

## Types of Existing Rotors and Available Replacement Wheels

### Old Refurbishable Rotors

The disc thickness is typically 200 mm, but can also range from 250 to 300 mm. Until the 1970s, the material may have contained asbestos. Heat transfer masses made of fiberglass (so-called “ceramic” discs) were also used. The most common were aluminum discs wound from corrugated foil (50–100 µm). Heat transfer discs were either condensing or hygroscopic. The latter type had aluminum treated with a hygroscopic coating or soaked entirely in a caustic bath. Up to approximately 2–2.5 meters in diameter, the discs were wound whole. Larger discs were assembled from segments. The disc bearings were either inside or outside the hub. Replacement discs are delivered with the original type of bearing.

### Available Replacement Discs

- Only available in 200 mm thickness
- Made of aluminum (60–100 µm), with corrugation height between 1.7–2.5 mm
- Material can be condensing or hygroscopic
- Bearings can be inside or outside
- Diameter selectable according to the old disc
- Shaft length selectable according to the old disc
- Structure can be fully wound or segmented

## Information required for a new replacement disc

### 1. Rotor disc outer diameter

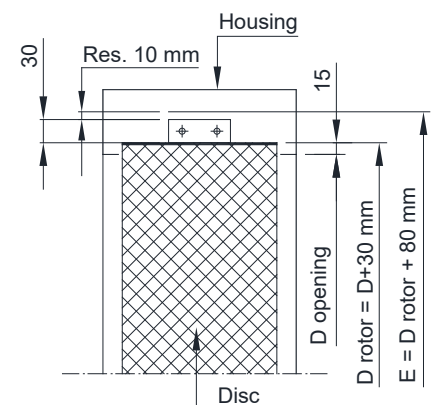
Measure the rotor circumference, then calculate the disc’s outer diameter. The replacement rotor is supplied with the same diameter as the old one. If the replacement disc is segmented, it requires more space than a fully wound disc because the segment shell flanges extend about 30 mm from the outer edge. Additionally, leave a 10 mm margin between the housing and the outer parts. The disc diameter can also be determined by measuring the free opening of the housing.

#### Disc Diameter and Space Requirements when Housing Opening Diameter is Dopening:

New Disc Diameter  $D_{\text{rotor}} = D_{\text{opening}} + 30 \text{ mm}$

Required space  $E = D_{\text{rotor}} + 80 \text{ mm} = D_{\text{opening}} + 110 \text{ mm}$

The housing must leave free space per dimension E in both horizontal and vertical directions



### 2. Rotor Type: Moisture-Transferring or Condensing

Try to determine this from the old equipment’s documentation. If not available, inspect the rotor surface to identify the disc type. For example, old oxidized aluminum discs are recognizable by their pale surface.

Note: When outdoor air temperature drops below the indoor dew point, even a condensing rotor transfers moisture.

**IF THE DISC HAS A MANUFACTURER’S NAMEPLATE, TAKE A PHOTO AND INCLUDE IT WITH THE REST OF THE DOCUMENTATION FOR TANIPLAN OY. IT MAY CONTAIN CRUCIAL STRUCTURAL INFORMATION**

### 3. Well height (Corrugation Height)

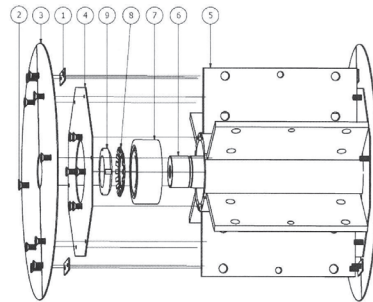
The height of the foil corrugation affects the rotor’s efficiency and pressure drop. It may be listed on the nameplate or documentation of the original device. If not, follow these steps:

- If the efficiency of the old disc is known, select the corrugation height of the replacement disc to match it.
- If no documented data exists, measure how many corrugations fit across a 100 mm radial length of the disc. You can then calculate the corrugation height from this.
- Alternatively, estimate the height so that the known or estimated pressure drop of the rotor—typically around 150–200 Pa—is not exceeded. For this, the supply and exhaust airflows must be known.

