

RATAJ[®]

SHAFTLESS SCREW CONVEYORS

Instructions for use

**BIG-BAG station operator shall study these
instructions for use in detail.**

**ORIGINAL INSTRUCTIONS FOR
USE**

BIG-BAG emptying station

Title:	BIG-BAG emptying station
Type:	With BIG-BAG lifting equipment
Manufacturer:	RATAJ a.s., Doubravice 121, 370 08 České Budějovice, Czech Republic Phone/fax: +420/ 387 240 910, 387 241 041, 387 241 630, 724 344 285 Phone: +420/ 602 270 883 http:// www.rataj.cz, e-mail: rataj@rataj.cz

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Please note the following information regarding your equipment. You need to know this information when ordering spare parts.

Serial number	
Delivery date	
Contract number	
Supplier	
Street	
City and post code	
Telephone, fax	

Notes:

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2. Introduction

Dear customer

Thank you for buying the BIG-BAG station (hereinafter referred to as the "station") Please read these Instructions for Use carefully, particularly the "Safety instructions" section before starting using the station. Should you have any questions regarding assembly, operation, etc., please contact our company. Your maximum satisfaction is our aim.

Ing. Stanislav Rataj
President of the Board of Directors of RATAJ a.s.

The design of the station is the result experience and validation in operation. The materials used for manufacturing of the station are of a guaranteed quality and comply with technical specifications for production. Each station is manufactured and tested according to verified technical documents.

Before starting work, the user and operator must become duly acquainted with the Instructions for Use. These contain important information on work safety, assembly, operation and maintenance, and it is necessary to consider these instructions as part of the station. Trouble-free and safe work with the station and its service life depend to a large extent on proper and meticulous maintenance.

In case you do not fully understand any part of the information contained in the Instructions for Use, please do not hesitate to contact the manufacturer. After adding the data on the purchase of the station, we recommend making a copy of the Instructions for Use and to store the original in a safe place, should the copy become lost or damaged.

When working with the conveyor, follow the safety instructions in order to avoid the risk of injury or causing injury to other persons nearby.

The safety instructions included herein are marked by the following warning safety symbol:



When you see this symbol in the instructions, read the message at the symbol carefully.

3. Application

The station is designed for emptying of bulk materials from large-capacity bags - BIG BAGs (hereinafter referred to as the "bag") suspended on a suspension cross with 4 suspension eyes. Bags are emptied into RATAJ shaftless spiral conveyors or into conventional screw conveyors or other similar devices. These devices are connected with the station.

The emptying station is designed for dry bulk materials which don't create vaults and with maximum particle size of emptied material specified for the related emptying equipment. Transported materials must not contain foreign materials of a much different shape and size.

Use in any way different from those stated by the manufacturer is contrary to the station design application! This station can be operated only by persons fully aware of its properties and the respective regulations regarding its operation. Any wilful changes to the station made by the user release the manufacturer from its liability for subsequent damage or injuries! If the station's character enables its use for purposes different than those listed in the application or prohibited methods of use, the user (if intending to perform such activities) must discuss and agree in writing this issue with the manufacturer.

4. Safety instructions

The station complies with the requirements for work safety and hygiene, environmental protection and fire security stated in the generally valid legal regulations and respective technical standards.

4.1. Prohibited operations

- No emptying of volatile, radioactive or explosive materials.
- It is prohibited to operate the station if any defect of the station's structure or mechanism occurs or if any safety elements of the station are missing (e.g. doors).
- Do not use the station with the station door removed or damaged and without related emptying equipment connected.
- Do not use the station without solid attachment to the ground using anchor bolts or dowels.
- Never remain under suspended and lifted bag.
- Use of lifting equipment for lifting of persons and any items other than bags is strictly prohibited.
- Do not perform any maintenance, cleaning and repair activities with a bag suspended in the station with any amount of material in it, during bag emptying and during operation of the emptying equipment.
- Do not perform any maintenance, cleaning or repairs of the station when the emptying equipment is not secured against accidental or automatic start.
- It is prohibited to deactivate the safety, protective and emergency devices.
- The station can be used in an environment presenting fire risk of inflammable dust, however, the station is not designed for use in an environment with fire risk of inflammable liquids and explosion risk of inflammable gases and vapours.
- Do not suspend bags with any damage, cracks or bags without relevant certification for filling, transport and handling of materials.
- Do not start the emptying equipment when the station grippers are not closed and locked with lever lock.

