

Dialog⁺

Flexible and efficient dialysis treatment



Hemodialysis

Pioneering dialysis technology



B. Braun Avitum: A trusted partner

B. Braun Avitum, a division of B. Braun Melsungen AG, has been one of the leading providers of dialysis technology for over 30 years. In our role as a global full-spectrum provider for extracorporeal blood treatment, we provide dialysis facilities with products and services for all aspects of blood purification processes. Our integrated approach to research, production, and therapy ensures outstanding dialysis treatment in line with the latest medical advances. This not only boosts the efficiency of the treatment processes used in our global network of over 250 dialysis centers but also improves quality of life for our more than 19,000 chronic dialysis patients.

Every new product has to face – and meet – these high standards. The Dialog⁺ dialysis system far exceeds the minimum requirements in terms of many of its technical features – and impresses users with its versatile configuration range, extensive selection of accessories, and intelligent options.

For the highest standards

Dialog⁺ dialysis system – a perfect balance

The balancing act is getting trickier: nowadays, every dialysis clinic faces the challenge of providing patients with the most individualized level of care possible while at the same time operating cost effectively. Striking the right balance between medical efficacy and cost-effective treatment is the key.

This situation calls for innovative technologies to meet individual needs, so that dialysis services can continue to be provided with coverage for costs and without compromising on patient care. B. Braun Avitum is breaking new ground in this area. Innovative technologies such as the Dialog⁺ dialysis system help nephrologists and physicians employ the best possible treatments for their patients.

Dialog⁺ is part of a completely new generation of dialysis systems aimed at delivering optimum care with highest efficiency. Innovations such as Adimea[®] to monitor and control dialysis dose, bioLogic RR[®] to prevent hypotensive episodes, and the data-management system Nexadia consistently meet today's economic and medical requirements. The result: balance between patients' legitimate requirements and the need for cost optimization, between effective dialysis and efficient treatment.

Find the right balance – find your way to B. Braun.



THERAPY EFFICIENCY
ACCEPTABLE COSTS

DIALYSIS EFFECTIVENESS
HIGH TREATMENT QUALITY

Innovative technology for the highest standards

Adimea® – precision real-time measurement of dialysis dose

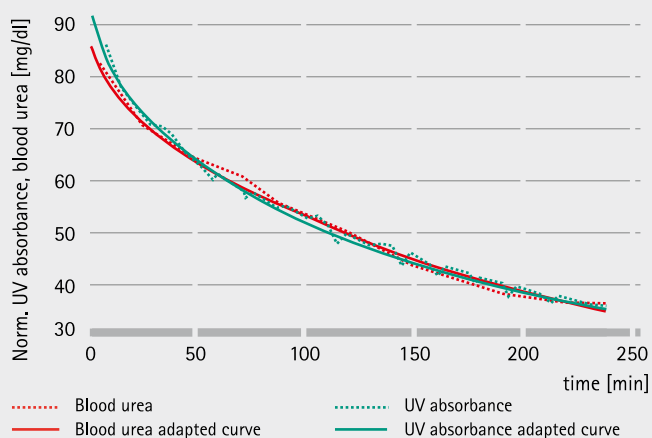
The Adimea® feature is a precision measurement procedure for reliable and continuous dialysis dose control (Kt/V) throughout the entire treatment. This innovative system uses the principles of spectroscopy to determine the reduction in the molar concentration of urinary excreted substances in the dialysate drain. This pioneering technology enables measurement in the used dialysate. In order to continuously analyze change in the molar concentration, Adimea® is directly connected to the patient. This offers the advantage that physicians and nursing staff can adjust the treatment parameters for the patient's benefit even before treatment is complete. This allows the unit to provide valuable support for achieving treatment objectives. Clinical tests show a very close correlation between the blood Kt/V determined in a lab and that calculated by Adimea®.

Usable at no extra cost in all current modes of dialysis treatment (HD, HDF, SN-CO).

User Benefits with Adimea®:

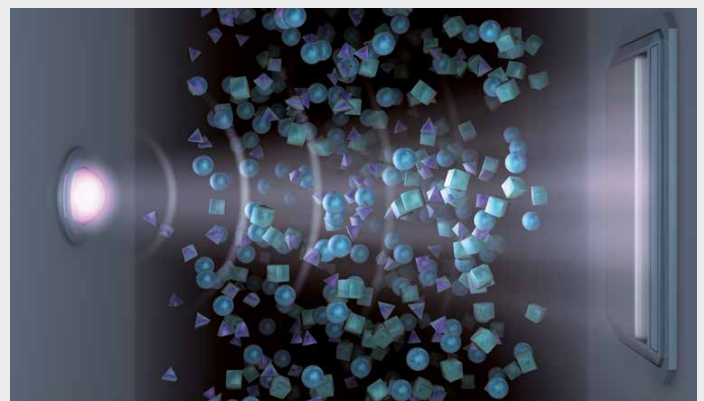
- Real-time Kt/V monitoring in every dialysis session
- Online adaptation of treatment parameters for better outcome
- No determination of V - only predialytic weight needed
- Applicable for all HD treatment modes in URR, spKt/V, and eKt/V mode

High accuracy: Proven to be highly precise



High accuracy, scientifically proven: This sample display for the UV absorption signal's treatment progress and the serum urea values at 20-minute measurement intervals reveals the strong correlation.

You can also get detailed information from the separate brochure on Adimea® or on the website www.adimea-bbraun.com.



