

Agri-food:

a fast-expanding industrial world

Few sectors have experienced such a profound transformation as the agri-food industry: new ingredients, new modes of consumption and new preservation processes have appeared at an increasingly rapid rate in recent years. In this fast-changing market, the industrial facilities must maintain high performance and reliability to guarantee sustained productivity.

For the machinery, food processing sometimes has a bitter taste...

Regardless of the quality of the ingredients used in food processing, they are often "indigestible" for the mechanical components, and particularly for bearings. In this environment, all the physical stresses are combined: sticky and powdery materials, health requirements, constraints of very frequent cleaning, temperature changes, humidity.

Bearings must therefore have specific properties, such as resistance to corrosion and contamination, or suitability for cleaning and disinfection.

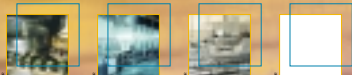
Four golden rules must be applied for the maintenance of equipment in contact with foodstuffs:

- constant and ongoing optimization of its operation at high and low temperatures,
- maintenance of the integrity of the surface of the installations,
- cleanliness of parts,
- anti-bacteria effect.

The indispensable standards (USDA H1) concerning health and food safety, subject to strict regulations, are key considerations for SNR.

SNR at the core of the agri-food sector

SNR has extensive experience in all the agri-food sectors. From industrial packaging of fish to meat cutting. From fluids production to the bakery industry. Although all these sectors have common requirements, each trade also has its specific features, necessitating a particular response in terms of bearings. Confronted with a multitude of practical cases, our engineers have developed a wide variety of solutions, forming a very complete product range. This enables SNR to provide tailored answers for each agri-food application.



An SNR solution

at each manufacturing step



SNR standard bearings and automatic lubricator

SNR has a full range of standard ball, roller and needle bearings. Any type of machine incorporating a standard open bearing and a lubrication system can be fitted with an automatic lubricator. Our SNR AL1 food-grade grease conforms to the USDA H1 standard, which stipulates what are at present the most severe requirements with regard to health and

the purity of the raw materials of the grease. The SNR automatic lubricator gives you:

- Constant, uniform lubrication.
- Reduced maintenance work in hazardous places and reduced maintenance costs.
- Visual indication of proper grease flow.
- Great versatility of use.



SNR bearings with solid lubrication: Lubsolid LSA

• Porous polymer matrix capable of containing 3 to 4 times more oil than with grease alone (longer life).

- Concept eliminates downtime and need to regrease.
- Environmentally-friendly food contact grade grease.

• Operating temperatures: -5 F to +175 F or +210 F.

- Concept applicable to all types of sealed, shielded or open bearings (ball, spherical, tapered).



Maintenance-free chain for conveyor applications

• Can function without lubrication.

- No contamination of food product.
- Operating temperature range: -15 F to +175 F.

• Corrosion resistant ensuring adherence to hygiene standards.

- Also, stainless steel chain for incidental food contact.



SNR two-piece cast iron bearing units

• Easier installation.

- Perfect sealing (felt seal, V-ring seal, nitrile or

fluoroelastomer double lip seal).

- Operating temperatures: -20 F to +230 F.

FOR YOUR CONVEYOR MACHINERY > contact with foodstuffs and presence of water



SNR thermoplastic self-aligning bearing units

• Exceptional resistance to corrosion and chemicals: stainless steel rings and bearings.

- Has a smooth surface which avoids any retention of dust, mold or bacteria.
- Stainless steel bolt hole reinforcements and grease fitting.
- Problem-free operation in the event of temperature

variations (-5 F to +230 F).

- A food-grade grease for unintended contact with foodstuffs.
- Excellent mechanical, thermal and chemical properties.
- Perfect sealing: rubber seals, shields, protective end covers.



SNR stainless steel self-aligning bearing units

• Stainless steel housing and bearing.

- Stainless steel attaching bolts and grease fitting.
- Operating temperatures: -5 C to +250 F.

• Closed protective covers for shaft ends.

- Open protective covers for continuous shafts with silicone rubber double lip seal.



FOR YOUR CONVEYOR MACHINERY > ancillary installations

SNR cast iron and pressed steel self-aligning bearing units

• SNR bearings (sealed and delivered pre-lubricated) with eccentric locking collar or set screws.

- Greater clearance (30 (C3).
- Operating temperatures: standard (-20 F to +230 F), special (-40 F to +480 F).
- Wide choice of sealing levels:

- reinforced sealing: lip seal and shields.

- Maximum sealing: triple lip seal (protection against external contamination and water splashes).
- Can be fitted with protective covers.
- Conform to ISO standards.
- High-performance lubrication (food-grade grease).

What the agri-food industry

expects from bearings....: the SNR answer

These are the properties required of bearings in the main agri-food areas.

- Withstand high temperatures: ovens in bakeries, chocolate-making, blanching of fruit and vegetables, etc.
- Withstand low temperatures: cold rooms, deep-frozen products, ice creams, fishmonger, etc.
- Be compatible with wet areas and water splashing: many food-processing applications, and more particularly the fluids sector, fruit and vegetables, etc.
- Absorb any vibrations: crushing of cereals, sorting of fruit and vegetables, etc.
- Correct installation misalignments: conveying machinery, transfers between the different work stations, etc.
- Guarantee optimum hygiene quality and safety: all applications, with particular attention to products intended for preservation.