4.2. Work safety



The equipment must be operated and maintained only by persons over 18 years of age, having the physical and mental capacity for such activity, and demonstrably trained for operation of the station and acquainted with the safety regulations and instructions for use, which must be located in a place accessible by the operator.

- Setting, maintenance and cleaning of the station can be performed only without a bag suspended, with the lifting and emptying equipment off and with the main switch locked and power supply disconnected.
- Never suspend any damaged or ruptured bag in the station.
- Never suspend a bag on cracked suspension eyes of the bag; never use less than four suspension eyes of the bag.

- Close the station door immediately and lock it to prevent opening after lifting a bag into the station.
- Only persons with appropriate electrical qualification and authorization can perform works on electric installations. Operators not meeting these requirements must in no way perform these works.
- The station can be used only for the purposes for which it has been designed according to the conditions stipulated by the manufacturer and only if the technical condition of the conveyor complies with work hygiene and safety regulations.
- Operators must make sure that the station's environment is kept tidy and clean, and pay attention to checking, lubricating and cleaning all functional elements.
- Should the operator identify a defect or damage that could jeopardize work safety or operation of the station and which the operator is unable to remove, no bag must be suspended and emptied in the station.
- Station housing and doors may be removed for service purposes only and without a bag suspended and only upon full stop of the lifting and emptying equipment and securing deactivated condition of lifting and emptying equipment.
- When cleaning the station, it is necessary to use protective equipment (gloves, working clothes).
- The safety signs, symbols and warnings designated on the conveyor must be kept in a legible condition. If they become damaged or illegible, the user must restore their original appearance.
- The covers designated by this symbol (black triangle with black lightning on yellow background) cover the areas containing electrical equipment. Before taking off these covers, the power supply of the electrical equipment of the conveyor must be disconnected, the conveyor must be switched off and the main switch must be locked!

5. Fire Protection



The station is not equipped with fire extinguishers. The user must ensure that the premises where the station is installed are equipped with fire extinguishers of an approved type and in an appropriate number, located in a visible place and protected against damage and misuse. The fire extinguishers are subject to regular inspections and the operator must be demonstrably acquainted with their use, as required by the respective act and decree. With respect to the above-mentioned notice and in accordance with the provisions of the respective act, the user must use precautions to avoid the occurrence of fire. This means that when the station is running, no inflammable liquids or any other hazardous substances or gases may be stored near the station. Moreover, no smoking is allowed, no open fire can be used and the work procedure recommended by the manufacturer must be followed. As the manufacturer does not equip the machine with fire prevention equipment, pursuant to the respective decree the user must ensure that a hand-held fire extinguisher be installed in a suitable place (dry powder type is recommended).

- Do not extinguish the station including lifting and emptying equipment under voltage with water or foam fire extinguishers! Electric shock hazard!
- Fires in electrical devices must not be extinguished using water! The lifting and emptying equipment must be equipped with a powder, carbon dioxide or halon extinguisher and the operator must be acquainted with the use of such an extinguisher. If the emptying equipment includes water or foam extinguisher, these can be used only after turning off the electric current!
- All parts of the station that become hot during the operation of the conveyor (electric motors, gearboxes etc.) must be regularly cleaned and deposited inflammable dust and other dirt must be removed so that the layer thickness never exceeds 1 mm.

