
Technical Information Rotating Heat Exchangers

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The wheel

Material and dimensions

- Rotating wheels are available in four different standards: aluminum, epoxy coated aluminum, aluminum with a hygroscopic surface and silicagel adsorption coating.
- The width of the wheel is 200mm
- Maximum diameter is 2500mm
- Wheels in epoxy coated aluminum have edges that are self sealed in corrosive environment
- Aluminum, epoxy coated aluminum and hygroscopic wheels are recommended to rotate 10 rpm
- Adsorption wheels are recommended to rotate 17 rpm
- Wrap and hub are manufactured in aluminum

Bearings and shafts

- Heatex offer ball bearings as a standard for vertical applications a special adapted ball bearing for wheels in horizontal applications
- Lifetime for a ball bearing in a vertical applications is according to Heatex AB's supplier calculated to 55 000 h (app. 5 years). This lifetime is calculated for a "worst-case" with a wheel of 2500mm in diameter and pressure drop of 250Pa on each side. Please note that due to the low lubricant factor the supplier makes a reservation for uncertainties in the calculation.
- For wheels up to and including 1100mm in diameter the diameter of the shaft is 20mm.
- For wheels from 1101mm in diameter the diameter of the shaft is 30mm.
- The shaft is predrilled for an M12 screw
- Standard shaft length is 220mm but may be changed on request

Spokes

- For wheels up to and including 399mm in diameter, spokes are assembled inside the wheel as spikes
 - For wheels from 400mm up to and including 2500mm in diameter, the spokes are constructed as flat spokes in the dimensions of 5x35mm.
 - The spokes are countersunk into the wheel and flush with the wheel surface.
 - The spokes are welded to the hub and the wrap
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Casing

General

- Casing is today manufactured in two types: standard and covered.
- For vertical casings up to and including 1200mm in square, the depth of the casing is 265mm
- For vertical casings from 1201mm in square the depth of the casing is 305mm
- Please note: The depth of horizontal casings is always 305mm
- For casings up to and including 1200mm in square the wheel is 100mm smaller than the casing.
- Casings from 1201mm in square require a wheel diameter that is instead 150mm smaller than the casing
- For wheels from 1101mm in diameter there is an extra girder mounted which makes the casing look like a "T" viewing it from the back and front side.
- Standard casing sizes are available up to 2650mm but bigger sizes may be discussed on request.
- Brush sealant is assembled at the wheel pressing on the casing from the inside
- Brush sealant is assembled at the girder as well which separates the two air streams at the back and the front of the casing.

Standard Casing

- Standard casing does not have any side plates or top/bottom plates. This means that the casing is only covered at the front and back and is suitable for sliding into an air handling unit.

Covered Casing

- This alternative is covered on all 6 sides by plates: front, back, top, bottom and 2 sides. One of the sides is removable to secure the possibility to do maintenance on the drive.

Purge sector

- The purpose of the purge sector is to clean the wheel from the exhaust air before it turns over to the supply air side.
 - The purge sector is made in the size of 5° with start at center of the wheel.
 - At the purge sector brush sealant is assembled at the upper side and at the lower side.
 - When placing an order please make sure that the location of the purge sector is correct. The position is fixed based on the rotating direction of the wheel as well as the directions of the supply/exhaust air.
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Drive

Constant speed

- Motors for constant speed can as a standard be delivered in two types.
 - 3 phase 230V (suitable for speed control)
 - 3 phase 380V (suitable for constant speed)
- Motors from 90W and bigger (wheel diameters from 1101 mm) can be wired either to 3x230V or 3x380V but smaller (25W and 40W motors are delivered for one voltage only.

Variable Speed

- Two different systems are available for variable speed
 - EMS by Emotron
 - Micromax by IBC

Emotron

- Emotron is a special developed system for variable speed of wheels.
- Available in two features, display with LED's or numerical display
- High efficiency – No gear box losses
- Easy handling since no adjustment settings are required
- IP54 classified
- Built-in rotation detection

Micromax

- Micromax handles input signals in the range of 0-10V
 - IP54 classified
 - Easy construction based on standard components
 - This control system is delivered together with the constant motor (3x230V) earlier described
 - Delivered with a rotation detector
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