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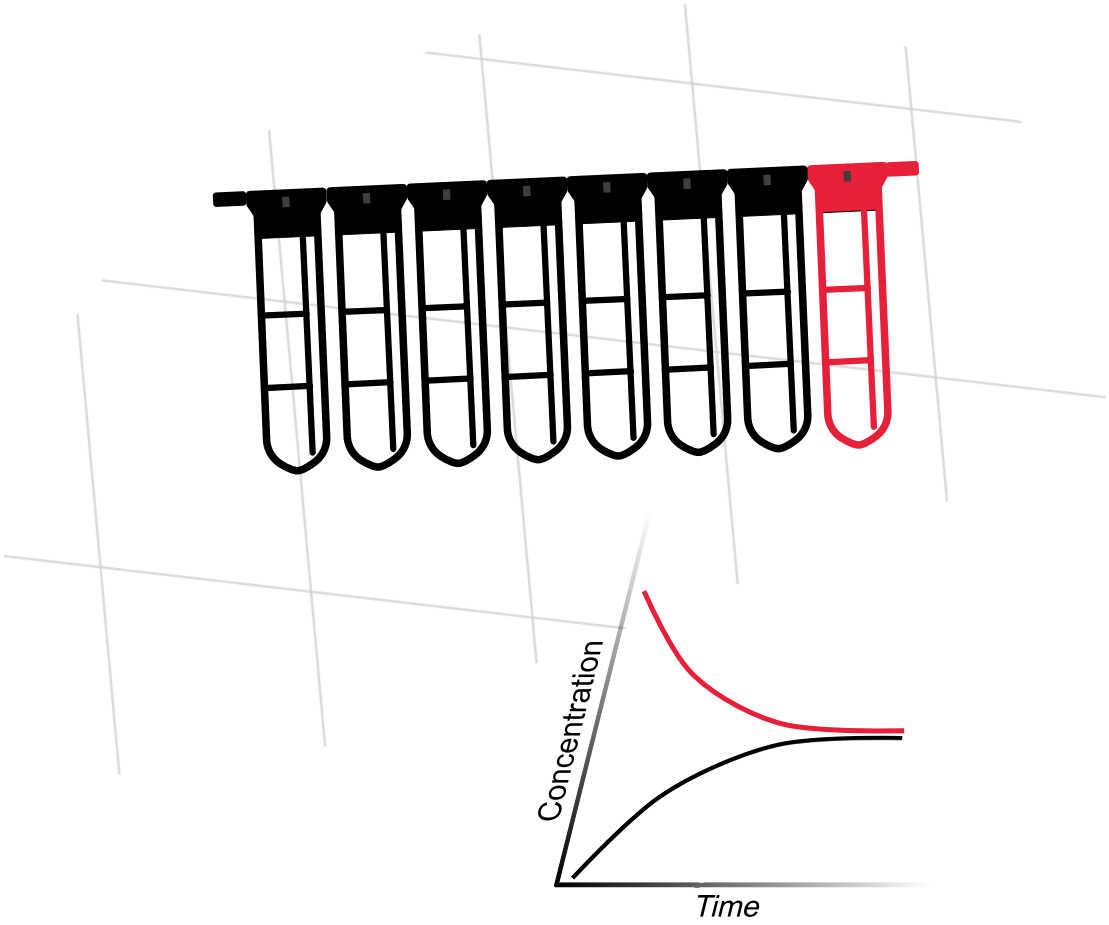


Xpress Equilibrium Dialyzer

ED300

Data Sheet & Manual

Specification

General Information

The *Xpress* Equilibrium Dialyzer ED300 is a unique system designed for processing large quantities of clinical samples for testing of free hormones such as testosterone, estradiol, cortisol, FT3 and FT4. The ED300 is delivered ready-to-use in a 96 deep well plate with 12 sample cartridges where each cartridge has 8 single sample segments. The segments can also be easily separated to test single samples. The exclusive design of the ED300 allows 96 samples and dialysate buffers to be loaded and removed from the top of the device without removing the cartridges. The ED300 may be used with common single and multi-channel pipettes as well as automated liquid handling systems. It is compatible with the SBS microplate standard.

