

Evodos type 25



evodos
Separation Excellence. Today

The Evodos type 25 centrifugal

The Evodos type 25 is a centrifugal machine that is constructed with Evodos' Spiral Plate Technology.

The Evodos Spiral Plate Technology allows high separation effectiveness at minimal energy demand. Under laminar flow, the suspended particles sediment at a minimum settling distance. The highly effective separation process takes place at only 3000 G's so on minimal energy demand. The solids are discharged as dry as possible with centrifugal technology since the remaining process liquid is removed from the drum before actual discharge. The result is high separation efficiency combined with dry solid discharge and low energy requirements.

The type 25 is part of a new generation of centrifuges, both in process characteristics and mechanical construction. With a feed flow of 4.0 m³ per hour the type 25 positions itself in the mid-range of the Evodos centrifuges.



When you have no legacy, you have no constraints. You can start with the end goal in mind. The key design parameters are then driven by the customer's requirements, unlimited by pre-conceived notions derived from corporate history.

Evodos key design parameters

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- Evodos centrifuges are designed to discharge. At only 800 G's the paste /solid discharge is gentle and non-pressurized.
- Evodos centrifuges are designed to separate many types of solids. These can be non-permeable, soft, greasy and/or abrasive solids.
- Evodos centrifuges are designed for co-axial laminar flow. This allows the solid-liquid separation to occur at the highest G-field.
- Evodos centrifuges are designed to work independently of the permeability of a mixture. The settling distance is minimal. No chemicals are needed.
- Evodos centrifuges are designed for separation efficiency and cut-off rates that are well above the existing market norms.
- Evodos centrifuges are designed to have a free interface level. No gravity disks or pressure controlled interfaces are required.
- Evodos centrifuges are designed for minimal energy demand. This results in < 0.2 °C temperature difference between the feed and discharge effluent flow.
- Evodos centrifuges are designed to have a free axis of rotation. Therefore, no balancing is needed during manufacturing or repair.
- Evodos centrifuges are designed for minimal noise and vibration levels, which results in limited maintenance.
- Evodos centrifuges are designed for easy maintenance. The plate pack can be easily accessed without tools.



Mechanics

Semi-continuous process

The pump feeds the fluid into the cylindrical drum, where it is accelerated to 4,200 rpm / 3,000 G. The solids settle down to the Spiral Plate Technology vanes. After passing the vanes, the clean fluid is removed by a set of pump wheels. The content of the drum is 25 liters. As solids start to build up on the vanes, a layer of paste or cake will form in the drum. When the drum is filled with 15 liters of cake the unit will automatically run a discharge cycle.

During the paste discharge, the feed pump and rotor are stopped. The drum shell is automatically lifted upwards, freeing the vanes. The rotor, without drum shell, is then run at 800 rpm, swinging off the cake from the vanes to the splash screen. Via the splash screen, the cake falls out the bottom of the machine in a bin or on a conveyor. After discharge, the drum shell is put back in working position and the unit will start a new run.

No Infrastructure Requirements

Evodos machines are completely self-contained, fully automated and have no specific infrastructure requirements.

The Evodos unit is generally placed on top of a sub frame. The sub frame carries the weight of the unit and holds a collecting device such as a drawer, bin or custom made conveyor. The Evodos centrifuge discharges through the bottom, directly into the collecting device. Doing so, the discharged solids can be easily packed and transported.

The Evodos centrifuges run with minimal vibration. The Evodos centrifuge comes with four adjustable feet, allowing free standing vertical operation.



Limited Maintenance and Easy Cleaning

Evodos machines are low maintenance devices. During the development of the Evodos centrifuges, much care was taken to provide working room for maintenance and to create easy access for cleaning. The splash screen, for example, has a double function: It guides the discharge down the machine into the collection device, and also functions as a safety device. The splash screen can be completely removed from the Evodos in a couple of minutes, allowing it to be cleaned easily.

With the splash screen out, the operator has full access to the Spiral Plate Pack and the three O-ring seals of the rotor. Installing a new set of O-rings on the rotor takes about 12 minutes for the 3 main O-rings.

Easy Rotor Disassembly

The rotor can be taken out of the machine easily. As you can see in the picture the Evodos design is

prepared for an easy rotor switch with the aid of a forklift. Customers that have a spare rotor on site can reduce replacement time to about 4 hours. The rotor can be overhauled at the Evodos workshop in a non-time-critical mode.

Layout

The Evodos machine comes with a mono-type, speed controlled feed pump, which is placed outside the unit. By placing the pump under the fluid level of the feed tank, it cannot run dry. The feed pump is operated by the PLC.

The Evodos machine discharges the paste through the bottom. This means the unit has to be placed in a location where it will be elevated. The sub frame is not part of the Evodos centrifuge delivery because most customers have specific requirements for the height of the collection container. In the picture, the unit is mounted on an optional sub frame that includes a collection drawer.



Technical data

Capacity

- The feed pump is operated from the PLC and can be run from 250 to 4,000 liters/hour.
- The unit can discharge up to 15 liters compressed solids per discharge-run during each run. There is a maximum of 4 discharges per hour. A discharge takes 3 ½ minutes.

Dimensions

Dimensions of the unit, excluding the sub frame

- Height: 2,200 mm
- Width: 1,076 mm
- Length: 980 mm
- Weight: 1,600 kg

Power requirements

- Evodos delivers units which are compliant to local voltage and frequency requirements.
- Control voltage: 24 Volts DC.
- Drive motor: 5.5 kW (4HP).

Energy requirement

- Separation: 0.95 kWh per m³.
- Pump: 0.25 kWh per m³.

