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# ASSEMBLY AND OPERATING RULES FOR ROTARY EXCHANGERS FOR HEAT RECOVERY

TP 97 001

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This document is an integral part of the technical conditions TP 97001 for the design, ordering and delivery of the rotary heat exchangers for recovering heat (hereinafter RV).

## 1 GENERAL

This document provides instructions for the transport, assembly, installation, commissioning, operation, servicing and maintenance of RV.

Before starting any of these activities, it is necessary to study these provisions and adhere to them.

## 2 TRANSPORT TO THE PLACE OF ASSEMBLY, ON SITE HANDLING

### 2.1 RV transport

The RV is transported by normal means of transport and must always be transported in a vertical position (i.e., the rotor's horizontal axis of rotation). The hauler secures it from tipping over and protects it from mechanical damage.

### 2.2 Handling the RV on site

It must always be transferred (transported) around the site in a vertical position. It is not permissible for it to be lying down not even for a short period (inclined) due to better handling.

### 2.3 Manufacturer's provisions

Each RV is equipped with THIS SIDE UP and FRAGILE GOODS stickers. In the event of proven non-compliance with the handling and transport instructions, the contractor is not bound by the product warranty.

The product is delivered packaged in PE shrink foil. Deviations are possible upon request by the customer (pallet, polystyrene, bubble wrap, etc.).

### 2.4 Other

Each product has a delivery note = warranty.

The technical conditions are available at [www.kastt.cz](http://www.kastt.cz). Otherwise the technical conditions are only sent upon request. The goods are delivered by allowing the goods to be unloaded in the customer's production plant.

Another method of acceptance can be set out in the Contract.

## 3 STORAGE ON SITE

### 3.1 General

During storage the product should be protected against mechanical damage and from the effects of moisture. This requirement is based on the assumed possibility of air humidity condensing under the PE foil and subsequently oxidizing the galvanized elements.

## 4 ASSEMBLING THE RV

### 4.1 Checks before starting installation

Before starting assembly it is necessary to check:

- the completeness of the delivery,
- that it is unbroken by transport, handling and storage
- rotation of the rotor (manually) – for the RV unit,
- the parameters of the voltage system,
- critical performance parameters for the functioning of the equipment.

All deviations from the standard and faults must be removed before assembly.

#### **4.2 Installation, start-up**

Only a trained, professional assembly company can install and start up the RV.

The equipment can only be electrically installed and started by a professionally qualified worker pursuant to ČSN 34 3205 and the Decree of the COSO No. 50/78 Coll., Section 6.

Before being put into service a review of the electrical installation and the M&R system must be carried out pursuant to ČSN 34 1500. After a period of operation, the operator is obliged to carry out regular reviews of the electrical equipment in the time limits pursuant to ČSN 33 1500.

## **5 COMMISSIONING**

### **5.1 Expertise**

Only a professional company with appropriate qualifications can start up the RV for the first time.

### **5.2 Before the first start up**

Before the first start up it is necessary to check:

- if the rotor has been secured for transport, dismantle the locking elements,
- cleanliness of rotating and fixed parts which are in contact (clean carefully, especially from metal chips and dust)
- free rotation of the rotor
- the correct setting of the rotor's sealing elements (brushes, felt)
- connection to the air-conditioning unit, the ducting or the building construction,
- the electrical installation,
- belt tension,
- the electric engine's current protection must be set to a value lower than the value of the machine amperage

### **5.3 First start-up**

During the initial start-up check the following:

- the rotor is turning in the right direction
- the correct setting of the rotor's sealing elements (brushes, felt)
- power consumption (cannot exceed the value on the label of the electric engine)

After meeting these prerequisites it is possible to carry out a test run on the RV.

### **5.4 Training**

The professional company putting the RV into operation is required to train the user's operator and a written document must be made of this. Without such a document, the warranty is not valid and the equipment cannot be put into permanent operation.

### **5.5 Other**

It is forbidden to run or operate the RV when the door on the side of the motor is open or the panels are uncovered. During operation, it is necessary to prevent persons having access to the moving parts.

## **6 OPERATION, SERVICE AND MAINTENANCE**

### **6.1 Operator's obligations**

The operator checks the function of all the parts, the tightness of the connections, the temperature of the air being transported, the clogging of the filters for inlet and outlet air, belt tension and the pressure difference.

### **6.2 Maintenance, cleaning, service**

Prior to beginning maintenance, cleaning and service work on the RV, the power must be turned off and such measures implemented to prevent the electric motor being unintentionally turned on in the course of such work.

At the same time checks are made on the status and working of the operational sets connected to the RV and with which its correct working depends. These are primarily:

- wiring
- the M&R system

- the central heating system
- the cooling system

Depending on the operating conditions the user determines the period between thorough inspections, though not longer than once every 3 months.

Operations, which must be unconditionally and demonstrably ensured by the operator are:

- lubricating the rotor bearings (depending on the type of bearings)
- regular inspection of the electrical equipment within the time limits pursuant to ČSN 33 15 00

### 6.3 Preventive maintenance plan:

| Interval |        |         |           |          |       | Unit / part | Action                         | Scope of action, procedures / methods  |
|----------|--------|---------|-----------|----------|-------|-------------|--------------------------------|--|
| daily    | weekly | monthly | 6-monthly | annually | other |             |                                |  |
|          |        | x       |           |          |       | RV          | Drive check                    | visual inspection, measurement check   |
|          |        | x       |           |          |       | RV          | Belt check                     | visual inspection, tightening or replacement, if necessary   |
|          |        | x       |           |          |       | RV          | Sealing check                  | visual inspection, adjustment or replacement, if necessary   |
|          |        |         |           | x        |       | RV          | Bearings check                 | visual inspection, lubrication <sup>1</sup> or replacement, if necessary   |
|          |        |         |           | x        |       | RV          | Torsion rod check              | visual inspection, in case of suspicion of damage, contact RV manufacturer's service department                        |
|          |        |         |           | x        |       | RV          | Sectional rotor sheating check | visual inspection, tightening of screws / bolts (always after the first assembly and then after 80 hours of operation) |
|          |        | x       |           |          |       | RV          | Clogging check                 | visual inspection, cleaning depending on the operation (level of air contamination) and clogging.                      |
|          |        |         |           | x        |       | RV          | Rotor run-out check            | visual inspection, contact RV manufacturer's service department if necessary   |

\*1 Lubrication of bearings shall be assured based on the type of each specific bearing:  
 Clamping bearings - lubricate by a plastic lubricant using a grease nipple  
 Conical bearings - lubricate manually following removal of cover  
 Ball bearings - no maintenance necessary

Recommended lubricants:

Plastic lubricants - mineral oil-based greases with a temperature range for use from -30°C to +130°C

The individual maintenance steps must be unconditionally completed by the maintenance staff and documented in the service / maintenance sheet of the machine. The operator is further obliged to assure regular revisions of electrical equipment in accordance with terms / conditions pursuant to ČSN 33 15 00.

## 7 SPARE PARTS

Spare parts are not supplied with the product. If necessary, it is possible to order spare parts from the manufacturer. The order must contain the type of RV, the serial number, the year of manufacture and specify the necessary part.

## 8 SERVICE

**8.1** The warranty and after-warranty service shall be assured by the manufacturer. The manufacturer may outsource the service-related activities from a trained service company (contacts to be provided by the manufacturer).

**8.2** Any complaints concerning the goods must be accompanied by the delivery note = warranty certificate, report on training of operators and machine service / maintenance sheet. Any paid services will be charged and invoiced based on the valid price list of service works or according to the service agreement.