Source: Castellarnau A, Werner M, Günthner R, Jakob M: Real-time Kt/V determination by ultraviolet absorbance in spent dialysate: Technique validation. *Kidney Int.* 2010 Nov;78(9):920-5

Innovative technology for the highest standards

bioLogic RR® Comfort – intelligent blood pressure stabilization

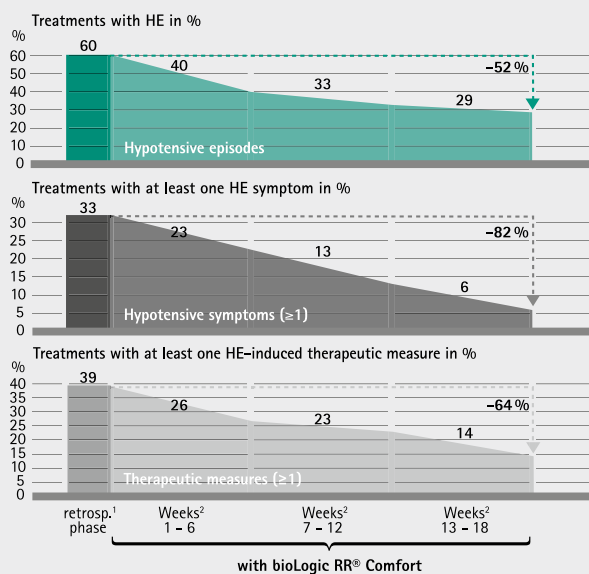


The bioLogic RR® Comfort biofeedback system regulates the ultrafiltration rate automatically and predictively, preventing hypotensive episodes successfully during treatment. It is the only biofeedback system on the market that measures the patient's blood pressure directly. It also uses intelligent guideline technology, taking into account blood pressure profiles stored from previous treatment sessions. This makes the system highly safe and reliable. In addition, with only two main settings via touchscreen, it is very easy to use. This not only gives healthcare staff added peace of mind but also frees up more time for the patient.

User Benefits with bioLogic RR® Comfort:

- Considerable reduction in hypotensive episodes
- Continuous improvement in treatment quality
- Easy to use, without follow-up costs

Proven in studies: Excellent results with bioLogic RR® Comfort



Reduction of treatments with hypotensive episodes (HE) by 52%

Reduction of treatments with at least one HE symptom by 82%

Reduction of treatments with at least one HE-induced therapeutic measure by 64%

¹) Retrospective period without bioLogic RR® Comfort (seven weeks)

²) Means over each period

You can also get detailed information from the separate brochure.

Source: Roehler O, Schmidt R, Korth S, et al.: bioLogic RR® Comfort reduces hypotensive episodes in patients prone to intradialytic hypotension. 38th Congress of the German Society of Nephrology, Munich, 2007

Convective treatment – a flexible choice

The impact of convective therapies on patient's outcome is still under debate, although recent studies show survival advantages for patients treated with high post-dilution substitution volumes.^{1,2}

Depending on the dialysis mode, substitution volumes, and dialyzers used, the right balance between middle-molecule elimination and albumin retention can patient individually be chosen.³

To choose the right therapy for your patient, the Dialog+ system offers all needed modalities:

- Online Hemodiafiltration (HDF)
- Online Hemofiltration (HF)
- High-Flux Hemodialysis

HDF treatments

The Dialog+ HDF online device offers all of the standard current substitution methods: HDF pre- and post-dilution, as well as pure hemofiltration (HF).

Our target-oriented system enables you to achieve high substitution volumes in HDF post-dilution based on efficiently monitoring the correct blood flow in relation to the ultrafiltration rate. In combination with xevonta Hi23 substitution volumes >24 l can be realized under routine conditions, accompanied by a loss of albumin of only 1.2 g/session.³ Additionally, the system monitors the formation of clottings or cloggings by measuring the inlet blood pressure at the dialyzer.

HD high flux – the alternative

Achievement of high substitution volumes depends on high blood flow rates. Due to various vascular access limitations or other patient-dependent restrictions, an adequate blood flow cannot be realized for every dialysis patient. In consequence, high substitution volumes cannot be reached for such cases.

High-flux HD treatment can offer an alternative. The use of dialyzers with high permeability (e.g., xevonta Hi23; KUF 124 ml/h/mmHg) is linked to an increased internal convection, resulting in an effective removal of middle molecules. Albumin is nearly untouched (<150 mg albumin loss/session)⁴ using this treatment option.



User Benefits with HDF online machines:

- Fluid prepared online for priming, reinfusion, and infusion bolus during treatment session
- No extra disposable needed for priming in HD standard therapy
- Lifetime of Diacap Ultra up to 150 treatments

Sources:

¹⁾ Maduell et al.: High-efficiency postdilution online hemodiafiltration reduces all-cause mortality in hemodialysis patients. JASN 2013 Feb; 24(3)

²⁾ Grooteman et al.: Effect of online hemodiafiltration on all-cause mortality and cardiovascular outcomes. JASN 2012 June; 23(6)

³⁾ Gayrard et al.: Influence of high convection volumes in removal performances of online haemodiafiltration (HDF), NDT (2013) 28 (suppl 1): i30-i32; 50th ERA-EDTA CONGRESS, 2013, Istanbul, Turkey

⁴⁾ Ficheux et al.: The use of SDS-PAGE scanning of spent dialysate to assess uraemic toxin removal by dialysis. NDT 2011 July; 26(7)

