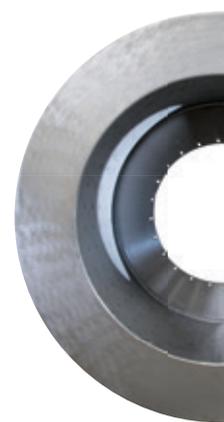




tech-info

► *Batch-type centrifugals of the E series*

In the new generation of batch-type centrifugals for efficient processing of white- and raw-sugar massecuites, many years of experience are paired with the latest developments.



The next generation - setting new standards



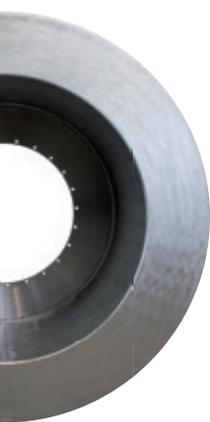
The ever increasing requirements that centrifugal machines have to meet, and the challenge to further optimise an already highly sophisticated product can only be mastered with a new design-engineering approach.

In developing this generation of centrifugals, BMA has both drawn on many years of experience as a centrifugal manufacturer and on the latest technical and technological findings. Technical excellence is demonstrated by the ability to find straightforward solutions to highly complex processes.

This is what we strive for. See for yourselves how BMA lives up to its goals.

The benefits of the E series at a glance

- More efficiency for you
 - Up to 8 % higher throughput
 - Maximum yield, i.e. less sugar remaining inside the basket
 - Simple and efficient - the new syrup separator
- Longer basket service life thanks to elliptical openings
- For maximum productivity:
 - Minimised maintenance and long working cycles
 - Process stability thanks to extremely smooth running characteristics
- Automation: sugar quality going hand in hand with safety
 - Monitored and constant quality
 - Maximum safety thanks to failsafe controls
- Meets very high hygiene requirements
- Easy replacement of old machines: girder spacing 1,750 mm (68.9"); 2,200 mm (86.6"); 2,300 mm (90.55")



Complete BMA solution:

Centrifugals with distribution mixer



More efficiency for you

Shorter cycle times, with the same motor power

With the innovative monaxial discharger, BMA reduces the discharging time by up to 20 %. Since the discharger does without a vertical motion axis and only swings horizontally into the sugar layer, the sugar is removed along the entire height of the basket in one single pass. The discharger therefore considerably contributes to higher throughputs of up to 8 %, which is achieved with the same motor power that is used in the earlier centrifugal series.

For optimum coordination between discharging process and downstream conveyor elements, the discharging speed can, in addition, be varied.

Very low sugar residues in the basket for maximum yield

The tried-and-tested BMA centring facility holds the basket in a stable position during the discharging process. This provides for uniform removal of the sugar and reliably prevents contact between the discharger plough and the screen, which may lead to premature and unnecessary wear at both the discharger tip and the screen.

With an additional, second discharging speed (can be optionally activated), sugar residues in the basket are reduced to a minimum and screen washing is optimised.

Simple and efficient – the new syrup separator

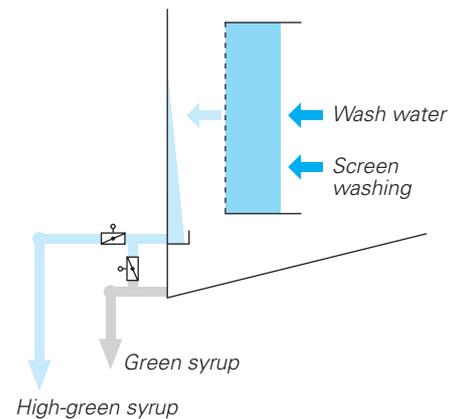
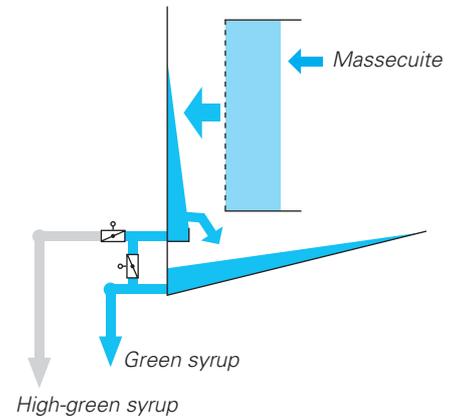
The new syrup separator is as simple as it is efficient. The syrup separation flume provides for excellent separation into green and high-green syrup – without any internal mechanical elements. The discharge nozzles are operated exclusively from outside the centrifugal. Back-mixing of the syrup film that flows down along the inside wall of the housing is minimised at crucial points. This is a particular advantage when separating the high-green syrup during the screen washing phase.

By setting the time after water washing at which the green syrup butterfly valve closes and the high-green syrup butterfly valve opens, the syrup quality can be controlled in a reproducible manner.

