

# RATAJ<sup>®</sup>

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SHAFTLESS SCREW CONVEYORS

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**2024**

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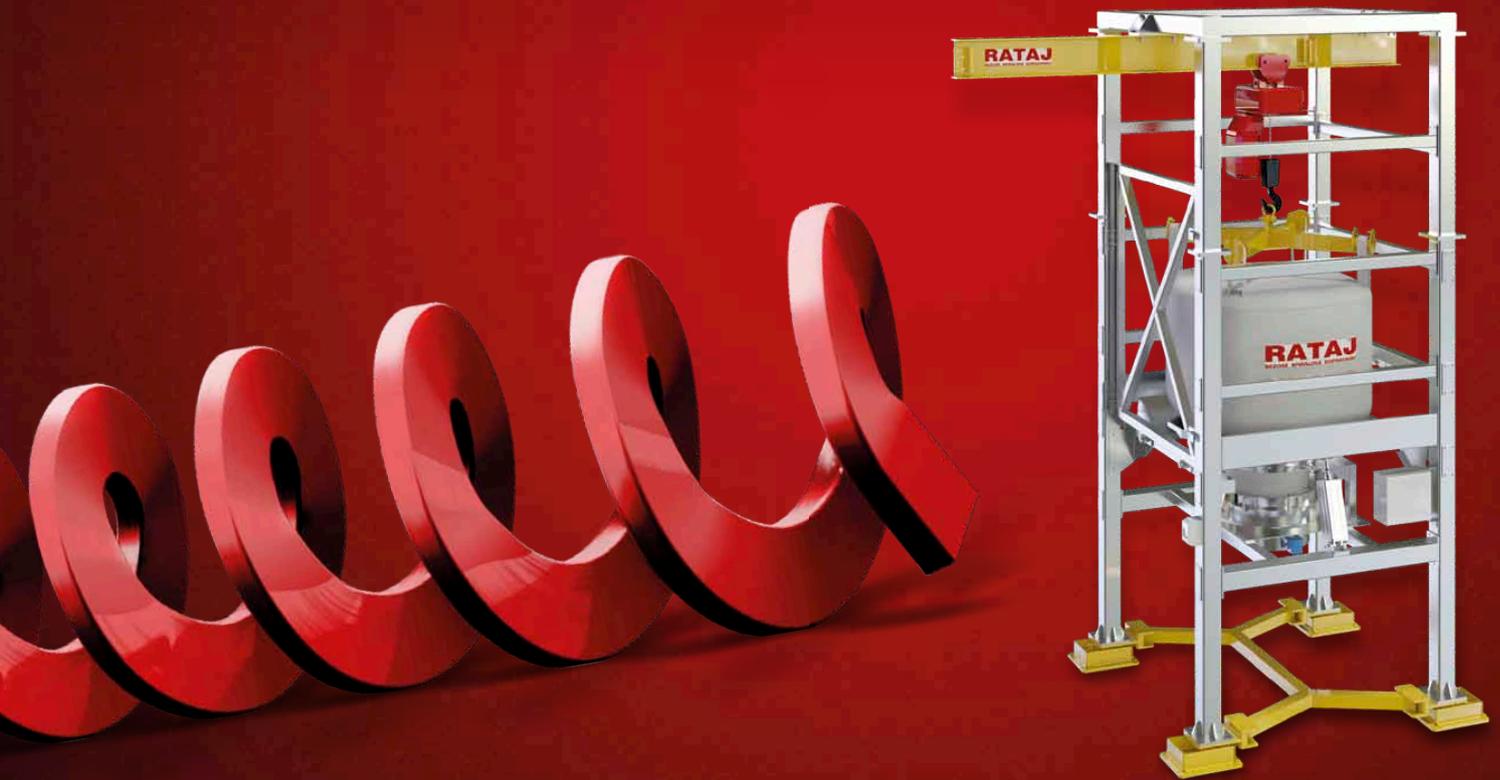
BIG BAG STATIONS

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WEIGHING AND DOSING CONVEYORS

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**...power of idea**

# COMPANY PROFILE

RATAJ a.s.



