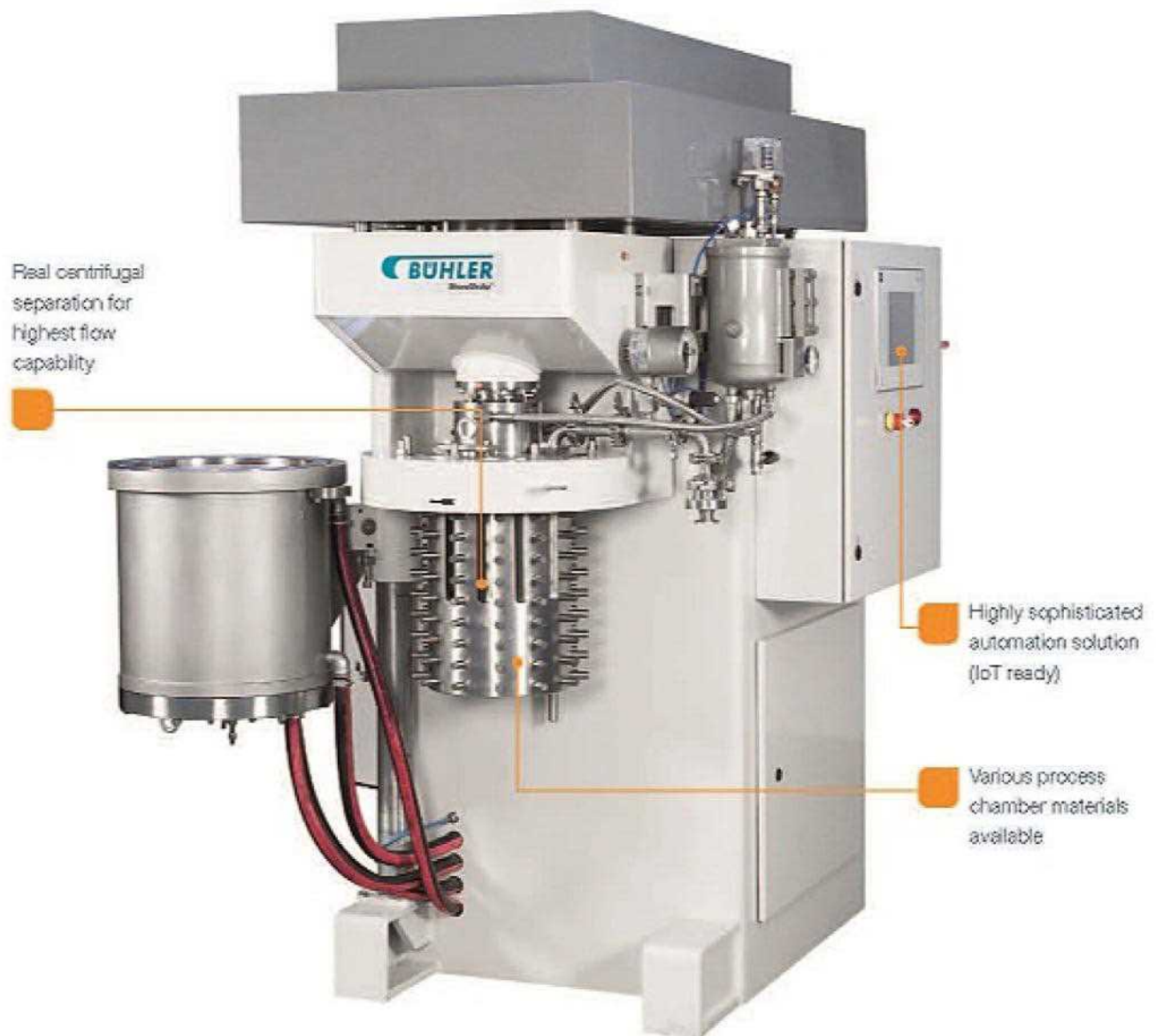


MicroMedia™.  
**Quality meets  
efficiency.**

# High-performance bead mill MicroMedia™. **Powerful true-grinding and dispersing.**

Are you looking for higher production capacities, better energy efficiency or the next quality level of your product? Then join the large number of users, no matter if small or large scale, and experience the new dimension in wet grinding and dispersing.



