

**MACHINE  
SOLUTIONS**  
for industry

**FRUIT AND VEGETABLE  
PROCESSING  
MACHINES**

**CONVEYORS**

**TANKS**

**PACKAGING  
MACHINES**

**SPECIAL PURPOSE  
DEVICES**

**COMPLETE  
PRODUCTION LINES**



**ARGOSPAW**

**IMS**  
INNOVATION MACHINERY SYSTEMS

**IN COOPERATION WITH**

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Our foundation and guarantee of high quality is **25 years of experience** and knowledge gained during the comprehensive implementation of various technological projects. For many years we have been a partner of leading Polish and European production companies from the food, chemical, pharmaceutical and brewing industries. We provide clients with **comprehensive implementation of technologically advanced projects**. We are happy to take on new, interesting challenges.

We deal with process engineering and machine construction, we **create innovative solutions** that respond to customer needs. We provide **complete investment execution** - from concept and design to construction and commissioning of modern technological lines. Extensive experience, professional staff and modern machinery allow us to constantly expand our service offer and select optimal investment solutions, while making us a reliable partner in cooperation.

On the following pages we present the solutions that we can offer to our clients.





### WATER-AIR SCRUBBER

It is intended for washing fruit and some vegetables. Our device is made as a hybrid, i.e. it combines washing in an air-water bath and washing on a belt. The washer is intended for washing apples, pears, plums, and vegetables such as Brussels sprouts and green beans. Thanks to its versatility, it can be used with a very diverse range of end products such as frozen foods, juices, and purees.

### BRUSH WASHER

It is most often used for second stage cleaning, after a water-air washer or a belt washer. The brush washer is used to wash soft fruit, as well as apples, pears, tomatoes, etc. The washing elements include rotating brushes and water spray. The brushes remove small hair-like impurities, insect eggs and other impurities remaining after first-degree washing from the washed fruit.



### DESTEMMER

It is used to separate petioles, leaves and pieces of stems from fruit. The destemmer is intended mainly for removing stems from fresh cherries, but it can also be used for other fruits. The principle of operation is as follows: rollers covered with flexible synthetic material rotating counterclockwise, pulling the stalk under the rollers and tearing it off. Working with the slat system, it pushes the product in a sliding motion while rotating the cherries. In this way, we get rid of not only the fruit stalk, but also leaves and other impurities.



### FLAT CONVEYOR / INSPECTION TABLE

It is used to perform visual control - inspection of transported material. During low-speed transport, service staff conduct visual inspection and reject poor-quality products or foreign bodies. An important element is appropriate lighting, usually LED, ensuring the required light intensity and working comfort for the staff. The use of a drip tape also allows partial drainage of the product. The conveyor can also be used as a regular belt conveyor.

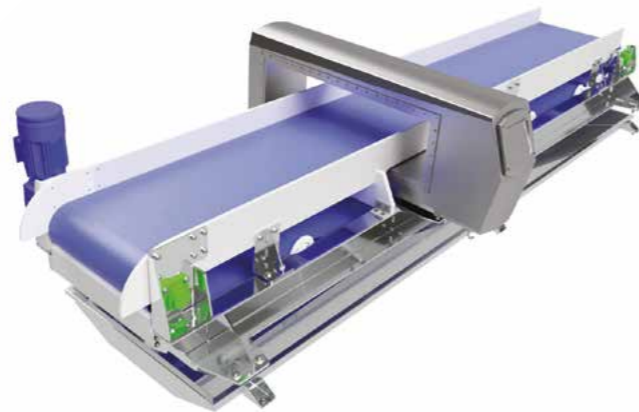


## BELT CONVEYORS

Conveyors are designed to transport the product horizontally (or at a slight angle) to the next part of the production line. Depending on the material being transported, in the food industry are used mesh belts made of acid-resistant wire, modular belts made of polyacetal and polyethylene, and smooth belts made of polyurethane with certificates for use. Conveyors can transport mass products such as fruit or vegetables, heads of cheese, unit packaging, e.g. bottles, collective packaging.

## CONVEYORS WITH CONTAMINATION DETECTOR

Today's food safety standards require manufacturers to control contamination in food products. The conveyor shown below with an installed detector (depending on the needs: metal detector; x-ray) plays a control role in production lines.



## CONVEYORS WITH DEHUMIDIFIER

Some products or finished filled packages require drying, e.g. after cooling in a water bath - for this purpose are used dehumidifiers installed on belt conveyors. Such a dehumidifier works on the principle that the object to be dried rides on a conveyor under the so-called air knife (a strong stream of air supplied from a blower) dries the product, which is transported to the next step of the production cycle.