6. Work hygiene

With regard to the fact that the station cannot be used separately (it functions as a part of a technology line) and regarding various possibilities for its operating location, as early as during the design preparation stage, the user must pay due attention to the location of the station with respect to the emissions of noise and dust. Before putting the station (line) into operation, the user must ask the respective Hygiene Authority to approve the station or conveyor line operation. Should the maximum allowable values of emission of noise or dust be exceeded, this would result in taking alternative measures in order to reduce the emissions of noise and dust for workers (limiting the exposure period, ordering personal protective equipment, etc.).

7. Working conditions and work environment

The hoist electric motors are delivered with IP 55 degree of protection, providing so, according to the Czech National Standard ČSN EN 60529, protection against dust in such scope that it cannot affect reliable functioning, provided that dust on the surface of the electric motor is regularly removed.

- The station can be used in the following environments (according to ČSN EN 33 2000-5-51, ed. 3) :

AB 8 - outside areas and areas not protected against atmospheric influences

AE 4 - slight dustiness

B2N2 - risk of fire due to inflammable dust

- With respect to the above-mentioned notice and in accordance with the provisions of Act No.

91/1995 Coll., the user must use precautions in order to avoid the occurrence of fire. It means, that no flammable liquids or other dangerous substances and gases must be stored nearby the station when in operation. In addition, avoid open fire, smoking and follow the working procedure recommended by the manufacturer.

8. Electric installations and lifting equipment

The station is fitted with electric drive lifting equipment.

The lifting equipment includes electric chain hoist with electric or manual drive, electric installations and suspension actuator.

Wiring must be installed in accordance with the requirements of the respective standards and regulations applicable to the given BIG-BAG station, especially Czech National Standards ČSN 33 2000-4-41, ČSN EN 60204-1 (33 2200) and ČSN 33 2000-1 ed. 2 and the related regulations.

- Protection against electric shock must be provided according to the requirements of Czech National Standard ČSN 33 2000-4-41 and related regulations.
- Work on the electric equipment pursuant to the Czech National Standard ČSN EN 50110-1 ed.2 can be performed only by workers with respective electric qualification in accordance with the respective decree of the Czech Work Safety Authority and acquainted with the equipment in the scope required.
- Before the equipment is put into operation, an initial inspection of electric installations according to the Czech National Standard ČSN 33 1500 must be carried out.
- Before the equipment is put into operation, an initial revision of the lifting equipment must be carried out according to the Czech National Standard ČSN 27 0142 .

- The station operator shall provide for periodical inspection of electric installations within terms set by ČSN 33 1500.
- The station operator shall provide for periodical inspection of lifting equipment within terms set by ČSN 27 0142.
- The hoist actuator is attached to a flexible cable.
- The travel rail includes no limit switches; there are just mechanical stops (preventing derailing of hoist guide).

8.1. Technical specification of the hoist

Power supply: 3x 400 V AC at 50 Hz

Lift electric drive rated current 2.3 A (1st gear) and 4.5 A (2nd gear)

Run electric drive rated current 0.55 A (1st gear) and 0.65 A (2nd gear)

9. Placement of the station

The station forms part of technology lines and its location depends on the user's requirements. It can be located at any stage of the technology chain.

10. Station function description

The emptying station is designed for suspension of loaded bags above emptying equipment and for connection of bag sleeve to emptying head and consequently to emptying equipment hopper.

The operator hands all bag eyes onto suspension cross (lowered with the hoist to the level of bag eyes). Consequently the operator steps back from the suspended bag to a safe distance from lifted bag and uses the hoist actuator to lift the bag to required level and for horizontal transfer to the central section of the station to above the gripper (respectively above the iris valve - if installed).

At this stage the operator must close the safety door of the station!

The operator can adjust the height of the emptying sleeve of the bag as needed so that the sleeve can be safely put through the iris valve (if installed) and fixed and sealed with the gripper. The operator can activate the emptying equipment after checking tightness.