# Elaborate process technology. **Flexible use for various applications.**



Liquid packaging inks



Inkjet inks



High-performance coatings

**MicroMedia™** allows an extremely wide parameter range regarding power density, flow rate and bead sizes. In combination with the available material portfolio, the technology fits to almost any application in the wet grinding and dispersing industry.

## **Liquid packaging inks**

With MicroMedia™, Bühler sets new standards in the production of liquid packaging inks. Thanks to the high flow capability, a narrow particle size distribution can be achieved with minimum energy consumption. This leads to an improved color strength, transparency and gloss.

## **Inkjet inks**

The use of small beads in the field of inkjet inks requires an optimal bead separation to maintain high recirculation flow

rates. All of the components in the MicroMedia™ are finely tuned making handling of the micro beads effortless.

## **High-performance coatings**

The wide parameter range of the MicroMedia™ allows an ideal adaption to the specific grinding requirements of different coatings. Additionally, Bühler's highly sophisticated automation solutions result in high process reliability and traceability.

## **Benefits**

- Cutting edge technology for better product quality
- Maximum energy efficiency due to smaller beads and highest power density
- Wide range of process chamber materials tailored to your needs

# Functional principle of MicroMedia™.

## Patented technology for better product quality.



# Compact design saves space/maximizes efficiency. **Cutting-edge processing solutions.**



- 1 Dosing of solid and liquid materials in the mixing tanks
- 2 Circulation between MacroMedia™ and the mixing tank
- 3 Transfer from the mixing tank to the recirculation tank via MacroMedia™
- 4 Circulation between MicroMedia™ and the recirculation tank
- 5 Transfer from the recirculation tank to the let-down tank via MicroMedia™
- 6 Addition of liquid components and transfer to the next production step

## Process and plant engineering by Bühler

- Maximum availability, reliability and cost efficiency
- Installation and commissioning worldwide
- Supply of complete solutions
- Full support throughout the entire lifecycle of a plant

# Examples from industrial practice. Optimizations thanks to MicroMedia™.



## Liquid packaging inks: Increased productivity

Significantly increased productivity by changing the bead mill type.

### Previous process

- Fine grinding using the SuperFlow™ bead mill with a bead size of 0.8 mm and a gap size of 0.25 mm.
- Specific energy consumption for production: 350 kWh/t for a fineness of <math><5 \mu\text{m}</math>

### Benefits of production with smaller beads in the MicroMedia™

- Fine grinding using MicroMedia™ with a bead size of 0.3 mm
- Specific energy consumption is reduced to 200 kWh/t while plant capacity is increased by 75 % with no change in the quality level



## Inkjet inks: Increased efficiency

Smaller beads reduce the energy consumption by 40 % for digital textile inks.

### Previous process

- Fine grinding using MicroMedia™ with a bead size of 0.3 mm
- Specific energy consumption: 2500 kWh/t

### Benefits of optimized production

- Reduction of bead size to 0.1 mm while maintaining recirculation flow rates
- Specific energy consumption is reduced by 40 % to 1500 kWh/t



## High-performance coatings: Increased product quality

Setting up a completely new production concept for automotive coatings.

### Previous process

- Two pass operation on SuperFlow™
- Production capacity of 120 kg/h

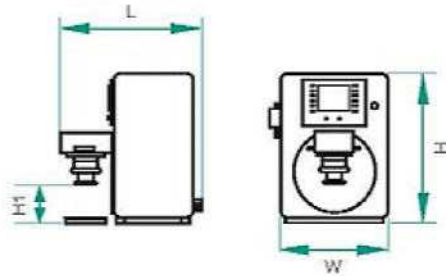
### Benefits of production with integrated MicroMedia™

