

**System solutions for
enrobing, tempering and cooling**



HOSOKAWA BEPEX
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POWERING THE WORLD OF SWEETS



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Enrobing, tempering, cooling

Kreuter, one of Hosokawa Bepex's three major brands, specializes in machinery and system technology for the production and refining of chocolates, confectioneries and cookies.



Enrobed products – Kreuter's recipe for success

There are many routes to success. It is up to you to meet the consumer's preferences with your product ideas. How you manufacture and refine fine branded products – chocolates, confectioneries and cookies – economically in the highest quality is no secret: with Kreuter cooling and enrobing technology.

If you are planning to refine new product ideas into unrivalled branded items, you can find convincing solutions at Hosokawa Bepex and their Kreuter cooling and enrobing technology. Hygienic machinery design, high efficiency with low operational costs resulting in a predictable amortization is the focus with Kreuter. The process-oriented adaptation of the system to your individual specifications is the absolute norm.

The production of chocolates, confectioneries or fine cookies is the high art of confectionery production. Coatings,

decorations or bases of chocolate, nougat or caramel masses not only require professionalism in the development of the recipes, they also require technical solutions which ensure consistent quality, flexibility, efficiency and reliability in 3-shift fully automatic operation. Essentially, it is a question of the perfect mix of performance and adaptability, meeting hygienic, ecological and economic standards as well as the sustainability of the installed systems. In short:

- Perfect production quality with high output
- Adaptation to spatial and climatic conditions

Kreuter cooling and enrobing technology

- Enrobing machines and decorators for diverse product refining
- Tempering machines for process-oriented, prepared enrobing masses
- Cooling tunnels for confectioneries and cookies of all types
- Plant technologies with high quality components and an integrated processing technology
- Unique comprehensive hygienic design
- The highest energy efficiency

- Hygienic design
- Energy efficient green design
- Economical operating costs
- Flexibility for diverse product ideas
- And finally: an experienced partner for installation

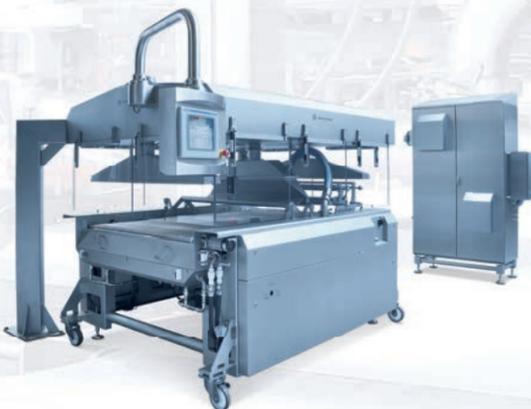
The Kreuter brand range includes tempering systems, enrobing systems, decorators and cooling tunnels which can be flexibly adapted to any product concept, mass recipe or production process. Hosokawa Bepex which has for years been established as a system integrator of all-inclusive production uses this range very specifically. Our experienced team effectively equips major companies in the confectionery and baked goods sectors with Kreuter cooling and enrobing technology.

Kreuter enrobing machines

- Bottom and full-enrobing machines for all masses (incl. highly viscous masses), 1 and 2 color machines
- Plant sizes 420 mm to 2,070 mm standard
- Smooth, perfect coat and uniform weight across the entire working width
- Precise machine tempering for the highest product quality
- PLC control with integrated recipe management
- Integration of decorators
- Swivel-mounted feed table for easy access
- Turning units
- Bottom stripping devices
- Grid hold-down for lightweight products
- Bridging straps for line-integrated enrobing machines for the conveyance of unenrobed products