Innovative technology for the highest standards

Single needle-cross over – aimed for optimal results



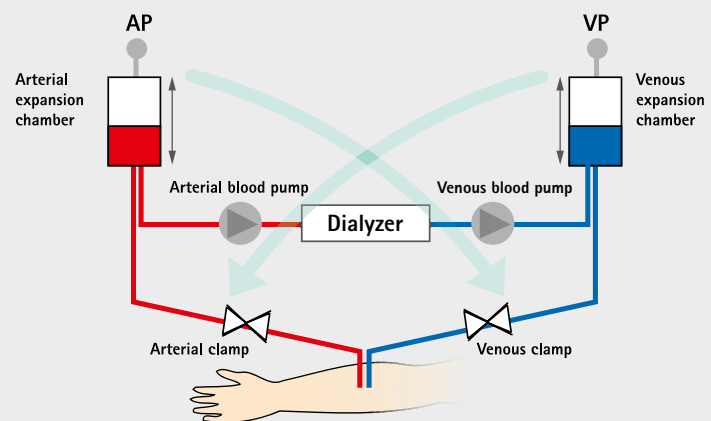
The term "single needle-cross over" (SN-CO) derives from its unique control technology. During SN-CO therapy, both blood pumps run continuously, with regularly alternating arterial and venous phases. During an arterial phase, the blood fills the arterial expansion chamber until the venous control pressure

closes the arterial clamp. During a venous phase, the blood is returned to the patient until low arterial underpressure closes the arterial clamp. The blocking clamps are thus controlled via a "crossover" function.

Patient's Benefits with single needle-cross over:

- High volumes of treated blood thanks to a constant flow of blood in the dialyzer
- Protection of the vascular access due to indirect blood transportation
- Excellent Kt/V results monitored by Adimea® due to uninterrupted diffusion process in the dialyzer¹

The single needle-cross over system



Source: ¹ Rauer et al., Clinical application of real-time Kt/V determination by ultraviolet absorbance (Adimea®) in Single-Needle-Cross-Over (SNCO) dialysis and hemodiafiltration modes (HDF-online). Poster Su441. XLVII ERA-EDTA Congress 2010. Munich June 25-28.

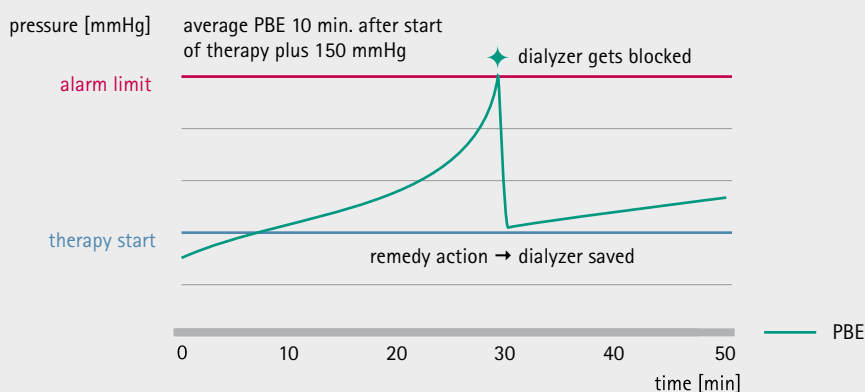
Innovative technology for the highest standards

Clotting management – preventive pressure monitoring



Measuring the blood inflow pressure in the dialyzer via PBE sensor serves as an effective method of hemolysis prophylaxis, as possible kinks in the blood line are detected early on and indicated via the alarm system. In addition, the development of a secondary membrane in the dialyzer is monitored and displayed by the PBE, so the user can keep an eye specifically on the dialyzer status at all times during treatment. The user can then use this valuable information to take action early to prevent excessive blood clotting in the dialyzer. This not only significantly reduces the time and effort needed by the user but also eliminates the costs of unnecessary filter exchange.

Preventive pressure monitoring



User Benefits with clotting management:

- Hemolysis prophylaxis through early detection of kinks in the blood tube
- Clotting management through monitoring the secondary membrane pressure in the dialyzer
- Prevention of replacement of excessively clotted filters, saving time, effort, and expense

Innovative technology for the highest standards

Treatment profiles – individual therapy selection

Every patient is unique. With this in mind, advanced dialysis equipment items feature optimum flexibility, which allows to deliver individualized care for every patient. The Dialog+ dialysis system uses six different treatment profiles, so dialysis processes can be adjusted and optimized to accommodate important treatment settings – entirely in line with patients' individual needs.

Ultrafiltration profile:

Adjusts fluid removal in the patient individually and variably

Sodium profile:

Stabilizes the patient's circulation and electrolyte levels

Bicarbonate profile:

Adjustment for acid-base balance

Heparin profile:

