

Two-stage
Preconditioner.



Preconditioner.

The economical allrounder.

Application

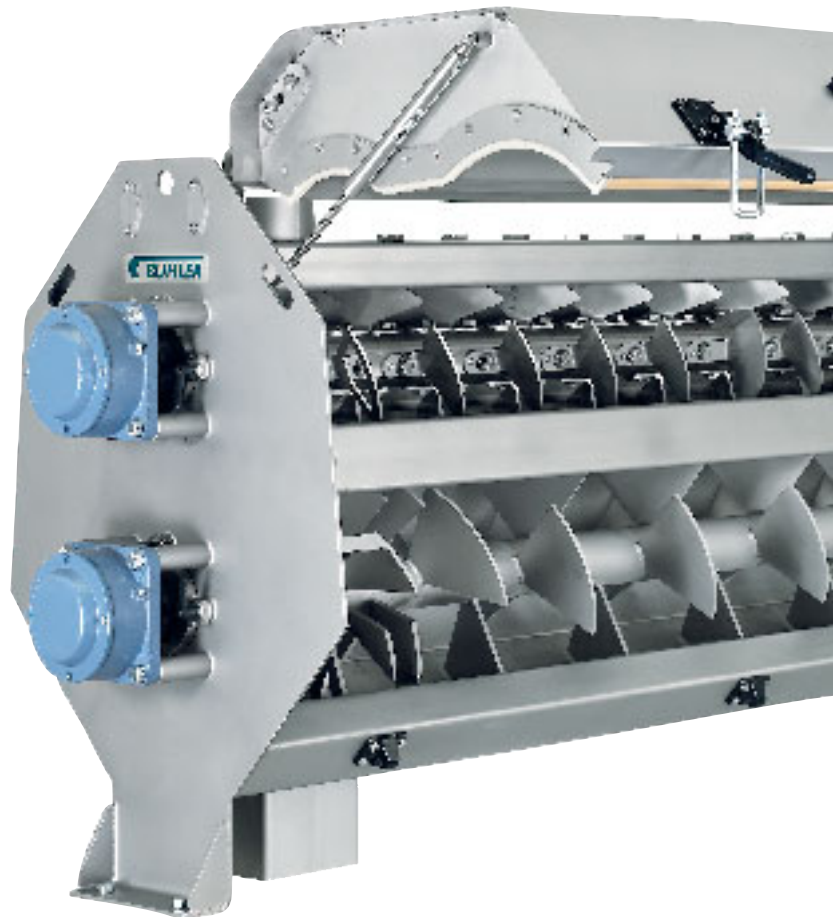
The preconditioner is basically applied in all areas requiring raw material conditioning and mixing prior to further processing. This opens up new innovative manufacturing possibilities of top-quality products, in particular in conjunction with an extruder – the heart of the production line. The range of applications of preconditioning extends from laboratory service and product development to industrial production.

Design

The design of the preconditioner is such that the material inlet is vertically positioned exactly above the outlet. A large number of connections for supplying steam and adding liquids are available in the mixing zone. The machine is installed on the supports provided at both ends.

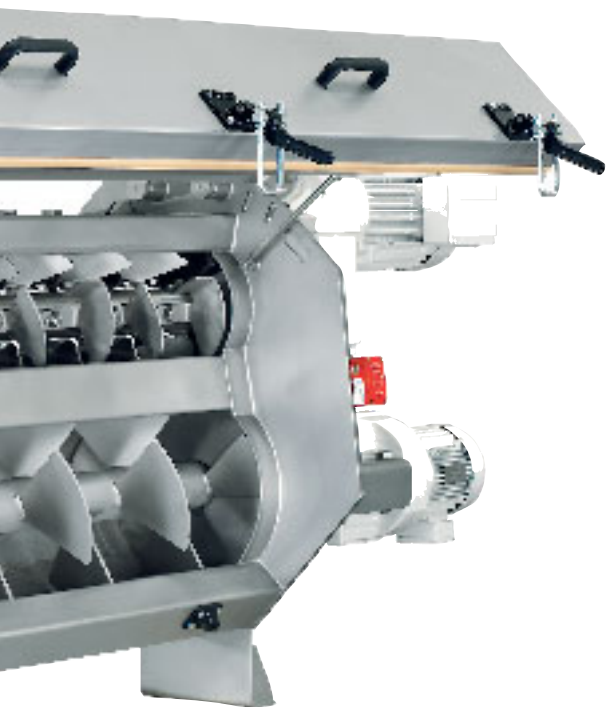
Separation of mixing zone from retention zone

The separation of the mixing zone from the retention zone ensures optimal, intensive mixing at high screw speeds and gentle retention across a narrow time range at a low screw speed. The overlapping flight geometry configuration in the mixing zone as well as in the retention zone ensures thorough scraping of all internal surfaces in contact with the product. Beside allowing a very narrow retention (dwell) time range, it also enables complete emptying of the preconditioner after production.



Maximum gelatinization

The graph shows the gelatinization of potato starch flour in the preconditioner as a function of the retention time for different water content values. Other products such as wheat or corn (maize) flours show similar curve profiles. The high mixing efficiency achieved due to the principle of separate mixing and retention zones produces optimal gelatinization of the product at a precisely definable retention time. The product reaches the maximum approx. after 30 seconds' processing time. Even products tending to stick such as starch or products with high water, fat and protein contents can be precooked without lumping.



Separate drives for mixer and retention screws

The high-speed mixing screw runs at a constant speed, ensuring fluidization of the dry substance and rigorous intermixing with the steam and liquids. The continuously variable retention screw speed allows easy selection of the required retention time.