In general, it is therefore important to avoid the accumulation of moisture and areas of stagnation, and to favor access of all parts of the installation to cleaning solutions.

FOR YOUR GENERIC INSTALLATIONS

SNR ball bearings (high and low temperature): TOPLINE range

This range meets very precise operating requirements with suitable products. The criteria considered for selecting the appropriate series are temperature, speed and safety requirements.

TOPLINE incorporates the latest innovations:

- Heat treatment suitable for extreme conditions (hot and cold).
- Lubrication with the grease chosen according to the requirements of the applications.
- Sealing with "high and low temperature seals and shields".
- Operating temperatures: -75 F to +400 F.
- Performance at high speed and/or low torque.
- Optimized internal geometry, with reduced tolerances and greater precision for the HV series.
- TOPLINE range:
 - FT 150 and FT 150 ZZ: High temperature: 300 F peak.
 - High speed up to 500,000 n.d.m.
 - HT200 and HT200 ZZ: High temperature: 400 F peak.
 - Medium speed up to 150,000 n.d.m.
 - LT and LT ZZ: Low temperature down to -75 F.
 - HV ZZ: High speed up to 700,000 n.d.m.

FOR YOUR SORTING TABLES AND SHAKER APPLICATIONS

SNR spherical roller bearings: Series EF 800

- Designed for particularly demanding applications.
- One-piece solid brass cage: optimum rigidity and vibration resistance.
- Cage centered on the rolling elements: no blockage in the event of thermal variations.
- Optimized fitting: reduced tolerances.
- Special radial clearance: J30 (C3). Also available in J30 (C3).
- Recommended fits: - Interference fit with the housing, class P6.
- Sliding fit on the shaft, class g6.

FOR YOUR GRINDING AND CRUSHING MACHINERY

SNR steel-cage spherical roller bearings (EA): Series 22000, 23000, 24000, etc.

- Suitable for standard applications (higher limiting speed).
- J30 (C3) radial clearance.
- Inner and outer rings heat stabilized for operation up to 400 F.
- Wrap-around cage: perfect roller guidance to avoid overheating.
- Greater volume between the two rows of rollers:
 - Increases lubricant reserves.
 - Facilitates lubricant flow inside the bearing.
 - Optimizes bearing life.
 - Increases load capacity.

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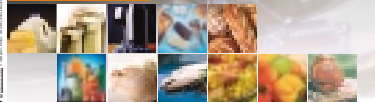
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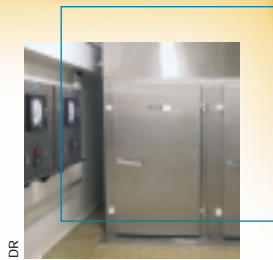
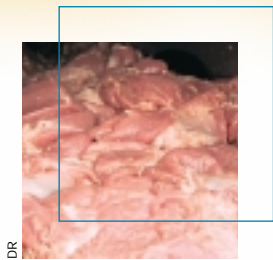
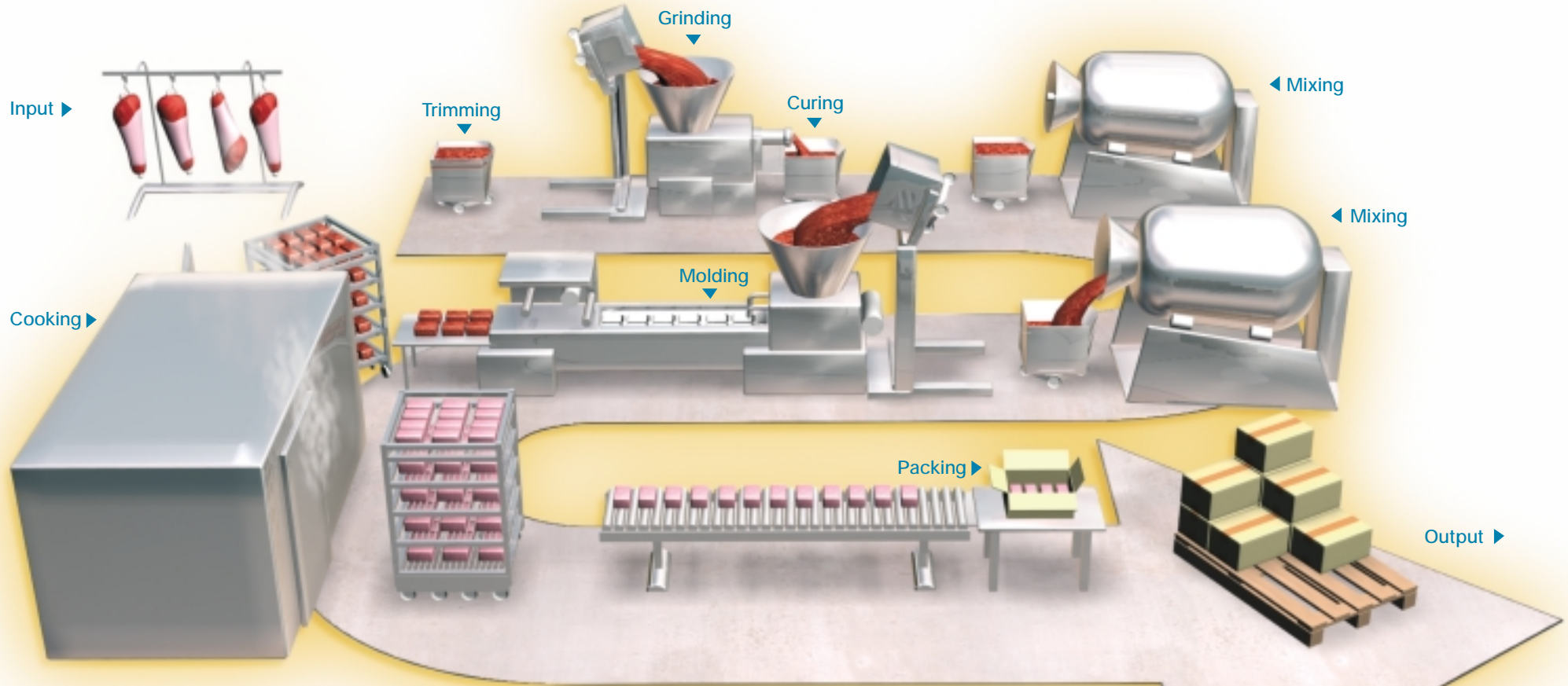