- A private company was founded by Stanislav Rataj (today's chairman of the board of directors) to produce and supply technical products for the agricultural industry. Included in these supplies were shaftless flexible screw conveyors of the type SL, initially used for the conveying of light loose materials.
- Founding of RATAJ s.r.o. and achieving the leading position in the Czech and Slovak markets for the manufacture and supply of shaftless screw conveyors of both flexible and robust types.
- RATAJ SK s.r.o was founded in the Slovak Republic. A warehouse for screws conveyors was opened for Slovakia.
- Purchase of CNC technology for cutting materials using a high-pressure stream. Start of BIG-BAG production.
- Transformation of RATAJ s.r.o. to the RATAJ a.s. joint-stock company. During participation at an engineering fair in Japan (Osaka), a contract for exclusive representation of the RATAJ company in Japan was concluded.
- Establishment of RATAJ POLSKA Sp. z o.o. and opening of a dealership of the RATAJ company in Germany.
- Start of production of composite screw conveyors, hard alloy screw segments and alloy lining of conveyor tubes.
- 30 years of existence of the RATAJ company.
- Newly opened two-storey hall with a total area of 1000 m<sup>2</sup> for the production of stainless steel conveyors.
- **1990**
  - **1994** Ing. Stanislav Rataj (today's chairman of the board of directors of the RATAJ a.s.) formed a company solely for the production of shaftless screw conveyors. In addition to flexible shaftless screw conveyors, rigid conveyors of the type RL were also produced for the Czech market.
  - **1999**
  - **2000** A quality system meeting the requirements of CSN EN ISO 9002 was introduced and in 2003 upgraded to CSN EN ISO 9001:2001. Since that period, a significant increase in the export of conveyors manufactured by RATAJ s.r.o. has taken place, not only to Europe but also to Africa, America, and Asia.
  - **2003**
  - **2004** Start of construction of a new production complex for the RATAJ Company on a 17,500 m<sup>2</sup> plot of land, building the warehouse and production premises covering 1,200 m<sup>2</sup>.
  - **2006**
  - **2007**
  - **2010** 20 years of existence of the RATAJ company. Opening of the administration building, training centre with participation of RATAJ a.s. key customers and suppliers. Granting of the first patent to RATAJ a.s. for a shaftless screw cooler for loose material.
  - **2011**
  - **2012** The company was granted the CZECH MADE mark for the manufacture of shaftless screw conveyors. Development and deliveries of ø 600mm hard alloy shaftless screws.
  - **2013**
  - **2018** Manufacture of the world's largest shaftless screw conveyors with Ø800mm screw for unloading agricultural commodities from ships in Stavanger, Norway.
  - **2020**
  - **2021** Start of the construction of a second production hall.
  - **2023**

# POWER OF IDEA INGENIOUSLY SIMPLE PRINCIPLE

Excellent technical designs usually have a common feature.

They work on the basis of a simple principle, they are reliable, efficient, and have versatile applications. **RATAJ**<sup>®</sup> shaftless screw conveyors share these principles.

The basic element of **RATAJ**<sup>®</sup> shaftless screw conveyors is a shaftless screw made of first-class steel of 3 to 60mm thickness and outside diameters ranging from 25 to 800mm.

A shaftless screw conveyor contains no internal bearings or shaft and transported material fills nearly the entire conveyor cross-section. The shaftless screw, with its precisely defined cross-section and rotating motion allows transporting a large quantity of material at low rpm and with minimum electricity consumption or, on the other hand, very small amounts of material for dosing purposes.



RL 280 - Fly ash

## BENEFITS OF RATAJ<sup>®</sup> SHAFTLESS SCREW CONVEYORS

- All coupling dimensions of our conveyors are adapted for the customer's technology.
- Simple and reliable operation, reliable design, long service life and performance.
- Trouble-free transport of materials with extreme physical properties (very abrasive, pieced, flowing, adhesive, dusty, etc.).
- Smaller investment and operating costs as compared to belt conveyors, chain conveyors, and pneumatic transport.
- Long term operation without the need for repairs or preventive maintenance. Dust-free operation.
- Simple and quick repairs of screws and piping.
- Precise dosing and continuous weighing of conveyed material.
- Compact dimensions of the conveyor and gear units.
- Design of the conveyor complying with the requirements for installation into a zone with danger of explosion – ATEX for both dust and gases.
- Option of conveyor design complying with explosion resistance up to 1.0 MPa.



RL 240 - Limestone



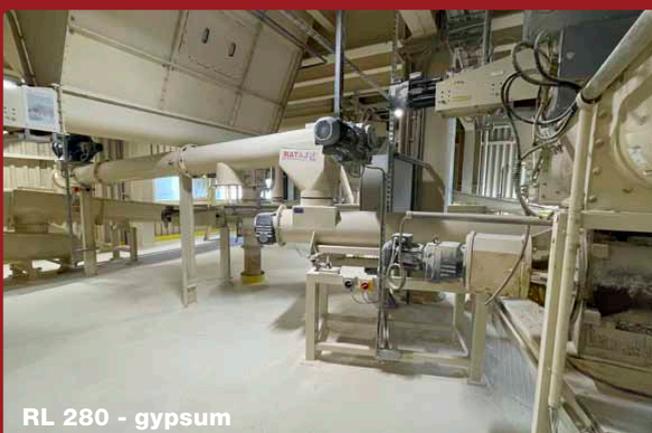
RL 180 - Glass dust

# 33 YEARS OF DEVELOPMENT OF RATAJ® SHAFTLESS SCREW CONVEYORS

Each **RATAJ®** shaftless screw conveyor is designed and manufactured according to the customer's requirements and for the specific type of conveyed material. This approach allows optimum customization of shaftless screw conveyors for various types of materials and technology.

Based on our experience with over 5,800 conveyors manufactured and installed in many industrial areas and based on our development of sections of screws and tubes, we are constantly developing new designs for a constantly expanding range of conveyor materials for our customers. Our considerable experience in manufacturing and operating shaftless screw conveyors is used in the design of all shaftless screw conveyors for hundreds of different materials.

