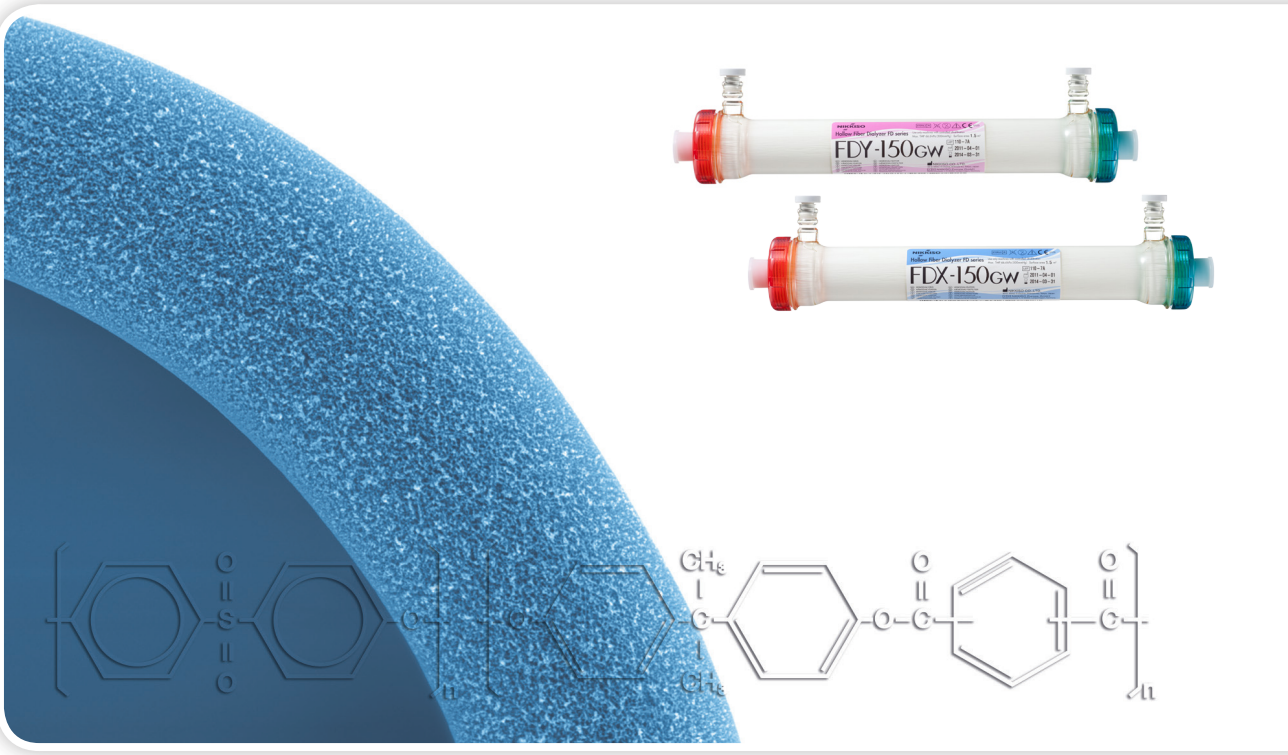
NIKKISO

Hollow Fiber Dialyzers

PEPA®

FD-Series



Innovations for Human Care.

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The PEPA® - membrane

NIKKISO´s long standing experience in the development and production of dialysis membranes is reflected in the quality of our FD-Series dialyzers.
The PEPA® - membrane with its chemical (Fig. 1) and geometric structure (Fig. 2) was developed by NIKKISO and can be produced with two different properties. The specific proportion of PVP polymer increases the hydrophilic properties of the membrane. The optimised inner diameter of the hollow fibers ensures a low blood-side pressure drop, and the membrane thickness of 30 µm provides good diffusion properties. In this way, the most important requirements of a modern dialyzer are met.
The specially developed asymmetric 3-layer structure of the PEPA® - membrane provides excellent protection against endotoxins and their fragments.

A thin skin layer on the dialysate side (1) is an initial line of defence that blocks endotoxins and endotoxin fragments. The asymmetric porous structure (2) guarantees a high level of mechanical strength and can adsorb endotoxin fragments thanks to its adsorptive properties. The thin skin layer on the blood side (3) completes the triple safety system.
Using a fluorescent labelled endotoxin marker in laboratory tests, it has been shown that endotoxins are safely retained on the dialysate side (Fig. 3)*.

* *M. Hayama, et al., Optimum dialysis membrane for endotoxin blocking., J. Membr. Sci., 219 (2003), 15-25*

High-Flux FDX-Series

The wet type FDX-Series dialyzers are perfectly suited for standard haemodialysis. Due to the hollow fiber lumen of 210 µm and the resulting low blood-side pressure drop and low loss of albumin, they are also designed for haemodiafiltration. The precisely measured amount of PVP (Polyvinylpyrrolidone) supports the excellent blood compatibility and filtration properties**.

