

## OVC– the cooling crystalliser

A new generation of efficient coolers. Perfectly equipped for constant crystal growth and maximum yield.



# Cooling: ten out of ten.

## The new generation of cooling systems.



Cooling crystallisers are used in beet and cane sugar factories and sugar refineries worldwide for the crystallisation of sugar from low-purity crystal suspensions (massecuite); they are economical and produce excellent results.

Cooling crystallisers from BMA (OVC) are vertical units consisting of a cylindrical product chamber **1** and cooling pipes **2** only on the inside. Massecuite enters via the product distributor **3**. Hydraulic cylinders **4** drive the vertically oscillating cooling packs. The product is discharged at the lower end **5** of the OVC, which can be adapted to fit a specific piping infrastructure.

### Design features

- Modularity of OVC cooling coils and body
- Standard lifting system and standard product distributor
- Compact design
- Easy to integrate with piping systems thanks to standard flanges

### Range of sizes

Cooling coils	Cylinder height m	Throughput		Volume m <sup>3</sup>	Cooling surface m <sup>2</sup>
		Cane t/h	Beet t/h		
4	11.4	7	6	132	232
6	13.8	10.5	8.5	180	348
8	16.2	14	11	228	464
10	18.6	17.5	13.5	276	580
12	21	21	16.5	324	696
14	23.4	24.5	19.5	372	812
16	25.8	28	22.5	420	928
18	28.2	31.5	25.5	468	1044
20	30.6	35	28.5	516	1160
22	33	38.5	31.5	564	1276
24	35.4	42	34.5	612	1392

# For optimum crystal growth.



Molasses massecuite mingler

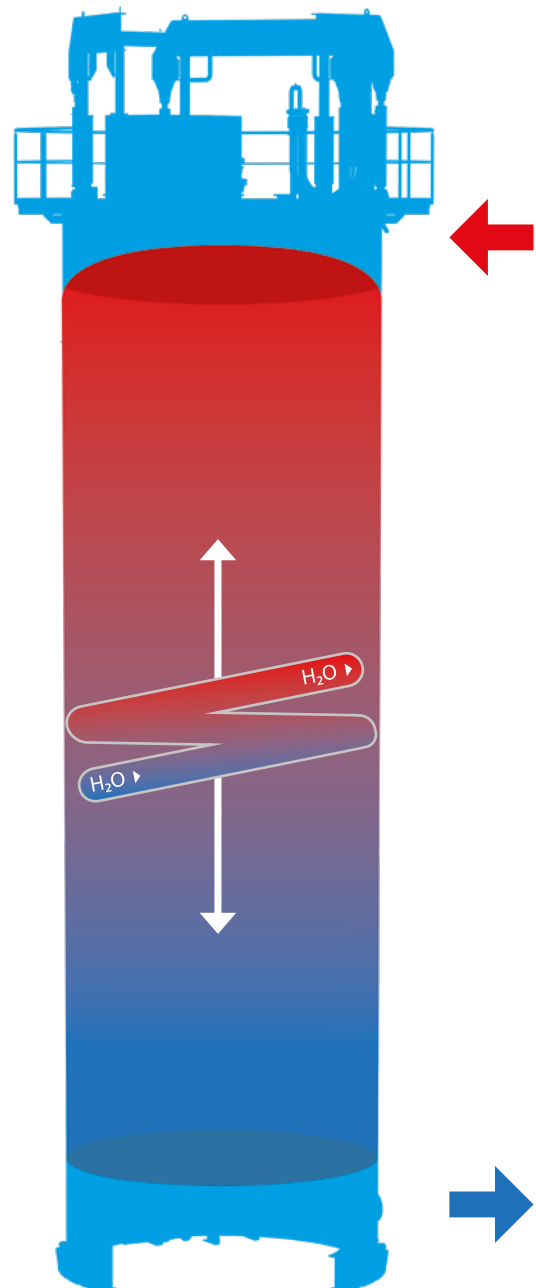
With its OVC, BMA delivers a continuous cooling crystallisation solution for maximum desugarisation without the formation of fine crystals.

The cooling crystalliser uses the force of gravity, with the massecuite flow from top to bottom. BMA offers highest precision when the massecuite enters the cooler. As it enters the unit, the massecuite is uniformly distributed across the entire crystalliser cross section by a slowly rotating distributor.