In 2018, for the first time since the development of the shaftless screw conveyors in the 1950s, **RATAJ®** manufactured the largest shaftless screw conveyor type RL 800 with a diameter of 800 mm and conveying capacity of 850 m<sup>3</sup>/hr for unloading agricultural commodities in the Norwegian port of Stavanger. Since 2013 we have been manufacturing shaftless screws fitted with welded hard-alloy sections as well as anti-abrasive alloy plates for piping for the delivery of extremely abrasive materials. In 2016, the first plastic (PE 1000 material) shaftless screw was produced. This unique solution puts **RATAJ®** at the forefront of shaftless screw conveyor development.



# FLEXIBLE SHAFTLESS SCREW CONVEYORS



**RATAJ®** flexible shaftless screw conveyors (types SL, SLK, SLN, SLP) are used for the transport of fine and light materials with transport performances from about 0.001 to 15 m<sup>3</sup>/hr. A major advantage of these conveyors is the possibility of transport in curves and over large distances up to 120 m per drive unit. Along the entire transport route, there is no intermediate bearing (except for an end bearing in some cases), which allows transport of material in the entire section at a performance about 70% higher than the performance of classic worm conveyors with a shaft with comparable speed and conveyor diameter.

The main application of flexible shaftless screw conveyors is in the food processing, chemical, and plastic industries for dosing into packaging machines and weighing equipment. It is possible to have several inlets, outlets, and curves in one conveyor depending on the physical properties of the material conveyed and the site conditions. The construction material of the conveyors can be steel, stainless steel or plastic, based on the requirements of the customer. The screw profile is rectangular, square or circular.



# ROBUST SHAFTLESS SCREW CONVEYORS

**RATAJ®** robust shaftless screw conveyors (types RL, RLH, RLN, RLP, RLV, RR, RRL, RRN and RLE, RLNE) are designed for the transport of abrasive, large particle, and adhesive materials or for high capacity up to 1,000 m<sup>3</sup>/hr. These are especially designed for conveying highly abrasive materials (coal, corundum grit, gravel, sand, crushed aggregates, grinding dust, blast furnace and electrical power plant cinder, ceramic materials etc.), conveying materials with large particle sizes (PET bottles, wood, wood chips, paper, biomass, crushed tyres etc.), conveying adhesive and wet materials (waste sludge, soil, bentonite, pulp materials, etc.), and conveying very delicate and flowing materials (food powder, chemicals, etc.).

With the correct application and technical design of shaftless screw conveyors, we can solve a complicated problem, if other types of mechanical transport cannot be used.

Robust screws from two or three connected profiles can be used for highly loaded conveyors (long transport distances, transport of materials with very high bulk density etc.). The thickness of the shaftless screws may be up to 60 mm and the diameter up to 800 mm. Thanks to the high quality of the rigid screws we produce shaftless screw conveyors for pulling or pushing the conveyed material, conveyors connected perpendicularly (fixing system) and vertical shaftless screw conveyors instead of classic bucket elevators.

The maximum lengths of rigid screw conveyors installed are up to a distance of 55m in horizontal arrangements and 25m in vertical arrangements per drive unit.

We have a corresponding screw, tube and trough material design for every industry. Shaftless screw conveyors can replace existing conventional applications of worm conveyors, chain conveyors, belt conveyors and bucket elevators.

There is practically no spatial limitation for the transport direction for shaftless screw conveyors. There are many applications where filling and emptying containers from the horizontal and vertical direction, the transport of materials between floors of technology lines or the high-capacity long-distance transport of materials are used.



# COMPOSITE AND PLASTIC CONVEYORS

To meet the requirements of an increasing number of new adhesive and abrasive materials and for applications which do not allow use of a shaftless screw due to the requirement for filling by transported material, we successfully provide **RATAJ**® rigid plastic screw conveyors (types RP, RPN) consisting of plastic segments forming the screw and the tubes.

These components are simply installed on a hexagonal shaft and fixed with locks and provide a very rigid bearing-free screw conveyor structure.

Such conveyors are also used for demanding applications to convey adhesive and very light materials. Their main advantage is primarily their light structure and quiet operation. A plastic screw as compared to a steel screw is several times lighter and when combined with corresponding plastic tubing the conveyors may be used in applications requiring continuous operation even without the conveyed material. The main areas of application are the food processing industry (adhesive and wet materials), the chemical (aggressive substances) and pharmaceutical industries.

For the food sector, the segments are white and they are certified for contact with food, for abrasive materials, the segments are red, and for conveyors intended for use in potentially explosive atmospheres, the segments are grey.



# WEIGHING CONVEYORS AND DOSING CONVEYORS FOR PRECISE DOSING

If it is necessary to dose the transported material in technological processes, we use dosing conveyors including a crown breaker. We manufacture dosing conveyors in two versions.

A simpler conveyor **design is for volumetric dosing**. The amount of material to be dosed is adjusted by means of a variable speed drive and the dosing process depends on the speed of the dosing conveyor screw.

Dosing conveyors for weight (gravimetric) dosing control the dosing with the use of weighing tensiometers that adjust the required amount of dosed material in cooperation with the control system. The dosing accuracy is higher compared to volumetric dosing and the dosed (weighed) amount does not depend on the variable bulk density of the material.