** *Blood compatibility and filtration characteristics of a newly developed polyester polymer alloy membrane, Yamashita et al, Department of Materials Science and Engineering, Kanagawa, Japan, Hemodialysis International, Jan. 2004*

Dialyzers for high-flux dialysis and haemodiafiltration

- Wet type
- Efficient gamma sterilization
- Excellent clearance data for medium-sized molecules
- Low loss of albumin

Type		FDX-120GW	FDX-150GW	FDX-180GW	FDX-210GW
Clearance QB = 200 mL/min*1	Urea	186	190	192	193
	Creatinine	176	183	186	187
	Phosphate	168	177	180	181
	Vit. B_{12}	125	136	142	145
	Inulin	80	88	95	102
Clearance QB = 300 mL/min*1	Urea	242	251	257	260
	Creatinine	221	235	242	244
	Phosphate	206	223	229	231
	Vit. B_{12}	142	157	166	170
	Inulin	90	100	106	113
KoA (Urea)*2		736	836	916	961
UF coefficient*3 mL/h/mmHg		47	52	57	64
Priming volume in mL		74	92	111	129
Membrane surface area m²		1,2	1,5	1,8	2,1

*1 *In-Vitro Test conditions (EN/ISO8637:2014): Qd 500 mL/min, Qf 0 mL/min*
*2 *KoA (Urea): Qb 300 mL/min, Qd 500 mL/min, Qf 0 mL/min*
*3 *UFC: Qb 200 mL/min, bovine blood, TMP: 50 mmHg*

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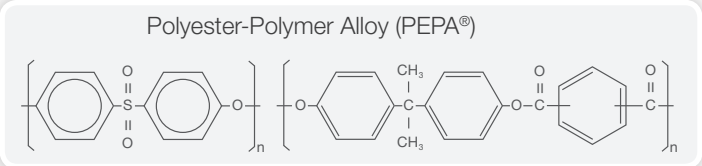
Advantages of the PEPA® - membrane

- Superb biocompatibility
- Good clearance data for small and medium-sized molecules
- Constant clearance throughout the dialysis session
- Low blood-side pressure drop
- Optimal endotoxin-blocking ability

Membrane thickness	30 µm
Inner diameter hollow fiber	210 µm
Membrane material	PEPA® (Polyester-Polymer Alloy)
Housing material	Polycarbonate
Potting compound material	Polyurethane
Sterilization	Gamma rays



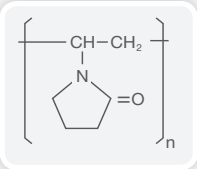
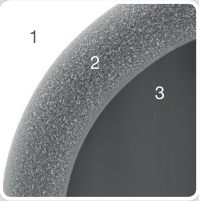


Fig. 1
Basic chemical structure
above: PEPA® - membrane
left: PVP - Polyvinylpyrrolidone



(1) dialysate side: skin layer; endotoxin block
(2) main body: porous layer; mechanical strength
(3) blood side: skin layer; solute separation

Fig. 2
Specially developed 3-layer structure of the PEPA® - membrane

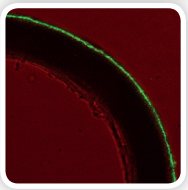


Fig. 3
Visualisation of endotoxin retention

Super High-Flux FDY-Series

The wet type FDY-Series was developed for applications that require an extended sieving coefficient profile.
With these dialyzers, the haemodiafiltration mode can be used effectively to remove protein-bound toxins. The chemical structure of the membrane and the excellent blood compatibility properties are similar to those of the FDX-series.

Dialyzers for removing molecules larger than ß2M

- Wet type
- Efficient gamma sterilization
- Extended sieving coefficient profile
- Removal of protein-bound toxins

Type		FDY-120GW	FDY-150GW	FDY-180GW	FDY-210GW
Clearance QB = 200 mL/min*1	Urea	186	191	193	194
	Creatinine	177	183	186	187
	Phosphate	168	178	182	183
	Vit. B_{12}	126	137	144	148
	Inulin	81	90	97	105
Clearance QB = 300 mL/min*1	Urea	242	254	260	263
	Creatinine	223	235	242	244
	Phosphate	206	225	233	235
	Vit. B_{12}	136	159	169	175
	Inulin	92	101	110	118
KoA (Urea)*2		736	874	961	1010
UF coefficient*3 mL/h/mmHg		48	54	59	64
Priming volume in mL		74	92	111	129
Membrane surface area m^2		1,2	1,5	1,8	2,1

1 In-Vitro Test conditions (EN/ISO8637:2014): Qd 500 mL/min, Qf 0 mL/min
2 KoA (Urea): Qb 300 mL/min, Qd 500 mL/min, Qf 0 mL/min
3 UFC: Qb 200 mL/min, bovine blood, TMP: 50 mmHg

Always close to you

Competent partners

For all questions concerning dialysis and our products, please contact us or our local partner:

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