



**ASSEMBLY
INSTRUCTIONS FOR
RCW 200-600**

6.5.2005

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1. INTRODUCTION

The main units of the RCW dryer are as follows:

- 1 Frame
- 2 Base cone and aspirator
- 3 Feeder. Available a weighing unit between the frame and the feeder as an option.
- 4 Drying cells, a hot air conduit and air outlet conduits with shut-off flaps
- 5 Grain bin, pre-cleaner, filling level sensor, filling level sight glass.
- 6 Elevator
- 7 Furnace
- 8 Electrical installation and drying automatics

The most important tools for assembling the RCW dryer are as follows:

¼" and ½" ratchet handles; 13 mm socket wrench; 13 mm, 17 mm, 19 mm and 22 mm wrenches and box wrenches; 2 pcs of tapered punches; a cordless drill machine; 8,5 mm drill bits; a small quick-operated pneumatic spanner.

Reserve for your work proper chain slings, 1-2 aluminium ladders. If needed, use a lifting service company and its professional fitters for handling the components.

Please see the exploded view drawings in the spare parts manual.

2. WEIGHTS OF THE MAIN UNITS

Frame	530 kg
Base cone	300 kg
Feeder	700 kg
Drying cell	180 kg/pc (half cell)
Drying cell	360 kg/pc (whole cell)
Grain bin	200 hL 290 kg 300 hL 670 kg 400 hL 1080 kg 500 hL 1280 kg 600 hL 1680 kg
Furnace	170 kW 630 kg 210 kW 675 kg 250 kW 700 kg 310 kW 825 kg 400 kW 930 kg 500 kW 980 kg

3. ASSEMBLY

3.1 Group the components

Open the transport crates and group the components to different sub-assemblies.

Group the components according to the spare parts manual and the color (the sheets have different colors for identifying).

Grain bin = Blue; Air cases = Red; Base cone = Yellow



Photo 1.

3.2 Frame

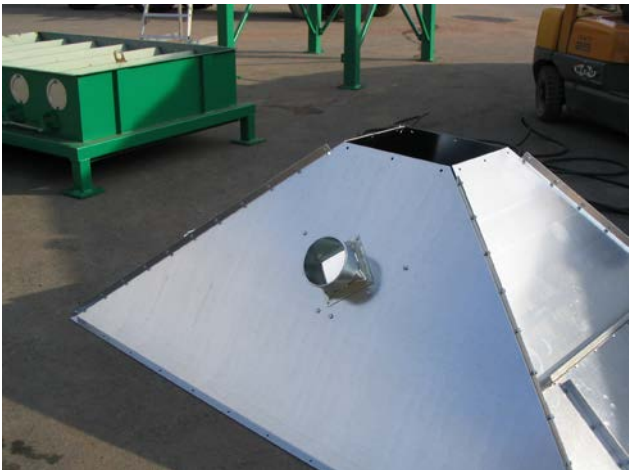


Transfer the support columns and the diagonal braces to the installation site. Mark the installation dimensions of the frame columns to the concrete slab, as shown in the drawing 102946B. Control that the foundation is level. Check the alignment of the columns! Align with steel plates, if required. The assembly requires at least 3 – 4 fitters. Lift 2 of the columns up. Add diagonal braches between these columns. Then the next column, and between them the diagonal braces. Proceed in the same way and install the last column and its diagonal braces.

One clearance can be left without diagonal braces, in this way facilitating the feeder installation to the columns. Add these diagonal braces after having lifted the machinery.

3.3 Base cone and feeder

Connect together first the sheet parts of the other longer cone side (drawing **101665**, parts nr. 4, 5 and 7). Do not tighten the bolts. The cone is assembled upside down by assembling the parts nr. 1 and 3 (2 pcs). Use a hammer and detach the sheet parts, which are equipped with openings, from the sheet nr. 9. Continue by fastening these sheet parts and the sheet nr. 3 to the cone sub-assembly made before. Before connecting the second cone sheet nr. 3, install the suction brush nr. 10 and the cover sheet nr. 2 and the alternating component nr. 11. Add the discharge cone and turn the cone in the way that the folding of the cone fastening flanges at every cone corners is at the same level. If required, apply caulking compound to the joint corners. Tighten all bolts. Install the aspirator to its place.



(Photos taken from the base cone of the dryer RCW Junior)

Turn the base cone and lift the feeder carefully above the cone. Connect the base cone and the feeder together, and lift this unit above the frame columns. Fasten with bolts.



(Photos taken from the RCW Junior)

3.4 Drying cells

- Lift and support the lowest drying cells on the installation site. You can identify easily the lowest cells, because they are marked with the text: Lowest cell / drying air. Apply a thin caulking compound strip on the upper surface of the drying cell using a mass press.