## FOR CONTINUOUS WEIGHING

The weighing conveyor for continuous weighing combines the function of material transport and continuous weighing into one unit and saves the investment of a separate conveyor and scale. The electronic weighing system with tensiometers allows very precise monitoring of the amount of transported material. The amount of material weighed may vary from a few kilograms per hour up to tens of tons per hour. The same conditions apply for the design of weighing shaftless screw conveyors as for the installation of standard shaftless screw conveyors.



## CONVEYORS

### FOR AN EXPLOSIVE ENVIRONMENT – ATEX



Based on the technical requirements for equipment and protective systems designed for use in an environment with danger of explosion, our shaftless screw conveyors have been tested and certified to comply with the requirements of the current standards for use in dust explosion hazardous areas (Zone 21/22) and gas explosion hazardous areas (Zone 2).

Special shaftless screw conveyors resistant to explosion up to the pressure of 1.0 MPa are designed for applications where explosive material may enter the conveyor causing explosion therein (such as burning fuel, hot ashes etc.).

The technical parameters of the shaftless screw conveyor designed for an environment with the danger of explosion (ATEX) are designed so that the conveyor itself cannot initiate an explosion.



## CONVEYORS

### FOR BIOGAS PLANTS



Many hundreds of biogas plants („BPS“) have been built in Europe in recent years. Most of them use a system of material dosing to a fermentation tank with spiral or shaftless screw conveyors. Very often, methods of material transfer between individual conveyors are not appropriate and therefore biogas plant users are forced to purchase expensive spare parts from abroad after a few years of operation.

Based on our experience with thousands of conveyor applications we have developed a solution for biogas customers in the form of conversion of the most loaded transfer points and spare spirals or screws in the same dimensions. Our production portfolio for biogas stations includes gear units and tubes (round, hexagonal or screwed).

Another important aspect is the operation of spiral and shaftless screw conveyors in an environment with the risk of explosion. Conveyors operate in such an environment and therefore their design must comply with the relevant standard. Many times, we find that the ATEX standard is not respected in biogas stations, often due to lack of knowledge or risky cost saving. We can provide advice to biogas station operators within our technical inspection and solution design services.



## UNIQUE GEAR UNITS

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Electric gear units are one of the key elements of our shaftless screw conveyors. Their designs include helical, worm, helical bevel and flat gear units based on individual site conditions. We use flat and worm gear units of the SCP type with an inserted adapter protecting the gear unit from being polluted by the material conveyed in the case of conveying dusty and abrasive materials and materials at high temperatures. These unique gear units also ensure the separation of oil filling from the internal space of the conveyor. We have worked with the gear unit manufacturer Getriebebau NORD on the development of this unique solution.

We supply stainless steel gear units for use in food and chemical production plants consisting of a stainless-steel stator and the gear box body. This design is especially convenient when conveying aggressive materials. In the case that the conveyor is intended for use in environments with explosion hazard, we supply gear units of the ATEX design.



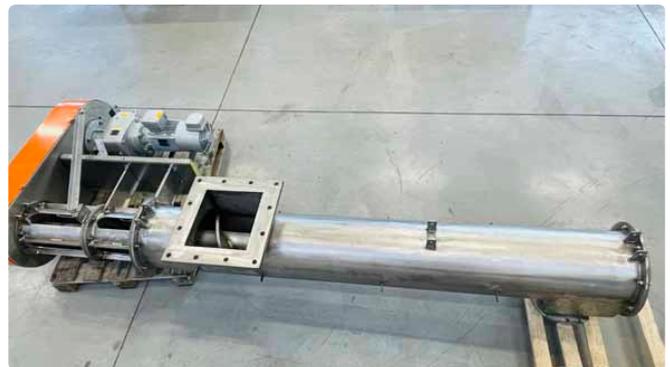
## UNIQUE CONVEYORS

(FROM -80°C TO +1000°C)

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For the transport of materials with extreme temperatures, we produce conveyors for the transport of ash and fly ash with temperatures up to 1000°C.

For material temperatures on the other side of the temperature scale, we have produced a conveyor for dry ice with a temperature of -80°C.



# TUBES

## STEEL, STAINLESS STEEL, PLASTIC, CAST BASALT OR ALLOY

Based on our long-term experience we supply steel, stainless steel or plastic (PP, PVC, PA, POM, PE) tubes for the transport of abrasive and adhesive materials. Steel or stainless-steel tubes with basalt or alloy inserts are used for the transport of extremely abrasive materials.

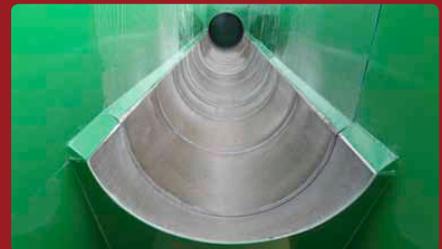
**Polypropylene** with its special properties shows better abrasion resistance in some cases compared to standard steel pipelines. The low weight of the tubes allows producing the conveyor in longer assembly pieces and the use of flange connections significantly accelerates the conveyor installation. In addition, we manufacture polypropylene hoppers and discharges.



