

MIXING & DRYING TECHNOLOGY



VACUUM PADDLE DRYER SHV **SANIDRY**

## VACUUM PADDLE DRYER SHV **SANIDRY**



### GENERAL

Our customers in the Pharmaceutical, Cosmetic, Food, and Chemical industry, continuously face the demand for shorter lead times, harder legislation, equipment suitable for multi-purpose applications and an increased quality awareness, requiring products of highest quality. The Vacuum Paddle Dryer **SANIDRY-SHV** has been developed specially in order to satisfy these high requirements.

Through testing we can make in our own pilot plant, we give specific solutions for specific applications.

We are backed by years of history and a long list of references of renowned national and international level.

The requirements of the industry today, makes us very demanding in preventing all kinds of pollution. Thus, the design of our **SANIDRY-SHV** is in accordance with GMP and EHEDG standards, and perfectly valid for all types of applications within the pharmaceutical industry and fine chemicals.

The drying times are much shorter than usually achieved by other vacuum dryers, thanks to the geometry and size of the blades and movement at a small tolerance in relation to the hot wall.

**BACHILLER** supplies completely automatic systems, incorporating the latest control technologies, and providing the user with the highest efficiency in all the parameters of the process.

### CHARACTERISTICS OF THE VACUUM PADDLE DRYER **SANIDRY**

Drying operations with the highest level of heat transfer, much higher than any other type of fryers. Maximum heat transfer area, as it has heated shaft and blades.

Low energy consumptions.

Production in closed equipment, with total recuperation of the evaporated products.

High flexibility of batch size (working capacity between 30 and 60% of volume depending on the product).

Batch sizes from 20 to 20.000 litres.

Easy access for inspection and cleaning works thanks to its front hatch. The design according to GMP and EHEDG rules.

Available in a wide range of steels, Hastelloy, titanium,...

Surface finishes adapted to every application ranging from simple pickling and passivation to the electro mechanical polishing and polishing.

Our equipments are homologated according to ATEX95 category 1GD, 2GD and 3GD.

We have the highest quality standards ( certification ISO 9001, AD-Merkblätter HP-0, ASME U-stamp).

### PROCESS ADVANTAGES HORIZONTAL VACUUM DRYER **SANIDRY**

Reduce drying times.

Final moisture ratios minimum.

High level of achievable vacuum.

Perfect homogenization of the production batch.

Total process reproducibility.

Dried at low temperature (ideal for heat-sensitive products).

Homogeneous and careful drying (ideal for fragile products).

### TYPICAL APPLICATIONS

Here are some examples of typical applications:

**Chemical:** plastics, inorganic and organic crystals, resins, colorants, pigments, etc.

**Pharmaceutical:** antibiotics, suspensions, cream bases, semi-finished materials, generics, etc.

**Cosmetics:** powdered products, cream bases, etc.

**Food:** extracts and natural substances, dietetics, energetic components, proteins, etc.

Discontinuous operations in batch for the process of dangerous materials, without risk of contamination of the environment, nor risk for the operators.



## VACUUM PADDLE DRYER SHV SANIDRY



### MECHANICAL STRENGTH

The drive unit is widely oversized, in order to work with batches of wet product up to 60% of the volume of the drying chamber.

Shaft sealing by means of a single mechanical seal, double mechanical seal or stuffing box, according to the requirements of the application.

The design conception of the mechanical elements has been developed to make the maintenance works easy, without needing to dismantle the shaft.

The shaft speed can be regulated by means of a frequency converter, which allows different agitation speeds.

The approximation of the scrapping device of the mixing blades to the walls of the chamber, end and hatch, can be regulated depending on the characteristics of each particular application.

### EHEDG AND GMP DESIGN

Design destined to make the cleaning operations easier, eliminating all the dead zones, neither screws, nor other possible contamination areas.

One wide front hatch allows a complete access inside the machine. The sealing systems of the hatch will adapt to the requirements of the process, being able to work at pressure or at vacuum. For each application we offer different type of sealings: bolts, bayonet or SUPERCLAMP®.

Discharge valve, perfectly levelled with the cylindrical shell of the dryer.

