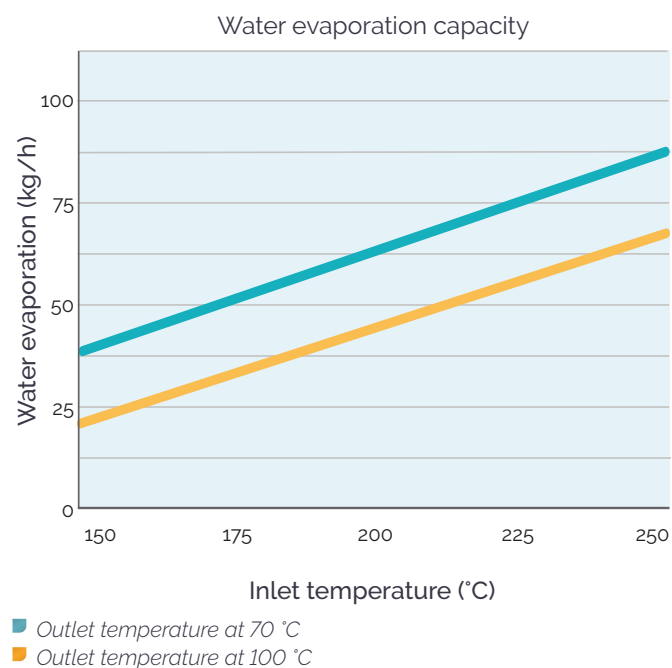


# SD2000 SS

The Small-Scale Spray Dryer, type SD2000 single stage, has been designed for drying of liquid products into powders. In single stage configuration the air is introduced in the top of the drying chamber where the feed is atomized into droplets. All air and powder is conveyed through the drying chamber to the cyclone for efficient powder separation. Single stage configuration enables production of single spherical particles.

The spray drying process is scalable and the SiccaDania Small-Scale Spray Dryers are available in many flexible configurations enabling process simulations of larger industrial size spray dryers.

SD2000 is targeted for R&D work as well as small-scale production and used by companies worldwide. It is available in a standard version and features a range of optional items and modules, thus enabling customisation to match individual requirements.



The SD2000 is produced in sanitary design following GMP guidelines and includes state-of-the-art solutions regarding safety, easy cleaning and a sophisticated PLC based control system. All parts in contact with product are made in stainless steel and all elastomers are food grade approved. All plants are skid-mounted, FAT-tested and pre-wired which minimise installation time and costs.

## TECHNICAL DATA

Drying air rate, max.	1400 kg/h
Inlet air temperature, max.	250 °C
Water evaporation capacity, max.	Approx. 87 kg/h
Drying chamber diameter	2.0 m
Power supply	3 x 400 V, 50 Hz
Compressed air consumption	Up to 5.6 bar(g) Up to 250 NL/min
Noise emission, max.	85 dB(A)
Kst value, max.	200 bar·m/s
Pressure shock resistance	1 bar(g)
Space requirements L x W x H	4.9 x 5.1 x 6.3 m
Recommended free height	7.4 m
Product contact parts	AISI 316
External surfaces	AISI 304
Weight, net	3000 kg

## Equipment

### STANDARD EQUIPMENT

Water balance tank, 10 L with level control
Feed tank, 100 L with level switch control
Mono pump
Feed line
Two-fluid nozzle atomizer
G4 and F7 air inlet filter
Electrical air heater
Drying chamber
Rupture disc
Cyclone
Powder container, 22L
Air ducts
Suction fan, stainless steel
Fire extinguishing system
Control panel with PLC incl. touch screen, cables, wiring and data logging
Stainless steel support structure with stairways, platforms and railings

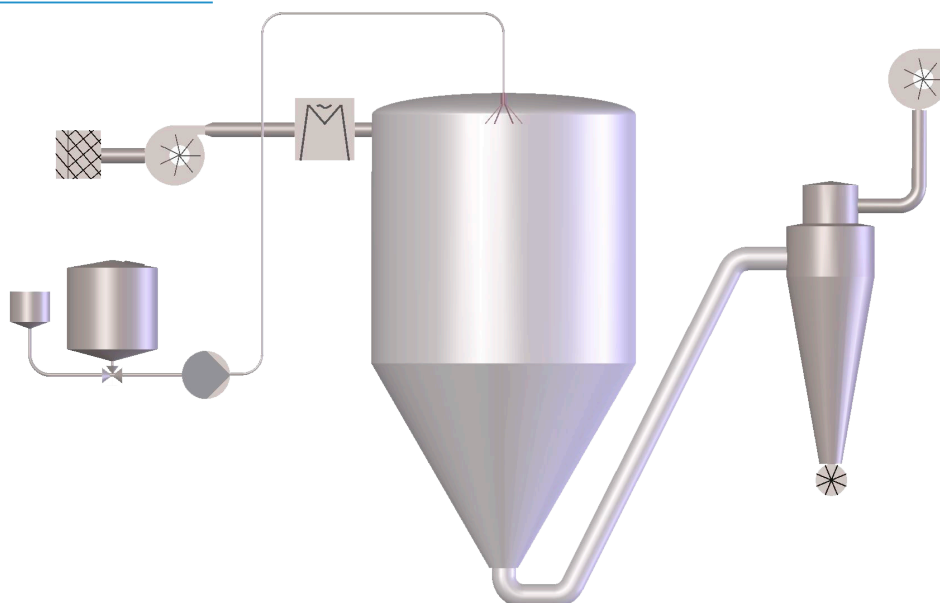
### OTHER VERSIONS

Multi stage version
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### OPTIONS