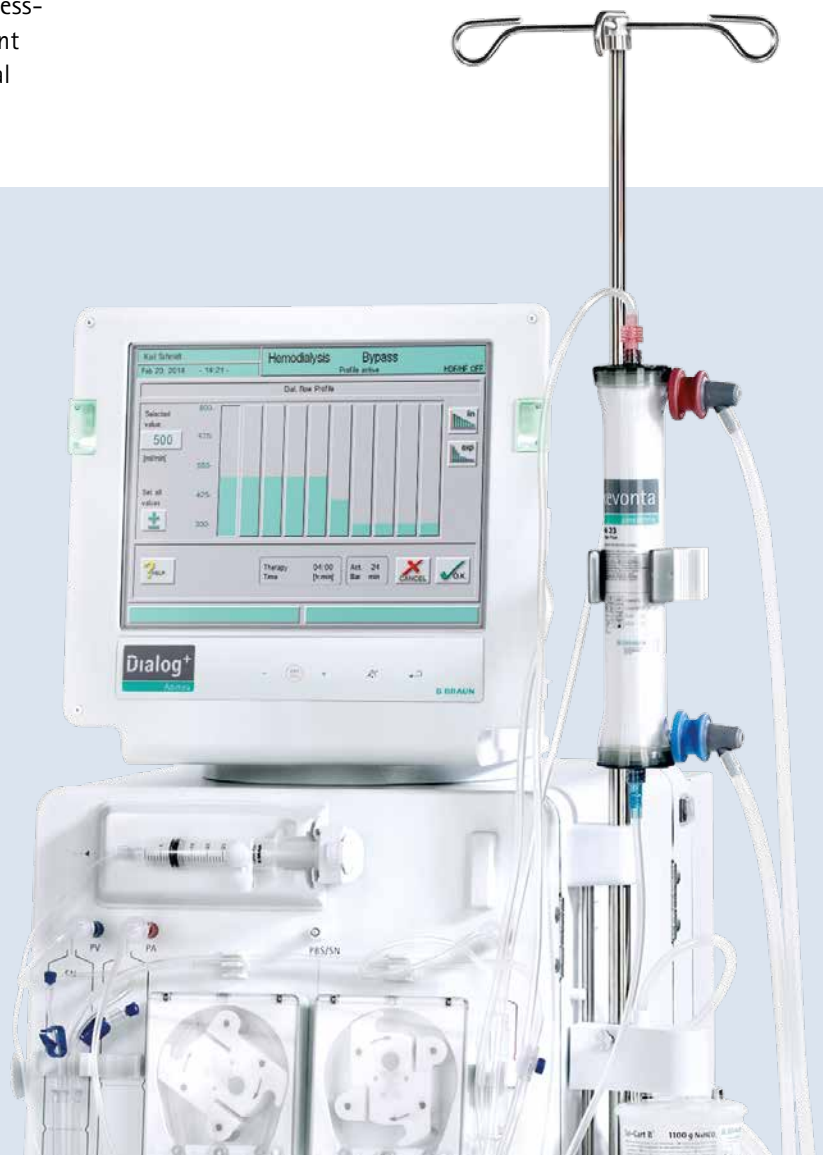
Individually adjusted for the coagulation and bleeding situation

DF flow profile:

Reduces use of concentrate, water, and energy with undiminished dialysis quality

Temperature profile:

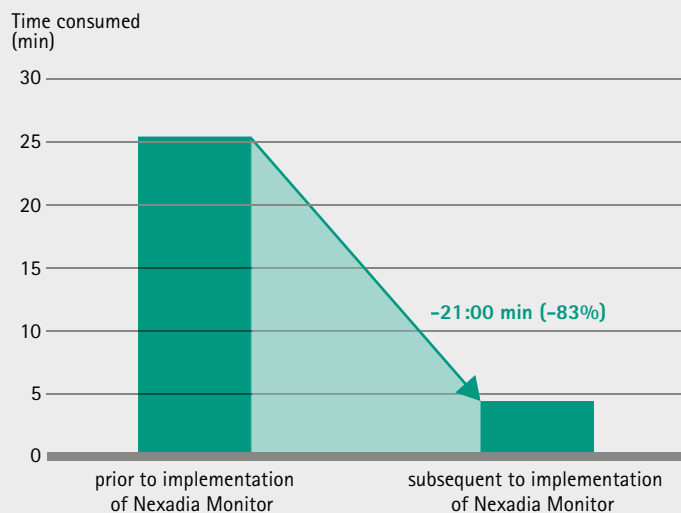
Prevents hypotensive episodes by stabilizing body temperature



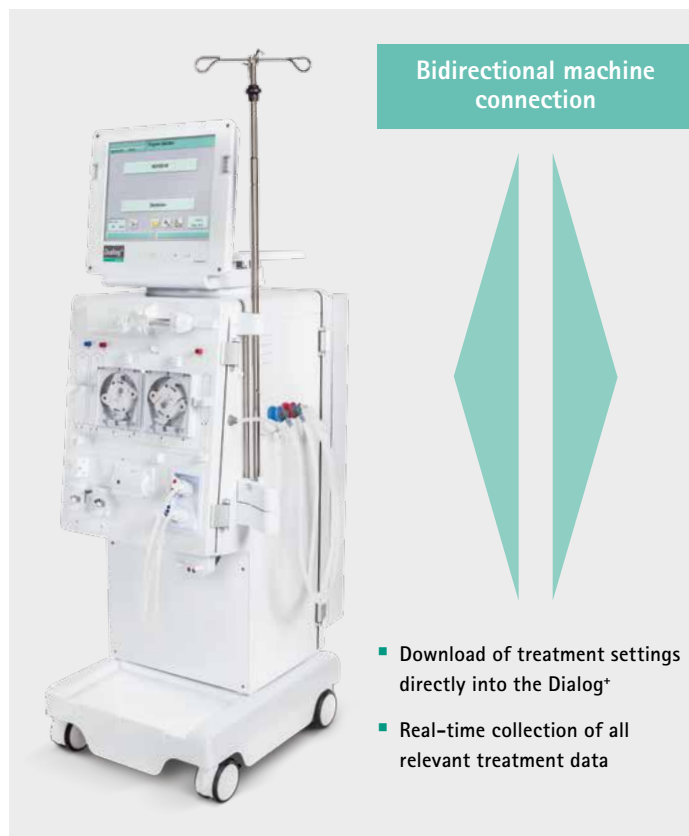
User Benefits with treatment profiles:

- Flexible combination of treatment profiles for successful therapeutic outcome
- Individual adjustment to various therapy conditions
- Convenient patient management and time savings by simply downloading patient data from Nexadia or patient therapy card

Nexadia – intelligent data management



Treatment example with a scientifically proven time saving of over 21 minutes of nursing activities per treatment. Time which nursing staff can instead devote to the patient.¹



With an eye to the medical quality of treatment and the efficiency of workflows within the dialysis facility, data that arise must be collected, processed, and archived effectively. Our Nexadia data-management system with the Nexadia Monitor software and the Nexadia Expert database can help you do just that, automating routine processes and considerably simplifying documentation for quality assurance (QA) purposes.