SNR bearings: an essential ingredient
in the agri-food process.



SNR - Industry

Cured products



Curing preserves meat, SNR bearings preserve your profitability

Initially the only purpose of curing was to preserve meat in the absence of refrigerators. Today this process is appreciated above all for the taste and texture it gives to foodstuffs.

Whether the curing is dry, fast, medium-fast, slow or under vacuum, the process always consists of adding to the product (ham, for example) the following ingredients: salt, water, brine, sugar, aromatics, flavors, nitrates, acids. The meat is often ground and mixed, processes employing equipment under conditions that are demanding for the bearings.

A traditional process, curing has entered the modern era. The bearings used simultaneously withstand **moisture**, the presence of **salt**, or even sugar, as well as the **heat** of the cooking ovens. At the same time they must comply with the strict food **hygiene** standards to which meat processing and curing plants are subjected.

With the aim of complying with quality standards both in technical terms (for your machines) and regulatory terms (for your products), **SNR offers you a full range of bearings tailored to your needs.**

SNR bearings

SNR standard bearings with automatic lubricator (food-grade grease)



SNR ball bearings (high and low temperatures): **TOPLINE range**



SNR bearings with solid lubrication: **Lubsolid LSA**



SNR spherical roller bearings: **EA series** (steel cage), **EF800 series** (shaker applications)



SNR bearing units



SNR stainless steel self-aligning bearing units with stainless steel insert bearings



SNR thermoplastic self-aligning bearing units with stainless steel insert bearings



SNR cast iron or pressed steel self-aligning bearing units



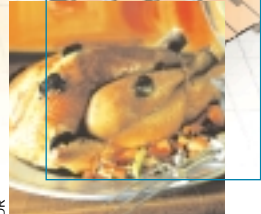
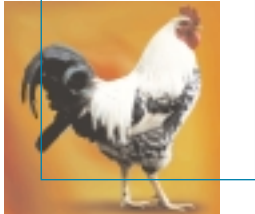
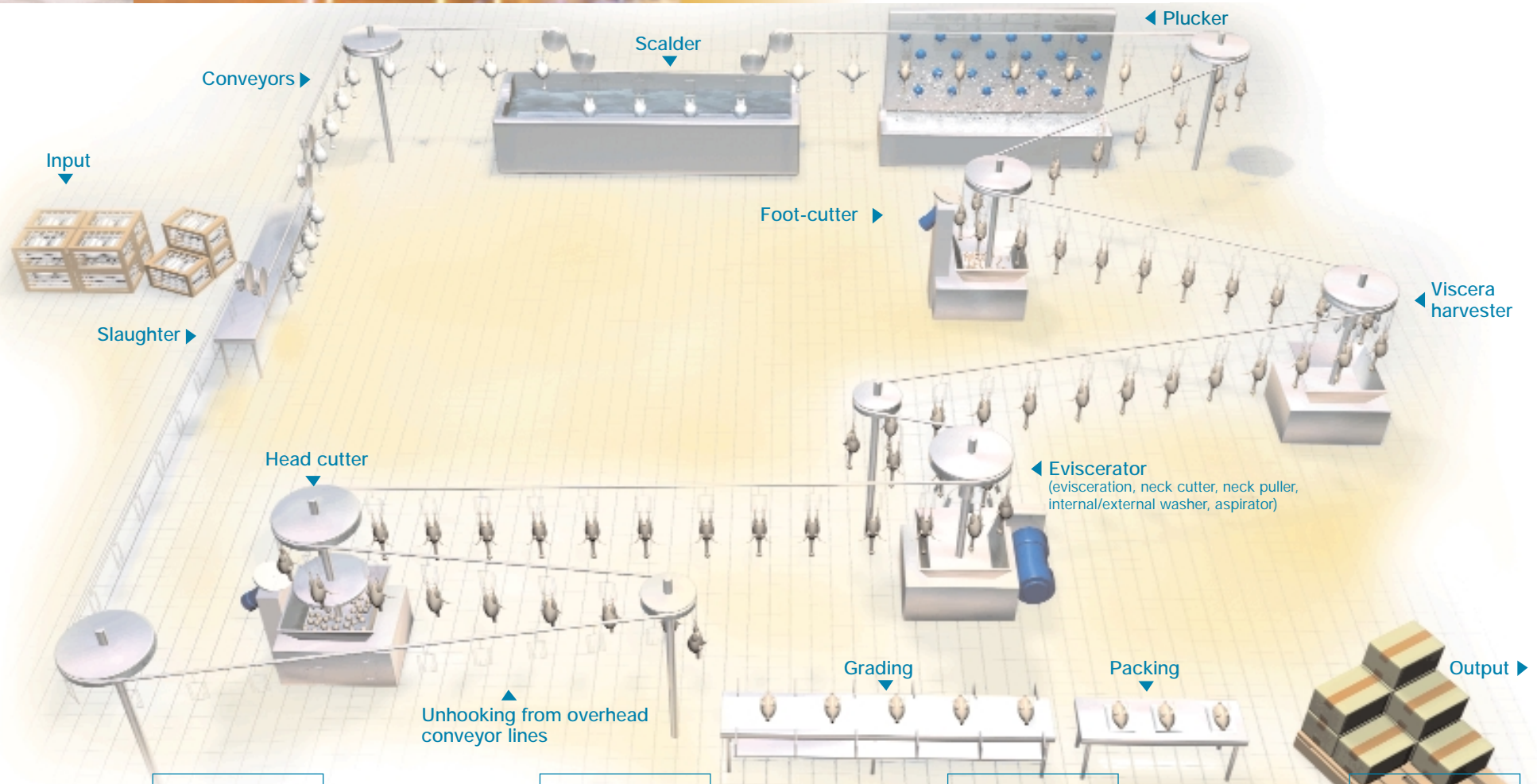
SNR two-piece cast iron bearing units

