

# Dialyzer

## Description

Hemodialysis is an artificial process of eliminating wastes from the blood for patients with kidney failure.

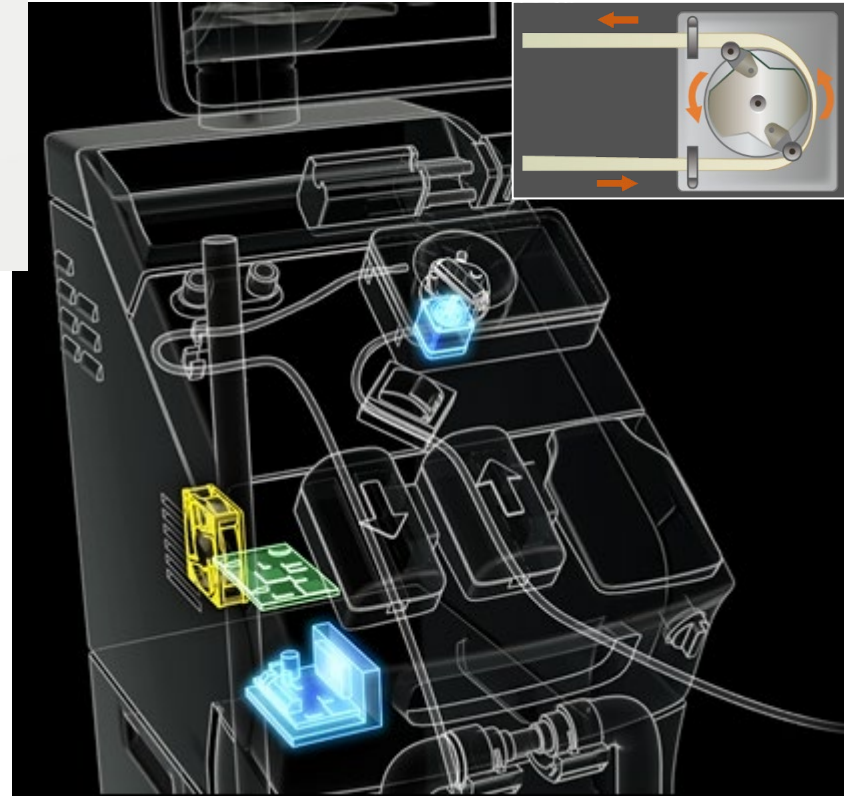
A dialyzer is a machine used to perform hemodialysis. It removes wastes and water by circulating blood outside the patient's body, and returning purified blood back to the patient's body.

Stepping motors are used in the blood pump. Quiet pump operation is required to reduce patient discomfort and pain.

\*If applying to medical devices and other equipment effecting people's lives, please contact us beforehand and take appropriate safety measures.



1. Blood pump  
A motor turns the roller, blood tubing threaded through the pump is pumped to extract blood from the patient.



## SANYO DENKI Proposal

### Products used:

- Motor: SANMOTION F
  1. Blood pump: 2- or 3- phase stepping motor 42 or 56 mm sq.  
Stepping motors are also used in an external ultrafiltration pump.
- Driver: Driver developed by customer (or SANMOTION F DC driver)

## Features

### 1. Wide range of motors:

We offer all types of stepping motors: 2-, 3-, and 5-phase.

Motor size: from 14 mm to 106 mm sq.



### 2. Drivers equipped with low vibration mode function:

Our stepping drivers provide smooth operation even with low resolution settings (e.g. 1, 2 divisions). We also offer drivers with DC input, which is often used in medical devices.

#### Compatible products:

2-phase driver Model No.: US1D200P10 Unipolar  
BS1D200P10 Bipolar  
5-phase driver Model No.: F5PAE140P00



### 3. Customized products:

We can customize motors with the best windings that suit the unique requirements of a customer's application such as specified contract current, rotation speed, and target torque.



## Merits

### ■ Various motor choices to solve vibration problems

To solve vibration problems caused by 2-phase motors, customers can switch to 3- or 5-phase motors with smaller and more precise steps. Customers can select the motor most suited for their application's unique torque and size requirements from our wide range of products.

### ■ Solving vibration problems with stepping drivers

#### 2-phase stepping driver:

Stepping drivers equipped with the low vibration mode function improve operation quality of customers' machines through lower vibration levels.

#### 5-phase stepping driver:

The automicro function provides one (full step) or two (half step) division coarse resolution settings for smooth machine operation. Resolution can be adjusted to a maximum 250 divisions for notable improvement in machine operation with less vibration.

### ■ Lower vibration and noise level

Customer application performance is improved with lower vibration and motor noise levels through optimized motor windings. Optimum torque performance can be achieved within the required rotation speed range.

## Selling Points

- Reliability is the primary requirement for medical devices. Our experienced engineers can offer the best stepping motor products (with customized motor windings) for the optimum performance and reliability of our customers' medical devices.
- All optional products (e.g. gear, connector) are assembled in our factories. All products pass through multiple quality checks before being shipped to customers.