ALPINE Spiral Jet Mills AS
The new generation in pharma design

ALPINE spiral jet mills for the pharmaceutical industry

The trend in process technology is veering away from the supply of individual components towards the supply of complete and compact systems.

ALPINE's spiral jet mills are available with grinding chamber diameters ranging from 100 - 500 mm.

The user requirement of complete and compact design has also been achieved with the 200 AS, 315 AS and 500 AS machine size.

Special brochure

Pharmaceutical process technology as per GMP and FDA....

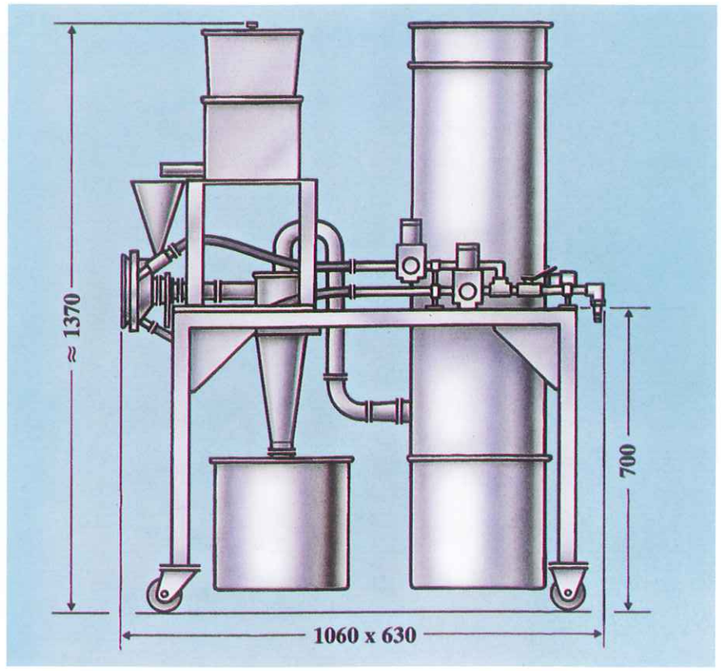
Request this brochure for further details on ALPINE's pharma systems, e.g. opposed jet mills, fine impact mills, classifier mills, mixers, etc.

Jet Mill	Type	100 AS	200 AS	315 AS	500 AS
Powder fineness[1]	d_{97} = approx. µm	**4-70**	5-100	6-110	9-120
Throughput[2]	approx. kg/h	**1-10**	5-30	10-60	20-120
Scale-up factor[2]	F = approx.	**0.25**	1	2-2.3	3.7-4
Nominal air volume[3]	approx. m³/h	**50**	190	460	1150
Number of grinding nozzles		**4**	6	18	45
Vertical mill design		●	●	●	●

[1] **Powder fineness** Assuming standard operating pressure of 6 bar (g), and a feed product bulk density of 2,7 g/cm³

[2] **Throughput/scale-up factor** Dependent on end fineness, feed product, operating pressure of grinding gas

[3] **Nominal air volume** Total air volume (grinding air, propellant air for injector)



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Hosokawa Alpine AG is a member of the Hosokawa Micron Group, responding to global needs through emphasis on materials science and engineering. The Group is an international provider of equipment and systems for powder processing, thermal processing, environmental protection, and plastics processing. The Group maintains facilities for research, engineering, manufacturing, and service in each of the world's major industrial markets.

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All details in this brochure are purely informative and non-binding. Authoritative for actual orders are our quotations.

100 AS 11.02/1e

DIN EN ISO 9001
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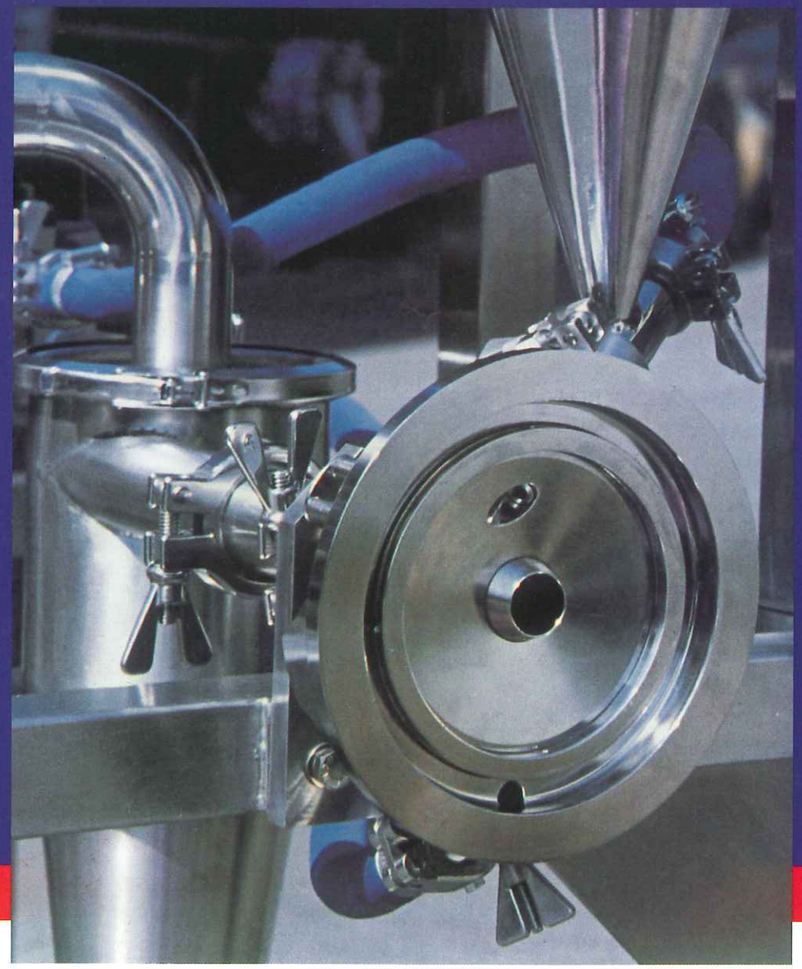
PHARMACEUTICAL LAB MILL SYSTEM WITH SPIRAL JET MILL 100 AS