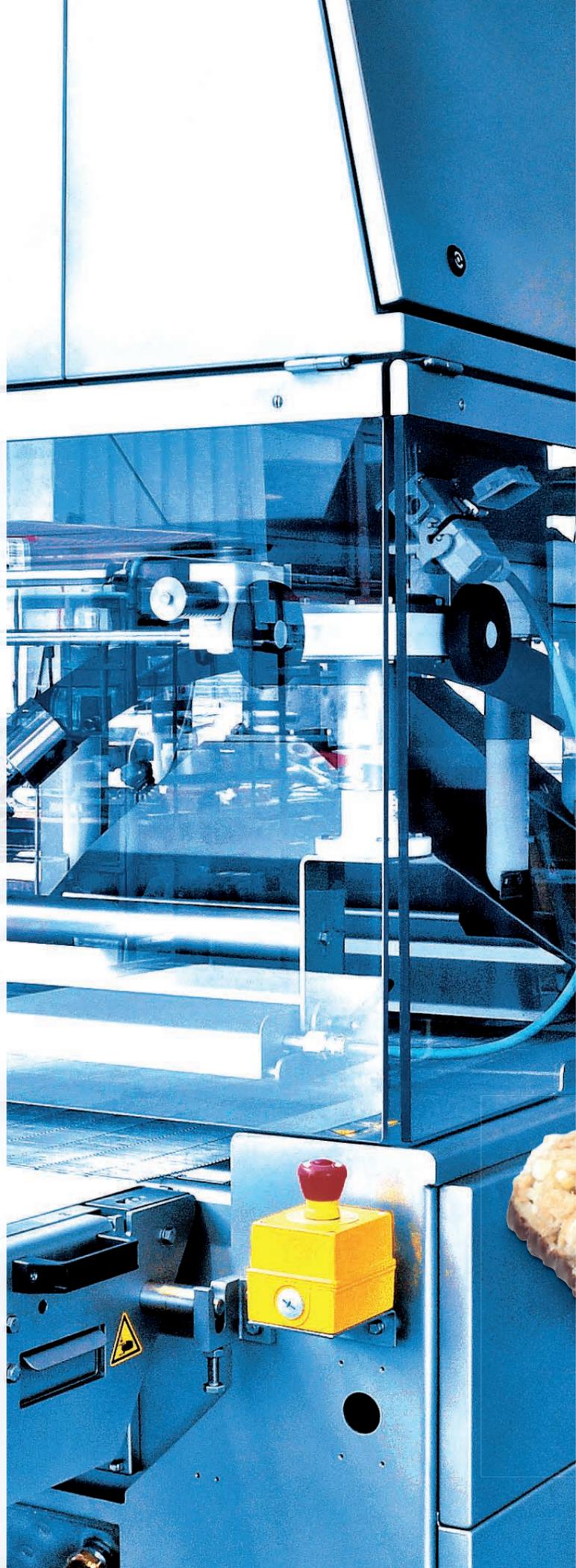
Chocoat Start 420



Chocoat Premium 1070 HD Hygienic Design



Chocoat Premium 2070



Consistent enrobing technology with hygienic design

Kreuter enrobing machines for chocolate, compounds and caramel are designed for flexibility, reliability and hygiene. They demonstrate their performance through their high volume output combined with precise reproducibility of masses, weights and decorations. They prove their flexibility for the most varied products with great adaptability. Consistent hygienic design not only ensures compliance with all standards but also easy access to cleaning and service.

Recently, the demand for real hygienic design (HD) has grown louder. Critical evaluations of the food production not only strain individual manufacturers but also entire branches. To gain and keep the trust of the consumers long-term, it is necessary to operate plants which are hygienic while being economical. With Kreuter, Hosokawa Bepex alone provides a comprehensive, all-inclusive enrobing program with hygienic design according to the guidelines of the leading food associations AMI and EHEDG. We will be happy to go into detail and show you how to find a perfect solution without comprising flexibility, productivity or safety.

Experience for yourself how Kreuter can help you meet your product challenges at which precision with their enrobing machines. In the process, your individual requirements, for example, for the overall design, the production quality or economic aspects as well as easy operation with low retooling times, are to be met. This collaboration generates sustainable solutions which can even be carried out in special designs upon request.

Hygienic design by Kreuter

- Consistent hygienic design according to AMI and EHEDG
- Minimization of the number of components for easy dismantling, virtually without tools
- General avoidance of product accumulation
- Systematic, time-saving cleaning process possible
- Certified food-grade materials and surfaces
- Maintenance-compatible access to all components; machine parts are moveable for cleaning in the COP area
- Prevention of surfaces where solids or liquids accumulate
- Exclusion of cavities or recesses
- Stock removal of components into separate energy blocks outside of the product area



Customized enrobing

Kreuter enrobing machines refine bars, waffles, chocolates and cookies into an incomparable and lasting brand experience.