Nexadia Monitor: Interactive software

Nexadia Monitor is a clearly structured and user-friendly software which provides a transparent view and control of a wide range of processes in dialysis treatment.

The data generated in connected dialysis machines, analyzers (e.g., blood gas analysis), and patient scales are automatically transferred and saved to Nexadia Monitor, which enables clear visualization and convenient editing of the data. Thanks to the bidirectional data transfer between Nexadia Monitor and the connected dialysis machines, consistent and up-to-the-minute data records can be called up at any time, even during treatment.

Nexadia Expert: Flexible database

Nexadia Expert is a powerful and user-friendly database for dialysis-center therapy management. Operation of Nexadia Expert is intuitive. Functions include the editing and archiving of all treatment- and patient-related data and preparation of the documentation required for quality assurance.

Data from other medical information systems can also be imported and managed, e.g., patient master data, laboratory results, and findings and diagnoses from external physicians. Nexadia Expert is perfectly co-ordinated with the Nexadia monitoring software and automatically initiates bidirectional data transfer to and from Nexadia Monitor and any other equipment connected to the system.

Together, Nexadia Monitor and Nexadia Expert provide a highly efficient and easy to use system.

Patient scale and analyzers

External management systems

Nexadia Monitor

- Treatment support
- Therapy monitoring
- Data collection



Nexadia Expert

- Administration
- Treatment schedule
- Digital patient file
- Data evaluation and management
- Filing



Nexadia creates connections

The Nexadia system adapts to its mode of operation – not vice versa. The entire dialysis station is intelligently integrated, so that all connected dialysis and analysis devices and patient scales can communicate via Nexadia with external information systems. The software interfaces of the system make possible numerous combinations and connections, for example with hospital information systems. By means of standardized hardware interfaces, our Dialog+ dialysis devices, as well as peripheral devices such as patient scales, can be easily integrated into the network.

The Nexadia system and the Dialog+ dialysis system intelligently integrate data collection and data management. Dialog+ possesses an excellent networking capability. So, for example, the touchscreen is used as the input terminal for Nexadia.

Nexadia and Dialog+ create the best prerequisites for high-value dialysis with optimized processes.

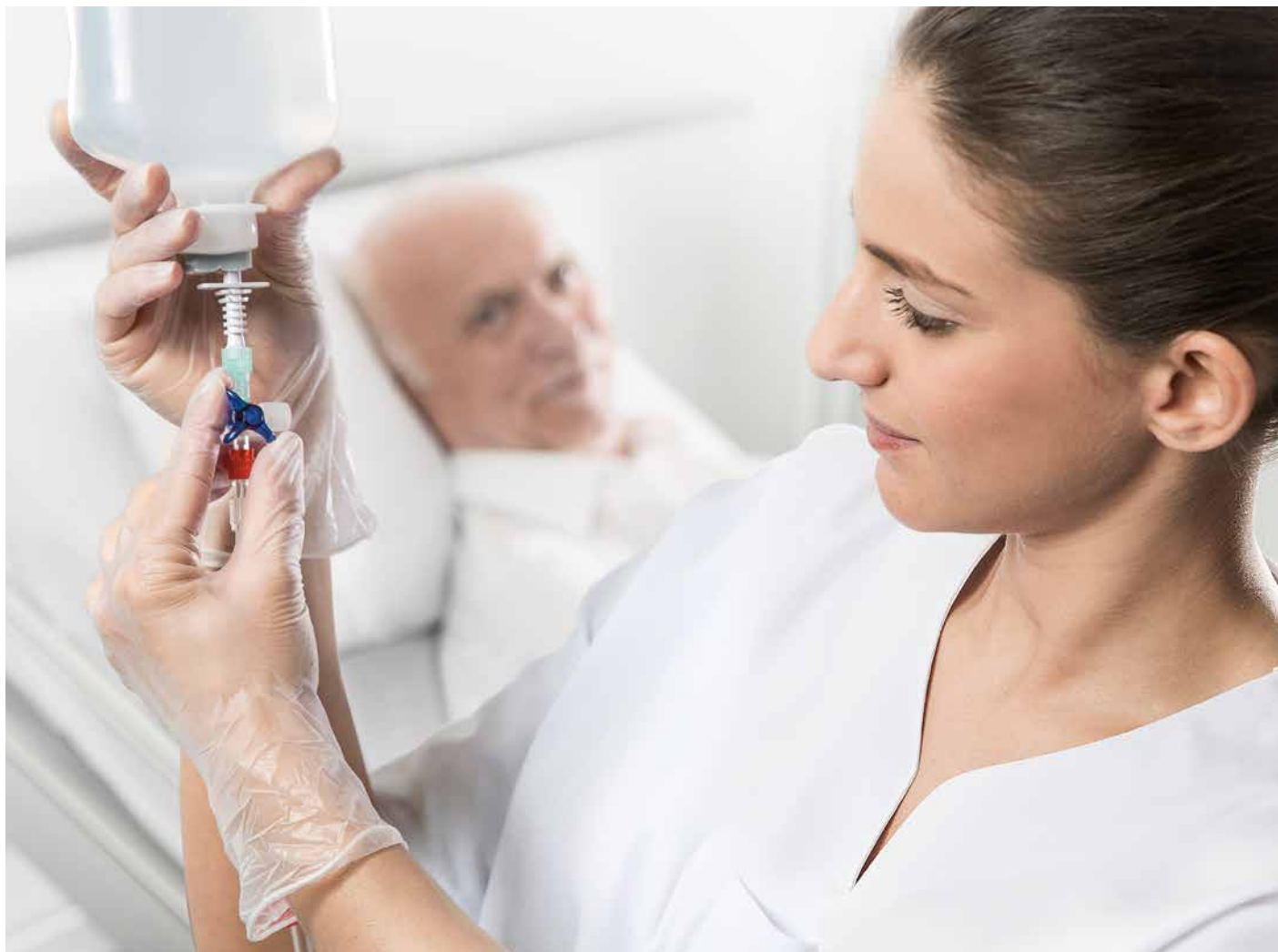
User Benefits with Nexadia:

- Easy operation through bidirectional connection
- Increased cost efficiency
- Automation of complex tasks
- Fewer administrative activities and more time for the patient
- Consistent documentation for optimized quality assurance
- Easy operation meeting practical requirements
- Automated saving and filing of relevant data

¹⁾ Source: Osterkorn, D: Networking for success in dialysis centers: A prospective comparative analysis. Gesundheitsoekonomie & Qualitätsmanagement 2006, 11: 112-115.

Intelligent solutions for optimized processes

Ecoprime – two become one

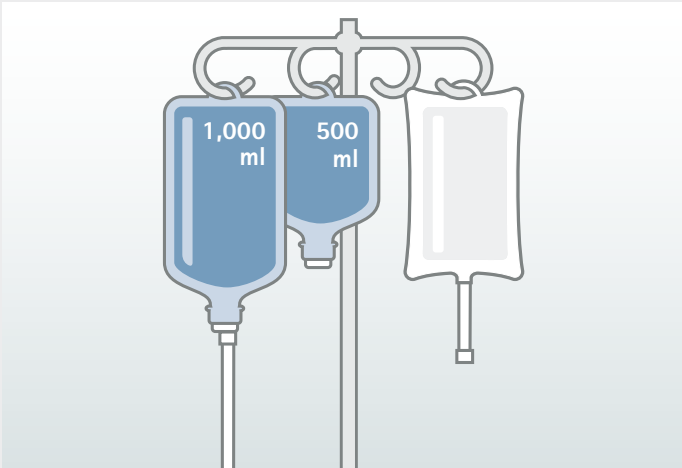


Ecoprime is the innovative system for easy and safe implementation of pre/post processing for dialysis treatment. Instead of the usual two NaCl containers, only one container is now needed for the complete dialysis session.

1,000 ml of NaCl solution is sufficient for filling and rinsing the extracorporeal system, as well as returning the blood. Moreover, the user can decide which of the common filling and rinsing procedures is best suited.

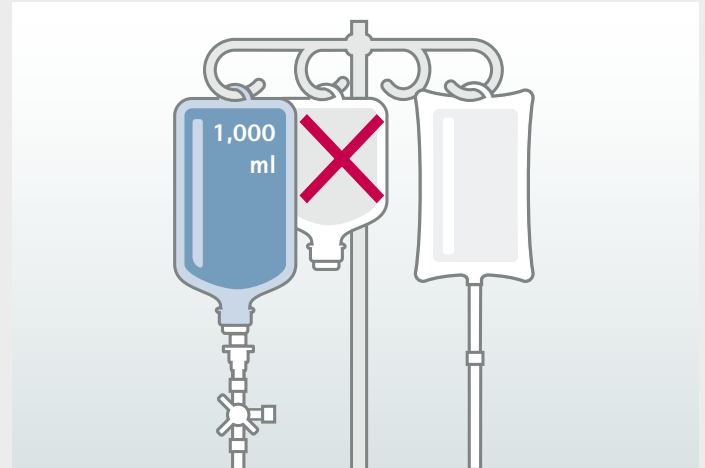


The easy route to more efficient dialysis



Conventional procedure

A combination of proven components eliminates the need for a second NaCl container. One of these components is the Discofix C three-way stopcock. It enables the desired amount of NaCl solution to be measured out reliably and accurately from only one container – from filling through to infusion.



Ecoprime system

And it does so without restricting patient safety or treatment quality.

In addition, the bloodline system is immediately ready and easy to operate.



User Benefits with Ecoprime System:

- Cost-effective: only one 1,000 ml container of NaCl solution for the entire dialysis treatment
- Ecological: thanks to waste prevention and resource conservation
- Qualified process for optimized patient safety and hygiene
- Easy-to-use: convenient and safe handling thanks to pre-connected bloodline system
- Ergonomic: reduced workload thanks to the elimination of a second NaCl container

More than repair and maintenance

Excellent service – perfectly streamlined

With the decision to use the Dialog+ dialysis machine, our customers benefit also from our highly qualified and experienced support teams and the mutually adapted service modules.

Our seven service modules at a glance

Excellent technical support

Quick and precise fault diagnosis, certified maintenance and repair, technical safety testing, and diagnostic tools – our technical support personnel increase the total lifespan and operating time of your devices.

Local presence

Certified technicians of B.Braun work in more than 100 countries worldwide. Supported by very-well-trained experts on all continents, they not only ensure the smooth operation of your machines but are always close to you.

Modern communication

Our intelligent communication and diagnostic tools, comprehensive knowledge of dialysis, and close contact with our customers are important success factors. With the digital

platforms, training center, Service Portal, and Service Wiki, we provide comprehensive information round the clock for our service organizations around the world.

Tailored training courses

Service partners can select among more than 30 training modules – worldwide, in the corresponding languages. With our mobile learning concept, we offer certified trainings that have been developed based on customer needs.