## ELEVATION CONVEYORS

Straight elevation conveyors are designed for vertical transport of raw materials such as: fresh and frozen fruit, fresh and frozen vegetables, culinary products. They can be made as stationary or mobile. The speed of the belt, according to the agreement with the customer, can be constant or adjustable. In elevation conveyors, polyurethane belts, mesh belts made of acid-resistant wire, modular belts made of polyacetal and polyethylene with certificates for their use in the food industry are used as carriers. The belts can be fitted with carriers and side limitation (so-called „bordoflex“).





### SCREW CONVEYOR

Designed for transporting raw materials, semi-finished products and products to subsequent stages of production, usually with a significant difference in level. Screw conveyors are widely used in the food industry. Depending on the design, they can transport bulk products such as sugar, and also pasty products such as meat, fruit and vegetables.



### ROLLER CONVEYORS WITHOUT DRIVE

Roller conveyors without drive are designed for transporting elements such as pallets, barrels, boxes, containers. Roller conveyors without drive can be gravity or such on which elements are moved manually.

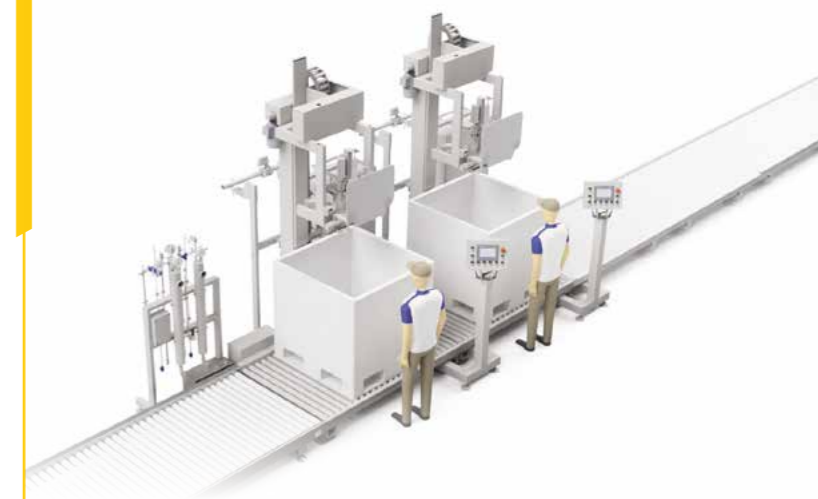


### PALLET CONTAINER TRANSPORTER

Urządzenie do przemieszczania dużych opakowań. Poniżej pokazany transporter rolkowy do transportu palety-pojemników z tworzyw sztucznych do systemu napełniania worów aseptycznych.

### ROLLER CONVEYORS WITH DRIVE

The conveyor is designed for horizontal transport of materials such as packaging: pallets, barrels, boxes, containers as well as raw materials or finished products. The machine is characterized by continuous operation with uninterrupted production and a simple design that facilitates cleaning and maintenance. The conveyor is driven by a gear motor mounted directly on the shaft, transmitting torque to the rollers via a belt or chain transmission. At the special request of the Customer, the speed of the raw material can be regulated by means of a frequency converter or by using a motor variator.





### PROCESS AND STORAGE TANKS

Tanks are elements of practically every process line. They are used to store raw materials and products in liquid form. Process tanks are used to conduct technological operations such as fermentation, enzymatic processes, component assembly and mixing processes. Tanks can be equipped with various types of mixers, heating/cooling jackets. Depending on the customer's needs, they can have connections for sensors. Examples are shown above: a tank for assembling and mixing fruit purees, storage tanks, aseptic tank.

### BUTTER BUFFER SILO

The silo is used as a product buffer in continuous butter production lines, it is installed between the churning device and the packaging devices. Our silo has two independently driven screw mixers. Adapted for CIP cleaning. Designed for connecting 2 butter pumps.



### TUNNEL PASTEURIZER

A pasteurizer is built in the shape of a tunnel, which is divided into zones for heating, holding and cooling the product packed in individual packages (e.g. bottles; cans; pouches). Depending on the needs, we adapt our devices to the needs of a specific customer. The hourly efficiency, heating and cooling method, and construction method are selected (adapting to local conditions).