HOSOKAWA MICRON

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PROCESS TECHNOLOGIES FOR TOMORROW℠

Spiral Jet Mill 100 AS
Pharma design in stainless steel

Monoblock components
Mill cover with integrated static classifier. Top manufacturing and surface finish quality.

Pharma-compatible system design
The 100 AS system in pharma design constitutes a significant development step in ALPINE's manufacturing and system technology. This user-friendly, compact system was constructed to the highest industrial standards and represents an increase in user benefits and an extremely attractive cost-performance ratio.
Not only is the largely single-piece construction ("monoblock" components) of the 100 AS a considerable leap forward, but also the low number of components, the optimum freedom from dead spaces, the surface finish (Ra = < 0.8 µm), and an individual component weight of less than 10 kg.

Ingenious technical solutions characterise the 100 AS system.
So should the brochure not answer all your questions, feel free to contact us for further details.

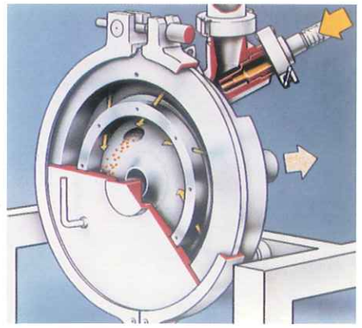
Application areas
Ultrafine size reduction of dry materials with a crystalline structure up to a Mohs hardness of 3.
Maximum feed size below 1 mm.
The 100 AS system is predominantly for applications in the pharmaceutical industry, e.g. for high-grade pharmaceuticals, fine chemicals etc..
The most common fineness requirement is the production of a powder with a high ultrafine portion in the 0.5 - 30 µm range for use in injection solutions, ointments, tablets, and powders, etc. Highly active, toxic materials call for special safety measures. The concept of the 100 AS system with only a few components that are above all easy to clean and the low weight make it ideal for operation in a sealed "glove box" environment.

Capacity: The 100 AS standard system (figure) is ideally suited to processing batches ranging from 100 grams up to some kg. If mini batches of a few grams up to approx. 250 g are required, ALPINE can supply the 100 AS to order in a special customised design.

Cleaning
One of the principal development objectives was the ease and thoroughness of cleaning. Dry cleaning is usually thorough enough to permit further processing, whereas other cleaning methods can be applied if necessary. After being dismantled into its component parts, the spiral mill, metering unit and cyclone, etc. can also be cleaned, for example, in an ultrasound bath or autoclave.

100 AS features
❑ Number of components reduced to the minimum
❑ No dead spaces
❑ O-rings inserted into aseptically machined grooves
❑ Surface finish Ra = < 0,8 µm
❑ No threads in product-contact zone
❑ Component weight below 10 kg

System designed to conform with GMP standards

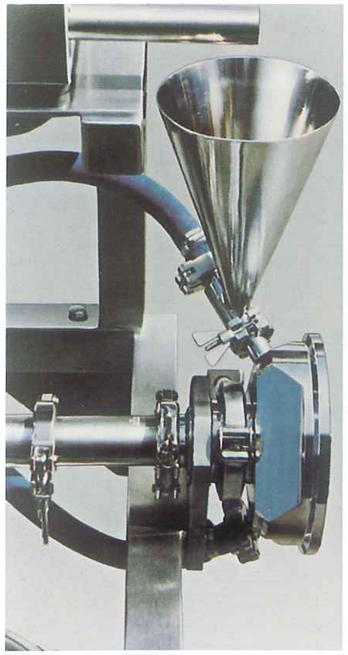


Pharma design
The design permits optimum access and cleaning.

Design features
❑ 100 AS jet mill in vertical design.
All connections are at the rear of the mill, and are fastened with clamp closures.
The cover and housing are connected by means of a tri-clamp, thus providing optimal access without tools for inspection and cleaning procedures.
❑ Cover and housing in monoblock design.
❑ Adjustable fines discharge in new design to provide additional adjustment of the grinding fineness.
❑ Mill housing with exchangeable nozzle ring.
❑ Installation table, made completely in stainless steel.

Our quotations contain further machine and system design details such as construction material quality, surface finish, sealing materials etc.

Delivery as a complete system
The 100 AS jet mill system is delivered ready for operation, completely mounted on a mobile installation table. Delivery scope includes the necessary ductwork between the jet mill, cyclone and filter, plus the requisite pneumatic valves.
All that needs to be provided on site is the compressed air supply and the electric power for the metering device. An additional control gear cabinet is not necessary.



Metering by means of a metering screw or feed rating channel.
Injector with open material inlet chute; injector housing with air conveying nozzle and product acceleration nozzle.
Cyclone to separate the end product from the air stream.
Filter to separate the residual dust from the cyclone exhaust air. Filter head cover with sockets for the connection of an on-site dedusting unit.