Anti-corrosive chain

Maintenance-free chain for conveyor applications



Poultry



Avoid ruffling feathers, choose SNR quality



The preparation of a chicken for sale consists of two main steps:

- the chicken is first plucked, eviscerated and washed; the viscera are then sorted.
- it is then kept whole or cut up into fillets, drumsticks, legs or wings. The chicken pieces are packaged, ready for shipment.

The first phase is particularly demanding for the industrial equipment. The high *humidity*, *waste* and *the feather residues* can damage equipment.

The bearings, already heavily stressed by continuous operation, must withstand frequent washing and thus have excellent corrosion resistance.

To satisfy these specific requirements, SNR offers you a full range of products meeting your needs.

SNR bearings

SNR standard bearings with automatic lubricator (food-grade grease)



SNR ball bearings (high and low temperatures):
TOPLINE range



SNR bearings with solid lubrication:
Lubsolid LSA



SNR spherical roller bearings: EA series (steel cage),
EF800 series (shaker applications)



SNR bearing units



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SNR cast iron or pressed steel self-aligning bearing units



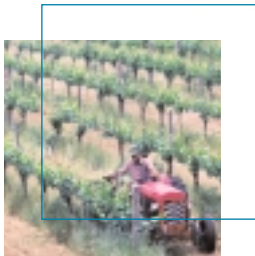
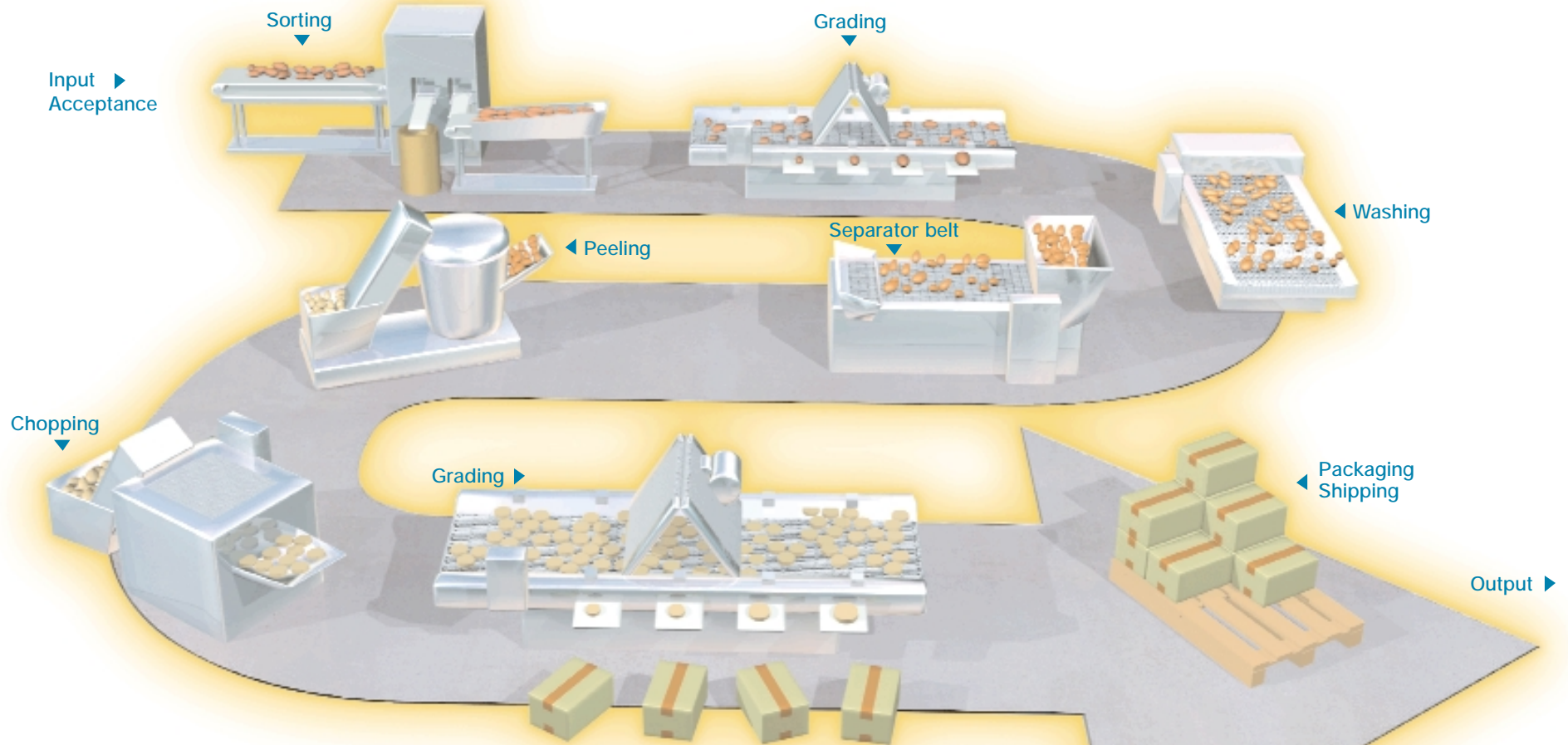
SNR two-piece cast iron bearing units