Kreuter tempering machines and conditioners

- Standard compact tempering machines and compound conditioners
- Throughputs from 100 kg/h to 2,000 kg/h
- Perfect pre-crystallized enrobing masses
- Suitable for highly viscous masses
- Coating masses with inclusions possible
- Integrated buffer tanks and chocolate pumps, screw end crystallizers, screw warmers and cool water generator available
- Quick and efficient mass change
- Compact design



betamat 250 – 1,500 kg/h



tmk 250 – 2,000 kg/h



Compact 100 – 200 kg/h



Compound Conditioner HD 100 – 1,500 kg/h

Tempering of various masses for perfect processing

The secret to fine surfaces: For a perfect coating, the chocolate must first be exactly tempered. The perfection of Kreuter tempering machines is demonstrated in the handling of masses with high viscosity while stringently complying with clearly defined crystallization points. They reproduce your top quality with consistency under changing climatic conditions or complicated factors when, for example, the mass is laden with chopped nuts or other similar sized inclusions.

In the pre-crystallization of chocolate masses, the two Kreuter tempering machines betamat and tmk function according to the principle of screw tempering which is distinguished by high precision and reliability in the processing. The tempering machine is designed so that even masses with chopped nuts or cereal can be processed.

The main task of the tempering machine is to convey chocolates and other masses to the respective consumer units in the best processing possible. For this, for example, in the betamat and tmk, the masses travel through the vibration screen, the decrystallizer as well as the tempering process with cooling and warming stages in order to finally reach the consumer point via the tempered pipeline system. Several independent and closed water cycles ensure reliable tempering results.

The working principle of the Kreuter Compound Conditioner, is based on a two zone scraped surface heat exchanger. While the first zone can be for heating or cooling, the standard use is to take compound mass from the use tank and heat it to a uniform temperature until completely melted. As the compound exits the first zone, the second zone cools the compound to the uniform correct temperature at which it will form crystals. This is similar to the tempering process used in „Real“ Chocolate. The compound is then transferred directly to the enrober for use.

Your benefits from conditioning:

- The formation of crystals, which can add a certain shine to the coating to give it a more chocolate look.
- Time and energy savings due to the cooler temperature at which the compound is transferred to the enrober.

Process-optimization by Kreuter

- Process-integrated mass processing
- Expansion of the mass and recipe variety
- Acceleration of the processes
- Assurance of productivity and reliability
- Reduction of operating costs
- Improvement of the production flexibility
- Intelligent process automation

We manufacture various size units to handle production capacities ranging from 100 kg/h to 1,500 kg/h.

The units are supplied with their own closed loop water circuits (one for each zone). The only utility requirement for cooling water to each of these loops is power.

The new hygienic design (HD) gives improved access for maintenance purposes and also allows the unit to be easily disassembled for a basic wash down up to a complete allergen type cleaning.



Appearance, quality and flexibility

From the recipe to the production – Kreuter shows you what makes the difference.

Kreuter cooling tunnels

- High performance, floor and universal cooling tunnels
- Belt widths between 420 mm and 2,070 mm standard
- Highly efficient product cooling tunnels convection and floor contact cooling
- Gentle radiation cooling of chocolate masses
- Universal cooling tunnels for changing products
- Hygienic designs for the highest hygiene standards and uncomplicated cleaning
- Integrated continuous belt washing units
- Precise belt control for perfect product conveyance and transfer
- Bridging units for upstream machines
- Integrated heating register for reducing relative humidity
- Modular design for maximum flexibility
- Two-sided opening for easy cleaning
- Droplet separator
- Integrated air filter up to filter category F9
- UV lamps for microbial load



