EVAPORATOR

Type: FF
Evaporative capacity: 40-300 kg/h



VIBRATED FLUID BED

Vibro Fluidizer, type VB-0.3
Air flow range: 200-1200 kg/h



Special brochures available

*Powder Show
May '89*

**NIRO
ATOMIZER**

Niro Atomizer Inc.
9165 Rumsey Road
Columbia, MD 21045
Tel.: 301 997 8700
Telex: 87-576

Portable Spray Dryer

for product testing and small-scale production of specialist powders

Type HT

**NIRO
ATOMIZER**

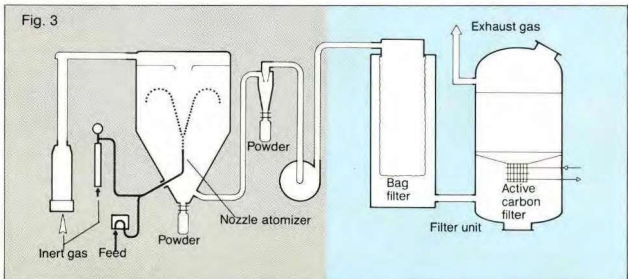
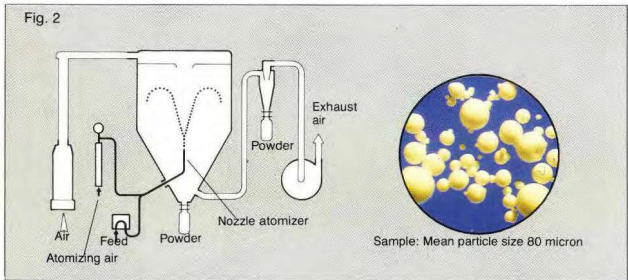
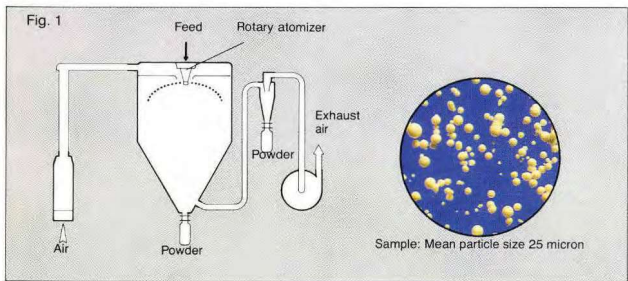


Portable Spray Dryer Type HT

The Portable Spray Dryer has enjoyed unique success ever since it was first introduced in the fifties. More than 1300 units are being used at universities, research centres and specialist powder production facilities.

The Portable represents the most sold spray dryer of its size class to-day. New Type HT versions of this popular unit (the smallest spray dryer in the Niro Atomizer delivery programme) have been introduced to meet end-user

needs. A choice of atomizer and auxiliary equipment gives the possibility to produce either FINE or COARSE powder, irrespective of whether feeds contain water or organic solvents.



When a fine powder is required, the rotary atomizer is used in the drying chamber (Fig. 1). Should a coarser and more free-flowing powder be specified, the upward firing two-fluid nozzle is selected (Fig. 2). Irrespective of atomizer choice, the two-point powder discharge capability built into the spray dryer enables collection of separate powder grades — the coarsest from the chamber base, the finer fraction from the cyclone.

The Type HT can be equipped with a bag filter for total powder collection, and with an active carbon filter for recovery of organic solvents when spray drying non-aqueous feeds (Fig. 3). The carbon filter can be regenerated in situ using steam. To give complete operational safety when handling solvents, drying is conducted in an inert atmosphere, and there is a special attachment at the inlet of the heater for an inert gas supply (nitrogen).

Weight and Dimensions

	Spray Dryer	Filter Unit
Length:	1800 mm	1800 mm
Width:	925 mm	925 mm
Height:	1900 mm	1950 mm
Weight:	300 kg	500 kg

The Type HT is an ideal unit for determining the basic conditions for spray drying a given product. By using the Portable, scientists have been assisted in solving drying problems and in developing new products. At a time

when more and more high value specialist powders are produced in small batches, the Type HT offers industry a simple, reliable, effective, flexible and safe production tool.

Process Data

Inlet Drying Temperature	Evaporative Capacity
200°C	2.5 kg/h water
240°C	3.4 kg/h
350°C	7.0 kg/h

Drying air rate: 80 kg/h

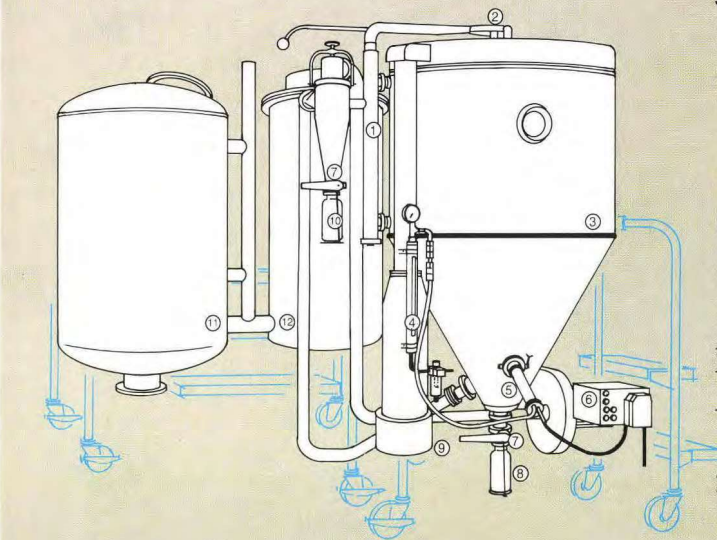
Power Supply:

3-phase (50 or 60 Hz) to meet local voltage
(200-220-380-400-415-440 V)

Special Features

1. Hydraulic lifting system for chamber roof giving easy access for cleaning drying chamber
2. Rotary atomizer (if applied)
3. Drying chamber of high quality internal finish
4. Flowmeter with pressure gauge for atomizing air (inert gas)
5. Two-fluid nozzle assembly especially designed for operation in small volume drying chamber
6. Peristaltic pump for aqueous and organic solvent based feeds (manual speed control)
7. Powder discharge isolating valves
8. Chamber powder fraction collection
9. Attachment for inert gas supply
10. Cyclone powder fraction collection
11. Active carbon filter for removal of solvent vapours in exhaust
12. Bag filter with washable re-usable bag

All metallic parts in contact with product are of acid-resistant stainless steel AISI 316.



Product applications: Catalysts, ceramics, chemicals