Innovative diagnosis tools

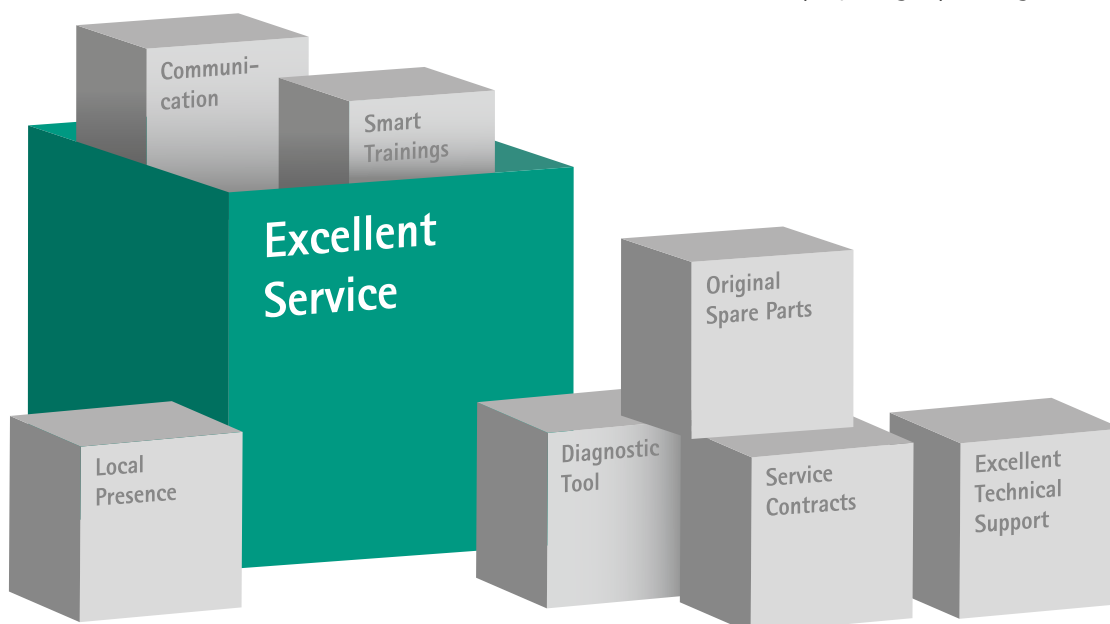
Our Trend-Viewer program automatically stores device data for a long period of time. In this way, temperatures, pressures, valve functions, and other parameters can be analyzed by our support teams worldwide. Thus, the service performance can be significantly enhanced.

Original spare parts

All Dialog+ machines worldwide are maintained with our certified original spare parts in order to ensure the quality that you expect: highest operating safety and reliability. In addition, we guarantee delivery of our original spare parts for at least 10 years.

Comprehensive service contracts

A tailored service contract helps to increase machine reliability and simplify budget planning.



More than repair and maintenance

Dialog⁺ – pioneering technology



Fit to your needs

Reliable

MTBF up to two years¹

Recognized in many specialized online forums

Service-friendly

Easy to maintain

Spare parts are available at any time

Preventive maintenance program

Simplified fault search

Modular design, simple and easy access to the hydraulic and electronic facilities

Environmentally-friendly

Optimized use of resources

Quick savings results in the consumption of water, energy, saline, and concentrate

¹) Achieved under best practice service conditions

Flexibility

Individual configuration – from one source



Available in three basic configurations:

Single pump

Double pump

HDF online

Dialog+ is distinguished by a high level of flexibility. This gives our clients maximum configuration possibilities for equipping their dialysis machines. Each dialysis device can be configured individually from three modules with many options and accessories.