### COMPLETE INSTALLATION

BACHILLER has much experience and can supply complete drying installations with a series of peripheral elements for our SANIDRY.

#### Dust safety filter:

Element coupled to the mixer, in order to obtain an efficient separation of solid particles during the vacuum generation.

#### Vacuum unit:

The main goal is to reach a high vacuum grade in the drying chamber (up to 1 Torr) and after that to condensate and gather the evaporated liquid, reaching very low levels of emissions into the atmosphere. The system, which is generally supplied assembled on skid, is composed of a vacuum pump of one or two stages and a tubular condenser for the recuperation of the evaporated liquid.

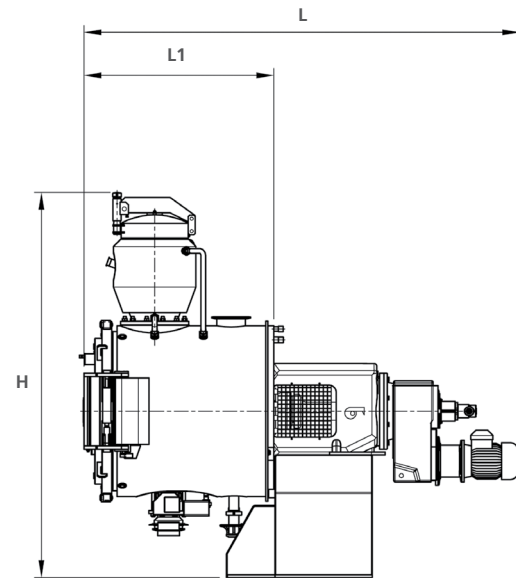
#### Heating or cooling unit:

For the optimal control of working temperature in the drying phase and the later cooling if necessary.

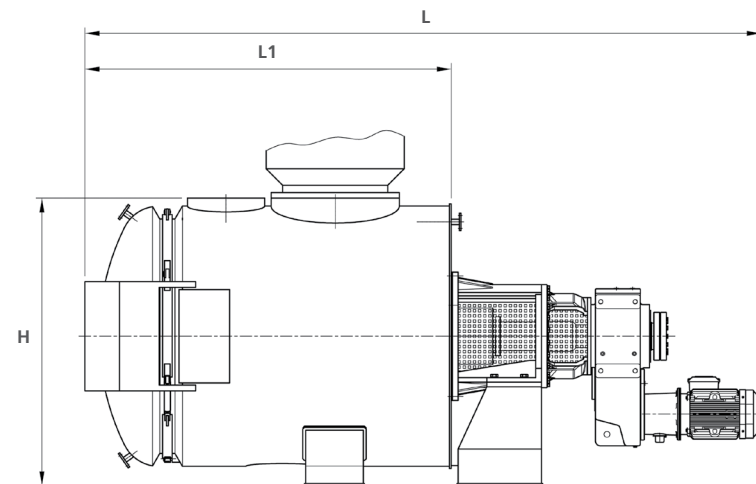
#### Electric panels and process control:

Designed according to the system needs, from completely manual systems, with visual indication of the different process values, to completely automatic systems, valid according to FDA 21 CFR Part. 11, for creation, modification and archive of information.