Operation principle of the syrup separation flume

Top: green syrup

Bottom: high-green syrup



Monaxial discharger in its rest position (left) and swung into its discharging position (right)



Much longer basket service life thanks to elliptical openings

The E series is the first generation of batch-type centrifugals world-wide to come with elliptical openings in the basket shell as standard.

The advantage these elliptical openings have over cylindrical boreholes is that the peak stresses occurring in the basket shell during operation are reduced by more than 40 %. This increases the theoretical service life of the basket by a factor of almost three.

BMA only uses an advanced two-phase duplex steel for the baskets, which combines the positive properties of ferritic stainless steel (high strength) and austenitic stainless steel (high ductility and resistance against corrosion).

Basket shell with elliptical openings

Impressive simplicity

For highest productivity: minimised maintenance and long working cycles

In its E-series machines, BMA has consistently replaced maintenance-intensive components with intelligent developments and improvements. As a result, the number of moving parts has been reduced to a minimum.

To list but a few examples:

- Discharger without a vertical motion axis
- Closing hood activated from above, combined with the centring device
- Syrup separator without internal mechanical elements
- Three-part cover for very easy access
- Inspection openings distributed across the entire height of the basket
- Bus-controlled local actuators

Advantages that are gained from generally lower maintenance needs and very good accessibility are shorter machine downtimes and, therefore, very low maintenance costs.

Process stability thanks to extremely smooth running characteristics

Like the machines of the earlier generations, BMA's E-series centrifugals stand out for their very smooth operation, and they ensure stable production processes even in the case of fluctuating massecuite qualities. With the aid of FEM calculations, the stiffness of the E-series housing and frame have been further optimised. The result is very high reliability, because the risk of interruptions caused by vibrations or oscillations is reduced to a minimum.

Easy replacement of old machines: girder spacing 1,750 mm (68.9"); 2,200 mm (86.6"); 2,300 mm (90.55")

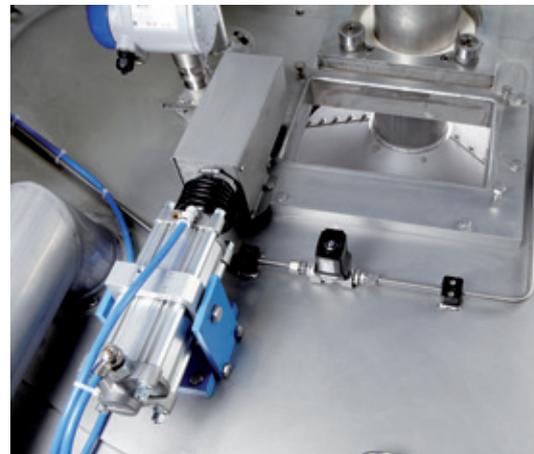
With three machine sizes in the E series, BMA is able to offer you the right solution to your specific capacity requirements. Each size, in addition, comes with three different versions that are designed to handle different layer thicknesses, depending on the crystal suspension that has to be separated.

Owing to the girder spacing, old machines can be replaced without any problems.

Meets very high hygiene requirements

Both discharger rinsing, which is a standard feature, and the elimination of elements in the sugar outlet help reduce product encrustations to a minimum. Due to the machine's special design principles, it is virtually impossible for lubricants to get into contact with the product. To prevent contact, an additional grease drip tray is integrated below the drive head. But since the number of moving parts has been reduced, less grease is required altogether. As a matter of principle, BMA only uses approved food-grade H1 grease.

For the E series, BMA makes more intensive use of stainless steel; not only for elements that are in direct contact with the product. Apart from complying with hygiene requirements, this has the added benefit of a longer service life and lower maintenance requirements.



Highest hygiene standards and minimised maintenance



*E1810 station
from the rear*

sugar quality going hand in hand with safety

Monitored and constant quality

A high automation level essentially contributes to controlled and constant sugar quality. The E-series machines incorporate various highly advanced automation features. These include:

- **DynFAS-FS:** electronic charging sensor
This non-contacting layer thickness measuring system is integrated as standard. It adjusts the layer thickness to a desired value and reliably prevents the basket overflowing. It also allows the application of wash water to be adapted as required.
- **Integration of on-line colour measurement (option)**
The control system of the E series can use signals that have been obtained for individual batches with an on-line colour measuring system. The addition of wash water can, for instance, be controlled in an optimum manner depending on the colour of the sugar.