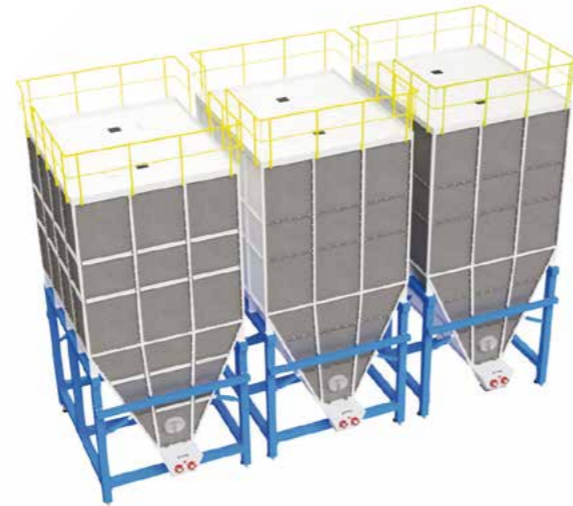
### FILLERS FOR LIQUID PRODUCTS

The devices are used to dose liquid or semi-liquid substances such as edible oils, fruit and vegetable purees, juices, etc. The filler pours products into plastic buckets, metal buckets, cardboard packaging with an insert, etc. Their use allows for partial or full automation of the processes of pouring and dosing the product into the packaging, and as a result, improves work efficiency and reduces its costs.



## UNLOADING TUMBLERS

This is a device used to unload goods from large-size packages (boxes, pallets, transport trolleys) and direct the goods to further stages of production. The device is constructed in the form of an inverted prism with an installed mixer and screw conveyors in the lower part. Screw conveyors direct the product to the next conveyor or to a pneumatic transport system.



## SILOS FOR BULK PRODUCTS

These devices are designed for storing bulk products. They are equipped with a system enabling pneumatic loading from tank trucks, screw conveyors enabling trouble-free unloading of lumpy goods, as well as a uniform filling system. The parameters of the tanks we build are selected based on the needs and conditions presented by the investor, their equipment depends on the type of product they will be intended for.



## BIG-BAG LOADING STATION

The Big-Bag loading station enables a safe and efficient process of filling large-size bags, with minimal staff involvement. The empty bag is attached to the four handles in the upper corners of the frame. Then the bag inlet is pulled over the loading discharge pipe of the station. The BIG-BAG loading station is equipped with a weighing platform, used to control, by the automation system, the amount of material in the filled bag.

## TIPPERS

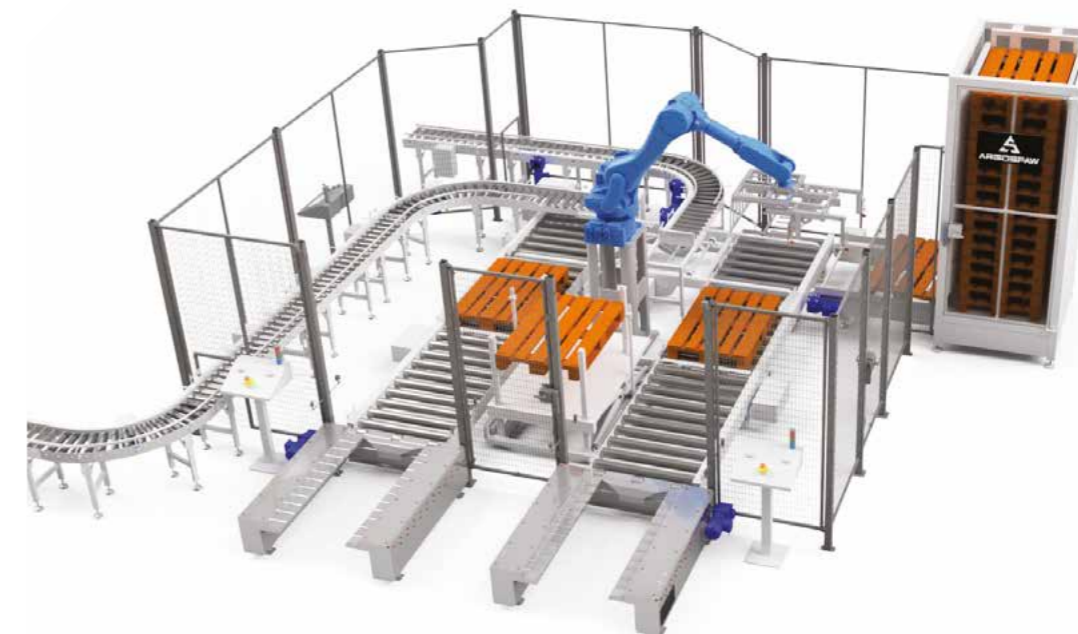
Tipplers are designed for regulated discharge of raw materials, e.g. fruit and vegetables from containers, bins or other collective packaging in accordance with the arrangements with the customer. The goods are discharged after lifting the basket using chain transmissions or hydraulic cylinders. It is possible to stop the basket in any position between the lower and maximum upper position. Control can be carried out using buttons on the control box or using a cassette mounted on the cable. The tippler is made of acid-resistant steel.





### COMPLETE TECHNOLOGICAL LINES

The technological lines designed and manufactured by our company are intended for many branches of the food and pet's food industry. We can offer, among others, fruit and vegetable processing lines, dairy lines, beverage production lines, etc. The offered technological lines are designed precisely to meet the requirements of the customer and the process carried out on these lines. Each line is selected individually. Our portfolio includes both relatively small installations, such as milk or juice pasteurization systems, through larger installations, such as syrup plants, to installations carrying out the production of the product „from start to finish“, such as a fruit puree line built from the raw material reception system to aseptic packaging of the finished product.