Operations

- The process is PLC controlled.

Noise

- <80 dB, measured at 1 meter distance.

Main materials

- Wet surfaces: 316L stainless steel.
Optional: Feed pump of cast iron.
- Other metal surfaces: 304 stainless steel.
Optional: 316L.
- Drum construction: Wound carbon with 316L interior.
- Siemens PLC, integrated, touch screen operated
- External contacts for automatic start / stop and alarm.
- SEW motors for centrifugation and discharging
- Seals are NBR.

Pressurized air

- Pressurized air requirement: 6 bar
- Air consumption: < 5 liter / hour
- Connection: ½".

Process fluids

- The machine can cope with fresh water and seawater.
Optional: Oils and oil based products.
- Fluids from 5°C to 45°C can be processed within the standard machine. Optional: other temperatures.
- All fluid connections are 1" BSP.

Discharge

- The discharge method is electromechanical.
- The discharge time is 3 ½ minutes.
- The discharged cake is compressed and free of extracellular water, except for pore water between particles.
- Less than 0.5 liters of processed liquid is discharged per batch.

CE certification

- Is included

Security class

- IP55 and CE declaration

Cake disposal

- The cake is disposed downwards via a chute. Optionally the cake can be transported on a conveyor, dropped into a container or a bin or it can be pumped (if the dryness of the cake allows this).

Feeding pump

- The feeding pump is a MONO type.
- The pump discharge pressure is less than 0.2 bar.
- The feed pump is placed externally.
- The feed pump is controlled from the cabinet on the side of the Evodos machine.
- The electrical wiring remains connected during transport, so it is "ready to go" upon arrival.

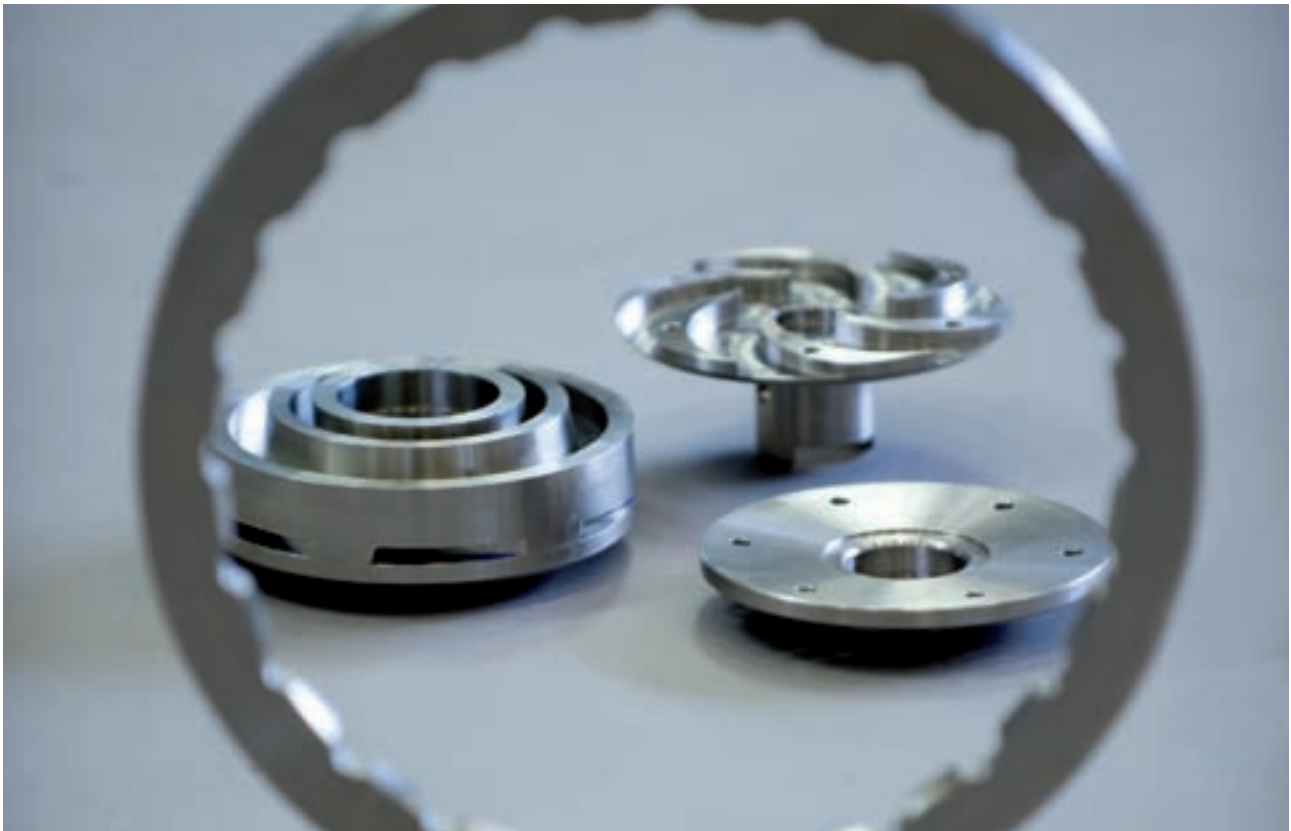
Delivery

The standard delivery includes:

- Evodos type 25, two or three phase mode (2 phase e.g. water and solids, 3 phase e.g. water, oil and solids).
- Feed pump, which is attached with a 3 meter cable to the Evodos centrifuge.
- Power cable, 9 meters.
- One set of wear parts .

Optional delivery:

- Air line compressor.
- Sub frame to place under the Evodos.



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