

**SWISS  
ROTORS**

# Counterflow Heat Exchanger

OPERATION AND  
MAINTENANCE  
v. 3.1.1





Please read the following documentation carefully before performing installation, maintenance and operating of Swiss Rotors rotary heat exchangers motors. In case of doubts contact Swiss Rotors official support. This manual must only be used by a qualified installer/service technician.

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## 1. INTRODUCTION

### 1.1 Preface

The purpose of this manual is to provide necessary information for installation, operation and maintenance. Mandatory maintenance service tasks that are responsibility of the user, from appropriate transportation methods to periodic inspections. All the crucial information and warnings will be preceded by various caution symbols as shown below:



**Important Information**



**Useful Hint**

Please read carefully the entire user manual and all other accompanying documents before first start-up. Improper use of the product may void the warranty.



Keep it as a reference for future maintenance and service procedures.

### 1.2 Disclaimer

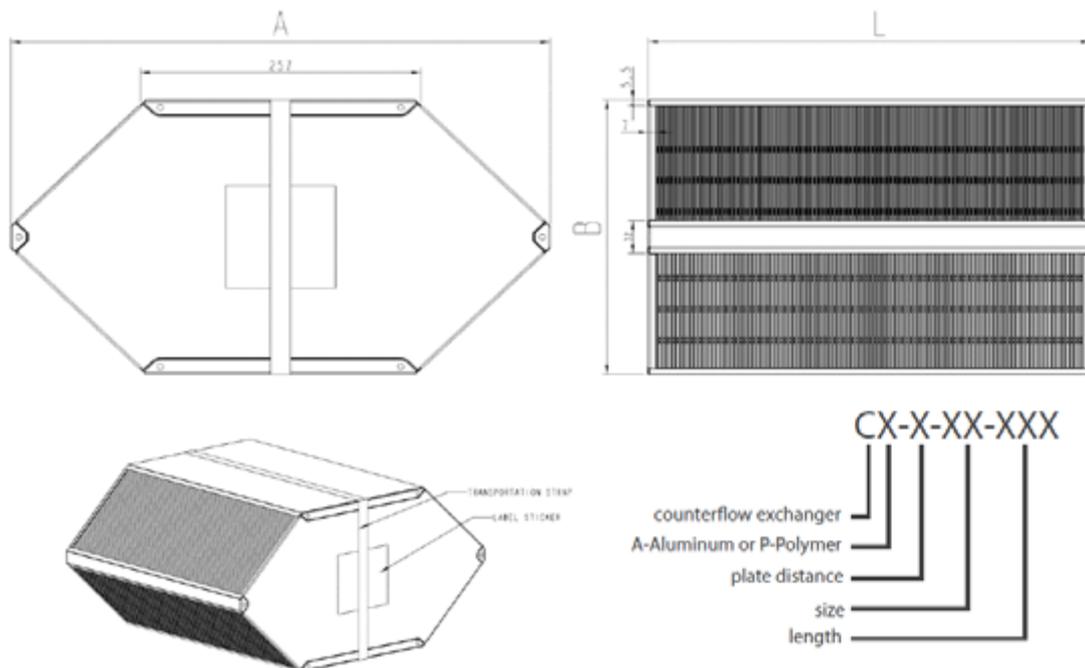
The following instruction, unless otherwise stated, applies to all Swiss Rotors counterflow heat exchangers. In exceptional circumstances, differences will be noted. This document is a property of Swiss Rotors, licensors or affiliates, protected by international trademark and copyright laws. Swiss Rotors constantly develops its products and this document is subject to change without notice.