Product Features and Benefits

Feature	Benefit
Pipette in sample and remove test dialysate from the top of the device without removing sample cartridges	Simple to process large quantities of samples where the free hormone is in the buffer. Also easy to automate with liquid handling systems.
Each plate can hold 96 samples where similarly designed competitive devices only hold 48.	Reduced cost per test and increased test throughput for each 96 well plate.
Regenerated cellulose membrane.	Low protein and hormone binding for high recovery of test samples.
High membrane surface area per sample.	Short incubation time to reach equilibrium - as quickly as 120 minutes.

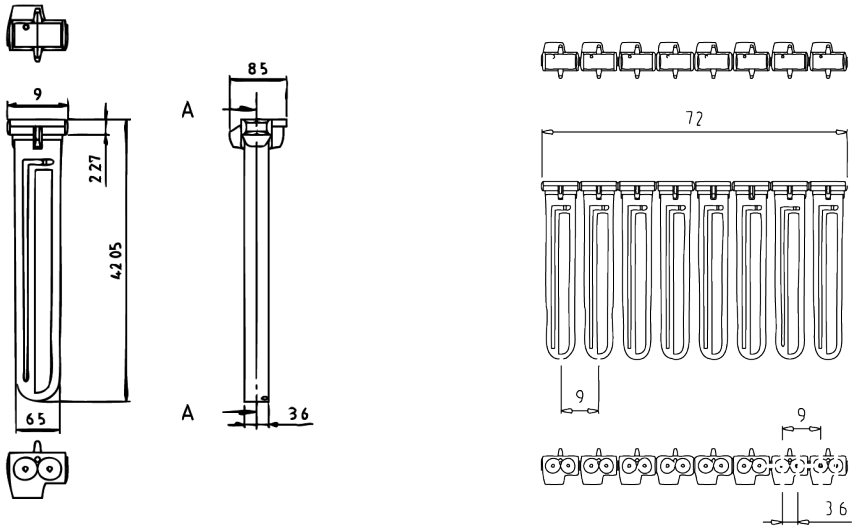
Specifications

Application conditions

Table 1 ▶
Specifications ED300

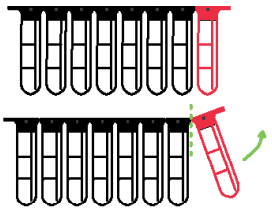
Sample volume	50–300 µl
Buffer volume	300–1,400 µl
Temperature	1–40 °C
pH	4–8
Sample	aqueous solution only
Membrane	low binding regenerated cellulose Contains glycerol to prevent embrittlement and traces of elements like sulphides and heavy metals
Cutoffs	2 | 3.5 | 6–8 | 12–14 | 20 | 140 kDa
Weight	155 g (12 cartridges ED300 in deep well plate)
Dimensions	12.6 x 8.4 x 4.6 cm (L x W x H)

Figure 1 ▶
Engineering drawing of ED300 (segment and cartridge, unit: mm)



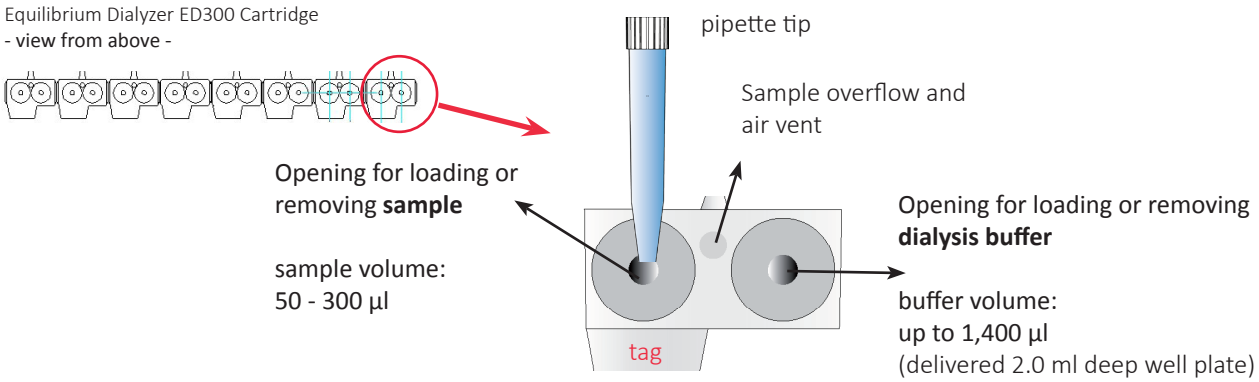
Connection between segments (predetermined breaking point)