Insulated feed tank
Agitator in feed tank
Duplex filter on feed line
High pressure feed system
Homogenizer
Centrifugal atomizer
HEPA filter H13
Dehumidifier
Steam heater
Gas heater, indirect or direct
Pneumatic hammers
Bag filter
Venturi scrubber
Powder cooling and conveying system
Explosion suppression system
Indoor explosion venting system
N2 and CO2 gas injection unit
CIP components and connection points incl. CIP return tank and return pump

## Flow chart - SD2000 SS

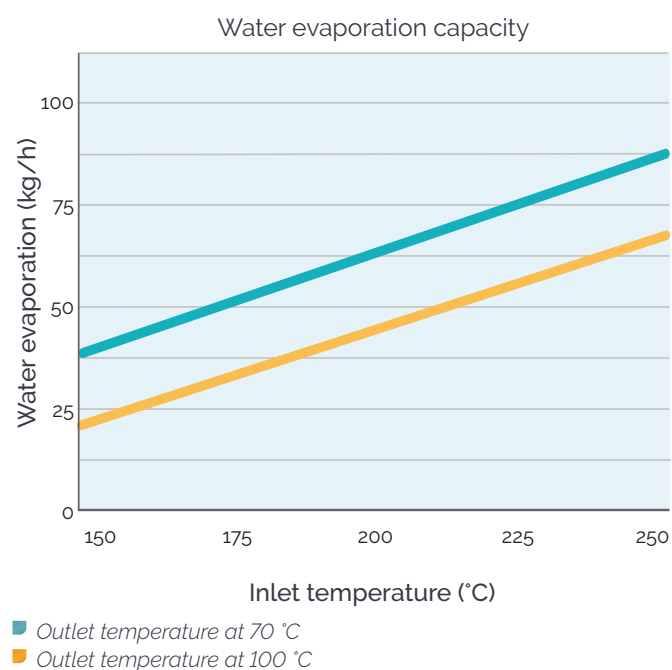


# SD2000 MS

The Small Scale Spray Dryer, type SD2000 multi stage, is targeted for R&D work as well as small scale production and used by companies worldwide. It is available in a standard version and features a range of optional items and modules, thus enabling customisation.

In an SD2000 spray dryer with multi stage configuration, the feed product and the process air are introduced into the top of the drying chamber. Here an instant contact between the atomised feed product and the heated process air takes place and the water evaporates from each droplet. For further drying of the powder, an Internal Fluid Bed (IFB) with a separate air supply system is installed below the drying chamber. From this IFB, the powder is discharged whereas the fines are led to the cyclone together with the drying air.

For optimal product utilisation, a fines return system, situated below the cyclone, blows back the fines to the wet atomisation zone in the top of the drying chamber. The multi stage configuration enables production of dust-free agglomerated particles.



The SD2000 is produced in sanitary design following GMP guidelines and includes state-of-the-art solutions regarding safety, easy cleaning and a sophisticated PLC based control system. All parts in contact with product are made in stainless steel and all elastomers are food grade approved. All plants are skid-mounted, FAT-tested and pre-wired which minimise installation time and costs.

## TECHNICAL DATA

Drying air rate, max.	1400 kg/h
Inlet air temperature, max.	250 °C *
Water evaporation capacity, max.	Approx. 87 kg/h
Drying chamber diameter	2.0 m
Power supply	3 x 400 V, 50 Hz
Compressed air consumption	Up to 5.6 bar(g) Up to 250 NL/min
Noise emission, max.	85 dB(A)
Kst value, max.	200 bar·m/s
Pressure shock resistance	1 bar(g)
Space requirements L x W x H	5.0 x 5.0 x 7.2 m
Recommended free height	8.3 m
Product contact parts	AISI 316
External surfaces	AISI 304
Weight, net	3500 kg

\* On request the maximum temperature and capacity can be increased further depending on type of main heater.

## Equipment

### STANDARD EQUIPMENT

Water balance tank, 10 L with level control
Feed tank, 100 L with level switch control
Mono pump
Feed line
Two-fluid nozzle atomizer
G4 and F7 air inlet filter
Electrical air heater
Drying chamber
Rupture disc
Cyclone and blow-through valve under cyclone
Blower for fines return system
Powder container
Air ducts
Suction fan, stainless steel
Internal fluid bed (IFB) & secondary air supply system
Control panel with PLC incl. touch screen, cables, wiring and data logging
Stainless steel support structure with stairways, platforms and railings

### OTHER VERSIONS

Single stage version
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### OPTIONS

Insulated feed tank
Agitator in feed tank
Duplex filter on feed line
High pressure feed system
Homogenizer
Centrifugal atomizer
HEPA filter H13
Dehumidifier
Steam heater
Gas heater, indirect or direct
Pneumatic hammers
Rotary valve under internal fluid bed
Bag filter
Venturi scrubber
Explosion suppression system
Indoor explosion venting system
N2 and CO2 gas injection unit
CIP components and connection points incl. CIP return tank and return pump
Static external fluid bed for powder cooling (1 section)
Vibrating external fluid bed (2 sections)

## Flow chart - SD2000 MS