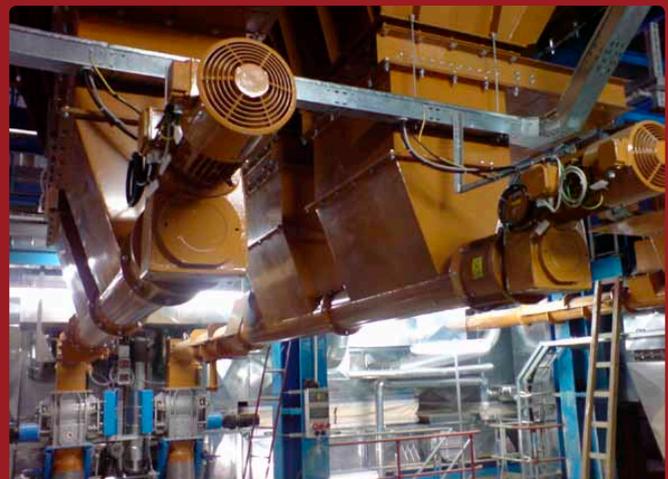
**Polyamide** is used for the transport of adhesive materials. These inserts sold under the trading name **RATAMID®** are made on a PA 6 polyamide basis and show several times better properties in tensile strength, tenacity, abrasion and mechanical stress than standard steel tubes. The temperature of conveyed materials with the use of the plastic insert can be up to 140 °C. These conveyors have a wide range of applications in the food processing industry because the plastic inserts are tested for contact with foodstuffs.



**Basalt** is used for the transport of abrasive materials or for conveyors which operate also without material. The 20mm thick basalt inserts are of through or circular design. They are mainly used in power and mining industry for the transport of ash, slag, coal and other abrasive materials.



The **RATABEN®** alloy provides the best abrasion-resistant properties from the whole portfolio of tubes/inserts that we use. These alloy inserts are used for the transport of extremely abrasive and hard materials, such as flue ash, glass, corundum, grog, crushed basalt, blasting materials, and in any applications with a requirement for longer service life of the system. Individual alloy inserts are manufactured to fit the specific tubes; we can also produce flat alloy plates as a lining for the flat surfaces of storage bins and hoppers.



# SHAFTLESS SCREW COOLER

## RATAJ A.S. PATENT

Based on our own development we have managed to create a shaftless screw cooler working on the principle of a rotating shaftless screw without the use of bearings. This very simple, patent-protected cooler principle allows for cooling material of temperatures up to 800°C. The design of the cooler enables a serial arrangement of several cooling conveyors resulting in very effective cooling of material in a small space. The shaftless screw cooler has been designed in both vertical and inclined versions and transport of cooled material to other technology may also be performed together with its main function, which is cooling. The cooling medium is usually water or modified water solutions.

**RATAJ®** coolers are either steel or stainless depending on the temperature of the input material to be cooled. The cooler includes a control unit for regulation of the transported amount of cooled material and collection of data on input and output temperatures of cooled material. Large variability in shaftless screw diameters allows cooling materials such as slag, cinder, ballast ash, fly ash, gravel, chemical and food industry side products and many others. The cooler capacity is influenced by many parameters of the cooled product and each cooler is designed in the same way as the shaftless screw conveyors - "custom - made" according to the individual process conditions. We can achieve output from several kilograms up to several tens of tons of cooled material per hour based on the cooled material and the cooling medium.



# BIG-BAG STATIONS FOR BIG-BAGs EMPTYING

Currently, many bulk materials are delivered in bulk bags or BIG-BAGs.

**Especially for reasons of work safety, it is necessary to unload BiG-BAGs in stations that allow the material to be emptied smoothly from the bag and ensure safety of the operator in the event of an unexpected bag rupture.**

Each **RATAJ**<sup>®</sup> BIG-BAG station is designed specifically for the purposes of the customer and therefore many alternative BIG-BAG stations can be provided for various dimensions, weights and bag types (standard bags, conical bags, bags with inserts and others).

## BASIC PARAMETERS OF BIG-BAG EMPTYING STATIONS

- Material: steel (komaxit powder coating or hot-dip galvanized) or stainless steel (AISI 304, AISI 316).
- Suspension cross for Attaching bags with the possibility of mounting on a forklift or hanging on a hoist.
- Control of the hoist is by cable or radio remote control.
- The bag attachment is Usually 4-point, in exceptional cases 2-point.
- Maximum weight of suspended bags 2,000 kg.

## THE FOLLOWING BAGs MAY BE USED

- Flat bottom with a circular discharge sleeve with a diameter of 300, 400, 500 or 600 mm. Conical bottom with a circular discharge sleeve with a diameter of 300, 400, 500 mm.
- Bottom with apron.
- Flat bottom without discharge sleeve – disposable version (station version with cutting bottom to be used).



## OPTIONAL ACCESSORIES FOR BIG-BAG EMPTYING STATIONS

### BOTTOM ARCH DEVICE

To facilitate the dropping of material from the bags, a counter arch device has been designed consisting of 2 lifting plates with pneumatic drive and its own electrical cabinet with PLC and the possibility of programming the function of the lifting plates.