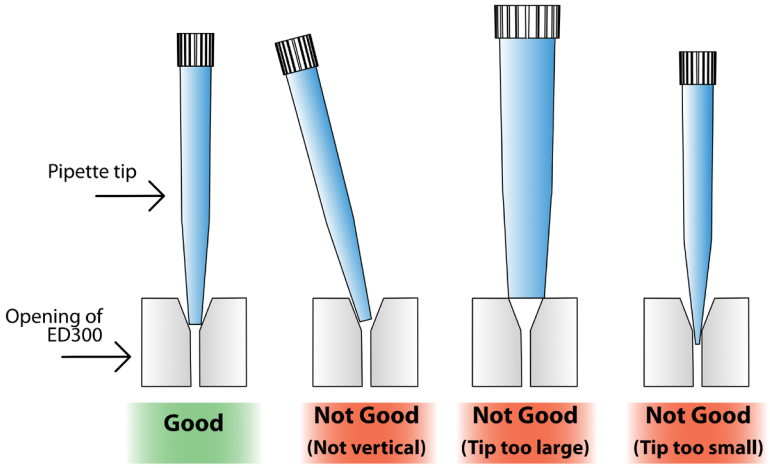
Rotate upward to separate one or more segments (optional)



Equilibrium Dialyzer ED300 Cartridge
- view from front -

Handling





▶ Note:
Pipette tips must be vertical and inserted firmly into opening.

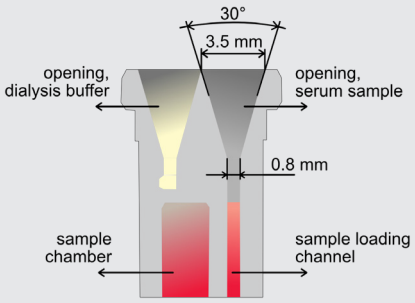
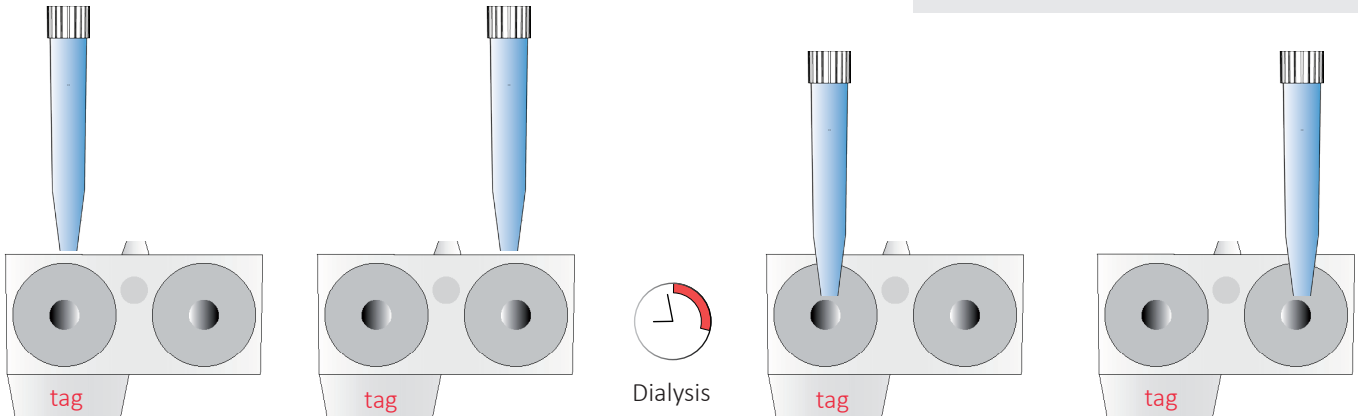


Figure 2:
Diameter sizes for pipette tip holes



4.1. Load the **sample (50-300 µl)** in the **left** opening by using 200 µl or 1,000 µl pipette tips.

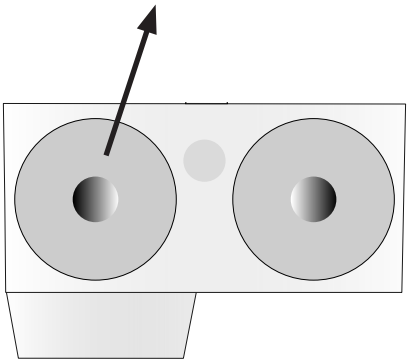
4.2. Fill in the **outer buffer (300-1,400 µl)** in the **right** opening by using 1,000 µl pipette tips.