## 4. Rotor Bearing Configuration

### A) Bearings are inside the hub

A new hub, bearings and shaft are delivered separately with the replacement rotor. The bearings are inside the hub. The length of the new axle is chosen to be as close as possible to that of the old axle, or slightly longer.



### B) Bearings are outside the hub

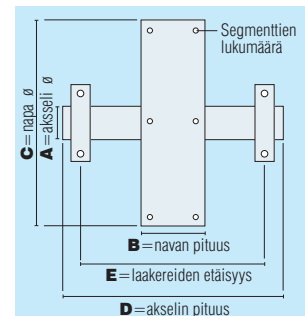
Dimensions A–D are required for fitting the new rotor

A (mm) \_\_\_\_\_

B (mm) \_\_\_\_\_

C (mm) \_\_\_\_\_

D (mm) \_\_\_\_\_



## 5. Rotor Shaft Length and Diameter

Shaft length is a crucial measurement when selecting a new disc. Shaft diameter and any internal thread at the shaft end follow the standards of the new disc's manufacturer. If the exact shaft length cannot be determined, choose a length that is safely sufficient—shortening a shaft is easy, but extending one is virtually impossible.

## 6. Replacement of Drive Equipment (if needed)

If the old drive unit needs replacement, it's recommended to use the VariMax unit with a direct-drive stepper motor.

- Check that the corner space of the housing is large enough to install the new direct drive (up to  $D \leq 3900$  mm). For discs with a diameter of 3901–5000 mm, use the MicroMax750 unit (750 W worm gear motor).

If the old rotor used a flat belt, wrap a sample belt (10, 12, or 15 mm thick) around the disc to ensure that a new round or V-profile belt will fit. The diameter of the new belt depends on rotor size:

Rotor Diameter (D)	New Belt Type
$D \leq 1200$ mm	8 mm round (PU8-G, yellow)
$D = 1201\text{--}2500$ mm	10 mm round (PU-10-G, yellow)
$D = 2201\text{--}3400$ mm	12 mm round (PU-12-G, yellow)
$D > 3401\text{--}5000$ mm	Extendable A-profile V-belt, height 10 mm

All sizes may use an extendable A-belt if the system has a motor shelf.

- The new drive unit VariMax or MicroMax750 is selected according to the document titled 'AVAILABLE BELT TYPES AND SELECTION OF DRIVE BELT AND PULLEY' found in the section 'Rotor Drives and Accessories / Belt Drives' on Taniplan's website.
- If a round belt cannot fit and the housing cannot be modified accordingly, the old flat belt is used. The old pulley or taper bush must be replaced to match the shaft diameter of the new drive motor. It is recommended to use a belt other than a flat belt due to spare part availability.
- If the old flat belt cannot be used and a 12 mm diameter belt is required but cannot fit inside the housing, a 2-groove pulley for two  $d = 8$  mm or 10 mm round belts can be dimensioned as a replacement. The rotor's rotational speed is checked with the new drive, and the pulley is replaced if necessary. A condensing rotor must rotate at least 12 rpm, and a hygroscopic rotor at 20 rpm.

NOTE! MAKE SURE THE ROTOR TURNS IN THE CORRECT DIRECTION. FROM THE EXHAUST AIR INLET SIDE, THE DISC MUST MOVE TOWARD THE SUPPLY AIR SIDE VIA THE PURGE SECTOR

## 7. Changing Rotor Type

By examining the condition and history of the existing disc, an effort is made to determine whether the replacement disc should be of higher material quality than the original. Discs are available that are made from epoxy-coated aluminum sheet and marine-grade aluminum alloy, as well as from thicker aluminum foil wound into coils. If the air handling unit includes a cooling coil, you can calculate whether switching to a sorption rotor is cost-effective as a replacement. More information about this can be found at [www.taniplan.fi](http://www.taniplan.fi).

**Discs delivered before 2016 do not meet the current efficiency requirements of the Ecodesign Directive. The requirements became more stringent in 2018. It must be verified whether the disc can be supplied as an original equivalent or whether it must comply with the ERP 2018 regulations.**