



**Probst & Class**

invented and built to last

# Colloid mill Type EL



Horizontal.  
> In-line operation.  
8 sizes.



**Probst & Class**

Special machines for  
industrial process technology  
Since 1926



# Probst & Class

## Colloid mills

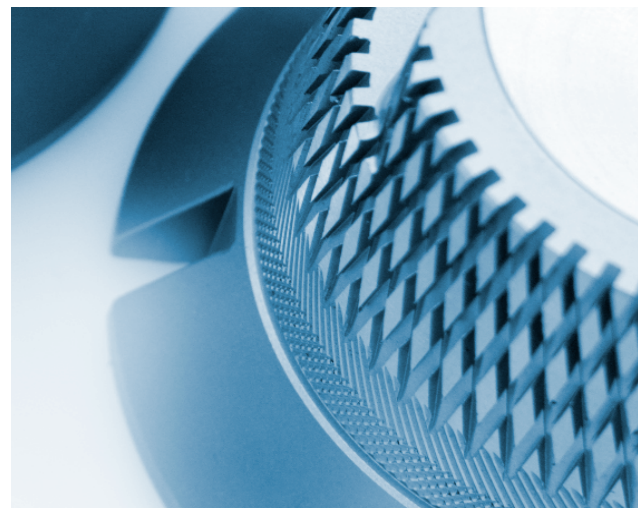
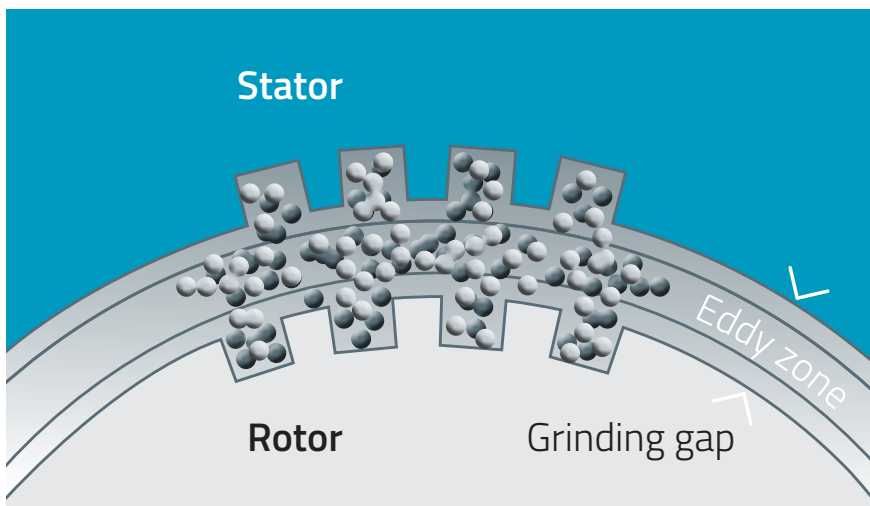
**Invented and built to last:** PUC – synonymous with colloid mills for more than 90 years

PUC colloid mills have a wide range of applications. They can always be used when it is necessary to grind substances precisely and with reproducible results at the same time as mixing them. The milling gear of a colloid mill exerts hydraulic and mechanical cutting, impact, squeezing, friction and shear forces.

The phases are ground and mixed with considerable precision in an annular gap between the stator and rotor which can be infinitely adjusted by changing the axial position of the stator (Sizes Type PUC 100-220). Particles are ground extremely finely. Most raw materials, aggregates and agglomerates can be processed in one pass through the mill. The rotor-stator unit and the drive motor are precisely tailored to the products handled.

PUC colloid mills are used in many industrial processes for processing organic and inorganic substances. Probst & Class offers suitable designs for many different processes, locations, materials and degrees of fineness.

## Construction Principle



The principle of the PUC colloid mill is based on a rotor/stator system. In a stator tailored to the product to be processed with suitable teeth there is a rotor which has teeth of its own. As a result of the different conicity of the toothed tapered surfaces of the rotor and the stator a ring gap which becomes more and more narrow is produced in the direction of flow towards the outfeed cross section.

# Colloid mill Type EL

PUC type EL colloid mills are designed for in-line operation. They can be supplied many widely used types of connection (threaded nozzle, flange, tri-clamp, etc.). A special feature of type EL is the bearing block that allows our customers to use their own standard motors (standard B3 motors). At high inlet pressures and viscosity values, the forces generated can be absorbed even more effectively by the separate bearing. Our bearing blocks are fitted only with high-quality bearings with permanent lubrication, made in Germany.

## Processes

de-agglomeration  
dispersing  
emulsifying  
micro-comminution  
homogenizing  
dissolving  
mixing  
wet milling



PUC 100-600

Rating: 5,5 - 55 kW  
for production and major  
production plants

## Motor/Drive

Type E colloid mills are powered by standard B3 motors, which can be optionally provided by the customer. The motors are surface-cooled, have moisture guard insulation (IP55) and are suitable for use with inverters. They can be supplied for all voltages, frequencies and protection classes. As a standard feature, our motors have efficiency class IE3.