- Before lifting, the shut-off flaps of the exit side are installed to the next upper drying cells. Lift the other end of the shaft of the shut-off flaps to the bearing and fasten then the bearing plate at the other end. Observe that there are 2 pcs of washers at both ends of the shut-off flaps. Observe also the installation direction of the bolts of the bearing plates. Do not yet tighten the bolts.



- Install the end sheets of the air case and at the same time the holders for the springs. Tighten the bolts. Apply caulking compound between the drying cell and the end sheet. Complete the installation by fastening the turn handles and the springs of the shut-off flaps.

- Lift the next drying cells above the former ones. Connect the joints with bolts. Lift, apply caulking compound and connect the next drying cells with bolts. The amount of the drying cells depends on the dryer model. Use tapered punches at the end of the installation for aligning the bolt hole patterns.

- Check that all installed cells in both groups are assembled according to the lowest drying cell in the way that half brushes can be seen viewed from the same direction.

- Check that the vertical sides on the hot air channel side are aligned. Tighten the bolts between the drying cells.

- The drying cells can now be lifted above the feeder. Most frequently the cells are installed in the way that the inlet cone of the drying air is installed to the end where the transmission of the feeder is.

- Fasten the drying cell groups to the feeder only at the ends. Do not yet tighten.

- Control the distance of the hot air channel between the drying cells, in order to fix the intermediate end sheet in the channel. If required, enlarge the space between the drying cell groups with a jack.
- Apply caulking compound and install the topmost intermediate sheet of the other end.

- The topmost shut-off flap of the hot air channel is pushed to the channel through its open end, and the shaft of the shut-off flap is pushed to the hole of the end sheet of the opposite side. The other end sheet is pushed to the shaft of the shut-off flap, and the sheet is lifted between the drying cells and bolted. The lower shut-off flaps are installed in the same way.



- Fasten the lower edges of the drying cells in the hot air channel to the feeder using drill screws.



Lift the sheets of the lowermost grain bin section and the intermediate brush plate of the drying cells above the drying cells. Fasten first the end sheets (all bolts but do not yet tighten). Then the side sheets; bolt only to the vertical joints of the end sheets. The ends of the intermediate brush are fastened first to the end sheets of the grain bin, and then the lower folds of the brush to the upper edge of the drying cells using drill screws.

3.5 Air cases

- Fasten the end sheets of the channels proceeding from down upwards to the end sheets of the drying cells. Apply caulking compound at each joint. Tighten at the same time the bearing plates of the shut-off flaps, and control that the flap can swing freely up and down. The end sheets which are equipped with inspection hatches (parts nr. 5 and 6) are the lowermost sheets. Please see the drawing nr. **102256**.
- The lower sheet of the air case (part nr. 3) is first fastened to the end sheets, and then the feeder is bolted.
- The lower fold of the drying cell and the lower sheet of the air case are connected together.
- Check both lower corners of the air case; apply caulking compound to existing holes, if needed.



- Proceed by fastening the front sheet. It is 684 mm in height, thus covering the lowermost drying cell.
- The next drying cell is covered by installing the front sheets of 684 + 502 mm.
- Before the topmost layer, check at which end the outlet box of the discharge conduit will be installed.
- The part nr. 11 must be located on the opposite side of the furnace intake in the topmost position.
- The sequence is as follows: (part nr. 12) the front sheet of the outlet box, (part nr. 14) the deck sheet, (part nr. 10) the corner sheet, (part nr. 15) the deck sheet.
- Parts nr.14 and 15 are connected together with the lower fold of the lowermost grain bin section and the upper fold of the topmost drying cell using bolts. Finish the assembly by fastening the topmost front sheet (part nr. 13).

After having assembled all the components of the discharge air channels and bolted finger tight, all bolt joints are tightened using a quick-operated pneumatic spanner.

Install the air inlet alternating cone of the furnace and the lowest end sheet, which is equipped with an inspection hatch, between the drying cells on the opposite side of the furnace.