Anti-corrosive chain

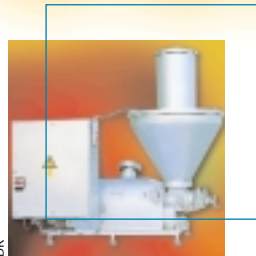
Maintenance-free chain for conveyor applications



Preparation of fruits and vegetables



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SNR bearings: the fruit of our experience



For the processed fruit and vegetable market, the first priority is sorting to remove foreign bodies and eliminate produce with appearance defects. Next come sizing and color checks. Then, before being chopped to predefined sizes, the products are washed.

This step is a key operation in the preparation of food products (elimination of coarse foreign matter: dirt, rocks, dust, etc.). **Vibration** of sorting and grading beds imparts **high loads** which along with aggressive washing creates a challenging environment for the bearings.

With this in mind, SNR has developed a full range of products satisfying your every need.

SNR bearings

SNR standard bearings with automatic lubricator (food-grade grease)



SNR ball bearings (high and low temperatures):
TOPLINE range



SNR bearings with solid lubrication:
Lubsolid LSA



SNR spherical roller bearings: **EA series** (steel cage),
EF800 series (shaker applications)



SNR bearing units



SNR stainless steel self-aligning bearing units with stainless steel insert bearings



SNR thermoplastic self-aligning bearing units with stainless steel insert bearings



SNR cast iron or pressed steel self-aligning bearing units



SNR two-piece cast iron bearing units

Anti-corrosive chain

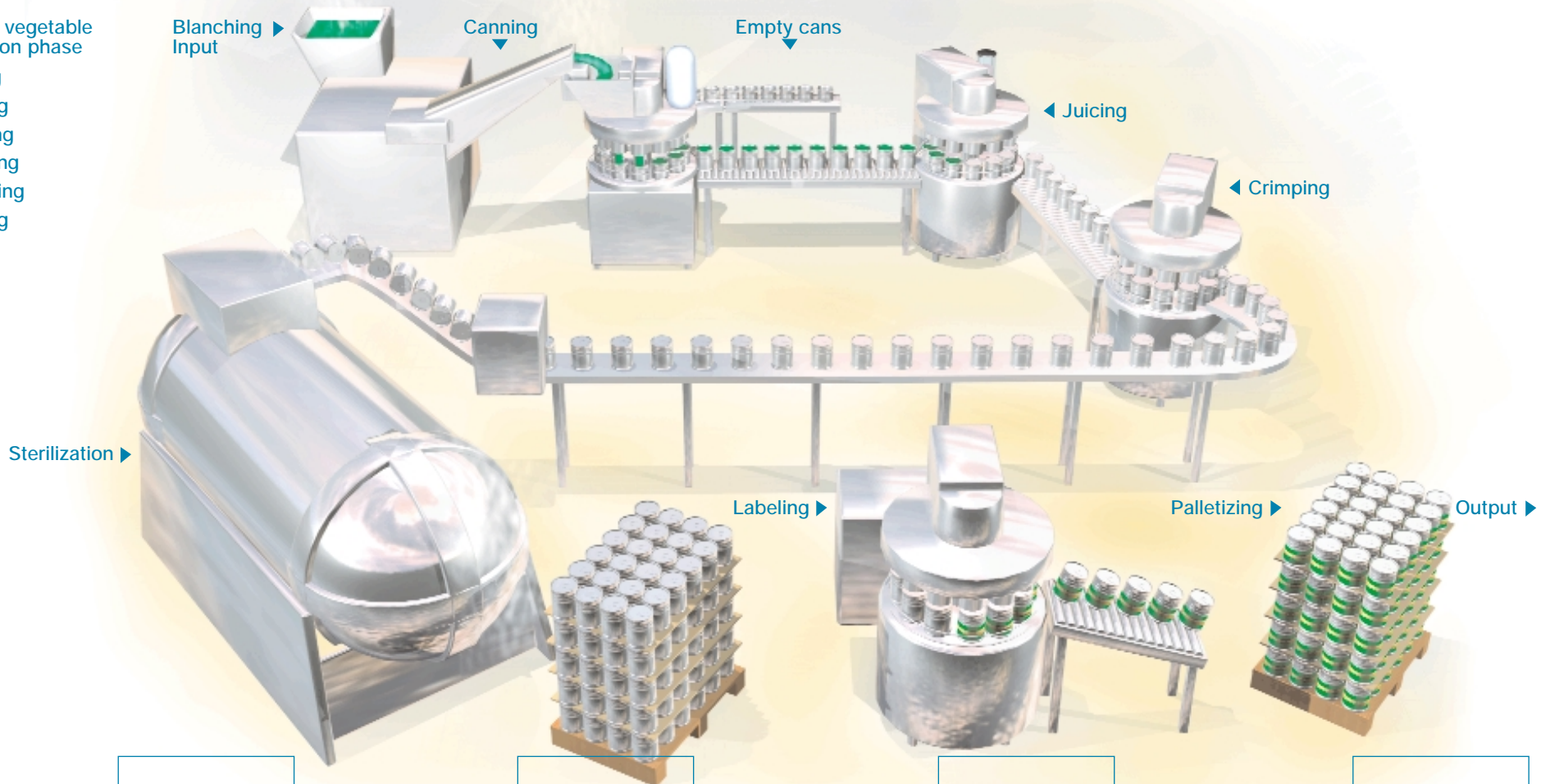
Maintenance-free chain for conveyor applications