4.3. Remove the **sample (50-300 µl)** in the **left** opening by using 200 µl or 1,000 µl pipette tips.

4.4. Remove the **outer buffer (300-1,400 µl)** in the **right** opening by using 1,000 µl pipette tips.

▼ Figure 3

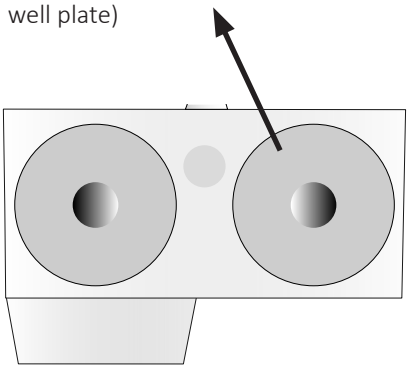
Opening for **sample** loading/removing



Head of a ED300 dialyzer (One segment)

Opening for **buffer** loading/removing

(only use if the ED300 is placed in deep well plate)



Head of a ED300 dialyzer (One segment)

▲ Figure 4

Preparing before usage

- The ED300 is delivered ready-to-use and no special preparation is necessary

Starting dialysis - Loading sample (cartridge)

- It is recommended to start with loading the sample and then filling the outer buffer
- The openings are designed for the usage of 1,000 µl and 200 µl pipette tips
- Designed for the use of commercial single channel or 8-channel pipettes and automated liquid handling systems
- The sample can be filled in the ED300 if the cartridges are located in the 96 deep well plate or if removed from the deep well plate
- Fill pipette with 50 to 300 µl of sample and put the tips into the marked opening (see figure 3)
- Carefully load the sample into the channel

Starting dialysis - Loading buffer (cartridge)

- Recommended buffer volumes are listed in table 2
- If the ED300 cartridges were pulled out from the deep well plate, fill the empty wells with the required buffer volume
- If the ED300 cartridges were located in the deep well plate, fill the buffer into the wells by using the non-marked openings (buffer loading channel), figure 4

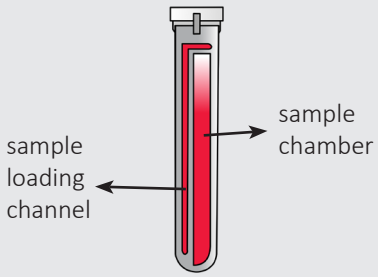
Starting dialysis

- If the ED300 cartridges are located in the deep wells the dialysis starts subsequently after buffer is filled into each well
- If the ED300 cartridges were filled outside the deep well plate, the dialysis starts simultanously in each segment when the ED300 is placed into the buffer filled deep well plate

Removing dialysed sample and buffer

- Remove sample and buffer by using the respective openings.

▶ The sample loading channel is covered by the dialysis membrane. Therefore the sample in the channel is dialysed also and will be removed with the remaining sample.
That means less sample loss and higher recovery (**minimized dead volume**).



Video demonstration

For a demonstration of the ED300 in use with an automated liquid handling system go to:

www.vivaproducts.com/downloads/videos/ED300/ED300_3.mp4

Recommendendations

- When pipetting into and from sample and buffer openings, be sure pipette tip is firmly seated into opening. Also reduce pipetting speed slightly especially during sample introduction.
- Remove sample from ED300 by aspiration with blow-out (min. 30 µl) e.g. 300 µl sample - adjust pipette to 330 µl
- If using sample volumes smaller than 250 µl with corresponding buffer volumes remove sample with blow-out to empty the loading channel

▼ **Table 2**

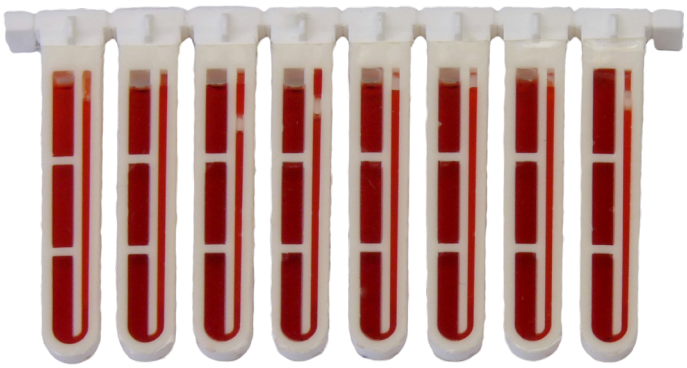
Sample volumes and corresponding buffer volumes

sample (µl)	buffer (µl)	ratio
50	300	1:6
100	500	1:5
150	650	1:4.33
200	900	1:4.5
250	1,100	1:4.4
300	1,300	1:4.33

