

formula[®] therapy



The right therapy way

TREATMENT MODES

HEMODIALYSIS

- Double-needle dialysis
- Single-needle dialysis (single pump)
- Single-needle dialysis (double pump)
- Isolated dialysis

HDF WITH ENDOGENOUS REINFUSION

- HFR Evolution[®]
- HFR Aequilibrium

HEMODIAFILTRATION ON-LINE

- HDF Pre o Post dilution
- PHF[®] Pre o Post dilution Paired HDF
- On-line Mid-dilution HDF

PROFILES (applicable to all treatments)

- **Profiles:** Partial conductivity
Total conductivity
- Ultrafiltration
Heparin

TYPES OF DIALYSING SOLUTION (usable with all the above treatments)

- **Acetate**
- Liquid bicarbonate
- Powder bicarbonate
- Standard acid concentrate
- Standard acid concentrate
- Acid concentrate without acetate LIMPHA[®]
- Acid concentrate without acetate LIMPHA[®]

TECHNICAL DATA

SENSORS

Natrium, Lector, Sphygmo - Hemox e Pulsar (optional)

BLOOD FLOW CONTROL

Double-needle flow	20 ÷ 700 mL/min - in step of 10 mL/min
Single-needle flow (single pump)	20 ÷ 700 mL/min - in step of 10 mL/min with "stroke-pressure" control
Single-needle flow (double pump)	20 ÷ 700 mL/min - in step of 10 mL/min with "stroke-pressure" control and automatic efficiency and switching pressure adaptive control system.

INFUSION

Infusion flow in on-line HDF	from 0.5 to 8 Kg/h
Infusion flow in PHF [®] (on-line HDF)	from 0.5 to 21 Kg/h
Infusion flow in HFR	from 0.5 to 8 Kg/h
On-line infusion	± 10%
End-infusion detector	ultrasound

EXTRACORPOREAL CIRCUIT PRESSURE MONITORING

Venous pressure	- 400 ÷ 800 mmHg
Arterial pressure	- 400 ÷ 800 mmHg
Infusion pressure (Pinf)	- 400 ÷ 800 mmHg
Prefilter pressure (Ppre)	- 400 ÷ 800 mmHg
Blood filter ultrafiltration pressure (Pufe) (in HFR only)	- 400 ÷ 800 mmHg
HFR blood filter TMP	Ppre - Pufe

HEPARIN PUMP

Syringe capacity	20, 30, 50 mL
Infusion flow	0.1 ÷ 10 mL/h - in step of 0.1 mL/min

AIR DETECTOR

Detection method	ultrasound
Detection	on venous line
Sensitivity	bubble ≥ 100 µl

BLOOD DETECTOR

Detection method	infrared rays
Detection	on arterial line on venous drip chamber

DIALYSIS FLUID PRIMING AND MONITORING

Flow	300, 500, 800 mL/min
Temperature	35° ÷ 39°C
Double ultrafiltration	Forclean Polyphe Plus + Forclean Polyphe i or Forclean Plus + Forclean i

DIALYSIS FLUID CONDUCTIVITY

Total	12.1 ÷ 15.7 mS/cm
Partial	2.4 ÷ 3.6 mS/cm (3 mS/cm) 4.0 ÷ 6.0 mS/cm (5 mS/cm)

ULTRAFILTRATION CONTROL

Type of control	single pass through Coriolis flowmeter
Hourly weight loss	0.1 ÷ 4 Kg/h
Accuracy	± 1 g/min, ± 1% total UF

APPLICATIONS

Kt/V, thermal balance, sodium balance, Cardium (if Pulsar is present) measurement

BLOOD LEAK DETECTOR

Detection method	optical
Detection method in HFR	optical
Sensitivity	0.5 mL/min of blood 25% hematocrit

DISINFECTIONS

Full chemical disinfection	Amuchina, Oxagal (38°C), user
Full chemical disinfection with dwell time	Oxagal agent, duration < 80 h
Hot descaling	Citric acid 12%, user. Max 85°C - Mean 50°C
Chemical descaling	Acetic acid 10% (38°C), User
Heat disinfection	Max 94°C - Mean 85°C
Weekly disinfection	configurable
Centralised disinfection	configurable

DIMENSIONS AND WEIGHT

Height	1740 mm
Depth	755 mm
Width	500 mm
Weight	91 kg

WATER SUPPLY

Quality	In conformity with national and international standards, es. AAMI WQD - 1998
Input temperature	5°C ÷ 32°C
Input pressure	0.9 ÷ 4.0 bar
Water filter	Multipure
Centralised kit	Input water pressure 0.9 - 7.5 bar; Input temperature pressure 5°C - 94°C (in rinsing and maintenance).

POWER SUPPLY

Voltage	110/240 VAC ± 10%
Frequency	from 50 to 60 Hz
Power consumption	mean 1000W (flow 800 mL/min - Tin 17, 5° C - Tdial 37,5°C - Tamb 20°C) maximum 230V 8A, 115V 16A

ENVIRONMENT OPERATING CONDITIONS

Temperature	10°C ÷ 40°C
Relative umidity	0 ÷ 95%
Pressure	atmospheric

EXTERNAL CONNECTIONS

RS232 interface for external connections (opto-isolated)

SAFETY STANDARDS

General standards	IEC 60601-1, EN 60601-1
Collateral standards	IEC 60601-1-2, EN 60601-1-2, IEC 60601-1-4, EN 60601-1-4
Particular standards	IEC 60601-2-16, EN 60601-2-16, IEC 60601-2-30, EN 60601-2-30
Other standards	ISO 14971, EN ISO 14971

