SPIRAL MEMBRANE MODULE WD-AR10-2001

Technical datasheet (1/2)

Spiraltec

Optimized technology for separating metallic salts from free acids from process baths

Flow:	**5 - 15 l/h each channel**
Pressure loss:	**80 mbar (at 5 l/h) - 400 mbar (at 15 l/h)**
Operating pressure:	**0.1 – 1.5 bar (overpressure)**
Differential pressure:	**< 200 mbar (between the channels)**
Operating temperature:	**5 °C - 40 °C**
Empty weight:	**Approx. 8 kg**
Fill volumes:	**Approx. 4.5 l each channel**
Mounting:	Only vertical, connections upwards (see installation instructions)
Media connections:	Inside thread 3/8", with CPC quick-couplers as an option

Conditions for operation and service:

Suitable media:
Sulphuric acid (up to 30 %); phosphoric acid (up to 30 %); hydrochloric acid (up to 20 %)

Forbidden media:
Nitric acid; hydrofluoric acid; org. liquids; alkalis; oxidants; liquids with particles > 10 µm

Hazards could arise when working with corrosive substances!
Before commissioning, ensure that the safety data sheets of the media used have been observed!

There shall be NO organic media (for example, oils) and NO particles > 10µm in the spiral membrane module. The operator must provide suitable pre-filtering upstream of the inlet to the spiral membrane module.

Performance parameters of the diffusion dialysis in the following example:

Area of application:	**Recovery of acids from anodising baths**
Media composition:	**Sulphuric acid up to 30 % + aluminium (Al3+) up to 30 g/l**
Recovery of sulphuric acid:	**85 – 95 % (with the following operating parameters*)**
Al retention:	**> 95 %**
* Flow rates:	Feed 9 l/h; demineralised water: 11 l/h
Feed composition:	Sulphuric acid 200 g/l; aluminium 10 g/l (at 25 °C)

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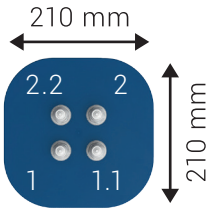
Technical datasheet (2/2)

Front view



Plan view

1.	Demineralised water (in)
1.1	Diffusate (out)
2.	Feed (in)
2.2	Dialysate (out)

Filling the spiral membrane modules:

- The demineralised water channel (connection 1) and the feed channel (connection 2) must be filled simultaneously.
- Avoid pressure surges when filling.
- Venting the modules: The displaced air must be able to escape without hindrance via the connections 1.1 and 2.2.
- The spiral membrane module must be left filled for approx. 48 hours to condition the membrane film. In doing so, it is essential that the outlets remain open. Otherwise, pressure will build up in the spiral membrane module and this will destroy the module.
- After the initial filling, the interior of the spiral membrane module must remain damp throughout the whole of its service life.

Operating the spiral membrane modules:

- Ensure that the diffusate (connection 1.1) and the dialysate (connection 2.2) are able to flow out without pressure.
- The setting of the desired flow rates must be realised through external measures. The stipulated limit values for operating pressure, operating temperature and flow rates shall not be exceeded!

Shutdown/storage:

Used spiral membrane modules must be kept continuously moist. In order to prevent bacterial growth during downtimes or storage, the spiral membrane modules should be flushed through with diluted salt-free acid. We recommend carrying out the preservation with the spiral membrane modules in the system when storing at temperatures of 5 °C - 30 °C.

After use:

After use the spiral membrane module must be submitted for professional disposal.

Further information:

Please refer to the installation instructions for more detailed information.

Status: 10/2019