The bag is suspended on the cross for the entire duration of the emptying process; the safety door must remain closed.

10.1. Empty bag ejection

When the bag is fully emptied, the operator opens the gripper, opens the safety door and uses the hoist actuator to lift the bag to a needed level and for horizontal transfer for removing the bag from the central section of the station and placement of the bag in front of the station. Consequently, the operator steps back to a safe distance from the suspended bag and lowers the bag so that the bag eyes are in safe level for removal of the bag from the suspension cross.

10.2. Partly filled bag ejection (only with the iris valve installed)

First, the operator opens the iris valve, consequently opens the gripper and safely closes the emptying sleeve with original bag ropes (the sleeve node must be checked and ropes secured against spontaneous release).

Consequently, the operator opens the iris valve, opens the safety door and uses the hoist actuator to lift the bag to a needed level and for horizontal transfer for removing the bag from the central section of the station and placement of the bag in front of the station. Then the operator steps back to a safe distance from the suspended bag and lowers the bag so that the bag eyes are in safe level for removal of the bag from the suspension cross.

11. Technical specification

The station is delivered in steel or stainless steel design (AISI 304 or higher per specification in purchase order). Exterior of the station is coated with powder baking paint in the case of steel design of the station.

The station consists of the following parts:

- steel or stainless steel structure (stems, footers, cross beams, doors)
- steel or stainless steel rail
- steel or stainless steel suspension frame
- steel or stainless steel gripper
- steel or stainless steel emptying station
- steel or stainless steel jointing material
- electric chain hoist with electric or manual run
- iris valve (optional accessory)
- vault-formation prevention equipment (optional accessory)

Detail technical specification of the hoist is included in separate documentation delivered with this equipment

12. Basic technical data

Dimensions of the station are individual based on requirements of the customer in the purchase agreement and depending on size of bags.

Basic bag sizes are 800*800*1000 mm, 800*1000*1000, 1000*1000*1000 mm, 1000*1000*1500 mm.

The maximum weight of suspended bag is 1,300 kg.
Maximum stroke of the lifting device is 5 m.



13. Control elements

The station is delivered including hoist actuator with connecting cable between the actuator and the lifting equipment. In addition, the station is fitted with lifting equipment main switch. It is responsibility of the end user to connect the lifting equipment to electric network.

The station does not include any actuator of the emptying equipment. Therefore, actuators always form part of the related technology for automatic or manual operation. The control signal for switching the emptying equipment On or Off can be implemented using capacity, flap or propeller-type level sensors or in other way, as required by the user.

14. Operation and maintenance

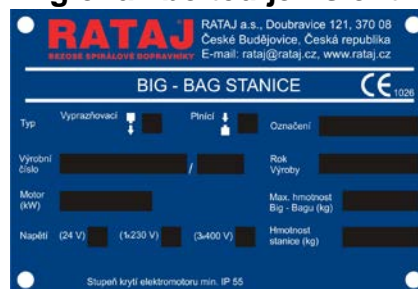
Operation of the conveyor under normal operating conditions includes:

- Lowering of the suspension cross to the bag
- Hanging of bag eyes onto suspension cross
- Lifting of the suspension cross with the bag to required level
- Hoist horizontal transfer into the station
- Opening of the iris valve (if installed)
- Attachment of the sleeve onto emptying head

- Closing station door
- Activation of emptying equipment
- Closing of the iris valve (if installed)
- Door opening
- Lifting of the suspension cross with empty cross
- Hoist horizontal transfer to area in front of the station