### IRIS VALVE FOR BAG CLOSING

If it is necessary to interrupt the emptying of material from a bag that is not completely emptied, an iris valve can be installed to close the bag and re-lace the discharge sleeve. The iris valve allows for dust-free and safe closure of the discharge sleeve.



### BIG-BAG SLEEVE HOLDER



## OPTIONAL ACCESSORIES FOR BIG-BAG EMPTYING STATIONS

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### SCALE FOR WEIGHING THE UNLOADED MATERIAL

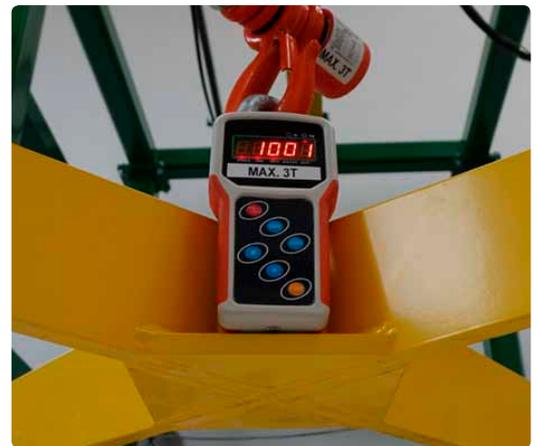
The BIG-BAG station weighing system, which weighs also the suspended bag consists of a frame which is placed under the station, 4 weighing strain gauges, a totalizing box and an evaluation unit. The communication interface is determined according to the requirements of the customer for its control system.



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### DIGITAL SUSPENDED CRANE SCALE

Designed for check weighing of a full bag. The wireless terminal is equipped with buttons to control the scale. The distance from the scale body can be up to 150 m. Scale accuracy 1 kg.



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### SUSPENSION CROSS – FOR HOIST



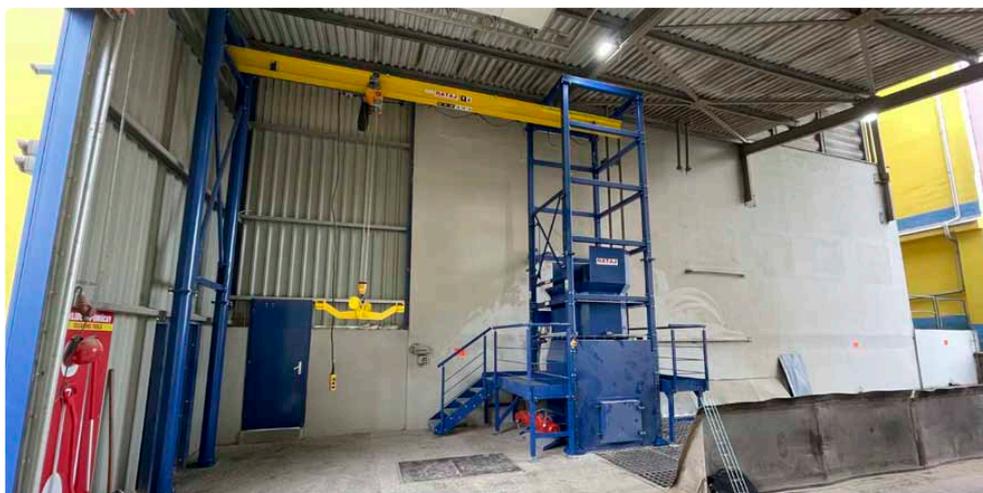
### SUSPENSION CROSS – FOR FORKLIFT



## **BIG-BAG STATIONS**

### FOR EMPTYING BIG BAGs WITH CUTTING BOTTOM

In the case of disposable bags, we use a cutting bottom developed by us. The hopper is equipped with a cutting prism with very durable saw blades made of special carbide steel. After the bag is placed over the cutting prism, the bottom of the bag is cut by means of a free running pulley until it is completely emptied.





# BIG-BAG STATIONS FOR BIG-BAGs FILLING

The filling of bulk materials into bulk bags with **RATAJ**® shaftless screw conveyors provides users with dust-free and efficient handling of bulk materials.

## BASIC PARAMETERS OF BIG-BAG FILLING STATIONS

- Material: steel (komaxit powder coating or hot-dip galvanized).
- Material: stainless steel (AISI 304, AISI 316).
- 4-point bag attachment.
- Maximum weight of suspended bags up to 2000 kg and maximum dimension 1200\*1200\*2000 mm.

## THE FOLLOWING BAGS MAY BE USED

- Circular hopper sleeve with diameter 300, 400, 500 mm.
- Lid with an apron.
- Open bag.



## OPTIONAL ACCESSORIES FOR BIG-BAG FILLING STATIONS

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### TECHNOLOGICAL SCALE FOR WEIGHING THE MATERIAL IN THE BAG

The balance is placed at the bottom of the station and consists of a plate, a frame, 4 weighing strain gauges, a totalizing box and an evaluation unit. The communication interface is determined according to the requirements of the customer for its control system.



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### INFLATING HEAD FOR DUST-FREE ATTACHMENT OF THE FILLING SLEEVE



# TESTING

## BIG-BAG STATIONS

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With 33 years of experience in transporting and handling hundreds of different types of materials, we can offer solutions that do not require material testing.