Low-maintenance, standardized slip-on gear-motors are used for both drives.



Sanitation and accessibility

Large doors on both sides allow easy access to the entire interior of the machine. Cleaning and maintenance are straightforward. The doors can be opened by easy-to-use fast-action closures. Pneumatic springs balance the weight of the doors, enabling virtually effortless opening and closing.

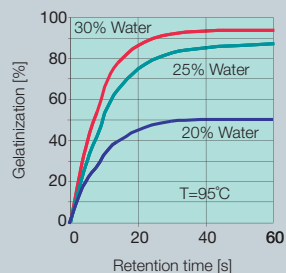


Mixing and retention zones

The two process operations of mixing and retention are conflicting. Efficient mixing produces a non-homogeneous retention time spectrum. If a defined retention time has to be observed, simultaneous mixing is therefore not possible.

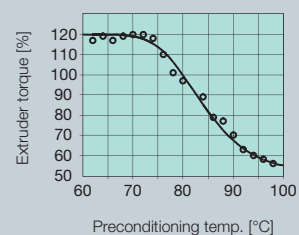
As a result, the mixing and retention zones of this machine have been distinctly separated.

The realization that mixing and retention are two process operations that must be carried out separately has resulted in this highly efficient patented design.

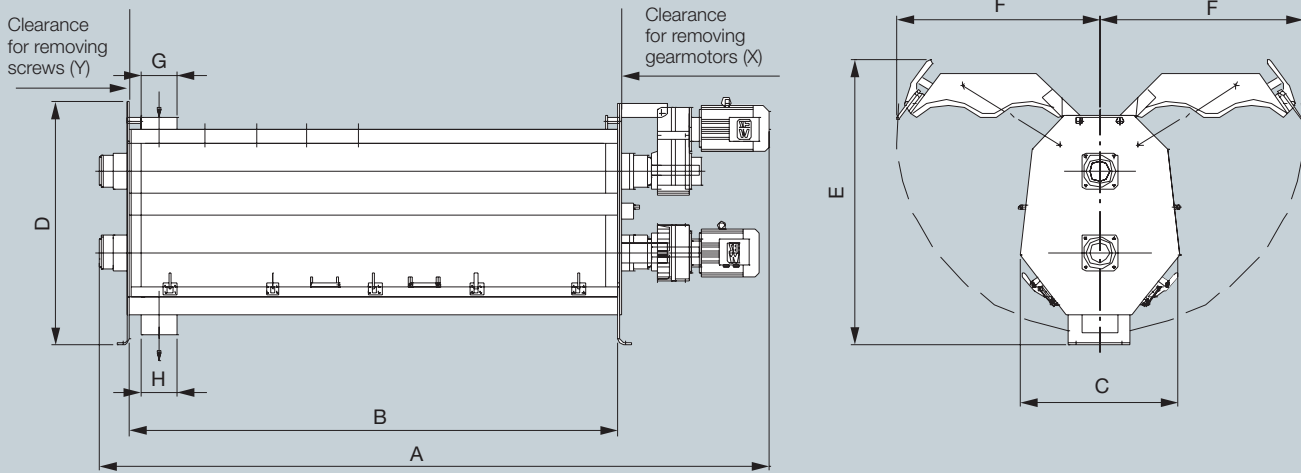


Reduction of extruder torque

Efficient precooking in the preconditioner significantly reduces the input of mechanical energy into the extruder. This becomes evident in the reduction of the extruder torque by as much as 50%, resulting in the following benefits: reduced screw wear and energy costs and selective control and fine-tuning of the end product quality.



Technical data.



Dimensions for sketch in mm

Model	A	B	C	D	E	F	G	X	Y	H
BCTC-10	2310	1400	560	783	929	598	100	3000	2000	118x118
BCTC-22	2341	1784	724	915	1148	749	120	4000	2500	184x184
BCTC-48	3415	2284	846	1154	1334	963	150	5000	3000	208x208
BCTC-100	4048	2880	967	1425	1584	1216	200	6000	3500	254x254
BCTC-160	4354	3503	1013	1550	1629	1445	300	7000	4000	304x304

Weights and volumes, etc.

Model	Drive power max. kW		Volume liters	Tare weight in kg net
	Mixing	Retention		
BCTC-10	3	0.75	100	400
BCTC-22	6	1.1	220	900
BCTC-48	11	1.5	480	1500
BCTC-100	15	3	1000	2400
BCTC-160	30	5.5	2000	3500

Training and Service – always a step ahead.



Customer training in the Extrusion laboratory

Extrusion laboratory

The functional Extrusion laboratory provides support in the practical development of new products, processes and equipment and supplements the scientific approach to solving problems.

Here, different process operations can be simulated in isolation as well as in a wide variety of combinations.

Engineering

Planning and coordination are the main requirements of our engineering team, who ensure a smooth handling of your order.

Installation and start-up

A competent installation and construction site management system and a seamless process up to the point of start-up are guaranteed by Buhler installation and start-up specialists.

Training for your operating personnel

On request, Buhler offers training for your personnel in our pilot plant. The personnel to be trained benefit from a highly varied program at our headquarters.

Customer service

Our engineers and service technicians, who ensure trouble-free service of the equipment we supply throughout its life cycle, are available to you on site as well as in Uzwil.

Bühler AG
CH-9240 Uzwil, Switzerland
T +41 71 955 11 11
F +41 71 955 33 88
extrusion@buhlergroup.com
www.buhlergroup.com