14.1. Safety instructions

- The station must be loaded with bags up to the maximum weight of 1,300 kg.
- The station door must be closed when there is a bag suspended in the station.
- Any work in the station can be performed only when the lifting and emptying equipment are switched off and secured against accidental start (the main switch locked in the “off” position) and only when there is no bag suspended in the station.
- When performing maintenance and cleaning of the parts presenting danger of hand injury, it is necessary to use protective gloves, work clothes and other suitable equipment.
- The station maintenance includes periodical checking and lubrication of gripper mechanism and the lever lock as well as checking of all bolted joins of the station and checking of the suspension cross. In addition, lifting equipment must be maintained according to separate documentation delivered with that equipment. This includes periodical inspections prescribed.
- With the emptying equipment running, it is to mix or release the transported material by any object including hands at the top of the suspended bag, in the discharge hopper or in the emptying head by opening the gripper or the lever lock and release of the bag sleeve from parts of the station. There is a danger of injury by rotating parts or swamping of the operator.



forbidden means of

15. Marking

Each station is fitted with a nameplate, or with plates bearing the following data:

- a) manufacturer's name
- b) station type
- c) year of manufacture
- d) serial number
- e) weight

16. Delivery and takeover of the station

The stations are delivered disassembled as a standalone product to both direct and indirect clients. The station shall be assembled and commissioned in the presence of a chief assembler of the seller.

17. Assembly of the station

The user is responsible for assembly of the station and its anchoring to a solid structure (floor).

The station shall be commissioned in the presence of a chief assembler of the

manufacturer (unless stated otherwise in the purchase agreement). The station is anchored to a solid structure (floor) by anchoring bolts or anchors. The user is responsible for designing of anchoring elements (depending on floor structure type).

The hoist electric drive shall be connected by an authorized person of the user in compliance with applicable standards and ESČ (*mark of conformity with electric safety standards*)

18. List of spare parts and accessories

Upon special request, an updated catalogue of spare parts can be sent to users. Spare parts can be purchased directly from the manufacturer - RATAJ a.s. at the address above stated.

19. Packaging, transport, storage

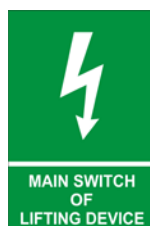
Individual parts of the station are packed in shrink-wrap or cardboard. Transport is mostly performed through a collection service or individually. All parts of the station must be stored only in dry and under-roof areas. Should the station be stored for longer than 1 year, it is necessary to provide preservation of metal parts.

20. Safety pictograms used on the station

Attention

The user must keep the pictograms in a legible condition and provide for their replacement in case of damage. Pictograms shall be placed at visible parts of the station after assembly - placement at access side is required. Pictograms used and their meanings:

- Lifting equipment main switch



- Hoist actuator buttons



Lifting



To the station
(inside)



From the station
(outside)



Lowering

- Read the instructions for use before using the equipment.



- Before performing any repairs, setting or maintenance, disconnect the emptying equipment from the power supply and follow the instructions.
- Do not put hands in the areas with rotating parts – danger of being pulled in the emptying equipment.

- Do not remain close by the emptying equipment when running - maintain safe distance.



- Before opening the door wait until the entire equipment stops and disconnect the conveyor from power supply; then you can remove or replace the empty bag.

21. Disposal of the product and its parts

Once the service life of the station expires, disassemble the station down to the individual parts – metals, plastics and rubber. Treat these separated wastes in conformity with applicable regulations on waste handling.

22. Warranty terms and conditions

The manufacturer of the station provides warranty to the first user of the station for the structure, make, material used and functionality of the station for at least 12 months from delivery date. Individual exceptions (prolonged warranty etc.) must be agreed in the purchase agreement. The manufacturer shall assume no responsibility for damage of the station resulting from improper operation of the station, unauthorized interventions to the equipment without written consent of the manufacturer and presence of foreign materials or admixtures in the material used for emptying. The station must only be used for the work, for which it is designed, and only for materials specified in the purchase agreement. The user shall test the station thoroughly immediately after commissioning. The user shall claim potential defects in writing in 7 days after commissioning of the station or during trial operation, otherwise the station will be considered accepted by the user.

