

KOMODIN MILL FOR SOLIDS



MILL FOR SOLIDS

KOMODIN



KOMODIN mills are versatile equipment, useful for a wide variety of solid products and very cost-effective due to their low energy consumption. Its technical design offers such a wide range of variants enabling a perfect adaptation to the characteristics of the products to be crushed: this mill is designed to be able to work with four different grinding beaters, easily interchangeable, in combination with fixed tracks and sieves of different configurations, according to the characteristics of the product to be crushed.

These mills are perfectly capable of grinding fibrous, crystalline and amorphous materials with a hardness lower than 3.5 on the Mohs scale. By properly combining the grinding, product feed and beater speed elements, coarse, medium, fine and ultrafine-grained ground products are obtained, acting in de-agglomeration, shredding, intimate mixture of several components with simultaneous grinding, etc.

The KOMODIN mill is available in different executions depending on: the industrial sector where it will be installed (pharmaceutical, cosmetics, food or chemical), the product to be milled (Atex protection, or cryogenic) and the subsequent cleaning required (sterilization).

A laboratory version is available, consisting of a compact table design, a vibratory feeder with a 5 L hopper, non-interchangeable grinders and a metal collecting drum or collecting bag for the ground product.

TECHNICAL FEATURES

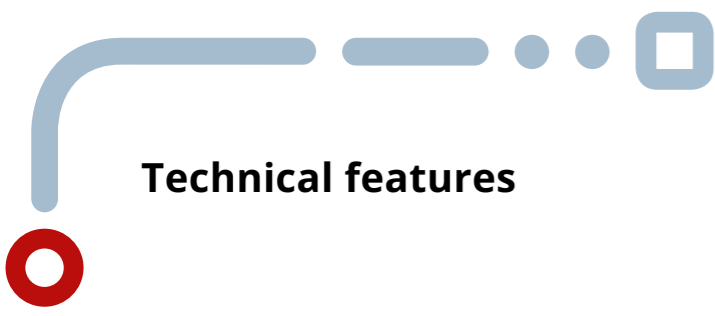
- » Nodular cast iron or stainless steel chamber.
- » Grinding elements, both mobile and static, made of a special steel alloy particularly resistant to wear.
- » The movable beater is driven by a hub with a shaft guided by high-speed bearings, fitted with air seals to prevent dust entry and special grease seals preventing lubricants from entering the grinding chamber.
- » Mill feed by means of a TK screw dosing unit consisting of a loading hopper with a square base and a capacity to be determined. Inside this hopper, a screw with an outlet connected to the mill is inserted, driven by an independent motor group with adjustable speed via a frequency converter. It is possible to install a VK vibratory feeder on request, by incorporating an inclined chute at the bottom of the hopper, driven by a mechanical vibrator.
- » Its design provides easy access for cleaning, inspection and maintenance.



with you, step by step

Technical Data

Model	K-160	K-315	K-500	K-700
Mill power (kW)	5.5	18.5	37	90
TK feeder power (kW)	0.37	0.75	1.1	1.1
VK feeder power (kW)	0.37	0.37	-	-



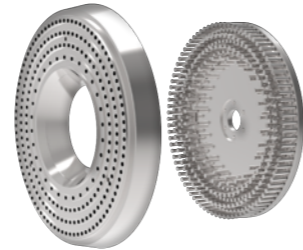
Technical features

TYPE OF GRINDING BEATERS

Grinding is carried out by successive percussion between the grinding elements of the mill discs. The product to be micronized reaches the centre of the discs thanks to the air flow generated by the rotating disc which, at the same time, continuously cools the material. Each particle passes through the successive rows of grinding elements from the inside to the outside, thus producing a progressive size reduction.

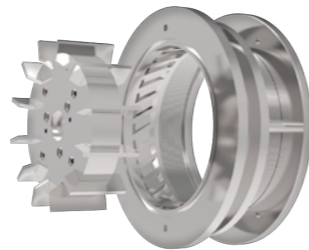
One of the main advantages of this type of mill is its versatility, thanks to the possibility of having different grinding plates, which can be easily interchangeable, on demand.

Pin plate: for high-speed impact grinding processes, without a sieve. Especially suitable for non-fibrous products. It consists of a rotating pin disc and a fixed one. Due to its high peripheral speed (148 m/sec), a particle size distribution of 50 µm can be achieved.



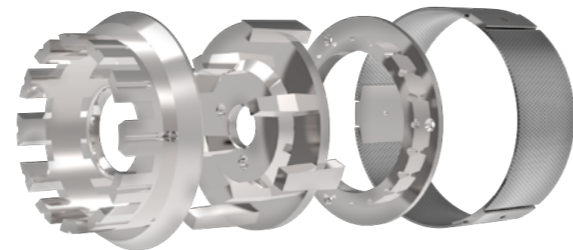
Pin beaters

Fan-shaped plate: especially suitable for grinding fibrous products. It consists of a movable plate equipped with striking plates, forming a fan, usable on two edges and acting against a static track. There are two types of static track: long ribbed track or a short track with an outlet sieve for controlling the fineness of the coarse particles.



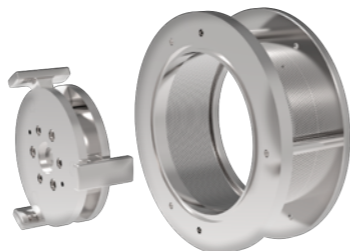
Fan beaters

Fixed hammer plate: for percussion grinding processes with or without sieve. It consists of a rotating disc that acts against another fixed disc, both with fixed hammers. The fixed plate - located on the mill's door side - consists of two rings and can work with or without sieve. This grinding plate allows to obtain low fineness and high performance.



