4008S classic

Quality Treatment to suit your Budget

Fresenius Medical Care

Cardioprotective Haemodialysis

Despite significant improvements in the quality and efficacy of haemodialysis therapy in recent years, cardiovascular disease (CVD) remains the leading cause of death for dialysis patients. Today, almost every other dialysis patient dies from cardiovascular complications.

Fresenius Medical Care is supporting nephrologists worldwide to reduce their patients' risks for cardiovascular morbidity and mortality. We strive to continuously refine and develop new dialysis therapies and products to improve the clinical outcomes of dialysis patients. While focussing on a widespread implementation of the most advanced haemodialysis treatment modality, ONLINE Haemodiafiltration (ONLINE HDF), we are fully aware of our responsibility to offer high-quality HD treatments, for those who are not yet able to prescribe ONLINE HDF therapies.

The 4008S classic allows you to utilize the benefits of Cardioprotective Haemodialysis and continues the outstanding success of the 4008 series.

It combines technological enhancement with a clear emphasis on delivering the best quality HD treatment while maintaining its proven reliability and cost-efficiency.

The 4008S classic is keeping this promise as it is providing elementary features for high quality treatments, such as:

- Online assessment of dialysis efficiency and dose (OCM®)
- Ultrapure dialysis fluid (DIASAFE® *plus*)
- Hygienic dry bicarbonate concentrate supply (bi*b*ag®)

as the basic configuration for all machines.

Assuring Quality in Operations

Operational Efficiency

The ergonomic design and logical operating structure permits easy handling and fast intuitive programming of the treatment parameters. The graphical representation of important treatment values on the colour screen supports easy comprehension of the ongoing treatment, and provides a fast overview of the treatment history. The full integration of the Blood Pressure Monitor (BPM) further simplifies the handling for the therapy providers.

In combination with the Therapy Data Management System (TDMS) daily dialysis practice can be organised in a more effective and efficient manner taking full advantage of an online data acquisition and management tool.

OCM® – Give your Patients and yourself the Confidence of having a good Dialysis

In the meantime numerous studies have demonstrated that morbidity and mortality rates are closely correlated to the delivered dialysis dose[1,2]. The Online Clearance Monitor (OCM®) enables the continuous monitoring of:

- The effective in-vivo urea clearance (K)
- The accumulated cleared plasma (Kt) or the current dialysis dose administered (Kt/V)
- The plasma sodium concentration during treatment

The therapy provider can specify the prescribed therapy goal and detect possible deviations immediately during the course of the treatment and perform the necessary corrections. The OCM® assures compliance of dialysis dose targets by providing a completely automated, non-invasive dialysis efficiency control without incurring additional expenses for disposables or staff efforts.

The OCM combined with the urea distribution volume V measured by the BCM-Body Composition Monitor, delivers a precise assessment of Kt/V which is consistent with conventional blood sample-based methods[3] (www.bcm-fresenius.com).

1. Hakim R, Breyer J, Ismail N, Schulmann G: Effects of dose of dialysis on morbidity and mortality. Am J Kidney Dis (1994); 23:661-669
2. Port F, Ashby V, Dhingra R, Roys E, Wolfe R: Dialysis dose and body mass index are strongly associated with survival in hemodialysis patients. J Am Soc Nephrol (2002); 13:1061-1066
3. Lindley EJ, Chamney PW, Wuepper A, Ingles H, Tattersall JE, Will EJ: A comparison of methods for determining urea distribution volume for routine use in on-line monitoring of haemodialysis adequacy. Nephrol Dial Transplant (2009); 24(1):211-6

Settings for Blood Pressure Monitor (BPM)

Settings for Online Clearance Monitor (OCM®)

Delivering Quality in Therapy

DIASAFE® *plus* – Dialysis Fluid Filter

The quality and purity of the dialysis fluid are of major concern in modern-day renal replacement therapies, as large volumes of dialysis fluid come into contact with the patient's bloodstream during each treatment. Endotoxins present in contaminated dialysis fluid may elicit undesirable acute reactions and influence the long-term outcome of patients on chronic haemodialysis.