The cooling system consists of standardised cooling block elements, in which water flows countercurrent to the massecuite. The entire cooling system oscillates vertically by 1 m. This, in conjunction with the symmetric arrangement of the cooling pipes, provides for optimised retention times and even cooling of the massecuite. The standardised cooling process helps achieve high yields. Six hydraulic cylinders, which are symmetrically mounted on the cover of the cooling crystalliser, drive the system. The oscillating cooling coils also achieve self-cleaning effects. As a result, the OVC can be in continuous operation during the campaign and requires less maintenance during production. The cooling water cycle is a closed system and therefore not dependent on a permanent connection to a fresh water system.

#### Optimised process technology for greater effectiveness:

- Larger specific cooling surface
- Oscillating cooling surfaces for excellent self-cleaning effect
- Defined cooling for maximum yields
- Permanently very good heat transfer between the massecuite and the coolant

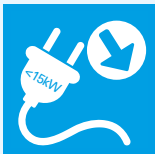


Schematic of cooling crystallisation



# Bringing out the best. Benefits at a glance.

## Efficient



Energy consumption no more than 15 kW



ROI within the first two years<sup>1)</sup>

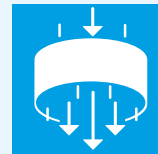


Optimised process technology



Maximum output  
Cooling surface of up to 1,400 m<sup>2</sup>

## New!



Throughput of up to 40 t/h in one cooling crystalliser

## Cool down



Maximum yield: cool down to 40° C

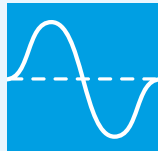
## Consistent quality



Purity drop of up to 9 points



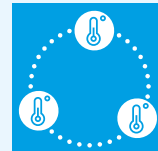
Optimised desugarisation, no formation of fine crystals



Oscillating cooling surfaces for self-cleaning effect



Optimised retention times for high yields



3-step temperature control

## Availability



Robust, low-maintenance hydraulic system



Continuous operation



For use in cane and beet sugar factories, refineries, and for non-sugar crystallisation

## Automation



"Essential" level included in basic scope of supply



Extensible with automation modules

<sup>1)</sup> Calculation of the ROI is based on the length of an optimum campaign.



## Plants and automation technology from a single supplier

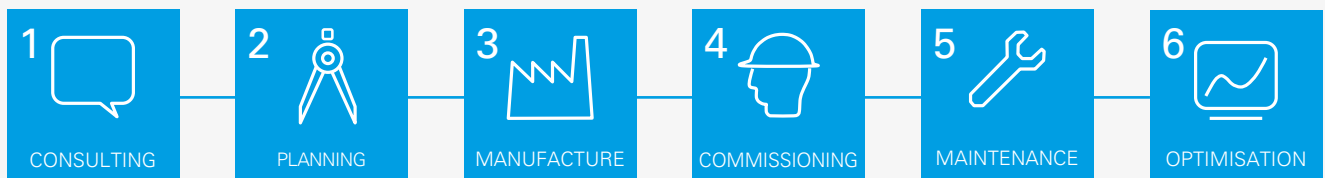
Even the best design solution requires a matching control system and process automation technology to reach its full potential. Together with BMA Automation, we have the necessary combination of mechanical engineering, process technology, and measurement, control and automation technology.

We offer a range of automation modules:

- “Essential” for basic machine safety
- “Extended” with added process technology aspects
- “Advanced” includes additional modules to provide a comprehensive solution for the entire process step.

## BMA Group: from the first consultation to the finishing touches.

Whether you require assistance with plant design, traditional mechanical engineering, automation technology or post-installation service – with BMA, your project could not be in better hands. Right from the start. Together we develop the perfect solution for your requirements, assisting you from the first concept until the final bolt is in place and pulp drying is running at full speed. And throughout the life cycle of your plant.



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## BMA – Passion for Progress

For over 170 years, BMA has been developing and manufacturing machinery and equipment for industrial-scale sugar production. BMA system solutions for sugar factories and refineries are in demand wherever minimum energy consumption and consistently high product quality are top priorities. With a strong workforce around the globe and in-depth knowledge of process engineering, BMA has an exceptional service profile in the sugar industry.



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