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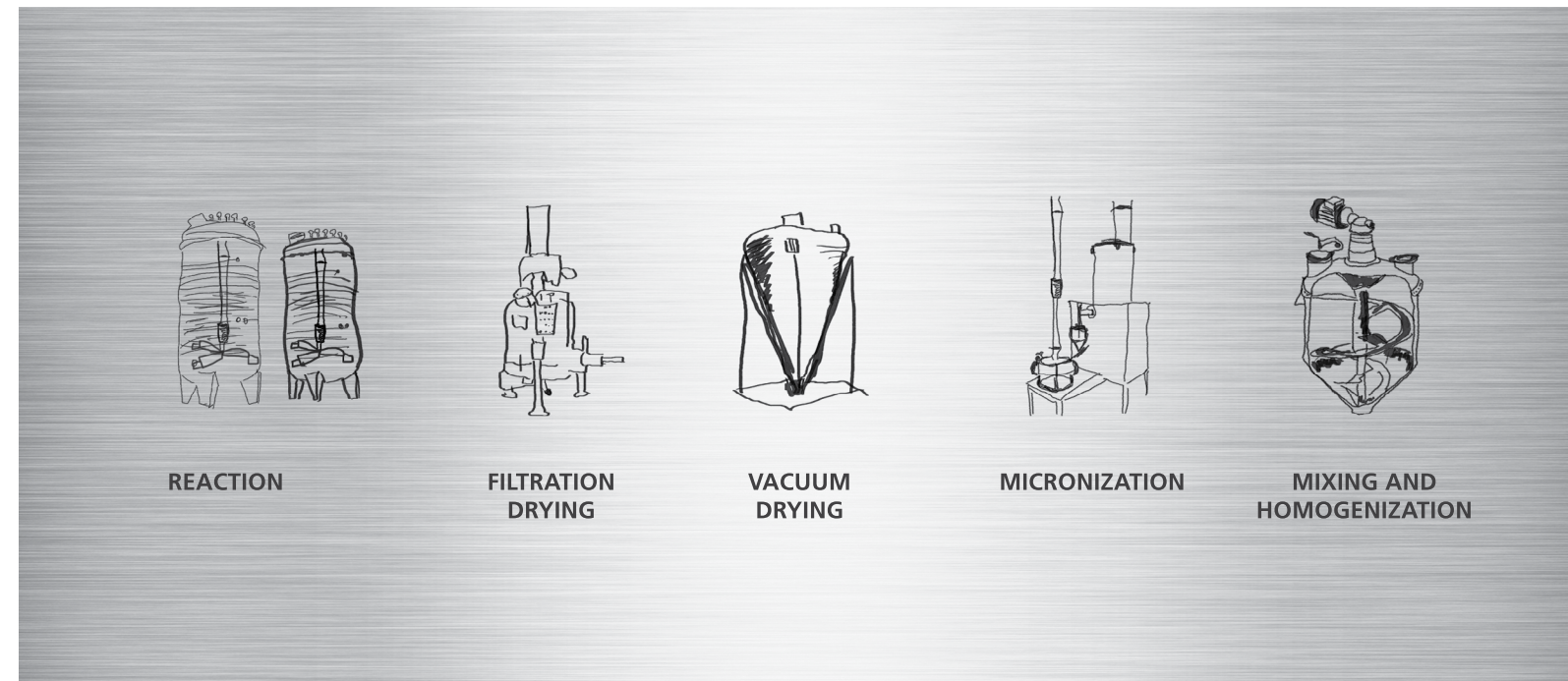


MODEL	US. VOL. (LITRES)	H (MM)	L (MM)	L1 (MM)
SHV-50	30	1.570	1.000	450
SHV-100	70	1.750	1.350	450
SHV-200	120	1.950	1.900	550
SHV-500	300	2.160	2.200	880
SHV-600	400	2.300	2.700	1.050
SHV-800	550	2.400	2.880	1.250
SHV-1000	650	2.700	3.130	1.100
SHV-2000	1.400	2.970	3.350	1.400



MODEL	US. VOL. (LITRES)	H (MM)	L (MM)	L1 (MM)
SHV-3000	2.100	3.000	5.140	2.460
SHV-4500	3.150	3.100	6.200	2.880
SHV-5000	3.400	2.180	5.650	2.570
SHV-7000	5.200	2.500	5.580	2.900
SHV-8000	5.600	2.500	6.120	3.100
SHV-10000	7.300	2.500	7.110	3.890

PROCESSES



CODES AND NORMS

BACHILLER is provided with following certifications:

- ISO9001.
- Stamp HP-0 by TUV, acc. AD-Merkblätter.
- Stamp U: ASME VIII div. 1.
- Stamp U2: ASME VIII div. 2.
- Stamp: SQL by AQSIQ chinese
- H1 Certification, according to Pressure Equipment Directive PED.
- Dryer homologation according to ATEX95 categories 1GD, 2GD and 3GD.
- Our sanitary equipments are designed according to GMP and EHEDG.
- We deliver equipments ready for FDA validations.
- We deliver equipments ready for GOST validations.





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