The DIASAFE® *plus* dialysis fluid filter ensures the safe production of ultrapure dialysis fluid. This is attributed to the excellent endotoxin-retention capabilities of its Fresenius Polysulfone® fibres and an intelligent safety concept, based on:

- The functional control of the filter integrity
- Automatic surveillance of filter lifetime
- An aseptic connection technology

Ultrapure dialysate fluid is acknowledged to be an integral part of all contemporary dialysis equipment. Naturally the DIASAFE® *plus* is an essential part of the basic configuration of all current Fresenius Medical Care dialysis machines.

bi*b*ag® – Dry Bicarbonate Concentrate

To avoid the potential risk of a microbiological contamination via liquid bicarbonate concentrate, the bicarbonate buffer is consequently supplied as a dry substance. In addition to this high hygienic safety the bi*b*ag® is characterised by:

- Easy and ergonomic handling
- Minimum storage space required
- Ecological benefits due to reduced waste volume and less transport weight

DIASAFE® *plus* – Dialysis Fluid Filter

bi*b*ag® – Dry Bicarbonate Concentrate

Technical Data Haemodialysis Machine 4008S

Technical Data – Basic Machine

General data

Dimensions	1370 x 480 x 480 mm (H x W x D) (depth of pedestal 630 mm) Weight approx. 86 kg
Water supply	
Water inlet pressure	1.5 – 6.0 bar
Water inlet temperature	5 °C – 30 °C
Max. drain height	1 m
Concentrate supply	
Supply pressure	1 m suction height
Electrical data	
Power supply	230 V ±10 %, 47 – 63 Hz
Current consumption	max. 9 A
Power supply	110 V ±10 %, 47 – 63 Hz
Current consumption	max. 15 A
External connections	"Alarm in": zero potential alarm inlet "Alarm out": zero potential alarm outlet

Extracorporeal circuit

Arterial pressure monitoring	
Display range	-300 mmHg to + 280 mmHg
Accuracy	±10 mmHg
Resolution	20 mmHg
Venous pressure monitoring	
Display range	-60 mmHg to + 520 mmHg
Accuracy	±10 mmHg
Resolution	20 mmHg
Transmembrane pressure monitoring	
Display range	-60 mmHg to + 520 mmHg
Resolution	20 mmHg
Arterial blood pump	
Blood flow range	15 to 600 mL/min in 8 mm bloodline systems
Accuracy	±10 %
Air bubble detector	by ultrasound transmission, additional optical monitoring in venous clamp
Heparin pump	
Delivery range	0 to 10 mL/h
Bolus function	max. 5 mL per bolus
Syringe size	20 mL

Dialysis fluid circuit

Dialysis fluid flow range	
Selectable	0 – 300 – 500 – 800 mL/min
Dialysis fluid temperature	
Selectable	35 °C to 39 °C
Dialysis fluid conductivity	
Range	12.8 to 15.7 mS/cm (25 °C)
Accuracy	±0.1 mS/cm
Acid concentration dialysis fluid	
Default mixing ratio	1 + 34 (others possible)
Range	125 to 150 mmol/L
Bicarbonate concentration dialysis fluid	
Default mixing ratio	1 + 27.6 (others possible)
Range	-8 to + 8 mmol/L bicarbonate
Bicarbonate dry concentrate	*bi*bag® 5008
Ultrafiltration	
UF rate	0 to 4.00 l/h
Accuracy	±1 %
Allowed dialyser UF factor	unlimited
Parameters displayed	UF goal, UF time, UF rate, UF volume
Blood leak detector	
Sensitivity	≤ 0.5 mL blood/min (Hct = 25) at max. flow 800 mL/min
DIASAFE®*plus* – Dialysis fluid filter system	
Balancing accuracy	± 0.1 % of dialysate flow

OCM® – Online Clearance Monitor

Accuracy Clearance K	± 5 %

Disinfection and cleaning programmes*

Rinse	
Temperature/flow	37 °C / 600 mL/min
Hot rinse (recirculation)	
Temperature/flow	84 °C / 450 mL/min
Integrated hot rinse	
Temperature/flow	84°C / 450 mL/min
Cleaning Sporotal® (recirculation)	
Temperature/flow	37 °C / 600 mL/min
Hot disinfection Diasteril® (recirculation)	
Temperature/flow	84° C / 450 mL/min
Disinfection Puristeril® 340 (recirculation)	
Temperature/flow	37 °C / 600 mL/min

***Various programme combinations selectable.**

Technical Data – Options

Single-Needle system	With 2 blood pumps. Internal pressure/pressure control with variable stroke volume
Blood Pressure Monitor (BPM)	
Display range	Systole: 30 – 280 mmHg Diastole: 10 – 240 mmHg MAP: 20 – 255 mmHg Accuracy: 1 mmHg
Concentrate supply	
Supply pressure	0 to 100 mbar; 1 m suction height with Central Delivery System: 0 – 500 mbar
Network	RJ45/Ethernet for data exchange with Therapy Data Management System/Finesse®

Fresenius Medical Care

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