However, new types of materials with different physical properties are always being developed and we therefore offer each of our customers the opportunity to test „their material“ directly on our BIG-BAG test stations and conveyors in our demonstration and testing centre.

We have a fully equipped **BIG-BAG emptying test station** with emptying conveyors. This station is designed to test the system with maximum possible equipment (hoist, pneumatically driven lifting plates, iris valve, weighing scale, suspension crosses). We also have a BIG-BAG emptying station with a cutting bottom available for testing. This station is mobile, and we test its function directly at the customer's site on original disposable bags.

For BIG-BAGs filling, we have a **BIG-BAG filling test station** with scales and a control unit for connection to the control system.

**Demonstration and testing of bag emptying, filling and transport of materials with shaftless screw conveyors gives you a guarantee of full functionality in your operations.**





RL 400 - saw dust



RLN 150 - graphite



RL 220 - cement



RL 100 - lime



RL 315 - chips

# VERSATILITY IN MANY INDUSTRIES

From our extremely wide range, we have selected the following examples of applications and transport of materials using RATAJ® shaftless screw conveyors:

<b>AUTOMOTIVE INDUSTRY</b>	(rubber granulate, abrasion dust).
<b>WOODWORKING INDUSTRY</b>	(wood dust, veneer, parings, bark, pellets, sawdust, chips).
<b>ECOLOGY</b>	(water treatment plant sludge, filter cartridges, crushed marble, dust-offs).
<b>POWER GENERATION</b>	(coal tar, energy gypsum, lignite and pit-coal, coke, coke and coal dust, ballast ash, fly ash, petroleum waste, soot, cinder, dross).
<b>PHARMACEUTICAL INDUSTRY</b>	(baby powder, penicillin, organic acid salts).
<b>CHEMICAL INDUSTRY</b>	(activated carbon, dyes, borax, burel, diane, fertilizers, chloroamine, alum, catalysts, rubber, cyanide, acids, ice, salpeter, caustic soda, magnesite, urea, sulfur, petroleum waste, ammonium sulphate, aluminium sulphate, soda, titanium white, putties, zeolite).
<b>NUCLEAR INDUSTRY</b>	(activated coal, radioactive ionex, uranium dust).
<b>LIGHT INDUSTRY</b>	(abrasives, borax, cellulose, charcoal, rubber granulate, graphite, aluminium blinds, chemlon thread, chalk, mineral wool, urea, paper, tyres, polystyrene, wash powders, silica, glass, glass fibre, textile fibres and shears, hayseed, soil).
<b>MARINE INDUSTRY</b>	(agricultural commodities).
<b>PLASTICS</b>	(ABS, PE, PP, PA, PET film, PVC granulate, polystyrene).
<b>FOOD INDUSTRY</b>	(peanuts, potato chips, cappuccino, chickpea, sugar, tea, lentils, chocolate mass, glucose, mustard, cocoa, coffee, spice, lactose, gluten, grains, flour, frozen vegetables, muesli, peppers, fruit stones, pastry, custard, raisins, fish, rape, rice, malt, sweeteners, cream, breadcrumbs, dried milk, salt, whey, starch, tobacco, curd cheese, pasta, egg shells, dried vegetable mixtures, frozen vegetables).
<b>RECYCLING</b>	(electrical waste, crushed cables, scrap steel, PA, PE, PVC, PET bottles, tyres, textiles).
<b>HEAVY INDUSTRY, METALLURGY</b>	(bentonite, crushed glass, aluminium granulate, carbide dust, corundum grit, cast iron and steel splinters, cast iron and steel marbles, magnesite, manganese ore, nickel, cinder, glass batch, glass, heavy metals).
<b>CONSTRUCTION</b>	(agglomeration dust, red clay, asphalt granulate, shale, cellulose, cement, dolomite, kaolin, diatomaceous earth, perlite, sand, plaster, gravel, fireclay, lime, lime sludge, spar, granite grit).
<b>AGRICULTURE</b>	(biomass, potatoes, feed for salmon at sea farms, feed mixtures, corn, legumes, poppy seeds, meat and bone meal, cereals, fruit, colza, straw, soy, pollard, hayseed, vegetables, cabbage).

**We design and manufacture shaftless screw conveyors „to order“ for almost all industries (automotive, wood processing, ecology, energy, pharmaceutical, metallurgical, chemical, marine, plastics and food industry, construction, heavy industry, agriculture, etc.). These conveyors are manufactured based on our own design and experience, respecting customer requirements.**



RL 400 - lignite



# RATAJ® BIG BAG STATIONS AND CONVEYORS

## WORK THROUGHOUT THE WORLD

**RATAJ®** has manufactured and installed over 5,800 conveyors for application in most industries. These applications include emptying and filling of containers, hoppers, and Big Bags, transport of material between processes, filling and emptying of cars, dosing, and transport into homogenizers, packaging machines, crushers, sorters, mills, boilers, and many other applications.

Our long-term experience with material transport using shaftless screw conveyors for more than 600 different types of materials conveyed gives our customers a guarantee of optimum and technically advanced design for loose material transport.

Our customers are significant international, European, Czech, Slovak and Polish companies.