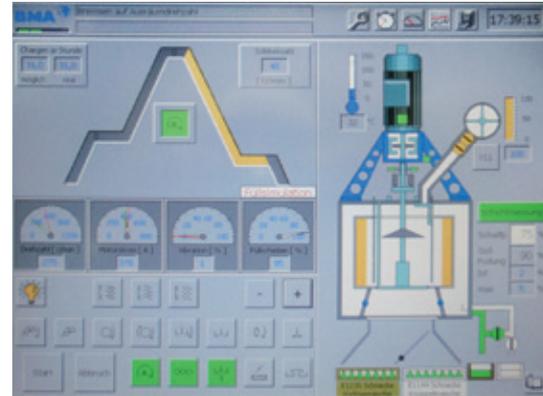
Enhanced safety thanks to failsafe controls

To reliably detect and react to certain extreme faults, BMA uses a failsafe control system (f-cpu) as well as certified sensors and analysers. As soon as an error occurs, the application can be flexibly changed to a safe state. High vibrations, for instance, initiate an emergency stop. When an emergency stop has been activated, the regenerative and mechanical brakes have to interact, in order to brake the centrifugal basket as quickly as possible. The control system provides for failsafe monitoring of the braking ramp.

This solution not only reflects state-of-the-art technology, but also enhances the safety level for both the operator and the machine.

The control system

The proven BMA control system, which is based on Siemens S7-300F (alternatively Allen Bradley Compact Logix), incorporates extensive visualisation features for straightforward and user-friendly machine control. Adjustments can be very easily made to react to changes in product properties, and options can be readily activated. In addition, a detailed alarm library provides for clear and easy error diagnostics. Ethernet or Profibus communication is available as an option for connection with direct control systems.



*User-friendly
visualisation features*

Equipment options

Basic equipment

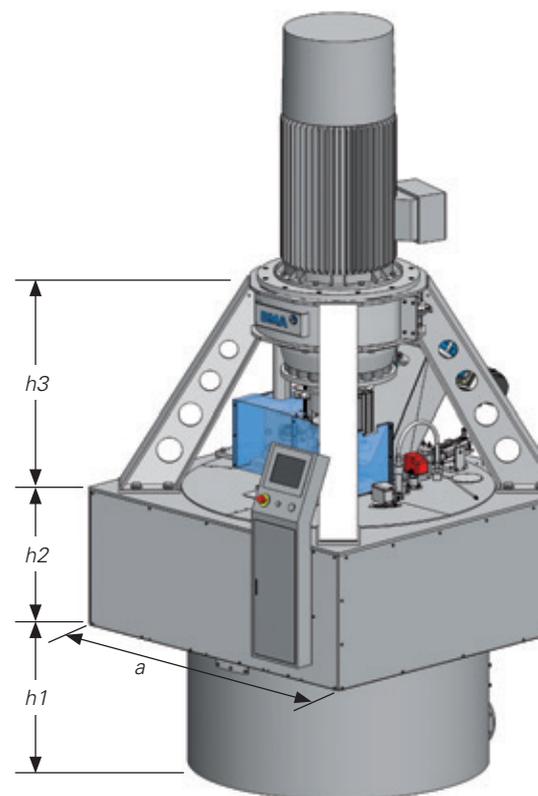
- All product contacted parts made in stainless steel (basket hub in steel or stainless steel)
- Revolutionary basket with elliptical openings
- Monaxial discharger eliminating up and down movement
- Syrup separation flume
- Replaceable discharger tip
- Centring device
- Electronic DynFAS-FS charging sensor
- Drives from various suppliers; with a power range from approx. 110 to 450 kW

Additional modules

- Sugar guidance below the centrifugal (e.g. chute)
- Distribution mixer made in stainless steel

Optional equipment

In addition we can offer you our construction kit, so the centrifugal can be adapted even better to your specific needs. Just let us know what we can do for you!



E-series dimensions

			E1390	E1810	E2240
Girder spacing	a	mm (inches)	1,750 (68.9)	2,200 (86.6)	2,300 (90.55)
Projection	h1	mm (inches)	760 (30)	880 (34.65)	980 (38.6)
Height above floor	h2	mm (inches)	900 (35.4)	900 (35.4)	900 (35.4)
Height up to motor flange	h3	mm (inches)	1,210 (47.65)	1,349 (53.1)	1,349 (53.1)

E-series performance

Masseccuite properties

			E1390	E1810	E2240
Very easily centrifuged (e.g. refined sugar)*	Quantity per batch	kg (lbs)	1,500 (3,307)	1,960 (4,321)	2,420 (5,335)
	Batches/h**		30	28	28
	Throughput up to	mt/h (sht/h)**	45 (49.6)	55 (60.6)	68 (75.0)
Easily centrifuged (e.g. white sugar, raw sugar)*	Quantity per batch	kg (lbs)	1,390 (3,064)	1,810 (3,990)	2,240 (4,938)
	Batches/h**		30	28	28
	Throughput up to	mt/h (sht/h)**	42 (46.3)	51 (56.2)	63 (69.4)
Not easily centrifuged (e.g. raw sugar)*	Quantity per batch	kg (lbs)	1,190 (2,624)	1,540 (3,395)	1,900 (4,189)
	Batches/h**		28	26	26
	Throughput up to	mt/h (sht/h)**	33 (36.4)	40 (44.1)	49 (54.0)

* subject to factors such as masseccuite purity and crystal size

** subject to product quality and drive motor



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