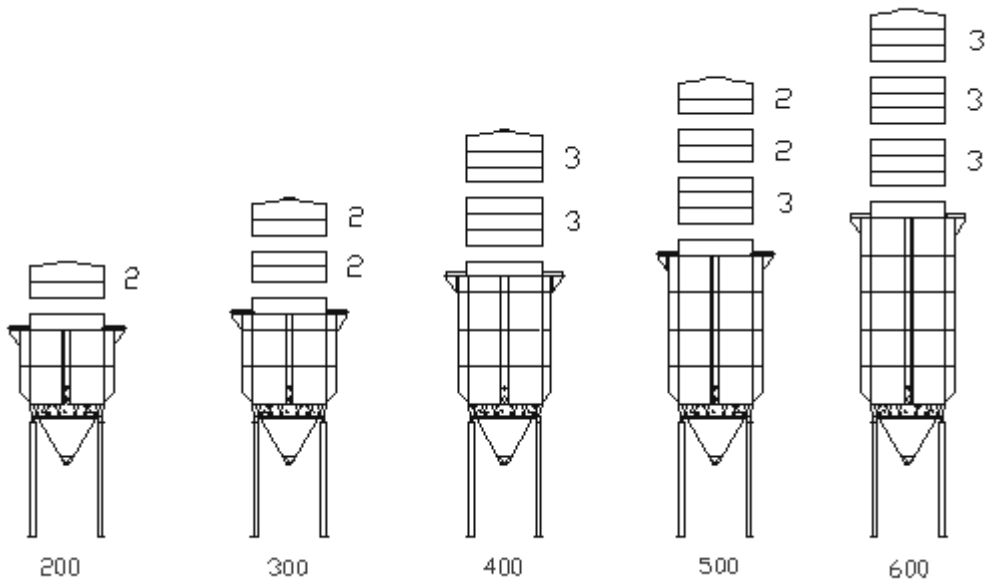


3.6 Grain bin

The lowermost grain bin section has been installed above the drying cells. By erecting the dryer, the ready assembled upper grain bin section will be lifted above this. The assembly proceeds in sequences. If you follow these instructions, you do not need any mounting bases and you can work on the ground.

- Dryer RCW	200	300	400	500	600
- Sub-assemblies (pcs)	1	2	2	3	3
- Intermediate sheet layers		1	1	2	2
- Intermediate sheets per layer (pcs)		2	3	3/2	3/3
- Roof layer intermediate sheet + the topmost sheet (pcs)		1+1	2+1	1+1	2+1
- Height of the ready dryer (meters)		1,15	2,15	3,65	4,65

RCW 200-600 assembly grain bin



For assembling you need 2 pcs of 50x100 - 2000 mm stringers and 2 pcs of 50x100 -2800 mm stringers. For not damaging the folds at the lower edges of the sheets, place the stringers on a flat ground below the lowermost intermediate sheet.



Example: Assembly instructions for RCV 300

Take 4 pcs of side sheets of the grain bin. These sheets are equipped with 2 holes of $\varnothing 17$ mm at the lower edge. Take 4 pcs of end sheets, which are equipped with 1 hole. Combine these sheets at their corners using bolts and on the stringers so that they form a rectangular. Check the rectangular form by cross-measuring the diameter. Apply caulking compound at the joints; the bolts only finger tight.

Add the second layer above the former and bolt at the corners. By bolting the horizontal joint, install short support beams adjusting to the holes of the extraction bars.

Prepare now another base and assemble the intermediate sheet layer. The bottom edges are equipped with the holes of the extraction bars. Add the side and end sheets of the topmost layer, bolt the vertical and the horizontal joints.

Before assembling, fasten a support beam (part nr. 13 in the drawing **102002**) to the roof sheets at both ends and in the middle; add the stiffeners (part nr. 38), for preventing the roof sheet from bending later on. Lift the roof sheets to their place and bolt the joints. Observe the lifting lugs at the corners.

You need a co-worker for installing the middle part of the roof. The co-worker needs to enter inside the grain bin; he has to fasten the nuts to the bolts inserted from outside.

OBSERVE! You cannot enter on the roof, because it does not bear your weight! All the supports must first be installed!

Detach carefully the support beams of the roof side sheets, first in the middle, and then simultaneously at the both ends. Lift carefully the middle part of the roof to its place, and connect the middle part, the side part and the stiffener beam together with bolts. Fasten at the same time the support beams (part nr. 17) on both sides of the installation hole of the pre-cleaner.

The open holes in the roof sheets need to be sealed with 8 mm bolts.

Install the hinges and the gas spring of the manhole, the profiles at the grain bin ends (parts nr. 14, 15 and 19), the sight glass and the holder for the filling level sensor.

Before lifting the grain bin above the lower section, carry the support beams (part nr. 39) of the extraction bars inside the lower section of the grain bin. If needed, dig holes (approx. 35 cm) in the crossings of the extraction bars.

The upper section of the grain bin is lifted above the lower section of the grain bin by using an agricultural loader or an auto crane. Connect together with bolts. Observe the adjustment of the short support beams to the holes of the extraction bars.