Preserved fruit and vegetables

Fruit and vegetable preparation phase

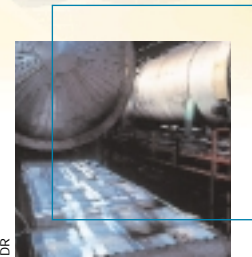
- ▶ Sorting
- ▶ Grading
- ▶ Washing
- ▶ Trimming
- ▶ Chopping
- ▶ Grading



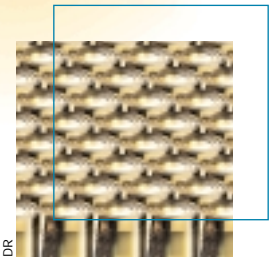
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SNR: bearings that make your canning lines produce



Blanching, canning, juicing, crimping and sterilization: the preservation of fruits and vegetables comprises a multitude of steps, each with its own specific features.

Each step must be performed maintaining strict hygiene standards. The bearings used must therefore be of high quality and capable of withstanding regular cleaning. But **corrosion** resistance is not the only quality required. The bearings also have to withstand the **high temperatures** used for blanching and again during sterilization.

The broadness of its range means that SNR can respond to each requirement with an appropriate solution.

SNR bearings

SNR standard bearings with automatic lubricator (food-grade grease)



SNR ball bearings (high and low temperatures):
TOPLINE range



SNR bearings with solid lubrication:
Lubsolid LSA



SNR spherical roller bearings: **EA series** (steel cage),
EF800 series (shaker applications)



SNR bearing units



SNR stainless steel self-aligning bearing units with stainless steel insert bearings



SNR thermoplastic self-aligning bearing units with stainless steel insert bearings