The manufacturer assumes no warranty for potential damage if the user fails to deliver completed written questionnaire with specification of station parameters, materials for emptying and emptying performance and, if required by the manufacturer, in the case of failure to provide a sample of transported material no later than on agreement signature date or purchase order acceptance date. If different material will be used for emptying than the provided sample or any material of different granulometry or any other physical properties than as specified in the Agreement or in the questionnaire or in the inquiry, the manufacturer shall assume no warranty for functionality of the equipment.

Warranty conditions applicable to individual stations form part of the purchase agreement and depend on type of material for emptying and specific conditions of the user.

Any claims shall be applied by the user with the manufacturer within the legal term; manufacturer's representatives will assess eligibility of the claim pursuant to applicable regulations. The warranty is provided under condition of use of the station solely for the intended purpose and under conditions specified above and in the purchase agreement. The user shall provide due technical maintenance of the station as well as periodical inspections of electric installations and lifting equipment. The manufacturer assumes no responsibility for functionality of the machine in the case of failure to respect the terms of periodical inspections.

The manufacturer shall bear no responsibility for normal wear and tear, damage resulting

from undue care, omission or neglecting of apparently minor defects, overloading of the station or its components, even accidental, improper storage and other damages attributable to the user or other persons during transport, operation or due to natural phenomena. The warranty shall cease in the case any modifications or repairs will be made on the station or its components within the warranty period without written consent of the manufacturer or in any case of a defect resulting from unprofessional or forced intervention. The warranty period shall be prolonged by the time of warranty repair of the station.

22.1. After-guarantee service

Requests for service works, warranty repairs etc. must be claimed at the above mentioned address of RATAJ a.s.

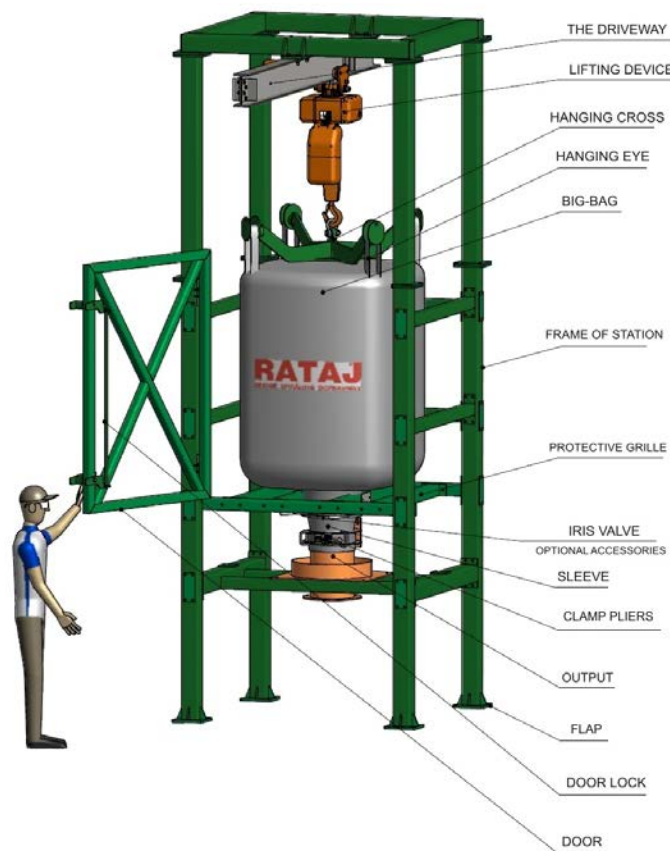
23. List of operating documentation

The station is delivered including the following documentation:

- Delivery note and acceptance record
- Instructions for use and maintenance of the station
- Instructions for use and maintenance of the lifting equipment (hoist)
- Drawings - dimensional drawing, diagram
- CE Declaration of Conformity (if required by the user)

24. Station layout drawing

Basic design of the BIG-BAG station



BIG-BAG station with vault-forming prevention device