- Switch to recirculation operation using MicroMedia™
- Maximized recirculation flow rate up to 2500 kg/h resulting in a more narrow particle size distribution
- Increase of production capacity to 150 kg/h

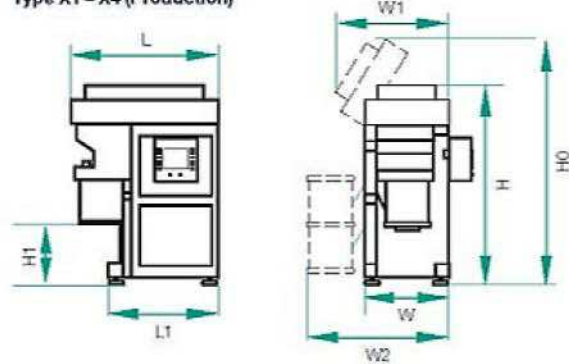
# Technical data MicroMedia™.

## Laboratory and production mills.

Type L (Laboratory)



Type X1 – X4 (Production)



MicroMedia™ 11		L	X1	X2	X3	X4
Drive [kW]		2.2*	5.5	30	45-55	90
Active volume of process chamber [l]		0.07 (70 cm³)	1.4	7.6	15.6	30.2
Bead separation	centrifugally with following protective screen	●	●	●	●	●
Applicable diameter of beads [µm]		20-200	20-800	20-800	20-800	20-800
Flow rate [l/h] up to	depending on viscosity, material and diameter of beads and pump, e.g.	10	400	3000	4000	8000
Cooling	outer stator	●	●	●	●	●
	bottom of stator	-	-	●	●	●
	inner stator	-	●	●	●	●
	rotor	-	-	●	●	●
Material rotor	DraisPasis™	●	●	●	●	●
	Polyamid	●	●	●	●	●
	Ceramic SSiC	●	●	●	-	-
	Ceramic ZrO₂	●	-	-	-	-
Material stator	DraisPasis™	●	●	●	●	●
	Ceramic SSiC	●	●	●	●	●
	Ceramic ZrO₂	●	-	-	-	-
Lifting device for grinding vessel	hydraulic hand pump	-	●	-	-	-
	hydraulic foot pump	-	-	●	●	●
Dimensions [cm]	H	862	920	2110	2110	2,860
	H0	-	1240	2560	2560	3430
	H1	206	270	680	680	870
	L	756	826	1550	1550	1940
	L1	-	620	1200	1200	1380
	W	617	480	857	857	1050
	W1	-	650	1123	1123	1480
	W2	-	750	1420	1420	1720
Weight [kg]		150	270	1640	1850	3420

● = Standard, - = Option, All data are approximate. Technical alterations reserved. \* = drive platform PML 2 – installed power not equivalent with power to be introduced into MicroMedia™ L, MicroMedia™ is a trademark of Bühler AG. 1) internationally patented, e. g. EP 1 943 022 B1 (2010), EP 1 892 412 B1 (2010)

