MEMBRANE SPIRAL MODULE WD-BR20-2005

Technical Datasheet (1/2)

Diffusion dialysis with membrane spirale modules as an optimized technology for separating free bases from metal salts.

Flow:	**5 - 20 l/h Feed; 10 - 30 l/h DI-water**
Pressure loss:	**For water: 80 mbar (at 5 l/h) - 900 mbar (at 30 l/h)**
Operating pressure:	**0.1 – 1.5 bar (overpressure)**
Differential pressure:	**< 200 mbar (between the channels)**
Operating temperature:	**5 - 35 °C**
Empty weight:	**Approx. 9.5 kg**
Filling capacity:	**Approx. 6.8 l each channel**
Active membrane area:	**Approx. 8.1 m²**
Mounting:	**Vertical only; connections upwards (see installation instructions)**
Media connections:	**Inside thread 3/8“ (or optionally with PP compression fittings)**

Conditions for operation and service:

Suitable media:
Caustic soda (up to 20 %); caustic potash solution (up to 20 %)

Forbidden media:
Acids; oxidizing agents; 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!

NO organic substances (such as oils, surfactants, etc.) and NO particles > 10 µm may enter membrane spiral modules. The operator must ensure suitable pre-filtration before entering membrane spiral modules. Furthermore, it must be ensured that no precipitation can occur in membrane spiral modules!

Performance parameters of the diffusion dialysis in the following example:

Area of application:	**Base recovery from a pickling solution**
Media composition for Feed:	**Caustic soda 110 g/l; aluminum 50 g/l (at 25 °C)**
Flow rates:	**Feed 8.0 l/h; DI-water 14.0 l/h (at 25 °C)**
Recovery of free sulphuric acid:	**> 50 %**
Al-retention:	**> 92 %**

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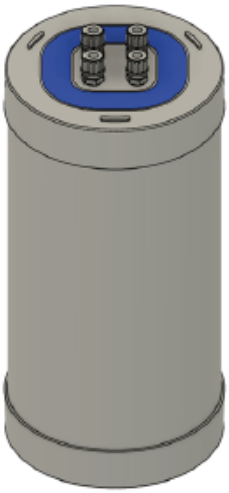
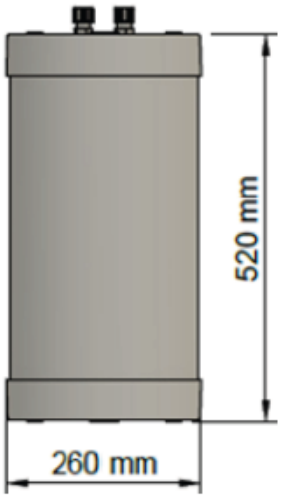
Technical datasheet (2/2)





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

Filling the membrane spiral 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 membrane spiral module should 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 membrane spiral module and this will destroy the membrane spiral module.
- After the initial filling, the interior of the membrane spiral module must remain damp throughout the whole of its service life.

Operating the spiral membrane modules:

- It must be ensured that the diffusate (connection 1.1) and dialysate (connection 2.2) can drain off without pressure.
- External measures must be used to set the required volume flows. The specified limit values for operating pressure, operating temperature and flow rates must not be exceeded!

Shutdown/storage:

Used membrane spiral modules must be kept moist at all times. To prevent bacterial growth during longer downtimes or storage, the membrane spiral modules should be flushed with diluted salt-free acid. We recommend preserving the membrane spiral modules within the system at a storage temperature of 5 °C - 40 °C. In this case the outlets (also of the system) must remain open so that no overpressure can build up in the membrane spiral modules, which would destroy the membrane spiral module.

Disposal:

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

Further information:

For more detailed information, please refer to the installation instructions.

Status: 07/2024