5 Universal Front Tray



1 Multifunctional Tray



6 DF Filter Holder



2 Card Reader or Nexadia BSL



7 BIC Cartridge Holder



3 ABPM:
Automatic blood pressure measurement



8 Central Concentrate Supply



4 bioLogic RR Comfort

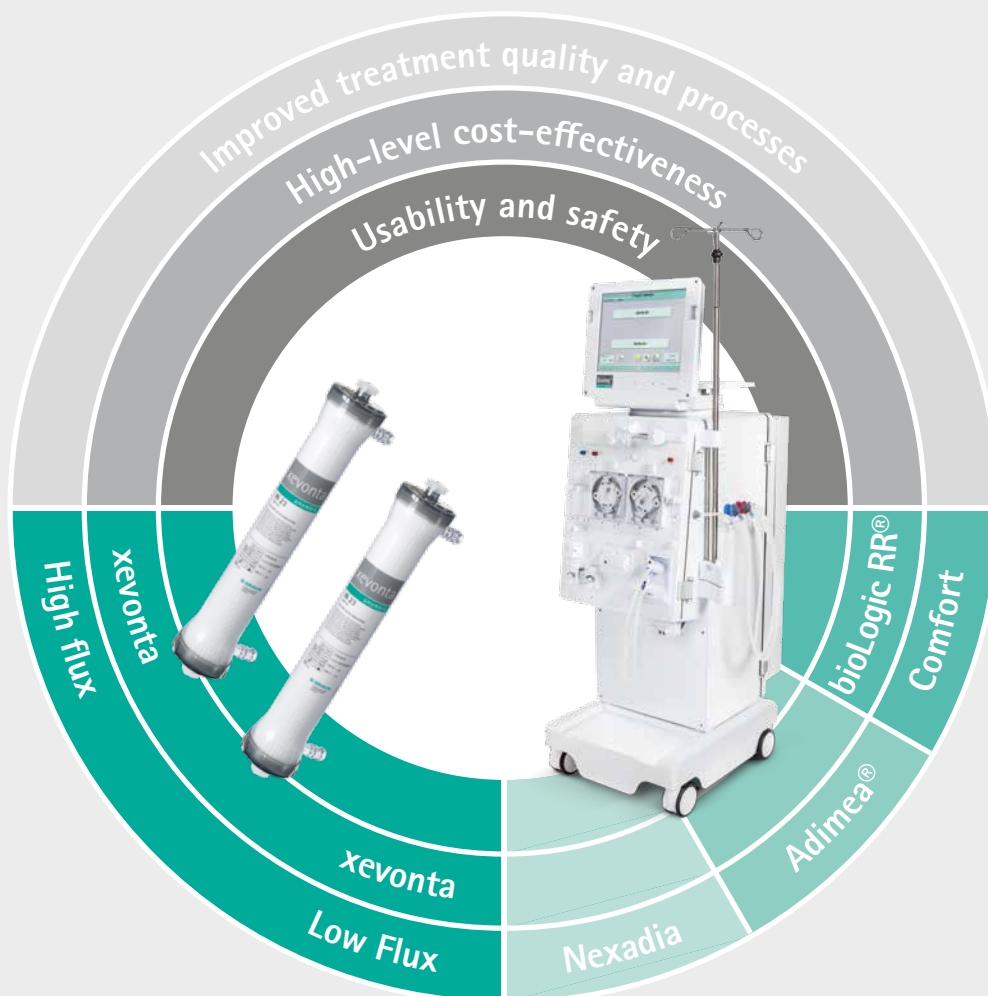


9 Adimea®

All fits together

These diverse options, accessories, and consumables from a single source offer a perfectly adapted therapy system. At B. Braun Avitum, all fits together. Our modular dialysis systems offer you all the components for a successful therapy from just one supply source – perfectly adapted to each other in their details.

The Dialog⁺ system forms the center of the dialysis process. With various configuration possibilities, a wide scope of accessories, and intelligent options, you receive the solution that corresponds to your demand for optimized medical care and cost-effectiveness.



Important information at a glance

General data

Nominal voltage:	230 V (option: 120/240 V)
Nominal frequency:	50 Hz / 60 Hz
Nominal current (max.):	max. 11 A for 230 V or 16 A for 120 V
Dimensions (W x D x H):	approx. 510 x 637 x 1678 mm
Weight (empty):	approx. 85 kg in the basic design
Water intake	
Pressure range:	0.5 to 6 bar
Temperature range:	+10 to +30 °C
Concentrate supply:	Canister/central supply/bicarbonate cartridge
Pressure range:	0 to +1 bar
Standards:	EN 60601-1: (IEC 601-1) EN 60601-2-16: (IEC 601-2-16) EN 60601-1-2: (IEC 601-1-2)
Produced in conformity with directive 93/42/EEC	

Extracorporeal circulation

Blood pump:	2-roller pump
Transportation rate:	50 to 600 ml/min
Transportation tolerance:	< 10% with pressure up to -150 mmHg
Heparin pump:	injection pump for 10-, 20-, and 30-ml syringes
Transportation rate:	0.1 to 10 ml/h
Transportation tolerance:	< 10%
Safety air detector:	ultrasound measurement in the tube
Protection system:	ultrasound detector, automatic cyclical testing during the entire operating phase
Pressure measurement at the arterial feed into the dialyzer (PBE) working area:	0 to +700 mmHg
Measurement tolerance:	±10 mmHg
Arterial input pressure measurement (PA) working area:	-400 to +400 mmHg
Measurement tolerance:	±10 mmHg
Venous backflow pressure measurement (PV) working area:	20 to +390 mmHg
Measurement tolerance:	±10 mmHg

Dialysis fluid system

Temperature working range:	selectable between +33 and +40 °C
Conductivity processing:	conductivity regulated
Working range:	- conductivity of bicarbonate 2 to 4 mS/cm or 4 to 7 mS/cm - total conductivity 12.5 to 16 mS/cm
Measurement tolerance:	±0.2 mS/cm
Flow:	300 to 800 ml/min
Tolerance:	±5%
Blood leak detector:	optical, color-specific
Alarm limit value:	> 0.50 ml/min (HCT 45%) > 0.35 ml/min (HCT 25%)
Ultrafiltration:	- volume regulated through the balance chamber, ultrafiltration through ultrafiltration pump - sequential ultrafiltration (Bergström)
Working range:	0 to +4000 ml/h
Measurement tolerance:	0.2 ml per chamber cycle, UF-pump tolerance < 1%
Degassing device:	mechanical, through regulated degassing low pressure

Disinfection

Chemical disinfection/cleaning:	automatic running of program with minimal free rinse time; various disinfection means may be installed
Thermal disinfection/cleaning:	automatic running of program at approx. 85 °C
Central thermal/chemical cleaning/rinsing:	for cleaning/rinsing the feed connection for the device with simultaneous chemical or thermal disinfection of the ring connection

Machine	Item number ¹⁾	Option	Item number	Accessories	Item number
Dialog ⁺ (Single pump)	7102005	Dialog computer interface	7107218	Universal front tray	7105239
Dialog ⁺ (Double pump)	7102013	Nexadia BSL	7102230	Multifunctional tray	7105238
Dialog ⁺ HDF online	7102072	Card reader (includes 5 cards)	7105230	Box comfort	7107322
		Patient therapy card (5 pieces)	7105232	Monitor mini-shelf	7102872
Option	Item number	Bicarbonate cartridge holder	7105171	Record holder	7102873
Adimea [®]	7102233	Central concentrate supply	7105196	Combi shelf holder	7102890
bioLogic RR [®] Comfort	7105324	Dialysate flow filter	7102102	Universal storage tray	7105500
ABPM	7102226	Staff call	7102315		
Battery	7102244	Blood pump roller 7x10	7102340		

¹⁾ More configurations possible under different item numbers.