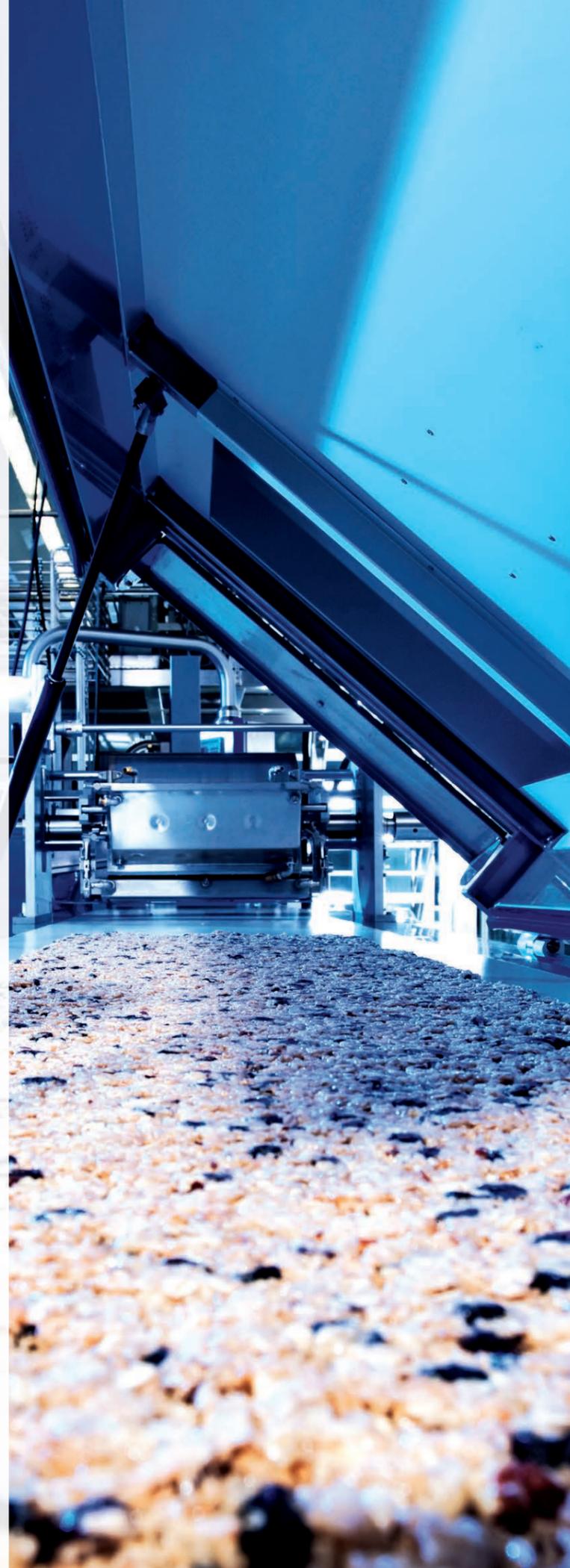
Cooling tunnel HKK HD
Hygienic Design



Cooling tunnel BKK



Cooling tunnel UKK



Cooling technology for the finest quality – exceptionally convincing

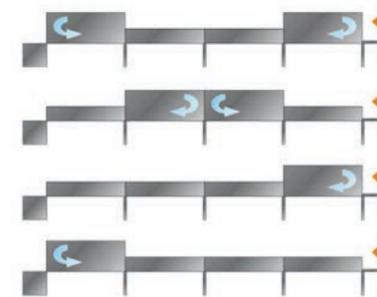
Energy efficiency by Kreuter

- Unrivalled insulation strength
- Long-lasting operating times through a stable design and materials
- Thermal bridging-free model
- Heat exchanger from the technology leader with efficient energy utilization
- Intelligent ventilation control for energy savings
- Excellent energy efficiency through temperature-sensitive cooling generation technology
- Highly efficient air flow to prevent pressure losses
- Low friction drives for low wear and tear and energy saving conveyance distances

Enrobed products like confectioneries, chocolates and cookies are extremely sensitive to changing temperatures. They not only melt easily when warm, they also cool quickly under drafty conditions. Kreuter cooling tunnels are thus built by specialists with vast experience in dealing with specialties and reliable controlled cooling technology.

Whether it is a matter of gentle cooling of chocolate masses or the quick cooling of formed or baked products – Kreuter cooling technology is suited to the most varied purposes. Kreuter always offers the individually customized cooling tunnel.

The universal cooling tunnels UKK and BKK cool the chocolate coatings of refined confectioneries in a gentle way to attain the exact crystallization. Delicate cookie types or carpet and extrusion-formed masses are impressively cooled using time-saving and efficient cooling.