By the end of 2023 we will have supplied our conveyors to 56 countries on five continents:

**EUROPE:** Belgium, Belarus, Bosnia and Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Georgia, Germany, Greece, Hungary, Iceland, Ireland, Kosovo, Latvia, Lithuania, Luxembourg, Moldova, Norway, Poland, Portugal, Romania, Russia, Slovakia, Slovenia, Serbia, Spain, Sweden, Switzerland, Turkey, Ukraine, United Kingdom.

**AFRICA:** Algeria, Egypt, Uganda.

**AMERICA:** Chile, Canada, United States of America, Venezuela.

**ASIA:** Armenia, Bahrain, Israel, Japan, Kazakhstan, Mongolia, Saudi Arabia, United Arab Emirates, Tajikistan, Turkmenistan.

**AUSTRALIA:** Australia, Vanuatu.

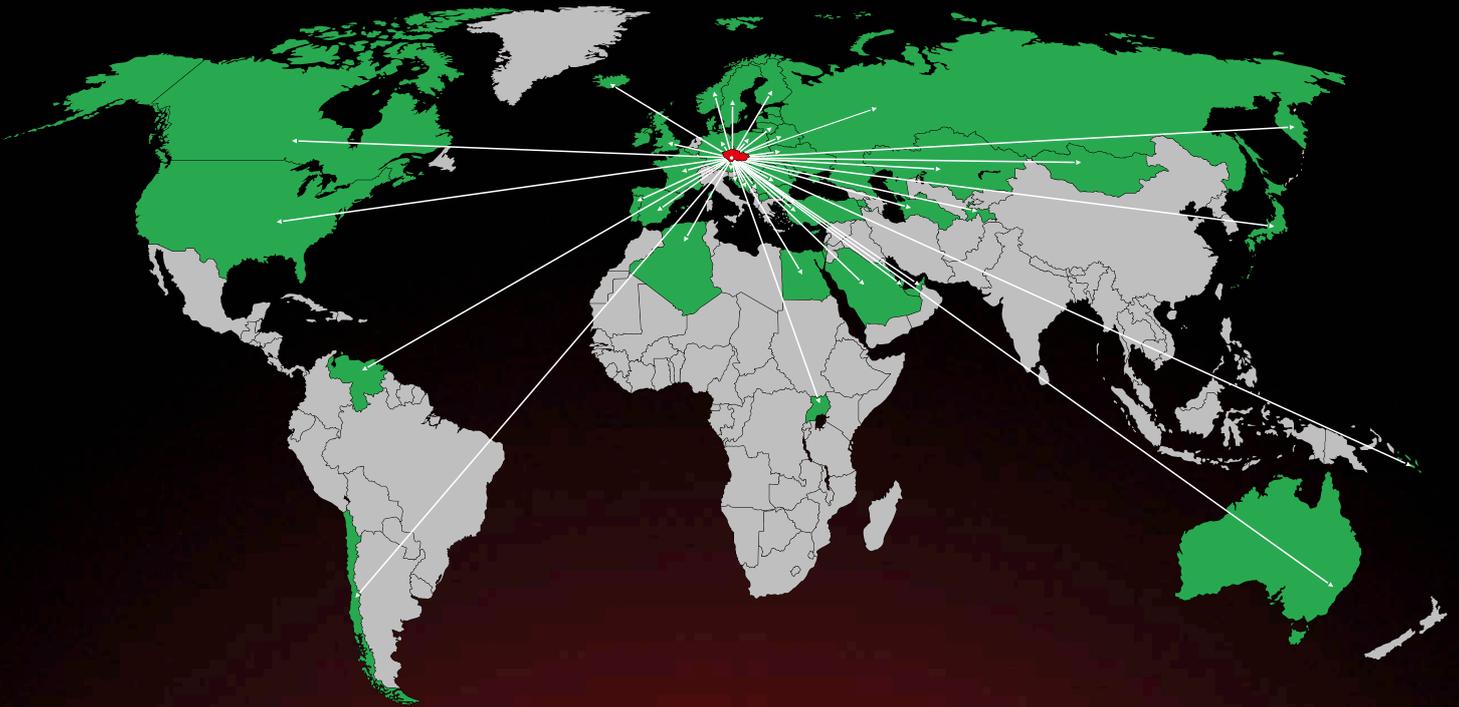


**The most important service we can offer is our “know-how”. Our constant development and installation of new, still untried types of materials with the assistance of our customers allows us to stay ahead in the technology of screw conveyors.**

**All our customers, regardless of size, give us information and experience from the operation of our shaftless screw conveyors that we further use for the transport of new and difficult-to-transport materials under unique technological conditions.**

**We have installed test conveyors on our manufacturing and warehouse premises for your convenience to test conveying of your material with a selection of more than 220 types of shaftless screws in the total length exceeding 8000 m and accessories for shaftless screw conveyors.**

# **RATAJ<sup>®</sup>**



A reference list of installed conveyors, our customers, and types of conveyors can be found on our website.

[www.rataj.cz](http://www.rataj.cz)



**Rataj references**



**Rataj on map**



<https://map.what3words.com/salaried.plights.every>

**REGISTERED OFFICE – CZECH REPUBLIC**

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