## Seals

All units are available with various single and double-acting mechanical seals and with lip seals (PTFE) in accordance with FDA requirements. The seal is integrated in a seal mount which is identical for all types and sizes of colloid mills. This facilitates the installation of the seal and later replacement with a different seal system, if necessary.

Type	Design features	Pressure range (bar)
RD	Standard shaft seal with seal lip	Up to 3
GLEN-GK	Single-acting mechanical seal, encapsulated, with cooling at atmospheric pressure and cleaning connection	Up to 16
GLEN-G	Single-acting mechanical seal, encapsulated, with product cooling	Up to 16
GLDN-F	Double-acting mechanical seal (pressurized barrier fluid required)	Up to 16

## Materials

The parts which come into contact with the product are made in high quality stainless steel.

> DIN 1.4301 (AISI 304) and DIN 1.4404 (AISI316L)

A hardened chromium steel which may also be surface-treated, is used for processing abrasive substances and for parts subject to particular stress (stator/rotor).

## Sizes Type EL

Type EL colloid mills are available in seven standard sizes with capacities between 500 and 80,000 l/h depending on the machinery configuration and the viscosity of the product. The milling gear can be adapted to your specific process. For this purpose, the mills are fitted with standard stator-rotor combinations. Bespoke solutions are also available for special applications.

Application	Type	Rating	Dimensions			Flow-rate				
		in kW	in mm			in l/h* at Viscosity in cP**				
			Length	Width	Height	~100	~1,000	~5,000	~50,000	~80,000
Production	PUC 100	5.5 / 7.5	1510	562	518	2,300	1,500	1,300	700	500
Production	PUC 120	7.5	1510	562	518	4,000	3,000	1,800	1,300	1,000
Production	PUC 130	11	1510	562	580	6,000	3,500	2,000	1,800	1,300
Production	PUC 150	18.5	1514	562	580	12,000	6,500	3,500	2,800	2,300
Production	PUC 160	22	1514	562	600	16,000	8,000	4,300	4,000	2,800
Production	PUC 180	37	1514	562	669	23,000	11,000	6,000	5,500	4,000
Major production plant	PUC 220	45	1705	632	1024	34,000	16,500	10,000	9,000	6,500
Major production plant	PUC 600	55	1750	632	1049	80,000	38,500	30,000	25,000	18,000

\* With medium milling gap and driver wheel (factor with impeller approx. 2).

The values given above are purely indicative; the actual values depend on the milling gap and the material processed. Our technical department will design the optimum mill for your application.

\*\* Explanation of viscosity in cP: ~100 = Low-viscosity / ~1,000 = Slightly viscous / ~5,000 = Viscous / ~50,000 = Slightly pasty / ~80,000 = Pasty

## Options

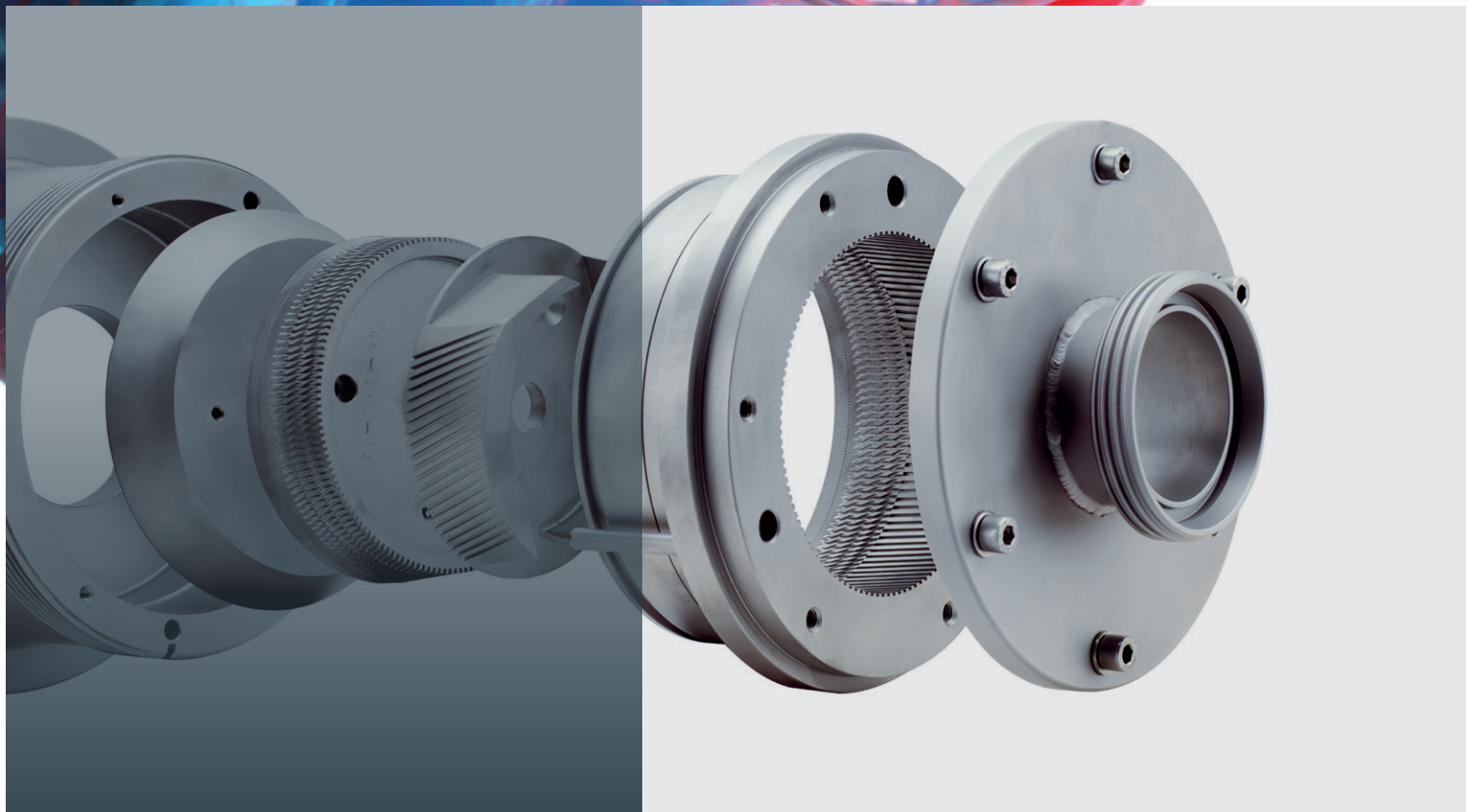
For PUC mills, a variety of accessories and options are available to allow flexible adaptation to special fields of application and installation locations.