SNR cast iron or pressed steel self-aligning bearing units



SNR two-piece cast iron bearing units

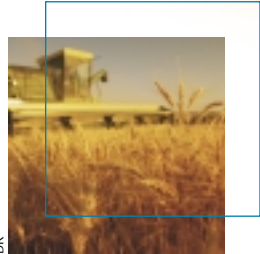
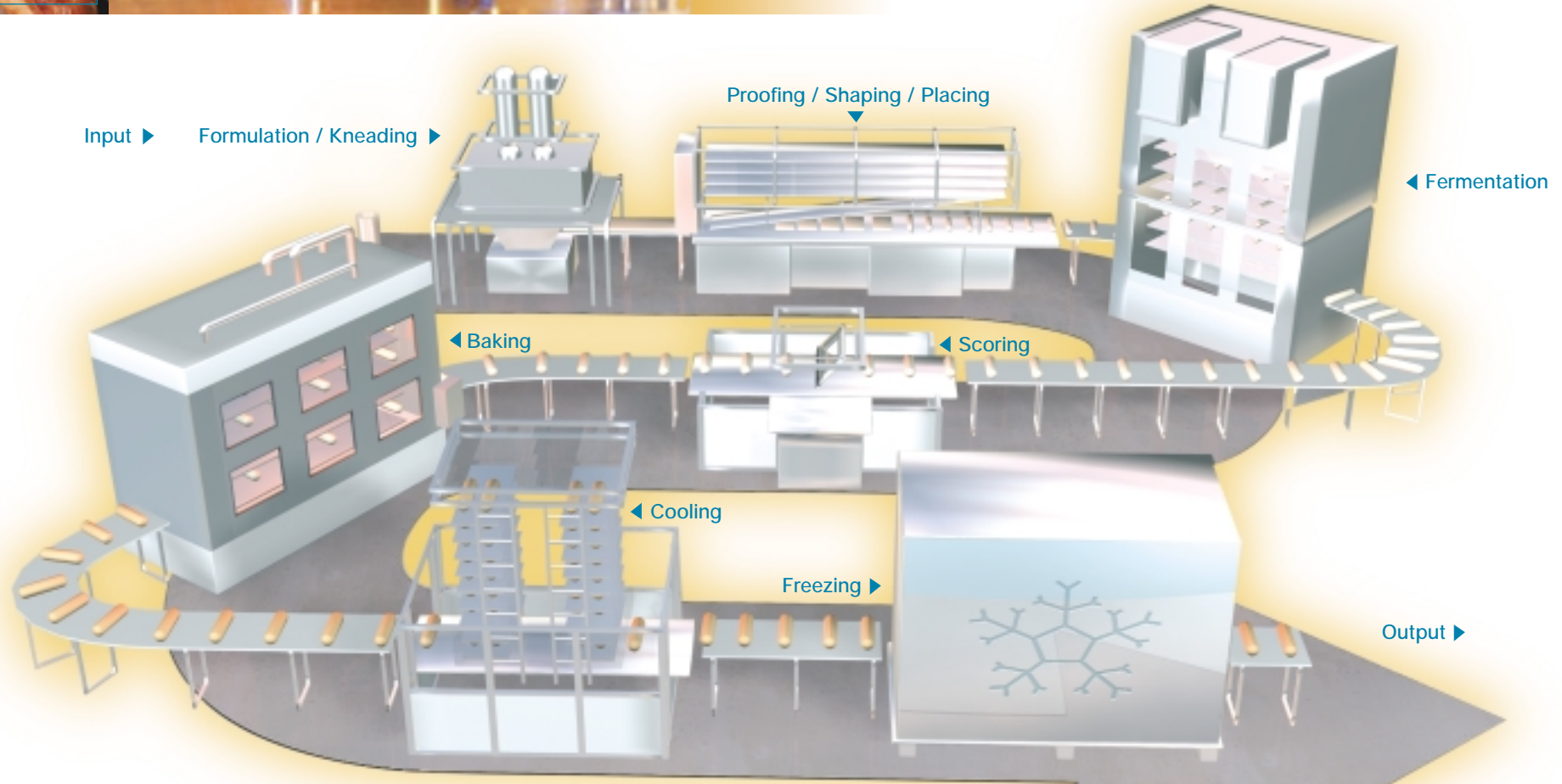
Anti-corrosive chain

Maintenance-free chain for conveyor applications





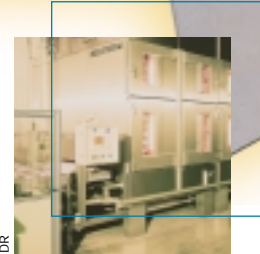
Bread, cookies, and pastries



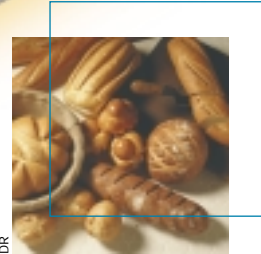
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SNR: bearings with proven qualities

Bread-making, although based on thousands of years of know-how, is now a complex industrial process. It subjects equipment to heavy stresses, and in particular the bearings which have to withstand a multitude of challenges. They must operate in a **dusty** atmosphere at the beginning of the process, a **humid** atmosphere thereafter along with alternating **hot** and **cold** temperatures and **high loads** during kneading. Similar stresses are experienced in pastry- and cookie-making.

To solve the problems inherent to these sectors, SNR has developed a very broad range of bearings combining quality, efficiency and performance, to meet the requirements of these business areas.

SNR bearings

SNR standard bearings with automatic lubricator (food-grade grease)



SNR ball bearings (high and low temperatures):
TOPLINE range



SNR bearings with solid lubrication:
Lubsolid LSA



SNR spherical roller bearings: **EA series** (steel cage),
EF800 series (shaker applications)



SNR bearing units



SNR stainless steel self-aligning bearing units with stainless steel insert bearings



SNR thermoplastic self-aligning bearing units with stainless steel insert bearings



SNR cast iron or pressed steel self-aligning bearing units



SNR two-piece cast iron bearing units

Anti-corrosive chain

Maintenance-free chain for conveyor applications





Beer



In breweries, SNR bearings keep the production line hopping

Industrial requirements for a centuries-old drink

Derived from ale, beer is one of the world's oldest drinks. In the nineteenth century, brewing moved from the craft level into the industrial era. By differentiating the ingredients and refining the processes, the range of tastes was broadened considerably. There are now hundreds of different beers. For each one to remain faithful to its unique taste, production is extremely demanding and precise. It consists of three main phases:

- **Malting:** includes the steeping, germination and kilning operations.
- **Brewing:** the prepared malt is crushed and brewed at high temperatures for long periods. The mash is then filtered and boiled.
- **Fermentation:** the fermentable sugars are then converted into alcohol by brewer's yeasts during a main fermentation step and a cellar maturing step.

How can breweries help reduce equipment down-time?

High temperatures over long periods, sudden transitions from hot to **cold, continuous humidity:** for the equipment, and for the bearings in particular, the brewery is a world of **constant danger**. Furthermore, the bearings have to withstand these difficult conditions while satisfying the **hygiene** and **sterility** standards required by the FDA.

SNR has taken all these factors into account to develop bearings and bearing units that are fully tailored to the particular environment of breweries.