## 2.PRODUCT DESCRIPTION

### 2.1 Construction

Swiss Rotors produces series of counterflow heat exchangers in two types of materials - with aluminum or polymer plates with casing made of Aluzinc. The core is made of plates joined together in a define distance of 2 or 3 mm depending on a chosen type. For aluminum core they are mounted by a double folded edges and for plastic by an ultrasonic welding. They are tightly glued to the casing to avoid any leaks using hot-melt glue. Thanks to that the air streams do not mix while flowing through the exchanger, therefore the air quality is maintained. All materials are complying the halogen freeness. Due to material characteristics, elements of the casing may be covered by iron oxide over time - which is



**Figure 1.** Swiss Rotors counterflow heat exchanger

SR Model	Material [-]	Plate Distance mm	A mm	B mm	C mm
CA-2-27	Aluminum	2	496	271	225÷800
CA-2-31	Aluminum	2	537	312	225÷800
CA-3-31	Aluminum	3	537	312	225÷800
CA-2-39	Aluminum	2	619	394	225÷800
CA-3-48	Aluminum	3	703	480	225÷700
CA-2-53	Aluminum	2	758	534	225÷700
CP-2-31	Polymer	2	537	312	225÷800
CP-3-31	Polymer	3	537	312	225÷800
CP-2-39	Polymer	2	619	394	225÷800
CP-3-39	Polymer	3	619	394	225÷800

**Table 1.** Sizes of Swiss Rotors counterflow heat exchangers



## 2.2 Operational limits

Our counterflow units are prepared to work within temperature conditions oscillating between -40oC and +70oC for the aluminum plates and -20oC up to +50oC for polymer plates. Maximum differential pressure between supply and exhaust airflow – for both aluminum and polymer exchanger is equal to 800Pa. We strongly recommend keeping the maximum pressure drop beneath 300Pa. Recommended airflow on the inlet is not greater than 3m/s.

Note, that counterflow heat exchangers are not meant to operate in special application exposed to corrosive / industrial processes or marine environment.

## 2.3 Serial number identification

Each product leaving our factory is equipped with a plate containing product identification data. Labels are attached directly on the casing and provide essential information about the product.

The label consists of the following information:

- Model
- Dimensions
- Material
- Serial number
- Leakage
- Maximum leakage

By serial number and model name it is possible to identify your product and answer your question effectively and immediately.

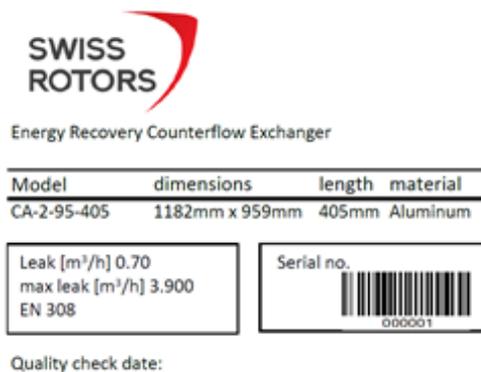


Figure 2. Label



**While contacting our company make sure to have your serial number in sight.**

Nameplate field	Explanation
Model number	The manufacturer's number to indicate the particular type of product which has been acquired.
Serial number	A set of characters that uniquely identifies a single unit and can be used for traceability and warranty purposes.
Dimensions	The overall dimensions of the unit [mm]
Material	Aluminum or polymer core
Leakage	Leak tested on a unit according to EN 308 [m3/h]
Maximum leakage	Maximum allowable leakage [m3/h]

Table 2. identification label explanation



### 3. TRANSPORTATION

#### 3.1 Packing



To avoid dents or scratches on the exchange surface please make sure to properly secure the package for the transportation.



**Figure 3.** Packing model

Counterflow heat exchangers are packed in a stretch wrapped pallets. The exchangers are interleaved with a cardboard with appropriate incisions and clutched with the belt and have corners secured with a cardboard as shown on a picture below (Fig.3). Be extra carefull while handling the heat exchangers – construction elements may have sharp edges – use protective gloves to avoid injuries.

#### 3.2 Quality control

##### 3.2.1 Examine the package:

1. Check the conditions of the package carefully in the presence of a shipping company representative before delivered parcel will be accepted. Look for any signs of transportation damage. Our counterflow heat exchangers are precisely and tightly secured for the shipment. There should not be any signs of tearing on the surface of the package, punctures, exposed elements or traces of opening.
2. Pay attention to the way in which the goods were delivered. – Fig.3.
3. Swiss Rotors prepares shipments using professional labels and transport descriptions. If you see that the shipping company did not follow the instructions - refuse to accept the parcel.