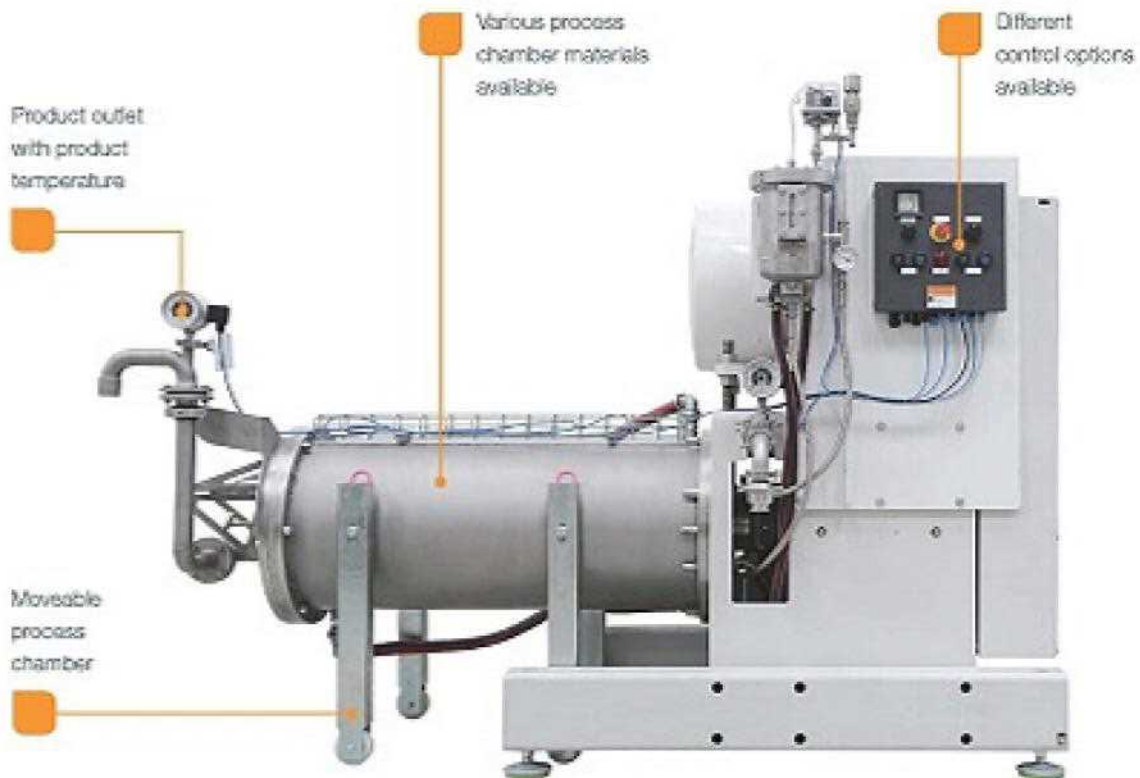


Cenomic™.  
**Flexible  
full-volume  
bead mill.**



## Full-volume agitated bead mill. For an unbeatable price-performance ratio.

Leading companies have been relying on Bühler Cenomic™ technology for many years. The concept assures reduced specific grinding costs due to higher flow capability and long service life.



### Benefits

- Minimized specific energy requirement
- Higher productivity from smaller mill volume
- High flow capacity
- Entire machine family from 10 to 1000 l available

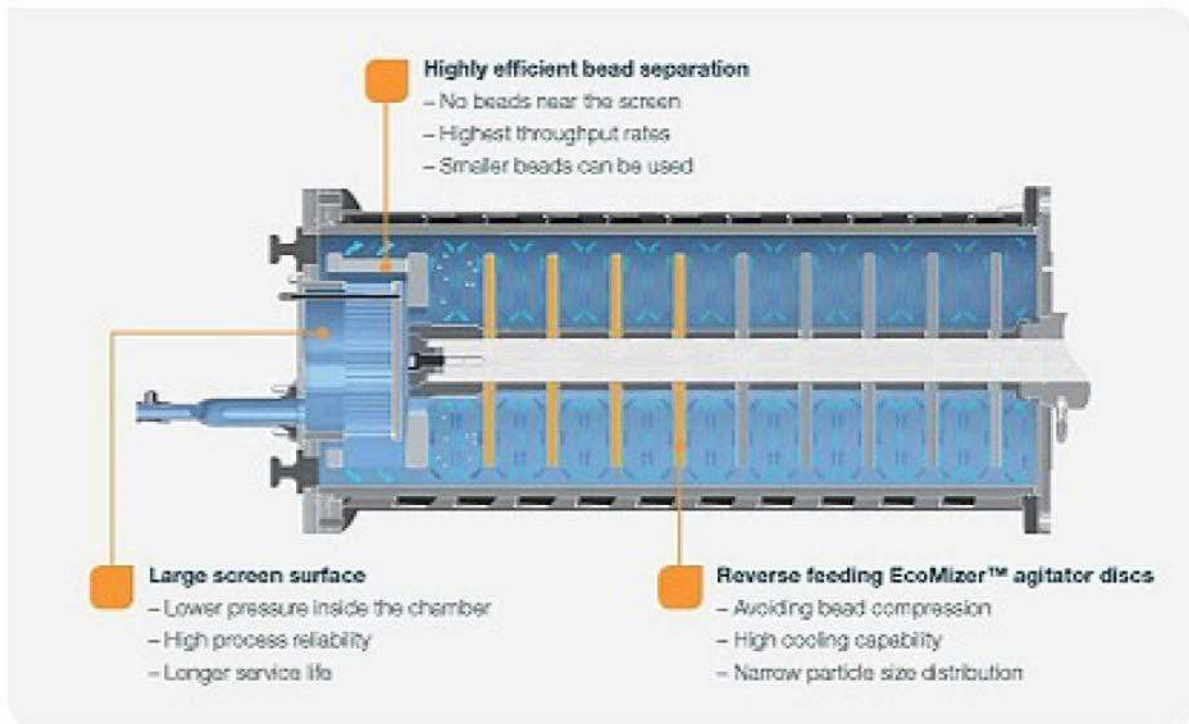
## Maximum flexibility. Available for all production sizes.