SNR bearings

SNR standard bearings with automatic lubricator (food-grade grease)



SNR ball bearings (high and low temperatures):
TOPLINE range



SNR bearings with solid lubrication:
Lubsolid LSA



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SNR cast iron or pressed steel self-aligning bearing units



SNR two-piece cast iron bearing units

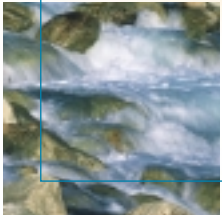
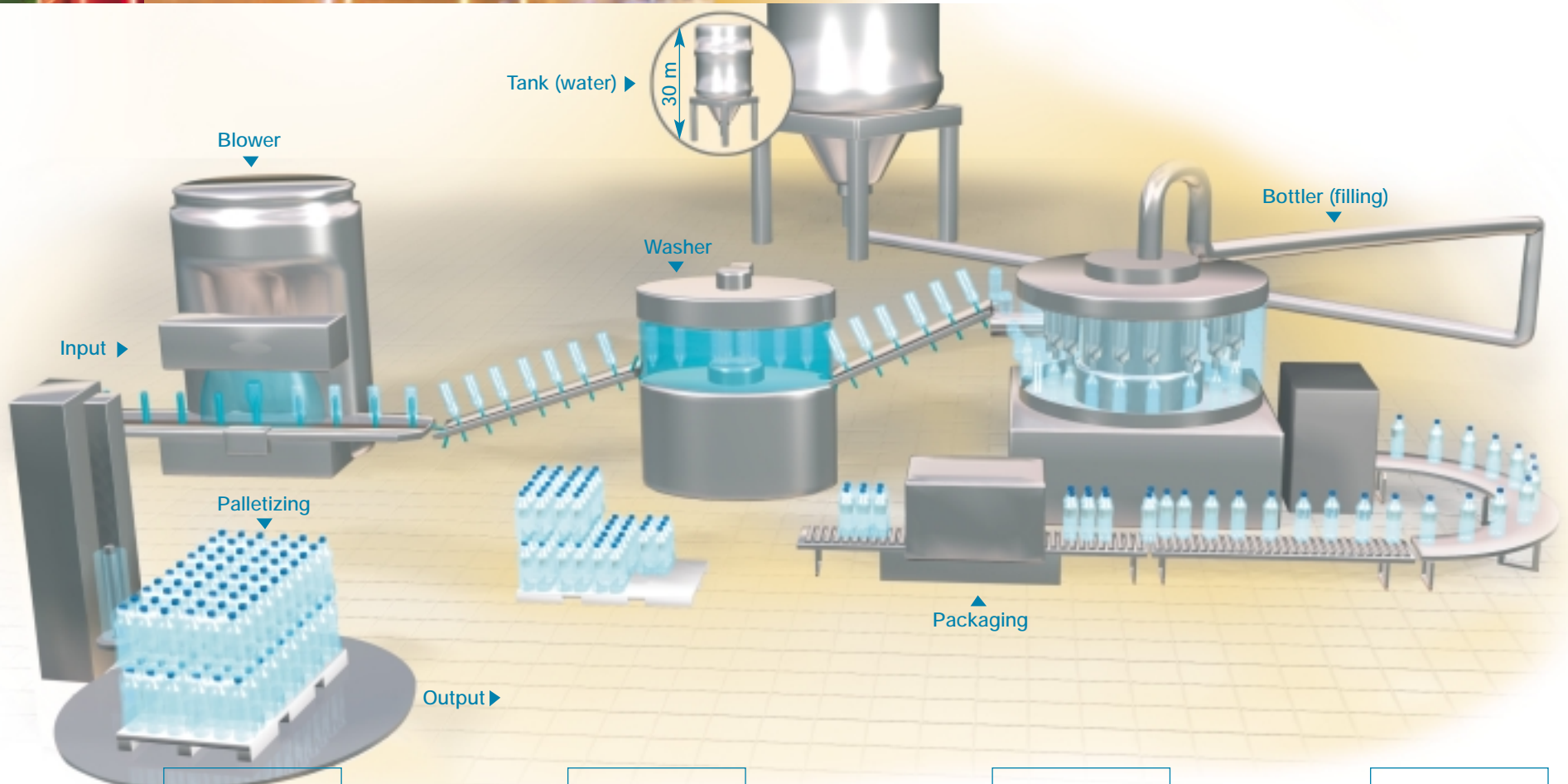
Anti-corrosive chain

Maintenance-free chain for conveyor applications





Bottled water



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SNR bearings: your choice for sparkling performance

To preserve the properties of the water, it must be bottled in a few seconds, which results in very high operating speeds.

The bearings used in these plants are thus highly stressed. To this must be added the requirements related to the ambient humidity.

In the clean rooms where bottling takes place, there is **water** everywhere, including on the floors, the conveyers, and filling nozzles. When bottling is completed, the bottles are grouped in packs and then stored. Towards the end of the process, the parts of your machines (conveyors, fork-lift trucks, etc.) must withstand **heavy loads**. Your equipment must use the most durable components available.

SNR has developed a full range of products capable of standing up to these difficult conditions (abundance of water, strict hygiene standards and heavy loads).

SNR bearings

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SNR cast iron or pressed steel self-aligning bearing units



SNR two-piece cast iron bearing units

Anti-corrosive chain

Maintenance-free chain for conveyor applications