- Optional milling gears
- Various material options
- Heated/cooled housing
- Pharmaceutical version
- ATEX (explosionproof) version
- Electronic milling gap indication
- Milling gap indication via scale ring
- Version designed for sterilization
- Feed and discharge pump
- Frequency converter
- IE3 standard motors for various voltages and frequencies

# Advantages

## Probst & Class Colloid Mill

- Extremely sturdy and durable
- Spare parts available for decades
- Particle or drip size and particle size distribution results reproducible at any time
- Minimal maintenance, easy assembly and cleaning
- Infinitely variable adjustment possible during operation
- Can be changed over to other milling gears



# Services

## After-sales-service

Our service technicians provide remote and local service in all matters related to machinery and plant from Probst & Class. The continuous availability of your machines is just as important to us as it is to you – PUC has stood for quality you can rely on since 1926.

The reasons for buying machines from Probst & Class not only include their durability but also the ability of our specialists to focus precisely on your needs.

Both these factors continue to apply long after you have invested in the machine. Even after the machine has been delivered, our team is available to solve your problems at any time.

### After-sales services that you can count on:

- Operation, care and maintenance training
- Modification for other processes
- Updating and retrofitting
- Spare parts deliveries and repairs
- Warranty processing

## Engineering centre

### From the laboratory to production.

You know what your product should look like. But do you know what the machine you use to produce it will look like? Why not obtain our support?

At our engineering centre, we can identify the perfect solution for your process – irrespective of the scale of production. Contact us to discuss your requirements. We will be pleased to carry out initial tests with the raw materials provided by you.

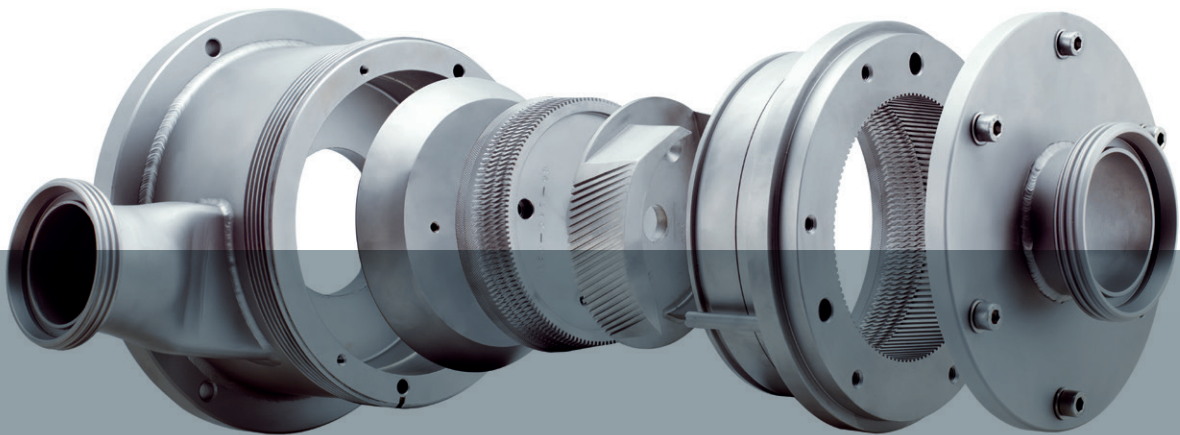
And, thanks to 90 years of experience, our first attempt often comes very close to your quality targets.





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Since 1926

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MADE IN  
**GERMANY**