

# F O R M U L A 2 0 0 0



*The right therapy way*



# formula<sup>®</sup> 2000

## New frontiers in dialysis



### TREATMENT MODALITY

- Double needle dialysis
- Single needle dialysis (one pump)
- Single needle dialysis (two pumps)
- Isolated dialysis
- Acetate dialysis
- LYMPHA<sup>®</sup> Acetate Free dialysis
- Bicarbonate dialysis (liquid)
- Bicarbonate dialysis (powder)
- Profiling: Sodium Bicarbonate Ultrafiltration Heparin
- HDF: Hemodiafiltration
- HFR Evolution<sup>®</sup>: HDF with endogenous reinfusion
- PHF<sup>®</sup>: Paired HDF

### TECHNICAL DATA

#### BLOOD FLOW CONTROL

|   |  |
|---|--|
| Flow rate double needle, HDF, HFR, PHF <sup>®</sup> | 20 ÷ 700 mL/min-step of 10 mL/min  |
| Flow rate single needle                             | 20 ÷ 700 mL/min step of 10 mL/min with "stroke-pressure" control   |
| Flow rate single needle                             | 20 ÷ 700 mL/min step of 10 mL/min with "stroke-pressure" control by an automatic adaptable system of efficiency and switching pressure |

#### INFUSION

|   |                     |
|---|---------------------|
| Infusion flow in HDF                            | from 0.5 to 8 Kg/h  |
| Infusion flow in PHF <sup>®</sup> (HDF on-line) | from 0.5 to 21 Kg/h |
| Infusion flow in HFR                            | 0.5 ÷ 8 l/h         |
| Infusion accuracy in HDF                        | ±10%                |
| End-infusion detector                           | ultrasound          |

#### BLOOD PRESSURE SUPERVISION

|                           |                 |
|---------------------------|-----------------|
| Venous pressure           | -400 ÷ 800 mmHg |
| Arterial pressure         | -400 ÷ 800 mmHg |
| Prefilter pressure (Ppre) | -400 ÷ 800 mmHg |

#### HEPARIN PUMP

|              |               |
|--------------|---------------|
| Syringe size | 20, 30, 50 cc |
| Flow rate    | 0.1 ÷ 10 cc/h |

#### AIR DETECTION

|                  |                     |
|------------------|---------------------|
| Detection method | ultrasound          |
| Where            | venous blood line   |
| Sensitivity      | air bubble ≥ 100 µl |

#### BLOOD DETECTOR

|                  |  |
|------------------|--|
| Detection method | infrared light                                   |
| Where            | on arterial blood line<br>on venous drip chamber |

#### DIALYSIS FLUID PREPARATION AND MONITORING

|             |                      |
|-------------|----------------------|
| Flow rate   | 300, 500, 800 mL/min |
| Temperature | 35° ÷ 39°C           |
| Ultrafilter | Forclean Plus        |

#### DIALYSIS FLUID CONDUCTIVITY

|            |                           |
|------------|---------------------------|
| Total      | 12.1 ÷ 15.7 mS/cm         |
| First step | 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% of total UF  |
| Accuracy (HDF)     | ± 1g/min, ± 1% of weight loss, ± 1,3 of total infused dialysis fluid |

#### BLOOD LEAK DETECTOR

|                          |                                    |
|--------------------------|------------------------------------|
| Detection method         | optical                            |
| Detection method for HFR | optical                            |
| Sensitivity              | 0,5 mL/min of blood hematocrit 25% |

#### DISINFECTION / CLEANING

|                                      |  |
|--------------------------------------|--|
| Chemical disinfection/cleaning:      | Hypochlorite ≥ 7%, Amuchina, Peresal, Acetic Acid 10%, Tiutol, HD Instrunet, Oxagal, Renaxid, Puristeril, User |
| Chemical full disinfection/cleaning: | Hypochlorite ≥ 7%, Dialox, Amuchina, Peresal, Tiutol, HD Instrunet, Oxagal, Renaxid, User                      |
| Heat chemical descaling:             | Citric Acid (Average temp. 50° C)  |
| Heat disinfection:                   | Average temperature 85° C  |
| Weekly disinfection/cleaning:        | configurable   |
| Centralised disinfection/cleaning:   | configurable   |

#### DIMENSIONS AND WEIGHT

|        |         |
|--------|---------|
| Height | 1740 mm |
| Depth  | 755 mm  |
| Width  | 500 mm  |
| Weight | 89 Kg   |

#### WATER SUPPLY

|                   |   |
|-------------------|---|
| Quality           | fluid should comply with international and national standards, e.g. AAMI WQD-1998 |
| Inlet temperature | 5°C ÷ 32°C  |
| Inlet pressure    | 0.9 ÷ 4.0 bar   |
| Water filter      | Multipure   |

#### POWER SUPPLY

|                   |                   |
|-------------------|-------------------|
| Main voltage      | 110/240 VAC ± 10% |
| Frequency         | 50 / 60 Hz        |
| Power consumption | max 1,5 kW        |

#### OPERATING ENVIRONMENT

|                   |             |
|-------------------|-------------|
| Temperature       | 10°C ÷ 40°C |
| Relative humidity | 0 ÷ 95%     |
| Air pressure      | atmospheric |

#### EXTERNAL CONNECTIONS (optional)

RS232 interface for external connections (opto-isolated)

#### SAFETY

|                       |   |
|-----------------------|---|
| General standards:    | IEC 60601-1, EN 60601-1   |
| Collateral standards: | IEC 60601-1-1, EN 60601-1-1<br>IEC 60601-1-2, EN 60601-1-2<br>IEC 60601-1-4, EN 60601-1-4 |
| Particular standards: | IEC 60601-2-16, EN 60601-2-16<br>IEC 60601-2-30, EN 60601-2-30                            |
| Other standards:      | ISO 14971, EN ISO 14971   |



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