Fixed hammer beaters

Oscillating hammer plate: for percussion grinding processes with sieve. It is composed of a mobile disc of oscillating hammers against a screen with a mesh size to be determined according to need, forming a static ring. The hammers can be used on both sides, simply by changing the direction of rotation of the mill. It is suitable for coarse to fine grinding of compact pieces or large pieces of crystalline or fibrous structure.



Oscillating hammer beaters



CRYOGENIC INSTALLATIONS

In some milling systems, conditioning of the raw material is required to improve the performance and obtain a greater particle size reduction. When working with liquid nitrogen, fibrous or moist products can be treated as solids, thus improving their grindability.

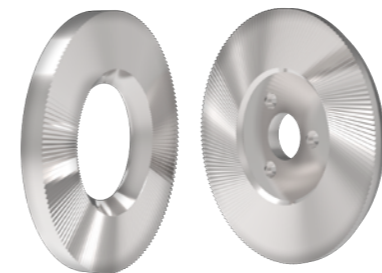
The KOMODIN mills can be equipped with a system for adding liquid nitrogen through atomizing nozzles inside the endless screw which may have a longer length which varies according to the cooling requirements of the product to be ground. The working temperature range is from -10 °C to -196 °C.



Grinding plant K-500-B, with TK endless screw feeder equipped with special 600 L hopper. Discharge by means of manually operated butterfly valve.



Cryogenic grinding installation K-160 pharma, equipped with automatic bag filter.



Segmented plates, specific grinding disc for cryogenic plastic pellets.

Fields of application of cryogenic milling:

- » Plastic polymers, polyurethanes, polypropylene, soft PVC.
- » Food products such as nutmeg, mustard seeds, pepper, ginger.
- » In pharmacy, it is applicable to vitamins and additives.

Production examples: model K-315

K-315-B (fan-shape plate)				K-315-P (pin plate)				K-315-MF y K-315-MO (fixed hammer plate and oscillating hammer plate)		
Product	Approx. performance (Kg/h)	Fineness (%)	Fineness (µm)	Product	Approx. performance (Kg/h)	Fineness (%)	Fineness (µm)	Product	Flow rate (Kg/h)	Sieve (mm)
Lead chromate	250	97	15	Copper oxychloride	540	99,8	50	Citric acid	600	0,5 R
Lead white	300	99,9	40	Sugar	360	99,9	63	Acid	200	0,8 R
	500	99,9	40		900	99	150			
Chrome orange	250	99,9	40	Face powders	180	99	50	Alginate	150	1 R
	400	99,9	40							
Carbon black	200	99,9	40	Lactose	180	99	50	Mace	400	6 L
	300	99,9	40		600	8 L				
Zinc oxide	150	99,9	60	Sodium benzoate	1.000	99,9	500	Organic colorants	150	2 L
	300	99,9	60		300	5 L				
Arazine (50%)	200	99,5	40	Sodium bicarbonate	450	99	40	Casein (10% H ₂ O)	200	2 R
	250	99,5	40							
Dieldrin (50%)	250	99	40	Polymers	540	99,5	60	Wood charcoal	500	1,5 R
	300	99	40							
Pure pyrethrin	60	95	220	Silver oxide	900	99	20	Cumin	60	1,25 L
	80	95	220		80	1,25 L				
Thiodan (50%)	120	99	75	Soda ash	990	91	44	Turmeric	100	0,5 E
	250	99	75		150	0,5 E				
Activated carbon	150	95	315	Vitamin C	288	99,5	63	Potato flakes	200	0,3 E
	200	98	315		250	0,3 E				
Silica gel	300	98	100	Table salt	720	99,5	32	Biscuits	200	0,5 L
	400	99	100		2.700	78	100		250	0,5 L
Silicic acid	200	98	40	Zinc phosphate	270	99	15	Corn grain	2.500	2 L
Sodium chlorate	1.200	99,8	500	Magnesium trisilicate	450	99,9	50	Graphite	300	1 R
Pancreatin	80	95	200	Aspirin (Acetylsalicylic acid)	180	98	150	Lactose	3.500	2 L
Phenolic resin	500	98	75	Aluminium hydroxide	450	98	50	Raisin	1.000	2 E
Waxes	80	98	250	Ammonium phosphate	630	99	63	Pepper	100	0,75 R
	120	99,5	250		50	0,75 R				
Zinc stearate	150	99,7	100	Antimony trioxide	360	99	10	Boron carbide	400	2 L
Carob flour	150	98	150	Boric acid	720	99,9	90	Boron nitride	150	1 R
Malt	600	98	400	Collagen	90	65	100	Dicalcium phosphate	1.200	1 R
Starch	250	99,9	200	Albumin powder	450	99,9	90	Cinnamon	150	0,5 R
Extracted crushed soybean	100	80	150	Fire extinguisher powder	540	99,9	200	Phenolic resin	2.500	2 R
Grape sugar	200	99,5	150	Corn starch	900	99,9	50	Rice	1.000	1 R
Cinnamon	120	99	200	Potassium perchlorate	1.800	99,5	120	Wheat	500	2 R
	180	99	200							
Calcite	1.000	99,5	250	Lime oxide	630	85	20	Sorbitol	150	0,5 R
Gypsum	350	95	44	Powdered cobalt	450	99,9	120	Calcium stearate	1.000	2 R
Mica	280	84	315	Wheat flour	540	99	100	Ammonium sulphate	600	1 R
Kieselguhr	350	90	60							
	400	99	60							
Talc	200	98	60							
	600	99,5	60							



K-315-MO grinding installation, prepared to work in ATEX zone. The equipment is fed by a TS-VAC 50 pneumatic conveying system.

Types of sieves

- R: round hole
- L: longitudinal hole
- T: transverse hole
- E: striated trapezoidal hole