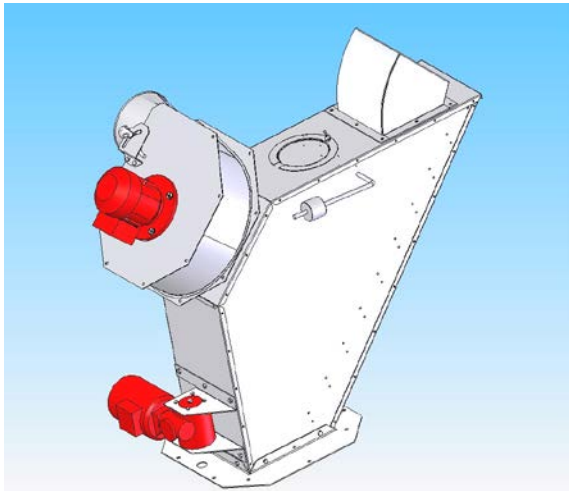
For installing the extraction bars, the co-worker must enter inside the grain bin, while the other fitter is pushing the extraction bars inside. The bars are guided through the holes of the support beams in the grain bin in the way that the longer bar is guided through the lower hole of the crossing. Long support beams are installed at the lower edge of the lowermost side and end sheet. The extraction bars are fastened at both ends with a washer and a M16 nut. Tighten the nuts so that the bars cannot move end-to-end. **OBSERVE! Do not yet bolt the long support beams of the lowest element!**



3.7 PRE-CLEANER

We recommend you to install the pre-cleaner only after having finished the assembly of the other sub-assemblies, because then the erection direction is easy to see according to the elevator.

- The spreader shaft is installed to the spreader motor. The motor is ready installed at the factory.
 - The key shaft is tapped to its place and locked with a washer and a 8x20 hexagon screw.
 - The spreader plate is installed to the shaft and locked on the side with a 8x16 hexagon screw.
 - When drying, the first batch control that the height of the spreader is correct.
 - The frame must be aligned vertically upright, and must stand in line with the grain bin roof, and with regard to the loading pipe. Drill holes and connect with 8x16 hexagon screws (8 pcs).
 - Before filling, move the adjustable weight of the plate in the frame to its limit position, for getting the plate to move easily.
 - By filling, move this weight in the way that the grain is spread evenly.
- The fan unit is installed with a quick release clamp to the air conduit.



4. INSTALLATION TO AN OLD DRYER BUILDING

While installing to an old dryer building, we give you different instructions for this: install the components of the sub-assemblies one by one. While installing to a new dryer building, smaller RCW models can be assembled ready and then lifted as a whole unit to the dryer building before lifting the roof.

5. SAFETY

While assembling the dryer on its construction site, pay always attention to your safe working conditions. The dryer is many meters in height, thus, your working height as well. Platforms, ladders and handrails must be designed with care; take always into consideration the safety at work. Please note that there is always a risk of falling down while erecting the dryer. Also the down falling tools can cause hazardous risks. Wear a protective helmet! The grain bin and the air cases consist of metal sheets. These have sharp edges. Wear safety gloves! Be careful; do not leave your fingers or hands between the metal sheets. Use guide pins for guiding the components. Use always proper A ladders and manlifts, because stepladders provide a risk of falling down. By lifting the elements, you must always use lifting devices, straps and chains which have a sufficient load capacity and are of good quality.

6. Installation of the Skandia bucket elevator

We like to give you here some practical information concerning the installation of the bucket elevator. Regarding a new silo, the most usual way to install the elevator is to perform the installation of the elevator at that stage when the silo and the silo deck are ready and the ready roof sub-assembly has been lifted to its place and the installation completed. In addition to this, stair structures from the ground to the silo deck and to the walkway in the elevator upper part must be safe enough for work.

Before lifting the roof unit, it is advisable to lift the elevator head, the belt and one part of the vertical housing sections on the silo deck.

Start with connecting the lower part to the filling hopper. After this, install the vertical housings; start with the lower parts, and install in sections of two or four meters (two housing sections connected together). Between these housing sections, each two meters you must install support plates to the joints.

That housing section which is equipped with an inspection hatch is installed first in the lower part of the elevator, thus facilitating a lot the installation of the belt and the buckets.

The vertical housing sections are supported to the construction of the dryer each 4 – 6 meters. Control the alignment with a spirit level or using a plumb-line.

After having installed the elevator head and supported it to the walkway, detach the head lid and the back stop. The easiest way to install the elevator belt is to install it from the elevator head. Before lifting the belt to the elevator, check the direction of the belt punching, because the belt screw holes are made with a cutting die, i.e. the holes become in this way slightly conical. Try which direction is the correct one: you can put the screw easily through the belt.



INSTALLING THE ELEVATOR BELT

Open the elevator belt to the silo deck. Using a rope, draw the belt end to the pulley in the elevator head. Observe the direction of the belt punching. Put the end of the belt to the elevator housing in the way that in the inspection hatch the conicality of the belt punching becomes smaller in the direction of the inspection hatch. Drop 2/3 of the belt into the housing, after which the other end of the belt is put to the other elevator housing. By holding on to the pulley of the elevator head, put the other end of the belt in the way that both belt ends are seen from the lower part of the elevator. The belt on the return side is locked in the way that approx. 0,5 m remains under the locking. Then the belt pulley of the lower part is lifted as high as possible, in this way achieving the best possible adjustment range for tightening the belt later on.