▼ **Table 3**

Ratio of buffer volume (1.3 ml) and different sample volumes

sample (µl)	buffer (µl)	ratio
50	1,300	1:26
100	1,300	1:13
150	1,300	1:8.66
200	1,300	1:6.5
250	1,300	1:5.2
300	1,300	1:4.33



◀ Figure 5

ED300 cartridge filled with dye

Equilibrium dialysis of cortisol in human serum

Material

Sample: 150 µl extracted human serum
Dialysis tool: Equilibrium dialyzer ED300 3.5 kDa
Buffer: 650 µl 10 mM PBS solution

Method

Dialysis: 3 hours, 22 °C, non-shaking
Determination Cortisol: Neogen Cortisol® ELISA Kit
Sample preparation: according to Neogen Cortisol® ELISA Extraction Kit

Results

- Equilibrium within 3 hours of dialysis

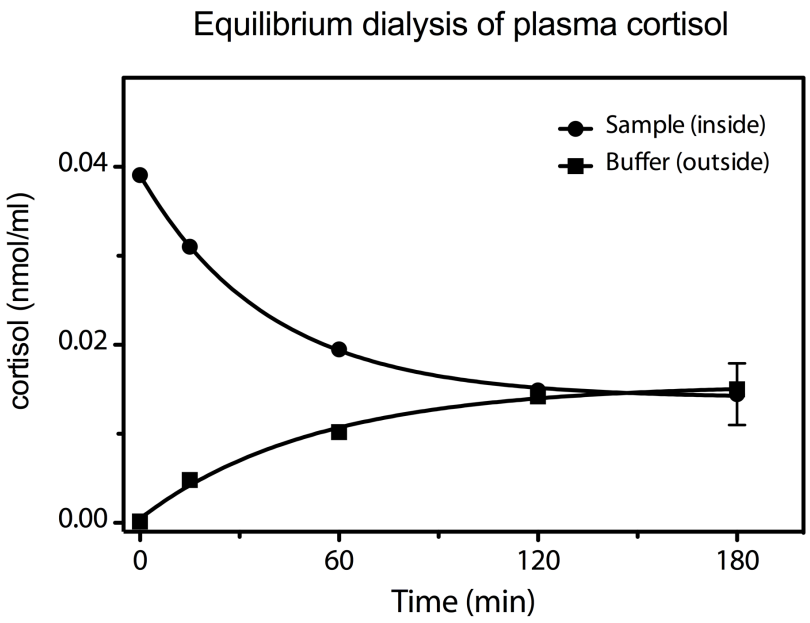


Figure 6 ▶

Equilibrium dialysis in ED300 of *free cortisol in human serum samples*.

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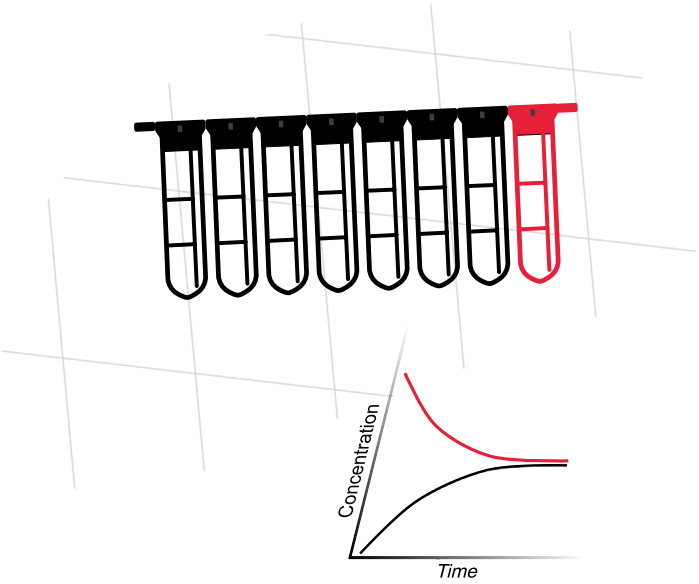

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