### ROBOTIC PALLETIZING LINES

The final operation on most technological lines, after packing the product into individual packages and then into collective packages, is to place the latter on transport pallets. The task of these lines is to receive collective packages from the packaging line and direct them to the section for placing them on transport pallets. The lines contain series of accumulation conveyors designed to buffer packages in order to match the work cycles of the packaging lines with the palletizer. Our palletizing lines are equipped with advanced control systems, sensors and software that enable optimal, precise and safe execution of the process. This allows for ensuring high efficiency, accuracy and repeatability of palletizing, which contributes to increased efficiency of the production process.





### PALLET MAGAZINE

This device is usually part of automatic palletizing lines. It is used to buffer a certain number of pallets, the warehouse shown below is loaded using a forklift/pallet truck. The pallet warehouse is an automated device that allows for stacking, issuing and storing pallets. It is mainly intended for production lines where there is a large number of rotating pallets in technological processes.



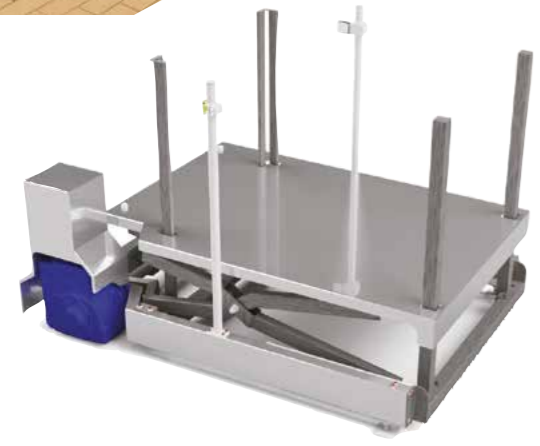
### SERVICE PLATFORMS

Various supporting structures of machines and devices, as well as communication routes, are an integral part of every production hall. Thus, they play an inconspicuous, yet important role - they are most appreciated by production staff. The most important role of such structures is to ensure safety of work at heights and in dangerous zones, and thanks to adaptation to emerging needs, they also positively influence the efficiency of the work performed.



### SPECIAL PURPOSE DEVICES

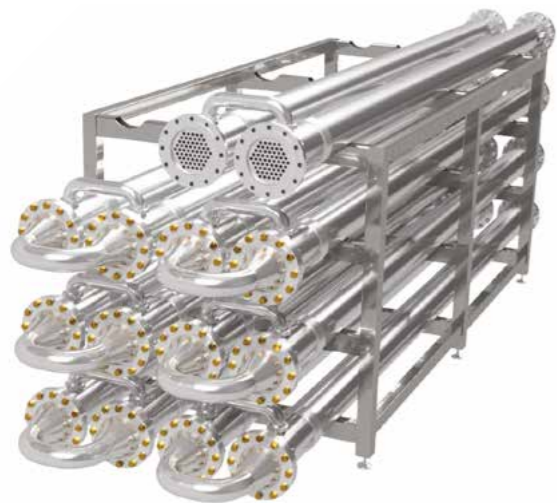
We manufacture individual devices designed according to the specific requirements of the customer. Above, a chamber for the production of hydrogel - a specialist device used for the production of soil improvers applied to increase the water capacity of the soil and improve its structure.



### CARDBOARD SLEEVE MAGAZINE

A device used in robotic palletizing systems, constituting a feeder for cardboard slips placed between individual layers of goods.





### TUBULAR HEAT EXCHANGERS

These devices are used for thermal processing. They are suitable for both high and low viscosity fluids. Thanks to this, they can be used for a variety of products, such as juices and beverages, milk and dairy products, carbonated drinks, isotonic beverages, beer and wine, vegetable oil, ketchup, sauces, chopped fruit, fruit purees. Depending on the process, processed product or customer requirements, we produce our heat exchangers as: monotube, co-concentric 3-shell, multi-tube.



### DEGASERS

They are used to remove gases and undesirable aromas contained in thermally processed products using a vacuum. Degassing, in addition to removing undesirable odors, prevents the formation of air pockets, increases the intensity of heat transfer and the degree of homogenization and increases the durability of the product. In the case of processing products such as juices or fruit purees, it is possible to recover condensed aromas, while in the processing of dairy products, undesirable aromas are removed to the outside.

### TUBULAR HOLDERS

They are one of many devices that are elements of technological lines on which pasteurization or sterilization is carried out. We make the holders as free-standing or mounted on the support frames of pasteurizer/sterilizer modules.





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