Layout of evaporator section depending on production requirements

The high performance cooling tunnel HKK offers the highly efficient and quick cooling of products in the smallest space. This makes it ideal for the cooling of hot products directly after an oven or a mold press in order to prepare them as quickly as possible for cutting, enrobing or packaging. Perfect product transfer brings about high efficiency.

The cooling tunnels have a high degree of modularity in their design and the corresponding variety in their fittings due to the demand for customer-specific solutions. Adaptations to special customer demands, the integration of cold compressors or cold water sets as well as continuous technological further development belong to Kreuter's daily routine.

Cooling tunnels are one of the biggest energy consumers in the production process. In view of marked energy saving and efficiency, Kreuter has equipped the cooling tunnels with effective thermal insulation and excellent sealing for years and can thus prevent thermal bridging. In addition intelligent control systems with high temperature sensitivity only use as much energy in the plant as is actually needed for the desired result. All these details keep your operating costs under control and make all the difference.

Cooling in a broad range

Efficient cooling of masses and coatings for special quality results.



Kreuter decorators

- Decorators for integration into the enrobing machine or as a separate system
- Servo decorator CW with 1 or 2 axes and PLC control with recipe management
- Touch decorator
- Sprinkling units for chopped nuts, chocolate decorations and various ingredients
- Recirculation of sprinkling materials for enhanced material usage



Servo decorator CW



Decorating table



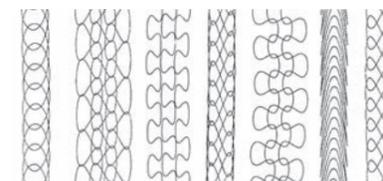
Sprinkling unit NBV



Detailed decorations for superb specialties

Usually it is the small but exquisite details that are the crowning achievement of an impressive product idea. Kreuter highlights this fact with innovative solutions for decorating or finishing products that distinguish themselves through originality on the one hand and the ability to adapt and integrate to existing manufacturing processes on the other.

The Kreuter servo decorator CW is a universal decorating system for enrobed or non-enrobed products like chocolates, bars, cookies, waffles, cake, ice cream etc. It can make a virtually unlimited variety of dash, zigzag and circular motions or single and double loops possible. With a nozzle distance starting from 5 mm and a nozzle diameter of 1 mm even the most exquisite decorations can be achieved. The nozzle system is self-cleaning. The servo decorator CW stores all decoration pattern data electronically. This means that every decoration pattern is 100% reproducible.



A selection of decoration options from the servo decorator CW

The Kreuter touch decorator creates patterns on products by shaping the still soft chocolate with a special mechanical device. This method is used to produce bars when the decoration is not applied using additional chocolate or another substance.

Kreuter also provides solutions for the management of sprinkling substances like chopped nuts, nonpareils or cereals. There is also the option of sprinkling from all sides and from below. The common features here are also the criteria which distinguish the perfect solutions in the confectionery production:

- Complete system integration
- High process reliability
- Hygienic design
- The highest energy efficiency

Together with you, our engineers develop your customized solution.

Specialties by Kreuter

- Development of decoration solutions
- Production consulting for your new product ideas
- Pre-series tests in the Hosokawa Bepex technology center
- Development of an efficient process integration
- Design-specifications for the adaptation of customer production



From recipe to premium product

Performance is revealed in the ability to realize the unique product ideas in the most delicious way.

Hosokawa Bepex

Powering the World of Sweets

Hosokawa Bepex is a major supplier for the confectionery and bakery industries worldwide. With the three brands Ter Braak, Bepex-Hutt and Kreuter, we have been a system integrator for all-inclusive production solutions. Our service range includes dosing, weighing, mixing, cooking and aerations to extrusion, forming, cutting and depositing on to tempering, enrobing and cooling. Discover now the innovative power of Kreuter cooling and enrobing technology – preferably in our technology center in Leingarten.



Kreuter cooling and enrobing technology

Enrobing

- Chocoat
- Icecoat
- Caracoat
- Bottomer

Tempering/Conditioning

- Tmk
- Betamat
- Compact tempering machine
- Compound conditioner

Cooling

- HKK
- HUKK
- UKK
- BKK

Decorating

- Integrated decorator
- Servo decorator CW
- Touch decorator
- Decorating table



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