In order to fit every need, the Cenomic™ is available in various sizes. The scope ranges from the Cenomic™ 1 with a 10 l active chamber volume and the Cenomic™ 3 with 20 l to the

Cenomic™ 30 with a volume of around 220 l. This broad range is complemented by the laboratory solution PML 2 and the Certex™ T4 and T5 for volumes above 500 l.

## Elaborate machine technology.



## Cenomic™ – suited to every application. Thanks to flexibility and efficiency.



### Cenomic™ 3 for protective coatings.

**Highest throughput rates:** Marine coatings have relatively low specific energy requirements and need good flow capability. At the same time, hydraulic bead compression needs to be avoided to reduce wear and achieve a long service life.

**Efficient bead separation:** Smaller beads give the advantage of better energy efficiency or higher product quality levels. For high throughput rates with the small beads, the bead separation needs to be as efficient as possible.

**Easy to clean:** The compact design and a piston installed in the screen help to easily flush the machine for convenient cleaning and fast product change.



### Cenomic™ 15 for offset ink.

**Ideal temperature control:** The big disc diameter and low rotation speed provide optimal cooling characteristics, which are important to avoid layering of product at the stator surface and building up an insulation layer.

**Uniform bead distribution:** Due to high viscosity, the drag forces by the product are increasing. The back-feeding disc design avoids hydraulic packing of beads.

**High output:** For highest possible productivity, the special offset-execution offers up to 25% bigger motor sizes than standard machines.



### Cenomic™ 30 for agrochemicals.

**High flow capability:** For different specific energy requirements the machine can be operated at low and very high flow rates.

**Suitable for different bead materials:** Due to the disc design and the highly efficient bead separation, the power density and the flow rate can be adjusted for the different bead materials – from glass to steel.

**Uniform product quality:** The system geometry (disc diameter, design and distance) supports a uniform residence time for narrow and consistent particle size distribution over the complete production process.

## Case example: Letong Chemical Co. Ltd. Top level printing ink production.



Letong Chemical Co. Ltd., which was founded in 1996 and has been listed on the stock exchange since 2009, manufactures packaging inks, color granules, plastic coatings and laminate adhesives.

The company is a leader on the Chinese marketplace in its field, also supplying its products to reputed international corporations.

In 2013, Bühler provided eight automatic production lines, including eight Cenamic™ 3 full-volume bead mills and four SuperFlow™ VCR-200 high-performance mills, to Letong.

Bühler demonstrated with these systems that the printing ink quality and productivity achieved are clearly superior to those of competitor products.

The complete solution not only covers the actual grinding process, but also all the other important processes such as pigment handling, dosing, and premixing.

### Key facts of the Letong Chemical plant:

- 12 mills which guarantee the reproducibility of the ink quality at a top level while at the same time reducing consumption of expensive raw materials.

- Quality and productivity are demonstrably superior to those of competitors.

- 20,000 metric tons of inks are produced every year.