4. Check if the received parcel matches with your order. Inspect the product identification plates for confirmation.
5. In case of noticing any damage please contact our support immediately – phone numbers are listed at the Support chapter of this guidebook or at our official website: [www.swissrotors.com](http://www.swissrotors.com)

##### 3.2.2 Examine the unit

1. Remove packing materials from the product.
2. Dispose of all packing materials in accordance with local regulations.
3. To determine whether any parts have been damaged or are missing, examine the product carefully.
4. If there is any issue, please contact our support.

#### 3.3 Storage



If the exchanger is not installed immediately, leave the product in its original packaging and follow the rules of proper storage.

Prolonged exposure of the product to the improper conditions may damage and shorten the lifetime of the heat exchanger.

- Avoid exposure to moisture, excessive sunlight (especially unfavorable for polymer exchangers) and other weather conditions.
- Make sure the counterflow heat exchanger is positioned vertically on the dry and flat ground.
- Support and secure the exchanger against mechanical damages, do not stack.
- Keep the storage temperature between 0°C and 40°C for aluminum exchangers and 5°C and 25°C



## 4. INSTALLATION

The following section contains valuable notes and list of mandatory procedures which are responsibility of the user. Neglecting advices collected in this chapter may result in product damage or void of warranty. Take time to study carefully whole chapter and make sure everything is understandable. If you have any questions, please contact support.



**Exchanger needs to be installed in a way enabling seamless execution of future maintenance tasks.**

There are three ways of installing the unit. In case of installing it with a wide tray parallel to the floor we strongly recommend mounting the exchanger on the face surface on approximately 4 ÷ 5 degree angle to allow the condensate drainage.

Installation:

- Move the exchanger carefully as it is fragile and might be heavy.
- Remove all of the mechanical transport securing materials
- Handle the heat exchanger by grasping the wide plates from the casing
- Install the exchanger so that is possible to pull it out of the ventilation unit easily in case of any failure.
- Make sure there is an easy access to both sides of the heat exchanger.
- Make sure that the air handling unit channels will supply the air to the exchanger evenly.
- Make sure the counterflow heat exchanger is firmly attached inside the system and will not move or oscillate inside AHU. The designer of the AHU should provide sealing to prevent air leaks.



Exchanger cannot be loose inside the AHU after installation. Make sure that counter-flow heat exchanger is rigidly mounted inside the unit – proper method of installation requires to adjust the exchanger so that the entire surface of its casing is based upon the casing of the AHU in which the exchanger is being installed.

## 5. MAINTENANCE & CLEANING

### 5.1 Maintenance

Swiss Rotors strongly recommends checking the condition of exchangers systematically. Technical control is obliged to the user. Properly frequent checks allow early detection of irregularities in the system and may help avoiding serious damages resulting from various random factors. Please refer to our general proposed inspection checklist and timetable presented below.

Verify:	OK
Exchanger is free of mechanical damage. There are no traces of rust.	
Plates of the exchanger are not excessively dirty or clogged. Airflow is not blocked by impurities.	
Sealing around the exchanger is tight.	
Casing is firmly attached to the AHU - exchanger does not move unintentionally inside the system.	
There are no unwanted objects inside the casing which are not internal exchangers parts.	

**Table 3.** General maintenance checklist.



## 5.2 Cleaning

Depending on the working environment maintenance tasks must be carried out at various time intervals. Frequency depends on the quality of the air distributed to the exchanger matrix. It may turn out that self-cleaning effectiveness is insufficient in given work environment and some manual cleaning will be necessary.

Swiss Rotors recommends following methods of cleaning:

- Polymer plates - pressure washer from the appropriate distance of minimum 120mm from the surface
- Aluminum plates - air compressor burst from the appropriate distance of minimum 120mm from the surface.

Do not use any detergents! Keep temperature below 25°C



Too much pressure can easily damage the plates.

Note that counterflow heat exchangers are not meant to operate in environment of toxic, flammable or corrosive fumes, or special application exposed to corrosive / industrial processes or marine environment, exposure to liquid water, paint, dust or grease from commercial kitchen, for further application guidance contact Seller's representative.

## 6. SUPPORT



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